PLANNING BOARD MEETING

Lansing Town Hall Board Room
Monday, October 26, 2026
6:30 PM

AGENDA

SUBJECT TO CHANGE

Meeting is open to the public and streamed live on YouTube.

VIEW THE MEETING LIVE - TOWN OF LANSING YOUTUBE CHANNEL

To find our YouTube Channel - Go to *www.lansingtownny.gov*, click on the "YouTube" Icon (red square) located on the bottom left corner of our Home Page.

1. **Call Meeting to Order**
2. **Roll Call**
3. **Action Items**
   a. Draft Zoning Code Amendment
   b. **Project:** Minor Subdivision – 295 Buck Road

      Applicant: Kelly Gavitt, Owner

      Location: 295 Buck Road TPN 28.-1-48.1

      Project Description: Minor Subdivision of 295 Buck Road (14.3 ac) to create Parcel 1 (5 ac), Parcel 2 (5 ac), and Parcel 3 (4.3 ac). This project is located in the RA zoning district.

      SEQR: Unlisted/Uncoordinated Action

      Anticipated Action: Sketch Review, Set Public Hearing

   c. **Project:** Site Plan Review - 18 Eastlake Road

      Applicant: David Johnson, Owner

      Location: 18 Eastlake Road TPN 42.-1-54.1

      Project Description: Site Plan Review of proposed expansion of a recreational facility. This project is located in the R1 Residential Low-Density District.

      SEQR: Unlisted/Uncoordinated Action

      Anticipated Action: Public Hearing, SEQR

   d. **Project:** Site Plan Review - 339 Jerry Smith Road

      Applicant: Melissa Aucompaugh, Environmental Design Partnership Representative

      Location: 339 Jerry Smith Road TPN 16.-1-10.2

Project Description: Site Plan Review of proposed large scale battery energy storage facility. This project is located in the AG zoning district.

SEQR: Unlisted/Coordinated Action

Anticipated Action: Consideration of proposed site plan, SEQR

e. **Project:** Site Plan Review - 430 Peruville Road

Applicant: Scott Gibson

Location: 430 Peruville Road TPN 30.-1-28.212

Project Description: Site Plan Review of existing contractors' yard. This project is located in the AG zoning district.

SEQR: Unlisted/Uncoordinated Action

Anticipated Action: Public Hearing, SEQR

f. **Town Board Liaison Report**

4. Adjourn Meeting

In accordance with the Americans with Disabilities Act, persons who need accommodation to attend or participate in this meeting should contact the Town Clerk's Office at 607-533-4142. Request should be made 72 hours prior to the meeting.

RESOLUTION 26-132

RESOLUTION INTRODUCING PROPOSED LOCAL LAW #__ OF 2026 OF THE TOWN OF LANSING TO AMEND CERTAIN PROVISIONS OF THE CODE OF THE TOWN OF LANSING CHAPTER 270: ZONING AND SCHEDULING PUBLIC HEARING FOR SAID PROPOSED LOCAL LAW

WHEREAS, the Town Board of the Town of Lansing is authorized to provide for the governance of the town and guide development and land uses in the town; and

WHEREAS, the Town Board is authorized to adopt zoning provisions and local laws that advance and protect the health, safety, and welfare of the community; and

WHEREAS, on July 14, 2026, Governor Hochul issued Executive Order 62 Establishing a Temporary Moratorium on Data Centers in New York while the State Develops Higher Standards for Data Center Development and Benefits Blueprint to Support Localities; and

WHEREAS, Executive Order 62 creates considerable uncertainty for the Town of Lansing; and

WHEREAS, the Town Board has concerns regarding the potential impacts of the siting and operation of cryptocurrency data mines and data centers on land use development, energy use, water use, water quality, air quality, noise, lighting, quality of life, and other potential environmental impacts that impact the health, safety, and welfare of the community; and

WHEREAS, the Town Board determined it is in the best interests of the Town of Lansing to take action regarding the potential siting and operation of cryptocurrency data mines and data centers; and

WHEREAS, said proposed Local Law proposes amending Town of Lansing Zoning Code § 270-3 by defining “Cryptocurrency”, “Cryptocurrency Data Mine”, “Data Center”, “General Processing” and otherwise taking no action to amend the Schedule of Land Uses or Activities;

WHEREAS, the Code of the Town of Lansing § 270-8 provides that any land use not specifically permitted under Chapter 270 shall be a disallowed use unless a use variance therefor shall be properly obtained, unless such use is a lawful pre-existing, non-conforming use, or unless such use is permitted in any newly created zone; and

WHEREAS, the Town of Lansing Zoning Board of Appeals previously interpreted general processing to include anything that can be processed by a business;

WHEREAS, the Town Board has determined that it is necessary to define “General Processing” so that such use only includes the processing of tangible materials, commodities, or products and does not include facilities whose principal function is the storage, processing, transmission, or management of digital data by computer servers or other information technology equipment;

WHEREAS, without such corresponding amendment to define general processing, one could continue to interpret the Schedule of Land Uses or Activities to permit data centers as facilities for general processing;

WHEREAS, the Town Board has determined that this action is a Type I SEQRA Action due to said proposed Local Law proposing to change the allowed uses in one or more zones that are in excess of 25 acres; and

WHEREAS, the Town Board is the only Involved Agency and thus hereby declares itself as Lead Agency for environmental review; and

WHEREAS, the Town Board has determined that this proposed action is subject to General Municipal Law § 239-m; and

WHEREAS, the Town Board has determined that this proposed action is subject to Town Zoning Code § 270-58; and

WHEREAS, upon deliberation there upon, the Town Board of the Town of Lansing it is hereby

RESOLVED, that the Town Clerk is hereby authorized and directed to cause a copy of said proposed Local Law to be delivered to the Town of Lansing Planning Board and the Tompkins County Planning Department; and it is further

RESOLVED, that a public hearing will be held on the 17th day of November, 2026, at 6:31 pm, to consider public input and comments upon such proposed Local Law, and to hear all persons, at the Lansing Middle School Auditorium at 6 Ludlowville Road, Lansing, New York, interested in the subject thereof, and to take such action thereon as is required or permitted by law; and it is further

RESOLVED, that the Town Clerk of the Town of Lansing, Tompkins County, New York, is hereby authorized and directed to cause a Notice of Public Hearing to be published in the official newspaper of the Town of Lansing, and also to post a copy thereof on the Town signboard maintained by the Town Clerk, in accord with the law; and it is further

RESOLVED, the Town Board is the only Involved Agency and thus hereby declares itself as Lead Agency for environmental review.

The question of the adoption of such Resolution was duly motioned by Councilperson Joseph Wetmore, duly seconded by Councilperson Laurie Hemmings, and put to a roll call vote with the following results:

Councilperson Judy Drake – Noe
Councilperson Christine Montague – Noe
Supervisor Ruth Groff – Aye
Councilperson Laurie Hemmings – Aye
Councilperson Joseph Wetmore – Aye

Accordingly, the foregoing Resolution was approved, carried, and duly adopted as amended on October 21, 2026.

Local Law # ___ of 2026

A LOCAL LAW OF THE TOWN OF LANSING TO AMEND THE CODE OF THE TOWN OF LANSING CHAPTER 270: ZONING TO DEFINE CRYPTOCURRENCY DATA MINES, DATA CENTERS, AND GENERAL PROCESSING FACILITIES

This Local Law hereby amends certain sections of Chapter 270 of the official code of the Town of Lansing. The changes amend definitions within the official code.

The Town Board of the Town of Lansing, New York, pursuant to Resolution dated _____, 202_, does hereby adopt and pass this Local Law Number # __ of 202_, and therefore, be it so enacted as follows:

SECTION 1 - AUTHORITY: This local law is adopted pursuant to the powers granted by the Town Law of the State of New York § 130, Town Law Article 16, and Municipal Home Rule Law § 10, which authorize the Town of Lansing to adopt local laws providing for the governance of the town and to guide development and land uses in the town, and authorizing the Town of Lansing to adopt zoning provisions and local laws that advance and protect the health, safety, and welfare of the community.

SECTION 2 - PURPOSE: The purpose of this local law is to define "cryptocurrency", "cryptocurrency data mine", "data center", and "general processing" and otherwise take no action to include "cryptocurrency data mine" or "data center" as uses within the Schedule of Land Uses or Activities, thereby establishing that cryptocurrency data mines and data centers are disallowed uses pursuant to the Town of Lansing Zoning Code § 270-8.

SECTION 3 - AMENDMENTS TO THE TOWN OF LANSING CODE CHAPTER 270: The Town of Lansing Zoning Code § 270-3 entitled "Definitions" is amended by adding the following definitions in appropriate alphabetical locations:

CRYPTOCURRENCY A digitally generated currency rooted in blockchain technology.

CRYPTOCURRENCY DATA MINE A specific type of data center using a facility or use of land, buildings, or structures where computing equipment is used to solve complex mathematical algorithms in connection with verifying and adding transactions to a blockchain or other distributed ledger, commonly known as cryptocurrency mining.

DATA CENTER A facility or group of facilities located on the same or contiguous sites used primarily to house computer servers, associated components, or computing or telecommunications equipment for the storage, processing, distribution, and/or management of data. Such term includes equipment and accessories customary to data centers including but not limited to network equipment, systems, servers, appliances, air handlers, power generators, water cooling and storage facilities, utility substations, and other associated utility infrastructure.

GENERAL PROCESSING A facility or premises in which tangible materials, commodities, or products are physically treated, transformed, fabricated, assembled, or otherwise altered through

mechanical, chemical, thermal, or other physical production processes. The term includes facilities engaged in the processing of food, agricultural products, raw materials, or manufactured goods. The term does not include facilities whose principal function is the storage, processing, transmission, or management of digital data by computer servers or other information technology equipment such as a data center or cryptocurrency data mine.

SECTION 4 - CODIFICATION: The amendments and regulations shall be incorporated into the Town Code, and the incorporator may designate such new section as make for a coherent Town Code. Nothing in this local law is intended to disrupt or affect the existing Town Code, except to the extent any existing code provision is herein expressly superseded or repealed. All other provisions of the Town Code are hereby reaffirmed or continued in force and effect, and the codification of these amendments shall follow the proceed for amending the code as set forth in the Town's local laws, including but not limited to Local Law # 2 of 2020.

SECTION 5 - ENFORCEMENT: Any violation of this Local Law shall be enforced in accordance with this Chapter, the Town Code, or applicable law.

SECTION 6 - SEVERABILITY: The invalidity or unenforceability of any section, subsection, paragraph, sentence, clause, provision, or phrase of the aforementioned sections as declared by the valid judgement of any court of competent jurisdiction to be unconstitutional must not affect the validity or enforceability of any other section, subsection, paragraph, sentence, clause, provision, or phrase, which must remain in force and effect.

SECTION 7: EFFECTIVE DATE: This Local Law shall take effect immediately.

AGRICULTURAL DATA STATEMENT

Per § 305-a of the New York State Agriculture and Markets Law, any application for a special use permit, site plan approval, use variance, or subdivision approval requiring municipal review and approval that would occur on property within a New York State Certified Agricultural District containing a farm operation or property with boundaries within 500 feet of a farm operation located in an Agricultural District shall include an Agricultural Data Statement.

A. Name of applicant: Kelly L. Gavitt
Mailing address: 295 Buck Rd.
Lansing NY 14882

B. Description of the proposed project: Subdivide into 3 parcels

C. Project site address: 295 Buck Rd. Lansing Town: Lansing

D. Project site tax map number: 28.-1-48.1 and 48.2

E: The project is located on property:
☐ within an Agricultural District containing a farm operation, or
☐ with boundaries within 500 feet of a farm operation located in an Agricultural District.

F. Number of acres affected by project: 14.3

G. Is any portion of the project site currently being farmed? until land is separated
☒ Yes. If yes, how many acres 5 or square feet _____ ?
☐ No.

H. Name and address of any owner of land containing farm operations within the Agricultural District and is located within 500 feet of the boundary of the property upon which the project is proposed.

I. Attach a copy of the current tax map showing the site of the proposed project relative to the location of farm operations identified in Item H above.

FARM NOTE

Prospective residents should be aware that farm operations may generate dust, odor, smoke, noise, vibration and other conditions that may be objectionable to nearby properties. Local governments shall not unreasonably restrict or regulate farm operations within State Certified Agricultural Districts unless it can be shown that the public health or safety is threatened.

Kelly L. Gavitt
Name and Title of Person Completing Form

9/11/24
Date

Short Environmental Assessment Form
Part 1 - Project Information

Instructions for Completing

Part 1 – Project Information. The applicant or project sponsor is responsible for the completion of Part 1. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification. Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information.

Complete all items in Part 1. You may also provide any additional information you believe will be needed by or useful to the lead agency; attach additional pages as necessary to supplement any item.

Part 1 – Project and Sponsor Information

Name of Action or Project:

Project Location (describe, and attach a location map):
295 Buck Rd Lansing NY 14882

Brief Description of Proposed Action:
Split 14.3 acres into 3 separate parcels

Name of Applicant or Sponsor:	Telephone: 607-351-7313
Kelly L. Gavitt	E-Mail: Kgavitt23@gmail.com

Address:
295 Buck Rd.

City/PO:	State:	Zip Code:
Lansing	NY	14882

	NO	YES
1. Does the proposed action only involve the legislative adoption of a plan, local law, ordinance, administrative rule, or regulation? If Yes, attach a narrative description of the intent of the proposed action and the environmental resources that may be affected in the municipality and proceed to Part 2. If No, continue to question 2.	☒	☐
2. Does the proposed action require a permit, approval or funding from any other government Agency? If Yes, list agency(s) name and permit or approval:	☒	☐

3. a. Total acreage of the site of the proposed action? 14.3 acres
   b. Total acreage to be physically disturbed? 0 acres
   c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 14.3 acres

4. Check all land uses that occur on, are adjoining or near the proposed action:
   ☐ Urban ☐ Rural (non-agriculture) ☐ Industrial ☐ Commercial ☒ Residential (suburban)
   ☐ Forest ☒ Agriculture ☐ Aquatic ☐ Other(Specify):
   ☐ Parkland

	NO	YES	N/A
5. Is the proposed action,			
a. A permitted use under the zoning regulations?	☐	☒	☐
b. Consistent with the adopted comprehensive plan?	☐	☒	☐

	NO	YES
6. Is the proposed action consistent with the predominant character of the existing built or natural landscape?	☐	☒

	NO	YES
7. Is the site of the proposed action located in, or does it adjoin, a state listed Critical Environmental Area?		
If Yes, identify:	☑	☐

	NO	YES
8. a. Will the proposed action result in a substantial increase in traffic above present levels?	☒	☐
b. Are public transportation services available at or near the site of the proposed action?	☒	☐
c. Are any pedestrian accommodations or bicycle routes available on or near the site of the proposed action?	☒	☐

	NO	YES
9. Does the proposed action meet or exceed the state energy code requirements?		
If the proposed action will exceed requirements, describe design features and technologies:	☐	☒

	NO	YES
10. Will the proposed action connect to an existing public/private water supply?		
If No, describe method for providing potable water: _____	☐	☒

	NO	YES
11. Will the proposed action connect to existing wastewater utilities?		
If No, describe method for providing wastewater treatment: _____	☒	☐

	NO	YES
12. a. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places?	☑	☐
b. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory?	☑	☐

	NO	YES
13. a. Does any portion of the site of the proposed action, or lands adjoining the proposed action, contain wetlands or other waterbodies regulated by a federal, state or local agency?	☐	☑
b. Would the proposed action physically alter, or encroach into, any existing wetland or waterbody?	☒	☐
If Yes, identify the wetland or waterbody and extent of alterations in square feet or acres: _____		

14. Identify the typical habitat types that occur on, or are likely to be found on the project site. Check all that apply:

☐ Shoreline ☐ Forest ☒ Agricultural/grasslands ☐ Early mid-successional

☐ Wetland ☐ Urban ☐ Suburban

	NO	YES
15. Does the site of the proposed action contain any species of animal, or associated habitats, listed by the State or Federal government as threatened or endangered?	☑	☐
16. Is the project site located in the 100-year or 500-year flood plain?	☑	☐
17. Will the proposed action create storm water discharge, either from point or non-point sources? If Yes,	☑	☐
a. Will storm water discharges flow to adjacent properties?	☐	☐
b. Will storm water discharges be directed to established conveyance systems (runoff and storm drains)?	☐	☐
If Yes, briefly describe: _____		
18. Does the proposed action include construction or other activities that would result in the impoundment of water or other liquids (e.g., retention pond, waste lagoon, dam)? If Yes, explain the purpose and size of the impoundment: _____	☑	☐
19. Has the site of the proposed action or an adjoining property been the location of an active or closed solid waste management facility? If Yes, describe: _____	☑	☐
20. Has the site of the proposed action or an adjoining property been the subject of remediation (ongoing or completed) for hazardous waste? If Yes, describe: _____	☑	☐
21. Is the project located within, or within ½ mile of, a disadvantaged community?	☑	☐
If No, could impacts from the project affect a disadvantaged community?	☑	☐
If Yes to either question in 21, answer the following question.		
a. Identify the potential pollution impacts of the project, either direct or indirect, that may occur within the disadvantaged community (e.g., wastewater discharges, air emissions, noise, odors, solid or hazardous waste generation or management):		

I CERTIFY THAT THE INFORMATION PROVIDED ABOVE IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE

Applicant/sponsor/name: Kelly L. Gavitt Date: 9/11/26

Signature: Kelly L. Gavitt Title: Owner

SUBDIVISION PLAT
~ LANDS OF ~
KELLY L. GAVITT
PART OF MILITARY LOT NO. 78
TOWN OF LANSING ~ COUNTY OF TOMPKINS
STATE OF NEW YORK
TAX MAP NO. 28.-1-48.1
REFERENCE DEED: INSTRUMENT NO. 2017-06141

MAGNETIC NORTH PER OUR FILES

SUBJECT TO RIGHTS OF PUBLIC FOR HIGHWAY PURPOSES

BUCK ROAD
(FORMERLY KNOWN AS PETERS ROAD)

RADIUS: 707.60'
ARC: 334.09'
O/H T
30.00'
N 79°29'00" E
162.00'
196.93'
GRASS APRON
ASSUMED ROAD BOUNDS
34.53'
O/H E/F.O.
TIE: 745'± AS MEASURED ALONG THE CENTERLINE OF BUCK ROAD TO ITS INTERSECTION WITH THE CENTERLINE OF CONLON ROAD.
35.03'
BARN
PORTABLE SHED
8.3'
30.7'
S 10°31'00" E
120.00' P-P
150.00' TOTAL
CONC. CULVERT PIPE
NYSEG POLE LINE EASEMENT INSTRUMENT NO. 509252-005
ELEC. METER PANEL
U/G UTILS.
LOCATION
3.1'
COOP
SHED
4.6'
GRAVEL PARKING
APPROX.
PAVED DRIVEWAY
WELL
PORCH
2 STORY HOUSE NO. 295
PATIO
DECK
72.5'
SEPTIC TANK
ABOVE GROUND POOL
NOTE: CLIFFORD M. BUCK RESERVED LIFE USE OF THIS BARN AND AREA 15' WIDE AROUND IT. SEE INSTRUMENT NO. 489698-001. MR. BUCK DIED ON 05/12/2018 THUS TERMINATING THE LIFE USE RESERVATION.
NOTE: PORTABLE SHED TO BE RELOCATED BY GAVITT
NOTE: COOP & SHED TO BE REMOVED BY GAVITT.
CENTERLINE OF SWALE
NANCY L. VANWORMER ~R.O.~ L.794/P.316
MILITARY LOT 77
APPROXIMATE LOCATION LOT LINE
MILITARY LOT 78
PROPOSED PARCEL 1
AREA: 5.1 ACRES± TO CENTERLINE ROAD ~ 5.0 ACRES± NET TO ASSUMED ROAD BOUNDS
PROPOSED PARCEL 2
AREA: 5.0 ACRES± TO CENTERLINE ROAD ~ 5.0 ACRES± NET TO ASSUMED ROAD BOUNDS
PROPOSED PARCEL 3
AREA: 4.6 ACRES± TO CENTERLINE ROAD ~ 4.3 ACRES± NET TO ASSUMED ROAD BOUNDS
N 13°29'35" E
555.00' P-P
638.42'± TOTAL
48.39'±
803.81'± TOTAL
720.00' P-P
S 03°00'52" W
S 04°35'45" E
1116.73' P-P
1196.73'± TOTAL
500.00' P-P
S 11°47'18" W
1198.70'± TOTAL
624.55' P-P
SHED
28.0'
NICHOLAS A. & BONITA BOLES ~R.O.~ INSTRUMENT NO. 2017-04114
JEREMY M. & BILLIE JO DOWNS ~R.O.~ INSTRUMENT NO. 2017-07868
CORN FIELD
FLOW
MARION REYNOLDS ~R.O.~ L.646/P.585
IVY F. & ROBERT C. PRESTHUS ~R.O.~ INSTRUMENT NO. 2025-05535
NORTHWESTERLY ALONG CENTERLINE TOWNLEY CREEK 455'±
CHORD TIE: N 48°09'22" W 439.87'
TOWNLEY CREEK
83.81'±
CONLON ROAD
PETER & AKINA MCKAY ~R.O.~ INSTRUMENT NO. 2017-04608
CENTERLINE TOWNLEY CREEK
NORTHWESTERLY ALONG CENTERLINE TOWNLEY CREEK 373'±
CHORD TIE: N 51°43'12" W 344.03'
50.00'±
39.62'±
CAROL J. BURNETT & DONNA F. FICARRO ~R.O.~ INSTRUMENT NO. 533291-001
MONROE & JENNIFER MAKOWSKY ~R.O.~ INSTRUMENT NO. 2017-12305
MICHAEL W. EARL ~R.O.~ INSTRUMENT NO. 553127-001

REFERENCE MAP:
"SURVEY MAP LANDS OF CLIFFORD M. BUCK..." MADE BY REAGAN LAND SURVEYING, DATED MARCH 24, 2006.

NOTES:
- ABSTRACT OF TITLE NOT REVIEWED. PREMISES SURVEYED ARE SUBJECT TO ANY EASEMENTS, RIGHTS AND/OR RESTRICTIONS OF RECORD THAT AN UP TO DATE SEARCH MAY REVEAL.
- LOTS SHOWN HEREON MAY BE SUBJECT TO NYT CO. EASEMENTS L.475/P.736 & L.577/P.40

LEGEND:

- ● EXISTING IRON MONUMENT AS SHOWN
- ⊙ SET 3/4" REBAR AND SURVEY CAP
- ⌀ UTILITY POLE
- ⊠ UNDERGROUND TEL. RISER
- R.O. REPUTED OWNER
- O/H OVERHEAD UTILITIES
- U/G UNDERGROUND UTILITIES
- ℄ PRESENT CENTERLINE OF PAVEMENT
- —x— FENCE REMNANTS

0' 50' 100' 150'
GRAPHIC SCALE

REAGAN LAND SURVEYING
P.O. Box 1124
Dryden, New York 13053
Phone/Fax (607) 844-8837
EMAIL: office@reaganlandsurveying.com

NOTE: Any revisions to this map must comply with section 7209, Subdivision 2 of the New York State Education Law. All certifications hereon are valid for this map and copies thereof only if said map or copies bear the embossed seal of the licensed land surveyor whose signature appears hereon. This map is not valid when used in conjunction with a "Survey Affidavit" or "Certificate of No-Change".

Date Surveyed: 9/2026	Drawn By: A. PUZO	Scale: 1"=50'	Job No.: 26-221

I hereby certify to: KELLY L. GAVITT;

that I am a licensed land surveyor, New York State License No. 049892 and that this map correctly delineates an actual survey on the ground made by me or under my direct supervision, that it was prepared in accordance with the current code of practice for land title surveys adopted by the New York State Association of Professional Land Surveyors; and that I found no visible encroachments either way across property lines except as shown hereon.

Signed: _____ Dated: SEPT. 1, 2026

"Copyright 2026: All Rights Reserved, Reagan Land Surveying"

Eastlake Recreation Center

18 Eastlake Rd, Ithaca, NY

Updated Notes for 9/29/2026 Planning Board Meeting

Proposed Lounge Addition Notes:

The addition will be a two-story wood-frame structure, maintaining the same board & batten style as the rest of the building.

The addition will be approximately 800 sq. ft. per floor (20' x 40') for a total of 1600 sq. ft.

There are no planned changes to the existing driveway, sidewalks or building entrances. The new addition will have an emergency exit.

There are no planned changes to the existing parking lot.

Additional landscaping will be added downhill to the West of the building in cooperation with the neighboring residence to shelter them from the view of the building.

There are no planned changes to the building utility connections or service.

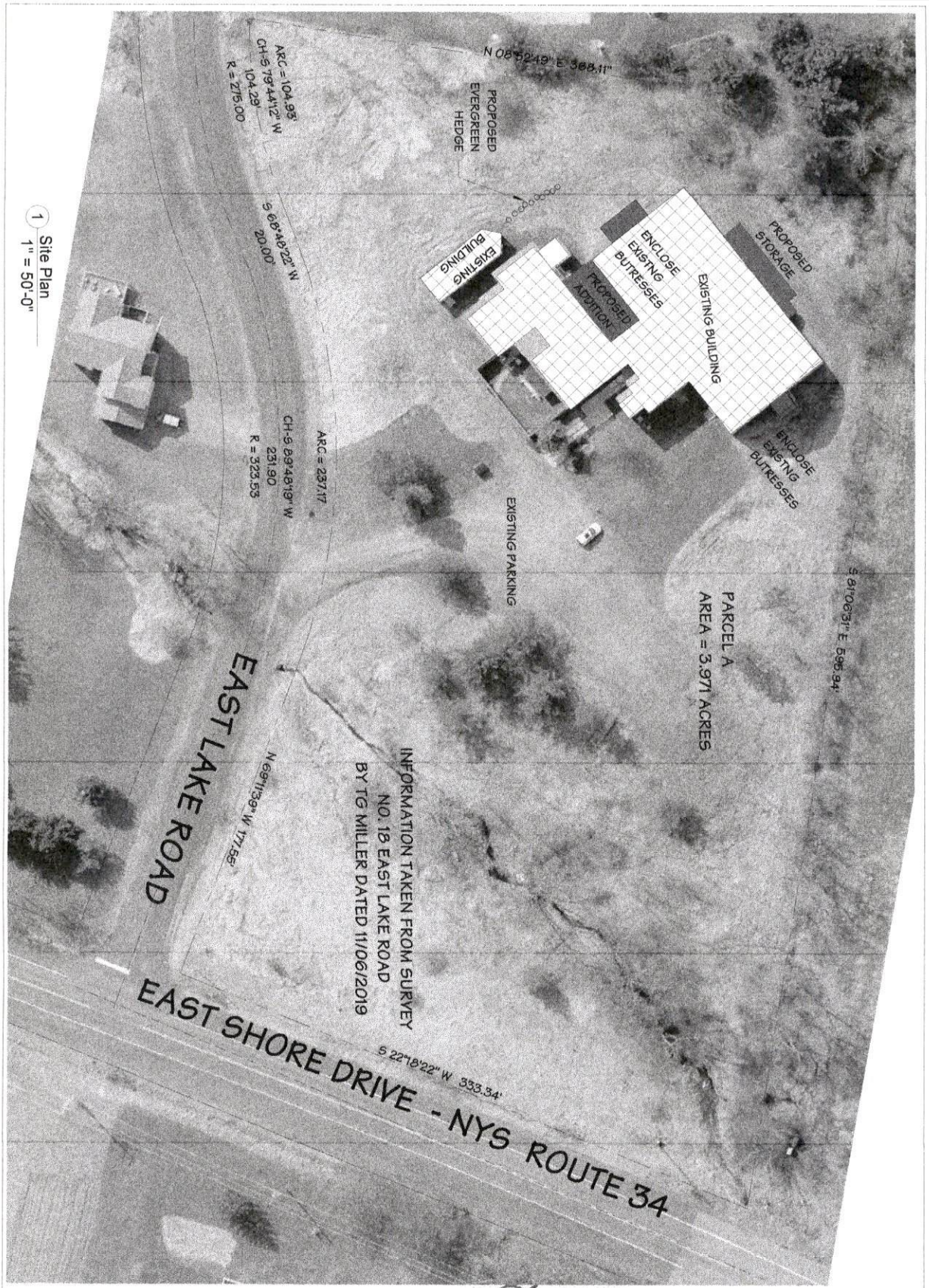
The storm-water run-off from the property currently flows into the roadside drainage ditches. No changes in drainage are planned.

Proposed unheated Storage Space

Approximately 12' deep and up to 60' long. Located on the backside of the tennis court, between the tennis court and the hedgerow, it would not be visible from any direction outside of the property.

Proposed support frame enclosures

Approximately 12' deep (extending away from the building) and 40' wide (across the end of the building), enclosing the existing support frames. The alternative would be to extend the profile of the tennis court by 12' at each end for a more uniform look (but it would be a more expensive project).

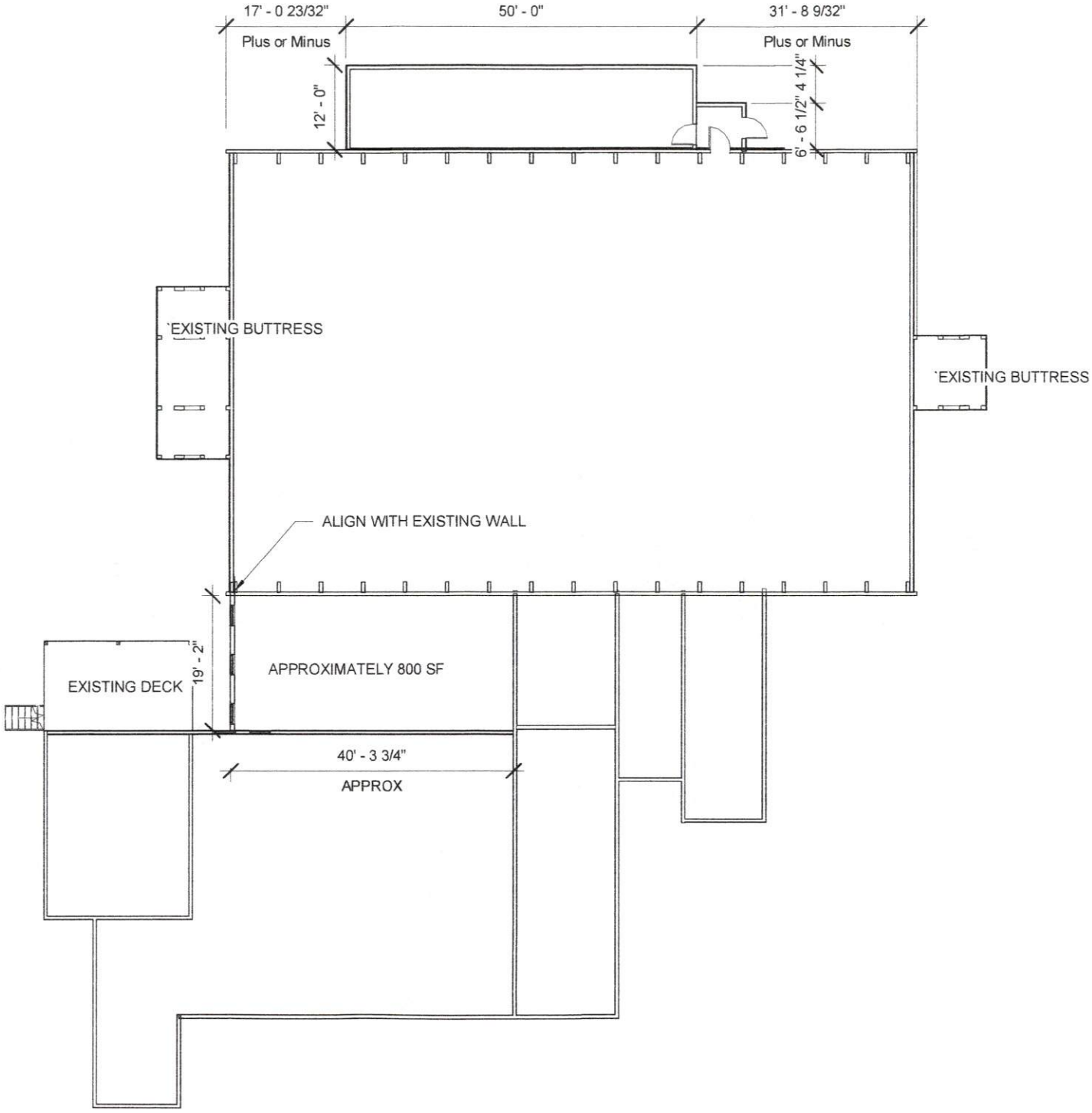


1 Site Plan
1" = 50'-0"

C1
Site Plan
07/15/02

The Architects Drew
5 South Street, Suite A, P.O. Box 243
Dryden, New York 13053
(607) 227-2712

Proposed Addition for:
Eastlake Recreation
18 East Lake Road, Lansing NY


17' - 0 23/32"
Plus or Minus
50' - 0"
31' - 8 9/32"
Plus or Minus
12' - 0"
4 1/4"
6' - 6 1/2"
`EXISTING BUTTRESS
`EXISTING BUTTRESS
ALIGN WITH EXISTING WALL
EXISTING DECK
19' - 2"
APPROXIMATELY 800 SF
40' - 3 3/4"
APPROX

Eastlake Homeowners Association

Design Committee

From: **Susan Hills Murphy** <shm1@cornell.edu>
Date: Tue, Jun 16, 2026 at 9:16 PM
Subject: Your project at the Rec Center
To: Eastlake Recreation <office.at.eastlakerec@gmail.com>
Cc: Jari Poulin <jaripoulin@me.com>, linda mack <mackjohnston@gmail.com>

Dave,

Thanks for taking the time to share your plan for creating lounge space at the Rec Center with the design committee. Jari, Linda and I are impressed with how you have made that whole space a destination for community and fun activity; providing a space for family and friends who are spectators at any given time is welcome and wise. Using the space between the two parts of the building seems like a no brainer.

We ask that you meet with Ayda and Osman Yurelki to share your plans with them and seek their input on any greenery you might plant between their house and the hillside leading to the Center.

If questions emerge after such a meeting, please be in touch again. If not, we wish you all the best as you work through the town processes and with your architect. You have our support.

Always,

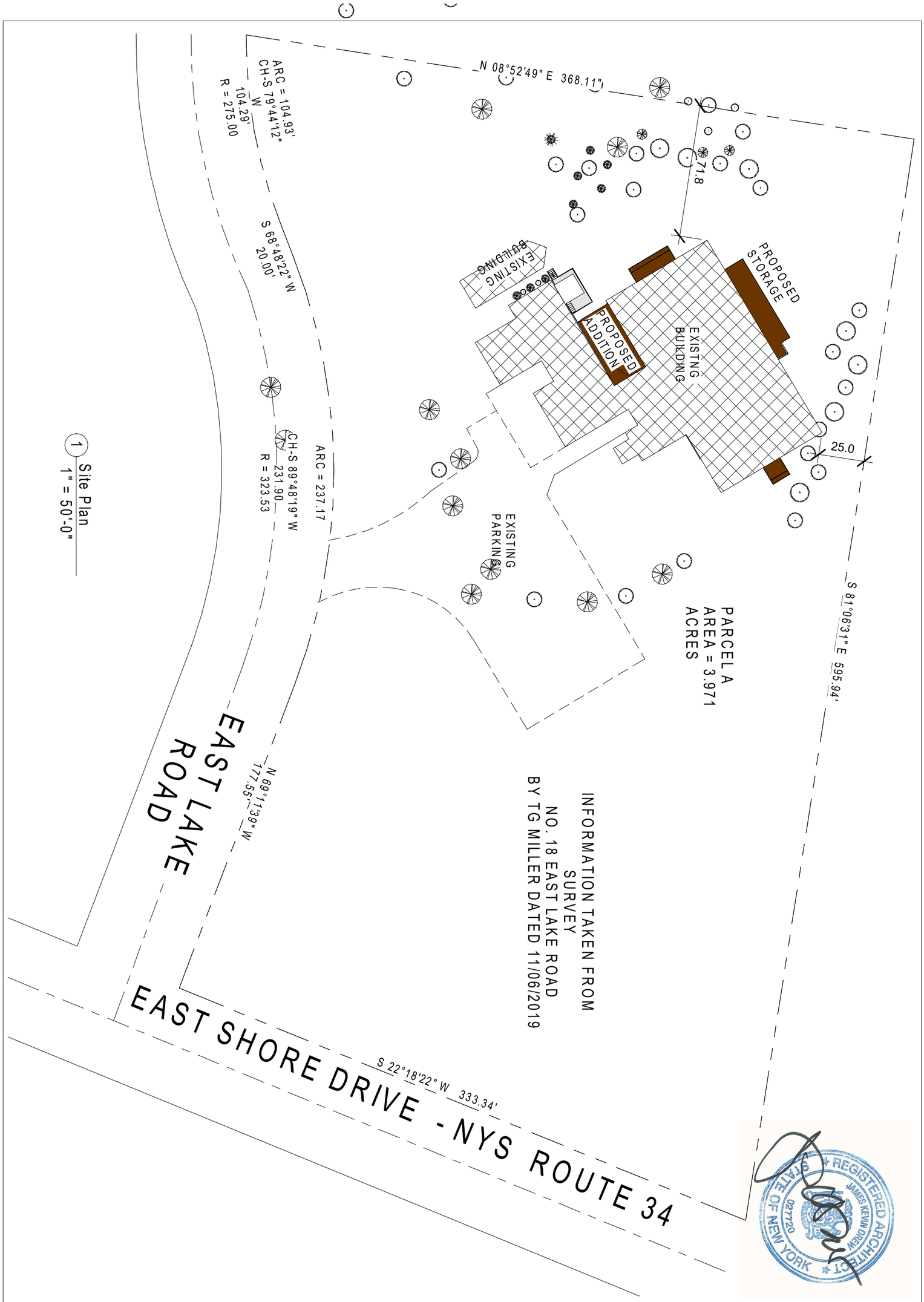
Susan

Susan H. Murphy, PhD

Vice President Emerita

Cornell University

Shm1@cornell.edu



C1
Site Plan

07/15/02

The Architects Drew
5 South Street, Suite A, P.O. Box 243
Dryden, New York 13053
(607) 227-2712

Proposed Addition for:
Eastlake Recreation
18 East Lake Road, Lansing NY

Agricultural Data Statement

18 Eastlake Rd, Ithaca, NY

There are no Farm Operations w/in 500 Feet of the site.

The Neighboring Undeveloped Field to the North:

Tax ID	36.-2-17.40
Status	Active
Roll Section	Taxable
Property Address	1714 East Shore Dr
Property Class	322 - Rural vac>10
Zoning District	R1 – Residential Low Density

Photometric Lighting Plan

18 Eastlake Rd, Ithaca, NY

There are no planned changes to the existing external building lighting.

July 27, 2026

Town of Lansing Planning Board
29 Auburn Road
Lansing, NY 14882

Re: Eastlake Recreation Center Lounge Project

Dear Members of the Lansing Planning Board,

We are the owners of the property adjacent to the Eastlake Recreation Center and have had the opportunity to review the proposed plans for improvements to the Recreation Center.

Based on our understanding of the proposal, we do not object to the project or to the application currently before the Planning Board. We understand that the purpose of the project is to improve the existing Recreation Center by creating additional lounge space for spectators and families within the existing building.

Our support is based on the understanding that the recreational activities, spectators, and related gatherings associated with the Recreation Center will remain within the existing building and that the project will not result in an expansion of recreational activities or assembly areas onto the outdoor portion of the property adjacent to our residence.

We also appreciate the applicant's willingness to consult with us regarding the proposed landscaping between our properties. We look forward to working cooperatively on any landscaping or screening that will enhance the appearance of the area while respecting the interests and privacy of neighboring property owners.

Thank you for considering our comments. We appreciate the opportunity to provide input and wish the applicant success with the proposed improvements.

Sincerely,

Osman Yürekli

Ayda Yürekli

Short Environmental Assessment Form
Part 1 - Project Information

Instructions for Completing

Part 1 – Project Information. The applicant or project sponsor is responsible for the completion of Part 1. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification. Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information.

Complete all items in Part 1. You may also provide any additional information you believe will be needed by or useful to the lead agency; attach additional pages as necessary to supplement any item.

Part 1 – Project and Sponsor Information

Name of Action or Project:
Eastlake Recreation Center Addition

Project Location (describe, and attach a location map):
18 Eastlake Road, Ithaca, NY

Brief Description of Proposed Action:
Project 1 - Enclose a building alcove to create a greeting area and lounge.
Project 2 - Construct a non-heated storage space on the back side of the tennis court.
Project 3 - Enclose the exterior support frames at each end of the tennis court.

Name of Applicant or Sponsor:	Telephone: (607) 257-7778
David Johnson	E-Mail: office.at.eastlakerec@gmail.com

Address:
18 Eastlake Rd

City/PO:	State:	Zip Code:
Ithaca	NY	14850

	NO	YES
1. Does the proposed action only involve the legislative adoption of a plan, local law, ordinance, administrative rule, or regulation? If Yes, attach a narrative description of the intent of the proposed action and the environmental resources that may be affected in the municipality and proceed to Part 2. If No, continue to question 2.	☑	☐
2. Does the proposed action require a permit, approval or funding from any other government Agency? If Yes, list agency(s) name and permit or approval:	☑	☐

3. a. Total acreage of the site of the proposed action? 3.97 acres
   b. Total acreage to be physically disturbed? 0.05 acres
   c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 3.97 acres

4. Check all land uses that occur on, are adjoining or near the proposed action:
   ☐ Urban ☐ Rural (non-agriculture) ☐ Industrial ☒ Commercial ☒ Residential (suburban)
   ☐ Forest ☐ Agriculture ☐ Aquatic ☐ Other(Specify):
   ☐ Parkland

	NO	YES
5. Is the proposed action,		
a. A permitted use under the zoning regulations?	☐	☑
b. Consistent with the adopted comprehensive plan?	☐	☑
6. Is the proposed action consistent with the predominant character of the existing built or natural landscape?	☐	☑
7. Is the site of the proposed action located in, or does it adjoin, a state listed Critical Environmental Area? If Yes, identify:	☑	☐
8. a. Will the proposed action result in a substantial increase in traffic above present levels?	☑	☐
b. Are public transportation services available at or near the site of the proposed action?	☑	☐
c. Are any pedestrian accommodations or bicycle routes available on or near the site of the proposed action?	☑	☐
9. Does the proposed action meet or exceed the state energy code requirements? If the proposed action will exceed requirements, describe design features and technologies:	☐	☑
10. Will the proposed action connect to an existing public/private water supply? If No, describe method for providing potable water:	☐	☑
11. Will the proposed action connect to existing wastewater utilities? If No, describe method for providing wastewater treatment: The Recreation Center is on an existing septic system.	☐	☑
12. a. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places?	☑	☐
b. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory?	☑	☐
13. a. Does any portion of the site of the proposed action, or lands adjoining the proposed action, contain wetlands or other waterbodies regulated by a federal, state or local agency?	☐	☑
b. Would the proposed action physically alter, or encroach into, any existing wetland or waterbody? If Yes, identify the wetland or waterbody and extent of alterations in square feet or acres:	☑	☐

14. Identify the typical habitat types that occur on, or are likely to be found on the project site. Check all that apply:

☐ Shoreline ☐ Forest ☐ Agricultural/grasslands ☐ Early mid-successional

☐ Wetland ☐ Urban ☒ Suburban

	NO	YES
15. Does the site of the proposed action contain any species of animal, or associated habitats, listed by the State or Federal government as threatened or endangered?	☐	☑
Lake Sturgeon		
16. Is the project site located in the 100-year or 500-year flood plain?	☑	☐
17. Will the proposed action create storm water discharge, either from point or non-point sources? If Yes,	☐	☑
a. Will storm water discharges flow to adjacent properties?	☑	☐
b. Will storm water discharges be directed to established conveyance systems (runoff and storm drains)?	☐	☑
If Yes, briefly describe: Roadside runoff ditches		
18. Does the proposed action include construction or other activities that would result in the impoundment of water or other liquids (e.g., retention pond, waste lagoon, dam)? If Yes, explain the purpose and size of the impoundment:	☑	☐
19. Has the site of the proposed action or an adjoining property been the location of an active or closed solid waste management facility? If Yes, describe:	☑	☐
20. Has the site of the proposed action or an adjoining property been the subject of remediation (ongoing or completed) for hazardous waste? If Yes, describe:	☑	☐
21. Is the project located within, or within ½ mile of, a disadvantaged community?	☑	☐
If No, could impacts from the project affect a disadvantaged community?	☑	☐
If Yes to either question in 21, answer the following question.		
a. Identify the potential pollution impacts of the project, either direct or indirect, that may occur within the disadvantaged community (e.g., wastewater discharges, air emissions, noise, odors, solid or hazardous waste generation or management):		

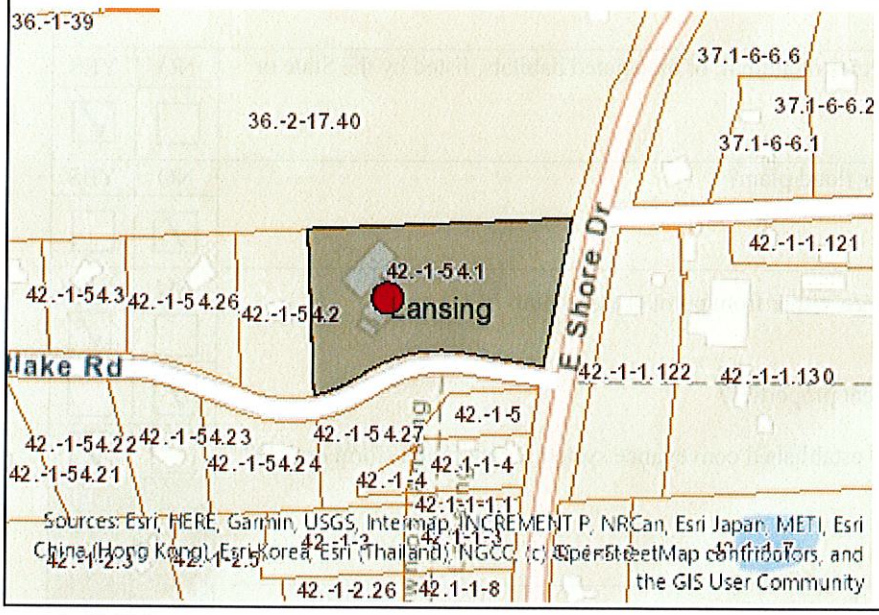
I CERTIFY THAT THE INFORMATION PROVIDED ABOVE IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE

Applicant/sponsor/name: David Johnson Date: 7/27/2026

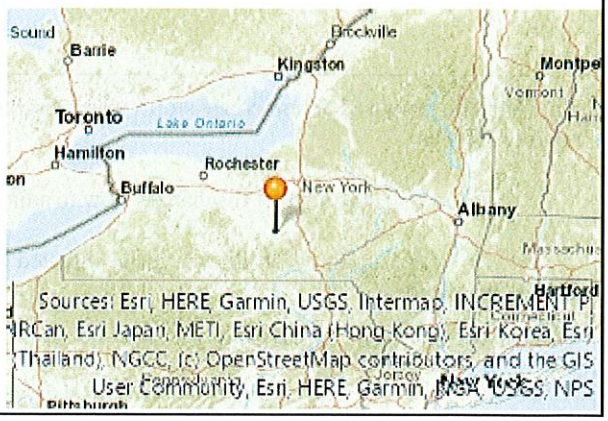
Signature: David B Johnson Title: Owner

EAF Mapper Summary Report

Sunday, July 5, 2026 4:13 I



Disclaimer: The EAF Mapper is a screening tool intended to assist project sponsors and reviewing agencies in preparing an environmental assessment form (EAF). Not all questions asked in the EAF are answered by the EAF Mapper. Additional information on any EAF question can be obtained by consulting the EAF Workbooks. Although the EAF Mapper provides the most up-to-date digital data available to DEC, you may also need to contact local or other data sources to confirm data provided by the Mapper or to obtain data not provided by the Mapper.

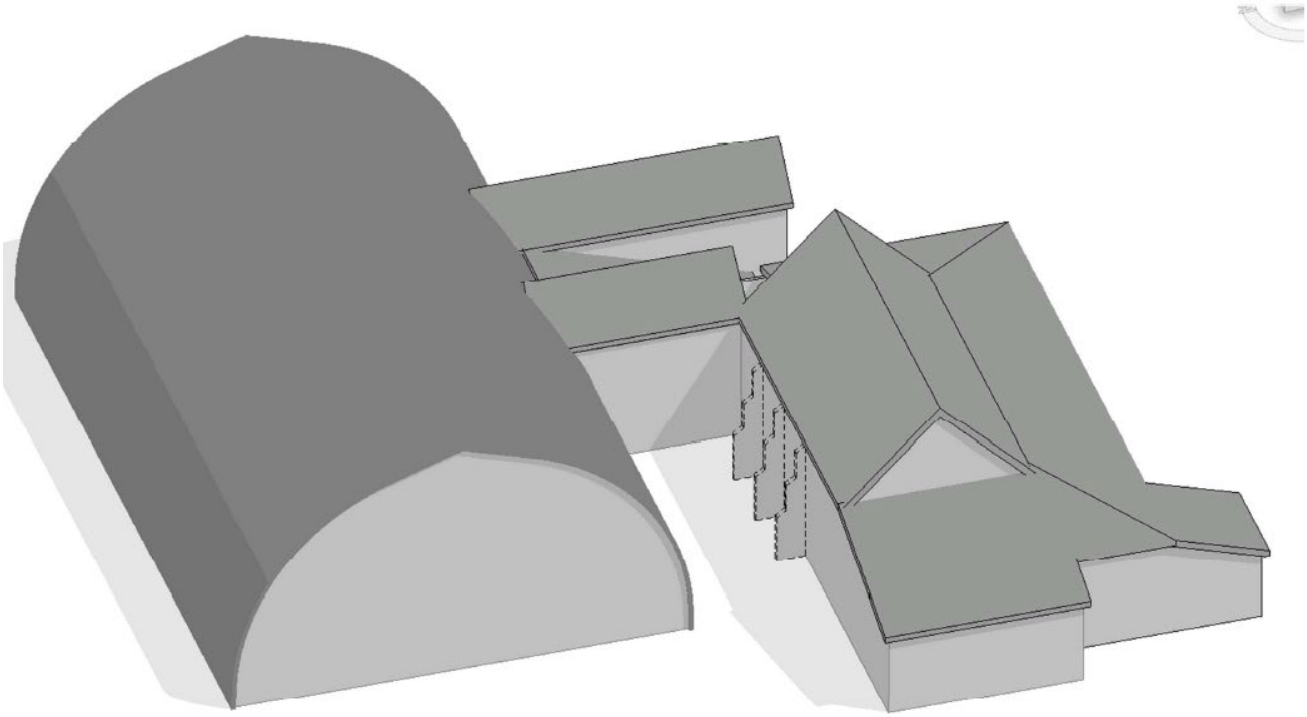


Part 1 / Question 7 [Critical Environmental Area]	No
Part 1 / Question 12a [National or State Register of Historic Places or State Eligible Sites]	No
Part 1 / Question 12b [Archeological Sites]	No
Part 1 / Question 13a [Wetlands or Other Regulated Waterbodies]	Yes - Digital mapping information on local, New York State, and federal wetlands and waterbodies is known to be incomplete. Refer to the EAF Workbook.
Part 1 / Question 15 [Threatened or Endangered Animal]	Yes
Part 1 / Question 15 [Threatened or Endangered Animal - Name]	Lake Sturgeon
Part 1 / Question 16 [100 or 500 Year Floodplain]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
Part 1 / Question 20 [Remediation Site]	No
Part 1 / Question 21 [Disadvantaged Community]	No

Proposed Lounge Addition 3-D sketch

Proposed Lounge Addition Elevation

Picture of Existing Alcove



3D Model – Existing Building

NEW YORK STATE | Department of Environmental Conservation

Owner/Operator Certification Form

SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP)

(In accordance with CGP Part I.D.2.b. or Part I.F.2. and 3., the completed form must be attached to the eNOI or the Request to Continue Coverage, and submitted to NYSDEC electronically.

Project/Site Name: Jerry Smith Battery Energy Storage System

eNOI Submission ID: HQP-XXCM-TSTAF

eNOI Submitted by: ☐ **Owner/Operator** ☑ **SWPPP Preparer** ☐ **Other**

Certification Statement - Owner/Operator

I hereby certify that I read, and will comply with, the GP-0-25-001 permit requirements. I understand that authorization to discharge under the permit for the project/site named above is dependent on receipt of a Letter of Authorization (LOA) or a Letter of Continued Coverage (LOCC) from the New York State Department of Environmental Conservation (NYSDEC) in accordance with CGP Part I.D.3.b. or Part I.F.4. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Kelley	Fike	Fike
Owner/Operator First Name	MI	Owner/Operator Last Name

Kelley Fike

Digitally signed by Kelley Fike
DN: C=US, E=kfike@nexamp.com, O="Nexamp, Inc.", CN=Kelley Fike
Date: 2026.10.14 16:00:17-04'00'

Signature

10/14/2026

Date

MS4 SWPPP Acceptance Form

for construction activities seeking authorization under the

SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP)

(In accordance with CGP Part I.D.2.b., the completed form must be attached to the eNOI and submitted to NYSDEC electronically.)

I. Project Owner/Operator Information	
1. Owner/Operator Name:	Jerry Smith LLC c/o Nexamp, LLC
2. Contact Person:	Michael DeAngelo
3. Street Address:	101 Summer Street
4. City/State/Zip:	Boston, MA 02110
II. Project Site Information	
5. Project/Site Name:	Jerry Smith Battery Energy Storage System
6. Street Address:	339 Jerry Smith Road
7. City/State/Zip:	Lansing NY 14882
III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance Information	
8. SWPPP Reviewed by:	
9. Title/Position:	
10. Date Final SWPPP Reviewed and Accepted:	
IV. Regulated MS4 Information	
11. Name of MS4 Operator:	
12. MS4 SPDES Permit Identification Number: NYR20A	
13. Street Address:	
14. City/State/Zip:	
15. Telephone Number:	

MS4 SWPPP Acceptance Form - continued

V. Certification Statement - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative

I hereby certify that the final Stormwater Pollution Prevention Plan (SWPPP) for the construction project identified in section II. of this form has been reviewed and meets the substantive requirements in the SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP). Note: The MS4 Operator, through the acceptance of the SWPPP, assumes no responsibility for the accuracy and adequacy of the design included in the SWPPP. In addition, review and acceptance of the SWPPP by the MS4 Operator does not relieve the owner/operator or their SWPPP preparer of responsibility or liability for errors or omissions in the plan.

Printed Name[1]:

Title/Position:

Signature:

Date:

VI. Additional Information

[1] Printed name of the principal executive officer or ranking elected official for the MS4 Operator or their duly authorized representative in accordance with CGP Part VII.J.2.

(NYSDEC - MS4 SWPPP Acceptance Form - January 2025)

NEW YORK STATE | Department of Environmental Conservation

SWPPP Preparer Certification Form

SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP)

(In accordance with CGP Part I.D.2.b., the completed form must be attached to the eNOI and submitted to NYSDEC electronically.)

Project/Site Name:	Jerry Smith Battery Energy Storage System
eNOI Submission ID:	HQP-XXCM-TSTAF
Owner/Operator Name:	Jerry Smith LLC c/o Nexamp. LLC

Certification Statement – SWPPP Preparer

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) has been prepared in accordance with the requirements of GP-0-25-001. I certify under penalty of law that the SWPPP and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Travis	J	Mitchell
SWPPP Preparer First Name	MI	SWPPP Preparer Last Name

Signature

10/14/26

Date

September 21, 2026

Mr. Abdul Muqsit
Nexamp Inc.
101 Summer Street, 2
Boston, MA 02110

RE: Jerry Smith Storage: Geotechnical Services
Jerry Smith Road, Lansing, New York
Nexamp Project Number: 133809
LaBella Project Number: 2265555

Dear Mr. Abdul:

LaBella Associates, D.P.C. has completed the geotechnical engineering services for the above referenced project. The study was performed in general accordance with LaBella's "Jerry Smith Storage: Geotechnical Services" proposal dated July 23, 2026.

Our report presents the results of the geotechnical subsurface investigation and provides geotechnical recommendations for the energy storage area at the above address in the Town of Lansing, Tompkins County, New York hereinafter referred to as the "project site".

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report, please contact us.

Respectfully submitted,
LABELLA ASSOCIATES, D.P.C.

Leonela Lorenzo
Civil Designer

Matthew A. Korn, PE
Senior Geotechnical Engineer

Prepared For:
Nexamp Inc.
101 Summer Street, 2
Boston, MA 02110

Submitted By:
LaBella Associates, D.P.C.
4 British American Boulevard
Latham, New York 12110
(518) 439-8235

Certificate of authorization number:
Professional Engineering: 0021272

LaBella
Powered by partnership.

Geotechnical Subsurface Investigation and Report
Jerry Smith Storage

September 21, 2026
Project No. 2265555

NOTE

This report is written using **U.S. Customary Units** unless otherwise noted.

The professional services provided in this report consider only the site-specific geotechnical aspects of the subsurface conditions at the project site. The presence or implications of possible surface or subsurface contaminants from any source are outside the terms of reference for this geotechnical study and have not been investigated or addressed herein. Coal seam hazard evaluation, fire and gas hazard evaluation, site subsidence hazard evaluation, wetland impact study, septic field hazard or impact evaluation, slope stability and landslide hazard analysis, are beyond the scope of work for this project.

The subsurface soil profile and design parameters provided in this report are estimated based on the results of the test explorations as indicated on our exploration logs, which include our visual classification of the recovered soil samples, geotechnical analytical laboratory results (where applicable) and/or generally published soil property correlations. Actual subsurface conditions beyond the test explorations and below the depths explored may vary, as well as subsurface conditions encountered in the field during and/or as a result of construction activity.

The recommendations contained within this report are based on the subsurface conditions encountered and the Civil Permit Plan Set prepared by The Environmental Design Partnership, LLP titled “Jerry Smith Energy Storage System” last revised on May 27, 2026. If subsurface conditions or the arrangement of the planned equipment pads varies from those presented within this report, the geotechnical engineer shall be notified to identify if the recommendations provided herein are still applicable.

Provided the accompanying geotechnical interpretive report is read in its entirety, and the recommendations and construction considerations outlined in the report are incorporated in the design and during construction activities, the recommended foundation systems are suitable for the planned structures. Please contact LaBella with questions regarding the information provided herein.

This report was prepared by **LaBella Associates, D.P.C.**

Written by

Leonela Lorenzo
Civil Designer

Reviewed and approved by:

Matthew A. Korn, PE
Senior Geotechnical Engineer

It is a violation of New York Education Law Article 145 Sec. 7209, and Article 147 Sec. 7307 for any person, unless acting under the direction of a licensed professional engineer, licensed professional geologist, licensed land surveyor, or registered architect to alter an item in any way. If an item bearing the seal of a licensed professional engineer, licensed professional geologist, licensed land surveyor, or registered architect is altered; the individual altering the document shall affix to the item their seal and the notation “altered by” followed by their signature and date of such alteration, and a specific description of the alteration.

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A – FIGURE
B – EXPLORATION LOGS
C – LABORATORY TEST RESULTS
D – FIELD RESISTIVITY DATA

1.0 INTRODUCTION

LaBella Associates, D.P.C. (LaBella) is pleased to present this report for the subsurface exploration and geotechnical engineering evaluation for the energy storage area and associated access road located at Jerry Smith Road in the Town of Lansing, Tompkins County, New York. For this investigation, five (5) test borings were advanced and two (2) infiltration tests completed at the locations depicted on **Figure 1 – Exploration Location Plan.**

The overall project site is bound by Jerry Smith Road (north), agricultural land (west, and south) and woods and a solar array field to the east. An existing solar array field is located to the south and west of the project area. The project area is located in the northeastern quadrant of the project site. The planned energy storage area will be located in the southwest corner of the project area with an access drive started at Jerry Smith Road and extending south turning east and curving around the energy storage area.

Topographically the project area descends from northwest (El 1088 ft) to southeast (El 1079 ft). Elevations noted herein are based on a topographic survey completed by The Environmental Design Partnership, LLP, dated (May 27, 2026), referencing an assumed datum. Existing conditions are depicted in **Figure 1.**

LaBella's Scope of Services included advancing test explorations, preparing subsurface exploration logs, a location plan, and preparing this report that outlines geotechnical recommendations for the development of the project area.

2.0 SUBSURFACE EXPLORATIONS

This section summarizes the results of the subsurface explorations performed at the project area on May 12, 2026, and May 13, 2026 in support of the interpretations made herein.

Test explorations were witnessed by a LaBella Engineer to advise the operator regarding location and depth, to record subsurface conditions and to modify the subsurface exploration as necessary. Soil samples collected during the subsurface explorations were visually classified in the field in accordance with the Unified Soil Classification System (USCS) and ASTM D 2488. Summary logs detailing the observed conditions within each test exploration are included within **Appendix B - Exploration Logs.** As-drilled locations are documented on **Figure 1.**

LaBella conducted subsurface explorations to characterize the in-situ conditions and to collect representative soil samples. Samples were used for both visual classification and laboratory testing as a basis for determining design criteria cited in this report.

2.1 Test Boring Explorations

Five (5) test boring explorations designated B1 through B5 were performed in the project area by LaBella Environmental, LLC utilizing a CME 55 tracked drill rig capable of advancing a 2.25-inch internal diameter (I.D.) hollow stem augers. The test boring explorations were advanced to depths of 10.9-feet (B4), 12-feet (B5), and 22-feet (B1, B2, and B3).

During soil sample collection, a 2-inch split spoon sampler was driven approximately 2-feet and the number of blows required to drive the sampler every 6-inches were recorded in accordance with ASTM D 1586 to measure the resistance of the soil penetration of the sampler.

Based on the bioretention area detail within the Civil Permit Set, two infiltration tests were performed at a depth of 7 feet (FH1 and FH2) to comply with the current NYSDEC stormwater design manual. The two (2) infiltration tests, designated FH1 and FH2, were conducted on August 13, 2026 as close to the planned area as permitted due to the woods. Summary data detailing the test depth and trials for each infiltration test are included within **Appendix B.**

2.2 Subsurface Stratigraphy

Subsurface explorations indicate at least two distinct stratum are present within the depth of explorations in the project area. The observed strata across the project area were generally **Reworked Material, and Loamy Till.** Each stratum is described in greater detail below using the percentage descriptions per ASTM D 2488.

Reworked Material: An approximate 2-foot thick stratum of Reworked material was encountered within test explorations B1 through B4 and was visually classified as Silty Sand (SM) and Silty Sand with Gravel (SM). This stratum consisted of dry, brown, loose to medium dense sand with some to a little percentage of silt, some to a few percentage of gravel, and a few to no percentage of clay.

Loamy Till: A stratum of Loamy Till was encountered within all test explorations. Typically this stratum was visually classified as Silty Sand with Gravel (SM) and Clayey Gravel with Sand (GC), consisting of brown and gray, dry to wet, medium dense to very dense sand or gravel with some to a few percentage of silt, and some to no percentage of clay.

2.3 Groundwater Conditions

Groundwater was observed within three (3) of the test explorations at depths of 20.5-feet (B1), and 21-feet (B2 and B3) below existing ground surface. Groundwater readings taken at termination of the explorations are typically considered un-stabilized readings.

Groundwater levels recorded on the exploration logs are based off field observations and visual soil classification of soil samples. Groundwater will fluctuate with season, precipitation, nearby construction activity, and other factors.

2.4 Laboratory Results

Representative soil samples were selected for geotechnical laboratory testing. The samples were delivered to Atlantic Testing Laboratories for basic classification testing and analytical tests. The following laboratory test were conducted, and the results are provided in **Appendix C – Laboratory Results**.

- Two (2) moisture content tests (ASTM D2216),
- One (1) Atterberg limit test (ASTM D4318),
- Two (2) particle-size distribution tests (ASTM D6913/D7928),
- One (1) corrosivity suite test, and
- One (1) thermal conductivity test was assigned on soils within the upper 7-feet.

The laboratory tests included within the corrosivity suite are as follows: pH (ASTM G51), Electrical Resistivity (ASTM G187), Water-Soluble Sulfate (ASTM C1580), Oxidation-Reduction Potential (ASTM G200), Water-Soluble Chloride Ion Content (AASHTO T291 method A).

Based on our visual observations, and the laboratory analysis, the soils in the project area and within the upper 10-ft were classified as dry to moist. The test soil at B3 has a moisture point value of 1 on the 10-point soil test evaluation scale for moisture per ANSI/AWWA C105/A21.5.

Results of the pH test identified that the soil has a pH value of 7.38, and a redox potential value of 187 mV which both equated to 0 points on the 10-point soil test evaluation scale per ANSI/AWWA C105/A21.5. The calculated resistivity value was 2,451 Ωcm which equates to 2 points on the 10-point soil test evaluation scale per ANSI/AWWA C105/A21.5.

The one laboratory tested sample had a sulfate by mass of 2600 ppm and a chloride value of 100 ppm. Generally, soils with sulfate and chloride values less than 200 ppm and 100 ppm respectively are considered non-corrosive. The sulfate value equates to 3.5 points on the 10-point soil test evaluation scale per ANSI/AWWA C105/A21.5.

The project area soils are generally considered non-corrosive with a total point value of 6.5 on the 10-point soil test evaluation scale, with ten points or greater indicating a corrosive soil.

One bulk sample was collected to produce a thermal dry-out curve. The calculated thermal resistivity value for the project area was 52°C-cm/W at 14.4% moisture content. More detailed results and the thermal dry-out curve graph is included in Appendix C.

2.5 Field Ground Resistivity

Concurrent with the subsurface investigation, LaBella performed a field electrical resistivity test within the project area using an AEMC Model 4630 Resistivity Meter to obtain representative values. The test was performed in accordance with ASTM G57 utilizing probe spacing of 0.5, 1, 2, 3, 5, 6, 10, 30 and 40-feet. The calculated soil resistivity values varied between 40,014 ohm-cm and 125,522 ohm-cm. These values indicate the subsurface is generally non corrosive. More detailed results are included in Appendix D – Field Resistivity Data.

Based on results of field resistivity testing, when also considering the results of the corrosion suite tests, soils in the project area are considered to have a generally non corrosive environment. Therefore, protection of direct buried metal is not required, but may extend the life of the piles.

3.0 SEISMIC CONSIDERATIONS

Soils were calculated as not susceptible to liquefaction when examined under the following conditions: USGS published mean peak ground acceleration (0.075g), a maximum earthquake magnitude of 5.0, site-recorded standard blow count values, percentage of fines in the underlying soils, and depth to groundwater.

The soils across the project area have been characterized for seismic conditions in accordance with ASCE/SEI 7-22, “Minimum Design Loads and Associated Criteria for Buildings and Other Structures”, using appropriate generalized correlations. Direct shear wave velocity (Vs) measurements were not collected as part of the scope of work therefore, values were estimated from standard penetration test (SPT) blow counts using published empirical correlations. The estimated Vs values are subject to the inherent uncertainty associated with SPT-based correlations.

Based on the subsurface conditions observed, our analysis, interpretation and correlations, LaBella recommends an average shear wave velocity of approximately 860 ft/sec for the project area. This corresponds to a Site Class D, an SS of 0.15g and S1 of 0.042g.

4.0 GEOTECHNICAL RECOMMENDATIONS

This section presents our geotechnical recommendations for foundation design and construction of the energy storage area based on the subsurface investigation. We have provided our recommendations in accordance with the related provisions of the 2025 Building Code of New York State (BCNYS). At the time of this report and based on the Permit Plan Set, LaBella understands that the proposed energy storage area consists of a gravel access road, equipment pads and battery energy storage systems.

4.1 Equipment Pad Foundations

Based on the observed subsurface conditions, shallow reinforced concrete slabs are suitable foundation systems to support the proposed equipment. LaBella recommends an allowable bearing capacity of **3 kips per square foot** (ksf). All foundation excavations shall be protected from frost during construction.

For a frost protected slab, with a project area frost depth of 4-feet, LaBella recommends a slab bearing on non-frost susceptible (NFS) material (AASHTO No. 57 stone) extending to a minimum depth of 4 feet below the lowest finished grade. Additionally, because the underlying soils are medium dense to dense with greater than 15% fines an underdrain (placed at the lowest point practicable) that has a positive pitch to daylight is recommended.

As an alternative to the NFS material, to allow compaction verification testing, the use of NYSDOT Type 2 subbase may be substituted. This material should be compacted to 95-percent of the maximum dry density per ASTM D1557. Note the allowed gradation allows for greater than 5-percent of material passing the number 200 sieve (fines). When the percentage of fines exceeds 5-percent, the potential for frost heave slightly increases.

4.2 Pavement Recommendations

Based on our understanding that the access drive will see minimal daily traffic and be limited to lightly loaded vehicles and an occasional WB-67 vehicle or fire truck, we recommend a 12-inch gravel bed, consisting of NYSDOT Type 2 Subbase, over a separation fabric such as Mirafi 140N.

LaBella recommends the gravel road is founded on proof-rolled site soils after removal of all topsoil, loose, disturbed, or unsuitable soils at the subgrade surface. The subgrade should be sloped toward the roadway edges to prevent water from ponding below the road (e.g. to drain toward roadside swales on slopes that drain away the road section). Installation of proper surface drainage practices are anticipated (e.g. proper road drainage practices). This access road is not intended to withstand frequent heavy construction traffic and associated equipment loads, which the contractor may need during the construction phase.

4.3 Utilities

Where underground utilities are required, trench excavation widths should extend a minimum of 12-inches beyond the outer edges of the utility elements to be installed. Exposed soil subgrades should be lightly compacted (proof rolled) and filled with placed and compacted pipe bedding material extending 6-inches (minimum) below and above each utility. Minimum pipe zone bedding and backfill widths shall comply with related pipe installation standards to ensure proper conditions for uniform load distribution.

On-site soils may be used as trench backfill above the pipe zone bedding material. Placement may be affected if the moisture content is greater or less than 3 percent of the optimum moisture content. Installation of an underground trace line is recommended along the utility line to facilitate location of the utility in the future.

Utilities should be located below frost level or connectors to the battery storage area need to be flexible to allow for potential freeze-thaw movement.

4.4 Temporary Excavations

We anticipate that excavation of the on-site soils can be accomplished using conventional earthwork equipment and techniques (i.e. backhoes, scrapers, excavators, or dozers) based on the physical characteristics, relative density of the strata observed and the anticipated excavation limits.

Generally, all temporary cut slope excavations should not be left open or unbraced for extended periods of time. Temporary cuts should be sloped as required for stability in accordance with OSHA regulations and protected from erosion. OSHA requires each type of material be benched at the following slope for temporary excavations:

- Type “A” – 3/4 Horizontal: 1 Vertical (3/4H: 1V),
- Type “B” – 1 Horizontal: 1 Vertical (1H: 1V), and
- Type “C” – 1-1/2 Horizontal: 1 Vertical (1-1/2H: 1V).

Based on the subsurface explorations, overburden soil is to be considered OSHA Type “C”. However, this should be verified for each excavation by an OSHA competent person.

4.5 Control of Water

Based on the observed groundwater, seepage into open excavations is not anticipated. However, temporary dewatering measures (e.g., sumps, barriers) should be readily available during construction to remove surface water and precipitation if needed in open excavations.

Surface water must be controlled during construction and earthwork operations by using temporary swales, ditches or other means necessary. All surfaces shall be restored to vegetated conditions upon completion of construction. Upon completion of rough grading activities, the final grade should be set to promote positive drainage away from the structures.

5.0 FILL MATERIALS

In general, fill materials shall be free of unsuitable material such as organics, construction debris, cobbles/boulders, frozen material, etc. Fill areas shall be cleared of all vegetation, roots, and other organic materials prior to placement of fill. Stockpiled soils may require installation of run-off protection between drainage channels and the stockpile.

We recommend compaction consist of at least 4 systematic passes using a vibratory roller with a minimum operating weight of 8-tons. In confined areas, hand guided vibratory equipment shall be used to compact the soil to the specified criteria. If soil weaving or other disturbance is noticed during compaction, vibratory compaction should be discontinued. Heavy compaction equipment shall not be used within 3-feet of the

transformer foundation system. Compaction shall meet the requirements stated below or as approved by a qualified engineer.

5.1 On-Site Borrow Material

Based on LaBella's visual classification of the materials to be excavated (SM), they may be reused as Common Fill, if screened to remove any 4-inch or greater particles, any deleterious materials and debris and meeting the gradation requirements noted for same.

When utilizing on-site material having more than 15-percent passing the No. 200 sieve (SM), placement is susceptible to minor fluctuations in moisture content. If utilized, the on-site soils should stay within 2-percent of optimum moisture content in addition to meeting the required compaction criteria.

5.2 Common Fill

Common Fill similar to NYSDOT Select Fill should consist of inorganic, sand based, granular soils, free of debris and other deleterious material that meet the following gradation:

Sieve Size	Percent Passing by Weight
4-inch	100
No. 40	0-70
No. 200	0-15

Common Fill used for site grading and landscaping should be placed in lifts not exceeding 9-inches loose, measured and compacted to 90% of the maximum dry density as determined by ASTM D 1557. All fill should be placed to promote positive drainage away from structures. Common Fill can be placed up to 2-feet below the foundation elements. Compaction testing should be performed periodically (at least once every 25,000 sq-ft or a minimum of once per lift).

5.3 Stone Fill

Stone Fill with not more than 10-percent material passing the number 4 sieve, such as a ¾-inch crushed stone, is recommended for prepared subgrades for equipment pad construction. Stone Fill should be placed in loose lifts not to exceed 14-inches in thickness for heavy compaction equipment and 10-inches for lighter compaction equipment.

When Stone Fill is used as a drainage medium, it should be uniformly graded. A non-woven, geotextile meeting AASHTO M288 Survivability Class 3, such as a Mirafi 140N or equivalent, should be placed between the Stone Fill and adjacent soils to prevent the migration of fines into the stone void space.

5.4 Pipe Bedding Material

Pipe Bedding Material should be a clean, granular, bedding fill meeting the following gradation and be placed in lifts not exceeding 8-inches loose, measured and compacted to 95% of maximum dry density as defined by ASTM D 1557:

Sieve Size	Percent Passing by Weight
¼-inch	100
No. 60	0-35
No. 100	0-10

6.0 CLOSING

LaBella has prepared this report for the exclusive use by Nexamp Inc. and their design team. LaBella's recommendations for the energy storage area and foundations are based upon our understanding of the proposed construction and the information obtained from our subsurface exploration. Variations in the subsurface conditions may occur between test exploration locations or there may be changes in the planned construction during the design phase. As this may be the case, changes to our recommendations may be warranted.

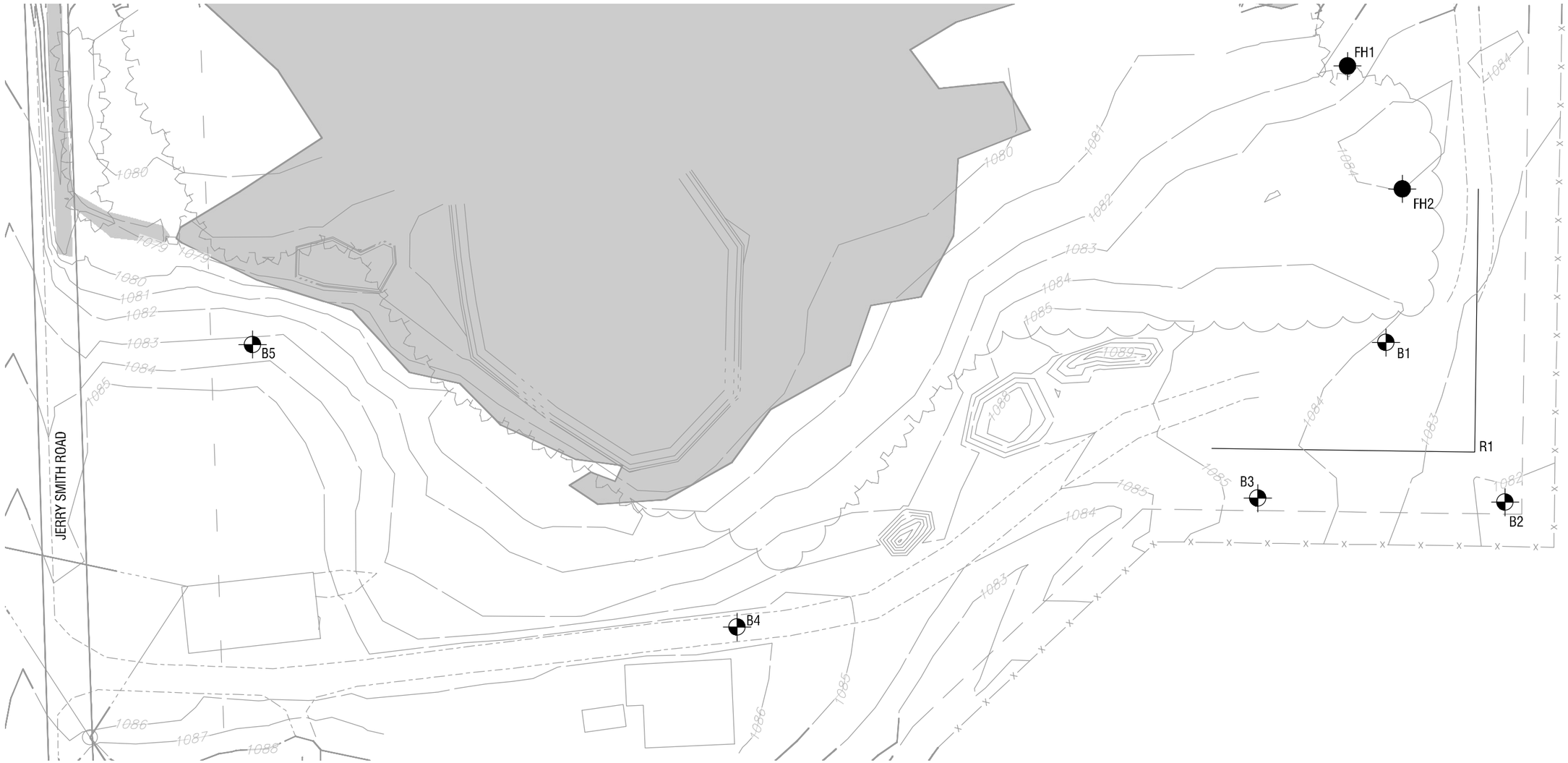
Generally accepted soil mechanics and geotechnical engineering practices were used to develop the recommendations stated in this report. Our services were conducted in a manner that is in accordance with generally accepted geotechnical engineering practice. The geotechnical engineer of record should review the final plans and specifications to evaluate their consistency with LaBella's recommendations. Prospective bidders should understand that this report was prepared for design purposes only and may not contain sufficient information to prepare an accurate bid.

7.0 DISPOSITION OF SAMPLES

LaBella will hold all soil samples for 60-days after the date of this report. If the Client desires that these samples be retained for a longer period, the Client shall notify LaBella in writing and make arrangements to obtain the samples from LaBella prior to the expiration of the 60-day time period; otherwise, the samples will be properly disposed by LaBella.

APPENDIX A

FIGURE



NOTES

1. TOPOGRAPHIC INFORMATION SHOWN HEREON IS COMPILED FROM A FIELD SURVEY COMPLETED BY THE ENVIRONMENTAL DESIGN PARTNERSHIP, LLP DATED MAY 27, 2026 REFERENCING AN ASSUMED DATUM.
2. ELECTRICAL RESISTIVITY TEST LOCATION SHOWN HEREON WAS COMPLETED BY LABELLA ON AUGUST 12, 2026.
3. TEST BORING LOCATIONS SHOWN HEREON WERE COMPLETED BY LABELLA ON AUGUST 12, 2026 AND AUGUST 13, 2026.
4. FALLING HEAD TEST LOCATIONS SHOWN HEREON WERE COMPLETED BY LABELLA ON AUGUST 13, 2026.

LEGEND

B1 — TEST BORING LOCATION

R1 — ELECTRICAL RESISTIVITY TEST

FH1 — FALLING HEAD TEST LOCATION

1 / FIG1 — EXPLORATION LOCATION PLAN

SCALE: 1" = 50'

N

LaBella
Powered by partnership
4 British American Boulevard
Latham, NY 12110
518-273-0055
labellapc.com
C.A. NUMBER:
GEOLOGICAL: 018750
LAND SURVEYING: 017976
PROFESSIONAL ENGINEERING: 018281

It is a violation of New York Education Law Art. 145 Sec. 7209 & Art. 147 Sec. 7307, for any person, unless acting under the direction of a licensed architect, professional engineer, or land surveyor, to alter an item in any way. If an item bearing the seal of an architect, engineer, or land surveyor is altered; the altering architect, engineer, or land surveyor shall affix to the item their seal and notation "altered by" followed by their signature and date of such alteration, and a specific description of the alteration.

ISSUED FOR: ISSUED FOR REPORT			
DRAWING NAME: **EXPLORATION LOCATION PLAN**	DRAWN BY: LL	DATE: 08/13/2026	PROJECT NO.: 2265555
PROJECT NAME: **JERRY SMITH ENERGY STORAGE** JERRY SMITH ROAD, LANSING	DRAWING NUMBER: **FIG1**		

9/18/2026 10:19:12 AM
B:\GLOBAL\Projects\Nexamp\2265555 - Jerry Smith Energy Storage\06_Drawings\Geotechnical\Fig1_2265555_Location_Plan.dwg

APPENDIX B

EXPLORATION LOGS

LaBella
Powered by partnership.

SOIL GENERAL INFORMATION SHEET

Soil Identification Terms

The exploration logs present observations and the results of tests performed in the field by the Geotechnical Engineers, Geologists, and Driller as noted. The identification of soils or soil like material is subject to limitations imposed by the field conditions and equipment used.

Soil identifications are visual descriptions on the basis of ASTM D2488. The soil density or consistency is based on the penetration resistance determined by ASTM D1586.

The following defines some of the terms utilized in the preparation of the exploration logs.

Abbreviations

N-Value - Standard Penetration Value	WOH - Weight of Rods & Hammer
WOR - Weight of Rods	▼ - Observed Groundwater Surface
NWE - No Water Encountered	bgs - below ground surface
HSG - Hydrologic Soil Group	N/A - Not Applicable

Relative Density of Coarse Grained Soils		Consistency of Fine Grained Soils		
Soil Density	**N Value**	**Soil Consistency**	**Unconfined Compressive Strength, (tsf)**	**N Value**
Very Loose	0 to 4	Very Soft	≤ 0.25	0 to 2
Loose	5 to 10	Soft	0.25 to 0.5	3 to 4
Medium Dense	11 to 30	Medium Stiff	0.5 to 1.0	5 to 8
Dense	31 to 50	Stiff	1.0 to 2.0	9 to 15
Very Dense	> 50	Very Stiff	2.0 to 1.0	16 to 30
		Hard	> 4.0	>30

Size Description	
Soil Type	**Particle Size**
Boulder	> 12"
Cobble	12" - 3"
Gravel-Coarse	3" - 3/4"
Gravel-Fine	3/4" - #4
Sand-Coarse	#4 - #10
Sand-Medium	#10 - #40
Sand-Fine	#40 - #200
Silt/Clay	< #200

> 3", Cobble/Boulder Size Percent Ranges	
Quantifier	**Percent**
Occasional	< 15
Frequent	15 - 35
Very	35 - 60
Extremely	60 - 90

Moisture Condition	
Term	**Description**
Dry	No moisture to touch.
Moist	Damp but no visible water.
Wet	Free water in sample.

< 3", Soil Particle Size Percent Ranges	
Quantifier	**Percent**
Mostly	> 50
Some	30 - 45
Little	15 - 25
Few	5 - 10
Trace	< 5

Field Plasticity	
Term	**Description**
Non-plastic	A 1/8-in. thread cannot be rolled at any water content.
Low	A thread can barely be rolled and a lump cannot be formed.
Medium	A thread is easy to roll and not much time is required to reach the plastic limit. A lump crumbles when drier than the plastic limit.
High	It takes considerable time rolling and kneading to reach the plastic limit.

Dilatancy	
Term	**Description**
None	No visible change in the specimen.
Slow	Water appears slowly on the specimen surface during shaking.
Rapid	Water appears quickly on the specimen surface during shaking.

Notes:

1. The N-Value is the summation of the second and the third SPT values.
2. Split-spoon refusal is considered 50 blows over six inches.
3. If 50 blows is reached prior to advancing 6-inches, the penetration is reported as 50 over the nearest 1 inch value.
4. 100 is the maximum reported N-Value on the Exploration Logs.
5. Auger, Roller Bit, and/or Casing refusal occurs if the driller is unable to advance the boring.

TEST BORING LOG

LaBella Powered by partnership.
4 British American Blvd.
Latham, NY 12110
Phn: (518) 273-0055
Fax: (518) 273-8391

PROJECT: Jerry Smith Storage
LOCATION: Jerry Smith Road, Lansing, NY
CLIENT: Nexamp Inc
PROJECT NO.: 2265555

Test Boring No.: B1
Total Depth: 22 ft.

Contractor: LaBella Enviornmental, LLC
Drill Rig: CME 55
Driller: Wayne Farris
Inspector: Michael Thomas

Start Date: 12-Aug-2026
Finish Date: 12-Aug-2026
El. Datum: Assumed Datum
G.S. Elevation: 1,084

Northing: See Figure
Easting:
Latitude: 42.59283
Longitude: -76.56402

Borehole Dia.: 2.25 in.
Water Depth: 20.5 ft.
Bedrock Depth: NE ft.
Sample Hammer: Automatic

Depth (Ft)	Elevation (Ft)	Sample No.	SPT Blows	Recovery(in)	Groundwater	Group Symbol	Stratum Descriptions:	Field Notes, Comments:
1	1083	SS-1	2 5 6 7	8		SM	Silty Sand (SM): Mostly Sand, little Silt, few Gravel, trace Clay, brown, dry (Reworked Material)	Moisture Content: 18%
2	1082							Approximate Strata Change
3	1081							
4	1080							
5	1079							
6	1078	SS-2	22 9	16		SM	4" Silty Sand (SM): Mostly Sand, some Silt, few Gravel, trace Clay, brown, dry (Loamy Till)	
7	1077		23 35			SM	12" Silty Sand w/ Gravel (SM): Mostly Sand, some Gravel, little Silt, few Clay, brown/gray, dry	
8	1076							
9	1075							
10	1074	SS-3	32 48	0			Similar to SS-4 based on cuttings	Gravel in spoon tip
11	1073		50/5					
12	1072							
13	1071							
14	1070							
15	1069	SS-4	10 23	18		GC	Clayey Gravel w/ Sand (GC): Mostly Gravel, some Clay, little Sand, few Silt, gray, dry to moist	
16	1068		16					
17	1067		22					
18	1066							
19	1065							
20	1064	SS-5	10	12	▼	GC	Clayey Gravel w/ Sand (GC)	

METHODS: **HA**- Hollow Stem Auger, **RWH**- Rotary Wash, **SSA**- Solid Stem Auger, **DC**-Diamond Core, **DP**-Direct Push

SAMPLE TYPES: **SS-Split Spoon, RC-Bedrock Core, GS-Geoprobe Sleeve, ST-Shelby Tube**

STANDARD 1. Samples classified in accordance with ASTM D-2488 unless otherwise noted.

NOTES: 2. Test Boring Log Page 1: 0 - 20 feet. Each subsequent page: Additional 25 feet.

3. Refer to the "Interpretation of Subsurface Logs" for additional symbology and abbreviation definitions.

ADDITIONAL NOTES:

DRILLING INFORMATION

Method:	HA	0 to	20.0
Method:			

	Sample	Core
Type	SS	
Int Diam.	2.25	
Weight	140 lb	
Fall	30"	

TEST BORING LOG

LaBella
Powered by partnership.
4 British American Blvd.
Latham, NY 12110
Phn: (518) 273-0055
Fax: (518) 273-8391

PROJECT: Jerry Smith Storage
LOCATION: Jerry Smith Road, Lansing, NY
CLIENT: Nexamp Inc
PROJECT NO.: 2265555

Test Boring No.: **B1**
Total Depth: 22 ft.

Depth (Ft)	Elevation (Ft)	Sample No.	SPT Blows	Recovery(in)	Groundwater	Group Symbol	Stratum Descriptions:	Field Notes, Comments:
21	1063		32			GC	Clayey Gravel w/ Sand (GC): Mostly Gravel, some Clay, little Sand, few Silt, gray, moist to wet	
			20					
22	1062		17					
							Boring Termianted at 22-ft bgs	
23	1061							
24	1060							
25	1059							
26	1058							
27	1057							
28	1056							
29	1055							
30	1054							
31	1053							
32	1052							
33	1051							
34	1050							
35	1049							
36	1048							
37	1047							
38	1046							
39	1045							
40	1044							
41	1043							
42	1042							
43	1041							
44	1040							
45	1039							

ADDITIONAL NOTES:

TEST BORING LOG

LaBella
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4 British American Blvd.
Latham, NY 12110
Phn: (518) 273-0055
Fax: (518) 273-8391

PROJECT: Jerry Smith Storage
LOCATION: Jerry Smith Road, Lansing, NY
CLIENT: Nexamp Inc
PROJECT NO.: 2265555

Test Boring No.: **B2**
Total Depth: 22 ft.

Contractor: LaBella Enviornmental, LLC
Drill Rig: CME 55
Driller: Wayne Farris
Inspector: Michael Thomas

Start Date: 12-Aug-2026
Finish Date: 12-Aug-2026
El. Datum: Assumed Datum
G.S. Elevation: 1,082

Northing: See Figure
Easting:
Latitude: 42.59263
Longitude: -76.56433

Borehole Dia.: 2.25 in.
Water Depth: 21 ft.
Bedrock Depth: NE ft.
Sample Hammer: Automatic

Depth (Ft)	Elevation (Ft)	Sample No.	SPT Blows	Recovery(in)	Groundwater	Group Symbol	Stratum Descriptions:	Field Notes, Comments:
1	1081	SS-1	1 3 5 6	13		SM	Silty Sand w/ Gravel (SM): Mostly Sand, some Silt, little Gravel, few Clay, brown, dry (Reworked Material)	
2	1080							Approximate Strata Change
3	1079							
4	1078							
5	1077							
6	1076	SS-2	8 16 15 25	15		SC - SM	Silty Clayey Sand w/ Gravel (SC-SM): Mostly Sand, little Gravel, few Silt, few Clay, brown, dry (Loamy Till)	Moisture Content = 8%
7	1075							
8	1074							
9	1073							
10	1072	SS-3	7 10 10 19	14		SM	Silty Sand w/ Gravel (SM): Mostly Sand, some Gravel, little Silt, few Clay, brown, dry	
11	1071							
12	1070							
13	1069							
14	1068							
15	1067	SS-4	5 12 12 14	10		SM	Silty Sand w/ Gravel (SM): Mostly Sand, some Gravel, little Silt, few Clay, brown, dry	
16	1066							
17	1065							
18	1064							
19	1063							
20	1062	SS-5	21	12		SM	Silty Sand w/ Gravel (SM)	

METHODS: **HA**- Hollow Stem Auger, **RWH**- Rotary Wash, **SSA**- Solid Stem Auger, **DC**-Diamond Core, **DP**-Direct Push

SAMPLE TYPES: **SS-Split Spoon, RC-Bedrock Core, GS-Geoprobe Sleeve, ST-Shelby Tube**

STANDARD NOTES:
1. Samples classified in accordance with ASTM D-2488 unless otherwise noted.
2. Test Boring Log Page 1: 0 - 20 feet. Each subsequent page: Additional 25 feet.
3. Refer to the "Interpretation of Subsurface Logs" for additional symbology and abbreviation definitions.

ADDITIONAL NOTES:

DRILLING INFORMATION

Method:	HA	0 to	20.0
Method:			
		Sample	Core
Type		SS	
Int Diam.		2.25	
Weight		140 lb	
Fall		30"	

TEST BORING LOG

LaBella
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4 British American Blvd.
Latham, NY 12110
Phn: (518) 273-0055
Fax: (518) 273-8391

PROJECT: Jerry Smith Storage
LOCATION: Jerry Smith Road, Lansing, NY
CLIENT: Nexamp Inc
PROJECT NO.: 2265555

Test Boring No.: **B2**
Total Depth: 22 ft.

Depth (Ft)	Elevation (Ft)	Sample No.	SPT Blows	Recovery(in)	Groundwater	Group Symbol	Stratum Descriptions:	Field Notes, Comments:
21	1061	21			▼	SM	Silty Sand w/ Gravel (SM): Mostly Sand, some Gravel, little Silt, few Clay, brown, wet	
		10						
22	1060	12						
							Boring Termianted at 22-ft bgs	
23	1059							
24	1058							
25	1057							
26	1056							
27	1055							
28	1054							
29	1053							
30	1052							
31	1051							
32	1050							
33	1049							
34	1048							
35	1047							
36	1046							
37	1045							
38	1044							
39	1043							
40	1042							
41	1041							
42	1040							
43	1039							
44	1038							
45	1037							

ADDITIONAL NOTES:

TEST BORING LOG

LaBella Powered by partnership.
4 British American Blvd.
Latham, NY 12110
Phn: (518) 273-0055
Fax: (518) 273-8391

PROJECT: Jerry Smith Storage
LOCATION: Jerry Smith Road, Lansing, NY
CLIENT: Nexamp Inc
PROJECT NO.: 2265555

Test Boring No.: B3
Total Depth: 22 ft.

Contractor: LaBella Enviornmental, LLC
Drill Rig: CME 55
Driller: Wayne Farris
Inspector: Michael Thomas

Start Date: 13-Aug-2026
Finish Date: 13-Aug-2026
El. Datum: Assumed Datum
G.S. Elevation: 1,085

Northing: See Figure
Easting:
Latitude: 42.59298
Longitude: -76.56433

Borehole Dia.: 2.25 in.
Water Depth: 21 ft.
Bedrock Depth: NE ft.
Sample Hammer: Automatic

Depth (Ft)	Elevation (Ft)	Sample No.	SPT Blows	Recovery(in)	Groundwater	Group Symbol	Stratum Descriptions:	Field Notes, Comments:
1	1084	SS-1	1 2 6	12		SM	Silty Sand w/ Gravel (SM): Mostly Sand, some Silt, little Gravel, few Clay, brown, dry (Reworked Material)	
2	1083		6					Approximate Strata Change
3	1082							
4	1081							
5	1080							
6	1079	SS-2	10 12 18	13		SM	Silty Sand w/ Gravel (SM): Mostly Sand, some Silt, little Gravel, few Clay, brown, moist (Loamy Till)	
7	1078		19					
8	1077							
9	1076							
10	1075							
11	1074	SS-3	10 26 50/5	15		SM	Silty Sand w/ Gravel (ML): Mostly Sand, some Silt, little Gravel, few Clay, brown, moist	
12	1073							
13	1072							
14	1071							
15	1070							
16	1069	SS-4	10 13 16	9		SM	Silty Sand w/ Gravel (SM): Mostly Sand, some Gravel, little Silt, few Clay, brown, moist	
17	1068		13					
18	1067							
19	1066							
20	1065	SS-5	4	12		SM	Silty Sand w/ Gravel (SM)	

METHODS: **HA**- Hollow Stem Auger, **RWH**- Rotary Wash, **SSA**- Solid Stem Auger, **DC**-Diamond Core, **DP**-Direct Push

SAMPLE TYPES: **SS-Split Spoon, RC-Bedrock Core, GS-Geoprobe Sleeve, ST-Shelby Tube**

STANDARD 1. Samples classified in accordance with ASTM D-2488 unless otherwise noted.

NOTES: 2. Test Boring Log Page 1: 0 - 20 feet. Each subsequent page: Additional 25 feet.

3. Refer to the "Interpretation of Subsurface Logs" for additional symbology and abbreviation definitions.

ADDITIONAL NOTES:

DRILLING INFORMATION

Method:	HA	0 to	20.0
Method:			
		Sample	Core
Type		SS	
Int Diam.		2.25	
Weight		140 lb	
Fall		30"	

TEST BORING LOG

LaBella
Powered by partnership.
4 British American Blvd.
Latham, NY 12110
Phn: (518) 273-0055
Fax: (518) 273-8391

PROJECT: Jerry Smith Storage
LOCATION: Jerry Smith Road, Lansing, NY
CLIENT: Nexamp Inc
PROJECT NO.: 2265555

Test Boring No.: **B3**
Total Depth: 22 ft.

Depth (Ft)	Elevation (Ft)	Sample No.	SPT Blows	Recovery(in)	Groundwater	Group Symbol	Stratum Descriptions:	Field Notes, Comments:
21	1064		9		▼	SM	Silty Sand w/ Gravel (SM): Mostly Sand, some Gravel, little Silt, few Clay, brown, wet	
			10					
22	1063		18					
							Boring Termianted at 22-ft bgs	
23	1062							
24	1061							
25	1060							
26	1059							
27	1058							
28	1057							
29	1056							
30	1055							
31	1054							
32	1053							
33	1052							
34	1051							
35	1050							
36	1049							
37	1048							
38	1047							
39	1046							
40	1045							
41	1044							
42	1043							
43	1042							
44	1041							
45	1040							

ADDITIONAL NOTES:

TEST BORING LOG

LaBella
Powered by partnership.
4 British American Blvd.
Latham, NY 12110
Phn: (518) 273-0055
Fax: (518) 273-8391

PROJECT: Jerry Smith Storage
LOCATION: Jerry Smith Road, Lansing, NY
CLIENT: Nexamp Inc
PROJECT NO.: 2265555

Test Boring No.: B4
Total Depth: 10.9 ft.

Contractor: LaBella Enviornmental, LLC
Drill Rig: CME 55
Driller: Wayne Farris
Inspector: Michael Thomas

Start Date: 13-Aug-2026
Finish Date: 13-Aug-2026
El. Datum: Assumed Datum
G.S. Elevation: 1,086

Northing: See Figure
Easting:
Latitude: 42.59363
Longitude: -76.56454

Borehole Dia.: 2.25 in.
Water Depth: NWE ft.
Bedrock Depth: NE ft.
Sample Hammer: Automatic

Depth (Ft)	Elevation (Ft)	Sample No.	SPT Blows	Recovery(in)	Groundwater	Group Symbol	Stratum Descriptions:	Field Notes, Comments:
1	1085	SS-1	1 4 5	13		SM	Silty Sand w/ Gravel (SM): Mostly Sand, some Gravel, little Silt, few Clay, brown, dry (Reworked Material)	
2	1084		7					Approximate Strata Change
3	1083							
4	1082							
5	1081							
6	1080	SS-2	6 12 23	19		SM	Silty Sand w/ Gravel (SM): Mostly Sand, some Silt, little Gravel, trace Clay, brown, dry (Loamy Till)	
7	1079		41					
8	1078							
9	1077							
10	1076	SS-3	18	11		SM	Silty Sand w/ Gravel (SM): Mostly Sand, some Silt, little Gravel, few Clay, brown, dry	
11	1075		50/5					
12	1074						Boring Termianted at 10.9-ft bgs	
13	1073							
14	1072							
15	1071							
16	1070							
17	1069							
18	1068							
19	1067							
20	1066							

METHODS: **HA**- Hollow Stem Auger, **RWH**- Rotary Wash, **SSA**- Solid Stem Auger, **DC**-Diamond Core, **DP**-Direct Push

SAMPLE TYPES: **SS-Split Spoon, RC-Bedrock Core, GS-Geoprobe Sleeve, ST-Shelby Tube**

STANDARD 1. Samples classified in accordance with ASTM D-2488 unless otherwise noted.

NOTES: 2. Test Boring Log Page 1: 0 - 20 feet. Each subsequent page: Additional 25 feet.

3. Refer to the "Interpretation of Subsurface Logs" for additional symbology and abbreviation definitions.

ADDITIONAL NOTES:

DRILLING INFORMATION

Method:	HA	0 to	10.0
Method:			

	Sample	Core
Type	SS	
Int Diam.	2.25	
Weight	140 lb	
Fall	30"	

TEST BORING LOG

LaBella
Powered by partnership.
4 British American Blvd.
Latham, NY 12110
Phn: (518) 273-0055
Fax: (518) 273-8391

PROJECT: Jerry Smith Storage
LOCATION: Jerry Smith Road, Lansing, NY
CLIENT: Nexamp Inc
PROJECT NO.: 2265555

Test Boring No.: **B5**
Total Depth: 12 ft.

Contractor: LaBella Enviornmental, LLC
Drill Rig: CME 55
Driller: Wayne Farris
Inspector: Michael Thomas

Start Date: 13-Aug-2026
Finish Date: 13-Aug-2026
El. Datum: Assumed Datum
G.S. Elevation: 1,083

Northing: See Figure
Easting:
Latitude: 42.59426
Longitude: -76.56415

Borehole Dia.: 2.25 in.
Water Depth: NWE ft.
Bedrock Depth: NE ft.
Sample Hammer: Automatic

Depth (Ft)	Elevation (Ft)	Sample No.	SPT Blows	Recovery(in)	Groundwater	Group Symbol	Stratum Descriptions:	Field Notes, Comments:
		SS-1	4	7		SM	Silty Sand w/ Gravel (SM): Mostly Sand, some Gravel, little Silt, brown, dry (Loamy Till)	
1	1082		5					
			9					
2	1081		9					
3	1080							
4	1079							
5	1078							
		SS-2	5	4		SM	Silty Sand w/ Gravel (SM): Mostly Sand, some Gravel, little Silt, brown, moist	
6	1077		6					
			7					
7	1076		7					
8	1075							
9	1074							
10	1073							
		SS-3	6	20		SM	Silty Sand w/ Gravel (SM): Mostly Sand, some Gravel, little Silt, brown, moist	
11	1072		13					
			22					
12	1071		23					
							Boring Termianted at 12-ft bgs	
13	1070							
14	1069							
15	1068							
16	1067							
17	1066							
18	1065							
19	1064							
20	1063							

METHODS: **HA**- Hollow Stem Auger, **RWH**- Rotary Wash, **SSA**- Solid Stem Auger, **DC**-Diamond Core, **DP**-Direct Push

SAMPLE TYPES: **SS-Split Spoon, RC-Bedrock Core, GS-Geoprobe Sleeve, ST-Shelby Tube**

STANDARD 1. Samples classified in accordance with ASTM D-2488 unless otherwise noted.

NOTES: 2. Test Boring Log Page 1: 0 - 20 feet. Each subsequent page: Additional 25 feet.

3. Refer to the "Interpretation of Subsurface Logs" for additional symbology and abbreviation definitions.

ADDITIONAL NOTES:

DRILLING INFORMATION

Method:	HA	0 to	10.0
Method:			

	Sample	Core
Type	SS	
Int Diam.	2.25	
Weight	140 lb	
Fall	30"	

Name: Jerry Smith Road
LaBella Job: 2265555
Attendees: Michael Thomas

Date: 8/13/2026
Address: Jerry Smith, Lansing, NY
Weather: Sunny
Temperature: 75 F

Falling Head Permeability Tests

Falling Head Test No.	Test Depth (inches)	Trial	Rate	Remarks
FH1	84	Trial 1:	2"/hr	Based on Auger cuttings upper 6.5-ft of soil similar to FH2
		Trial 2:	4"/hr	
		Trial 3:	4"/hr	
FH2	84	Trial 1:	1"/hr	Upper 10-ft, stratum similar to Boring 1 Moved over 5-ft and set casing
		Trial 2:	6"/hr	
		Trial 3:	6"/hr	

APPENDIX C

LABORATORY TEST RESULTS

Moisture Content of Soil

ASTM D2216

Report #: MF0166-000015

Albany
22 Corporate Drive
Clifton Park, NY 12065
Phone: 518.383.9144

Client:	**Project:**
Labella Associates 300 State Street Suite 201 Rochester, NY 14614	AT3764 2026 Laboratory Services 123 Clifton Park, NY 12065

General Information (for Soil Sample)

Sample Date:	08/18/2026	**Sample Number:**	214189
Sample From:	Boring	**Technician:**	Client
Location Details:	LaBella Project No. 2265555. NEXAMP - Jerry Smith - Sample ID: B1, SS-1, (0'-2')		
Material Type:	Native Soil	**Location:**	

Test Results

Description of Test Material:	B1, SS-1, (0'-2')		
Mass of Test Sample Meet Minimum Requirement:	Yes		
Test Specimen Contain More Than One Sample Type (layered):	No		
Percent of Water Content (Method A):	18		
Test Completed Date:	09/09/2026	**Test Completed By:**	Aupperle, Michael

Olivia Bartik, Geologist 09/14/2026

THE RESULTS RELATE ONLY TO THE ITEMS INSPECTED OR TESTED; THIS REPORT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE PRIOR WRITTEN APPROVAL OF ATLANTIC TESTING LABORATORIES.

ATLANTIC TESTING LABORATORIES
A PHENNA GROUP COMPANY

Moisture Content of Soil

ASTM D2216

Report #: MF0166-000016

Albany
22 Corporate Drive
Clifton Park, NY 12065
Phone: 518.383.9144

Client:

Labella Associates
300 State Street
Suite 201
Rochester, NY 14614

Project:

AT3764
2026 Laboratory Services
123
Clifton Park, NY 12065

General Information (for Soil Sample)

Sample Date:	08/18/2026	**Sample Number:**	214190
Sample From:	Boring	**Technician:**	Client
Location Details:	LaBella Project No. 2265555. NEXAMP - Jerry Smith - Sample ID: B2, SS-2, (5'-7')		
Material Type:	Native Soil	**Location:**	

Test Results

Description of Test Material:	B2, SS-2, (5'-7')
Mass of Test Sample Meet Minimum Requirement:	Yes
Test Specimen Contain More Than One Sample Type (layered):	No
Percent of Water Content (Method A):	8

Test Completed Date:	09/09/2026	**Test Completed By:**	Aupperle, Michael

Olivia Bartik, Geologist 09/14/2026

THE RESULTS RELATE ONLY TO THE ITEMS INSPECTED OR TESTED; THIS REPORT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE PRIOR WRITTEN APPROVAL OF ATLANTIC TESTING LABORATORIES.

Particle Size Analysis Report

Report #: SL08A-000049

Albany
22 Corporate Drive
Clifton Park, NY 12065
Phone: 518.383.9144

Client:
Labella Associates
300 State Street
Suite 201
Rochester, NY 14614

Project:
AT3764
2026 Laboratory Services
123
Clifton Park, NY 12065

Sampling Information

Sample Number:	214189	**Sampled By:**	Client
Sampling Method:	Not Provided	**Sample Date:**	08/18/2026
Sample From:	Boring	**Material Type:**	Native Soil

Color/Material Description: B1, SS-1, (0'-2')

Location Details: LaBella Project No. 2265555. NEXAMP - Jerry Smith - Sample ID: B1, SS-1, (0'-2')

Test Results

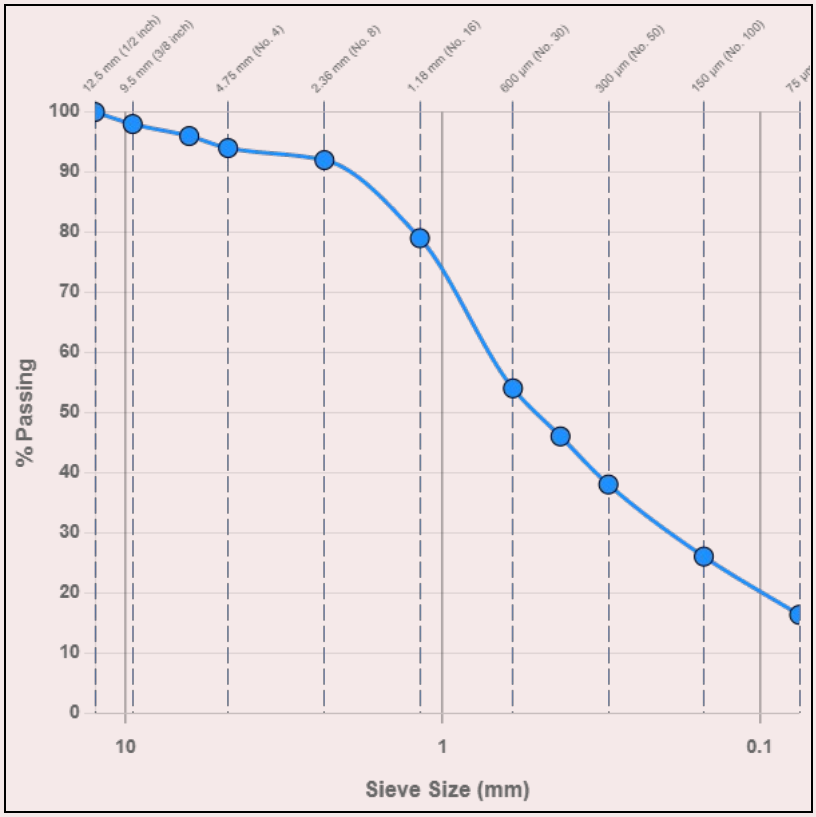
Test Completed By: Aupperle, Michael

Test Completed Date: 09/10/2026

Sieve Analysis Data

Sieve Size	Percent Passing	Spec. Range	Spec. Result
12.5 mm (1/2 inch)	100	---	---
9.5 mm (3/8 inch)	98	---	---
6.3 mm (1/4 inch)	96	---	---
4.75 mm (No. 4)	94	---	---
2.36 mm (No. 8)	92	---	---
1.18 mm (No. 16)	79	---	---
600 µm (No. 30)	54	---	---
425 µm (No. 40)	46	---	---
300 µm (No. 50)	38	---	---
150 µm (No. 100)	26	---	---
75 µm (No. 200)	16.3	---	---

Test Specification: ASTM D422



THE RESULTS RELATE ONLY TO THE ITEMS INSPECTED OR TESTED; THIS REPORT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE PRIOR WRITTEN APPROVAL OF ATLANTIC TESTING LABORATORIES.

Particle Size Analysis Report

Report #: SL08A-000049

Albany
22 Corporate Drive
Clifton Park, NY 12065
Phone: 518.383.9144

Client:

Labella Associates
300 State Street
Suite 201
Rochester, NY 14614

Project:

AT3764
2026 Laboratory Services
123
Clifton Park, NY 12065

Olivia Bartik, Geologist 09/14/2026

THE RESULTS RELATE ONLY TO THE ITEMS INSPECTED OR TESTED; THIS REPORT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE PRIOR WRITTEN APPROVAL OF ATLANTIC TESTING LABORATORIES.

ATLANTIC TESTING LABORATORIES
A PHENNA GROUP COMPANY

Albany
22 Corporate Drive
Clifton Park, NY 12065
Phone: 518.383.9144

Particle Size Analysis Report

Report #: SL08A-000050

Client:	**Project:**
Labella Associates 300 State Street Suite 201 Rochester, NY 14614	AT3764 2026 Laboratory Services 123 Clifton Park, NY 12065

Sampling Information

Sample Number:	214190	**Sampled By:**	Client
Sampling Method:	Not Provided	**Sample Date:**	08/18/2026
Sample From:	Boring	**Material Type:**	Native Soil

Color/Material Description: B2, SS-2, (5'-7')

Location Details: LaBella Project No. 2265555. NEXAMP - Jerry Smith - Sample ID: B2, SS-2, (5'-7')

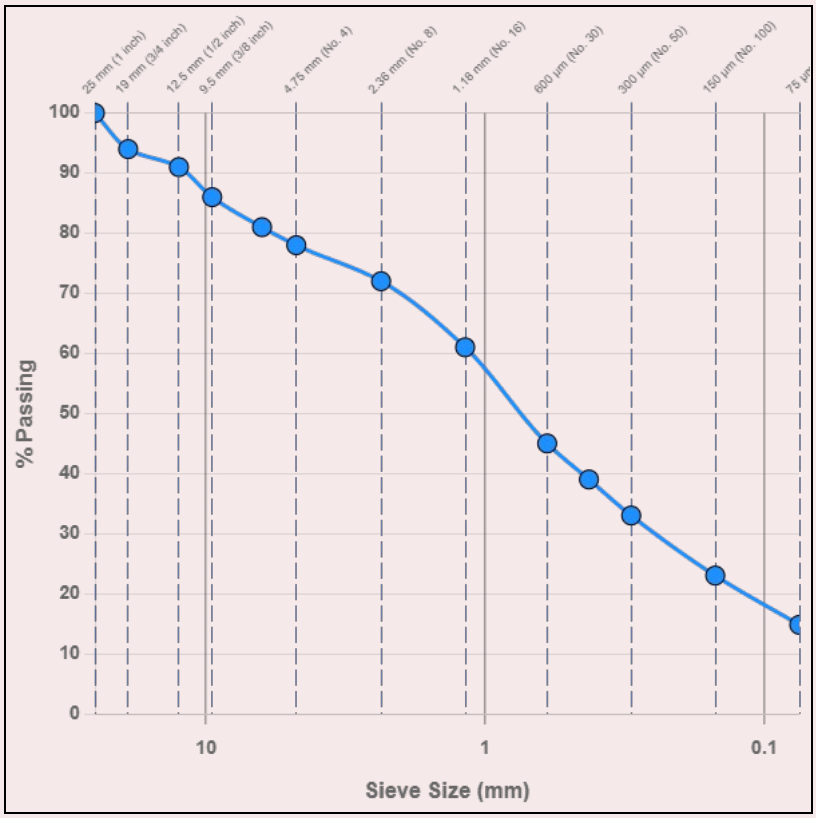
Test Results

Test Completed By:	Aupperle, Michael	**Test Completed Date:**	09/10/2026

Sieve Analysis Data

Sieve Size	Percent Passing	Spec. Range	Spec. Result
25 mm (1 inch)	100	---	---
19 mm (3/4 inch)	94	---	---
12.5 mm (1/2 inch)	91	---	---
9.5 mm (3/8 inch)	86	---	---
6.3 mm (1/4 inch)	81	---	---
4.75 mm (No. 4)	78	---	---
2.36 mm (No. 8)	72	---	---
1.18 mm (No. 16)	61	---	---
600 µm (No. 30)	45	---	---
425 µm (No. 40)	39	---	---
300 µm (No. 50)	33	---	---
150 µm (No. 100)	23	---	---
75 µm (No. 200)	14.8	---	---

Test Specification: ASTM D422



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Particle Size Analysis Report

Report #: SL08A-000050

Albany
22 Corporate Drive
Clifton Park, NY 12065
Phone: 518.383.9144

Client:

Labella Associates
300 State Street
Suite 201
Rochester, NY 14614

Project:

AT3764
2026 Laboratory Services
123
Clifton Park, NY 12065

Olivia Bartik, Geologist 09/14/2026

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Limits and Plasticity Index

ASTM D4318

Report #: MF0194-000048

Albany
22 Corporate Drive
Clifton Park, NY 12065
Phone: 518.383.9144

Client:	Project:
Labella Associates 300 State Street Suite 201 Rochester, NY 14614	AT3764 2026 Laboratory Services 123 Clifton Park, NY 12065

General Information

Sample Number:	214190	**Sample Date:**	08/18/2026
Sample From:	Boring	**Sampling Method:**	Not Provided
Location Details:	LaBella Project No. 2265555. NEXAMP - Jerry Smith - Sample ID: B2, SS-2, (5'-7')		
Location:		**Technician:**	Client

Test Results

Max Grain Size (mm):	19.0	**As-Received % Moisture:**	8.3
Removed 425 µm Larger Particles:	Pulverized and Screened	**% Retain on 425 µm (No. 40) Sieve:**	63.0
Prepared Sample:	Oven Dry	**Grooving Tool:**	Plastic
Liquid Limit Method:	Method A (Multipoint)	**Plastic Limit Procedure:**	Hand-Rolled
Liquid Limit - NP (Non-Plastic):	No	**Plastic Limit - NP (Non-Plastic):**	No
Liquid Limit (Method A):	20	**Average Plastic Limit:**	13
Plasticity Index Result (using LL Method A):		7	
Test Completed Date:	09/14/2026	**Lab Technician:**	Aupperle, Michael

Olivia Bartik, Geologist 09/14/2026

THE RESULTS RELATE ONLY TO THE ITEMS INSPECTED OR TESTED; THIS REPORT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE PRIOR WRITTEN APPROVAL OF ATLANTIC TESTING LABORATORIES.

ATLANTIC TESTING LABORATORIES
A PHENNA GROUP COMPANY

CORROSION ANALYSIS SUITE

Client: LaBella Associates
Project: NEXAMP - Jerry Smith
Client Project No.: 2265555

ATL Report No. AT3764CL-05-09-26
Report Date: September 14, 2026
Date Received: August 31, 2026

Boring: B3 Sample: SS-2 Depth (ft): ---

WATER-SOLUBLE SULFATE IN SOIL
ASTM C 1580

Sulfate by Mass of Sample (%)	Sulfate by Mass of Sample (mg/kg)
0.26	2600

MEASURING pH OF SOIL FOR USE IN CORROSION TESTING
ASTM G 51

Type of Test	Soil Temperature (°C)	pH Readings			Average
Laboratory	23.5	7.37	7.39	7.39	7.38

pH of calibration standards used: 7.00

MEASUREMENT OF SOIL RESISITIVITY USING THE TWO-ELECTRODE SOIL BOX METHOD
ASTM G 187 (LABORATORY)

Test Date: 09/11/26 Performed by: KAS
Meter Used: Miller 400A Soil Box Factor: 1.29

Date Collected	Temperature at Collection (°C)	Measured Resistance (Ω)	Calculated Resistivity (Ω·cm)
Not Provided	Not Provided	1,900	2,451

MEASUREMENT OF OXYGEN-REDUCTION POTENTIAL (ORP) OF SOIL
ASTM G 200

Test Date: 09/11/26 Time of Measurements 10:00 AM
Date and Time Sample Extracted from the Ground: Not Provided
ORP Meter Man.: Extech Instruments ORP Probe Man.: Extech Instruments
Model number: SDL100 Model number: S500C - ORP/BNC

ORP Measurements (mV)			Ambient Temperature (°C)
188	187	186	25.5

WATER-SOLUBLE CHLORIDE ION CONTENT IN SOIL
AASHTO T 291, Method A

Chloride by Mass of Soil (mg/kg)
100

Reviewed By: Emma Caprood Date: 09/14/26

ATLANTIC TESTING LABORATORIES

Rochester
3495 Winton Place, Building B
Rochester, New York 14623
585-427-9020 (T)

THERMAL CONDUCTIVITY OF SOIL AND SOFT ROCK BY THERMAL NEEDLE PROBE
IEEE 442

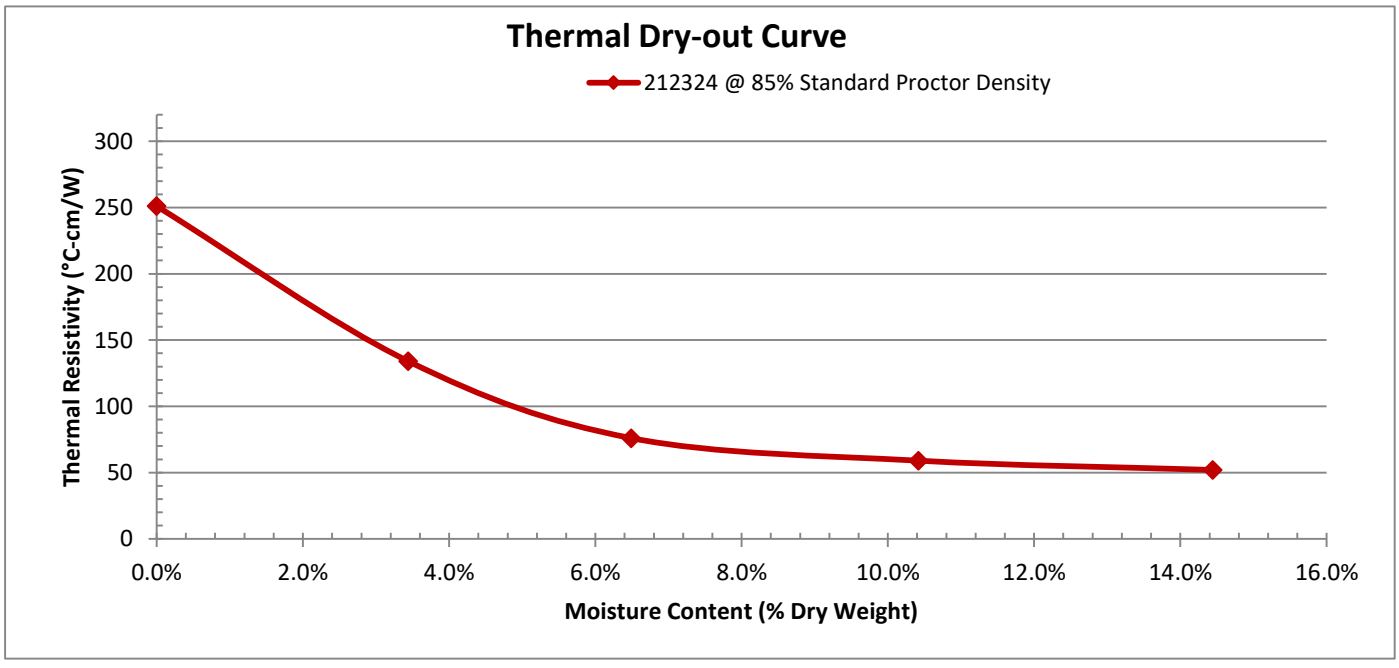
PROJECT INFORMATION

Client:	Labella Associates	**ATL Report No.:**	AT3764TH-212324-09-26
Project:	2026 Laboratory Services	**Report Date:**	September 16, 2026
		Date Received:	August 26, 2026
		Page:	1 of 1

SAMPLE INFORMATION

Source:	Jerry Smith - Project No. 2265555		
Boring Information:	Bulk Sample 0'-5'	**Standard Proctor Values:**	123.0 lb/ft³ @ 11.8% M.C.
Sample Condition:	Bulk; Re-molded	**Remolded Dry Density:**	104.6 lb/ft³ (85%)
ATL Sample No.:	212324	**Received Moisture:**	11.3%

Moisture Content (%)	Initial Soil Temperature (°C)	Thermal Resistivity of Sample (°C-cm/W)
0.0%	24.00	251
3.4%	22.60	134
6.5%	20.40	76
10.4%	20.50	59
14.4%	20.40	52



Reviewed By: Michael Reed

Date: 9/16/2026

THE RESULTS RELATE ONLY TO THE ITEMS INSPECTED OR TESTED; THIS REPORT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE PRIOR WRITTEN APPROVAL OF ATLANTIC TESTING LABORATORIES.

APPENDIX D

FIELD RESISTIVITY DATA

LaBella Associates

Soil Resistivity Test Field Report

JOB NAME/NO: Nexamp - Donner Road Energy Storage 2265558
DATE: 8/12/2026

Field Technician: Michael Thomas
Test Instrument: AEMC Model 4630
Procedure: 4 point soil resistivity test

LOCATION (map attached)	SPACING (ft)	METER READING (ohms)	CALCULATED SOIL RESISTIVITY = 2π x SPACING(cm) x R
R1 90^{0}E	0.5	850.00	81,446
	1	471.00	90,261
	2	222.00	85,087
	3	190.00	109,233
	5	114.00	109,233
	6	78.50	90,261
	10	32.00	61,324
	30	12.50	71,864
	40	5.22	40,014
R1 360^{0}N	0.5	790.00	75,697
	1	501.00	96,010
	2	253.00	96,968
	3	202.00	116,132
	5	131.00	125,522
	6	82.00	94,285
	10	40.00	76,655
	30	18.00	103,484
	40	6.81	52,202

- Very corrosive under 1,000 Ω · cm
- Aggressive from 1,000 to 5,000 Ω · cm
- Mildly corrosive from 5,000 to 10,000 Ω · cm
- Slightly corrosive from 10,000 to 20,000 Ω · cm
- Progressively less corrosive from 20,000 Ω · cm to 30,000 Ω · cm
- Not corrosive greater than 30,000 Ω · cm

ENVIRONMENTAL DESIGN PARTNERSHIP, LLP.
Shaping the physical environment

900 Route 146 Clifton Park, NY 12065
(P) 518.371.7621 edpllp.com

October 16, 2026

Nathaniel Rogers
Planning Director
Town of Lansing
29 Auburn Road
Lansing, NY 14568

Regarding: Jerry Smith Road Battery Energy Storage System (BESS)
339 Jerry Smith Road -Tax Map Parcel: 16-1-10.1
Preliminary/Final site Plan and Special Use Permit Review
T.G. Miller, P.C. Comments

Dear Mr. Rogers:

In response to the T.G. Miller, P.C. comment letter dated October 9, 2026, please find the following requested information compiled to address the comments provided.

SWPPP

1-17. Comments addressed.

Response: Noted

18. Update the sequence of Major Activities in the SWPPP and Sequence of Construction Activities in the Drawings to incorporate the following construction requirements from the SMDM regarding the protection of infiltration practices during construction.

Construction Requirements

- Practice areas shall be clearly marked before any site work begins and heavy equipment traffic shall be restricted to avoid soil disturbance and compaction. The Erosion and Sediment Control plan shall clearly indicate how sediment will be prevented from entering the practice areas.

- Permanent vegetative cover with 80% uniform density shall be established over the entire contributing pervious drainage area before runoff is directed into the facility,

- Infiltration practices shall never serve as a sediment control device during site construction phase and shall be installed at the end of the construction sequence, to the greatest extent practical.

Response: The construction activities have been incorporated into the SWPPP and Plan Set in specified locations.

19. Please submit the following documents for final SWPPP approval:

a. A completed SWPPP Preparer Certification Form signed by a NYS Licensed professional

Engineer.
b. A signed Owner/Operator Certification Form.
c. The MS4-SWPPP Acceptance Form with Sections 1 and 2 complete.

Response: The documents have been incorporated into the SWPPP. Separate copies have also been included for your reference.

Preliminary Drawings

1. Comment addressed

Response: Noted

I can be reached at 518-371-7621 if you have any questions or need additional information.

Sincerely,

Benjamin Willson
Project Engineer
Environmental Design Partnership

900 New York 146 Clifton Park, NY 12065
(P) 518.371.7621 edpllp.com

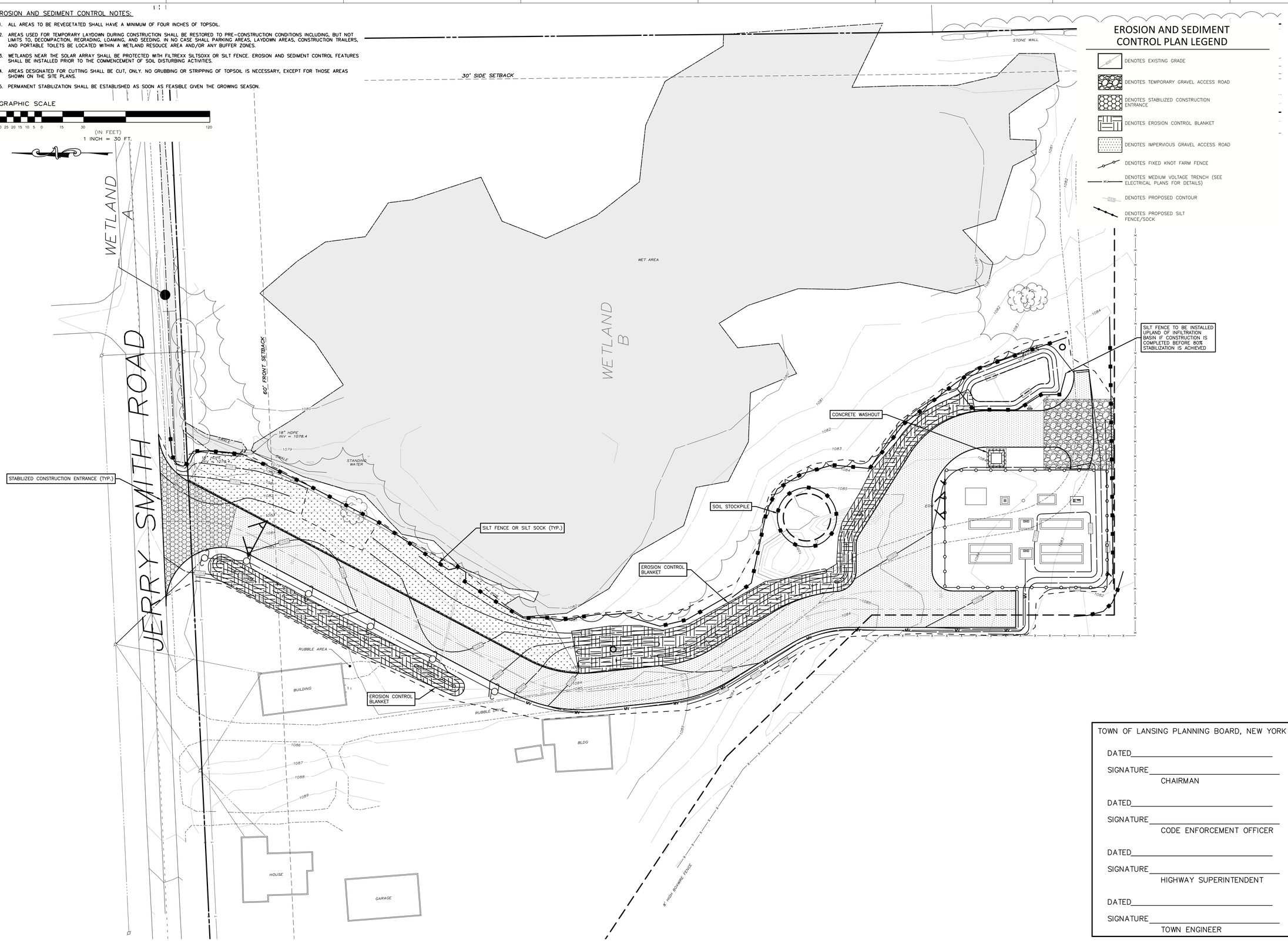
EROSION AND SEDIMENT CONTROL NOTES:

1. ALL AREAS TO BE REVEGETATED SHALL HAVE A MINIMUM OF FOUR INCHES OF TOPSOIL.
2. AREAS USED FOR TEMPORARY LAYDOWN DURING CONSTRUCTION SHALL BE RESTORED TO PRE-CONSTRUCTION CONDITIONS INCLUDING, BUT NOT LIMITS TO, DECOMPACTION, REGRADING, LOAMING, AND SEEDING. IN NO CASE SHALL PARKING AREAS, LAYDOWN AREAS, CONSTRUCTION TRAILERS, AND PORTABLE TOILETS BE LOCATED WITHIN A WETLAND RESOUCE AREA AND/OR ANY BUFFER ZONES.
3. WETLANDS NEAR THE SOLAR ARRAY SHALL BE PROTECTED WITH FILTREXX SILTSOXX OR SILT FENCE. EROSION AND SEDIMENT CONTROL FEATURES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF SOIL DISTURBING ACTIVITIES.
4. AREAS DESIGNATED FOR CUTTING SHALL BE CUT, ONLY. NO GRUBBING OR STRIPPING OF TOPSOIL IS NECESSARY, EXCEPT FOR THOSE AREAS SHOWN ON THE SITE PLANS.
5. PERMANENT STABILIZATION SHALL BE ESTABLISHED AS SOON AS FEASIBLE GIVEN THE GROWING SEASON.

GRAPHIC SCALE

30 25 20 15 10 5 0 15 30 120

(IN FEET)
1 INCH = 30 FT.



EROSION AND SEDIMENT CONTROL PLAN LEGEND

- DENOTES EXISTING GRADE
- DENOTES TEMPORARY GRAVEL ACCESS ROAD
- DENOTES STABILIZED CONSTRUCTION ENTRANCE
- DENOTES EROSION CONTROL BLANKET
- DENOTES IMPERVIOUS GRAVEL ACCESS ROAD
- DENOTES FIXED KNOT FARM FENCE
- DENOTES MEDIUM VOLTAGE TRENCH (SEE ELECTRICAL PLANS FOR DETAILS)
- DENOTES PROPOSED CONTOUR
- DENOTES PROPOSED SILT FENCE/SOCK

TOWN OF LANSING PLANNING BOARD, NEW YORK

DATED_____

SIGNATURE_____
CHAIRMAN

DATED_____

SIGNATURE_____
CODE ENFORCEMENT OFFICER

DATED_____

SIGNATURE_____
HIGHWAY SUPERINTENDENT

DATED_____

SIGNATURE_____
TOWN ENGINEER

nexamp
101 Summer Street, Boston, MA 02110
Tel: (617) 431-1440 Fax: (978) 416-2525 Web: nexamp.com

edp
ENVIRONMENTAL DESIGN PARTNERSHIP, LLP.
900 Route 146 Clifton Park, New York 12065
(518) 371-7621 edpllp.com

Rev	Issued For	Date
A	INTERNAL REVIEW	5/27/26
B	TOWN COMMENTS	7/10/26
C	TOWN COMMENTS	9/23/26
D	TOWN COMMENTS	10/14/26

P.E. seal/Consultant:

STATE OF NEW YORK ★ TRAVIS J. MITCHELL ★ LICENSED PROFESSIONAL ENGINEER 081539

Project:
JERRY SMITH , LLC
JERRY SMITH ROAD, LANSING, NY

Drawing Title:
EROSION AND SEDIMENT CONTROL PLAN

Drawn by: BMW Scale: AS SHOWN Approved by: TJM

Dwg No: C-400 Size: D Sheet Rev: D

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STORMWATER POLLUTION PREVENTION PLAN for CONSTRUCTION ACTIVITIES at

JERRY SMITH BATTERY ENERGY STORAGE SYSTEM
TOWN OF LANSING

Prepared for

JERRY SMITH LLC C/O NEXAMP, LLC
101 SUMMER STREET, SECOND FLOOR
BOSTON MA, 02110

Prepared by
The Environmental Design Partnership, LLP
900 Route 146
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SECTION 1

Written Stormwater Pollution Prevention Plan

JERRY SMITH BATTERY ENERGY STORAGE SYSTEM

I. SCOPE

A. **PURPOSE:** JERRY SMITH LLC intends to implement the appropriate Stormwater Pollution Prevention Plan measures in accordance with the SPDES general permit governing stormwater discharges during construction, and in accordance with erosion control practices. This section provides a descriptive explanation of the means by which JERRY SMITH LLC will comply with the National Stormwater Pollution Prevention Program.

B. **NPDES GENERAL PERMITS FOR STORMWATER DISCHARGE FROM CONSTRUCTION SITES:** Regulations promulgated by the New York State Department of Environmental Conservation (NYSDEC) regulate the discharge of storm water from construction activities on sites where one (1) or more acres of soil is disturbed. One of the ways to comply with these regulations for affected sites is to request coverage under the General Permit for Construction Activities. (Copy enclosed herewith) In order to be authorized to discharge under the General Permit, a Stormwater Pollution Prevention Plan (SWPPP) for the site must be prepared in accordance with all applicable requirements of this permit and followed during the construction activities. If the construction activity is **not** subject to the requirements of a regulated, traditional land use control MS4 a Notice of Intent (NOI) form must be completed and received by the New York State Department of Environmental Conservation at least 5-days prior to any earth-disturbing activities. If the construction activity is subject to the requirements of a regulated, traditional land use control MS4, then the owner/operator must have its SWPPP reviewed and accepted by the MS4 prior to submitting the NOI to the Department. The owner/operator shall have the "MS4 SWPPP Acceptance" form signed and then submit that form along with the NOI to the Department.

C. **RESPONSIBILITIES OF CONTRACTOR REGARDING THE GENERAL PERMIT:** The CONTRACTOR shall manage the discharge of stormwater from the site in accordance with the SPDES General Permit for Construction Activities conditions and the following provisions of this section of the specifications. The CONTRACTOR shall be responsible for conducting the stormwater management practices in accordance with the permit. The CONTRACTOR shall be responsible for providing qualified inspectors to conduct the inspections required by the SWPPP. The CONTRACTOR shall be responsible for any enforcement action taken or imposed by federal, state, or local agencies, including the cost of fines, construction delays, and remedial actions resulting from the CONTRACTOR'S failure to comply with the permit provisions. It shall be the responsibility of the CONTRACTOR to make any changes to the SWPPP necessary when the CONTRACTOR or any of his subcontractors elects to use borrow or fill or material storage sites, either contiguous to or remote from the construction site, when such sites are used solely for this construction site. Such sites are considered to be part of the construction site covered by the permit and this SWPPP. Off-site borrow, fill, or material storage sites which are used for multiple construction projects are not subject to this requirement, unless specifically required by state or local jurisdictional entity regulations. The CONTRACTOR should consider this requirement in negotiating with earthwork subcontractors, since the choice of an off-site borrow, fill, or material storage site may impact their duty to implement, make changes to, and perform inspections required by the SWPPP for the site.

D. **NOTICE OF INTENT:** The NOI Permittee petitions the New York State Department of Environmental Conservation for the stormwater discharges during construction at this site to be covered by the SPDES General Permit for Construction Activity for the State of New York. A Notice of Intent (NOI) (using the form required by the NYSDEC) to be covered under this permit is hereby filed. An Erosion and Sediment Control Plan has been prepared and is attached herewith.

E. **CONTRACTOR RESPONSIBILITIES**: The SWPPP and associated Erosion and Sediment Control Plans represent the **MINIMUM** erosion and sediment control measures that will be required to protect the site during construction. JERRY SMITH LLC and the CONTRACTOR understand that additional erosion and sediment control measures will be necessary during construction. It will be the responsibility of the CONTRACTOR to implement additional erosion and sediment control measures as necessary to protect the site

during construction. JERRY SMITH LLC and the CONTRACTOR shall designate a Project Manager prior to commencing construction. The Project Manager will ensure that all construction managers and sub-contractors are appropriately assigned and understand the importance of the following topics:

- Erosion and Sedimentation Control for Water Quality Protection
- Implementation of the Erosion and Sedimentation Control Plan
- The Importance to Proper Installation of Erosion and Sedimentation Control Measures
- Regular Inspection by qualified personnel of Erosion and Sedimentation Control Measures
- Diligent Maintenance of Erosion and Sedimentation Control Measures
- Contemporaneous preparation of accurate and complete records regarding inspection and maintenance of Erosion and Sedimentation Control Measures
- Record Keeping for Inspections and Maintenance activities

F. **REQUIREMENTS FOR THE CONTRACTOR AND SUBCONTRACTOR(S):** The *SWPPP Ledger* shall provide a "Contractor's Certification Log" **(Form 2)**, identifying the Company Name, Business Address and Telephone Number along with the Responsible Person for the CONTRACTOR and all subcontractors' who will implement the measures identified in the SWPPP. Each of the entities identified on **Form 2** shall sign a "Contractor's Certification" **(Form 3)**, verifying they have been instructed and fully understand the requirements of the New York State Department of Environmental Conservation and SWPPP. **This certification must be signed, by a fully qualified individual on behalf of each entity, prior to the beginning of any construction activities and shall be filed in the project's *SWPPP* Ledger.**

Additionally, the "Trained Contractor" must be identified on Form 3 and his/her credentials should be kept on-site in the SWPPP ledger.

G. **STORMWATER POLLUTION PREVENTION PROGRAM LOCATION REQUIREMENTS:** The *SWPPP Ledger* is meant to be a working document that shall be maintained at the site of the Construction Activities at all times throughout the project, shall be readily available upon request by the NOI Permittee's personnel or New York State Department of Environmental Conservation or any other agency with regulatory authority over stormwater issues, and shall be kept on-site until the site complies with the Final Stabilization section of this document. Refer to Part VII., F., Duty to Provide Information, of the General Permit for additional public viewing requirements.

H. **SWPPP LEDGER:** The SWPPP Ledger shall be a 3-ring Binder, tabbed and indexed for the following sections:

SECTION 1:
- **Written SWPPP**

SECTION 2:
- **Site Map and General Location Map**
- **Erosion and Sediment Control Plan(s)**

SECTION 3:
- **New York State Notice of Intent**
- **New York State NOI Acknowledgement Letter**
- **New York State MS4 SWPPP Acceptance Form**

SECTION 4:

- **New York State SPDES General Permit**

SECTION 5:

- **NOI Permittee's Certification (Form 1)**
- **Contractor's/Subcontractor's Certification Log (Form 2)**
- **Contractor's Certification for each contractor listed on Form 2 (Form 3)**
- **Inspection Report (Form 4)**
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- **Record of Stabilization and Construction Activities Report (Form 6)**
- **Record of Temporary Erosion and Sediment Control Practices (Form 6A)**
- **Project Rainfall Log (Form 7)**
- **Final Stabilization/Termination Checklist (Form 8)**

SECTION 6:

- **Supplemental Information**
  – Stormwater Management Report

SECTION 7:

- **Completed Inspection Forms**

The Project Manager must review and evaluate for compliance the *SWPPP Ledger* at each Project Review meeting. All Inspection and Maintenance Forms (*Forms 4 - 7*) will be initialed by the Project Manager at each reporting interval. It is the owner/operators responsibility to keep the SWPPP current so that, at all times, it accurately documents the erosion and sediment control practices that are being used or will be used during construction, and all Stormwater Management Practices that will be constructed on-site, including preparing as-built drawings that document the final construction conditions

I. **INSPECTIONS AND RECORD KEEPING:** Inspections are required at least weekly by a "Qualified Inspector". Sites that have a waiver to disturb greater than five (5) acres require two (2) inspections every seven (7) days with at least two (2) days between inspections. Inspections shall continue until the site complies with the "Final Stabilization" section of this document and a Notice of Termination (NOT) has been filed with the NYSDEC. Each inspection must be followed up by a report documenting the inspector's findings and request the required maintenance and/or repair for the erosion and sedimentation control measures. The inspector shall notify the Project Manager within one day of the inspection of any deficiencies. Within one day of this notification the Project Manager must commence with corrective measures. It is imperative that the Project Manager documents the Inspection and Maintenance of all erosion and sedimentation control measures as soon as possible after the inspection and/or maintenance is completed. These records are used to prove that the required inspection and maintenance were performed and shall be placed in the *SWPPP Ledger*.. In addition to inspection and maintenance reports, records should be kept of the Construction Activities that occur on the site. The Project Sponsor shall retain copies of the SWPPP, all reports and data for a minimum of five (5) years after the project is complete. The following list identifies the **required** Inspection and Maintenance documentation that must be maintained by the Project Manager under this SWPPP.

- **Form 4 Inspection Report for SWPPP**
- **Form 5 Requested Changes to the SWPPP (Modification Report)**
- **Form 6 Record of Stabilization and Construction Activities**
- **Form 6A Record of Temporary Erosion and Sediment Control Practices**
- **Form 7 Project Rainfall Log**

J. **SWPPP MODIFICATIONS:** The inspection report should also identify if any revisions to the SWPPP are warranted due to unexpected conditions. The SWPPP is meant to be a dynamic working guide that is to be kept current and amended whenever the design, construction, operation, or maintenance of the site changes in a way which significantly affects the potential for the discharge of pollutants or when the plan proves to be ineffective

in eliminating or significantly minimizing pollutant discharges. Any such changes to the SWPPP must be made in writing on the Modification Report Form **(Form 5)** within 7 days of the date such modification or amendment is made. The CONTRACTOR'S failure to monitor or report deficiencies to the NOI Permittee will result in the CONTRACTOR being liable for fines and construction delays resulting from any federal, state, or local agency enforcement action.

K. **FINAL STABILIZATION AND TERMINATION OF PERMIT COVERAGE:** The site will be considered finally stabilized when all soil disturbing activities have been completed and a uniform perennial vegetative cover for the unpaved areas and areas not covered by permanent structures has been established or equivalent permanent stabilization measures have been established and the development area no longer discharges stormwater associated with construction activities and a Notice of Termination (NOT) form filed by the NOI Permittee with the New York State Department of Environmental Conservation. This filing terminates coverage under the General Permit and terminates the CONTRACTOR'S responsibility to implement the SWPPP. Requirements of the SWPPP, including periodic inspections, must be continued until the NOT is filed.

II. SITE DESCRIPTION

A. PROJECT NAME AND LOCATION

The JERRY SMITH BATTERY ENERGY STORAGE SYSTEM PROJECT site is geographically situated at Latitude N 42° 35' 35", Longitude W 76° 33' 50" in the TOWN OF LANSING, TOMPKINS COUNTY, NEW YORK. The site is located on the south side of JERRY SMITH ROAD. The project site is comprised of 56.87 +/- acres of land. The overall disturbance area is 1.67 +/- acres. The project is bounded on the north, south, east and west by PRIVATE FORESTED PROPERTIES. Access to the project will be from JERRY SMITH ROAD. The entire parcel will remain privately owned and maintained. Approximately 0.64 +/- acres of impervious surfaces, including travel surfaces will be constructed. On-going reclamation during construction will consist of all activities listed in Section 1.III.A.1 for temporary actions. Permanent reclamation activities for the laydown area and other compacted areas shall follow the NYSDEC Deep-Ripping and Decompaction April 2008 guidance. Final stabilization is defined as the completion of all soil disturbance activities with the phase area having perennial vegetative cover with a density of eighty (80) percent, or other equivalent stabilization measures such as permanent landscape mulches, rock rip-rap or washed/crushed stone.

B. NOI PERMITTEE'S NAME AND ADDRESS

JERRY SMITH LLC
101 SUMMER STREET, SECOND FLOOR
BOSTON, MA 02110

C. PROJECT DESCRIPTION

The project will involve the installation of a 5-MWac battery energy storage system on an approximately 57-acre site. The design will include a fenced battery storage development footprint of over 1 acre. The installation will also include associated infrastructure such as a concrete equipment pad, a chain link fence and improved site access via a new gravel access road. Soil disturbing activities will include:

1. Construction of stabilized construction access points
2. Clearing and grubbing
3. Installation of batteries
4. Construction of stormwater areas
5. Construction of utilities on site
6. Construction of landscaped areas

7. Final grading

D. RUNOFF COEFFICIENT, SOILS, AND RAINFALL INFORMATION

The site consists of hydrologic soil type (HSG) D. The predevelopment Curve Number (CN) for meadow areas was determined to be 78 for D. Soil within the project area include channery silt loam with poor draining soils, as described by the Soil Conservation Service. The post development CN for all disturbed areas was modeled to be the same as predevelopment. A CN of 98 was used for all impervious surface areas.

E. NAME OF RECEIVING WATERS

Drainage will be directed via on-site swales to an infiltration basin with emergency overflow directed to existing drainage ways, and eventually into wetlands on-site.

F. INDIAN COUNTRY LANDS

The site is not located on any known current or previously designated Indian Country lands.

G. ENDANGERED OR THREATENED SPECIES

A review of the New York State Department of Environmental Conservation's (NYSDEC) Environmental Resource Mapper (http://www.dec.ny.gov/imsmaps/ERM/viewer.htm) indicated no known State regulated rare plants, rare animals or significant natural communities on-site. A letter has been received from the NYSDEC New York Natural Heritage Program stating that the project is likely to have no impact on endangered or threatened species. This letter is included within Section 6 of the SWPPP.

H. HISTORIC PLACES

A review of the New York State Historic Preservation Office (OPRHP) Geographic Information System Mapper (http://www.oprhp.state.ny.us/nr/main.asp) indicated that the site is not located in an archeo sensitive area.

I. CLIMATE CHANGE RESILIENCY PLANNING

With the Community Risk and Resiliency Act (CRRA) being adopted in New York State, JERRY SMITH LLC has demonstrated consideration of several future risks due to the effects of climate change.

Increasing Temperature: When developing the battery layout, JERRY SMITH LLC is only proposing to develop approximately 1.67 +/- acres of land. The roadway and equipment pads include only 0.64 +/- acres of impervious surfaces to reduce material heat absorption (Urban Heat Island Effect) to the maximum extent possible. The stormwater management area on site is a vegetated filter strip and infiltration basin which will prevent runoff from entering heat-vulnerable environments.

Increasing Precipitation: The use of a bioretention area will allow filtration on-site which will minimize the amount of runoff and water quality pollution from leaving the site JERRY SMITH LLC will provide the proper long-term operation/maintenance procedures to ensure conveyance systems will not be overwhelmed during large and more frequent storm events. In the event of drought, there will be no physical or ecological risks due to the bioretention area not retaining water for long periods of time.

Rising Sea Level: According to the FEMA Flood Insurance Rate Map (Map No. 36019C0470E) the project area is located within Zone X (unshaded), which is considered to be outside of the 500-year floodplain. As such, there will also be no increase in storm surge within the project limits.

Shifting Ecology: As stated in part G of this section, there are known State regulated rare plants, rare animals or significant natural communities on-site, but will remain unaffected by the development. The predominant wildlife species that might occupy the project site include squirrels, birds, and deer. The development of this project site will promote sustainable development and should not have any impact on the local ecosystem.

III. CONTROLS

A. EROSION AND SEDIMENT CONTROLS

The following section describes the anticipated Erosion and Sediment Controls required for use during construction of the proposed site. These controls represent the **MINIMUM** erosion and sediment control measures that will be required to protect the site during construction. **Additional erosion and sediment control measures will be necessary during construction.** It will be the responsibility of the NOI permittee to authorize the CONTRACTOR to implement all additional erosion and sediment control measures necessary to protect the site during construction.

1. Stabilization practices include (but not limited to):
   a) Land clearing activities shall be done only in areas where earthwork will be performed and shall progress as earthwork is needed
   b) Frequent watering of excavation and fill areas to minimize wind erosion during construction.
   c) Use of stabilization fabric for all slopes having a slope of 1V:3H or greater.
   d) Seeding and planting of all unpaved areas
      - Temporary seedings should be made within 24 hours of construction or disturbance. If not, the soil must be scarified prior to seeding.
      - Broadcasting or hydroseeding may be used as seeding methods.
      - Seeding mixtures should be as follows
        a) Ryegrass (annual or perennial) applied at 30 lbs. per acre (0.7 lbs./1000 sq. ft.)
        b) Certified "Aroostook" winter rye (cereal rye) applied at 100 lbs. per acre (2.5 lbs./1000 sq. ft.) *Winter rye shall be used if seeding in October/November.
   e) Topsoiling
      - Scarify all compact, slowly permeable, medium and fine textured subsoil areas. Scarify at approximately right angles to the slope direction in soil areas that are steeper than 5 percent.
      - Remove refuse, woody plant parts, stones over 3 inches in diameter, and other liter.
      - Topsoil material shall have at least 2 percent by weight of fine textured stable organic material, and no greater than 6 percent.
      - Topsoil shall have no less than 20 percent fine textured material (passing the No. 200 sieve) and not more than 15 percent clay.
      - Topsoil shall not be placed when it is partly frozen, muddy, or on frozen slopes or over ice, snow, or standing water.
   f) Mulching
      - For grass / legume establishment apply straw mulch applied at 2 ton/acre (90 lbs./1000 sq. ft.) and anchor with wood fiber mulch (hydromulch) at 500-750 lbs./acre (11 – 17 lbs./1000 sq. ft.)
   g) Protecting Vegetation During Construction
      - Limit soil placement over existing tree and shrub roots to a maximum of 3 inches.
      - Use retaining walls and terraces to protect roots of trees and shrubs when grades are lowered. Lowered grades should start no closer than the dripline of the tree.
      - Avoid trenching within the dripline of the tree.
      - Construction limits should be identified and clearly marked to exclude equipment.

2. Structural practices include (but not limited to):

   a) Perimeter protection using silt fences
   b) Sediment basin(s)
   c) Stabilized construction exit points
      - Aggregate size shall be 2 inch stone or reclaimed / recycled concrete equivalent
      - Thickness shall be not less than 6 inches
      - Width to be the full width of the access point, but not less than 12 ft
      - Length shall be as required, but not less than 50 ft.
      - Filter cloth shall be applied over the entire area to be covered with aggregate
      - The entrance shall be maintained in a condition which will prevent tracking of sediment onto public rights-of-way or streets. When necessary, wheels must be cleaned to remove sediment prior to entrance onto public rights-of-way.
   d) Stormwater detention ponds (which may also serve as a temporary sediment basin)
   e) Stone Check Dam
      - Use graded stone 2 to 15 inches in size
      - Sediment accumulated behind the check dam shall be removed as needed to allow drainage through the check dam and prevent large flows from carrying sediment over the dam.

3. Sequence of Major Activities

   The CONTRACTOR will be responsible for implementing erosion and sediment control measures outlined in the SWPPP and any additional erosion and sediment control measures required to stabilize the site. The CONTRACTOR may designate these tasks to certain subcontractors as appropriate, but the ultimate responsibility for implementing these controls and ensuring their proper functioning remains with the CONTRACTOR. The order of activities will be as follows (refer to Stormwater Pollution Prevention Plan Sheet contained in this SWPPP for additional details):

   a) Construct temporary construction exits at locations shown on the SWPPP plan sheet.

   b) Install perimeter silt fences.

   c) Stormwater Practice areas shall be clearly marked before any site work begins and heavy equipment traffic shall be restricted to avoid soil disturbance and compaction. The Erosion and Sediment Control plan shall clearly indicate how sediment will be prevented from entering the practice areas.

   d) Begin clearing and grubbing operations. Clearing and grubbing shall be done only in areas where earthwork will be performed and only in areas where building is planned to commence within 7 days after clearing and grubbing.

   e) Frequent watering of the excavation and fill areas shall be done to minimize wind erosion.

   f) Commence site grading and battery construction.

   g) Disturbed areas of the site where construction activity has ceased for more than 7 days should be temporarily seeded and watered.

   h) Finalize access road subgrade preparation.

   i) Install base material as required for pavement.

   j) Carry out final grading and seeding and planting, including stormwater management areas.

k) Permanent vegetative cover with 80% uniform density shall be established over the entire contributing pervious drainage area before runoff is directed into the facility.

l) The infiltration basin shall never serve as a sediment control device during site construction phase and shall be installed at the end of the construction sequence, to the greatest extent possible.

m) Remove silt fencing only after all paving is complete and exposed surfaces are stabilized.

n) Remove temporary construction exits only prior to pavement construction in these areas (These areas are to be paved last).

4. Stormwater Management

The proposed stormwater management system was designed by The Environmental Design Partnership, Clifton Park, NY. The following paragraphs summarize the stormwater management measures to be incorporated on the site to control pollutants in stormwater discharges after construction is completed. A copy of the Stormwater Management Report is enclosed under Section 6 – Supplemental Information.

Two (2) stormwater management areas, constructed as a vegetated filter strip and infiltration basin, will be constructed to provide sufficient water quality treatment.

5. Post-Construction Maintenance of the Stormwater Management System

Post construction maintenance and protection of the Stormwater Management System shall be performed in accordance with Section VI. LONG TERM OPERATION AND MAINTENANCE PROCEDURES of the SWPPP.

B. OTHER CONTROLS

1. Waste Disposal

All waste materials will be collected and stored in a securely lidded metal dumpster rented from a local waste management company which must be a solid waste management company licensed to do business in New York State. The dumpster will comply with all local and state solid waste management regulations.

All trash and construction debris from the site will be deposited in the dumpster. The dumpster will be emptied as often as necessary, and the trash will be hauled to a landfill approved by New York State and the local government authority. No construction waste materials will be buried on site. All personnel will be instructed regarding the correct procedures for waste disposal. Notices stating these practices will be posted in the job site construction office trailer, and the job site superintendent will be responsible for seeing that these procedures are followed.

2. Sanitary Waste

All sanitary waste will be collected from the portable units a minimum of two times per week by a licensed portable facility provider in complete compliance with local and state regulations.

3. Off-Site Vehicle Tracking

A stabilized construction exit will be provided to help reduce vehicle tracking of sediments. The paved streets adjacent to the site entrance will be inspected daily and swept as necessary to remove any excess mud, dirt, or rock tracked from the site. Dump trucks hauling material from the

construction site will be covered with a tarpaulin. The job site superintendent will be responsible for seeing that these procedures are followed.

4. Concrete Waste From Concrete Trucks

   a) Emptying of excess concrete and/or washout from concrete delivery trucks will be allowed on the job site, but only in either (1) specifically designated diked areas which have been prepared to prevent contact between the concrete and/or washout and stormwater which will be discharged from the site or (2) in locations where waste concrete can be poured into forms to make riprap or other useful concrete products.

   b) The hardened residue from the concrete washout diked areas will be disposed of in accordance with the procedures given in the Spill Prevention Control and Countermeasures (SPCC) Plan and in accordance with applicable state and federal regulations. The job site superintendent will be responsible for seeing that these procedures are followed.

5. Hazardous Substances and Hazardous Waste

   a) All hazardous waste materials will be disposed of by the CONTRACTOR in the manner specified by local, state, and/or federal regulations and by the manufacturer of such products. Site personnel will be instructed in these practices by the job site superintendent, who will also be responsible for seeing that these practices are followed. Material Safety Data Sheets (MSDS's) for each substance with hazardous properties that is used on the job site will be obtained and used for the proper management of potential wastes that may result from these products. An MSDS will be posted in the immediate area where such product is stored and/or used and another copy of each MSDS will be maintained in the SWPPP file at the job site construction trailer office. Each employee who must handle a substance with hazardous properties will be instructed on the use of MSDS sheets and the specific information in the applicable MSDS for the product he/she is using, particularly regarding spill control techniques.

   b) The CONTRACTOR will implement the Spill Prevention Control and Countermeasures (SPCC) Plan found within this SWPPP and will train all personnel in the proper cleanup and handling of spilled materials. No spilled hazardous materials or hazardous wastes will be allowed to come in contact with stormwater discharges. If such contact occurs, the stormwater discharge will be contained on site until appropriate measures in compliance with state and federal regulations are taken to dispose of such contaminated stormwater. It shall be the responsibility of the job site superintendent to properly train all personnel in the use of the SPCC plan.

   c) Any spills of hazardous materials which are in quantities in excess of Reportable Quantities as defined by EPA regulations shall be immediately reported to the EPA National Response Center 1-800-424-8802.

   d) In order to minimize the potential for a spill of hazardous materials to come into contact with stormwater, the following steps will be implemented:

      - All materials with hazardous properties (such as pesticides, petroleum products, fertilizers, detergents, construction chemicals, acids, paints, paint solvents, cleaning solvents, additives for soil stabilization, concrete curing compounds and additives, etc.) will be stored in a secure location, under cover, when not in use. All such materials shall have secondary containment to prevent contamination of soil and runoff.

      - The minimum practical quantity of all such materials will be kept on the job site.

- A spill control and containment kit (containing, for example, absorbent such as kitty litter or sawdust, acid neutralizing powder, brooms, dust pans, mops, rags, gloves, goggles, plastic and metal trash containers, etc.) will be provided at the storage site.
- All of the product in a container will be used before the container is disposed of. All such containers will be triple-rinsed with water prior to disposal. The rinse water used in these containers will be disposed of in a manner in compliance with state and federal regulations and will not be allowed to mix with stormwater discharges.
- All products will be stored in and used from the original container with the original product label.
- All products will be used in strict compliance with instructions on the product label.
- The disposal of excess or used products will be in strict compliance with instructions on the product label.

6. Contaminated Soils

a) Any contaminated soils (resulting from spills of materials with hazardous properties) which may result from construction activities will be contained and cleaned up immediately in accordance with the procedures given in the Spill Prevention Control and Countermeasures (SPCC) Plan and in accordance with applicable state and federal regulations.

b) The job site superintendent will be responsible for seeing that these procedures are followed.

IV. COMPLIANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS

A. The CONTRACTOR will obtain copies of any and all local and state regulations that are applicable to stormwater management, erosion control, and pollution minimization at this job site and will comply fully with such regulations. The CONTRACTOR will submit written evidence of such compliance if requested by any agent of a regulatory body. The CONTRACTOR will comply with all conditions of the New York State Department of Environmental Conservation SPDES General Permit for Construction Activities, including the conditions related to maintaining the SWPPP and evidence of compliance with the SWPPP at the job site and allowing regulatory personnel access to the job site and to records in order to determine compliance.

V. MAINTENANCE/INSPECTION PROCEDURES DURING CONSTRUCTION

A. Erosion and Sediment Control and Stabilization Measures Maintenance and Inspection Practices

1. The following is a list of erosion and sediment controls to be used on this site during construction practice.

a) Stabilization practices for this site include:
- Land clearing activities shall be done only in areas where earthwork will be performed and shall progress as earthwork is needed
- Frequent watering of excavation and fill areas to minimize wind erosion during construction.
- Use of stabilization fabric for all slopes having a slope of 1V:3H or greater.
- Permanent seeding and planting of all unpaved areas using the hydromulching grass seeding technique.

b) Structural practices for this site include:
- Perimeter protection using silt fences
- Stabilized construction exit points
- Stormwater detention ponds (which may also serve as a temporary sediment basin)

2. The following inspection and maintenance practices will be used to maintain erosion and sediment controls and stabilization measures.

    a) All control measures will be inspected once every seven (7) days at a minimum. Sites that have a waiver to disturb greater than five (5) acres require two (2) inspections every seven (7) days with at least two (2) days between inspections.
    b) All measures will be maintained in good working order; if repairs are found to be necessary, they will be initiated within 24 hours of report.
    c) Built up sediment will be removed from silt fence when it has reached one-third the height of the fence.
    d) Silt fences will be inspected for depth of sediment, tears, etc., to see if the fabric is securely attached to the fence posts, and to see that the fence posts are securely in the ground.
    e) The sediment basins will be inspected for depth of sediment, and built up sediment will be removed when it reaches 50 percent of the capacity.
    f) Temporary and permanent seeding and all other stabilization measures will be inspected for bare spots, washouts, and healthy growth.
    g) A maintenance inspection report will be made after each inspection. Copies of the report forms to be completed by the inspector are included in this SWPPP.
    h) The job site superintendent will be responsible for selecting and training the individuals who will be responsible for these inspections, maintenance and repair activities, and filling out inspection and maintenance reports.
    i) Personnel selected for the inspection and maintenance responsibilities will receive appropriate instruction from the job site superintendent. They will be trained in all the inspection and maintenance practices necessary for keeping the erosion and sediment controls that are used onsite in good working order. They will also be trained in the completion of, initiation of actions required by, and the filing of the inspection forms. Documentation of this personnel training will be kept on site with the SWPPP.
    j) Disturbed areas and material storage areas will be inspected for evidence of or potential for pollutants entering stormwater systems.
    k) Report to the NYS Department of Environmental Conservation within 24 hours any noncompliance with the SWPPP that will endanger public health or the environment. Follow up with a written report within 5 days of the noncompliance event.

B. Inspection and Maintenance Report Forms

Once installation of any required or optional erosion control device or measure has been implemented, weekly inspections of each measure shall be performed by the CONTRACTOR'S inspection personnel. The Inspection and Maintenance Reports found in this SWPPP shall be used by the inspectors to inventory and report the condition of each measure to assist in maintaining the erosion and sediment control measures in good working order.

These report forms shall become an integral part of the SWPPP and shall be made readily accessible to governmental inspection officials, the NOI Permittee's Engineer, and the NOI Permittee for review upon request during visits to the project site. In addition, copies of the reports shall be provided to any of these persons, upon request, via mail or facsimile transmission. Inspection and maintenance report forms are to be maintained by the NOI Permittee for five years following the final stabilization of the site.

C. Other Record-Keeping Requirements

The CONTRACTOR shall keep the following records related to construction activities at the site:
- Dates when major grading activities occur and the areas that were graded
- Dates and details concerning the installation of structural controls
- Dates when construction activities cease in an area
- Dates when areas are stabilized, either temporarily or permanently

- Dates of rainfall and the amount of rainfall
- Dates and descriptions of the character and amount of any spills of hazardous materials
- Records of reports filed with regulatory agencies if reportable quantities of hazardous materials spilled

D. Winter Operations

The following is a list of erosion and sediment controls and inspection and maintenance practices for winter operations for this site.

a) **Prior to November 1st of any given year all exposed soil areas must be covered with:**
   - Mulch
   - Seed and mulch
   - Geotextile
   - Erosion control matting
   - Rock or
   - Other approved mulch to prevent soil from eroding

b) Install sediment barriers (silt fence or drop inlet protection) at ALL necessary perimeter and sensitive locations BEFORE SOIL FREEZES.

c) Slopes and Stockpiles:
   - Protect slopes and stockpiles with anchored straw or mulch, rolled erosion control product or other durable covering.
   - Sediment barrier must be installed around piles and at slope toes to prevent soil transport from the pile or slope.
   - Stabilize exposed areas BEFORE snow covers them.

d) All entrance/exit locations must be properly stabilized and maintained to accommodate snow management.

e) Inspections:
   - If soil disturbance is COMPLETELY suspended AND site is PROPERLY STABILIZED, qualified inspection frequency may be reduced with written notification to NYSDEC or MS4.
   - Confirmation must be received from NYSDEC prior to reducing inspection frequency.
   - Monthly inspections must be performed at a minimum.
   - Sediment control measures should be checked after rain or snowmelt events.
   - Regular inspections must resume by March 15th.

VI. LONG TERM OPERATION AND MAINTENANCE PROCEDURES

The proposed JERRY SMITH BATTERY ENERGY STORAGE SYSTEM project will be PRIVATELY OWNED and the operation and maintenance requirements will be the responsibility of the private owner. The entire Stormwater Management System shall be inspected on a yearly basis to ensure that the system operates in the manner originally intended. Specific components of the system shall require additional attention as described below.

1. Infiltration Basin
   a. Basins shall be inspected annually and following major storm events to ensure the system operates in the manner originally intended. The inspection should include, but not be limited to, the following components; all outlet orifices, embankment, emergency spillway, drain, accumulation of sediment, and general erosion control measures.
   b. Re-grading and re-vegetation shall be performed as necessary and rip-rap shall be replaced as necessary.

c. Embankments shall be mowed a minimum of twice per year to discourage woody growth and control weeds.
d. Debris and litter shall be removed from basins during regular mowing operations or more frequently as necessary.
e. Accumulated sediment shall be removed from the basin when 10 percent of the basin capacity has been lost due to sedimentation or at a minimum of every 10 to 20 years.

2. Closed Drainage System
    a. Pipes shall be inspected annually and following major storm events to ensure the system operates in the manner originally intended.

3. Open Channels
    a. Open channels shall be inspected annually and following major storm events to ensure the system operates in the manner originally intended.
    b. Removal of sediment build-up within the bottom of the channel or filter strip shall be required when 25% of the channel volume has been exceeded.
    c. Shall be mowed to maintain a grass height of 4” to 6”.

4. Vegetated Filter Strip
    a. Vegetated Filter Strips shall be inspected annually and following major storm events to ensure the system operates in the manner originally intended.
    b. Debris and litter shall be removed from the filter strip and gravel diaphragm as necessary.
    c. Accumulated sand, grit and/or debris shall be removed from the filter strip and gravel diaphragm if present.
    d. If rill erosion is present, fill in areas with native soil and reseed as required. Gravel diaphragm shall be increased in width above rill erosion locations to ensure sheet flow is maintained onto the vegetated filter strip.

STORMWATER POLLUTION PREVENTION PLAN
SUMMARY OF EROSION AND SEDIMENT CONTROL AND STABILIZATION MEASURES
MAINTENANCE/INSPECTION PROCEDURES

All control measures will be inspected at least once every seven (7) days. Sites that have a waiver to disturb greater than five (5) acres require two (2) inspections every seven (7) days with at least two (2) days between inspections.

☐ All measures will be maintained in good working order; if a repair is necessary, it will be initiated within 24 hours of report.

☐ Built-up sediment will be removed from silt fences when it has reached one-third the height of the fence.

☐ Silt fences will be inspected for depth of sediment, tears, to see if the fabric is securely attached to the fence posts, and to see that the fence posts are firmly in the ground.

☐ Sediment basins, if present, will be inspected for depth of sediment, and built-up sediment will be removed when it reaches 50% of the design capacity or at the end of the job.

☐ Diversion dikes, if present, will be inspected and any breaches promptly repaired.

☐ Temporary and permanent seeding and planting and other stabilization measures will be inspected for bare spots, washouts, and healthy growth.

☐ A maintenance inspection report will be made after each inspection. Copies of the report forms to be used are included in this SWPPP.

☐ The site job superintendent will select the individuals who will be responsible for inspections, maintenance and repair activities, and filling out the inspection and maintenance reports.

☐ Personnel selected for inspection and maintenance responsibilities will receive training from the site job superintendent. They will be trained in all the inspection and maintenance practices necessary for keeping the erosion and sediment controls used onsite in good working order.

☐ Disturbed areas and materials storage areas will be inspected for evidence of or potential for pollutants entering stormwater systems.

☐ Report to The Department of Environmental Conservation within 24 hours any noncompliance with the SWPPP that will endanger public health or the environment. Follow up with a written report within 5 days of the noncompliance event.

STORMWATER POLLUTION PREVENTION PLAN

CONSTRUCTION/IMPLEMENTATION CHECKLIST

1. Maintain Records (Project Manager) of Construction Activities, including:

   ☐ Dates when major grading activities occur

   ☐ Dates when construction activities temporarily cease on a portion of the site

   ☐ Dates when construction activities permanently cease on a portion of the site

   ☐ Dates when stabilization measures are initiated on the site

   ☐ Dates of rainfall and the amount of rainfall

   ☐ Dates and descriptions of the character and amount of any spills of hazardous materials

   ☐ Records of reports filed with regulatory agencies if reportable quantities of hazardous materials spilled

2. Prepare Inspection Reports (Qualified Inspector) summarizing:

   ☐ Name of inspector

   ☐ Qualifications of inspector

   ☐ Measures/areas inspected

   ☐ Observed conditions

   ☐ Changes necessary to the SWPPP

3. Report Releases of Reportable Quantities of Oil or Hazardous Materials (Project Manager, if they occur):

   ☐ Notify National Response Center (1-800-424-8802) immediately

   ☐ Notify permitting authority in writing within 14 days

   ☐ Modify the pollution prevention plan to include:

   - the date of release
   - circumstances leading to the release
   - steps taken to prevent reoccurrence of the release

4. Modify Pollution Prevention Plan (per Qualified Inspector) as necessary to:

   ☐ Comply with the minimum permit requirements when notified by The Department of Environmental Conservation that the plan does not comply

   ☐ Address a change in design, construction operation, or maintenance that has an effect on the potential for discharge of pollutants

   ☐ Prevent reoccurrence of reportable quantity releases of a hazardous material or oil

VII. SPILL PREVENTION CONTROL AND COUNTERMEASURES (SPCC) PLAN

A. MATERIALS COVERED

The following materials or substances with known hazardous properties are expected to be present onsite during construction:

Concrete	Cleaning solvents
Detergents	Petroleum based products
Paints	Pesticides
Paint solvents	Acids
Fertilizers	Concrete additives
Soil stabilization additives	

B. MATERIAL MANAGEMENT PRACTICES

The following are the material management practices that will be used to reduce the risk of spills or other accidental exposure of materials and substances to stormwater runoff.

1. Good Housekeeping

The following good housekeeping practices will be followed onsite during the construction project.

a) An effort will be made to store only enough product required to do the job.

b) All materials stored onsite will be stored in a neat, orderly manner and, if possible, under a roof or other enclosure.

c) Products will be kept in their original containers with the original manufacturer's label in legible condition.

d) Substances will not be mixed with one another unless recommended by the manufacturer.

e) Whenever possible, all of a product will be used up before disposing of the container.

f) Manufacturer's recommendations for proper use and disposal will be followed.

g) The job site superintendent will be responsible for daily inspections to ensure proper use and disposal of materials.

2. Hazardous Products

These practices will be used to reduce the risks associated with hazardous materials.

a) Products will be kept in original containers with the original labels in legible condition.

b) Original labels and material safety data sheets (MSDS's) will be procured and used for each material.

c) If surplus product must be disposed of, manufacturer's or local/state/federal recommended methods for proper disposal will be followed.

d) A spill control and containment kit (containing, for example, absorbent such as kitty litter or sawdust, acid neutralizing powder, brooms, dust pans, mops, rags, gloves, goggles, plastic and metal trash containers, etc.) will be provided at the storage site.

e) All of the product in a container will be used before the container is disposed of. All such containers will be triple-rinsed with water prior to disposal. The rinse water used in these containers will be disposed of in a manner in compliance with state and federal regulations and will not be allowed to mix with stormwater discharges.

3. Product Specific Practices

The following product specific practices will be followed on the job site.

a) Petroleum Products

All onsite vehicles will be monitored for leaks and receive regular preventative maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled. Any petroleum storage tanks used onsite will have a dike or berm containment structure constructed around it to contain any spills that may occur. Any asphalt substances used onsite will be applied according to the manufacturer's recommendations.

b) Fertilizers

Fertilizers will be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer will be worked in the soil to limit exposure to stormwater. Storage will be in a covered shed. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.

c) Paints, Paint Solvents, and Cleaning Solvents

All containers will be tightly sealed and stored when not in use. Excess paint and solvents will not be discharged to the storm sewer system but will be properly disposed of according to manufacturer's instructions or state and federal regulations.

d) Concrete Trucks

Concrete trucks will be allowed to wash out or discharge surplus concrete or drum wash water on the site, but only in either (1) specifically designated diked areas which have been prepared to prevent contact between the concrete and/or washout and stormwater which will be discharged from the site or (2) in locations where waste concrete can be poured into forms to make riprap or other useful concrete products.

The hardened residue from the concrete washout diked areas will be disposed of in the same manner as other non-hazardous construction waste materials or may be broken up and used on site as deemed appropriate by the CONTRACTOR. The job site superintendent will be responsible for seeing that these procedures are followed.

4. Spill Prevention Practices

In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and cleanup.

a) Manufacturer's recommended methods for spill cleanup will be clearly posted and site personnel will be trained regarding these procedures and the location of the information and cleanup supplies.

b) Materials and equipment necessary for spill cleanup will be kept in the material storage area onsite in spill control and containment kit (containing, for example, absorbent such as kitty litter or sawdust, acid neutralizing powder, brooms, dust pans, mops, rags, gloves, goggles, plastic and metal trash containers, etc.).

c) All spills will be cleaned up immediately after discovery.

d) The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with the hazardous substances.

e) Spills of toxic or hazardous materials will be reported to the appropriate federal, state, and/or local government agency, regardless of the size of the spill. Spills of amounts that exceed Reportable Quantities of certain substances specifically mentioned in federal regulations (40 CFR 302 list and oil) will be immediately reported to the EPA National Response Center, telephone 1-800-424-8802. Reportable Quantities of some substances which may be used at the job site are as follows:

oil - appearance of a film or sheen on water

pesticides - usually 1 lb.

acids - 5000 lb.

solvents, flammable - 100 lb.

f) The SPCC plan will be adjusted to include measures to prevent this type of spill from recurring and how to clean up the spill if there is another one. A description of the spill, what caused it, and the cleanup measures will also be included. If the spill exceeds a Reportable Quantity, all federal regulations regarding reports of the incident will be complied with.

g) The job site superintendent will be the spill prevention and cleanup coordinator. He will designate the individuals who will receive spill prevention and cleanup training. These individuals will each become responsible for a particular phase of prevention and cleanup. The names of these personnel will be posted in the material storage area and in the office trailer onsite.

VIII. CONTROL OF ALLOWABLE NON-STORMWATER DISCHARGES

A. Certain types of discharges are allowable under the NYS Department of Environmental Conservation SPDES General Permit for Construction Activity, and it is the intent of this SWPPP to allow such discharges. These types of discharges will be allowed under the conditions that no pollutants will be allowed to come in contact with the water prior to or after its discharge. The control measures, which have been outlined previously in this SWPPP, will be strictly followed to ensure that no contamination of these non-stormwater discharges takes place. The following allowable non-stormwater discharges that may occur from the job site include:

a) Discharges from fire fighting activities

b) Fire hydrant flushings (see note below)

c) Waters used to wash vehicles or control dust in order to minimize offsite sediment tracking

d) Potable water sources such as waterline flushings (see note below), irrigation drainage from watering vegetation, routine exterior building washdown (without detergents present) (See Note below)

e) Pavement washwaters where spills or leaks of hazardous materials have not occurred or detergents have not been used

f) Springs and other uncontaminated groundwater, including dewatering ground water infiltration

g) Foundation or footing drains where no contamination with process materials such as solvents is present

NOTE: CONTRACTOR shall neutralize any super-chlorinated water from water distribution pipes before releasing it into the environment. Neutralization techniques are available from the Operator's Engineer.

IX. CERTIFICATION AND NOTIFICATION

A. The NYS Department of Environmental Conservation requires that certifications of knowledge of the contents of this SWPPP and agreement to follow the SWPPP be made by the NOI Permittee and the CONTRACTOR. The terms of the General Permit also require that each CONTRACTOR sign the SWPPP plan, (Form 3) thereby making them co-permittees and acknowledging their responsibility for certain operational aspects of the plan. These certifications should be signed before the CONTRACTOR begins activities and should be filed with the site's SWPPP at the jobsite. These certifications are provided within this document, see Table of Contents for location.

SECTION 2

Erosion and Sedimentation Control Plan

Site Map and General Location Map

NOT TO SCALE

Site Location Map
Jerry Smith BESS

Town of Lansing

Source: Google Earth

Tompkins County, NY

June 2026

The Environmental Design Partnership, LLP
© 2023

Figure: 1

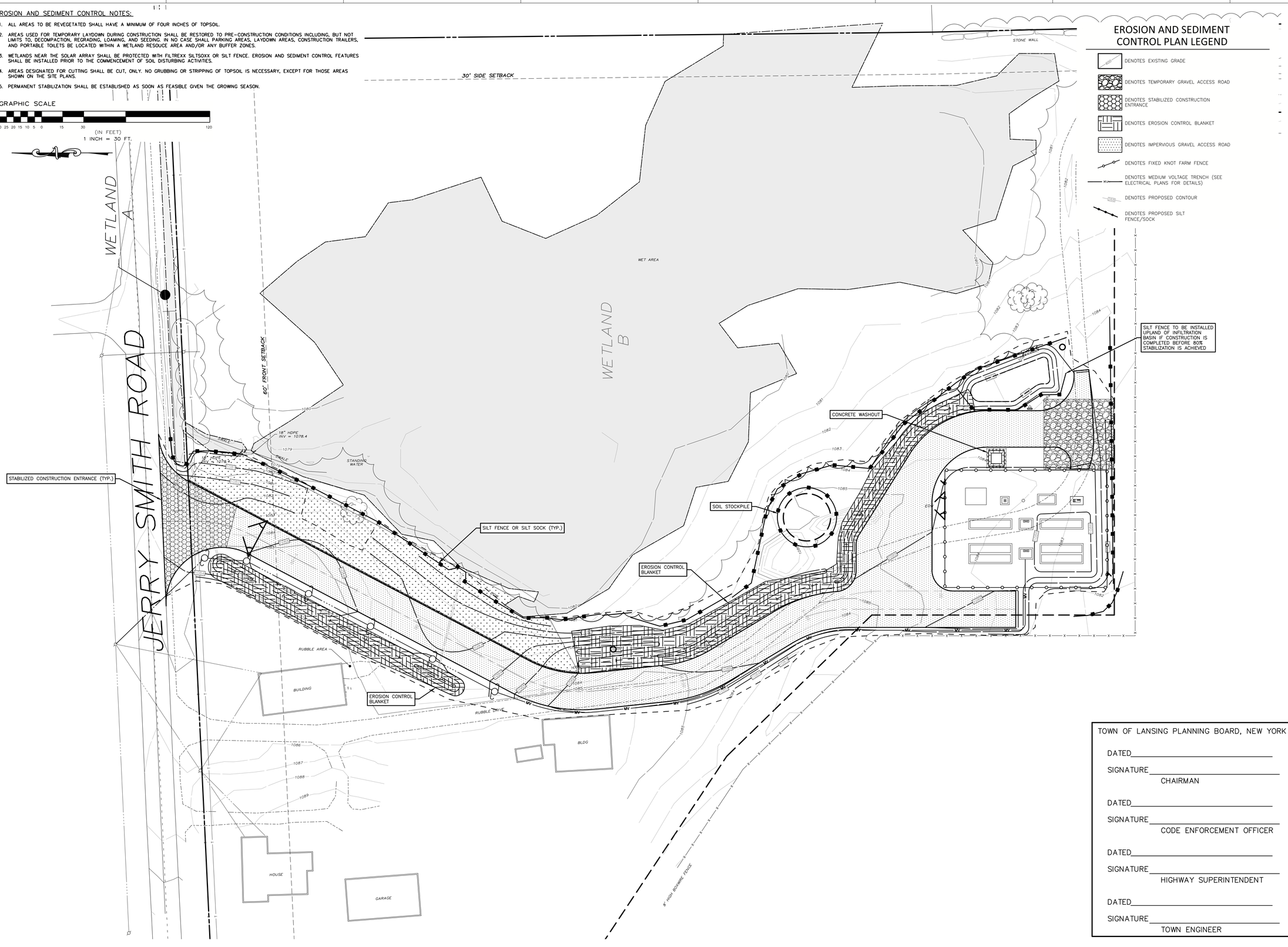
EROSION AND SEDIMENT CONTROL NOTES:

1. ALL AREAS TO BE REVEGETATED SHALL HAVE A MINIMUM OF FOUR INCHES OF TOPSOIL.
2. AREAS USED FOR TEMPORARY LAYDOWN DURING CONSTRUCTION SHALL BE RESTORED TO PRE-CONSTRUCTION CONDITIONS INCLUDING, BUT NOT LIMITS TO, DECOMPACTION, REGRADING, LOAMING, AND SEEDING. IN NO CASE SHALL PARKING AREAS, LAYDOWN AREAS, CONSTRUCTION TRAILERS, AND PORTABLE TOILETS BE LOCATED WITHIN A WETLAND RESOUCE AREA AND/OR ANY BUFFER ZONES.
3. WETLANDS NEAR THE SOLAR ARRAY SHALL BE PROTECTED WITH FILTREXX SILTSOXX OR SILT FENCE. EROSION AND SEDIMENT CONTROL FEATURES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF SOIL DISTURBING ACTIVITIES.
4. AREAS DESIGNATED FOR CUTTING SHALL BE CUT, ONLY. NO GRUBBING OR STRIPPING OF TOPSOIL IS NECESSARY, EXCEPT FOR THOSE AREAS SHOWN ON THE SITE PLANS.
5. PERMANENT STABILIZATION SHALL BE ESTABLISHED AS SOON AS FEASIBLE GIVEN THE GROWING SEASON.

GRAPHIC SCALE

30 25 20 15 10 5 0 15 30 120

(IN FEET)
1 INCH = 30 FT.



EROSION AND SEDIMENT CONTROL PLAN LEGEND

- DENOTES EXISTING GRADE
- DENOTES TEMPORARY GRAVEL ACCESS ROAD
- DENOTES STABILIZED CONSTRUCTION ENTRANCE
- DENOTES EROSION CONTROL BLANKET
- DENOTES IMPERVIOUS GRAVEL ACCESS ROAD
- DENOTES FIXED KNOT FARM FENCE
- DENOTES MEDIUM VOLTAGE TRENCH (SEE ELECTRICAL PLANS FOR DETAILS)
- DENOTES PROPOSED CONTOUR
- DENOTES PROPOSED SILT FENCE/SOCK

TOWN OF LANSING PLANNING BOARD, NEW YORK

DATED_____
SIGNATURE_____
CHAIRMAN

DATED_____
SIGNATURE_____
CODE ENFORCEMENT OFFICER

DATED_____
SIGNATURE_____
HIGHWAY SUPERINTENDENT

DATED_____
SIGNATURE_____
TOWN ENGINEER

nexamp
101 Summer Street, Boston, MA 02110
Tel: (617) 431-1440 Fax: (978) 416-2525 Web: nexamp.com

edp ENVIRONMENTAL DESIGN PARTNERSHIP, LLP.
900 Route 146 Clifton Park, New York 12065
(518) 371-7621 edpllp.com

Rev	Issued For	Date
A	INTERNAL REVIEW	5/27/26
B	TOWN COMMENTS	7/10/26
C	TOWN COMMENTS	9/23/26
D	TOWN COMMENTS	10/14/26

P.E. seal/Consultant:

STATE OF NEW YORK ★ TRAVIS J. MITCHELL ★ LICENSED PROFESSIONAL ENGINEER 081539

Project:
JERRY SMITH , LLC
JERRY SMITH ROAD, LANSING, NY

Drawing Title:
EROSION AND SEDIMENT CONTROL PLAN

Drawn by: BMW Scale: AS SHOWN Approved by: TJM

Dwg No: C-400 Size: D Sheet Rev: D

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SECTION 3

Federal, State or Local Notice of Intent (NOI)

NYSDEC NOI Acknowledgement Letter - Pending

NYSDEC MS4 SWPPP Acceptance Form

Construction General Permit (CGP) Electronic Notice of Intent (eNOI) GP-0-25-001

version 1.19

(Submission #: HQP-XXCM-TSTAF, version 1)

Details

Originally Started By	Brandon Ferguson
Alternate Identifier	JERRY SMITH ENERGY STORAGE—Region 7
Submission ID	HQP-XXCM-TSTAF
Status	Draft

Form Input

Eligibility

Disturbance Threshold

1. Will the construction activity involve soil disturbances listed in Part I.A.1 of GP-0-25-001?
Yes

1.a. Will any runoff from the site enter a sewer system classified as a combined sewer?
No

1.b. Is this a remediation project being done under a Department approved work plan (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.) with a SWPPP which meets the substantive requirements of GP-0-25-001?
No

1.c. Is the construction activity related to a stormwater discharge that does not require a permit as described in 40 CFR 122.3(e), e.g. non-point source agriculture or silviculture activities?
No

Other SPDES Permits

2. Will the discharge from the construction activity meet all conditions listed in Part I.A.2 of GP-0-25-001?
Yes

Threatened and Endangered Species

3. Will the construction activity potentially adversely affect a species that is endangered or threatened per Part I.A.3.?
No

State Historic Preservation Act (SHPA)

4. Is the construction activity designated by the Commissioner of the Office of Parks, Recreation and Historic Preservation (OPRHP), pursuant to 9 NYCRR §§428.12 or 428.13 as exempt from the SHPA review (see Attachment 2 of the Letter of Resolution between NYSDEC and OPRHP, dated January 9, 2015)?
No

4.a. Will the construction activity:

a) occur within an archeologically sensitive area indicated on the sensitivity map, or

b) have the potential to affect a property that is listed or determined to be eligible for listing on the National or State Registers of Historic Places, or

c) include a new permanent building on the construction site within the following distances from a building, structure, or object that is more than 50 years old and OPRHP, a Historic Preservation Commission of a Certified Local Government, or a qualified preservation professional has determined is a historically/archeologically significant building, structure, or object:

- 1-5 acres of disturbance—20 feet
- 5-20 acres of disturbance—50 feet
- 20+ acres of disturbance—100 feet?

No

4.b. Is there documentation at the construction site demonstrating:

a) that the construction activity is not within an archeologically sensitive area indicated on the sensitivity map, and that the construction activity is not immediately adjacent to a property listed or determined to be eligible for listing on the National or State Registers of Historic Places, and

b) that there is no new permanent building to be built on the construction site within the following distances from a building, structure, or object that is more than 50 years old, or if there is such a new permanent building on the construction site within those parameters that OPRHP, a Historic Preservation Commission of a Certified Local Government, or a qualified preservation professional has determined that the building, structure, or object more than 50 years old is not historically/archeologically significant:

- 1-5 acres of disturbance – 20 feet
- 5-20 acres of disturbance – 50 feet
- 20+ acres of disturbance – 100 feet?

Yes

State Environmental Quality Review (SEQR)

5. Is the construction activity subject to SEQR (Part I.A.5.), or the equivalent environmental review from another NYS or federal agency (Part I.A.6.)?
Yes

5.a. Has the owner/operator obtained documentation that the project review pursuant to SEQR, or the equivalent, has been satisfied per Part I.A.5. or I.A.6. of GP-0-25-001?
Yes

Uniform Procedures Act (UPA) Permits

6. Has the owner/operator obtained all necessary UPA permits from NYSDEC, or the equivalent from another NYS or federal agency per Part I.A.7.a. of GP-0-25-001? Select "Yes" if no UPA permits, or the equivalent, are required for this construction activity.
Yes

Steep Slope

7. Is the construction activity within the watershed of surface waters of the State classified as AA or AA-S identified utilizing the Stormwater Interactive Map on NYSDEC's website?
No

Owner/Operator Information

8. Owner/Operator Name
JERRY SMITH LLC

9. Owner/Operator Contact Person Information

First and Last Name	Phone	E-mail
MICHAEL DEANGELO	6072375254	MDEANGELO@NEXAMP.COM

10. Owner/Operator Mailing Address

101 SUMMER STREET
FLOOR 2
BOSTON, MA 02110
USA

11. Is the billing contact different from the Owner/Operator Contact?
No

12. What type of organization is the owner/operator?
Corporation

12.b. Is the owner/operator registered with the Department of State to do business in New York State?
Yes

12.b.i. Department of State ID #
4613642

The Department of State ID can be found using the following link:
Department of State | Division of Corporations

Site Information

13. Project/Site Name
JERRY SMITH ENERGY STORAGE

14. Site Address

JERRY SMITH ROAD
LANSING, NY 14882
Tompkins

DEC Region
7

15. Site Latitude & Longitude
42.593137729077924,-76.56453145089068

Project Details

16. This eNOI submission is for:
A construction activity not part of a common plan of development or sale in accordance with Part I.D.1.a.

17. Does the project type fall under Table 1 or Table 2 of Appendix B of GP-0-25-001? If any portion of the construction activity falls under Table 2, regardless of the size of the disturbance, select "Table 2".
Table 2

18. Consistent with Part III.B.1.c.i. of GP-0-25-001, provide a concise overview of the project. Describe existing and proposed conditions, and include any other relevant information.
NEXAMP IS PROPOSING A BATTERY ENERGY STORAGE PROJECT IN THE TOWN OF LANSING, NY. THE PROJECT WIL INVOLVE THE CREATION OF 0.64 ACRES OF IMPERVIOUS SURFACES AS WELL AS AN ENERGY STORAGE SYSTEM. DISTRUBANCE IS PROPOSED TO BE APPROXIMATELY 1.76 ACRES.

Enter the total project site acreage, the acreage to be disturbed, and the future impervious area (acreage) within the disturbed area, rounded to the nearest tenth of an acre.

19. Total Site Area (acres)
56.8

20. Total Area to be Disturbed (acres)
1.8

21. Existing Impervious Area to be Disturbed (acres)
0.0

22. Future Impervious Area Within Disturbed Area (acres)
0.6

Nature of the project:
New Construction

23. Do you plan to disturb more than 5 acres of soil at any one time?
No

---

24. Indicate the percentage (%) of each Hydrologic Soil Group(HSG) at the site.

A (%)
0

B (%)
80

C (%)
0

D (%)
20

25. Enter the planned start and end dates of the disturbance activities.

Start Date
10/01/2026

End Date
10/01/2027

26. Identify the nearest surface waterbody(ies) to which construction site runoff will discharge.
Salmon Creek and minor tribs - 0301-0025

27. Type of waterbody identified in question 26?
Stream/Creek Off Site

28. Has the surface waterbody in question 26 been identified as a 303(d) segment in Appendix D of GP-0-25-001?
No

29. Is this project located in one of the Watersheds identified in Appendix C of GP-0-25-001?
No

30. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area?
No

31. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)?
Yes

31.a. What is the name of the municipality/entity that owns the separate storm sewer system? If the separate sewer system is owned by an MS4 Operator, enter the MS4 Operator name.
LANSING

32. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law?
No

33. Is this property owned by a state authority, state agency, federal government or local government?
No

Required SWPPP Components

General SWPPP Requirements

34. Has a SWPPP been developed in conformance with the requirements in Part III. of GP-0-25-001?
Yes

35. Does the SWPPP demonstrate consideration of the future physical risks due to climate change pursuant to the CRRA, 6 NYCRR Part 490, and associated guidance per Part III.A.2. of GP-0-25-001?
Yes

36. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)?
Yes

37. Which version of the NYS Stormwater Management Design Manual was used to develop the SWPPP?
2024

37.a. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the NYS Stormwater Management Design Manual?
Yes

SWPPP Preparer

39. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:
Professional Engineer (P.E.)

40. Name of the person who prepared the SWPPP
TRAVIS MITCHELL

41. SWPPP Preparer Organization Name
ENVIRONMENTAL DESIGN PARTNERSHIP

42. SWPPP Preparer Contact Information

First and Last Name	Phone	E-mail
BENJAMIN WILLSON	5183717621	BWILLSON@EDPLLP.COM

43. SWPPP Preparer Address

900 Route 146
Clifton Park, NY 12065

Download SWPPP Preparer Certification Form

Please take the following steps to prepare and upload your preparer certification form:

1) Click on the link below to download a blank certification form
2) The certified SWPPP preparer should sign this form
3) Upload the completed form
Download SWPPP Preparer Certification Form

44. Please upload the SWPPP Preparer Certification

NONE PROVIDED

Comment

NONE PROVIDED

44.a. Has the SWPPP Preparer Certification Form been signed by the SWPPP preparer in accordance with Part VII.J of GP-0-25-001?
Yes

Erosion & Sediment Control Criteria

45. Has a construction sequence schedule for the planned management practices been prepared?
Yes

Post-Construction Criteria

Site Planning and Soil Restoration

46. Identify all site planning practices that were used to prepare the final site plan/layout for the project.
Locating Development in Less Sensitive Areas

47. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6 ("Soil Restoration") of the Design Manual.
All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).

Water Quality Criteria

49. Water Quality Sizing Criteria

Total WQv required (acre-feet)	Total RRv provided (acre-feet)	Minimum RRv (acre-feet)	Total WQv provided (acre-feet)	Sum of RRv and WQv provided
0.052	0.052			0.052

Water Quantity Criteria

51. Does one of the waiver conditions apply to the channel protection for this construction activity?
Yes

51.a. The need to provide channel protection has been waived because:
Reduction of the entire CPv is achieved by application of runoff reduction techniques or infiltration systems.

52. Does one of the waiver conditions apply to the Qp and Qf for this construction activity?
No

Overbank Flood Control Criteria (Qp)

52.b.i. Pre-Development (CFS)
5.64

52.b.ii. Post-Development (CFS)
5.28

Total Extreme Flood Control Criteria (Qf)

52.b.iii. Pre-Development (CFS)
24.19

52.b.iv. Post-Development (CFS)
22.17

Operation and Maintenance

53. Has a long-term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed?
Yes

53.a. Identify the entity responsible for the long-term Operation and Maintenance.
JERRY SMITH LLC

Post-Construction SMP Identification

54. Post-Construction RR Techniques and Standard SMPs

RR Techniques and SMPs	Contributing Impervious Area (acres)	Total Contributing Area (acres)
Sheet Flow to Riparian Buffers or Filter Strips (RR-2)	0.22	0.22
Infiltration Basin (I-2)	0.42	

55. Alternative SMPs

Type of Alternative SMP	Manufacturer of the Alternative SMP	Name of the Alternative SMP	Contributing Impervious Area (acres)
NONE PROVIDED	*NONE PROVIDED*	*NONE PROVIDED*	*NONE PROVIDED*

Other Permits

56. Identify other permits, existing and new, that are required for this project/facility.
None

57. Is this NOI for a change in owner/operator per Part I.G.?
No

MS4 SWPPP Acceptance

59. Will the construction activities be within the municipal boundary(ies) of Traditional Land Use Control MS4 Operator(s) and discharge to the MS4(s)?
Yes

59.a. Which form is required per Part I.D.2.b.ii.?
MS4 SWPPP Acceptance Form

MS4 SWPPP Acceptance Form Download

Download the MS4 SWPPP Acceptance Form from the link below.
MS4 SWPPP Acceptance Form

60. MS4 Acceptance or No Jurisdiction Form Upload

NONE PROVIDED

Comment

NONE PROVIDED

60.a. Has the form been signed by the principal executive officer or ranking elected official—or duly authorized representative of that person—in accordance with Part VII.J. and submitted along with this NOI?
Yes

Owner/Operator Certification

Owner/Operator Certification Form Download

Download the Owner/Operator Certification Form by clicking the link below.
Owner/Operator Certification Form

61. Upload Owner/Operator Certification Form

NONE PROVIDED

Comment

NONE PROVIDED

61.a. Has the Owner/Operator Certification Form from Appendix J been signed by the owner/operator, or a representative of the owner/operator in accordance with Part VII.J of GP-0-25-001 and uploaded to the eNOI?

Yes

Additional Project Information

62. Enter any additional pertinent project information in the text box below.

NONE PROVIDED

MS4 SWPPP Acceptance Form

for construction activities seeking authorization under the

SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP)

(In accordance with CGP Part I.D.2.b., the completed form must be attached to the eNOI and submitted to NYSDEC electronically.)

I. Project Owner/Operator Information	
1. Owner/Operator Name:	Jerry Smith LLC c/o Nexamp, LLC
2. Contact Person:	Michael DeAngelo
3. Street Address:	101 Summer Street
4. City/State/Zip:	Boston, MA 02110
II. Project Site Information	
5. Project/Site Name:	Jerry Smith Battery Energy Storage System
6. Street Address:	339 Jerry Smith Road
7. City/State/Zip:	Lansing NY 14882
III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance Information	
8. SWPPP Reviewed by:	
9. Title/Position:	
10. Date Final SWPPP Reviewed and Accepted:	
IV. Regulated MS4 Information	
11. Name of MS4 Operator:	
12. MS4 SPDES Permit Identification Number: NYR20A	
13. Street Address:	
14. City/State/Zip:	
15. Telephone Number:	

MS4 SWPPP Acceptance Form - continued

V. Certification Statement - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative

I hereby certify that the final Stormwater Pollution Prevention Plan (SWPPP) for the construction project identified in section II. of this form has been reviewed and meets the substantive requirements in the SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP). Note: The MS4 Operator, through the acceptance of the SWPPP, assumes no responsibility for the accuracy and adequacy of the design included in the SWPPP. In addition, review and acceptance of the SWPPP by the MS4 Operator does not relieve the owner/operator or their SWPPP preparer of responsibility or liability for errors or omissions in the plan.

Printed Name[1]:

Title/Position:

Signature:

Date:

VI. Additional Information

[1] Printed name of the principal executive officer or ranking elected official for the MS4 Operator or their duly authorized representative in accordance with CGP Part VII.J.2.

(NYSDEC - MS4 SWPPP Acceptance Form - January 2025)

NEW YORK STATE | Department of Environmental Conservation

SWPPP Preparer Certification Form

SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP)

(In accordance with CGP Part I.D.2.b., the completed form must be attached to the eNOI and submitted to NYSDEC electronically.)

Project/Site Name:	Jerry Smith Battery Energy Storage System
eNOI Submission ID:	HQP-XXCM-TSTAF
Owner/Operator Name:	Jerry Smith LLC c/o Nexamp. LLC

Certification Statement – SWPPP Preparer

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) has been prepared in accordance with the requirements of GP-0-25-001. I certify under penalty of law that the SWPPP and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Travis	J	Mitchell
SWPPP Preparer First Name	MI	SWPPP Preparer Last Name

Signature

10/14/26

Date

NEW YORK STATE | Department of Environmental Conservation

Owner/Operator Certification Form

SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP)

(In accordance with CGP Part I.D.2.b. or Part I.F.2. and 3., the completed form must be attached to the eNOI or the Request to Continue Coverage, and submitted to NYSDEC electronically.

Project/Site Name: Jerry Smith Battery Energy Storage System

eNOI Submission ID: HQP-XXCM-TSTAF

eNOI Submitted by: ☐ **Owner/Operator** ☑ **SWPPP Preparer** ☐ **Other**

Certification Statement - Owner/Operator

I hereby certify that I read, and will comply with, the GP-0-25-001 permit requirements. I understand that authorization to discharge under the permit for the project/site named above is dependent on receipt of a Letter of Authorization (LOA) or a Letter of Continued Coverage (LOCC) from the New York State Department of Environmental Conservation (NYSDEC) in accordance with CGP Part I.D.3.b. or Part I.F.4. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Kelley | Fike | Fike

Owner/Operator First Name | MI | Owner/Operator Last Name

Signature

10/14/2026

Date

SECTION 4

Federal, State or Local NPDES General Permit

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL
CONSERVATION (NYSDEC)

SPDES GENERAL PERMIT
FOR STORMWATER DISCHARGES

From

CONSTRUCTION ACTIVITY

Permit No. GP-0-25-001

Construction General Permit (CGP)

Issued Pursuant to Article 17, Titles 7, 8 and Article 70

of the Environmental Conservation Law

Effective Date: January 29, 2025 Expiration Date: January 28, 2030

Scott E. Sheeley

Chief Permit Administrator

Scott E. Sheeley JAN. 29, 2025

Authorized Signature Date

Address: NYSDEC
Division of Environmental Permits
625 Broadway, 4th Floor
Albany, N.Y. 12233-1750

PREFACE

Pursuant to Section 402 of the Clean Water Act (CWA), and 40 CFR 122.26(b)(14)(x), (15)(i), and (15)(ii), *stormwater discharges* from certain *construction activities* are unlawful unless they are authorized by a National Pollutant Discharge Elimination System (NPDES) permit or by a state permit program. New York State administers the approved State Pollutant Discharge Elimination System (SPDES) program with permits issued in accordance with the New York State Environmental Conservation Law (ECL) Article 17, Titles 7 and 8, and Article 70, as well as 6 NYCRR Parts 621 and 750.

C*onstruction activities* constitute construction of a *point source* and, therefore, pursuant to ECL sections 17-0505, 17-0701, and 17-0803, the *owner or operator* must have coverage under a SPDES permit prior to *commencement of construction activities*. The *owner or operator* cannot wait until there is an actual *discharge* from the *construction site* to obtain permit coverage.

***Note: The italicized words/phrases within this permit are defined in Appendix A.**

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SPDES CONSTRUCTION GENERAL PERMIT (CGP) GP-0-25-001
FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES

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Part I. How to Obtain Coverage and General Requirements

To be covered under this permit, the *owner or operator* must meet all eligibility requirements in Part I.A. and follow the requirements for obtaining permit coverage in Part I.D., F., or G.

A. Eligibility Requirements

For a *common plan of development or sale*, the *phase(s)* that meet the eligibility requirements in Part I.A. may obtain coverage under this permit even if other *phase(s)* of the same *common plan of development or sale* do not meet the eligibility requirements and require an individual SPDES permit.

1. The *owner's or operator's construction activities* involve soil disturbances of:

    a. one or more acres; or

    b. less than one acre which are part of a *common plan of development or sale* that will ultimately disturb one or more acres; or

    c. less than one acre where NYSDEC has determined that a SPDES permit is required for *stormwater discharges* based on the potential for contribution to a violation of a *water quality standard* or for significant contribution of pollutants to *surface waters of the State*.

        i. 5,000 square feet or more, but less than one acre, and are in the New York City Watershed located east of the Hudson River, Appendix C Figure 1; or

        ii. 20,000 square feet or more, but less than one acre, within the municipal boundaries of the City of New York (NYC); or

        iii. less than 20,000 square feet which are part of a *common plan of development or sale* that will ultimately disturb 20,000 square feet or more, but less than one acre, within the municipal boundaries of NYC; or

        iv. that creates 5,000 square feet or more of *impervious area* within the municipal boundaries of NYC.

2. *Discharges* from the *owner's or operator's construction activities* are/were not:

    a. already covered by a different SPDES permit; or

    b. covered under a different SPDES permit that was denied, terminated, or revoked; or

    c. identified in an expired individual SPDES permit that was not renewed; or

    d. required to obtain an individual SPDES permit or another general SPDES permit in accordance with Part VII.K.

3. If *construction activities* may adversely affect a species that is endangered or threatened, the *owner or operator* must obtain a:

    a. permit issued pursuant to 6 NYCRR Part 182 for the project; or

    b. letter issued by NYSDEC of non-jurisdiction pursuant to 6 NYCRR Part 182 for the project.

4. If *construction activities* have the potential to affect an *historic property*, the *owner or operator* must obtain one of the following:

    a. documentation that the *construction activity* is not within an archeological buffer area indicated on the sensitivity map, and that the *construction activity* is not located on or immediately adjacent to a property listed or determined to be eligible for listing on the National or State Registers of Historic Places, and that there is no new permanent building on the *construction site* within the following distances from a building, structure, or object that is more than 50 years old, or if there is such a new permanent building on the *construction site* within those parameters that NYS Office of Parks, Recreation and Historic Preservation (OPRHP), a Historic Preservation Commission of a Certified Local Government, or a qualified preservation professional has determined that the building, structure, or object more than 50 years old is not historically/archeologically significant:

        i. 1-5 acres of disturbance - 20 feet; or

        ii. 5-20 acres of disturbance - 50 feet; or

iii. 20+ acres of disturbance - 100 feet.

b. NYSDEC consultation form sent to OPRHP,[1] and copied to NYSDEC's Agency Historic Preservation Officer (APO), and

i. the State Environmental Quality Review Act (SEQR) Environmental Assessment Form (EAF) with a negative declaration or the Findings Statement, with documentation of OPRHP's agreement with the resolution; or

ii. documentation from OPRHP that the *construction activity* will result in No Impact; or

iii. documentation from OPRHP providing a determination of No Adverse Impact; or

iv. a Letter of Resolution signed by the *owner or operator*, OPRHP and the DEC APO which allows for this *construction activity* to be eligible for coverage under the general permit in terms of the State Historic Preservation Act (SHPA).

c. documentation of satisfactory compliance with Section 106 of the National Historic Preservation Act for a coterminous project area:

i. No Affect; or

ii. No Adverse Affect; or

iii. Executed Memorandum of Agreement.

d. documentation that SHPA Section 14.09 has been completed by NYSDEC or another state agency.

5. If *construction activities* are subject to SEQR, the *owner or operator* must obtain documentation that SEQR has been satisfied.

6. If *construction activities* are not subject to SEQR, but subject to the equivalent environmental review from another New York State or federal agency, the

[1] The consultation form can be submitted, along with other project information, through OPRHP's Cultural Resource Information System (CRIS) portal. If submitted through CRIS, paper copies of the consultation form need not be mailed.

owner or operator must obtain documentation that project review, pursuant to a process equivalent to SEQR from another New York State or federal agency, has been satisfied.

7. If *construction activities* require Uniform Procedures Act (UPA) Permits (see 6 NYCRR Part 621) from NYSDEC, or the equivalent from another New York State or federal agency, the *owner or operator* must:

    a. obtain all such necessary permits; or

    b. receive notification from NYSDEC pursuant to 6 NYCRR 621.3(a)(4) excepting Part I.A.7.a.

8. *Construction activities* are not eligible if they meet the following criteria in Part I.A.8.a. or b.:

    a. For linear transportation and linear utility project types, the *construction activities*:

        i. are within the watershed of *surface waters of the State* classified as AA or AA-S identified utilizing the Stormwater Interactive Map on NYSDEC's website; and

        ii. are undertaken on land with no existing *impervious cover*; and

        iii. disturb two or more acres of *steep slope*.

    b. For all other project types, the *construction activities*:

        i. are within the watershed of *surface waters of the State* classified as AA or AA-S identified utilizing the Stormwater Interactive Map on NYSDEC's website; and

        ii. are undertaken on land with no existing *impervious cover*; and

        iii. disturb one or more acres of *steep slope*.

B. Types of *Discharges* Authorized

1. The following *stormwater discharges* are authorized under this permit:

   a. *Stormwater discharges*, including *stormwater* runoff, snowmelt runoff, and surface runoff and drainage, associated with *construction activity*, are authorized under this permit provided that appropriate *stormwater* controls are designed, installed, and maintained in accordance with Part II. and Part III.

   b. *Stormwater discharges* from construction support activities at the *construction site* (including concrete or asphalt batch plants, equipment staging yards, material storage areas, excavated material disposal areas, and borrow areas) if the following requirements are met:

      i. The support activity is directly related to the *construction site* required to have permit coverage for *stormwater discharges*; and

      ii. The support activity is not a commercial operation, nor does it serve multiple unrelated *construction sites*; and

      iii. The support activity does not continue to operate beyond the completion of the *construction activity* at the site it supports; and

      iv. *Stormwater* controls are implemented in accordance with Part II. and Part III. for *discharges* from the support activity areas.

2. The following non-*stormwater discharges* associated with *construction activity* are authorized under this permit:

   a. Non-*stormwater discharges* listed in 6 NYCRR 750-1.2(a)(29)(vi), with the following exception: "*Discharges* from firefighting activities are authorized only when the firefighting activities are emergencies/unplanned"; and

   b. Non-*stormwater discharges* of waters to which other components have not been added that are used in accordance with the *SWPPP* to control dust or irrigate vegetation in stabilized areas; and

   c. Uncontaminated *discharges* from *dewatering* operations

3. Authorized *discharges* of *stormwater* or authorized *discharges* of non-*stormwater*, commingled with a *discharge* authorized by a different SPDES permit and/or a *discharge* that does not require SPDES permit authorization, are also authorized under this permit.

C. Prohibited *Discharges*

1. Non-*stormwater discharges* prohibited under this permit include but are not limited to:

    a. Wastewater from washout of concrete; and

    b. Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds, and other construction materials; and

    c. Fuels, oils, or other *pollutants* used in vehicle and equipment operation and maintenance; and

    d. Soaps, solvents, or detergents used in vehicle and equipment washing or external building washdown; and

    e. Toxic or hazardous substances from a spill or other release.

D. Electronic Notice of Intent (eNOI) Submittal

To receive authorization in accordance with Part I.D.3.b., the *owner or operator* must submit a complete eNOI in accordance with the requirements in Part I.D. The eNOI contains questions to: ensure eligibility requirements in Part I.A. have been met; obtain *owner or operator* contact information; obtain the total area to be disturbed and the existing/future *impervious areas* (rounded to the nearest tenth of an acre); confirm *Traditional Land Use Control MS4 Operator* jurisdiction over construction projects; satisfy the EPA eRule requirements; confirm that the Water Quality-Based Effluent Limitations in Part II. have been met; demonstrate consideration of the future risks due to climate change in accordance with Part III.A.2.; and confirm that the other *Stormwater Pollution Prevention Plan (SWPPP)* requirements in Part III. have been met.

1. An eNOI may be submitted for:

    a. *construction activities* that are not part of a *common plan of development or sale*; or

b. an entire *common plan of development or sale*; or

c. separate *phase(s)* of a *common plan of development or sale* if the following requirements are met:

    i. the *common plan of development or sale* meets the eligibility requirements of Part I.A.5. or 6.; and

    ii. the *phase(s)* meet(s) all other eligibility requirements of Part I.A.; and

    iii. Part III.C. Required *SWPPP* Components by Project Type is based on the *common plan of development or sale*, not the *phase(s)*; or

d. *tree clearing* that is associated with, or will support, a *renewable energy* generation, transmission, or storage project that meets Part I.A.5. and 6., if the *tree clearing*:

    i. meets all other eligibility requirements of Part I.A.; and

    ii. will occur in NYSDEC's Regions 3-9; and

    iii. is not within ¼ mile of a bat hibernaculum protected pursuant to 6 NYCRR Part 182; and

    iv. will occur between November 1st and March 31st.

2. As prerequisites for submitting an eNOI, the *owner or operator* must:

    a. prepare a *SWPPP* for Part I.D.1.a., b., c., or d. in accordance with Part III.; and

    b. based on the following criteria, upload the following signature forms signed in accordance with Part VII.J. to the eNOI prior to submission:

        i. for all eNOIs:

            1. the SWPPP Preparer Certification Form, Appendix F, signed by the *SWPPP* preparer; and

2. the Owner/Operator Certification Form, Appendix J, signed by the *owner or operator*; and

ii. if an eNOI includes *construction activities* within the municipal boundary(ies) of *Traditional Land Use Control MS4 Operator(s)* that will *discharge* to the *MS4(s)*:

1. determine if the *Traditional Land Use Control MS4 Operator(s)* have review authority. A *Traditional Land Use Control MS4 Operator* does not have review authority where:

a. the *owner or operator* of the *construction activities* in Part I.D.2.b.ii. is the same entity as the *Traditional Land Use Control MS4 Operator* identified in Part I.D.2.b.ii.; or

b. there is a statute exempting the *owner or operator* from zoning review by the *Traditional Land Use Control MS4 Operator*; or

c. there is no such statute per Part I.D.2.b.ii.1.b., the *Traditional Land Use Control MS4 Operator* concludes, after public hearing, that it does not have zoning review authority in accordance with Legal Memorandum LU14 Updated January 2020 “Governmental Immunity from Zoning and Other Legislation”; and

2. if the *Traditional Land Use Control MS4 Operator(s)* have review authority, submit the *SWPPP* to the *Traditional Land Use Control MS4 Operator(s)* for review and have:

a. if outside the municipal boundaries of NYC: the MS4 SWPPP Acceptance Form, Appendix G, signed by the principal executive officer or ranking elected official from the *Traditional Land Use Control MS4 Operator,* or by a duly authorized representative of that person in accordance with Part VII.J.2.; or

b. if within the municipal boundaries of NYC: The City of New York Department of Environmental Protection (NYCDEP) SWPPP Acceptance/Approval Form, Appendix H, signed by the principal executive officer or ranking elected official from the Traditional Land Use Control MS4 Operator, or by a duly authorized representative of that person in accordance with Part VII.J.2.; and

3. if the *Traditional Land Use Control MS4 Operator* does not have review authority, have the MS4 No Jurisdiction Form, Appendix I, signed by the principal executive officer or ranking elected official from the *Traditional Land Use Control MS4 Operator,* or by a duly authorized representative of that person in accordance with Part VII.J.2.

3. Submitting an eNOI:

a. The *owner or operator* must submit a complete Notice of Intent electronically using a NYSDEC approved form.[2]

b. The *owner or operator* is authorized to *commence construction activity* as of the authorization date indicated in the Letter of Authorization (LOA), which is sent by NYSDEC after a complete eNOI is submitted.

i. If an eNOI is received for a *SWPPP* that deviates from one of the technical standards but demonstrates *equivalence* in accordance with Part III.B.1.a.ii. or Part III.B.2.b.ii., if the *SWPPP* includes *construction activities* that are not within the municipal boundary(ies) of *Traditional Land Use Control MS4 Operator(s)*, and/or if the *SWPPP* includes *construction activities* within the municipal boundary(ies) of *Traditional Land Use Control MS4 Operator(s)* that do not have review authority in accordance with Part I.D.2.b.ii.1., the authorization date indicated in the LOA will be 60 business days after the eNOI submission date.

[2] Unless NYSDEC grants a waiver in accordance with 40 CFR 127.15(c) or (d). All waiver requests must be submitted to Stormwater_info@dec.ny.gov or NYSDEC, Bureau of Water Permits, 625 Broadway, 4th Floor, Albany, New York 12233-3505.

c. If *Traditional Land Use Control MS4 Operator(s)* have review authority in accordance with Part I.D.2.b.ii.2., the *owner or operator* must, within five business days of receipt of the LOA, send an electronic copy of the LOA to the *Traditional Land Use Control MS4 Operator(s)* with review authority.

E. General Requirements for *Owners or Operators* with Permit Coverage

1. As of the date the LOA is received, the *owner or operator* must make the eNOI, *SWPPP*, and LOA available for review and copying in accordance with the requirements in Part VII.H. When applicable, as of the date an updated LOA is received, the *owner or operator* must make the updated LOA available for review and copying in accordance with the requirements in Part VII.H.

2. The *owner or operator* must ensure compliance with all requirements of this permit and that the provisions of the *SWPPP*, including any changes made to the *SWPPP* in accordance with Part III.A.5., are properly implemented and maintained from the *commencement of construction activity* until:

   a. all areas of disturbance have achieved *final stabilization;* and

   b. the owner's or operator's coverage under this permit is terminated in accordance with Part V.A.5.a.

3. As of the date of the *commencement of construction activities* until Part I.E.2.a. and b. have been met, the *owner or operator* must maintain at the *construction site*, a copy of:

   a. all documentation necessary to demonstrate eligibility with this permit; and

   b. this permit; and

   c. the *SWPPP*; and

   d. the signed SWPPP Preparer Certification Form; and

   e. the signed MS4 SWPPP Acceptance Form or signed NYCDEP SWPPP Acceptance/Approval Form or signed MS4 No Jurisdiction Form (when applicable); and

   f. the signed Owner/Operator Certification Form; and

g. the eNOI; and

h. the LOA; and

i. the LOA transmittal to the Traditional Land Use Control MS4 Operator in accordance with Part I.D.3.c. (when applicable).

4. The *owner or operator* must maintain at the *construction site*, until Part I.E.2.a. and b. have been met, as of the date the documents become final or are received, a copy of the:

   a. responsible contractor's or subcontractor's certification statement(s) in accordance with Part III.A.7.; and

   b. inspection reports in accordance with Part IV.C.4. and 6.; and

   c. Request to Disturb Greater Than Five Acres and the Authorization Letter to Disturb Greater Than Five Acres in accordance with Part I.E.6. (when applicable); and

   d. Request to Continue Coverage and the Letter of Continued Coverage (LOCC) in accordance with Part I.F.2. and 4. (when applicable); and

   e. The updated LOA(s) in accordance with Part I.E.9. (when applicable).

5. The *owner or operator* must maintain the documents in Part I.E.3. and 4. in a secure location, such as a job trailer, on-site construction office, or mailbox with lock. The secure location must be accessible during normal business hours to an individual performing a compliance inspection. The documents must be paper documents unless electronic documents are accessible to the inspector during an inspection to the same extent as a paper copy stored at the site would be. If electronic documents are kept on site, the *owner or operator* must maintain functional equipment on site available to an inspector during normal hours of operation such that an inspector may view the electronic documents in a format that can be read in a similar manner as a paper record and in a legally dependable format with no less evidentiary value than their paper equivalent.

6. The *owner or operator* must meet the following requirements prior to disturbing greater than five acres of soil at any one time:

   a. The *owner or operator* must submit a written Request to Disturb Greater Than Five Acres to:

i. NYSDEC's Regional Office Division of Water staff based on the project location, Appendix E, if a *Traditional Land Use Control MS4 Operator* does not have review authority in accordance with Part I.D.2.b.ii.1.; or

ii. the *Traditional Land Use Control MS4 Operator*, if a *Traditional Land Use Control MS4 Operator* has review authority in accordance with Part I.D.2.b.ii.1.; or

iii. NYSDEC's Regional Office Division of Water staff based on the project location, Appendix E, and each involved *Traditional Land Use Control MS4 Operator*, if the project spans multiple municipalities with more than one *Traditional Land Use Control MS4 Operator* involved with review authority in accordance with Part I.D.2.b.ii.1.

b. The written Request to Disturb Greater Than Five Acres must include:

i. The SPDES permit identification number (Permit ID); and

ii. Full technical justification demonstrating why alternative methods of construction that would result in five acres of soil disturbance or less at any one time are not feasible; and

iii. The phasing plan for the project and sequencing plans for all *phases* from the *SWPPP* in accordance with Part III.B.1.d.; and

iv. Plans with locations and details of erosion and sediment control practices such that the heightened concern for erosion when disturbing greater than five acres at one time has been addressed; and

v. Acknowledgment that "the *owner or operator* will comply with the requirements in Part IV.C.2.b."; and

vi. Acknowledgment that "the *owner or operator* will comply with the requirements in Part II.B.1.b."

c. The *owner or operator* must be in receipt of an Authorization Letter to Disturb Greater Than Five Acres, which will include when the

authorization begins and ends and indicate a maximum area (acres) of soil disturbance allowed at any one time, from:

i. NYSDEC, if Part I.E.6.a.i. or iii. apply; or

ii. the *Traditional Land Use Control MS4 Operator*, if Part I.E.6.a.ii. applies.

7. Upon a finding of significant non-compliance with the practices described in the *SWPPP* or violation of this permit, NYSDEC may order an immediate stop to all *construction activity* at the site until the non-compliance is remedied. The stop work order must be in writing, describe the non-compliance in detail, and be sent to the *owner or operator*.

8. If any human remains or archaeological remains are encountered during excavation, the *owner or operator* must immediately cease, or cause to cease, all *construction activity* in the area of the remains and notify the appropriate Regional Water Engineer (RWE).[3] *Construction activity* shall not resume until written permission to do so has been received from the RWE.

9. To be authorized to implement modifications to the information previously submitted in the eNOI, the *owner or operator* must:

   a. notify NYSDEC via email at Stormwater_info@dec.ny.gov requesting access to update the eNOI; and

   b. update the eNOI to reflect the modifications and resubmit the eNOI in accordance with Part I.D.; and

   c. receive an updated LOA.

10. The eNOI, *SWPPP*, LOA, updated LOAs (when applicable), and inspection reports required by this permit are public documents that the *owner or operator* must make available for review and copying by any person within five business days of the *owner or operator* receiving a written request by any such person to review these documents. Copying of documents will be done at the requester's expense.

[3] The Regional Water Manager where a DEC Region does not have a RWE.

F. Permit Coverage for *Discharges* Authorized Under GP-0-20-001

When applicable:

1. Upon the effective date of this permit, an *owner or operator* of *a construction activity*, with coverage under GP-0-20-001, will have interim coverage under GP-0-25-001 for 45 calendar days starting on the effective date of GP-0-25-001 so long as the *owner or operator* maintains compliance with all applicable requirements of this permit.

2. Within 30 calendar days of the effective date of this permit, the *owner or operator*, with coverage under GP-0-20-001, must submit a complete Request to Continue Coverage electronically using a NYSDEC approved form,[4] which contains the information identified in Part I.F.3. below, if:

   a. the *owner or operator* continues to implement the SMP component in conformance with the technical standards in place at the time of initial project authorization; and

   b. the *owner or operator* will comply with all non-design requirements of GP-0-25-001.

3. The Request to Continue Coverage form contains questions to: ensure eligibility requirements in Part I.A. have been met; verify *owner or operator* contact information; verify the permit identification number; verify the original eNOI submission ID, if applicable; verify Part I.F.2.a. and b.; verify the version of the Design Manual that the technical/design components conform to; and receive an updated Owner/Operator Certification Form, Appendix I.

4. The *owner or operator* has obtained continued coverage under GP-0-25-001 as of the date indicated in the LOCC, which is sent by NYSDEC after a complete Request to Continue Coverage form is submitted.

5. If the owner or operator does not submit the Request to Continue Coverage form in accordance with Part I.F.2. and 3., coverage under this permit is automatically terminated after interim coverage expires.

[4] Unless NYSDEC grants a waiver in accordance with 40 CFR 127.15(c) or (d). All waiver requests must be submitted to Stormwater_info@dec.ny.gov or NYSDEC, Bureau of Water Permits, 625 Broadway, 4th Floor, Albany, New York 12233-3505.

G. Change of *Owner or Operator*

When applicable:

1. When property ownership changes, or when there is a change in operational control over the construction plans and specifications, the following process applies:

    a. The new *owner or operator* must meet the applicable prerequisites for submitting an eNOI in accordance with Part I.D.2.; and

    b. The new *owner or operator* must submit an eNOI in accordance with Part I.D.3.; and

    c. Permit coverage for the new *owner or operator* will be effective upon receipt of the LOA in accordance with Part I.D.3.b.; and

    d. The new *owner or operator*, upon receipt of their LOA, must provide their Permit ID to the original *owner or operator*; and

    e. If the original *owner or operator* will no longer be the *owner or operator* of the *construction activity* identified in the original *owner's or operator's* eNOI, the original *owner or operator*, upon receipt of the new *owner's or operator's* Permit ID in accordance with Part I.G.1.d., must submit to NYSDEC a completed eNOT in accordance with Part V. that includes the name and Permit ID of the new *owner or operator*; or

    f. If the original *owner or operator* maintains ownership of a portion of the *construction activity*, the original *owner or operator* must maintain their coverage under the permit by modifying their eNOI; modifications to the eNOI must include:

        i. the revised area of disturbance and/or *impervious area(s)*; and

        ii. the revised SMP information, if applicable; and

        iii. a narrative description of what has changed; and

        iv. the new *owner's or operator's* Permit ID for the portion of the project removed from the eNOI.

    Owners or operators must follow Part I.E.9. to modify the eNOI.

Part II. Water Quality-Based Effluent Limitations

A. Maintaining Water Quality

NYSDEC expects that compliance with the requirements of this permit will control *discharge*s necessary to meet applicable *water quality standards*. It shall be a violation of the *ECL* for any *discharge* to either cause or contribute to a violation of the following *water quality standards* as contained in Parts 700 through 705 of Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York:

1. There must be no increase in turbidity that will cause a substantial visible contrast to natural conditions; and

2. There must be no increase in suspended, colloidal or settleable solids that will cause deposition or impair the waters for their best usages; and

3. There must be no residue from oil and floating substances, nor visible oil film, nor globules of grease.

If there is evidence indicating that the *stormwater discharge*s authorized by this permit are causing, have the reasonable potential to cause, or are contributing to a violation of the *water quality standard,* the *owner or operator* must take appropriate corrective action in accordance with Part IV.C.5. of this permit and document in accordance with Part IV.C.4. of this permit. To address the *water quality standard* violation the *owner or operator* must include and implement appropriate controls in the *SWPPP* to correct the problem or obtain an individual SPDES permit.

If, despite compliance with the requirements of this permit, it is demonstrated that the *stormwater discharge*s authorized by this permit are causing or contributing to a violation of *water quality standards*, or if NYSDEC determines that a modification of this permit is necessary to prevent a violation of *water quality standards*, the authorized *discharge*s will no longer be eligible for coverage under this permit, and the *owner or operator* must obtain an individual SPDES permit prior to further *discharges* from the *construction site*.

B. Effluent Limitations Applicable to *Discharges* from *Construction Activities*

*Discharge*s authorized by this permit must achieve, at a minimum, the effluent limitations in Part II.B.1.a., b., c., d., and e. These limitations represent the

degree of effluent reduction attainable by the application of best practicable technology currently available.

1. Erosion and Sediment Control Requirements - The *owner or operator* must select, design, install, implement, and maintain control measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. The selection, design, installation, implementation, and maintenance of these control measures must meet the non-numeric effluent limitations in Part II.B.1.a., b., c., d., and e. and be in accordance with the New York State Standards and Specifications for Erosion and Sediment Control (BB), dated November 2016, using sound engineering judgment. Where control measures are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must include in *SWPPP* the reason(s) for the deviation, or alternative design, and provide information in the *SWPPP* demonstrating that the deviation or alternative design is *equivalent* to the technical standard.

    a. **Erosion and Sediment Controls.** At a minimum, erosion and sediment controls must be selected, designed, installed, implemented, and maintained to:

        i. *Minimize* soil erosion through application of runoff control and soil stabilization control measure to *minimize pollutant discharge*s; and

        ii. Control *stormwater discharge*s, including both peak flow rates and total *stormwater* volume, to *minimize* channel and *streambank* erosion and scour in the immediate vicinity of the *discharge* points; and

        iii. *Minimize* the amount of soil exposed during *construction activity*; and

        iv. *Minimize* the disturbance of *steep slope*; and

        v. *Minimize* sediment *discharge*s from the site; and

        vi. Provide and maintain *natural buffers* around surface waters, direct *stormwater* to vegetated areas and maximize *stormwater* infiltration to reduce *pollutant discharge*s, unless *infeasible*; and

        vii. *Minimize* soil compaction. *Minimizing* soil compaction is not required

where the intended function of a specific area of the site dictates that it be compacted; and

viii. Unless *infeasible*, preserve a sufficient amount of topsoil to complete soil restoration and establish a uniform, dense vegetative cover; and

ix. *Minimize* dust. On areas of exposed soil, *minimize* dust through the appropriate application of water or other dust suppression techniques to control the generation of *pollutants* that could be discharged from the site.

b. **Soil Stabilization**. In areas where soil disturbance activity has ceased, whether permanently or *temporarily ceased*, the application of soil stabilization measures must be initiated by the end of the next business day and completed within 14 calendar days from the date the current soil disturbance activity ceased. For *construction sites* that *directly discharge* to one of the 303(d) segments listed in Appendix D, or are located in one of the watersheds listed in Appendix C, or are authorized to disturb greater than five acres in accordance with Part I.E.5.a.viii., the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven calendar days from the date the soil disturbance activity ceased.

c. **Dewatering**. *Discharge*s from *dewatering* activities, including *discharge*s from *dewatering* of trenches and excavations, must be managed by appropriate control measures.

d. **Pollution Prevention Measures**. Select, design, install, implement, and maintain effective pollution prevention measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such measures must be selected, designed, installed, implemented, and maintained to:

i. *Minimize* the *discharge* of *pollutants* from equipment and vehicle washing, wheel wash water, and other wash waters. Soaps, detergents and solvents cannot be used; and

ii. *Minimize* the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, hazardous and toxic waste, and other materials present on the site to precipitation

and to *stormwater*. *Minimization* of exposure is not required in cases where the exposure to precipitation and to *stormwater* will not result in a *discharge* of *pollutants*, or where exposure of a specific material or product poses little risk of *stormwater* contamination (such as final products and materials intended for outdoor use); and

iii. Prevent the *discharge* of *pollutants* from spills and leaks and implement chemical spill and leak prevention and response procedures.

e. **Surface Outlets.** When discharging from basins and impoundments, the surface outlets must be designed, constructed, and maintained in such a manner that sediment does not leave the basin or impoundment and that erosion at or below the outlet does not occur.

C. Post-Construction Stormwater Management Practice (SMP) Requirements

1. The *owner or operator* of a *construction activity* that requires post-construction SMPs, in accordance with Part III.C., must select, design, install, implement, and maintain the SMPs to meet the *performance criteria* in the New York State Stormwater Management Design Manual, dated July 31, 2024 (DM), using sound engineering judgment. Where SMPs are not designed in conformance with the *performance criteria* in the DM, the *owner or operator* must include in the *SWPPP* the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. The *owner or operator* of a *construction activity*, that requires SMPs in accordance with Part III.C., must design the practices to meet the applicable *sizing criteria* in Part II.C.2.a., b., c., or d.

a. Sizing Criteria for *New Development*

i. Runoff Reduction Volume (RRv) and Water Quality Volume (WQv):

1. Reduce the total WQv by application of RR techniques and standard SMPs with RRv capacity. The total WQv must be calculated in accordance with the criteria in Section 4.2 of the DM; or

2. Minimum RRv and Treatment of Remaining Total WQv: *Construction activities* that cannot meet the requirements in Part II.C.2.a.i.1. due to *site limitations* must direct runoff from all newly constructed *impervious areas* to a RR technique or standard SMP with RRv capacity unless *infeasible*. The specific *site limitations* that prevent the reduction of 100% of the WQv must be documented in the *SWPPP*. For each *impervious area* that is not directed to a RR technique or standard SMP with RRv capacity, the *SWPPP* must include documentation which demonstrates that all options were considered and for each option explains why it is considered *infeasible*.

   In no case shall the runoff reduction achieved from the newly constructed *impervious areas* be less than the Minimum RRv as calculated using the criteria in Section 4.4 of the DM. The remaining portion of the total WQv that cannot be reduced must be treated by application of standard SMPs.

ii. Channel Protection Volume (CPv): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event, remaining after runoff reduction. Where a CPv control orifice is provided, the minimum orifice size must be 3 inches, with acceptable external trash rack or orifice protection. The CPv requirement does not apply when:

   1. Reduction of the entire CPv is achieved by application of runoff reduction techniques or infiltration systems; or

   2. The 1-year post-development peak *discharge* is less than or equal to 2.0 cfs without detention or velocity controls; or

   3. The site *directly discharges* into a fifth order or larger water body (stream, river, or lake), or tidal waters, where the increase in smaller flows will not impact the stream bank or channel integrity. However, the point of *discharge* must be adequately protected against scour and erosion by the increased peak *discharge*.

iii. *Overbank* Flood Control Criteria (Qp): Requires storage to attenuate the post-development 10-year, 24-hour peak *discharge* rate (Qp) to predevelopment rates. The Qp requirement does not apply when:

1. the site *directly discharges* to tidal waters or fifth order or larger streams, or

2. A downstream analysis reveals that *overbank* control is not required.

iv. Extreme Flood Control Criteria (Qf): Requires storage to attenuate the post-development 100-year, 24-hour peak *discharge* rate (Qf) to predevelopment rates. The Qf requirement does not apply when:

1. the site *directly discharges* to tidal waters or fifth order or larger streams, or

2. A downstream analysis reveals that *overbank* control is not required.

b. *Sizing Criteria* for *New Development* in Enhanced Phosphorus Removal Watersheds

i. Runoff Reduction Volume (RRv) and Water Quality Volume (WQv):

1. Reduce the WQv by application of RR techniques and standard SMPs with RRv capacity. The total WQv is the runoff volume from the 1-year, 24-hour design storm over the post-developed watershed and must be calculated in accordance with the criteria in Section 4.3 of the DM; or

2. Minimum RRv and Treatment of Remaining Total WQv: *Construction activities* that cannot meet the criteria in Part II.C.2.b.i.1. due to *site limitations* must direct runoff from all newly constructed *impervious areas* to a RR technique or standard SMP with RRv capacity unless *infeasible*. The specific *site limitations* that prevent the reduction of 100% of the WQv must be documented in the *SWPPP*. For each *impervious area* that is not directed to a RR technique or standard SMP with RRv capacity, the *SWPPP* must include

documentation which demonstrates that all options were considered and for each option explains why it is considered *infeasible.*

In no case shall the runoff reduction achieved from the newly constructed *impervious areas* be less than the Minimum RRv as calculated using the criteria in Section 4.5 of the DM. The remaining portion of the total WQv that cannot be reduced must be treated by application of standard SMPs.

ii. Channel Protection Volume (CPv): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event, remaining after runoff reduction. Where a CPv control orifice is provided, the minimum orifice size must be 3 inches, with acceptable external trash rack or orifice protection. The CPv requirement does not apply when:

1. Reduction of the entire CPv is achieved by application of runoff reduction techniques or infiltration systems; or

2. The 1-year post-development peak *discharge* is less than or equal to 2.0 cfs; or

3. The site *directly discharges* to tidal waters, or a fifth order or larger water body (stream, river, or lake) where the increase in smaller flows will not impact the stream bank or channel integrity. However, the point of *discharge* must be adequately protected against scour and erosion by the increased peak *discharge*.

iii. *Overbank* Flood Control Criteria (Qp): Requires storage to attenuate the post-development 10-year, 24-hour peak *discharge* rate (Qp) to predevelopment rates. The Qp requirement does not apply when:

1. the site *directly discharges* to tidal waters or fifth order or larger streams; or

2. A downstream analysis reveals that *overbank* control is not required.

iv. Extreme Flood Control Criteria (Qf): Requires storage to attenuate the post-development 100-year, 24-hour peak *discharge* rate (Qf) to predevelopment rates. The Qf requirement does not apply when:

1. the site *directly discharges* to tidal waters or fifth order or larger streams; or

2. A downstream analysis reveals that *overbank* control is not required.

c. *Sizing Criteria* for *Redevelopment Activity*

i. Water Quality Volume (WQv): The WQv treatment objective for *redevelopment activity* must be addressed by one of the following options, as outlined in Section 9.2.1. *Redevelopment activities* located in an Enhanced Phosphorus Removal Watershed (see Part III.B.3. and Appendix C) must calculate the WQv in accordance with Section 4.3 of the DM. All other *redevelopment activities* must calculate the WQv in accordance with Section 4.2 of the DM.

1. Reduce the existing *impervious cover* by a minimum of 25% of the total disturbed, *impervious area*. The Soil Restoration criteria in Section 5.1.6 of the DM must be applied to all newly created pervious areas; or

2. Capture and treat 100% of the required WQv, for a minimum of 25% of the disturbed redevelopment *impervious area*, by implementation of standard SMPs or reduced by application of runoff reduction techniques; or

3. Capture and treat 100% of the required WQv, for a minimum of 75% of the disturbed redevelopment *impervious area*, by implementation of a volume-based alternative SMP, as defined in Section 9.4 of the DM; or

4. Capture and treat 100% of the required WQv, for a minimum of 75% of the disturbed redevelopment *impervious area*, by implementation of a flow-through alternative SMP sized to treat the peak rate of runoff from the WQv design storm; or

5. Application of a combination of 1 through 4 above that provide a weighted average of at least two of the above methods. Application of this method must be in accordance with the criteria in Section 9.2.1(A)(V) of the DM; or

6. If there is an existing SMP located on the site that captures and treats runoff from the *impervious area* that is being disturbed, the WQv treatment option selected must, at a minimum, provide treatment equal to the treatment that was being provided by the existing practice(s) if that treatment is greater than the treatment required by options 1 through 5 above.

ii. Channel Protection Volume (CPv) is not required if there is 0% change to hydrology that increases the *discharge* rate and volume from the project site.

iii. *Overbank* Flood Control (Qp) is not required if there is 0% change to hydrology that increases the *discharge* rate from the project site.

iv. Extreme Flood Control (Qf) is not required if there is 0% change to hydrology that increases the *discharge* rate from the project site.

d. *Sizing Criteria* for Combination of *Redevelopment Activity* and *New Development*

Construction projects, that include both *new development* and *redevelopment activity*, must use SMPs that meet the *sizing criteria* calculated as an aggregate of the *sizing criteria* in Part II.C.2.a. or b. for the *new development* portion of the project and Part II.C.2.c. for the *redevelopment activity* portion of the project.

Part III. Stormwater Pollution Prevention Plan (SWPPP)

A. General *SWPPP* Requirements

1. A *SWPPP* must be prepared and implemented by the *owner or operator* of all *construction activity* covered by this permit. All authorized *discharges* must be identified in the *SWPPP*. The *SWPPP* must document the selection, design, installation, implementation and maintenance of the control measures and

practices that will be used to meet the effluent limitations in Part II.B. and, where applicable, the SMP requirements in Part II.C.

2. The *SWPPP* must demonstrate consideration in narrative format of the future physical risks due to climate change pursuant to the Community Risk and Resiliency Act (CRRA), 6 NYCRR Part 490, and associated guidance.

    a. The owner or operator must consider:

        i. the following physical risks due to climate change:

            (i) increasing temperature; and

            (ii) increasing precipitation; and

            (iii) increasing variability in precipitation, including chance of drought; and

            (iv) increasing frequency and severity of flooding; and

            (v) rising sea level; and

            (vi) increasing storm surge; and

            (vii) shifting ecology.

        ii. for each of the following:

            (i) overall site planning; and

            (ii) location, elevation, and sizing of:

                a. control measures and practices; and

                b. conveyance system(s); and

                c. detention system(s).

3. The *SWPPP* must describe the erosion and sediment control practices and where required, SMPs that will be used and/or constructed to reduce the *pollutants* in *stormwater discharges* and to assure compliance with the

requirements of this permit. In addition, the *SWPPP* must identify potential sources of pollution which may reasonably be expected to affect the quality of *stormwater discharges*.

4. All *SWPPPs*, that require the SMP component in accordance with Part III.B.2., must be prepared by a *qualified professional*.

5. The *owner or operator* must keep the *SWPPP* current so that, at all times, it accurately documents the erosion and sediment control practices that are being used or will be used during construction, and all SMPs that will be constructed on the site. At a minimum, the *owner or operator* must modify the *SWPPP*, including construction drawings:

   a. whenever the current provisions prove to be ineffective in *minimizing pollutants* in *stormwater discharges* from the site; and

   b. whenever there is a change in design, construction, or operation at the *construction site* that has or could have an effect on the *discharge* of *pollutants*; and

   c. to address issues or deficiencies identified during an inspection by the *qualified inspector,* NYSDEC, or other regulatory authority; and

   d. to document the final construction conditions in an as-built drawing.

6. NYSDEC may notify the *owner or operator* at any time that the *SWPPP* does not meet one or more of the minimum requirements of this permit. The notification must be in writing and identify the provisions of the *SWPPP* that require modification. Within fourteen (14) calendar days of such notification, or as otherwise indicated by NYSDEC, the *owner or operator* must make the required changes to the *SWPPP* and submit written notification to NYSDEC that the changes have been made. If the *owner or operator* does not respond to NYSDEC's comments in the specified time frame, NYSDEC may suspend the *owner's or operator's* coverage under this permit or require the *owner or operator* to obtain coverage under an individual SPDES permit in accordance with Part II.D.4.

7. Prior to the *commencement of construction activity*, the *owner or operator* must identify the contractor(s) and subcontractor(s) that will be responsible for installing, constructing, repairing, replacing, inspecting, and maintaining the erosion and sediment control practices included in the *SWPPP* and the

contractor(s) and subcontractor(s) that will be responsible for constructing the SMPs included in the *SWPPP*. The *owner or operator* must have each of the contractors and subcontractors identify at least one person from their company to be *trained contractor* that will be responsible for implementation of the *SWPPP*. The *owner or operator* must ensure that at least one *trained contractor* is on site daily when soil disturbance activities are being performed.

The *owner or operator* must have each of the contractors and subcontractors identified above sign a copy of the following certification statement below before the *commencement of construction activities*:

> "I hereby certify under penalty of law that I understand and agree to comply with the requirements of the *SWPPP* and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with the requirements of the most current version of the New York State Pollutant Discharge Elimination System (SPDES) Construction General Permit (CGP) for Stormwater Discharges from Construction Activities and that it is unlawful for any person to cause or contribute to a violation of *water quality standards*. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations"

In addition to providing the certification statement above, the certification page must also identify the specific elements of the *SWPPP* that each contractor and subcontractor will be responsible for and include the name and title of the person providing the signature; the name and title of the *trained contractor* responsible for *SWPPP* implementation; the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification statement is signed. The *owner or operator* must attach the certification statement(s) to the copy of the *SWPPP* that is maintained at the *construction site*. If new or additional contractors are hired to implement measures identified in the *SWPPP* after the *commencement of construction activities*, they must also sign the certification statement and provide the information listed above prior to performing *construction activities*.

B. Required *SWPPP* Contents

1. Erosion and sediment control component - The *owner or operator* must prepare a *SWPPP* that includes erosion and sediment control practices.

    a. Erosion and sediment control practices must be designed:

        i. in conformance with the BB; or

        ii. *equivalent* to the BB if deviating from Part III.B.1.a.i.

    b. If the erosion and sediment control practices are designed in conformance with Part III.B.1.a.ii., the *SWPPP* must include a demonstration of *equivalence* to the BB.

    c. At a minimum, the erosion and sediment control component of the *SWPPP* must include the following:

        i. Background information about the scope of the project, including the location, type and size of project; and

        ii. A site map/construction drawing(s) with north arrows for the project, including a general location map. At a minimum, the site map must show the total site area; all improvements; areas of disturbance; areas that will not be disturbed; existing vegetation; on-site and adjacent off-site surface water(s); floodplain/floodway boundaries; wetlands and drainage patterns that could be affected by the *construction activity*; existing and final contours; locations of different soil types with boundaries; material, waste, borrow or equipment storage areas located on adjacent properties; and location(s) of the *stormwater discharge*(s) and receiving surface water(s); and

        iii. A description of the soil(s) present at the site, including an identification of the Hydrologic Soil Group (HSG); and

        iv. A phasing plan for the project and sequencing plans for all *phases*, both of which must address clearing and grubbing, excavation and grading, utility and infrastructure installation, *final stabilization*,

and any other *construction activity* at the site that will result in soil disturbance.

1. The phasing plan must include:

    a. a map delineating and labeling the limits of soil disturbance for all *phases* of a project; and

    b. a table identifying the order and intended schedule of when each *phase* will begin and end its sequencing plan. The table must identify the total disturbed area for each *phase* at any one time and the total disturbed area for the overall project at any one time all on one timeline showing all overlapping quantities of disturbed area at any one time; and

2. A sequencing plan for a specific *phase* must include:

    a. a table indicating the order and intended schedule of *construction activities* within a *phase*, and corresponding construction drawings with a description of the work to be performed; and

    b. all permanent and *temporary stabilization* measures; and

v. A description of the minimum erosion and sediment control practices to be installed or implemented for each *construction activity* that will result in soil disturbance. Include a schedule that identifies the timing of initial placement or implementation of each erosion and sediment control practice and the minimum time frames that each practice should remain in place or be implemented; and

vi. A site map/construction drawing(s) showing the specific location(s), size(s), and length(s) of each erosion and sediment control practice; and

vii. The dimensions, material specifications, installation details, and operation and maintenance requirements for all erosion and sediment control practices. Include the location and sizing of any

temporary sediment basins and structural practices that will be used to divert flows from exposed soils; and

viii. A maintenance inspection schedule for the contractor(s) and subcontractor(s) identified in Part III.A.7. to ensure continuous and effective operation of the erosion and sediment control practices. The maintenance inspection schedule must be in accordance with the requirements in the BB technical standard; and

ix. A description of the pollution prevention measures that will be used to control litter, construction chemicals and construction debris from becoming a *pollutant* source in the *stormwater discharges*; and

x. A description and location of any *stormwater discharges* associated with industrial activity other than construction at the site, including, but not limited to, *stormwater discharges* from asphalt plants and concrete plants located on the *construction site*; and

xi. Identification of any elements of the design that are not in conformance with the design criteria in the BB technical standard. Include the reason for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. SMP component – The *owner or operator* of *construction activity* identified in Table 2 of Appendix B must prepare a *SWPPP* that includes SMPs.

   a. SMPs must be designed in conformance with the applicable *sizing criteria* in Part II.C.2.a., c., or d.; and

   b. SMPs must be designed in conformance with the *performance criteria*:

      i. in the DM; or

      ii. *equivalent* to the DM if deviating from Part III.B.2.b.i.; or

      iii. in the New York State Stormwater Management Design Manual, dated January 2015 (2015 Design Manual), or *equivalent* to it, if the following criteria are met:

1. The eNOI is submitted in accordance with Part I.D. before January 29, 2027 for *construction activities* that are either:

    a. subject to governmental review and approval:

        i. where the *owner or operator* made any application to that governmental entity prior to the effective date of this permit; and

        ii. such application included a *SWPPP* developed using the 2015 Design Manual or *equivalent* to it; or

    b. not subject to governmental review and approval:

        i. where a fiscal allocation for the *construction activities* has been developed and approved by a governmental entity; and

        ii. the *SWPPP* was developed using the 2015 Design Manual or *equivalent* to it; and

c. If SMPs are designed in conformance with Part III.B.2.b.ii., the *SWPPP* must include the reason(s) for the deviation or alternative design and a demonstration of *equivalence* to the DM; and

d. If SMPs are designed in conformance with Part III.B.2.b.iii., the *SWPPP* must include supporting information or documentation demonstrating that Part III.B.2.b.iii.1.a. or b. apply; and

e. The SMP component of the *SWPPP* must include the following:

    i. Identification of all SMPs to be constructed as part of the project, including which option the SMP designs conform to, either Part III.B.2.b.i., ii., or iii. Include the dimensions, material specifications and installation details for each SMP; and

    ii. A site map/construction drawing(s) showing the specific location and size of each SMP; and

iii. A Stormwater Modeling and Analysis Report that includes:

(i) Map(s) showing pre-development conditions, including watershed/subcatchments boundaries, flow paths/routing, and design points; and

(ii) Map(s) showing post-development conditions, including watershed/subcatchments boundaries, flow paths/routing, design points and SMPs; and

(iii) Results of *stormwater* modeling (i.e. hydrology and hydraulic analysis) for the required storm events. Include supporting calculations (model runs), methodology, and a summary table that compares pre- and post-development runoff rates and volumes for the different storm events; and

(iv) Summary table, with supporting calculations, which demonstrates that each SMP has been designed in conformance with the *sizing criteria* included in the DM; and

(v) Identification of any *sizing criteria* that is not required based on the requirements included in Part II.C.; and

(vi) Identification of any elements of the design that are not in conformance with the *performance criteria* in the DM. Include the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the DM.

iv. Soil testing results and locations (test pits, borings); and

v. Infiltration test results, when required in accordance with Part III.B.2.a.; and

vi. An operations and maintenance plan that includes inspection and maintenance schedules and actions to ensure continuous and effective operation of each SMP. The plan must identify the entity

that will be responsible for the long-term operation and maintenance of each practice; and

3. Enhanced Phosphorus Removal Standards - The *owner or operator* of *construction activity* identified in Table 2 of Appendix B that is located in a watershed identified in Appendix C must prepare a *SWPPP* that includes SMPs designed in conformance with the applicable *sizing criteria* in Part II.C.2.b., c., or d. and the *performance criteria* Enhanced Phosphorus Removal Standards included in the DM. At a minimum, the SMP component of the *SWPPP* must meet the requirements of Part III.B.2.

C. Required *SWPPP* Components by Project Type

Owners or operators of *construction activities*, identified in Table 1 of Appendix B, are required to prepare a *SWPPP* that only includes erosion and sediment control practices designed in accordance with Part III.B.1. *Owners or operators* of the *construction activities*, identified in Table 2 of Appendix B, must prepare a *SWPPP* that also includes SMPs designed in accordance with Part III.B.2 or 3.

For the entire area of disturbance, including the entire *common plan of development or sale* if applicable, the owner or operator must evaluate every bullet from Appendix B Table 1 and Table 2 separately. If bullets from both Table 1 and Table 2 apply, the *SWPPP* must include erosion and sediment control practices for all *construction activities* but SMPs for only those portions of the *construction activities* that fall under Table 2 bullet(s).

Part IV. Inspection and Maintenance Requirements

A. General Construction Site Inspection and Maintenance Requirements

1. The *owner or operator* must ensure that all erosion and sediment control practices (including pollution prevention measures), and all SMPs identified in the *SWPPP*, are inspected and maintained in accordance with Part IV.B. and C.

B. Contractor Maintenance Inspection Requirements

1. The *owner or operator* of each *construction activity*, identified in Tables 1 and 2 of Appendix B, must have a *trained contractor* inspect the erosion and sediment control practices and pollution prevention measures being

implemented within the active work area daily to ensure that they are being maintained in effective operating condition at all times. If deficiencies are identified, the contractor must:

a. if the corrective action does not require engineering design:

    i. begin implementing corrective actions within one business day; and

    ii. complete the corrective actions within five business days; or

b. if the corrective action requires engineering design:

    i. begin the engineering design process within five business days; and

    ii. complete the corrective action in a reasonable time frame but no later than within 60 calendar days.

2. For *construction sites* where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *trained contractor* can stop conducting the maintenance inspections in accordance with Part IV.B.1. The *trained contractor* must begin conducting the maintenance inspections in accordance with Part IV.B.1. as soon as soil disturbance activities resume.

3. For *construction sites* where soil disturbance activities have been shut down with partial project completion, the *trained contractor* can stop conducting the maintenance inspections in accordance with Part IV.B.1. if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all SMPs required for the completed portion of the project have been constructed in conformance with the *SWPPP* and are operational.

C. *Qualified Inspector* Inspection Requirements

1. With the exception of the following *construction activities* identified in Tables 1 and 2 of Appendix B, a *qualified inspector* must conduct site inspections for all other *construction activities* identified in Tables 1 and 2 of Appendix B:

    a. the construction of a single-family residential subdivision with 25% or less *impervious cover* at total site build-out that involves a soil disturbance of one (1) or more acres of land but less than or equal to five (5) acres and is

not located in one of the watersheds listed in Appendix C and not *directly discharging* to one of the 303(d) segments listed in Appendix D; and

b. the construction of a single-family home that involves soil disturbances of one (1) or more acres but less than or equal to five (5) acres and is not located in one of the watersheds listed in Appendix C and not *directly discharging* to one of the 303(d) segments listed in Appendix D; and

c. construction on *agricultural property* that involves soil disturbances of one (1) or more acres but less than five (5) acres; and

d. *construction activities* located in the New York City Watershed located east of the Hudson River, see Appendix C Figure 1, that involve soil disturbances of 5,000 square feet or more, but less than one acre.

2. The *qualified inspector* must conduct site inspections in accordance with the following timetable:

a. For *construction sites* where soil disturbance activities are on-going, the *qualified inspector* must conduct a site inspection at least once every seven (7) calendar days; or

b. For *construction sites* where soil disturbance activities are on-going and the *owner or operator* has received authorization in accordance with Part I.E.6. to disturb greater than five (5) acres of soil at any one time, the *qualified inspector* must conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections must be separated by a minimum of two (2) full calendar days; or

c. For *construction sites* where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *qualified inspector* must conduct a site inspection at least once every thirty (30) calendar days. The *owner or operator* must notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix E) or, in areas under the jurisdiction of a *Traditional Land Use Control MS4 Operator,* the *Traditional Land Use Control MS4 Operator* (provided the *Traditional Land Use Control MS4 Operator* is not the *owner or operator* of the *construction activity*) by hard copy or email prior to reducing the inspections to this frequency and again by hard copy or email prior to re-commencing construction; or

d. For *construction sites* where soil disturbance activities have been shut down with partial project completion, the requirement to have the *qualified inspector* conduct inspections ceases if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all SMPs required for the completed portion of the project have been constructed in conformance with the *SWPPP* and are operational. The *owner or operator* must notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix E) or, in areas subject to the review authority of *Traditional Land Use Control MS4 Operator(s)* in accordance with Part I.D.2.b.ii.1., the *Traditional Land Use Control MS4 Operator(s)* (provided the *Traditional Land Use Control MS4 Operator(s)* are not the *owners or operators* of the *construction activity*) in writing prior to the shutdown and again in writing prior to resuming *construction activity*. If soil disturbance activities are not resumed within 2 years from the date of shutdown, the *owner or operator* must terminate coverage by meeting the requirements of Part V; or

e. For *construction sites* involving soil disturbance of one (1) or more acres that *directly discharge* to one of the 303(d) segments listed in Appendix D or is located in one of the watersheds listed in Appendix C, the *qualified inspector* must conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections must be separated by a minimum of two (2) full calendar days.

3. At a minimum, the *qualified inspector* must inspect:

   a. all erosion and sediment control practices and pollution prevention measures to ensure integrity and effectiveness; and

   b. all SMPs under construction to ensure that they are constructed in conformance with the *SWPPP*; and

   c. all areas of disturbance that have not achieved *final stabilization*; and

   d. all points of *discharge* to *surface waters of the State* located within, or immediately adjacent to, the property boundaries of the *construction site*; and

   e. all points of *discharge* from the *construction site*.

4. The *qualified inspector* must prepare an inspection report subsequent to each and every inspection. At a minimum, the inspection report must include and/or address all of the following, for all *construction activities* except those listed in Part IV.C.1.:

   a. Permit identification number; and

   b. Date and time of inspection; and

   c. Name and title of person(s) performing inspection; and

   d. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection, including the temperature at the time of the inspection; and

   e. A description of the condition of the runoff at all points of *discharge* from the *construction site*. This must include identification of any *discharges* of sediment from the *construction site*. Include *discharges* from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow; and

   f. A description of the condition of all *surface waters of the State* located within, or immediately adjacent to, the property boundaries of the *construction site* which receive runoff from disturbed areas. This must include identification of any *discharges* of sediment to the *surface waters of the State*; and

   g. Identification of all erosion and sediment control practices and pollution prevention measures that need repair or maintenance; and

   h. Identification of all erosion and sediment control practices and pollution prevention measures that were not installed properly or are not functioning as designed and need to be reinstalled or replaced; and

   i. Description and sketch (map) of areas with active soil disturbance activity, areas that have been disturbed but are inactive at the time of the inspection, and areas that have been stabilized (temporary and/or final) since the last inspection; and

   j. Estimates, in square feet or acres, of the following areas:

i. Total area with active soil disturbance (not requiring either *temporary stabilization* or *final stabilization*); and

ii. Total area with inactive soil disturbance (requiring either *temporary stabilization* or *final stabilization*); and

iii. Total area that has achieved *temporary stabilization*; and

iv. Total area that has achieved *final stabilization*; and

k. Current stage of construction of all SMPs and identification of all *construction activity* on site that is not in conformance with the *SWPPP* and technical standards; and

l. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices and pollution prevention measures; and to correct deficiencies identified with the construction of the SMP(s); and

m. Identification and status of all corrective actions that were required by previous inspection; and

n. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The *qualified inspector* must attach color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The *qualified inspector* must also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The *qualified inspector* must attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection.

5. Within one business day of the completion of an inspection, the *qualified inspector* must notify the *owner or operator*, and appropriate contractor or subcontractor identified in Part III.A.7., of any corrective actions that need to be taken. The contractor or subcontractor must:

a. if the corrective action does not require engineering design:

i. begin implementing corrective actions within one business day; and

ii. complete the corrective actions within five business days; or

b. if the corrective action requires engineering design:

i. begin the engineering design process within five business days; and

ii. complete the corrective action in a reasonable time frame but no later than within 60 calendar days.

6. All inspection reports must be signed by the *qualified inspector.* In accordance with Part I.E.3., the inspection reports must be maintained on site with the *SWPPP*.

Part V. How to Terminate CGP Coverage

A. Electronic Notice of Termination (eNOT) Submittal

The eNOT contains questions to ensure requirements in Part V.A. have been met.

1. An *owner or operator* must terminate coverage when one or more of the following requirements have been met:

a. Total project completion:

i. all *construction activity* identified in the *SWPPP* has been completed; and

ii. all areas of disturbance have achieved *final stabilization*; and

iii. all temporary, structural erosion and sediment control measures have been removed; and

iv. all SMPs have been constructed in conformance with the *SWPPP* and are operational; and

v. an as-built drawing has been prepared; or

b. Planned shutdown with partial project completion:

   i. all soil disturbance activities have ceased; and

   ii. all areas disturbed as of the project shutdown date have achieved *final stabilization*; and

   iii. all temporary, structural erosion and sediment control measures have been removed; and

   iv. all SMPs required for the completed portion of the project have been constructed in conformance with the *SWPPP* and are operational; and

   v. an as-built drawing has been prepared; or

c. In accordance with Part I.G. Change of Owner or Operator; or

d. The *owner or operator* has obtained coverage under an alternative general SPDES permit or an individual SPDES permit.

2. For *construction activities* that require *qualified inspector* inspections in accordance with Part IV.C.1. and have met Part V.A.1.a. or b., the *owner or operator* must have the *qualified inspector* perform a final site inspection prior to submitting the eNOT. The *qualified inspector* must, by signing the “Final Stabilization” and “Post-Construction Stormwater Management Practice(s)” certification statements on the eNOT, certify that all the requirements in Part V.A.1.a. or b. have been achieved.

3. For *construction activities* that are subject to the review authority of *Traditional Land Use Control MS4 Operator(s)* in accordance with Part I.D.2.b.ii.1. and meet Part V.A.1.a. or b., the *owner or operator* must have the *Traditional Land Use Control MS4 Operator(s)* sign the “MS4 Acceptance” statement on the eNOT in accordance with the requirements in Part VII.J. A *Traditional Land Use Control MS4 Operator* official, by signing this statement, determined that it is acceptable for the *owner or operator* to submit the eNOT in accordance with the requirements of this Part. A *Traditional Land Use Control MS4 Operator* can make this determination by performing a final site inspection themselves or by accepting the *qualified inspector*’s final site inspection certification(s) when required in Part V.A.2.

4. For *construction activities* that require SMPs and meet Part V.A.1.a. or b., the *owner or operator* must, prior to submitting the eNOT, ensure one of the following:

    a. for SMP(s) that were constructed by a private entity, but will be owned, operated, and maintained by a public entity, the SMP(s) and any right-of-way(s) needed to operate and maintain such practice(s) have been deeded to the municipality in which the practice(s) is located; or

    b. for SMP(s) that are privately owned, but will be operated and maintained by a public entity, an executed operation and maintenance agreement is in place with the municipality that will operate and maintain the SMP(s); or

    c. for SMP(s) that are privately owned, the *owner or operator* has a mechanism in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the *owner or operator's* deed of record; or

    d. for SMP(s) that are owned by a public or private institution (e.g. school, university, hospital), government agency or authority, or public utility, the *owner or operator* has policies and procedures in place that ensure operation and maintenance of the practices in accordance with the operation and maintenance plan.

5. An *owner or operator* that has met the requirements of Part V.A.1., 2., 3., and 4. must request termination of coverage under this permit by submitting a complete Notice of Termination form electronically using a NYSDEC approved form.[5]

    a. The owner's or operator's coverage is terminated as of the termination date indicated in the Letter of Termination (LOT), which is sent by NYSDEC after a complete eNOT is submitted.

[5] Unless NYSDEC grants a waiver in accordance with 40 CFR 127.15(c) or (d). All waiver requests must be submitted to Stormwater_info@dec.ny.gov or NYSDEC, Bureau of Water Permits, 625 Broadway, 4th Floor, Albany, New York 12233-3505.

Part VI. Record Retention and Reporting

A. Record Retention

The *owner or operator* must retain a copy of the documents listed in Part I.E.3. and a copy of the LOT for a period of at least five years from the date that NYSDEC accepts a complete NOT submitted in accordance with Part V.

B. Reporting

Except for the eNOI, the signature forms associated with the eNOI, and the eNOT, all other written correspondence requested by NYSDEC, including individual permit applications, must be sent to the address of the appropriate DOW (SPDES) Program contact at the Regional Office listed in Appendix E.

Part VII. Standard Permit Requirements

For the purposes of this permit, examples of contractors and subcontractors include: third-party maintenance and construction contractors.

A. Duty to Comply

The *owner or operator*, and all contractors or subcontractors, must comply with all requirements of this permit. Any non-compliance with the requirements of this permit constitutes a violation of the New York State Environmental Conservation Law (ECL), and its implementing regulations, and is grounds for enforcement action. Filing of a request for termination of coverage under this permit, or a notification of planned changes or anticipated non-compliance, does not limit, diminish or stay compliance with any requirements of this permit.

B. Need to Halt or Reduce Activity Not a Defense

The necessity to halt or reduce the *construction activity* regulated by this permit, in order to maintain compliance with the requirements of this permit, must not be a defense in an enforcement action.

C. Penalties

There are substantial criminal, civil, and administrative penalties associated with violating the requirements of this permit. Fines of up to $37,500 per day for each

violation and imprisonment for up to 15 years may be assessed depending upon the nature and degree of the offense.

D. False Statements

Any person who knowingly makes any false material statement, representation, or certification in any application, record, report, or other document filed or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance must, upon conviction, be punished in accordance with ECL §71-1933 and or New York State Penal Law Articles 175 and 210.

E. Re-Opener Clause

Upon issuance of this permit, a determination has been made on the basis of a submitted Notice of Intent, plans, or other available information, that compliance with the specified permit requirements will reasonably protect classified water use and assure compliance with applicable *water quality standards*. Satisfaction of the requirements of this permit notwithstanding, if operation pursuant to this permit causes or contributes to a condition in contravention of State *water quality standards* or guidance values, or if NYSDEC determines that a modification is necessary to prevent impairment of the best use of the waters or to assure maintenance of *water quality standards* or compliance with other provisions of ECL Article 17 or the Clean Water Act (CWA), or any regulations adopted pursuant thereto, NYSDEC may require such modification and the Commissioner may require abatement action to be taken by the *owner or operator* and may also prohibit such operation until the modification has been implemented.

F. Duty to Mitigate

The *owner or operator*, and its contractors and subcontractors, must take all reasonable steps to *minimize* or prevent any *discharge* in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

G. Requiring Another General Permit or Individual SPDES Permit

NYSDEC may require any *owner or operator* authorized to *discharge* in accordance with this permit to apply for and obtain an individual SPDES permit or apply for authorization to *discharge* in accordance with another general SPDES permit.

1. Cases where an individual SPDES permit or authorization to discharge in accordance with another general SPDES permit may be required include, but is not limited to the following:

a. the *owner or operator* is not in compliance with the conditions of this permit or does not meet the requirements for coverage under this permit; and

b. a change has occurred in the availability of demonstrated technology or practices for the control or abatement of *pollutants* applicable to the *point source*; and

c. new effluent limitation guidelines or new source performance standards are promulgated that are applicable to *point sources* authorized to *discharge* in accordance with this permit; and

d. existing effluent limitation guidelines or new source performance standards that are applicable to *point sources* authorized to *discharge* in accordance with this permit are modified; and

e. a water quality management plan containing requirements applicable to such *point sources* is approved by NYSDEC; and

f. circumstances have changed since the time of the request to be covered so that the *owner or operator* is no longer appropriately controlled under this permit, or either a temporary or permanent reduction or elimination of the authorized *discharge* is necessary; and

g. the *discharge* is in violation of section 17-0501 of the ECL; and

h. the *discharge(s)* is a significant contributor of *pollutants*. In making this determination, NYSDEC may consider the following factors:

    i. the location of the *discharge(s)* with respect to *surface waters of the State*; and

    ii. the size of the *discharge(s)*; and

    iii. the quantity and nature of the *pollutants discharged* to *surface waters of the State*; and

    iv. other relevant factors including compliance with other provisions of ECL Article 17, or the CWA.

2. When NYSDEC requires any *owner or operator* authorized by this permit to apply for an individual SPDES permit as provided for in this subdivision, it must notify the *owner or operator* in writing that a permit application is required. This notice must include a brief statement of the reasons for this decision, an application

form, a statement setting a time for the *owner or operator* to file the application for an individual SPDES permit, and a deadline, not sooner than 180 days from the *owner's or operator's* receipt of the notification letter, whereby the authorization to *discharge* under this permit must be terminated. NYSDEC may grant additional time upon demonstration, to the satisfaction of the RWE,[6] that additional time to apply for an alternative authorization is necessary or where NYSDEC has not provided a permit determination in accordance with 6 NYCRR Part 621.

3. When an individual SPDES permit is issued to an *owner or operator* authorized to *discharge* under this permit for the same *discharge(s)*, this permit authorization for *construction activities* authorized under the individual SPDES permit is automatically terminated on the effective date of the individual SPDES permit unless termination is earlier in accordance with 6 NYCRR Part 750.

H. Duty to Provide Information

The *owner or operator* must furnish to NYSDEC, within five business days, unless otherwise set forth by NYSDEC, any information that NYSDEC may request to determine whether cause exists to determine compliance with this permit or to determine whether cause exists for requiring an individual SPDES permit in accordance with 6 NYCRR 750-1.21(e) (see Part VII.G. Requiring Another General Permit or Individual Permit).

The *owner or operator* must make available to NYSDEC, for inspection and copying, or furnish to NYSDEC within 25 business days of receipt of a NYSDEC request for such information, any information retained in accordance with this permit.

Except for Part I.D.4. and 5. and Part I.G., the following applies: where the *owner or operator* becomes aware that it failed to submit any relevant facts on the Notice of Intent, or submitted incorrect information in a Notice of Intent or in any report to NYSDEC, the *owner or operator* must submit such facts or corrected information to NYSDEC within five business days.

I. Extension

In the event a new permit is not issued and effective prior to the expiration of this permit, and this permit is extended pursuant to the State Administrative Procedure Act and 6 NYCRR Part 621, then the *owner or operator* with coverage under this permit may continue to operate and *discharge* in accordance with the requirements of this permit until a new permit is issued and effective.

[6] The Regional Water Manager where a DEC Region does not have a RWE.

J. Signatories and Certification

The Notice of Intent, Notice of Termination, and reports required by this permit must be signed as provided in 40 CFR §122.22.

1. All Notices of Intent and Notices of Termination must be signed as follows:

   a. For a corporation. By a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

      (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation; or

      (ii) the manager of one or more manufacturing, production or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for Notice of Intent or Notice of Termination requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

      Note: NYSDEC does not require specific assignments or delegations of authority to responsible corporate officers identified in 40 CFR §122.22(a)(1)(i). NYSDEC will presume that these responsible corporate officers have the requisite authority to sign the Notice of Intent or Notice of Termination unless the corporation has notified NYSDEC to the contrary. Corporate procedures governing authority to sign a Notice of Intent or Notice of Termination may provide for assignment or delegation to applicable corporate positions under 40 CFR §122.22(a)(1)(ii) rather than to specific individuals.

   b. For a partnership or sole proprietorship. By a general partner or the proprietor, respectively.

c. For a municipality, State, Federal, or other public agency. By either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:

    1. the chief executive officer of the agency; or

    2. a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

2. All reports required by this permit, and other information requested by NYSDEC, must be signed by a person described in Part VII.J.1., or by a duly authorized representative of that person. A person is a duly authorized representative only if:

    a. The authorization is made in writing by a person described in Part VII.J.1. or using the Duly Authorized Form, found on the DEC website; and

    b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and

    c. The written authorization is submitted to NYSDEC.

3. Changes to authorization. If an authorization under Part VII.J.2. is no longer accurate because a different individual or position has responsibility for the overall operation of the *construction activity*, a new authorization satisfying the requirements of Part VII.J.2. must be submitted to NYSDEC prior to or together with any reports, information, or applications to be signed by an authorized representative.

4. Certification. Any person signing a document under Part VII.J.1. or 2. must make the following certification:

    I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who

manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

5. Electronic reporting. If documents described in Part VII.J.1. or 2. are submitted electronically by or on behalf of the *construction activity* with coverage under this permit, any person providing the electronic signature for such documents must meet all relevant requirements of this section, and must ensure that all of the relevant requirements of 40 CFR Part 3 (including, in all cases, subpart D to Part 3) (Cross-Media Electronic Reporting) and 40 CFR Part 127 (NPDES Electronic Reporting Requirements) are met for that submission.

K. Inspection and Entry

The *owner or operator* must allow NYSDEC, the USEPA Regional Administrator, the applicable county health department, or any authorized representatives of those entities, or, in the case of a *construction site* which *discharges* through an *MS4*, an authorized representative of the *MS4* receiving the *discharge*, upon the presentation of credentials and other documents as may be required by law, to:

1. enter upon the *owner's or operator's* premises where a regulated facility or activity is located or conducted or where records must be kept under the requirements of this permit; and

2. have access to and copy at reasonable times, any records that must be kept under the requirements of this permit, including records required to be maintained for purposes of operation and maintenance; and

3. inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices or operations regulated or required under this permit; and

4. sample or monitor at reasonable times, for the purposes of assuring general SPDES permit compliance or as otherwise authorized by the CWA or ECL, any substances or parameters at any location; and

5. enter upon the property of any contributor to the regulated facility or activity under authority of the *owner or operator*.

L. Confidentiality of Information

The following must not be held confidential: this permit, the fact sheet for this permit, the name and address of any *owner or operator*, effluent data, the Notice of Intent, and information regarding the need to obtain an individual permit or an alternative general SPDES permit. This includes information submitted on forms themselves and any attachments used to supply information required by the forms (except information submitted on usage of substances). Upon the request of the *owner or operator*, NYSDEC must make determinations of confidentiality in accordance with 6 NYCRR Part 616, except as set forth in the previous sentence. Any information accorded confidential status must be disclosed to the Regional Administrator upon his or her written request. Prior to disclosing such information to the Regional Administrator, NYSDEC will notify the Regional Administrator of the confidential status of such information.

M. Other Permits May Be Required

Nothing in this permit relieves the *owner or operator* from a requirement to obtain any other permits required by law.

N. NYSDEC Orders or Civil Decrees/Judgments

The issuance of this permit by the NYSDEC, and the coverage under this permit by the *owner or operator*, does not supersede, revoke, or rescind any existing order on consent or civil Decree/Judgment, or modification to any such documents or to any order issued by the Commissioner, or any of the terms, conditions, or requirements contained in such order or modification therefore, unless expressly noted.

O. Property Rights

Coverage under this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State, or local laws or regulations, nor does it obviate the necessity of obtaining the assent of any other jurisdiction as required by law for the *discharge* authorized.

P. Compliance with Interstate Standards

If the *construction activity* covered by this permit originates within the jurisdiction of an interstate water pollution control agency, then the *construction activity* must also comply with any applicable effluent standards or *water quality standards* promulgated by that interstate agency and as set forth in this permit for such *construction activities*.

Q. Oil and Hazardous Substance Liability

Coverage under this permit does not affect the imposition of responsibilities upon, or the institution of any legal action against, the *owner or operator* under section 311 of the CWA, which must be in conformance with regulations promulgated pursuant to section 311 governing the applicability of section 311 of the CWA to *discharges* from facilities with *NPDES* permits, nor must such issuance preclude the institution of any legal action or relieve the *owner or operator* from any responsibilities, liabilities, or penalties to which the *owner or operator* is or may be subject pursuant to the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. section 9601 et seq. (CERCLA).

R. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, must not be affected thereby.

S. NYSDEC Approved Forms

The *owner or operator* must provide all relevant information that is requested by NYSDEC, and required by this permit, on all NYSDEC approved forms.

APPENDIX A – Abbreviations and Definitions

Abbreviations

APO – Agency Preservation Officer
BB – New York State Standards and Specifications for Erosion and Sediment Control (Blue Book), dated November 2016
BMP – Best Management Practice
CPESC – Certified Professional in Erosion and Sediment Control
CPv – Channel Protection Volume
CWA – Clean Water Act (or the Federal Water Pollution Control Act, 33 U.S.C. §1251 et seq)
DM – New York State Stormwater Management Design Manual (Design Manual), dated July 31, 2024
DOW – Division of Water
EAF – Environmental Assessment Form
ECL – chapter 43-B of the Consolidated Laws of the State of New York, entitled the Environmental Conservation Law
EPA – U.S. Environmental Protection Agency
HSG – Hydrologic Soil Group
MS4 – Municipal Separate Storm Sewer System
NOI – Notice of Intent
NOT – Notice of Termination
NPDES – National Pollutant Discharge Elimination System
NYC – The City of New York
NYCDEP – The City of New York Department of Environmental Protection
NYSDEC – The New York State Department of Environmental Conservation
OPRHP – Office of Parks, Recreation and Historic Places
Qf – Extreme Flood
Qp – Overbank Flood
RR – Runoff Reduction
RRv – Runoff Reduction Volume
RWE – Regional Water Engineer
SEQR – State Environmental Quality Review Act
SHPA – State Historic Preservation Act
SMP – Post-Construction Stormwater Management Practice
SPDES – State Pollutant Discharge Elimination System
SWPPP – Stormwater Pollution Prevention Plan
TMDL – Total Maximum Daily Load
UPA – Uniform Procedures Act
USDA – United States Department of Agriculture
WQv – Water Quality Volume

Appendix A

Definitions

All definitions in this section are solely for the purposes of this permit. If a word is not italicized in the permit, use its common definition.

Agricultural Building – a structure designed and constructed to house farm implements, hay, grain, poultry, livestock or other horticultural products; excluding any structure designed, constructed or used, in whole or in part, for human habitation, as a place of employment where agricultural products are processed, treated or packaged, or as a place used by the public.

Agricultural Property – the land for construction of a barn, *agricultural building*, silo, stockyard, pen or other structural practices identified in Table II in the "Agricultural Best Management Practice Systems Catalogue" (dated June 2023).

Alter Hydrology from Pre- to Post-Development Conditions – the post-development peak flow rate(s) has increased by more than 5% of the pre-developed condition for the design storm of interest (e.g. 10 yr and 100 yr).

Combined Sewer System – a sewer system which conveys sewage and *stormwater* through a single pipe system to a publicly owned treatment works.

Commence (Commencement of) Construction Activities – the initial disturbance of soils associated with clearing, grading or excavation activities; or other construction related activities that disturb or expose soils such as demolition, stockpiling of fill material, and the initial installation of erosion and sediment control practices required in the *SWPPP*. See definition for "*Construction Activity(ies)*" also.

Common Plan of Development or Sale – a contiguous area where multiple separate and distinct *construction activities* are occurring, or may occur, under one plan. The "common plan" of development or sale is broadly defined as any announcement or piece of documentation (including a sign, public notice or hearing, marketing plan, advertisement, drawing, permit application, State Environmental Quality Review Act (SEQR) environmental assessment form or other documents, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating *construction activities* may occur on a specific plot. A *common plan of development or sale* is comprised of two or more *phases*.

Common plan of development or sale does not include separate and distinct *construction activities* that are occurring, or may occur, under one plan that are at least 1/4 mile apart provided any interconnecting road, pipeline or utility project that is part of the same "common plan" is not concurrently being disturbed.

Construction Activity(ies) – identified within 40 CFR 122.26(b)(14)(x), 122.26(b)(15)(i), and 122.26(b)(15)(ii), any clearing, grading, excavation, filling, demolition or stockpiling activities that result in soil disturbance. Clearing activities can include, but are not limited to, mechanized logging equipment operation, the cutting and skidding of trees, stump removal and/or brush root removal.

Construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility, which is excluded from the calculation of the soil disturbance for a project. Routine maintenance includes, but is not limited to:

- Re-grading of gravel roads or parking lots; and
- Cleaning and shaping of existing roadside ditches and culverts that maintains the approximate original line and grade, and maintains or improves the hydraulic capacity of the ditch; and
- Replacement of existing culverts that maintains the approximate original line and grade, and maintains or improves the hydraulic capacity of a ditch; and
- Replacement of existing bridges that maintains the approximate original line and grade, and maintains or improves the hydraulic capacity beneath the bridges; and
- Cleaning and shaping of existing roadside ditches that does not maintain the approximate original grade, hydraulic capacity and purpose of the ditch if the changes to the line and grade, hydraulic capacity or purpose of the ditch are installed to improve water quality and quantity controls (e.g. installing grass lined ditch); and
- Placement of aggregate shoulder backing that stabilizes the transition between the road shoulder and the ditch or *embankment*; and
- Full depth milling and filling of existing asphalt pavements, replacement of concrete pavement slabs, and similar work that does not expose soil or disturb the bottom six (6) inches of subbase material; and
- Long-term use of equipment storage areas at or near highway maintenance facilities; and
- Removal of sediment from the edge of the highway to restore a previously existing sheet-flow drainage connection from the highway surface to the highway ditch or *embankment*; and
- Existing use of Canal Corp owned upland disposal sites for the canal, and
- Replacement of curbs, gutters, sidewalks and guide rail posts; and
- Maintenance of ski trails including brush hog use and mowing; and
- Above ground snowmaking pipe replacement; and
- Replacement of existing utility poles; etc.

Construction Site – the land area where *construction activity(ies)* will occur. See also the definitions for "*Commence (Commencement of) Construction Activities"* and "*Common Plan of Development or Sale."*

Dewatering – the act of draining rainwater and/or groundwater from building foundations, vaults or excavations/trenches.

Directly Discharge(s)(ing) (to a specific surface waterbody) – runoff flows from a *construction site* by overland flow and the first point of *discharge* is the specific surface waterbody, or runoff flows from a *construction site* to a separate storm sewer system and the first point of *discharge* from the separate storm sewer system is the specific surface waterbody.

Discharge(s)(d) – any addition of any *pollutant* to waters of the State through an outlet or *point source*.

Embankment – an earthen or rock slope that supports a road/highway.

Equivalent (Equivalence) – the practice or measure meets all the performance, longevity, maintenance, and safety objectives of the technical standard and will provide an equal or greater degree of water quality protection.

Final Stabilization – all soil disturbance activities have ceased and a uniform, perennial vegetative cover with a density of eighty (80) percent over the entire pervious surface has been established; or other *equivalent* stabilization measures, such as permanent landscape mulches, rock rip-rap or washed/crushed stone have been applied on all disturbed areas that are not covered by permanent structures, concrete or pavement.

Historic Property – any building, structure, site, object or district that is listed on the State or National Registers of Historic Places or is determined to be eligible for listing on the State or National Registers of Historic Places.

Impervious Area (Cover) – all impermeable surfaces that cannot effectively infiltrate rainfall. This includes paved, concrete and compacted gravel surfaces (i.e. parking lots, driveways, roads, runways and sidewalks); building rooftops and miscellaneous impermeable structures such as patios, pools, and sheds.

Infeasible – not technologically possible, or not economically practicable and achievable considering best industry practices.

Minimize(ing)(ation) – reduce and/or eliminate to the extent achievable using control measures (including best management practices) that are technologically available and economically practicable and achievable in light of best industry practices.

Municipal Separate Storm Sewer System (MS4) - a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

1. owned or operated by a State, city, town, village, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, *stormwater*, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA, that *discharges* to *surface waters of the State*; and

2. designed or used for collecting or conveying *stormwater*; and

3. which is not a *combined sewer system*; and

4. which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

Natural Buffer(s) – an undisturbed area with natural cover running along a surface water (e.g. wetland, stream, river, lake, etc.).

New Development – any land disturbance that does not meet the definition of *Redevelopment Activity* included in this appendix.

New York State Erosion and Sediment Control Certificate Program – a certificate program that establishes and maintains a process to identify and recognize individuals who are capable of developing, designing, inspecting and maintaining erosion and sediment control plans on projects that disturb soils in New York State. The certificate program is administered by the New York State Conservation District Employees Association.

Nonpoint Source(s) – any source of water pollution or *pollutants* which is not a discrete conveyance or *point source* permitted pursuant to Title 7 or 8 of Article 17 of the Environmental Conservation Law (see ECL Section 17-1403).

Overbank – flow events that exceed the capacity of the stream channel and spill out into the adjacent floodplain.

Owner or Operator – the person, persons, or legal entity which owns or leases the property on which the *construction activity* is occurring; an entity that has operational control over the construction plans and specifications, including the ability to make modifications to the plans and specifications; and/or an entity that has day-to-day operational control of those activities at a project that are necessary to ensure compliance with the permit requirements.

Performance Criteria – the six performance criteria for each group of SMPs in Chapters 5 and 6 of the technical standard, New York State Stormwater Management Design Manual (DM), dated July 31, 2024. These include feasibility, conveyance, pretreatment, treatment, landscaping, and maintenance. It does not include the *Sizing Criteria* (i.e. WQv, RRv, CPv, Qp and Qf) in Part I.C.2. of the permit.

Phase – a defined area in which *construction activities* are occurring or will occur separate from other defined area(s).

Point Source – any discernible, confined, and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, vessel or other floating craft, or landfill leachate collection system from which *pollutants* are or may be *discharged*.

Pollutant(s) – dredged spoil, filter backwash, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand and industrial, municipal, agricultural waste and ballast *discharged* into water; which may cause or might reasonably be expected to cause pollution of the waters of the state in contravention of the standards or guidance values adopted as provided in 6 NYCRR Parts 700 et seq.

Qualified Inspector – a person that is knowledgeable in the principles and practices of erosion and sediment control, such as a licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, *New York State Erosion and Sediment Control Certificate Program* holder or other NYSDEC endorsed individual(s).

It can also mean someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control. Training in the principles and practices of erosion and sediment control means that the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect has received four (4) hours of NYSDEC endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other NYSDEC endorsed entity. After receiving the initial training, the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect shall receive four (4) hours of training every three (3) years.

It can also mean a person that meets the *Qualified Professional* qualifications in addition to the *Qualified Inspector* qualifications.

Note: Inspections of any SMPs that include structural components, such as a dam for an impoundment, shall be performed by a licensed Professional Engineer.

Qualified Professional – a person that is knowledgeable in the principles and practices of *stormwater* management and treatment, such as a licensed Professional Engineer, Registered Landscape Architect or other NYSDEC endorsed individual(s). Individuals preparing *SWPPPs* that require the SMP component must have an understanding of the principles of hydrology, water quality management practice design, water quantity control design, and, in many cases, the principles of hydraulics. All components of the *SWPPP* that involve the practice of engineering, as defined by the NYS Education Law (see Article 145), shall be prepared by, or under the direct supervision of, a professional engineer licensed to practice in the State of New York.

Redevelopment Activity(ies) – the disturbance and reconstruction of existing *impervious area*, including *impervious areas* that were removed from a project site within five (5) years of preliminary project plan submission to the local government (i.e. site plan, subdivision, etc.).

Renewable Energy – electricity or thermal energy generated by renewable energy systems through use of the following technologies: solar thermal, photovoltaics, on land and offshore wind, hydroelectric, geothermal electric, geothermal ground source heat, tidal energy, wave energy, ocean thermal, and fuel cells which do not utilize a fossil fuel resource in the process of generating electricity.

Site Limitations – site conditions that prevent the use of an infiltration technique and or infiltration of the total WQv. Typical *site limitations* include: seasonal high groundwater, shallow depth to bedrock, and soils with an infiltration rate less than 0.5 inches/hour. The existence of *site limitations* shall be confirmed and documented using actual field testing (i.e. test pits, soil borings, and infiltration test) or using information from the most current United States Department of Agriculture (USDA) Soil Survey for the County where the project is located.

Sizing Criteria – the criteria included in Part I.C.2 of the permit that are used to size SMPs. The criteria include; Water Quality Volume (WQv), Runoff Reduction Volume (RRv), Channel Protection Volume (Cpv), *Overbank* Flood (Qp), and Extreme Flood (Qf).

Steep Slope – land area designated on the current United States Department of Agriculture (USDA) Soil Survey as Soil Slope Phase D, (provided the map unit name or description is inclusive of slopes greater than 25%), or Soil Slope Phase E or F, (regardless of the map unit name), or a combination of the three designations.

Stormwater – that portion of precipitation that, once having fallen to the ground, is in excess of the evaporative or infiltrative capacity of soils, or the retentive capacity of surface features, which flows or will flow off the land by surface runoff to waters of the State.

Streambank – the terrain alongside the bed of a creek or stream. The bank consists of the sides of the channel, between which the flow is confined.

Stormwater Pollution Prevention Plan (SWPPP) – a project specific report, including construction drawings, that among other things: describes the *construction activity(ies)*, identifies the potential sources of pollution at the *construction site*; describes and shows the *stormwater* controls that will be used to control the *pollutants* (i.e. erosion and sediment controls; for many projects, includes SMPs); and identifies procedures the *owner or operator* will implement to comply with the requirements of the permit. See Part III of the permit for a complete description of the information that must be included in the *SWPPP*.

Surface Waters of the State – shall be construed to include lakes, bays, sounds, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Atlantic ocean within the territorial seas of the state of New York and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters that do not combine or effect a junction with natural surface waters), which are wholly or partially within or bordering the state or within its jurisdiction. Waters of the state are further defined in 6 NYCRR Parts 800 to 941.

Temporarily Ceased – an existing disturbed area will not be disturbed again within 14 calendar days of the previous soil disturbance.

Temporary Stabilization – exposed soil has been covered with material(s) as set forth in the technical standard, New York Standards and Specifications for Erosion and Sediment Control, to prevent the exposed soil from eroding. The materials can include, but are not limited to, mulch, seed and mulch, and erosion control mats (e.g. jute twisted yarn, excelsior wood fiber mats).

Total Maximum Daily Load (TMDL) – the sum of the allowable loads of a single *pollutant* from all contributing point and *nonpoint source*s. It is a calculation of the maximum amount of a *pollutant* that a waterbody can receive and still meet *water quality standards*, and an allocation of that amount to the *pollutant's* sources. A TMDL stipulates Waste Load Allocations (WLA) for *point source discharges*, Load Allocations (LA) for *nonpoint source*s, and a margin of safety (MOS).

Traditional Land Use Control MS4 Operator – a city, town, or village with land use control authority that is authorized to *discharge* under New York State DEC's SPDES General Permit For Stormwater Discharges from Municipal Separate Stormwater Sewer Systems (MS4s) or the City of New York's Individual SPDES Permit for their Municipal Separate Storm Sewer Systems (NY-0287890).

Trained Contractor – an employee from the contracting (construction) company, identified in Part III.A.7., that has received four (4) hours of NYSDEC endorsed training

in proper erosion and sediment control principles from a Soil and Water Conservation District, or other NYSDEC endorsed entity. After receiving the initial training, the *trained contractor* shall receive four (4) hours of training every three (3) years.

It can also mean an employee from the contracting (construction) company, identified in Part III.A.7., that meets the *qualified inspector* qualifications (e.g. licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, *New York State Erosion and Sediment Control Certificate Program* holder, or someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of NYSDEC endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other NYSDEC endorsed entity).

The *trained contractor* is responsible for the day-to-day implementation of the *SWPPP*.

Tree Clearing – *construction activities* limited to felling and removal of trees.

Tree clearing does not include hand felling and leaving the trees in place with no support from mechanized equipment, which is not considered *construction activity* requiring coverage under this permit.

Water Quality Standard – such measures of purity or quality for any waters in relation to their reasonable and necessary use as promulgated in 6 NYCRR Part 700 et seq.

APPENDIX B – Required SWPPP Components by Project Type

Table 1
CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A *SWPPP* THAT ONLY INCLUDES EROSION AND SEDIMENT CONTROLS

The following *construction activities* that involve soil disturbances of one (1) or more acres of land, but less than five (5) acres:

- Single-family home not located in one of the watersheds listed in Appendix C and not *directly discharging* to one of the 303(d) segments listed in Appendix D
- Single-family residential subdivisions with 25% or less *impervious cover* at total site build-out and not located in one of the watersheds listed in Appendix C and not *directly discharging* to one of the 303(d) segments listed in Appendix D
- Construction of a barn or other *agricultural building*, silo, stock yard or pen.
- Structural agricultural conservation practices as identified in Table II in the "Agricultural Best Management Practice Systems Catalogue" (dated June 2023) that include construction or reconstruction of *impervious area* or *alter hydrology from pre- to post-development* conditions.

The following *construction activities* that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land:

- All construction activities located in the New York City Watershed located east of the Hudson River, see Appendix C Figure 1, that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

Within the municipal boundaries of NYC:

- Stand-alone road reconstruction, where the total soil disturbance from only that road construction, is less than one (1) acre of land.

The following *construction activities*:

- Installation of underground linear utilities; such as gas lines, fiber-optic cable, cable TV, electric, telephone, sewer mains, and water mains
- Environmental enhancement projects, such as wetland mitigation, *stormwater* retrofits, stream restoration, and resiliency projects that reconstruct shoreline areas to address sea level rise
- Pond construction
- Linear bike paths running through areas with vegetative cover, including bike paths surfaced with an *impervious cover*
- Cross-country ski trails, walking/hiking trails, and mountain biking trails, including a de minimis parking lot (maximum 10 spaces total, sized for passenger cars) with 35 feet minimum preservation of undisturbed area downgradient from the parking lot
- Dam rehabilitation (the structure of the dam itself)
- Sidewalks, bike paths, or walking paths, surfaced with an *impervious cover*, that are not part of residential, commercial, or institutional development;
- Sidewalks, bike paths, or walking paths, surfaced with an *impervious cover*, that include incidental shoulder or curb work along an existing highway to support construction of the sidewalk, bike path, or walking path.

Appendix B

Table 1 (Continued)
CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A *SWPPP* THAT ONLY INCLUDES EROSION AND SEDIMENT CONTROLS

The following *construction activities*:

- Slope stabilization
- Slope flattening that changes the grade of the site, but does not significantly change the runoff characteristics
- Spoil areas that will be covered with vegetation
- Vegetated open space (i.e. recreational parks, lawns, meadows, fields, downhill ski trails) that do not *alter hydrology from pre- to post-development* conditions
- Athletic fields (natural grass) that do not include the construction or reconstruction of *impervious area* and do not *alter hydrology from pre- to post-development* conditions
- Demolition where vegetation will be established, and no *redevelopment activity* is planned[1]
- Installation or replacement of either an overhead electric transmission line or a ski lift tower that does not include the construction of permanent access roads or parking areas surfaced with *impervious cover*.
- Solar array field areas that have tables elevated off the ground, spaced one table width apart, do not *alter hydrology from pre- to post-development conditions*, and address water quality volume and runoff reduction volume by maintaining sheet flow on slopes less than 8%.
- Structural agricultural conservation practices as identified in Table II in the "Agricultural Best Management Practice Systems Catalogue" (dated June 2023) that do not include construction or reconstruction of *impervious area* and do not *alter hydrology from pre- to post-development* conditions.
- Temporary access roads, median crossovers, detour roads, lanes, or other temporary *impervious areas* that will be restored to pre-construction conditions once the *construction activity* is complete (in this context, "temporary" means the *impervious area* will be in place for two years or less)
- Other *construction activities* that do not include the construction or reconstruction of *impervious area*, and do not *alter hydrology from pre- to post-development* conditions, and are not listed in Table 2.

1. If the site is redeveloped in the future, a new eNOI must be submitted.

Appendix B

Table 2
CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A *SWPPP* THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES (SMPS)

The following *construction activities*:

- Single-family home located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix D
- Single-family home that disturbs five (5) or more acres of land
- Single-family residential subdivisions located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix D
- Single-family residential subdivisions that involve soil disturbances of between one (1) and five (5) acres of land with greater than 25% *impervious cover* at total site build-out
- Single-family residential subdivisions that involve soil disturbances of between 20,000 square feet and one (1) acre of land within the municipal boundaries of NYC with greater than 25% *impervious cover* at total site build-out
- Single-family residential subdivisions that involve soil disturbances of five (5) or more acres of land, and single-family residential subdivisions that involve soil disturbances of less than five (5) acres that are part of a *common plan of development or sale* that will ultimately disturb five (5) or more acres of land
- Multi-family residential developments; includes duplexes, townhomes, condominiums, senior housing complexes, apartment complexes, and mobile home parks
- Creation of 5,000 square feet or more of *impervious area* in the municipal boundaries of NYC
- Airports
- Amusement parks
- Breweries, cideries, and wineries, including establishments constructed on agricultural land
- Campgrounds
- Cemeteries that include the construction or reconstruction of *impervious area* (>5% of disturbed area) or *alter the hydrology from pre- to post-development* conditions
- Commercial developments
- Churches and other places of worship
- Construction of a barn or other *agricultural building* (e.g. silo) that involves soil disturbance greater than five acres.
- Structural agricultural conservation practices as identified in Table II in the “Agricultural Best Management Practice Systems Catalogue” (dated June 2023) that involves soil disturbance greater than five acres and include the construction or reconstruction of *impervious area* or *alter hydrology from pre- to post-development* conditions.
- Facility buildings, including ski lodges, restroom buildings, pumphouses, ski lift terminals, and maintenance and groomer garages
- Institutional development; includes hospitals, prisons, schools and colleges
- Industrial facilities; includes industrial parks
- Landfills; including creation of landfills or capping landfills.
- Municipal facilities; includes highway garages, transfer stations, office buildings, POTWs, water treatment plants, and water storage tanks
- Golf courses
- Office complexes

Appendix B

Table 2 (Continued)

CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A *SWPPP* THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES (SMPS)

The following *construction activities*:

- Permanent laydown yards and equipment storage lots
- Playgrounds that include the construction or reconstruction of *impervious area*
- Sports complexes
- Racetracks; includes racetracks with earthen (dirt) surfaces
- Road construction or reconstruction, outside the municipal boundaries of NYC
- Road construction within the municipal boundaries of NYC
- Stand-alone road reconstruction, within the municipal boundaries of NYC where the total soil disturbance from that road reconstruction involves soil disturbance of one (1) acre or more of land
- Parking lot construction or reconstruction (as with all Table 2 bullets, this includes parking lots constructed as part of the *construction activities* listed in Table 1, unless a Table 1 bullet specifies otherwise)
- Athletic fields (natural grass) that include the construction or reconstruction of *impervious area* (>5% of disturbed area) or *alter the hydrology from pre- to post-development* conditions
- Athletic fields with artificial turf
- Permanent access roads, parking areas, substations, compressor stations, and well drilling pads, surfaced with *impervious cover,* and constructed as part of an overhead electric transmission line, wind-power, cell tower, oil or gas well drilling, sewer or water main, ski lift, or other linear utility project
- Sidewalks, bike paths, or walking paths, surfaced with an *impervious cover*, that are part of a residential, commercial or institutional development
- Sidewalks, bike paths, or walking paths, surfaced with an *impervious cover*, that are part of highway construction or reconstruction
- Solar array field areas on slopes greater than 8% that cannot maintain sheet flow using management practices identified in the BB or the DM
- Solar array field areas on slopes less than 8% that will *alter the hydrology from pre- to post-development* conditions
- Solar array field areas with tables that are not elevated high enough to achieve *final stabilization* beneath the tables
- Traditional *impervious areas* associated with solar development (e.g. roads, buildings, transformers)
- Utility pads surfaced with *impervious cover*, including electric vehicle charging stations
- All other *construction activities* that include the construction or reconstruction of *impervious area* or *alter the hydrology from pre- to post-development* conditions, and are not listed in Table 1

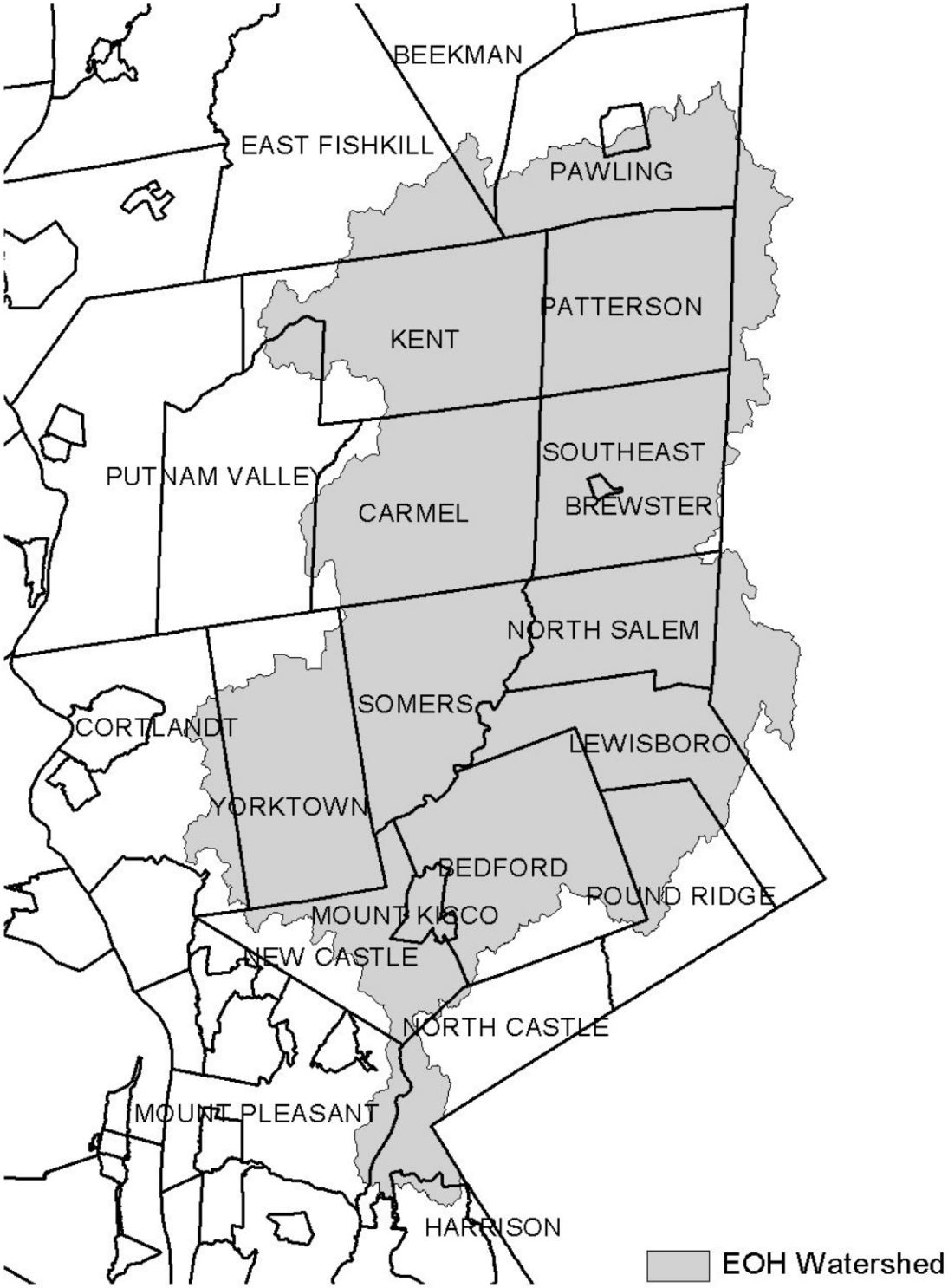
APPENDIX C – Watersheds Requiring Enhanced Phosphorus Removal

Watersheds where *owners or operators* of *construction activities* identified in Table 2 of Appendix B must prepare a *SWPPP* that includes SMPs designed in conformance with the Enhanced Phosphorus Removal Standards included in the DM technical standard.

- Entire New York City Watershed located east of the Hudson River – Figure 1
- Onondaga Lake Watershed – Figure 2
- Greenwood Lake Watershed – Figure 3
- Oscawana Lake Watershed – Figure 4
- Kinderhook Lake Watershed – Figure 5

Appendix C

Figure 1 - New York City Watershed East of the Hudson

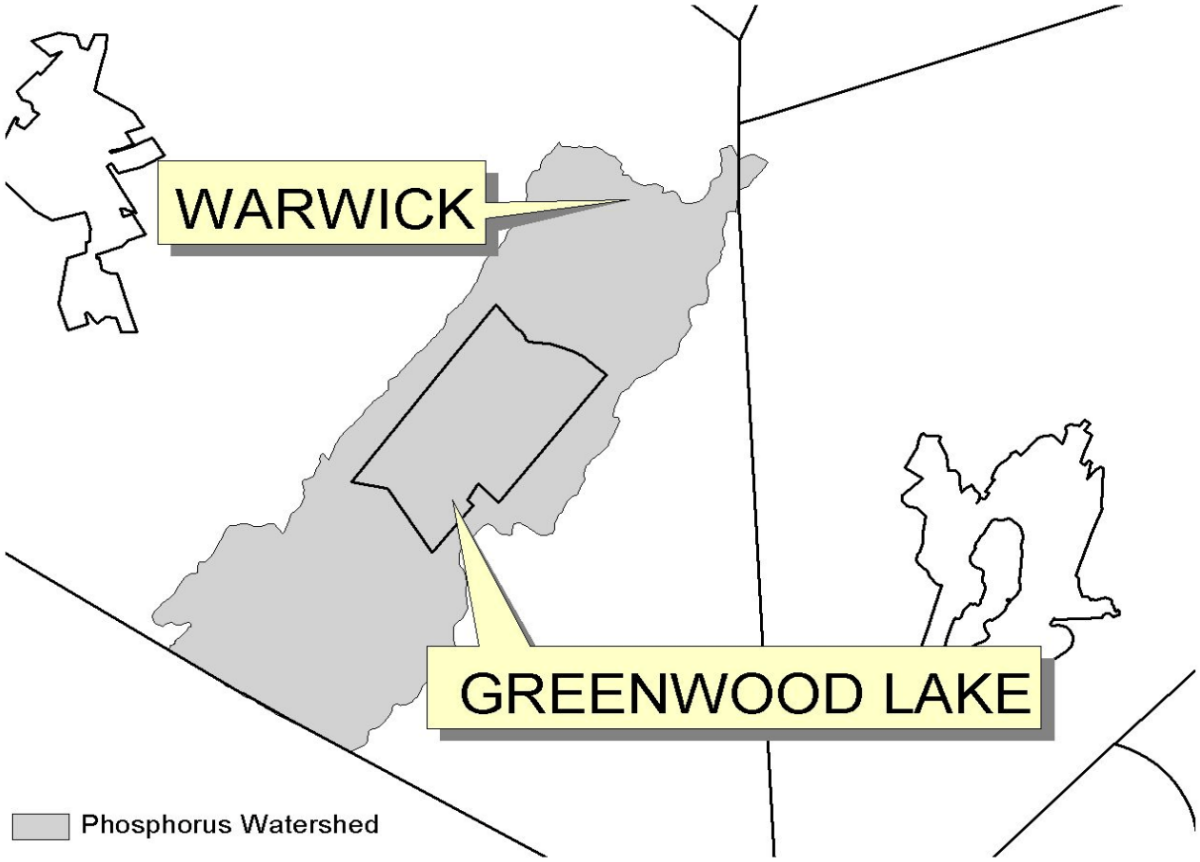


Appendix C

Figure 2 - Onondaga Lake Watershed

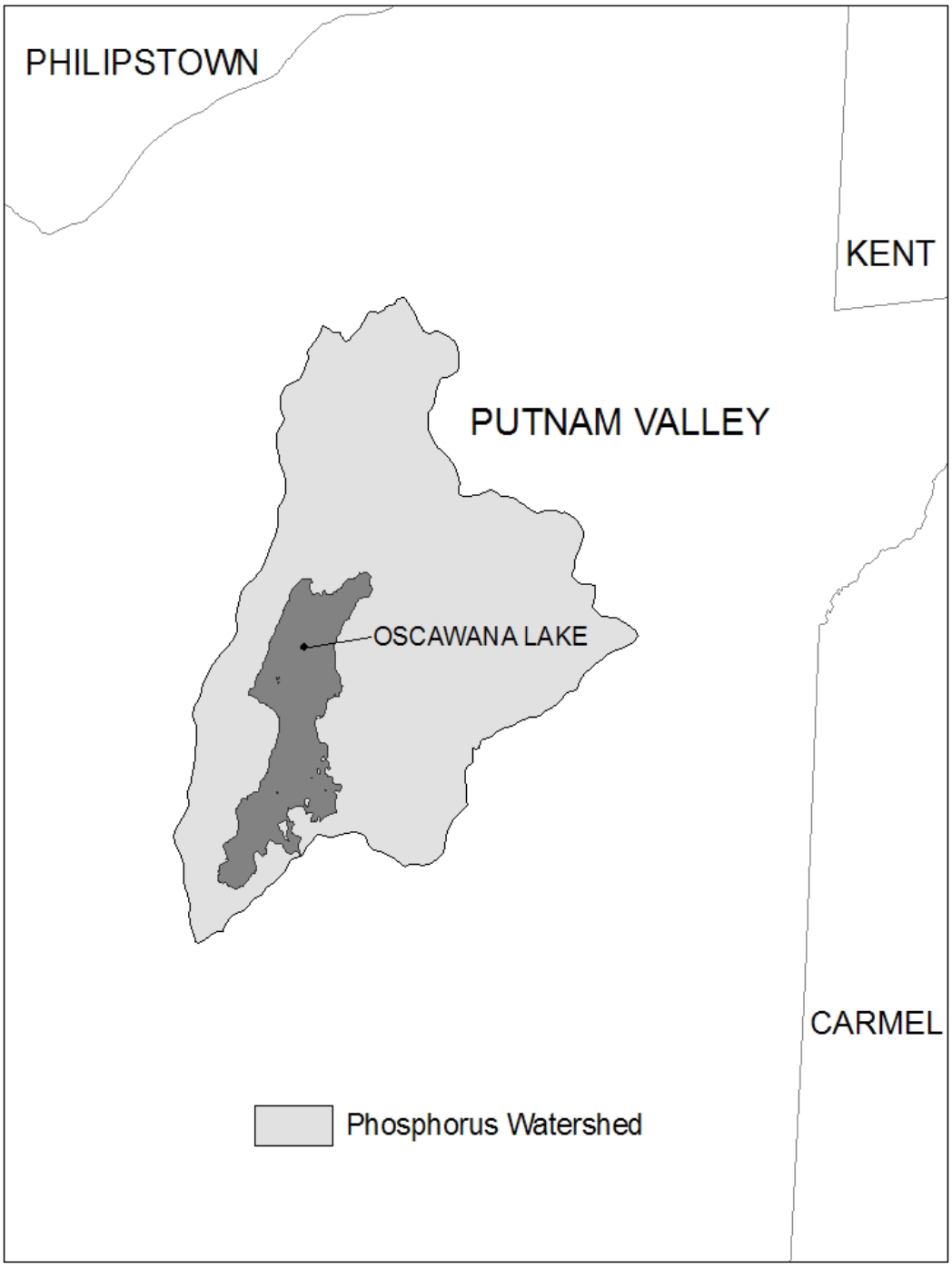
Appendix C

Figure 3 - Greenwood Lake Watershed



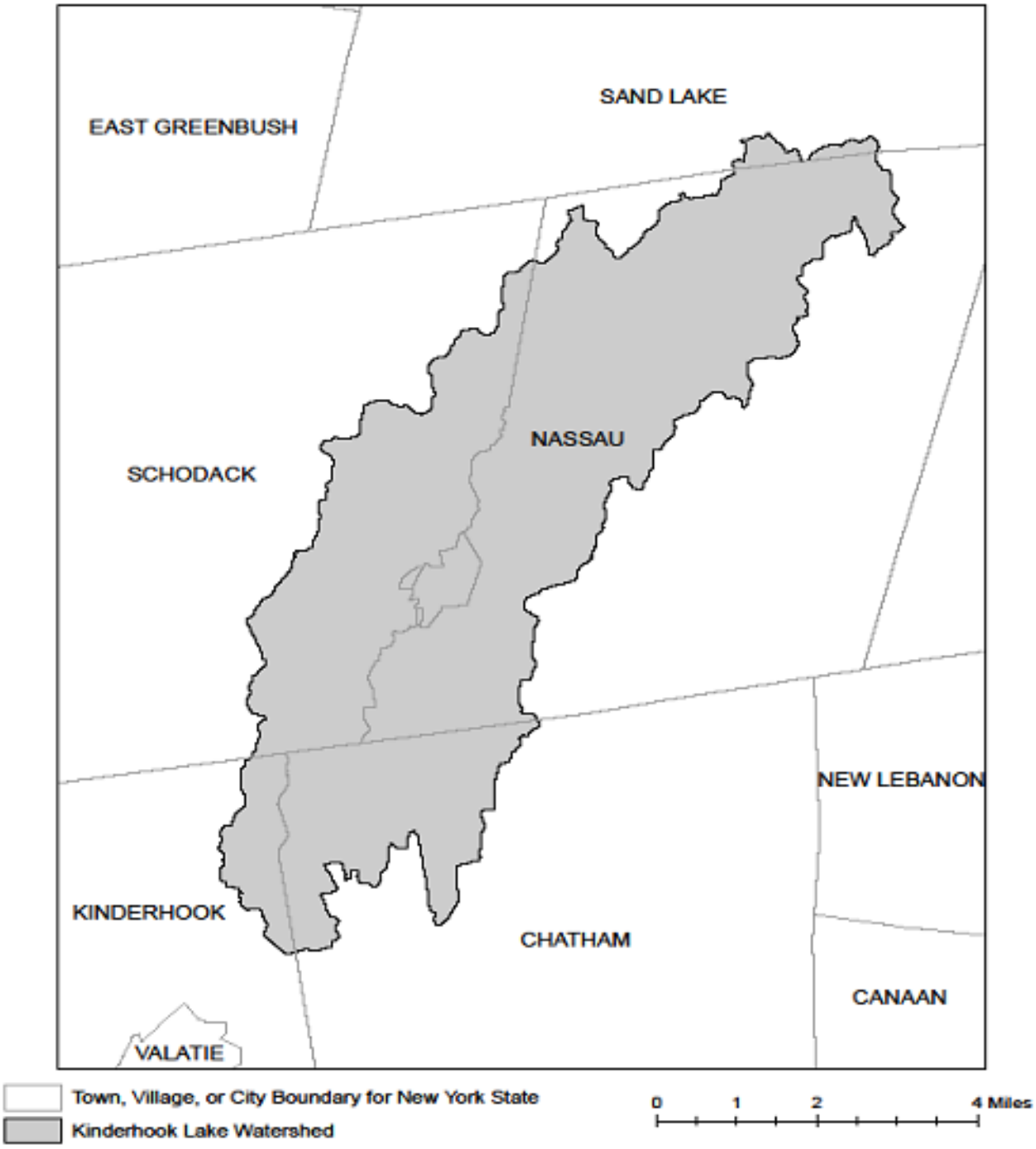
Appendix C

Figure 4 - Oscawana Lake Watershed



Appendix C

Figure 5 - Kinderhook Lake Watershed



APPENDIX D – Impaired Waterbodies (by Construction Related Pollutants)

List of waterbodies impaired by *pollutants* related to *construction activity*, including turbidity, silt/sediment, and nutrients (e.g. nitrogen, phosphorus). This list is a subset of "The Final New York State 2018 Section 303(d) List of Impaired Waters Requiring a TMDL" dated June 2020.

County	Waterbody	Pollutant
Albany	Ann Lee (Shakers) Pond, Stump Pond (1201-0096)	Phosphorus
Albany	Lawsons Lake (1301-0235)	Phosphorus
Allegany	Amity Lake, Saunders Pond (0403-0054)	Phosphorus
Allegany	Andover Pond (0403-0056)	Phosphorus
Bronx	Reservoir No.1/Lake Isle (1702-0075)	Phosphorus
Bronx	Van Cortlandt Lake (1702-0008)	Phosphorus
Broome	Blueberry, Laurel Lakes (1404-0033)	Phosphorus
Broome	Fly Pond, Deer Lake (1404-0038)	Phosphorus
Broome	Minor Tribs to Lower Susquehanna (0603-0044)	Phosphorus
Broome	Whitney Point Lake/Reservoir (0602-0004)	Phosphorus
Cattaraugus	Allegheny River/Reservoir (0201-0023)	Phosphorus
Cattaraugus	Beaver Lake/Alma Pond (0201-0073)	Phosphorus
Cattaraugus	Case Lake (0201-0020)	Phosphorus
Cattaraugus	Linlyco/Club Pond (0201-0035)	Phosphorus
Cayuga	Duck Lake (0704-0025)	Phosphorus
Cayuga	Owasco Inlet, Upper, and tribs (0706-0014)	Nutrients
Chautauqua	Chadakoin River and tribs (0202-0018)	Phosphorus
Chautauqua	Hulburt/Clymer Pond (0202-0079)	Phosphorus
Chautauqua	Middle Cassadaga Lake (0202-0002)	Phosphorus
Clinton	Great Chazy River, Lower, Main Stem (1002-0001)	Silt/Sediment
Columbia	Robinson Pond (1308-0003)	Phosphorus
Cortland	Dean Pond (0602-0077)	Phosphorus
Dutchess	Fallkill Creek (1301-0087)	Phosphorus
Dutchess	Hillside Lake (1304-0001)	Phosphorus
Dutchess	Wappingers Lake (1305-0001)	Phosphorus
Dutchess	Wappingers Lake (1305-0001)	Silt/Sediment
Erie	Beeman Creek and tribs (0102-0030)	Phosphorus
Erie	Delaware Park Pond (0101-0026)	Phosphorus
Erie	Ellicott Creek, Lower, and tribs (0102-0018)	Phosphorus
Erie	Ellicott Creek, Lower, and tribs (0102-0018)	Silt/Sediment
Erie	Green Lake (0101-0038)	Phosphorus
Erie	Little Sister Creek, Lower, and tribs (0104-0045)	Phosphorus
Erie	Murder Creek, Lower, and tribs (0102-0031)	Phosphorus

Erie	Rush Creek and tribs (0104-0018)	Phosphorus
Erie	Scajaquada Creek, Lower, and tribs (0101-0023)	Phosphorus
Erie	Scajaquada Creek, Middle, and tribs (0101-0033)	Phosphorus
Erie	Scajaquada Creek, Upper, and tribs (0101-0034)	Phosphorus
Erie	South Branch Smoke Cr, Lower, and tribs (0101-0036)	Phosphorus
Erie	South Branch Smoke Cr, Lower, and tribs (0101-0036)	Silt/Sediment
Genesee	Bigelow Creek and tribs (0402-0016)	Phosphorus
Genesee	Black Creek, Middle, and minor tribs (0402 0028)	Phosphorus
Genesee	Black Creek, Upper, and minor tribs (0402-0048)	Phosphorus
Genesee	Bowen Brook and tribs (0102-0036)	Phosphorus
Genesee	LeRoy Reservoir (0402-0003)	Phosphorus
Genesee	Mill Pond (0402-0050)	Phosphorus
Genesee	Oak Orchard Cr, Upper, and tribs (0301-0014)	Phosphorus
Genesee	Oatka Creek, Middle, and minor tribs (0402-0031)	Phosphorus
Genessee	Tonawanda Cr, Middle, Main Stem (0102-0002)	Phosphorus
Greene	Schoharie Reservoir (1202-0012)	Silt/Sediment
Greene	Sleepy Hollow Lake (1301-0059)	Silt/Sediment
Herkimer	Steele Creek tribs (1201-0197)	Phosphorus
Herkimer	Steele Creek tribs (1201-0197)	Silt/Sediment
Kings	Hendrix Creek (1701-0006) 18	Nitrogen
Kings	Prospect Park Lake (1701-0196)	Phosphorus
Lewis	Mill Creek/South Branch, and tribs (0801-0200)	Nutrients
Livingston	Christie Creek and tribs (0402-0060)	Phosphorus
Livingston	Conesus Lake (0402-0004)	Phosphorus
Livingston	Mill Creek and minor tribs (0404-0011)	Silt/Sediment
Monroe	Black Creek, Lower, and minor tribs (0402-0033)	Phosphorus
Monroe	Buck Pond (0301-0017)	Phosphorus
Monroe	Cranberry Pond (0301-0016)	Phosphorus
Monroe	Durand, Eastman Lakes (0302-0037)	Phosphorus
Monroe	Lake Ontario Shoreline, Western (0301-0069) 9	Phosphorus
Monroe	Long Pond (0301-0015)	Phosphorus
Monroe	Mill Creek and tribs (0302-0025)	Phosphorus 2
Monroe	Mill Creek/Blue Pond Outlet and tribs (0402-0049)	Phosphorus
Monroe	Minor Tribs to Irondequoit Bay (0302-0038)	Phosphorus
Monroe	Rochester Embayment - East (0302-0002) [9]	Phosphorus
Monroe	Rochester Embayment - West (0301-0068) 9	Phosphorus
Monroe	Shipbuilders Creek and tribs (0302-0026)	Phosphorus 2
Monroe	Thomas Creek/White Brook and tribs (0302-0023)	Phosphorus

Nassau	Bannister Creek/Bay (1701-0380)	Nitrogen
Nassau	Beaver Lake (1702-0152)	Phosphorus
Nassau	Browswere Bay (1701-0383)	Nitrogen
Nassau	Camaans Pond (1701-0052)	Phosphorus
Nassau	East Meadow Brook, Upper, and tribs (1701-0211)	Silt/Sediment
Nassau	East Rockaway Channel (1701-0381)	Nitrogen
Nassau	Glen Cove Creek, Lower, and tribs (1702-0146)	Silt/Sediment
Nassau	Grant Park Pond (1701-0054)	Phosphorus
Nassau	Hempstead Bay, Broad Channel (1701-0032)	Nitrogen
Nassau	Hempstead Lake (1701-0015)	Phosphorus
Nassau	Hewlett Bay (1701-0382)	Nitrogen
Nassau	Hog Island Channel (1701-0220)	Nitrogen
Nassau	Massapequa Creek, Upper, and tribs (1701-0174)	Phosphorus
Nassau	Milburn/Parsonage Creeks, Upp, and tribs (1701-0212)	Phosphorus
Nassau	Reynolds Channel, East (1701-0215) [12]	Nitrogen
Nassau	Reynolds Channel, West (1701-0216) 12	Nitrogen
Nassau	Tidal Tribs to Hempstead Bay (1701-0218)	Nitrogen
Nassau	Tribs (fresh) to East Bay (1701-0204)	Silt/Sediment
Nassau	Tribs (fresh) to East Bay (1701-0204)	Phosphorus
Nassau	Tribs to Smith Pond/Halls Pond (1701-0221)	Phosphorus
Nassau	Woodmere Channel (1701-0219)	Nitrogen
New York	Harlem Meer (1702-0103)	Phosphorus
New York	The Lake in Central Park (1702-0105)	Phosphorus
Niagara	Bergholtz Creek and tribs (0101-0004)	Phosphorus
Niagara	Hyde Park Lake (0101-0030)	Phosphorus
Niagara	Lake Ontario Shoreline, Western (0301-0053) 9	Phosphorus
Niagara	Lake Ontario Shoreline, Western (0301-0072) 9	Phosphorus
Oneida	Ballou, Nail Creeks (1201-0203)	Phosphorus
Onondaga	Ley Creek and tribs (0702-0001) 10	Nutrients (phosphorus)
Onondaga	Minor Tribs to Onondaga Lake (0702-0022) 10	Nutrients (phosphorus)
Onondaga	Minor Tribs to Onondaga Lake (0702-0022) 10	Nitrogen (NH3, NO2)
Onondaga	Onondaga Creek, Lower (0702-0023) 10	Nutrients (phosphorus)
Onondaga	Onondaga Creek, Lower, and tribs (0702-0023)	Turbidity
Onondaga	Onondaga Creek, Middle, and tribs (0702-0004)	Turbidity
Onondaga	Onondaga Creek, Upper, and tribs (0702-0024)	Turbidity
Ontario	Great Brook and minor tribs (0704-0034)	Phosphorus 2
Ontario	Great Brook and minor tribs (0704-0034)	Silt/Sediment

Ontario	Hemlock Lake Outlet and minor tribs (0402-0013)	Phosphorus
Ontario	Honeoye Lake (0402-0032)	Phosphorus
Orange	Brown Pond Reservoir (1303-0013)	Phosphorus
Orange	Lake Washington (1303-0012)	Phosphorus
Orange	Minor Tribs to Middle Wallkill (1306-0061)	Phosphorus
Orange	Monhagen Brook and tribs (1306-0074)	Phosphorus
Orange	Orange Lake (1301-0008) [16]	Phosphorus
Orange	Quaker Creek and tribs (1306-0025)	Phosphorus
Orange	Wallkill River, Middle, Main Stem (1306-0038)	Phosphorus
Orange	Wallkill River, Upper, and Minor tribs (1306-0017)	Phosphorus
Orleans	Glenvwood Lake (0301-0041)	Phosphorus
Orleans	Lake Ontario Shoreline, Western (0301-0070) 9	Phosphorus
Orleans	Lake Ontario Shoreline, Western (0301-0071) 9	Phosphorus
Oswego	Lake Neatahwanta (0701-0018)	Nutrients (phosphorus)
Oswego	Pleasant Lake (0703-0047)	Phosphorus
Putnam	Lost Lake, Putnam Lake (1302-0053)	Phosphorus
Putnam	Minor Tribs to Croton Falls Reservoir (1302-0001)	Phosphorus
Queens	Bergen Basin (1701-0009) 18	Nitrogen
Queens	Jamaica Bay, Eastern, and tribs, Queens (1701-0005) 18	Nitrogen
Queens	Kissena Lake (1702-0258)	Phosphorus
Queens	Meadow Lake (1702-0030)	Phosphorus
Queens	Shellbank Basin (1701-0001) 18	Nitrogen
Queens	Willow Lake (1702-0031)	Phosphorus
Rensselaer	Nassau Lake (1310-0001)	Phosphorus
Rensselaer	Snyders Lake (1301-0043)	Phosphorus
Richmond	Grassmere Lake/Bradys Pond (1701-0357)	Phosphorus
Rockland	Congers Lake, Swartout Lake (1501-0019)	Phosphorus
Rockland	Rockland Lake (1501-0021)	Phosphorus
Saratoga	Ballston Lake (1101-0036)	Phosphorus
Saratoga	Dwaas Kill and tribs (1101-0007)	Phosphorus
Saratoga	Dwaas Kill and tribs (1101-0007)	Silt/Sediment
Saratoga	Lake Lonely (1101-0034)	Phosphorus
Saratoga	Round Lake (1101-0060)	Phosphorus
Saratoga	Tribs to Lake Lonely (1101-0001)	Phosphorus
Schenectady	Collins Lake (1201-0077)	Phosphorus
Schenectady	Duane Lake (1311-0006)	Phosphorus
Schenectady Lake	Mariaville Lake (1201-0113)	Phosphorus
Schuyler	Cayuta Lake (0603-0005)	Phosphorus

Seneca	Reeder Creek and tribs (0705-0074)	Phosphorus
St.Lawrence	Black Lake Outlet, Black Lake (0906-0001)	Phosphorus
St.Lawrence	Fish Creek and minor tribs (0906-0026)	Phosphorus
Steuben	Smith Pond (0502-0012)	Phosphorus
Suffolk	Agawam Lake (1701-0117)	Phosphorus
Suffolk	Big/Little Fresh Ponds (1701-0125)	Phosphorus
Suffolk	Canaan Lake (1701-0018)	Phosphorus
Suffolk	Canaan Lake (1701-0018)	Silt/Sediment
Suffolk	Fresh Pond (1701-0241)	Phosphorus
Suffolk	Great South Bay, East (1701-0039)	Nitrogen
Suffolk	Great South Bay, Middle (1701-0040)	Nitrogen
Suffolk	Great South Bay, West (1701-0173)	Nitrogen
Suffolk	Lake Ronkonkoma (1701-0020)	Phosphorus
Suffolk	Mattituck/Marratooka Pond (1701-0129)	Phosphorus
Suffolk	Mill and Seven Ponds (1701-0113)	Phosphorus
Suffolk	Millers Pond (1702-0013)	Phosphorus
Suffolk	Moriches Bay, East (1701-0305)	Nitrogen
Suffolk	Moriches Bay, West (1701-0038)	Nitrogen
Suffolk	Quantuck Bay (1701-0042)	Nitrogen
Suffolk	Shinnecock Bay and Inlet (1701-0033)	Nitrogen
Suffolk	Tidal Tribs to West Moriches Bay (1701-0312)	Nitrogen
Sullivan	Bodine, Mongomery Lakes (1401-0091)	Phosphorus
Sullivan	Davies Lake (1402-0047)	Phosphorus
Sullivan	Evens Lake (1402-0004)	Phosphorus
Sullivan	Pleasure Lake (1402-0055)	Phosphorus
Sullivan	Swan Lake (1401-0063)	Phosphorus
Tompkins	Cayuga Lake, Southern End (0705-0040)	Phosphorus
Tompkins	Cayuga Lake, Southern End (0705-0040)	Silt/Sediment
Ulster	Ashokan Reservoir (1307-0004)	Silt/Sediment
Ulster	Esopus Creek, Lower, Main Stem (1307-0010) [17]	Turbidity
Ulster	Esopus Creek, Middle, Main Stem (1307-0003) 17	Turbidity
Ulster	Esopus Creek, Upper, and minor tribs (1307-0007)[3]	Silt/Sediment
Ulster	Wallkill River, Lower, Main Stem (1306-0027)	Phosphorus
Warren	Hague Brook and tribs (1006-0006)	Silt/Sediment
Warren	Huddle/Finkle Brooks and tribs (1006-0003)	Silt/Sediment
Warren	Indian Brook and tribs (1006-0002)	Silt/Sediment
Warren	Lake George (1006-0016) and tribs	Silt/Sediment
Warren	Tribs to Lake George, East Shore (1006-0020)	Silt/Sediment
Warren	Tribs to Lake George, Lk.George Village (1006-0008)	Silt/Sediment

Washington	Wood Cr/Champlain Canal and tribs (1005-0036)	Phosphorus
Westchester	Lake Katonah (1302-0136)	Phosphorus
Westchester	Lake Lincolndale (1302-0089)	Phosphorus
Westchester	Lake Meahagh (1301-0053)	Phosphorus
Westchester	Lake Mohegan (1301-0149)	Phosphorus
Westchester	Lake Shenorock (1302-0083)	Phosphorus
Westchester	Mamaroneck River, Lower (1702-0071)	Silt/Sediment
Westchester	Mamaroneck River, Upp, & minor tribs (1702-0123)	Silt/Sediment
Westchester	Saw Mill River (1301-0007)	Phosphorus
Westchester	Saw Mill River, Middle, and tribs (1301-0100)	Phosphorus
Westchester	Sheldrake River (1702-0069)	Phosphorus
Westchester	Sheldrake River (1702-0069)	Silt/Sedimnt
Westchester	Silver Lake (1702-0040)	Phosphorus
Westchester	Teatown Lake (1302-0150)	Phosphorus
Westchester	Truesdale Lake (1302-0054)	Phosphorus
Westchester	Wallace Pond (1301-0140)	Phosphorus

APPENDIX E – List of NYSDEC Regional Offices

Region	Covering the following counties:	DIVISION OF ENVIRONMENTAL PERMITS (DEP) Permit Administrators	DIVISION OF WATER (DOW) Water (SPDES) Program
1	Nassau and Suffolk	50 Circle Road Stony Brook, NY 11790 Tel. (631) 444-0365	50 Circle Road Stony Brook, NY 11790-3409 Tel. (631) 444-0405
2	Bronx, Kings, New York, Queens and Richmond	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4997	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4933
3	Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster and Westchester	21 South Putt Corners Road New Paltz, NY 12561-1696 Tel. (845) 256-3059	220 White Plains Road, Suite 110 Tel. (914) 428 - 2505
4	Albany, Columbia, Delaware, Greene, Montgomery, Otsego, Rensselaer, Schenectady and Schoharie	1130 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2069	1130 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2045
5	Clinton, Essex, Franklin, Fulton, Hamilton, Saratoga, Warren and Washington	1115 State Route 86, Po Box 296 Ray Brook, NY 12977-0296 Tel. (518) 897-1234	232 Golf Course Road Warrensburg, NY 12885-1172 Tel. (518) 623-1200
6	HERKIMER, JEFFERSON, LEWIS, ONEIDA AND ST. LAWRENCE	STATE OFFICE BUILDING 317 WASHINGTON STREET WATERTOWN, NY 13601-3787 TEL. (315) 785-2245	STATE OFFICE BUILDING 207 GENESEE STREET UTICA, NY 13501-2885 TEL. (315) 793-2554
7	BROOME, CAYUGA, CHENANGO, CORTLAND, MADISON, ONONDAGA, OSWEGO, TIOGA AND TOMPKINS	5786 WIDEWATERS PARKWAY SYRACUSE, NY 13214-1867 TEL. (315) 426-7438	5786 WIDEWATERS PARKWAY SYRACUSE, NY 13214-1867 TEL. (315) 426-7500
8	CHEMUNG, GENESEE, LIVINGSTON, MONROE, ONTARIO, ORLEANS, SCHUYLER, SENECA, STEUBEN, WAYNE AND YATES	6274 EAST AVON-LIMA ROADAVON, NY 14414-9519 TEL. (585) 226-2466	6274 EAST AVON-LIMA RD. AVON, NY 14414-9519 TEL. (585) 226-2466
9	ALLEGANY, CATTARAUGUS, CHAUTAUQUA, ERIE, NIAGARA AND WYOMING	700 DELAWARE AVENUE BUFFALO, NY 14209-2999 TEL. (716) 851-7165	700 DELAWARE AVENUE BUFFALO, NY 14209-2999 TEL. (716) 851-7070

APPENDIX F – SWPPP Preparer Certification Form

The SWPPP Preparer Certification Form required by this permit begins on the following page.

NEW YORK STATE | Department of Environmental Conservation

SWPPP Preparer Certification Form

SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP)

(In accordance with CGP Part I.D.2.b., the completed form must be attached to the eNOI and submitted to NYSDEC electronically.)

Project/Site Name:

eNOI Submission ID:

Owner/Operator Name:

Certification Statement – SWPPP Preparer

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) has been prepared in accordance with the requirements of GP-0-25-001. I certify under penalty of law that the SWPPP and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

SWPPP Preparer First Name | MI | SWPPP Preparer Last Name

Signature | Date

APPENDIX G – MS4 SWPPP Acceptance Form

The MS4 SWPPP Acceptance Form required by this permit begins on the following page.

MS4 SWPPP Acceptance Form

for construction activities seeking authorization under the

SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP)

(In accordance with CGP Part I.D.2.b., the completed form must be attached to the eNOI and submitted to NYSDEC electronically.)

I. Project Owner/Operator Information
1. Owner/Operator Name:
2. Contact Person:
3. Street Address:
4. City/State/Zip:
II. Project Site Information
5. Project/Site Name:
6. Street Address:
7. City/State/Zip:
III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance Information
8. SWPPP Reviewed by:
9. Title/Position:
10. Date Final SWPPP Reviewed and Accepted:
IV. Regulated MS4 Information
11. Name of MS4 Operator:
12. MS4 SPDES Permit Identification Number: NYR20A
13. Street Address:
14. City/State/Zip:
15. Telephone Number:

MS4 SWPPP Acceptance Form - continued

V. Certification Statement - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative

I hereby certify that the final Stormwater Pollution Prevention Plan (SWPPP) for the construction project identified in section II. of this form has been reviewed and meets the substantive requirements in the SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP). Note: The MS4 Operator, through the acceptance of the SWPPP, assumes no responsibility for the accuracy and adequacy of the design included in the SWPPP. In addition, review and acceptance of the SWPPP by the MS4 Operator does not relieve the owner/operator or their SWPPP preparer of responsibility or liability for errors or omissions in the plan.

Printed Name[1]:

Title/Position:

Signature:

Date:

VI. Additional Information

[1] Printed name of the principal executive officer or ranking elected official for the MS4 Operator or their duly authorized representative in accordance with CGP Part VII.J.2.

(NYSDEC - MS4 SWPPP Acceptance Form - January 2025)

APPENDIX H – NYCDEP SWPPP Acceptance/Approval Form

The City of New York Department of Environmental Protection (NYCDEP) SWPPP Acceptance/Approval form required by this permit begins on the following page.

THE CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Environmental Planning and Analysis
59-17 Junction Blvd., 9th Floor; Flushing, NY 11373

SWPPP Acceptance/Approval

Application Number:

I. Project Owner/Operator Information

1. Owner/Operator Name:
2. Contact Person:
3. Street Address:
4. City/State/Zip:

II. Project Site Information

5. Project/Site Name:
6. Street Address:
7. City/State/Zip:

III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance/Approval

8. SWPPP Reviewed by:
9. Title/Position: /
10. Date Final SWPPP Reviewed and Accepted:
11. Acceptance/Approval Expiration Date:

IV. Regulated MS4 Information for projects that require coverage under the NY State Pollution Discharge Elimination System General Permit for Stormwater Discharges from Construction Activity

12. Name of MS4: *CITY OF NEW YORK*
13. MS4 SPDES Permit Identification Number: *NY-0287890*
14. Contact Person:
15. Street Address: *59-17 Junction Blvd. 9th Floor*
16. City/State/Zip: *Flushing, NY 11373*
17. Telephone Number:

Projects in the MS4 area must submit a copy of this SWPPP Acceptance with a Notice of Intent for coverage under the NY SPDES General Permit for Stormwater Discharges from Construction Activity to: NYS Department of Environmental Conservation, Division of Water; 625 Broadway, 4th Floor; Albany, New York 12233-3505.

THE CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Environmental Planning and Analysis
59-17 Junction Blvd., 9th Floor; Flushing, NY 11373

V. Certification Statement - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative

I hereby certify that the final Stormwater Pollution Prevention Plan (SWPPP) for the construction project identified in question 5 has been reviewed and meets the substantive requirements in the SPDES General Permit For Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s).

Note: The MS4, through the acceptance of the SWPPP, assumes no responsibility for the accuracy and adequacy of the design included in the SWPPP. In addition, review and acceptance of the SWPPP by the MS4 does not relieve the owner/operator or their SWPPP preparer of responsibility or liability for errors or omissions in the plan.

Printed Name:

Title/Position:

Signature:

Date:

VI. Conditions of Acceptance/Approval and Additional Information

Projects in the MS4 area must submit a copy of this SWPPP Acceptance with a Notice of Intent for coverage under the NY SPDES General Permit for Stormwater Discharges from Construction Activity to: NYS Department of Environmental Conservation, Division of Water; 625 Broadway, 4th Floor; Albany, New York 12233-3505.

APPENDIX I – MS4 No Jurisdiction Form

The MS4 No Jurisdiction Form required by this permit begins on the following page.

NEW YORK STATE | Department of Environmental Conservation

MS4 No Jurisdiction Form

for construction activities seeking authorization under the

SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP)

(In accordance with CGP Part I.D.2.b., the completed form must be attached to the eNOI and submitted to NYSDEC electronically.)

I. Project Owner/Operator Information

a. Owner/Operator Name:

b. Contact Person:

c. Street Address:

d. City/State/Zip:

II. Project Site Information

a. Project/Site Name:

b. Street Address:

c. City/State/Zip:

d. eNOI Submission ID:

III. Traditional Land Use Control MS4 Operator Information

a. Name of MS4 Operator:

b. MS4 SPDES Permit ID Number: NYR20A

c. Street Address:

d. City/State/Zip:

e. Telephone Number:

IV. Certification Statement

In accordance with CGP Part I.D.2.b.ii.3., I hereby certify that the Traditional Land Use Control MS4 Operator identified in section III. of this form does not have review authority over the construction project identified in section II. of this form, which is owned/operated by the entity identified in section I. of this form. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

a. Printed name of the principal executive officer or ranking elected official for the MS4 Operator or their duly authorized representative in accordance with CGP Part VII.J.2.:

b. Title/Position:

c. Signature:

d. Date:

APPENDIX J – Owner/Operator Certification Form

The Owner/Operator Certification Form required by this permit begins on the following page.

NEW YORK STATE | Department of Environmental Conservation

Owner/Operator Certification Form

SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP)

(In accordance with CGP Part I.D.2.b. or Part I.F.2. and 3., the completed form must be attached to the eNOI or the Request to Continue Coverage, and submitted to NYSDEC electronically.

Project/Site Name: _____

eNOI Submission ID: _____

eNOI Submitted by: ☐ **Owner/Operator** ☐ **SWPPP Preparer** ☐ **Other**

Certification Statement - Owner/Operator

I hereby certify that I read, and will comply with, the GP-0-25-001 permit requirements. I understand that authorization to discharge under the permit for the project/site named above is dependent on receipt of a Letter of Authorization (LOA) or a Letter of Continued Coverage (LOCC) from the New York State Department of Environmental Conservation (NYSDEC) in accordance with CGP Part I.D.3.b. or Part I.F.4. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Owner/Operator First Name MI Owner/Operator Last Name

_____

Signature

_____

Date

SECTION 5

Certifications, Forms, Reports, and Daily Logs

STORMWATER POLLUTION PREVENTION PLAN
NOI PERMITTEE'S CERTIFICATION

FORM 1

Construction Site
JERRY SMITH BATTERY ENERGY STORAGE SYSTEM
JERRY SMITH LLC, TOMPKINS County, New York

STORMWATER POLLUTION PREVENTION PLAN DATED OCTOBER 2026

NOI PERMITTEE'S CERTIFICATION:

"I certify under penalty of law that this document was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that false statements made herein are punishable as a class A misdemeanor pursuant to Section 210.45 of the Penal Law."

NOI Permittee's
Designated Project Manager: _____

Signed: _____

Printed Name: _____

Position: _____

Date: _____

STORMWATER POLLUTION PREVENTION PLAN
CONTRACTOR'S CERTIFICATION LOG

FORM 2

Construction Site
JERRY SMITH BATTERY ENERGY STORAGE SYSTEM
JERRY SMITH LLC, TOMPKINS County, New York

Company Name	
Address	
Contact Name	
Telephone Number	
Cell Phone/Pager	
Scope of Services	
Certification Date	

Company Name	
Address	
Contact Name	
Telephone Number	
Cell Phone/Pager	
Scope of Services	
Certification Date	

Company Name	
Address	
Contact Name	
Telephone Number	
Cell Phone/Pager	
Scope of Services	
Certification Date	

Designated Project Manager_____

STORMWATER POLLUTION PREVENTION PLAN
CONTRACTOR'S/SUBCONTRACTOR'S CERTIFICATION
FORM 3

This form to be completed for each contractor listed on Form 2. Reproduce as needed

Construction Site

JERRY SMITH BATTERY ENERGY STORAGE SYSTEM
JERRY SMITH LLC, TOMPKINS County, New York
CONSTRUCTION POLLUTION PREVENTION PROGRAM
DATED OCTOBER 2026

CONTRACTOR'S CERTIFICATION:

"I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations."

The Contractor/Subcontractor further understands that the SWPPP and associated Erosion and Sediment Control Plans represent the **MINIMUM** erosion and sediment control measures that will be required to protect the site during construction. Additional erosion and sediment control measures will be necessary during construction. It will be the responsibility of Contractor/Subcontractor to implement all additional erosion and sediment control measures necessary to protect the site during construction.

CONTRACTOR:	**SUB**CONTRACTOR:
Name (Print): _____	Name (Print): _____
Signature: _____	Signature: _____
Date: _____	Date: _____
Title: _____	Title: _____
Company Name: _____	Company Name: _____
Address: _____	Address: _____
_____	_____
Phone: _____	Phone: _____

Elements of SWPPP Contractor/Subcontractor responsible for: _____

Name of Trained Contractor Responsible for SWPPP Implementation: _____

Title of Trained Contractor Responsible for SWPPP Implementation: _____

FORM 4
JERRY SMITH BATTERY ENERGY STORAGE SYSTEM
SWPPP # _____
This form to be completed by Contractor's designated inspector at least weekly. Reproduce as needed.

SWPPP INSPECTION REPORTS

Page 1 of _____
Date _____

Weather and Soil Conditions
Weather Conditions: _____
Soil Conditions: Dry [ ] Wet [ ] Saturated [ ] Snow Covered [ ] Frozen [ ]

Maintaining Water Quality

Yes	No	NA	
[ ]	[ ]	[ ]	Is there an increase in turbidity causing a substantial visible contrast to natural conditions?
[ ]	[ ]	[ ]	Is there residue from oil and floating substances, visible oil film, or globules or grease?
[ ]	[ ]	[ ]	All disturbance is within the limits of the approved plans.
[ ]	[ ]	[ ]	Have receiving lake/bay, stream, and/or wetland been impacted by silt from project?

Housekeeping
1. General Site Conditions

Yes	No	NA	
[ ]	[ ]	[ ]	Is construction site litter and debris appropriately managed?
[ ]	[ ]	[ ]	Are facilities and equipment necessary for implementation of erosion and sediment control in working order and/or properly maintained?
[ ]	[ ]	[ ]	Is construction impacting the adjacent property?
[ ]	[ ]	[ ]	Is dust adequately controlled?

2. Temporary Stream Crossing

Yes	No	NA	
[ ]	[ ]	[ ]	Maximum diameter pipes necessary to span creek without dredging are installed.
[ ]	[ ]	[ ]	Installed non-woven geotextile fabric beneath approaches.
[ ]	[ ]	[ ]	Is fill composed of aggregate (no earth or soil)?
[ ]	[ ]	[ ]	Rock on approaches is clean enough to remove mud from vehicles and prevent sediment from entering stream during high flow.

Runoff Control Practices
1. Excavation Dewatering

Yes	No	NA	
[ ]	[ ]	[ ]	Upstream and downstream berms (sandbags, inflatable dams, etc.) are installed per plan.
[ ]	[ ]	[ ]	Clean water from upstream pool is being pumped to the downstream pool.
[ ]	[ ]	[ ]	Sediment-laden water from work area is being discharged to a silt-trapping device.
[ ]	[ ]	[ ]	Constructed upstream berm with one-foot minimum freeboard.

2. Water Bar

Yes	No	NA	
[ ]	[ ]	[ ]	Installed per plan with vehicle crossings stabilized with gravel.
[ ]	[ ]	[ ]	Outlet located on undisturbed soil or lined with riprap.
[ ]	[ ]	[ ]	Bar height is 12-inch minimum from bottom of channel with minimum base width of 6-foot.

3. Interceptor Dikes and Swales

Yes	No	NA	
[ ]	[ ]	[ ]	Installed per plan with minimum side slopes 1V:3H or flatter.
[ ]	[ ]	[ ]	Stabilized by geotextile fabric, seed, or mulch with no erosion occurring.
[ ]	[ ]	[ ]	Sediment-laden runoff directed to sediment trapping structure.

FORM 4
JERRY SMITH BATTERY ENERGY STORAGE SYSTEM
SWPPP # _____
This form to be completed by Contractor's designated inspector at least weekly. Reproduce as needed.

SWPPP INSPECTION REPORT Page 2 of _____
Date _____

4. Stone Check Dam

Yes	No	NA	
[ ]	[ ]	[ ]	Is channel stable? (flow is not eroding soil underneath or around the structure).
[ ]	[ ]	[ ]	Check is in good condition (rocks in place and no permanent pools behind the structure).
[ ]	[ ]	[ ]	Has accumulated sediment been removed?

5. Rock Outlet Protection

Yes	No	NA	
[ ]	[ ]	[ ]	Installed per plan.
[ ]	[ ]	[ ]	Installed concurrently with pipe installation.

Soil Stabilization

1. Topsoil and Spoil Stockpiles

Yes	No	NA	
[ ]	[ ]	[ ]	Stockpiles are stabilized with vegetation and/or mulch.
[ ]	[ ]	[ ]	Sediment control is installed at the toe of the slope.

2. Revegetation

Yes	No	NA	
[ ]	[ ]	[ ]	Temporary seedings and mulch have been applied to idle areas.
[ ]	[ ]	[ ]	Four inches minimum of topsoil has been applied under permanent seedings.

Sediment Control Practices

1. Stabilized Construction Entrance

Yes	No	NA	
[ ]	[ ]	[ ]	Stone is clean enough to effectively remove mud from vehicles.
[ ]	[ ]	[ ]	Installed per standards and specifications?
[ ]	[ ]	[ ]	Does all traffic use the stabilized entrance to enter and leave site?
[ ]	[ ]	[ ]	Is adequate drainage provided to prevent ponding at entrance?

2. Silt Fence

Yes	No	NA	
[ ]	[ ]	[ ]	Installed on Contour, ten feet from toe of slope (not across conveyance channels).
[ ]	[ ]	[ ]	Joints constructed by wrapping the two ends together for continuous support.
[ ]	[ ]	[ ]	Fabric buried six inches minimum.
[ ]	[ ]	[ ]	Posts are stable, fabric is tight and without rips or frayed areas.

Sediment accumulation is _____% of design capacity.

3. Storm Drain Inlet Protection (Use for Stone & Block; Filter Fabric; Curb; or, Excavated practices)

Yes	No	NA	
[ ]	[ ]	[ ]	Installed concrete blocks lengthwise so open ends face outward, not upward.
[ ]	[ ]	[ ]	Placed wire screen between No. 3 crushed stone and concrete blocks.
[ ]	[ ]	[ ]	Drainage area is one acre or less.
[ ]	[ ]	[ ]	Excavated area is 900 cubic feet.
[ ]	[ ]	[ ]	Excavated side slopes should be 2:1.
[ ]	[ ]	[ ]	2" x 4" frame is constructed and structurally sound.
[ ]	[ ]	[ ]	Posts three-foot maximum spacing between posts.
[ ]	[ ]	[ ]	Fabric is embedded 1 to 1.5 feet below ground and secured to frame/posts with staples at maximum eight inch spacing.
[ ]	[ ]	[ ]	Posts are stable, fabric is tight and without rips or frayed areas.

Sediment accumulation _____% of design capacity.

FORM 4
JERRY SMITH BATTERY ENERGY STORAGE SYSTEM
SWPPP # _____

This form to be completed by Contractor's designated inspector at least weekly. Reproduce as needed.

SWPPP INSPECTION REPORT

Date _____

4. Temporary Sediment Trap

Yes	No	NA	
[ ]	[ ]	[ ]	Outlet structure is constructed per the approved plan or drawing.
[ ]	[ ]	[ ]	Geotextile fabric has been placed beneath rock fill.

Sediment accumulation is _____% of design capacity.

5. Temporary Sediment Basin

Yes	No	NA	
[ ]	[ ]	[ ]	Basin and outlet structure constructed per the approved plan.
[ ]	[ ]	[ ]	Basin side slopes are stabilized with seed/mulch.
[ ]	[ ]	[ ]	Drainage structure flushed and basin surface restored upon removal of sediment basin facility.

Sediment accumulation is _____% of design capacity.

Dust Control Practices

1. Haul Road and Current Work Areas

Yes	No	NA	
[ ]	[ ]	[ ]	Are all traffic surface areas sufficiently treated to prevent fugitive dust?
[ ]	[ ]	[ ]	Are any areas of site's non-traffic and work area expTompkinsncing wind erosion?
[ ]	[ ]	[ ]	Are there any disturbed areas in need of temporary seed and mulch to protect surface from wind erosion?
[ ]	[ ]	[ ]	Is watering truck on-site?
[ ]	[ ]	[ ]	Is dust visible in air at any location of the site?

Note: Not all erosion and sediment control practices are included in this listing. Add additional pages to this list as required by site-specific design.
Construction inspection checklists for post-development stormwater management practices can be found in Appendix F of the New York Stormwater Management Design Manual.

Description of condition of runoff at all points of discharge from the construction site. (This shall include identification of discharges of sediment from the construction site. Include discharges from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow.) _____

_____

_____

_____

Description of areas that are disturbed at the time of the inspection and areas that have been stabilized (temporary and/or final) since the last inspection (see Page 5 for Sketch). _____

_____

_____

_____

FORM 4
JERRY SMITH BATTERY ENERGY STORAGE SYSTEM
SWPPP # _____
This form to be completed by Contractor's designated inspector at least weekly. Reproduce as needed.

SWPPP INSPECTION REPORT

Page 4 of _____
Date _____

ADDITIONAL COMMENTS*:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____ _____
Inspector (print name and title) Date and Time of Inspection

_____ _____
Qualified Professional (print name) Qualified Professional Signature

The above signed acknowledges that, to the best of his/her knowledge, all information provided on the forms is accurate and complete.

***Attach photographs of practices identified as needing corrective actions.**

NOTE: IN ACCORDANCE WITH PART IV.C.4 OF THE SPDES GENERAL PERMIT (GP-0-20-001), THE QUALIFIED INSPECTOR MUST NOTIFY THE OWNER OR OPERATOR AND APPROPRIATE CONTRACTOR OF ANY CORRECTIVE ACTIONS THAT NEED TO BE TAKEN. THE CONTRACTOR SHALL BEGIN IMPLEMENTING THE CORRECTIVE ACTIONS WITHIN ONE (1) BUSINESS DAY OF THIS NOTIFICATION AND SHALL COMPLETE THE CORRECTIVE ACTIONS IN A REASONABLE TIME FRAME.

STORMWATER POLLUTION PREVENTION PLAN
MODIFICATION REPORT
FORM 5

This form to be used only when Contractor's designated inspector believes changes to the SWPPP and/or Erosion and Sediment control plans is warranted. For example, additional erosion control measures needed or removal of specific control measures can be done without adverse impact. This form must be approved by Designated Project Manager prior to implementation.

Construction Site
JERRY SMITH BATTERY ENERGY STORAGE SYSTEM
JERRY SMITH LLC, TOMPKINS County, New York

CHANGES REQUIRED FOR STORMWATER POLLUTION PREVENTION PLAN

To:	**Designated Project Manager**	**Date:**	
Address:			
Telephone:			
Facsimile:			
Sent Via:	☐ **Facsimile**	☐ **E-mail**	☐ **US Mail**

INSPECTOR: _____ DATE:_____
(Print)

_____
(Signature)

QUALIFICATIONS OF INSPECTOR:_____

CHANGES REQUIRED TO THE STORMWATER POLLUTION PREVENTION PLAN: _____

_____

_____

REASONS FOR CHANGES: _____

_____

_____

TO BE PERFORMED BY: _____ ON OR BEFORE: _____

APPROVED BY DESIGNATED PROJECT MANAGER_____ DATE: _____

STORMWATER POLLUTION PREVENTION PLAN
RECORD OF STABILIZATION AND CONSTRUCTION ACTIVITIES
FORM 6

Construction Site

JERRY SMITH BATTERY ENERGY STORAGE SYSTEM

JERRY SMITH LLC, TOMPKINS County, New York

A record of dates when major grading activities occur, when construction activities temporarily or permanently cease on a portion of the site, and when stabilization measures are initiated shall be maintained until final site stabilization is achieved and the Notice of Termination is filed. *Reproduce copies of this form as needed.*

MAJOR GRADING, CONSTRUCTION, OR STABILIZATION ACTIVITIES

Description of Activity: _____

Begin Date:_____ Site Contractor: _____

Location: _____

End Date: _____

Description of Activity: _____

Begin Date:_____ Site Contractor: _____

Location: _____

End Date: _____

Description of Activity: _____

Begin Date:_____ Site Contractor: _____

Location: _____

End Date: _____

Description of Activity: _____

Begin Date:_____ Site Contractor: _____

Location: _____

End Date: _____

Description of Activity: _____

Begin Date:_____ Site Contractor: _____

Location: _____

End Date: _____

Description of Activity: _____

Begin Date:_____ Site Contractor: _____

Location: _____

End Date: _____

Designated Project Manager_____

STORMWATER POLLUTION PREVENTION PLAN
RECORD OF TEMPORARY EROSION AND SEDIMENT CONTROL PRACTICES
FORM 6A

Construction Site

JERRY SMITH BATTERY ENERGY STORAGE SYSTEM

JERRY SMITH LLC, TOMPKINS County, New York

A record of the timing of temporary erosion and sediment control practices to be implemented, including the timing of initial placement and the duration that each practice should remain in place. The record may reflect the actual date of planned installation or the specific construction activity with which it will be associated. The timing of removal may reflect an actual date or the length of time over which the practice will be implemented.

TEMPORARY EROSION AND SEDIMENT CONTROL PRACTICES

Description of Practice: _____

Date/Timing of Initial Placement:_____ Site Contractor: _____

Location: _____

Projected Date/Timing of Removal: _____

Description of Practice: _____

Date/Timing of Initial Placement:_____ Site Contractor: _____

Location: _____

Projected Date/Timing of Removal: _____

Description of Practice: _____

Date/Timing of Initial Placement:_____ Site Contractor: _____

Location: _____

Projected Date/Timing of Removal: _____

Description of Practice: _____

Date/Timing of Initial Placement:_____ Site Contractor: _____

Location: _____

Projected Date/Timing of Removal: _____

Description of Practice: _____

Date/Timing of Initial Placement:_____ Site Contractor: _____

Location: _____

Projected Date/Timing of Removal: _____

Description of Practice: _____

Date/Timing of Initial Placement:_____ Site Contractor: _____

Location: _____

Projected Date/Timing of Removal: _____

Designated Project Manager_____

YEAR 20___ **STORMWATER POLLUTION PREVENTION PLAN** **FORM 7**

PROJECT RAINFALL LOG (to be completed by Contractor)

Month	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
Day												
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
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26												
27												
28												
29												
30												
31												
PM Initials												

STORMWATER POLLUTION PREVENTION PLAN

FINAL STABILIZATION CERTIFICATION /NOTICE OF TERMINATION CHECKLIST

FORM 8

This form is to be completed by Contractor and submitted to Designated Project Manager for approval only afterContractor believes all work regulated by SWPPP is complete.

Construction Site
JERRY SMITH BATTERY ENERGY STORAGE SYSTEM
JERRY SMITH LLC, TOMPKINS County, New York

1. ☐ **All soil disturbing activities are complete.**

2. ☐ **Temporary Erosion and Sediment Control Measures have been removed or will be removed at the appropriate time.**

3. ☐ **All areas of the Construction Site not otherwise covered by a permanent pavement or structure have been stabilized with a uniform perennial vegetative cover with a density of 85% or equivalent measures have been employed.**

CONTRACTOR'S CERTIFICATION:

"I certify under penalty of law that all storm water discharges associated with industrial activity from the identified project that are authorized by NPDES general permit have been eliminated and that all disturbed areas and soils at the construction site have achieved Final Stabilization and all temporary erosion and sediment control measures have been removed or will be removed at the appropriate time."

Company Name _____

Name (Print) _____

Signature _____

Date _____

APPROVED BY DESIGNATED PROJECT MANAGER_____ DATE: _____

SECTION 6

Supplemental Information

1. **Stormwater Management Narrative**
2. **Soil Mapper**
3. **SHPO Correspondence**
4. **Endangered and Threatened Species Correspondence**

Stormwater Management Narrative

Jerry Smith
BESS Project

Jerry Smith Road

Town of Lansing

Tompkins County, New York

Applicant:

Jerry Smith, LLC

101 Summer Street, 2nd Floor

Boston, MA 02110

JUNE 2026

Revised: SEPTEMBER 2026

Prepared By:

The Environmental Design Partnership, LLP

900 Route 146

Clifton Park, NY 12065

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3.0 Predevelopment Stormwater Analysis....4
4.0 Stormwater Management Planning and Practice Selection....5
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5.1 Stormwater Management Area #1 – Vegetated Filter Strip....6
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Figures

Figure 1 – Site Location Map

Figure 2 – Pre-development Drainage Map

Figure 3 – Post-development Drainage Map

Attachments

Attachment A – WQv Calculations

Attachment B – Stormwater Modeling Calculations

900 Route 146, Clifton Park, New York 12065
phone (518) 371-7621

1.0 Introduction

Jerry Smith, LLC is proposing the development of a Battery Energy Storage System (BESS) for on an existing parcel of land totaling approximately 57+/- acres located on Jerry Smith Road in the Town of Lansing, New York. The proposed site development includes a BESS which consists of approximately 620 +/- linear feet (LF) of access road, equipment pads, stormwater management areas, and ten-foot-high perimeter fencing. The total area of proposed disturbance is approximately 1.76 +/- acres and 0.64 +/- acres of new impervious area will be associated with the project.

A stormwater management system has been developed to provide pollutant removal, reduce channel erosion, prevent overbank flooding, and safely control extreme flood events in accordance with the NYS Stormwater Management Design Manual (Design Manual). The temporary erosion control measures and post-construction stormwater management systems for this project have been designed in accordance with those guidelines and subsequent discussions with the NYSDEC relative to their guidelines. Section 7.0 of this report addresses specific BESS panel application guidance.

The proposed stormwater management system for the project will include the use of a vegetated filter strip and Infiltration area designed to convey runoff from the gravel access road and concrete equipment pads. Runoff from the impervious access road is directed into the vegetated filter strip or infiltration area prior to discharging offsite.

This narrative presents a review of the design concepts and parameters of the stormwater management system for the proposed increased impervious areas, in accordance with NYSDEC application guidance, including the access roads and the equipment pads. The purpose of the stormwater management narrative is to ensure that changes in the surface runoff characteristics, as a result of the proposed construction, will not adversely impact adjacent or downstream properties. On-site stormwater management will be implemented in accordance with the Design Manual and NYSDEC application guidance to accommodate both additional stormwater runoff and to provide water quality treatment according to the green infrastructure standards.

2.0 Existing Conditions

The site consists of mostly wooded and field areas with residential development on the northern side of the parcel. The topography of the land consists of drainage from a highpoint in the middle of the site out to all directions. The typical slopes within the area of the proposed development range from 1% to 10% Elevations at the site vary between 1086 and 1078 feet above sea level.

900 Route 146, Clifton Park, New York 12065
phone (518) 371-7621

2.1 Soil and Groundwater Conditions

The USDA Natural Resources Conservation Service Soil Survey identifies the soils on the site, in the proposed development, consist of a variety of soil types from silt loam to a gravelly silt loam. These soils vary as Hydrologic Soil Groups (HSG) B and D. The results from the USDA Natural Resources Conservation Soil Survey (NRCS Soil Survey) are included in Section 6 of the SWPPP.

3.0 Predevelopment Stormwater Analysis

The existing hydrologic conditions, in the area to be disturbed as a result of the proposed construction, were analyzed using Applied Microcomputer Systems' "HydroCAD" computer modeling program. The HydroCAD stormwater modeling program employs the United States Department of Agriculture's Soil Conservation Service (SCS) Technical Release 20 (TR-20) method for stormwater analysis. Using this modeling technique, the site is divided into "subcatchments" that represent specific areas contributing stormwater runoff to an existing, or proposed drainage feature. The subcatchments typically flow through "reaches" (i.e., swales, channels, or pipes) that convey the stormwater to storm basins or discharge areas.

A hydrologic model of the existing site was prepared using the Hydrocad program. Three (3) large sub catchments were used to represent the existing drainage condition, see Figure 2.

The existing parameters of topography, vegetation, slope and soil type are all incorporated into the predevelopment model.

Table 1 presents a summary of the pre-development stormwater peak discharge for the 1 year, 10 year and 100-year design storm events at the respective Design Point. As will be discussed in subsequent sections, the post development stormwater discharge rate has been limited to the predevelopment discharge rate for the 1-year, 10-year, and 100-year storm events.

Table 1: Pre-Development Runoff Rates

Storm Event	Total Discharge (cfs)
1-Year (1.97")	0.31
10-Year (3.36")	5.64
100-Year (5.73")	24.19

The pre-development Curve Numbers (CN) for the existing ground covers are listed in Table 2.

900 Route 146, Clifton Park, New York 12065
phone (518) 371-7621

Table 2: Pre-Development Ground Cover

Pre-Development Ground Cover Description	Curve Number
Meadow, Non-grazed, HSG B	58
Meadow, Non-grazed, HSG D	78
Woods, Fair, HSG B	60
Woods, Fair, HSG D	79
Impervious	98

The weighted CN for the pre-development conditions for the site is approximately 63. The HydroCAD model results for the pre-development conditions are included within Attachment B.

4.0 Stormwater Management Planning and Practice Selection

The site layout and stormwater design for this project was completed while taking into consideration the potential impacts on the existing site and downstream hydrology. Stormwater runoff from the existing site predominately sheet flows to low areas. The stormwater management system will replicate similar practices.

Stormwater from impervious areas on the site is designed to be treated with a vegetated filter strip and an infiltration area. This design method was chosen on this site due to the minor amount of impervious surface and the uniform grade of the access road. Vegetated filter strips are considered standard stormwater management practices with runoff reduction volume capacity.

The total disturbance for the project will be on the order of 1.76± acres. The proposed development will result in an increase of impervious cover by 0.64± acres.

5.0 Post-Development Stormwater Analysis

The post-development conditions were analyzed using the HydroCAD computer modeling program.

Six (6) subcatchments were used to represent the post development drainage conditions of the site in the areas of the proposed BESS development. Site improvements to the property will consist of approximately 620 +/- LF of access road, a BESS equipment pad, and perimeter fencing. Also included, as permanent elements of the development, is the on-site stormwater management area depicted as a vegetated filter strip and an infiltration area. This vegetated

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filter strip and infiltration area have been designed to provide treatment and attenuation of stormwater runoff from the proposed impervious surfaces on the site.

Runoff from the undeveloped portion of the project site, outside of the stormwater management areas, will sheet flow off site, which is similar to predevelopment drainage patterns.

The post-development ground cover Curve Numbers (CN) are listed in Table 3.

Table 3: Post-Development Ground Cover

Post-Development Ground Cover Description	Curve Number
Meadow, Non-grazed, HSG B	58
Meadow, Non-grazed, HSG D	78
Woods, Fair, HSG B	60
Woods, Fair, HSG D	79
Impervious	98

The weighted CN for the post-development conditions for the site is approximately 64. The HydroCAD model results for the post-development conditions are included within Attachment B. The contributing area to each stormwater management area is identified in Figure 3.

Table 4 presents a summary of the post-development stormwater peak discharge for the 1 year, 10 year and 100-year design storm events at the respective Design Points.

Table 4: Post-Development Runoff Rates

Storm Event	Total Discharge (cfs)
1-Year (1.97")	0.30
10-Year (3.36")	5.28
100-Year (5.73")	22.71

5.1 Stormwater Management Area #1 – Vegetated Filter Strip

Stormwater Management Area #1 is designed as a vegetated filter strip with a gravel diaphragm. The filter strip and diaphragm will provide treatment and attenuation of stormwater runoff from the impervious access road and concrete equipment pad. Runoff contributing to SMA #1 will be conveyed via shallow concentrated flow and sheet flow.

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5.2 Stormwater Management Area #2 – Infiltration Area

Stormwater Management Area #2 is designed as an infiltration area. The vegetated swale and infiltration area will provide treatment and attenuation of stormwater runoff from the impervious access road and concrete equipment pad. Runoff contributing to SMA #2 will be conveyed via vegetated swale.

5.3 NYS Unified Stormwater Sizing Criteria

The area to be disturbed as a result of the proposed development was modeled in HydroCAD under the post-development conditions using two subcatchments (Figure 3) routed into the stormwater management areas. The contributing area of each stormwater management area is identified in Figure 3. The post-development stormwater management system has been designed based on the Unified Stormwater Sizing Criteria as described in the following sections.

5.3.1 Water Quality (WQ_v)

In general, small storm events and the initial runoff from larger storm events are an environmental concern as this stormwater runoff typically contains roadway pollutants and thermal energy stored by the asphalt. In accordance with the Design Manual, this initial runoff is designated as the Water Quality Volume (WQ_v) and special attention is given to this volume of runoff to meet water quality objectives.

The Design Manual identifies several standard practices, such as the proposed infiltration basins which are acceptable for water quality treatment. These acceptable Stormwater Management Practices (SMPs) can capture and treat the full water quality volume (WQ_v), are capable of 80% TSS removal and 40% TP removal, have acceptable longevity in the field, and have pretreatment mechanisms.

The water quality storage volume, WQ_v, is calculated as follows:

$$WQ_v = \frac{P \cdot R_v \cdot A}{12}$$

Where: WQ_v = water quality volume (acre-feet)

P = 90% rainfall event number

R_v = 0.05+0.009(I), where I is percent impervious cover

A = site area (acres), impervious area used with I = 100%

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Table 5: Required Water Quality Volume

Drainage Area	P	R_v	A (Acres)	Required WQ_v (cf)	Provided WQ_v (cf)
SMA #1	1.00	0.95	0.22	759	759
SMA #2	1.00	0.55	0.76	1,510	1,510

5.3.2 Runoff Reduction Volume (RRv)

The Design Manual specifies that runoff shall be reduced by 100% of the site WQv using standard SMPs with RRv capacity and green infrastructure techniques. The proposed project area on the site is approximately 1.76 acres. The total watershed area contributing to the SMA for analysis is approximately 0.98 acres, with a total post-development impervious area on the order of 0.64 acres. The resulting RRv for these site coverages is computed as 871 CF. Runoff reduction will be provided by standard SMP's with RRv capacity and Green Infrastructure Practices. (See Appendix A for summary of calculations)

5.3.2.1 Stormwater Management Practices (SMP's)

An infiltration area has been proposed to collect and treat the stormwater runoff from the site. The infiltration area is considered a standard stormwater treatment practice with RRv capabilities. The RRv provided by the infiltration basin is 1,510 CF.

5.3.2.2 Green Infrastructure Practices

The vegetated filter strip is considered a green infrastructure practice. The RRv provided by the practice is on the order of 759 CF. Greater than the minimum RRv required.

The following Table provides a summary of the Runoff Reduction provided for the proposed development, based on each stormwater management practice and technique.

Table 6: Runoff Reduction Volume Summary

Runoff Reduction Technique	RRv (cf)
Vegetated Filter Strip	759
Infiltration Basin	1,510
Total Site Reduction	2,269
% WQv. Reduction	**>100%**

Many of the green infrastructure practices recommended in the Design Manual were not applied to the stormwater management design on this site due to either site restrictions or the use of more feasible green infrastructure in place of the more restrictive and/or maintenance

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intensive practices. The following table discusses why the unused green infrastructure practices were not feasible.

Table 7: Non-Feasible Green Infrastructure Practices

Green Infrastructure Practice	Reason use is not feasible
Vegetated Swales	There are no swales proposed to receive runoff from impervious areas onsite
Tree Planting/Tree Pit	Trees will be saved on the site to the greatest extent possible. Trees will also be planted to maintain a buffer from the surrounding properties to the proposed site, though the resulting runoff reduction value for adding additional trees is minimal.
Conservation of Natural Areas	Natural areas will be conserved on site as much as possible, but the resulting runoff reduction value is minimal.
Stream Daylighting	No existing piped streams are located on the site.
Green Roofs	There is no building construction proposed as part of the project
Stormwater Planters	The proposed practices were deemed more economically feasible and effective as opposed to stormwater planters. Additionally, they require less maintenance.
Rain Barrels/Cisterns	Rain Barrels/Cisterns would require the ability to use the water between storm events which is not feasible for this project type.
Rain Gardens	Rain gardens are not recommended for commercial applications as well as not economically feasible.
Disconnection of Rooftop Runoff	There is no building construction proposed as part of the project

5.3.3 Channel Protection (Cp_v)

In accordance with the Design Manual, stream channel protection, designed to protect stream channels from erosion, is accomplished by providing 24-hour extended detention of the one-year, 24-hour storm event. The Cp_v requirement is typically satisfied by providing additional storage above the water quality (WQ_v) volume.

According to Chapter 4 of the Design Manual, the stream channel protection requirement does not apply when the entire channel protection volume is reduced through green infrastructure or infiltration systems. The stormwater management practice onsite is designed as a green infrastructure practice; additionally, stormwater modelling indicates the proposed stormwater management areas designed to fully attenuate and infiltrate the contributing stormwater runoff for stormwater events up to the 100-Year design storm.

5.3.4 Overbank Flood (Q_p)

Overbank Flood Control Criteria has been established to limit the frequency and magnitude of out-of-bank flooding generated through changes in runoff characteristics as a result of

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increased impervious surface area. In accordance with the Design Manual, providing sufficient storage volume to attenuate the post development 10-year, 24-hour peak discharge rate to the equivalent pre-development discharge rate controls overbank flooding.

The 10-year design storm event was analyzed using the HydroCAD stormwater modeling program (TR-20) under the post-development drainage conditions shown on Figure 3. Using a 10-year, 24-hour design storm of 3.36 inches, the stormwater management area was designed with sufficient storage volume to limit the post-development 10-year, 24-hour peak discharge rate to the pre-development discharge rate. The following table presents the pre- and post-development discharge rates for the offsite discharge. The post-development discharge rate is less than the pre-development rate, as required.

Table 8: Overbank Flow Runoff Summary

	10-year (3.36") runoff rate (cfs)	
	Predevelopment	Post-Development
DP-1	5.64	5.28

5.3.5 Extreme Storm (Q_f)

In accordance with the Design Manual, the stormwater management system must attenuate the post development 100-year, 24-hour peak discharge rate to the predevelopment rate while providing safe passage of this storm event.

The 100-year storm event was analyzed using the HydroCAD stormwater modeling program (TR-20) under the post-development drainage conditions shown in Figure 3. Using a 100-year, 24-hour design storm of 5.73 inches, the stormwater management areas were designed with sufficient storage volume to limit the post-development 100-year, 24-hour peak discharge rate to the predevelopment discharge rate. The following table presents the pre and post development discharge rates for the offsite discharge. The post-development discharge rate is less than the predevelopment rate, as required.

Table 9: Extreme Storm Runoff Summary

	100-year (5.73") runoff rate (cfs)	
	Predevelopment	Post-Development
DP-1	24.19	22.17

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6.0 Summary

Development of the proposed project site will alter the stormwater drainage characteristics of the site; impervious area will be added in the form of an improved compacted gravel or paved access road, BESS, and an equipment pad. Changes to the stormwater drainage characteristics of the site have been evaluated in accordance with the Design Manual. The proposed stormwater management system has been designed to comply with the recommendations in the Design Manual and the NYSDEC SPCG as it relates to maintaining sheet flow, providing water quality/runoff reduction/channel protection volume, overbank flood control and extreme flood control for new development projects.

The proposed stormwater management system has been designed to attenuate and treat the stormwater runoff generated from the contributing areas for storm events to the pre-development rates, up to and including the 100-Year design storm event. The proposed stormwater management design includes the use of a vegetated filter strip. Stormwater modeling results indicate the ability to reduce the overall post-development discharge rate from the site as summarized in Table 10.

Table 10: Reduction in Peak Discharge Rates

Peak Discharge Rates in cfs	1-Year Storm	10-Year Storm	100-Year Storm
Pre-Development	0.31	5.64	24.19
Post-Development	0.30	5.28	22.71
Overall Reduction (cfs)	0.01	0.36	1.48

Through the implementation of acceptable stormwater management practices, recommended by the NYS Stormwater Management Design Manual, the proposed project will not adversely affect adjacent or downstream properties.

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Reviewed by:

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Figures

1. Site Location map
2. Pre-Development Drainage Map
3. Post Development Drainage Map

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Figure 1: Site Location Map

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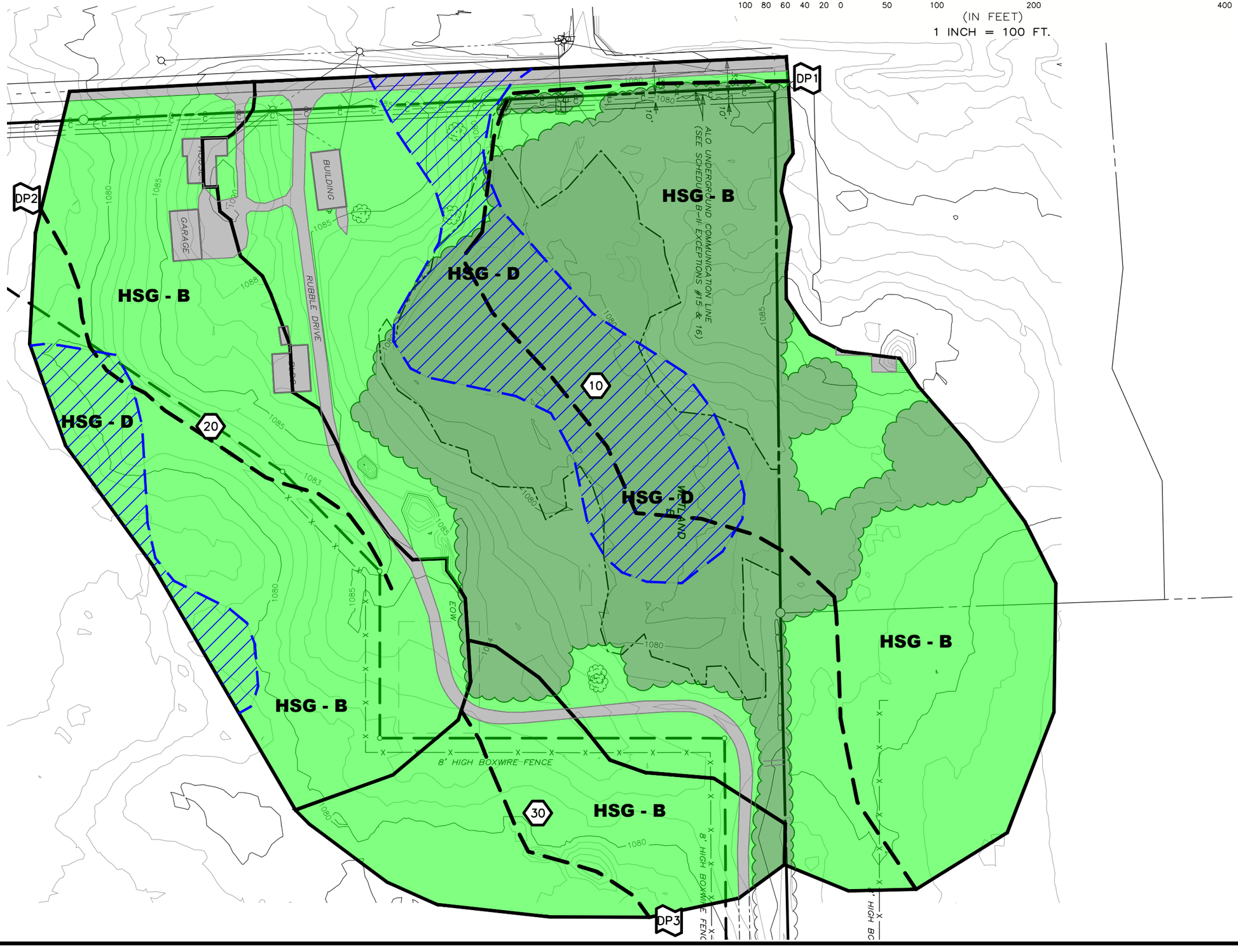
MAP KEY	
	SUBCATCHMENT BOUNDARY
S1	SUBCATCHMENT I.D.
P4	STORMWATER DEVICE
DP	DESIGN POINT
	TC PATH
	MEADOW
	WOODS
	IMPERVIOUS AREA
	HSG D SOILS

GRAPHIC SCALE

100 80 60 40 20 0 50 100 200 400

(IN FEET)

1 INCH = 100 FT.



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STORMWATER ANALYSIS FOR JERRY SMITH, LLC

JERRY SMITH ROAD
TOWN OF LANSING
TOMPKINS COUNTY, NEW YORK

JULY 10, 2026

REVISION	DATE	BY
REVISIONS PER TDE COMMENTS	9/23/26	BMW

SCALE: 1" = 100'

SHEET TITLE: PRE DEVELOPMENT

SHEET NO. FIGURE 1

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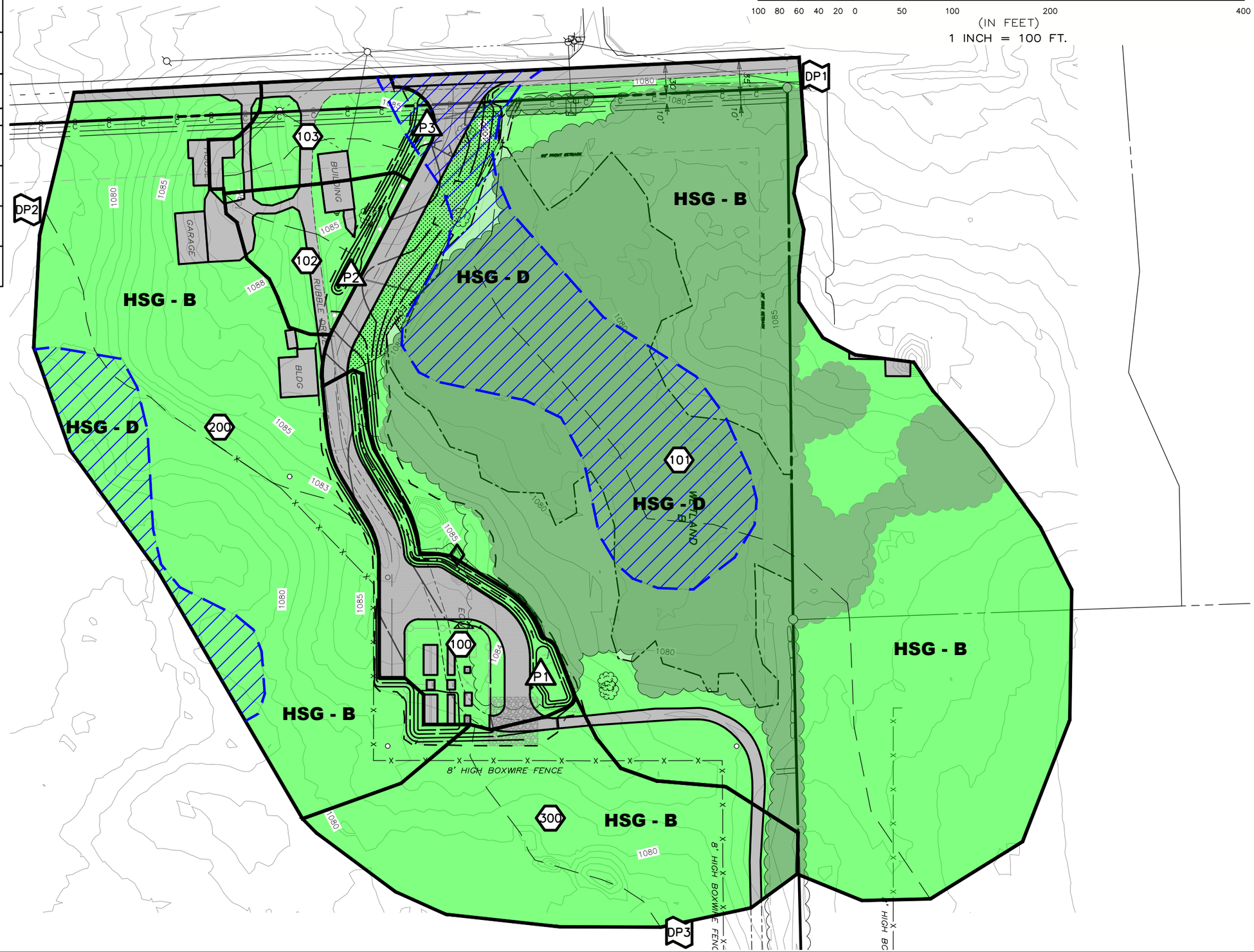
MAP KEY	
	SUBCATCHMENT BOUNDARY
S1	SUBCATCHMENT I.D.
P4	STORMWATER DEVICE
DP	DESIGN POINT
	TC PATH
	MEADOW
	WOODS
	IMPERVIOUS AREA
	HSG D SOILS

GRAPHIC SCALE

100 80 60 40 20 0 50 100 200 400

(IN FEET)

1 INCH = 100 FT.



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JULY 10, 2026

STORMWATER ANALYSIS FOR JERRY SMITH, LLC

JERRY SMITH ROAD
TOWN OF LANSING
TOMPKINS COUNTY, NEW YORK

REVISION	DATE	BY
REVISIONS PER TDE COMMENTS	9/23/26	BMW

SCALE: 1" = 100'

SHEET TITLE: POST DEVELOPMENT

SHEET NO. FIGURE 2

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Attachment A
Water Quality Calculation
Runoff Reduction Calculation

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Step 2 - Calculate Water Quality Volume

Is this project subject to Section 4.3 of the NYS Design Manual for Enhanced Phosphorus Removal?	No
What is the nature of this construction project?	New Construction

Design Point:		
P=	1.00	inches

Enter 90% Rainfall Event as P

Calculate Required WQv

Drainage Area Number	Contributing Area (Acres)	Impervious Area (Acres)	Percent Impervious %	Rv	WQv (cf)	SMP Description
1	0.22	0.22	100	0.95	759	Sheet Flow to Grass Filter Strip
2	0.76	0.42	55	0.55	1,510	Infiltration Basin
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
Total	0.98	0.64	65	0.64	**2269**	**Required WQv**

Steps 3 and 5 - Apply RR Techniques and Standard SM

Runoff Reduction Volume and Treated Volumes						
	Runoff Reduction Techiques/Standard SMPs		**Total Contributing Area**	**Total Contributing Impervious Area**	**WQv Reduced (RRv)**	**WQv Treated**
			(acres)	**(acres)**	**(cf)**	**(cf)**
RR Techniques	Conservation of Natural Areas	RR-1	0.22		0	
	Sheet Flow to Riparian Buffer/Filter Strip	RR-2	0.22	0.22	759	
	Tree Planting/Tree Pit/Tree Trench	RR-3	0.00	0.00	0	
	Disconnection of Rooftop Runoff	RR-4		0.00	0	
	Vegetated Swale	RR-5	0.00	0.00	0	
	Rain Garden	RR-6	0.00	0.00	0	
	Stormwater Planter	RR-7	0.00	0.00	0	
	Rainwater Harvesting Systems	RR-8	0.00	0.00	0	
	Porous Pavement	RR-9	0.00	0.00	0	
	Green Roof (Extensive & Intensive)	RR-10	0.00	0.00	0	
	Stream Daylighting	RR-11				
Standard SMPs w/ RRv Capacity	Infiltration Trench	I-1	0.00	0.00	0	0
	Infiltration Basin	I-2	0.76	0.42	1,510	0
	Dry Well	I-3	0.00	0.00	0	0
	Underground Infiltration System	I-4	0.00	0.00	0	0
	Infiltration Bioretention	F-4	0.00	0.00	0	0
	Filtration Bioretention	F-5	0.00	0.00	0	0
	Bioslope	F-6	0.00	0.00	0	0
	Dry swale	O-1	0.00	0.00	0	0
Standard SMPs	Micropool Extended Detention	P-1	0.00	0.00		0
	Wet Pond	P-2	0.00	0.00		0
	Wet Extended Detention	P-3	0.00	0.00		0
	Multiple Pond System	P-4	0.00	0.00		0
	Shallow Wetland	W-1	0.00	0.00		0
	Extended Detention Shallow Wetland	W-2	0.00	0.00		0
	Pond/Wetland System	W-3	0.00	0.00		0
	Pocket Wetland	W-4	0.00	0.00		0
	Gravel Wetland	W-5	0.00	0.00		0
	Surface Sand Filter	F-1	0.00	0.00		0
	Underground Sand Filter	F-2	0.00	0.00		0
	Perimeter Sand Filter	F-3	0.00	0.00		0
	Wet Swale	O-2	0.76	0.42		0
Alt. SMPs	Flow Based Alternative Practice	-	0.00	0.00		0
	Volume Based Alternative Practice	-				
	Totals by RR Technique	→	0.44	0.22	759	
	Totals by Standard SMP w/RRV	→	0.76	0.42	1,510	0
	Totals by Standard SMP	→	0.76	0.42		0
	Totals by Alternative SMP	→	0.00	0.00		0
	Totals (RR Techniques + all SMPs)	→	1.96	1.06	2,269	0

Step 4 - Calcuate Minimum RRv Required

Enter the Soils Data for the entire site		
Hydrologic Soil Group	Acres	S
A		55%
B	0.98	40%
C		30%
D		20%
Total Area	0.98	

Calculate the Minimum RRv		
S =	**0.40**	
Impervious =	0.64	*acres*
Precipitation	1.00	*inches*
Rv	0.95	
Minimum RRv	**0.020**	***af***
	871	cf

Sheet Flow to Grass Filter Strip (RR-3)

Design Point:	

Enter Site Data For Drainage Area to be Reduced							
Drainage Area Number	**Contributing Area** (Acres)	**Impervious Area** (Acres)	**Percent Impervious** %	**Rv**	**WQv** (cf)	**Precipitation** (in)	**Description**
1	0.22	0.22	100	0.95	759	1.00	Sheet Flow to Grass Filter Strip

Design Criteria		
Is the riparian buffer delineated and permanently protected through establishment of a legal conservation easement?	Yes	
Is the contributing area a designated hotspot?	No	
Is a pretreatment pea gravel diaphragm proposed along the upgradient edge of the buffer?	Yes	
Is runoff entering the buffer as overland sheet flow or a flow spreader proposed upgradient of the buffer?	Yes	
Enter the total length of contributing flow path (ft)	20	
Enter the length of contributing flow path from impervious surfaces (ft)	20	
Enter the slope of contributing flow path (%)	2	
Minimum buffer length based on contriuting flow path slope (ft)	35	
Enter the slope for the first 10 ft of the buffer (%)	2	

Sizing Criteria				
		Value	Units	Notes
Enter Travel Time through Buffer	*T*	6	min	
Enter 2-yr 24-hr Rainfall Depth	*P*	2.17	inch	
Enter Overall Buffer Slope	*S*	0.04	ft/ft	
Enter Manning's Coefficient for Buffer	*n*	0.40		
Calculated Minimum Length of Buffer	*L*	23	ft	
Minimum Length of Buffer	*L*	35	ft	
Is the buffer within HSG C or D soils?		Yes		
Required Length of Buffer	*L*	40	ft	
Enter Provided Length of Buffer	*L*	40	ft	

Calculate Runoff Reduction		
RRv Provided	**759**	**cf**

Infiltration Basin (I-2)

Design Point:	

Enter Site Data For Drainage Area to be Treated by Practice							
Drainage Area Number	**Contributing Area** (Acres)	**Impervious Area** (Acres)	**Percent Impervious** %	**Rv**	**WQv** (cf)	**Precipitation** (in)	**Description**
2	0.76	0.42	55	0.55	1,510	1.00	Infiltration Basin

Design Criteria		
Enter underlying soil infiltration rate (based on geotechnical testing, refer to Appendix D)	3	
Is the contributing area to the practice an "Infiltration Restricted" stormwater hotspot?	No	
Is the contributing area to the practice an "Infiltration Prohibited" stormwater hotspot?	No	
Maximum contributing area (acres)	10	
Is the contributing area greater than the maximum allowed contributing area?	No	
Is the practice located in a sole source aquifer?	No	
Enter depth to seasonal high water table (ft)	6	
Enter depth to bedrock (ft)	8	
Enter pretreatment volume provided (cf)	380	
Enter depth of freeboard (ft)	1	
Enter depth of basin (ft)	1.5	
Enter side slopes of the basin (X:1)	3	
Enter slope of maintenance access (%)	1	
Enter width of maintenance access (ft)	20	

Sizing Criteria				
		Value	Units	Notes
Water Quality Volume	WQv	1510	cf	
Basin depth	db	1.5	ft	
Required Bottom Surface Area	Ab	1,007	sf	
Enter Bottom Area Provided	Ab	1020	sf	

Determine Runoff Reduction		
RRv Provided	**1,510**	***cf***

Attachment B

Stormwater Modeling Calculations

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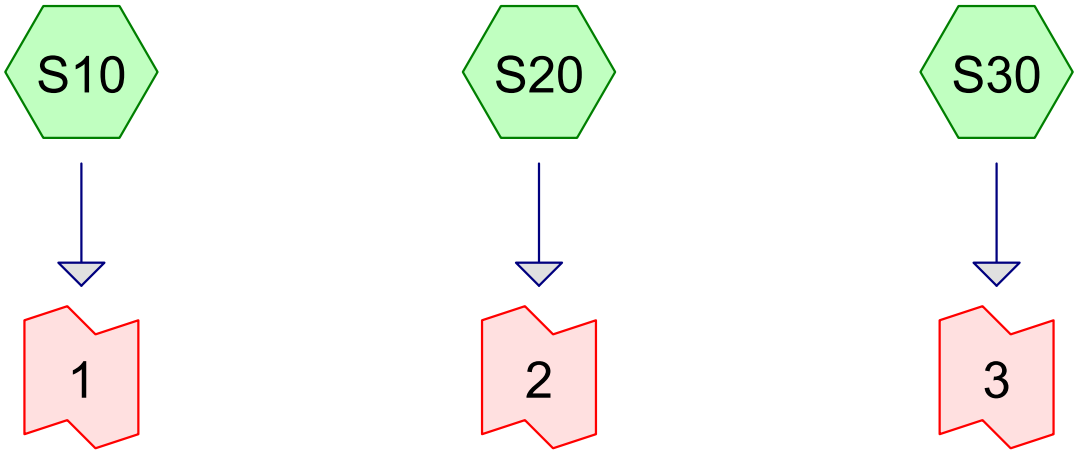


Subcat Reach Pond Link

Routing Diagram for 2026-09-23 Predevelopment
Prepared by Environmental Design Partnership, Printed 9/23/2026
HydroCAD® 10.20-2h s/n 00476 © 2024 HydroCAD Software Solutions LLC

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-YR	Type II 24-hr		Default	24.00	1	1.97	2
2	10-YR	Type II 24-hr		Default	24.00	1	3.36	2
3	100-YR	Type II 24-hr		Default	24.00	1	5.73	2

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
8.841	58	Meadow, non-grazed, HSG B (S10, S20, S30)
0.733	78	Meadow, non-grazed, HSG D (S10, S20)
0.856	98	Paved parking, HSG D (S10, S20, S30)
4.332	60	Woods, Fair, HSG B (S10, S20, S30)
1.437	79	Woods, Fair, HSG D (S10)
16.199	**63**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
13.173	HSG B	S10, S20, S30
0.000	HSG C	
3.026	HSG D	S10, S20, S30
0.000	Other	
16.199		**TOTAL AREA**

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	8.841	0.000	0.733	0.000	9.574	Meadow, non-grazed	S10, S20, S30
0.000	0.000	0.000	0.856	0.000	0.856	Paved parking	S10, S20, S30
0.000	4.332	0.000	1.437	0.000	5.769	Woods, Fair	S10, S20, S30
0.000	**13.173**	**0.000**	**3.026**	**0.000**	**16.199**	**TOTAL AREA**	

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentS10: Runoff Area=456,351 sf 5.25% Impervious Runoff Depth>0.08"
Flow Length=1,335' Tc=49.5 min CN=64 Runoff=0.22 cfs 0.073 af

SubcatchmentS20: Runoff Area=173,284 sf 6.24% Impervious Runoff Depth>0.07"
Flow Length=565' Tc=20.6 min CN=63 Runoff=0.08 cfs 0.024 af

SubcatchmentS30: Runoff Area=75,979 sf 3.29% Impervious Runoff Depth>0.03"
Flow Length=400' Slope=0.0200 '/' Tc=16.6 min CN=59 Runoff=0.01 cfs 0.004 af

Link 1: Inflow=0.22 cfs 0.073 af
Primary=0.22 cfs 0.073 af

Link 2: Inflow=0.08 cfs 0.024 af
Primary=0.08 cfs 0.024 af

Link 3: Inflow=0.01 cfs 0.004 af
Primary=0.01 cfs 0.004 af

Total Runoff Area = 16.199 ac Runoff Volume = 0.102 af Average Runoff Depth = 0.08"
94.72% Pervious = 15.343 ac 5.28% Impervious = 0.856 ac

Summary for Subcatchment S10:

Runoff = 0.22 cfs @ 12.87 hrs, Volume= 0.073 af, Depth> 0.08"
Routed to Link 1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR Rainfall=1.97"

Area (sf)	CN	Description
23,956	98	Paved parking, HSG D
175,301	58	Meadow, non-grazed, HSG B
12,046	78	Meadow, non-grazed, HSG D
182,431	60	Woods, Fair, HSG B
62,617	79	Woods, Fair, HSG D
456,351	64	Weighted Average
432,395		94.75% Pervious Area
23,956		5.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0100	0.23		**Sheet Flow, SF - FARM** Cultivated: Residue<=20% n= 0.060 P2= 2.32"
3.8	205	0.0100	0.90		**Shallow Concentrated Flow, SCF - FARM** Cultivated Straight Rows Kv= 9.0 fps
23.9	600	0.0070	0.42		**Shallow Concentrated Flow, SCF - WOODS** Woodland Kv= 5.0 fps
14.5	430	0.0050	0.49		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
49.5	1,335	Total			

Summary for Subcatchment S20:

Runoff = 0.08 cfs @ 12.49 hrs, Volume= 0.024 af, Depth> 0.07"
Routed to Link 2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR Rainfall=1.97"

Area (sf)	CN	Description
10,811	98	Paved parking, HSG D
141,959	58	Meadow, non-grazed, HSG B
19,882	78	Meadow, non-grazed, HSG D
632	60	Woods, Fair, HSG B
173,284	63	Weighted Average
162,473		93.76% Pervious Area
10,811		6.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	100	0.0250	0.16		**Sheet Flow, SF- GRASS** Grass: Short n= 0.150 P2= 2.32"
10.1	465	0.0120	0.77		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
20.6	565	Total			

Summary for Subcatchment S30:

Runoff = 0.01 cfs @ 13.77 hrs, Volume= 0.004 af, Depth> 0.03"
Routed to Link 3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR Rainfall=1.97"

Area (sf)	CN	Description
2,500	98	Paved parking, HSG D
67,857	58	Meadow, non-grazed, HSG B
5,622	60	Woods, Fair, HSG B
75,979	59	Weighted Average
73,479		96.71% Pervious Area
2,500		3.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	100	0.0200	0.14		**Sheet Flow, SF - GRASS** Grass: Short n= 0.150 P2= 2.32"
5.1	300	0.0200	0.99		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
16.6	400	Total			

Summary for Link 1:

Inflow Area = 10.476 ac, 5.25% Impervious, Inflow Depth > 0.08" for 1-YR event
Inflow = 0.22 cfs @ 12.87 hrs, Volume= 0.073 af
Primary = 0.22 cfs @ 12.87 hrs, Volume= 0.073 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link 2:

Inflow Area = 3.978 ac, 6.24% Impervious, Inflow Depth > 0.07" for 1-YR event
Inflow = 0.08 cfs @ 12.49 hrs, Volume= 0.024 af
Primary = 0.08 cfs @ 12.49 hrs, Volume= 0.024 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link 3:

Inflow Area = 1.744 ac, 3.29% Impervious, Inflow Depth > 0.03" for 1-YR event
Inflow = 0.01 cfs @ 13.77 hrs, Volume= 0.004 af
Primary = 0.01 cfs @ 13.77 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentS10: Runoff Area=456,351 sf 5.25% Impervious Runoff Depth>0.54"
Flow Length=1,335' Tc=49.5 min CN=64 Runoff=3.08 cfs 0.473 af

SubcatchmentS20: Runoff Area=173,284 sf 6.24% Impervious Runoff Depth>0.51"
Flow Length=565' Tc=20.6 min CN=63 Runoff=1.96 cfs 0.170 af

SubcatchmentS30: Runoff Area=75,979 sf 3.29% Impervious Runoff Depth>0.37"
Flow Length=400' Slope=0.0200 '/' Tc=16.6 min CN=59 Runoff=0.60 cfs 0.054 af

Link 1: Inflow=3.08 cfs 0.473 af
Primary=3.08 cfs 0.473 af

Link 2: Inflow=1.96 cfs 0.170 af
Primary=1.96 cfs 0.170 af

Link 3: Inflow=0.60 cfs 0.054 af
Primary=0.60 cfs 0.054 af

Total Runoff Area = 16.199 ac Runoff Volume = 0.697 af Average Runoff Depth = 0.52"
94.72% Pervious = 15.343 ac 5.28% Impervious = 0.856 ac

Summary for Subcatchment S10:

Runoff = 3.08 cfs @ 12.59 hrs, Volume= 0.473 af, Depth> 0.54"
Routed to Link 1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=3.36"

Area (sf)	CN	Description
23,956	98	Paved parking, HSG D
175,301	58	Meadow, non-grazed, HSG B
12,046	78	Meadow, non-grazed, HSG D
182,431	60	Woods, Fair, HSG B
62,617	79	Woods, Fair, HSG D
456,351	64	Weighted Average
432,395		94.75% Pervious Area
23,956		5.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0100	0.23		**Sheet Flow, SF - FARM** Cultivated: Residue<=20% n= 0.060 P2= 2.32"
3.8	205	0.0100	0.90		**Shallow Concentrated Flow, SCF - FARM** Cultivated Straight Rows Kv= 9.0 fps
23.9	600	0.0070	0.42		**Shallow Concentrated Flow, SCF - WOODS** Woodland Kv= 5.0 fps
14.5	430	0.0050	0.49		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
49.5	1,335	Total			

Summary for Subcatchment S20:

Runoff = 1.96 cfs @ 12.17 hrs, Volume= 0.170 af, Depth> 0.51"
Routed to Link 2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=3.36"

Area (sf)	CN	Description
10,811	98	Paved parking, HSG D
141,959	58	Meadow, non-grazed, HSG B
19,882	78	Meadow, non-grazed, HSG D
632	60	Woods, Fair, HSG B
173,284	63	Weighted Average
162,473		93.76% Pervious Area
10,811		6.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	100	0.0250	0.16		**Sheet Flow, SF- GRASS**
					Grass: Short n= 0.150 P2= 2.32"
10.1	465	0.0120	0.77		**Shallow Concentrated Flow, SCF - GRASS**
					Short Grass Pasture Kv= 7.0 fps
20.6	565	Total			

Summary for Subcatchment S30:

Runoff = 0.60 cfs @ 12.14 hrs, Volume= 0.054 af, Depth> 0.37"
Routed to Link 3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=3.36"

Area (sf)	CN	Description
2,500	98	Paved parking, HSG D
67,857	58	Meadow, non-grazed, HSG B
5,622	60	Woods, Fair, HSG B
75,979	59	Weighted Average
73,479		96.71% Pervious Area
2,500		3.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	100	0.0200	0.14		**Sheet Flow, SF - GRASS**
					Grass: Short n= 0.150 P2= 2.32"
5.1	300	0.0200	0.99		**Shallow Concentrated Flow, SCF - GRASS**
					Short Grass Pasture Kv= 7.0 fps
16.6	400	Total			

Summary for Link 1:

Inflow Area = 10.476 ac, 5.25% Impervious, Inflow Depth > 0.54" for 10-YR event
Inflow = 3.08 cfs @ 12.59 hrs, Volume= 0.473 af
Primary = 3.08 cfs @ 12.59 hrs, Volume= 0.473 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link 2:

Inflow Area = 3.978 ac, 6.24% Impervious, Inflow Depth > 0.51" for 10-YR event
Inflow = 1.96 cfs @ 12.17 hrs, Volume= 0.170 af
Primary = 1.96 cfs @ 12.17 hrs, Volume= 0.170 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link 3:

Inflow Area = 1.744 ac, 3.29% Impervious, Inflow Depth > 0.37" for 10-YR event
Inflow = 0.60 cfs @ 12.14 hrs, Volume= 0.054 af
Primary = 0.60 cfs @ 12.14 hrs, Volume= 0.054 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentS10: Runoff Area=456,351 sf 5.25% Impervious Runoff Depth>1.84"
Flow Length=1,335' Tc=49.5 min CN=64 Runoff=12.58 cfs 1.609 af

SubcatchmentS20: Runoff Area=173,284 sf 6.24% Impervious Runoff Depth>1.79"
Flow Length=565' Tc=20.6 min CN=63 Runoff=8.27 cfs 0.593 af

SubcatchmentS30: Runoff Area=75,979 sf 3.29% Impervious Runoff Depth>1.49"
Flow Length=400' Slope=0.0200 '/' Tc=16.6 min CN=59 Runoff=3.34 cfs 0.217 af

Link 1: Inflow=12.58 cfs 1.609 af
Primary=12.58 cfs 1.609 af

Link 2: Inflow=8.27 cfs 0.593 af
Primary=8.27 cfs 0.593 af

Link 3: Inflow=3.34 cfs 0.217 af
Primary=3.34 cfs 0.217 af

Total Runoff Area = 16.199 ac Runoff Volume = 2.418 af Average Runoff Depth = 1.79"
94.72% Pervious = 15.343 ac 5.28% Impervious = 0.856 ac

Summary for Subcatchment S10:

Runoff = 12.58 cfs @ 12.51 hrs, Volume= 1.609 af, Depth> 1.84"
Routed to Link 1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=5.73"

Area (sf)	CN	Description
23,956	98	Paved parking, HSG D
175,301	58	Meadow, non-grazed, HSG B
12,046	78	Meadow, non-grazed, HSG D
182,431	60	Woods, Fair, HSG B
62,617	79	Woods, Fair, HSG D
456,351	64	Weighted Average
432,395		94.75% Pervious Area
23,956		5.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0100	0.23		**Sheet Flow, SF - FARM** Cultivated: Residue<=20% n= 0.060 P2= 2.32"
3.8	205	0.0100	0.90		**Shallow Concentrated Flow, SCF - FARM** Cultivated Straight Rows Kv= 9.0 fps
23.9	600	0.0070	0.42		**Shallow Concentrated Flow, SCF - WOODS** Woodland Kv= 5.0 fps
14.5	430	0.0050	0.49		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
49.5	1,335	Total			

Summary for Subcatchment S20:

Runoff = 8.27 cfs @ 12.15 hrs, Volume= 0.593 af, Depth> 1.79"
Routed to Link 2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=5.73"

Area (sf)	CN	Description
10,811	98	Paved parking, HSG D
141,959	58	Meadow, non-grazed, HSG B
19,882	78	Meadow, non-grazed, HSG D
632	60	Woods, Fair, HSG B
173,284	63	Weighted Average
162,473		93.76% Pervious Area
10,811		6.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	100	0.0250	0.16		**Sheet Flow, SF- GRASS**
					Grass: Short n= 0.150 P2= 2.32"
10.1	465	0.0120	0.77		**Shallow Concentrated Flow, SCF - GRASS**
					Short Grass Pasture Kv= 7.0 fps
20.6	565	Total			

Summary for Subcatchment S30:

Runoff = 3.34 cfs @ 12.10 hrs, Volume= 0.217 af, Depth> 1.49"
Routed to Link 3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=5.73"

Area (sf)	CN	Description
2,500	98	Paved parking, HSG D
67,857	58	Meadow, non-grazed, HSG B
5,622	60	Woods, Fair, HSG B
75,979	59	Weighted Average
73,479		96.71% Pervious Area
2,500		3.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	100	0.0200	0.14		**Sheet Flow, SF - GRASS**
					Grass: Short n= 0.150 P2= 2.32"
5.1	300	0.0200	0.99		**Shallow Concentrated Flow, SCF - GRASS**
					Short Grass Pasture Kv= 7.0 fps
16.6	400	Total			

Summary for Link 1:

Inflow Area = 10.476 ac, 5.25% Impervious, Inflow Depth > 1.84" for 100-YR event
Inflow = 12.58 cfs @ 12.51 hrs, Volume= 1.609 af
Primary = 12.58 cfs @ 12.51 hrs, Volume= 1.609 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link 2:

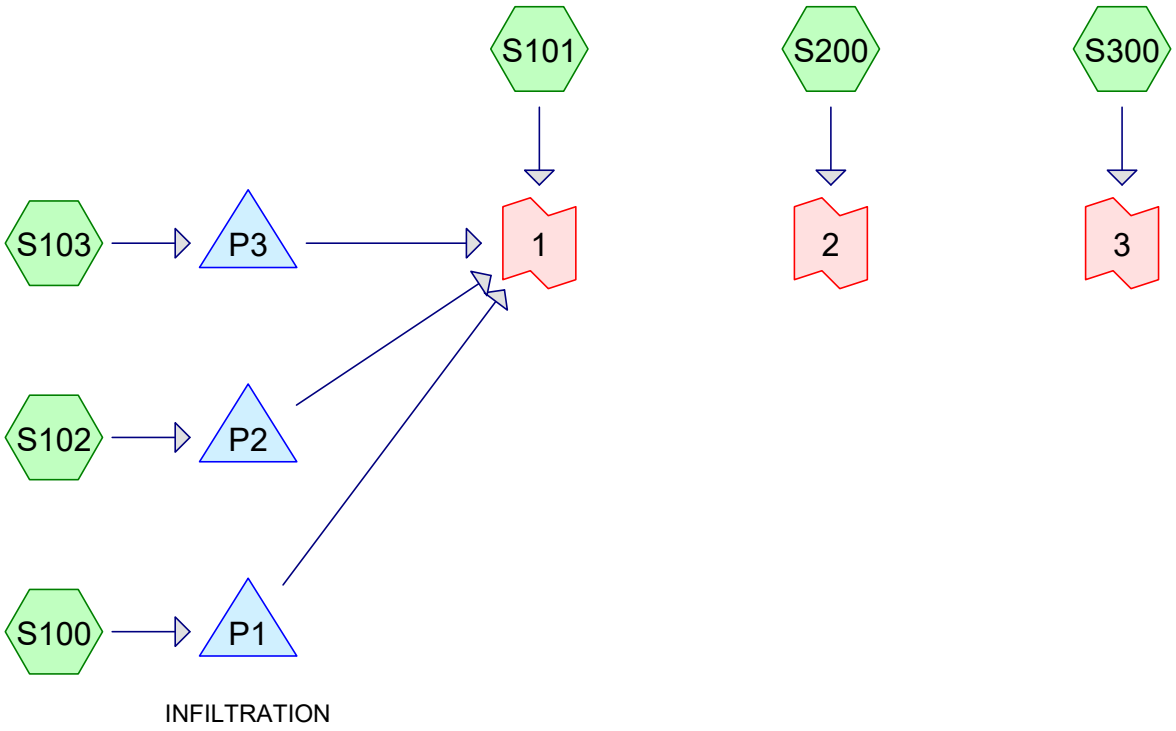
Inflow Area = 3.978 ac, 6.24% Impervious, Inflow Depth > 1.79" for 100-YR event
Inflow = 8.27 cfs @ 12.15 hrs, Volume= 0.593 af
Primary = 8.27 cfs @ 12.15 hrs, Volume= 0.593 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link 3:

Inflow Area = 1.744 ac, 3.29% Impervious, Inflow Depth > 1.49" for 100-YR event
Inflow = 3.34 cfs @ 12.10 hrs, Volume= 0.217 af
Primary = 3.34 cfs @ 12.10 hrs, Volume= 0.217 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs



Subcat Reach Pond Link

Routing Diagram for 2026-09-23 Postdevelopment
Prepared by Environmental Design Partnership, Printed 9/23/2026
HydroCAD® 10.20-2h s/n 00476 © 2024 HydroCAD Software Solutions LLC

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-YR	Type II 24-hr		Default	24.00	1	1.97	2
2	10-YR	Type II 24-hr		Default	24.00	1	3.36	2
3	100-YR	Type II 24-hr		Default	24.00	1	5.73	2

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
8.716	58	Meadow, non-grazed, HSG B (S100, S101, S102, S103, S200, S300)
0.655	78	Meadow, non-grazed, HSG D (S101, S103, S200)
1.337	98	Paved parking, HSG D (S100, S101, S102, S103, S200, S300)
4.031	60	Woods, Fair, HSG B (S101, S300)
1.437	79	Woods, Fair, HSG D (S101)
16.177	**64**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
12.747	HSG B	S100, S101, S102, S103, S200, S300
0.000	HSG C	
3.430	HSG D	S100, S101, S102, S103, S200, S300
0.000	Other	
16.177		**TOTAL AREA**

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	8.716	0.000	0.655	0.000	9.371	Meadow, non-grazed	S100, S101, S102, S103, S200, S300
0.000	0.000	0.000	1.337	0.000	1.337	Paved parking	S100, S101, S102, S103, S200, S300
0.000	4.031	0.000	1.437	0.000	5.469	Woods, Fair	S101, S300
0.000	**12.747**	**0.000**	**3.430**	**0.000**	**16.177**	**TOTAL AREA**	

Pipe Listing (selected nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)
1	P2	1,080.80	1,080.40	75.0	0.0053	0.013	0.0	12.0	0.0
2	P3	1,081.25	1,080.00	72.0	0.0174	0.013	0.0	12.0	0.0

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentS100: Runoff Area=33,230 sf 51.37% Impervious Runoff Depth>0.45"
Tc=6.0 min CN=79 Runoff=0.65 cfs 0.029 af

SubcatchmentS101: Runoff Area=402,392 sf 4.82% Impervious Runoff Depth>0.08"
Flow Length=1,335' Tc=49.5 min CN=64 Runoff=0.19 cfs 0.065 af

SubcatchmentS102: Runoff Area=18,285 sf 25.44% Impervious Runoff Depth>0.15"
Flow Length=147' Slope=0.0600 '/' Tc=6.7 min CN=68 Runoff=0.08 cfs 0.005 af

SubcatchmentS103: Runoff Area=20,588 sf 29.12% Impervious Runoff Depth>0.24"
Flow Length=199' Slope=0.0250 '/' Tc=11.6 min CN=72 Runoff=0.14 cfs 0.009 af

SubcatchmentS200: Runoff Area=159,359 sf 5.71% Impervious Runoff Depth>0.07"
Flow Length=515' Tc=19.5 min CN=63 Runoff=0.07 cfs 0.022 af

SubcatchmentS300: Runoff Area=70,804 sf 2.90% Impervious Runoff Depth>0.03"
Flow Length=310' Tc=16.9 min CN=59 Runoff=0.01 cfs 0.004 af

Pond P1: INFILTRATION Peak Elev=1,082.33' Storage=394 cf Inflow=0.65 cfs 0.029 af
Discarded=0.10 cfs 0.029 af Primary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.029 af

Pond P2: Peak Elev=1,080.95' Storage=10 cf Inflow=0.08 cfs 0.005 af
12.0" Round Culvert n=0.013 L=75.0' S=0.0053 '/' Outflow=0.07 cfs 0.005 af

Pond P3: Peak Elev=1,081.43' Storage=3 cf Inflow=0.14 cfs 0.009 af
12.0" Round Culvert n=0.013 L=72.0' S=0.0174 '/' Outflow=0.14 cfs 0.009 af

Link 1: Inflow=0.22 cfs 0.079 af
Primary=0.22 cfs 0.079 af

Link 2: Inflow=0.07 cfs 0.022 af
Primary=0.07 cfs 0.022 af

Link 3: Inflow=0.01 cfs 0.004 af
Primary=0.01 cfs 0.004 af

Total Runoff Area = 16.177 ac Runoff Volume = 0.135 af Average Runoff Depth = 0.10"
91.73% Pervious = 14.840 ac 8.27% Impervious = 1.337 ac

Summary for Subcatchment S100:

Runoff = 0.65 cfs @ 11.98 hrs, Volume= 0.029 af, Depth> 0.45"
Routed to Pond P1 : INFILTRATION

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR Rainfall=1.97"

Area (sf)	CN	Description
17,070	98	Paved parking, HSG D
16,160	58	Meadow, non-grazed, HSG B
33,230	79	Weighted Average
16,160		48.63% Pervious Area
17,070		51.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, DIRECT**

Summary for Subcatchment S101:

Runoff = 0.19 cfs @ 12.87 hrs, Volume= 0.065 af, Depth> 0.08"
Routed to Link 1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR Rainfall=1.97"

Area (sf)	CN	Description
19,378	98	Paved parking, HSG D
140,222	58	Meadow, non-grazed, HSG B
6,667	78	Meadow, non-grazed, HSG D
173,508	60	Woods, Fair, HSG B
62,617	79	Woods, Fair, HSG D
402,392	64	Weighted Average
383,014		95.18% Pervious Area
19,378		4.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0100	0.23		**Sheet Flow, SF - FARM** Cultivated: Residue<=20% n= 0.060 P2= 2.32"
3.8	205	0.0100	0.90		**Shallow Concentrated Flow, SCF - FARM** Cultivated Straight Rows Kv= 9.0 fps
23.9	600	0.0070	0.42		**Shallow Concentrated Flow, SCF - WOODS** Woodland Kv= 5.0 fps
14.5	430	0.0050	0.49		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
49.5	1,335	Total			

Summary for Subcatchment S102:

Runoff = 0.08 cfs @ 12.02 hrs, Volume= 0.005 af, Depth> 0.15"
Routed to Pond P2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR Rainfall=1.97"

Area (sf)	CN	Description
4,651	98	Paved parking, HSG D
13,634	58	Meadow, non-grazed, HSG B
18,285	68	Weighted Average
13,634		74.56% Pervious Area
4,651		25.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	12	0.0600	0.15		**Sheet Flow, SF - GRASS** Grass: Short n= 0.150 P2= 2.32"
0.3	26	0.0600	1.39		**Sheet Flow, SF - GRAVEL** Smooth surfaces n= 0.011 P2= 2.32"
4.5	54	0.0600	0.20		**Sheet Flow, SF - GRASS** Grass: Short n= 0.150 P2= 2.32"
0.1	13	0.0600	3.94		**Shallow Concentrated Flow, SCF - GRAVEL** Unpaved Kv= 16.1 fps
0.4	42	0.0600	1.71		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
6.7	147	Total			

Summary for Subcatchment S103:

Runoff = 0.14 cfs @ 12.07 hrs, Volume= 0.009 af, Depth> 0.24"
Routed to Pond P3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR Rainfall=1.97"

Area (sf)	CN	Description
5,996	98	Paved parking, HSG D
12,606	58	Meadow, non-grazed, HSG B
1,986	78	Meadow, non-grazed, HSG D
20,588	72	Weighted Average
14,592		70.88% Pervious Area
5,996		29.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	21	0.0250	0.12		**Sheet Flow, SF - GRASS** Grass: Short n= 0.150 P2= 2.32"
0.2	9	0.0250	0.79		**Sheet Flow, SF - GRAVEL** Smooth surfaces n= 0.011 P2= 2.32"
6.8	58	0.0250	0.14		**Sheet Flow, SF - GRASS** Grass: Short n= 0.150 P2= 2.32"
0.1	13	0.0250	2.55		**Shallow Concentrated Flow, SCF - GRAVEL** Unpaved Kv= 16.1 fps
1.5	98	0.0250	1.11		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
11.6	199	Total			

Summary for Subcatchment S200:

Runoff = 0.07 cfs @ 12.47 hrs, Volume= 0.022 af, Depth> 0.07"
Routed to Link 2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR Rainfall=1.97"

Area (sf)	CN	Description
9,098	98	Paved parking, HSG D
130,379	58	Meadow, non-grazed, HSG B
19,882	78	Meadow, non-grazed, HSG D
159,359	63	Weighted Average
150,261		94.29% Pervious Area
9,098		5.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	100	0.0250	0.16		**Sheet Flow, SF- GRASS** Grass: Short n= 0.150 P2= 2.32"
9.0	415	0.0120	0.77		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
19.5	515	Total			

Summary for Subcatchment S300:

Runoff = 0.01 cfs @ 13.75 hrs, Volume= 0.004 af, Depth> 0.03"
Routed to Link 3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR Rainfall=1.97"

Area (sf)	CN	Description
2,055	98	Paved parking, HSG D
66,662	58	Meadow, non-grazed, HSG B
2,087	60	Woods, Fair, HSG B
70,804	59	Weighted Average
68,749		97.10% Pervious Area
2,055		2.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	100	0.0170	0.14		**Sheet Flow, SF - GRASS** Grass: Short n= 0.150 P2= 2.32"
4.6	210	0.0120	0.77		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
16.9	310	Total			

Summary for Pond P1: INFILTRATION

Inflow Area = 0.763 ac, 51.37% Impervious, Inflow Depth > 0.45" for 1-YR event
Inflow = 0.65 cfs @ 11.98 hrs, Volume= 0.029 af
Outflow = 0.10 cfs @ 12.32 hrs, Volume= 0.029 af, Atten= 85%, Lag= 20.0 min
Discarded = 0.10 cfs @ 12.32 hrs, Volume= 0.029 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Link 1 :

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,082.33' @ 12.32 hrs Surf.Area= 1,395 sf Storage= 394 cf

Plug-Flow detention time= 33.6 min calculated for 0.029 af (100% of inflow)
Center-of-Mass det. time= 32.4 min (851.1 - 818.7)

Volume	Invert	Avail.Storage	Storage Description
#1	1,082.00'	6,808 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,082.00	1,030	145.0	0	0	1,030
1,083.00	2,325	500.0	1,634	1,634	19,254
1,084.00	3,850	520.0	3,056	4,690	20,956
1,084.50	4,635	530.0	2,118	6,808	21,832

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,082.00'	**3.000 in/hr Exfiltration over Surface area**
#2	Primary	1,083.50'	**10.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Discarded OutFlow Max=0.10 cfs @ 12.32 hrs HW=1,082.33' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.10 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=1,082.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond P2:

Inflow Area = 0.420 ac, 25.44% Impervious, Inflow Depth > 0.15" for 1-YR event
Inflow = 0.08 cfs @ 12.02 hrs, Volume= 0.005 af
Outflow = 0.07 cfs @ 12.06 hrs, Volume= 0.005 af, Atten= 10%, Lag= 2.3 min
Primary = 0.07 cfs @ 12.06 hrs, Volume= 0.005 af
Routed to Link 1 :

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,080.95' @ 12.06 hrs Surf.Area= 104 sf Storage= 10 cf

Plug-Flow detention time= 5.8 min calculated for 0.005 af (99% of inflow)
Center-of-Mass det. time= 3.0 min (871.1 - 868.2)

Volume	Invert	Avail.Storage	Storage Description
#1	1,080.75'	454 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,080.75	1	0	0
1,081.00	130	16	16
1,082.00	745	438	454

Device	Routing	Invert	Outlet Devices
#1	Primary	1,080.80'	**12.0" Round Culvert** L= 75.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,080.80' / 1,080.40' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.07 cfs @ 12.06 hrs HW=1,080.95' (Free Discharge)
1=Culvert (Barrel Controls 0.07 cfs @ 1.39 fps)

Summary for Pond P3:

Inflow Area = 0.473 ac, 29.12% Impervious, Inflow Depth > 0.24" for 1-YR event
Inflow = 0.14 cfs @ 12.07 hrs, Volume= 0.009 af
Outflow = 0.14 cfs @ 12.07 hrs, Volume= 0.009 af, Atten= 1%, Lag= 0.5 min
Primary = 0.14 cfs @ 12.07 hrs, Volume= 0.009 af
Routed to Link 1 :

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,081.43' @ 12.07 hrs Surf.Area= 37 sf Storage= 3 cf

Plug-Flow detention time= 0.4 min calculated for 0.009 af (100% of inflow)

Center-of-Mass det. time= 0.3 min (850.0 - 849.6)

Volume	Invert	Avail.Storage	Storage Description
#1	1,081.25'	432 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,081.25	1	0	0
1,082.00	150	57	57
1,083.00	600	375	432

Device	Routing	Invert	Outlet Devices
#1	Primary	1,081.25'	**12.0" Round Culvert** L= 72.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,081.25' / 1,080.00' S= 0.0174 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.13 cfs @ 12.07 hrs HW=1,081.43' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 0.13 cfs @ 1.43 fps)

Summary for Link 1:

Inflow Area = 10.893 ac, 9.93% Impervious, Inflow Depth > 0.09" for 1-YR event
Inflow = 0.22 cfs @ 12.84 hrs, Volume= 0.079 af
Primary = 0.22 cfs @ 12.84 hrs, Volume= 0.079 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link 2:

Inflow Area = 3.658 ac, 5.71% Impervious, Inflow Depth > 0.07" for 1-YR event
Inflow = 0.07 cfs @ 12.47 hrs, Volume= 0.022 af
Primary = 0.07 cfs @ 12.47 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link 3:

Inflow Area = 1.625 ac, 2.90% Impervious, Inflow Depth > 0.03" for 1-YR event
Inflow = 0.01 cfs @ 13.75 hrs, Volume= 0.004 af
Primary = 0.01 cfs @ 13.75 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentS100: Runoff Area=33,230 sf 51.37% Impervious Runoff Depth>1.33"
Tc=6.0 min CN=79 Runoff=1.94 cfs 0.085 af

SubcatchmentS101: Runoff Area=402,392 sf 4.82% Impervious Runoff Depth>0.54"
Flow Length=1,335' Tc=49.5 min CN=64 Runoff=2.71 cfs 0.417 af

SubcatchmentS102: Runoff Area=18,285 sf 25.44% Impervious Runoff Depth>0.73"
Flow Length=147' Slope=0.0600 '/' Tc=6.7 min CN=68 Runoff=0.56 cfs 0.026 af

SubcatchmentS103: Runoff Area=20,588 sf 29.12% Impervious Runoff Depth>0.92"
Flow Length=199' Slope=0.0250 '/' Tc=11.6 min CN=72 Runoff=0.68 cfs 0.036 af

SubcatchmentS200: Runoff Area=159,359 sf 5.71% Impervious Runoff Depth>0.51"
Flow Length=515' Tc=19.5 min CN=63 Runoff=1.87 cfs 0.156 af

SubcatchmentS300: Runoff Area=70,804 sf 2.90% Impervious Runoff Depth>0.37"
Flow Length=310' Tc=16.9 min CN=59 Runoff=0.55 cfs 0.050 af

Pond P1: INFILTRATION Peak Elev=1,083.01' Storage=1,656 cf Inflow=1.94 cfs 0.085 af
Discarded=0.16 cfs 0.085 af Primary=0.00 cfs 0.000 af Outflow=0.16 cfs 0.085 af

Pond P2: Peak Elev=1,081.21' Storage=58 cf Inflow=0.56 cfs 0.026 af
12.0" Round Culvert n=0.013 L=75.0' S=0.0053 '/' Outflow=0.52 cfs 0.025 af

Pond P3: Peak Elev=1,081.66' Storage=17 cf Inflow=0.68 cfs 0.036 af
12.0" Round Culvert n=0.013 L=72.0' S=0.0174 '/' Outflow=0.67 cfs 0.036 af

Link 1: Inflow=2.86 cfs 0.479 af
Primary=2.86 cfs 0.479 af

Link 2: Inflow=1.87 cfs 0.156 af
Primary=1.87 cfs 0.156 af

Link 3: Inflow=0.55 cfs 0.050 af
Primary=0.55 cfs 0.050 af

Total Runoff Area = 16.177 ac Runoff Volume = 0.771 af Average Runoff Depth = 0.57"
91.73% Pervious = 14.840 ac 8.27% Impervious = 1.337 ac

Summary for Subcatchment S100:

Runoff = 1.94 cfs @ 11.98 hrs, Volume= 0.085 af, Depth> 1.33"
Routed to Pond P1 : INFILTRATION

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=3.36"

Area (sf)	CN	Description
17,070	98	Paved parking, HSG D
16,160	58	Meadow, non-grazed, HSG B
33,230	79	Weighted Average
16,160		48.63% Pervious Area
17,070		51.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, DIRECT**

Summary for Subcatchment S101:

Runoff = 2.71 cfs @ 12.59 hrs, Volume= 0.417 af, Depth> 0.54"
Routed to Link 1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=3.36"

Area (sf)	CN	Description
19,378	98	Paved parking, HSG D
140,222	58	Meadow, non-grazed, HSG B
6,667	78	Meadow, non-grazed, HSG D
173,508	60	Woods, Fair, HSG B
62,617	79	Woods, Fair, HSG D
402,392	64	Weighted Average
383,014		95.18% Pervious Area
19,378		4.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0100	0.23		**Sheet Flow, SF - FARM** Cultivated: Residue<=20% n= 0.060 P2= 2.32"
3.8	205	0.0100	0.90		**Shallow Concentrated Flow, SCF - FARM** Cultivated Straight Rows Kv= 9.0 fps
23.9	600	0.0070	0.42		**Shallow Concentrated Flow, SCF - WOODS** Woodland Kv= 5.0 fps
14.5	430	0.0050	0.49		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
49.5	1,335	Total			

Summary for Subcatchment S102:

Runoff = 0.56 cfs @ 11.99 hrs, Volume= 0.026 af, Depth> 0.73"
Routed to Pond P2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=3.36"

Area (sf)	CN	Description
4,651	98	Paved parking, HSG D
13,634	58	Meadow, non-grazed, HSG B
18,285	68	Weighted Average
13,634		74.56% Pervious Area
4,651		25.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	12	0.0600	0.15		**Sheet Flow, SF - GRASS** Grass: Short n= 0.150 P2= 2.32"
0.3	26	0.0600	1.39		**Sheet Flow, SF - GRAVEL** Smooth surfaces n= 0.011 P2= 2.32"
4.5	54	0.0600	0.20		**Sheet Flow, SF - GRASS** Grass: Short n= 0.150 P2= 2.32"
0.1	13	0.0600	3.94		**Shallow Concentrated Flow, SCF - GRAVEL** Unpaved Kv= 16.1 fps
0.4	42	0.0600	1.71		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
6.7	147	Total			

Summary for Subcatchment S103:

Runoff = 0.68 cfs @ 12.05 hrs, Volume= 0.036 af, Depth> 0.92"
Routed to Pond P3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=3.36"

Area (sf)	CN	Description
5,996	98	Paved parking, HSG D
12,606	58	Meadow, non-grazed, HSG B
1,986	78	Meadow, non-grazed, HSG D
20,588	72	Weighted Average
14,592		70.88% Pervious Area
5,996		29.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	21	0.0250	0.12		**Sheet Flow, SF - GRASS** Grass: Short n= 0.150 P2= 2.32"
0.2	9	0.0250	0.79		**Sheet Flow, SF - GRAVEL** Smooth surfaces n= 0.011 P2= 2.32"
6.8	58	0.0250	0.14		**Sheet Flow, SF - GRASS** Grass: Short n= 0.150 P2= 2.32"
0.1	13	0.0250	2.55		**Shallow Concentrated Flow, SCF - GRAVEL** Unpaved Kv= 16.1 fps
1.5	98	0.0250	1.11		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
11.6	199	Total			

Summary for Subcatchment S200:

Runoff = 1.87 cfs @ 12.16 hrs, Volume= 0.156 af, Depth> 0.51"
Routed to Link 2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=3.36"

Area (sf)	CN	Description
9,098	98	Paved parking, HSG D
130,379	58	Meadow, non-grazed, HSG B
19,882	78	Meadow, non-grazed, HSG D
159,359	63	Weighted Average
150,261		94.29% Pervious Area
9,098		5.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	100	0.0250	0.16		**Sheet Flow, SF- GRASS** Grass: Short n= 0.150 P2= 2.32"
9.0	415	0.0120	0.77		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
19.5	515	Total			

Summary for Subcatchment S300:

Runoff = 0.55 cfs @ 12.14 hrs, Volume= 0.050 af, Depth> 0.37"
Routed to Link 3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=3.36"

Area (sf)	CN	Description
2,055	98	Paved parking, HSG D
66,662	58	Meadow, non-grazed, HSG B
2,087	60	Woods, Fair, HSG B
70,804	59	Weighted Average
68,749		97.10% Pervious Area
2,055		2.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	100	0.0170	0.14		**Sheet Flow, SF - GRASS** Grass: Short n= 0.150 P2= 2.32"
4.6	210	0.0120	0.77		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
16.9	310	Total			

Summary for Pond P1: INFILTRATION

Inflow Area = 0.763 ac, 51.37% Impervious, Inflow Depth > 1.33" for 10-YR event
Inflow = 1.94 cfs @ 11.98 hrs, Volume= 0.085 af
Outflow = 0.16 cfs @ 12.57 hrs, Volume= 0.085 af, Atten= 92%, Lag= 35.5 min
Discarded = 0.16 cfs @ 12.57 hrs, Volume= 0.085 af
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Link 1 :

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,083.01' @ 12.57 hrs Surf.Area= 2,338 sf Storage= 1,656 cf

Plug-Flow detention time= 111.3 min calculated for 0.085 af (100% of inflow)
Center-of-Mass det. time= 110.3 min (905.6 - 795.3)

Volume	Invert	Avail.Storage	Storage Description
#1	1,082.00'	6,808 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,082.00	1,030	145.0	0	0	1,030
1,083.00	2,325	500.0	1,634	1,634	19,254
1,084.00	3,850	520.0	3,056	4,690	20,956
1,084.50	4,635	530.0	2,118	6,808	21,832

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,082.00'	**3.000 in/hr Exfiltration over Surface area**
#2	Primary	1,083.50'	**10.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Discarded OutFlow Max=0.16 cfs @ 12.57 hrs HW=1,083.01' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.16 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=1,082.00' (Free Discharge)
2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond P2:

Inflow Area = 0.420 ac, 25.44% Impervious, Inflow Depth > 0.73" for 10-YR event
Inflow = 0.56 cfs @ 11.99 hrs, Volume= 0.026 af
Outflow = 0.52 cfs @ 12.02 hrs, Volume= 0.025 af, Atten= 8%, Lag= 1.6 min
Primary = 0.52 cfs @ 12.02 hrs, Volume= 0.025 af
Routed to Link 1 :

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,081.21' @ 12.02 hrs Surf.Area= 262 sf Storage= 58 cf

Plug-Flow detention time= 2.9 min calculated for 0.025 af (100% of inflow)
Center-of-Mass det. time= 1.8 min (823.1 - 821.3)

Volume	Invert	Avail.Storage	Storage Description
#1	1,080.75'	454 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,080.75	1	0	0
1,081.00	130	16	16
1,082.00	745	438	454

Device	Routing	Invert	Outlet Devices
#1	Primary	1,080.80'	**12.0" Round Culvert** L= 75.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,080.80' / 1,080.40' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.50 cfs @ 12.02 hrs HW=1,081.21' (Free Discharge)
1=Culvert (Barrel Controls 0.50 cfs @ 2.46 fps)

Summary for Pond P3:

Inflow Area = 0.473 ac, 29.12% Impervious, Inflow Depth > 0.92" for 10-YR event
Inflow = 0.68 cfs @ 12.05 hrs, Volume= 0.036 af
Outflow = 0.67 cfs @ 12.05 hrs, Volume= 0.036 af, Atten= 0%, Lag= 0.5 min
Primary = 0.67 cfs @ 12.05 hrs, Volume= 0.036 af
Routed to Link 1 :

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,081.66' @ 12.05 hrs Surf.Area= 83 sf Storage= 17 cf

Plug-Flow detention time= 0.4 min calculated for 0.036 af (100% of inflow)

Center-of-Mass det. time= 0.3 min (815.5 - 815.2)

Volume	Invert	Avail.Storage	Storage Description
#1	1,081.25'	432 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,081.25	1	0	0
1,082.00	150	57	57
1,083.00	600	375	432

Device	Routing	Invert	Outlet Devices
#1	Primary	1,081.25'	**12.0" Round Culvert** L= 72.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,081.25' / 1,080.00' S= 0.0174 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.67 cfs @ 12.05 hrs HW=1,081.66' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 0.67 cfs @ 2.19 fps)

Summary for Link 1:

Inflow Area = 10.893 ac, 9.93% Impervious, Inflow Depth > 0.53" for 10-YR event
Inflow = 2.86 cfs @ 12.58 hrs, Volume= 0.479 af
Primary = 2.86 cfs @ 12.58 hrs, Volume= 0.479 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link 2:

Inflow Area = 3.658 ac, 5.71% Impervious, Inflow Depth > 0.51" for 10-YR event
Inflow = 1.87 cfs @ 12.16 hrs, Volume= 0.156 af
Primary = 1.87 cfs @ 12.16 hrs, Volume= 0.156 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link 3:

Inflow Area = 1.625 ac, 2.90% Impervious, Inflow Depth > 0.37" for 10-YR event
Inflow = 0.55 cfs @ 12.14 hrs, Volume= 0.050 af
Primary = 0.55 cfs @ 12.14 hrs, Volume= 0.050 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentS100: Runoff Area=33,230 sf 51.37% Impervious Runoff Depth>3.19"
Tc=6.0 min CN=79 Runoff=4.46 cfs 0.203 af

SubcatchmentS101: Runoff Area=402,392 sf 4.82% Impervious Runoff Depth>1.84"
Flow Length=1,335' Tc=49.5 min CN=64 Runoff=11.09 cfs 1.418 af

SubcatchmentS102: Runoff Area=18,285 sf 25.44% Impervious Runoff Depth>2.21"
Flow Length=147' Slope=0.0600 '/' Tc=6.7 min CN=68 Runoff=1.73 cfs 0.077 af

SubcatchmentS103: Runoff Area=20,588 sf 29.12% Impervious Runoff Depth>2.54"
Flow Length=199' Slope=0.0250 '/' Tc=11.6 min CN=72 Runoff=1.89 cfs 0.100 af

SubcatchmentS200: Runoff Area=159,359 sf 5.71% Impervious Runoff Depth>1.79"
Flow Length=515' Tc=19.5 min CN=63 Runoff=7.84 cfs 0.546 af

SubcatchmentS300: Runoff Area=70,804 sf 2.90% Impervious Runoff Depth>1.49"
Flow Length=310' Tc=16.9 min CN=59 Runoff=3.08 cfs 0.202 af

Pond P1: INFILTRATION Peak Elev=1,083.68' Storage=3,536 cf Inflow=4.46 cfs 0.203 af
Discarded=0.23 cfs 0.139 af Primary=1.77 cfs 0.041 af Outflow=2.00 cfs 0.180 af

Pond P2: Peak Elev=1,081.58' Storage=197 cf Inflow=1.73 cfs 0.077 af
12.0" Round Culvert n=0.013 L=75.0' S=0.0053 '/' Outflow=1.57 cfs 0.077 af

Pond P3: Peak Elev=1,082.00' Storage=57 cf Inflow=1.89 cfs 0.100 af
12.0" Round Culvert n=0.013 L=72.0' S=0.0174 '/' Outflow=1.87 cfs 0.100 af

Link 1: Inflow=11.79 cfs 1.636 af
Primary=11.79 cfs 1.636 af

Link 2: Inflow=7.84 cfs 0.546 af
Primary=7.84 cfs 0.546 af

Link 3: Inflow=3.08 cfs 0.202 af
Primary=3.08 cfs 0.202 af

Total Runoff Area = 16.177 ac Runoff Volume = 2.546 af Average Runoff Depth = 1.89"
91.73% Pervious = 14.840 ac 8.27% Impervious = 1.337 ac

Summary for Subcatchment S100:

Runoff = 4.46 cfs @ 11.97 hrs, Volume= 0.203 af, Depth> 3.19"
Routed to Pond P1 : INFILTRATION

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=5.73"

Area (sf)	CN	Description
17,070	98	Paved parking, HSG D
16,160	58	Meadow, non-grazed, HSG B
33,230	79	Weighted Average
16,160		48.63% Pervious Area
17,070		51.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, DIRECT**

Summary for Subcatchment S101:

Runoff = 11.09 cfs @ 12.51 hrs, Volume= 1.418 af, Depth> 1.84"
Routed to Link 1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=5.73"

Area (sf)	CN	Description
19,378	98	Paved parking, HSG D
140,222	58	Meadow, non-grazed, HSG B
6,667	78	Meadow, non-grazed, HSG D
173,508	60	Woods, Fair, HSG B
62,617	79	Woods, Fair, HSG D
402,392	64	Weighted Average
383,014		95.18% Pervious Area
19,378		4.82% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0100	0.23		**Sheet Flow, SF - FARM** Cultivated: Residue<=20% n= 0.060 P2= 2.32"
3.8	205	0.0100	0.90		**Shallow Concentrated Flow, SCF - FARM** Cultivated Straight Rows Kv= 9.0 fps
23.9	600	0.0070	0.42		**Shallow Concentrated Flow, SCF - WOODS** Woodland Kv= 5.0 fps
14.5	430	0.0050	0.49		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
49.5	1,335	Total			

Summary for Subcatchment S102:

Runoff = 1.73 cfs @ 11.98 hrs, Volume= 0.077 af, Depth> 2.21"
Routed to Pond P2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=5.73"

Area (sf)	CN	Description
4,651	98	Paved parking, HSG D
13,634	58	Meadow, non-grazed, HSG B
18,285	68	Weighted Average
13,634		74.56% Pervious Area
4,651		25.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.4	12	0.0600	0.15		**Sheet Flow, SF - GRASS** Grass: Short n= 0.150 P2= 2.32"
0.3	26	0.0600	1.39		**Sheet Flow, SF - GRAVEL** Smooth surfaces n= 0.011 P2= 2.32"
4.5	54	0.0600	0.20		**Sheet Flow, SF - GRASS** Grass: Short n= 0.150 P2= 2.32"
0.1	13	0.0600	3.94		**Shallow Concentrated Flow, SCF - GRAVEL** Unpaved Kv= 16.1 fps
0.4	42	0.0600	1.71		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
6.7	147	Total			

Summary for Subcatchment S103:

Runoff = 1.89 cfs @ 12.04 hrs, Volume= 0.100 af, Depth> 2.54"
Routed to Pond P3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=5.73"

Area (sf)	CN	Description
5,996	98	Paved parking, HSG D
12,606	58	Meadow, non-grazed, HSG B
1,986	78	Meadow, non-grazed, HSG D
20,588	72	Weighted Average
14,592		70.88% Pervious Area
5,996		29.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	21	0.0250	0.12		**Sheet Flow, SF - GRASS** Grass: Short n= 0.150 P2= 2.32"
0.2	9	0.0250	0.79		**Sheet Flow, SF - GRAVEL** Smooth surfaces n= 0.011 P2= 2.32"
6.8	58	0.0250	0.14		**Sheet Flow, SF - GRASS** Grass: Short n= 0.150 P2= 2.32"
0.1	13	0.0250	2.55		**Shallow Concentrated Flow, SCF - GRAVEL** Unpaved Kv= 16.1 fps
1.5	98	0.0250	1.11		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
11.6	199	Total			

Summary for Subcatchment S200:

Runoff = 7.84 cfs @ 12.13 hrs, Volume= 0.546 af, Depth> 1.79"
Routed to Link 2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=5.73"

Area (sf)	CN	Description
9,098	98	Paved parking, HSG D
130,379	58	Meadow, non-grazed, HSG B
19,882	78	Meadow, non-grazed, HSG D
159,359	63	Weighted Average
150,261		94.29% Pervious Area
9,098		5.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	100	0.0250	0.16		**Sheet Flow, SF- GRASS** Grass: Short n= 0.150 P2= 2.32"
9.0	415	0.0120	0.77		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
19.5	515	Total			

Summary for Subcatchment S300:

Runoff = 3.08 cfs @ 12.11 hrs, Volume= 0.202 af, Depth> 1.49"
Routed to Link 3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=5.73"

Area (sf)	CN	Description
2,055	98	Paved parking, HSG D
66,662	58	Meadow, non-grazed, HSG B
2,087	60	Woods, Fair, HSG B
70,804	59	Weighted Average
68,749		97.10% Pervious Area
2,055		2.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	100	0.0170	0.14		**Sheet Flow, SF - GRASS** Grass: Short n= 0.150 P2= 2.32"
4.6	210	0.0120	0.77		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
16.9	310	Total			

Summary for Pond P1: INFILTRATION

Inflow Area = 0.763 ac, 51.37% Impervious, Inflow Depth > 3.19" for 100-YR event
Inflow = 4.46 cfs @ 11.97 hrs, Volume= 0.203 af
Outflow = 2.00 cfs @ 12.08 hrs, Volume= 0.180 af, Atten= 55%, Lag= 6.8 min
Discarded = 0.23 cfs @ 12.08 hrs, Volume= 0.139 af
Primary = 1.77 cfs @ 12.08 hrs, Volume= 0.041 af
Routed to Link 1 :

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,083.68' @ 12.08 hrs Surf.Area= 3,317 sf Storage= 3,536 cf

Plug-Flow detention time= 124.5 min calculated for 0.180 af (88% of inflow)
Center-of-Mass det. time= 87.5 min (864.0 - 776.5)

Volume	Invert	Avail.Storage	Storage Description
#1	1,082.00'	6,808 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,082.00	1,030	145.0	0	0	1,030
1,083.00	2,325	500.0	1,634	1,634	19,254
1,084.00	3,850	520.0	3,056	4,690	20,956
1,084.50	4,635	530.0	2,118	6,808	21,832

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,082.00'	**3.000 in/hr Exfiltration over Surface area**
#2	Primary	1,083.50'	**10.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Discarded OutFlow Max=0.23 cfs @ 12.08 hrs HW=1,083.67' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.23 cfs)

Primary OutFlow Max=1.71 cfs @ 12.08 hrs HW=1,083.67' (Free Discharge)
2=Broad-Crested Rectangular Weir (Weir Controls 1.71 cfs @ 0.99 fps)

Summary for Pond P2:

Inflow Area = 0.420 ac, 25.44% Impervious, Inflow Depth > 2.21" for 100-YR event
Inflow = 1.73 cfs @ 11.98 hrs, Volume= 0.077 af
Outflow = 1.57 cfs @ 12.01 hrs, Volume= 0.077 af, Atten= 9%, Lag= 1.8 min
Primary = 1.57 cfs @ 12.01 hrs, Volume= 0.077 af
Routed to Link 1 :

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,081.58' @ 12.01 hrs Surf.Area= 489 sf Storage= 197 cf

Plug-Flow detention time= 2.3 min calculated for 0.077 af (100% of inflow)
Center-of-Mass det. time= 1.7 min (799.0 - 797.2)

Volume	Invert	Avail.Storage	Storage Description
#1	1,080.75'	454 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,080.75	1	0	0
1,081.00	130	16	16
1,082.00	745	438	454

Device	Routing	Invert	Outlet Devices
#1	Primary	1,080.80'	**12.0" Round Culvert** L= 75.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,080.80' / 1,080.40' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.54 cfs @ 12.01 hrs HW=1,081.57' (Free Discharge)
1=Culvert (Barrel Controls 1.54 cfs @ 3.26 fps)

Summary for Pond P3:

Inflow Area = 0.473 ac, 29.12% Impervious, Inflow Depth > 2.54" for 100-YR event
Inflow = 1.89 cfs @ 12.04 hrs, Volume= 0.100 af
Outflow = 1.87 cfs @ 12.05 hrs, Volume= 0.100 af, Atten= 1%, Lag= 0.6 min
Primary = 1.87 cfs @ 12.05 hrs, Volume= 0.100 af
Routed to Link 1 :

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,082.00' @ 12.05 hrs Surf.Area= 151 sf Storage= 57 cf

Plug-Flow detention time= 0.4 min calculated for 0.100 af (100% of inflow)

Center-of-Mass det. time= 0.4 min (794.3 - 794.0)

Volume	Invert	Avail.Storage	Storage Description
#1	1,081.25'	432 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,081.25	1	0	0
1,082.00	150	57	57
1,083.00	600	375	432

Device	Routing	Invert	Outlet Devices
#1	Primary	1,081.25'	**12.0" Round Culvert** L= 72.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,081.25' / 1,080.00' S= 0.0174 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.86 cfs @ 12.05 hrs HW=1,082.00' (Free Discharge)
1=Culvert (Inlet Controls 1.86 cfs @ 2.95 fps)

Summary for Link 1:

Inflow Area = 10.893 ac, 9.93% Impervious, Inflow Depth > 1.80" for 100-YR event
Inflow = 11.79 cfs @ 12.50 hrs, Volume= 1.636 af
Primary = 11.79 cfs @ 12.50 hrs, Volume= 1.636 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link 2:

Inflow Area = 3.658 ac, 5.71% Impervious, Inflow Depth > 1.79" for 100-YR event
Inflow = 7.84 cfs @ 12.13 hrs, Volume= 0.546 af
Primary = 7.84 cfs @ 12.13 hrs, Volume= 0.546 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link 3:

Inflow Area = 1.625 ac, 2.90% Impervious, Inflow Depth > 1.49" for 100-YR event
Inflow = 3.08 cfs @ 12.11 hrs, Volume= 0.202 af
Primary = 3.08 cfs @ 12.11 hrs, Volume= 0.202 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Tompkins County, New York

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

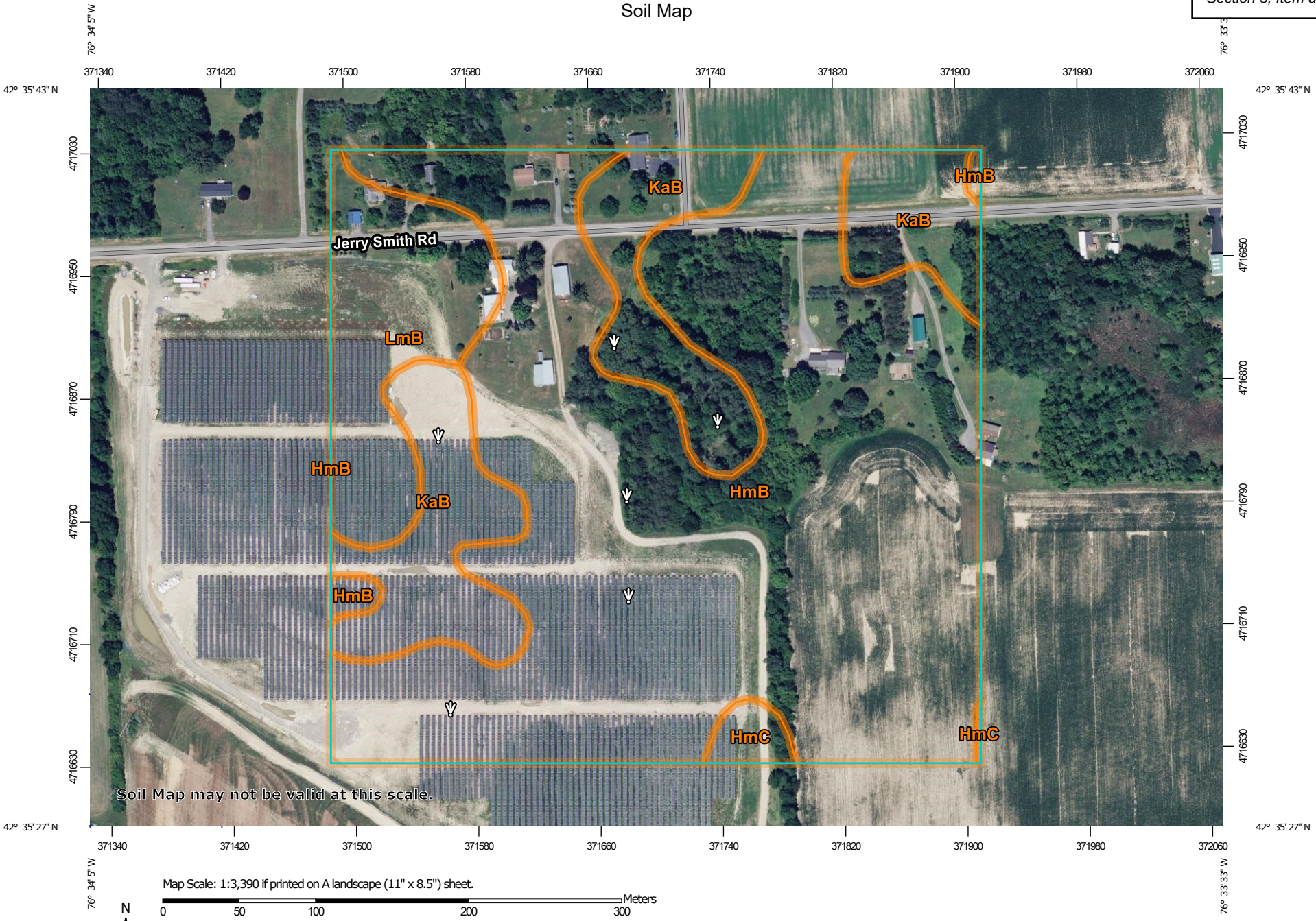
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Tompkins County, New York
Survey Area Data: Version 21, Sep 2, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 1, 2020—Oct 1, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
HmB	Honeoye gravelly silt loam, 2 to 8 percent slopes	29.2	69.2%
HmC	Honeoye gravelly silt loam, 8 to 15 percent slopes	0.5	1.1%
KaB	Kendaia silt loam, 3 to 8 percent slopes	8.2	19.5%
LmB	Lima silt loam, 3 to 8 percent slopes	4.3	10.2%
Totals for Area of Interest		**42.2**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Tompkins County, New York

HmB—Honeoye gravelly silt loam, 2 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2w3p1
Landscape: Till plains
Elevation: 260 to 1,780 feet
Mean annual precipitation: 31 to 57 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 100 to 190 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Honeoye and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Honeoye

Setting

Landscape: Till plains
Landform: Ridges, Till plains, Drumlins
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Calcareous loamy lodgment till derived from limestone, sandstone, and shale

Typical profile

Ap - 0 to 8 inches: gravelly silt loam
E - 8 to 10 inches: silt loam
Bt/E - 10 to 14 inches: loam
Bt1 - 14 to 23 inches: loam
Bt2 - 23 to 29 inches: gravelly loam
C - 29 to 79 inches: gravelly loam

Properties and qualities

Slope: 2 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Available water supply, 0 to 60 inches: Moderate (about 7.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B

Ecological site: F101XY012NY - Till Upland
Hydric soil rating: No

Minor Components

Lima

Percent of map unit: 5 percent
Landscape: Till plains
Landform: Drumlins, Till plains, Ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Lansing

Percent of map unit: 4 percent
Landscape: Till plains
Landform: Till plains, Hills, Drumlins
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Appleton

Percent of map unit: 4 percent
Landscape: Till plains
Landform: Till plains, Ridges, Drumlins
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Wassaic

Percent of map unit: 2 percent
Landscape: Till plains
Landform: Till plains, Ridges, Benches
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

HmC—Honeoye gravelly silt loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2w3p3
Landscape: Till plains
Elevation: 380 to 1,840 feet

Mean annual precipitation: 31 to 57 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 100 to 190 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Honeoye and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Honeoye

Setting

Landscape: Till plains
Landform: Ridges, Till plains, Drumlins
Landform position (two-dimensional): Shoulder, backslope, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Calcareous loamy lodgment till derived from limestone, sandstone, and shale

Typical profile

Ap - 0 to 8 inches: gravelly silt loam
E - 8 to 10 inches: silt loam
Bt/E - 10 to 14 inches: loam
Bt1 - 14 to 23 inches: loam
Bt2 - 23 to 29 inches: gravelly loam
C - 29 to 79 inches: gravelly loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Available water supply, 0 to 60 inches: Moderate (about 7.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F101XY012NY - Till Upland
Hydric soil rating: No

Minor Components

Lima

Percent of map unit: 5 percent
Landscape: Till plains
Landform: Drumlins, Till plains, Ridges
Landform position (two-dimensional): Summit, shoulder

Landform position (three-dimensional): Crest
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Appleton

Percent of map unit: 4 percent
Landscape: Till plains
Landform: Till plains, Ridges, Drumlins
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Lansing

Percent of map unit: 4 percent
Landscape: Till plains
Landform: Till plains, Hills, Drumlins
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Wassaic

Percent of map unit: 2 percent
Landscape: Till plains
Landform: Till plains, Ridges, Benches
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

KaB—Kendaia silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2w5j4
Landscape: Till plains
Elevation: 430 to 1,610 feet
Mean annual precipitation: 31 to 57 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 100 to 190 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Kendaia and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kendaia

Setting

Landscape: Till plains
Landform: Till plains, Ridges, Drumlins
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Calcareous loamy lodgment till derived from limestone, sandstone, and shale

Typical profile

Ap - 0 to 8 inches: silt loam
Bw - 8 to 15 inches: silt loam
Bg - 15 to 20 inches: gravelly silt loam
BCg - 20 to 24 inches: gravelly loam
C - 24 to 79 inches: gravelly loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Available water supply, 0 to 60 inches: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B/D
Ecological site: F101XY013NY - Moist Till
Hydric soil rating: No

Minor Components

Lima

Percent of map unit: 7 percent
Landscape: Till plains
Landform: Till plains, Drumlins
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Lyons

Percent of map unit: 4 percent
Landscape: Till plains
Landform: Drainageways, Depressions
Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Churchville

Percent of map unit: 2 percent
Landscape: Till plains
Landform: Till plains, Proglacial lake plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope, rise, talf
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Ovid

Percent of map unit: 2 percent
Landscape: Till plains
Landform: Till plains, Reworked lake plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

LmB—Lima silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2w3kk
Landscape: Till plains
Elevation: 380 to 1,680 feet
Mean annual precipitation: 31 to 57 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 100 to 190 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Lima and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lima

Setting

Landscape: Till plains
Landform: Till plains, Ridges, Drumlins
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Linear
Across-slope shape: Convex

Parent material: Calcareous loamy lodgment till derived from limestone, sandstone, and shale

Typical profile

Ap - 0 to 9 inches: silt loam
Bt/E - 9 to 12 inches: loam
Bt1 - 12 to 16 inches: loam
Bt2 - 16 to 25 inches: gravelly loam
C - 25 to 79 inches: gravelly loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Available water supply, 0 to 60 inches: Moderate (about 7.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B/D
Ecological site: F101XY013NY - Moist Till
Hydric soil rating: No

Minor Components

Honeoye

Percent of map unit: 6 percent
Landscape: Till plains
Landform: Ridges, Till plains, Drumlins
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Linear, convex
Across-slope shape: Convex
Hydric soil rating: No

Appleton

Percent of map unit: 3 percent
Landscape: Till plains
Landform: Ridges, Drumlins, Till plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Kendaia

Percent of map unit: 3 percent
Landscape: Till plains
Landform: Ridges, Till plains, Drumlins
Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Cazenovia

Percent of map unit: 2 percent
Landscape: Till plains
Landform: Reworked lake plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Concave
Across-slope shape: Convex
Hydric soil rating: No

Lyons

Percent of map unit: 1 percent
Landscape: Till plains
Landform: Drainageways, Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

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In Reply Refer To: 03/11/2026 14:53:48 UTC
Project code: 2026-0061029
Project Name: Jerry Smith BESS

Federal Nexus: no
Federal Action Agency (if applicable):

Subject: Record of project representative's no effect determination for 'Jerry Smith BESS'

Dear Bailey Godson:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on March 11, 2026, for 'Jerry Smith BESS' (here forward, Project). This project has been assigned Project Code 2026-0061029 and all future correspondence should clearly reference this number. **Please carefully review this letter.**

Ensuring Accurate Determinations When Using IPaC

The Service developed the IPaC system and associated species' determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into IPaC must accurately represent the full scope and details of the Project.

Failure to accurately represent or implement the Project as detailed in IPaC or the **Northern Long-eared Bat and Tricolored Bat Range-wide Determination Key (Dkey)**, invalidates this letter. ***Answers to certain questions in the DKey commit the project proponent to implementation of conservation measures that must be followed for the ESA determination to remain valid.***

Determination for the Northern Long-Eared Bat and/or Tricolored Bat

Based upon your IPaC submission and a standing analysis, your project has reached the following effect determinations:

Species	Listing Status	Determination
Northern Long-eared Bat (*Myotis septentrionalis*)	Endangered	No effect

To make a no effect determination, the full scope of the proposed project implementation (action) should not have any effects (either positive or negative), to a federally listed species or designated critical habitat. Effects of the action are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action. (See § 402.17).

Under Section 7 of the ESA, if a federal action agency makes a no effect determination, no consultation with the Service is required (ESA §7). If a proposed Federal action may affect a listed species or designated critical habitat, formal consultation is required except when the Service concurs, in writing, that a proposed action "is not likely to adversely affect" listed species or designated critical habitat [50 CFR §402.02, 50 CFR§402.13].

Other Species and Critical Habitat that May be Present in the Action Area

The IPaC-assisted determination key for the northern long-eared bat and tricolored bat does not apply to the following ESA-protected species and/or critical habitat that also may occur in your Action area:

- Monarch Butterfly *Danaus plexippus* Proposed Threatened

You may coordinate with our Office to determine whether the Action may affect the animal species listed above and, if so, how they may be affected.

Next Steps

If there are no updates on listed species, no further consultation/coordination for this project is required with respect to the species covered by this key. However, the Service recommends that project proponents re-evaluate the Project in IPaC if: 1) the scope, timing, duration, or location of the Project changes (includes any project changes or amendments); 2) new information reveals the Project may impact (positively or negatively) federally listed species or designated critical habitat; or 3) a new species is listed, or critical habitat designated. If any of the above conditions occurs, additional coordination with the Service should take place to ensure compliance with the Act.

If you have any questions regarding this letter or need further assistance, please contact the New York Ecological Services Field Office and reference Project Code 2026-0061029 associated with this Project.

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

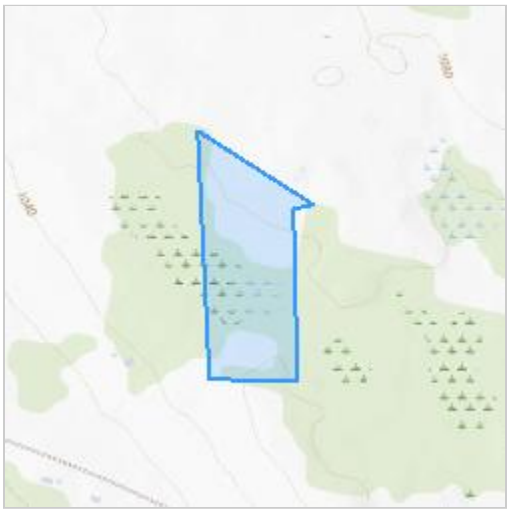
Jerry Smith BESS

2. Description

The following description was provided for the project 'Jerry Smith BESS':

> The client is proposing the construction of a Battery Energy Storage System (BESS) located off of Jerry Smith Road in the Town of Lansing, Tompkins County, NY. The project site will to limited to the northern half of the 14± acre property where active agriculture practices are currently occurring.

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@42.58896325,-76.56704481962775,14z



DETERMINATION KEY RESULT

Based on the information you provided, you have determined that the Proposed Action will have no effect on the species covered by this determination key. Therefore, no consultation with the U.S. Fish and Wildlife Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (87 Stat. 884, as amended 16 U.S.C. 1531 *et seq.*) is required for those species.

QUALIFICATION INTERVIEW

1. Does the proposed project include, or is it reasonably certain to cause, intentional take of listed bats or any other listed species?

   Note: Intentional take is defined as take that is the intended result of a project. Intentional take could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered or proposed species?

   No

2. Is the action area wholly within Zone 2 of the year-round active area for northern long-eared bat and/or tricolored bat?

   Automatically answered
   No

3. Does the action area intersect Zone 1 of the year-round active area for northern long-eared bat and/or tricolored bat?

   Automatically answered
   No

4. Does any component of the action involve leasing, construction or operation of wind turbines? Answer 'yes' if the activities considered are conducted with the intention of gathering survey information to inform the leasing, construction, or operation of wind turbines.

   No

5. Is the proposed action authorized, permitted, licensed, funded, or being carried out by a Federal agency in whole or in part?

   Note for projects in Pennsylvania: Projects requiring authorization under Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act would be considered as having a federal nexus. Since the U.S. Army Corps of Engineers (Corps) has issued the Pennsylvania State Programmatic General Permit (PASPGP), which may be verified by the PA Department of Environmental Protection or certain Conservation Districts, the need to receive a Corps authorization to perform the work under the PASPGP serves as a federal nexus. As such, if proposing to use the PASPGP, you would answer ‘yes’ to this question.

   No

6. [Semantic] Is the action area located within 0.5 miles of a known bat hibernaculum or winter roost? Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your state wildlife agency.

   Automatically answered
   No

7. Does the action area contain any winter roosts or caves (or associated sinkholes, fissures, or other karst features), mines, rocky outcroppings, or tunnels that could provide habitat for hibernating bats?

   No

8. Will the action cause effects to a bridge?

   Note: Covered bridges should be considered as bridges in this question.

   No

9. Will the action result in effects to a culvert or tunnel at any time of year?

   No

10. Are trees present within 1000 feet of the action area?

    Note: If there are trees within the action area that are of a sufficient size to be potential roosts for bats answer "Yes". If unsure, additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    Yes

11. Does the action include the intentional exclusion of bats from a building or building-like structure? **Note:** Exclusion is conducted to deny bats' entry or reentry into a building. To be effective and to avoid harming bats, it should be done according to established standards. If your action includes bat exclusion and you are unsure whether northern long-eared bats or tricolored bats are present, answer "Yes." Answer "No" if there are no signs of bat use in the building/structure. If unsure, contact your local Ecological Services Field Office to help assess whether northern long-eared bats or tricolored bats may be present. Contact a Nuisance Wildlife Control Operator (NWCO) for help in how to exclude bats from a structure safely without causing harm to the bats (to find a NWCO certified in bat standards, search the Internet using the search term "National Wildlife Control Operators Association bats"). Also see the White-Nose Syndrome Response Team's guide for bat control in structures.

    No

12. Does the action involve removal, modification, or maintenance of a human-made building-like structure (barn, house, or other building) **known or suspected to contain roosting bats?**

    No

13. Will the action cause construction of one or more new roads open to the public?

    For federal actions, answer ‘yes’ when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

    No

14. Will the action include or cause any construction or other activity that is reasonably certain to increase average night-time traffic permanently or temporarily on one or more existing roads? **Note:** For federal actions, answer ‘yes’ when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.). .

    No

15. Will the action include or cause any construction or other activity that is reasonably certain to increase the number of travel lanes on an existing thoroughfare?

    For federal actions, answer ‘yes’ when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

    No

16. Will the proposed Action involve the creation of a new water-borne contaminant source (e.g., leachate pond, pits containing chemicals that are not NSF/ANSI 60 compliant)?

    Note: For information regarding NSF/ANSI 60 please visit https://www.nsf.org/knowledge-library/nsf-ansi-standard-60-drinking-water-treatment-chemicals-health-effects

    No

17. Will the proposed action involve the creation of a new point source discharge from a facility other than a water treatment plant or storm water system?

    No

18. Will the proposed action involve blasting or drilling?

    No

19. Will the action involve military training (e.g., smoke operations, obscurant operations, exploding munitions, artillery fire, range use, helicopter or fixed wing aircraft use at night)?

    No

20. Will the proposed action involve the use of herbicides or pesticides (e.g., fungicides, insecticides, or rodenticides)?

    No

21. Will the action include or cause activities that are reasonably certain to cause chronic or intense nighttime noise (above current levels of ambient noise in the area) in suitable summer habitat for the northern long-eared bat or tricolored bat during the active season?

    Chronic noise is noise that is continuous or occurs repeatedly again and again for a long time. Sources of chronic or intense noise that could cause adverse effects to bats may include, but are not limited to: road traffic; trains; aircraft; industrial activities; gas compressor stations; loud music; crowds; oil and gas extraction; construction; and mining.

    Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    No

22. Does the action include, or is it reasonably certain to cause, the use of permanent or temporary artificial lighting within 1000 feet of suitable northern long-eared bat or tricolored bat roosting habitat?

    Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    No

23. Will the action include tree cutting or other means of knocking down or bringing down trees, tree topping, or tree trimming?

    No

24. Will the proposed action result in the use of prescribed fire?

    Note: If the prescribed fire action includes other activities than application of fire (e.g., tree cutting, fire line preparation) please consider impacts from those activities within the previous representative questions in the key. This set of questions only considers impacts from flame and smoke.

    No

25. Does the action area intersect the northern long-eared bat species list area?

    Automatically answered
    Yes

26. [Semantic] Is the action area located within 0.5 miles of radius of an entrance/opening to any known NLEB hibernacula or winter roost? Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

    Automatically answered
    No

27. [Semantic] Is the action area located within 0.25 miles of a culvert that is known to be occupied by northern long-eared or tricolored bats? **Note:** The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

    Automatically answered
    No

28. [Semantic] Is the action area located within 150 feet of a documented northern long-eared bat roost site?

    Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.Have you contacted the appropriate agency to determine if your action is within 150 feet of any documented northern long-eared bat roosts?

    Note: A document with links to Natural Heritage Inventory databases and other state-specific sources of information on the locations of northern long-eared bat roosts is available here. Location information for northern long-eared bat roosts is generally kept in state natural heritage inventory databases – the availability of this data varies by state. Many states provide online access to their data, either directly by providing maps or by providing the opportunity to make a data request. In some cases, to protect those resources, access to the information may be limited.

    Automatically answered
    No

29. Is suitable summer habitat for the northern long-eared bat present within 1000 feet of project activities?
    If unsure, answer "Yes."

    Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    Yes

30. Has a presence/probable absence summer bat survey targeting the northern long-eared bat following the Service's Range-wide Indiana Bat and Northern Long-Eared Bat Survey Guidelines been conducted within the project area?

    No

31. Do you have any documents that you want to include with this submission?

    No

PROJECT QUESTIONNAIRE

IPAC USER CONTACT INFORMATION

Agency: Environmental Design Partnership, LLP (EDP)
Name: Bailey Godson
Address: 900 Route 146
City: Clifton Park
State: NY
Zip: 12065
Email bgodson@edpllp.com
Phone: 8382514798

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
Phone: (607) 753-9334 Fax: (607) 753-9699
Email Address: fw5es_nyfo@fws.gov

In Reply Refer To: 05/06/2026 18:23:06 UTC
Project Code: 2026-0086469
Project Name: Jerry Smith BESS

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. **Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.**

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
(607) 753-9334

PROJECT SUMMARY

Project Code: 2026-0086469
Project Name: Jerry Smith BESS
Project Type: Battery Energy Storage Systems
Project Description: The client is proposing the construction of a 5 Megawatt Battery Energy Storage System (BESS) south of Jerry Smith Road in the Town of Lansing, Tompkins County, NY. The project area consists of vacant woodlands located on a previously developed parcel of land (solar). The surrounding land use consists of agricultural land, industrial development, residential development, and vacant woodlands.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@42.5938683,-76.56366245682952,14z

Counties: Tompkins County, New York

ENDANGERED SPECIES ACT SPECIES

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: Environmental Design Partnership, LLP (EDP)
Name: Bailey Godson
Address: 900 Route 146
City: Clifton Park
State: NY
Zip: 12065
Email bgodson@edpllp.com
Phone: 8382514798

SECTION 7

Completed Inspection Reports

CIVIL PERMIT PLANS
FOR
JERRY SMITH ENERGY STORAGE SYSTEM
5.0 MW AC
LOCATED AT
JERRY SMITH ROAD
LANSING, NY 14882
JULY 2026

TOWN OF LANSING PLANNING BOARD, NEW YORK

DATED_____

SIGNATURE_____
CHAIRMAN

DATED_____

SIGNATURE_____
CODE ENFORCEMENT OFFICER

DATED_____

SIGNATURE_____
HIGHWAY SUPERINTENDENT

DATED_____

SIGNATURE_____
TOWN ENGINEER

APPLICANT/PROJECT OWNER
JERRY SMITH, LLC
101 SUMMER STREET, 2ND FLOOR
BOSTON, MA 02110

CIVIL ENGINEER
THE ENVIRONMENTAL DESIGN PARTNERSHIP, LLP
900 ROUTE 146
CLIFTON PARK, NY 12065
(518) 371-7621

SURVEYOR
THE ENVIRONMENTAL DESIGN PARTNERSHIP, LLP
900 ROUTE 146
CLIFTON PARK, NY 12065
(518) 371-7621

BATTERY CONSULTANT
NEXAMP, LLC
101 SUMMER STREET, 2ND FLOOR
BOSTON, MA 02110

LOCATION MAP
(NOT TO SCALE)

Sheet List Table

Sheet Number	Sheet Title
C-100	COVER SHEET
C-101	GENERAL NOTES
C-200	EXISTING CONDITIONS
C-201	REMOVALS PLAN
C-300	MATERIALS AND LAYOUT PLAN
C-301	TURNING MOVEMENT PLAN
C-400	EROSION AND SEDIMENT CONTROL PLAN
C-500	GRADING AND DRAINAGE PLAN
C-501	ROAD PROFILE
C-600	EROSION AND SEDIMENT CONTROL DETAILS
C-601	SITE DETAILS
C-602	SITE DETAILS

SITE INFORMATION

PARCEL ZONING
AGRICULTURAL (AG)
PROJECT DESCRIPTION
5.0 MW BATTERY ENERGY STORAGE PROJECT

BENCHMARKS

BENCHMARKS:
CONTROL TO BE SET BY EDPLLP

nexamp
101 Summer Street, Boston, MA 02110
Tel: (617) 431-1440 Fax: (978) 416-2525 Web: nexamp.com

ENVIRONMENTAL DESIGN PARTNERSHIP, LLP.
900 Route 146 Clifton Park, New York 12065
(518) 371-7621 edpllp.com

Rev	Issued For	Date
A	INTERNAL REVIEW	5/27/26
B	TOWN COMMENTS	7/10/26
C	TOWN COMMENTS	9/23/26
D	TOWN COMMENTS	10/14/26

P.E. seal/Consultant:
STATE OF NEW YORK ★ JOSEPH J. MITCHELL ★ 091539 ★ LICENSED PROFESSIONAL ENGINEER

Project:
JERRY SMITH , LLC
JERRY SMITH ROAD, LANSING, NY

Drawing Title:
COVER SHEET

Drawn by: BMW | Scale: AS SHOWN | Approved by: TJM

Dwg No: C-100 | Size: D | Sheet Rev: D

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GENERAL NOTES:

THE ENVIRONMENTAL DESIGN PARTNERSHIP IS NOT RESPONSIBLE FOR ANY CONSTRUCTION WORK PERFORMED PRIOR TO FINAL APPROVAL OF ALL PLANS AND SECURING OF ALL PERMITS AND FILING OF ALL MAPS.

CONTRACTOR TO ARRANGE A PRECONSTRUCTION CONFERENCE WITH THE ENVIRONMENTAL DESIGN PARTNERSHIP AND MUNICIPALITY PRIOR TO CONSTRUCTION.

FIELD ADJUSTMENTS MUST BE APPROVED BY THE ENVIRONMENTAL DESIGN PARTNERSHIP AND THE OWNER PRIOR TO CONSTRUCTION.

CONTRACTOR IS TO VERIFY THAT ALL NECESSARY WORK PERMITS AND EASEMENTS ARE IN PLACE PRIOR TO COMMENCEMENT OF WORK.

THE CONTRACTOR SHALL CONDUCT THEIR OPERATIONS AND TAKE ALL SPECIAL TEMPORARY AND PERMANENT PRECAUTIONS NECESSARY TO ENSURE A STABLE AND SECURE JOB.

THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY TOWN, COUNTY OR STATE HIGHWAY CUT PERMITS.

THE CONTRACTOR SHALL SECURE ALL NECESSARY PERMITS AND EASEMENTS PRIOR TO CONSTRUCTION AND BECOME FAMILIAR WITH THE CONDITIONS OF EACH PERMIT.

THE CONTRACTOR SHALL PROTECT AND SUSTAIN IN NORMAL SERVICE ALL EXISTING UTILITIES, STRUCTURES, EQUIPMENT, ROADWAYS, AND DRIVEWAYS.

THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES AND RIGHT–OF–WAY PROPERTY LINES PRIOR TO CONSTRUCTION.

THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES SUCH AS GAS, POWER, TELEPHONE, CABLE TV, WATER, SEWER, ETC. PRIOR TO COMMENCEMENT OF CONSTRUCTION.

AS PER NYS INDUSTRIAL CODE 53: CONTRACTOR TO CALL DIG SAFELY NEW YORK, INC. AT 1–800–962–7962 TO LOCATE BURIED CABLES OR OTHER UNDERGROUND UTILITIES NO LESS THAN TWO OR MORE THAN TEN WORKING DAYS PRIOR TO DIGGING, DRILLING, EXCAVATING, DRIVING POSTS, ETC.

ANY EXISTING STORM SEWERS AND UNDERGROUND UTILITIES ARE SHOWN IN THEIR RELATIVE POSITION AND FOR INFORMATION ONLY. THE CONTRACTOR SHALL HAVE THEIR EXACT LOCATION CHECKED AT THE SITE BEFORE CONSTRUCTION BEGINS.

CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING PIPE INVERT ELEVATIONS PRIOR TO COMMENCEMENT OF CONSTRUCTION. ANY DISCREPANCIES WHICH RESULT MUST BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, GRADES, PIPE INVERTS AND ELEVATIONS AND REVIEW WITH CONSULTANT BEFORE CONSTRUCTION.

ALL EXCAVATION TO MEET OSHA AND NYS DOT SAFETY REGULATIONS AND STANDARDS.

THE CONTRACTOR SHALL FILL IN, AND RE–EXCAVATE, AS NECESSARY TO RESUME WORK, ANY EXCAVATIONS OR TRENCHES AT LOCATIONS AND AS OFTEN AS MAY BE REQUIRED TO ENSURE PROTECTION OF THE WORK, ANY ADJACENT EXISTING FACILITIES, OR THE PUBLIC.

THE CONTRACTOR SHALL CLEAN UP THE JOB SITE DAILY BEFORE LEAVING THE JOBSITE. ALL RUBBISH MUST BE CLEANED UP AND CONSTRUCTION EQUIPMENT MUST BE PROPERLY TAKEN CARE OF AND STORED AT THE END OF THE DAY.

CONTRACTOR IS RESPONSIBLE FOR TRAFFIC CONTROL AND SAFETY DURING CONSTRUCTION. THE CONTRACTOR SHALL FURNISH ALL FLAGMEN AND SIGNS, DELINEATORS, BARRIERS, AND DEVICES NECESSARY FOR TRAFFIC CONTROL DURING ANY EARTH–MOVING OPERATION OR OTHER CONSTRUCTION ACTIVITY WHICH INVOLVES PUBLIC HIGHWAYS.

ALL TRAFFIC SIGNS, CONTROL DEVICES AND INFORMATIONAL ITEMS, IF DISTURBED DURING CONSTRUCTION WITHIN CONTRACT LIMIT LINES, SHALL BE RELOCATED AS PER APPROVAL OF MUNICIPALITY.

TOWN OF LANSING APPROVALS SHALL BE KEPT ON SITE AT ALL TIMES.

CONTRACTORS AND SUBCONTRACTORS SHALL THOROUGHLY FAMILIARIZE THEMSELVES WITH ALL CONSTRUCTION DOCUMENTS, SPECIFICATIONS, AND SITE CONDITIONS PRIOR TO BIDDING AND PRIOR TO CONSTRUCTION.

IN NO CASE SHALL PARKING AREAS, LAYDOWN AREAS, CONSTRUCTION TRAILERS, AND PORTABLE TOILETS BE LOCATED WITHIN A WETLAND RESOURCE AREA AND/OR ANY BUFFER ZONES.

RESTORATION OF PAVEMENT IS THE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR SHALL REPLACE AND RESTORE PAVEMENT WITH MATERIAL TO A CONDITION EQUAL TO OR BETTER THAN PRECONSTRUCTION CONDITIONS. ALL PAVEMENT AND RIGHT–OF–WAY RESTORATION WORK TO BE DONE TO THE SATISFACTION OF THE STATE, COUNTY OR LOCAL MUNICIPAL HIGHWAY DEPARTMENT.

CONTRACTOR SHALL RESTORE ALL LAWNS, DRIVEWAYS, WALKS, WALLS, CURBS, FENCES, ETC. TO A CONDITIONS AT LEAST AS GOOD AS THEY WERE BEFORE BEING DISTURBED.

BOX ALL TREES AND HOUSE ALL SHRUBS AND HEDGES BEFORE PLACING EARTH AGAINST OR NEAR THEM. SHRUBS AND HEDGES THAT MUST BE REMOVED DURING CONSTRUCTION SHALL BE HEALED OR REPLANTED IN AS GOOD A CONDITION AS THEY WERE BEFORE THEIR REMOVAL. ANY DAMAGED ITEMS SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

POSTS, MAILBOXES, ETC. SHALL BE PROTECTED, OR REMOVED AND REPLACED EXACTLY AS THEY WERE BEFORE BEING DISTURBED. DAMAGED ITEMS SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

IT MAY BE NECESSARY TO TIE OR HOLD BACK UTILITY POLES DURING CONSTRUCTION. THIS SHOULD BE ACCOMPLISHED IN COOPERATION WITH UTILITY COMPANIES.

NO WORK, STORAGE OR TRESPASS SHALL BE PERMITTED BEYOND THE BOUNDARIES OF ANY EASEMENTS OR R.O.W. AS SHOWN.

CONTRACTOR TO COMPLY WITH ALL OSHA AND OTHER STATE AND LOCAL SAFETY REQUIREMENTS DURING CONSTRUCTION (PROPER SHORING, ETC.).

ALL SITE WORK SHALL BE SMOOTHLY AND EVENLY BLENDED INTO EXISTING CONDITIONS. WHERE ACCESS OR WORK OUTSIDE OF PROPERTY BOUNDARY IS NECESSARY, THE PERMISSION OF ADJOINING PROPERTY OWNER MUST FIRST BE OBTAINED.

ALL AREAS OF THE SITE WHICH ARE DISTURBED AND NOT PAVED SHALL BE TOPSOILED AND SEEDED.

THE INFORMATION REPRESENTED WITHIN THESE DOCUMENTS DOES NOT IMPLY ANY CONTRACT WITH, OR OBLIGATION FOR, PERFORMING ANY OR ALL TOWN, COUNTY, OR STATE REQUIRED INSPECTIONS DURING THE COURSE OF CONSTRUCTION OR PURSUANT TO OBTAINING CERTIFICATE OF OCCUPANCY. SUCH INSPECTION SERVICES, IF PERFORMED BY THIS OFFICE, SHALL BE ESTABLISHED BY SEPARATE CONTRACT.

IN THE EVENT THAT THE CONSTRUCTION STAKEOUT AND INSPECTION OF THE WORK IS NOT PERFORMED BY THE ENVIRONMENTAL DESIGN PARTNERSHIP (EDP), EDP WILL NOT BE HELD RESPONSIBLE FOR ANY ERRORS, OMISSIONS, COSTS, EXPENSES OR LIABILITY OF WHATEVER KIND AND NATURE RESULTING FROM FIELD CHANGES AND/OR ERRORS WHICH EDP WOULD OTHERWISE HAVE HAD AN OPPORTUNITY TO CHECK AND CORRECT WERE THEY IN A POSITION TO CONTROL THE PROJECT THROUGH STAKEOUT AND INSPECTION.

CLAIMS MADE AGAINST CONSULTANT FOR SURVEY STAKEOUT ERRORS WILL BE HONORED ONLY IF CONSULTANT IS NOTIFIED FOR VERIFICATION OF THE ERROR IMMEDIATELY UPON DISCOVERY AND BEFORE ANY CONTROL STAKES ARE DISTURBED. IF, AFTER VERIFICATION, IT IS DETERMINED THAT NO STAKEOUT ERROR OCCURRED, THE CLIENT SHALL REIMBURSE THE CONSULTANT FOR ADDITIONAL EXPENSES INCURRED FOR SUCH VERIFICATION.

ALL ERRORS, OMISSIONS AND DISCREPANCIES MUST BE BROUGHT TO THE ATTENTION OF THE ENVIRONMENTAL DESIGN PARTNERSHIP IMMEDIATELY UPON DISCOVERY, OTHERWISE, THE ENVIRONMENTAL DESIGN PARTNERSHIP WILL ACCEPT NO RESPONSIBILITY.

INSPECTION SERVICES BY THE ENVIRONMENTAL DESIGN PARTNERSHIP ARE NOT SUPERVISORY. ACCORDINGLY, THE ENVIRONMENTAL DESIGN PARTNERSHIP CAN NEITHER GUARANTEE THE PERFORMANCE OF THE CONSTRUCTION CONTRACTS BY CONTRACTORS NOR ASSUME RESPONSIBILITY FOR THE CONTRACTOR'S FAILURE TO FURNISH AND PERFORM WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

EQUIPMENT PAD AND MV UNDERGROUND CABLE LAYOUT WERE PROVIDED BY OTHERS.

EQUIPMENT PAD AND MV UNDERGROUND CABLE DESIGN, INCLUDING, BUT NOT LIMITED TO, SUBGRADE SUITABILITY, PREPARATION, REQUIRED TRENCHING, AND BEDDING TO BE DESIGNED BY OTHERS.

EROSION AND SEDIMENT CONTROL AND STABILIZATION MEASURES, MAINTENANCE AND INSPECTION PRACTICES:

1. THE FOLLOWING IS A LIST OF EROSION AND SEDIMENT CONTROLS TO BE USED ON THIS SITE DURING CONSTRUCTION:

A. STABILIZATION PRACTICES FOR THIS SITE INCLUDE:
- LAND CLEARING ACTIVITIES SHALL BE DONE ONLY IN AREAS WHERE EARTHWORK WILL BE PERFORMED AND SHALL PROGRESS AS EARTHWORK IS NEEDED
- WATERING OF EXCAVATION AND FILL AREAS TO MINIMIZE WIND EROSION DURING CONSTRUCTION AS NEEDED.
- USE OF STABILIZATION FABRIC FOR ALL SLOPES HAVING A SLOPE OF 1V:2H OR GREATER AND FILL SLOPES 1V:3H OR GREATER.
- PERMANENT SEEDING AND PLANTING OF ALL UNPAVED AREAS USING THE HYDROMULCHING GRASS SEEDING TECHNIQUE.

B. STRUCTURAL PRACTICES FOR THIS SITE INCLUDE:
- PERIMETER PROTECTION USING COMPOST FILTER SOCKS
- STABILIZED CONSTRUCTION EXIT POINTS
- SEDIMENT TRAPS OR FILTER SOCKS
- CHECK DAMS

2. THE FOLLOWING INSPECTION AND MAINTENANCE PRACTICES WILL BE USED TO MAINTAIN EROSION AND SEDIMENT CONTROLS AND STABILIZATION MEASURES.

A. ALL CONTROL MEASURES WILL BE INSPECTED ONCE EVERY SEVEN (7) DAYS BY A QUALIFIED INSPECTOR AS DESCRIBED IN PART IV, SECTION C OF THE SPDES PERMIT FOR CONSTRUCTION ACTIVITY NO. GP–0–25–001. SITES THAT HAVE A WAIVER TO DISTURB GREATER THAN FIVE (5) ACRES REQUIRE (2) INSPECTIONS EVERY SEVEN (7) DAYS WITH AT LEAST TWO (2) DAYS BETWEEN INSPECTIONS.

B. DISTURBED AREAS SHALL BE STABILIZED AS SOON AS PRACTICAL AFTER CONSTRUCTION ACTIVITIES HAVE CONCLUDED IN AN AREA. ALL BARE AREAS AND AREAS SUBJECT TO EROSION SHALL BE BLANKETED OR SEEDED AND MULCHED WITHIN 14 DAYS WITH TEMPORARY EROSION CONTROL SEEDING

C. ALL MEASURES WILL BE MAINTAINED IN GOOD WORKING ORDER; IF REPAIRS ARE FOUND TO BE NECESSARY, THEY WILL BE INITIATED WITHIN 24 HOURS OF REPORT.

D. BUILT UP SEDIMENT WILL BE REMOVED FROM FILTER SOCKS WHEN IT HAS REACHED ONE–HALF THE HEIGHT OF THE SOCK. AN ADDITIONAL FILTER SOCK MAY BE INSTALLED ON TOP OF THE ORIGINAL TO INCREASE SEDIMENT STORAGE CAPACITY/PREVENT SEDIMENT DISTURBANCE.

E. FILTER SOCKS WILL BE INSPECTED FOR DEPTH OF SEDIMENT, DISLODGEMENT, BREAKS, TEARS, ETC. DAMAGED OR DISLODGED FILTER SOCKS SHALL BE REPAIRED OR REPLACED IMMEDIATELY.

F. TEMPORARY AND PERMANENT SEEDING AND ALL OTHER STABILIZATION MEASURES WILL BE INSPECTED FOR BARE SPOTS, WASHOUTS, AND HEALTHY GROWTH.

G. SEDIMENT BASINS WILL BE INSPECTED FOR DEPTH OF SEDIMENT. BUILT UP SEDIMENT WILL BE REMOVED WHEN IT REACHES 50 PERCENT OF THE CAPACITY.

H. CHECK DAMS WILL BE INSPECTED FOR DEPTH OF SEDIMENT, WASHOUT, ETC. BUILT UP SEDIMENT WILL BE REMOVED FROM THE CHECK DAM WHEN IT REACHES ONE–THIRD OF THE HEIGHT OF THE CHECK DAM.

I. A MAINTENANCE INSPECTION REPORT WILL BE MADE AFTER EACH INSPECTION. COPIES OF THE REPORT FORMS TO BE COMPLETED BY THE INSPECTOR ARE INCLUDED IN THIS SWPPP. UPON COMPLETION, COPIES OF THE REPORTS SHALL BE SUBMITTED TO THE TOWN.

J. THE JOB SITE SUPERINTENDENT WILL BE RESPONSIBLE FOR SELECTING AND TRAINING THE INDIVIDUALS WHO WILL BE RESPONSIBLE FOR THESE INSPECTIONS, MAINTENANCE AND REPAIR ACTIVITIES, AND FILLING OUT INSPECTION AND MAINTENANCE REPORTS. ALL PERSONNEL PERFORMING INSPECTIONS MUST MEET THE REQUIREMENTS DESCRIBED IN PART IV, SECTION C OF THE SPDES PERMIT FOR CONSTRUCTION ACTIVITY NO. GP–0–25–001.

K. PERSONNEL SELECTED FOR THE INSPECTION AND MAINTENANCE RESPONSIBILITIES WILL RECEIVE APPROPRIATE INSTRUCTION FROM THE JOB SITE SUPERINTENDENT. THEY WILL BE TRAINED IN ALL THE INSPECTION AND MAINTENANCE PRACTICES NECESSARY FOR KEEPING THE EROSION AND SEDIMENT CONTROLS THAT ARE USED ONSITE IN GOOD WORKING ORDER. THEY WILL ALSO BE TRAINED IN THE COMPLETION OF, INITIATION OF ACTIONS REQUIRED BY, AND THE FILING OF THE INSPECTION FORMS. DOCUMENTATION OF THIS PERSONNEL TRAINING WILL BE KEPT ON SITE WITH THE SWPPP. ALL PERSONNEL PERFORMING INSPECTIONS MUST MEET THE REQUIREMENTS DESCRIBED IN PART IV, SECTION C OF THE SPDES PERMIT FOR CONSTRUCTION ACTIVITY NO. GP–0–25–001.

L. DISTURBED AREAS AND MATERIAL STORAGE AREAS WILL BE INSPECTED FOR EVIDENCE OF OR POTENTIAL FOR POLLUTANTS ENTERING STORMWATER SYSTEMS.

M. REPORT TO THE NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION WITHIN 24 HOURS ANY NONCOMPLIANCE WITH THE SWPPP THAT WILL ENDANGER PUBLIC HEALTH OR THE ENVIRONMENT. FOLLOW UP WITH A WRITTEN REPORT WITHIN 5 DAYS OF THE NONCOMPLIANCE EVENT.

N. NECESSARY MEASURES SHALL BE TAKEN TO CONTAIN ANY FUEL OR POLLUTION RUNOFF. NO RE–FUELING SHALL BE OCCUR WITHIN 100 FEET OF ANY WETLAND RESOURCE AREA AND 200 FEET FROM RIVERFRONT. LEAKING EQUIPMENT OR SUPPLIES SHALL IMEEDIATELY BE REPAIRED OR EMOVED FROM THE SITE.

O. CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO PREVENT DUST FROM FORMING.

ADDITIONAL EROSION CONTROL AND GRADING NOTES:

1. MINIMAL EROSION CONTROL DEVICES ARE ILLUSTRATED ON SITE PLAN IN A SCHEMATIC MANNER BASED ON NY STATE GUIDELINES FOR EROSION AND SEDIMENT CONTROL. IT WILL BE NECESSARY TO ADJUST THE ACTUAL LOCATION AND QUANTITY OF EROSION CONTROL DEVICES DEPENDING UPON FIELD CONDITIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING THESE MEASURES AS REQUIRED TO PROTECT THE SITE.
2. SLOPES SHALL TYPICALLY BE GRADED AT A MAXIMUM OF 3:1 (3 HORIZ. 1 VERT.) WITHIN ALL CUT OR FILL AREAS, UNLESS OTHERWISE DESIGNATED ON PLANS.
3. TEMPORARY SEED SHALL BE A COMMERCIALLY AVAILABLE MIXTURE OF PERENNIAL RYE AND UTILITY GRADE FESCUE. PERCENTAGE OF PERENNIAL RYE SHALL NOT EXCEED 50%. PERMANENT SEED SHALL BE AS SPECIFIED ON THE PLANTING PLANS.
4. SEEDED AREAS SHALL BE FULLY COVERED WITH A LEAN STRAW OR MULCH MATERIAL. IF ORDERED BY THE ENGINEER OR MUNICIPALITY, A BIODEGRADABLE NETTING (E.G., EXCELSIOR BLANKET, COIR GEOTEXTILE) SHALL BE ANCHORED OVER SEEDED AREAS WHICH DEMONSTRATE "RILLING" OR OTHER EROSION PROCESSES.
5. TOPSOIL AND SEED SHALL BE REAPPLIED TO ANY AREAS WHICH FAIL TO ESTABLISH AS A RESULT OF INITIAL APPLICATION.
6. FILTER SOCK BARRIERS SHALL BE PLACED WITHIN ALL AREAS OF EXPOSED SLOPES TO CONTROL SOIL EROSION DURING AND AFTER CONSTRUCTION.
7. EROSION CONTROL (ERO–MAT), GEOTEXTILE FABRIC, COMPOST BLANKET, RIPRAP, OR APPROVED EQUAL, SHALL BE INSTALLED ON ALL 4H:1V SLOPES: AN ORGANIC FIBER PROTECTIVE MAT, HALF INCH LAYER OF CHOPPED STRAW, KNITTED INTO A RUGGED MAT WITH A THIN NETTING OF PHOTODEGRADABLE POLYPROPYLENE. SECURE MAT TO SLOPE WITH 6" STEEL U–SHAPED STABLES, 2 STAPLES PER SQUARE YARD, OR AS PER MANUFACTURER'S INSTRUCTIONS.
8. PRIOR TO SEEDING, ACCESS AISLES, TEMPORARY STAGING AREAS, STORAGE, AND PARKING AREAS TO BE DECOMPACTED AND RELOAMED.
9. SEDIMENT BARRIERS SHALL BE CONSTRUCTED AROUND ALL SOIL STOCKPILE AREAS.
10. STREAM REACHES ON–SITE AND DOWNSTREAM OF CONSTRUCTION SHALL NOT HAVE SUBSTANTIAL VISIBLE CONTRAST RELATIVE TO COLOR, TASTE, ODOR, TURBIDITY AND SEDIMENT DEPOSITION FROM THE REACHES UPSTREAM OF THE CONSTRUCTION ACTIVITY.
11. VEHICULAR ACCESS POINTS SHALL BE MONITORED AND INSPECTED AT THE SAME FREQUENCY AS EROSION CONTROL FEATURES TO INSURE THAT DEPOSITS OF SAND, SILT OR OTHER MATERIAL IS NOT BEING DEPOSITED ON PUBLIC ROADWAYS. IN THE EVENT ANY SIGNIFICANT DEPOSITS OCCUR THEY SHALL BE CLEANED UP IMMEDIATELY.
12. A SPDES PERMIT SHALL BE IN PLACE PRIOR TO COMMENCING ANY GROUND DISTURBANCE.
13. PROJECT DRAINAGE FEATURES TO BE CLEANED OUT AFTER COMPLETION OF CONSTRUCTION.

SEQUENCE OF CONSTRUCTION ACTIVITIES:

1. SITE TO BE MOBILIZED.
2. EROSION AND SEDIMENT CONTROL MEASURES TO BE INSTALLED IN CONJUNCTION WITH ANY BRUSH OR TREE CLEARING REQUIRED. NOTE: EROSION AND SEDIMENT CONTROL MEASURES TO BE INSTALLED IN ACCORDANCE WITH SHEET C–500. ASSOCIATED DETAILS AS WELL AS NYS DEC CONSTRUCTION GENERAL PERMIT #GP–0–25–001. IN ANY INSTANCE THAT A CONFLICT BETWEEN THESE TWO GUIDELINES IS PRESENT, THE MORE CONSERVATIVE GUIDELINE TAKES PRECEDENT.
3. STORMWATER PRACTICE AREAS SHALL BE CLEARLY MARKED BEFORE ANY SITE WORK BEGINS AND HEAVY EQUIPMENT TRAFFIC SHALL BE RESTRICTED TO AVOID SOIL DISTRUBANCE AND COMPACTION. THE EROSION AND SEDIMENT CONTROL PLAN INDICATES HOW SEDIMENT WILL BE PREVENTED FROM ENTERING THE PRACTICE AREA.
4. CLEARING AND GRUBBING OPERATIONS CREW SHALL CHIP AND MULCH DIRECTLY BEHIND OPERATION TO MAKE SURE NO AREAS ABOVE FIVE ACRES SHALL BE DISTURBED AT ANY TIME. NO MORE THAN FIVE ACRES SHALL BE DISTURBED AT ANY ONE TIME WITHOUT PRIOR APPROVAL FROM NYSDEC.
5. INSTALLATION OF ACCESS ROAD TO COMMENCE. NOTE: ANY AREAS OF DISTURBANCE SHALL BE STABILIZED WITH TEMPORARY SEEDING PER THE REQUIRED TIMELINES AS PER NYS DEC CONSTRUCTION GENERAL PERMIT #GP–0–25–001.
6. MV TRENCHES AND FOUNDATIONS INSTALLATION IN CONJUNCTION WITH THE PLACEMENT OF CONCRETE FOUNDATIONS FOR THE ELECTRICAL EQUIPMENT PADS TO COMMENNCE.
7. WATERING OF THE EXCAVATION AND FILL AREAS SHALL BE DONE TO MINIMIZE WIND EROSION AS NEEDED THROUGHOUT CONSTRUCTION.
8. ELECTRICAL EQUIPMENT INSTALLATION TO COMMENCE.
9. REMOVE LAYDOWN AREA, SPREAD GRAVEL ON ROADWAY, AND SEED AREAS.
10. FINAL SITE STABILIZATION TO COMMENCE.
11. ALL EROSION AND SEDIMENT CONTROL MEASURES TO BE REMOVED ONCE 80% VEGETATIVE COVER HAS BEEN ACHIEVED OVER PERVIOUS AREAS. RUNOFF SHALL NOT BE PERMITTED TO ENTER THE STORMWATER FACILITIES UNTIL STABILIZATION IS ACHIEVED. REMOVE FILTER SOCKS, STABILIZED CONSTRUCTION ENTRANCES, AND OTHER TEMPORARY EROSION AND SEDIMENT CONTROLS. ANY RESULTING AREAS OF DISTURBANCE FROM SAID REMOVAL TO BE SEEDED PRIOR TO DEMOBILIZATION.
12. INFILTRATION PRACTICES SHALL NEVER SERVE AS A SEDIMENT CONTROL DEVICE DURING SITE CONSTRUCTION PHASE AND SHALL BE INSTALLED AT THE END OF THE CONSTRUCTION SEQUENCE, TO THE GREATEST EXTENT POSSIBLE.
13. SITE TO BE DEMOBILIZED.

PLANTING NOTES:

1. PLANTING CONTRACTOR SHALL VERIFY FINAL SELECTION OF PLANT MATERIALS WITH THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
2. ALL AREAS OF SITE WHICH ARE DISTURBED AND NOT LANDSCAPED, SHALL BE TOPSOILED, SEEDED, AND MULCHED . (MULCH – STRAW, HYDROSEED MIX, OR BIODEGRADABLE NETTING.) MIXTURES TO BE APPLIED SHALL BE DETERMINED BY OWNER'S REPRESENTATIVES. TOPSOIL TO BE 4" MINIMUM.
3. EXISTING VEGETATION SHALL REMAIN UNDISTURBED WITHIN ALL AREAS OF SITE WHICH DO NOT REQUIRE GRADING.
4. ALL PLANTING BEDS TO RECEIVE 3" MINIMUM BARK MULCH WITH FILTER FABRIC WEED CONTROL OR EQUAL.
5. THE PLANTING PLAN IS FOR PLANTING PURPOSES ONLY. REFER TO SITE PLAN FOR DETAILED GRADING AND UTILITY INFORMATION.
6. GUARANTEE:
   A. FOR A PERIOD OF TWELVE MONTHS FROM THE DATE THAT THE WORK UNDER CONTRACT IS CERTIFIED AS COMPLETE, THE CONTRACTOR SHALL:
      1. GUARANTEE ALL PLANTS AND SEEDED AREAS UNDER THIS CONTRACT;
      2. REMOVE AND REPLACE DURING THIS GUARANTEE PERIOD, PLANTS WHICH DIE OR ARE IN A BADLY IMPAIRED CONDITION;
      3. REPLANT WITH STOCK OF SAME SIZE AND QUALITY AS ORIGINALLY SPECIFIED;
      4. GUY AND MAINTAIN AS SPECIFIED HEREIN, AT NO ADDITIONAL COST.
   B. REPLACEMENTS MADE WITHIN SIX MONTHS AFTER BEGINNING OF THE "GUARANTEE PERIOD" SHALL NOT EXTEND THE "GUARANTEE PERIOD" OF THESE PARTICULAR PLANTS; THOSE REPLACEMENTS MADE SIX MONTHS OR MORE AFTER THE BEGINNING OF THE "GUARANTEE PERIOD" SHALL BE MAINTAINED AND GUARANTEED FOR A PERIOD OF SIX MONTHS FROM THE TIME OF REPLACEMENT.

1. APPLICABLE STANDARDS: "AMERICAN STANDARD FOR NURSERY STOCK" BY THE AMERICAN ASSOCIATION OF NURSERYMEN AND "STANDARDIZED PLANT NAMES" BY THE AMERICAN JOINT COMMITTEE ON HORTICULTURAL NOMENCLATURE, ARE A PART OF THIS SPECIFICATION. ALL PLANTS SHALL BE NURSERY GROWN, NOT GATHERED IN THE FIELD.

ABBREVIATIONS:

±	PLUS/MINUS
BC	BOTTOM OF CURB
BIRF	BENT IRON ROD FOUND
BLDG	BUILDING
BLDR	BOULDER
CB	CATCH BASIN
CBR	CATCH BASIN– ROUND
CIRF	CAPPED IRON ROD FOUND
CMF	CONCRETE MONUMENT FOUND
CMP	CORRUGATED METAL PIPE
CONC	CONCRETE
CP	CONTROL POINT
DIP	DUCTILE IRON PIPE
DWG	DRAWING
EHH	ELECTRIC HANDHOLE
EOB	EDGE OF BRUSH
EOW	EDGE OF WOODS
EX.	EXISTING
GV	GAS VALVE
HC	HANDICAPPED
HYD	FIRE HYDRANT
HDPE	HIGH DENSITY POLYETHYLENE PIPE
IRF	IRON ROD FOUND
LLC	LIMITED LIABILITY CORPORATION
LPLA	LAMP POST
MISC	MISCELLANEOUS
MH	MANHOLE
NAVD	NORTH AMERICAN VERTICAL DATUM
NG	NATIONAL GRID
NM	NIAGRA MOHAWK
NYS	NEW YORK STATE
NYT	NEW YORK TELEPHONE UTILITY POLE
No.	NUMBER
OETL	OVERHEAD ELECTRICAL TRANSMISSION LINE
OHUL	OVERHEAD UTILITY LINE
PVC	POLYVINYL CHLORIDE
RCP	REINFORCED CONCRETE PIPE
R.O.W	RIGHT OF WAY
SAN	SANITARY
SF	SQUARE FEET
SS	STREET SIGN
STM	STORM
STS	STOP SIGN
TF	TOP OF FRAME
(TYP.)	TYPICAL
UGE	UNDERGROUND ELECTRIC
UP	UTILITY POLE
VZ	VERIZON UTILITY POLE
YD	YARD DRAIN

EXISTING:

- 600 — EXISTING GRADE CONTOUR
- — G — UNDERGROUND GAS LINE
- —X— BARBED WIRE FENCE
- DELINEATED WETLANDS
- BASELINE POINT
- HYDRANT
- INV=266.3 — INVERT ELEVATION
- STREET OR SIGHT LIGHTING
- STORM / SANITARY MANHOLE
- SIGN
- TF=189.75 — TOP OF FRAME ELEVATION
- UTILITY POLE
- BENCHMARK XBOLT ON UP ELEV.=208.14' — VERTICAL BENCHMARK
- CP 12 DOCK SPIKE SET N 853,136.62 E 751,423.644 ELEV 212.15' — HORIZONTAL CONTROL POINT
- CONIFEROUS TREE
- DECIDUOUS TREE
- TEST PIT LOCATION
- C — DENOTES COMMUNICATIONS PEDESTAL

NEW:

- 3 / C-501 (DETAIL NUMBER / SHEET NUMBER) — DETAIL REFERENCE
- × 335.78 — SPOT ELEVATION
- GRASSED SWALE
- 268 — CONTOUR LINE
- PARKING, TRAFFIC OR STORMWATER MANAGEMENT SIGN WITH LABEL
- IMPERVIOUS GRAVEL ACCESS ROAD
- TEMPORARY GRAVEL ACCESS ROAD
- STABILIZED CONSTRUCTION ENTRANCE
- RIP RAP FILL
- TEMPORARY EROSION CONTROL BLANKET (TO BE USED ON SLOPES GREATER THAN OR EQUAL TO 33%)
- FIXED KNOT FENCE FENCE
- MV — MEDIUM VOLTAGE TRENCH (BY OTHERS)
- PROPOSED 12 IN COMPOST FILTER SOCK OR SILTE FENCE
- PROPOSED 12 IN COMPOST FILTER SOCK (OR EQUAL) CHECK DAM IN VEGETATED SWALE
- CONCRETE WASHOUT FACILITY
- LIMIT OF DISTURBANCE

PLANTING NOTE:

PLANTS LISTED IN THE PLANTING SCHEDULE CAN BE SUBSTITUTED FOR SIMILAR SPECIES OF THE SAME SIZE WITH THE APPROVAL OF THE OWNER AND/OR PROJECT LANDSCAPE ARCHITECT.

NEW YORK STATE DEPARTMENT OF AGRICULTURE AND MARKETS CONSTRUCTION REQUIREMENTS:

1. CONSTRUCTION ACTIVITIES ON THIS SITE MUST COMPLY WITH THE NYS DEPARTMENT OF AGRICULTURE AND MARKETS (NYSDAM) PUBLISHED GUIDELINES FOR CONSTRUCTION MITIGATION FOR AGRICULTURAL LANDS LAST REVISED OCTOBER 18, 2019. THE FOLLOWING REPRESENTS ONLY A CONSOLIDATED SUMMARY OF THE GUIDELINES. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO BE FAMILIAR WITH THE COMPLETE GUIDELINES AND COMPLY WITH THE APPLICABLE REQUIREMENTS DURING CONSTRUCTION.
2. PRIOR TO CONSTRUCTION CONTRACTOR SHALL OBTAIN SOIL SAMPLES FROM AREAS TO BE DISTURBED (ONE (1) SET OF SOIL SAMPLES FOR EVERY 10 ACRES OF DISTURBANCE) AND SUBMITTED TO AN APPROVED LABORATORY FOR TESTING OF PH, PERCENT ORGANIC MATERIAL, CATION EXCHANGE CAPACITY, PHOSPHORUS / PHOSPHATE(P), AND POTASSIUM/POTASH(K). SOIL SAMPLING SHALL BE CONSISTENT WITH CORNELL UNIVERSITY'S SOIL TESTING GUIDELINES WITHIN REPRESENTATIVE AREAS OF THE PROPOSED DISTURBANCE. RESULTS SHALL BE SUBMITTED TO THE OWNER.
3. STRIPPED TOPSOIL SHALL BE STOCKPILED FROM WORK AREAS AND KEPT SEPARATE FROM OTHER EXCAVATED MATERIAL UNTIL THE COMPLETION OF THE FACILITY FOR FINAL RESTORATION. EXCESS TOPSOIL SHALL BE SPREAD EVENLY IN AGRICULTURAL AREAS WITHIN THE LIMIT OF DISTURBANCE OR AS NOTED ON THE PLANS. IN NO CASE SHALL THE SPREADING OF EXCESS TOPSOIL ALTER THE HYDROLOGY OF THE AREA.
4. TOPSOIL STOCKPILES ON AGRICULTURAL AREAS LEFT IN PLACE PRIOR TO OCTOBER 31 SHALL BE SEEDED WITH AROOSTOOK WINTER RYE OR EQUIVALENT AT AN APPLICATION RATE OF THREE BUSHELS (168 LB) PER ACRE AND MULCHED WITH STRAW AT A RATE OF TWO TO THREE BALES PER 1000 SF.
5. TOPSOIL STOCKPILES ON AGRICULTURAL AREAS LEFT IN PLACE BETWEEN OCTOBER 31 AND MAY 31 SHALL BE MULCHED WITH STRAW AT A RATE OF TWO TO THREE BALES PER 1000 SF TO PREVENT SOIL LOSS.
6. THE SURFACE OF ACCESS ROADS LOCATED OUTSIDE OF THE FENCED AREA AND CONSTRUCTED THROUGH AGRICULTURAL FIELDS SHALL BE LEVEL WITH THE ADJACENT FIELD SURFACE UNLESS OTHERWISE NOTED.
7. THE CONTRACTOR SHALL ENSURE THAT NO VEHICLES OR EQUIPMENT ARE ALLOWED OUTSIDE THE DESIGNED LIMIT OF DISTURBANCE. VEHICLE AND EQUIPMENT TRAFFIC, PARKING AND MATERIAL STORAGE SHALL BE LIMITED TO THE ACCESS ROADS AND/OR DESIGNATED WORK AREAS WITH THE EXCEPTION OF LOW GROUND PRESSURE EQUIPMENT.
8. ALL BURIED UTILITIES LOCATED WITHIN THE FENCED AREA MUST HAVE A MINIMUM COVER DEPTH OF 18 INCHES IF LOCATED WITHIN CONDUIT AND 24 INCHES IF DIRECT BURIED
9. ALL BURIED UTILITIES LOCATED OUTSIDE OF THE FENCED AREA SHALL HAVE A MINIMUM COVER DEPTH OF 48 INCHES IF LOCATED WITHIN CROPLAND, HAYLAND OR IMPROVED PASTURE AREAS. IN AREAS WHERE THE DEPTH OF SOIL OVER BEDROCK IS LESS THAN 48 INCHES THE ELECTRICAL CONDUCTORS MUST BE BURIED BELOW THE SURFACE OF THE BEDROCK IF FRIABLE/RIPPABLE OR AS NEAR AS POSSIBLE TO THE SURFACE OF THE BEDROCK. ALL BURIED UTILITIES LOCATED IN UNIMPROVED GRAZING AREAS OR ON LAND PERMANENTLY DEVOTED TO PASTURE SHALL HAVE A MINIMUM COVER DEPTH OF 36 INCHES. WHERE ELECTRICAL CONDUCTORS ARE BURIED DIRECTLY BELOW THE GENERATION FACILITY'S ACCESS ROAD OR IMMEDIATELY ADJACENT TO THE ACCESS ROAD THE MINIMUM DEPTH OF COVER MUST BE 24 INCHES.
10. EXCESS STRIPPED TOPSOIL SHALL NOT BE UTILIZED FOR FILL WITHIN PROJECT AREAS.
11. CONTRACTOR TO REPAIR ALL SURFACE OR SUBSURFACE DRAINAGE STRUCTURES DAMAGED DURING CONSTRUCTION.
12. RESTORATION WORK ON AGRICULTURAL LAND SHALL BE COMPLETED DURING FAVORABLE (WORKABLE, RELATIVELY DRY) CONDITIONS AND NOT WHILE SOILS AREA IN A WET OR PLASTIC STATE OF CONSISTENCY.
13. IN ALL CONTINUED USE AGRICULTURAL LAND WHERE THE TOPSOIL WAS STRIPPED SUBSOIL DECOMPACTION SHALL BE CONDUCTED PRIOR TO TOPSOIL REPLACEMENT TO A DEPTH OF 18 INCHES WITH A TRACTOR MOUNTED DEEP RIPPER OR HEAVY–DUTY CHISEL PLOW.
14. CONTRACTOR SHALL SEED ALL AREAS FROM WHICH VEGETATION WAS REMOVED OR DESTROYED WITH THE SEED MIX SPECIFIED BY OWNER.

TOWN OF LANSING PLANNING BOARD, NEW YORK

DATED______________________

SIGNATURE______________________
CHAIRMAN

DATED______________________

SIGNATURE______________________
CODE ENFORCEMENT OFFICER

DATED______________________

SIGNATURE______________________
HIGHWAY SUPERINTENDENT

DATED______________________

SIGNATURE______________________
TOWN ENGINEER

PLANTING BED PREPARATION NOTE:

ALL PAVEMENT, AND GRAVEL BASE SHALL BE REMOVED FROM PROPOSED PLANTING BEDS AREAS. COMPACTED SUB BASE MATERIALS SHALL BE DECOMPACTED FOR A DEPTH OF 12". PLANTING BEDS SHALL BE FREE OF ROOTS TILLED TO A DEPTH 12". INCORPORATE 2" OF COMPOST INTO SOIL AND TOP DRESS WITH 3" OF HARDWOOD MULCH.

TOPSOIL NOTE:

ALL AREAS WHICH ARE DISTURBED AND NOT LANDSCAPED, PAVED OR OTHERWISE RESTORED SHALL RECEIVE A MINIMUM OF 4" OF TOPSOIL. ALL LANDSCAPE BEDS SHALL RECEIVE A MINIMUM OF 12" OF TOPSOIL.
TOP SOIL SHALL HAVE;
2% –20% ORGANIC MATTER
PH OF 6–7.6%
MAXIMUM PARTICLE SIZE 1.5"

SOIL RESTORATION:

AS PER CHAPTER 5 OF THE NEW YORK STATE STORMWATER MANAGEMENT DESIGN MANUAL, SOIL RESTORATION IS REQUIRED ON THIS SITE IN ALL NON–IMPERVIOUS AREAS ONCE FINAL SUBGRADE ELEVATION IS ACHIEVED. IN AREAS OF CUT OR FILL THE SOILS SHALL BE AERATED AND 6 INCHES OF TOPSOIL SHALL BE APPLIED IN HSG A & B SOILS, AND FULL SOIL RESTORATION PER "DEEP RIPPING AND DE–COMPACTION, DEC 2008" SHALL BE APPLIED IN HSG C & D AREAS. IN AREAS OF HEAVY CONSTRUCTION TRAFFIC (ESPECIALLY IN AREAS 5 TO 25 FEET FROM BUILDING, BUT NOT WITHIN 5 FEET OF FOUNDATION WALLS) THE FOLLOWING RESTORATION MUST BE APPLIED:

1. APPLY 3 INCHES OF COMPOST OVER SUBSOIL.
2. TILL COMPOST INTO SUBSOIL TO A DEPTH OF AT LEAST 12 INCHES USING A CAT–MOUNTED RIPPER, TRACTOR–MOUNTED DISC, OR TILLER, MIXING, AND CIRCULATING AIR AND COMPOST INTO SOIL.
3. ROCK–PICK UNTIL UPLIFTED STONE/ROCK MATERIALS OF 4 INCHES AND LARGER SIZE ARE CLEANED OFF THE SITE.
4. APPLY TOPSOIL TO A DEPTH OF 4 INCHES
5. VEGETATE AS REQUIRED BY APPROVED PLAN.

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Rev	Issued For	Date
A	INTERNAL REVIEW	5/27/26
B	TOWN COMMENTS	7/10/26
C	TOWN COMMENTS	9/23/26
D	TOWN COMMENTS	10/14/26

P.E. seal/Consultant: STATE OF NEW YORK – TRAVIS J. MITCHELL – 081539 – LICENSED PROFESSIONAL ENGINEER – NOT FOR CONSTRUCTION

Project: JERRY SMITH , LLC
JERRY SMITH ROAD, LANSING, NY

Drawing Title: GENERAL NOTES

Drawn by: BMW Scale: AS SHOWN Approved by: TJM

Dwg No: C-101 Size: D Sheet Rev: D

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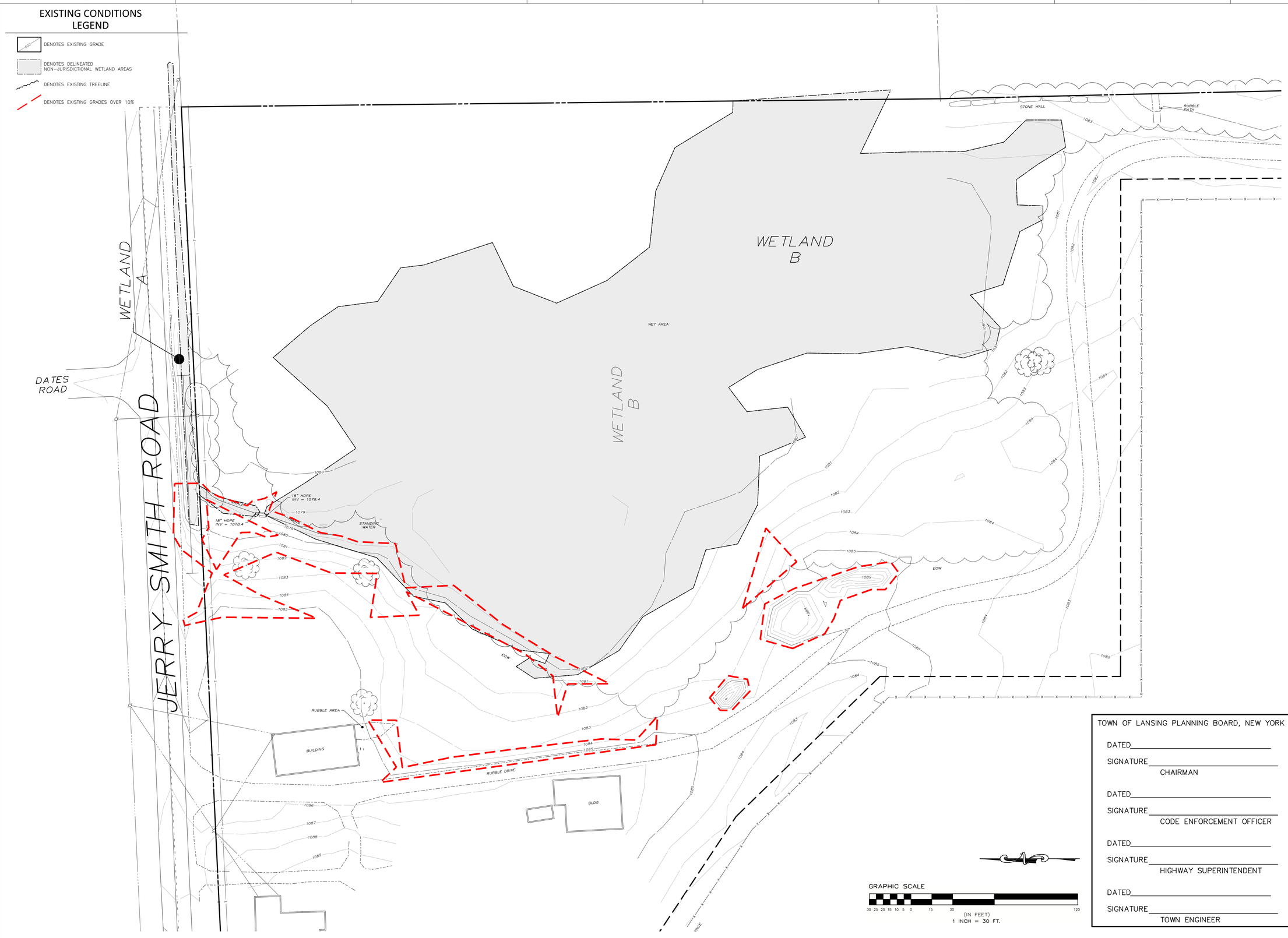

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P.E. seal/Consultant:

STATE OF NEW YORK
TRADES J. MITCHELL
LICENSED PROFESSIONAL ENGINEER
081539

Project:
JERRY SMITH , LLC
JERRY SMITH ROAD, LANSING, NY

Drawing Title:
EXISTING CONDITIONS

Drawn by: BMW Scale: AS SHOWN Approved by: TJM

Dwg No: C-200 Size: D Sheet Rev: A

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REMOVALS NOTES:

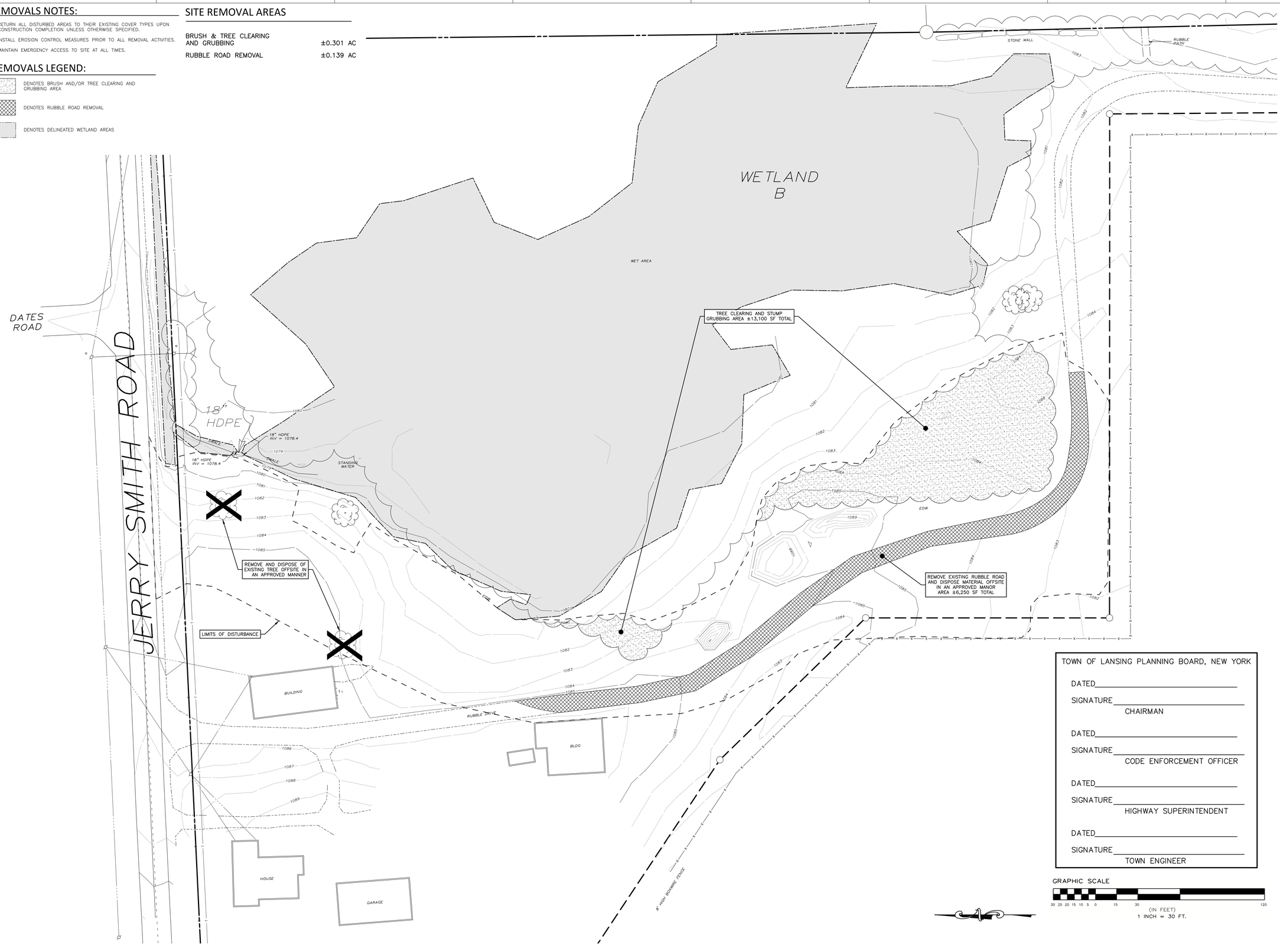
1. RETURN ALL DISTURBED AREAS TO THEIR EXISTING COVER TYPES UPON CONSTRUCTION COMPLETION UNLESS OTHERWISE SPECIFIED.
2. INSTALL EROSION CONTROL MEASURES PRIOR TO ALL REMOVAL ACTIVITIES.
3. MAINTAIN EMERGENCY ACCESS TO SITE AT ALL TIMES.

REMOVALS LEGEND:

- DENOTES BRUSH AND/OR TREE CLEARING AND GRUBBING AREA
- DENOTES RUBBLE ROAD REMOVAL
- DENOTES DELINEATED WETLAND AREAS

SITE REMOVAL AREAS

BRUSH & TREE CLEARING AND GRUBBING	±0.301 AC
RUBBLE ROAD REMOVAL	±0.139 AC



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GRAPHIC SCALE

30 25 20 15 10 5 0 15 30 120

(IN FEET)
1 INCH = 30 FT.

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STATE OF NEW YORK ★ TRAVIS J. MITCHELL ★ LICENSED PROFESSIONAL ENGINEER 081539

Project:

JERRY SMITH , LLC

JERRY SMITH ROAD, LANSING, NY

Drawing Title:

REMOVALS PLAN

Drawn by: BMW Scale: AS SHOWN Approved by: TJM

Dwg No: C-201 Size: D Sheet Rev: D

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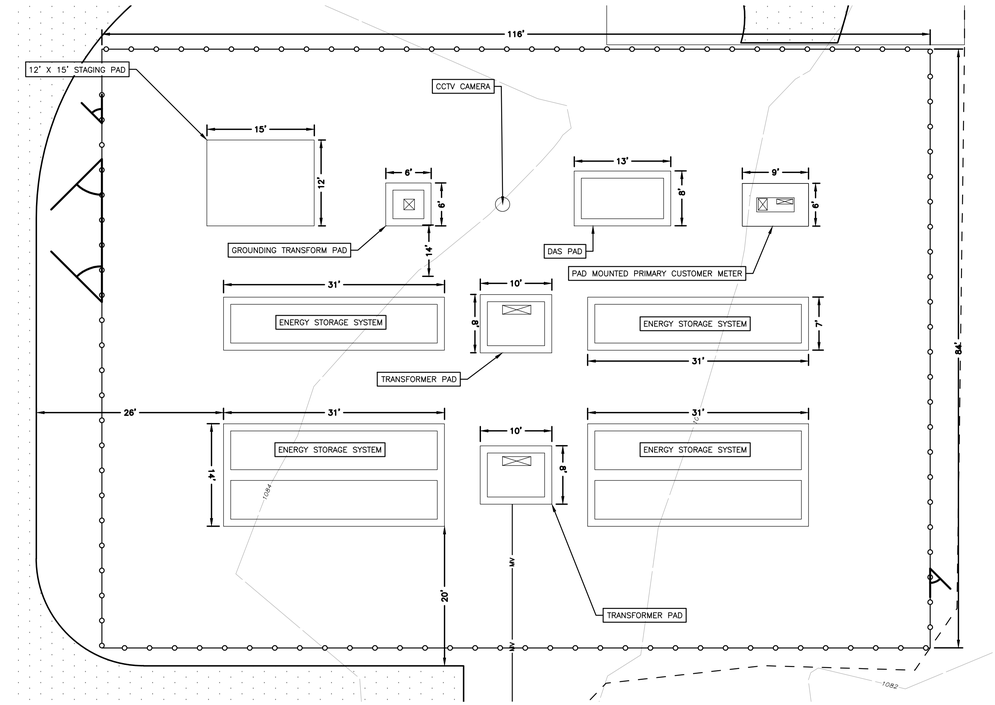


1 INSET PLAN – BESS COMPONENT DETAILS
SCALE: 1"=10'

UTILITY NOTE:

1. PROPOSED UTILITY AND CUSTOMER POLE LOCATIONS ARE SUBJECT TO UTILITY APPROVAL AND MAY CHANGE. CONTRACTOR SHALL VERIFY FINAL POLE LOCATIONS WITH THE OWNER PRIOR TO ORDERING MATERIALS AND BEGINNING CONSTRUCTION.

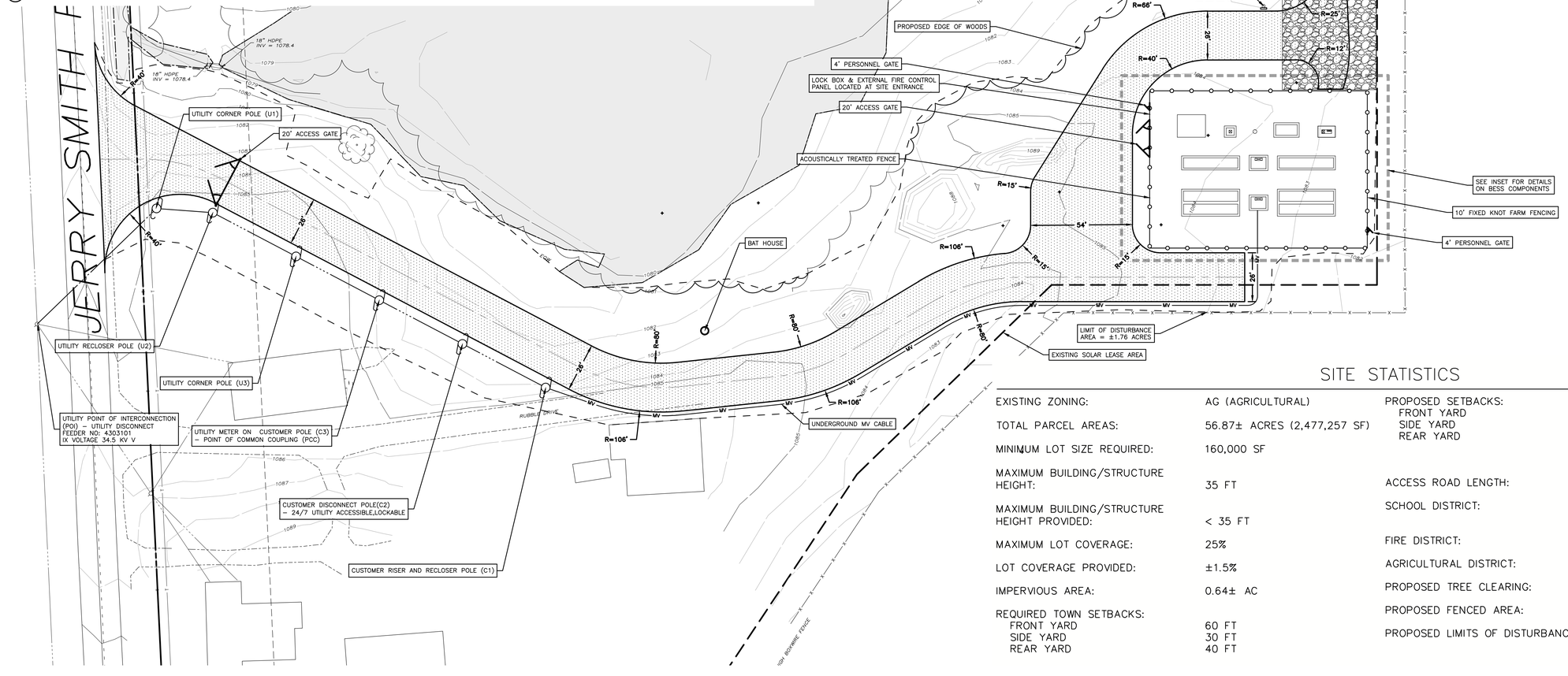
GRAPHIC SCALE

30 25 20 15 10 5 0 15 30 120

(IN FEET)
1 INCH = 30 FT.

LAYOUT AND MATERIALS PLAN LEGEND

- DENOTES EXISTING GRADE
- DENOTES TEMPORARY GRAVEL ACCESS ROAD
- DENOTES IMPERVIOUS GRAVEL ACCESS ROAD
- DENOTES FIXED KNOT FARM FENCE
- DENOTES MEDIUM VOLTAGE TRENCH (SEE ELECTRICAL PLANS FOR DETAILS)



SITE STATISTICS

EXISTING ZONING:	AG (AGRICULTURAL)
TOTAL PARCEL AREAS:	56.87± ACRES (2,477,257 SF)
MINIMUM LOT SIZE REQUIRED:	160,000 SF
MAXIMUM BUILDING/STRUCTURE HEIGHT:	35 FT
MAXIMUM BUILDING/STRUCTURE HEIGHT PROVIDED:	< 35 FT
MAXIMUM LOT COVERAGE:	25%
LOT COVERAGE PROVIDED:	±1.5%
IMPERVIOUS AREA:	0.64± AC
REQUIRED TOWN SETBACKS:	
FRONT YARD	60 FT
SIDE YARD	30 FT
REAR YARD	40 FT
PROPOSED SETBACKS:	
FRONT YARD	535 FT
SIDE YARD	322 FT
REAR YARD	>40 FT
ACCESS ROAD LENGTH:	±620 FT
SCHOOL DISTRICT:	LANSING CENTRAL SCHOOL DISTRICT
FIRE DISTRICT:	LANSING FIRE DEPARTMENT
AGRICULTURAL DISTRICT:	TOMPKINS COUNTY DISTRICT 1
PROPOSED TREE CLEARING:	±0.30 AC
PROPOSED FENCED AREA:	±0.22 AC
PROPOSED LIMITS OF DISTURBANCE:	±1.76 AC

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P.E. seal/Consultant:
STATE OF NEW YORK * JAMES J. MITCHELL * 085139 * LICENSED PROFESSIONAL ENGINEER

Project:
JERRY SMITH , LLC
JERRY SMITH ROAD, LANSING, NY

Drawing Title:
MATERIALS AND LAYOUT PLAN
Drawn by: BMW Scale: AS SHOWN Approved by: TJM

Dwg No:	Size: D	Sheet Rev:
C-300		D

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GRAPHIC SCALE

30 25 20 15 10 5 0 15 30 120

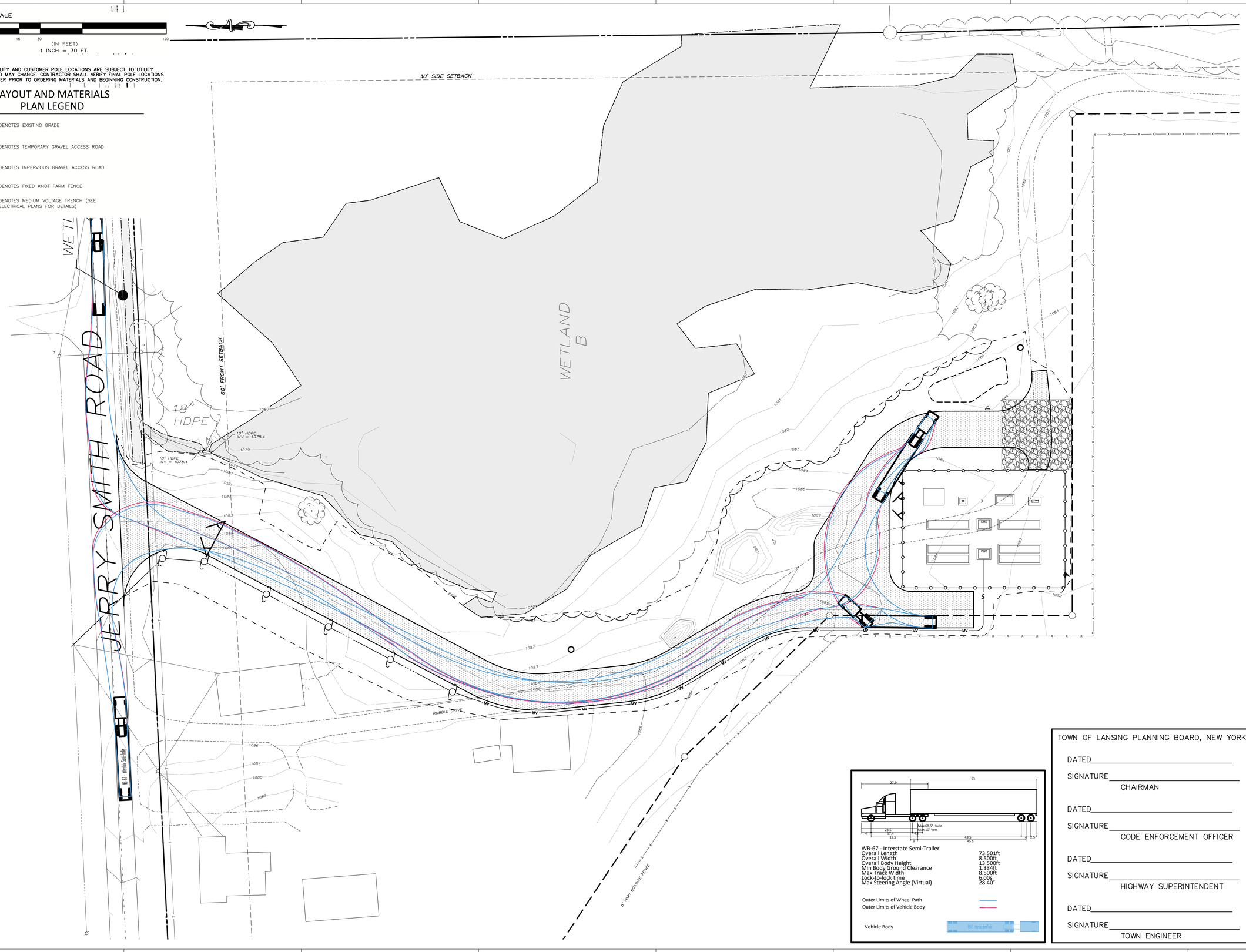
(IN FEET)
1 INCH = 30 FT.

UTILITY NOTE:

1. PROPOSED UTILITY AND CUSTOMER POLE LOCATIONS ARE SUBJECT TO UTILITY APPROVAL AND MAY CHANGE. CONTRACTOR SHALL VERIFY FINAL POLE LOCATIONS WITH THE OWNER PRIOR TO ORDERING MATERIALS AND BEGINNING CONSTRUCTION.

LAYOUT AND MATERIALS PLAN LEGEND

- DENOTES EXISTING GRADE
- DENOTES TEMPORARY GRAVEL ACCESS ROAD
- DENOTES IMPERVIOUS GRAVEL ACCESS ROAD
- DENOTES FIXED KNOT FARM FENCE
- DENOTES MEDIUM VOLTAGE TRENCH (SEE ELECTRICAL PLANS FOR DETAILS)



WB-67 - Interstate Semi-Trailer

Overall Length	73.501ft
Overall Width	8.500ft
Overall Body Height	13.500ft
Min Body Ground Clearance	1.334ft
Max Track Width	8.500ft
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	28.40°

Outer Limits of Wheel Path

Outer Limits of Vehicle Body

Vehicle Body

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TRAVIS J. MITCHELL
LICENSED PROFESSIONAL ENGINEER
081539

Project:

JERRY SMITH , LLC

JERRY SMITH ROAD,
LANSING, NY

Drawing Title:

TURNING MOVEMENT PLAN

Drawn by: BMW Scale: AS SHOWN Approved by: TJM

Dwg No: C-301 Size: D Sheet Rev: D

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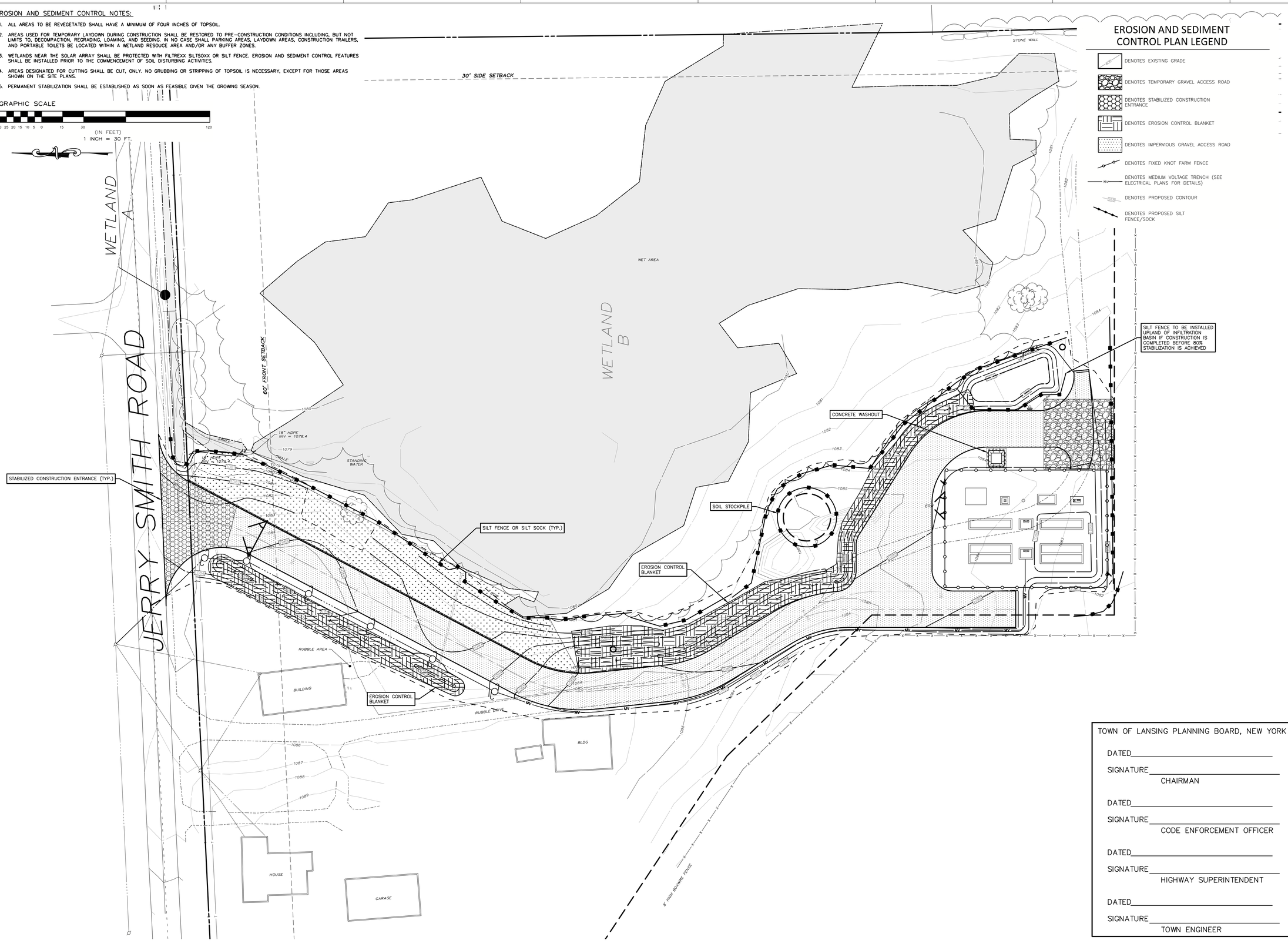
EROSION AND SEDIMENT CONTROL NOTES:

1. ALL AREAS TO BE REVEGETATED SHALL HAVE A MINIMUM OF FOUR INCHES OF TOPSOIL.
2. AREAS USED FOR TEMPORARY LAYDOWN DURING CONSTRUCTION SHALL BE RESTORED TO PRE-CONSTRUCTION CONDITIONS INCLUDING, BUT NOT LIMITS TO, DECOMPACTION, REGRADING, LOAMING, AND SEEDING. IN NO CASE SHALL PARKING AREAS, LAYDOWN AREAS, CONSTRUCTION TRAILERS, AND PORTABLE TOILETS BE LOCATED WITHIN A WETLAND RESOUCE AREA AND/OR ANY BUFFER ZONES.
3. WETLANDS NEAR THE SOLAR ARRAY SHALL BE PROTECTED WITH FILTREXX SILTSOXX OR SILT FENCE. EROSION AND SEDIMENT CONTROL FEATURES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF SOIL DISTURBING ACTIVITIES.
4. AREAS DESIGNATED FOR CUTTING SHALL BE CUT, ONLY. NO GRUBBING OR STRIPPING OF TOPSOIL IS NECESSARY, EXCEPT FOR THOSE AREAS SHOWN ON THE SITE PLANS.
5. PERMANENT STABILIZATION SHALL BE ESTABLISHED AS SOON AS FEASIBLE GIVEN THE GROWING SEASON.

GRAPHIC SCALE

30 25 20 15 10 5 0 15 30 120

(IN FEET)
1 INCH = 30 FT.



EROSION AND SEDIMENT CONTROL PLAN LEGEND

- DENOTES EXISTING GRADE
- DENOTES TEMPORARY GRAVEL ACCESS ROAD
- DENOTES STABILIZED CONSTRUCTION ENTRANCE
- DENOTES EROSION CONTROL BLANKET
- DENOTES IMPERVIOUS GRAVEL ACCESS ROAD
- DENOTES FIXED KNOT FARM FENCE
- DENOTES MEDIUM VOLTAGE TRENCH (SEE ELECTRICAL PLANS FOR DETAILS)
- DENOTES PROPOSED CONTOUR
- DENOTES PROPOSED SILT FENCE/SOCK

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Project:
JERRY SMITH , LLC
JERRY SMITH ROAD, LANSING, NY

Drawing Title:
EROSION AND SEDIMENT CONTROL PLAN

Drawn by: BMW Scale: AS SHOWN Approved by: TJM

Dwg No: C-400 Size: D Sheet Rev: D

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GRAPHIC SCALE

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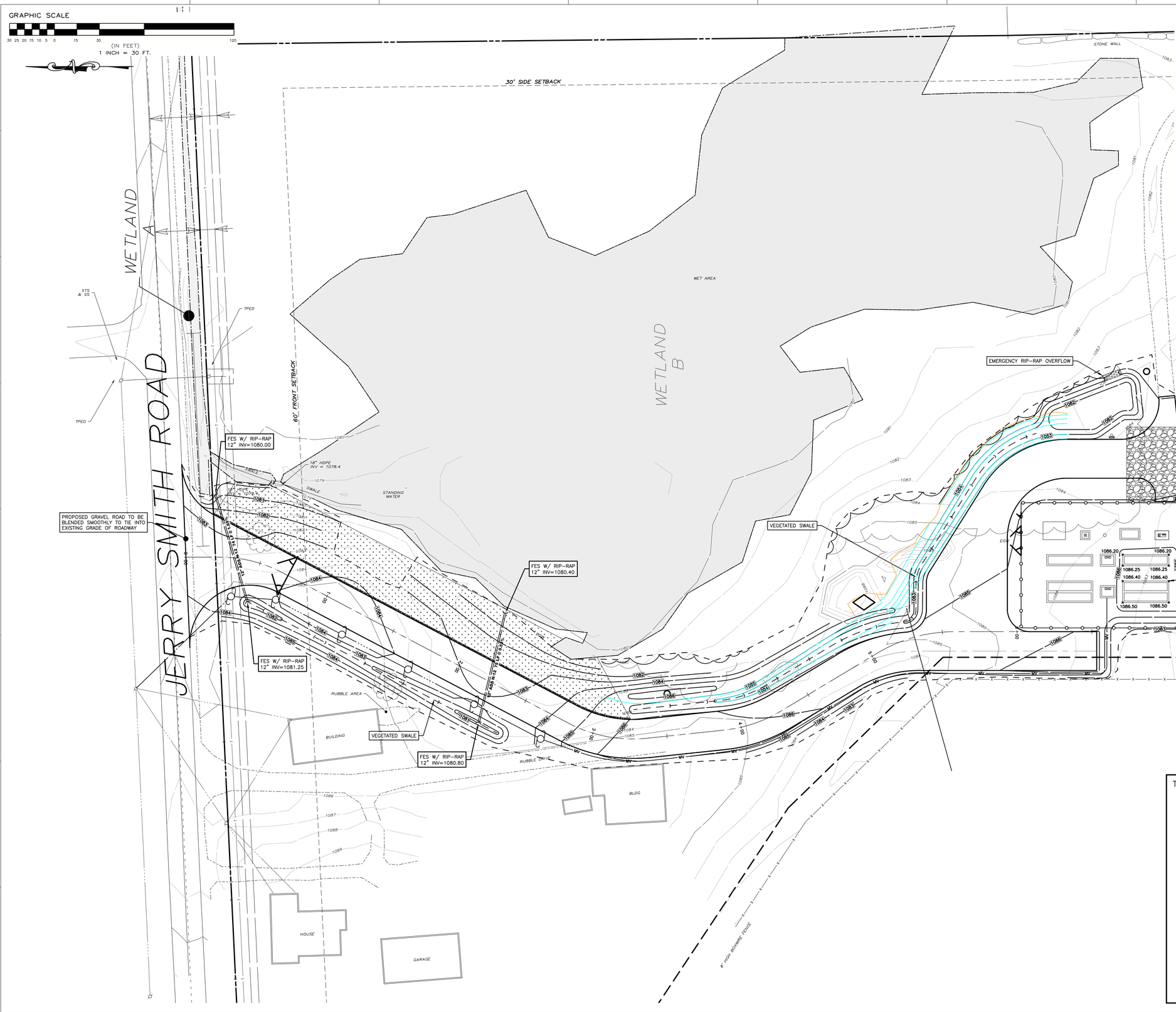

DRAINAGE AND GRADING PLAN LEGEND

- DENOTES EXISTING GRADE
- DENOTES RIP RAP FILL
- DENOTES TEMPORARY GRAVEL ACCESS ROAD
- DENOTES IMPERVIOUS GRAVEL ACCESS ROAD
- DENOTES VEGETATED FILTER STRIP
- DENOTES FIXED KNOT FARM FENCE
- DENOTES MEDIUM VOLTAGE TRENCH (SEE ELECTRICAL PLANS FOR DETAILS)
- DENOTES PROPOSED CONTOUR

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Project:
JERRY SMITH , LLC
JERRY SMITH ROAD, LANSING, NY

Drawing Title:
GRADING AND DRAINAGE PLAN

Drawn by: BMW Scale: AS SHOWN Approved by: TJM

Dwg No: C-500 Size: D Sheet Rev: D

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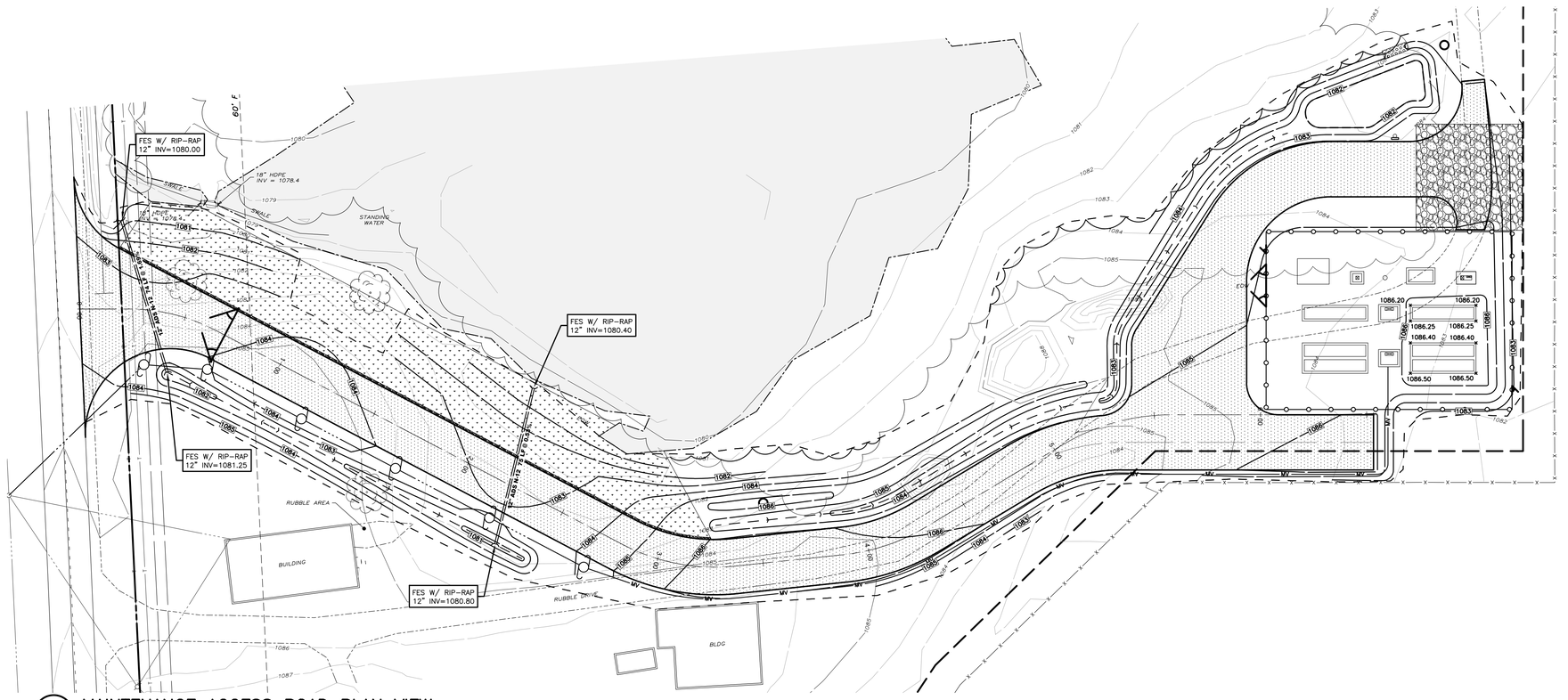


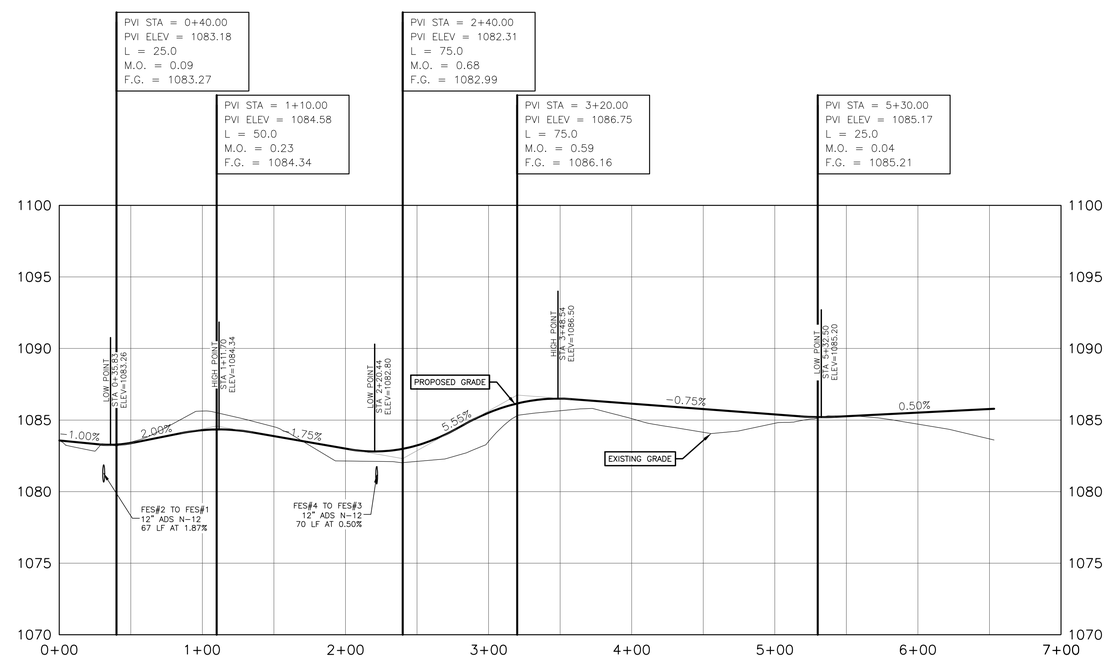
MAINTENANCE ACCESS ROAD PLAN VIEW

SCALE: 1" = 30'

(STA 0+00 TO 6+18.42)

DRAINAGE AND GRADING PLAN LEGEND

- DENOTES EXISTING GRADE
- DENOTES RIP RAP FILL
- DENOTES TEMPORARY GRAVEL ACCESS ROAD
- DENOTES IMPERVIOUS GRAVEL ACCESS ROAD
- DENOTES VEGETATED FILTER STRIP
- DENOTES FIXED KNOT FARM FENCE
- DENOTES MEDIUM VOLTAGE TRENCH (SEE ELECTRICAL PLANS FOR DETAILS)
- DENOTES PROPOSED CONTOUR



SOLAR MAINTENANCE ACCESS ROAD PROFILE

SCALE: HORIZONTAL 1"=50'
VERTICAL 1"=5'

(STA 0+00 TO 7+00.00)

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TRADE J. MITCHELL
081539
LICENSED PROFESSIONAL ENGINEER

Project:
JERRY SMITH , LLC
JERRY SMITH ROAD, LANSING, NY

Drawing Title:
ROAD PROFILE

Drawn by: BMW Scale: AS SHOWN Approved by: TJM

Dwg No: C-501 Size: D Sheet Rev: D

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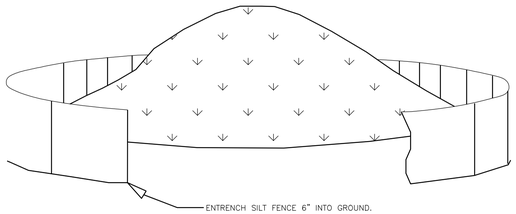
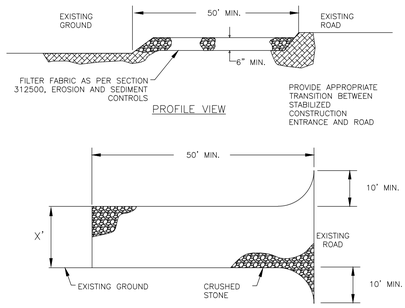
NOTE: CHOOSE DRY AND STABLE AREA FOR STOCKPILE. SHAPE AND STABILIZE STOCK PILE; ALLOW TEMPORARY SEEDING.

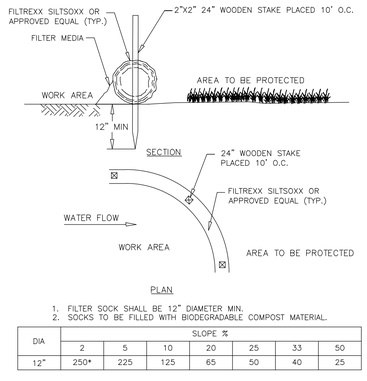


1 C-600 SOIL STOCKPILE AREA
NOT TO SCALE



1. STONE FOR A STABILIZED CONSTRUCTION ENTRANCE SHALL BE 1 TO 2 INCH STONE, RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT.
2. THE LENGTH OF THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 50 FEET.
3. THE THICKNESS OF THE STONE FOR THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 6 INCHES.
4. THE WIDTH OF THE ENTRANCE SHALL NOT BE LESS THAN THE FULL WIDTH OF THE PROPOSED ENTRANCE.
5. GEOTEXTILE FILTER CLOTH SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING THE STONE.
6. ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARDS THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE SURFACE.
7. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO EXISTING ROAD. THIS MANY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR ADDITIONAL LENGTH AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO EXISTING ROAD SHALL BE REMOVED IMMEDIATELY.

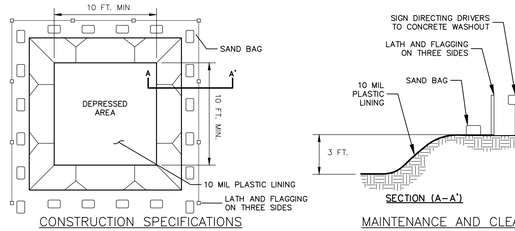
2 C-600 STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE



1. FILTER SOCK SHALL BE 12" DIAMETER MIN.
2. SOCKS TO BE FILLED WITH BIODEGRADABLE COMPOST MATERIAL.

DIA	SLOPE %						
	2	5	10	20	25	33	50
12"	250*	225	125	65	50	40	25

3 C-600 12 IN. FILTER SOCK
NOT TO SCALE



CONSTRUCTION SPECIFICATIONS

1. CONCRETE WASHOUT FACILITY SHALL BE LOCATED A MINIMUM OF FIFTY FEET (50') FROM SENSITIVE AREAS.
2. THE BASIN DIMENSIONS DEPICTED ABOVE ARE REQUIRED MINIMUMS. CONCRETE WASHOUT FACILITY SHALL BE CONSTRUCTED AND MAINTAINED IN SUFFICIENT QUANTITY AND SIZE TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS. (APPROXIMATELY 60 GALLONS OF WASTE AND WATER PER TRUCK).
3. PLASTIC LINING MATERIAL SHALL BE A MINIMUM 10 MIN POLYETHYLENE SHEETING AND SHOULD BE FREE OF HOLES, TEARS, OR OTHER DEFECTS THAT COMPROMISE THE IMPERMEABILITY OF THE MATERIAL.
4. WASHOUT FACILITY MUST BE CLEANED, OR NEW FACILITES MUST BE CONSTRUCTED AND READY FOR USE ONCE THE WASHOUT IS 75% FULL.

MAINTENANCE AND CLEANING

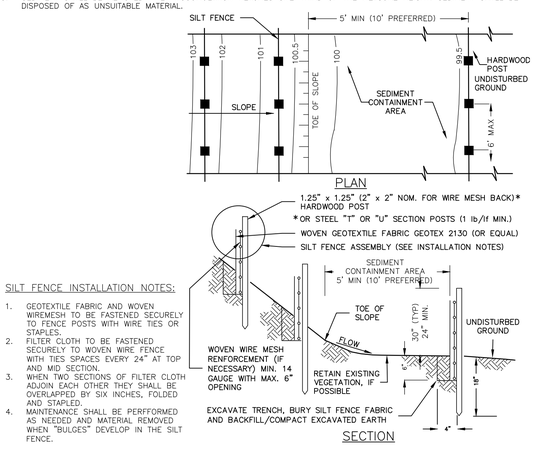
1. DO NOT DISCHARGE LIQUID OR SLURRY TO WATERWAYS, STORM DRAINS OR DIRECTLY ONTO GROUND
2. DO NOT USE SANITARY SEWER WITHOUT LOCAL APPROVAL.
3. PLACE A SECURE NON COLLAPSING, NON–WATER COLLECTING COVER OVER THE FACILITY PRIOR TO PREDICTED WET WEATHER TO PREVENT ACCUMULATION AND OVERFLOW.
4. REMOVE AND DISPOSE OF HARDEN CONCRETE AND RETURN THE STRUCTURE TO A FUNCTIONAL STATE.
5. INSPECT THE WASHOUT FACILITY FOR SIGNS OF WEAKENING OR DAMAGE AND REPAIR AS NESSESARY(RELINE THE STRUCTURE WITH NEW POLY SHEETING AFTER EACH CLEANING).

4 C-600 CONCRETE WASHOUT FACILITY
NOT TO SCALE

1. SILT FENCE SHALL BE PLACED A MINIMUM OF 5 FT. FROM TOE OF SLOPE, 10 FT. PREFERRED, TO PROVIDE ADEQUATE AREA FOR SEDIMENT STORAGE AND FACILITATE MAINTENANCE OF SEDIMENT CONTAINMENT AREA.
2. POSTS MAY BE 1.25"x1.25" (MINIMUM) HARDWOOD, TYPICALLY. FOR WIRE MESH BACK USE 2"x2" NOM. HARDWOOD, OR STEEL "T" OR "U" POSTS (1lb per lf). SILT FENCE SHALL BE WOVEN GEOTEXTILE FABRIC(GEOTEX 2130 OR EQUAL).
3. SILT FENCE ASSEMBLIES MAY HAVE 4 FT. OR 6 FT. POST SPACING, AND MAY OR MAY NOT HAVE MESH REINFORCEMENT. SENSITIVE AREAS TO BE PROTECTED MAY NEED TO BE REINFORCED BY USING HEAVY WIRE FENCING FOR ADDED SUPPORT TO PREVENT COLLAPSE.
4. THE BOTTOM EDGE OF SILT FENCE SHALL BE BURIED A MINIMUM OF 6" BELOW GROUND. THE FENCE SHALL BE INSTALLED WITH THE POSTS ON THE DOWNSTREAM SIDE OF THE FABRIC.
5. MAXIMUM ALLOWABLE SLOPE LENGTHS CONTRIBUTING RUNOFF TO A SILT FENCE PLACED ON A SLOPE ARE:

SLOPE STEEPNESS	MAXIMUM SLOPE LENGTH /FENCE LENGTH (ft.)
<2%	500/500
2–10%	125/1000
10–20%	100/750
20–33%	50/500
33–50%	40/250
>50%	25/125

6. MAXIMUM DRAINAGE AREA FOR OVERLAND FLOW TO A SILT FENCE SHALL NOT EXCEED ¼ ACRE PER 100 FEET OF FENCE, WITH MAXIMUM PONDING DEPTH OF 1.5 FEET BEHIND THE FENCE; AND EROSION WOULD OCCUR IN THE FORM OF SHEET EROSION; AND THERE IS NO CONCENTRATION OF WATER FLOWING TO THE BARRIER.
7. MEASURES SHALL BE INSPECTED EVERY SEVEN (7) CALENDAR DAYS, AFTER EACH RAINFALL OF .5" OR MORE WITHIN A 12 HOUR PERIOD, OR DAILY DURING PROLONGED RAINFALL. MEASURES SHALL BE CLEANED AND REPAIRED AS REQUIRED.
8. SEDIMENT SHALL BE REMOVED WHEN ACCUMULATION REACHES ONE–THIRD OF THE MEASURE HEIGHT. SEDIMENT SHALL BE DISPOSED OF AS UNSUITABLE MATERIAL.



SILT FENCE INSTALLATION NOTES:

1. GEOTEXTILE FABRIC AND WOVEN WIREMESH TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACES EVERY 24" AT TOP AND MID SECTION.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES, FOLDED AND STAPLED.
4. MAINTENANCE SHALL BE PERFFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

5 C-600 SILT FENCE
NOT TO SCALE

TOWN OF LANSING PLANNING BOARD, NEW YORK

DATED_____

SIGNATURE_____
CHAIRMAN

DATED_____

SIGNATURE_____
CODE ENFORCEMENT OFFICER

DATED_____

SIGNATURE_____
HIGHWAY SUPERINTENDENT

DATED_____

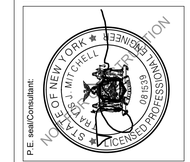
SIGNATURE_____
TOWN ENGINEER

nexamp
101 Summer Street, Boston, MA 02110
Tel: (617) 431-1440 Fax: (978) 416-2525 Web: nexamp.com

ENVIRONMENTAL DESIGN PARTNERSHIP, LLP.
900 Route 146 Clifton Park, New York 12065
(518) 371-7421 edpllp.com

Rev	Issued For	Date
A	INTERNAL REVIEW	5/27/26
B	TOWN COMMENTS	7/10/26
C	TOWN COMMENTS	9/23/26
D	TOWN COMMENTS	10/14/26

P.E. seal/Consultant:



Project:
JERRY SMITH , LLC
JERRY SMITH ROAD, LANSING, NY

Drawing Title:
EROSION AND SEDIMENT CONTROL DETAILS

Drawn by: BMW | Scale: AS SHOWN | Approved by: TJM

Dwg No:	Size: D	Sheet Rev:
C-600		D

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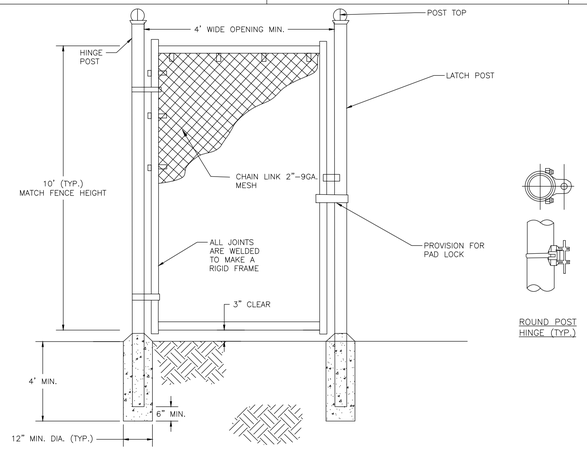
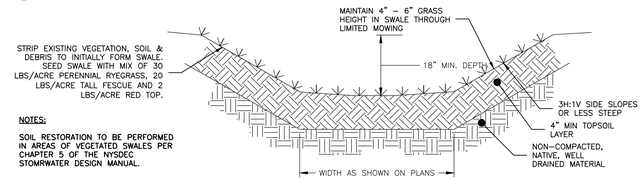


NOTES
1. INSTALL ALL FENCING COMPONENTS PER MANUFACTURES SPECIFICATIONS.
2. ALL FENCING AND HARDWARE SHALL BE GALVANIZED, UNLESS OTHERWISE NOTED.
3. IF CONTRACTOR UTILIZES METAL HINGE POST THAN POSTS SHALL BE SET IN CONCRETE AS SHOWN ON DETAIL.
4. BRACING REQUIRED AT FOR ALL GATES.
5. BRACE RAILS AND/ OR TRUSS RODS ARE NOT SHOWN, MAY BE REQUIRED PER MANUFACTURES RECOMMENDATIONS

7 C-601 CHAIN LINK SECURITY FENCE – PERSONNEL GATE
NOT TO SCALE

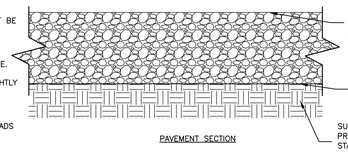


NOTES:

SOIL RESTORATION TO BE PERFORMED IN AREAS OF VEGETATED SWALES PER CHAPTER 5 OF THE NYSDEC STORMWATER DESIGN MANUAL.

2 C-601 VEGETATED SWALE
NOT TO SCALE

1. IF UNSTABLE SUBGRADE IS ENCOUNTERED DURING CONSTRUCTION ENGINEER MUST BE NOTIFIED IMMEDIATELY.
2. SUBGRADE MUST BE PROOF-ROLLED PRIOR TO PLACEMENT OF CRUSHED STONE.
3. PAVEMENT DESIGN IS FOR "LIGHTLY LOADED VEHICLES. ADDITIONAL GRAVEL MAY BE NEEDED FOR CONSTRUCTION ACCESS.
4. TEMPORARY CONSTRUCTION ROADS SHALL HAVE A 24" THICKNESS.

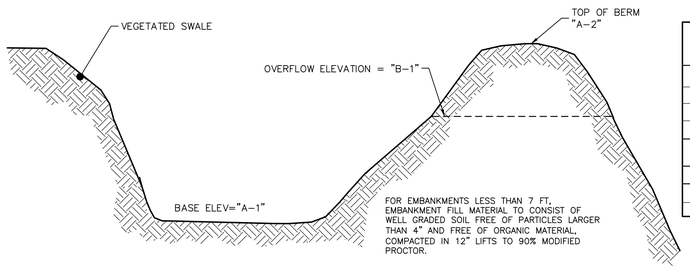


12" (18" OVER WEAK SUBGRADES) GRAVEL SUBBASE COURSE (AFTER COMPACTION) TO CONFORM TO N.Y.S. D.O.T. ITEM 733.04 TYPE 2 MINIMUM C.B.R. 20% FINE GRADE TO WITHIN ±1/4" OF TRUE GRADE COMPACTED TO MINIMUM 95% MODIFIED PROCTOR MAXIMUM DENSITY. REFER TO GEOTECHNICAL ENGINEERING REPORT.

FILTER FABRIC SHALL BE MIRAFI HP-370 OR APPROVED EQUAL AS RECOMMENDED IN GEOTECHNICAL ENGINEERING REPORT

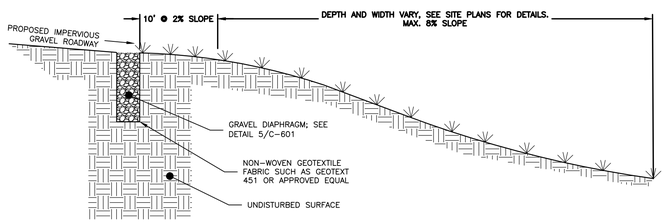
SUBGRADE TO BE COMPACTED TO MIN. 90% MODIFIED PROCTOR MAX. DENSITY & PROOF ROLLED (MIN. 10 TON STATIC). ALL UNSTABLE AREAS SHALL BE EXCAVATED AND REPLACED WITH SUBBASE MATERIAL. FINE GRADE TO ±1/2".

3 C-601 GRAVEL ACCESS DRIVE SECTION
NOT TO SCALE



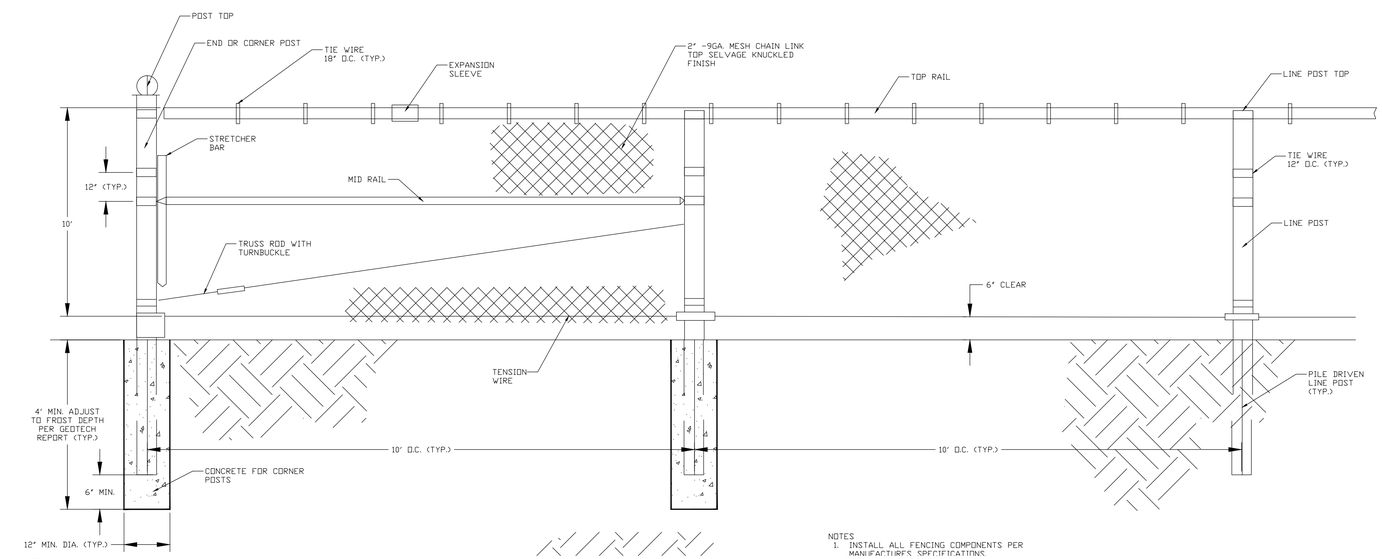
INFILTRATION BASIN ELEVATIONS	SMA #1
A-1 (FT)	1,082.00
A-2 (FT)	1,084.50
B-1 (FT)	1,083.50
STORM EVENT	
1 YR (FT)	1,082.51
10 YR (FT)	1,083.34
100 YR (FT)	1,083.73

4 C-601 INFILTRATION BASIN
NOT TO SCALE



NOTES:
1. HEAVY EQUIPMENT USAGE WITHIN VEGETATED FILTER STRIP AREAS SHALL BE LIMITED TO WHAT IS NECESSARY TO COMPLETE CONSTRUCTION IN ORDER TO PREVENT UNNECESSARY COMPACTION.
2. DISTURBED AREAS WITHIN VEGETATED FILTER STRIP SHALL BE DECOMPACTED AND RELOAMED.
3. THE TOP FOUR INCHES OF TOP SOIL WITHIN DISTURBED AREAS OF THE VEGETATED FILTER STRIP SHALL BE AMENDED WITH AT LEAST ONE INCH DEPTH OF COMPOST.

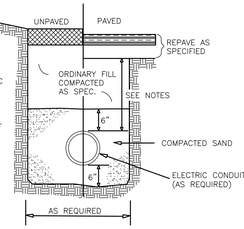
5 C-601 VEGETATED FILTER STRIP
NOT TO SCALE



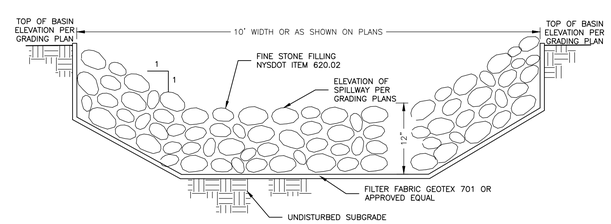
NOTES
1. INSTALL ALL FENCING COMPONENTS PER MANUFACTURES SPECIFICATIONS.

6 C-601 CHAIN LINK SECURITY FENCE
NOT TO SCALE

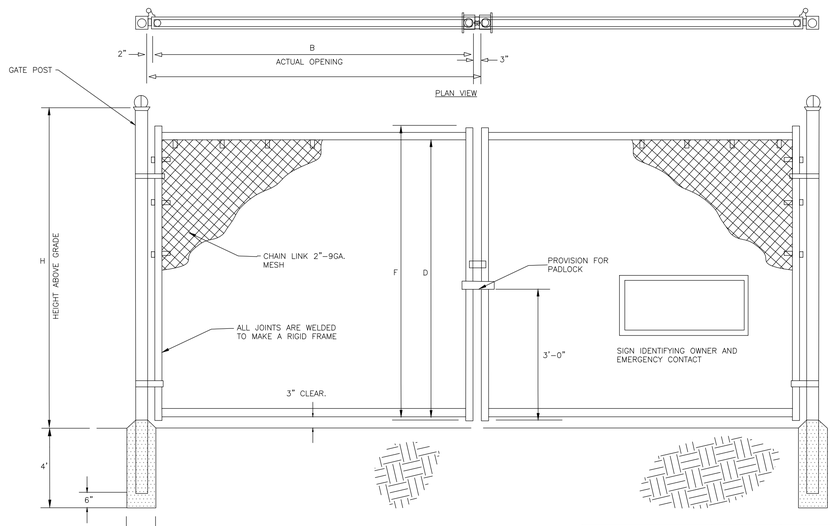
NOTES:
1. 18" MINIMUM WHEN LOCATED WITHIN FENCED AREA, 24" IF CONDUIT IS NOT UTILIZED AND ELECTRICAL LINES ARE DIRECTLY PLACED.
2. OUTSIDE OF PERIMETER FENCE IN CROPLAND, HAYLAND, AND IMPROVED PASTURE BURIED ELECTRIC CONDUCTORS MUST HAVE A MINIMUM TOTAL DEPTH OF 48" OF COVER.
3. IN AREAS WHERE THE DEPTH OF SOIL OVER BEDROCK IS LESS THAN 48", THE ELECTRIC CONDUIT MUST BE BURIED BELOW THE SURFACE OF THE BEDROCK IF FRIABLE/RIPPABLE, OR AS NEAR AS POSSIBLE TO THE SURFACE OF THE BED ROCK.
4. IN UNIMPROVED GRAZING AREAS OR ON LAND PERMANENTLY DEVOTED TO PASTURE THE MINIMUM DEPTH OF COVER MUST BE 36".
5. WHERE ELECTRICAL CONDUCTORS ARE BURIED DIRECTLY BELOW THE GENERATION FACILITY'S ACCESS ROAD OR IMMEDIATELY ADJACENT (AT ROAD EDGE) TO THE ACCESS ROAD, THE MINIMUM DEPTH OF COVER MUST BE 24".



6 C-601 MV CABLE TRENCH
NOT TO SCALE



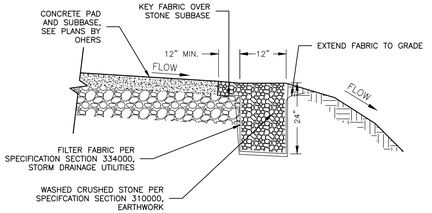
9 C-601 EMERGENCY OVERFLOW SPILLWAY
NOT TO SCALE



1. ALL FENCING SHALL BE GALVANIZED.
2. CONCRETE ENCASEMENT AT END AND GATE POSTS ONLY.

NOMINAL HEIGHT (H)	ACTUAL (F)	ACTUAL (D)	OPENING (B)
10'-0"	8'-10"	8'-8 1/2"	10'-0"

10 C-601 CHAIN LINK SECURITY FENCE DOUBLE GATE
NOT TO SCALE



8 C-601 GRAVEL DIAPHRAGM
NOT TO SCALE

TOWN OF LANSING PLANNING BOARD, NEW YORK

DATED_____

SIGNATURE_____
CHAIRMAN

DATED_____

SIGNATURE_____
CODE ENFORCEMENT OFFICER

DATED_____

SIGNATURE_____
HIGHWAY SUPERINTENDENT

DATED_____

SIGNATURE_____
TOWN ENGINEER

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101 Summer Street, Boston, MA 02110
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900 Route 146 Clifton Park, New York 12065
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Rev	Issued For	Date
A	INTERNAL REVIEW	5/27/26
B	TOWN COMMENTS	7/10/26
C	TOWN COMMENTS	9/23/26
D	TOWN COMMENTS	10/14/26

P.E. seal/Consultant:

STATE OF NEW YORK * MATTHEW J. MITCHELL * 098539 * LICENSED PROFESSIONAL ENGINEER

Project:
JERRY SMITH , LLC
JERRY SMITH ROAD, LANSING, NY

Drawing Title:
SITE DETAILS
Drawn by: BMW Scale: AS SHOWN Approved by: TJM

Dwg No: C-601 Size: D Sheet Rev: D

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MEGAPACK 2 XL DATASHEET

TESLA.COM/MEGAPACK

Grid transformation for the world's largest energy projects
- Best-in-class energy density and round-trip efficiency
- Industry-leading power electronics and thermal system performance
- Rapid and cost-effective deployment with factory-assembled and pre-tested solution

Scaled and rigorously tested product safety and reliability
- Comprehensive in-house reliability testing by the leading experts in the industry
- Engineered for safety and performance at every level
- Continuous improvement based on large-scale operational experience

Designed with flexibility and configurability in mind
- Modular architecture that allows for a range of configurations across multiple applications and industry-first Archetypes
- Industry experts available to identify site-specific needs
- Integrated solution that allows for battery augmentation over time

POWER AND ENERGY

Megapack is configurable. Standard configurations are 2-Hour cell option C010 or C011, 4-Hour cell option C010 or C011, and 4-Hour cell option C012. Megapack is also capable of non-standard, such as 8-Hour, configurations. Ratings are provided per Megapack. Nominal energy is specified at 25°C (77°F).

	AC Power	Energy
2-Hour C010 / C011	1927 kW	3854 kWh
4-Hour C010 / C011	979 kW	3916 kWh
4-Hour C012	1075 kW	4300 kWh

ELECTRICAL

Nominal AC Voltage	480 V AC 3-phase	
Nominal Frequency	50 or 60 Hz	
Inverter Power per Megapack[1]	2-Hour Max - C010 / C011: 4-Hour Max - C010 / C011: 4-Hour Max - C012:	2400 kVA 1320 kVA 1320 kVA
Round-Trip Efficiency[2]	2-Hour - C010 / C011: 4-Hour - C010 / C011: 4-Hour - C012:	91.7% 93.7% 91.9%

[1] *Scalable from 400 kVA minimum in increments of 50 kVA*
[2] *Full-depth cycle including all power conversion and thermal system losses, at 25°C (77°F)*

WARRANTY

Coverage	All-inclusive, equipment and energy retention
Term	15 years standard, extendable to 20 years

MECHANICAL AND MOUNTING

Ingress Ratings	IP66 / NEMA 3R (Main Enclosure) IP20 (Thermal System)		
Enclosure Dimensions +/- 13 mm (½ in)	Width: Depth: Height:	8800 mm 1650 mm 2785 mm	(346 ½ in) (65 in) (110 in)
Maximum Weight	38,100 kg (84,000 lb)		
Operating Ambient Temperature	–30°C to 50°C (–22°F to 122°F)		

CONTROLS AND COMMUNICATIONS

Protocols	Modbus TCP / DNP3

Archetypes
Advanced control functions and unique design requirements for Utility-Scale and Commercial and Industrial (C&I) projects:
- Utility Battery Only
- Utility Co-Located Plant (Battery Only)
- Utility Hybrid
- C&I Battery Dispatch Only
- C&I Grid-Connected Only
- C&I Backup
- C&I Off-Grid Microgrid
- C&I Grid-Connected Microgrid

REGULATORY

System is designed to be compliant to grid codes and safety standards of all major markets.

System	NRTL listed to UL 1973, UL 9540, UL 9540A, UL 1741 SB, IEC 62619, IEEE 1547
Cells	NRTL listed to UL 1642

PART NUMBER

1848844-XX-Y Where X is a number between 0-9 and Y is a letter

TESLA

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1 C-602 TESLA BATTERY STORAGE SPECIFICATION SHEET

TOWN OF LANSING PLANNING BOARD, NEW YORK

DATED_____

SIGNATURE_____
CHAIRMAN

DATED_____

SIGNATURE_____
CODE ENFORCEMENT OFFICER

DATED_____

SIGNATURE_____
HIGHWAY SUPERINTENDENT

DATED_____

SIGNATURE_____
TOWN ENGINEER

ELECTRICAL EQUIPMENT NOTE:

1. ADDITIONAL ELECTRICAL EQUIPMENT SPECIFICATIONS SHALL BE SUBMITTED TO THE TOWN ONCE JERRY SMITH, LLC SELECTS SPECIFIC EQUIPMENT.

DANGER

HIGH VOLTAGE - KEEP AWAY
AUTHORIZED PERSONNEL ONLY

NO TRESPASSING. THIS SITE IS MONITORED BY SURVEILLANCE.

NOTES:

1. LOCATE ON MAIN GATE AND EVERY 200' OF FENCE LINE.

IN THE EVENT OF AN EMERGENCY
PLEASE DIAL 911

Followed By a Second Call To:
857-239-0057

Your Location Is:
339 Jerry Smith Road
Lansing, New York 14882

8 1/2" × 11"

NOTES:

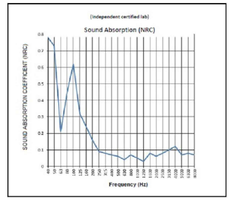
1. WHITE LABEL WITH BLACK LETTERING LOCATED ON SITE ENTRANCE.

2 C-602 SITE SIGNAGE

Acousti|blok® quieting the world — Product Data Sheet

Product Name
AcoustiFence® Noise Reducing Fences

For Manufacturer Info:
Contact:
Acoustiblok, Inc.
6900 Interbay Boulevard
Tampa, FL 33616
Call - (813) 980-1400
Fax - (813) 549-2653
Email - jboland@acoustiblok.com
www.acoustiblok.com



Sound Absorption Test Results

Product Description
Basic Use

AcoustiFence was originally developed by Acoustiblok, Inc. for noise isolation on offshore oil rigs, but has since proven successful in many other demanding outdoor settings, such as construction sites, commercial/industrial facilities, and residential communities.

Benefits:
- Effectively reduces exterior noise
- Easy to install
- Resistant to UV, dirt and water
- Resistant to corrosion, mold and mildew

AcoustiFence Noise Reducing Fences

AcoustiFence is a unique, heavy-mineral filled, barium free, viscoelastic acoustical material that is made in the U.S.A. Unlike fences or shrubs, this material does extraordinarily well in blocking direct sound, and a unique characteristic of the material sets it apart from other sound barriers when dealing with very low frequencies.

Acousti|blok® quieting the world — Product Data Sheet

Product Name
AcoustiFence® Noise Reducing Fences

Physical Properties

- Barium free, 15 Flame Spread Index (Class A For Flame Spread)
- Minimum STC 27 per ASTM E90-02 & ASTM E413-87
- Minimum TL 24 dBA @ 100Hz & 16dBA @ 40Hz
- 6' & 8' Wide Acoustifence available. Can be custom configured multiple ways
- Colors - Black & Green
- High UV resistance
- Heat tolerance: 200°F for 7 days, less than 1% shrinkage with no deformation.
- Freezes at -40°F. Do not unroll or flex frozen material. Properties not affected by freeze/thaw cycles.
- 15+ Year life expectancy
- No fungal or algal growth and no visible disfigurement, per ASTM D3273 and ASTM D3274 (rating=10)
- Tensile Strength - Black 1977 psi / Green 1714 psi
- Weight: 1 pound per square foot

Material Specifications – Part # "Acoustifence 6x30 Industrial"

Acoustical Rating	STC 28 / OITC 22
Size	6 ft. (1.83m) x 30 ft. (9. 14m) x 0.125 in. (3mm) 180 ft² (16.72m²)
Weight	185 lbs. (84Kg)
Fastening	Black brass grommets every 6 in. (152mm) along top edge with four grommets spaced along the bottom edge. Commonly installed horizontally.
Color	Black
(This is an industrial product and minor surface blemishes are a possibility.)	

Acousti|blok® quieting the world
6900 Interbay Blvd.
Tampa, Florida USA 33616
Telephone: (813)980-1400
www.Acoustiblok.com
sales@acoustiblok.com

Information herein is, to the best of our knowledge and belief, accurate. However, since conditions of handling and use are beyond our control, we make no guarantee of results and assume no liability for damages incurred by the use of this material/product. All material/products may present unknown health hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards are that exist. Final determination of suitability of this material/product is the sole responsibility of the user. No representations or warranties, either expressed or implied, of merchantability, fitness for a particular purpose or any nature are made hereunder with respect to the information contained herein or the material/product to which the information refers. It is the responsibility of the user to comply with all applicable federal, state and local laws and regulations. Specifications subject to change without notice.

Acoustiblok, Inc. | 6900 Interbay Blvd. Tampa, FL 33616 | (813) 980-1400

3 C-602 ACOUSTIFENCE SPECIFICATION SHEETS

nexamp
101 Summer Street, Boston, MA 02110
Tel: (617) 431-1440 Fax: (978) 416-2525 Web: nexamp.com

EP ENVIRONMENTAL DESIGN PARTNERSHIP, LLP.
900 Route 146 Clifton Park, New York 12065
(518) 371-7021 ed4llp.com

Rev	Issued For	Date
A	INTERNAL REVIEW	5/27/26
B	TOWN COMMENTS	7/10/26
C	TOWN COMMENTS	9/23/26
D	TOWN COMMENTS	10/14/26

P.E. seal/Consultant:

Project: JERRY SMITH , LLC
JERRY SMITH ROAD,
LANSING, NY

Drawing Title: SITE DETAILS
Drawn by: BMW | Scale: AS SHOWN | Approved by: TJM

Dwg No:	Size: D	Sheet Rev:
C-602		D

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ENVIRONMENTAL DESIGN PARTNERSHIP, LLP.
Shaping the physical environment

900 Route 146 Clifton Park, NY 12065
(P) 518.371.7621 edpllp.com

July 10, 2026

Nathaniel Rogers
Planning Director
Town of Lansing
29 Auburn Road
Lansing, NY 14568

Regarding: Jerry Smith Road Battery Energy Storage System (BESS)
339 Jerry Smith Road -Tax Map Parcel: 16-1-10.1
Preliminary/Final site Plan and Special Use Permit Review
MRB Group Project No. 1207.25000.000 PH 012 Comments &
T.G. Miller, P.C. Comments

Dear Mr. Rogers:

In response to the MRB Group Comment letter dated June 22, 2026, and T.G. Miller, P.C. comment letter dated June 19, 2026, please find the following requested information compiled to address the comments provided.

MRB Group Comment Letter Dated June 22, 2026

SEQR Comments

1. Per the NY State Environmental Quality Review Act (SEQR), the proposed project is an Unlisted Action and will entail a coordinated review with involved and interested agencies.

Response: Noted

2. The applicant submitted both a Full Environmental Assessment Form (FEAF) and a Short Environmental Assessment Form (SEAF) with the application. We note that the submitted FEAF is substantially incomplete, with numerous sections left unanswered or inadequately addressed. Given the scope and scale of the proposed project, a complete FEAF will be required as part of the next submission to facilitate a thorough SEQR review.

Response: The completed FEAF is included in the 7/10/26 Town submission.

3. The EAF Mapper Summary Report identified the presence of Federal Wetlands and Informational Freshwater Wetlands on or near the project site. Based on the materials submitted, it does not appear that the proposed development area will directly impact these resources. However, the Existing Conditions Plan should clearly delineate and label all jurisdictional wetlands, wetland buffers (if applicable), and other significant natural features to verify that impacts are avoided and to facilitate agency review.

Response: The Existing Conditions plan outlines all significant natural features.

4. The applicant should coordinate with the New York State Historic Preservation Office (SHPO) to determine whether any historic or cultural resources may be affected by the proposed development. Copies of all correspondence, determinations, and related documentation from SHPO should be provided to the Town and MRB Group for review and inclusion in the project file.

Response: Documents from SHPO are included in 7/10/26 Town submission.

Special Use Permit Comments

5. Pursuant to Town Code Section 270-35(T)(1)(d), the Site Plans shall identify the location and nature of all proposed utility easements and associated infrastructure. If this information cannot be adequately depicted on the Site Plans, a separate Utility Plan should be provided showing the location, dimensions, and details of all proposed utility installations and easements.

Response: Final utility easement boundaries will be established once a final site layout is achieved. C-300 has been updated to show a "blow-up" of the utility infrastructure proposed.

6. Pursuant to Town Code Section 270-35(T)(1)(e), the Existing Conditions and Site Plans shall identify and depict all areas of potential environmental sensitivity located on or adjacent to the project site. Such features include, but are not limited to, unique natural areas, slopes exceeding 10%, floodplains, historic resources, airports, government-owned lands, conservation easements, trails, parkland, prime agricultural soils, and jurisdictional wetland delineations. The applicant should revise the Site Plans accordingly to demonstrate compliance with this requirement.

Response: The Existing Conditions plan shows potentially environmentally sensitive locations around the site.

7. Pursuant to Town Code Section 270-35(T)(1)(f), the Site Plan shall include specification sheets and construction details for all proposed BESS components. We acknowledge that the applicant has submitted separate specification sheets for the proposed Tesla Megapack battery system. However, the Site Plan should be revised to incorporate applicable component details and references necessary to clearly identify and document the proposed BESS infrastructure with the plan set.

Response: Sheet C-602 has been included in the Plan Set to show specifications of signage and some of the proposed electrical equipment. Note: Some of the specific equipment has not been determined by applicant. When selected, said equipment specifications will be added to the Plan Set.

8. Pursuant to Town Code Section 270-35(T)(2)(c), the applicant shall demonstrate that the

proposed BESS facility complies with all applicable federal and state laws, regulations and agency requirements. Supporting documentation shall be provided for review.

Response: Comment noted. The Applicant will provide the Town copies of agency correspondence. Please specify what additional documentation is to be provided to demonstrate compliance.

9. Pursuant to Town Code Section 270-35(T)(5), the Site Plan shall include all required signage. The Site Plan should be revised to identify the location and provide details of all proposed signage.

Response: Signage details have been included on Sheet C-602.

10. Pursuant to Town Code Section 270-35(T)(4), all on-site utility lines shall be placed underground to the extent feasible, except for the main service connection and approved interconnection facilities. The Site Plan depicts six (6) utility poles at the point of interconnection, with the remaining lines proposed to be trenched to the transformer pad; however, this configuration should be re-evaluated, as the proposed trench within the vegetated swale may create maintenance conflicts and should be addressed or revised accordingly.

Response: The proposed utility connection with the equipment poles is a requirement from the utility. In order for the Applicant to request an alternative configuration a letter from the Town stating it will not allow the traditional six (6) utility pole configuration and that the Town is requesting pad mounted equipment.

11. Pursuant to Town Code Section 270-35(U)(1)(a), the Decommissioning Plan shall identify the conditions that will trigger decommissioning of the facility, including at a minimum, facility abandonment, cessation of operations for six (6) consecutive months (or 12 months within any 18-month period), violation of site plan approval conditions, or the expiration, revocation, or violation of required permits.

Response: Decommissioning plan has been updated to include this information.

12. Pursuant to Town Code Section 270-35(U)(1)(h) the applicant shall provide a PE-prepared decommissioning cost estimate including a 125% base cost escalated at 3% annually over the project life, excluding salvage value. The decommissioning bond shall remain in effect for the life of the project plus (6) months for decommissioning and site stabilization, with a corresponding note added to the Decommissioning Plan and Cost Estimate.

Response: PE prepared cost estimate has been provided in the Decommissioning Plan.

13. The Decommissioning Plan shall be revised to include a list of stakeholders, including the Town, emergency response agencies, the property owner, and any other applicable

parties. The Plan shall also specify stakeholders will be provided with copies of any revised Decommissioning Plan. All revised documents shall be stamped and signed by a licensed professional engineer.

Response: The Decommissioning plan has been revised accordingly.

14. The Decommissioning Plan should describe site restoration steps that adhere to and reference the New York State Agricultural and Markets Guidelines for Solar Energy projects- Construction Mitigation for Agricultural Lands. The Plan should enumerate these practices in the Plan and by reference to the current versions of the Guidelines.

Response: Noted.

15. The subject parcel is located within a New York State Certified Agricultural District(Tompkins County Agricultural District #1). Pursuant to New York State General Municipal Law Section 239- I and 239-m, the application shall be referred to the Tompkins County Planning Board for review and recommendation.

Response: Noted.

16. The applicant has submitted an Operations and Maintenance manual (version 2.1) prepared by Tesla. It is recommended that the Manual be revised to include a list of stakeholders, including the Town of Lansing and local fire departments. The provision of emergency response training for local first responders specific to the proposed BESS facility should also be considered in the project development.

Response: The Operations and Maintenance Manual has been revised accordingly.

SITE PLAN COMMENTS

17. Signature lines for the Planning Board Chairperson, Code Enforcement Officer, Highway Superintendent and Town Engineer are to be added to all Site plan sheets, with the exception of the Existing Conditions and Construction detail sheets.

Response: The Site Plans have been updated to include signature lines.

18. The Site Statistics table (Sheet C - 300) shall be expanded to include all relevant site dimensions, including the proposed maximum structure height. Additionally, the limits of disturbance are inconsistent between the site plan (1.19 +/- acres) and the Site Statistics table (1.67 +/- acres) and should be reconciled and updated accordingly.

Response: Limits of disturbance have been revised to 1.76 AC.

19. The submitted plans indicate installation of a 10-foot fixed knot farm fence; However, no landscaping or buffering is proposed. To demonstrate adequate screening, the applicant shall provide a viewshed/ line of sight analysis with scaled, color visual

simulations showing existing conditions, post-construction conditions, and projected vegetation maturity at 5 and 10 years. While figure 2 (Visual Profile Plan) has been provided, additional visual renderings as described above are recommended to better evaluate proposed screening.

Response: Applicant will discuss the scope and necessity of any additional visual renderings at the next Planning Board meeting.

20. Please clarify the difference between the 10-foot fixed knot farm fence and the acoustically treated fence. A detail shall be provided for further review of the Planning Board.

Response: Specifications for the acoustical fence have been included on Sheet C-602.

21. The site plan includes a turning/ maneuverability diagram for site access. The Town Fire Marshall and Building Official shall review site access and emergency response provisions as depicted in the Site Plan, Operations and Maintenance plan, and related materials to ensure compliance with the New York State Uniform Fire Prevention and Building code. The applicant shall also coordinate with the Tompkins County department of Emergency Response and the Town of Lansing Fire department and obtain all required approvals.

Response: Coordination is on-going with all departments.

22. A gravel access cross-section was provided and should be reviewed to demonstrate that said road can support a minimum 75,000-pound emergency apparatus vehicle. In addition, engineering calculations shall be provided to confirm that the proposed 12-inch culvert beneath the access road is adequately sized and meets minimum design requirements.

Response: The access road is a standard design used for solar and battery sites and the cross-section will be confirmed by a geotechnical engineer before construction. The 12-inch culvert has been sized accordingly, and calculations are included in the HydroCAD Model report.

T.G. Miller, PC Comment letter dated June 19, 2026

SWPPP

1. Provide infiltration testing in accordance with Appendix D of the Stormwater Management Design Manual (SMDM) to ensure the site meets the minimum infiltration rate for an infiltration practice period alternatively, provide a series of stormwater practices that meets the criteria of the SMDM and does not require infiltration.

Response: Infiltration testing is currently being scheduled.

2. It appears the crane pad encroaches within the footprint of the infiltration practice. The

infiltration practice must be protected during construction in order to preserve existing infiltration rates.

Response: The infiltration basin and crane pad have both been moved to no longer interfere with each other.

3. Please provide the stage storage design calculations for the infiltration bioretention practice. What is the pretreatment device selected for this practice? Demonstrate that it meets the requirements of the SMDM with calculations, details, and/ or additional narrative in the SWPPPP.

Response: The bioretention area has been revised to an infiltration basin. Storage elevations can be reviewed in the HydroCAD Report or on C-601.

4. When the pre- development land use is agriculture, the curve number for the pre-developed condition shall be taken as “meadow” not “row crops” (SMDM Section 4-6).

Response: The HydroCAD Model has been revised accordingly.

5. The Pre-Development Drainage Map must be updated to clearly show land cover and HSG boundaries. Consider adding tags or additional hatching with a legend to describe each line type and hatch shown on the figure.

Response: The Pre- and Post-development Drainage Maps have been revised accordingly.

6. The Post-Development drainage map must be updated to include the proposed contours. Please revise the figure to clearly show land cover and HSG boundaries. Consider adding tags or additional hatching with a legend to describe each area shown on the figure.

Response: The Post-development Drainage Map has been revised accordingly.

7. A note must be added to the SWPPP stating that it is the owner/operator's responsibility to keep the SWPPP current so that, at all times, it accurately documents the erosion and sediment control practices that are being used or will be used during construction, and all SMPs that will be constructed on the site. This includes preparing an as-built drawing that documents the final construction conditions.(CGP Part III.A.3.).

Response: Note has been added in Section 1 of the SWPPP.

8. Please replace the references to the 2015 NYSDEC Stormwater Management Design Manual with the current 2024 NYSDEC Stormwater Management Design Manual.

Response: All references have been replaced with the 2024 NYSDEC Stormwater Management Design Manual.

9. Proposed grading indicates that a high point is created between the two SW concrete equipment pads. The boundary for watershed 100 on the post development Drainage Map

does not correctly follow this condition. Grading must be adjusted to ensure runoff from these impervious pads reaches the stormwater management practice. Adjust the watershed boundary as needed.

Response: Spot grades have been included on Sheet C-500 to show pad elevations of the area mentioned.

10. Provide a detail for the grass filter strip and its pretreatment device.

Response: A Vegetated Filter Strip Detail has been added to Sheet C-601

11. The project appears to be removing a tree. Please verify the project is not subject to any federal permits that may place limits on when the tree removal can occur due to the Endangered Long Eared Bat.

Response: Project will clear trees within the specified Bat Tree Clearing Window.

12. Please verify that no additional permits are required from DEC (ex: wetlands, multi-sector)

Response: No wetland permits are required.

13. Please include the following documents in the subsequent submission:

a. Drawings stamped by a NYS Licensed Engineer

Response: All sheets have been stamped by a NYS Licensed Engineer.

b. The current Construction General Permit (GP 0-25-001)

Response: GP-0-25-001 has been included in the SWPPP document.

c. Reference and/or include the source of precipitation data used for hydrologic modeling.

Response: Data was sourced from Northeast Regional Climate Center (NRCC) https://precip.eas.cornell.edu/#/data_and_products

d. Draft NOI

Response: A Draft NOI has been included in the SWPPP.

e. MS4 Acceptance Form

Response: A MS4 Acceptance Form has been included in the SWPPP.

f. SWPPP Preparer Certification Form

Response: A SWPPP Preparer Certification Form has been included in the SWPPP.

g. Owner/Operator Certification Form

Response: An Owner/Operator Certification Form has been included in the SWPPP.

h. Draft Stormwater Operation Management, and Reporting Agreement (SOMRA)

Response: A Draft Stormwater Maintenance Agreement has been included in the submission.

Preliminary Drawings

1. The 1086' contour appears to dead-end at the turn around. Please verify design intent and correct grading as needed.

Response: The 1086' contour has been revised to show a highpoint at the end of the access road.

I can be reached at 518-371-7621 if you have any questions or need additional information.

Sincerely,

Benjamin Willson
Project Engineer
Environmental Design Partnership

900 New York 146 Clifton Park, NY 12065
(P) 518.371.7621 edpllp.com

Stakeholder Contacts:

Authority Having Jurisdiction: Town of Lansing, NY

Address: 29 Auburn Road | Lansing, NY 14882

Phone #: (607) 533-4142

Fire Department: Lansing Fire Department

Address: 80 Ridge Rd, Lansing, NY 14882

Emergency: 9-1-1 (if dialing locally from BESS location)

Non-Emergency: (607) 273-8000

Landowner: Doris Straw

Address: 339 Jerry Smith Rd., Lansing, NY 14882

Nexamp Contacts:

Nexamp Site Contacts		
Name	**Role**	**Phone Number**
Nexamp	Emergency Call Center	857-239-0057
Jerry Smith Storage	BESS Owner	617-431-1440
Sean Banaee	Emergency Response Coordinator	752-971-7732
Mohamed Kassamali	BESS SME	516-355-1466

Nexamp/BESS Vendor Subject Matter Expert		
Name	**Role**	**Phone Number**
Nexamp	BESS Operator	857-239-0057 Back up: 617-431-1440
Tesla	BESS Manufacturer	650-681-6060
Chemtrec	HAZMAT Remediation	800-424-9300

NOTE: Please refer to the Emergency Response Plan for additional information regarding an emergency event.

Solar and Storage Decommissioning Calc Solar MWac 0 ESS MWac 5
Blue = user input Solar MWdc 0 ESS MWh 23.5
Black = calculation/linked cell

Cost Center	Quantity	Unit	Unit Cost	Total Cost	Source	CET Notes	Escalation Year
Town Permits	1	LS	$ 1,000.00	$ 1,000.00	Internal benchmark		
Utility Coordination	1	LS	$ 1,000.00	$ 1,000.00	Internal benchmark		
SWPPP Preparation and SPDES Issunace	1	LS	$ 2,500.00	$ 2,500.00	Internal benchmark		
PreConstruction Conference	1	LS	$ 500.00	$ 500.00	Internal benchmark		
SWPPP Installation	1	LS	$ 5,000.00	$ 5,000.00	Civil EOR to confirm		
Above Ground LV Wiring Removal	0	LF	$ 1.07	$ -	Internal benchmark	Not included within standalone storage scope	
Panel Removal	0	Ea	$ 5.50	$ -	Internal benchmark	Not included within standalone storage scope	
Battery Removal	6	Ea	$ 42,000.00	$ 252,000.00	Tesla provided value		
Battery LV Wiring Removal	6	Ea	$ 200.00	$ 1,200.00	N/A	Included within line 17, not sure if needed. Recommend changing unit to L	
Transformer Removal	2	Ea	$ 6,250.00	$ 12,500.00	RSMeans		
Concrete Removal	0	SY	$ 25.96	$ -	Civil EOR to confirm		
Below- Ground LV Wiring Removal	6260	LF	$ 1.75	$ 10,939.15	RSMeans	Includes power conductors, grounding, conduit, trench backfill	
Below- Ground MV Wiring Removal	5202	LF	$ 2.73	$ 14,218.80	RSMeans	Includes power conductors, conduit, trench backfill	
Foundation Removal	1681	Ea	$ 7.00	$ 11,767.00	Civil EOR to confirm		
Pole Removal	6	Ea	$ 469.00	$ 2,814.00	RSMeans	MV Pole removal. Excludes cross arm, MV wires, and removal of any moun	
Fence Removal	400	LF	$ 3.27	$ 1,308.00	Civil EOR to confirm		
Access Road Removal	597	CY	$ 4.50	$ 2,686.67	Civil EOR to confirm		
Recycling Logistics	46	Ton	$ 130.43	$ 6,000.00	RSMeans/Glean	Includes transport for transformers, conductors, conduit, and fencing. Do	
Hydroseeding	2	Ac	$ 1,557.72	$ 3,115.44	Civil EOR to confirm		
SWPPP NOT	1	Ea	$ 5,000.00	$ 5,000.00	Civil EOR to confirm		

Total		$ 333,549.06	
Contingency	20%	$ 66,709.81	
Final Total		**$ 400,258.87**	Salvage values not included in cost.
		$/MWac $ 80,051.77	
		$/MWh $ 17,032.29	
	125% Base Cost	**$ 500,323.59**	Salvage values not included in cost.
	$/MWac	**$ 100,064.72**	
	$/MWh	**$ 21,290.37**	

Year	Bond Escalation
1	$ 400,258.87
2	$ 412,266.63
3	$ 424,634.63
4	$ 437,373.67
5	$ 450,494.88
6	$ 464,009.73
7	$ 477,930.02
8	$ 492,267.92
9	$ 507,035.96
10	$ 522,247.04
11	$ 537,914.45
12	$ 554,051.88
13	$ 570,673.44
14	$ 587,793.64
15	$ 605,427.45
16	$ 623,590.27
17	$ 642,297.98
18	$ 661,566.92
19	$ 681,413.93
20	$ 701,856.35
21	$ 722,912.04
22	$ 744,599.40
23	$ 766,937.38
24	$ 789,945.50
25	$ 813,643.87

Megapack 2 XL Operation and Maintenance Manual

Revision 2.1.1

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NOTE: Please refer to the Emergency Response Plan for additional information regarding an emergency event.

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IMPORTANT SAFETY INFORMATION

SAVE THESE INSTRUCTIONS

THIS MANUAL CONTAINS IMPORTANT INFORMATION THAT MUST BE READ, UNDERSTOOD, AND FOLLOWED DURING OPERATION AND MAINTENANCE OF THE MEGAPACK SYSTEM.

SYMBOLS

This manual uses the following symbols to highlight important information:

DANGER: Indicates a hazardous situation which, if not avoided, could result in severe injury or death.

WARNING: Indicates a hazardous situation which, if not avoided, could result in injury.

CAUTION: Indicates a hazardous situation which, if not avoided, could result in minor injury or damage to the equipment.

NOTE: Indicates an important step or tip that leads to best results but is not safety- or damage-related.

PRODUCT WARNINGS

DANGER: Servicing instructions are for use by qualified personnel only. To reduce the risk of electric shock, do not perform any servicing unless you are qualified to do so.

DANGER: Electric shock can occur when touching live components.

DANGER: Risk of electrical shock. Multiple energy sources terminate inside this equipment. Always check with a properly rated voltmeter that there is no voltage on the bus before touching.

DANGER: Control all forms of hazardous energy at the source before servicing Megapack or removing the Megapack AC circuit breaker or bus bar access panels in the Customer Interface Bay.

DANGER: Controlling hazardous energy by isolating Megapack from other sources does not de-energize the battery, and thus a shock hazard may still be present.

DANGER: Hazardous voltage can cause severe injury or death.

DANGER: Megapack, even in a normally discharged condition, is likely to contain substantial electrical charge and can cause injury or death if mishandled.

DANGER: The batteries used in this device may present a risk of fire or chemical burn if mistreated. Do not disassemble, operate above 50°C (122°F), or incinerate.

WARNING: Failure to read, understand and comply with all instructions in this manual may result in injury.

WARNING: Personal Protective Equipment (PPE) is required when working inside Megapack enclosures. Service personnel must wear safety glasses and gloves with a minimum voltage rating of 1500 V DC, Class 0 per ASTM D120 and IEC EN60903 standards.

WARNING: Megapack has no user-serviceable parts. All service must be performed by Tesla authorized parties or Tesla employees. Only trained service personnel are allowed access.

WARNING: Only use this equipment as specified by Tesla. Use of this equipment in a manner not specified by Tesla may result in impaired protection features and injury to personnel.

WARNING: Batteries are not user-serviceable. Only Tesla-approved personnel must remove, replace, or dispose of batteries.

WARNING: For continued protection against risk of fire, use only replacement fuses of the same type and rating as the original fuse. Fuses must only be replaced by trained personnel.

CAUTION: Do not paint any part of Megapack other than external white metal surfaces, using only Tesla-provided touch-up paint. Internal or external components such as exterior cabinets or grilles should not be painted.

CAUTION: Do not use cleaning solvents to clean the Megapack or expose the system to flammable or harsh chemicals or vapors.

CAUTION: Do not use fluids, parts, or accessories other than those specified in Tesla manuals, including use of non-genuine Tesla parts or accessories, or parts or accessories not purchased directly from Tesla or a Tesla-approved party.

CAUTION: Hearing damage could occur if not wearing hearing protection while Megapack is in operation.

Refer to the Tesla *Industrial Lithium-Ion Battery Emergency Response Guide* for detailed hazard information specific to the lithium-ion battery. The guide also provides hazard information for a single Tesla Megapack.

Voltage Classification

This section defines voltage classification as used in this document.

The table below represents Tesla's standard voltage ranges. The defined ranges, comparable to global codes and standards, help categorize potential electrical hazards where applicable.

NOTE: Any voltage referred to in this document is low voltage unless otherwise specified.

CAUTION: In general, voltages above 49 V are potentially hazardous. What is considered hazardous depends on many factors including your local codes and regulations.

Table 1. Voltage Classifications

Classification	Short Form	Alternating Current (AC) Range	Direct Current (DC) Range
Ultra-low voltage	ULV	0-49 V	0-49 V
Low voltage	LV	50-1,000 V	50-2,000 V
Medium voltage	MV	1,001-35,000 V (1 kV-35 kV)	2,001-35,000 V (2 kV-35 kV)
Sub-transmission medium voltage	STMV	35,001-69,000 V (35 kV-69 kV)	35,001-69,000 V (35 kV-69 kV)
High voltage	HV	Above 69,000 V (>69 kV)	Above 69,000 V (>69 kV)

Shutting Down in an Emergency

DANGER: If smoke or fire is visible, do not approach the Megapack and do not open any of its doors.

DANGER: Refer to the *Industrial Lithium-Ion Battery Emergency Response Guide* for details on response to a hazardous event (*Emergency Response Guide on page 26*).

CAUTION: External safety features such as E-Stops and upstream breakers differ by region and design. Always be aware of your site's safety design and external safety features.

To shut down the system in an emergency or for unknown behavior:

1. If an external E-Stop button or remote shutdown contact to Megapack is present, engage it.
2. If Megapack is serviced upstream by an external AC circuit breaker or disconnect, open the breaker or disconnect.
3. Only if safe to do so and if needed, proceed with de-energizing the Megapack (*Performing Lockout/Tagout on page 56*).
4. Contact Tesla (*Contact Information on page 28*) to advise that the system has been shut down.

Reference Documents

Visit the Tesla Partner Portal at *https://partners.tesla.com/* to find reference material referred to within this guide and other relevant content, including:

- Application Note: Megapack Capacity Augmentation - *https://partners.tesla.com/home/en-us/content/download/megapack_capacity_augmentation_appnote.pdf*
- Application Note: On-Site Maintenance infrastructure Requirements - *https://partners.tesla.com/home/en-us/content/download/on-site_maintenance_infrastructure_requirements_appnote.pdf*
- Application Note: Megapack Site Design Best Practices - *https://partners.tesla.com/home/en-us/content/download/megapack_site_design_application_note.pdf*
- Controls and Communications Manual - *https://partners.tesla.com/home/en-US/content/download/Controls_and_Communications_Manual.pdf*
- Emergency Response Site Information Form - *https://partners.tesla.com/home/en-US/content/download/Emergency_Response_Site_Information_Form.docx*
- Industrial Lithium-Ion Battery Emergency Response Guide - *https://www.tesla.com/firstresponders*
- Megapack 2 XL Design and Installation Manual - *https://partners.tesla.com/home/en-US/content/download/Megapack_2_XL_Design_and_Installation_Manual.pdf*
- Megapack 2 XL Safety Overview - *https://partners.tesla.com/home/en-us/content/download/megapack_2_xl_safety_overview.pdf*
- Megapack 2 XL Transportation and Storage Guidelines - *https://partners.tesla.com/home/en-US/content/download/Megapack_2_XL_Transportation_and_Storage_Guidelines.pdf*
- Microgrid Controller Owner's Manual - *https://partners.tesla.com/home/en-US/content/download/MicrogridController_Manual_Owners.pdf*
- Application Note: Powerhub for Megapack and Powerpack - *https://partners.tesla.com/home/en-US/content/download/Powerhub_for_Megapack_Powerpack_Appnote.pdf*
- Tesla Energy Operations Contact List and Response Times - *https://partners.tesla.com/home/en-US/content/download/Tesla_Energy_Operations_Contact_List_and_Response_Times.pdf*
- Tesla Industrial Energy Controls and Communications Manual - *https://partners.tesla.com/home/en-us/content/download/tesla_industrial_energy_controls_and_communications_manual.pdf*
- Tesla Industrial Energy Approved Vendor List - *https://partners.tesla.com/home/en-us/content/download/tesla_industrialenergy_approved_vendor_list.pdf*
- Application Note: Considerations for Hazardous Materials Business Plans (HMBP) - *https://partners.tesla.com/home/en-US/content/download/Considerations_for_Hazardous_Materials_Business_Plans_AppNote.pdf*
- Application Note: Medium-Voltage Transformer Relay Program - *https://partners.tesla.com/home/en-us/content/download/medium-voltage_transformer_relay_program_appnote.pdf*

1 Introduction

1.1 About this Publication

Tesla Megapack 2 XL (Megapack) is a modular, fully integrated, AC-coupled battery energy storage system (BESS). This publication is targeted for operators of large sites in which the Megapack System is in an operational state. It provides guidance for the safe and productive lifetime operation and maintenance of the Megapack System, which is defined as one or more Megapack 2 XL units and the Tesla System Controller.

An operator is the person responsible for the day-to-day operations of the Megapack site, which consists of the Megapack System plus additional equipment required by the site and supplied by the customer. The operator includes owner-operators, control room operators, performance engineers, maintenance engineers, facility managers, site managers, and non-Tesla field staff.

In addition to the work that you perform to operate the site, which typically includes the maintenance of the site and balance of plant, a Service Provider also performs work that includes various activities to ensure Megapack performance over the system's life.

A Service Provider is defined as one of the following:

- Tesla Energy Service
- Certified Service Provider:
    - System owner certified by Tesla
    - Third party certified by Tesla

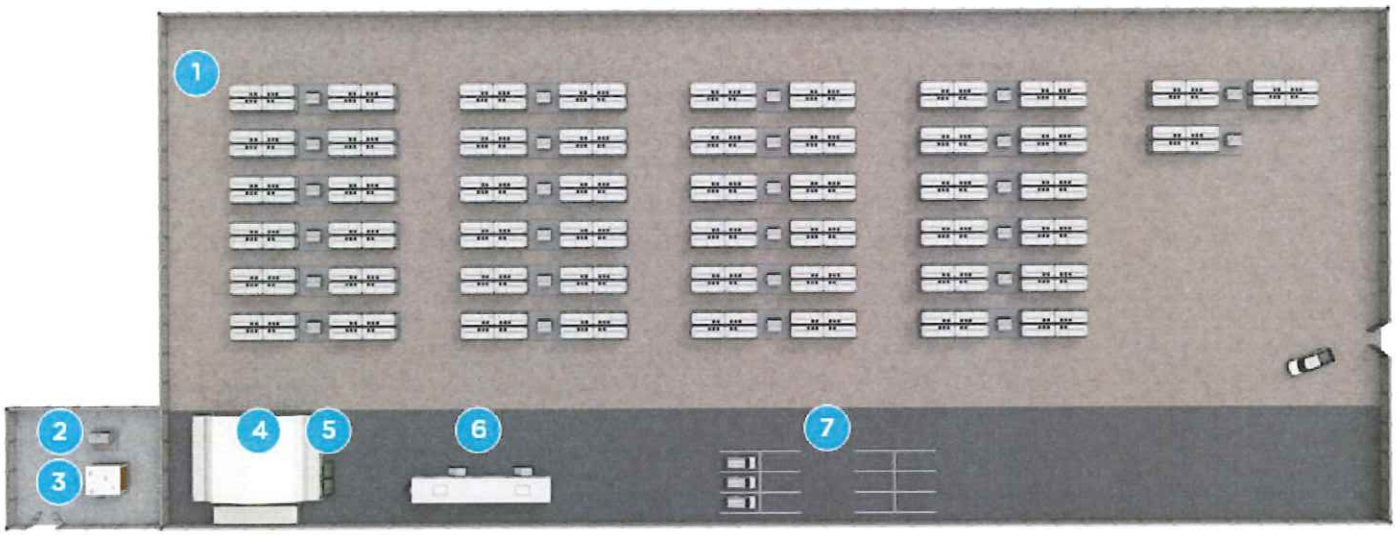
Service activities can include:

- Corrective maintenance as part of the Manufacturer's Limited Warranty and your contracts
- Preventative maintenance as part of your contracts
- Supporting system augmentation or capacity maintenance, if applicable

The Service Provider performs the required preventative maintenance services, or "services," to ensure Megapack System performance. The operator typically performs the required maintenance for the "balance of plant" and of the site. Refer to your contracts for details regarding your maintenance responsibilities.

The following figure shows an example site layout for a large utility with a typical supporting maintenance infrastructure for a Megapack site. Your infrastructure may differ. For more information regarding Megapack maintenance infrastructure requirements, refer to the *Application Note: On-Site Maintenance Infrastructure Requirements*.

Figure 1. Example ~400 MWh Megapack Site with Supporting (Level 4) Infrastructure



1. Megapack area
2. Medium voltage (MV) switchgear
3. Tesla System Controller in control room
4. Storage container and staging area
5. Waste disposal dumpsters
6. Office trailer for Tesla use
7. Parking area

CAUTION: If you are making changes to the site that may affect its design, you must ensure that the site continues to abide by all requirements in the product's *Design and Installation Manual*.

NOTE: For information about typical routes and zones at the site, refer to *Routes and Zones on page 35*.

1.2 Tesla System Components

A Tesla System consists of the following components:

- One or more Megapacks – part number 1848844-XX-Y[1] (*Megapack on page 9*)
- Tesla System Controller: Standard Tesla System Controller – part number 1471208-XX-Y[1], or Large Tesla System Controller – part number 1700130-XX-Y[1] or 1459155-XX-Y[1] (*Tesla System Controller on page 19*)

[1]*Where X is a number between 0 and 9, and Y is a letter.*

Figure 2. Example Megapack Site

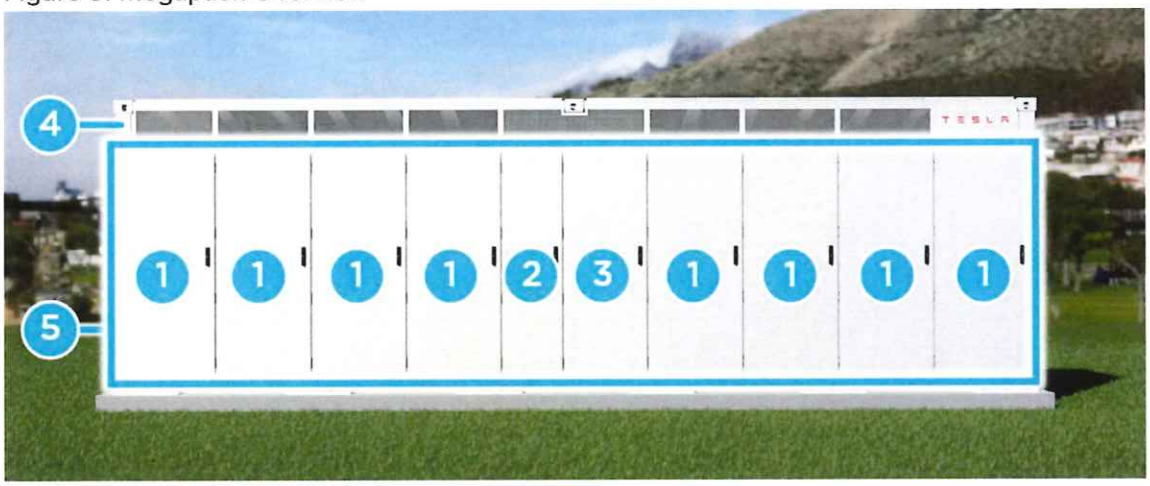
1.3 Megapack

Megapack is a fully integrated battery energy storage unit capable of charging and discharging real power and injecting and absorbing reactive power. Megapack converts power for storage in rechargeable lithium-ion battery modules and is designed to support a range of AC power and energy.

NOTE: Individual Megapack specifications are detailed on the product label (see *Megapack Labels on page 21*).

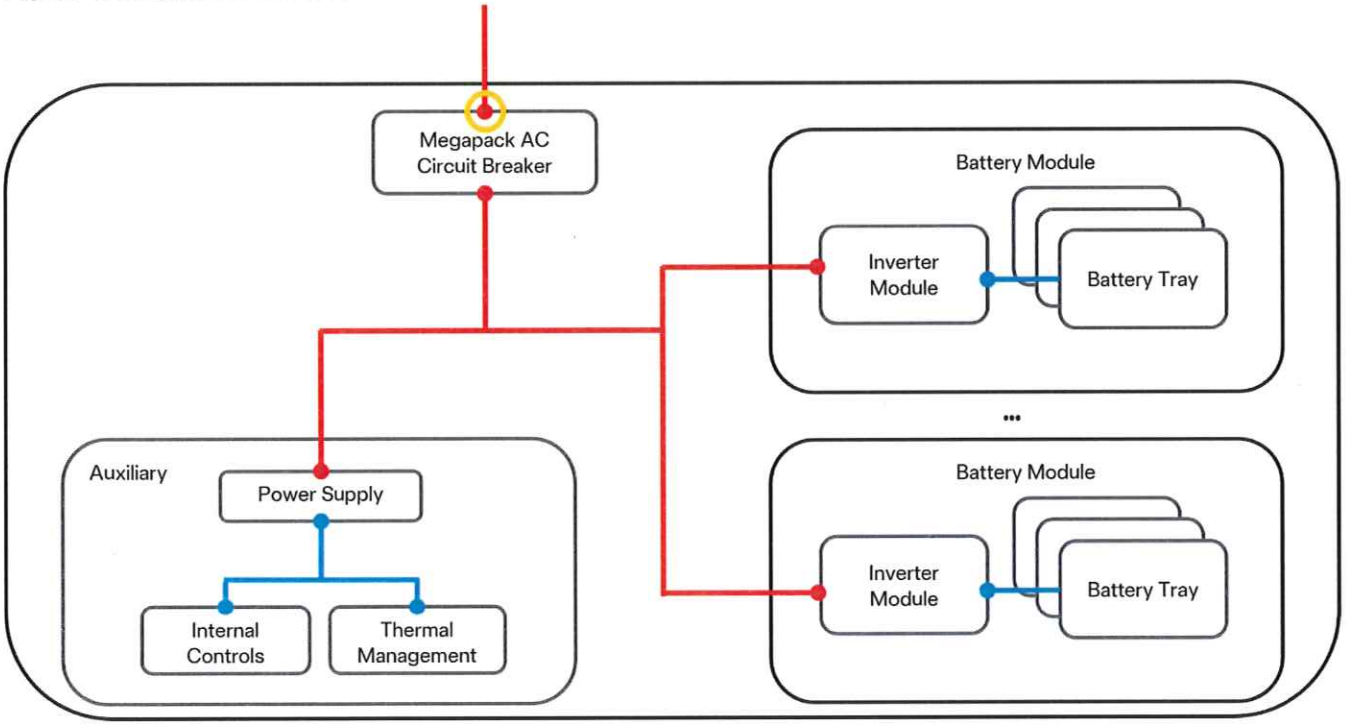
A Megapack unit consists of the following components:

Figure 3. Megapack Overview



1. Battery module bays (*Battery Modules on page 13*)
2. Thermal cabinet (*Thermal System on page 14*)
3. Customer Interface Bay (*Customer Interface Bay on page 14*)
4. Thermal roof (*Thermal System on page 14*)
5. IP66 enclosure (*Enclosure on page 18*)

Figure 4. Megapack Internal Architecture



AC
AC Output Terminals
Internal DC

The AC output terminals are the point on the AC bus bars at which the external AC connections to the Megapack are terminated.

1.3.1 Product Configurations

A Megapack unit is configurable and may vary based on **options** or **variants**. The product (Megapack unit) as built or later reconfigured, complete with its customizations including variants and options, is known as a **configuration**.

1.3.1.1 Megapack Options

An **option** is a product difference that the customer or sales team can select to configure the Megapack unit in a certain way to meet customer or project needs, such as number of battery modules or cell type (*Battery Modules on page 13*). Product options are defined using **option codes**. Not all combinations of option codes are possible, as some option codes are pre-defined by other option codes.

Option codes appear in a list of alphanumerical digits separate from the part number, determined at the time of product configuration during the sales process, and referenced throughout the order-to-delivery process. Finally, they are printed on the Megapack unit's labels (*Megapack Labels on page 21*) for reference throughout the Megapack's operational lifetime.

Option codes are described at a high level below. Refer to the *Megapack 2 XL Option Codes Quick Reference Guide* for detailed calculation and ratings information.

Table 2. Product Options

Option	Option Code	Description
Cell	C###	Cell options can denote different cell characteristics such as specifications or manufacturing location. The following cell options are available: • C010 • C011 • C012
Fan Type	FN##	Fan type options affect the maximum audible noise specification. The following fan type options are available: • FN01 • FN02 • FN03
Number of Battery Modules	EC##	Where ## is a number between 08 and 24, which indicates the number of battery modules. Combine with GT## to derive the Megapack unit's energy capacity (kWh). Combine with GT## and P### to derive the Megapack unit's real power capability (kW).
Inverter Module Configuration	GT##	GT01: 4-Hour inverter module configuration GT02: 2-Hour inverter module configuration Combine with EC## to derive the Megapack unit's energy capacity (kWh).
Apparent Power Configuration	P###	Where ### is a number between 040 - 240, which indicates the Megapack unit's apparent power capability.

Option	Option Code	Description
		Additionally allows for calculation of maximum continuous charge/discharge current (A).
Low-Voltage Augmentation Configuration	CMA#	CMA0: The hardware configuration does not support future low-voltage battery augmentation CMA1: The hardware configuration supports future low-voltage battery augmentation
Grid-Forming Firmware Configuration	VF##	VF00: The configuration does not support grid-forming VF01: The configuration supports grid-forming

Tesla may also configure options (**manufacturing options**) that become part of the product's option codes, such as circuit breaker manufacturing options. Manufacturing options are not customer-configurable.

Table 3. Manufacturing Options

Option	Option Code	Description
Thermal Configuration	TC##	Preconfigured based on heat rejection requirements of the power electronics and battery module count. **Option** / **Refrigerant** TC2P / R-1234yf TC4P / R-1234yf TC2H / R-134a TC4H / R-134a
Internal Bussing Configuration	QB##	Preconfigured based on the inverter module and apparent power configurations. QB01: 1600 A QB02: 3000 A
Megapack AC Circuit Breaker	BB##	Preconfigured based on the inverter module and apparent power configuration. BB01: 1600 A BB02: 3000 A
Shipping Firmware Configuration	SE##	Preconfigured based on delivery location of the Megapack. SE00: Configuration supports transportation over water SE01: Configuration supports transportation over land only
Cellular Configuration	CR##	Preconfigured based on delivery location of the Megapack.

Option	Option Code	Description
		CRNA: North America CRCN: China CRRW: Rest of world

1.3.1.2 Product Variants

A **variant** is a part or product difference that is not optionally configured but is, for example, an incremental product improvement, such as an enclosure variant (*Enclosure on page 18*).

1.3.2 Battery Modules

Battery modules are factory-installed into Megapack battery module bays and contain prismatic lithium-ion battery cells, the smallest non-divisible energy storage components of the Megapack. A battery module in turn is the smallest field-replaceable battery unit. Each Megapack contains up to 24 battery modules.

Battery modules may consist of C010, C011, or C012 cell options.

Figure 5. Battery Module - C010 or C011 Cell Option

Figure 6. Battery Module - C012 Cell Option

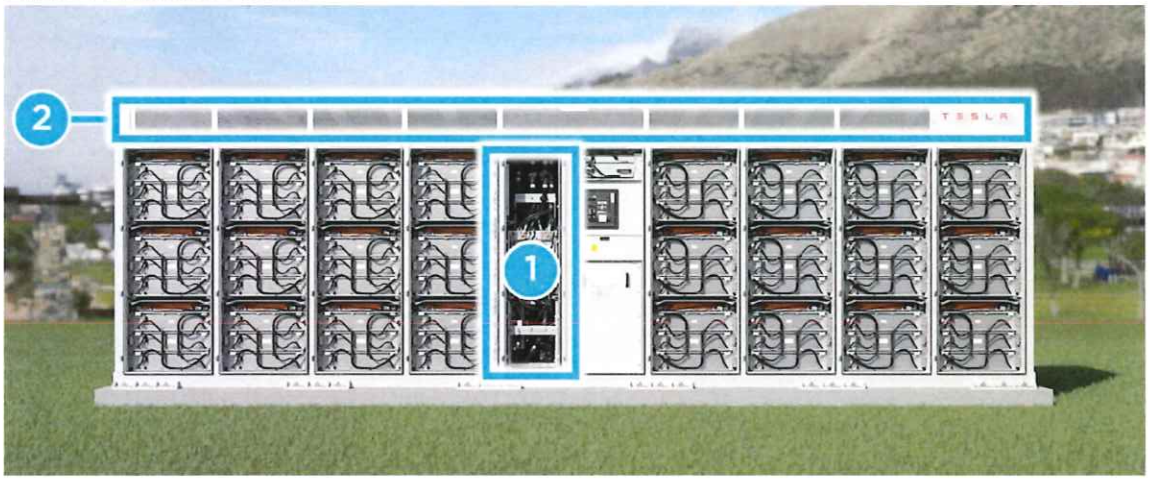
Each battery module includes an integrated inverter module for power conversion. Battery modules are connected in parallel to Megapack's internal AC bus, each with an AC power and communications output connection. The modules do not require any field assembly or adjustments and may only be replaced by Service Providers.

1.3.3 Thermal System

The thermal system provides active cooling and heating to the internal Megapack components. An external HVAC or thermal system is therefore not required for Megapack to operate.

The thermal system is comprised of the thermal cabinet and the thermal roof.

Figure 7. Thermal System



1. Thermal cabinet
2. Thermal roof

WARNING: The thermal management section is locked during operation. Do not open this cabinet while fans are in use, to avoid hazard from moving parts.

NOTE: Megapack includes an enable circuit as a safety feature. Opening the door to the thermal bay shuts down the Megapack. The thermal components located on the roof should not be serviced during operation.

1.3.4 Customer Interface Bay

All of the interface customers require for installation, operation, and maintenance is located in Bay 6, the Customer Interface Bay:

Figure 8. Customer Interface Bay

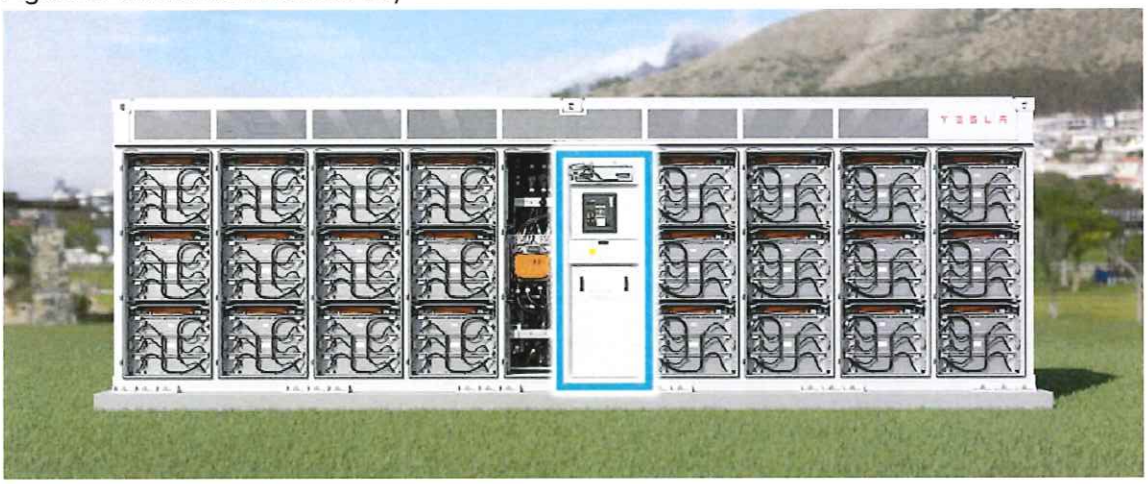


Figure 9. Customer Interface Bay Details

1. Megapack AC circuit breaker - provides distribution system protection
2. Customer I/O area - where all terminations aside from AC bus bars are made
3. AC bus bar area - where terminations to the site distribution transformer or AC distribution panel are made
4. Wireway openings

1.3.5 Megapack AC Circuit Breaker

The Customer Interface Bay contains the Megapack AC circuit breaker, a pre-installed circuit breaker that provides distribution system protection. This breaker is lockable for safe maintenance of the Megapack. Refer to *Safety Disconnect Features on page 31*.

NOTE: Additional protection or switching means at the output of the Megapack may be required depending on the jurisdiction. Protection and switching philosophy must be verified by the customer's engineer of record and should comply with regional and local codes.

Figure 10. Megapack AC Circuit Breaker – UL 489

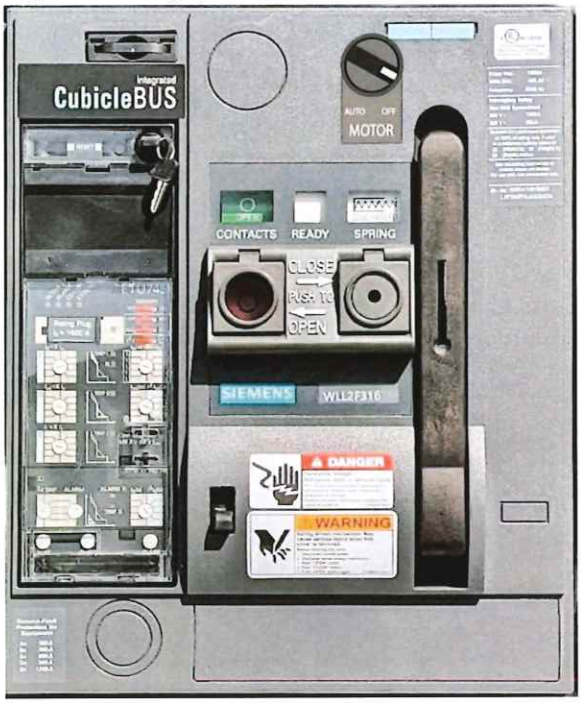


Table 4. Megapack AC Circuit Breaker Specifications – UL 489

Model	UL 489 Siemens WL model with an ETU745 programmable protection unit
Manufacturer Documentation	Siemens Low Voltage WL Circuit Breakers: *https://new.siemens.com/us/en/products/energy/low-voltage/low-voltage-circuit-breakers/wl-power-circuit-breakers.html*→ *UL 489* content
Control Power	A separate power source is not required. While operating normally (above 0% state of energy and not faulted), power is provided by the battery modules. If a separate power source is desired, jumpstart power can also be used.
Button Location	1818 mm (71.6 in) from the base of the Megapack. If the chosen foundation will place these buttons outside of local regulatory height requirements, ensure that another method of compliance is provided (such as raised workstation or remote open/close terminals).
Spring Charge	Megapack comes standard with motor to allow automatic charging of the spring-loaded breaker. The circuit breaker spring may also be manually charged for actuation.
Part Number	• Option code BB02: L2F330WGJAXEACN • Option code BB01: L2F316TGJAXEACN Refer to the unit's label (*Megapack Labels on page 21*) for the option code and the *Megapack 2 XL Option Codes Quick Reference Guide* for more information.

Figure 11. Megapack 2 XL Circuit Breaker – UL 1066

Table 5. Megapack AC Circuit Breaker Specifications – UL 1066

Model	UL 1066 Siemens WA model with an ETU600 programmable protection unit
Manufacturer Documentation	Siemens Low Voltage WA Circuit Breakers: *https://www.siemens.com/us/en/products/energy/low-voltage/low-voltage-circuit-breakers/3wa-power-circuit-breakers.html*→ *UL 1066* content
Control Power	A separate power source is not required. While operating normally (above 0% state of energy and not faulted), power is provided by the battery modules. To view the ETU600 screen, power must be supplied from laptop and/or portable power supply via USB-C port.
Button Location	1818 mm (71.6 in) from the base of the Megapack. If the chosen foundation will place these buttons outside of local regulatory height requirements, ensure that another method of compliance is provided (such as raised workstation or remote open/close terminals).
Spring Charge	Megapack comes standard with motor to allow automatic charging of the spring-loaded breaker. The circuit breaker spring may also be manually charged for actuation.
Part Number	• Option code BB02: 3WA3232-5AF02-2KA5-Z B30+D80+F40+P61+S40 • Option code BB01: 3WA3216-5AF02-2KA5-Z B30+D80+F40+P61+S40 Refer to the unit's label (*Megapack Labels on page 21*) for the option code and the *Megapack 2 XL Option Codes Quick Reference Guide* for more information.

For information about the default AC circuit breaker settings, refer to the *Megapack 2 XL Design and Installation Manual*.

1.3.5.1 Controlling the Circuit Breaker

A circuit breaker is either closed, allowing electricity to flow, or it is open, preventing the flow of electricity. Upon fault detection, the circuit breaker will trip to open state to isolate the Megapack. Megapack will only close the circuit breaker if the system has been deemed safe by Megapack firmware, based on the information provided by its status circuits:

- Enable circuit (*Enable Circuit on page 31*)
- Remote shutdown circuit
- Breaker close circuit

Generally, if all three of these status circuits are closed, the Megapack AC circuit breaker will close. Conversely, if any one of these status circuits are open, the breaker will not close.

A Megapack's circuit breaker can be controlled in three ways:

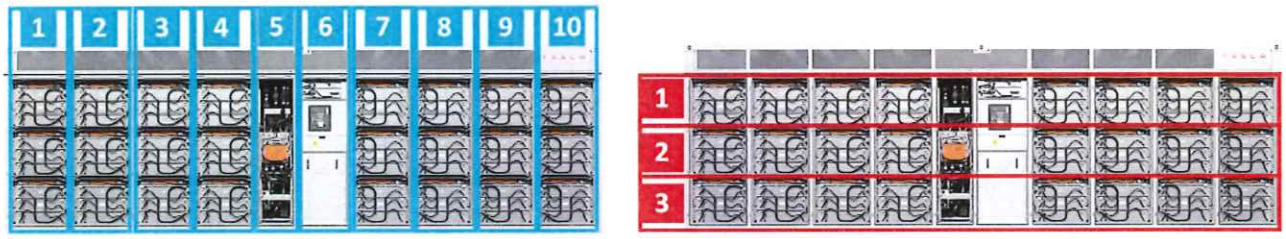
Table 6. Control Method Summary

Control Method	Open Circuit Breaker	Close Circuit Breaker
Manual	Open button	Close button
DNP3	Point = Open Megapack Breaker	Point = Close Megapack Breaker
Remote	Remote shutdown terminals	Breaker close terminals

1.3.6 Megapack Numbering Key

A numbering key can help identify locations of Megapack enclosure components to assist you when referring to them during installation or service. Below are the numbering keys for **bay** (vertical tower) and **shelf** (horizontal row) locations:

Figure 12. Megapack Bay Numbering (Left) and Shelf Numbering (Right)



For example, as depicted in *Megapack Overview on page 10*:

- The thermal bay is in bay 5
- The Customer Interface Bay is bay 6
- Battery modules are located on shelves 1-3 in bays 1-4 and 7-10.

1.3.7 Enclosure

Megapack's enclosure is rated according to IP (ingress protection) code IP66. This means it provides a high level of protection against particle and water ingress for components internal to the enclosure.

This high protection rating must be maintained at all times. In particular, special precautions must be observed while installing or servicing Megapack to prevent particles, water, or debris from entering the enclosure.

Refer to the *Megapack 2 XL Design and Installation Manual* for more information.

There are two enclosure variants:

Table 8. Megapack Enclosure Variants

Variant	Number of Anchor Brackets	Wireway Configuration
-C enclosure	12	Two single-channel trays
-D enclosure	10	Two four-channel trays

Graphics in this publication reflect the -C enclosure variant unless otherwise specified.

Refer to the *Megapack 2 XL Layout* drawings in the *Megapack 2 XL Drawings* package for detailed information.

1.4 Tesla System Controller

The Tesla System Controller is the single point of interface with which to monitor and control the entire Tesla System and approved third-party generation sources as specified in the *Tesla Industrial Energy Approved Vendor List*. It manages control functions of the Tesla System and approved third-party generation sources, aggregating real-time information and using it to optimize commands. The Tesla System Controller communicates over a private TCP network.

By default, Tesla provides two Tesla System Controllers (with the same part number). Refer to the *SCADA Design Manual* for additional details on alternative configurations. Tesla does not include additional networking equipment that may be required for the system to operate.

The Tesla System Controller has three network interfaces:

- LAN 1 RJ45/Ethernet port, which connects to the Customer Network and can be configured for WAN access
- LAN 2 RJ45/Ethernet port, which connects to the Tesla Network
- Integrated cellular modem, which by default provides cellular access for Tesla's remote connection (part numbers 1471208 and 1700130)

Refer to the relevant *Controls and Communications Manual* for complete instructions on how to interface with the Tesla System Controller.

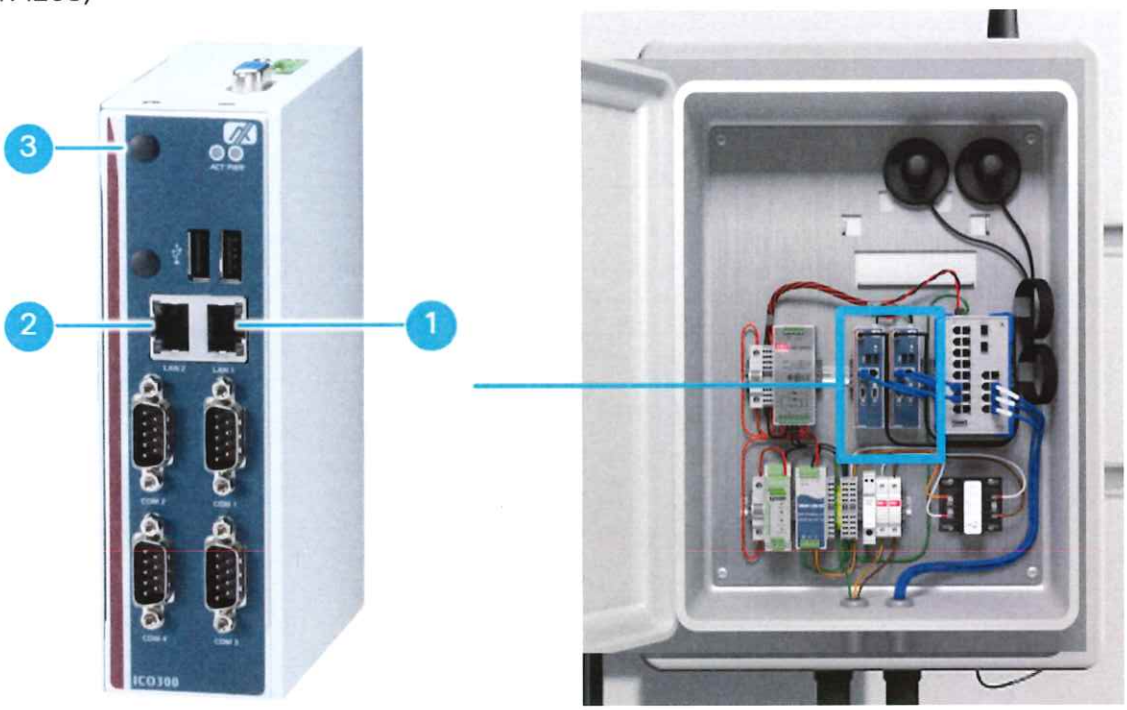
Tesla requires network separation between the Tesla Network and the Customer Network. The Tesla Network shall only contain devices that are critical for Tesla System operation. System operators can interface with the Tesla System Controller over the Customer Network.

There are two physical variations of the Tesla System Controller:

- **Standard Tesla System Controller**: Used in Tesla Systems with up to 16 battery units (not including augmentation units). Delivered in the Standard Tesla System Controller Enclosure, which includes two Standard Tesla System Controllers. Refer to the *Standard Tesla System Controller Enclosure Installation Manual* for installation details.
- **Large Tesla System Controller**: Used in Tesla Systems with greater than 16 and up to 1,000 battery units (not including augmentation units). A single Large Tesla System Controller (or pair of controllers acting in automatic failover) supports up to 1,000 battery units. For projects with more than 1,000 battery units, additional Large Tesla System Controller(s) may be required. Contact your Tesla representative for more information on controller architectures for larger system sizes.

NOTE: If you have contracted a Certified Service Provider to operate and maintain your Tesla System, contact your Tesla representative for requirements.

Figure 13. Two Standard Tesla System Controllers in the Standard Tesla System Controller Enclosure (Part Number 1471208)

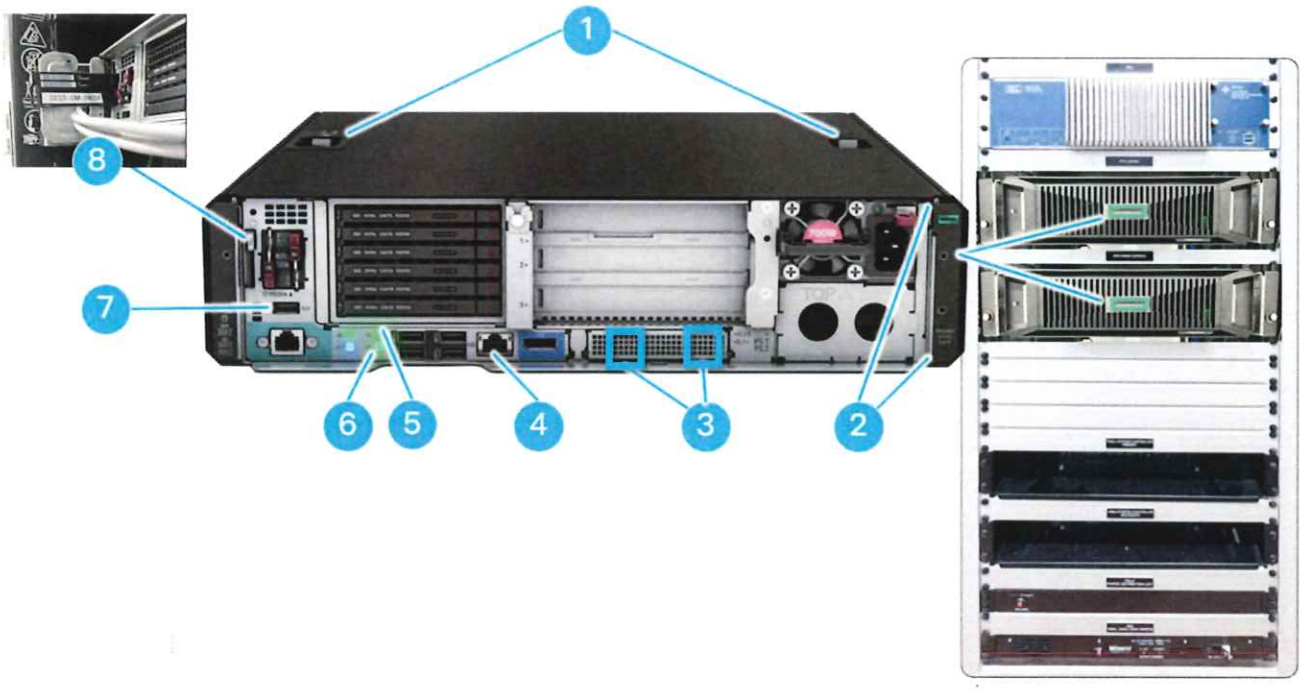


1. LAN 1 port - Customer Network
2. LAN 2 port - Tesla Network
3. Cellular WAN connection

Figure 14. Two Large Tesla System Controllers in a SCADA Network Enclosure (Part Number 1700130)

1. LAN 1 port - Customer Network
2. LAN 2 port - Tesla Network
3. Cellular WAN connection

Figure 15. Two Large Tesla System Controllers in a SCADA Network Enclosure (Part Number 1459155)



1. Quick Removal Access Panel
2. Two Power Supply Slots
3. LAN1 (left) and LAN2 (right) RJ45 ports
4. Remote Management Port
5. Health LED
6. Power On / Standby Button and System Power LED
7. Service Port
8. Information Pull Tab (Serial Number)

1.5 Product Labels

1.5.1 Megapack Labels

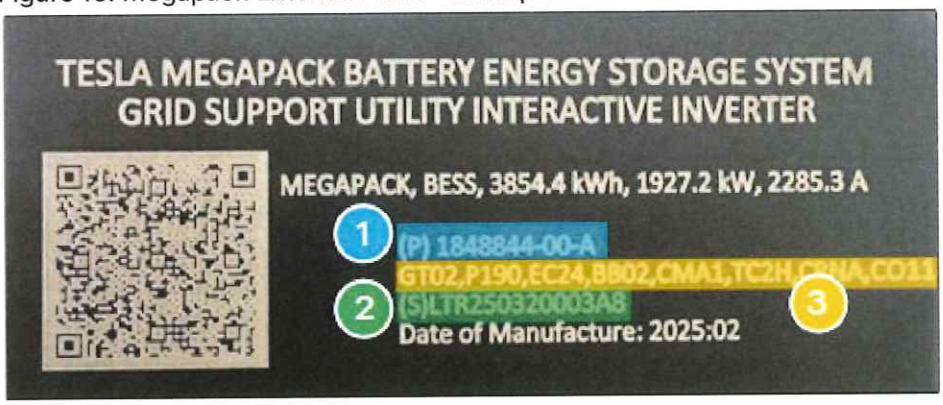
Megapack labels provide the specifications and product reference for each individual Megapack unit.

NOTE: The labels pictured here are example labels. Refer to the labels on the Megapack units themselves for specific product configuration information.

The **Megapack external label** is a small metal label laser-etched onto the outside of the Customer Interface Bay door above the handle. It contains:

- Description of the product, with kWh, kW, and amp ratings
- Part number followed by option codes
- Serial number
- Date of manufacture

Figure 16. Megapack External Label - Example

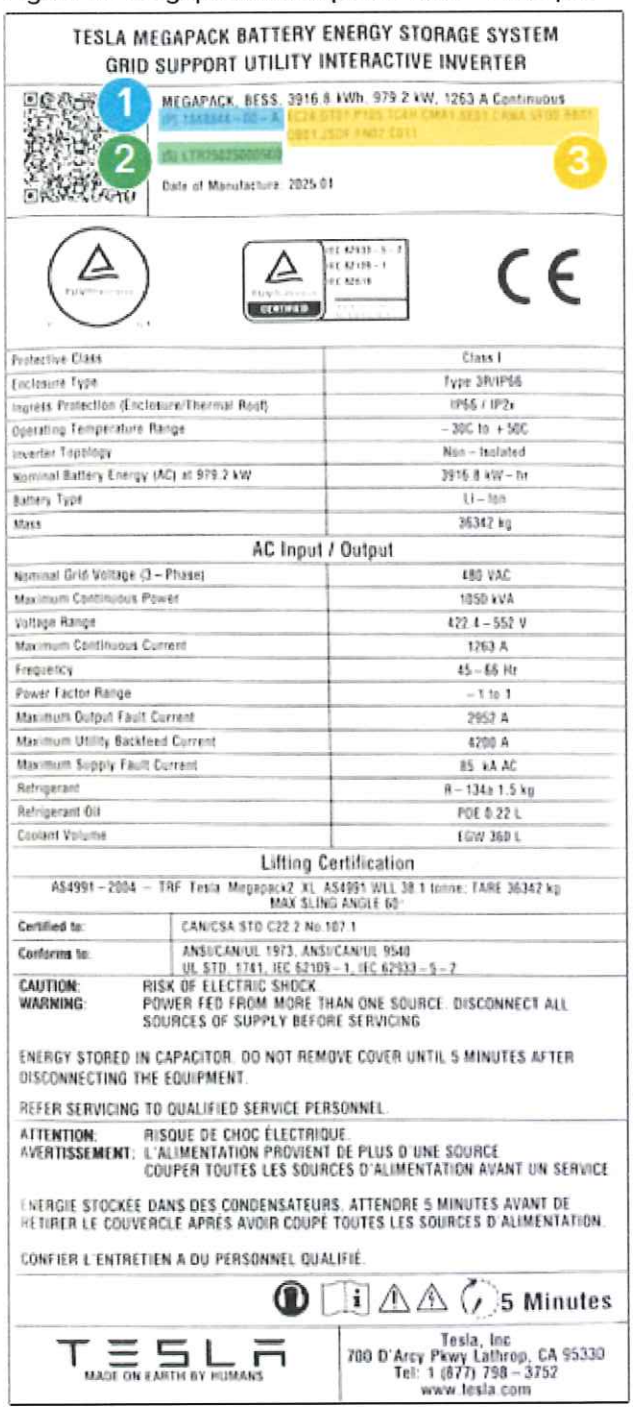


1. Part number
2. Serial number
3. Option codes

The **Megapack nameplate label** is a large sticker affixed to the inside of the Customer Interface Bay door, and contains nameplate information such as:

- AC input/output specifications including relevant power and energy ratings, in kWh, kW, and amps
- Part number followed by complete list of option codes
- Serial number
- Date of manufacture
- Weight (mass)
- Other detailed product specifics and compliance marks

Figure 17. Megapack Nameplate Label – Example



TESLA MEGAPACK BATTERY ENERGY STORAGE SYSTEM
GRID SUPPORT UTILITY INTERACTIVE INVERTER

1 MEGAPACK, BESS, 3916.8 kWh, 979.2 kW, 1263 A Continuous
2
3
Date of Manufacture: 2025-01

Protective Class	Class I
Enclosure Type	Type 3R/IP56
Ingress Protection (Enclosure/Thermal Roof)	IP56 / IP2x
Operating Temperature Range	– 30C to + 50C
Inverter Topology	Non – Isolated
Nominal Battery Energy (AC) at 979.2 kW	3916.8 kW – hr
Battery Type	Li – Ion
Mass	36342 kg

AC Input / Output

Nominal Grid Voltage (3 – Phase)	480 VAC
Maximum Continuous Power	1050 kVA
Voltage Range	422.4 – 552 V
Maximum Continuous Current	1263 A
Frequency	45 – 65 Hz
Power Factor Range	– 1 to 1
Maximum Output Fault Current	2952 A
Maximum Utility Backfeed Current	6200 A
Maximum Supply Fault Current	85 kA AC
Refrigerant	R – 134a 1.5 kg
Refrigerant Oil	POE 0.22 L
Coolant Volume	EGW 360 L

Lifting Certification

AS4991 – 2004 – TRF Tesla Megapack2 XL AS4991 WLL 38.1 tonne; TARE 36342 kg
MAX SLING ANGLE 60°

Certified to:	CAN/CSA STD C22.2 No.107.1
Conforms to:	ANSI/CAN/UL 1973, ANSI/CAN/UL 9540 UL STD. 1741, IEC 62109 – 1, IEC 62933 – 5 – 2

CAUTION:
WARNING: RISK OF ELECTRIC SHOCK
POWER FED FROM MORE THAN ONE SOURCE. DISCONNECT ALL SOURCES OF SUPPLY BEFORE SERVICING

ENERGY STORED IN CAPACITOR. DO NOT REMOVE COVER UNTIL 5 MINUTES AFTER DISCONNECTING THE EQUIPMENT.

REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

ATTENTION:
AVERTISSEMENT: RISQUE DE CHOC ÉLECTRIQUE
L'ALIMENTATION PROVIENT DE PLUS D'UNE SOURCE
COUPER TOUTES LES SOURCES D'ALIMENTATION AVANT UN SERVICE

L'ENERGIE STOCKÉE DANS DES CONDENSATEURS. ATTENDRE 5 MINUTES AVANT DE RETIRER LE COUVERCLE APRÈS AVOIR COUPÉ TOUTES LES SOURCES D'ALIMENTATION.

CONFIER L'ENTRETIEN A DU PERSONNEL QUALIFIÉ.

5 Minutes

TESLA
MADE ON EARTH BY HUMANS

Tesla, Inc
700 D'Arcy Pkwy Lathrop, CA 95330
Tel: 1 (877) 798 – 3752
www.tesla.com

1. Part number
2. Serial number
3. Option codes

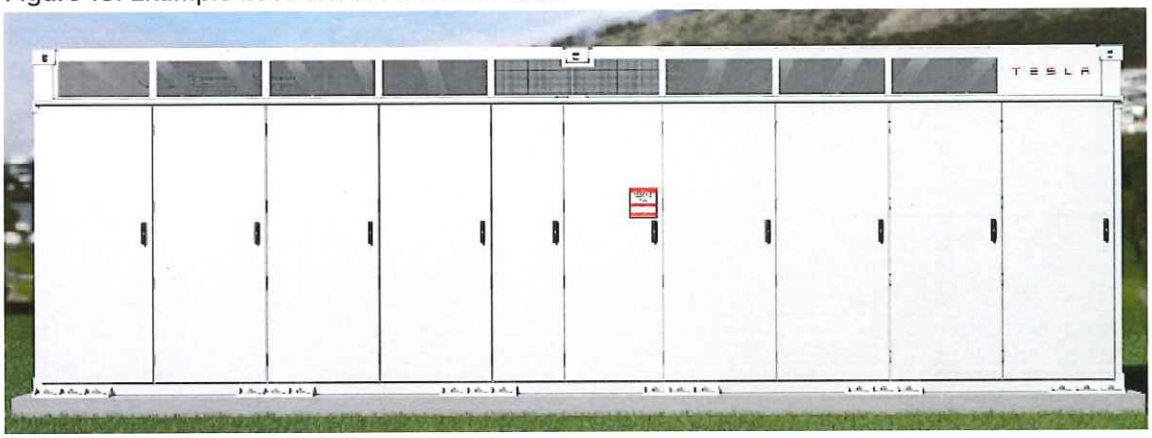
1.5.2 Arc Flash Label

An arc flash label is affixed to the outside of the Customer Interface Bay door for each Megapack. The label designates:

- Working distance
- Expected incident energy

- Recommended PPE
- Nominal voltage

Figure 18. Example Location of Arc Flash Label



NOTE: Arc flash labels are required for Service Providers to perform any work on Megapack. If the label is not present, Tesla will require Megapack and upstream devices to be completely de-energized before any work on Megapack can take place.

1.5.3 Tesla System Controller Labels

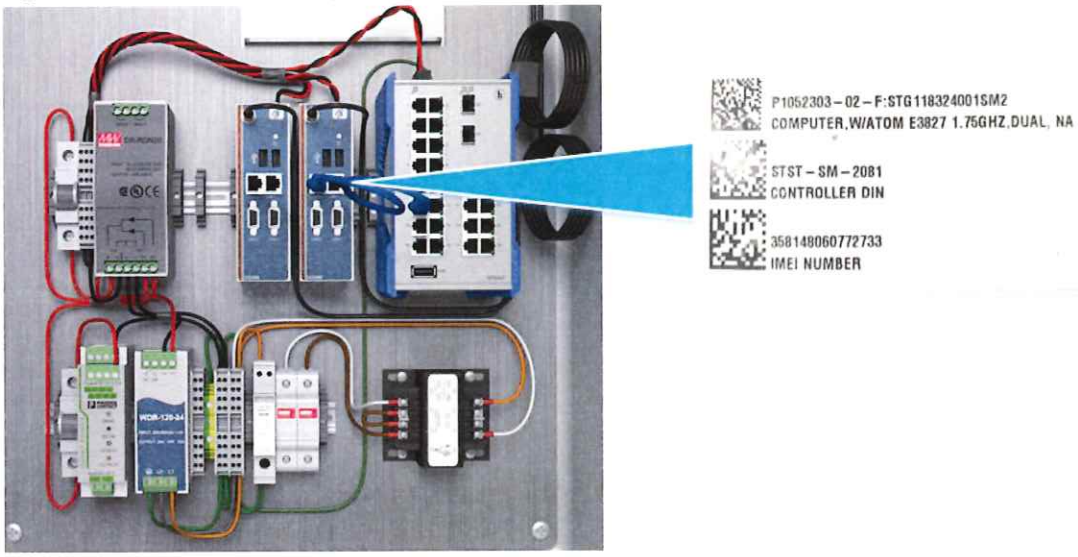
Look on the controller computer of any variant of the Tesla System Controller to locate its labels. The part number is typically identified with P or PN. The VIN is typically labeled *CONTROLLER DIN* and takes the format *STST-SM-####*.

For more information about the Tesla System Controller and its variants, refer to *Tesla System Controller on page 19*.

1.5.3.1 Standard Tesla System Controller

Standard Tesla System Controller labels are located on the side of the computers in the Standard Tesla System Controller Enclosure:

Figure 19. Standard Tesla System Controller Label (Example)



NOTE: There may be two Standard Tesla System Controllers in the Standard Tesla System Controller Enclosure. Each has its own identifiers.

1.5.3.2 Large Tesla System Controller

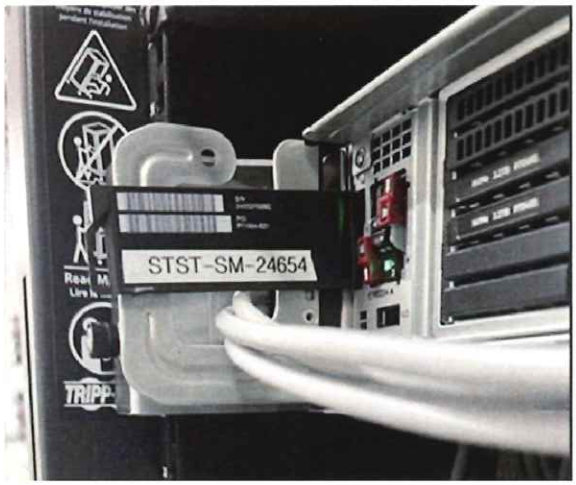
The labels for the Large Tesla System Controller (part number 1700130) are located on the top and side of the computer:

Figure 20. Large Tesla System Controller (1700130) Label on Top (Example)

Figure 21. Large Tesla System Controller (1700130) Label on Side (Example)

The labels for the Large Tesla System Controller (part number 1459157 or 1459158) are located on the top of the computer and on the information pull tab:

Figure 22. Large Tesla System Controller (1459155) Information Pull Tab Label (Example)



NOTE: Typically, two Large Tesla System Controllers are provided. Each has its own identifiers.

1.6 Emergency Response Guide

The *Industrial Lithium-Ion Battery Emergency Response Guide* (ERG) provides an overview of product materials, handling and use precautions, hazards, emergency response procedures, and storage and transportation instructions. Tesla recommends that a physical copy of the ERG is transported along with Megapack, and subsequently remains on site and accessible at all times for the life of the product. The ERG is periodically updated. Download the latest revision from *https://tesla.com/firstresponders*.

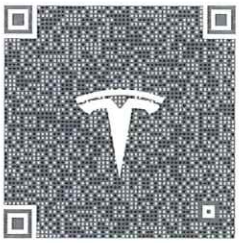
The ERG may be used in place of traditional Safety Data Sheets (SDS) commonly associated with the health and safety of a chemical product, however Safety Data Sheets are available for materials in Tesla Energy products. Refer to the Tesla Partner Portal or contact Tesla for more information.

NOTE: Tesla BESS coolant is not a regulated substance according to the United States Department of Transportation (USDOT). Tesla BESS refrigerant is a regulated substance according to the USDOT.

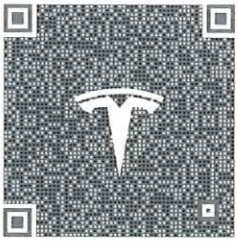
1.6.1 Available ERG Translations

The *Industrial Lithium-Ion Battery Emergency Response Guide* (ERG) is available in various languages as indicated below. As information in the ERG is periodically updated and translations are periodically added, always check the Tesla First Responders Information page at *https://www.tesla.com/firstresponders* for the latest revision of this guide, for ERGs for other Tesla products, and for the latest additional translated versions.

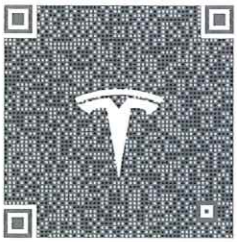
English



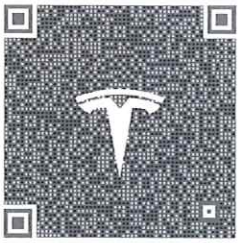
Deutsch



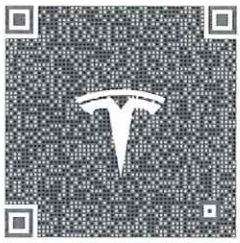
Español



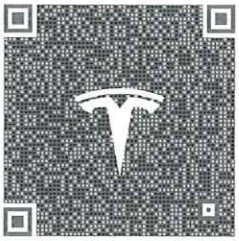
Français



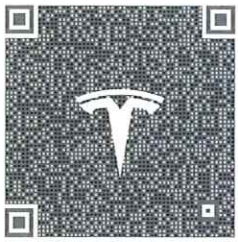
עִבְרִית



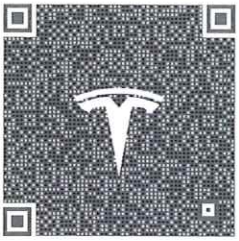
Italiano



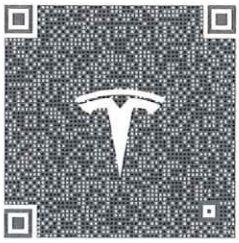
日本語



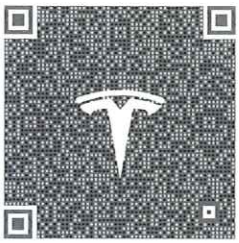
한국어



Nederlands

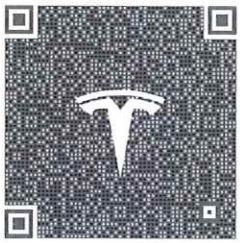


☒体中文

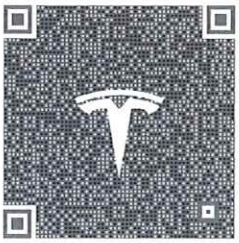


繁體中文

Português



Slovenščina



1.7 Getting Support

For Megapack support or to provide product feedback, contact Tesla via *https://ion.tesla.com/*.

For urgent support, refer to *Contact Information on page 28*.

Have the following information ready when contacting Tesla:

- Site name
- Best point of contact for Tesla to return contact (name, phone number, email)

- Tesla System Controller VIN (*Example VIN format: STST-SM-XXXX*)
- Brief description of the observed issue, including the time, date, and symptoms of the event
- If the issue is specific to one Megapack, the Megapack serial number

1.7.1 Contact Information

In case of critical performance issues (for example, if the Tesla site is 100% non-operational), call the appropriate Tesla telephone number listed below and select **Urgent** for 24/7 support.

For other inquiries, visit the **Online Support and Ticketing Portal** or telephone the support contacts provided below.

Online Support and Ticketing Portal

https://ion.tesla.com/

For information about using the Energy Service Portal, refer to the *Energy Service Portal User Guide*:

https://partners.tesla.com/home/en-us/content/download/tesla_ion_user_guide_en-na.pdf

Urgent Support via Telephone (24x7)

Asia: +1 571 573 9163

Australia/New Zealand: +61 2 432 802 81

Europe/Middle East/Africa: +31 2 08 88 53 32

Japan: +1 571 573 9163

North America: +1 650-681-6060

Technical Support via Telephone

North America:	Asia/Pacific:	France:
+1 650-681-6060	+61 2 432 802 81	+33 173218702
Japan:	The Netherlands:	Slovenia:
+0120 312-441	+31 208885332	+38 617778699
South Africa:	Switzerland:	United Kingdom:
+27 213004878	+41 445155607	+44 1628450645

1.7.2 Contact Details

Team Member	Email	Phone	Expected Response Time
Project Engineer	Defined on a project-by-project basis. Tesla Project Engineer will provide their contact details.	Defined on a project-by-project basis	< 3 business days

Team Member	Email	Phone	Expected Response Time
Industrial Storage Support	Ticketing Portal: *https://ion.tesla.com/*	See *Contact Information on page 28*	< 5 business days
Sales Account Manager	Defined on a project-by-project basis. Tesla Sales Account Manager will provide their contact details.	Defined on a project-by-project basis	< 3 business days
Service Account Manager	*commercialaccounts@tesla.com*	N/A	< 3 business days
Field Service Coordinator	Defined on an as-needed basis.	Defined on an as-needed basis.	< 5 business days

2 Hazard Mitigation Features

There are hazards inherent in any energy system. In battery energy storage systems, chemical energy in the battery cells can be transmitted as electricity or heat and gases which, when unmitigated, may result in fire.

Hazards are mitigated in multiple ways by the Tesla System, as described in this section.

2.1 Electrical Hazard Mitigation

Electrical hazards can include shock from unexpected voltage, heat from unanticipated escape of stored energy, and environmental hazards such as electrical storms. Megapack's electrical hazard mitigation includes:

- **Battery module overcurrent protection:** The battery modules contain DC single-use fusible links.
- **Inverter DC protection:** Each inverter module is equipped with its own high-speed DC disconnect.
- **Inverter AC protection:** Each inverter module is equipped with its own AC contactor and AC fuses.
- **Ground fault protection:** Megapack is provided with a DC ground fault detection system. Megapack measures insulation resistance prior to operation and looks for ground fault during operation. Megapack also contains an AC circuit breaker with ground-fault trip settings.
- **Protective internal frame**: The enclosure's internal frame can act like a Faraday cage, diverting currents from electrical storms to flow around the internal components but not through them to ground.
- **Power electronics sizing:** The power electronics of the unit provides component sizing and creepage clearance in addition to monitored surge protection on the load side of the Megapack breaker.

2.2 Explosion Hazard Mitigation

The Megapack battery enclosure has an explosion control system that mitigates the potential of the enclosure to fail in the event of a deflagration. This system includes:

- **Sparker System:** A protective feature that uses spark plugs ("Sparkers") to proactively ignite flammable discharge gases from compromised battery cells before the gases accumulate within the enclosure and could lead to an explosion hazard.
- **Overpressure vents:** Vents installed in the ceiling of the battery bay's IP66 enclosure that are designed to open during an overpressure event, such as the rapid ignition of flammable gases by a Sparker. Once opened, the overpressure vents permit gases, products of combustion, and flames to exhaust in a controlled path from the battery bay into the thermal roof. From the thermal roof, this exhaust releases out of the roof vents.

2.3 Fire Hazard Mitigation

If fire occurs as a result of these hazards, the battery enclosure is designed to prevent it from propagating to nearby enclosures or exposures.

2.4 Other Safety Features

In addition to features provided to mitigate hazards, the Tesla System provides additional features that you can use to enhance safety, including:

- *Safety Disconnect Features on page 31*
- **Battery management system:** Megapack provides firmware and software that can be used to monitor the system including battery cell temperature and fault tolerance.

2.5 Safety Disconnect Features

2.5.1 Megapack AC Circuit Breaker

The Customer Interface Bay contains an AC circuit breaker that can be locked in the open position.

WARNING: Operating the Megapack AC circuit breaker does not completely remove potential electrical hazards from the Megapack unit. See *Performing Lockout/Tagout on page 56* for more information.

2.5.2 Enable Circuit

Megapack includes an internal safety circuit called an *enable circuit* (also known as *HVIL - high-voltage interlock loop*) that isolates all major power components whenever the circuit is opened. Certain factors trigger opening this circuit, including opening bay doors or turning the enable switch (*Enable Switch on page 31*) off.

The Megapack internal monitoring system uses the enable circuit to monitor for critical system faults and prevent operation of the Megapack unit if needed. It is not recommended to open a Megapack door during operation.

WARNING: Opening the enable circuit does not completely remove potential electrical hazards from the Megapack unit. See *Performing Lockout/Tagout on page 56* for more information.

Figure 23. Enable Circuit Examples

1. The enable circuit is closed. Megapack is able to operate.
2. The enable circuit is open due to an open bay door. Megapack is unable to operate.
3. The enable circuit is open because the enable switch in the off position. Megapack is unable to operate.

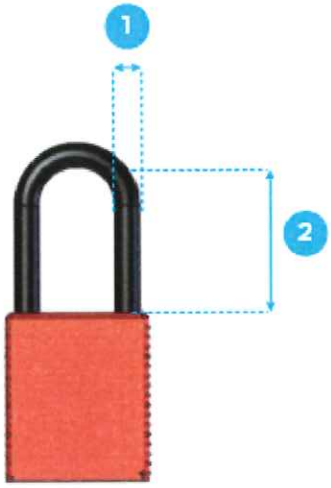
2.5.3 Enable Switch

The customer I/O area in the Customer Interface Bay includes an enable switch that can interrupt the enable circuit and prevent the system from energizing. This switch is part of the enable circuit, and provides a lockable isolation point for procedures that involve actively working inside Megapack. It is the recommended customer interface to the enable circuit. When the switch is turned off, the enable circuit is open and the product will not actively operate.

WARNING: The enable switch must be turned off at any time when working inside Megapack. See *Performing Lockout/Tagout on page 56* for more information.

If applying a lock to the enable switch, the lock must observe the specifications indicated below:

Figure 24. Lock Specifications



1. Nominal shackle diameter: 6.4 mm (¼ in)
2. Minimum shackle clearance: 38.1 mm (1 ½ in)

2.5.4 Remote Shutdown Terminals

The customer I/O area in the Customer Interface Bay contains a pair of terminals used to perform a remote shutdown, which commands the inverter to cease operation (isolating the Megapack AC bus from the battery DC source) and opens the Megapack AC circuit breaker. These terminals may be used by the customer to provision an E-Stop button, for example, which can be activated to place the system in a standby state. Refer to *Controlling the Circuit Breaker on page 18* for more information.

Table 9. Remote Shutdown Trip Times

Component	Time
Inverter shutdown time	35 ms
Breaker clearing time	100 ms
Combined total	**135 ms**

NOTE: Remote shutdown is software-driven functionality that may not comply with emergency stop regulations in all locales. Check with the local codes and AHJ before using this functionality to provision an E-Stop button.

2.5.5 Remote Shutdown in Islanding Applications

Systems used in islanding applications may be configured to provide an additional source of power in the absence of utility power. Therefore, an additional means may be required to prevent the Megapack System from creating a hazardous situation by introducing unexpected power to interconnected equipment during emergency response.

Using the remote shutdown terminals or a locally accessible human machine interface (HMI), an E-Stop button shall prevent the connected Megapack unit from providing an additional source of power to interconnected equipment. Tesla strongly recommends the E-Stop be readily accessible to emergency responders.

NOTE: As a best practice, add any E-Stop information to the *Emergency Response Site Information Form* and use that to inform local fire authorities about this functionality at your site.

2.6 Fire Response

Megapack does not contain built-in smoke, gas, or fire detection or suppression features. Megapack provides hazard mitigation as described in *Hazard Mitigation Features on page 30*.

If fire or smoke is observed emanating from a Megapack at any time, evacuate the area and notify appropriately trained first responders and the local fire department. Consult the *Industrial Lithium-Ion Battery Emergency Response Guide* (*Emergency Response Guide on page 26*) for details around hazards and recommended response. For emergency shutdown procedures, see *Shutting Down in an Emergency on page 5*.

NOTE: As part of a site's fire safety preparations, site owners can use the *Emergency Response Site Information Form* provided by Tesla to coordinate and establish communication with local fire departments.

2.7 Service De-Energization

In order to perform many of the service actions, de-energization of the Megapack is required, including of the line-side bus bars entering the Megapack.

Follow the procedures in *Performing Lockout/Tagout on page 56* to de-energize Megapack.

3 Operations

Operators, as designated by system owners, are responsible for the day-to-day operations of the Megapack site. Responsibilities of operators include:

- Monitoring and operating the site as required
- Providing for site access for Service Providers (*Maintaining Access, Routes, and Zones on page 47*)
- Providing a safe work environment for Service Providers (*Providing a Safe Work Environment on page 54*)
- If requested by a local authority, providing total material quantities as indicated in the *Application Note: Considerations for Hazardous Materials Business Plans (HMBP)*
- Arranging for decommissioning (*Decommissioning and Disposal on page 66*)
- Reviewing and acknowledging the site's *Electrical Control Plan on page 54*

The Tesla System Controller provides the single point of interface through which you control and communicate with the Megapack System. For more information about the Tesla System Controller, refer to the *Controls and Communications Manual - Tesla System Controller*.

For troubleshooting the Megapack System, refer to *Appendix A: Troubleshooting on page 70*.

3.1 Critical Operational Considerations

If the system reaches a 0% state of energy, energy must be restored within 30 days. Tesla recommends maintaining a minimum of 20-30% state of energy. If the system stays at 0% state of energy for more than 30 days, it may result in permanent system damage and loss of warranty. Contact Tesla for more information.

4 Site and Balance-of-Plant Maintenance

Typically, as the operator, you are responsible for the maintenance of the site and the balance of plant, which may include MV transformers, MV switchgear, meters, field network enclosures, cabling connecting these units, thermal imaging cameras, air quality, and site lighting. You are also responsible for the upkeep of the maintenance infrastructure for the Megapack System, described in *On-Site Maintenance Infrastructure Requirements Overview on page 47*.

Refer to your contracts with Tesla to confirm the maintenance obligations between the parties.

Refer to *Application Note: Megapack Site Design Best Practices* for additional information on the site design best practices for operations and maintenance.

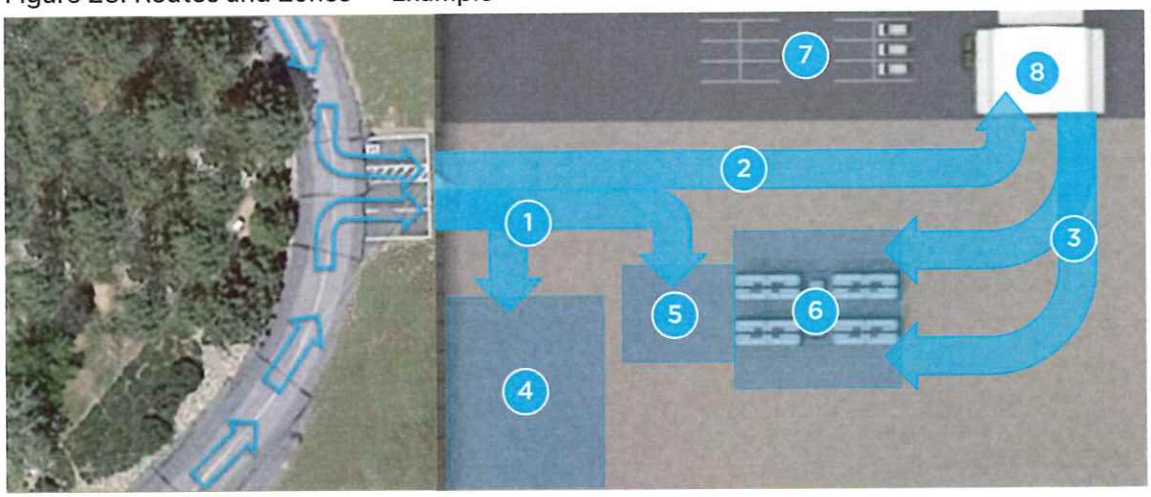
WARNING: Before operating or maintaining Megapack, read and understand all safety information as detailed in *IMPORTANT SAFETY INFORMATION on page 3*.

4.1 Routes and Zones

A site generally consists of routes and zones as indicated below. A **route** is defined as the full path between two or more locations and includes the surface being traveled upon. A **zone** is a defined area of the site that is typically distinguished by function. A zone can be in multiple locations on a site and is dependent on the site layout. Routes and zones are generally allowed to overlap as needed.

NOTE: Route and zone requirements are for non-emergency operations only. Follow local codes and standards as appropriate for emergency vehicle access.

Figure 25. Routes and Zones -- Example



1. Delivery Route
2. Service Access Route
3. Battery Service Route
4. Construction Staging Zone
5. Crane Zone
6. Battery Zone:
    - Foundation Zone
    - Battery Service Zone
7. Parking Zone
8. Service Staging Zone

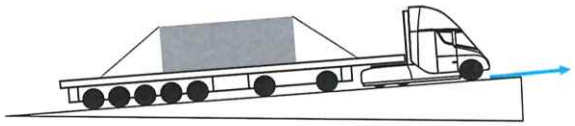
1.1 General Requirements

The site must maintain routes and zones to the requirements described in this section for the life of the project. For vehicle descriptions and specifications, refer to *Typical Vehicles on page 42*. Any temporary obstructions to routes or zones, such as snow or storm debris, are the responsibility of the owner to clear and may impact service if left unaddressed.

CAUTION: Standing water in any routes or zones may impact serviceability or structural integrity and should be mitigated as much as possible.

NOTE: The requirements for routes and zones generally apply at any site regardless of whether it is a single- or multiple-battery site. Contact your Tesla representative for more information.

Table 10. General Requirements for All Routes and Zones

Slope	Vehicle Requirements	Surface Conditions
Battery Service Zone: • Maximum 5% in any direction Foundation Zone: • Refer to the product *Design and Installation Manual* All other routes and zones: • Maximum 5% cross slope • Maximum 10% slope (grade) 	• Support for axle loads for designated vehicle types. • Support for adequate width for designated vehicle travel. • Support for minimum turning radii of designated vehicle types.	Required: • No potholes, ruts, or standing water. • Adequately compacted and safe for people to work on and for designated vehicle types to operate on (*Ground Surface Conditions on page 38*). • Engineered with sufficient grip to provide tire traction. Recommended: • All-weather surfaces that will not require major upkeep and resurfacing after significant weather events. • A material that has been specified by the local or regional Department of Transportation. • Graded or crowned surface to shed water and prevent ponding.

igure 26. Ground Surface Conditions

For additional information, refer to *Ground Surface Maintenance Considerations on page 43*.

.1.2 Route Requirements

Uses and additional requirements and recommendations specific to each route are described below.

Table 11. Route Uses and Requirements

Route or Zone	Use	Designated Vehicle Types	Requirements and Recommendations
Delivery Route	Transport between the public right-of-way, the designated project entrance, and the vehicle unloading point (Crane Zone or Construction Staging Zone).	• Megapack delivery vehicle • Crane • Utility vehicle • Telescopic forklift • Fixed-mast forklift • Service delivery vehicle	Required: • Delivery vehicles and cranes must have a valid route to all designated Crane Zones and/or Construction Staging Zones for installation. Recommended: • Looped route or cul-de-sac to avoid needing to reverse the delivery vehicle for long distances. • Ability for delivery vehicle to back into or pull alongside the Crane Zone for greatest efficiency.
Service Access Route	Transport between the public right-of-way and the Service Staging Zone.	• Megapack delivery vehicle • Crane • Utility vehicle • Telescopic forklift • Fixed-mast forklift • Service delivery vehicle	No additional requirements.
Battery Service Route	Transport between the Service Staging Zone and each Battery Service Zone.	• Fixed-mast forklift • Utility vehicle	Required: • Designated vehicle types must have a valid route from the public right of way to the Service Staging Zone to **every** Battery Service Zone.

4.1.3 Zone Requirements

Descriptions and additional requirements and recommendations specific to each zone are described below.

Table 12. Zone Descriptions and Requirements

Route or Zone	Description	Designated Vehicle Types	Requirements and Recommendations
Construction Staging Zone	Portions of the site set aside for construction activities. Typical uses include material handling and temporary stockpiling, equipment and contractor parking, and occasionally the storage of battery units.	• Megapack delivery vehicle • Crane • Utility vehicle • Telescopic forklift • Fixed-mast forklift	Recommended: • Consider that it is common for the construction staging zone to overlap with the service staging zone.
Crane Zone	Portions of the site that have been allocated for the set up or operation of a crane.	• Crane	Required: • Depending on the delivery logistics plan, additional clearances or surface load considerations may be required if delivery vehicles need to be within close proximity of the crane.
Battery Zone – Foundation Zone	The area upon which the battery unit is installed. Figure 27. Megapack Foundation Zone - Side View 	• None	Refer to the product *Design and Installation Manual*. **CAUTION:** The Foundation Zone must be protected from flooding. If more than 15 cm (6 in) of water are standing in the zone for longer than 30 minutes, the system must be shut down and a Service Provider must be contacted.
Battery Zone – Battery Service Zone	The area in which service actions take place, as defined in *Clearance - Battery Service Zone on page 46*.	• Utility vehicle	Required:

Route or Zone	Description	Designated Vehicle Types	Requirements and Recommendations
		• Fixed-mast forklift	• Supporting at least two egress routes, one in each direction, for people to vacate the zone on foot in the event of an emergency.
Parking Zone	Vehicle parking, required at all stages of the project life, but the quantity and usage of the parking will vary.	• Utility vehicle	Required: • Cannot overlap with listed equipment clearances on site. • Does not obstruct any of the delivery or service routes. • Parking stalls no smaller than 5.5 m x 2.75 m (18 ft x 9 ft). Recommended: • Temporary parking may be a good option for the surge in parking need during the construction of the project.
Service Staging Zone	Portions of the site set aside for service preparation activities. Typical uses include material handling and temporary stockpiling, and occasionally the storage of supplies. **NOTE:** Details of this zone are provided in the *Application Note: On-Site Maintenance Infrastructure Requirements*.	• Utility vehicle • Telescopic forklift • Fixed-mast forklift • Service delivery vehicle	Required: • Must be able to support a service delivery vehicle being unloaded by a forklift with sufficient room for the forklift and load to maneuver around the delivery vehicle.

4.1.4 Typical Vehicles

Various vehicles are required to access routes and zones at the site as designed by the engineer of record.

The figure below shows the relative scale of typical vehicles compared to the Megapack:

Figure 28. Typical Vehicle Scale Compared to Megapack (Examples)

Examples of vehicles that may require access during construction, delivery, and for serviceability are listed below.

Table 13. Typical Vehicle Examples and Requirements

Type and Usage	Design Gross Vehicle Weight	Design Axle Weight	Approx. Dimensions	Vehicle (Example) - Not to Scale
Utility vehicle Van or truck. Transports personnel and supplies.	4,545 kg (10,000 lb)	2,723 kg (6,000 lb)	Length: 6.7 m (22 ft) Height: 2.7 m (9 ft) Width: 2.4 m (8 ft)	
Service delivery vehicle Transports personnel and supplies for service and maintenance activities.	15,000 kg (33,000 lb)	8,165 kg (18,000 lb)	Length: 8 m (26 ft) Height: 4.2 m (13.6 ft) Width: 2.6 m (8.5 ft)	
Fixed-mast forklift Used during certain service activities to move components, most notably the battery module, as well as to unload service delivery vehicles.	6,350 kg (14,000 lb)	3,629 kg (8,000 lb)	Length: 3.8 m (12.4 ft) Height: 2 m (6.8 ft) Width: 1.6 m (5.4 ft)	

Type and Usage	Design Gross Vehicle Weight	Design Axle Weight	Approx. Dimensions	Vehicle (Example) - Not to Scale *Shown with battery module removal tool for context.*
Telescopic forklift Typically used during construction to move various materials or components. Not typically used by Tesla during service.	5,910 kg (13,000 lb)	3,175 kg (7,000 lb)	Length: 5.8 m (19 ft) Height: 6 m (20 ft) Width: 3 m (8 ft)	
Crane Lifts heavy equipment such as Megapack units and other units for system augmentation or other construction activities.	112,000 kg (246,918 lb)	9,072 kg (20,000 lb)	Length: 15.7 m Height: 4 m (13.1 ft) Width: 3 m (9.3 ft)	
Megapack delivery vehicle Brings Megapack units to a Construction Staging Zone or a Crane Zone.	63,200 kg (139,000 lb)	9,072 kg (20,000 lb)	Length: 24.1 m (79 ft) Height: 4.2 m (13.5 ft) Width: 2.6 m (8.5 ft)	

4.1.5 Ground Surface Maintenance Considerations

When designing or maintaining ground cover and ground improvements within the site's routes and zones, consider the *Typical Vehicles on page 42* that will be traveling the site in addition to the following recommendations:

- Structural fill to be compacted to minimum 95% of maximum dry density as determined by a Standard Proctor (ASTM D698) and placed in loose lifts not exceeding 200 mm (8 in) to within 4 % of the optimal moisture content or as specified in the geotechnical report.
- Moisture content and compaction to be within the value determined by in the geotechnical report.
- Recommended compaction testing shall be performed on each lift of the compacted material at a rate of one test for every 460 m^2 (5000 ft^2) within the Foundation Zone and 920 m^2 (10,000 ft^2) elsewhere.
- Test recommendations: ASTM D698, ASTM D1557, California Bearing Ratio (CBR).

NOTE:

- Always consult a geotechnical engineer and have a site-specific geotechnical investigation performed prior to design and construction.
- All recommended guidance does not constitute approval of site-specific geotechnical conditions.

4.2 Maintaining the Perimeter

- When deterring access, maintain fence height as specified in the product's *Design and Installation Manual*.
- Fencing may be locked and posted with a placard stating "Authorized Users Only" or similar. Refer to local code for fencing placard requirements.
- Any fencing must follow clearance requirements as designated in *Maintaining Megapack Clearance on page 44* and *Maintaining Exposures and Fire Clearances on page 46*, or as noted per the following exceptions:
  - If the installation is located within a property that already contains perimeter fencing to prevent unauthorized public access, additional fencing might not be required.
  - Permanent chain link fence without fill or slats can be installed according to the designated clearances.
  - Removable chain link fencing (such as with a swing gate, or similar) without fill or slats may be installed according to the designated clearances. When removed, the fence and its support structure must allow unobstructed equipment maintenance access and clearance for equipment door swing.

4.3 Maintaining Megapack Clearance

The clearances listed in this section are as required by the product. Additional clearances to non-Megapack equipment may be required per local codes and regulations.

Equipment clearances must be maintained throughout the operating life of the system. See the *Equipment Clearance Requirements on page 45* table below for dimensions. Shaded areas indicate the Battery Service Zone.

Figure 29. Equipment Clearance Requirements - Side View

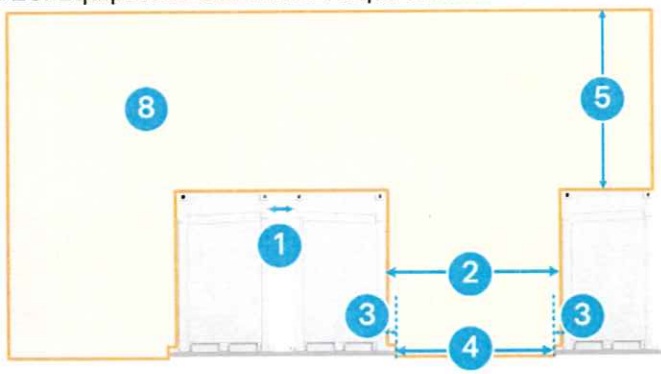


Figure 30. Equipment Clearance Requirements - Front View

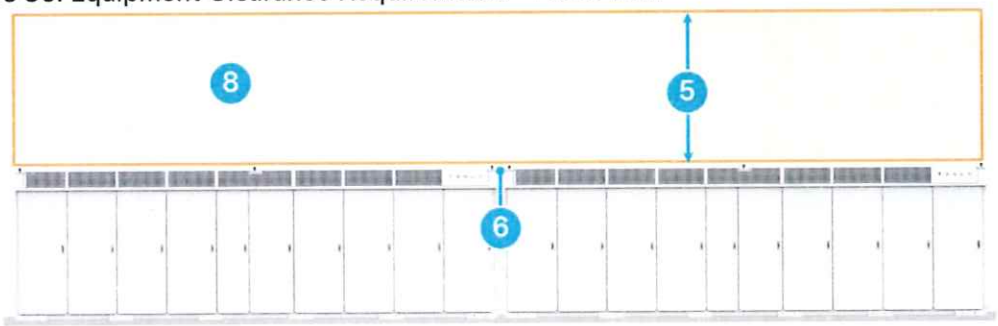
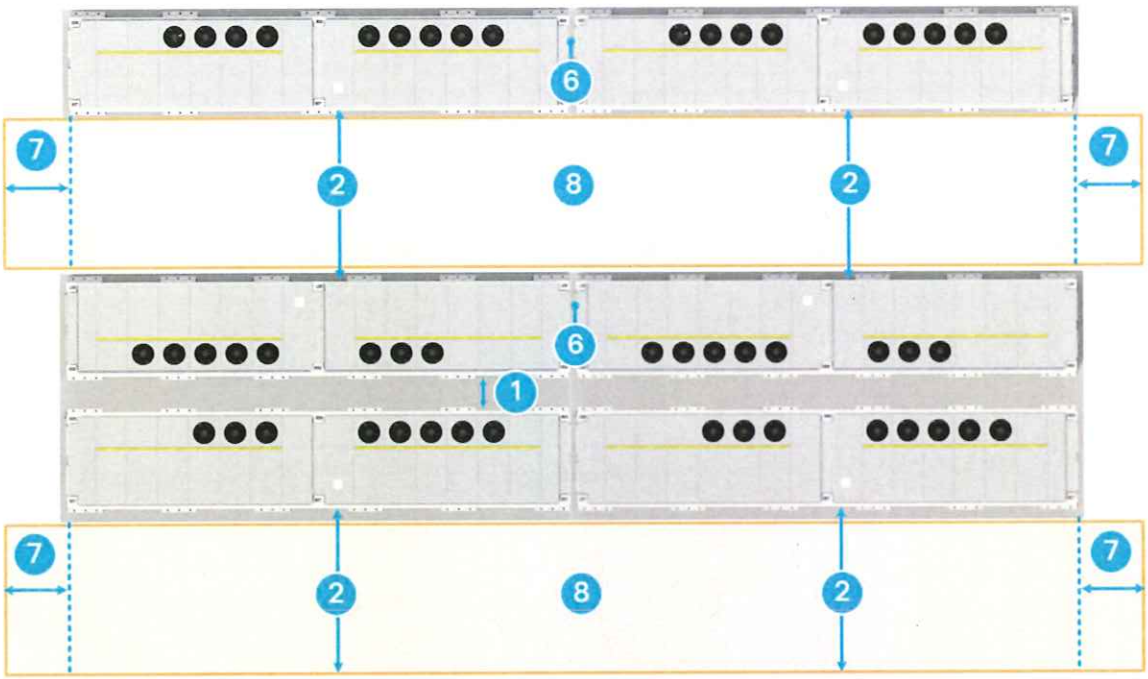


Figure 31. Equipment Clearance Requirements - Plan View



NOTE: All clearances listed must be observed from Megapack to any obstruction, including customer equipment or structures as well as other Tesla-provided components such as the Standard Tesla System Controller Enclosure.

Table 14. Equipment Clearance Requirements

Callout	Type	Minimum	Maximum	Notes
1	Back-to-back clearance	460 mm (18 in) *recommended* for access purposes. 230 mm (9 in) with prior Tesla review.	None	Measured from the back faces of the Megapacks.
2	Front clearance	2440 mm (96 in)	None	Measured from the face of the door(s). Tesla-required clearance for maintenance access. **NOTE:** Removable bollards may be installed within this area with prior Tesla approval. No permanent obstructions are allowed.
3	Foundation overhang	100 mm (4 in)	305 mm (12 in)	Varies depending on anchor and site design but must fall within this range.
4	Drive aisle clearance	1960 mm (77 in)	None	Measured from foundation. Tesla-required clearance for maintenance access.
5	Vertical clearance	2440 mm (96 in)	None	Must extend across the Battery Service Zone, as some service equipment extends beyond the roof of the enclosure.

Callout	Type	Minimum	Maximum	Notes
				Megapack may only be installed by a crane, thus actual clearance during installation will be greater.
6	Side-to-side clearance	150 mm (6 in)	None	Measured from the side faces of each Megapack.
7	Service side clearance	915 mm (36 in)	None	Measured from the face of each side of the Megapack, except where side-by-side with another Megapack.
8	Battery Service Zone	--	--	The Battery Service Zone, shown shaded above, consists of the *Front* **(2)**, *Vertical* **(5)**, and *Service side* **(7)** clearances.
				NOTE: Small inclusions for foundations are allowed as long as the foundation does not infringe on the *Foundation overhang* **(3)** and *Drive aisle* **(4)** clearances.

4.4 Maintaining Exposures and Fire Clearances

The dimensions and requirements as specified below are the product minimums and persist throughout the design, installation, and operating life of the system. Many jurisdictions have guidelines or restrictions about how close potentially combustible objects can be located to battery systems. Designers, owners, and operators are responsible for ensuring that the site meets the requirements of the local jurisdictions.

Figure 32. Exposure Clearances - Isometric View / Side View

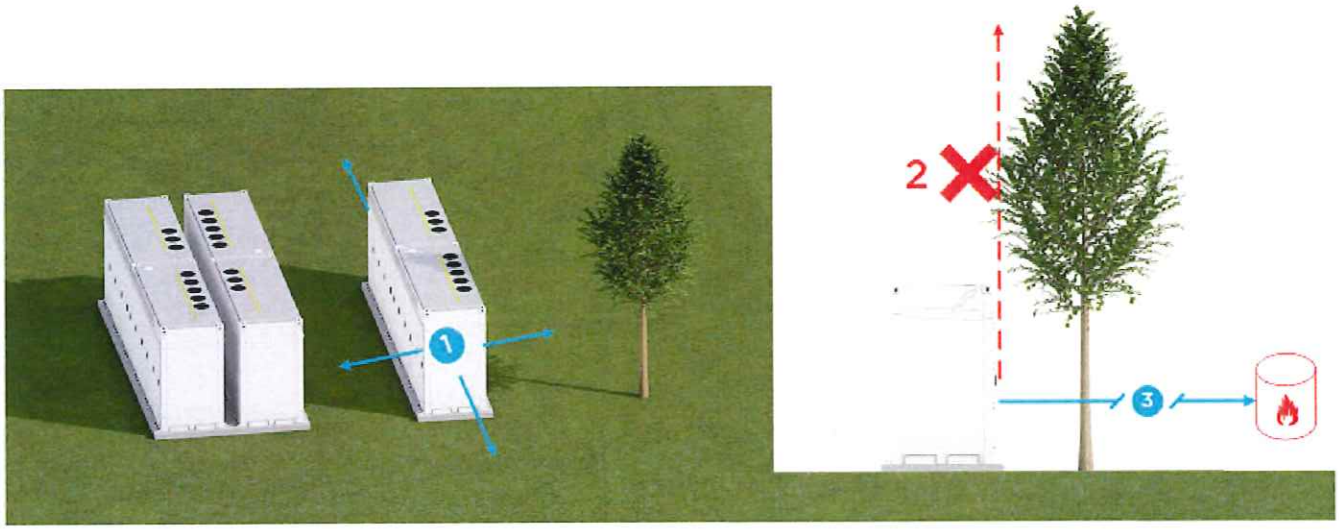


Table 15. Exposure Clearance Requirements

Callout	Type	Minimum	Maximum	Notes
1	Ordinary combustibles	1530 mm (60 in)	None	Minimum clearance as noted is required on all sides to ordinary combustible objects including trees, wooden fences, and other combustible structures.
2	Vertical combustible or ignitable	NA	NA	**Do not install Megapack under combustible or ignitable objects, at any distance.**

Callout	Type	Minimum	Maximum	Notes
3	Ignitable liquids	6096 mm (240 in)	None	Minimum clearance as noted is required on all sides to ignitable liquids sources.

NOTE:

- Megapack is not intended to be installed within 3050 mm (120 in) from accessible means of egress and exposures (such as buildings, public ways, and hazards not associated with electrical grid infrastructure as defined by the clearance requirements in the International Fire Code and NFPA 855).
- Any installation that requires clearances of less than 3050 mm (120 in) to accessible means of egress or exposures may require a freestanding fire barrier per requirements in the International Fire Code and NFPA 855.

4.5 Maintaining Access, Routes, and Zones

To service Megapack, Service Providers will require frequent access to the site and to the Megapacks themselves, over the full duration of the project's life. Routes and zones at the site must allow for year-round access, including for support of all vehicles as designated by the site's engineer of record. Refer to *Routes and Zones on page 35* for more information.

NOTE: For installations not at grade, owners must provide the ability for Service Providers to safely service Megapack and the Tesla System Controller. A written agreement must be approved by Tesla before commissioning for installations not at grade.

4.5.1 Megapack Access

- The Service Provider must be allowed to have the ability to remove any locks preventing access. Refer to *Megapack Door Security on page 62* for information on securing and locking doors while retaining Service Provider access.
- You must keep the doors of all enclosures free of all obstructions such as snow, sand, and blown debris during system operation.
- You must ensure the area in front of each Megapack can support any of the vehicles described in *Typical Vehicles on page 42*.

4.5.2 Lift Plan

The original lift plan used to install Megapack at commissioning must be provided to Service Providers. This provides background information that can be used to plan for Megapack removal or replacement during the operations phase.

4.6 On-Site Maintenance Infrastructure Requirements Overview

On-site maintenance infrastructure (OMI) is essential to the rapid and effective maintenance of Megapack sites. The table below summarizes the aspects of the installed infrastructure for on-site maintenance infrastructure. Most on-site maintenance infrastructure is contained within the Service Staging Zone.

Refer to your contracts for more information.

NOTE: Regional differences may apply. Australia and New Zealand have distinct requirements that must be followed. Contact Tesla for more information.

Table 16. On-Site Maintenance Infrastructure

Level	Applicability	Minimum On-Site Maintenance Infrastructure Requirements	Minimum Critical Services Requirements
1	Projects with 1 or more Megapacks require Level 1 or higher	• Service Staging Zone • Parking Zone	• Portable Restroom • Cellular service • Electricity
2	Projects with 15 or more Megapacks require Level 2 or higher	• One 20-foot storage container • Service Staging Zone • Parking Zone • Storage Clearance Area	• Portable Restroom • Cellular service • Electricity • Waste disposal
3	Projects with 36 or more Megapacks require Level 3 or higher	• One 40-foot storage container • Service Staging Zone • Parking Zone • Storage Clearance Area	• Portable Restroom • Cellular service • Electricity • Waste disposal
4	Projects with 75 or more Megapacks require Level 4 or higher	• Two 40-foot storage containers • Service Staging Zone • Parking Zone • Storage Clearance Area	• Portable Restroom • Cellular service • Electricity • Waste disposal
5	Projects with 146 or more Megapacks require Level 5 or higher	• Three 40-foot storage containers • Service Staging Zone • Parking Zone • Storage Clearance Area	• Portable Restroom • Cellular service • Electricity • Waste disposal
6	Projects with 261 or more Megapacks require Level 6 or higher	• Four 40-foot storage containers • One 60 x 12-foot office trailer • Service Staging Zone • Parking Zone • Storage Clearance Area	• Restroom • Electricity • Internet and cellular service • Waste disposal • Water
7	Projects with 376 or more Megapacks require Level 7	• Five 40-foot storage containers • One 60 x 12-foot office trailer • Service Staging Zone • Parking Zone • Storage Clearance Area	• Restroom • Electricity • Internet and cellular service • Waste disposal • Water
8	Projects with 501 or more Megapacks require Level 8	• Six 40-foot storage containers • One 60 × 24-foot double-wide office trailer	• Restroom • Electricity • Internet and cellular service

Level	Applicability	Minimum On-Site Maintenance Infrastructure Requirements	Minimum Critical Services Requirements
		• Service Staging Zone • Parking Zone • Storage Clearance Area	• Waste disposal • Water
9	Projects with 651 or more Megapacks require Level 9	• Eight 40-foot storage containers • One 60 × 24-foot double-wide office trailer • Service Staging Zone • Parking Zone • Storage Clearance Area	• Restroom • Electricity • Internet and cellular service • Waste disposal • Water
10	Projects with 800 or more Megapacks require Level 10	• Ten 40-foot storage containers • One 60 × 36-foot triple-wide office trailer • Service Staging Zone • Parking Zone • Storage Clearance Area	• Restroom • Electricity • Internet and cellular service • Waste disposal • Water
11	Projects with 1000 or more Megapacks require Level 11	• Contact Tesla for infrastructure requirements	• Contact Tesla for infrastructure requirements

NOTE:

- This table provides general guidance on the minimum requirements for the preliminary development of a site
- Project-specific requirements may vary based on site-specific factors
- The applicable category of maintenance and project-specific requirements are defined in the contract
- Always follow all local codes and regulations

4.7 Environmental Considerations

Each Megapack contains coolant and refrigerant in its thermal system (*Thermal System on page 14*). Depending on the number of Megapacks installed on a site, storage, use and handling of these substances may require reporting, hazard management plans, or containment procedures as required by local codes and regulations. All local codes and regulations related to this matter must be followed. Refer to the *Megapack 2 XL Design and Installation Manual* on the Tesla Partner Portal for more information.

4.8 Energy Meters

The Tesla System Controller uses various meter inputs for different control functions. The meters are expected to be installed during the installation phase of the project and are the operator's responsibility to maintain.

For additional information and for a list of supported meters, refer to the *Megapack 2 XL Design and Installation Manual*.

NOTE: When communication to any of the meters is lost during on-grid normal operation, the system ceases to operate until communication is resumed. If communication is lost, the values reported are the last values read from the meter until communication is resumed.

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5 Megapack System Maintenance

The Megapack System requires maintenance to ensure performance over its lifetime. The Service Provider performs this maintenance, which includes Megapack preventative maintenance, Megapack corrective maintenance and Tesla System Controller maintenance.

For Tesla to perform this service, you must provide access to the system and a safe work environment. For accessing the Megapack System, refer to *Maintaining Access, Routes, and Zones on page 47*. For providing a safe work environment, refer to *Providing a Safe Work Environment on page 54*.

It is not recommended that personnel without sufficient training and product knowledge work within Megapack without explicit guidance from Tesla. If individuals other than Service Providers perform maintenance on Megapack or the Tesla System Controller, the project's warranty may be voided.

NOTE: Access is only allowed for Service Providers.

CAUTION: Do not power wash the unit. Only use a low-pressure hose to wash it.

5.1 Tesla System Controller Maintenance

If required, Service Providers will need to be able to safely work at the Tesla System Controller, wherever the Tesla System Controller is installed.

5.2 Megapack Maintenance

5.2.1 Preventative Maintenance

Service Providers will perform specific preventative maintenance activities that are scheduled annually. This section outlines these maintenance schedules. Preventative maintenance includes inspection or part replacements specified explicitly below. All other actions that result from preventative maintenance will not be considered preventative maintenance.

Annual Maintenance

Table 17. Annual Maintenance Activities

Type	Activity
General Walkthrough	• Inspect anchor torque marks • Inspect drain valve • Inspect door locks • Inspect enclosure cleanliness and integrity – touch up paint or clean as needed • Inspect exposure clearances as specified in *Maintaining Exposures and Fire Clearances on page 46* • Inspect grade conditions as specified in the product *Design Manual*
Bay Checks	• Inspect door latches • Inspect door gaskets

Type	Activity
	• Inspect door grounding conductors • Inspect door switch • Harness inspection • Thermal system inspection • Torque checks • Check for moisture
Thermal Roof	• Coolant level check • Inspect cabinet ventilation system • Clean radiators if needed • Remove any debris blocking air inlets
Close Out	• Secure door locks • Secure fascia covers, if applicable • Update service records
--	• Tesla System Controller inspection, service as applicable
--	• Field Network Enclosure inspection, service if applicable

5-Year Maintenance

Table 18. 5-Year Maintenance Activities

Preventative Maintenance Services for the System
Annual maintenance
Sparker inspection, cleaning if needed

10-Year Maintenance

Table 19. 10-Year Maintenance Activities

Preventative Maintenance Services for the System
Annual maintenance
Stirring fan replacement, if needed
BESS coolant refill
BESS radiator fan replacement, if needed
BESS coolant pump replacement, if needed
BESS door gasket replacement, if needed
BESS compressor replacement, if needed
BESS coolant valve replacement, if needed

15-Year Maintenance

Table 20. 15-Year Maintenance Activities

Preventative Maintenance Services for the System
Annual maintenance
BESS radiator replacement, if needed
BESS heater replacement, if needed
BESS coolant pump replacement, if needed

5.2.2 Corrective Maintenance

As part of the Manufacturer's Limited Warranty, Service Providers will perform corrective maintenance on the Megapack System. This includes component replacements, configuration, and troubleshooting.

5.2.3 Maintaining the Enclosure

- Enclosures must be regularly visually inspected for any areas of damage, which shall be reported to a Service Provider.
- Enclosures must be regularly visually inspected to ensure they remain free of debris or rodents.

5.2.3.1 Responding to Imperfections or Damage

Transportation, installation, and operation of the Megapack unit can result in minor or cosmetic imperfections on the unit. Such imperfections are not damaging to the unit and do not usually require remediation. The following table provides guidance to help determine what conditions may be considered minor, what should be considered for remediation, and how to respond.

Table 21. Megapack Imperfection or Damage Classifications

Condition	Classification	Possible Remediation
Imperfections in color or finish, or dirt on the Megapack unit.	Minor imperfection	None required. Customer may wash unit with automotive grade soap or automotive buffing compound for persistent discolorations.
Areas of bare metal less than 25 mm (1 in) diameter in size.	Medium damage	Customer should report to Tesla or remediate using touch up paint.
Leaking coolant, apparent water ingress, structural damage, mechanical failures.	Major damage	Contact Tesla if not already advised (*Contact Information on page 28*). Tesla to investigate on site or return unit.

DANGER: Refer to the *Industrial Lithium-Ion Battery Emergency Response Guide* for details on response to a hazardous event (*Emergency Response Guide on page 26*).

6 Providing a Safe Work Environment

Over the operating life of your Megapack System, you may need to isolate and de-energize the Megapack for various reasons:

- For Tesla to perform service on the Megapack System
- For providers other than Tesla to perform work upstream or around the Megapack
- To put the Megapack in an idle state by de-energizing the equipment due to an upstream fault or other reason

If a Service Provider needs to perform maintenance, you will need to provide both access to the Megapack System and a safe work environment. Providing a safe work environment will typically require the Megapack to be isolated and de-energized.

Depending on the scope of service and the site design, the Megapack will either need to be de-energized at the Megapack AC circuit breaker or at an upstream AC disconnect.

6.1 Maintaining Electrical Protection

Sites may use different kinds of electrical protection equipment as designated by the Engineer of Record, including relays, fuses, and other schemes as described in the *Application Note: Electrical Protection Architecture*. These protections must be maintained and updated according to applicable code for the life of the site in order to preserve safe working conditions for Service Providers.

For more information about safe working conditions, refer to *Isolating Megapack from Upstream AC Sources on page 56*.

DANGER: Operators must not manipulate protection equipment without contacting Tesla first.

6.2 Electrical Control Plan

An Electrical Control Plan is a document that outlines the design, implementation, and operation of an energy site's electrical system, its hazards, and how any parties on site are expected to control the electrical hazards. For Tesla sites, such plans are required to include control of the battery system's electrical hazards (for example, those detailed in *Electrical Hazard Mitigation on page 30*).

Generally, an Electrical Control Plan may include details on how the site's electrical components, such as inverters, transformers, batteries, and protection relays, are properly integrated and function according to requirements. Such details may be communicated in the plan using wiring diagrams and schematics, operational and safety sequences, fault response, and documentation of compliance with regulatory standards.

The Electrical Control Plan is typically developed by the installation contractor and the site owner or operator with the support of the electrical engineer of record. It is then reviewed by the electrical engineer of record and Tesla to ensure that the document is consistent with how the site has been designed and how on-site activities are intended to be conducted. It then serves as an electrical safety plan for the site in order to ensure the safety of any parties on site including customer and Tesla parties.

If the plan is updated at any point during the life of the project, the site owner or operator must review with Tesla.

For Tesla systems, the Electrical Control Plan serves as an electrical safety plan for the site in order to ensure the safety of any parties on site including customer and Tesla parties, and must include the following elements:

- **Levels of isolation:** The approved levels (for example, block, feeder, site) at which isolation can be established, and the identified lockout device for each level

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- **Control procedures:** Detailed procedures for isolating power supplies, including automatic switching devices and circuit reclosers, particularly at the medium-voltage transformer (MV transformer) and any interconnect power supplies
- **Responsible parties:** The name of the party responsible for executing each step in each of the procedures
- **Verification of isolation:** Detailed procedures for confirming isolation, such as using open viewing windows or designated testing points
- **Lockout participation:** Description of how Tesla will engage in the owner / operator lockout process, specifically using a group lock box to ensure multiple personnel can secure the system

6.3 AC Disconnect Responsibilities

AC disconnect responsibilities encompass the operation of a disconnect device and the maintenance thereof. Responsibilities may vary depending on the service provider or the scope of work. A Certified Service Provider is responsible based on the specific terms agreed upon with the Operator.

If Tesla is your service provider, the following applies to safely perform maintenance:

Table 22. Division of Service Responsibilities

Disconnect Location	Disconnect Operating Responsibilities	Disconnect Maintenance Responsibilities
Megapack AC circuit breaker	Tesla Energy Service	Tesla Energy Service
Upstream low-voltage disconnect devices	Tesla Energy Service	Operator
All medium-voltage disconnect devices	Operator	Operator

There are some exceptions and regional considerations. Contact your Tesla representative to confirm AC disconnect responsibilities.

Any deviations from standard practice that are not documented in the contracts must be provided in writing to Tesla. For example, if you determine that you want to own all medium-voltage disconnect and breaker operation responsibilities upstream of the Megapack AC breaker, this must be provided in writing.

Service Providers will begin maintenance services when the Megapack(s) that need to be serviced are safely de-energized (*Performing Lockout/Tagout on page 56*).

6.4 Accessing the Megapack Enclosure

Megapack is an IP66-rated enclosure (*Enclosure on page 18*) and affords high protection against particle and water ingress. This section contains critical information about when and how to properly access Megapack in order to both maintain its high protection rating and to provide a safe work environment.

At any time when accessing the enclosure is required, ensure that all information in this section is taken into account.

6.4.1 Critical Door-Opening Considerations

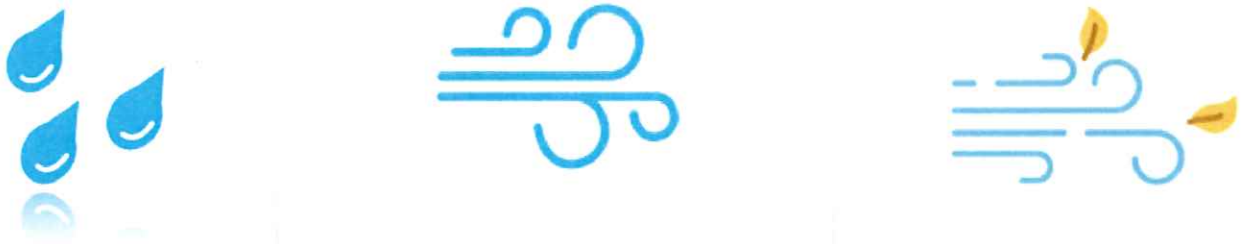
Do NOT open a Megapack's doors in any of the conditions below.

CAUTION: Megapack doors should never be opened when it is actively raining or snowing, with no exceptions, to prevent damage to Megapack.

Do NOT Open Megapack Doors When:

Actively raining or snowing. Wind speeds 25 MPH or higher. Wind speed must be monitored. Airborne dust and debris present on site.

Do NOT Open Megapack Doors When:



CAUTION: When opening a Megapack door, do not force its door handle. Excessive torque could damage the handle. If the handle does not readily rotate, contact Tesla for assistance.

6.4.2 Performing Lockout/Tagout

Operators are responsible for ensuring a safe work environment. When work is required inside Megapack, the unit must first be de-energized the unit by performing the lockout/tagout procedure (LOTO). Before beginning these procedures, refer to *AC Disconnect Responsibilities on page 55* and ensure you are aware of whether operators or Tesla must perform certain steps in this section.

The LOTO procedure for Megapack consists of the tasks below, which must be performed in order:

1. *Isolating Megapack from Upstream AC Sources on page 56*
2. *Opening and Locking the Megapack AC Circuit Breaker on page 57*
3. *Turning the Enable Switch Off on page 60*
4. *Verifying Load-Side De-Energization on page 60*
5. *Verifying Line-Side De-Energization on page 61*

DANGER: Refer to *IMPORTANT SAFETY INFORMATION on page 3* for information on safety warnings and PPE recommendations before beginning any work on Megapack.

NOTE: Only Service Providers shall perform any corrective maintenance within the Megapack.

NOTE: Some equipment isolation can be performed by sending commands using the Tesla System Controller or other SCADA devices. For more information, see the *SCADA Design Manual* or the *Controls and Communications Manual – Tesla System Controller*, or reach out to your Tesla project engineer.

NOTE: When active work is **not** being performed, and AC grid power can be restored to the AC output terminals, Tesla recommends that the enable switch remains **on**.

6.4.2.1 Isolating Megapack from Upstream AC Sources

Megapack may need to be isolated from upstream AC sources, including other Megapacks, before performing work. Isolating Megapack is required if work is being performed in the AC bus bar area or if the arc flash incident energy values exceed the maximum allowed. Isolating from upstream AC sources requires an AC disconnect device capable of supporting lockout/tagout.

To determine arc flash incident energy, check the arc flash label on the outside of the Customer Interface Bay door (*Arc Flash Label on page 23*). The arc flash label contains information about expected arc flash incident energy and recommended PPE.

Figure 33. Arc Flash Label -- Danger and Warning Examples

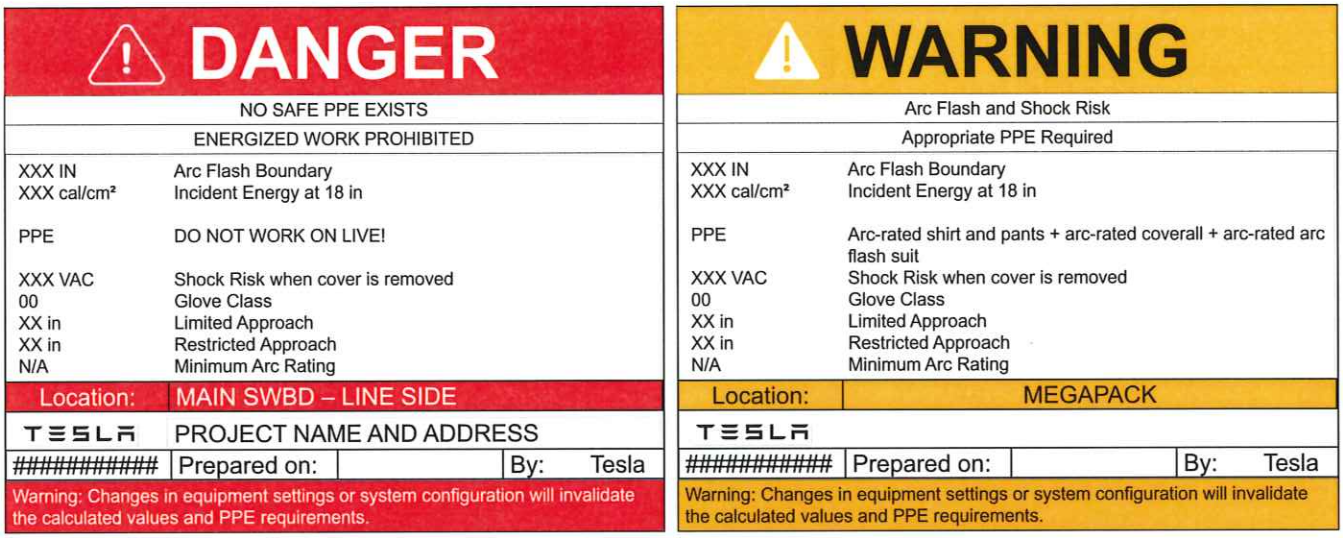


Table 24. Maximum Allowable Arc Flash Incident Energy

All Regions
14 cal/cm^2

If the label specifies either that no safe PPE exists or the arc flash incident energy exceeds the maximum allowed per the table above, you must first ensure that external AC power is removed from the Megapack by opening the upstream AC disconnect before continuing the LOTO procedure.

Customers must employ a protection scheme that does not exceed maximum allowable energy. For recommended protection schemes, refer to the *Application Note: Electrical Protection Architecture*. Customers must adhere to Telsa-required administrative controls when using relays as the protection scheme. For more information, refer to the *Application Note: Medium-Voltage Transformer Relay Program*.

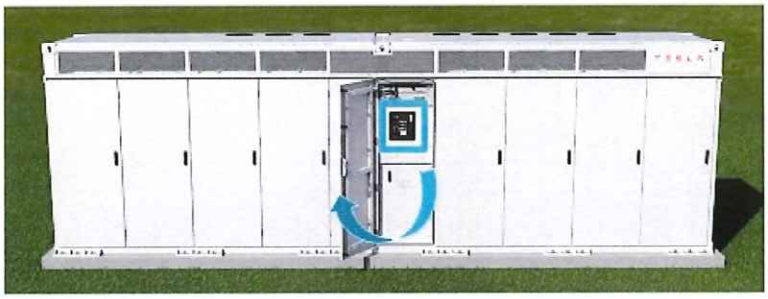
If the label specifies that the arc flash incident energy falls below the maximum allowed, opening an upstream AC disconnect is not required unless work is being performed in the AC bus bar area or if it is required by a Service Provider. Follow the recommended PPE and other details on the label and then continue the LOTO procedure.

DANGER: If no arc flash label exists and Megapack has already been commissioned and is operating, all upstream devices must be completely de-energized before work can take place. Contact your site owner or Tesla about the arc flash label requirement.

6.4.2.2 Opening and Locking the Megapack AC Circuit Breaker

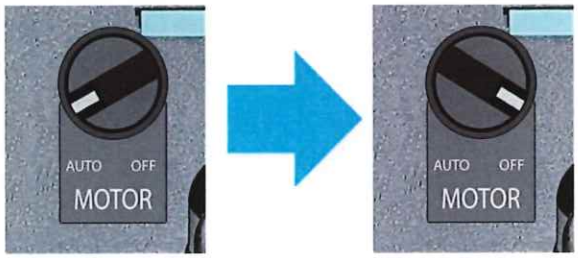
Perform this procedure only after *Isolating Megapack from Upstream AC Sources on page 56*.

1. Assess the steps in *Critical Door-Opening Considerations on page 55* and proceed if conditions allow.
2. Open the Customer Interface Bay door to access the Megapack AC circuit breaker:

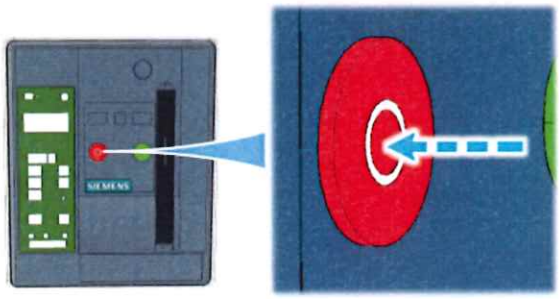


1 - Lock ring. 2 - Motor switch (some models). 3 - Contacts window. 4 - Open button. 5 - Spring-loaded lever.

3. If present, turn the motor switch from **auto** to **off**:

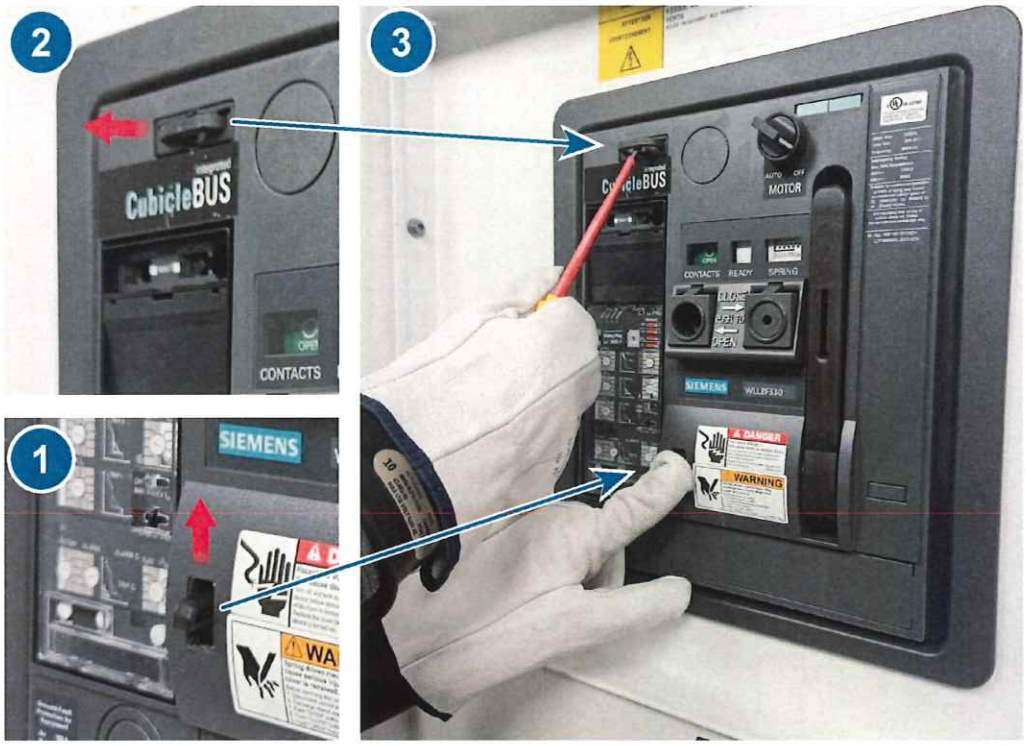


4. Open the breaker by pressing the red open button firmly until it clicks. When the breaker is open, the contacts window displays green and **OPEN**:



NOTE: Pressing the button manually opens the breaker. You may use other methods to open the Megapack AC circuit breaker (*Controlling the Circuit Breaker on page 18*).

5. Push up on the spring-loaded lever (1) to unlock the lock ring (2), and use a flat-head screwdriver to pull out the lock ring: (3):

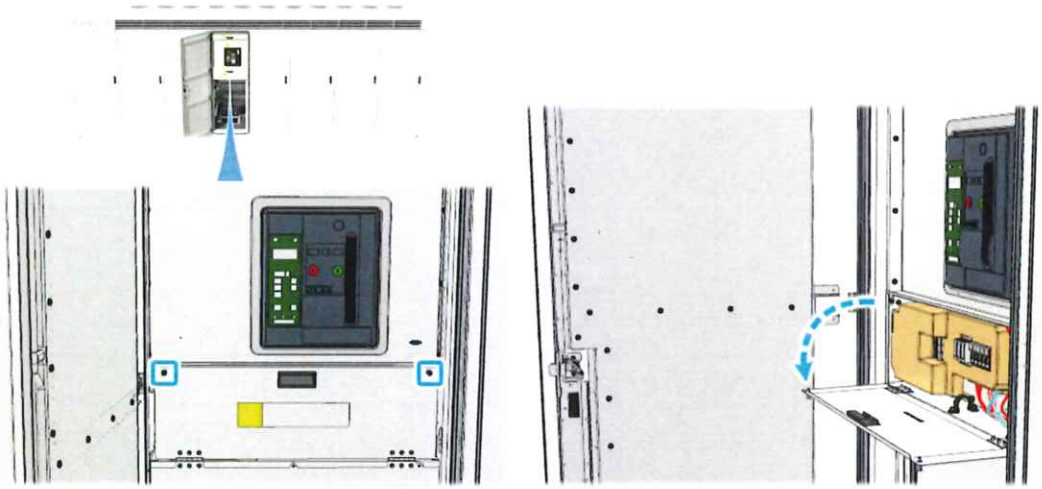


6. Insert the lock and lock it to secure the Megapack AC circuit breaker:

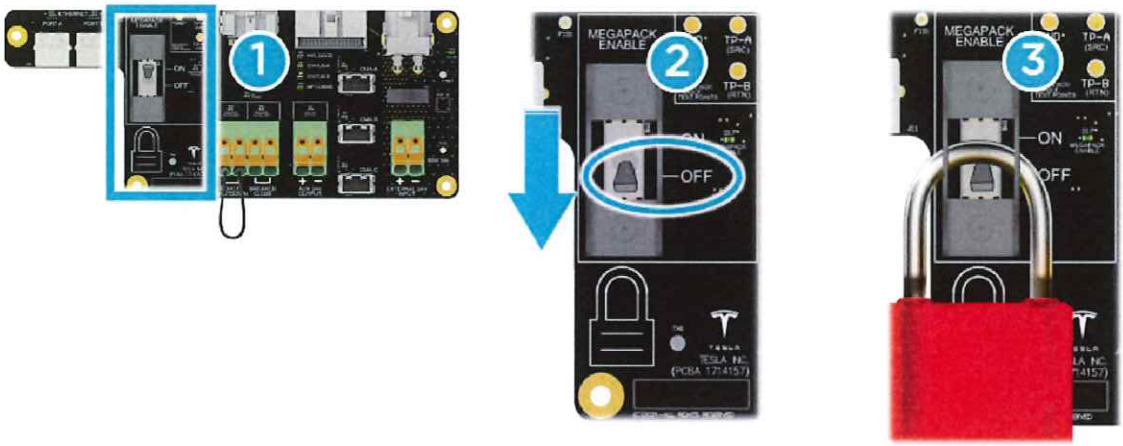
7. If isolation is required per *Isolating Megapack from Upstream AC Sources on page 56* and more than one Megapack is connected to the same circuit or transformer, repeat this procedure for each Megapack.

6.4.2.3 Turning the Enable Switch Off

1. Use a T30 Torx bit to remove the 2 screws securing the customer I/O area cover to the enclosure. Grab the handle and pull outward, then downward to expose the customer I/O area:



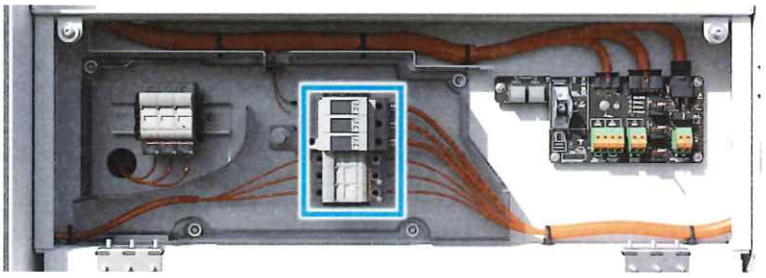
2. The Megapack enable switch is located on the customer interface board (1). Press **down** to turn the enable switch to the **off** position (2), and apply a lock (3):



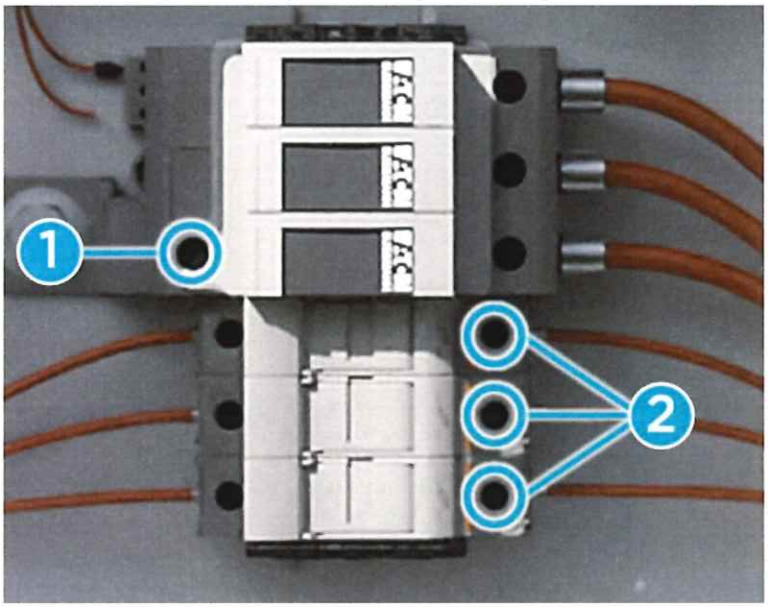
6.4.2.4 Verifying Load-Side De-Energization

NOTE: This check for dead should only take place after all previous steps were successfully completed.

Check the load-side (inverter-side) voltage in the customer I/O area at the terminals indicated below:



1. Using a CAT IV voltmeter rated for 1000 V AC, first verify the voltmeter on a known live source.
2. Measure AC phase-to-phase and phase-to-ground voltage at the load-side test points as shown below:



1 - Ground. 2 - Phase test points.

3. Confirm that the voltage is 0 V AC.

> **WARNING:** You may initially measure greater than 0 V AC due to residual capacitive energy. Stop and wait five minutes before testing again. **Do not proceed unless you have measured 0 V AC.**

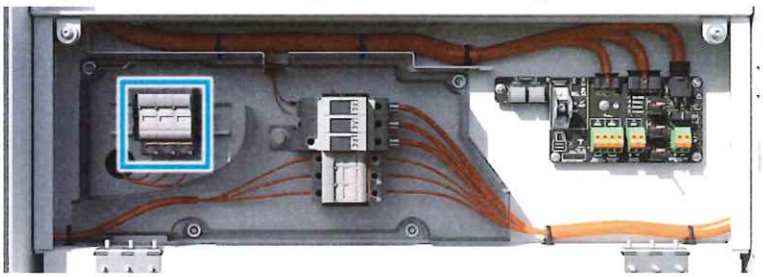
4. Re-verify the voltmeter on known live source.
5. Repeat the above, now measuring DC voltage.

> **NOTE:** You will measure a voltage of up to 50 V DC. This is normal and expected. If voltage above 50 V DC is detected, stop and contact Tesla.

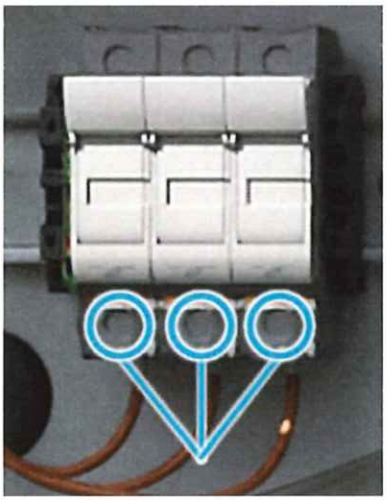
6.4.2.5 Verifying Line-Side De-Energization

> **NOTE:** This check for dead should only take place after all previous steps were successfully completed.

If isolation is required per *Isolating Megapack from Upstream AC Sources on page 56*, check the line-side (grid-side) voltage at the line-side tap in the customer I/O area:



1. Open the fuse holder for the line-side tap.
2. Using CAT IV voltmeter rated for 1000 V AC, first verify the voltmeter on a known live source.
3. Measure AC phase-to-phase and phase-to-ground voltage at the line-side test points as shown below:



4. Confirm that the voltage is 0 V AC.

   WARNING: You may initially measure greater than 0 V AC due to residual capacitive energy. Stop and wait five minutes before testing again. **Do not proceed unless you have measured 0 V AC.**

   NOTE: If upstream isolation was **not** required per *Isolating Megapack from Upstream AC Sources on page 56*, you may measure a nominal voltage.

5. Re-verify the voltmeter on known live source.

6.4.3 Megapack Door Security

All Megapack doors have the provisions for the use of a padlock. The Customer Interface Bay (*Customer Interface Bay on page 14*), as the primary customer interface for Megapack, is recommended to be locked. The other doors do not need regular access and should remain closed and locked.

NOTE: Access to the Customer Interface Bay may be subject to local codes and regulations.

About the Locks

Combination locks are shipped with Megapack, either pre-installed on Megapack doors or delivered in the accessory kit. Install these locks to ensure doors are not left open unnecessarily:

- **Set combination to 4585** for coordinated access with Service Providers. Tesla must have ability to unlock doors. If you choose a different combination, advise your Tesla contact in writing.
- If Tesla field service personnel arrives on site and observes locks are not installed on all doors except the Customer Interface Bay door, they will communicate the requirement with on-site personnel.
- For keyed locks, a double hasp is required to allow Tesla access by unlocking Tesla's lock.

6.5 Energizing, Site Isolation, and Storage

For all procedures, follow the guidelines in the site's *Electrical Control Plan on page 54*. Work with the site owner or operator with any questions related to the Electrical Control Plan.

6.5.1 Energizing the Megapack

After Tesla has completed the commissioning and initial start-up of Megapack, the system is ready for operation. You should not need to perform extra steps to start the system.

If a Service Provider gives the direction to re-energize a Megapack during installation or after upstream maintenance or short-term storage, the steps below must generally be performed to energize the Megapack.

WARNING: Notify operations and on-site personnel and clear working areas as necessary before re-energizing.

NOTE: These are general steps. The procedure may vary during specific installation or operational phases or at specific sites.

NOTE: Refer to *AC Disconnect Responsibilities on page 55* for information about whether operators or Tesla must perform certain steps.

1. Verify that the equipment and area, including the inside of the Customer Interface Bay and AC bus bar area, is clear of tools, materials, workers, equipment, and debris.
2. Secure the bus bar access panel to the AC bus bar area, if it has been removed.
3. Reinstate the remote shutdown contact on the customer interface board, if it had been removed.
4. Turn the enable switch ON on the customer interface board (removing the lock if necessary) and close and secure the customer I/O area cover.
5. Remove the lock on the Megapack AC circuit breaker, if needed.
6. If present, turn the Megapack AC circuit breaker motor switch from OFF to AUTO.
7. Close the Megapack AC circuit breaker (*Controlling the Circuit Breaker on page 18*).
8. Close the Customer Interface Bay door.
9. Close any upstream external circuit breakers that had been opened.

6.5.2 Isolating the Site from Megapack

Follow the isolation procedures below to prevent Megapack(s) from providing energy to other components at the site.

6.5.2.1 Isolating a Single-Megapack System

Perform this procedure at sites with a single Megapack:

1. Command an off state using the Tesla System Controller or other SCADA equipment. If the site operator or system owner does not have the means to send commands, contact Tesla (*Contact Information on page 28*).
2. Isolate the Megapack from upstream AC if required (*Isolating Megapack from Upstream AC Sources on page 56*).
3. Open and lock the Megapack AC circuit breaker (*Opening and Locking the Megapack AC Circuit Breaker on page 57*).

6.5.2.2 Isolating a Multiple-Megapack System

Perform this procedure at sites with multiple Megapacks:

1. Determine whether all Megapacks should be isolated or only one Megapack:
    - If isolating all Megapacks, send the appropriate command using the Tesla System Controller or other SCADA equipment. The appropriate command varies depending on whether this is an on-grid or a microgrid site. If the site operator or system owner does not have the means to send commands, contact Tesla (*Contact Information on page 28*).
    - If isolating only one Megapack, the power commands do not require a change (but a change is permitted if desired).

2. Isolate AC power at the appropriate circuit breaker:
   - If isolating all Megapacks, open the site-wide external circuit breaker or disconnect to remove grid power.
   - If isolating only one Megapack, open the upstream AC disconnect.

6.5.3 Configuring for Short-Term Storage

This procedure is only to be performed when a Megapack needs to be shut down and removed from grid power **for more than 24 hours and up to 14 days**.

NOTE: Contact Tesla for assistance with configuring Megapack for storage periods of longer than 14 days.

WARNING: Active work cannot be performed inside Megapack while it is in storage. If active work is required, ensure the Megapack is de-energized per *Performing Lockout/Tagout on page 56*.

1. Ensure that conditions, including duration and temperature range, will abide by the requirements in the *Megapack 2 XL Transportation and Storage Guidelines* for the duration of storage.
2. Charge Megapack to at least 50% state of energy.
3. Open a ticket using Tesla's online support portal (*Contact Information on page 28*) and note the following in the ticket:
   a. Inform that the system will be shut down soon.
   b. State the amount of the time the system is expected to be idle.
4. Command to off state using the Tesla System Controller or other SCADA equipment. If the site operator or system owner does not have the means to send commands, contact Tesla (*Contact Information on page 28*).
5. Open the site or external circuit breaker or disconnect (if one is present).
6. Assess the steps in *Critical Door-Opening Considerations on page 55* and open the Customer Interface Bay door if conditions allow.
7. Turn the enable switch off (*Turning the Enable Switch Off on page 60*).
8. Wait five minutes.
9. Open and lock the Megapack AC circuit breaker (*Opening and Locking the Megapack AC Circuit Breaker on page 57*).
10. **Turn the enable switch back on.**
11. Close and secure the customer I/O area cover, and close the Customer Interface Bay Door.
12. Up to 14 days later, proceed with re-energization (*Energizing the Megapack on page 62*).

CAUTION: The enable switch must remain on during storage.

7 System Augmentation

Tesla provides guidance at the time of purchase for augmentation of energy storage. If the plans to augment the site have been made, you must also plan for and accommodate the activities surrounding augmentation and maintenance of these additional energy storage units, including site access. Refer to *Maintaining Access, Routes, and Zones on page 47*.

For more information on system augmentation and its site layout, refer to *Application Note: Megapack Capacity Augmentation*.

8 Decommissioning and Disposal

8.1 Purpose

This section provides details about decommissioning Megapack Systems that are no longer functional, including how to return Megapacks to either Tesla or another facility for recycling.

NOTE: To ensure compliant decommissioning, always refer to local regulations as applicable.

8.2 Safety

Refer to the *Industrial Lithium-Ion Battery Emergency Response Guide* (ERG) on the Tesla First Responders Information Page at *https://www.tesla.com/firstresponders* for detailed hazard information specific to Megapack's lithium-ion batteries. The *Transportation* section of the ERG provides guidance and cites example regulations for shipment of dangerous goods. All logistics and transportation companies in the supply chain are responsible for knowing and following all applicable regulations pertaining to the storage, handling, and transportation of dangerous goods. The ERG is periodically updated. Download the latest revision of the ERG from *https://www.tesla.com/firstresponders*.

Tesla recommends that a physical copy of the ERG is transported along with Megapack, and subsequently remains on site and accessible at all times, for the life of the product.

Safety Data Sheets (SDS) are available for materials in Tesla Energy products. Refer to the Tesla Partner Portal for more information.

8.3 Decommissioning

This section outlines the considerations necessary to decommission a Megapack System.

NOTE: Refer to *Decommissioning Damaged Equipment on page 68* for guidance if the system has sustained damages.

8.3.1 Verifying Maximum State of Energy

When planning decommissioning, you must first clarify the maximum state of energy (SOE) at which the system must be returned. Prior to shutting down and decommissioning Megapack, discharge the system accordingly as required by applicable regulations.

NOTE: If no regulations apply, Tesla recommends discharging the system below 30% SOE for transportation.

8.3.2 De-Energizing and Disconnecting the Equipment

After the system has been safely shut down and de-energized, take these steps to disconnect the equipment:

1. Follow the procedures in *Performing Lockout/Tagout on page 56* to de-energize the system.
2. Disconnect wires, referring to the appropriate procedure in the *Disconnecting AC Conductors on page 67* or reaching out to Tesla for more information.
3. Detach the foundation anchors as applicable. Reach out to Tesla for more information.

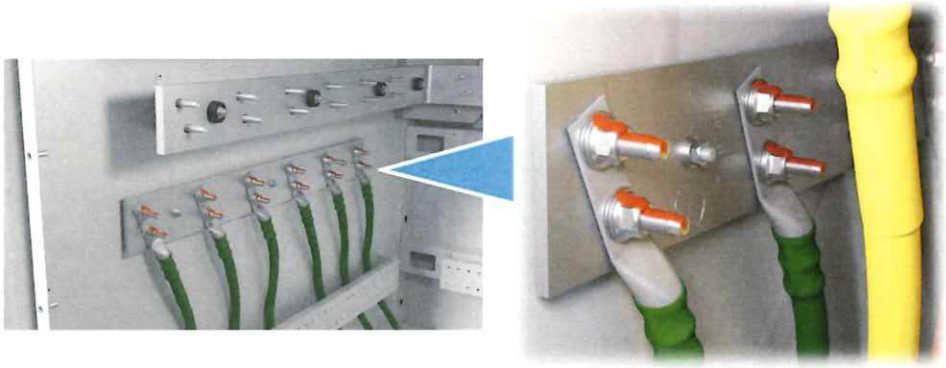
8.3.2.1 Disconnecting AC Conductors

DANGER: Ensure that the appropriate measures have first been taken to remove electrical hazards.

To disconnect the AC conductors:

1. Loosen all AC conductor lugs.
2. Disconnect all AC conductors from the Megapack bus bars using an approved disconnection method.

Figure 34. Unfastening the AC Conductors



3. Pull the conductors out of Megapack through the wireway openings.

8.3.3 Returning Equipment

Tesla energy products contain recyclable materials. Tesla recommends recycling our energy products by returning them to Tesla or to an alternate facility as described in the sections below.

CAUTION: Always refer to the latest applicable *Transportation and Storage Guidelines* for details about handling, lifting, and transportation of Megapack.

8.3.3.1 Returning to a Tesla Recycling Facility

Tesla strongly encourages recycling and recommends that when a Tesla energy product must be decommissioned, it be returned to a Tesla facility for disassembly and further processing. However, the customer may elect to send the equipment to an alternate recycling facility (*Returning to an Alternate Recycling Facility on page 67*).

Contact Tesla to confirm the facility to which Megapack should be returned.

8.3.3.2 Returning to an Alternate Recycling Facility

Tesla energy products should be disposed of or recycled in accordance with local, state, and federal regulations. Note that regulations regarding disposal of batteries vary by jurisdiction. As of December 2021, in the United States, batteries are classified as Universal Waste, and in addition, many individual states have specific regulations regarding disposal of battery packs. For example, in California, all batteries must be taken to a Universal Waste handler or authorized recycling facility.

If disposing without return to Tesla, consult with local, state, and/or federal authorities on the appropriate methods for disposal and recycling. If disassembly of the Megapack is necessary, contact Tesla for guidance.

8.4 Decommissioning Damaged Equipment

This section provides generic guidance around how to handle a damaged Megapack System after all immediate risks following an incident have been mitigated. Damages can be the result of, but not limited to:

- Severe physical impact
- Thermal runaway event
- Transportation accident

Tesla will establish incident-specific guidance on-site as described in this section.

CAUTION: These instructions assume that any immediate risks to personal safety have been mitigated. If any signs of risk such as fire or smoke are still present, consult the *Industrial Lithium-Ion Battery Emergency Response Guide* and refer to contact information in *Contact Information on page 28*.

8.4.1 Determining if Megapack is Safe to Approach

If not already present on site or contacted, contact technical support for guidance prior to any interaction with the Megapack (*Contact Information on page 28*).

Once all immediate risks have been mitigated, follow these steps to determine whether Megapack is safe to approach:

1. Isolate the Megapack as required per *Isolating Megapack from Upstream AC Sources on page 56*.
2. Ensure that there have been no visible signs of risks (such as smoke, flames, suspicious odor) for 12 hours.
3. From a distance, use a thermal imaging camera to determine that the damaged Megapack's temperatures have decreased to safe enough levels to touch and that there is no evidence of cell vent gases.
4. From a safe distance, use a hydrogen meter to validate that no vented gases are present.

WARNING: Avoid contact with vented gases. Upon exit from a cell, their temperatures can exceed 600°C (1110°F).

DANGER: Do not make physical contact with a damaged Megapack unit until all the steps above have been completed. A damaged Megapack can present a hazardous situation which could result in severe injury or death.

8.4.2 Performing Diagnostics

Once Megapack is deemed safe to approach, Megapack diagnostics can begin.

WARNING: Megapack diagnostics must be performed by Service Providers.

Diagnosing the Megapack aims at evaluating its status and determining how to handle the damaged unit until recycling, and as a result whether, for example, to disassemble and ship its sub-components to various recycling facilities, or not disassemble and ship to a single recycling facility.

This process generally begins with a visual inspection of the unit in order to establish an initial plan that may evolve during the inspection. Subsequent steps generally proceed as per below:

1. Once Megapack temperatures are deemed touch-safe and no hydrogen gas is detected, you may begin to physically interact with the system.

2. Take electrical measurements of the Megapack System to determine if any faults are present.
3. If faults are found to be present, these must be cleared before proceeding with decommissioning.

8.4.3 Preparing Damaged Equipment for Transport

After performing diagnostics, Tesla will determine the best and safest way to handle the equipment and transport it to a recycling facility.

Refer to the local applicable transportation regulations for such equipment. Transportation regulations can vary by region. The shipper must always comply with the applicable regulations in the region in which Megapack will be transported.

Following Tesla's diagnostics, Tesla may establish that disassembly of battery modules is necessary in order to safely transport the equipment back to a recycling facility. Tesla may also determine that battery modules must be discharged for safe transportation. In this case, the following should be performed:

1. Identify whether energy is still stored in Megapack battery cells.
2. Discharge all detected energy per Tesla-approved methods.
3. Once all energy is removed from the Megapack System, disassembly and shipping can commence.

8.4.4 Returning Damaged Equipment to Tesla

When a damaged Tesla product must be decommissioned, we request that it be returned to a Tesla facility for disassembly and further processing. Contact Tesla with any questions regarding recycling of damaged equipment.

8.4.5 Returning Damaged Equipment to an Alternate Recycling Facility

If disposing without return to Tesla, please consult with local, state, and/or federal authorities on the appropriate methods for disposal and recycling. Contact Tesla with any questions regarding recycling of damaged equipment.

Appendix A: Troubleshooting

Operators can use a SCADA interface to monitor a Megapack System during operations. In the event of an alert, you can use the table to troubleshoot the alert and determine a course of action. If you see an alert that requires additional support, refer to *Getting Support on page 27*. For more information for accessing and viewing these alerts, refer to the *Controls and Communications Manual* associated with your specific site.

- *Priority 1 (P1) Alerts - Troubleshooting Actions on page 70*
- *Priority 2 (P2) Alerts - Troubleshooting Actions on page 72*
- *Priority 3 (P3) Alerts - Troubleshooting Actions on page 79*

Priority 1 (P1) Alerts - Troubleshooting Actions

Alert	Description	Effect	Recommended Action/ Next Steps: Customer	Priority	Service Provider Action
Megapack Isolation Failure	Megapack has reported an isolation measurement below its acceptable threshold.	The impacted system will not operate, resulting in a potential decrease in available power. Impacted systems could range from individual battery modules to full Megapacks.	No action required.	P1: Critical	An alarm will be triggered for Service Providers to review. If the issue is not resolved remotely, a Field Service ticket shall be created to execute any required corrective actions.
Extreme Temperature Warning	The Megapack has detected a temperature increase above the temperature increase warning threshold.	Megapack has reached critical temperatures and the equipment is at risk for thermal runaway.	Clear the area and notify Tesla Industrial Storage Support and your Service Provider immediately.	P1: Critical	An alarm will be triggered for the Service Provider to review. A Field Service ticket will be created to expedite personnel to the site if required.
Extreme Temperature Fault	The Megapack has detected a temperature increase above the temperature increase fault threshold.	Megapack has reached critical temperatures and equipment is at risk for thermal runaway.	Clear the area and notify Tesla Industrial Storage Support and your Service Provider immediately.	P1: Critical	An alarm will be triggered for the Service Provider to review. A Field Service ticket will be created to expedite personnel to the site if required.

Alert	Description	Effect	Recommended Action/ Next Steps: Customer	Priority	Service Provider Action
Low State of Energy	Megapack is at a very low state of energy and at least one battery module has entered the battery off state as a protection. Remaining at low state of energy can lead to cell damage.	Remaining in this state could lead to permanent cell damage.	1. Attempt to execute a charge command on the system. 2. If unsuccessful, contact your Service Provider.	P1: Critical	An alarm will be triggered for the Service Provider to review. If the issue is not resolved remotely, a Field Service ticket shall be created to execute any required corrective actions.

riority 2 (P2) Alerts - Troubleshooting Actions

Alert	Description	Effect	Recommended Action/Next Steps: Customer	Priority	Service Provider Action
Sparker Fault	One or more Sparkers are behaving incorrectly. Sparkers are located inside the Megapack and control the levels of combustible gas by providing a spark to combust low levels of these gasses before they accumulate.	A faulted Sparker is one that does not spark in the expected fashion (pulse length, pulse interval) or at all. Pulse data is low-level and not exposed to the operators.	With a faulted Sparker, a service ticket will be created with follow-up actions. Contact your Service Provider.	P1: Critical - If multiple Sparkers are faulted P2: Non-Critical - if only one Sparker is faulted	A Field Service ticket is created to schedule Sparker maintenance and further investigation at site. If the alert count is above a certain threshold, an alarm will be triggered for the Service Provider to action upon.
Loss of Site Meter Communication	The Tesla System Controller has lost communication with the site meter.	The battery system power output will be curtailed to zero if the meter is required for the control function in use. Meter readings are frozen at their last value.	1. Verify meter is powered on. 2. Power cycle the meter. 3. Inspect the physical network connection between the Tesla System Controller and the site meter. 4. Verify meter settings. 5. If additional support is needed, contact your Service Provider.	P2: Non-Critical	The Service Provider will provide additional support as needed. If you require further support from Tesla, refer to *Getting Support on page 27*.
Loss of Battery Meter Communication	The Tesla System Controller has lost communication with the battery meter.	The battery system power output will be curtailed to zero if the meter is required for the control function in use. Meter readings are frozen at their last value.	1. Verify meter is powered on. 2. Power cycle the meter. 3. Inspect the physical network connection between the Tesla System Controller and the battery meter. 4. Verify meter settings.	P2: Non-Critical	The Service Provider will provide additional support as needed. If you require further support from Tesla, refer to *Getting Support on page 27*.

Alert	Description	Effect	Recommended Action/Next Steps: Customer	Priority	Service Provider Action
			5. If additional support is needed, contact your Service Provider.		
Loss of Load Meter Communication	The Tesla System Controller has lost communication with the load meter.	The battery system power output will be curtailed to zero if the meter is required for the control function in use. Meter readings are frozen at their last value.	1. Verify meter is powered on. 2. Power cycle the meter. 3. Inspect the physical network connection between the Tesla System Controller and the load meter. 4. Verify meter settings. 5. If additional support is needed, contact your Service Provider.	P2: Non-Critical	The Service Provider will provide additional support as needed. If you require further support from Tesla, refer to *Getting Support on page 27*.
Loss of Solar Meter Communication	The Tesla System Controller has lost communication with the solar meter.	The battery system power output will be curtailed to zero if the meter is required for the control function in use. Meter readings are frozen at their last value.	1. Verify meter is powered on. 2. Power cycle the meter. 3. Inspect the physical network connection between the Tesla System Controller and the solar meter. 4. Verify meter settings. 5. Contact your Service Provider if additional support is needed.	P2: Non-Critical	The Service Provider will provide additional support as needed. If you require further support from Tesla, refer to *Getting Support on page 27*.
Loss of Bus Meter Communication	The Tesla System Controller has lost communication with the bus meter.	The battery system power output will be curtailed to zero if the meter is required for the control function in use. Meter readings are frozen at their last value.	1. Verify meter is powered on. 2. Power cycle the meter.	P2: Non-Critical	The Service Provider will provide additional support as needed. If you require further support from Tesla, refer to *Getting Support on page 27*.

Alert	Description	Effect	Recommended Action/Next Steps: Customer	Priority	Service Provider Action
			3. Inspect the physical network connection between the Tesla System Controller and the bus meter. 4. Verify meter settings. 5. Contact your Service Provider if additional support is needed.		
Loss of Generator Meter Communication	The Tesla System Controller has lost communication with the generator meter.	The battery system power output will be curtailed to zero if the meter is required for the control function in use. Meter readings are frozen at their last value.	1. Verify meter is powered on. 2. Power cycle the meter. 3. Inspect the physical network connection between the Tesla System Controller and the generator meter. 4. Verify meter settings. 5. Contact your Service Provider if additional support is needed.	P2: Non-Critical	The Service Provider will provide additional support as needed. If you require further support from Tesla, refer to *Getting Support on page 27*.
Megapack Fault	One or more Megapacks is in a faulted state. The Megapack has stopped operating to protect itself, and will not charge or discharge.	The Megapack will stop operating to protect itself and will not charge or discharge.	No action required.	P2: Non-Critical	An alarm will be triggered for the Service Provider to review. If the issue is not resolved remotely, a Field Service ticket shall be created to execute any required corrective actions.

Alert	Description	Effect	Recommended Action/Next Steps: Customer	Priority	Service Provider Action
High Latency Megapack Communication	Tesla System Controller is experiencing high latency communication with one or more Megapacks.	The inverter block(s) power output may be reduced intermittently.	1. Inspect the physical network connections between the Tesla System Controller, the network switch, and the inverter block. 2. Contact your Service Provider if the issue persists.	P2: Non-Critical	If the issue persists, the Service Provider will provide additional support as needed. If you require further support from Tesla, refer to *Getting Support on page 27*.
Direct Real Power Command Timeout	The Direct Real Power Command has not been re-written, or the Heartbeat has not been toggled, before the expiration of the Direct Real Power Command Timeout.	The battery system power output will be curtailed to zero.	1. If the timeout was unintentional, verify direct commands are being properly sent to the Tesla System Controller within the calibrated command timeout. Refer to the *Tesla Energy Controls and Communications Manual* for more information. 2. Contact your Service Provider if additional support is needed.	P2: Non-Critical	The Service Provider will provide additional support as needed. If you require further support from Tesla, refer to *Getting Support on page 27*.
Direct Reactive Power Command Timeout	The Direct Reactive Power Command has not been re-written, or the Heartbeat has not been toggled, before the expiration of the Direct Reactive Power Command Timeout.	The battery system power output will be curtailed to zero.	1. If the timeout was unintentional, verify direct commands are being properly sent to the Tesla System Controller within the calibrated command timeout. Refer to the *Tesla Energy Controls and Communications Manual* for more information. 2. Contact your Service Provider if additional support is needed.	P2: Non-Critical	The Service Provider will provide additional support as needed. If you require further support from Tesla, refer to *Getting Support on page 27*.
Loss of Islanding Controller Communication	The Tesla System Controller has lost communication with the Islanding Controller.	If communication with the Islanding Controller is lost while on-grid, the battery system will not transition to an off-grid state in the event of a	1. Inspect the physical network connections between the Tesla System Controller LAN 1 and the Islanding Controller.	P2: Non-Critical	If the controller is a SEL-700G, an alarm will be triggered for the Service Provider to review. If issue cannot be resolved remotely and the controller

Alert	Description	Effect	Recommended Action/Next Steps: Customer	Priority	Service Provider Action
		grid issue or under command to intentionally island. The battery system can still continue to operate on-grid. If communication with the Islanding Controller is lost while off-grid, the system will shut down until communication is restored.	2. Verify that the Islanding Controller is powered on and power connections are secure. 3. Contact your Service Provider if additional support is needed.		is within Tesla's scope of supply, a Field Service ticket will be created to execute any required corrective actions. If the controller is within the site's scope of supply, Tesla will alert site of the issue so that corrective action can be taken. .
Loss of Megapack Communication	The Tesla System Controller has persistently lost communication with the Megapack, meaning the Tesla System Controller has not received Megapack communications for the timeout duration of 120 seconds, unless otherwise configured. Megapack power output will ramp down over the course of 60 seconds.	Megapack power output will be curtailed to zero.	1. Confirm that the enable switch on the customer interface board is in the "ON" position. 2. Inspect the physical network connections between the Tesla System Controller, the network switch, and the Megapack. 3. Verify that the Tesla System Controller LAN 2 lights are blinking. 4. Verify that the network switch is powered. 5. Contact your Service Provider if additional support is needed.	P2: Non-Critical	An alarm will be triggered for a Service Provider to review. If issue is not able to be resolved remotely, a Field Service ticket will be created to execute any required corrective actions.
Megapack Communications Warning	The Tesla System Controller has not received communications from the Megapack for at least 133ms (8 control ticks at 60Hz). The	Megapack power output will be curtailed to zero.	1. Confirm that the enable switch on the customer interface board is in the "ON" position.	P2: Non-Critical	An alarm will be triggered for a Service Provider to review. If issue is not able to be resolved remotely, a Field Service ticket will be

Alert	Description	Effect	Recommended Action/Next Steps: Customer	Priority	Service Provider Action
	communication interruption should be investigated.		2. Inspect the physical network connections between the Tesla System Controller, the network switch, and the Megapack. 3. Verify that the Tesla System Controller LAN 2 lights are blinking. 4. Verify that the network switch is powered. 5. Contact your Service Provider if additional support is needed.		created to execute any required corrective actions.
Megapack Inverter Fault	All inverters in the Megapack are faulted.	The inverter block(s) power output will be curtailed to zero.	No action required.	P2: Non-Critical	A Field Service ticket will be created to schedule corrective actions.
Breaker Irrational	The Megapack AC circuit breaker is reporting open and closed simultaneously.	The inverter block(s) power output will be curtailed to zero.	Visually confirm breaker status and contact your Service Provider with observations for additional support.	P2: Non-Critical	The Service Provider will provide additional support as needed. If you require further support from Tesla, refer to *Getting Support on page 27*.
Bus Controller Prolonged Fault	Megapack has experienced several consecutive faults and has entered a prolonged fault state, which will stop operation .	The inverter block will be curtailed to 0 and will be unavailable for 1 hour.	No action required.	P2: Non-Critical	An alarm will be triggered for Service Provider to review. If issue is not able to be resolved remotely, a Field Service ticket shall be created to execute any required corrective actions.
Megapack Disabled	The Megapack is disabled, meaning its battery modules and thermal system are commanded to the Off state. **Warning:** This does not replace the	The power command to the affected Megapack will be curtailed to 0 while under this condition.	1. Verify that the Shutdown Battery System command is not being sent. 2. Contact your Service Provider if additional support is needed.	P2: Non-Critical	Your Service Provider may be actively involved in evaluating this Megapack. If you require further support from Tesla, refer to *Getting Support on page 27*.

Alert	Description	Effect	Recommended Action/Next Steps: Customer	Priority	Service Provider Action
	need for operators to follow proper de-energization procedures.				
Power Electronics Over Temperature	Over 25% of the Megapack power electronics are experiencing an overtemperature.	Megapack power output may be reduced.	Contact your Service Provider if the fault persists.	P2: Non-Critical	An alarm will be triggered for the Service Provider to review. If issue is not resolved remotely, a Field Service ticket shall be created to execute any required corrective actions.
Enable Circuit Open	The Megapack enable circuit is open. This can be caused by door switch, enable switch, or remote shutdown.	The Megapack's power output will be curtailed to zero.	1. Verify that all doors are closed. 2. Verify that the bus bar access panel is installed. 3. Verify that remote shutdown is not enabled. 4. Inspect the CMA enable lines located on the customer interface board for signs of damage. 5. Contact your Service Provider if additional support is needed.	P2: Informational	The Service Provider will provide additional support as needed. If you require further support from Tesla, refer to *Getting Support on page 27*.
AC Breaker Status	A value of 1 indicates that the Megapack AC circuit breaker is closed. A value of 0 indicates that the Megapack AC circuit breaker is open.	If status changes to 0 while the system is operating, the bus controller cannot utilize AC and the Megapack's power output will be curtailed to zero.	1. Visually confirm Megapack AC circuit breaker status. 2. If breaker is open and this was not done intentionally, contact your Service Provider.	P2: Informational	The Service Provider will provide additional support as needed. If you require further support from Tesla, refer to *Getting Support on page 27*.

riority 3 (P3) Alerts - Troubleshooting Actions

Alert	Description	Effect	Recommended Action/Next Steps: Customer	Tesla Path	Service Provider Action
Coolant Low (P1 if leakage is found during visual inspection; otherwise P3)	Coolant level is low as reported by the coolant sensor.	The cooling system may not function properly, which may result in reduced Megapack power output.	Visually inspect exterior of Megapack and check for signs of coolant leakage. 1. If leakage is found, escalate this alert to P1 (critical path). 2. Communicate any notable findings to your Service Provider.	P1: Critical if leakage found; P3: Informational if no leakage	A Field Service ticket shall be created to schedule coolant refill and further investigation at site. If the alert count is above a certain threshold, an alarm will be triggered for the Service Provider to action upon.
Enable Switch Off	Megapack enable switch is in the off position, preventing operation.	The Megapack's power output will be curtailed to zero and will turn off within 500 ms of the alert triggering.	1. Verify that the enable switch on the customer interface board is in the "ON" position. 2. If the enable switch is on and the alert is still active, contact your The Service Provider	P3: Informational	The Service Provider will provide additional support as needed. If you require further support from Tesla, refer to *Getting Support on page 27*.
Door Switch Open	One or more of the Megapack doors is open. Does not apply to the Customer Interface Bay door.	Megapack power output will be curtailed to zero and the enable circuit will break.	1. Verify that door is closed. 2. If door is closed, inspect door switch for signs of damage. 3. Contact your Service Provider if additional support is needed.	P3: Informational	The Service Provider will provide additional support as needed. If you require further support from Tesla, refer to *Getting Support on page 27*.

Revision History

Revision	Date	Details
2.1.1	March 18, 2026	• Removed empty steps (*Energizing the Megapack on page 62*, *Configuring for Short-Term Storage on page 64*)
2.1	February 25, 2026	• Clarified AC disconnect responsibilities by breaker operations (*AC Disconnect Responsibilities on page 55*) • Clarified isolation requirements (*Isolating Megapack from Upstream AC Sources on page 56*) • Added troubleshooting alerts (*Appendix A: Troubleshooting on page 70*)
2.0	November 13, 2025	• Provided additional thermal system manufacturing option information (*Product Configurations on page 11*) • Provided remote shutdown trip times (*Remote Shutdown Trip Times on page 32*) • Clarified Electrical Control Plan responsibilities (*Electrical Control Plan on page 54*)
1.9	September 5, 2025	• Clarified Preventative Maintenance requirements and added guidance for 15-year maintenance (*Preventative Maintenance on page 51*)
1.8	May 29, 2025	• Updated the maximum allowable arc flash incident energy from 8 to 14 cal/cm^2 for all regions. Updated the protection scheme requirements to ensure admin controls related to relays are clearly defined (*Performing Lockout/Tagout on page 56*) • Provided details about the Electrical Control Plan (*Electrical Control Plan on page 54*) • Updated *Tesla System Controller on page 19*, *Tesla System Components on page 8*, and *Product Labels on page 21* to include additional Large Tesla System Controller • Updated troubleshooting to provide guidance for Service Providers (*Appendix A: Troubleshooting on page 70*)
1.7	February 12, 2025	• Provided additional considerations for ground surface maintenance (*Ground Surface Maintenance Considerations on page 43*) • Provided guidelines about responding to enclosure imperfections or damage (*Responding to Imperfections or Damage on page 53*) • Introduced the C011 cell option (*Battery Modules on page 13*, *Product Configurations on page 11*) • Introduced fan type options (*Megapack Options on page 11*)
1.6	December 2, 2024	• Provided product configuration, option, and variant descriptions (*Product Configurations on page 11*) • Introduced the C012 cell option (*Battery Modules on page 13*)

Revision	Date	Details
1.5	October 23, 2024	• Clarified considerations for maintaining state of energy (*Critical Operational Considerations on page 34*) • Provided requirements for maintaining electrical protection (*Maintaining Electrical Protection on page 54*) • Removed guidance about turning enable switch back on when active work pauses for 1 hour or longer (*Turning the Enable Switch Off on page 60*) • Provided considerations for turning the enable switch back on under conditions described in this *Note on page 56* • Provided equipment clearance, which must be maintained for the operating life of the system (*Maintaining Megapack Clearance on page 44*) • Updated safety features to provide improved context (*Hazard Mitigation Features on page 30*) • Provided additional contact details (*Contact Details on page 28*)
1.4	May 31, 2024	• Provided exposure and fire clearance information and requirements (*Maintaining Exposures and Fire Clearances on page 46*) • Added a topic describing routes and zones to clarify maintenance requirements (*Routes and Zones on page 35*) • Updated vehicle dimensions and added Megapack delivery vehicle (*Typical Vehicles on page 42*) • Removed inspection of drain valves from annual maintenance activities (*Annual Maintenance on page 51*) • Provided reference to the *Application Note: Considerations for Hazardous Materials Business Plans (HMBP)* (*Operations on page 34*)
1.3	March 6, 2024	• Added critical operational considerations (*Critical Operational Considerations on page 34*) • Clarified previous updates to on-site maintenance infrastructure Levels 1-5 (*On-Site Maintenance Infrastructure on page 48*)
1.2	January 30, 2024	• Updated on-site maintenance infrastructure levels (*On-Site Maintenance Infrastructure Requirements Overview on page 47*) • Provided specifications for UL 1066 circuit breaker (*Megapack AC Circuit Breaker on page 15*)
1.1	November 8, 2023	• Modified door-opening guidance and removed the requirement to contact Tesla before opening doors (*Critical Door-Opening Considerations on page 55*) • Introduced the -D enclosure variant (*Enclosure on page 18*) • Disambiguated safe work environment procedures including isolation and performing lockout/tagout (*Providing a Safe Work Environment on page 54*) • Provided arc flash label information (*Arc Flash Label on page 23*) • Updated Asia hotline information (*Contact Information on page 28*)
1.0	July 5, 2023	Initial Revision.

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Megapack 2 XL Operation and Maintenance Manual – Revision 2.1.1

Last Updated March 18, 2026

Jerry Smith Storage Decommissioning Plan

JULY 13, 2026

NEXAMP | 101 SUMMER STREET, BOSTON, MA

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Summary

Purpose

This Decommissioning Plan provides an overview for the safe and proper retiring of the Jerry Smith Storage Battery Energy Storage System (BESS) facility at the end of its operational life[1] and ensuring all activities are performed in compliance with regulatory standards.

Project Overview

The Jerry Smith Storage project is located within parcel 339 Jerry Smith Road, Lansing, NY, 14882. The project consists of an energy storage system with a system capacity of 5,000 kW/ 23,500.8 kWhs which includes Six (6) Tesla Megapack 2XL BESS units, ancillary electrical equipment and fencing. The total fenced in area of the BESS is 9,689 ft^2 and is expected to be installed as shown in Figure 1. The expected operational life of the BESS facility is 20 years, which is assumed under the guidance of the Original Equipment Manufacturer (OEM).

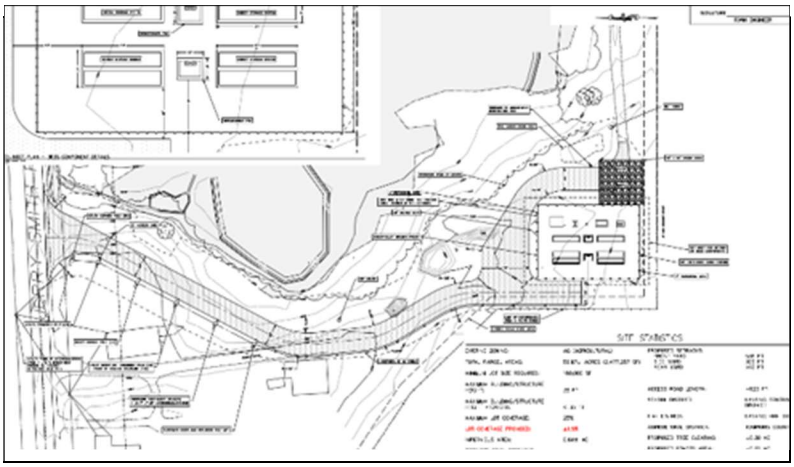

Figure 1 BESS layout

Requirements

Decommissioning will be conducted in accordance with the New York State regulations, ensuring all system equipment/components are removed, recycled, and/or disposed of safely and properly.[2] This includes but is not limited to adhering to the following:

- Town of Lansing Building Code
- NFPA 855 2026 Edition
- 2025 FCNYS
- NYSDEC
- NYSEG DER Interconnection Guidelines

Introduction

Overview

Decommissioning activities will ensure that the site is suitable for future use by removing all equipment and its components' parts of the BESS. This will be performed to restore the site to its pre-construction

[1] As determined by Nexamp, facility abandonment, cessation of operations for six (6) consecutive months (or 12 months within any 18-month period), violation of site plan approval conditions, or the expiration, revocation, or violation of required permits may trigger decommissioning.

[2] Site restoration steps will adhere to the current version the New York State agricultural and markets guidelines for solar energy projects and construction mitigation for agricultural lands, at the time of decommissioning.

condition. This protocol includes the disconnection, dismantling, material recycling, and land restoration.

Pre-planning Activities

The following activities will be done in pre-planning:

- Review and update the decommissioning plan and funding mechanism
- Establish a detailed decommissioning schedule with clear milestones
- Notify stakeholders, including local Authorities Having Jurisdiction (AHJs) and utility companies (NYSEG) at least Six (6) months before decommissioning activities begin, with Lansing Fire Department receiving written notice at least 30 days prior to the start of decommissioning
- Gather technical documents, equipment manuals, engineering drawings, material safety data sheets (MSDS) and transportation guidelines
- Secure necessary permits and approvals

Decommissioning Process

Equipment Removal

Decommissioning will proceed in the reverse order of installation, with activities including the following:

1. Electrical disconnection
    a. Disconnect the BESS from Grid and ancillary electrical equipment
    b. Remove above and underground electrical lines/cables, poles, and conduits
2. Removal of Major Components
    a. BESS units (including batteries and inverters), MV transformers, and other electrical equipment will be removed and transported to certified and pre-approved facilities
    b. Hazardous materials, including batteries and transformer oil, will be managed as per EPA, DOT, and NYSDEC standards
    c. NYSEG Interconnection Equipment:
        i. Remote trip/SCADA disconnect will be disconnected and decommissioned
        ii. Metering equipment will be removed and returned to NYSEG
3. Structural Removal
    a. Dismantle and recycle fencing, concrete foundations, and equipment pads
4. Debris and Waste Management
    a. Separate and transport waste to approved recycling and/or disposal facilities

Material Recycling and Disposal

The following materials will be recycled and disposed of:

- Batteries will be transported to OEM and their recycling partners for proper recycling and disposal
    - Due to the nature of energy storage facilities, a Tesla Megapack 2XL specific decommissioning plan is provided within Appendix 1 (Tesla Megapack 2XL Operations and Maintenance Manual). This plan is developed by the OEM and is intended to guide owner/operators of the energy storage system.

- Transformer oils will be sent to certified facility
- Metals and wiring will be salvaged for recycling
- Concrete foundations will be broken and transported for reuse
- Gravel and geotextiles will be reused where possible or sent to approved facilities

Site Restoration

Site restoration will include the following:

- Grade disturbed areas to restore drainage patterns to the original design
- Apply topsoil and reseed with a native seed mix to prevent the possibility of erosion
- Verify restoration quality through inspections and photographic documentation

Town of Lansing final sign-off and restoration inspection will be conducted to confirm all structures are removed or restored.

Environmental Safety and Impact

Safety Protocols

A comprehensive environmental Health & Safety Plan (EH&S) will be developed and will govern all decommissioning activities. This plan will comply with OSHA standards (29 CFR 1910.120) and incorporate best practices for protecting workers and the community. The key components of this plan includes but is not limited to the following:

- Job Hazard Analysis (JHA): Detailed risk assessment for each job/task, identifying potential hazards and their mitigating measures
- Personal Protective Equipment (PPE): Appropriate PPE will be provided to workers, including arc flash suits, gloves, etc., based on the nature of the work activity
- Fire Prevention and Control:
    - All fire protection systems will remain operational during decommissioning
    - Fire department will be made aware of the decommissioning activities in the event an emergency arises
- Emergency Response Plan:
    - Site-specific procedures for handling emergencies such as fires, thermal runaway, chemical spills, or injuries will be available, and the fire department would have been trained with respect to this plan.
    - Coordination with local emergency response teams and Lansing Fire Department for incident management.
- Emergency Response Access:
    - Nexamp will ensure that Lansing Fire Department will have site access and keys (if required) during the decommissioning phase
- Site Security:
    - Fencing and restricted zones will ensure unauthorized personnel are kept out of active work areas.
    - Security measures will also safeguard equipment and prevent theft and/or vandalism.

Hazardous Material Handling

The handling and disposal of hazardous materials, such as lithium-ion batteries and transformer oils, will follow local and federal regulations, including those outlined in EPA standards. Key protocols include but are not limited to the following:

- Identification of Hazardous Materials: A thorough inventory of all regulated materials, including batteries, transformers, and associated electrical equipment.
- Containment and Transportation: Ensuring all hazardous materials are securely packaged, labeled, and transported to certified facilities using licensed hazardous material handlers/carriers.
- Spill Prevention and Control:
    - A Spill Prevention, Control, and Countermeasure (SPCC) Plan will be implemented to address potential leaks or spills during the dismantling process.
    - Secondary containment systems will be utilized for any containers exceeding 55 gallons
    - Each Tesla Megapack 2XL includes a plenum for electrolyte (hazardous material in the lithium-ion battery) leakage that has the potential to contain 200+% of the hazardous material present in a single Megapack 2XL unit
    - Trained personnel will manage cleanup of any spills, and incidents will be reported to the appropriate authorities

Lithium-ion batteries have a hazard classification of Class 9. As such, the shipping UN 38.3 classifications for the batteries ensure that safe transportation and labeling compliance can be achieved.

Stormwater Management

Nexamp will implement any required stormwater management controls as required by local AHJs and ensure compliance with the New York State Department of Environmental Conservation (NYSDEC) at the time of decommissioning. Specific measures include:

- Minimizing soil disturbance and controlling sediment runoff during decommissioning activities.
- Stabilizing disturbed areas with appropriate erosion and sediment control methods, such as silt fencing and sediment traps.
- Regular monitoring of stormwater discharge to ensure compliance with State Pollutant Discharge Elimination System permit conditions.

If any potential contaminated areas are disturbed, appropriate mitigation will be undertaken in coordination with the NYSDEC and regional water management authorities.

Financing and Cost Estimate

Jerry Smith Storage, LLC will pay for the decommissioning of the system from the existing balance sheet. A decommissioning cost estimate is provided below, and more detailed information can be found in Appendix 2.

Solar and Storage Decommissioning Calc	Solar MWac	0	ESS MWac	5
Blue = user input	Solar MWdc	0	ESS MWh	23.5
Black = calculation/linked cell				

Cost Center	Quantity	Unit	Unit Cost	Total Cost
Town Permits	1	LS	$ 1,000.00	$ 1,000.00
Utility Coordination	1	LS	$ 1,000.00	$ 1,000.00
SWPPP Preparation and SPDES Issunace	1	LS	$ 2,500.00	$ 2,500.00
PreConstruction Conference	1	LS	$ 500.00	$ 500.00
SWPPP Installation	1	LS	$ 5,000.00	$ 5,000.00
Above Ground LV Wiring Removal	0	LF	$ 1.07	$ -
Panel Removal	0	Ea	$ 5.50	$ -
Battery Removal	6	Ea	$ 42,000.00	$ 252,000.00
Battery LV Wiring Removal	6	Ea	$ 200.00	$ 1,200.00
Transformer Removal	2	Ea	$ 6,250.00	$ 12,500.00
Concrete Removal	0	SY	$ 25.96	$ -
Below- Ground LV Wiring Removal	6260	LF	$ 1.75	$ 10,939.15
Below- Ground MV Wiring Removal	5202	LF	$ 2.73	$ 14,218.80
Foundation Removal	1681	Ea	$ 7.00	$ 11,767.00
Pole Removal	6	Ea	$ 469.00	$ 2,814.00
Fence Removal	400	LF	$ 3.27	$ 1,308.00
Access Road Removal	597	CY	$ 4.50	$ 2,686.67
Recycling Logistics	46	Ton	$ 130.43	$ 6,000.00
Hydroseeding	2	Ac	$ 1,557.72	$ 3,115.44
SWPPP NOT	1	Ea	$ 5,000.00	$ 5,000.00
Total				$ 333,549.06
Contingency	20%			$ 66,709.81
Final Total				**$ 400,258.87**
			$/MWac	$ 80,051.77
			$/MWh	$ 17,032.29
			125% Base Cost	**$ 500,323.59**
			$/MWac	**$ 100,064.72**
			$/MWh	**$ 21,290.37**

Decommissioning Timeline

The following table provides an overview of the Decommissioning Timeline:

Table 1 Decommissioning Timeline

Decommissioning Activity	Timeline (Months)
Stakeholder Notifications	0-6
Permitting and Approvals	2-6
Equipment Removal and Recycling	6-9
Site Restoration	9-15
Final Reporting	15

The decommissioning process for the facility will adhere to a structured and carefully planned timeline to ensure the safe dismantling, compliance to regulations and OEM guidance, and thorough site restoration. The Decommissioning activities outlined in Table 1 are outlined in greater detail below:

1. **Stakeholder Notifications (Months 0-6)**

In this activity, Nexamp will notify all stakeholders of the intent to decommission the BESS facility. Notifications will be issued to Lansing Building Department, NYSEG, OEMs, and relevant AHJs (local and federal). A stakeholder list will be updated to include all involved and responsible parties, and preliminary discussions regarding permits and approvals will commence.

2. **Permitting and Approvals (Months 2-6)**
   In parallel with Stakeholder Notifications, Nexamp will secure all necessary permits and approvals for decommissioning activities. This activity includes the submission of permit applications for decommissioning, environmental reviews, and compliance certifications. Nexamp will coordinate with regulatory agencies to ensure that all documentation is updated, complete, and compliant with the latest standards and best practices. Preparations for safe material handling and waste management will be finalized in this activity.

3. **Equipment Removal and Recycling (Months 6-9)**
   The physical dismantling of the Facility will begin at month six and its activities include:
   a. Disconnecting the BESS from the electrical grid an ancillary equipment
   b. Removing above and underground components
   c. Transporting recyclable materials
   d. Handling and disposing of hazardous materials per EPA and NYSDEC guidelines

   This phase ensures that all components are safely removed while maximizing recycling opportunities to minimize the environmental impact of the Facility and its decommissioning.

4. **Site Restoration (Months 9-15)**
   Once all equipment has been dismantled and removed from the site, Nexamp will restore the site to a vegetated and vacant condition. Restoration activities include:
   a. Grading the land to match the original drainage patterns
   b. Applying topsoil and seeding to disturbed areas with native seed mix to stabilize soil and prevent any erosion
   c. Conducting inspections to verify restoration quality
   d. Review of restoration activities with local AHJs for approval

5. **Final Reporting (Month 15)**
   Nexamp will prepare a comprehensive decommissioning report as part of the final reporting activity. This document will detail the timeline and milestones, components removed and their whereabouts, final site conditions (with photographs and inspection results), and compliance validation to regulation and permits. The report will be submitted to any relevant AHJs to confirm the successful completion of the decommissioning process of the Facility.

Appendix 1 – Tesla Megapack 2XL Operations and Maintenance Manual

Appendix 2 – Decommissioning Calculator_Stamped_Jerry Smith

Appendix 3 - Stakeholder Contact List

nexamp

Jerry Smith Energy Storage System

Emergency Response Plan

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Disclaimer: This drafted Emergency Response Plan (ERP) is provided for information and guidance purposes only and establishes a suggested format.

The ERP requires regular updates with sufficient detail to enable personnel to implement necessary emergency procedures without question or delay to ensure the continuity of operations.

1 Introduction

1.1 Scope and Purpose

This Emergency Response Plan (ERP) or Emergency Operations Plan (EOP) has been developed for the **Jerry Smith Battery Energy Storage System (BESS)** located at 339 Jerry Smith Rd., Lansing, NY 14882. The purpose of this document is to provide guidance and pertinent information regarding the roles, responsibilities, and chain of communication and command of the System Owner/Operator, Property Owner, Emergency Responders, and other required Subject Matter Experts (SMEs) for preparing for, and safely responding to, a fire, explosion, or other battery-related incident requiring a public safety response at the energy storage facility.

The Operations and Maintenance (O&M) Manager for the project is an employee of Nexamp. “On-site personnel” include all individuals on the facility property who are direct employees of the Owner/Operator or affiliated contractors. The Owner/Operator and contractors are similarly responsible for establishing and maintaining contractor-specific Emergency Management Plans and reporting procedures that will work in conjunction with the overall energy storage facility plan.

Life safety shall be the highest priority during any event type associated with this energy storage facility.

1.2 Timeframe

This ERP covers the timeframe beginning at the final approval of the Lansing Fire Department to the beginning of decommissioning and removal of the energy storage system.

1.3 Activation

This ERP shall be activated during any emergency response to energy storage facility-related incident on site.

1.4 Agency Jurisdiction

This plan has been strictly developed for the Lansing Fire Department and does not cover multi-agency response.

1.5 Operations and Maintenance (O&M)

Operations and maintenance procedures for the energy storage facility and associated equipment are outside the scope of this document. Procedures for inspection and testing of associated alarms, interlocks, and controls are provided in the O&M plan.

Please refer to manufacturer Operations and Maintenance (O&M) manuals for all associated equipment and protocols related to the site prior to beginning any maintenance work on this facility.

1.6 ERP Update Process

Dates for draft issuance, revisions and final issuance of this ERP are provided in Section 11 of the document.

A review of this emergency response plan shall be conducted and documented:

- at minimum on an annual basis; or

- if there is a change in design, construction, operation, or maintenance that affects emergency response planning.

Ensure all relevant stakeholders receive a complete copy of this Emergency Response Plan.

Plan retirement will coincide with decommissioning of the facility. All decommissioning procedures shall be performed by trained and knowledgeable persons in alignment with the Decommissioning Plan provided for this installation. Decommissioning shall be performed under the supervision of the System Owner/Operator and manufacturer.

2 Definitions and Acronyms

2.1 Definitions

Approved – Acceptable to the authority having jurisdiction

Battery – A single cell or a group of cells connected electrically in series, in parallel, or a combination of both.

Battery cell - The basic electrochemical unit, characterized by an anode and a cathode, used to receive, store, and deliver electrical energy.

Battery management system (BMS) - A system that monitors and controls performance of an energy storage system and can have the ability to disconnect the energy storage unit from the system in the event abnormal or hazardous conditions are detected.

Battery module – A subset of battery cells, connected in series, parallel, or a combination of both, with some amount of monitoring and passive disconnect capabilities

Battery rack – A subset of interconnected modules, typically in series, which typically includes switchgear, BMS, and active disconnect capabilities

Certifications – In this context, certifications address primarily Underwriters Laboratory standards, including UL (Underwriters Laboratories) 1642, UL 1973, UL 1741, and UL 9540. Also, UL 9540A testing will be included in this context.

Deflagration – Combustion event which propagates through explosive gases released by batteries during abnormal failure events at subsonic speeds. In this context, deflagration risk may be managed through a variety of mitigative measures, such as vent design, exhaust, or suppression systems.

Electrical Event - Internal short circuit due to internal cell defects, overvoltage charging or a defect on internal resistance.

Energy storage system - One or more devices, assembled, capable of storing energy to supply electrical energy at a future time. Battery energy storages system is called a BESS (Battery Energy Storage System).

Energy Storage Management System (ESMS) - A system that monitors, controls, and optimizes the performance of an energy storage system and can control the disconnection of the energy storage system in the event of abnormal conditions.

Fire Command Center - The principal attended or unattended room or area where the status of the detection, alarm communications, control systems, and other emergency systems is displayed and from which the system(s) can be manually controlled.

Incident Action Plan (IAP) – IAP formally documents incident goals/control objectives, operation period objectives, and the response strategy defined by incident command during response planning.

Inverter – A piece of electrical equipment which converts DC (Direct Current) energy of the batteries into AC (Alternating Current) energy of the grid and vice versa

Monitoring Company – alerted in the event of activation of Nexamp' s aspirating smoke detection (ASD) system.

Mechanical Failures - Physical damage to a cell which may have occurred during the manufacturing or installation process, as well as damage caused by vibration or expansion.

Off-gassing – Gases released by batteries during abnormal events prior to thermal runaway

Subject matter expert (SME) – One or more parties who have skills and knowledge related to the operation of the electrical equipment and installations and has received safety training to recognize and avoid the hazards involved. These parties will be responsible for communication during failures with facility personnel, system operators, and emergency personnel. The SME will be qualified in workplace and electrical safety in local jurisdiction of the system.

Thermal Event - A chemical process where self-heating in a battery exceeds the rate of cooling causing high internal temperatures, melting, off-gassing/venting, and in some cases, fire, or explosion. Thermal, mechanical, and electrical abuse can lead to thermal runaway; internal short circuit from manufacturing defects; or the development of metallic dendrites that form an internal short over time. Lithium-ion batteries undergoing thermal runaway can vent their internal contents in the form of gas. Without proper ventilation a combination of gases can build up in an enclosed space. The Lower Explosive Limit (LEL) for this mixture can vary. Oxygen starvation fire suppression in lithium-ion battery systems is not recommended. Smoke can be toxic and smoke from batteries is no exception. Use of a positive pressure breathing apparatus is recommended whenever responding to battery system fires.

Thermal runaway - The condition when an electrochemical cell increases its temperature through self-heating in an uncontrollable fashion and progresses when the cell's heat generation is at a higher rate than can dissipate leading to fire, explosion, and gassing.

2.2 Acronyms

Abbreviation / Acronym	Description
AR	**Arc-Rated**
BESS / ESS	**Battery Energy Storage System** – the complete facility including bidirectional inverter(s), step-up transformer(s), protection devices, HVAC system(s) and control systems.
BMS	**Battery Management System** – the electronic control system that manages the battery installation, maintaining operation within safe limits and monitoring and reporting status to the PPC (Power Plant Controller).

Abbreviation / Acronym	Description
DAS	**Data Acquisition System (synonymous with SCADA)**
E-Stop/EPO	**Emergency Stop / Emergency Power Off**
ERP	**Emergency Response Plan**
EMS	**Energy Management System** – The system running the PPC and providing an HMI for the user interface
FACP	**Fire Alarm Control Panel**
FDC	**Fire Department Connection**
FSS	**Fire Suppression System**
HVAC	**Heating, Ventilation, Air Conditioning system**
IC	**Incident Commander**
ICS	**Incident Command System**
kW	**Kilowatt(s)**
kWh	**Kilowatt-hour(s)**
LFL/LEL	**Lower Flammability Limit / Lower Explosive Limit**
MW	**Megawatt(s)**

Abbreviation / Acronym	Description
MWh	**Megawatt-hour(s)**
O&M	**Operations and Maintenance**
SCBA	**Self-Contained Breathing Apparatus**
SDS	**Safety Data Sheets** – a document that contains information on the potential hazards (health, fire, reactivity and environmental) and how to work safely with the chemical product.
PCS	**Power Conversion System** – Includes bidirectional inverter and integrated control system
PPC	**Power Plant Controller** – The main BESS computer that provides user interaction for all available systems via the EMS HMI.
SCADA	**Supervisory Control and Data Acquisition** – Control system architecture that provides an interface for monitoring and issuing commands to the BESS via the RTUs (Remote Telemetry Unit).
SME	**Subject Matter Expert**
SOC	**State of Charge** – The percent level of charge of the batteries relative to their capacity.
SOH	**State of Health** – The percent merit of condition of the batteries relative to ideal conditions. Will decrease over time with use.
UICS	**Unified Incident Command System**
UFL / UEL	**Upper Flammability Limit / Upper Explosive Limit**

3 General Site Information

3.1 Owner/Operator Information

The owner of the BESS is Jerry Smith Storage, which is an LLC of Nexamp. The Operator of the BESS is Nexamp. Nexamp is a vertically integrated Independent Power Producer (IPP) based in Boston that has constructed, owns, and operates 200+ MWh of energy storage across Massachusetts and New York. Nexamp also operates over a 1GW of solar across the United States, and continues to develop and construct a multi-GW pipeline of energy storage and solar projects across the U.S.

More information about Nexamp can be found here: https://www.nexamp.com/

3.2 Site Overview

The Jerry Smith Energy Storage facility is located at 339 Jerry Smith Rd., Lansing, NY 14882. The Jerry Smith Energy Storage facility consists of Six (6) Megapack 2XL with a nameplate capacity of 979.2 kW / 3,916.8 kWh (4-hour duration). Four (4) Megapack 2XL are rated at 850 kW / 3,916.8 kWh and Two (2) Megapack 2XL are rated at 800 kW / 3,916.8 kWh for a total operating BESS capacity of 5,000 kW / 23,500.8 kWh.

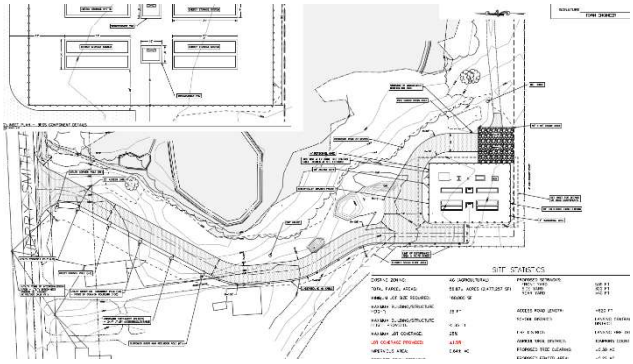


Figure 1 Site Layout

3.3 Site Design

The BESS is located toward the center portion of the property, slightly to the east, as shown in Figure 2. The BESS is southwest and connected to an access road that provides fire apparatus access.

Figure 2 BESS Location - zoomed out

The BESS is connected to an access road that provides fire apparatus access as seen below in Figure 3.

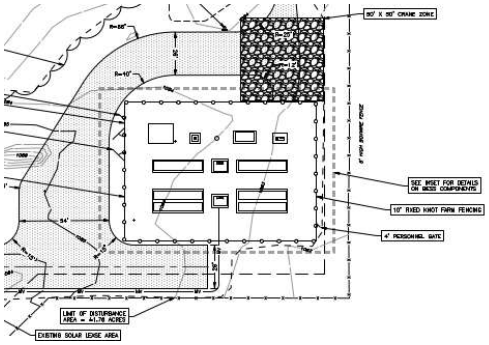


Figure 3 BESS Layout - zoomed in

In the event of an emergency, all site personnel, visitors, Nexamp, and emergency response personnel (including the fire department) should remain outside the 100ft radius seen below. In the event of an emergency, the neighboring property owners should be notified of the event and provided updates throughout the duration of the event.

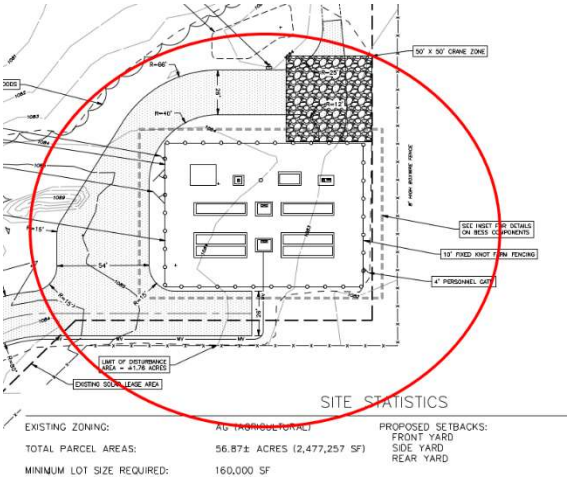


Figure 4 - 100 ft radius

Electrical equipment including metering enclosures, transformers, Data Acquisitions System cabinets are located within the BESS area, with at least a 10 ft setback between the BESS unit, the equipment, and the access road.

The BESS enclosure is installed on a concrete pad, elevated above the flood plain with the surrounding area noted as gravel. The gravel will extend to the access road and between the BESS area.

3.4 Fire Department Access and Staging Area

An entrance point is located on the northeast end of the property. Staging areas are recommended to be conducted on the access road just at the entrance gate of the site facility outside the 100ft radius. Staging areas should be based on the IC and their initial size-up. The staging area is not finalized and will be decided upon by the Fire Department in future discussions with Nexamp.

The Fire Department should not attempt to enter the site fence line unless there is a clear threat to life safety.

Figure 5 Fire Department Access and Staging Area – To be Updated

3.5 Site Security Perimeter

The site is enclosed with a locked gate as the primary entrance to the facility and is surrounded by a fence. The BESS units are each individually locked. As noted above, the Fire Department should not attempt to enter the BESS area unless there is a clear threat to life safety.

3.6 Site Access

The site is enclosed within protective steel fencing with a 10-ft gated entrance located at the northern side of the site. As noted above, the Fire Department should not attempt to enter the site fence unless there is a clear threat to life safety.

3.7 Equipment access

The Tesla Megapack enclosures are only accessible for maintenance purposes via cabinet-style enclosure doors and cannot be physically entered by personnel at any time.

The Fire Department should not attempt to open the enclosure doors at any time.

3.8 Water supply

Primary water source to be confirmed with Fire Department.

3.9 Lock Box Access

A lock box openable by a standard key (Fire Department approved) containing a physical copy of the EPRP, operational permits, O&M logs, product manuals, etc., is provided at the site entrance shown in Figure 3.

3.10 Nearby Exposures

The following nearby exposures are in the immediate area, as shown in Figure 1 above.

1. Residences to the North and Northwest
    a. Location: ~300 - 600 ft from BESS
    b. Construction: To be identified
2. Existing PV Array to the East, South, and West

a. Location: ~50 - 500 ft from BESS (portion to the West closest section of PV array)
b. Construction: Steel and PV modules

3.11 Site Maintenance

The facility's interior access roads shall be maintained to guarantee accessibility to the site by emergency personnel, especially during inclement weather. Nexamp shall ensure snow removal, landscaping, and other ongoing upkeep activities are in place prior to construction.

3.12 BESS Product Information

The BESS Technology/Product incorporated into the design of this project is the Tesla Megapack 2XL (MP2XL). The Megapack 2XL is a pre-engineered and integrated energy storage unit that utilizes Lithium-ion batteries to store and discharge power/energy. More specifically, the batteries use lithium Iron Phosphate (LFP) battery cell chemistry where battery cells are configured into battery modules, which are then integrated into battery racks that are housed in the enclosure/container as shown in Figure 6. The Megapack 2XL is offered is various configurations of varying power/energy capacities.

The MP2XL arrives at the site fully assembled needing just the alternate current (AC) connection and communications cable to be connected on site. The MP2XL is approximately 28.9 ft in length, 5.4ft deep, and 9.2ft in height. The MP2XL is intended for outdoor installations, ground-mounted to a foundation or base strong enough to support the weight of the equipment and anchor loads (including concrete pads, grade beams, etc.). The thermal roof (part of the thermal management system) is enclosed within an IP20 enclosure that sits above the battery module bays. The lithium-ion batteries are housed inside an IP66 steel enclosure (battery module bay) that provides protection against particles and water ingress.

1. Individually fused battery modules (active and passive) – externally serviceable
2. Touch-safe Customer Interface Bay
3. Externally serviceable inverter bay
4. Non-walk-in IP66 enclosure, with internal and external thermal insulation and deflagration mitigation
5. Thermal roof with overpressure vents

Figure 4 Tesla Megapack 2XL Overview

Megapack 2XL is listed to the following standards by OSHA-recognized Nationally Recognized Testing Laboratories:

- UL 1642 (cell-level certification)
- UL 1973 and IEC 62619 (battery module-level certification)
- UL 9540, IEC 62933-5-2, IEC 62109-1 (System-level certification)
- UL 1741, CSA C22.2 #107.1 (power electronics)
- UL 1998 and IEC 60730 Annex H (functional safety of software)
- IEC 61000-6-2, and EN 55011 (EMC)
- UN 38.3 (transportation, self-certified)
- IEEE 693 (seismic safety)
- UL 9540A (large-scale fire testing): Tested the cell, module, and unit level

The Megapack 2XL is designed to comply with major installation codes for energy storage systems, including NFPA 855, IFC 2018 and 2021, and NEC 2020. The Megapack 2XL has been reviewed and validated by an Independent Engineer, both at the product level and for the results of large-scale fire testing.

3.12.1 BESS Product Features

3.12.1.1 Battery Management System (BMS)

See Section 4.

3.12.1.2 Customer Interface Bay

The Customer Interface Bay (CIB) is a user-accessible area designed for operation and service. The CIB includes the main AC breaker, a status panel and controller area network (CAN) interface for service personnel, customer input/output (I/O) terminals, and the keylock switch (a “Lock Out/Tag Out” switch), which shuts down the AC bus to permit MP2XL maintenance by service personnel.

3.12.1.3 Thermal Management System

The thermal management system (TMS) provides suitable operating temperature for the MP2XL. The thermal bay and thermal rood house the components of the TMS. The TMS contains a closed-loop liquid cooling system that circulates a 50/50 mixture of ethylene glycol and water throughout the battery modules and power electronics to maintain an optimum battery operating temperature. The TMS works autonomously and does not require user feedback or controls to turn the system on when needed or to adjust temperature settings. The thermal cabinet includes pumps that circulate the liquid coolant through the MP2XL, an in-line heater that can warm the coolant and a compressor that maintains control for the cabinet. The thermal roof, located above the battery bays within its own IP20 enclosure, provides a ventilation airspace for the MP2XL. It contains fans and radiators that cool the ethylene glycol-water resolution. Cool air enters the thermal roof through the grates on the front of the MP2XL. The cool air then passes over the radiators, absorbing heat, and then is exhausted out of the top of the thermal roof via fans.

3.12.1.4 Site Controller and Monitoring

Beyond the built-in safeguards of the BMS described in Section 5, the MP2XL is supported by a Tesla Local Operations Center (LOC). The MP2XL has 24/7 remote monitoring by Tesla’s LOC, but also Nexamp’ s Network Operating Center (NOC) located in Lawrence, MA. The 24/7 remote monitoring is accompanied by 24/7 diagnostics and troubleshooting capabilities, without needing a technician on site. All faults are transmitted to the LOC and NOC, alerting Tesla and the Operator abnormal conditions that may require corrective action, either through remote means or an in-person field service. This communication link is accomplished via the Tesla Site Controller (TSC). The TSC provides the single point of interface for the Utility, network operator, and/or the System Owner/Operator’s SCADA systems to control and monitor the entire energy storage facility.

3.12.1.5 Electrical Fault Protection Devices

The MP2XL has several passive and active safety control mechanisms installed within the battery module circuit and distribution circuit that would be available to interrupt a fault condition. At a high level, these electrical fault protection features include:

- Battery module overcurrent protection: The battery modules contain DC single-use fusible links mounted directly on the battery modules. These fuses are one-time only use safety devices that can interrupt the flow of an overcurrent in the battery module during an off-normal electrical event.
- Inverter DC protection: The inverter modules, which are installed at each of the battery modules, are equipped with a high-speed pyrotechnic fuse that can isolate the battery module passively or actively during an off-normal event.
- Inverter AC protection: In addition, each inverter module is equipped with its own AC contactor and AC fuses should an off-normal electrical event occur at the inverter module on the AC side of the circuit.
- Ground fault protection: Finally, the MP2XL is also provided with a DC ground fault detection system. It measures insulation resistance prior to operation and looks for excessive leakage current during operation. Additionally, the MP2XL also contains an AC circuit breaker, with ground-fault trip settings, which is installed within the CIB to provide distribution system protection

3.13 Fire Protection Systems

3.13.1.1 Explosion Control System

The MP2XL includes an explosion control system to mitigate the risk of an uncontrolled deflagration. The system includes pressure-sensitive vents (overpressure vents), and sparkers installed throughout the battery module bay. The sparkers are designed to ignite flammable gases exceedingly early in a thermal runaway event before they accumulate within the enclosure and become an explosion hazard. They are installed at a variety of locations and heights throughout the battery module bays to ensure the flammable gases released during thermal runaway quickly meet an ignition source. Note, this explosion control system is the same approach that Tesla has utilized in previous versions of the Megapack (Megapack 1 and Megapack 2) and is not a new concept. It has been extensively validated through installation level testing for these previous Megapack versions as well as the MP2XL and its performance has been demonstrated in the field during thermal events involving Megapacks.

The overpressure vents are installed in the roof of the sealed battery bay's IP66 enclosure, as shown in Figure 7. When activated, the overpressure vents open into the enclosed thermal roof, ensuring that the release of the overpressure vents does not create a projectile hazard. In addition, since they are installed in between the battery module bays and the thermal roof, the overpressure vents are not exposed to the environment, which means they are protected from the elements, such as falling tree limbs or snow, which could impact their functionality.

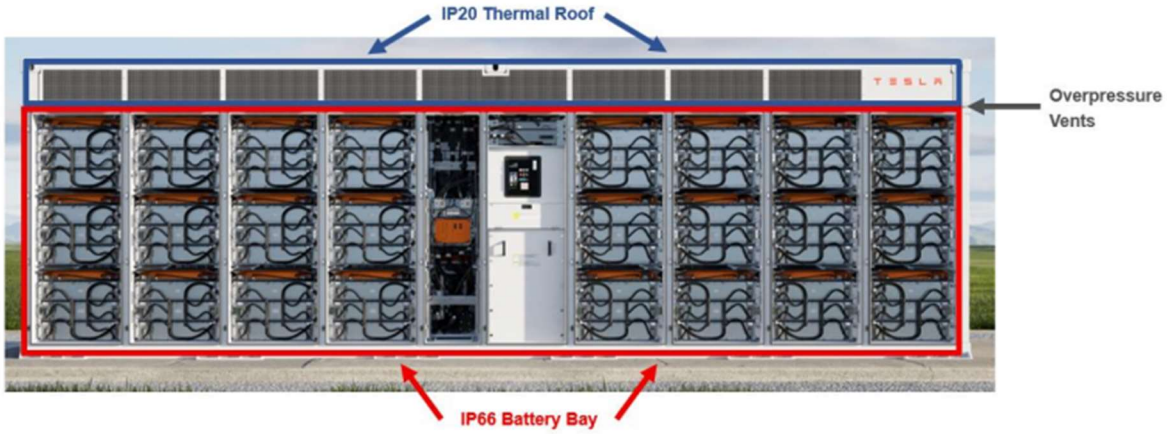


Figure 5 MP2XL Overpressure vent overview

Once opened, the overpressure vents permit gases, products of combustion, and flames to safely exhaust through the roof of the MP2XL during a thermal event. By designing this natural ventilation flow path, flammable gases are not permitted to accumulate within the MP2XL cabinet, reducing the risk of a deflagration or explosion that could compromise the cabinet's integrity, push open the front doors, or expel projectiles from the cabinet. In addition, the ventilation path creates a controlled fire condition, should one occur, out the top of the MP2XL cabinet. By maintaining the MP2XL cabinet's integrity, keeping all the doors shut during a fire event, reducing the risk of projectiles, and creating a controlled path for flames to exit the top of the MP2XL cabinet, the likelihood of a thermal event having an impact on life safety, site personnel or first responders, is reduced. In addition, by maintaining these features, the likelihood of a fire propagating to adjacent MP2XL cabinets, electrical equipment, or other exposures is also reduced.

The overpressure vents themselves are passive and are not actuated or controlled by another device. They are designed to release during an overpressure event, such as the rapid ignition of flammable gases by a sparker. The number and total area of overpressure vents were sized following the guidance of NFPA 68 with a safety factor of two times the enclosure's strength, including the front doors. Tesla developed the overpressure vents and sparker system because the direct application of NFPA 68 or NFPA 69 is not suitable for the MP2XL cabinet, which does not have large volumes of open-air space. This engineered approach is permitted by NFPA 855 §9.6.5.6.4 provided it is validated by installation-level fire and explosion testing and an engineering evaluation, which Tesla has performed.

3.14 Emergency Shutoffs

Emergency shutoff is provided at multiple levels, though the Fire Department should not engage with E-Stops, as BESS shutdown may adversely affect the electrical grid.

The Fire Department should not engage with E-Stops, as BESS shutdown may adversely affect the electrical grid. Any interaction with E-Stops should only be initiated in coordination with Nexamp, and other SMEs as is deemed necessary.

Automatic E-Stop

Automatic shutdown is provided at different levels for the Tesla Megapack battery modules, depending on the type of failure:

- For major faults within battery module(s) – such overtemperature, overcharge, or ground fault – the failed module(s) will be isolated by DC-DC converters,

disconnects, and/or DC fuses, and an alarm will be generated. This may not result in complete shutdown of the system.

- If a large propagating thermal runaway occurs, the faulted Megapack is isolated by opening its AC contactors and over temperature loss faults will be sent to the service team.

Enclosure-Level E-Stop

Each Megapack unit is equipped with an AC circuit breaker located within the Megapack Customer Interface Bay door and is to be used only by authorized maintenance or operations personnel.

In the event of a battery-related failure, the Fire Department should not approach any battery enclosures or engage with any enclosure E-Stops.

3.15 Fire Detection

The MP2XL does not have an internal fire detection system or one that is integral to its design/construction.

3.15.1.1 UL 9540A Thermal Runaway Test Data

Figure 68, Figure 79, and Figure 8provide an overview of the Cell and Module Level results of the UL 9540A testing conducted on MP2XL. Unit and installation overviews are provided in the Hazard Mitigation Analysis (HMA) that has been submitted to the Lansing Fire Department.

Flammability Property	Value
Average cell surface temperature at gas venting	174°C
Average cell surface temperature at thermal runaway	239°C
Cell vent gas volume released	93.3 L
LFL, % volume in air at the ambient temperature	7.15%
LFL, % volume in air at the venting temperature	6.05%
Burning Velocity (S_u)	90.0 cm/s
Maximum pressure (P_{max})	98.46 psig

Figure 6 UL 9540A Cell Level Testing: Key Flammability Characteristics

Gas Name	Chemical Structure	% Measured	Component LFL
Carbon Monoxide	CO	10.881	10.9
Carbon Dioxide	CO2	27.107	N/A
Hydrogen	H2	50.148	4.0
Methane	CH4	6.428	4.4
Acetylene	C2H2	0.264	2.3
Ethylene	C2H4	3.283	2.4
Ethane	C2H6	1.100	2.4
Propene	C3H6	0.379	1.8
Propane	C3H8	0.125	1.7
-	C4 (Total)	0.190	N/A
-	C5 (Total)	0.027	N/A
-	C6 (Total)	0.005	N/A
Benzene	C6H6	0.002	1.2
Toluene	C7H8	0.002	1.0
Dimethyl Carbonate	C3H6O3	0.055	N/A
Ethyl Methyl Carbonate	C4H8O3	0.004	N/A
Total	-	100	-

Figure 7 UL 9540A Cell Level Testing: Cell Vent Gas Composition (Excluding Oxygen and Nitrogen)

Gas Name	Chemical Structure	Measurement Peak (ppm)
Carbon Monoxide	CO	205
Carbon Dioxide	CO2	6721
Methane	CH4	68.8
Acetylene	C2H2	17.1
Ethene	C2H4	Not Detected
Ethane	C2H6	Not Detected
Propane	C3H8	Not Detected
Butane	C3H4	Not Detected
Pentane	C3H6	Not Detected
Benzene	C6H6	9.0
Hexane	C7H14	Not Detected
Hydrofluoric Acid	HF	Not Detected
Hydrogen Chloride	HCL	Not Detected
Hydrogen Cyanide	HCN	Not Detected
Hydrogen	H2	446
Total Hydrocarbons	(Propane Equivalent)	247

Figure 8 UL 9540A Module Level Testing: Product of Combustion

3.16 Emergency Contacts

- Local Fire Department: **Lansing Fire Department**
  - Address: **80 Ridge Rd, Lansing, NY 14882**
  - Emergency: **9-1-1** (if dialing locally from BESS location)
- Local Hospital: **TBD with Fire Department**
  - Address:
  - Emergency: **9-1-1** (if dialing locally from BESS location)

- Nexamp Emergency Response Coordinator:
  - Sean Banaee**, 757-971-7732**
- Nexamp Emergency Line - **(857) 239-0057**

3.17 Fire Responder Contact Information

- Local Fire Department: **Lansing Fire Department**
  - Address: **80 Ridge Rd, Lansing, NY 14882**
  - Emergency: **9-1-1** (if dialing locally from BESS location)
  - Non-Emergency: **(607) 273-8000**
- Local Hospital: **To be updated**
  - Address: **To be updated**
  - Emergency: **9-1-1** (if dialing locally from BESS location)
  - Emergency Room: **To be updated**
  - Non-Emergency: **To be updated**

3.18 Other Contact Information

Nexamp Site Contacts		
Name	**Role**	**Phone Number**
Nexamp	Emergency Call Center	857-239-0057
Jerry Smith Storage	BESS Owner	617-431-1440
Sean Banaee	Emergency Response Coordinator	752-971-7732
Mohamed Kassamali	BESS SME	516-355-1466

Nexamp/BESS Vendor Subject Matter Expert		
Name	**Role**	**Phone Number**
Nexamp	BESS Operator	857-239-0057 Back up: 617-431-1440
Tesla	BESS Manufacturer	650-681-6060
Chemtrec	HAZMAT Remediation	800-424-9300

3.19 Roles and Responsibilities

The following table provides a high-level summary of key stakeholders' responsibilities regarding emergency preparedness and response.

The BESS Owner and Operator will assist in the implementation of this plan by knowing and communicating evacuation routes to work during emergency evacuation and reporting the status of the incident and evacuation to the Lansing Fire Department.

All facility personnel have a responsibility to immediately report any emergencies to the SME and/or BESS Operator or local emergency responders when appropriate. No delay to report emergency events that require the local emergency responders.

The SME and designated alternative will be always contactable by telephone; be readily available to first responders in the event of an emergency. The SME shall be well versed in battery failure modes and hazards. If SME is not available, a toll-free phone number for first responders to call at any time shall be provided. Additionally, first responders shall be given operational data on the system, including the current state of health, system alarm notifications and advice on how to proceed during an emergency event shall be provided.

BESS Owner	
Identity	**Jerry Smith Storage (Nexamp)**
Responsibilities	Shall coordinate with the Emergency Response Coordinator and/or its contractors with access to the site, as necessary, for them to perform their duties and obligations.

Emergency Response Coordinator	
Identity	**Sean Banaee (Nexamp)**
Responsibilities	Shall provide a site-specific Emergency Response Plan for each site that was developed during the engineering, construction, and commissioning phases of the projects. The Emergency Response Plan should be submitted to the local fire department, the BESS Operators, and the BESS Maintenance Contractors prior to going live. The Emergency Response Coordinator will also be responsible for introductory training of the ERP, the BESS project site, and introduction amongst all emergency response stakeholders listed in this table.

BESS SME	
Identity	**Mohamed Kassamali and Nickole Gagne (Nexamp)**

Responsibilities	The BESS SME role consists of at least two people, one of which is the battery technology expert, and the other being a qualified electrical expert. The two parties are responsible for communicating with each other, the BESS operator, and the Local Fire Department. The description of these two parties and their respective responsibilities are listed below. Qualified Electrical Expert (Nexamp) One person employed by the BESS Owner has the skills and knowledge related to the operation of the electrical equipment and installations and has received safety training to recognize and avoid the hazards involved. This party will be qualified in the workplace and electrical safety in local jurisdiction of the system. This party will be responsible for the following during an emergency or failure: - Prepare for and conduct exchange of information with battery technology experts (BESS SME), Emergency Response Coordinator, Local Fire Department, and BESS operators - Communicate proper methods for isolation and shutdown the system based on available information on the emergency event - Determine electrical hazards and failures and communicate them to the Local Fire Department Battery Technology Expert (Nexamp) One person employed by the BESS Owner has knowledge of the normal and abnormal operation of the BESS and associated equipment. This person will have a deep understanding of the BESS failure modes, automatic and passive safety systems associated with the BESS, and correct emergency response procedures and action plans. This party will be responsible for the following during an emergency of failure: - Communicating with the Qualified Electrical Expert (BESS SME), Emergency Response Coordinator, Local Fire Department, and BESS Operator. - Communicating the required setbacks and evacuation points that the Local Fire Department should maintain to the Local Fire Department - Collecting information from the BESS Operator regarding the BESS status and its alarms - Direct communication will be made from BESS SME to the BESS manufacturer following an emergency event.

BESS Operator	
Identity	**Nexamp**
Responsibilities	The following responsibilities fall under the BESS Operator's scope during an emergency event: - Actively monitor and control the BESS during its normal and abnormal operations to the best of their ability. All monitoring and controlling will be performed in line with the BESS Manufacturer's recommendations. - Directly communicate with the Local Fire Department, Emergency Response Coordinator, and BESS SME at the onset of the emergency event and for the remainder of the emergency event. Dispatching qualified personnel to the site

Local Fire Department / Emergency Response Personnel	
Identity	**Lansing Fire Department**
Responsibilities	Will receive and review a copy of the Emergency Response Plan (ERP) for each site and approve of the ERP prior to the BESS Owner sharing the document with all stakeholders and conducting training. Upon alarm, will coordinate with the Emergency Response Coordinator, and BESS SME to receive an update on the emergency and ensure the BESS site is safe to approach prior to engaging. Will be required to maintain training for new members of the FD and maintaining a copy of the ERP accessible to all members of the FD.

Incident Commander (IC)	
Identity	**Lansing Fire Department**
Responsibilities	The person responsible for overall management of the incident and determines which Command or General Staff positions to staff in order to maintain a manageable span of control and ensure appropriate attention to the necessary incident management functions.

Site Owner	
Identity	**Doris Straw**
Responsibilities	The owner of the premises upon which the battery system is installed.

4 Battery Management System (BMS)

MP2XL has an integrated battery management system (BMS) that tracks the performance, voltage, current, and state of charge of the cells (among many other datapoints). The BMS is a layered system, where each battery module has its own BMS and the MP2XL itself has a bus controller supervising the output of all the battery modules at the AC bus level. The BMS is engineered to react to fault conditions in an autonomous manner, with safeguards built into firmware. These fault conditions include, but are not limited to, over-temperature, loss of communication, over-voltage, and isolation. For instance, to prevent a cell over-temperature the TMS is enabled by the BMS to cool the cells/module. This action by the BMS (which is just one example of many ways the BMS can respond to a fault condition) can either prevent thermal runaway from occurring in the cell or prohibit the propagation of thermal runaway to adjacent cells. Depending on the severity of the fault condition, the BMS can automatically isolate the affected battery module temporarily (less severe fault) or it can permanently disconnect the module.

The BMS is the brain behind the energy storage system. Like how the Chief Officer will locate a residential or commercial facility FACP to allow them to begin their basic size-up, the BMS alongside the Site Controller will provide similar insight into the type of alarm, location and how much of the energy storage system may be involved. As such, BMS data should be leveraged to make informed decisions. The BESS SME will provide an interpretation of the BMS data and conveying the data to the Chief Officer.

4.1 Alarm Matrix

List of Alarm Conditions Requiring Lansing Fire Department Response

An alarm matrix that explains the alarm, alarm description, and the resulting action from the BMS is provided in Table 1. However, there may be additional indicators or information communicated directly from Tesla to Nexamp that may be shared with the Lansing Fire Department

Table 1 Alarms Matrix

Alarm Name/Code	Alarm description	Alarm Response
Maximum Battery Temperature	Maximum battery cell temperatures across all battery modules within a Megapack	If this alarm occurs, Tesla will immediately contact Nexamp and provide the system diagnosis. Simultaneously, Nexamp' s NOC will be seeing alarms which will trigger an immediate call to the Lansing Fire Department. Nexamp will request that the Lansing Fire Department is dispatched, and Nexamp will dispatch their EH&S and Asset Management personnel. Upon further diagnosis, additional action may be administered. If this

		alarm results in a battery fire, the Emergency Response Plan (ERP) will be in effect.
Megapack Inverter Fault	All inverters in the Megapack are faulted	If this alarm occurs, Tesla will immediately contact Nexamp and provide the system diagnosis. Simultaneously, Nexamp' s NOC will be seeing alarms which will trigger an immediate call to the Lansing Fire Department. Nexamp will notify Lansing Fire Department of the alarm and provide a diagnosis (if available). Nexamp will communicate that they will update the fire department on the conditions of the BESS. Tesla and Nexamp will shut down the BESS to troubleshoot the issue. Personnel will be dispatched if the issue cannot be resolved remotely.
Extreme Temperature Warning	Battery cells have reached a temperature above the cell temperature warning threshold	If this alarm occurs, Tesla will immediately contact Nexamp and provide the system diagnosis. Simultaneously, Nexamp' s NOC will be seeing alarms which will trigger an immediate call to the Lansing Fire Department. Nexamp will notify Lansing Fire Department of the alarm and provide a diagnosis (if available). Nexamp will communicate that they will update the fire department on the conditions of the BESS. Tesla and Nexamp will shut down the BESS to troubleshoot the issue. Personnel will be dispatched if the issue cannot be resolved remotely.

Extreme Temperature Fault	Battery cells have reached a temperature above the cell temperature fault threshold	If this alarm occurs, Tesla will immediately contact Nexamp and provide the system diagnosis. Simultaneously, Nexamp' s NOC will be seeing alarms which will trigger an immediate call to the Lansing Fire Department. Nexamp will ask that Lansing Fire Department is dispatched, and Nexamp will dispatch their EH&S and Asset Management personnel. Upon further diagnosis, added action may be administered. If this alarm results in a battery fire, the Emergency Response Plan (ERP) will be in effect.
Power Electronics Over Temperature	Megapack Power Electronics are experiencing an overtemperature	If this alarm occurs, Tesla will immediately contact Nexamp and provide the system diagnosis. Simultaneously, Nexamp' s NOC will be seeing alarms which will trigger an immediate call to the Lansing Fire Department. Nexamp will notify Lansing Fire Department of the alarm and provide a diagnosis (if available). Nexamp will communicate that they will update the fire department on the conditions of the BESS. Tesla and Nexamp will shut down the BESS to troubleshoot the issue. Personnel will be dispatched if the issue cannot be resolved remotely.

A safe start up procedure following an alarm event is covered in the O&M manual and Tesla emergency response guide included in Nexamp's supporting documentation package.

5 Hazards

5.1 Thermal runaway

Thermal runaway is a chemical process where self-heating in a battery exceeds the rate of cooling causing high internal temperatures, melting, off-gassing /venting. And in some cases, fire or

explosion. Thermal, mechanical, and electrical abuse can lead to thermal runaway, internal short circuit from manufacturing defects, or the development of metallic dendrites that from internal short over time.

Flammable and potentially explosive gases (generally white in color) typically evolve when an energy storage system goes into thermal runaway and may be released in large quantities from battery cells or modules. Fire and explosive incidents may result, and precautions as described in the sections below should be observed.

5.2 Fire and Re-ignition

Lithium-ion battery fires can burn at extremely elevated temperatures (upwards of 1000°C) and are generally not easily extinguished. Fire growth may be slow, fast, or ultra-fast (e.g., during deflagration event). In nature and may last for several hours before the battery modules are completely consumed. Furthermore, even when a lithium-ion battery fire appears to be fully extinguished, re-ignition risk may still be present hours or even days after there are no visible signs of fire.

Application of water to affected battery modules may potentially prolong the incident, and decisions to apply water should be made in coordination with the System Owner / Operator, and other required SMEs.

NOTICE	
	Indicators which may provide insight into what is happening or about to happen during an incident may include: • Smoke or flames • Change in smoke color • Change in velocity or volume of smoke production • Sounds -popping and/or hissing • Smell – sweet smell

WARNING: Risk of Re-ignition	
	Do **NOT** assume the fire is out as the fire event unfolds. A lithium-ion battery fire which has seemingly been extinguished may flare up again if all cells within the enclosure have not been completely consumed. The risk of battery re-ignition can remain present for hours or even days after the smoke/flame is initially detected.

5.3 Explosion

Lithium-ion batteries release flammable off-gases during thermal runaway which, if allowed to accumulate within the enclosure, may create an explosive atmosphere, posing serous risk to first responders and nearby exposures. These gases may accumulate within the energy storage system enclosure as levels above the Lower Explosive Limit (LEL). At sufficiently high accumulations, gases can also exceed their Upper Explosive Limit (UEL), at which point ventilation may bring the environment back into flammable limits, this creating a new explosion risk.

It may be difficult to ascertain conditions within the enclosure if smoke and gas are not visible outside of the enclosure. Furthermore, a single battery cell may release enough flammable off-gas to generate an explosive atmosphere within the enclosure. Therefore, any failure or alarm condition should always result in the assumption of potential explosion risk. Any fire personnel operating on scene should utilize both 4/5 gas meters as well as thermal imaging camera to help determine if any gas components are venting from the site.

WARNING: Risk of Explosion / Deflagration	
	An explosion / deflagration / over-pressure event is a critical hazard, and any emergency on-site should always be addressed with full awareness of potential factors which may lead to such an event. **Any failure or alarm conditions should result in the assumption of an explosion risk.**

5.4 Electrical Shock

Even if a battery may look to be destroyed by fire and/or other means, there is a potential that the battery still holds stranded energy and remains energized. De-energization of the system or any removal of the battery or battery component shall only be performed by a trained and competent individual with proper PPE.

Normal overhaul of the energy storage system enclosure shall not be attempted by the fire department in any circumstances, as there are considerations for handling damaged batteries requiring equipment and expertise that must be called to site. Once the scene is secured, these actions may be undertaken by trained experts under close supervision.

WARNING: Risk of Stranded Energy	
	Always treat the batteries as Energetic Hazardous Materials, as stranded energy is likely to still be present. Traditional Fire Department overhaul should not be conducted due to the potential for stranded energy.

5.5 Arc Flash

All energy storage systems and related electrical equipment shall always be treated as energized (Energetic Hazardous Material).

Qualified PPE and training are required when working or accessing equipment within an Arc Flash Boundary. In general, when in direct proximity to the battery enclosure, wear non-melting or untreated natural fiber long-sleeve shirt, long pants, safety glasses, hearing protection, and proper gloves. AR plant clothing is also acceptable. Maintain arc flash boundary until completion of any task.

5.6 Toxic Smoke and Gas Emission

Lithium-ion batteries may release copious quantities of flammable and toxic gas when undergoing failure and pos an inhalation hazard. Chemicals consumed during a thermal runaway event will produce smoke.

The energy storage system site perimeter should not be entered during a fire or off-gassing event unless there is an imminent threat to life safety, at which time only professionally trained and equipped public safety personnel may enter. This entry shall be with full fighter protective gear to include self-contained breathing apparatus (SCBA), 4/5 gas meters and a thermal imaging camera.

A fog pattern from a handline or monitor nozzle may be an effective way to control the off-gassing event on the exterior of the battery enclosure from migrating to unwanted areas. However, if water is used in extinguishing flame, these gases can become acids which may cause skin irritation if in direct contact with the acid.

WARNING: Toxic Gases	
	Copious quantities of toxic smoke and gas may be emitted from the ESS during battery off-gassing or fire situations. **Proper PPE including SCBA should be worn by first responders.**

5.7 Additional Hazards and Considerations

For additional hazards associated with leaked coolant, leaked refrigerant, leaked electrolyte, or emergency considerations during storage, operation, transportation, or first aid measures, and disposal procedures, please see the *Tesla Industrial Lithium-ion Battery Emergency Response Guide* and *Tesla Application note: Considerations for Hazardous Material Business Plans.*

6 Notification Matrix

To be updated upon discussion with Lansing Fire Department

7 Emergency Response Considerations

7.1 Emergency Contacts

A list of emergency contacts associated with this installation is provided in Section 3.16.

7.2 Equipment and Personnel Protective Equipment (PPE)

Full firefighter protective gear shall be worn in any response to a fire and/or explosion event or if there is any sign a fire may be present or likely to be present at any time during the event. The Officer in Charge should have a 4/5 gas meter available, along with a thermal imaging camera (TIC).

If there is no risk of fire or explosion present, arc-related (AR) protective clothing to protect against arc flash and electrical shock shall be worn. Jewelry such as necklaces, rings, bracelets, etc. shall be removed to avoid contact with any electrical hazard

Proper PPE shall include use of Self-Contained Breathing Apparatus (SCBA).

7.3 APIE (Analyze, Plan, Implement, and Evaluate) Framework

APIE is a framework commonly used for emergency incident preparation and development of proper response protocol(s). The four elements of the framework are Analyze, Plan, Implement, and Evaluate. An example of APIE framework with simplified sample details pertaining to an emergency incident is as follows:

- **Analyze**: Provide signs and monitoring signals that indicate incident escalation (e.g., fire or explosion) may take place which first responders should be aware of.
- **Plan:** Delineate the danger zone to mitigate first responders and bystanders (pedestrians, vehicular traffic, residents, etc.)
- **Implement:** Enforce evacuations, street closures, reduced pedestrian, and first responder exposure, and other impact areas that have a life safety concern, as applicable.

- **Evaluate:** Provide continuous monitoring and feedback of the incident and adjust accordingly to ensure ongoing safety of any bystander or responder in the impact area.

7.4 Scene Size-up – Command and Control

- Initiation of emergency response shall be activated as per the current protocol. If there is any threat or potential threat to life safety, 911 shall immediately be called to the aid of public safety responders. An initial scene assessment shall be conducted from all sides (360-degree scene size up) if possible, and a concise assessment shall be given to incoming responders. Hazards and facility safety concerns such as high voltage areas or electrical concerns shall be announced to all responders.

The scene assessment shall include the following in plain language (no codes, abbreviations, acronyms, etc.):

- Location of the incident (Where)
- What has happened
- What is currently happening
- Whether there are any injuries or unaccounted for individuals
- What needs or other resources should be requested or brought to site

An Incident Command System (ICS) shall be established immediately and shall include the designation of roles. The primary command post location shall be located at the Fire Department Staging Area. If public safety is summoned to the incident, the ICS shall be a Unified Incident Command System (ICS).

One-site staff (if applicable) shall immediately go to the designated muster point(s), which will be the command post location unless designated differently by the Incident Commander. Incident Command shall designate the individual in charge of accountability. Accountability shall be reported as soon as possible. If available and able, another individual shall control any traffic and guide first responders to the scene.

At the same time as these activities are occurring, the Emergency Response Coordinator or other designated SME shall immediately contact the 24/7 Networks Operations Center to establish available data from the BMS and communicate this to the Incident Commander or other appropriate individuals.

WARNING: Risk of Explosion / Deflagration	
	An explosion / deflagration / over-pressure event is a critical hazard, and any emergency on-site should always be addressed with full awareness of potential factors which may lead to such an event. **Any failure or alarm conditions should result in the assumption of an explosion risk.**

WARNING: Toxic Gases	
	Copious quantities of toxic smoke and gas may be emitted from the ESS during battery off-gassing or fire situations. **Proper PPE including SCBA should be worn by first responders.**

7.5 Determine Fire Protection Approach

The decision to utilize water spray or to provide thermal cooling via hose lines should be made in coordination with System Owner / Operator, and any other required SMEs.

Caution should be exercised if water is applied directly to the exterior of an affected Energy Storage System enclosure, as this will not stop a thermal runaway event and may potentially delay combustion. Defensive firefighting tactics are generally recommended, with water being applied to nearby exposures for cooling, as necessary. Any hose line operations should be limited to hose and master stream application from outside of the BESS sound barrier structure, at least 100ft away from the BESS, and as far back as hose and stream range allow.

A fog pattern from a handline or monitor nozzle may potentially be utilized to control smoke and gas released from the affected enclosure and prevent them from moving to unwanted areas.

In all instances, power shut down and isolation involving any high voltage feeder lines must be confirmed before any defensive measures are taken involving application of water to the site.

WARNING: Risk of Re-ignition	
	Do **NOT** assume the fire is out as the fire event unfolds. A lithium-ion battery fire which has seemingly been extinguished may flare up again if all cells within the enclosure have not been completely consumed. The risk of battery re-ignition can remain present for hours or even days after the smoke/flame is initially detected.

7.6 Incident Monitoring and Evaluation

Continuous monitoring and feedback on the incident should be provided as the situation evolves. Consultation with the System Owner/ Operator, and any other required SMEs should be held to guide incident response and determine appropriate next steps.

If available, real-time BMS data from the 24/7 Networks Operations Center should be utilized (e.g., temperature, voltage, or other critical measurements) to monitor the spread of failure and assess the health the ESS to help guide response procedures as the event unfolds.

8 Response Tactics

8.1 Explosion Incident

In case of fire or thermal runaway events, explosive or deflagration event may occur potentially subjecting personnel to overpressure and projectile hazards. An initial exclusion area should be established, based on the discretion of the Incident Commander, to guard against any blast overpressure. Staging or operations should not be in direct alignment with the energy storage enclosure and should be established at angles relative to the sides of the enclosures if possible. If available, shielding via the built environment should be utilized to protect against high temperatures, overpressure events, or projectile hazards.

***A minimum of one hundred (100 ft)* shall be maintained between individuals and the incident cabinet (see 100ft radius shown in Figure 3).**

Notify neighboring property owners of the BESS area of the emergency event and to remain away from the property If the System Operator has informed that the automatic E-Stop has not been triggered, attend to Manual E-Stop. The Manual E-Stop will disconnect the energy storage system electrically.

Gas monitoring shall always be continuously conducted, and gas meters shall be affixed to all responders to warn of potential atmospheric risks. If possible, gas readings from inside the cabinet shall be attempted to be gathered from an exterior point prior to any entry.

WARNING: Risk of Explosion / Deflagration	
	An explosion / deflagration / over-pressure event is a critical hazard, and any emergency on-site should always be addressed with full awareness of potential factors which may lead to such an event. **Any failure or alarm conditions should result in the assumption of an explosion risk.**

8.2 Fire Incident

In the event sensors within the BESS containers detect a fire or thermal runaway, the BESS container undergoes an emergency stop of operations, including isolation of batteries via contactor located at the battery rack level. The unit or system should be shut down manually if possible and Tesla Energy Technical Support should be contacted for assistance. The Manual E-Stop will disconnect the energy storage system electrically.

***A minimum of one hundred (100 ft)* shall be maintained between individuals and the incident BESS containers.**

Notify neighboring property owners of the BESS area of the emergency event and to remain away from the property.

If there is no immediate threat to life safety

1. Allow the BESS to burn in a controllable manner until all fuel sources inside are depleted
2. A defensive approach should be considered utilizing water to cool and protect adjacent exposures and mitigate the spread of fire to areas outside the sound barrier.
3. Remember that even after the BESS is isolated from the electric grid and there may still be considerable stored energy in the batteries that poses a potential electric shock hazard to anyone in the nearby vicinity.

Additionally, chemicals released during a fire or explosion event will be in a gaseous form and primarily pose an inhalation hazard. A fog pattern from a handline or monitor nozzle may provide an effective means of controlling an off-gassing event on the exterior of the BESS enclosure from cascading to unwanted areas such as public muster points, emergency responders, building intakes, etc.

In addition, hose streams may be also applied to adjacent exposures for cooling purposes. BMS data available via the 24/7 Networks Operation Center should be closely monitored for the adjacent system(s) for any indicators of heat impact or water damage and relayed to the appropriate individual within the Incident Command System.

Following the partial or complete consumption of the system by fire, batteries may continue to emit flammable gases and toxic gases for a period. Continuous monitoring of gas levels in and around the incident location is recommended. Full firefighter PPE and SCBA shall be utilized until gas levels are confirmed to be at a safe level. A Firewatch shall be provided to ensure that the continued safety of the site after the emergency appears stable.

WARNING: Risk of Re-ignition	
	Do **NOT** assume the fire is out as the fire event unfolds. A lithium-ion battery fire which has seemingly been extinguished may flare up again if all cells within the enclosure have not been completely consumed. The risk of battery re-ignition can remain present for hours or even days after the smoke/flame is initially detected.

8.3 Thermal Runaway or Off-Gassing Incident

A thermal runaway event may result in copious quantities of smoke and gas being released, which may or may not be visible outside of the ESS enclosure itself, therefore, it is critical that any failure or alarm condition result in the assumption of an explosion or fire risk.

In the event of a thermal runaway or suspected off-gassing event, the following actions are recommended:

1. Evacuate the area to a safe location a sufficient distance from the ESS enclosure involved.
2. If the alarm has not already signaled the Fire Department, immediately call 911
3. Call the System Owner / Operator as highlighted in Section 6.
4. Establish a safety perimeter around all sides of the energy storage system and remain outside the sound barrier/BESS area. Do not allow personnel other than firefighters in proper PPE to enter the safety perimeter and stay upwind of any smoke or off-gassing.
5. As the incident evolves, a fire or explosion event may occur, and procedures outlined in Section 8.1 and 8.2 above should be followed based on the situation as it progresses.

WARNING: Risk of Explosion / Deflagration	
	An explosion / deflagration / over-pressure event is a critical hazard, and any emergency on-site should always be addressed with full awareness of potential factors which may lead to such an event. **Any failure or alarm conditions should result in the assumption of an explosion risk.**

WARNING: Risk of Re-ignition	
	Do **NOT** assume the fire is out as the fire event unfolds. A lithium-ion battery fire which has seemingly been extinguished may flare up again if all cells within the enclosure have not been completely consumed. The risk of battery re-ignition can remain present for hours or even days after the smoke/flame is initially detected.

WARNING: Toxic Gases	
	Copious quantities of toxic smoke and gas may be emitted from the ESS during battery off-gassing or fire situations. **Proper PPE including SCBA should be worn by first responders.**

NOTICE	
	Indicators which may provide insight into what is happening or about to happen during an incident may include: • Smoke or flames • Change in smoke color • Change in velocity or volume of smoke production

	• Sounds -popping and/or hissing • Smell – sweet smell

8.4 Alarm Incident

In the event of an alarm activation, the following actions are recommended:

1. Evacuate the area to a safe location a sufficient distance from the ESS enclosure involved.
2. If the alarm has not already signaled the Fire Department, immediately call 911
3. Call the System Owner / Operator as highlighted in Section 6.
4. Establish a safety perimeter around all sides of the energy storage system and remain outside the BESS area. Do not allow personnel other than firefighters in proper PPE to enter the safety perimeter and stay upwind of any smoke or off-gassing.

8.5 External Fire / Thermal Exposure Incident

For any type of external heat source or fire impingement (i.e., not resulting from the BESS), the Incident Commander should be advised to review the BESS diagnostics with respect to SOH information from the BMS data (i.e., temperature data) available from the 24/7 NOC to evaluate the severity of the incident and assess the state of emergency. All precautions previously noted for fire and explosion incidents should be observed (Section 8.1 and 8.2)

Note: The BESS area has design features that mitigate an external fire such as the setbacks, use of gravel, vegetation management, and safety systems.

8.6 External Impact Incident

If a BESS enclosure is severely impacted causing a crushing or puncturing of the outer shell of the BESS or battery enclosure, treat this as an emergency – notify 911 and other required parties noted in Section 6.

Note: The Tesla Megapack 2XL is IK09 rated for impact protection.

9 Post Incident Operations

Handoff Procedures

Upon determination by Lansing Fire Department Incident Commander, when the energy storage system is deemed safe, the System Operator shall ensure that the site is safeguarded until the damaged system is removed, repaired, or replaced based on the approved Decommissioning Plan filed with the building permit.

Activation of Decommissioning Plan

Decommissioning of the system shall take place in accordance with the Decommissioning Plan filed with the building permit. Deactivation, de-energizing, dismantling and removal of the system shall be conducted by trained and knowledgeable persons in accordance with manufacturer's specifications.

10 Training and Exercises

The ERP serves as the platform for the training program and includes the following:

- System Overview

- Equipment
- BMS
- Detection and Suppression
- Emergency System Shutdown
- Hazards
- Suppression agents and exposure control
- Response tactics
- Post-fire operations

Initial training for all stakeholders included in this ERP shall be undertaken before the construction of the BESS facility. Refreshments training of the ERP will be offered **at least one time annually** However, Nexamp will provide additional training at the request of any stakeholders included in the ERP, particularly the Lansing Fire Department.

In accordance with best practices such as NFPA 855, drills should be conducted regularly to exercise knowledge of the ERP and prepare stakeholders for a potential emergency. Over a three-year cycle, drills will grow in complexity and will be evaluated to ensure the ERP can be executed as written. Drills may be desktop, functional, or full-scale and will follow the FEMA/HSEEP doctrine (Link provided below).

- **Plan Cycle 1**
  - Cycle 1 drills will be basic in nature and consider the reasonable conditions that may cause the Fire Service to respond to the Facility.
- **Plan Cycle 2**
  - Cycle 2 will begin to evaluate more complex equipment failures where facility personnel will collaborate with members of the first response community to mitigate and contain the event.
- **Plan Cycle 3**
  - Cycle 3 will represent the most complex scenario that can impact major system components, neighbors, and the environment.

https://www.fema.gov/emergency-managers/national-preparedness/exercises/hseep

11 Revision Tracking

Rev	Author(s)	Effective Date	Description of Revision(s)
0	Mohamed Kassamali, Eli Shandelman	05/26/2026	First Draft of Emergency Response Plan –Technology, Site, and Contact information included
1	Mohamed Kassamali, Eli Shandelman	07/10/2026	Second Draft of Emergency Response Plan – updated site plan included
2			
3			
4			
5			

TESLA

Noise Constraint Analysis for Nexamp - Jerry Smith Storage, LLC

July 9th, 2026

Executive Summary:

Tesla, in its capacity as the BESS equipment supplier to the Jerry Smith Storage, LLC project, (the "Project"), has reviewed the Project's noise constraints provided to us by Nexamp (the "Project Owner") and has run a simulation analysis to determine whether the operational output and performance of the Tesla Megapack 2 XL ("Megapack") system would be affected by a noise-reducing fan speed limitation imposed on the thermal management system.

Tesla's simulation results confirm that Tesla can firmware limit the maximum fan speed to 40% at commissioning without operational or performance concerns, resulting in a maximum Sound Power Level of 82.3 db(A)-W 0.5m above the centre of each Megapack, and a maximum Sound Pressure Level of 52.4 dbA measured at 10m distance and 2m above grade from the front of each Megapack.

Background on Firmware Limiting Fan Speeds:

Each Megapack has rooftop fans as part of the thermal management system. These fans are the critical component to consider when determining the noise impact of the Megapack. The Megapack's thermal management requirements, and consequently fan speeds, are highest when the system has just completed a full charge cycle immediately followed by a discharge cycle during a period of time when ambient temperatures are at their highest.

These fans can be firmware-limited by Tesla to different speed limits to reduce noise emissions and comply with local noise requirements. During project commissioning, Tesla engineers can configure the reduced-fan-speed firmware limitation in the Tesla System Controller. For clarity, this setting cannot be edited by the Project Owner after it has been set by Tesla.

As a condition to configuring these settings, Telsa would contractually implement operating constraints on the Project in the Systems Purchase Agreement between Tesla and the Project Owner. These provisions state that Tesla is not responsible for any system damage resulting from operation outside the defined operating conditions, which include a maximum operating temperature of 37.8 degrees Celsius and a maximum daily throughput of 1 cycle.

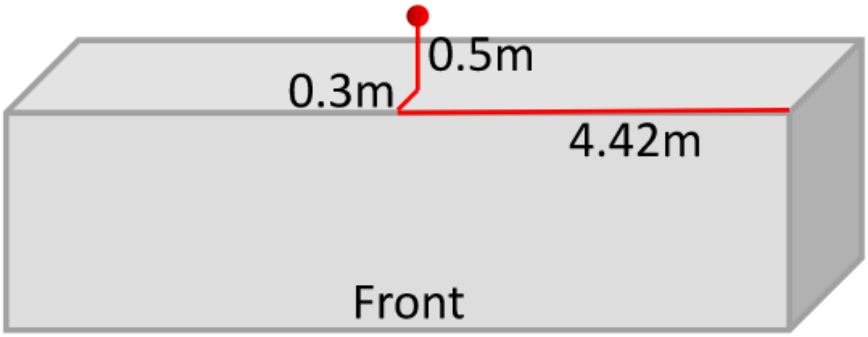
Simulation:

The Project Owner determined that a Max Sound Power Level of 82.3(db(A)-W) as measured at 0.5m above the centre of the Megapack would allow the project to

comply with local noise restrictions. This corresponds to a fan speed limitation of 40%.

4-hour Megapack 2 XL Noise Specifications (FN03)	
Max Fan Speed	40%
Max Sound Power (db(A)-W) at 40% Fan Speed	82.3
Max Sound Pressure (dBA) at 40% Fan Speed	52.4

For clarity, the Max Sound Power level datapoint is a single weighted sound power level for use as a point source (one per Megapack). This data should be modeled on top of a Megapack as shown below.



In order to commit to implementing this fan-speed limitation at Jerry Smith Storage, LLC, Tesla needed to verify that the performance of the Megapacks would not be affected by a reduction in the Megapack's thermal management capability. To verify this, Tesla ran fan-speed simulations under project-specific power profiles and location-specific ambient temperatures to confirm that there would be no violations of the Megapack's temperature and pressure thresholds or impact on a system's energy retention. For ambient temperature data, the model used data from the ASHRAE database for the nearest available weather station.

Simulation Inputs	
Maximum Temperature (degC)*	37.8
Weather Profile	NY Ithaca Tompkins Regional AP (Dfb)
Power Profile	Worst-case 1 cycle/day profile
Fan Duty Cycle	40%

**Provided by Nexamp.*

To pass the test that allows Tesla to commit to this limitation, the simulation must demonstrate that at no point does the cell temperature of the Megapack with the fan speed limit applied exceed Tesla's defined temperature thresholds.

Instructions for Completing Part 1

Part 1 is to be completed by the applicant or project sponsor. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification.

Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information; indicate whether missing information does not exist, or is not reasonably available to the sponsor; and, when possible, generally describe work or studies which would be necessary to update or fully develop that information.

Applicants/sponsors must complete all items in Sections A & B. In Sections C, D & E, most items contain an initial question that must be answered either "Yes" or "No". If the answer to the initial question is "Yes", complete the sub-questions that follow. If the answer to the initial question is "No", proceed to the next question. Section F allows the project sponsor to identify and attach any additional information. Section G requires the name and signature of the applicant or project sponsor to verify that the information contained in Part 1is accurate and complete.

A. Project and Applicant/Sponsor Information.

Name of Action or Project: Jerry Smith Storage		
Project Location (describe, and attach a general location map): 339 Jerry Smith Road, Lansing, NY		
Brief Description of Proposed Action (include purpose or need): The Applicant is proposing a standalone, front-of the-meter battery energy storage system(BESS) interconnected to the NYSEG distribution system at 34.5 kV. the project will have an operating capacity of approximately 5,000kW/23,500.8 kWh (4-hour duration)using six Tesla Megapack 2XL units with integrated PCS inverters, step transformers, associated communications and protection equipment, access roadway, and perimeter fencing.The project will be located at 339 Jerry Smith Road, Lansing, NY in Tompkins County,Tax Id 16.-1-10.2.		
Name of Applicant/Sponsor: Jerry Smith, LLC	Telephone: 607-237-5254 E-Mail: MDeAngelo@nexamp.com	
Address: 101 Summer Street, 2nd floor		
City/PO: Boston	State: MA	Zip Code: 02110
Project Contact (if not same as sponsor; give name and title/role): Travis Mitchell, Environmental Design Partnership	Telephone: 518-347-7139 E-Mail: tmitchell@edpllp.com	
Address: 900 Route 146		
City/PO: Clifton Park	State: NY	Zip Code: 12065
Property Owner (if not same as sponsor): Wayne L and Doris K Straw	Telephone: E-Mail:	
Address: 339 Jerry Smith Road		
City/PO: Lansing	State: NY	Zip Code:14882

B. Government Approvals

B. Government Approvals, Funding, or Sponsorship. ("Funding" includes grants, loans, tax relief, and any other forms of financial assistance.)

Government Entity	If Yes: Identify Agency and Approval(s) Required	Application Date (Actual or projected)
a. City Counsel, Town Board, or Village Board of Trustees ☑Yes ☐No	TOWN OF LANSING TOWN BOARD	TBD
b. City, Town or Village Planning Board or Commission ☑Yes ☐No	TOWN OF LANSING PLANNING BOARD	APRIL 2026
c. City, Town or Village Zoning Board of Appeals ☐Yes ☑No		
d. Other local agencies ☑Yes ☐No	LANSING FIRE DEPARTMENT	JULY 2026
e. County agencies ☑Yes ☐No	TOMPKINS COUNTY HIGHWAY DEPARTMENT AND PLANNING	JUNE 2026
f. Regional agencies ☐Yes ☑No		
g. State agencies ☑Yes ☐No	NYSDEC AND NYSHPO	APRIL 2026
h. Federal agencies ☐Yes ☑No	FAA, USFWS, AND USACE	APRIL 2026

i. Coastal Resources.

i. Is the project site within a Coastal Area, or the waterfront area of a Designated Inland Waterway? ☐Yes ☑No

ii. Is the project site located in a community with an approved Local Waterfront Revitalization Program? ☐Yes ☑No

iii. Is the project site within a Coastal Erosion Hazard Area? ☐Yes ☑No

C. Planning and Zoning

C.1. Planning and zoning actions.

Will administrative or legislative adoption, or amendment of a plan, local law, ordinance, rule or regulation be the only approval(s) which must be granted to enable the proposed action to proceed? ☐Yes ☑No

- **If Yes,** complete sections C, F and G.
- **If No,** proceed to question C.2 and complete all remaining sections and questions in Part 1

C.2. Adopted land use plans.

a. Do any municipally- adopted (city, town, village or county) comprehensive land use plan(s) include the site where the proposed action would be located? ☐Yes ☑No

If Yes, does the comprehensive plan include specific recommendations for the site where the proposed action would be located? ☐Yes ☐No

b. Is the site of the proposed action within any local or regional special planning district (for example: Greenway; Brownfield Opportunity Area (BOA); designated State or Federal heritage area; watershed management plan; or other?) ☐Yes ☑No

If Yes, identify the plan(s):

c. Is the proposed action located wholly or partially within an area listed in an adopted municipal open space plan, or an adopted municipal farmland protection plan? ☐Yes ☑No

If Yes, identify the plan(s):

C.3. Zoning

a. Is the site of the proposed action located in a municipality with an adopted zoning law or ordinance. ☑ Yes ☐ No
If Yes, what is the zoning classification(s) including any applicable overlay district?
AGRICULTURAL

b. Is the use permitted or allowed by a special or conditional use permit? ☑ Yes ☐ No

c. Is a zoning change requested as part of the proposed action? ☐ Yes ☑ No
If Yes,
i. What is the proposed new zoning for the site? _____

C.4. Existing community services.

a. In what school district is the project site located? LANSING CENTRAL SCHOOL DISTRICT

b. What police or other public protection forces serve the project site?
NYS POLICE, TOMPKINS COUNTY SHERIFF OFFICE

c. Which fire protection and emergency medical services serve the project site?
LANSING FIRE DEPARTMENT

d. What parks serve the project site?

D. Project Details

D.1. Proposed and Potential Development

a. What is the general nature of the proposed action (e.g., residential, industrial, commercial, recreational; if mixed, include all components)? COMMERICAL BATTERY ENERGY STORAGE SYSTEM

b. a. Total acreage of the site of the proposed action? 56.87 acres
b. Total acreage to be physically disturbed? 1.76 acres
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 56.87 acres

c. Is the proposed action an expansion of an existing project or use? ☐ Yes ☑ No
i. If Yes, what is the approximate percentage of the proposed expansion and identify the units (e.g., acres, miles, housing units, square feet)? % _____ Units: _____

d. Is the proposed action a subdivision, or does it include a subdivision? ☐ Yes ☑ No
If Yes,
i. Purpose or type of subdivision? (e.g., residential, industrial, commercial; if mixed, specify types)
ii. Is a cluster/conservation layout proposed? ☐ Yes ☐ No
iii. Number of lots proposed? _____
iv. Minimum and maximum proposed lot sizes? Minimum _____ Maximum _____

e. Will the proposed action be constructed in multiple phases? ☐ Yes ☑ No
i. If No, anticipated period of construction: _____ months
ii. If Yes:
- Total number of phases anticipated _____
- Anticipated commencement date of phase 1 (including demolition) _____ month _____ year
- Anticipated completion date of final phase _____ month _____ year
- Generally describe connections or relationships among phases, including any contingencies where progress of one phase may determine timing or duration of future phases: _____

f. Does the project include new residential uses? ☐Yes ☑No

If Yes, show numbers of units proposed.

	One Family	Two Family	Three Family	Multiple Family (four or more)
Initial Phase				
At completion of all phases				

g. Does the proposed action include new non-residential construction (including expansions)? ☑Yes ☐No

If Yes,

i. Total number of structures 9

ii. Dimensions (in feet) of largest proposed structure: VARIES height; VARIES width; and VARIES length

iii. Approximate extent of building space to be heated or cooled: VARIES square feet

h. Does the proposed action include construction or other activities that will result in the impoundment of any liquids, such as creation of a water supply, reservoir, pond, lake, waste lagoon or other storage? ☑Yes ☐No

If Yes,

i. Purpose of the impoundment: STORMWATER

ii. If a water impoundment, the principal source of the water: ☐ Ground water ☐ Surface water streams ☑Other specify: RAINFALL

iii. If other than water, identify the type of impounded/contained liquids and their source.

iv. Approximate size of the proposed impoundment. Volume: 0.025 million gallons; surface area: 0.1 acres

v. Dimensions of the proposed dam or impounding structure: 20 height; 50 length

vi. Construction method/materials for the proposed dam or impounding structure (e.g., earth fill, rock, wood, concrete):

EARTH FILL

D.2. Project Operations

a. Does the proposed action include any excavation, mining, or dredging, during construction, operations, or both? (Not including general site preparation, grading or installation of utilities or foundations where all excavated materials will remain onsite) ☐Yes ☑No

If Yes:

i .What is the purpose of the excavation or dredging?

ii. How much material (including rock, earth, sediments, etc.) is proposed to be removed from the site?

- Volume (specify tons or cubic yards):
- Over what duration of time?

iii. Describe nature and characteristics of materials to be excavated or dredged, and plans to use, manage or dispose of them.

iv. Will there be onsite dewatering or processing of excavated materials? ☐Yes ☐No

If yes, describe.

v. What is the total area to be dredged or excavated? acres

vi. What is the maximum area to be worked at any one time? acres

vii. What would be the maximum depth of excavation or dredging? feet

viii. Will the excavation require blasting? ☐Yes ☐No

ix. Summarize site reclamation goals and plan:

b. Would the proposed action cause or result in alteration of, increase or decrease in size of, or encroachment into any existing wetland, waterbody, shoreline, beach or adjacent area? ☐Yes ☑No

If Yes:

i. Identify the wetland or waterbody which would be affected (by name, water index number, wetland map number or geographic description):

ii. Describe how the proposed action would affect that waterbody or wetland, e.g. excavation, fill, placement of structures, or alteration of channels, banks and shorelines. Indicate extent of activities, alterations and additions in square feet o

iii. Will the proposed action cause or result in disturbance to bottom sediments? ☐Yes ☐No
If Yes, describe:

iv. Will the proposed action cause or result in the destruction or removal of aquatic vegetation? ☐Yes ☐No
If Yes:

- acres of aquatic vegetation proposed to be removed:
- expected acreage of aquatic vegetation remaining after project completion:
- purpose of proposed removal (e.g. beach clearing, invasive species control, boat access):
- proposed method of plant removal:
- if chemical/herbicide treatment will be used, specify product(s):

v. Describe any proposed reclamation/mitigation following disturbance:

c. Will the proposed action use, or create a new demand for water? ☐Yes ☑No
If Yes:

i. Total anticipated water usage/demand per day: _____ gallons/day

ii. Will the proposed action obtain water from an existing public water supply? ☐Yes ☐No
If Yes:

- Name of district or service area:
- Does the existing public water supply have capacity to serve the proposal? ☐Yes ☐No
- Is the project site in the existing district? ☐Yes ☐No
- Is expansion of the district needed? ☐Yes ☐No
- Do existing lines serve the project site? ☐Yes ☐No

iii. Will line extension within an existing district be necessary to supply the project? ☐Yes ☐No
If Yes:

- Describe extensions or capacity expansions proposed to serve this project:
- Source(s) of supply for the district:

iv. Is a new water supply district or service area proposed to be formed to serve the project site? ☐ Yes ☐No
If, Yes:

- Applicant/sponsor for new district:
- Date application submitted or anticipated:
- Proposed source(s) of supply for new district:

v. If a public water supply will not be used, describe plans to provide water supply for the project:

vi. If water supply will be from wells (public or private), what is the maximum pumping capacity: _____ gallons/minute.

d. Will the proposed action generate liquid wastes? ☐Yes ☑No
If Yes:

i. Total anticipated liquid waste generation per day: _____ gallons/day

ii. Nature of liquid wastes to be generated (e.g., sanitary wastewater, industrial; if combination, describe all components and approximate volumes or proportions of each):

iii. Will the proposed action use any existing public wastewater treatment facilities? ☐Yes ☐No
If Yes:

- Name of wastewater treatment plant to be used:
- Name of district:
- Does the existing wastewater treatment plant have capacity to serve the project? ☐Yes ☐No
- Is the project site in the existing district? ☐Yes ☐No
- Is expansion of the district needed? ☐Yes ☐No

- Do existing sewer lines serve the project site? ☐Yes ☐No
- Will a line extension within an existing district be necessary to serve the project? ☐Yes ☐No

If Yes:

- Describe extensions or capacity expansions proposed to serve this project: _____

iv. Will a new wastewater (sewage) treatment district be formed to serve the project site? ☐Yes ☐No

If Yes:

- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- What is the receiving water for the wastewater discharge? _____

v. If public facilities will not be used, describe plans to provide wastewater treatment for the project, including specifying proposed receiving water (name and classification if surface discharge or describe subsurface disposal plans):

vi. Describe any plans or designs to capture, recycle or reuse liquid waste: _____

e. Will the proposed action disturb more than one acre and create stormwater runoff, either from new point sources (i.e. ditches, pipes, swales, curbs, gutters or other concentrated flows of stormwater) or non-point source (i.e. sheet flow) during construction or post construction? ☑Yes ☐No

If Yes:

i. How much impervious surface will the project create in relation to total size of project parcel?

_____ Square feet or 0.64 acres (impervious surface)

_____ Square feet or 56.87 acres (parcel size)

ii. Describe types of new point sources. CONCENTRATED FLOWS FROM STORMWATER

iii. Where will the stormwater runoff be directed (i.e. on-site stormwater management facility/structures, adjacent properties, groundwater, on-site surface water or off-site surface waters)?

ON-SITE STORMWATER MANAGEMENT SYSTEMS

- If to surface waters, identify receiving water bodies or wetlands: NON-JURISDICTIONAL WETLANDS
- Will stormwater runoff flow to adjacent properties? ☑Yes ☐No

iv. Does the proposed plan minimize impervious surfaces, use pervious materials or collect and re-use stormwater? ☑Yes ☐No

f. Does the proposed action include, or will it use on-site, one or more sources of air emissions, including fuel combustion, waste incineration, or other processes or operations? ☐Yes ☑No

If Yes, identify:

i. Mobile sources during project operations (e.g., heavy equipment, fleet or delivery vehicles)

ii. Stationary sources during construction (e.g., power generation, structural heating, batch plant, crushers)

iii. Stationary sources during operations (e.g., process emissions, large boilers, electric generation)

g. Will any air emission sources named in D.2.f (above), require a NY State Air Registration, Air Facility Permit, or Federal Clean Air Act Title IV or Title V Permit? ☐Yes ☑No

If Yes:

i. Is the project site located in an Air quality non-attainment area? (Area routinely or periodically fails to meet ambient air quality standards for all or some parts of the year) ☐Yes ☐No

ii. In addition to emissions as calculated in the application, the project will generate:

- _____Tons/year (short tons) of Carbon Dioxide (CO_2)
- _____Tons/year (short tons) of Nitrous Oxide (N_2O)
- _____Tons/year (short tons) of Perfluorocarbons (PFCs)
- _____Tons/year (short tons) of Sulfur Hexafluoride (SF_6)
- _____Tons/year (short tons) of Carbon Dioxide equivalent of Hydroflourocarbons (HFCs)
- _____Tons/year (short tons) of Hazardous Air Pollutants (HAPs)

h. Will the proposed action generate or emit methane (including, but not limited to, sewage treatment plants, landfills, composting facilities)? ☐Yes ☑No

If Yes:

i. Estimate methane generation in tons/year (metric): _____

ii. Describe any methane capture, control or elimination measures included in project design (e.g., combustion to generate heat or electricity, flaring): _____

i. Will the proposed action result in the release of air pollutants from open-air operations or processes, such as quarry or landfill operations? ☐Yes ☑No

If Yes: Describe operations and nature of emissions (e.g., diesel exhaust, rock particulates/dust):

_____

j. Will the proposed action result in a substantial increase in traffic above present levels or generate substantial new demand for transportation facilities or services? ☐Yes ☑No

If Yes:

i. When is the peak traffic expected (Check all that apply): ☐ Morning ☐ Evening ☐Weekend ☐ Randomly between hours of _____ to _____.

ii. For commercial activities only, projected number of truck trips/day and type (e.g., semi trailers and dump trucks): _____

iii. Parking spaces: Existing _____ Proposed _____ Net increase/decrease _____

iv. Does the proposed action include any shared use parking? ☐Yes ☐No

v. If the proposed action includes any modification of existing roads, creation of new roads or change in existing access, describe:

_____

vi. Are public/private transportation service(s) or facilities available within ½ mile of the proposed site? ☐Yes ☐No

vii Will the proposed action include access to public transportation or accommodations for use of hybrid, electric or other alternative fueled vehicles? ☐Yes ☐No

viii. Will the proposed action include plans for pedestrian or bicycle accommodations for connections to existing pedestrian or bicycle routes? ☐Yes ☐No

k. Will the proposed action (for commercial or industrial projects only) generate new or additional demand for energy? ☐Yes ☑No

If Yes:

i. Estimate annual electricity demand during operation of the proposed action: _____

ii. Anticipated sources/suppliers of electricity for the project (e.g., on-site combustion, on-site renewable, via grid/local utility, or other):

_____

iii. Will the proposed action require a new, or an upgrade, to an existing substation? ☐Yes ☐No

l. Hours of operation. Answer all items which apply.

i. During Construction:

- Monday - Friday: 8-5
- Saturday: _____
- Sunday: _____
- Holidays: _____

ii. During Operations:

- Monday - Friday: 24/7
- Saturday: 24/7
- Sunday: 24/7
- Holidays: 24/7

m. Will the proposed action produce noise that will exceed existing ambient noise levels during construction, operation, or both? ☑ Yes ☐ No

If yes:

i. Provide details including sources, time of day and duration:

BATTERY COOLING OPERATIONS DURING NIGHTTIME

ii. Will the proposed action remove existing natural barriers that could act as a noise barrier or screen? ☐ Yes ☑ No

Describe:

n. Will the proposed action have outdoor lighting? ☐ Yes ☑ No

If yes:

i. Describe source(s), location(s), height of fixture(s), direction/aim, and proximity to nearest occupied structures:

ii. Will proposed action remove existing natural barriers that could act as a light barrier or screen? ☐ Yes ☐ No

Describe:

o. Does the proposed action have the potential to produce odors for more than one hour per day? ☐ Yes ☑ No

If Yes, describe possible sources, potential frequency and duration of odor emissions, and proximity to nearest occupied structures:

p. Will the proposed action include any bulk storage of petroleum (combined capacity of over 1,100 gallons) or chemical products 185 gallons in above ground storage or any amount in underground storage? ☐ Yes ☑ No

If Yes:

i. Product(s) to be stored

ii. Volume(s) _____ per unit time _____ (e.g., month, year)

iii. Generally, describe the proposed storage facilities:

q. Will the proposed action (commercial, industrial and recreational projects only) use pesticides (i.e., herbicides, insecticides) during construction or operation? ☐ Yes ☑ No

If Yes:

i. Describe proposed treatment(s):

ii. Will the proposed action use Integrated Pest Management Practices? ☐ Yes ☐ No

r. Will the proposed action (commercial or industrial projects only) involve or require the management or disposal of solid waste (excluding hazardous materials)? ☐ Yes ☑ No

If Yes:

i. Describe any solid waste(s) to be generated during construction or operation of the facility:

- Construction: _____ tons per _____ (unit of time)
- Operation : _____ tons per _____ (unit of time)

ii. Describe any proposals for on-site minimization, recycling or reuse of materials to avoid disposal as solid waste:

- Construction:
- Operation:

iii. Proposed disposal methods/facilities for solid waste generated on-site:

- Construction:
- Operation:

s. Does the proposed action include construction or modification of a solid waste management facility? ☐ Yes ☑ No

If Yes:

i. Type of management or handling of waste proposed for the site (e.g., recycling or transfer station, composting, landfill, or other disposal activities): _____

ii. Anticipated rate of disposal/processing:

- _____ Tons/month, if transfer or other non-combustion/thermal treatment, or
- _____ Tons/hour, if combustion or thermal treatment

iii. If landfill, anticipated site life: _____ years

t. Will the proposed action at the site involve the commercial generation, treatment, storage, or disposal of hazardous waste? ☐ Yes ☑ No

If Yes:

i. Name(s) of all hazardous wastes or constituents to be generated, handled or managed at facility: _____

ii. Generally describe processes or activities involving hazardous wastes or constituents: _____

iii. Specify amount to be handled or generated _____ tons/month

iv. Describe any proposals for on-site minimization, recycling or reuse of hazardous constituents: _____

v. Will any hazardous wastes be disposed at an existing offsite hazardous waste facility? ☐ Yes ☐ No

If Yes: provide name and location of facility: _____

If No: describe proposed management of any hazardous wastes which will not be sent to a hazardous waste facility:

E. Site and Setting of Proposed Action

E.1. Land uses on and surrounding the project site

a. Existing land uses.

i. Check all uses that occur on, adjoining and near the project site.

☐ Urban ☐ Industrial ☐ Commercial ☑ Residential (suburban) ☑ Rural (non-farm)
☐ Forest ☑ Agriculture ☐ Aquatic ☐ Other (specify): _____

ii. If mix of uses, generally describe:

MIX OF FARMS, SUBDIVISIONS, AND VACANT LAND

b. Land uses and covertypes on the project site.

Land use or Covertype	Current Acreage	Acreage After Project Completion	Change (Acres +/-)
• Roads, buildings, and other paved or impervious surfaces	±0.6	±1.2	+0.6
• Forested	±4.8	±4.5	-0.3
• Meadows, grasslands or brushlands (non-agricultural, including abandoned agricultural)	±21.6	±21.3	-0.3
• Agricultural (includes active orchards, field, greenhouse etc.)	0.0	0.0	0.0
• Surface water features (lakes, ponds, streams, rivers, etc.)	0.0	0.0	0.0
• Wetlands (freshwater or tidal)	±2.7	±2.7	0.0
• Non-vegetated (bare rock, earth or fill)	0.0	0.0	0.0
• Other Describe: SOLAR ARRAY	±27.2	±27.2	0.0

c. Is the project site presently used by members of the community for public recreation? ☐ Yes ☑ No
i. If Yes: explain: _____

d. Are there any facilities serving children, the elderly, people with disabilities (e.g., schools, hospitals, licensed day care centers, or group homes) within 1500 feet of the project site? ☐ Yes ☑ No
If Yes,
i. Identify Facilities:

_____
_____

e. Does the project site contain an existing dam? ☐ Yes ☑ No
If Yes:
i. Dimensions of the dam and impoundment:

- Dam height: _____ feet
- Dam length: _____ feet
- Surface area: _____ acres
- Volume impounded: _____ gallons OR acre-feet

ii. Dam's existing hazard classification: _____
iii. Provide date and summarize results of last inspection:

_____
_____

f. Has the project site ever been used as a municipal, commercial or industrial solid waste management facility, or does the project site adjoin property which is now, or was at one time, used as a solid waste management facility? ☐ Yes ☑ No
If Yes:
i. Has the facility been formally closed? ☐ Yes ☐ No

- If yes, cite sources/documentation: _____

ii. Describe the location of the project site relative to the boundaries of the solid waste management facility:

_____
_____

iii. Describe any development constraints due to the prior solid waste activities: _____
_____

g. Have hazardous wastes been generated, treated and/or disposed of at the site, or does the project site adjoin property which is now or was at one time used to commercially treat, store and/or dispose of hazardous waste? ☐ Yes ☑ No
If Yes:
i. Describe waste(s) handled and waste management activities, including approximate time when activities occurred:

_____
_____

h. Potential contamination history. Has there been a reported spill at the proposed project site, or have any remedial actions been conducted at or adjacent to the proposed site? ☐ Yes ☑ No
If Yes:
i. Is any portion of the site listed on the NYSDEC Spills Incidents database or Environmental Site Remediation database? Check all that apply: ☐ Yes ☐ No

☐ Yes – Spills Incidents database — Provide DEC ID number(s): _____
☐ Yes – Environmental Site Remediation database — Provide DEC ID number(s): _____
☐ Neither database

ii. If site has been subject of RCRA corrective activities, describe control measures: _____
_____
_____

iii. Is the project within 2000 feet of any site in the NYSDEC Environmental Site Remediation database? ☐ Yes ☑ No
If yes, provide DEC ID number(s): _____
iv. If yes to (i), (ii) or (iii) above, describe current status of site(s):

_____
_____

v. Is the project site subject to an institutional control limiting property uses? ☐ Yes ☐ No

- If yes, DEC site ID number: _____
- Describe the type of institutional control (e.g., deed restriction or easement): _____
- Describe any use limitations: _____
- Describe any engineering controls: _____
- Will the project affect the institutional or engineering controls in place? ☐ Yes ☐ No
- Explain: _____

E.2. Natural Resources On or Near Project Site

a. What is the average depth to bedrock on the project site? >6.5 feet

b. Are there bedrock outcroppings on the project site? ☐ Yes ☑ No
If Yes, what proportion of the site is comprised of bedrock outcroppings? _____ %

c. Predominant soil type(s) present on project site:

SILT LOAM	30 %
GRAVELLY SILT LOAM	70 %
	%

d. What is the average depth to the water table on the project site? Average: _____ feet

e. Drainage status of project site soils:

☐	Well Drained:	% of site
☑	Moderately Well Drained:	70 % of site
☑	Poorly Drained	30 % of site

f. Approximate proportion of proposed action site with slopes:

☑	0-10%:	75 % of site
☑	10-15%:	25 % of site
☐	15% or greater:	% of site

g. Are there any unique geologic features on the project site? ☐ Yes ☑ No
If Yes, describe: _____

h. Surface water features.

i. Does any portion of the project site contain wetlands or other waterbodies (including streams, rivers, ponds or lakes)? ☑ Yes ☐ No

ii. Do any wetlands or other waterbodies adjoin the project site? ☑ Yes ☐ No

If Yes to either *i* or *ii*, continue. If No, skip to E.2.i.

iii. Are any of the wetlands or waterbodies within or adjoining the project site regulated by any federal, state or local agency? ☑ Yes ☐ No

iv. For each identified regulated wetland and waterbody on the project site, provide the following information:

- Streams: Name _____ Classification _____
- Lakes or Ponds: Name _____ Classification _____
- Wetlands: Name Federal Waters Approximate Size _____
- Wetland No. (if regulated by DEC) _____

v. Are any of the above water bodies listed in the most recent compilation of NYS water quality-impaired waterbodies? ☐ Yes ☑ No

If yes, name of impaired water body/bodies and basis for listing as impaired: _____

i. Is the project site in a designated Floodway? ☐ Yes ☑ No

j. Is the project site in the 100-year Floodplain? ☐ Yes ☑ No

k. Is the project site in the 500-year Floodplain? ☐ Yes ☑ No

l. Is the project site located over, or immediately adjoining, a primary, principal or sole source aquifer? ☐ Yes ☑ No
If Yes:

i. Name of aquifer: _____

m. Identify the predominant wildlife species that occupy or use the project site:
SONG BIRDS | DEER | SQUIRRELS
CHIPMUNKS

n. Does the project site contain a designated significant natural community? ☐ Yes ☑ No
If Yes:
i. Describe the habitat/community (composition, function, and basis for designation):
ii. Source(s) of description or evaluation:
iii. Extent of community/habitat:
- Currently: acres
- Following completion of project as proposed: acres
- Gain or loss (indicate + or -): acres

o. Does project site contain any species of plant or animal that is listed by the federal government or NYS as endangered or threatened, or does it contain any areas identified as habitat for an endangered or threatened species? ☐ Yes ☑ No
If Yes:
i. Species and listing (endangered or threatened):

p. Does the project site contain any species of plant or animal that is listed by NYS as rare, or as a species of special concern? ☐ Yes ☑ No
If Yes:
i. Species and listing:

q. Is the project site or adjoining area currently used for hunting, trapping, fishing or shell fishing? ☐ Yes ☑ No
If yes, give a brief description of how the proposed action may affect that use:

E.3. Designated Public Resources On or Near Project Site

a. Is the project site, or any portion of it, located in a designated agricultural district certified pursuant to Agriculture and Markets Law, Article 25-AA, Section 303 and 304? ☑ Yes ☐ No
If Yes, provide county plus district name/number: TOMP001

b. Are agricultural lands consisting of highly productive soils present? ☑ Yes ☐ No
i. If Yes: acreage(s) on project site? 56.87
ii. Source(s) of soil rating(s): USDA

c. Does the project site contain all or part of, or is it substantially contiguous to, a registered National Natural Landmark? ☐ Yes ☑ No
If Yes:
i. Nature of the natural landmark: ☐ Biological Community ☐ Geological Feature
ii. Provide brief description of landmark, including values behind designation and approximate size/extent:

d. Is the project site located in or does it adjoin a state listed Critical Environmental Area? ☐ Yes ☑ No
If Yes:
i. CEA name:
ii. Basis for designation:
iii. Designating agency and date:

e. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commission Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places? ☐Yes ☑No

If Yes:

i. Nature of historic/archaeological resource: ☐Archaeological Site ☐Historic Building or District

ii. Name: _____

iii. Brief description of attributes on which listing is based:

_____

f. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory? ☐Yes ☑No

g. Have additional archaeological or historic site(s) or resources been identified on the project site? ☐Yes ☑No

If Yes:

i. Describe possible resource(s): _____

ii. Basis for identification: _____

h. Is the project site within fives miles of any officially designated and publicly accessible federal, state, or local scenic or aesthetic resource? ☐Yes ☑No

If Yes:

i. Identify resource: _____

ii. Nature of, or basis for, designation (e.g., established highway overlook, state or local park, state historic trail or scenic byway, etc.): _____

iii. Distance between project and resource: _____ miles.

i. Is the project site located within a designated river corridor under the Wild, Scenic and Recreational Rivers Program 6 NYCRR 666? ☐Yes ☑No

If Yes:

i. Identify the name of the river and its designation: _____

ii. Is the activity consistent with development restrictions contained in 6NYCRR Part 666? ☐Yes ☐No

F. Additional Information

Attach any additional information which may be needed to clarify your project.

If you have identified any adverse impacts which could be associated with your proposal, please describe those impacts plus any measures which you propose to avoid or minimize them.

G. Verification

I certify that the information provided is true to the best of my knowledge.

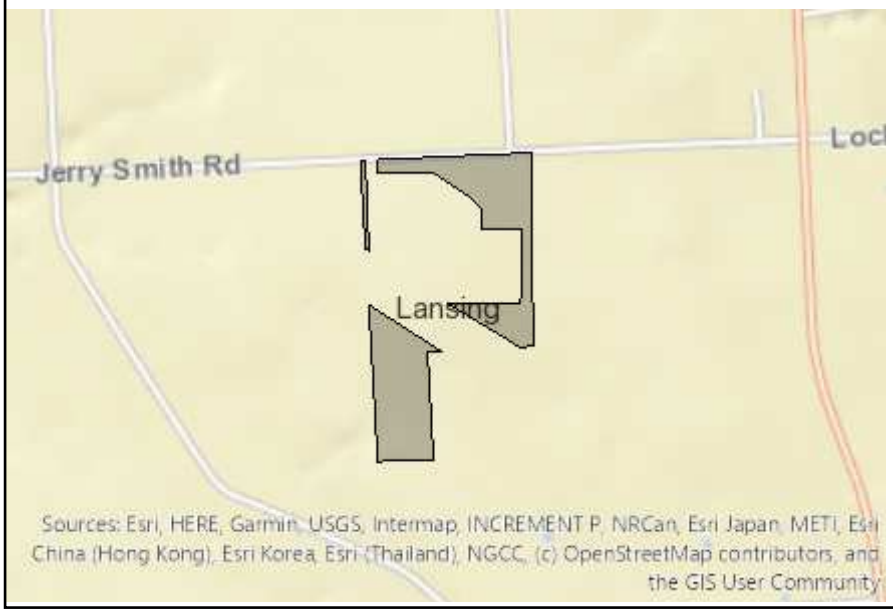
Applicant/Sponsor Name BENJAMIN WILLSON Date 7/10/26

Signature _____ Title PROJECT ENGINEER

PRINT FORM

EAF Mapper Summary Report

Wednesday, April 29, 202



Disclaimer: The EAF Mapper is a screening tool intended to assist project sponsors and reviewing agencies in preparing an environmental assessment form (EAF). Not all questions asked in the EAF are answered by the EAF Mapper. Additional information on any EAF question can be obtained by consulting the EAF Workbooks. Although the EAF Mapper provides the most up-to-date digital data available to DEC, you may also need to contact local or other data sources to confirm data provided by the Mapper or to obtain data not provided by the Mapper.

B.i.i [Coastal or Waterfront Area]	No
B.i.ii [Local Waterfront Revitalization Area]	No
C.2.b. [Special Planning District]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.iii [Within 2,000' of DEC Remediation Site]	No
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	Yes - Digital mapping information on local, New York State, and federal wetlands and waterbodies is known to be incomplete. Refer to the EAF Workbook.
E.2.h.ii [Surface Water Features]	Yes - Digital mapping information on local, New York State, and federal wetlands and waterbodies is known to be incomplete. Refer to the EAF Workbook.
E.2.h.iii [Surface Water Features]	Yes - Digital mapping information on local, New York State, and federal wetlands and waterbodies is known to be incomplete. Refer to the EAF Workbook.
E.2.h.iv [Surface Water Features - Wetlands Name]	Federal Waters
E.2.h.v [Impaired Water Bodies]	No
E.2.i. [Floodway]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.2.j. [100 Year Floodplain]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.

E.2.k. [500 Year Floodplain]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.2.l. [Aquifers]	No
E.2.n. [Natural Communities]	No
E.2.o. [Endangered or Threatened Species]	No
E.2.p. [Rare Plants or Animals]	No
E.3.a. [Agricultural District]	Yes
E.3.a. [Agricultural District]	TOMP001
E.3.c. [National Natural Landmark]	No
E.3.d [Critical Environmental Area]	No
E.3.e. [National or State Register of Historic Places or State Eligible Sites]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.3.f. [Archeological Sites]	No
E.3.i. [Designated River Corridor]	No

New York State
Parks, Recreation and
Historic Preservation

KATHY HOCHUL
Governor

KATHY MOSER
Commissioner

June 23, 2026

Bailey Godson
Environmental Design Partnership, LLP (EDP)
900 Route 146
Clifton Park, NY 12065

Re: DEC
Jerry Smith BESS
339 Jerry Smith Rd, Lansing, NY 14882
26PR04594

Dear Bailey Godson:

Thank you for requesting the comments of the Office of Parks, Recreation and Historic Preservation (OPRHP). We have reviewed the project in accordance with the New York State Historic Preservation Act of 1980 (Section 14.09 of the New York Parks, Recreation and Historic Preservation Law). These comments are those of the OPRHP and relate only to Historic/Cultural resources. They do not include potential environmental impacts to New York State Parkland that may be involved in or near your project.

Based upon this review, it is the opinion of OPRHP that no properties, including archaeological and/or historic resources, listed in or eligible for the New York State and National Registers of Historic Places will be impacted by this project.

If further correspondence is required regarding this project, please be sure to refer to the OPRHP Project Review (PR) number noted above. If you have any questions, please contact Tamara Pilson at the following email address:

Tamara.Pilson@parks.ny.gov

Sincerely,

R. Daniel Mackay

Deputy Commissioner for Historic Preservation
Division for Historic Preservation

STORMWATER MANAGEMENT FACILITY MAINTENANCE AGREEMENT

THIS AGREEMENT is made and entered into the ___ day of ____, 20__ by and between:

_____, with offices at_____

(hereinafter "Facility Owner"), and _____

The Town of _____, a municipal corporation organized and existing under the laws of the State of New York, with a principal office located at _____ (hereinafter "Town").

WITNESSETH

WHEREAS, the parties hereto desire to enter into an agreement to provide for the construction, maintenance, repair, and continuation of a Storm Water Management Facility (hereinafter "SWMF") as required by the Town of _____; and

WHEREAS, the SWMF shall be constructed in accordance with Town approved plans and shall be privately owned after construction. The agreement shall be binding on all subsequent landowners and recorded in the office of the County Clerk as a deed restriction on the property prior to final plan approval; and

WHEREAS, Facility Owner is the owner of a certain parcel of land known as _____, described in certain deed recorded in the Tompkins County Clerk's Office in Book _____ of Deeds at Page _____ (hereinafter referred to as "Premises"), and

WHEREAS, Facility Owner has or proposes to construct townhome apartments, with site improvements, including a SWMF, on the Premises in accordance with the Plans prepared by _____, and approved by the Town of _____ Planning Board (hereinafter the "Plans").

NOW, THEREFORE, in consideration of the foregoing and the mutual promises and covenants set forth herein, the parties hereto agree as follows:

1. The Facility Owner shall construct, maintain, repair and continue a SWMF. The SWMF is one or a series of storm water management practices installed, stabilized and operating for the purposes of controlling storm water runoff and water quality. Such SWMF shall include any storm water control measures necessary to render the Premises in complain with all applicable laws, rules, regulations and ordinances. Such measures may include but shall not be limited to the following: drainage ditches, swales, dry wells, infiltrators, drop inlets, pipes, culverts, soil absorption devices, check dams, hydrodynamic separators and retention ponds.

2. The Facility Owner shall construct and maintain such SWMF on the Premises in accordance with the Plans as approved by the Town of _____ Planning Board on _____ and the Stormwater Pollution Prevention Plan (hereinafter "SWPPP") dated _____ and prepared by _____.

3. The Facility Owner shall maintain, clean, repair, including emergency repairs, replace and continue all measures necessary to ensure full operation and optimum performance of the SWMF. All measures taken to achieve these ends shall be done in accordance with design specifications.

4. The Facility Owner shall provide for the periodic inspection of the SWMF, not less than once in every 12 months, to determine the condition and integrity of the SWMF. Such inspections shall be performed by a professional engineer licensed by the State of New York. The inspecting engineer shall prepare and submit to the Town within 30 days of the inspection, a written report of the findings including recommendations for those actions necessary for the continuation of the SWMF.

5. The Facility Owner shall undertake all necessary repairs, including emergency repairs and replacement of the SWMF at the direction of the Town in accordance with the recommendations of the inspection engineer.

6. Facility Owner hereby agrees to defend, indemnify and hold-harmless the Town of _____ from all suits, costs, claims, and proceedings arising out of the activities carried on by Facility Owner in connection with, resulting from the responsibilities required under or as consequence of the Agreement herein, to the extent of Facility Owner's responsibility for such claims, damages, and losses, except for those claims, suits or proceedings arising solely out of the negligence of the Town of _____.

7. Facility Owner hereby remises, releases and forever discharges to the Town, its officers, agents and employees of and from all claims of any nature resulting in repairs, including emergency repairs, and replacement of the SWMF.

8. The Facility Owner shall not authorize, undertake, or permit alteration, abandonment, modification or discontinuation of the SWMF, without prior written consent of the Town.

9. If ever the Town determines that the Facility Owner has failed to construct, maintain, repair to operate the SWMF in accordance with the project plans and the storm water pollution prevention plan or has failed to undertake corrective action specified by the Town or by the inspecting engineer, the Town is authorized to undertake such steps as are reasonably necessary for the

preservation, continuation, operation, repair or maintenance of the SWMF and to affix the expenses thereof as a lien against the property.

10. Failure to properly maintain the SWMF may result in a violation of the New York State Environmental Conservation Law, the Code of the Town of _____ and this agreement.

11. This agreement shall run with the land and be binding on the parties hereto and their respective heirs, successors and assigns.

12. This Agreement may not be altered except in writing, signed by both parties.

IN WITNESS WHEREOF, the parties hereto have executed this instrument as of the date and year first above written.

By: _____

Town of _____

_____

(Name)

STATE OF NEW YORK)

COUNTY OF) SS:

On the _____ day of _____ in the year of 20__, before me, the undersigned, personally appeared _____, personally known to me or proved to me on the basis of satisfactory evidence to be the individual (s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on this instrument, the individual(s) or the person upon behalf of which the individual(s) acted, executed the instrument.

_____

NOTARY PUBLIC

STATE OF NEW YORK)

COUNTY OF) SS:

On the _____ day of _____ in the year of 20__, before me, the undersigned, personally appeared _____, personally known to me or proved to me on the basis of satisfactory evidence to be the individual (s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on this instrument, the individual(s) or the person upon behalf of which the individual(s) acted, executed the instrument.

_____

NOTARY PUBLIC

STORMWATER POLLUTION PREVENTION PLAN for CONSTRUCTION ACTIVITIES at

JERRY SMITH BATTERY ENERGY STORAGE SYSTEM
TOWN OF LANSING

Prepared for

JERRY SMITH LLC C/O NEXAMP, LLC
101 SUMMER STREET, SECOND FLOOR
BOSTON MA, 02110

Prepared by
The Environmental Design Partnership, LLP
900 Route 146
Clifton Park, NY 12065
Telephone: (518) 371-7621
Facsimile: (518) 371-9540

JULY 2026

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SECTION 1

Written Stormwater Pollution Prevention Plan

JERRY SMITH BATTERY ENERGY STORAGE SYSTEM

I. SCOPE

A. **PURPOSE:** JERRY SMITH LLC intends to implement the appropriate Stormwater Pollution Prevention Plan measures in accordance with the SPDES general permit governing stormwater discharges during construction, and in accordance with erosion control practices. This section provides a descriptive explanation of the means by which JERRY SMITH LLC will comply with the National Stormwater Pollution Prevention Program.

B. **NPDES GENERAL PERMITS FOR STORMWATER DISCHARGE FROM CONSTRUCTION SITES:** Regulations promulgated by the New York State Department of Environmental Conservation (NYSDEC) regulate the discharge of storm water from construction activities on sites where one (1) or more acres of soil is disturbed. One of the ways to comply with these regulations for affected sites is to request coverage under the General Permit for Construction Activities. (Copy enclosed herewith) In order to be authorized to discharge under the General Permit, a Stormwater Pollution Prevention Plan (SWPPP) for the site must be prepared in accordance with all applicable requirements of this permit and followed during the construction activities. If the construction activity is **not** subject to the requirements of a regulated, traditional land use control MS4 a Notice of Intent (NOI) form must be completed and received by the New York State Department of Environmental Conservation at least 5-days prior to any earth-disturbing activities. If the construction activity is subject to the requirements of a regulated, traditional land use control MS4, then the owner/operator must have its SWPPP reviewed and accepted by the MS4 prior to submitting the NOI to the Department. The owner/operator shall have the "MS4 SWPPP Acceptance" form signed and then submit that form along with the NOI to the Department.

C. **RESPONSIBILITIES OF CONTRACTOR REGARDING THE GENERAL PERMIT:** The CONTRACTOR shall manage the discharge of stormwater from the site in accordance with the SPDES General Permit for Construction Activities conditions and the following provisions of this section of the specifications. The CONTRACTOR shall be responsible for conducting the stormwater management practices in accordance with the permit. The CONTRACTOR shall be responsible for providing qualified inspectors to conduct the inspections required by the SWPPP. The CONTRACTOR shall be responsible for any enforcement action taken or imposed by federal, state, or local agencies, including the cost of fines, construction delays, and remedial actions resulting from the CONTRACTOR'S failure to comply with the permit provisions. It shall be the responsibility of the CONTRACTOR to make any changes to the SWPPP necessary when the CONTRACTOR or any of his subcontractors elects to use borrow or fill or material storage sites, either contiguous to or remote from the construction site, when such sites are used solely for this construction site. Such sites are considered to be part of the construction site covered by the permit and this SWPPP. Off-site borrow, fill, or material storage sites which are used for multiple construction projects are not subject to this requirement, unless specifically required by state or local jurisdictional entity regulations. The CONTRACTOR should consider this requirement in negotiating with earthwork subcontractors, since the choice of an off-site borrow, fill, or material storage site JULY impact their duty to implement, make changes to, and perform inspections required by the SWPPP for the site.

D. **NOTICE OF INTENT:** The NOI Permittee petitions the New York State Department of Environmental Conservation for the stormwater discharges during construction at this site to be covered by the SPDES General Permit for Construction Activity for the State of New York. A Notice of Intent (NOI) (using the form required by the NYSDEC) to be covered under this permit is hereby filed. An Erosion and Sediment Control Plan has been prepared and is attached herewith.

E. **CONTRACTOR RESPONSIBILITIES**: The SWPPP and associated Erosion and Sediment Control Plans represent the **MINIMUM** erosion and sediment control measures that will be required to protect the site during construction. JERRY SMITH LLC and the CONTRACTOR understand that additional erosion and sediment control measures will be necessary during construction. It will be the responsibility of the CONTRACTOR to implement additional erosion and sediment control measures as necessary to protect the site

during construction. JERRY SMITH LLC and the CONTRACTOR shall designate a Project Manager prior to commencing construction. The Project Manager will ensure that all construction managers and sub-contractors are appropriately assigned and understand the importance of the following topics:

- Erosion and Sedimentation Control for Water Quality Protection
- Implementation of the Erosion and Sedimentation Control Plan
- The Importance to Proper Installation of Erosion and Sedimentation Control Measures
- Regular Inspection by qualified personnel of Erosion and Sedimentation Control Measures
- Diligent Maintenance of Erosion and Sedimentation Control Measures
- Contemporaneous preparation of accurate and complete records regarding inspection and maintenance of Erosion and Sedimentation Control Measures
- Record Keeping for Inspections and Maintenance activities

F. **REQUIREMENTS FOR THE CONTRACTOR AND SUBCONTRACTOR(S):** The *SWPPP Ledger* shall provide a "Contractor's Certification Log" **(Form 2)**, identifying the Company Name, Business Address and Telephone Number along with the Responsible Person for the CONTRACTOR and all subcontractors' who will implement the measures identified in the SWPPP. Each of the entities identified on **Form 2** shall sign a "Contractor's Certification" **(Form 3)**, verifying they have been instructed and fully understand the requirements of the New York State Department of Environmental Conservation and SWPPP. **This certification must be signed, by a fully qualified individual on behalf of each entity, prior to the beginning of any construction activities and shall be filed in the project's *SWPPP* Ledger.**

Additionally, the "Trained Contractor" must be identified on Form 3 and his/her credentials should be kept on-site in the SWPPP ledger.

G. **STORMWATER POLLUTION PREVENTION PROGRAM LOCATION REQUIREMENTS:** The *SWPPP Ledger* is meant to be a working document that shall be maintained at the site of the Construction Activities at all times throughout the project, shall be readily available upon request by the NOI Permittee's personnel or New York State Department of Environmental Conservation or any other agency with regulatory authority over stormwater issues, and shall be kept on-site until the site complies with the Final Stabilization section of this document. Refer to Part VII., F., Duty to Provide Information, of the General Permit for additional public viewing requirements.

H. **SWPPP LEDGER:** The SWPPP Ledger shall be a 3-ring Binder, tabbed and indexed for the following sections:

SECTION 1:
- **Written SWPPP**

SECTION 2:
- **Site Map and General Location Map**
- **Erosion and Sediment Control Plan(s)**

SECTION 3:
- **New York State Notice of Intent**
- **New York State NOI Acknowledgement Letter**
- **New York State MS4 SWPPP Acceptance Form**

SECTION 4:

- **New York State SPDES General Permit**

SECTION 5:

- **NOI Permittee's Certification (Form 1)**
- **Contractor's/Subcontractor's Certification Log (Form 2)**
- **Contractor's Certification for each contractor listed on Form 2 (Form 3)**
- **Inspection Report (Form 4)**
- **Modification Report (Form 5)**
- **Record of Stabilization and Construction Activities Report (Form 6)**
- **Record of Temporary Erosion and Sediment Control Practices (Form 6A)**
- **Project Rainfall Log (Form 7)**
- **Final Stabilization/Termination Checklist (Form 8)**

SECTION 6:

- **Supplemental Information**
  – Stormwater Management Report

SECTION 7:

- **Completed Inspection Forms**

The Project Manager must review and evaluate for compliance the *SWPPP Ledger* at each Project Review meeting. All Inspection and Maintenance Forms (*Forms 4 - 7*) will be initialed by the Project Manager at each reporting interval. It is the owner/operators responsibility to keep the SWPPP current so that, at all times, it accurately documents the erosion and sediment control practices that are being used or will be used during construction, and all Stormwater Management Practices that will be constructed on-site, including preparing as-built drawings that document the final construction conditions

I. **INSPECTIONS AND RECORD KEEPING:** Inspections are required at least weekly by a "Qualified Inspector". Sites that have a waiver to disturb greater than five (5) acres require two (2) inspections every seven (7) days with at least two (2) days between inspections. Inspections shall continue until the site complies with the "Final Stabilization" section of this document and a Notice of Termination (NOT) has been filed with the NYSDEC. Each inspection must be followed up by a report documenting the inspector's findings and request the required maintenance and/or repair for the erosion and sedimentation control measures. The inspector shall notify the Project Manager within one day of the inspection of any deficiencies. Within one day of this notification the Project Manager must commence with corrective measures. It is imperative that the Project Manager documents the Inspection and Maintenance of all erosion and sedimentation control measures as soon as possible after the inspection and/or maintenance is completed. These records are used to prove that the required inspection and maintenance were performed and shall be placed in the *SWPPP Ledger*.. In addition to inspection and maintenance reports, records should be kept of the Construction Activities that occur on the site. The Project Sponsor shall retain copies of the SWPPP, all reports and data for a minimum of five (5) years after the project is complete. The following list identifies the **required** Inspection and Maintenance documentation that must be maintained by the Project Manager under this SWPPP.

- **Form 4 Inspection Report for SWPPP**
- **Form 5 Requested Changes to the SWPPP (Modification Report)**
- **Form 6 Record of Stabilization and Construction Activities**
- **Form 6A Record of Temporary Erosion and Sediment Control Practices**
- **Form 7 Project Rainfall Log**

J. **SWPPP MODIFICATIONS:** The inspection report should also identify if any revisions to the SWPPP are warranted due to unexpected conditions. The SWPPP is meant to be a dynamic working guide that is to be kept current and amended whenever the design, construction, operation, or maintenance of the site changes in a way which significantly affects the potential for the discharge of pollutants or when the plan proves to be ineffective

in eliminating or significantly minimizing pollutant discharges. Any such changes to the SWPPP must be made in writing on the Modification Report Form **(Form 5)** within 7 days of the date such modification or amendment is made. The CONTRACTOR'S failure to monitor or report deficiencies to the NOI Permittee will result in the CONTRACTOR being liable for fines and construction delays resulting from any federal, state, or local agency enforcement action.

K. **FINAL STABILIZATION AND TERMINATION OF PERMIT COVERAGE:** The site will be considered finally stabilized when all soil disturbing activities have been completed and a uniform perennial vegetative cover for the unpaved areas and areas not covered by permanent structures has been established or equivalent permanent stabilization measures have been established and the development area no longer discharges stormwater associated with construction activities and a Notice of Termination (NOT) form filed by the NOI Permittee with the New York State Department of Environmental Conservation. This filing terminates coverage under the General Permit and terminates the CONTRACTOR'S responsibility to implement the SWPPP. Requirements of the SWPPP, including periodic inspections, must be continued until the NOT is filed.

II. SITE DESCRIPTION

A. PROJECT NAME AND LOCATION

The JERRY SMITH BATTERY ENERGY STORAGE SYSTEM PROJECT site is geographically situated at Latitude N 42° 35' 35", Longitude W 76° 33' 50" in the TOWN OF LANSING, TOMPKINS COUNTY, NEW YORK. The site is located on the south side of JERRY SMITH ROAD. The project site is comprised of 56.87 +/- acres of land. The overall disturbance area is 1.76 +/- acres. The project is bounded on the north, south, east and west by PRIVATE FORESTED. Access to the project will be from JERRY SMITH ROAD. The entire parcel will remain privately owned and maintained. Approximately 0.64 +/- acres of impervious surfaces, including travel surfaces will be constructed. On-going reclamation during construction will consist of all activities listed in Section 1.III.A.1 for temporary actions. Permanent reclamation activities for the laydown area and other compacted areas shall follow the NYSDEC Deep-Ripping and Decompaction JULY 2008 guidance. Final stabilization is defined as the completion of all soil disturbance activities with the phase area having perennial vegetative cover with a density of eighty (80) percent, or other equivalent stabilization measures such as permanent landscape mulches, rock rip-rap or washed/crushed stone.

B. NOI PERMITTEE'S NAME AND ADDRESS

JERRY SMITH LLC
101 SUMMER STREET, SECOND FLOOR
BOSTON, MA 02110

C. PROJECT DESCRIPTION

The project will involve the installation of a 5-MWac battery energy storage system on an approximately 57-acre site. The design will include a fenced battery storage development footprint of over 1 acre. The installation will also include associated infrastructure such as a concrete equipment pad, a chain link fence and improved site access via a new gravel access road. Soil disturbing activities will include:

1. Construction of stabilized construction access points
2. Clearing and grubbing
3. Installation of batteries
4. Construction of stormwater areas
5. Construction of utilities on site
6. Construction of landscaped areas

7. Final grading

D. RUNOFF COEFFICIENT, SOILS, AND RAINFALL INFORMATION

The site consists of hydrologic soil types (HSG) B and D. The predevelopment Curve Number (CN) for meadow areas was determined to be 58 for B, and 78 for D; and wooded areas were determined to be 60 and 79. Soil within the project area varies from silt loam to gravelly silt loam with areas of well draining soils and poor draining soils, as described by the Soil Conservation Service. The post development CN for all disturbed areas was modeled to be the same as predevelopment. A CN of 98 was used for all post-development impervious surface areas.

E. NAME OF RECEIVING WATERS

Drainage will be directed via an on-site vegetated filter strip or infiltration basin with emergency overflow swales directed to existing drainage ways, and eventually into the Otis Creek off site.

F. INDIAN COUNTRY LANDS

The site is not located on any known current or previously designated Indian Country lands.

G. ENDANGERED OR THREATENED SPECIES

A review of the New York State Department of Environmental Conservation's (NYSDEC) Environmental Resource Mapper (http://www.dec.ny.gov/imsmaps/ERM/viewer.htm) indicated no known State regulated rare plants, rare animals or significant natural communities on-site. A letter has been received from the NYSDEC New York Natural Heritage Program stating that the project is likely to have no impact on endangered or threatened species. This letter is included within Section 6 of the SWPPP.

H. HISTORIC PLACES

A review of the New York State Historic Preservation Office (OPRHP) Geographic Information System Mapper (http://www.oprhp.state.ny.us/nr/main.asp) indicated that the site is not located in an archeo sensitive area.

I. CLIMATE CHANGE RESILIENCY PLANNING

With the Community Risk and Resiliency Act (CRRA) being adopted in New York State, JERRY SMITH LLC has demonstrated consideration of several future risks due to the effects of climate change.

Increasing Temperature: When developing the battery layout, JERRY SMITH LLC is only proposing to develop approximately 1.76 +/- acres of land. The roadway and equipment pads include only 0.64 +/- acres of impervious surfaces to reduce material heat absorption (Urban Heat Island Effect) to the maximum extent possible. The stormwater management area on site is a vegetated filter strip and infiltration basin which will prevent runoff from entering heat-vulnerable environments.

Increasing Precipitation: The use of a vegetated filter strip and infiltration basin will allow infiltration on-site which will minimize the amount of runoff and water quality pollution from leaving the site JERRY SMITH LLC will provide the proper long-term operation/maintenance procedures to ensure conveyance systems will not be overwhelmed during large and more frequent storm events. In the event of drought, there will be no physical or ecological risks due to the vegetated filter strip not retaining water.

Rising Sea Level: According to the FEMA Flood Insurance Rate Map (Map No. 36109C0079D) the project area is located within Zone X (unshaded), which is considered to be outside of the 500-year floodplain, see

Section 6 if a map was available. As such, there will also be no increase in storm surge within the project limits.

Shifting Ecology: As stated in part G of this section, there are known State regulated rare plants, rare animals or significant natural communities on-site, but will remain unaffected by the development. The predominant wildlife species that might occupy the project site include squirrels, birds, and deer. The development of this project site will promote sustainable development and should not have any impact on the local ecosystem.

III. CONTROLS

A. EROSION AND SEDIMENT CONTROLS

The following section describes the anticipated Erosion and Sediment Controls required for use during construction of the proposed site. These controls represent the **MINIMUM** erosion and sediment control measures that will be required to protect the site during construction. **Additional erosion and sediment control measures will be necessary during construction.** It will be the responsibility of the NOI permittee to authorize the CONTRACTOR to implement all additional erosion and sediment control measures necessary to protect the site during construction.

1. Stabilization practices include (but not limited to):
   a) Land clearing activities shall be done only in areas where earthwork will be performed and shall progress as earthwork is needed
   b) Frequent watering of excavation and fill areas to minimize wind erosion during construction.
   c) Use of stabilization fabric for all slopes having a slope of 1V:3H or greater.
   d) Seeding and planting of all unpaved areas
      - Temporary seedings should be made within 24 hours of construction or disturbance. If not, the soil must be scarified prior to seeding.
      - Broadcasting or hydroseeding JULY be used as seeding methods.
      - Seeding mixtures should be as follows
        a) Ryegrass (annual or perennial) applied at 30 lbs. per acre (0.7 lbs./1000 sq. ft.)
        b) Certified "Aroostook" winter rye (cereal rye) applied at 100 lbs. per acre (2.5 lbs./1000 sq. ft.) *Winter rye shall be used if seeding in October/November.
   e) Topsoiling
      - Scarify all compact, slowly permeable, medium and fine textured subsoil areas. Scarify at approximately right angles to the slope direction in soil areas that are steeper than 5 percent.
      - Remove refuse, woody plant parts, stones over 3 inches in diameter, and other liter.
      - Topsoil material shall have at least 2 percent by weight of fine textured stable organic material, and no greater than 6 percent.
      - Topsoil shall have no less than 20 percent fine textured material (passing the No. 200 sieve) and not more than 15 percent clay.
      - Topsoil shall not be placed when it is partly frozen, muddy, or on frozen slopes or over ice, snow, or standing water.
   f) Mulching
      - For grass / legume establishment apply straw mulch applied at 2 ton/acre (90 lbs./1000 sq. ft.) and anchor with wood fiber mulch (hydromulch) at 500-750 lbs./acre (11 – 17 lbs./1000 sq. ft.)
   g) Protecting Vegetation During Construction
      - Limit soil placement over existing tree and shrub roots to a maximum of 3 inches.
      - Use retaining walls and terraces to protect roots of trees and shrubs when grades are lowered. Lowered grades should start no closer than the dripline of the tree.
      - Avoid trenching within the dripline of the tree.

- Construction limits should be identified and clearly marked to exclude equipment.

2. Structural practices include (but not limited to):

a) Perimeter protection using silt fences
b) Sediment basin(s)
c) Stabilized construction exit points
   - Aggregate size shall be 2 inch stone or reclaimed / recycled concrete equivalent
   - Thickness shall be not less than 6 inches
   - Width to be the full width of the access point, but not less than 12 ft
   - Length shall be as required, but not less than 50 ft.
   - Filter cloth shall be applied over the entire area to be covered with aggregate
   - The entrance shall be maintained in a condition which will prevent tracking of sediment onto public rights-of-way or streets. When necessary, wheels must be cleaned to remove sediment prior to entrance onto public rights-of-way.
d) Stormwater detention ponds (which JULY also serve as a temporary sediment basin)
e) Stone Check Dam
   - Use graded stone 2 to 15 inches in size
   - Sediment accumulated behind the check dam shall be removed as needed to allow drainage through the check dam and prevent large flows from carrying sediment over the dam.

3. Sequence of Major Activities

The CONTRACTOR will be responsible for implementing erosion and sediment control measures outlined in the SWPPP and any additional erosion and sediment control measures required to stabilize the site. The CONTRACTOR JULY designate these tasks to certain subcontractors as appropriate, but the ultimate responsibility for implementing these controls and ensuring their proper functioning remains with the CONTRACTOR. The order of activities will be as follows (refer to Stormwater Pollution Prevention Plan Sheet contained in this SWPPP for additional details):

a) Construct temporary construction exits at locations shown on the SWPPP plan sheet.

b) Install perimeter silt fences.

c) Begin clearing and grubbing operations. Clearing and grubbing shall be done only in areas where earthwork will be performed and only in areas where building is planned to commence within 7 days after clearing and grubbing.

d) Frequent watering of the excavation and fill areas shall be done to minimize wind erosion.

e) Commence site grading and battery construction.

f) Disturbed areas of the site where construction activity has ceased for more than 7 days should be temporarily seeded and watered.

g) Finalize access road subgrade preparation.

h) Install base material as required for pavement.

i) Carry out final grading and seeding and planting, including stormwater management areas.

j) Remove silt fencing only after all paving is complete and exposed surfaces are stabilized.

k) Remove temporary construction exits only prior to pavement construction in these areas (These areas are to be paved last).

4. Stormwater Management

The proposed stormwater management system was designed by The Environmental Design Partnership, Clifton Park, NY. The following paragraphs summarize the stormwater management measures to be incorporated on the site to control pollutants in stormwater discharges after construction is completed. A copy of the Stormwater Management Report is enclosed under Section 6 – Supplemental Information.

Two (2) stormwater management areas, constructed as a vegetated filter strip and an infiltration basin, will be constructed to provide sufficient water quality treatment and allow the water to recharge into the ground.

5. Post-Construction Maintenance of the Stormwater Management System

Post construction maintenance and protection of the Stormwater Management System shall be performed in accordance with Section VI. LONG TERM OPERATION AND MAINTENANCE PROCEDURES of the SWPPP.

B. OTHER CONTROLS

1. Waste Disposal

All waste materials will be collected and stored in a securely lidded metal dumpster rented from a local waste management company which must be a solid waste management company licensed to do business in New York State. The dumpster will comply with all local and state solid waste management regulations.

All trash and construction debris from the site will be deposited in the dumpster. The dumpster will be emptied as often as necessary, and the trash will be hauled to a landfill approved by New York State and the local government authority. No construction waste materials will be buried on site. All personnel will be instructed regarding the correct procedures for waste disposal. Notices stating these practices will be posted in the job site construction office trailer, and the job site superintendent will be responsible for seeing that these procedures are followed.

2. Sanitary Waste

All sanitary waste will be collected from the portable units a minimum of two times per week by a licensed portable facility provider in complete compliance with local and state regulations.

3. Off-Site Vehicle Tracking

A stabilized construction exit will be provided to help reduce vehicle tracking of sediments. The paved streets adjacent to the site entrance will be inspected daily and swept as necessary to remove any excess mud, dirt, or rock tracked from the site. Dump trucks hauling material from the construction site will be covered with a tarpaulin. The job site superintendent will be responsible for seeing that these procedures are followed.

4. Concrete Waste From Concrete Trucks

a) Emptying of excess concrete and/or washout from concrete delivery trucks will be allowed on the job site, but only in either (1) specifically designated diked areas which have been prepared to prevent contact between the concrete and/or washout and stormwater which will

be discharged from the site or (2) in locations where waste concrete can be poured into forms to make riprap or other useful concrete products.

b) The hardened residue from the concrete washout diked areas will be disposed of in accordance with the procedures given in the Spill Prevention Control and Countermeasures (SPCC) Plan and in accordance with applicable state and federal regulations. The job site superintendent will be responsible for seeing that these procedures are followed.

5. Hazardous Substances and Hazardous Waste

a) All hazardous waste materials will be disposed of by the CONTRACTOR in the manner specified by local, state, and/or federal regulations and by the manufacturer of such products. Site personnel will be instructed in these practices by the job site superintendent, who will also be responsible for seeing that these practices are followed. Material Safety Data Sheets (MSDS's) for each substance with hazardous properties that is used on the job site will be obtained and used for the proper management of potential wastes that JULY result from these products. An MSDS will be posted in the immediate area where such product is stored and/or used and another copy of each MSDS will be maintained in the SWPPP file at the job site construction trailer office. Each employee who must handle a substance with hazardous properties will be instructed on the use of MSDS sheets and the specific information in the applicable MSDS for the product he/she is using, particularly regarding spill control techniques.

b) The CONTRACTOR will implement the Spill Prevention Control and Countermeasures (SPCC) Plan found within this SWPPP and will train all personnel in the proper cleanup and handling of spilled materials. No spilled hazardous materials or hazardous wastes will be allowed to come in contact with stormwater discharges. If such contact occurs, the stormwater discharge will be contained on site until appropriate measures in compliance with state and federal regulations are taken to dispose of such contaminated stormwater. It shall be the responsibility of the job site superintendent to properly train all personnel in the use of the SPCC plan.

c) Any spills of hazardous materials which are in quantities in excess of Reportable Quantities as defined by EPA regulations shall be immediately reported to the EPA National Response Center 1-800-424-8802.

d) In order to minimize the potential for a spill of hazardous materials to come into contact with stormwater, the following steps will be implemented:

- All materials with hazardous properties (such as pesticides, petroleum products, fertilizers, detergents, construction chemicals, acids, paints, paint solvents, cleaning solvents, additives for soil stabilization, concrete curing compounds and additives, etc.) will be stored in a secure location, under cover, when not in use. All such materials shall have secondary containment to prevent contamination of soil and runoff.

- The minimum practical quantity of all such materials will be kept on the job site.

- A spill control and containment kit (containing, for example, absorbent such as kitty litter or sawdust, acid neutralizing powder, brooms, dust pans, mops, rags, gloves, goggles, plastic and metal trash containers, etc.) will be provided at the storage site.

- All of the product in a container will be used before the container is disposed of. All such containers will be triple-rinsed with water prior to disposal. The rinse water used in these containers will be disposed of in a manner in compliance with state and federal regulations and will not be allowed to mix with stormwater discharges.

- All products will be stored in and used from the original container with the original product label.
- All products will be used in strict compliance with instructions on the product label.
- The disposal of excess or used products will be in strict compliance with instructions on the product label.

6. Contaminated Soils

a) Any contaminated soils (resulting from spills of materials with hazardous properties) which JULY result from construction activities will be contained and cleaned up immediately in accordance with the procedures given in the Spill Prevention Control and Countermeasures (SPCC) Plan and in accordance with applicable state and federal regulations.

b) The job site superintendent will be responsible for seeing that these procedures are followed.

IV. COMPLIANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS

A. The CONTRACTOR will obtain copies of any and all local and state regulations that are applicable to stormwater management, erosion control, and pollution minimization at this job site and will comply fully with such regulations. The CONTRACTOR will submit written evidence of such compliance if requested by any agent of a regulatory body. The CONTRACTOR will comply with all conditions of the New York State Department of Environmental Conservation SPDES General Permit for Construction Activities, including the conditions related to maintaining the SWPPP and evidence of compliance with the SWPPP at the job site and allowing regulatory personnel access to the job site and to records in order to determine compliance.

V. MAINTENANCE/INSPECTION PROCEDURES DURING CONSTRUCTION

A. Erosion and Sediment Control and Stabilization Measures Maintenance and Inspection Practices

1. The following is a list of erosion and sediment controls to be used on this site during construction practice.

a) Stabilization practices for this site include:
- Land clearing activities shall be done only in areas where earthwork will be performed and shall progress as earthwork is needed
- Frequent watering of excavation and fill areas to minimize wind erosion during construction.
- Use of stabilization fabric for all slopes having a slope of 1V:3H or greater.
- Permanent seeding and planting of all unpaved areas using the hydromulching grass seeding technique.

b) Structural practices for this site include:
- Perimeter protection using silt fences
- Stabilized construction exit points
- Stormwater detention ponds (which JULY also serve as a temporary sediment basin)

2. The following inspection and maintenance practices will be used to maintain erosion and sediment controls and stabilization measures.

a) All control measures will be inspected once every seven (7) days at a minimum. Sites that have a waiver to disturb greater than five (5) acres require two (2) inspections every seven (7) days with at least two (2) days between inspections.
b) All measures will be maintained in good working order; if repairs are found to be necessary, they will be initiated within 24 hours of report.

c) Built up sediment will be removed from silt fence when it has reached one-third the height of the fence.
d) Silt fences will be inspected for depth of sediment, tears, etc., to see if the fabric is securely attached to the fence posts, and to see that the fence posts are securely in the ground.
e) The sediment basins will be inspected for depth of sediment, and built up sediment will be removed when it reaches 50 percent of the capacity.
f) Temporary and permanent seeding and all other stabilization measures will be inspected for bare spots, washouts, and healthy growth.
g) A maintenance inspection report will be made after each inspection. Copies of the report forms to be completed by the inspector are included in this SWPPP.
h) The job site superintendent will be responsible for selecting and training the individuals who will be responsible for these inspections, maintenance and repair activities, and filling out inspection and maintenance reports.
i) Personnel selected for the inspection and maintenance responsibilities will receive appropriate instruction from the job site superintendent. They will be trained in all the inspection and maintenance practices necessary for keeping the erosion and sediment controls that are used onsite in good working order. They will also be trained in the completion of, initiation of actions required by, and the filing of the inspection forms. Documentation of this personnel training will be kept on site with the SWPPP.
j) Disturbed areas and material storage areas will be inspected for evidence of or potential for pollutants entering stormwater systems.
k) Report to the NYS Department of Environmental Conservation within 24 hours any noncompliance with the SWPPP that will endanger public health or the environment. Follow up with a written report within 5 days of the noncompliance event.

B. Inspection and Maintenance Report Forms

Once installation of any required or optional erosion control device or measure has been implemented, weekly inspections of each measure shall be performed by the CONTRACTOR'S inspection personnel. The Inspection and Maintenance Reports found in this SWPPP shall be used by the inspectors to inventory and report the condition of each measure to assist in maintaining the erosion and sediment control measures in good working order.

These report forms shall become an integral part of the SWPPP and shall be made readily accessible to governmental inspection officials, the NOI Permittee's Engineer, and the NOI Permittee for review upon request during visits to the project site. In addition, copies of the reports shall be provided to any of these persons, upon request, via mail or facsimile transmission. Inspection and maintenance report forms are to be maintained by the NOI Permittee for five years following the final stabilization of the site.

C. Other Record-Keeping Requirements

The CONTRACTOR shall keep the following records related to construction activities at the site:
- Dates when major grading activities occur and the areas that were graded
- Dates and details concerning the installation of structural controls
- Dates when construction activities cease in an area
- Dates when areas are stabilized, either temporarily or permanently
- Dates of rainfall and the amount of rainfall
- Dates and descriptions of the character and amount of any spills of hazardous materials
- Records of reports filed with regulatory agencies if reportable quantities of hazardous materials spilled

D. Winter Operations

The following is a list of erosion and sediment controls and inspection and maintenance practices for winter operations for this site.

a) **Prior to November 1st of any given year all exposed soil areas must be covered with:**
   - Mulch
   - Seed and mulch
   - Geotextile
   - Erosion control matting
   - Rock or
   - Other approved mulch to prevent soil from eroding

b) Install sediment barriers (silt fence or drop inlet protection) at ALL necessary perimeter and sensitive locations BEFORE SOIL FREEZES.

c) Slopes and Stockpiles:
   - Protect slopes and stockpiles with anchored straw or mulch, rolled erosion control product or other durable covering.
   - Sediment barrier must be installed around piles and at slope toes to prevent soil transport from the pile or slope.
   - Stabilize exposed areas BEFORE snow covers them.

d) All entrance/exit locations must be properly stabilized and maintained to accommodate snow management.

e) Inspections:
   - If soil disturbance is COMPLETELY suspended AND site is PROPERLY STABILIZED, qualified inspection frequency JULY be reduced with written notification to NYSDEC or MS4.
   - Confirmation must be received from NYSDEC prior to reducing inspection frequency.
   - Monthly inspections must be performed at a minimum.
   - Sediment control measures should be checked after rain or snowmelt events.
   - Regular inspections must resume by March 15th.

VI. LONG TERM OPERATION AND MAINTENANCE PROCEDURES

The proposed JERRY SMITH BATTERY ENERGY STORAGE SYSTEM project will be PRIVATELY OWNED and the operation and maintenance requirements will be the responsibility of the private owner. The entire Stormwater Management System shall be inspected on a yearly basis to ensure that the system operates in the manner originally intended. Specific components of the system shall require additional attention as described below.

1. Vegetated Filter Strip
   a. Vegetated Filter Strips shall be inspected annually and following major storm events to ensure the system operates in the manner originally intended.
   b. Debris and litter shall be removed from the filter strop and gravel diaphragm as necessary.
   c. Accumulated sand, grit and/pr debris shall be removed from the filter strip and gravel diaphragm if present.
   d. If rill erosion is present, fill in areas with native soil and reseed as required. Gravel diaphragm shall be increased in width above rill erosion locations to ensure sheet flow onto the vegetated filter strip.

2. Infiltration basins
   a. Infiltration basins shall be inspected annually and following major storm events to ensure the system operates in the manner originally intended. The inspection should include, but not be limited to, the following components; all outlet orifices, embankment, emergency spillway, drain, accumulation of sediment, and general erosion control measures.

b. Re-grading and re-vegetation shall be performed as necessary and rip-rap shall be replaced as necessary.
c. Embankments shall be mowed a minimum of twice per year to discourage woody growth and control weeds.
d. Debris and litter shall be removed from basins during regular mowing operations or more frequently as necessary.
e. Accumulated sediment shall be removed from the wet pond area when 10 percent of the basin capacity has been lost due to sedimentation or at a minimum of every 10 to 20 years.

3. Closed Drainage System
    a. Pipes shall be inspected annually and following major storm events to ensure the system operates in the manner originally intended.

STORMWATER POLLUTION PREVENTION PLAN
SUMMARY OF EROSION AND SEDIMENT CONTROL AND STABILIZATION MEASURES
MAINTENANCE/INSPECTION PROCEDURES

All control measures will be inspected at least once every seven (7) days. Sites that have a waiver to disturb greater than five (5) acres require two (2) inspections every seven (7) days with at least two (2) days between inspections.

☐ All measures will be maintained in good working order; if a repair is necessary, it will be initiated within 24 hours of report.

☐ Built-up sediment will be removed from silt fences when it has reached one-third the height of the fence.

☐ Silt fences will be inspected for depth of sediment, tears, to see if the fabric is securely attached to the fence posts, and to see that the fence posts are firmly in the ground.

☐ Sediment basins, if present, will be inspected for depth of sediment, and built-up sediment will be removed when it reaches 50% of the design capacity or at the end of the job.

☐ Diversion dikes, if present, will be inspected and any breaches promptly repaired.

☐ Temporary and permanent seeding and planting and other stabilization measures will be inspected for bare spots, washouts, and healthy growth.

☐ A maintenance inspection report will be made after each inspection. Copies of the report forms to be used are included in this SWPPP.

☐ The site job superintendent will select the individuals who will be responsible for inspections, maintenance and repair activities, and filling out the inspection and maintenance reports.

☐ Personnel selected for inspection and maintenance responsibilities will receive training from the site job superintendent. They will be trained in all the inspection and maintenance practices necessary for keeping the erosion and sediment controls used onsite in good working order.

☐ Disturbed areas and materials storage areas will be inspected for evidence of or potential for pollutants entering stormwater systems.

☐ Report to The Department of Environmental Conservation within 24 hours any noncompliance with the SWPPP that will endanger public health or the environment. Follow up with a written report within 5 days of the noncompliance event.

STORMWATER POLLUTION PREVENTION PLAN

CONSTRUCTION/IMPLEMENTATION CHECKLIST

1. Maintain Records (Project Manager) of Construction Activities, including:

   ☐ Dates when major grading activities occur

   ☐ Dates when construction activities temporarily cease on a portion of the site

   ☐ Dates when construction activities permanently cease on a portion of the site

   ☐ Dates when stabilization measures are initiated on the site

   ☐ Dates of rainfall and the amount of rainfall

   ☐ Dates and descriptions of the character and amount of any spills of hazardous materials

   ☐ Records of reports filed with regulatory agencies if reportable quantities of hazardous materials spilled

2. Prepare Inspection Reports (Qualified Inspector) summarizing:

   ☐ Name of inspector

   ☐ Qualifications of inspector

   ☐ Measures/areas inspected

   ☐ Observed conditions

   ☐ Changes necessary to the SWPPP

3. Report Releases of Reportable Quantities of Oil or Hazardous Materials (Project Manager, if they occur):

   ☐ Notify National Response Center (1-800-424-8802) immediately

   ☐ Notify permitting authority in writing within 14 days

   ☐ Modify the pollution prevention plan to include:

   - the date of release
   - circumstances leading to the release
   - steps taken to prevent reoccurrence of the release

4. Modify Pollution Prevention Plan (per Qualified Inspector) as necessary to:

   ☐ Comply with the minimum permit requirements when notified by The Department of Environmental Conservation that the plan does not comply

   ☐ Address a change in design, construction operation, or maintenance that has an effect on the potential for discharge of pollutants

   ☐ Prevent reoccurrence of reportable quantity releases of a hazardous material or oil

VII. SPILL PREVENTION CONTROL AND COUNTERMEASURES (SPCC) PLAN

A. MATERIALS COVERED

The following materials or substances with known hazardous properties are expected to be present onsite during construction:

Concrete	Cleaning solvents
Detergents	Petroleum based products
Paints	Pesticides
Paint solvents	Acids
Fertilizers	Concrete additives
Soil stabilization additives	

B. MATERIAL MANAGEMENT PRACTICES

The following are the material management practices that will be used to reduce the risk of spills or other accidental exposure of materials and substances to stormwater runoff.

1. Good Housekeeping

The following good housekeeping practices will be followed onsite during the construction project.

a) An effort will be made to store only enough product required to do the job.

b) All materials stored onsite will be stored in a neat, orderly manner and, if possible, under a roof or other enclosure.

c) Products will be kept in their original containers with the original manufacturer's label in legible condition.

d) Substances will not be mixed with one another unless recommended by the manufacturer.

e) Whenever possible, all of a product will be used up before disposing of the container.

f) Manufacturer's recommendations for proper use and disposal will be followed.

g) The job site superintendent will be responsible for daily inspections to ensure proper use and disposal of materials.

2. Hazardous Products

These practices will be used to reduce the risks associated with hazardous materials.

a) Products will be kept in original containers with the original labels in legible condition.

b) Original labels and material safety data sheets (MSDS's) will be procured and used for each material.

c) If surplus product must be disposed of, manufacturer's or local/state/federal recommended methods for proper disposal will be followed.

d) A spill control and containment kit (containing, for example, absorbent such as kitty litter or sawdust, acid neutralizing powder, brooms, dust pans, mops, rags, gloves, goggles, plastic and metal trash containers, etc.) will be provided at the storage site.

e) All of the product in a container will be used before the container is disposed of. All such containers will be triple-rinsed with water prior to disposal. The rinse water used in these containers will be disposed of in a manner in compliance with state and federal regulations and will not be allowed to mix with stormwater discharges.

3. Product Specific Practices

The following product specific practices will be followed on the job site.

a) Petroleum Products

All onsite vehicles will be monitored for leaks and receive regular preventative maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled. Any petroleum storage tanks used onsite will have a dike or berm containment structure constructed around it to contain any spills that JULY occur. Any asphalt substances used onsite will be applied according to the manufacturer's recommendations.

b) Fertilizers

Fertilizers will be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer will be worked in the soil to limit exposure to stormwater. Storage will be in a covered shed. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.

c) Paints, Paint Solvents, and Cleaning Solvents

All containers will be tightly sealed and stored when not in use. Excess paint and solvents will not be discharged to the storm sewer system but will be properly disposed of according to manufacturer's instructions or state and federal regulations.

d) Concrete Trucks

Concrete trucks will be allowed to wash out or discharge surplus concrete or drum wash water on the site, but only in either (1) specifically designated diked areas which have been prepared to prevent contact between the concrete and/or washout and stormwater which will be discharged from the site or (2) in locations where waste concrete can be poured into forms to make riprap or other useful concrete products.

The hardened residue from the concrete washout diked areas will be disposed of in the same manner as other non-hazardous construction waste materials or JULY be broken up and used on site as deemed appropriate by the CONTRACTOR. The job site superintendent will be responsible for seeing that these procedures are followed.

4. Spill Prevention Practices

In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and cleanup.

a) Manufacturer's recommended methods for spill cleanup will be clearly posted and site personnel will be trained regarding these procedures and the location of the information and cleanup supplies.

b) Materials and equipment necessary for spill cleanup will be kept in the material storage area onsite in spill control and containment kit (containing, for example, absorbent such as kitty litter or sawdust, acid neutralizing powder, brooms, dust pans, mops, rags, gloves, goggles, plastic and metal trash containers, etc.).

c) All spills will be cleaned up immediately after discovery.

d) The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with the hazardous substances.

e) Spills of toxic or hazardous materials will be reported to the appropriate federal, state, and/or local government agency, regardless of the size of the spill. Spills of amounts that exceed Reportable Quantities of certain substances specifically mentioned in federal regulations (40 CFR 302 list and oil) will be immediately reported to the EPA National Response Center, telephone 1-800-424-8802. Reportable Quantities of some substances which JULY be used at the job site are as follows:

oil - appearance of a film or sheen on water

pesticides - usually 1 lb.

acids - 5000 lb.

solvents, flammable - 100 lb.

f) The SPCC plan will be adjusted to include measures to prevent this type of spill from recurring and how to clean up the spill if there is another one. A description of the spill, what caused it, and the cleanup measures will also be included. If the spill exceeds a Reportable Quantity, all federal regulations regarding reports of the incident will be complied with.

g) The job site superintendent will be the spill prevention and cleanup coordinator. He will designate the individuals who will receive spill prevention and cleanup training. These individuals will each become responsible for a particular phase of prevention and cleanup. The names of these personnel will be posted in the material storage area and in the office trailer onsite.

VIII. CONTROL OF ALLOWABLE NON-STORMWATER DISCHARGES

A. Certain types of discharges are allowable under the NYS Department of Environmental Conservation SPDES General Permit for Construction Activity, and it is the intent of this SWPPP to allow such discharges. These types of discharges will be allowed under the conditions that no pollutants will be allowed to come in contact with the water prior to or after its discharge. The control measures, which have been outlined previously in this SWPPP, will be strictly followed to ensure that no contamination of these non-stormwater discharges takes place. The following allowable non-stormwater discharges that JULY occur from the job site include:

a) Discharges from fire fighting activities

b) Fire hydrant flushings (see note below)

c) Waters used to wash vehicles or control dust in order to minimize offsite sediment tracking

d) Potable water sources such as waterline flushings (see note below), irrigation drainage from watering vegetation, routine exterior building washdown (without detergents present) (See Note below)

e) Pavement washwaters where spills or leaks of hazardous materials have not occurred or detergents have not been used

f) Springs and other uncontaminated groundwater, including dewatering ground water infiltration

g) Foundation or footing drains where no contamination with process materials such as solvents is present

NOTE: CONTRACTOR shall neutralize any super-chlorinated water from water distribution pipes before releasing it into the environment. Neutralization techniques are available from the Operator's Engineer.

IX. CERTIFICATION AND NOTIFICATION

A. The NYS Department of Environmental Conservation requires that certifications of knowledge of the contents of this SWPPP and agreement to follow the SWPPP be made by the NOI Permittee and the CONTRACTOR. The terms of the General Permit also require that each CONTRACTOR sign the SWPPP plan, (Form 3) thereby making them co-permittees and acknowledging their responsibility for certain operational aspects of the plan. These certifications should be signed before the CONTRACTOR begins activities and should be filed with the site's SWPPP at the jobsite. These certifications are provided within this document, see Table of Contents for location.

SECTION 2

Erosion and Sedimentation Control Plan

Site Map and General Location Map

SECTION 3

Federal, State or Local Notice of Intent (NOI)

NYSDEC NOI Acknowledgement Letter - Pending

NYSDEC MS4 SWPPP Acceptance Form

Construction General Permit (CGP) Electronic Notice of Intent (eNOI) GP-0-25-001

version 1.18

(Submission #: HQP-XXCM-TSTAF, version 1)

Details

Originally Started By	Brandon Ferguson
Alternate Identifier	JERRY SMITH ENERGY STORAGE—Region 7
Submission ID	HQP-XXCM-TSTAF
Status	Draft

Form Input

Eligibility

Disturbance Threshold

1. Will the construction activity involve soil disturbances listed in Part I.A.1 of GP-0-25-001?
Yes

1.a. Will any runoff from the site enter a sewer system classified as a combined sewer?
No

1.b. Is this a remediation project being done under a Department approved work plan (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.) with a SWPPP which meets the substantive requirements of GP-0-25-001?
No

1.c. Is the construction activity related to a stormwater discharge that does not require a permit as described in 40 CFR 122.3(e), e.g. non-point source agriculture or silviculture activities?
No

Other SPDES Permits

2. Will the discharge from the construction activity meet all conditions listed in Part I.A.2 of GP-0-25-001?
Yes

Threatened and Endangered Species

3. Will the construction activity potentially adversely affect a species that is endangered or threatened per Part I.A.3.?
No

State Historic Preservation Act (SHPA)

4. Is the construction activity designated by the Commissioner of the Office of Parks, Recreation and Historic Preservation (OPRHP), pursuant to 9 NYCRR §§428.12 or 428.13 as exempt from the SHPA review (see Attachment 2 of the Letter of Resolution between NYSDEC and OPRHP, dated January 9, 2015)?
No

4.a. Will the construction activity:

a) occur within an archeologically sensitive area indicated on the sensitivity map, or

b) have the potential to affect a property that is listed or determined to be eligible for listing on the National or State Registers of Historic Places, or

c) include a new permanent building on the construction site within the following distances from a building, structure, or object that is more than 50 years old and OPRHP, a Historic Preservation Commission of a Certified Local Government, or a qualified preservation professional has determined is a historically/archeologically significant building, structure, or object:

- 1-5 acres of disturbance—20 feet
- 5-20 acres of disturbance—50 feet
- 20+ acres of disturbance—100 feet?

No

4.b. Is there documentation at the construction site demonstrating:

a) that the construction activity is not within an archeologically sensitive area indicated on the sensitivity map, and that the construction activity is not immediately adjacent to a property listed or determined to be eligible for listing on the National or State Registers of Historic Places, and

b) that there is no new permanent building to be built on the construction site within the following distances from a building, structure, or object that is more than 50 years old, or if there is such a new permanent building on the construction site within those parameters that OPRHP, a Historic Preservation Commission of a Certified Local Government, or a qualified preservation professional has determined that the building, structure, or object more than 50 years old is not historically/archeologically significant:

- 1-5 acres of disturbance – 20 feet
- 5-20 acres of disturbance – 50 feet
- 20+ acres of disturbance – 100 feet?

Yes

State Environmental Quality Review (SEQR)

5. Is the construction activity subject to SEQR (Part I.A.5.), or the equivalent environmental review from another NYS or federal agency (Part I.A.6.)?
Yes

5.a. Has the owner/operator obtained documentation that the project review pursuant to SEQR, or the equivalent, has been satisfied per Part I.A.5. or I.A.6. of GP-0-25-001?
Yes

Uniform Procedures Act (UPA) Permits

6. Has the owner/operator obtained all necessary UPA permits from NYSDEC, or the equivalent from another NYS or federal agency per Part I.A.7.a. of GP-0-25-001? Select "Yes" if no UPA permits, or the equivalent, are required for this construction activity.
Yes

Steep Slope

7. Is the construction activity within the watershed of surface waters of the State classified as AA or AA-S identified utilizing the Stormwater Interactive Map on NYSDEC's website?
No

Owner/Operator Information

8. Owner/Operator Name
JERRY SMITH LLC

9. Owner/Operator Contact Person Information

First and Last Name	Phone	E-mail
MICHAEL DEANGELO	6072375254	MDEANGELO@NEXAMP.COM

10. Owner/Operator Mailing Address

101 SUMMER STREET
FLOOR 2
BOSTON, MA 02110
USA

11. Is the billing contact different from the Owner/Operator Contact?
No

12. What type of organization is the owner/operator?
Corporation

12.b. Is the owner/operator registered with the Department of State to do business in New York State?
Yes

12.b.i. Department of State ID #
4613642

The Department of State ID can be found using the following link:
Department of State | Division of Corporations

Site Information

13. Project/Site Name
JERRY SMITH ENERGY STORAGE

14. Site Address

JERRY SMITH ROAD
LANSING, NY 14882
Tompkins

DEC Region
7

15. Site Latitude & Longitude
42.593137729077924,-76.56453145089068

Project Details

16. This eNOI submission is for:
A construction activity not part of a common plan of development or sale in accordance with Part I.D.1.a.

17. Does the project type fall under Table 1 or Table 2 of Appendix B of GP-0-25-001? If any portion of the construction activity falls under Table 2, regardless of the size of the disturbance, select "Table 2".
Table 2

18. Consistent with Part III.B.1.c.i. of GP-0-25-001, provide a concise overview of the project. Describe existing and proposed conditions, and include any other relevant information.
NEXAMP IS PROPOSING A BATTERY ENERGY STORAGE PROJECT IN THE TOWN OF LANSING, NY. THE PROJECT WIL INVOLVE THE CREATION OF 0.64 ACRES OF IMPERVIOUS SURFACES AS WELL AS AN ENERGY STORAGE SYSTEM. DISTRUBANCE IS PROPOSED TO BE APPROXIMATELY 1.76 ACRES.

Enter the total project site acreage, the acreage to be disturbed, and the future impervious area (acreage) within the disturbed area, rounded to the nearest tenth of an acre.

19. Total Site Area (acres)
56.8

20. Total Area to be Disturbed (acres)
1.8

21. Existing Impervious Area to be Disturbed (acres)
0.0

22. Future Impervious Area Within Disturbed Area (acres)
0.6

Nature of the project:
New Construction

23. Do you plan to disturb more than 5 acres of soil at any one time?
No

---

24. Indicate the percentage (%) of each Hydrologic Soil Group(HSG) at the site.

A (%)
0

B (%)
80

C (%)
0

D (%)
20

25. Enter the planned start and end dates of the disturbance activities.

Start Date
10/01/2026

End Date
10/01/2027

26. Identify the nearest surface waterbody(ies) to which construction site runoff will discharge.
Salmon Creek and minor tribs - 0301-0025

27. Type of waterbody identified in question 26?
Stream/Creek Off Site

28. Has the surface waterbody in question 26 been identified as a 303(d) segment in Appendix D of GP-0-25-001?
No

29. Is this project located in one of the Watersheds identified in Appendix C of GP-0-25-001?
No

30. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area?
No

31. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)?
Yes

31.a. What is the name of the municipality/entity that owns the separate storm sewer system? If the separate sewer system is owned by an MS4 Operator, enter the MS4 Operator name.
LANSING

32. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law?
No

33. Is this property owned by a state authority, state agency, federal government or local government?
No

Required SWPPP Components

General SWPPP Requirements

34. Has a SWPPP been developed in conformance with the requirements in Part III. of GP-0-25-001?
Yes

35. Does the SWPPP demonstrate consideration of the future physical risks due to climate change pursuant to the CRRA, 6 NYCRR Part 490, and associated guidance per Part III.A.2. of GP-0-25-001?
Yes

36. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)?
Yes

37. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the NYS Stormwater Management Design Manual?
Yes

37.a. Which version of the NYS Stormwater Management Design Manual was used to develop the SWPPP?
2024

SWPPP Preparer

39. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:
Professional Engineer (P.E.)

40. Name of the person who prepared the SWPPP
TRAVIS MITCHELL

41. SWPPP Preparer Organization Name
ENVIRONMENTAL DESIGN PARTNERSHIP

42. SWPPP Preparer Contact Information

First and Last Name	Phone	E-mail
BENJAMIN WILLSON	5183717621	BWILLSON@EDPLLP.COM

43. SWPPP Preparer Address

900 Route 146

Clifton Park, NY 12065

Download SWPPP Preparer Certification Form

Please take the following steps to prepare and upload your preparer certification form:

1) Click on the link below to download a blank certification form
2) The certified SWPPP preparer should sign this form
3) Upload the completed form

Download SWPPP Preparer Certification Form

44. Please upload the SWPPP Preparer Certification

NONE PROVIDED

Comment

NONE PROVIDED

44.a. Has the SWPPP Preparer Certification Form been signed by the SWPPP preparer in accordance with Part VII.J of GP-0-25-001?

Yes

Erosion & Sediment Control Criteria

45. Has a construction sequence schedule for the planned management practices been prepared?

Yes

Post-Construction Criteria

Site Planning and Soil Restoration

46. Identify all site planning practices that were used to prepare the final site plan/layout for the project.

Locating Development in Less Sensitive Areas

47. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6 ("Soil Restoration") of the Design Manual.

All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).

Water Quality Criteria

49. Water Quality Sizing Criteria

Total WQv required (acre-feet)	Total RRv provided (acre-feet)	Minimum RRv (acre-feet)	Total WQv provided (acre-feet)	Sum of RRv and WQv provided
0.050	0.050			0.05

Water Quantity Criteria

51. Does one of the waiver conditions apply to the channel protection for this construction activity?
Yes

51.a. The need to provide channel protection has been waived because:
Reduction of the entire CPv is achieved by application of runoff reduction techniques or infiltration systems.

52. Does one of the waiver conditions apply to the Qp and Qf for this construction activity?
No

Overbank Flood Control Criteria (Qp)

52.b.i. Pre-Development (CFS)
5.57

52.b.ii. Post-Development (CFS)
5.57

Total Extreme Flood Control Criteria (Qf)

52.b.iii. Pre-Development (CFS)
23.91

52.b.iv. Post-Development (CFS)
23.30

Operation and Maintenance

53. Has a long-term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed?
Yes

53.a. Identify the entity responsible for the long-term Operation and Maintenance.
JERRY SMITH LLC

Post-Construction SMP Identification

54. Post-Construction RR Techniques and Standard SMPs

RR Techniques and SMPs	Contributing Impervious Area (acres)	Total Contributing Area (acres)
Sheet Flow to Riparian Buffers or Filter Strips (RR-2)	0.24	0.24
Infiltration Basin (I-2)	0.37	

55. Alternative SMPs

Type of Alternative SMP	Manufacturer of the Alternative SMP	Name of the Alternative SMP	Contributing Impervious Area (acres)
NONE PROVIDED	*NONE PROVIDED*	*NONE PROVIDED*	*NONE PROVIDED*

Other Permits

56. Identify other permits, existing and new, that are required for this project/facility.
None

57. Is this NOI for a change in owner/operator per Part I.G.?
No

MS4 SWPPP Acceptance

59. Will the construction activities be within the municipal boundary(ies) of Traditional Land Use Control MS4 Operator(s) and discharge to the MS4(s)?
Yes

59.a. Which form is required per Part I.D.2.b.ii.?
MS4 SWPPP Acceptance Form

MS4 SWPPP Acceptance Form Download

Download the MS4 SWPPP Acceptance Form from the link below.
MS4 SWPPP Acceptance Form

60. MS4 Acceptance or No Jurisdiction Form Upload

NONE PROVIDED

Comment

NONE PROVIDED

60.a. Has the form been signed by the principal executive officer or ranking elected official—or duly authorized representative of that person—in accordance with Part VII.J. and submitted along with this NOI?
Yes

Owner/Operator Certification

Owner/Operator Certification Form Download

Download the Owner/Operator Certification Form by clicking the link below.
Owner/Operator Certification Form

61. Upload Owner/Operator Certification Form

NONE PROVIDED

Comment

NONE PROVIDED

61.a. Has the Owner/Operator Certification Form from Appendix J been signed by the owner/operator, or a representative of the owner/operator in accordance with Part VII.J of GP-0-25-001 and uploaded to the eNOI?

Yes

Additional Project Information

62. Enter any additional pertinent project information in the text box below.

NONE PROVIDED

NEW YORK STATE | Department of Environmental Conservation

SWPPP Preparer Certification Form

SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP)

(In accordance with CGP Part I.D.2.b., the completed form must be attached to the eNOI and submitted to NYSDEC electronically.)

Project/Site Name:

eNOI Submission ID:

Owner/Operator Name:

Certification Statement – SWPPP Preparer

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) has been prepared in accordance with the requirements of GP-0-25-001. I certify under penalty of law that the SWPPP and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

SWPPP Preparer First Name | MI | SWPPP Preparer Last Name

Signature | Date

MS4 SWPPP Acceptance Form

for construction activities seeking authorization under the

SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP)

(In accordance with CGP Part I.D.2.b., the completed form must be attached to the eNOI and submitted to NYSDEC electronically.)

I. Project Owner/Operator Information
1. Owner/Operator Name:
2. Contact Person:
3. Street Address:
4. City/State/Zip:
II. Project Site Information
5. Project/Site Name:
6. Street Address:
7. City/State/Zip:
III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance Information
8. SWPPP Reviewed by:
9. Title/Position:
10. Date Final SWPPP Reviewed and Accepted:
IV. Regulated MS4 Information
11. Name of MS4 Operator:
12. MS4 SPDES Permit Identification Number: NYR20A
13. Street Address:
14. City/State/Zip:
15. Telephone Number:

MS4 SWPPP Acceptance Form - continued

V. Certification Statement - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative

I hereby certify that the final Stormwater Pollution Prevention Plan (SWPPP) for the construction project identified in section II. of this form has been reviewed and meets the substantive requirements in the SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP). Note: The MS4 Operator, through the acceptance of the SWPPP, assumes no responsibility for the accuracy and adequacy of the design included in the SWPPP. In addition, review and acceptance of the SWPPP by the MS4 Operator does not relieve the owner/operator or their SWPPP preparer of responsibility or liability for errors or omissions in the plan.

Printed Name[1]:

Title/Position:

Signature:

Date:

VI. Additional Information

[1] Printed name of the principal executive officer or ranking elected official for the MS4 Operator or their duly authorized representative in accordance with CGP Part VII.J.2.

(NYSDEC - MS4 SWPPP Acceptance Form - January 2025)

NEW YORK STATE | Department of Environmental Conservation

Owner/Operator Certification Form

SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP)

(In accordance with CGP Part I.D.2.b. or Part I.F.2. and 3., the completed form must be attached to the eNOI or the Request to Continue Coverage, and submitted to NYSDEC electronically.

Project/Site Name: _____

eNOI Submission ID: _____

eNOI Submitted by: ☐ **Owner/Operator** ☐ **SWPPP Preparer** ☐ **Other**

Certification Statement - Owner/Operator

I hereby certify that I read, and will comply with, the GP-0-25-001 permit requirements. I understand that authorization to discharge under the permit for the project/site named above is dependent on receipt of a Letter of Authorization (LOA) or a Letter of Continued Coverage (LOCC) from the New York State Department of Environmental Conservation (NYSDEC) in accordance with CGP Part I.D.3.b. or Part I.F.4. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Owner/Operator First Name MI Owner/Operator Last Name

_____

Signature

_____

Date

SECTION 4

Federal, State or Local NPDES General Permit

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL
CONSERVATION (NYSDEC)

SPDES GENERAL PERMIT
FOR STORMWATER DISCHARGES

From

CONSTRUCTION ACTIVITY

Permit No. GP-0-25-001

Construction General Permit (CGP)

Issued Pursuant to Article 17, Titles 7, 8 and Article 70

of the Environmental Conservation Law

Effective Date: January 29, 2025 Expiration Date: January 28, 2030

Scott E. Sheeley

Chief Permit Administrator

Scott E. Sheeley JAN. 29, 2025

Authorized Signature Date

Address: NYSDEC
Division of Environmental Permits
625 Broadway, 4th Floor
Albany, N.Y. 12233-1750

PREFACE

Pursuant to Section 402 of the Clean Water Act (CWA), and 40 CFR 122.26(b)(14)(x), (15)(i), and (15)(ii), *stormwater discharges* from certain *construction activities* are unlawful unless they are authorized by a National Pollutant Discharge Elimination System (NPDES) permit or by a state permit program. New York State administers the approved State Pollutant Discharge Elimination System (SPDES) program with permits issued in accordance with the New York State Environmental Conservation Law (ECL) Article 17, Titles 7 and 8, and Article 70, as well as 6 NYCRR Parts 621 and 750.

C*onstruction activities* constitute construction of a *point source* and, therefore, pursuant to ECL sections 17-0505, 17-0701, and 17-0803, the *owner or operator* must have coverage under a SPDES permit prior to *commencement of construction activities*. The *owner or operator* cannot wait until there is an actual *discharge* from the *construction site* to obtain permit coverage.

***Note: The italicized words/phrases within this permit are defined in Appendix A.**

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
SPDES CONSTRUCTION GENERAL PERMIT (CGP) GP-0-25-001
FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES

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Part I. How to Obtain Coverage and General Requirements

To be covered under this permit, the *owner or operator* must meet all eligibility requirements in Part I.A. and follow the requirements for obtaining permit coverage in Part I.D., F., or G.

A. Eligibility Requirements

For a *common plan of development or sale*, the *phase(s)* that meet the eligibility requirements in Part I.A. may obtain coverage under this permit even if other *phase(s)* of the same *common plan of development or sale* do not meet the eligibility requirements and require an individual SPDES permit.

1. The *owner's or operator's construction activities* involve soil disturbances of:

    a. one or more acres; or

    b. less than one acre which are part of a *common plan of development or sale* that will ultimately disturb one or more acres; or

    c. less than one acre where NYSDEC has determined that a SPDES permit is required for *stormwater discharges* based on the potential for contribution to a violation of a *water quality standard* or for significant contribution of pollutants to *surface waters of the State*.

        i. 5,000 square feet or more, but less than one acre, and are in the New York City Watershed located east of the Hudson River, Appendix C Figure 1; or

        ii. 20,000 square feet or more, but less than one acre, within the municipal boundaries of the City of New York (NYC); or

        iii. less than 20,000 square feet which are part of a *common plan of development or sale* that will ultimately disturb 20,000 square feet or more, but less than one acre, within the municipal boundaries of NYC; or

        iv. that creates 5,000 square feet or more of *impervious area* within the municipal boundaries of NYC.

2. *Discharges* from the *owner's or operator's construction activities* are/were not:

    a. already covered by a different SPDES permit; or

    b. covered under a different SPDES permit that was denied, terminated, or revoked; or

    c. identified in an expired individual SPDES permit that was not renewed; or

    d. required to obtain an individual SPDES permit or another general SPDES permit in accordance with Part VII.K.

3. If *construction activities* may adversely affect a species that is endangered or threatened, the *owner or operator* must obtain a:

    a. permit issued pursuant to 6 NYCRR Part 182 for the project; or

    b. letter issued by NYSDEC of non-jurisdiction pursuant to 6 NYCRR Part 182 for the project.

4. If *construction activities* have the potential to affect an *historic property*, the *owner or operator* must obtain one of the following:

    a. documentation that the *construction activity* is not within an archeological buffer area indicated on the sensitivity map, and that the *construction activity* is not located on or immediately adjacent to a property listed or determined to be eligible for listing on the National or State Registers of Historic Places, and that there is no new permanent building on the *construction site* within the following distances from a building, structure, or object that is more than 50 years old, or if there is such a new permanent building on the *construction site* within those parameters that NYS Office of Parks, Recreation and Historic Preservation (OPRHP), a Historic Preservation Commission of a Certified Local Government, or a qualified preservation professional has determined that the building, structure, or object more than 50 years old is not historically/archeologically significant:

        i. 1-5 acres of disturbance - 20 feet; or

        ii. 5-20 acres of disturbance - 50 feet; or

iii. 20+ acres of disturbance - 100 feet.

b. NYSDEC consultation form sent to OPRHP,[1] and copied to NYSDEC's Agency Historic Preservation Officer (APO), and

i. the State Environmental Quality Review Act (SEQR) Environmental Assessment Form (EAF) with a negative declaration or the Findings Statement, with documentation of OPRHP's agreement with the resolution; or

ii. documentation from OPRHP that the *construction activity* will result in No Impact; or

iii. documentation from OPRHP providing a determination of No Adverse Impact; or

iv. a Letter of Resolution signed by the *owner or operator*, OPRHP and the DEC APO which allows for this *construction activity* to be eligible for coverage under the general permit in terms of the State Historic Preservation Act (SHPA).

c. documentation of satisfactory compliance with Section 106 of the National Historic Preservation Act for a coterminous project area:

i. No Affect; or

ii. No Adverse Affect; or

iii. Executed Memorandum of Agreement.

d. documentation that SHPA Section 14.09 has been completed by NYSDEC or another state agency.

5. If *construction activities* are subject to SEQR, the *owner or operator* must obtain documentation that SEQR has been satisfied.

6. If *construction activities* are not subject to SEQR, but subject to the equivalent environmental review from another New York State or federal agency, the

[1] The consultation form can be submitted, along with other project information, through OPRHP's Cultural Resource Information System (CRIS) portal. If submitted through CRIS, paper copies of the consultation form need not be mailed.

owner or operator must obtain documentation that project review, pursuant to a process equivalent to SEQR from another New York State or federal agency, has been satisfied.

7. If *construction activities* require Uniform Procedures Act (UPA) Permits (see 6 NYCRR Part 621) from NYSDEC, or the equivalent from another New York State or federal agency, the *owner or operator* must:

    a. obtain all such necessary permits; or

    b. receive notification from NYSDEC pursuant to 6 NYCRR 621.3(a)(4) excepting Part I.A.7.a.

8. *Construction activities* are not eligible if they meet the following criteria in Part I.A.8.a. or b.:

    a. For linear transportation and linear utility project types, the *construction activities*:

        i. are within the watershed of *surface waters of the State* classified as AA or AA-S identified utilizing the Stormwater Interactive Map on NYSDEC's website; and

        ii. are undertaken on land with no existing *impervious cover*; and

        iii. disturb two or more acres of *steep slope*.

    b. For all other project types, the *construction activities*:

        i. are within the watershed of *surface waters of the State* classified as AA or AA-S identified utilizing the Stormwater Interactive Map on NYSDEC's website; and

        ii. are undertaken on land with no existing *impervious cover*; and

        iii. disturb one or more acres of *steep slope*.

B. Types of *Discharges* Authorized

1. The following *stormwater discharges* are authorized under this permit:

   a. *Stormwater discharges*, including *stormwater* runoff, snowmelt runoff, and surface runoff and drainage, associated with *construction activity*, are authorized under this permit provided that appropriate *stormwater* controls are designed, installed, and maintained in accordance with Part II. and Part III.

   b. *Stormwater discharges* from construction support activities at the *construction site* (including concrete or asphalt batch plants, equipment staging yards, material storage areas, excavated material disposal areas, and borrow areas) if the following requirements are met:

      i. The support activity is directly related to the *construction site* required to have permit coverage for *stormwater discharges*; and

      ii. The support activity is not a commercial operation, nor does it serve multiple unrelated *construction sites*; and

      iii. The support activity does not continue to operate beyond the completion of the *construction activity* at the site it supports; and

      iv. *Stormwater* controls are implemented in accordance with Part II. and Part III. for *discharges* from the support activity areas.

2. The following non-*stormwater discharges* associated with *construction activity* are authorized under this permit:

   a. Non-*stormwater discharges* listed in 6 NYCRR 750-1.2(a)(29)(vi), with the following exception: "*Discharges* from firefighting activities are authorized only when the firefighting activities are emergencies/unplanned"; and

   b. Non-*stormwater discharges* of waters to which other components have not been added that are used in accordance with the *SWPPP* to control dust or irrigate vegetation in stabilized areas; and

   c. Uncontaminated *discharges* from *dewatering* operations

3. Authorized *discharges* of *stormwater* or authorized *discharges* of non-*stormwater*, commingled with a *discharge* authorized by a different SPDES permit and/or a *discharge* that does not require SPDES permit authorization, are also authorized under this permit.

C. Prohibited *Discharges*

1. Non-*stormwater discharges* prohibited under this permit include but are not limited to:

    a. Wastewater from washout of concrete; and

    b. Wastewater from washout and cleanout of stucco, paint, form release oils, curing compounds, and other construction materials; and

    c. Fuels, oils, or other *pollutants* used in vehicle and equipment operation and maintenance; and

    d. Soaps, solvents, or detergents used in vehicle and equipment washing or external building washdown; and

    e. Toxic or hazardous substances from a spill or other release.

D. Electronic Notice of Intent (eNOI) Submittal

To receive authorization in accordance with Part I.D.3.b., the *owner or operator* must submit a complete eNOI in accordance with the requirements in Part I.D. The eNOI contains questions to: ensure eligibility requirements in Part I.A. have been met; obtain *owner or operator* contact information; obtain the total area to be disturbed and the existing/future *impervious areas* (rounded to the nearest tenth of an acre); confirm *Traditional Land Use Control MS4 Operator* jurisdiction over construction projects; satisfy the EPA eRule requirements; confirm that the Water Quality-Based Effluent Limitations in Part II. have been met; demonstrate consideration of the future risks due to climate change in accordance with Part III.A.2.; and confirm that the other *Stormwater Pollution Prevention Plan (SWPPP)* requirements in Part III. have been met.

1. An eNOI may be submitted for:

    a. *construction activities* that are not part of a *common plan of development or sale*; or

b. an entire *common plan of development or sale*; or

c. separate *phase(s)* of a *common plan of development or sale* if the following requirements are met:

   i. the *common plan of development or sale* meets the eligibility requirements of Part I.A.5. or 6.; and

   ii. the *phase(s)* meet(s) all other eligibility requirements of Part I.A.; and

   iii. Part III.C. Required *SWPPP* Components by Project Type is based on the *common plan of development or sale*, not the *phase(s)*; or

d. *tree clearing* that is associated with, or will support, a *renewable energy* generation, transmission, or storage project that meets Part I.A.5. and 6., if the *tree clearing*:

   i. meets all other eligibility requirements of Part I.A.; and

   ii. will occur in NYSDEC's Regions 3-9; and

   iii. is not within ¼ mile of a bat hibernaculum protected pursuant to 6 NYCRR Part 182; and

   iv. will occur between November 1st and March 31st.

2. As prerequisites for submitting an eNOI, the *owner or operator* must:

   a. prepare a *SWPPP* for Part I.D.1.a., b., c., or d. in accordance with Part III.; and

   b. based on the following criteria, upload the following signature forms signed in accordance with Part VII.J. to the eNOI prior to submission:

      i. for all eNOIs:

         1. the SWPPP Preparer Certification Form, Appendix F, signed by the *SWPPP* preparer; and

2. the Owner/Operator Certification Form, Appendix J, signed by the *owner or operator*; and

ii. if an eNOI includes *construction activities* within the municipal boundary(ies) of *Traditional Land Use Control MS4 Operator(s)* that will *discharge* to the *MS4(s)*:

1. determine if the *Traditional Land Use Control MS4 Operator(s)* have review authority. A *Traditional Land Use Control MS4 Operator* does not have review authority where:

a. the *owner or operator* of the *construction activities* in Part I.D.2.b.ii. is the same entity as the *Traditional Land Use Control MS4 Operator* identified in Part I.D.2.b.ii.; or

b. there is a statute exempting the *owner or operator* from zoning review by the *Traditional Land Use Control MS4 Operator*; or

c. there is no such statute per Part I.D.2.b.ii.1.b., the *Traditional Land Use Control MS4 Operator* concludes, after public hearing, that it does not have zoning review authority in accordance with Legal Memorandum LU14 Updated January 2020 “Governmental Immunity from Zoning and Other Legislation”; and

2. if the *Traditional Land Use Control MS4 Operator(s)* have review authority, submit the *SWPPP* to the *Traditional Land Use Control MS4 Operator(s)* for review and have:

a. if outside the municipal boundaries of NYC: the MS4 SWPPP Acceptance Form, Appendix G, signed by the principal executive officer or ranking elected official from the *Traditional Land Use Control MS4 Operator,* or by a duly authorized representative of that person in accordance with Part VII.J.2.; or

b. if within the municipal boundaries of NYC: The City of New York Department of Environmental Protection (NYCDEP) SWPPP Acceptance/Approval Form, Appendix H, signed by the principal executive officer or ranking elected official from the Traditional Land Use Control MS4 Operator, or by a duly authorized representative of that person in accordance with Part VII.J.2.; and

3. if the *Traditional Land Use Control MS4 Operator* does not have review authority, have the MS4 No Jurisdiction Form, Appendix I, signed by the principal executive officer or ranking elected official from the *Traditional Land Use Control MS4 Operator,* or by a duly authorized representative of that person in accordance with Part VII.J.2.

3. Submitting an eNOI:

a. The *owner or operator* must submit a complete Notice of Intent electronically using a NYSDEC approved form.[2]

b. The *owner or operator* is authorized to *commence construction activity* as of the authorization date indicated in the Letter of Authorization (LOA), which is sent by NYSDEC after a complete eNOI is submitted.

i. If an eNOI is received for a *SWPPP* that deviates from one of the technical standards but demonstrates *equivalence* in accordance with Part III.B.1.a.ii. or Part III.B.2.b.ii., if the *SWPPP* includes *construction activities* that are not within the municipal boundary(ies) of *Traditional Land Use Control MS4 Operator(s)*, and/or if the *SWPPP* includes *construction activities* within the municipal boundary(ies) of *Traditional Land Use Control MS4 Operator(s)* that do not have review authority in accordance with Part I.D.2.b.ii.1., the authorization date indicated in the LOA will be 60 business days after the eNOI submission date.

[2] Unless NYSDEC grants a waiver in accordance with 40 CFR 127.15(c) or (d). All waiver requests must be submitted to Stormwater_info@dec.ny.gov or NYSDEC, Bureau of Water Permits, 625 Broadway, 4th Floor, Albany, New York 12233-3505.

c. If *Traditional Land Use Control MS4 Operator(s)* have review authority in accordance with Part I.D.2.b.ii.2., the *owner or operator* must, within five business days of receipt of the LOA, send an electronic copy of the LOA to the *Traditional Land Use Control MS4 Operator(s)* with review authority.

E. General Requirements for *Owners or Operators* with Permit Coverage

1. As of the date the LOA is received, the *owner or operator* must make the eNOI, *SWPPP*, and LOA available for review and copying in accordance with the requirements in Part VII.H. When applicable, as of the date an updated LOA is received, the *owner or operator* must make the updated LOA available for review and copying in accordance with the requirements in Part VII.H.

2. The *owner or operator* must ensure compliance with all requirements of this permit and that the provisions of the *SWPPP*, including any changes made to the *SWPPP* in accordance with Part III.A.5., are properly implemented and maintained from the *commencement of construction activity* until:

   a. all areas of disturbance have achieved *final stabilization;* and

   b. the owner's or operator's coverage under this permit is terminated in accordance with Part V.A.5.a.

3. As of the date of the *commencement of construction activities* until Part I.E.2.a. and b. have been met, the *owner or operator* must maintain at the *construction site*, a copy of:

   a. all documentation necessary to demonstrate eligibility with this permit; and

   b. this permit; and

   c. the *SWPPP*; and

   d. the signed SWPPP Preparer Certification Form; and

   e. the signed MS4 SWPPP Acceptance Form or signed NYCDEP SWPPP Acceptance/Approval Form or signed MS4 No Jurisdiction Form (when applicable); and

   f. the signed Owner/Operator Certification Form; and

g. the eNOI; and

h. the LOA; and

i. the LOA transmittal to the Traditional Land Use Control MS4 Operator in accordance with Part I.D.3.c. (when applicable).

4. The *owner or operator* must maintain at the *construction site*, until Part I.E.2.a. and b. have been met, as of the date the documents become final or are received, a copy of the:

   a. responsible contractor's or subcontractor's certification statement(s) in accordance with Part III.A.7.; and

   b. inspection reports in accordance with Part IV.C.4. and 6.; and

   c. Request to Disturb Greater Than Five Acres and the Authorization Letter to Disturb Greater Than Five Acres in accordance with Part I.E.6. (when applicable); and

   d. Request to Continue Coverage and the Letter of Continued Coverage (LOCC) in accordance with Part I.F.2. and 4. (when applicable); and

   e. The updated LOA(s) in accordance with Part I.E.9. (when applicable).

5. The *owner or operator* must maintain the documents in Part I.E.3. and 4. in a secure location, such as a job trailer, on-site construction office, or mailbox with lock. The secure location must be accessible during normal business hours to an individual performing a compliance inspection. The documents must be paper documents unless electronic documents are accessible to the inspector during an inspection to the same extent as a paper copy stored at the site would be. If electronic documents are kept on site, the *owner or operator* must maintain functional equipment on site available to an inspector during normal hours of operation such that an inspector may view the electronic documents in a format that can be read in a similar manner as a paper record and in a legally dependable format with no less evidentiary value than their paper equivalent.

6. The *owner or operator* must meet the following requirements prior to disturbing greater than five acres of soil at any one time:

   a. The *owner or operator* must submit a written Request to Disturb Greater Than Five Acres to:

i. NYSDEC's Regional Office Division of Water staff based on the project location, Appendix E, if a *Traditional Land Use Control MS4 Operator* does not have review authority in accordance with Part I.D.2.b.ii.1.; or

ii. the *Traditional Land Use Control MS4 Operator*, if a *Traditional Land Use Control MS4 Operator* has review authority in accordance with Part I.D.2.b.ii.1.; or

iii. NYSDEC's Regional Office Division of Water staff based on the project location, Appendix E, and each involved *Traditional Land Use Control MS4 Operator*, if the project spans multiple municipalities with more than one *Traditional Land Use Control MS4 Operator* involved with review authority in accordance with Part I.D.2.b.ii.1.

b. The written Request to Disturb Greater Than Five Acres must include:

i. The SPDES permit identification number (Permit ID); and

ii. Full technical justification demonstrating why alternative methods of construction that would result in five acres of soil disturbance or less at any one time are not feasible; and

iii. The phasing plan for the project and sequencing plans for all *phases* from the *SWPPP* in accordance with Part III.B.1.d.; and

iv. Plans with locations and details of erosion and sediment control practices such that the heightened concern for erosion when disturbing greater than five acres at one time has been addressed; and

v. Acknowledgment that "the *owner or operator* will comply with the requirements in Part IV.C.2.b."; and

vi. Acknowledgment that "the *owner or operator* will comply with the requirements in Part II.B.1.b."

c. The *owner or operator* must be in receipt of an Authorization Letter to Disturb Greater Than Five Acres, which will include when the

authorization begins and ends and indicate a maximum area (acres) of soil disturbance allowed at any one time, from:

i. NYSDEC, if Part I.E.6.a.i. or iii. apply; or

ii. the *Traditional Land Use Control MS4 Operator*, if Part I.E.6.a.ii. applies.

7. Upon a finding of significant non-compliance with the practices described in the *SWPPP* or violation of this permit, NYSDEC may order an immediate stop to all *construction activity* at the site until the non-compliance is remedied. The stop work order must be in writing, describe the non-compliance in detail, and be sent to the *owner or operator*.

8. If any human remains or archaeological remains are encountered during excavation, the *owner or operator* must immediately cease, or cause to cease, all *construction activity* in the area of the remains and notify the appropriate Regional Water Engineer (RWE).[3] *Construction activity* shall not resume until written permission to do so has been received from the RWE.

9. To be authorized to implement modifications to the information previously submitted in the eNOI, the *owner or operator* must:

   a. notify NYSDEC via email at Stormwater_info@dec.ny.gov requesting access to update the eNOI; and

   b. update the eNOI to reflect the modifications and resubmit the eNOI in accordance with Part I.D.; and

   c. receive an updated LOA.

10. The eNOI, *SWPPP*, LOA, updated LOAs (when applicable), and inspection reports required by this permit are public documents that the *owner or operator* must make available for review and copying by any person within five business days of the *owner or operator* receiving a written request by any such person to review these documents. Copying of documents will be done at the requester's expense.

[3] The Regional Water Manager where a DEC Region does not have a RWE.

F. Permit Coverage for *Discharges* Authorized Under GP-0-20-001

When applicable:

1. Upon the effective date of this permit, an *owner or operator* of *a construction activity*, with coverage under GP-0-20-001, will have interim coverage under GP-0-25-001 for 45 calendar days starting on the effective date of GP-0-25-001 so long as the *owner or operator* maintains compliance with all applicable requirements of this permit.

2. Within 30 calendar days of the effective date of this permit, the *owner or operator*, with coverage under GP-0-20-001, must submit a complete Request to Continue Coverage electronically using a NYSDEC approved form,[4] which contains the information identified in Part I.F.3. below, if:

   a. the *owner or operator* continues to implement the SMP component in conformance with the technical standards in place at the time of initial project authorization; and

   b. the *owner or operator* will comply with all non-design requirements of GP-0-25-001.

3. The Request to Continue Coverage form contains questions to: ensure eligibility requirements in Part I.A. have been met; verify *owner or operator* contact information; verify the permit identification number; verify the original eNOI submission ID, if applicable; verify Part I.F.2.a. and b.; verify the version of the Design Manual that the technical/design components conform to; and receive an updated Owner/Operator Certification Form, Appendix I.

4. The *owner or operator* has obtained continued coverage under GP-0-25-001 as of the date indicated in the LOCC, which is sent by NYSDEC after a complete Request to Continue Coverage form is submitted.

5. If the owner or operator does not submit the Request to Continue Coverage form in accordance with Part I.F.2. and 3., coverage under this permit is automatically terminated after interim coverage expires.

[4] Unless NYSDEC grants a waiver in accordance with 40 CFR 127.15(c) or (d). All waiver requests must be submitted to Stormwater_info@dec.ny.gov or NYSDEC, Bureau of Water Permits, 625 Broadway, 4th Floor, Albany, New York 12233-3505.

G. Change of *Owner or Operator*

When applicable:

1. When property ownership changes, or when there is a change in operational control over the construction plans and specifications, the following process applies:

    a. The new *owner or operator* must meet the applicable prerequisites for submitting an eNOI in accordance with Part I.D.2.; and

    b. The new *owner or operator* must submit an eNOI in accordance with Part I.D.3.; and

    c. Permit coverage for the new *owner or operator* will be effective upon receipt of the LOA in accordance with Part I.D.3.b.; and

    d. The new *owner or operator*, upon receipt of their LOA, must provide their Permit ID to the original *owner or operator*; and

    e. If the original *owner or operator* will no longer be the *owner or operator* of the *construction activity* identified in the original *owner's or operator's* eNOI, the original *owner or operator*, upon receipt of the new *owner's or operator's* Permit ID in accordance with Part I.G.1.d., must submit to NYSDEC a completed eNOT in accordance with Part V. that includes the name and Permit ID of the new *owner or operator*; or

    f. If the original *owner or operator* maintains ownership of a portion of the *construction activity*, the original *owner or operator* must maintain their coverage under the permit by modifying their eNOI; modifications to the eNOI must include:

        i. the revised area of disturbance and/or *impervious area(s)*; and

        ii. the revised SMP information, if applicable; and

        iii. a narrative description of what has changed; and

        iv. the new *owner's or operator's* Permit ID for the portion of the project removed from the eNOI.

    Owners or operators must follow Part I.E.9. to modify the eNOI.

Part II. Water Quality-Based Effluent Limitations

A. Maintaining Water Quality

NYSDEC expects that compliance with the requirements of this permit will control *discharge*s necessary to meet applicable *water quality standards*. It shall be a violation of the *ECL* for any *discharge* to either cause or contribute to a violation of the following *water quality standards* as contained in Parts 700 through 705 of Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York:

1. There must be no increase in turbidity that will cause a substantial visible contrast to natural conditions; and

2. There must be no increase in suspended, colloidal or settleable solids that will cause deposition or impair the waters for their best usages; and

3. There must be no residue from oil and floating substances, nor visible oil film, nor globules of grease.

If there is evidence indicating that the *stormwater discharge*s authorized by this permit are causing, have the reasonable potential to cause, or are contributing to a violation of the *water quality standard,* the *owner or operator* must take appropriate corrective action in accordance with Part IV.C.5. of this permit and document in accordance with Part IV.C.4. of this permit. To address the *water quality standard* violation the *owner or operator* must include and implement appropriate controls in the *SWPPP* to correct the problem or obtain an individual SPDES permit.

If, despite compliance with the requirements of this permit, it is demonstrated that the *stormwater discharge*s authorized by this permit are causing or contributing to a violation of *water quality standards*, or if NYSDEC determines that a modification of this permit is necessary to prevent a violation of *water quality standards*, the authorized *discharge*s will no longer be eligible for coverage under this permit, and the *owner or operator* must obtain an individual SPDES permit prior to further *discharges* from the *construction site*.

B. Effluent Limitations Applicable to *Discharges* from *Construction Activities*

*Discharge*s authorized by this permit must achieve, at a minimum, the effluent limitations in Part II.B.1.a., b., c., d., and e. These limitations represent the

degree of effluent reduction attainable by the application of best practicable technology currently available.

1. Erosion and Sediment Control Requirements - The *owner or operator* must select, design, install, implement, and maintain control measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. The selection, design, installation, implementation, and maintenance of these control measures must meet the non-numeric effluent limitations in Part II.B.1.a., b., c., d., and e. and be in accordance with the New York State Standards and Specifications for Erosion and Sediment Control (BB), dated November 2016, using sound engineering judgment. Where control measures are not designed in conformance with the design criteria included in the technical standard, the *owner or operator* must include in *SWPPP* the reason(s) for the deviation, or alternative design, and provide information in the *SWPPP* demonstrating that the deviation or alternative design is *equivalent* to the technical standard.

    a. **Erosion and Sediment Controls.** At a minimum, erosion and sediment controls must be selected, designed, installed, implemented, and maintained to:

        i. *Minimize* soil erosion through application of runoff control and soil stabilization control measure to *minimize pollutant discharge*s; and

        ii. Control *stormwater discharge*s, including both peak flow rates and total *stormwater* volume, to *minimize* channel and *streambank* erosion and scour in the immediate vicinity of the *discharge* points; and

        iii. *Minimize* the amount of soil exposed during *construction activity*; and

        iv. *Minimize* the disturbance of *steep slope*; and

        v. *Minimize* sediment *discharge*s from the site; and

        vi. Provide and maintain *natural buffers* around surface waters, direct *stormwater* to vegetated areas and maximize *stormwater* infiltration to reduce *pollutant discharge*s, unless *infeasible*; and

        vii. *Minimize* soil compaction. *Minimizing* soil compaction is not required

where the intended function of a specific area of the site dictates that it be compacted; and

viii. Unless *infeasible*, preserve a sufficient amount of topsoil to complete soil restoration and establish a uniform, dense vegetative cover; and

ix. *Minimize* dust. On areas of exposed soil, *minimize* dust through the appropriate application of water or other dust suppression techniques to control the generation of *pollutants* that could be discharged from the site.

b. **Soil Stabilization**. In areas where soil disturbance activity has ceased, whether permanently or *temporarily ceased*, the application of soil stabilization measures must be initiated by the end of the next business day and completed within 14 calendar days from the date the current soil disturbance activity ceased. For *construction sites* that *directly discharge* to one of the 303(d) segments listed in Appendix D, or are located in one of the watersheds listed in Appendix C, or are authorized to disturb greater than five acres in accordance with Part I.E.5.a.viii., the application of soil stabilization measures must be initiated by the end of the next business day and completed within seven calendar days from the date the soil disturbance activity ceased.

c. **Dewatering**. *Discharge*s from *dewatering* activities, including *discharge*s from *dewatering* of trenches and excavations, must be managed by appropriate control measures.

d. **Pollution Prevention Measures**. Select, design, install, implement, and maintain effective pollution prevention measures to *minimize* the *discharge* of *pollutants* and prevent a violation of the *water quality standards*. At a minimum, such measures must be selected, designed, installed, implemented, and maintained to:

i. *Minimize* the *discharge* of *pollutants* from equipment and vehicle washing, wheel wash water, and other wash waters. Soaps, detergents and solvents cannot be used; and

ii. *Minimize* the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste, hazardous and toxic waste, and other materials present on the site to precipitation

and to *stormwater*. *Minimization* of exposure is not required in cases where the exposure to precipitation and to *stormwater* will not result in a *discharge* of *pollutants*, or where exposure of a specific material or product poses little risk of *stormwater* contamination (such as final products and materials intended for outdoor use); and

iii. Prevent the *discharge* of *pollutants* from spills and leaks and implement chemical spill and leak prevention and response procedures.

e. **Surface Outlets.** When discharging from basins and impoundments, the surface outlets must be designed, constructed, and maintained in such a manner that sediment does not leave the basin or impoundment and that erosion at or below the outlet does not occur.

C. Post-Construction Stormwater Management Practice (SMP) Requirements

1. The *owner or operator* of a *construction activity* that requires post-construction SMPs, in accordance with Part III.C., must select, design, install, implement, and maintain the SMPs to meet the *performance criteria* in the New York State Stormwater Management Design Manual, dated July 31, 2024 (DM), using sound engineering judgment. Where SMPs are not designed in conformance with the *performance criteria* in the DM, the *owner or operator* must include in the *SWPPP* the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. The *owner or operator* of a *construction activity*, that requires SMPs in accordance with Part III.C., must design the practices to meet the applicable *sizing criteria* in Part II.C.2.a., b., c., or d.

a. Sizing Criteria for *New Development*

i. Runoff Reduction Volume (RRv) and Water Quality Volume (WQv):

1. Reduce the total WQv by application of RR techniques and standard SMPs with RRv capacity. The total WQv must be calculated in accordance with the criteria in Section 4.2 of the DM; or

2. Minimum RRv and Treatment of Remaining Total WQv: *Construction activities* that cannot meet the requirements in Part II.C.2.a.i.1. due to *site limitations* must direct runoff from all newly constructed *impervious areas* to a RR technique or standard SMP with RRv capacity unless *infeasible*. The specific *site limitations* that prevent the reduction of 100% of the WQv must be documented in the *SWPPP*. For each *impervious area* that is not directed to a RR technique or standard SMP with RRv capacity, the *SWPPP* must include documentation which demonstrates that all options were considered and for each option explains why it is considered *infeasible*.

   In no case shall the runoff reduction achieved from the newly constructed *impervious areas* be less than the Minimum RRv as calculated using the criteria in Section 4.4 of the DM. The remaining portion of the total WQv that cannot be reduced must be treated by application of standard SMPs.

ii. Channel Protection Volume (CPv): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event, remaining after runoff reduction. Where a CPv control orifice is provided, the minimum orifice size must be 3 inches, with acceptable external trash rack or orifice protection. The CPv requirement does not apply when:

   1. Reduction of the entire CPv is achieved by application of runoff reduction techniques or infiltration systems; or

   2. The 1-year post-development peak *discharge* is less than or equal to 2.0 cfs without detention or velocity controls; or

   3. The site *directly discharges* into a fifth order or larger water body (stream, river, or lake), or tidal waters, where the increase in smaller flows will not impact the stream bank or channel integrity. However, the point of *discharge* must be adequately protected against scour and erosion by the increased peak *discharge*.

iii. *Overbank* Flood Control Criteria (Qp): Requires storage to attenuate the post-development 10-year, 24-hour peak *discharge* rate (Qp) to predevelopment rates. The Qp requirement does not apply when:

1. the site *directly discharges* to tidal waters or fifth order or larger streams, or

2. A downstream analysis reveals that *overbank* control is not required.

iv. Extreme Flood Control Criteria (Qf): Requires storage to attenuate the post-development 100-year, 24-hour peak *discharge* rate (Qf) to predevelopment rates. The Qf requirement does not apply when:

1. the site *directly discharges* to tidal waters or fifth order or larger streams, or

2. A downstream analysis reveals that *overbank* control is not required.

b. *Sizing Criteria* for *New Development* in Enhanced Phosphorus Removal Watersheds

i. Runoff Reduction Volume (RRv) and Water Quality Volume (WQv):

1. Reduce the WQv by application of RR techniques and standard SMPs with RRv capacity. The total WQv is the runoff volume from the 1-year, 24-hour design storm over the post-developed watershed and must be calculated in accordance with the criteria in Section 4.3 of the DM; or

2. Minimum RRv and Treatment of Remaining Total WQv: *Construction activities* that cannot meet the criteria in Part II.C.2.b.i.1. due to *site limitations* must direct runoff from all newly constructed *impervious areas* to a RR technique or standard SMP with RRv capacity unless *infeasible*. The specific *site limitations* that prevent the reduction of 100% of the WQv must be documented in the *SWPPP*. For each *impervious area* that is not directed to a RR technique or standard SMP with RRv capacity, the *SWPPP* must include

documentation which demonstrates that all options were considered and for each option explains why it is considered *infeasible.*

In no case shall the runoff reduction achieved from the newly constructed *impervious areas* be less than the Minimum RRv as calculated using the criteria in Section 4.5 of the DM. The remaining portion of the total WQv that cannot be reduced must be treated by application of standard SMPs.

ii. Channel Protection Volume (CPv): Provide 24 hour extended detention of the post-developed 1-year, 24-hour storm event, remaining after runoff reduction. Where a CPv control orifice is provided, the minimum orifice size must be 3 inches, with acceptable external trash rack or orifice protection. The CPv requirement does not apply when:

1. Reduction of the entire CPv is achieved by application of runoff reduction techniques or infiltration systems; or

2. The 1-year post-development peak *discharge* is less than or equal to 2.0 cfs; or

3. The site *directly discharges* to tidal waters, or a fifth order or larger water body (stream, river, or lake) where the increase in smaller flows will not impact the stream bank or channel integrity. However, the point of *discharge* must be adequately protected against scour and erosion by the increased peak *discharge*.

iii. *Overbank* Flood Control Criteria (Qp): Requires storage to attenuate the post-development 10-year, 24-hour peak *discharge* rate (Qp) to predevelopment rates. The Qp requirement does not apply when:

1. the site *directly discharges* to tidal waters or fifth order or larger streams; or

2. A downstream analysis reveals that *overbank* control is not required.

iv. Extreme Flood Control Criteria (Qf): Requires storage to attenuate the post-development 100-year, 24-hour peak *discharge* rate (Qf) to predevelopment rates. The Qf requirement does not apply when:

1. the site *directly discharges* to tidal waters or fifth order or larger streams; or

2. A downstream analysis reveals that *overbank* control is not required.

c. *Sizing Criteria* for *Redevelopment Activity*

i. Water Quality Volume (WQv): The WQv treatment objective for *redevelopment activity* must be addressed by one of the following options, as outlined in Section 9.2.1. *Redevelopment activities* located in an Enhanced Phosphorus Removal Watershed (see Part III.B.3. and Appendix C) must calculate the WQv in accordance with Section 4.3 of the DM. All other *redevelopment activities* must calculate the WQv in accordance with Section 4.2 of the DM.

1. Reduce the existing *impervious cover* by a minimum of 25% of the total disturbed, *impervious area*. The Soil Restoration criteria in Section 5.1.6 of the DM must be applied to all newly created pervious areas; or

2. Capture and treat 100% of the required WQv, for a minimum of 25% of the disturbed redevelopment *impervious area*, by implementation of standard SMPs or reduced by application of runoff reduction techniques; or

3. Capture and treat 100% of the required WQv, for a minimum of 75% of the disturbed redevelopment *impervious area*, by implementation of a volume-based alternative SMP, as defined in Section 9.4 of the DM; or

4. Capture and treat 100% of the required WQv, for a minimum of 75% of the disturbed redevelopment *impervious area*, by implementation of a flow-through alternative SMP sized to treat the peak rate of runoff from the WQv design storm; or

5. Application of a combination of 1 through 4 above that provide a weighted average of at least two of the above methods. Application of this method must be in accordance with the criteria in Section 9.2.1(A)(V) of the DM; or

6. If there is an existing SMP located on the site that captures and treats runoff from the *impervious area* that is being disturbed, the WQv treatment option selected must, at a minimum, provide treatment equal to the treatment that was being provided by the existing practice(s) if that treatment is greater than the treatment required by options 1 through 5 above.

ii. Channel Protection Volume (CPv) is not required if there is 0% change to hydrology that increases the *discharge* rate and volume from the project site.

iii. *Overbank* Flood Control (Qp) is not required if there is 0% change to hydrology that increases the *discharge* rate from the project site.

iv. Extreme Flood Control (Qf) is not required if there is 0% change to hydrology that increases the *discharge* rate from the project site.

d. *Sizing Criteria* for Combination of *Redevelopment Activity* and *New Development*

Construction projects, that include both *new development* and *redevelopment activity*, must use SMPs that meet the *sizing criteria* calculated as an aggregate of the *sizing criteria* in Part II.C.2.a. or b. for the *new development* portion of the project and Part II.C.2.c. for the *redevelopment activity* portion of the project.

Part III. Stormwater Pollution Prevention Plan (SWPPP)

A. General *SWPPP* Requirements

1. A *SWPPP* must be prepared and implemented by the *owner or operator* of all *construction activity* covered by this permit. All authorized *discharges* must be identified in the *SWPPP*. The *SWPPP* must document the selection, design, installation, implementation and maintenance of the control measures and

practices that will be used to meet the effluent limitations in Part II.B. and, where applicable, the SMP requirements in Part II.C.

2. The *SWPPP* must demonstrate consideration in narrative format of the future physical risks due to climate change pursuant to the Community Risk and Resiliency Act (CRRA), 6 NYCRR Part 490, and associated guidance.

    a. The owner or operator must consider:

        i. the following physical risks due to climate change:

            (i) increasing temperature; and

            (ii) increasing precipitation; and

            (iii) increasing variability in precipitation, including chance of drought; and

            (iv) increasing frequency and severity of flooding; and

            (v) rising sea level; and

            (vi) increasing storm surge; and

            (vii) shifting ecology.

        ii. for each of the following:

            (i) overall site planning; and

            (ii) location, elevation, and sizing of:

                a. control measures and practices; and

                b. conveyance system(s); and

                c. detention system(s).

3. The *SWPPP* must describe the erosion and sediment control practices and where required, SMPs that will be used and/or constructed to reduce the *pollutants* in *stormwater discharges* and to assure compliance with the

requirements of this permit. In addition, the *SWPPP* must identify potential sources of pollution which may reasonably be expected to affect the quality of *stormwater discharges*.

4. All *SWPPPs*, that require the SMP component in accordance with Part III.B.2., must be prepared by a *qualified professional*.

5. The *owner or operator* must keep the *SWPPP* current so that, at all times, it accurately documents the erosion and sediment control practices that are being used or will be used during construction, and all SMPs that will be constructed on the site. At a minimum, the *owner or operator* must modify the *SWPPP*, including construction drawings:

   a. whenever the current provisions prove to be ineffective in *minimizing pollutants* in *stormwater discharges* from the site; and

   b. whenever there is a change in design, construction, or operation at the *construction site* that has or could have an effect on the *discharge* of *pollutants*; and

   c. to address issues or deficiencies identified during an inspection by the *qualified inspector,* NYSDEC, or other regulatory authority; and

   d. to document the final construction conditions in an as-built drawing.

6. NYSDEC may notify the *owner or operator* at any time that the *SWPPP* does not meet one or more of the minimum requirements of this permit. The notification must be in writing and identify the provisions of the *SWPPP* that require modification. Within fourteen (14) calendar days of such notification, or as otherwise indicated by NYSDEC, the *owner or operator* must make the required changes to the *SWPPP* and submit written notification to NYSDEC that the changes have been made. If the *owner or operator* does not respond to NYSDEC's comments in the specified time frame, NYSDEC may suspend the *owner's or operator's* coverage under this permit or require the *owner or operator* to obtain coverage under an individual SPDES permit in accordance with Part II.D.4.

7. Prior to the *commencement of construction activity*, the *owner or operator* must identify the contractor(s) and subcontractor(s) that will be responsible for installing, constructing, repairing, replacing, inspecting, and maintaining the erosion and sediment control practices included in the *SWPPP* and the

contractor(s) and subcontractor(s) that will be responsible for constructing the SMPs included in the *SWPPP*. The *owner or operator* must have each of the contractors and subcontractors identify at least one person from their company to be *trained contractor* that will be responsible for implementation of the *SWPPP*. The *owner or operator* must ensure that at least one *trained contractor* is on site daily when soil disturbance activities are being performed.

The *owner or operator* must have each of the contractors and subcontractors identified above sign a copy of the following certification statement below before the *commencement of construction activities*:

> "I hereby certify under penalty of law that I understand and agree to comply with the requirements of the *SWPPP* and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with the requirements of the most current version of the New York State Pollutant Discharge Elimination System (SPDES) Construction General Permit (CGP) for Stormwater Discharges from Construction Activities and that it is unlawful for any person to cause or contribute to a violation of *water quality standards*. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations"

In addition to providing the certification statement above, the certification page must also identify the specific elements of the *SWPPP* that each contractor and subcontractor will be responsible for and include the name and title of the person providing the signature; the name and title of the *trained contractor* responsible for *SWPPP* implementation; the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification statement is signed. The *owner or operator* must attach the certification statement(s) to the copy of the *SWPPP* that is maintained at the *construction site*. If new or additional contractors are hired to implement measures identified in the *SWPPP* after the *commencement of construction activities*, they must also sign the certification statement and provide the information listed above prior to performing *construction activities*.

B. Required *SWPPP* Contents

1. Erosion and sediment control component - The *owner or operator* must prepare a *SWPPP* that includes erosion and sediment control practices.

    a. Erosion and sediment control practices must be designed:

        i. in conformance with the BB; or

        ii. *equivalent* to the BB if deviating from Part III.B.1.a.i.

    b. If the erosion and sediment control practices are designed in conformance with Part III.B.1.a.ii., the *SWPPP* must include a demonstration of *equivalence* to the BB.

    c. At a minimum, the erosion and sediment control component of the *SWPPP* must include the following:

        i. Background information about the scope of the project, including the location, type and size of project; and

        ii. A site map/construction drawing(s) with north arrows for the project, including a general location map. At a minimum, the site map must show the total site area; all improvements; areas of disturbance; areas that will not be disturbed; existing vegetation; on-site and adjacent off-site surface water(s); floodplain/floodway boundaries; wetlands and drainage patterns that could be affected by the *construction activity*; existing and final contours; locations of different soil types with boundaries; material, waste, borrow or equipment storage areas located on adjacent properties; and location(s) of the *stormwater discharge*(s) and receiving surface water(s); and

        iii. A description of the soil(s) present at the site, including an identification of the Hydrologic Soil Group (HSG); and

        iv. A phasing plan for the project and sequencing plans for all *phases*, both of which must address clearing and grubbing, excavation and grading, utility and infrastructure installation, *final stabilization*,

and any other *construction activity* at the site that will result in soil disturbance.

1. The phasing plan must include:

    a. a map delineating and labeling the limits of soil disturbance for all *phases* of a project; and

    b. a table identifying the order and intended schedule of when each *phase* will begin and end its sequencing plan. The table must identify the total disturbed area for each *phase* at any one time and the total disturbed area for the overall project at any one time all on one timeline showing all overlapping quantities of disturbed area at any one time; and

2. A sequencing plan for a specific *phase* must include:

    a. a table indicating the order and intended schedule of *construction activities* within a *phase*, and corresponding construction drawings with a description of the work to be performed; and

    b. all permanent and *temporary stabilization* measures; and

v. A description of the minimum erosion and sediment control practices to be installed or implemented for each *construction activity* that will result in soil disturbance. Include a schedule that identifies the timing of initial placement or implementation of each erosion and sediment control practice and the minimum time frames that each practice should remain in place or be implemented; and

vi. A site map/construction drawing(s) showing the specific location(s), size(s), and length(s) of each erosion and sediment control practice; and

vii. The dimensions, material specifications, installation details, and operation and maintenance requirements for all erosion and sediment control practices. Include the location and sizing of any

temporary sediment basins and structural practices that will be used to divert flows from exposed soils; and

viii. A maintenance inspection schedule for the contractor(s) and subcontractor(s) identified in Part III.A.7. to ensure continuous and effective operation of the erosion and sediment control practices. The maintenance inspection schedule must be in accordance with the requirements in the BB technical standard; and

ix. A description of the pollution prevention measures that will be used to control litter, construction chemicals and construction debris from becoming a *pollutant* source in the *stormwater discharges*; and

x. A description and location of any *stormwater discharges* associated with industrial activity other than construction at the site, including, but not limited to, *stormwater discharges* from asphalt plants and concrete plants located on the *construction site*; and

xi. Identification of any elements of the design that are not in conformance with the design criteria in the BB technical standard. Include the reason for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the technical standard.

2. SMP component – The *owner or operator* of *construction activity* identified in Table 2 of Appendix B must prepare a *SWPPP* that includes SMPs.

   a. SMPs must be designed in conformance with the applicable *sizing criteria* in Part II.C.2.a., c., or d.; and

   b. SMPs must be designed in conformance with the *performance criteria*:

      i. in the DM; or

      ii. *equivalent* to the DM if deviating from Part III.B.2.b.i.; or

      iii. in the New York State Stormwater Management Design Manual, dated January 2015 (2015 Design Manual), or *equivalent* to it, if the following criteria are met:

1. The eNOI is submitted in accordance with Part I.D. before January 29, 2027 for *construction activities* that are either:

    a. subject to governmental review and approval:

        i. where the *owner or operator* made any application to that governmental entity prior to the effective date of this permit; and

        ii. such application included a *SWPPP* developed using the 2015 Design Manual or *equivalent* to it; or

    b. not subject to governmental review and approval:

        i. where a fiscal allocation for the *construction activities* has been developed and approved by a governmental entity; and

        ii. the *SWPPP* was developed using the 2015 Design Manual or *equivalent* to it; and

c. If SMPs are designed in conformance with Part III.B.2.b.ii., the *SWPPP* must include the reason(s) for the deviation or alternative design and a demonstration of *equivalence* to the DM; and

d. If SMPs are designed in conformance with Part III.B.2.b.iii., the *SWPPP* must include supporting information or documentation demonstrating that Part III.B.2.b.iii.1.a. or b. apply; and

e. The SMP component of the *SWPPP* must include the following:

    i. Identification of all SMPs to be constructed as part of the project, including which option the SMP designs conform to, either Part III.B.2.b.i., ii., or iii. Include the dimensions, material specifications and installation details for each SMP; and

    ii. A site map/construction drawing(s) showing the specific location and size of each SMP; and

iii. A Stormwater Modeling and Analysis Report that includes:

(i) Map(s) showing pre-development conditions, including watershed/subcatchments boundaries, flow paths/routing, and design points; and

(ii) Map(s) showing post-development conditions, including watershed/subcatchments boundaries, flow paths/routing, design points and SMPs; and

(iii) Results of *stormwater* modeling (i.e. hydrology and hydraulic analysis) for the required storm events. Include supporting calculations (model runs), methodology, and a summary table that compares pre- and post-development runoff rates and volumes for the different storm events; and

(iv) Summary table, with supporting calculations, which demonstrates that each SMP has been designed in conformance with the *sizing criteria* included in the DM; and

(v) Identification of any *sizing criteria* that is not required based on the requirements included in Part II.C.; and

(vi) Identification of any elements of the design that are not in conformance with the *performance criteria* in the DM. Include the reason(s) for the deviation or alternative design and provide information which demonstrates that the deviation or alternative design is *equivalent* to the DM.

iv. Soil testing results and locations (test pits, borings); and

v. Infiltration test results, when required in accordance with Part III.B.2.a.; and

vi. An operations and maintenance plan that includes inspection and maintenance schedules and actions to ensure continuous and effective operation of each SMP. The plan must identify the entity

that will be responsible for the long-term operation and maintenance of each practice; and

3. Enhanced Phosphorus Removal Standards - The *owner or operator* of *construction activity* identified in Table 2 of Appendix B that is located in a watershed identified in Appendix C must prepare a *SWPPP* that includes SMPs designed in conformance with the applicable *sizing criteria* in Part II.C.2.b., c., or d. and the *performance criteria* Enhanced Phosphorus Removal Standards included in the DM. At a minimum, the SMP component of the *SWPPP* must meet the requirements of Part III.B.2.

C. Required *SWPPP* Components by Project Type

Owners or operators of *construction activities*, identified in Table 1 of Appendix B, are required to prepare a *SWPPP* that only includes erosion and sediment control practices designed in accordance with Part III.B.1. *Owners or operators* of the *construction activities*, identified in Table 2 of Appendix B, must prepare a *SWPPP* that also includes SMPs designed in accordance with Part III.B.2 or 3.

For the entire area of disturbance, including the entire *common plan of development or sale* if applicable, the owner or operator must evaluate every bullet from Appendix B Table 1 and Table 2 separately. If bullets from both Table 1 and Table 2 apply, the *SWPPP* must include erosion and sediment control practices for all *construction activities* but SMPs for only those portions of the *construction activities* that fall under Table 2 bullet(s).

Part IV. Inspection and Maintenance Requirements

A. General Construction Site Inspection and Maintenance Requirements

1. The *owner or operator* must ensure that all erosion and sediment control practices (including pollution prevention measures), and all SMPs identified in the *SWPPP*, are inspected and maintained in accordance with Part IV.B. and C.

B. Contractor Maintenance Inspection Requirements

1. The *owner or operator* of each *construction activity*, identified in Tables 1 and 2 of Appendix B, must have a *trained contractor* inspect the erosion and sediment control practices and pollution prevention measures being

implemented within the active work area daily to ensure that they are being maintained in effective operating condition at all times. If deficiencies are identified, the contractor must:

a. if the corrective action does not require engineering design:

    i. begin implementing corrective actions within one business day; and

    ii. complete the corrective actions within five business days; or

b. if the corrective action requires engineering design:

    i. begin the engineering design process within five business days; and

    ii. complete the corrective action in a reasonable time frame but no later than within 60 calendar days.

2. For *construction sites* where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *trained contractor* can stop conducting the maintenance inspections in accordance with Part IV.B.1. The *trained contractor* must begin conducting the maintenance inspections in accordance with Part IV.B.1. as soon as soil disturbance activities resume.

3. For *construction sites* where soil disturbance activities have been shut down with partial project completion, the *trained contractor* can stop conducting the maintenance inspections in accordance with Part IV.B.1. if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all SMPs required for the completed portion of the project have been constructed in conformance with the *SWPPP* and are operational.

C. *Qualified Inspector* Inspection Requirements

1. With the exception of the following *construction activities* identified in Tables 1 and 2 of Appendix B, a *qualified inspector* must conduct site inspections for all other *construction activities* identified in Tables 1 and 2 of Appendix B:

    a. the construction of a single-family residential subdivision with 25% or less *impervious cover* at total site build-out that involves a soil disturbance of one (1) or more acres of land but less than or equal to five (5) acres and is

not located in one of the watersheds listed in Appendix C and not *directly discharging* to one of the 303(d) segments listed in Appendix D; and

b. the construction of a single-family home that involves soil disturbances of one (1) or more acres but less than or equal to five (5) acres and is not located in one of the watersheds listed in Appendix C and not *directly discharging* to one of the 303(d) segments listed in Appendix D; and

c. construction on *agricultural property* that involves soil disturbances of one (1) or more acres but less than five (5) acres; and

d. *construction activities* located in the New York City Watershed located east of the Hudson River, see Appendix C Figure 1, that involve soil disturbances of 5,000 square feet or more, but less than one acre.

2. The *qualified inspector* must conduct site inspections in accordance with the following timetable:

   a. For *construction sites* where soil disturbance activities are on-going, the *qualified inspector* must conduct a site inspection at least once every seven (7) calendar days; or

   b. For *construction sites* where soil disturbance activities are on-going and the *owner or operator* has received authorization in accordance with Part I.E.6. to disturb greater than five (5) acres of soil at any one time, the *qualified inspector* must conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections must be separated by a minimum of two (2) full calendar days; or

   c. For *construction sites* where soil disturbance activities have been temporarily suspended (e.g. winter shutdown) and *temporary stabilization* measures have been applied to all disturbed areas, the *qualified inspector* must conduct a site inspection at least once every thirty (30) calendar days. The *owner or operator* must notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix E) or, in areas under the jurisdiction of a *Traditional Land Use Control MS4 Operator,* the *Traditional Land Use Control MS4 Operator* (provided the *Traditional Land Use Control MS4 Operator* is not the *owner or operator* of the *construction activity*) by hard copy or email prior to reducing the inspections to this frequency and again by hard copy or email prior to re-commencing construction; or

d. For *construction sites* where soil disturbance activities have been shut down with partial project completion, the requirement to have the *qualified inspector* conduct inspections ceases if all areas disturbed as of the project shutdown date have achieved *final stabilization* and all SMPs required for the completed portion of the project have been constructed in conformance with the *SWPPP* and are operational. The *owner or operator* must notify the DOW Water (SPDES) Program contact at the Regional Office (see contact information in Appendix E) or, in areas subject to the review authority of *Traditional Land Use Control MS4 Operator(s)* in accordance with Part I.D.2.b.ii.1., the *Traditional Land Use Control MS4 Operator(s)* (provided the *Traditional Land Use Control MS4 Operator(s)* are not the *owners or operators* of the *construction activity*) in writing prior to the shutdown and again in writing prior to resuming *construction activity*. If soil disturbance activities are not resumed within 2 years from the date of shutdown, the *owner or operator* must terminate coverage by meeting the requirements of Part V; or

e. For *construction sites* involving soil disturbance of one (1) or more acres that *directly discharge* to one of the 303(d) segments listed in Appendix D or is located in one of the watersheds listed in Appendix C, the *qualified inspector* must conduct at least two (2) site inspections every seven (7) calendar days. The two (2) inspections must be separated by a minimum of two (2) full calendar days.

3. At a minimum, the *qualified inspector* must inspect:

   a. all erosion and sediment control practices and pollution prevention measures to ensure integrity and effectiveness; and

   b. all SMPs under construction to ensure that they are constructed in conformance with the *SWPPP*; and

   c. all areas of disturbance that have not achieved *final stabilization*; and

   d. all points of *discharge* to *surface waters of the State* located within, or immediately adjacent to, the property boundaries of the *construction site*; and

   e. all points of *discharge* from the *construction site*.

4. The *qualified inspector* must prepare an inspection report subsequent to each and every inspection. At a minimum, the inspection report must include and/or address all of the following, for all *construction activities* except those listed in Part IV.C.1.:

   a. Permit identification number; and

   b. Date and time of inspection; and

   c. Name and title of person(s) performing inspection; and

   d. A description of the weather and soil conditions (e.g. dry, wet, saturated) at the time of the inspection, including the temperature at the time of the inspection; and

   e. A description of the condition of the runoff at all points of *discharge* from the *construction site*. This must include identification of any *discharges* of sediment from the *construction site*. Include *discharges* from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow; and

   f. A description of the condition of all *surface waters of the State* located within, or immediately adjacent to, the property boundaries of the *construction site* which receive runoff from disturbed areas. This must include identification of any *discharges* of sediment to the *surface waters of the State*; and

   g. Identification of all erosion and sediment control practices and pollution prevention measures that need repair or maintenance; and

   h. Identification of all erosion and sediment control practices and pollution prevention measures that were not installed properly or are not functioning as designed and need to be reinstalled or replaced; and

   i. Description and sketch (map) of areas with active soil disturbance activity, areas that have been disturbed but are inactive at the time of the inspection, and areas that have been stabilized (temporary and/or final) since the last inspection; and

   j. Estimates, in square feet or acres, of the following areas:

i. Total area with active soil disturbance (not requiring either *temporary stabilization* or *final stabilization*); and

ii. Total area with inactive soil disturbance (requiring either *temporary stabilization* or *final stabilization*); and

iii. Total area that has achieved *temporary stabilization*; and

iv. Total area that has achieved *final stabilization*; and

k. Current stage of construction of all SMPs and identification of all *construction activity* on site that is not in conformance with the *SWPPP* and technical standards; and

l. Corrective action(s) that must be taken to install, repair, replace or maintain erosion and sediment control practices and pollution prevention measures; and to correct deficiencies identified with the construction of the SMP(s); and

m. Identification and status of all corrective actions that were required by previous inspection; and

n. Digital photographs, with date stamp, that clearly show the condition of all practices that have been identified as needing corrective actions. The *qualified inspector* must attach color copies of the digital photographs to the inspection report being maintained onsite within seven (7) calendar days of the date of the inspection. The *qualified inspector* must also take digital photographs, with date stamp, that clearly show the condition of the practice(s) after the corrective action has been completed. The *qualified inspector* must attach paper color copies of the digital photographs to the inspection report that documents the completion of the corrective action work within seven (7) calendar days of that inspection.

5. Within one business day of the completion of an inspection, the *qualified inspector* must notify the *owner or operator*, and appropriate contractor or subcontractor identified in Part III.A.7., of any corrective actions that need to be taken. The contractor or subcontractor must:

a. if the corrective action does not require engineering design:

i. begin implementing corrective actions within one business day; and

ii. complete the corrective actions within five business days; or

b. if the corrective action requires engineering design:

i. begin the engineering design process within five business days; and

ii. complete the corrective action in a reasonable time frame but no later than within 60 calendar days.

6. All inspection reports must be signed by the *qualified inspector.* In accordance with Part I.E.3., the inspection reports must be maintained on site with the *SWPPP*.

Part V. How to Terminate CGP Coverage

A. Electronic Notice of Termination (eNOT) Submittal

The eNOT contains questions to ensure requirements in Part V.A. have been met.

1. An *owner or operator* must terminate coverage when one or more of the following requirements have been met:

a. Total project completion:

i. all *construction activity* identified in the *SWPPP* has been completed; and

ii. all areas of disturbance have achieved *final stabilization*; and

iii. all temporary, structural erosion and sediment control measures have been removed; and

iv. all SMPs have been constructed in conformance with the *SWPPP* and are operational; and

v. an as-built drawing has been prepared; or

b. Planned shutdown with partial project completion:

   i. all soil disturbance activities have ceased; and

   ii. all areas disturbed as of the project shutdown date have achieved *final stabilization*; and

   iii. all temporary, structural erosion and sediment control measures have been removed; and

   iv. all SMPs required for the completed portion of the project have been constructed in conformance with the *SWPPP* and are operational; and

   v. an as-built drawing has been prepared; or

c. In accordance with Part I.G. Change of Owner or Operator; or

d. The *owner or operator* has obtained coverage under an alternative general SPDES permit or an individual SPDES permit.

2. For *construction activities* that require *qualified inspector* inspections in accordance with Part IV.C.1. and have met Part V.A.1.a. or b., the *owner or operator* must have the *qualified inspector* perform a final site inspection prior to submitting the eNOT. The *qualified inspector* must, by signing the “Final Stabilization” and “Post-Construction Stormwater Management Practice(s)” certification statements on the eNOT, certify that all the requirements in Part V.A.1.a. or b. have been achieved.

3. For *construction activities* that are subject to the review authority of *Traditional Land Use Control MS4 Operator(s)* in accordance with Part I.D.2.b.ii.1. and meet Part V.A.1.a. or b., the *owner or operator* must have the *Traditional Land Use Control MS4 Operator(s)* sign the “MS4 Acceptance” statement on the eNOT in accordance with the requirements in Part VII.J. A *Traditional Land Use Control MS4 Operator* official, by signing this statement, determined that it is acceptable for the *owner or operator* to submit the eNOT in accordance with the requirements of this Part. A *Traditional Land Use Control MS4 Operator* can make this determination by performing a final site inspection themselves or by accepting the *qualified inspector*’s final site inspection certification(s) when required in Part V.A.2.

4. For *construction activities* that require SMPs and meet Part V.A.1.a. or b., the *owner or operator* must, prior to submitting the eNOT, ensure one of the following:

    a. for SMP(s) that were constructed by a private entity, but will be owned, operated, and maintained by a public entity, the SMP(s) and any right-of-way(s) needed to operate and maintain such practice(s) have been deeded to the municipality in which the practice(s) is located; or

    b. for SMP(s) that are privately owned, but will be operated and maintained by a public entity, an executed operation and maintenance agreement is in place with the municipality that will operate and maintain the SMP(s); or

    c. for SMP(s) that are privately owned, the *owner or operator* has a mechanism in place that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan, such as a deed covenant in the *owner or operator's* deed of record; or

    d. for SMP(s) that are owned by a public or private institution (e.g. school, university, hospital), government agency or authority, or public utility, the *owner or operator* has policies and procedures in place that ensure operation and maintenance of the practices in accordance with the operation and maintenance plan.

5. An *owner or operator* that has met the requirements of Part V.A.1., 2., 3., and 4. must request termination of coverage under this permit by submitting a complete Notice of Termination form electronically using a NYSDEC approved form.[5]

    a. The owner's or operator's coverage is terminated as of the termination date indicated in the Letter of Termination (LOT), which is sent by NYSDEC after a complete eNOT is submitted.

[5] Unless NYSDEC grants a waiver in accordance with 40 CFR 127.15(c) or (d). All waiver requests must be submitted to Stormwater_info@dec.ny.gov or NYSDEC, Bureau of Water Permits, 625 Broadway, 4th Floor, Albany, New York 12233-3505.

Part VI. Record Retention and Reporting

A. Record Retention

The *owner or operator* must retain a copy of the documents listed in Part I.E.3. and a copy of the LOT for a period of at least five years from the date that NYSDEC accepts a complete NOT submitted in accordance with Part V.

B. Reporting

Except for the eNOI, the signature forms associated with the eNOI, and the eNOT, all other written correspondence requested by NYSDEC, including individual permit applications, must be sent to the address of the appropriate DOW (SPDES) Program contact at the Regional Office listed in Appendix E.

Part VII. Standard Permit Requirements

For the purposes of this permit, examples of contractors and subcontractors include: third-party maintenance and construction contractors.

A. Duty to Comply

The *owner or operator*, and all contractors or subcontractors, must comply with all requirements of this permit. Any non-compliance with the requirements of this permit constitutes a violation of the New York State Environmental Conservation Law (ECL), and its implementing regulations, and is grounds for enforcement action. Filing of a request for termination of coverage under this permit, or a notification of planned changes or anticipated non-compliance, does not limit, diminish or stay compliance with any requirements of this permit.

B. Need to Halt or Reduce Activity Not a Defense

The necessity to halt or reduce the *construction activity* regulated by this permit, in order to maintain compliance with the requirements of this permit, must not be a defense in an enforcement action.

C. Penalties

There are substantial criminal, civil, and administrative penalties associated with violating the requirements of this permit. Fines of up to $37,500 per day for each

violation and imprisonment for up to 15 years may be assessed depending upon the nature and degree of the offense.

D. False Statements

Any person who knowingly makes any false material statement, representation, or certification in any application, record, report, or other document filed or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance must, upon conviction, be punished in accordance with ECL §71-1933 and or New York State Penal Law Articles 175 and 210.

E. Re-Opener Clause

Upon issuance of this permit, a determination has been made on the basis of a submitted Notice of Intent, plans, or other available information, that compliance with the specified permit requirements will reasonably protect classified water use and assure compliance with applicable *water quality standards*. Satisfaction of the requirements of this permit notwithstanding, if operation pursuant to this permit causes or contributes to a condition in contravention of State *water quality standards* or guidance values, or if NYSDEC determines that a modification is necessary to prevent impairment of the best use of the waters or to assure maintenance of *water quality standards* or compliance with other provisions of ECL Article 17 or the Clean Water Act (CWA), or any regulations adopted pursuant thereto, NYSDEC may require such modification and the Commissioner may require abatement action to be taken by the *owner or operator* and may also prohibit such operation until the modification has been implemented.

F. Duty to Mitigate

The *owner or operator*, and its contractors and subcontractors, must take all reasonable steps to *minimize* or prevent any *discharge* in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

G. Requiring Another General Permit or Individual SPDES Permit

NYSDEC may require any *owner or operator* authorized to *discharge* in accordance with this permit to apply for and obtain an individual SPDES permit or apply for authorization to *discharge* in accordance with another general SPDES permit.

1. Cases where an individual SPDES permit or authorization to discharge in accordance with another general SPDES permit may be required include, but is not limited to the following:

a. the *owner or operator* is not in compliance with the conditions of this permit or does not meet the requirements for coverage under this permit; and

b. a change has occurred in the availability of demonstrated technology or practices for the control or abatement of *pollutants* applicable to the *point source*; and

c. new effluent limitation guidelines or new source performance standards are promulgated that are applicable to *point sources* authorized to *discharge* in accordance with this permit; and

d. existing effluent limitation guidelines or new source performance standards that are applicable to *point sources* authorized to *discharge* in accordance with this permit are modified; and

e. a water quality management plan containing requirements applicable to such *point sources* is approved by NYSDEC; and

f. circumstances have changed since the time of the request to be covered so that the *owner or operator* is no longer appropriately controlled under this permit, or either a temporary or permanent reduction or elimination of the authorized *discharge* is necessary; and

g. the *discharge* is in violation of section 17-0501 of the ECL; and

h. the *discharge(s)* is a significant contributor of *pollutants*. In making this determination, NYSDEC may consider the following factors:

    i. the location of the *discharge(s)* with respect to *surface waters of the State*; and

    ii. the size of the *discharge(s)*; and

    iii. the quantity and nature of the *pollutants discharged* to *surface waters of the State*; and

    iv. other relevant factors including compliance with other provisions of ECL Article 17, or the CWA.

2. When NYSDEC requires any *owner or operator* authorized by this permit to apply for an individual SPDES permit as provided for in this subdivision, it must notify the *owner or operator* in writing that a permit application is required. This notice must include a brief statement of the reasons for this decision, an application

form, a statement setting a time for the *owner or operator* to file the application for an individual SPDES permit, and a deadline, not sooner than 180 days from the *owner's or operator's* receipt of the notification letter, whereby the authorization to *discharge* under this permit must be terminated. NYSDEC may grant additional time upon demonstration, to the satisfaction of the RWE,[6] that additional time to apply for an alternative authorization is necessary or where NYSDEC has not provided a permit determination in accordance with 6 NYCRR Part 621.

3. When an individual SPDES permit is issued to an *owner or operator* authorized to *discharge* under this permit for the same *discharge(s)*, this permit authorization for *construction activities* authorized under the individual SPDES permit is automatically terminated on the effective date of the individual SPDES permit unless termination is earlier in accordance with 6 NYCRR Part 750.

H. Duty to Provide Information

The *owner or operator* must furnish to NYSDEC, within five business days, unless otherwise set forth by NYSDEC, any information that NYSDEC may request to determine whether cause exists to determine compliance with this permit or to determine whether cause exists for requiring an individual SPDES permit in accordance with 6 NYCRR 750-1.21(e) (see Part VII.G. Requiring Another General Permit or Individual Permit).

The *owner or operator* must make available to NYSDEC, for inspection and copying, or furnish to NYSDEC within 25 business days of receipt of a NYSDEC request for such information, any information retained in accordance with this permit.

Except for Part I.D.4. and 5. and Part I.G., the following applies: where the *owner or operator* becomes aware that it failed to submit any relevant facts on the Notice of Intent, or submitted incorrect information in a Notice of Intent or in any report to NYSDEC, the *owner or operator* must submit such facts or corrected information to NYSDEC within five business days.

I. Extension

In the event a new permit is not issued and effective prior to the expiration of this permit, and this permit is extended pursuant to the State Administrative Procedure Act and 6 NYCRR Part 621, then the *owner or operator* with coverage under this permit may continue to operate and *discharge* in accordance with the requirements of this permit until a new permit is issued and effective.

[6] The Regional Water Manager where a DEC Region does not have a RWE.

J. Signatories and Certification

The Notice of Intent, Notice of Termination, and reports required by this permit must be signed as provided in 40 CFR §122.22.

1. All Notices of Intent and Notices of Termination must be signed as follows:

   a. For a corporation. By a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

      (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation; or

      (ii) the manager of one or more manufacturing, production or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for Notice of Intent or Notice of Termination requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

      Note: NYSDEC does not require specific assignments or delegations of authority to responsible corporate officers identified in 40 CFR §122.22(a)(1)(i). NYSDEC will presume that these responsible corporate officers have the requisite authority to sign the Notice of Intent or Notice of Termination unless the corporation has notified NYSDEC to the contrary. Corporate procedures governing authority to sign a Notice of Intent or Notice of Termination may provide for assignment or delegation to applicable corporate positions under 40 CFR §122.22(a)(1)(ii) rather than to specific individuals.

   b. For a partnership or sole proprietorship. By a general partner or the proprietor, respectively.

c. For a municipality, State, Federal, or other public agency. By either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes:

   1. the chief executive officer of the agency; or

   2. a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

2. All reports required by this permit, and other information requested by NYSDEC, must be signed by a person described in Part VII.J.1., or by a duly authorized representative of that person. A person is a duly authorized representative only if:

   a. The authorization is made in writing by a person described in Part VII.J.1. or using the Duly Authorized Form, found on the DEC website; and

   b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and

   c. The written authorization is submitted to NYSDEC.

3. Changes to authorization. If an authorization under Part VII.J.2. is no longer accurate because a different individual or position has responsibility for the overall operation of the *construction activity*, a new authorization satisfying the requirements of Part VII.J.2. must be submitted to NYSDEC prior to or together with any reports, information, or applications to be signed by an authorized representative.

4. Certification. Any person signing a document under Part VII.J.1. or 2. must make the following certification:

   I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who

manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

5. Electronic reporting. If documents described in Part VII.J.1. or 2. are submitted electronically by or on behalf of the *construction activity* with coverage under this permit, any person providing the electronic signature for such documents must meet all relevant requirements of this section, and must ensure that all of the relevant requirements of 40 CFR Part 3 (including, in all cases, subpart D to Part 3) (Cross-Media Electronic Reporting) and 40 CFR Part 127 (NPDES Electronic Reporting Requirements) are met for that submission.

K. Inspection and Entry

The *owner or operator* must allow NYSDEC, the USEPA Regional Administrator, the applicable county health department, or any authorized representatives of those entities, or, in the case of a *construction site* which *discharges* through an *MS4*, an authorized representative of the *MS4* receiving the *discharge*, upon the presentation of credentials and other documents as may be required by law, to:

1. enter upon the *owner's or operator's* premises where a regulated facility or activity is located or conducted or where records must be kept under the requirements of this permit; and

2. have access to and copy at reasonable times, any records that must be kept under the requirements of this permit, including records required to be maintained for purposes of operation and maintenance; and

3. inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices or operations regulated or required under this permit; and

4. sample or monitor at reasonable times, for the purposes of assuring general SPDES permit compliance or as otherwise authorized by the CWA or ECL, any substances or parameters at any location; and

5. enter upon the property of any contributor to the regulated facility or activity under authority of the *owner or operator*.

L. Confidentiality of Information

The following must not be held confidential: this permit, the fact sheet for this permit, the name and address of any *owner or operator*, effluent data, the Notice of Intent, and information regarding the need to obtain an individual permit or an alternative general SPDES permit. This includes information submitted on forms themselves and any attachments used to supply information required by the forms (except information submitted on usage of substances). Upon the request of the *owner or operator*, NYSDEC must make determinations of confidentiality in accordance with 6 NYCRR Part 616, except as set forth in the previous sentence. Any information accorded confidential status must be disclosed to the Regional Administrator upon his or her written request. Prior to disclosing such information to the Regional Administrator, NYSDEC will notify the Regional Administrator of the confidential status of such information.

M. Other Permits May Be Required

Nothing in this permit relieves the *owner or operator* from a requirement to obtain any other permits required by law.

N. NYSDEC Orders or Civil Decrees/Judgments

The issuance of this permit by the NYSDEC, and the coverage under this permit by the *owner or operator*, does not supersede, revoke, or rescind any existing order on consent or civil Decree/Judgment, or modification to any such documents or to any order issued by the Commissioner, or any of the terms, conditions, or requirements contained in such order or modification therefore, unless expressly noted.

O. Property Rights

Coverage under this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State, or local laws or regulations, nor does it obviate the necessity of obtaining the assent of any other jurisdiction as required by law for the *discharge* authorized.

P. Compliance with Interstate Standards

If the *construction activity* covered by this permit originates within the jurisdiction of an interstate water pollution control agency, then the *construction activity* must also comply with any applicable effluent standards or *water quality standards* promulgated by that interstate agency and as set forth in this permit for such *construction activities*.

Q. Oil and Hazardous Substance Liability

Coverage under this permit does not affect the imposition of responsibilities upon, or the institution of any legal action against, the *owner or operator* under section 311 of the CWA, which must be in conformance with regulations promulgated pursuant to section 311 governing the applicability of section 311 of the CWA to *discharges* from facilities with *NPDES* permits, nor must such issuance preclude the institution of any legal action or relieve the *owner or operator* from any responsibilities, liabilities, or penalties to which the *owner or operator* is or may be subject pursuant to the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. section 9601 et seq. (CERCLA).

R. Severability

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, must not be affected thereby.

S. NYSDEC Approved Forms

The *owner or operator* must provide all relevant information that is requested by NYSDEC, and required by this permit, on all NYSDEC approved forms.

APPENDIX A – Abbreviations and Definitions

Abbreviations

APO – Agency Preservation Officer
BB – New York State Standards and Specifications for Erosion and Sediment Control (Blue Book), dated November 2016
BMP – Best Management Practice
CPESC – Certified Professional in Erosion and Sediment Control
CPv – Channel Protection Volume
CWA – Clean Water Act (or the Federal Water Pollution Control Act, 33 U.S.C. §1251 et seq)
DM – New York State Stormwater Management Design Manual (Design Manual), dated July 31, 2024
DOW – Division of Water
EAF – Environmental Assessment Form
ECL – chapter 43-B of the Consolidated Laws of the State of New York, entitled the Environmental Conservation Law
EPA – U.S. Environmental Protection Agency
HSG – Hydrologic Soil Group
MS4 – Municipal Separate Storm Sewer System
NOI – Notice of Intent
NOT – Notice of Termination
NPDES – National Pollutant Discharge Elimination System
NYC – The City of New York
NYCDEP – The City of New York Department of Environmental Protection
NYSDEC – The New York State Department of Environmental Conservation
OPRHP – Office of Parks, Recreation and Historic Places
Qf – Extreme Flood
Qp – Overbank Flood
RR – Runoff Reduction
RRv – Runoff Reduction Volume
RWE – Regional Water Engineer
SEQR – State Environmental Quality Review Act
SHPA – State Historic Preservation Act
SMP – Post-Construction Stormwater Management Practice
SPDES – State Pollutant Discharge Elimination System
SWPPP – Stormwater Pollution Prevention Plan
TMDL – Total Maximum Daily Load
UPA – Uniform Procedures Act
USDA – United States Department of Agriculture
WQv – Water Quality Volume

Appendix A

Definitions

All definitions in this section are solely for the purposes of this permit. If a word is not italicized in the permit, use its common definition.

Agricultural Building – a structure designed and constructed to house farm implements, hay, grain, poultry, livestock or other horticultural products; excluding any structure designed, constructed or used, in whole or in part, for human habitation, as a place of employment where agricultural products are processed, treated or packaged, or as a place used by the public.

Agricultural Property – the land for construction of a barn, *agricultural building*, silo, stockyard, pen or other structural practices identified in Table II in the "Agricultural Best Management Practice Systems Catalogue" (dated June 2023).

Alter Hydrology from Pre- to Post-Development Conditions – the post-development peak flow rate(s) has increased by more than 5% of the pre-developed condition for the design storm of interest (e.g. 10 yr and 100 yr).

Combined Sewer System – a sewer system which conveys sewage and *stormwater* through a single pipe system to a publicly owned treatment works.

Commence (Commencement of) Construction Activities – the initial disturbance of soils associated with clearing, grading or excavation activities; or other construction related activities that disturb or expose soils such as demolition, stockpiling of fill material, and the initial installation of erosion and sediment control practices required in the *SWPPP*. See definition for "*Construction Activity(ies)*" also.

Common Plan of Development or Sale – a contiguous area where multiple separate and distinct *construction activities* are occurring, or may occur, under one plan. The "common plan" of development or sale is broadly defined as any announcement or piece of documentation (including a sign, public notice or hearing, marketing plan, advertisement, drawing, permit application, State Environmental Quality Review Act (SEQR) environmental assessment form or other documents, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating *construction activities* may occur on a specific plot. A *common plan of development or sale* is comprised of two or more *phases*.

Common plan of development or sale does not include separate and distinct *construction activities* that are occurring, or may occur, under one plan that are at least 1/4 mile apart provided any interconnecting road, pipeline or utility project that is part of the same "common plan" is not concurrently being disturbed.

Construction Activity(ies) – identified within 40 CFR 122.26(b)(14)(x), 122.26(b)(15)(i), and 122.26(b)(15)(ii), any clearing, grading, excavation, filling, demolition or stockpiling activities that result in soil disturbance. Clearing activities can include, but are not limited to, mechanized logging equipment operation, the cutting and skidding of trees, stump removal and/or brush root removal.

Construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of a facility, which is excluded from the calculation of the soil disturbance for a project. Routine maintenance includes, but is not limited to:

- Re-grading of gravel roads or parking lots; and
- Cleaning and shaping of existing roadside ditches and culverts that maintains the approximate original line and grade, and maintains or improves the hydraulic capacity of the ditch; and
- Replacement of existing culverts that maintains the approximate original line and grade, and maintains or improves the hydraulic capacity of a ditch; and
- Replacement of existing bridges that maintains the approximate original line and grade, and maintains or improves the hydraulic capacity beneath the bridges; and
- Cleaning and shaping of existing roadside ditches that does not maintain the approximate original grade, hydraulic capacity and purpose of the ditch if the changes to the line and grade, hydraulic capacity or purpose of the ditch are installed to improve water quality and quantity controls (e.g. installing grass lined ditch); and
- Placement of aggregate shoulder backing that stabilizes the transition between the road shoulder and the ditch or *embankment*; and
- Full depth milling and filling of existing asphalt pavements, replacement of concrete pavement slabs, and similar work that does not expose soil or disturb the bottom six (6) inches of subbase material; and
- Long-term use of equipment storage areas at or near highway maintenance facilities; and
- Removal of sediment from the edge of the highway to restore a previously existing sheet-flow drainage connection from the highway surface to the highway ditch or *embankment*; and
- Existing use of Canal Corp owned upland disposal sites for the canal, and
- Replacement of curbs, gutters, sidewalks and guide rail posts; and
- Maintenance of ski trails including brush hog use and mowing; and
- Above ground snowmaking pipe replacement; and
- Replacement of existing utility poles; etc.

Construction Site – the land area where *construction activity(ies)* will occur. See also the definitions for "*Commence (Commencement of) Construction Activities"* and "*Common Plan of Development or Sale."*

Dewatering – the act of draining rainwater and/or groundwater from building foundations, vaults or excavations/trenches.

Directly Discharge(s)(ing) (to a specific surface waterbody) – runoff flows from a *construction site* by overland flow and the first point of *discharge* is the specific surface waterbody, or runoff flows from a *construction site* to a separate storm sewer system and the first point of *discharge* from the separate storm sewer system is the specific surface waterbody.

Discharge(s)(d) – any addition of any *pollutant* to waters of the State through an outlet or *point source*.

Embankment – an earthen or rock slope that supports a road/highway.

Equivalent (Equivalence) – the practice or measure meets all the performance, longevity, maintenance, and safety objectives of the technical standard and will provide an equal or greater degree of water quality protection.

Final Stabilization – all soil disturbance activities have ceased and a uniform, perennial vegetative cover with a density of eighty (80) percent over the entire pervious surface has been established; or other *equivalent* stabilization measures, such as permanent landscape mulches, rock rip-rap or washed/crushed stone have been applied on all disturbed areas that are not covered by permanent structures, concrete or pavement.

Historic Property – any building, structure, site, object or district that is listed on the State or National Registers of Historic Places or is determined to be eligible for listing on the State or National Registers of Historic Places.

Impervious Area (Cover) – all impermeable surfaces that cannot effectively infiltrate rainfall. This includes paved, concrete and compacted gravel surfaces (i.e. parking lots, driveways, roads, runways and sidewalks); building rooftops and miscellaneous impermeable structures such as patios, pools, and sheds.

Infeasible – not technologically possible, or not economically practicable and achievable considering best industry practices.

Minimize(ing)(ation) – reduce and/or eliminate to the extent achievable using control measures (including best management practices) that are technologically available and economically practicable and achievable in light of best industry practices.

Municipal Separate Storm Sewer System (MS4) - a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

1. owned or operated by a State, city, town, village, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, *stormwater*, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA, that *discharges* to *surface waters of the State*; and

2. designed or used for collecting or conveying *stormwater*; and

3. which is not a *combined sewer system*; and

4. which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

Natural Buffer(s) – an undisturbed area with natural cover running along a surface water (e.g. wetland, stream, river, lake, etc.).

New Development – any land disturbance that does not meet the definition of *Redevelopment Activity* included in this appendix.

New York State Erosion and Sediment Control Certificate Program – a certificate program that establishes and maintains a process to identify and recognize individuals who are capable of developing, designing, inspecting and maintaining erosion and sediment control plans on projects that disturb soils in New York State. The certificate program is administered by the New York State Conservation District Employees Association.

Nonpoint Source(s) – any source of water pollution or *pollutants* which is not a discrete conveyance or *point source* permitted pursuant to Title 7 or 8 of Article 17 of the Environmental Conservation Law (see ECL Section 17-1403).

Overbank – flow events that exceed the capacity of the stream channel and spill out into the adjacent floodplain.

Owner or Operator – the person, persons, or legal entity which owns or leases the property on which the *construction activity* is occurring; an entity that has operational control over the construction plans and specifications, including the ability to make modifications to the plans and specifications; and/or an entity that has day-to-day operational control of those activities at a project that are necessary to ensure compliance with the permit requirements.

Performance Criteria – the six performance criteria for each group of SMPs in Chapters 5 and 6 of the technical standard, New York State Stormwater Management Design Manual (DM), dated July 31, 2024. These include feasibility, conveyance, pretreatment, treatment, landscaping, and maintenance. It does not include the *Sizing Criteria* (i.e. WQv, RRv, CPv, Qp and Qf) in Part I.C.2. of the permit.

Phase – a defined area in which *construction activities* are occurring or will occur separate from other defined area(s).

Point Source – any discernible, confined, and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, vessel or other floating craft, or landfill leachate collection system from which *pollutants* are or may be *discharged*.

Pollutant(s) – dredged spoil, filter backwash, solid waste, incinerator residue, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand and industrial, municipal, agricultural waste and ballast *discharged* into water; which may cause or might reasonably be expected to cause pollution of the waters of the state in contravention of the standards or guidance values adopted as provided in 6 NYCRR Parts 700 et seq.

Qualified Inspector – a person that is knowledgeable in the principles and practices of erosion and sediment control, such as a licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, *New York State Erosion and Sediment Control Certificate Program* holder or other NYSDEC endorsed individual(s).

It can also mean someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided that person has training in the principles and practices of erosion and sediment control. Training in the principles and practices of erosion and sediment control means that the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect has received four (4) hours of NYSDEC endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other NYSDEC endorsed entity. After receiving the initial training, the individual working under the direct supervision of the licensed Professional Engineer or Registered Landscape Architect shall receive four (4) hours of training every three (3) years.

It can also mean a person that meets the *Qualified Professional* qualifications in addition to the *Qualified Inspector* qualifications.

Note: Inspections of any SMPs that include structural components, such as a dam for an impoundment, shall be performed by a licensed Professional Engineer.

Qualified Professional – a person that is knowledgeable in the principles and practices of *stormwater* management and treatment, such as a licensed Professional Engineer, Registered Landscape Architect or other NYSDEC endorsed individual(s). Individuals preparing *SWPPPs* that require the SMP component must have an understanding of the principles of hydrology, water quality management practice design, water quantity control design, and, in many cases, the principles of hydraulics. All components of the *SWPPP* that involve the practice of engineering, as defined by the NYS Education Law (see Article 145), shall be prepared by, or under the direct supervision of, a professional engineer licensed to practice in the State of New York.

Redevelopment Activity(ies) – the disturbance and reconstruction of existing *impervious area*, including *impervious areas* that were removed from a project site within five (5) years of preliminary project plan submission to the local government (i.e. site plan, subdivision, etc.).

Renewable Energy – electricity or thermal energy generated by renewable energy systems through use of the following technologies: solar thermal, photovoltaics, on land and offshore wind, hydroelectric, geothermal electric, geothermal ground source heat, tidal energy, wave energy, ocean thermal, and fuel cells which do not utilize a fossil fuel resource in the process of generating electricity.

Site Limitations – site conditions that prevent the use of an infiltration technique and or infiltration of the total WQv. Typical *site limitations* include: seasonal high groundwater, shallow depth to bedrock, and soils with an infiltration rate less than 0.5 inches/hour. The existence of *site limitations* shall be confirmed and documented using actual field testing (i.e. test pits, soil borings, and infiltration test) or using information from the most current United States Department of Agriculture (USDA) Soil Survey for the County where the project is located.

Sizing Criteria – the criteria included in Part I.C.2 of the permit that are used to size SMPs. The criteria include; Water Quality Volume (WQv), Runoff Reduction Volume (RRv), Channel Protection Volume (Cpv), *Overbank* Flood (Qp), and Extreme Flood (Qf).

Steep Slope – land area designated on the current United States Department of Agriculture (USDA) Soil Survey as Soil Slope Phase D, (provided the map unit name or description is inclusive of slopes greater than 25%), or Soil Slope Phase E or F, (regardless of the map unit name), or a combination of the three designations.

Stormwater – that portion of precipitation that, once having fallen to the ground, is in excess of the evaporative or infiltrative capacity of soils, or the retentive capacity of surface features, which flows or will flow off the land by surface runoff to waters of the State.

Streambank – the terrain alongside the bed of a creek or stream. The bank consists of the sides of the channel, between which the flow is confined.

Stormwater Pollution Prevention Plan (SWPPP) – a project specific report, including construction drawings, that among other things: describes the *construction activity(ies)*, identifies the potential sources of pollution at the *construction site*; describes and shows the *stormwater* controls that will be used to control the *pollutants* (i.e. erosion and sediment controls; for many projects, includes SMPs); and identifies procedures the *owner or operator* will implement to comply with the requirements of the permit. See Part III of the permit for a complete description of the information that must be included in the *SWPPP*.

Surface Waters of the State – shall be construed to include lakes, bays, sounds, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Atlantic ocean within the territorial seas of the state of New York and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters that do not combine or effect a junction with natural surface waters), which are wholly or partially within or bordering the state or within its jurisdiction. Waters of the state are further defined in 6 NYCRR Parts 800 to 941.

Temporarily Ceased – an existing disturbed area will not be disturbed again within 14 calendar days of the previous soil disturbance.

Temporary Stabilization – exposed soil has been covered with material(s) as set forth in the technical standard, New York Standards and Specifications for Erosion and Sediment Control, to prevent the exposed soil from eroding. The materials can include, but are not limited to, mulch, seed and mulch, and erosion control mats (e.g. jute twisted yarn, excelsior wood fiber mats).

Total Maximum Daily Load (TMDL) – the sum of the allowable loads of a single *pollutant* from all contributing point and *nonpoint source*s. It is a calculation of the maximum amount of a *pollutant* that a waterbody can receive and still meet *water quality standards*, and an allocation of that amount to the *pollutant's* sources. A TMDL stipulates Waste Load Allocations (WLA) for *point source discharges*, Load Allocations (LA) for *nonpoint source*s, and a margin of safety (MOS).

Traditional Land Use Control MS4 Operator – a city, town, or village with land use control authority that is authorized to *discharge* under New York State DEC's SPDES General Permit For Stormwater Discharges from Municipal Separate Stormwater Sewer Systems (MS4s) or the City of New York's Individual SPDES Permit for their Municipal Separate Storm Sewer Systems (NY-0287890).

Trained Contractor – an employee from the contracting (construction) company, identified in Part III.A.7., that has received four (4) hours of NYSDEC endorsed training

in proper erosion and sediment control principles from a Soil and Water Conservation District, or other NYSDEC endorsed entity. After receiving the initial training, the *trained contractor* shall receive four (4) hours of training every three (3) years.

It can also mean an employee from the contracting (construction) company, identified in Part III.A.7., that meets the *qualified inspector* qualifications (e.g. licensed Professional Engineer, Certified Professional in Erosion and Sediment Control (CPESC), Registered Landscape Architect, *New York State Erosion and Sediment Control Certificate Program* holder, or someone working under the direct supervision of, and at the same company as, the licensed Professional Engineer or Registered Landscape Architect, provided they have received four (4) hours of NYSDEC endorsed training in proper erosion and sediment control principles from a Soil and Water Conservation District, or other NYSDEC endorsed entity).

The *trained contractor* is responsible for the day-to-day implementation of the *SWPPP*.

Tree Clearing – *construction activities* limited to felling and removal of trees.

Tree clearing does not include hand felling and leaving the trees in place with no support from mechanized equipment, which is not considered *construction activity* requiring coverage under this permit.

Water Quality Standard – such measures of purity or quality for any waters in relation to their reasonable and necessary use as promulgated in 6 NYCRR Part 700 et seq.

APPENDIX B – Required SWPPP Components by Project Type

Table 1
CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A *SWPPP* THAT ONLY INCLUDES EROSION AND SEDIMENT CONTROLS

The following *construction activities* that involve soil disturbances of one (1) or more acres of land, but less than five (5) acres:

- Single-family home not located in one of the watersheds listed in Appendix C and not *directly discharging* to one of the 303(d) segments listed in Appendix D
- Single-family residential subdivisions with 25% or less *impervious cover* at total site build-out and not located in one of the watersheds listed in Appendix C and not *directly discharging* to one of the 303(d) segments listed in Appendix D
- Construction of a barn or other *agricultural building*, silo, stock yard or pen.
- Structural agricultural conservation practices as identified in Table II in the "Agricultural Best Management Practice Systems Catalogue" (dated June 2023) that include construction or reconstruction of *impervious area* or *alter hydrology from pre- to post-development* conditions.

The following *construction activities* that involve soil disturbances between five thousand (5000) square feet and one (1) acre of land:

- All construction activities located in the New York City Watershed located east of the Hudson River, see Appendix C Figure 1, that involve soil disturbances between five thousand (5,000) square feet and one (1) acre of land.

Within the municipal boundaries of NYC:

- Stand-alone road reconstruction, where the total soil disturbance from only that road construction, is less than one (1) acre of land.

The following *construction activities*:

- Installation of underground linear utilities; such as gas lines, fiber-optic cable, cable TV, electric, telephone, sewer mains, and water mains
- Environmental enhancement projects, such as wetland mitigation, *stormwater* retrofits, stream restoration, and resiliency projects that reconstruct shoreline areas to address sea level rise
- Pond construction
- Linear bike paths running through areas with vegetative cover, including bike paths surfaced with an *impervious cover*
- Cross-country ski trails, walking/hiking trails, and mountain biking trails, including a de minimis parking lot (maximum 10 spaces total, sized for passenger cars) with 35 feet minimum preservation of undisturbed area downgradient from the parking lot
- Dam rehabilitation (the structure of the dam itself)
- Sidewalks, bike paths, or walking paths, surfaced with an *impervious cover*, that are not part of residential, commercial, or institutional development;
- Sidewalks, bike paths, or walking paths, surfaced with an *impervious cover*, that include incidental shoulder or curb work along an existing highway to support construction of the sidewalk, bike path, or walking path.

Appendix B

Table 1 (Continued)
CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A *SWPPP* THAT ONLY INCLUDES EROSION AND SEDIMENT CONTROLS

The following *construction activities*:

- Slope stabilization
- Slope flattening that changes the grade of the site, but does not significantly change the runoff characteristics
- Spoil areas that will be covered with vegetation
- Vegetated open space (i.e. recreational parks, lawns, meadows, fields, downhill ski trails) that do not *alter hydrology from pre- to post-development* conditions
- Athletic fields (natural grass) that do not include the construction or reconstruction of *impervious area* and do not *alter hydrology from pre- to post-development* conditions
- Demolition where vegetation will be established, and no *redevelopment activity* is planned[1]
- Installation or replacement of either an overhead electric transmission line or a ski lift tower that does not include the construction of permanent access roads or parking areas surfaced with *impervious cover*.
- Solar array field areas that have tables elevated off the ground, spaced one table width apart, do not *alter hydrology from pre- to post-development conditions*, and address water quality volume and runoff reduction volume by maintaining sheet flow on slopes less than 8%.
- Structural agricultural conservation practices as identified in Table II in the "Agricultural Best Management Practice Systems Catalogue" (dated June 2023) that do not include construction or reconstruction of *impervious area* and do not *alter hydrology from pre- to post-development* conditions.
- Temporary access roads, median crossovers, detour roads, lanes, or other temporary *impervious areas* that will be restored to pre-construction conditions once the *construction activity* is complete (in this context, "temporary" means the *impervious area* will be in place for two years or less)
- Other *construction activities* that do not include the construction or reconstruction of *impervious area*, and do not *alter hydrology from pre- to post-development* conditions, and are not listed in Table 2.

1. If the site is redeveloped in the future, a new eNOI must be submitted.

Appendix B

Table 2
CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A *SWPPP* THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES (SMPS)

The following *construction activities*:

- Single-family home located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix D
- Single-family home that disturbs five (5) or more acres of land
- Single-family residential subdivisions located in one of the watersheds listed in Appendix C or *directly discharging* to one of the 303(d) segments listed in Appendix D
- Single-family residential subdivisions that involve soil disturbances of between one (1) and five (5) acres of land with greater than 25% *impervious cover* at total site build-out
- Single-family residential subdivisions that involve soil disturbances of between 20,000 square feet and one (1) acre of land within the municipal boundaries of NYC with greater than 25% *impervious cover* at total site build-out
- Single-family residential subdivisions that involve soil disturbances of five (5) or more acres of land, and single-family residential subdivisions that involve soil disturbances of less than five (5) acres that are part of a *common plan of development or sale* that will ultimately disturb five (5) or more acres of land
- Multi-family residential developments; includes duplexes, townhomes, condominiums, senior housing complexes, apartment complexes, and mobile home parks
- Creation of 5,000 square feet or more of *impervious area* in the municipal boundaries of NYC
- Airports
- Amusement parks
- Breweries, cideries, and wineries, including establishments constructed on agricultural land
- Campgrounds
- Cemeteries that include the construction or reconstruction of *impervious area* (>5% of disturbed area) or *alter the hydrology from pre- to post-development* conditions
- Commercial developments
- Churches and other places of worship
- Construction of a barn or other *agricultural building* (e.g. silo) that involves soil disturbance greater than five acres.
- Structural agricultural conservation practices as identified in Table II in the “Agricultural Best Management Practice Systems Catalogue” (dated June 2023) that involves soil disturbance greater than five acres and include the construction or reconstruction of *impervious area* or *alter hydrology from pre- to post-development* conditions.
- Facility buildings, including ski lodges, restroom buildings, pumphouses, ski lift terminals, and maintenance and groomer garages
- Institutional development; includes hospitals, prisons, schools and colleges
- Industrial facilities; includes industrial parks
- Landfills; including creation of landfills or capping landfills.
- Municipal facilities; includes highway garages, transfer stations, office buildings, POTWs, water treatment plants, and water storage tanks
- Golf courses
- Office complexes

Appendix B

Table 2 (Continued)

CONSTRUCTION ACTIVITIES THAT REQUIRE THE PREPARATION OF A *SWPPP* THAT INCLUDES POST-CONSTRUCTION STORMWATER MANAGEMENT PRACTICES (SMPS)

The following *construction activities*:

- Permanent laydown yards and equipment storage lots
- Playgrounds that include the construction or reconstruction of *impervious area*
- Sports complexes
- Racetracks; includes racetracks with earthen (dirt) surfaces
- Road construction or reconstruction, outside the municipal boundaries of NYC
- Road construction within the municipal boundaries of NYC
- Stand-alone road reconstruction, within the municipal boundaries of NYC where the total soil disturbance from that road reconstruction involves soil disturbance of one (1) acre or more of land
- Parking lot construction or reconstruction (as with all Table 2 bullets, this includes parking lots constructed as part of the *construction activities* listed in Table 1, unless a Table 1 bullet specifies otherwise)
- Athletic fields (natural grass) that include the construction or reconstruction of *impervious area* (>5% of disturbed area) or *alter the hydrology from pre- to post-development* conditions
- Athletic fields with artificial turf
- Permanent access roads, parking areas, substations, compressor stations, and well drilling pads, surfaced with *impervious cover,* and constructed as part of an overhead electric transmission line, wind-power, cell tower, oil or gas well drilling, sewer or water main, ski lift, or other linear utility project
- Sidewalks, bike paths, or walking paths, surfaced with an *impervious cover*, that are part of a residential, commercial or institutional development
- Sidewalks, bike paths, or walking paths, surfaced with an *impervious cover*, that are part of highway construction or reconstruction
- Solar array field areas on slopes greater than 8% that cannot maintain sheet flow using management practices identified in the BB or the DM
- Solar array field areas on slopes less than 8% that will *alter the hydrology from pre- to post-development* conditions
- Solar array field areas with tables that are not elevated high enough to achieve *final stabilization* beneath the tables
- Traditional *impervious areas* associated with solar development (e.g. roads, buildings, transformers)
- Utility pads surfaced with *impervious cover*, including electric vehicle charging stations
- All other *construction activities* that include the construction or reconstruction of *impervious area* or *alter the hydrology from pre- to post-development* conditions, and are not listed in Table 1

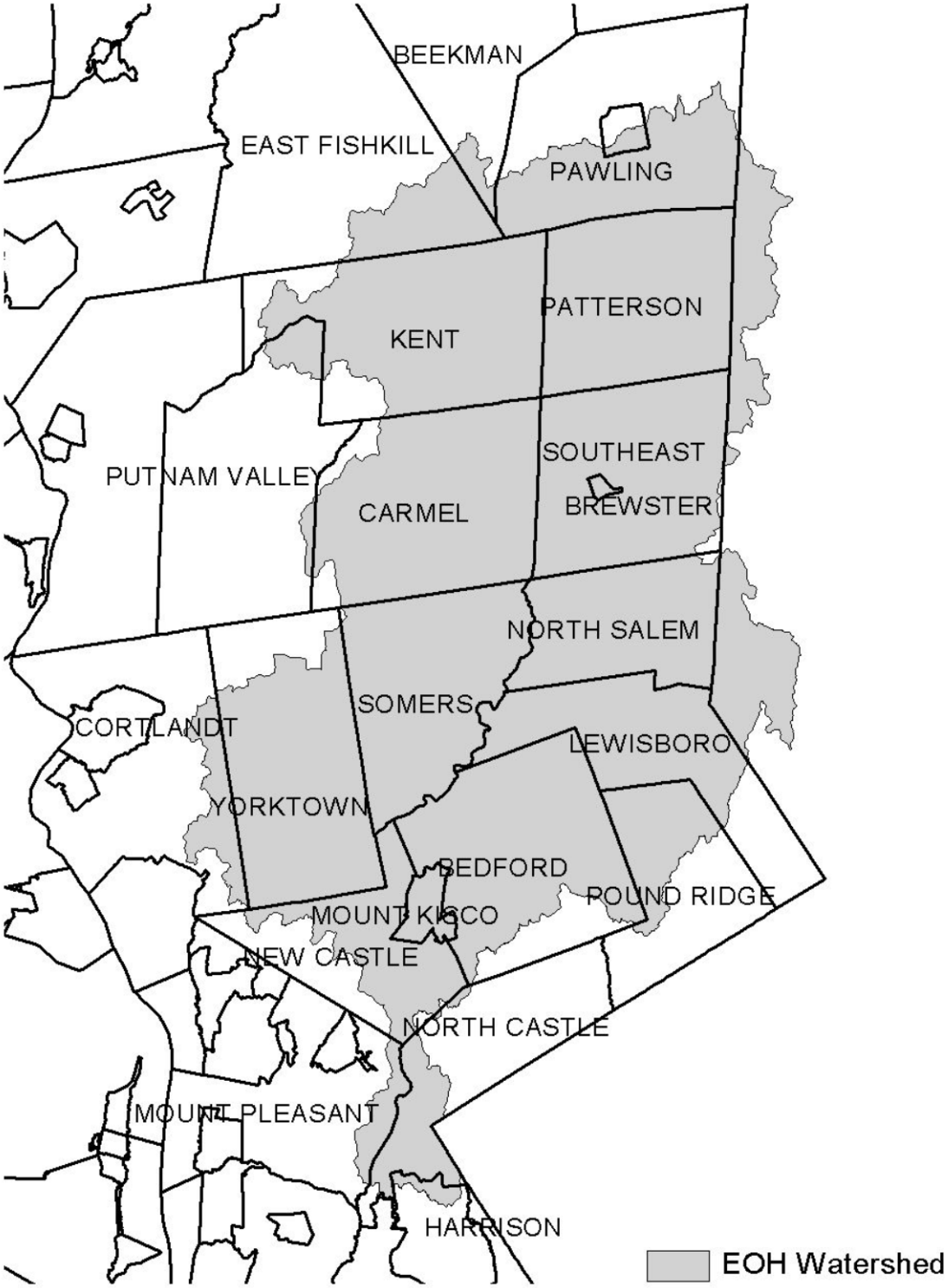
APPENDIX C – Watersheds Requiring Enhanced Phosphorus Removal

Watersheds where *owners or operators* of *construction activities* identified in Table 2 of Appendix B must prepare a *SWPPP* that includes SMPs designed in conformance with the Enhanced Phosphorus Removal Standards included in the DM technical standard.

- Entire New York City Watershed located east of the Hudson River – Figure 1
- Onondaga Lake Watershed – Figure 2
- Greenwood Lake Watershed – Figure 3
- Oscawana Lake Watershed – Figure 4
- Kinderhook Lake Watershed – Figure 5

Appendix C

Figure 1 - New York City Watershed East of the Hudson

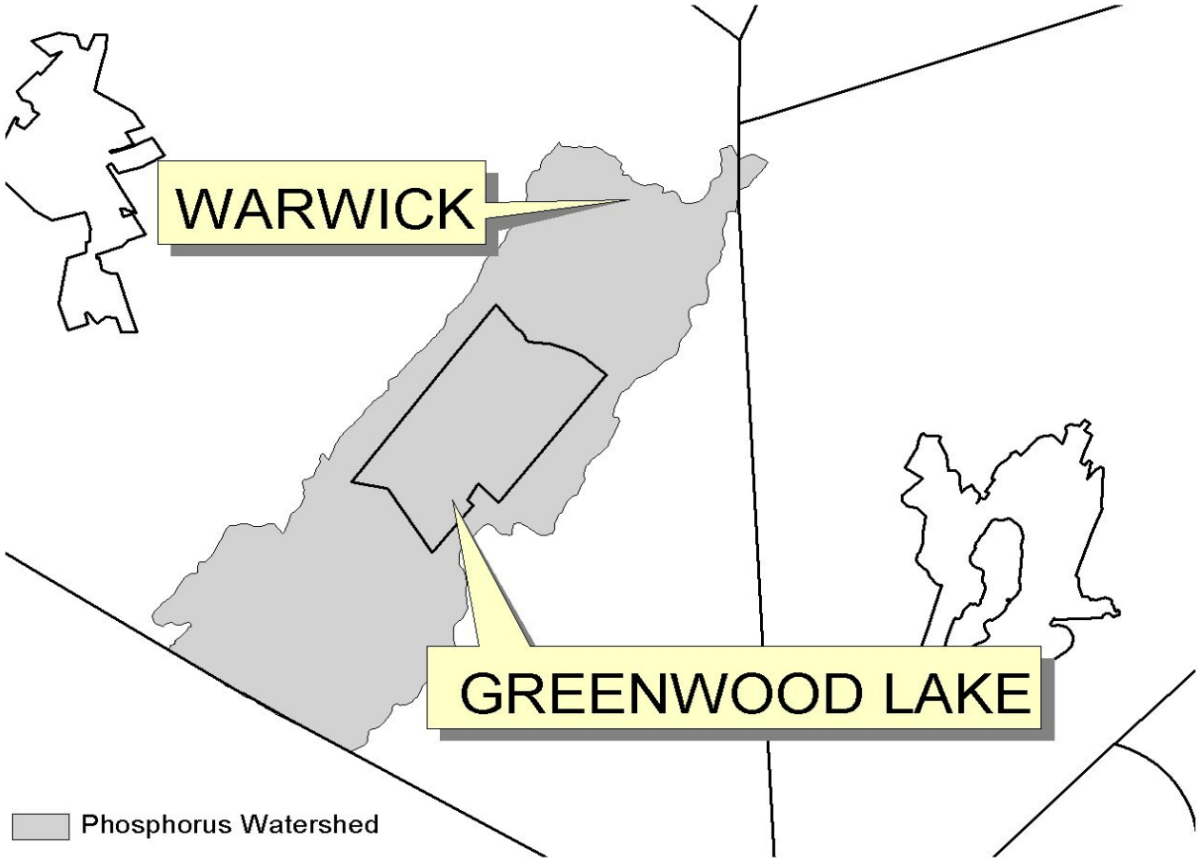


Appendix C

Figure 2 - Onondaga Lake Watershed

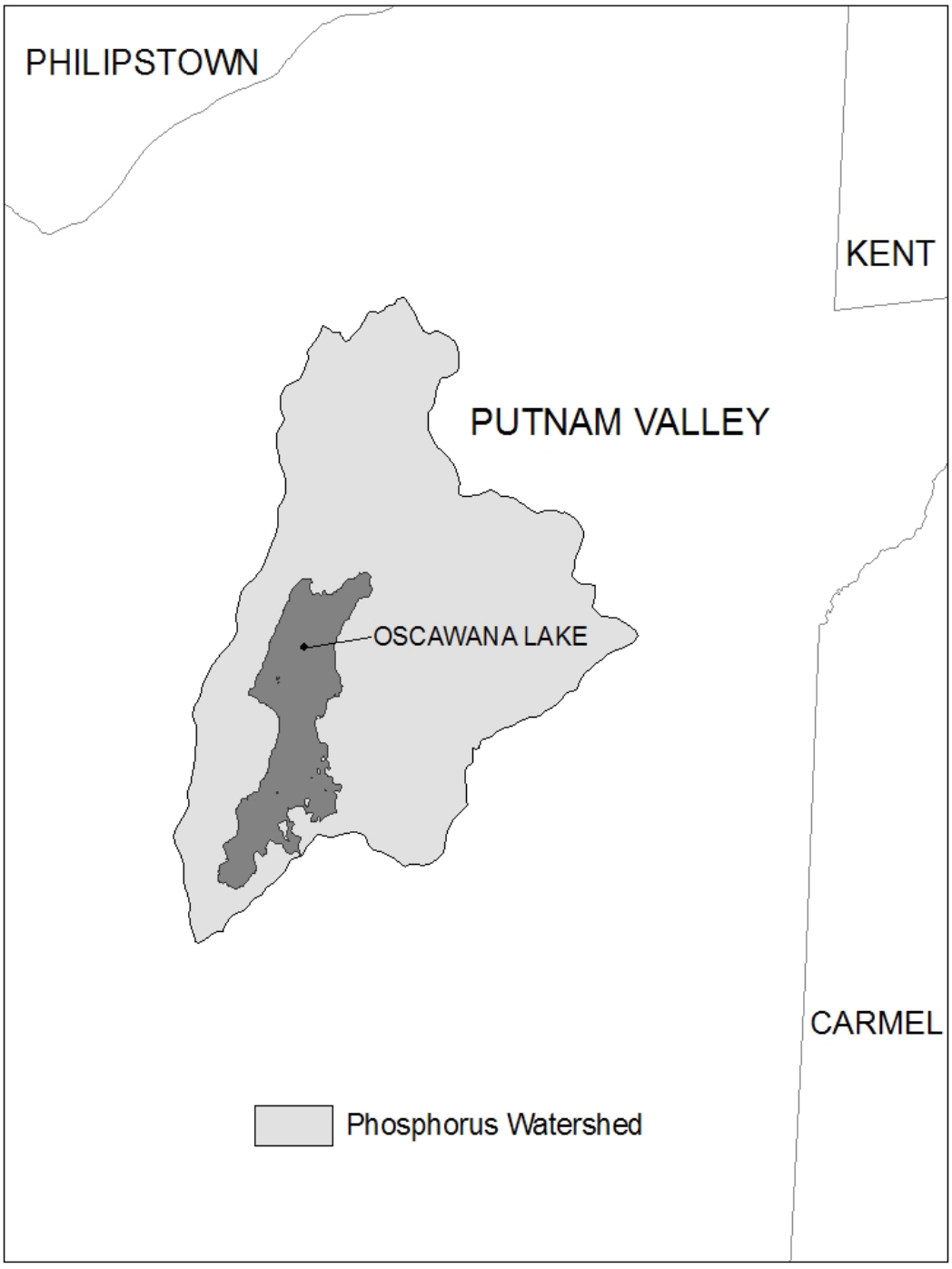
Appendix C

Figure 3 - Greenwood Lake Watershed



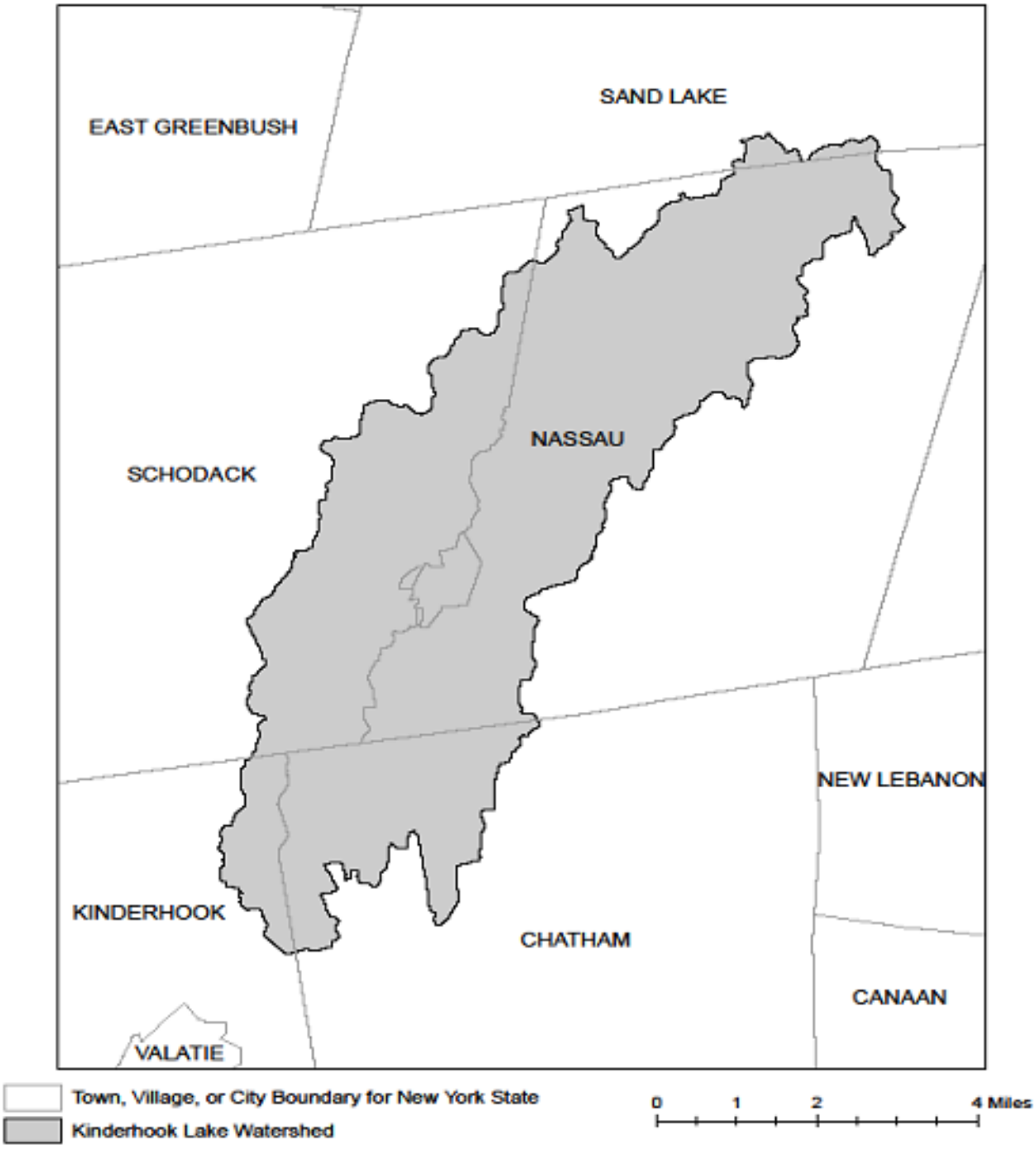
Appendix C

Figure 4 - Oscawana Lake Watershed



Appendix C

Figure 5 - Kinderhook Lake Watershed



APPENDIX D – Impaired Waterbodies (by Construction Related Pollutants)

List of waterbodies impaired by *pollutants* related to *construction activity*, including turbidity, silt/sediment, and nutrients (e.g. nitrogen, phosphorus). This list is a subset of "The Final New York State 2018 Section 303(d) List of Impaired Waters Requiring a TMDL" dated June 2020.

County	Waterbody	Pollutant
Albany	Ann Lee (Shakers) Pond, Stump Pond (1201-0096)	Phosphorus
Albany	Lawsons Lake (1301-0235)	Phosphorus
Allegany	Amity Lake, Saunders Pond (0403-0054)	Phosphorus
Allegany	Andover Pond (0403-0056)	Phosphorus
Bronx	Reservoir No.1/Lake Isle (1702-0075)	Phosphorus
Bronx	Van Cortlandt Lake (1702-0008)	Phosphorus
Broome	Blueberry, Laurel Lakes (1404-0033)	Phosphorus
Broome	Fly Pond, Deer Lake (1404-0038)	Phosphorus
Broome	Minor Tribs to Lower Susquehanna (0603-0044)	Phosphorus
Broome	Whitney Point Lake/Reservoir (0602-0004)	Phosphorus
Cattaraugus	Allegheny River/Reservoir (0201-0023)	Phosphorus
Cattaraugus	Beaver Lake/Alma Pond (0201-0073)	Phosphorus
Cattaraugus	Case Lake (0201-0020)	Phosphorus
Cattaraugus	Linlyco/Club Pond (0201-0035)	Phosphorus
Cayuga	Duck Lake (0704-0025)	Phosphorus
Cayuga	Owasco Inlet, Upper, and tribs (0706-0014)	Nutrients
Chautauqua	Chadakoin River and tribs (0202-0018)	Phosphorus
Chautauqua	Hulburt/Clymer Pond (0202-0079)	Phosphorus
Chautauqua	Middle Cassadaga Lake (0202-0002)	Phosphorus
Clinton	Great Chazy River, Lower, Main Stem (1002-0001)	Silt/Sediment
Columbia	Robinson Pond (1308-0003)	Phosphorus
Cortland	Dean Pond (0602-0077)	Phosphorus
Dutchess	Fallkill Creek (1301-0087)	Phosphorus
Dutchess	Hillside Lake (1304-0001)	Phosphorus
Dutchess	Wappingers Lake (1305-0001)	Phosphorus
Dutchess	Wappingers Lake (1305-0001)	Silt/Sediment
Erie	Beeman Creek and tribs (0102-0030)	Phosphorus
Erie	Delaware Park Pond (0101-0026)	Phosphorus
Erie	Ellicott Creek, Lower, and tribs (0102-0018)	Phosphorus
Erie	Ellicott Creek, Lower, and tribs (0102-0018)	Silt/Sediment
Erie	Green Lake (0101-0038)	Phosphorus
Erie	Little Sister Creek, Lower, and tribs (0104-0045)	Phosphorus
Erie	Murder Creek, Lower, and tribs (0102-0031)	Phosphorus

Erie	Rush Creek and tribs (0104-0018)	Phosphorus
Erie	Scajaquada Creek, Lower, and tribs (0101-0023)	Phosphorus
Erie	Scajaquada Creek, Middle, and tribs (0101-0033)	Phosphorus
Erie	Scajaquada Creek, Upper, and tribs (0101-0034)	Phosphorus
Erie	South Branch Smoke Cr, Lower, and tribs (0101-0036)	Phosphorus
Erie	South Branch Smoke Cr, Lower, and tribs (0101-0036)	Silt/Sediment
Genesee	Bigelow Creek and tribs (0402-0016)	Phosphorus
Genesee	Black Creek, Middle, and minor tribs (0402 0028)	Phosphorus
Genesee	Black Creek, Upper, and minor tribs (0402-0048)	Phosphorus
Genesee	Bowen Brook and tribs (0102-0036)	Phosphorus
Genesee	LeRoy Reservoir (0402-0003)	Phosphorus
Genesee	Mill Pond (0402-0050)	Phosphorus
Genesee	Oak Orchard Cr, Upper, and tribs (0301-0014)	Phosphorus
Genesee	Oatka Creek, Middle, and minor tribs (0402-0031)	Phosphorus
Genessee	Tonawanda Cr, Middle, Main Stem (0102-0002)	Phosphorus
Greene	Schoharie Reservoir (1202-0012)	Silt/Sediment
Greene	Sleepy Hollow Lake (1301-0059)	Silt/Sediment
Herkimer	Steele Creek tribs (1201-0197)	Phosphorus
Herkimer	Steele Creek tribs (1201-0197)	Silt/Sediment
Kings	Hendrix Creek (1701-0006) 18	Nitrogen
Kings	Prospect Park Lake (1701-0196)	Phosphorus
Lewis	Mill Creek/South Branch, and tribs (0801-0200)	Nutrients
Livingston	Christie Creek and tribs (0402-0060)	Phosphorus
Livingston	Conesus Lake (0402-0004)	Phosphorus
Livingston	Mill Creek and minor tribs (0404-0011)	Silt/Sediment
Monroe	Black Creek, Lower, and minor tribs (0402-0033)	Phosphorus
Monroe	Buck Pond (0301-0017)	Phosphorus
Monroe	Cranberry Pond (0301-0016)	Phosphorus
Monroe	Durand, Eastman Lakes (0302-0037)	Phosphorus
Monroe	Lake Ontario Shoreline, Western (0301-0069) 9	Phosphorus
Monroe	Long Pond (0301-0015)	Phosphorus
Monroe	Mill Creek and tribs (0302-0025)	Phosphorus 2
Monroe	Mill Creek/Blue Pond Outlet and tribs (0402-0049)	Phosphorus
Monroe	Minor Tribs to Irondequoit Bay (0302-0038)	Phosphorus
Monroe	Rochester Embayment - East (0302-0002) [9]	Phosphorus
Monroe	Rochester Embayment - West (0301-0068) 9	Phosphorus
Monroe	Shipbuilders Creek and tribs (0302-0026)	Phosphorus 2
Monroe	Thomas Creek/White Brook and tribs (0302-0023)	Phosphorus

Nassau	Bannister Creek/Bay (1701-0380)	Nitrogen
Nassau	Beaver Lake (1702-0152)	Phosphorus
Nassau	Browswere Bay (1701-0383)	Nitrogen
Nassau	Camaans Pond (1701-0052)	Phosphorus
Nassau	East Meadow Brook, Upper, and tribs (1701-0211)	Silt/Sediment
Nassau	East Rockaway Channel (1701-0381)	Nitrogen
Nassau	Glen Cove Creek, Lower, and tribs (1702-0146)	Silt/Sediment
Nassau	Grant Park Pond (1701-0054)	Phosphorus
Nassau	Hempstead Bay, Broad Channel (1701-0032)	Nitrogen
Nassau	Hempstead Lake (1701-0015)	Phosphorus
Nassau	Hewlett Bay (1701-0382)	Nitrogen
Nassau	Hog Island Channel (1701-0220)	Nitrogen
Nassau	Massapequa Creek, Upper, and tribs (1701-0174)	Phosphorus
Nassau	Milburn/Parsonage Creeks, Upp, and tribs (1701-0212)	Phosphorus
Nassau	Reynolds Channel, East (1701-0215) [12]	Nitrogen
Nassau	Reynolds Channel, West (1701-0216) 12	Nitrogen
Nassau	Tidal Tribs to Hempstead Bay (1701-0218)	Nitrogen
Nassau	Tribs (fresh) to East Bay (1701-0204)	Silt/Sediment
Nassau	Tribs (fresh) to East Bay (1701-0204)	Phosphorus
Nassau	Tribs to Smith Pond/Halls Pond (1701-0221)	Phosphorus
Nassau	Woodmere Channel (1701-0219)	Nitrogen
New York	Harlem Meer (1702-0103)	Phosphorus
New York	The Lake in Central Park (1702-0105)	Phosphorus
Niagara	Bergholtz Creek and tribs (0101-0004)	Phosphorus
Niagara	Hyde Park Lake (0101-0030)	Phosphorus
Niagara	Lake Ontario Shoreline, Western (0301-0053) 9	Phosphorus
Niagara	Lake Ontario Shoreline, Western (0301-0072) 9	Phosphorus
Oneida	Ballou, Nail Creeks (1201-0203)	Phosphorus
Onondaga	Ley Creek and tribs (0702-0001) 10	Nutrients (phosphorus)
Onondaga	Minor Tribs to Onondaga Lake (0702-0022) 10	Nutrients (phosphorus)
Onondaga	Minor Tribs to Onondaga Lake (0702-0022) 10	Nitrogen (NH3, NO2)
Onondaga	Onondaga Creek, Lower (0702-0023) 10	Nutrients (phosphorus)
Onondaga	Onondaga Creek, Lower, and tribs (0702-0023)	Turbidity
Onondaga	Onondaga Creek, Middle, and tribs (0702-0004)	Turbidity
Onondaga	Onondaga Creek, Upper, and tribs (0702-0024)	Turbidity
Ontario	Great Brook and minor tribs (0704-0034)	Phosphorus 2
Ontario	Great Brook and minor tribs (0704-0034)	Silt/Sediment

Ontario	Hemlock Lake Outlet and minor tribs (0402-0013)	Phosphorus
Ontario	Honeoye Lake (0402-0032)	Phosphorus
Orange	Brown Pond Reservoir (1303-0013)	Phosphorus
Orange	Lake Washington (1303-0012)	Phosphorus
Orange	Minor Tribs to Middle Wallkill (1306-0061)	Phosphorus
Orange	Monhagen Brook and tribs (1306-0074)	Phosphorus
Orange	Orange Lake (1301-0008) [16]	Phosphorus
Orange	Quaker Creek and tribs (1306-0025)	Phosphorus
Orange	Wallkill River, Middle, Main Stem (1306-0038)	Phosphorus
Orange	Wallkill River, Upper, and Minor tribs (1306-0017)	Phosphorus
Orleans	Glenvwood Lake (0301-0041)	Phosphorus
Orleans	Lake Ontario Shoreline, Western (0301-0070) 9	Phosphorus
Orleans	Lake Ontario Shoreline, Western (0301-0071) 9	Phosphorus
Oswego	Lake Neatahwanta (0701-0018)	Nutrients (phosphorus)
Oswego	Pleasant Lake (0703-0047)	Phosphorus
Putnam	Lost Lake, Putnam Lake (1302-0053)	Phosphorus
Putnam	Minor Tribs to Croton Falls Reservoir (1302-0001)	Phosphorus
Queens	Bergen Basin (1701-0009) 18	Nitrogen
Queens	Jamaica Bay, Eastern, and tribs, Queens (1701-0005) 18	Nitrogen
Queens	Kissena Lake (1702-0258)	Phosphorus
Queens	Meadow Lake (1702-0030)	Phosphorus
Queens	Shellbank Basin (1701-0001) 18	Nitrogen
Queens	Willow Lake (1702-0031)	Phosphorus
Rensselaer	Nassau Lake (1310-0001)	Phosphorus
Rensselaer	Snyders Lake (1301-0043)	Phosphorus
Richmond	Grassmere Lake/Bradys Pond (1701-0357)	Phosphorus
Rockland	Congers Lake, Swartout Lake (1501-0019)	Phosphorus
Rockland	Rockland Lake (1501-0021)	Phosphorus
Saratoga	Ballston Lake (1101-0036)	Phosphorus
Saratoga	Dwaas Kill and tribs (1101-0007)	Phosphorus
Saratoga	Dwaas Kill and tribs (1101-0007)	Silt/Sediment
Saratoga	Lake Lonely (1101-0034)	Phosphorus
Saratoga	Round Lake (1101-0060)	Phosphorus
Saratoga	Tribs to Lake Lonely (1101-0001)	Phosphorus
Schenectady	Collins Lake (1201-0077)	Phosphorus
Schenectady	Duane Lake (1311-0006)	Phosphorus
Schenectady Lake	Mariaville Lake (1201-0113)	Phosphorus
Schuyler	Cayuta Lake (0603-0005)	Phosphorus

Seneca	Reeder Creek and tribs (0705-0074)	Phosphorus
St.Lawrence	Black Lake Outlet, Black Lake (0906-0001)	Phosphorus
St.Lawrence	Fish Creek and minor tribs (0906-0026)	Phosphorus
Steuben	Smith Pond (0502-0012)	Phosphorus
Suffolk	Agawam Lake (1701-0117)	Phosphorus
Suffolk	Big/Little Fresh Ponds (1701-0125)	Phosphorus
Suffolk	Canaan Lake (1701-0018)	Phosphorus
Suffolk	Canaan Lake (1701-0018)	Silt/Sediment
Suffolk	Fresh Pond (1701-0241)	Phosphorus
Suffolk	Great South Bay, East (1701-0039)	Nitrogen
Suffolk	Great South Bay, Middle (1701-0040)	Nitrogen
Suffolk	Great South Bay, West (1701-0173)	Nitrogen
Suffolk	Lake Ronkonkoma (1701-0020)	Phosphorus
Suffolk	Mattituck/Marratooka Pond (1701-0129)	Phosphorus
Suffolk	Mill and Seven Ponds (1701-0113)	Phosphorus
Suffolk	Millers Pond (1702-0013)	Phosphorus
Suffolk	Moriches Bay, East (1701-0305)	Nitrogen
Suffolk	Moriches Bay, West (1701-0038)	Nitrogen
Suffolk	Quantuck Bay (1701-0042)	Nitrogen
Suffolk	Shinnecock Bay and Inlet (1701-0033)	Nitrogen
Suffolk	Tidal Tribs to West Moriches Bay (1701-0312)	Nitrogen
Sullivan	Bodine, Mongomery Lakes (1401-0091)	Phosphorus
Sullivan	Davies Lake (1402-0047)	Phosphorus
Sullivan	Evens Lake (1402-0004)	Phosphorus
Sullivan	Pleasure Lake (1402-0055)	Phosphorus
Sullivan	Swan Lake (1401-0063)	Phosphorus
Tompkins	Cayuga Lake, Southern End (0705-0040)	Phosphorus
Tompkins	Cayuga Lake, Southern End (0705-0040)	Silt/Sediment
Ulster	Ashokan Reservoir (1307-0004)	Silt/Sediment
Ulster	Esopus Creek, Lower, Main Stem (1307-0010) [17]	Turbidity
Ulster	Esopus Creek, Middle, Main Stem (1307-0003) 17	Turbidity
Ulster	Esopus Creek, Upper, and minor tribs (1307-0007)[3]	Silt/Sediment
Ulster	Wallkill River, Lower, Main Stem (1306-0027)	Phosphorus
Warren	Hague Brook and tribs (1006-0006)	Silt/Sediment
Warren	Huddle/Finkle Brooks and tribs (1006-0003)	Silt/Sediment
Warren	Indian Brook and tribs (1006-0002)	Silt/Sediment
Warren	Lake George (1006-0016) and tribs	Silt/Sediment
Warren	Tribs to Lake George, East Shore (1006-0020)	Silt/Sediment
Warren	Tribs to Lake George, Lk.George Village (1006-0008)	Silt/Sediment

Washington	Wood Cr/Champlain Canal and tribs (1005-0036)	Phosphorus
Westchester	Lake Katonah (1302-0136)	Phosphorus
Westchester	Lake Lincolndale (1302-0089)	Phosphorus
Westchester	Lake Meahagh (1301-0053)	Phosphorus
Westchester	Lake Mohegan (1301-0149)	Phosphorus
Westchester	Lake Shenorock (1302-0083)	Phosphorus
Westchester	Mamaroneck River, Lower (1702-0071)	Silt/Sediment
Westchester	Mamaroneck River, Upp, & minor tribs (1702-0123)	Silt/Sediment
Westchester	Saw Mill River (1301-0007)	Phosphorus
Westchester	Saw Mill River, Middle, and tribs (1301-0100)	Phosphorus
Westchester	Sheldrake River (1702-0069)	Phosphorus
Westchester	Sheldrake River (1702-0069)	Silt/Sedimnt
Westchester	Silver Lake (1702-0040)	Phosphorus
Westchester	Teatown Lake (1302-0150)	Phosphorus
Westchester	Truesdale Lake (1302-0054)	Phosphorus
Westchester	Wallace Pond (1301-0140)	Phosphorus

APPENDIX E – List of NYSDEC Regional Offices

Region	Covering the following counties:	DIVISION OF ENVIRONMENTAL PERMITS (DEP) Permit Administrators	DIVISION OF WATER (DOW) Water (SPDES) Program
1	Nassau and Suffolk	50 Circle Road Stony Brook, NY 11790 Tel. (631) 444-0365	50 Circle Road Stony Brook, NY 11790-3409 Tel. (631) 444-0405
2	Bronx, Kings, New York, Queens and Richmond	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4997	1 Hunters Point Plaza, 47-40 21st St. Long Island City, NY 11101-5407 Tel. (718) 482-4933
3	Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster and Westchester	21 South Putt Corners Road New Paltz, NY 12561-1696 Tel. (845) 256-3059	220 White Plains Road, Suite 110 Tel. (914) 428 - 2505
4	Albany, Columbia, Delaware, Greene, Montgomery, Otsego, Rensselaer, Schenectady and Schoharie	1130 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2069	1130 North Westcott Road Schenectady, NY 12306-2014 Tel. (518) 357-2045
5	Clinton, Essex, Franklin, Fulton, Hamilton, Saratoga, Warren and Washington	1115 State Route 86, Po Box 296 Ray Brook, NY 12977-0296 Tel. (518) 897-1234	232 Golf Course Road Warrensburg, NY 12885-1172 Tel. (518) 623-1200
6	HERKIMER, JEFFERSON, LEWIS, ONEIDA AND ST. LAWRENCE	STATE OFFICE BUILDING 317 WASHINGTON STREET WATERTOWN, NY 13601-3787 TEL. (315) 785-2245	STATE OFFICE BUILDING 207 GENESEE STREET UTICA, NY 13501-2885 TEL. (315) 793-2554
7	BROOME, CAYUGA, CHENANGO, CORTLAND, MADISON, ONONDAGA, OSWEGO, TIOGA AND TOMPKINS	5786 WIDEWATERS PARKWAY SYRACUSE, NY 13214-1867 TEL. (315) 426-7438	5786 WIDEWATERS PARKWAY SYRACUSE, NY 13214-1867 TEL. (315) 426-7500
8	CHEMUNG, GENESEE, LIVINGSTON, MONROE, ONTARIO, ORLEANS, SCHUYLER, SENECA, STEUBEN, WAYNE AND YATES	6274 EAST AVON-LIMA ROADAVON, NY 14414-9519 TEL. (585) 226-2466	6274 EAST AVON-LIMA RD. AVON, NY 14414-9519 TEL. (585) 226-2466
9	ALLEGANY, CATTARAUGUS, CHAUTAUQUA, ERIE, NIAGARA AND WYOMING	700 DELAWARE AVENUE BUFFALO, NY 14209-2999 TEL. (716) 851-7165	700 DELAWARE AVENUE BUFFALO, NY 14209-2999 TEL. (716) 851-7070

APPENDIX F – SWPPP Preparer Certification Form

The SWPPP Preparer Certification Form required by this permit begins on the following page.

NEW YORK STATE | Department of Environmental Conservation

SWPPP Preparer Certification Form

SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP)

(In accordance with CGP Part I.D.2.b., the completed form must be attached to the eNOI and submitted to NYSDEC electronically.)

Project/Site Name:

eNOI Submission ID:

Owner/Operator Name:

Certification Statement – SWPPP Preparer

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) has been prepared in accordance with the requirements of GP-0-25-001. I certify under penalty of law that the SWPPP and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

SWPPP Preparer First Name | MI | SWPPP Preparer Last Name

Signature | Date

APPENDIX G – MS4 SWPPP Acceptance Form

The MS4 SWPPP Acceptance Form required by this permit begins on the following page.

MS4 SWPPP Acceptance Form

for construction activities seeking authorization under the

SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP)

(In accordance with CGP Part I.D.2.b., the completed form must be attached to the eNOI and submitted to NYSDEC electronically.)

I. Project Owner/Operator Information
1. Owner/Operator Name:
2. Contact Person:
3. Street Address:
4. City/State/Zip:
II. Project Site Information
5. Project/Site Name:
6. Street Address:
7. City/State/Zip:
III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance Information
8. SWPPP Reviewed by:
9. Title/Position:
10. Date Final SWPPP Reviewed and Accepted:
IV. Regulated MS4 Information
11. Name of MS4 Operator:
12. MS4 SPDES Permit Identification Number: NYR20A
13. Street Address:
14. City/State/Zip:
15. Telephone Number:

MS4 SWPPP Acceptance Form - continued

V. Certification Statement - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative

I hereby certify that the final Stormwater Pollution Prevention Plan (SWPPP) for the construction project identified in section II. of this form has been reviewed and meets the substantive requirements in the SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP). Note: The MS4 Operator, through the acceptance of the SWPPP, assumes no responsibility for the accuracy and adequacy of the design included in the SWPPP. In addition, review and acceptance of the SWPPP by the MS4 Operator does not relieve the owner/operator or their SWPPP preparer of responsibility or liability for errors or omissions in the plan.

Printed Name[1]:

Title/Position:

Signature:

Date:

VI. Additional Information

[1] Printed name of the principal executive officer or ranking elected official for the MS4 Operator or their duly authorized representative in accordance with CGP Part VII.J.2.

(NYSDEC - MS4 SWPPP Acceptance Form - January 2025)

APPENDIX H – NYCDEP SWPPP Acceptance/Approval Form

The City of New York Department of Environmental Protection (NYCDEP) SWPPP Acceptance/Approval form required by this permit begins on the following page.

THE CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Environmental Planning and Analysis
59-17 Junction Blvd., 9th Floor; Flushing, NY 11373

SWPPP Acceptance/Approval

Application Number:

I. Project Owner/Operator Information

1. Owner/Operator Name:
2. Contact Person:
3. Street Address:
4. City/State/Zip:

II. Project Site Information

5. Project/Site Name:
6. Street Address:
7. City/State/Zip:

III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance/Approval

8. SWPPP Reviewed by:
9. Title/Position: /
10. Date Final SWPPP Reviewed and Accepted:
11. Acceptance/Approval Expiration Date:

IV. Regulated MS4 Information for projects that require coverage under the NY State Pollution Discharge Elimination System General Permit for Stormwater Discharges from Construction Activity

12. Name of MS4: *CITY OF NEW YORK*
13. MS4 SPDES Permit Identification Number: *NY-0287890*
14. Contact Person:
15. Street Address: *59-17 Junction Blvd. 9th Floor*
16. City/State/Zip: *Flushing, NY 11373*
17. Telephone Number:

Projects in the MS4 area must submit a copy of this SWPPP Acceptance with a Notice of Intent for coverage under the NY SPDES General Permit for Stormwater Discharges from Construction Activity to: NYS Department of Environmental Conservation, Division of Water; 625 Broadway, 4th Floor; Albany, New York 12233-3505.

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THE CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Environmental Planning and Analysis
59-17 Junction Blvd., 9th Floor; Flushing, NY 11373

V. Certification Statement - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative

I hereby certify that the final Stormwater Pollution Prevention Plan (SWPPP) for the construction project identified in question 5 has been reviewed and meets the substantive requirements in the SPDES General Permit For Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s).

Note: The MS4, through the acceptance of the SWPPP, assumes no responsibility for the accuracy and adequacy of the design included in the SWPPP. In addition, review and acceptance of the SWPPP by the MS4 does not relieve the owner/operator or their SWPPP preparer of responsibility or liability for errors or omissions in the plan.

Printed Name:

Title/Position:

Signature:

Date:

VI. Conditions of Acceptance/Approval and Additional Information

Projects in the MS4 area must submit a copy of this SWPPP Acceptance with a Notice of Intent for coverage under the NY SPDES General Permit for Stormwater Discharges from Construction Activity to: NYS Department of Environmental Conservation, Division of Water; 625 Broadway, 4th Floor; Albany, New York 12233-3505.

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APPENDIX I – MS4 No Jurisdiction Form

The MS4 No Jurisdiction Form required by this permit begins on the following page.

NEW YORK STATE | Department of Environmental Conservation

MS4 No Jurisdiction Form

for construction activities seeking authorization under the

SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP)

(In accordance with CGP Part I.D.2.b., the completed form must be attached to the eNOI and submitted to NYSDEC electronically.)

I. Project Owner/Operator Information

a. Owner/Operator Name:

b. Contact Person:

c. Street Address:

d. City/State/Zip:

II. Project Site Information

a. Project/Site Name:

b. Street Address:

c. City/State/Zip:

d. eNOI Submission ID:

III. Traditional Land Use Control MS4 Operator Information

a. Name of MS4 Operator:

b. MS4 SPDES Permit ID Number: NYR20A

c. Street Address:

d. City/State/Zip:

e. Telephone Number:

IV. Certification Statement

In accordance with CGP Part I.D.2.b.ii.3., I hereby certify that the Traditional Land Use Control MS4 Operator identified in section III. of this form does not have review authority over the construction project identified in section II. of this form, which is owned/operated by the entity identified in section I. of this form. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

a. Printed name of the principal executive officer or ranking elected official for the MS4 Operator or their duly authorized representative in accordance with CGP Part VII.J.2.:

b. Title/Position:

c. Signature:

d. Date:

APPENDIX J – Owner/Operator Certification Form

The Owner/Operator Certification Form required by this permit begins on the following page.

NEW YORK STATE | Department of Environmental Conservation

Owner/Operator Certification Form

SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP)

(In accordance with CGP Part I.D.2.b. or Part I.F.2. and 3., the completed form must be attached to the eNOI or the Request to Continue Coverage, and submitted to NYSDEC electronically.

Project/Site Name: _____

eNOI Submission ID: _____

eNOI Submitted by: ☐ **Owner/Operator** ☐ **SWPPP Preparer** ☐ **Other**

Certification Statement - Owner/Operator

I hereby certify that I read, and will comply with, the GP-0-25-001 permit requirements. I understand that authorization to discharge under the permit for the project/site named above is dependent on receipt of a Letter of Authorization (LOA) or a Letter of Continued Coverage (LOCC) from the New York State Department of Environmental Conservation (NYSDEC) in accordance with CGP Part I.D.3.b. or Part I.F.4. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Owner/Operator First Name MI Owner/Operator Last Name

_____

Signature

_____

Date

SECTION 5

Certifications, Forms, Reports, and Daily Logs

STORMWATER POLLUTION PREVENTION PLAN
NOI PERMITTEE'S CERTIFICATION

FORM 1

Construction Site
JERRY SMITH BATTERY ENERGY STORAGE SYSTEM
JERRY SMITH LLC, TOMPKINS County, New York

STORMWATER POLLUTION PREVENTION PLAN DATED JULY 2026

NOI PERMITTEE'S CERTIFICATION:

"I certify under penalty of law that this document was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that false statements made herein are punishable as a class A misdemeanor pursuant to Section 210.45 of the Penal Law."

NOI Permittee's
Designated Project Manager: _____

Signed: _____

Printed Name: _____

Position: _____

Date: _____

STORMWATER POLLUTION PREVENTION PLAN
CONTRACTOR'S CERTIFICATION LOG

FORM 2

Construction Site
JERRY SMITH BATTERY ENERGY STORAGE SYSTEM
JERRY SMITH LLC, TOMPKINS County, New York

Company Name	
Address	
Contact Name	
Telephone Number	
Cell Phone/Pager	
Scope of Services	
Certification Date	

Company Name	
Address	
Contact Name	
Telephone Number	
Cell Phone/Pager	
Scope of Services	
Certification Date	

Company Name	
Address	
Contact Name	
Telephone Number	
Cell Phone/Pager	
Scope of Services	
Certification Date	

Designated Project Manager_____

STORMWATER POLLUTION PREVENTION PLAN
CONTRACTOR'S/SUBCONTRACTOR'S CERTIFICATION
FORM 3

This form to be completed for each contractor listed on Form 2. Reproduce as needed

Construction Site

JERRY SMITH BATTERY ENERGY STORAGE SYSTEM
JERRY SMITH LLC, TOMPKINS County, New York
CONSTRUCTION POLLUTION PREVENTION PROGRAM
DATED JULY 2026

CONTRACTOR'S CERTIFICATION:

"I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations."

The Contractor/Subcontractor further understands that the SWPPP and associated Erosion and Sediment Control Plans represent the **MINIMUM** erosion and sediment control measures that will be required to protect the site during construction. Additional erosion and sediment control measures will be necessary during construction. It will be the responsibility of Contractor/Subcontractor to implement all additional erosion and sediment control measures necessary to protect the site during construction.

CONTRACTOR:	**SUB**CONTRACTOR:
Name (Print): _____	Name (Print): _____
Signature: _____	Signature: _____
Date: _____	Date: _____
Title: _____	Title: _____
Company Name: _____	Company Name: _____
Address: _____	Address: _____
_____	_____
Phone: _____	Phone: _____

Elements of SWPPP Contractor/Subcontractor responsible for: _____

Name of Trained Contractor Responsible for SWPPP Implementation: _____

Title of Trained Contractor Responsible for SWPPP Implementation: _____

FORM 4
JERRY SMITH BATTERY ENERGY STORAGE SYSTEM
SWPPP # _____
This form to be completed by Contractor's designated inspector at least weekly. Reproduce as needed.

SWPPP INSPECTION REPORTS

Page 1 of _____
Date _____

Weather and Soil Conditions
Weather Conditions: _____
Soil Conditions: Dry [ ] Wet [ ] Saturated [ ] Snow Covered [ ] Frozen [ ]

Maintaining Water Quality

Yes	No	NA	
[ ]	[ ]	[ ]	Is there an increase in turbidity causing a substantial visible contrast to natural conditions?
[ ]	[ ]	[ ]	Is there residue from oil and floating substances, visible oil film, or globules or grease?
[ ]	[ ]	[ ]	All disturbance is within the limits of the approved plans.
[ ]	[ ]	[ ]	Have receiving lake/bay, stream, and/or wetland been impacted by silt from project?

Housekeeping
1. General Site Conditions

Yes	No	NA	
[ ]	[ ]	[ ]	Is construction site litter and debris appropriately managed?
[ ]	[ ]	[ ]	Are facilities and equipment necessary for implementation of erosion and sediment control in working order and/or properly maintained?
[ ]	[ ]	[ ]	Is construction impacting the adjacent property?
[ ]	[ ]	[ ]	Is dust adequately controlled?

2. Temporary Stream Crossing

Yes	No	NA	
[ ]	[ ]	[ ]	Maximum diameter pipes necessary to span creek without dredging are installed.
[ ]	[ ]	[ ]	Installed non-woven geotextile fabric beneath approaches.
[ ]	[ ]	[ ]	Is fill composed of aggregate (no earth or soil)?
[ ]	[ ]	[ ]	Rock on approaches is clean enough to remove mud from vehicles and prevent sediment from entering stream during high flow.

Runoff Control Practices
1. Excavation Dewatering

Yes	No	NA	
[ ]	[ ]	[ ]	Upstream and downstream berms (sandbags, inflatable dams, etc.) are installed per plan.
[ ]	[ ]	[ ]	Clean water from upstream pool is being pumped to the downstream pool.
[ ]	[ ]	[ ]	Sediment-laden water from work area is being discharged to a silt-trapping device.
[ ]	[ ]	[ ]	Constructed upstream berm with one-foot minimum freeboard.

2. Water Bar

Yes	No	NA	
[ ]	[ ]	[ ]	Installed per plan with vehicle crossings stabilized with gravel.
[ ]	[ ]	[ ]	Outlet located on undisturbed soil or lined with riprap.
[ ]	[ ]	[ ]	Bar height is 12-inch minimum from bottom of channel with minimum base width of 6-foot.

3. Interceptor Dikes and Swales

Yes	No	NA	
[ ]	[ ]	[ ]	Installed per plan with minimum side slopes 1V:3H or flatter.
[ ]	[ ]	[ ]	Stabilized by geotextile fabric, seed, or mulch with no erosion occurring.
[ ]	[ ]	[ ]	Sediment-laden runoff directed to sediment trapping structure.

FORM 4
JERRY SMITH BATTERY ENERGY STORAGE SYSTEM
SWPPP # _____
This form to be completed by Contractor's designated inspector at least weekly. Reproduce as needed.

SWPPP INSPECTION REPORT Page 2 of _____
Date _____

4. Stone Check Dam

Yes	No	NA	
[ ]	[ ]	[ ]	Is channel stable? (flow is not eroding soil underneath or around the structure).
[ ]	[ ]	[ ]	Check is in good condition (rocks in place and no permanent pools behind the structure).
[ ]	[ ]	[ ]	Has accumulated sediment been removed?

5. Rock Outlet Protection

Yes	No	NA	
[ ]	[ ]	[ ]	Installed per plan.
[ ]	[ ]	[ ]	Installed concurrently with pipe installation.

Soil Stabilization

1. Topsoil and Spoil Stockpiles

Yes	No	NA	
[ ]	[ ]	[ ]	Stockpiles are stabilized with vegetation and/or mulch.
[ ]	[ ]	[ ]	Sediment control is installed at the toe of the slope.

2. Revegetation

Yes	No	NA	
[ ]	[ ]	[ ]	Temporary seedings and mulch have been applied to idle areas.
[ ]	[ ]	[ ]	Four inches minimum of topsoil has been applied under permanent seedings.

Sediment Control Practices

1. Stabilized Construction Entrance

Yes	No	NA	
[ ]	[ ]	[ ]	Stone is clean enough to effectively remove mud from vehicles.
[ ]	[ ]	[ ]	Installed per standards and specifications?
[ ]	[ ]	[ ]	Does all traffic use the stabilized entrance to enter and leave site?
[ ]	[ ]	[ ]	Is adequate drainage provided to prevent ponding at entrance?

2. Silt Fence

Yes	No	NA	
[ ]	[ ]	[ ]	Installed on Contour, ten feet from toe of slope (not across conveyance channels).
[ ]	[ ]	[ ]	Joints constructed by wrapping the two ends together for continuous support.
[ ]	[ ]	[ ]	Fabric buried six inches minimum.
[ ]	[ ]	[ ]	Posts are stable, fabric is tight and without rips or frayed areas.

Sediment accumulation is _____% of design capacity.

3. Storm Drain Inlet Protection (Use for Stone & Block; Filter Fabric; Curb; or, Excavated practices)

Yes	No	NA	
[ ]	[ ]	[ ]	Installed concrete blocks lengthwise so open ends face outward, not upward.
[ ]	[ ]	[ ]	Placed wire screen between No. 3 crushed stone and concrete blocks.
[ ]	[ ]	[ ]	Drainage area is one acre or less.
[ ]	[ ]	[ ]	Excavated area is 900 cubic feet.
[ ]	[ ]	[ ]	Excavated side slopes should be 2:1.
[ ]	[ ]	[ ]	2" x 4" frame is constructed and structurally sound.
[ ]	[ ]	[ ]	Posts three-foot maximum spacing between posts.
[ ]	[ ]	[ ]	Fabric is embedded 1 to 1.5 feet below ground and secured to frame/posts with staples at maximum eight inch spacing.
[ ]	[ ]	[ ]	Posts are stable, fabric is tight and without rips or frayed areas.

Sediment accumulation _____% of design capacity.

FORM 4
JERRY SMITH BATTERY ENERGY STORAGE SYSTEM
SWPPP # _____

This form to be completed by Contractor's designated inspector at least weekly. Reproduce as needed.

SWPPP INSPECTION REPORT

Date _____

4. Temporary Sediment Trap

Yes	No	NA	
[ ]	[ ]	[ ]	Outlet structure is constructed per the approved plan or drawing.
[ ]	[ ]	[ ]	Geotextile fabric has been placed beneath rock fill.

Sediment accumulation is _____% of design capacity.

5. Temporary Sediment Basin

Yes	No	NA	
[ ]	[ ]	[ ]	Basin and outlet structure constructed per the approved plan.
[ ]	[ ]	[ ]	Basin side slopes are stabilized with seed/mulch.
[ ]	[ ]	[ ]	Drainage structure flushed and basin surface restored upon removal of sediment basin facility.

Sediment accumulation is _____% of design capacity.

Dust Control Practices

1. Haul Road and Current Work Areas

Yes	No	NA	
[ ]	[ ]	[ ]	Are all traffic surface areas sufficiently treated to prevent fugitive dust?
[ ]	[ ]	[ ]	Are any areas of site's non-traffic and work area experiencing wind erosion?
[ ]	[ ]	[ ]	Are there any disturbed areas in need of temporary seed and mulch to protect surface from wind erosion?
[ ]	[ ]	[ ]	Is watering truck on-site?
[ ]	[ ]	[ ]	Is dust visible in air at any location of the site?

Note: Not all erosion and sediment control practices are included in this listing. Add additional pages to this list as required by site-specific design.
Construction inspection checklists for post-development stormwater management practices can be found in Appendix F of the New York Stormwater Management Design Manual.

Description of condition of runoff at all points of discharge from the construction site. (This shall include identification of discharges of sediment from the construction site. Include discharges from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow.) _____

_____

_____

_____

Description of areas that are disturbed at the time of the inspection and areas that have been stabilized (temporary and/or final) since the last inspection (see Page 5 for Sketch). _____

_____

_____

_____

FORM 4
JERRY SMITH BATTERY ENERGY STORAGE SYSTEM
SWPPP # _____
This form to be completed by Contractor's designated inspector at least weekly. Reproduce as needed.

SWPPP INSPECTION REPORT

Date _____

ADDITIONAL COMMENTS*:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____ _____
Inspector (print name and title) Date and Time of Inspection

_____ _____
Qualified Professional (print name) Qualified Professional Signature

The above signed acknowledges that, to the best of his/her knowledge, all information provided on the forms is accurate and complete.

***Attach photographs of practices identified as needing corrective actions.**

NOTE: IN ACCORDANCE WITH PART IV.C.4 OF THE SPDES GENERAL PERMIT (GP-0-20-001), THE QUALIFIED INSPECTOR MUST NOTIFY THE OWNER OR OPERATOR AND APPROPRIATE CONTRACTOR OF ANY CORRECTIVE ACTIONS THAT NEED TO BE TAKEN. THE CONTRACTOR SHALL BEGIN IMPLEMENTING THE CORRECTIVE ACTIONS WITHIN ONE (1) BUSINESS DAY OF THIS NOTIFICATION AND SHALL COMPLETE THE CORRECTIVE ACTIONS IN A REASONABLE TIME FRAME.

STORMWATER POLLUTION PREVENTION PLAN
MODIFICATION REPORT
FORM 5

This form to be used only when Contractor's designated inspector believes changes to the SWPPP and/or Erosion and Sediment control plans is warranted. For example, additional erosion control measures needed or removal of specific control measures can be done without adverse impact. This form must be approved by Designated Project Manager prior to implementation.

Construction Site
JERRY SMITH BATTERY ENERGY STORAGE SYSTEM
JERRY SMITH LLC, TOMPKINS County, New York

CHANGES REQUIRED FOR STORMWATER POLLUTION PREVENTION PLAN

To:	**Designated Project Manager**	**Date:**	
Address:			
Telephone:			
Facsimile:			
Sent Via:	☐ **Facsimile**	☐ **E-mail**	☐ **US Mail**

INSPECTOR: _____ DATE: _____
(Print)

_____
(Signature)

QUALIFICATIONS OF INSPECTOR: _____

CHANGES REQUIRED TO THE STORMWATER POLLUTION PREVENTION PLAN: _____

_____

_____

REASONS FOR CHANGES: _____

_____

_____

TO BE PERFORMED BY: _____ ON OR BEFORE: _____

APPROVED BY DESIGNATED PROJECT MANAGER _____ DATE: _____

STORMWATER POLLUTION PREVENTION PLAN
RECORD OF STABILIZATION AND CONSTRUCTION ACTIVITIES
FORM 6

Construction Site

JERRY SMITH BATTERY ENERGY STORAGE SYSTEM

JERRY SMITH LLC, TOMPKINS County, New York

A record of dates when major grading activities occur, when construction activities temporarily or permanently cease on a portion of the site, and when stabilization measures are initiated shall be maintained until final site stabilization is achieved and the Notice of Termination is filed. *Reproduce copies of this form as needed.*

MAJOR GRADING, CONSTRUCTION, OR STABILIZATION ACTIVITIES

Description of Activity: _____

Begin Date:_____ Site Contractor: _____

Location: _____

End Date: _____

Description of Activity: _____

Begin Date:_____ Site Contractor: _____

Location: _____

End Date: _____

Description of Activity: _____

Begin Date:_____ Site Contractor: _____

Location: _____

End Date: _____

Description of Activity: _____

Begin Date:_____ Site Contractor: _____

Location: _____

End Date: _____

Description of Activity: _____

Begin Date:_____ Site Contractor: _____

Location: _____

End Date: _____

Description of Activity: _____

Begin Date:_____ Site Contractor: _____

Location: _____

End Date: _____

Designated Project Manager_____

STORMWATER POLLUTION PREVENTION PLAN
RECORD OF TEMPORARY EROSION AND SEDIMENT CONTROL PRACTICES
FORM 6A

Construction Site

JERRY SMITH BATTERY ENERGY STORAGE SYSTEM

JERRY SMITH LLC, TOMPKINS County, New York

A record of the timing of temporary erosion and sediment control practices to be implemented, including the timing of initial placement and the duration that each practice should remain in place. The record JULY reflect the actual date of planned installation or the specific construction activity with which it will be associated. The timing of removal JULY reflect an actual date or the length of time over which the practice will be implemented.

TEMPORARY EROSION AND SEDIMENT CONTROL PRACTICES

Description of Practice: _____

Date/Timing of Initial Placement:_____ Site Contractor: _____

Location: _____

Projected Date/Timing of Removal: _____

Description of Practice: _____

Date/Timing of Initial Placement:_____ Site Contractor: _____

Location: _____

Projected Date/Timing of Removal: _____

Description of Practice: _____

Date/Timing of Initial Placement:_____ Site Contractor: _____

Location: _____

Projected Date/Timing of Removal: _____

Description of Practice: _____

Date/Timing of Initial Placement:_____ Site Contractor: _____

Location: _____

Projected Date/Timing of Removal: _____

Description of Practice: _____

Date/Timing of Initial Placement:_____ Site Contractor: _____

Location: _____

Projected Date/Timing of Removal: _____

Designated Project Manager_____

YEAR 20___ **STORMWATER POLLUTION PREVENTION PLAN** **FORM 7**

PROJECT RAINFALL LOG (to be completed by Contractor)

Month	Jan	Feb	Mar	Apr	JULY	JULY	July	Aug	Sep	Oct	Nov	Dec
Day												
1												
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31												
PM Initials												

STORMWATER POLLUTION PREVENTION PLAN

FINAL STABILIZATION CERTIFICATION /NOTICE OF TERMINATION CHECKLIST

FORM 8

This form is to be completed by Contractor and submitted to Designated Project Manager for approval only afterContractor believes all work regulated by SWPPP is complete.

Construction Site
JERRY SMITH BATTERY ENERGY STORAGE SYSTEM
JERRY SMITH LLC, TOMPKINS County, New York

1. ☐ **All soil disturbing activities are complete.**

2. ☐ **Temporary Erosion and Sediment Control Measures have been removed or will be removed at the appropriate time.**

3. ☐ **All areas of the Construction Site not otherwise covered by a permanent pavement or structure have been stabilized with a uniform perennial vegetative cover with a density of 85% or equivalent measures have been employed.**

CONTRACTOR'S CERTIFICATION:

"I certify under penalty of law that all storm water discharges associated with industrial activity from the identified project that are authorized by NPDES general permit have been eliminated and that all disturbed areas and soils at the construction site have achieved Final Stabilization and all temporary erosion and sediment control measures have been removed or will be removed at the appropriate time."

Company Name _____

Name (Print) _____

Signature _____

Date _____

APPROVED BY DESIGNATED PROJECT MANAGER_____ DATE: _____

SECTION 6

Supplemental Information

1. Stormwater Management Narrative
2. Soil Mapper
3. SHPO Correspondence
4. Endangered and Threatened Species Correspondence

Stormwater Management Narrative

Jerry Smith
BESS Project

Jerry Smith Road

Town of Lansing

Tompkins County, New York

Applicant:

Jerry Smith, LLC

101 Summer Street, 2nd Floor

Boston, MA 02110

JUNE 2026

Revised: JULY 2026

Prepared By:

The Environmental Design Partnership, LLP

900 Route 146

Clifton Park, NY 12065

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3.0 Predevelopment Stormwater Analysis....4
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5.2.1 Water Quality (WQv)....7
5.2.2 Runoff Reduction Volume (RRv)....7
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Figures

Figure 1 – Site Location Map

Figure 2 – Pre-development Drainage Map

Figure 3 – Post-development Drainage Map

Attachments

Attachment A – WQv Calculations

Attachment B – Stormwater Modeling Calculations

900 Route 146, Clifton Park, New York 12065
phone (518) 371-7621

1.0 Introduction

Jerry Smith, LLC is proposing the development of a Battery Energy Storage System (BESS) for on an existing parcel of land totaling approximately 57+/- acres located on Jerry Smith Road in the Town of Lansing, New York. The proposed site development includes a BESS which consists of approximately 620 +/- linear feet (LF) of access road, equipment pads, stormwater management areas, and ten-foot-high perimeter fencing. The total area of proposed disturbance is approximately 1.76 +/- acres and 0.64 +/- acres of new impervious area will be associated with the project.

A stormwater management system has been developed to provide pollutant removal, reduce channel erosion, prevent overbank flooding, and safely control extreme flood events in accordance with the NYS Stormwater Management Design Manual (Design Manual). The temporary erosion control measures and post-construction stormwater management systems for this project have been designed in accordance with those guidelines and subsequent discussions with the NYSDEC relative to their guidelines. Section 7.0 of this report addresses specific BESS panel application guidance.

The proposed stormwater management system for the project will include the use of a vegetated filter strip and Infiltration area designed to convey runoff from the gravel access road and concrete equipment pads. Runoff from the impervious access road is directed into the vegetated filter strip or infiltration area prior to discharging offsite.

This narrative presents a review of the design concepts and parameters of the stormwater management system for the proposed increased impervious areas, in accordance with NYSDEC application guidance, including the access roads and the equipment pads. The purpose of the stormwater management narrative is to ensure that changes in the surface runoff characteristics, as a result of the proposed construction, will not adversely impact adjacent or downstream properties. On-site stormwater management will be implemented in accordance with the Design Manual and NYSDEC application guidance to accommodate both additional stormwater runoff and to provide water quality treatment according to the green infrastructure standards.

2.0 Existing Conditions

The site consists of mostly wooded and field areas with residential development on the northern side of the parcel. The topography of the land consists of drainage from a highpoint in the middle of the site out to all directions. The typical slopes within the area of the proposed development range from 1% to 10% Elevations at the site vary between 1086 and 1078 feet above sea level.

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2.1 Soil and Groundwater Conditions

The USDA Natural Resources Conservation Service Soil Survey identifies the soils on the site, in the proposed development, consist of a variety of soil types from silt loam to a gravelly silt loam. These soils vary as Hydrologic Soil Groups (HSG) B and D. The results from the USDA Natural Resources Conservation Soil Survey (NRCS Soil Survey) are included in Section 6 of the SWPPP.

3.0 Predevelopment Stormwater Analysis

The existing hydrologic conditions, in the area to be disturbed as a result of the proposed construction, were analyzed using Applied Microcomputer Systems' "HydroCAD" computer modeling program. The HydroCAD stormwater modeling program employs the United States Department of Agriculture's Soil Conservation Service (SCS) Technical Release 20 (TR-20) method for stormwater analysis. Using this modeling technique, the site is divided into "subcatchments" that represent specific areas contributing stormwater runoff to an existing, or proposed drainage feature. The subcatchments typically flow through "reaches" (i.e., swales, channels, or pipes) that convey the stormwater to storm basins or discharge areas.

A hydrologic model of the existing site was prepared using the Hydrocad program. Three (3) large sub catchments were used to represent the existing drainage condition, see Figure 2.

The existing parameters of topography, vegetation, slope and soil type are all incorporated into the predevelopment model.

Table 1 presents a summary of the pre-development stormwater peak discharge for the 1 year, 10 year and 100-year design storm events at the respective Design Point. As will be discussed in subsequent sections, the post development stormwater discharge rate has been limited to the predevelopment discharge rate for the 1-year, 10-year, and 100-year storm events.

Table 1: Pre-Development Runoff Rates

Storm Event	Total Discharge (cfs)
1-Year (1.97")	0.30
10-Year (3.36")	5.57
100-Year (5.73")	23.91

The pre-development Curve Numbers (CN) for the existing ground covers are listed in Table 2.

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Table 2: Pre-Development Ground Cover

Pre-Development Ground Cover Description	Curve Number
Meadow, Non-grazed, HSG B	58
Meadow, Non-grazed, HSG D	78
Woods, Fair, HSG B	60
Woods, Fair, HSG D	79
Impervious	98

The weighted CN for the pre-development conditions for the site is approximately 65. The HydroCAD model results for the pre-development conditions are included within Attachment B.

4.0 Stormwater Management Planning and Practice Selection

The site layout and stormwater design for this project was completed while taking into consideration the potential impacts on the existing site and downstream hydrology. Stormwater runoff from the existing site predominately sheet flows to low areas. The stormwater management system will replicate similar practices.

Stormwater from impervious areas on the site is designed to be treated with a vegetated filter strip and an infiltration area. This design method was chosen on this site due to the minor amount of impervious surface and the uniform grade of the access road. Vegetated filter strips are considered standard stormwater management practices with runoff reduction volume capacity.

The total disturbance for the project will be on the order of 1.76± acres. The proposed development will result in an increase of impervious cover by 0.64± acres.

5.0 Post-Development Stormwater Analysis

The post-development conditions were analyzed using the HydroCAD computer modeling program.

Six (6) subcatchments were used to represent the post development drainage conditions of the site in the areas of the proposed BESS development. Site improvements to the property will consist of approximately 620 +/- LF of access road, a BESS equipment pad, and perimeter fencing. Also included, as permanent elements of the development, is the on-site stormwater management area depicted as a vegetated filter strip and an infiltration area. This vegetated

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filter strip and infiltration area have been designed to provide treatment and attenuation of stormwater runoff from the proposed impervious surfaces on the site.

Runoff from the undeveloped portion of the project site, outside of the stormwater management areas, will sheet flow off site, which is similar to predevelopment drainage patterns.

The post-development ground cover Curve Numbers (CN) are listed in Table 3.

Table 3: Post-Development Ground Cover

Post-Development Ground Cover Description	Curve Number
Meadow, Non-grazed, HSG B	58
Meadow, Non-grazed, HSG D	78
Woods, Fair, HSG B	60
Woods, Fair, HSG D	79
Impervious	98

The weighted CN for the post-development conditions for the site is approximately 63. The HydroCAD model results for the post-development conditions are included within Attachment B. The contributing area to each stormwater management area is identified in Figure 3.

Table 4 presents a summary of the post-development stormwater peak discharge for the 1 year, 10 year and 100-year design storm events at the respective Design Points. The 1-Year design storm shows an increase in runoff from the proposed project. The peak runoff rates do not exceed 0.10 cfs and do not increase the flooding risk to the surrounding areas.

Table 4: Post-Development Runoff Rates

Storm Event	Total Discharge (cfs)
1-Year (1.97")	0.36
10-Year (3.36")	5.57
100-Year (5.73")	23.30

5.1 Stormwater Management Area #1 – Vegetated Filter Strip

Stormwater Management Area #1 is designed as a vegetated filter strip with a gravel diaphragm. The filter strip and diaphragm will provide treatment and attenuation of

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stormwater runoff from the impervious access road and concrete equipment pad. Runoff contributing to SMA #1 will be conveyed via shallow concentrated flow and sheet flow.

5.2 Stormwater Management Area #2 – Infiltration Area

Stormwater Management Area #2 is designed as an infiltration area. The vegetated swale and infiltration area will provide treatment and attenuation of stormwater runoff from the impervious access road and concrete equipment pad. Runoff contributing to SMA #2 will be conveyed via vegetated swale.

5.3 NYS Unified Stormwater Sizing Criteria

The area to be disturbed as a result of the proposed development was modeled in HydroCAD under the post-development conditions using two subcatchments (Figure 3) routed into the stormwater management areas. The contributing area of each stormwater management area is identified in Figure 3. The post-development stormwater management system has been designed based on the Unified Stormwater Sizing Criteria as described in the following sections.

5.3.1 Water Quality (WQ_v)

In general, small storm events and the initial runoff from larger storm events are an environmental concern as this stormwater runoff typically contains roadway pollutants and thermal energy stored by the asphalt. In accordance with the Design Manual, this initial runoff is designated as the Water Quality Volume (WQ_v) and special attention is given to this volume of runoff to meet water quality objectives.

The Design Manual identifies several standard practices, such as the proposed infiltration basins which are acceptable for water quality treatment. These acceptable Stormwater Management Practices (SMPs) can capture and treat the full water quality volume (WQ_v), are capable of 80% TSS removal and 40% TP removal, have acceptable longevity in the field, and have pretreatment mechanism.

The water quality storage volume, WQ_v, is calculated as follows:

$$WQ_v = \frac{P \cdot R_v \cdot A}{12}$$

Where: WQ_v = water quality volume (acre-feet)

P = 90% rainfall event number

R_v = 0.05+0.009(I), where I is percent impervious cover

A = site area (acres), impervious area used with I = 100%

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Table 5: Required Water Quality Volume

Drainage Area	P	R_v	A (Acres)	Required WQ_v (cf)	Provided WQ_v (cf)
SMA #1	1.00	0.95	0.24	828	828
SMA #2	1.00	0.52	0.71	1,338	1,338

5.3.2 Runoff Reduction Volume (RRv)

The Design Manual specifies that runoff shall be reduced by 100% of the site WQv using standard SMPs with RRv capacity and green infrastructure techniques. The proposed project area on the site is approximately 1.76 acres. The total watershed area contributing to the SMA for analysis is approximately 0.95 acres, with a total post-development impervious area on the order of 0.64 acres. The resulting RRv for these site coverages is computed as 828 CF. Runoff reduction will be provided by standard SMP's with RRv capacity and Green Infrastructure Practices. (See Appendix A for summary of calculations)

5.3.2.1 Stormwater Management Practices (SMP's)

An infiltration area has been proposed to collect and treat the stormwater runoff from the site. The infiltration area is considered a standard stormwater treatment practice with RRv capabilities. The RRv provided by the infiltration basin is 1,338 CF.

5.3.2.2 Green Infrastructure Practices

The vegetated filter strip is considered a green infrastructure practice. The RRv provided by the practice is on the order of 828 CF. Greater than the minimum RRv required.

The following Table provides a summary of the Runoff Reduction provided for the proposed development, based on each management practice and technique.

Table 6: Runoff Reduction Volume Summary

Runoff Reduction Technique	RRv (cf)
Vegetated Filter Strip	828
Infiltration Basin	1,338
Total Site Reduction	2,166
% WQv. Reduction	**>100%**

Many of the green infrastructure practices recommended in the Design Manual were not applied to the stormwater management design on this site due to either site restrictions or the use of more feasible green infrastructure in place of the more restrictive and/or maintenance

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phone (518) 371-7621

intensive practices. The following table discusses why the unused green infrastructure practices were not feasible.

Table 7: Non-Feasible Green Infrastructure Practices

Green Infrastructure Practice	Reason use is not feasible
Vegetated Swales	There are no swales proposed to receive runoff from impervious areas onsite
Tree Planting/Tree Pit	Trees will be saved on the site to the greatest extent possible. Trees will also be planted to maintain a buffer from the surrounding properties to the proposed site, though the resulting runoff reduction value for adding additional trees is minimal.
Conservation of Natural Areas	Natural areas will be conserved on site as much as possible, but the resulting runoff reduction value is minimal.
Stream Daylighting	No existing piped streams are located on the site.
Green Roofs	There is no building construction proposed as part of the project
Stormwater Planters	The proposed practices were deemed more economically feasible and effective as opposed to stormwater planters. Additionally, they require less maintenance.
Rain Barrels/Cisterns	Rain Barrels/Cisterns would require the ability to use the water between storm events which is not feasible for this project type.
Rain Gardens	Rain gardens are not recommended for commercial applications as well as not economically feasible.
Disconnection of Rooftop Runoff	There is no building construction proposed as part of the project

5.3.3 Channel Protection (Cp_v)

In accordance with the Design Manual, stream channel protection, designed to protect stream channels from erosion, is accomplished by providing 24-hour extended detention of the one-year, 24-hour storm event. The Cp_v requirement is typically satisfied by providing additional storage above the water quality (WQ_v) volume.

According to Chapter 4 of the Design Manual, the stream channel protection requirement does not apply when the entire channel protection volume is reduced through green infrastructure or infiltration systems. The stormwater management practice onsite is designed as a green infrastructure practice; additionally, stormwater modelling indicates the proposed stormwater management areas designed to fully attenuate and infiltrate the contributing stormwater runoff for stormwater events up to the 100-Year design storm.

5.3.4 Overbank Flood (Q_p)

Overbank Flood Control Criteria has been established to limit the frequency and magnitude of out-of-bank flooding generated through changes in runoff characteristics as a result of

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increased impervious surface area. In accordance with the Design Manual, providing sufficient storage volume to attenuate the post development 10-year, 24-hour peak discharge rate to the equivalent pre-development discharge rate controls overbank flooding.

The 10-year design storm event was analyzed using the HydroCAD stormwater modeling program (TR-20) under the post-development drainage conditions shown on Figure 3. Using a 10-year, 24-hour design storm of 3.36 inches, the stormwater management area was designed with sufficient storage volume to limit the post-development 10-year, 24-hour peak discharge rate to the pre-development discharge rate. The following table presents the pre- and post-development discharge rates for the offsite discharge. As indicated, the post-development discharge rate is less than the pre-development rate as required.

Table 8: Overbank Flow Runoff Summary

	10-year (3.36") runoff rate (cfs)	
	Predevelopment	Post-Development
DP-1	5.57	5.57

5.3.5 Extreme Storm (Q_f)

In accordance with the Design Manual, the stormwater management system must attenuate the post development 100-year, 24-hour peak discharge rate to the predevelopment rate while providing safe passage of this storm event.

The 100-year storm event was analyzed using the HydroCAD stormwater modeling program (TR-20) under the post-development drainage conditions shown in Figure 3. Using a 100-year, 24-hour design storm of 5.73 inches, the stormwater management areas were designed with sufficient storage volume to limit the post-development 100-year, 24-hour peak discharge rate to the predevelopment discharge rate. The following table presents the pre and post development discharge rates for the offsite discharge. As indicated, the post-development discharge rate is less than the predevelopment rate as required.

Table 9: Extreme Storm Runoff Summary

	100-year (5.73") runoff rate (cfs)	
	Predevelopment	Post-Development
DP-1	23.91	23.30

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6.0 Summary

Development of the proposed project site will alter the stormwater drainage characteristics of the site; impervious area will be added in the form of an improved compacted gravel or paved access road, BESS, and an equipment pad. Changes to the stormwater drainage characteristics of the site have been evaluated in accordance with the Design Manual. The proposed stormwater management system has been designed to comply with the recommendations in the Design Manual and the NYSDEC SPCG as it relates to maintaining sheet flow, providing water quality/runoff reduction/channel protection volume, overbank flood control and extreme flood control for new development projects.

The proposed stormwater management system has been designed to attenuate and treat the stormwater runoff generated from the contributing areas for storm events to the pre-development rates, up to and including the 100-Year design storm event. The proposed stormwater management design includes the use of a vegetated filter strip. Stormwater modeling results indicate the ability to reduce the overall post-development discharge rate from the site as summarized in Table 10.

Table 10: Reduction in Peak Discharge Rates

Peak Discharge Rates in cfs	1-Year Storm	10-Year Storm	100-Year Storm
Pre-Development	0.30	5.57	23.91
Post-Development	0.36	5.57	23.30
Overall Reduction (cfs)	-0.06	0.00	0.61

Through the implementation of acceptable stormwater management practices, recommended by the NYS Stormwater Management Design Manual, the proposed project will not adversely affect adjacent or downstream properties.

Prepared by:

Benjamin Willson, Project Engineer

The Environmental Design Partnership, LLP

Reviewed by:

Travis Mitchell, P.E.

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Figures

1. Site Location map
2. Pre-Development Drainage Map
3. Post Development Drainage Map

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phone (518) 371-7621

Figure 1: Site Location Map

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phone (518) 371-7621

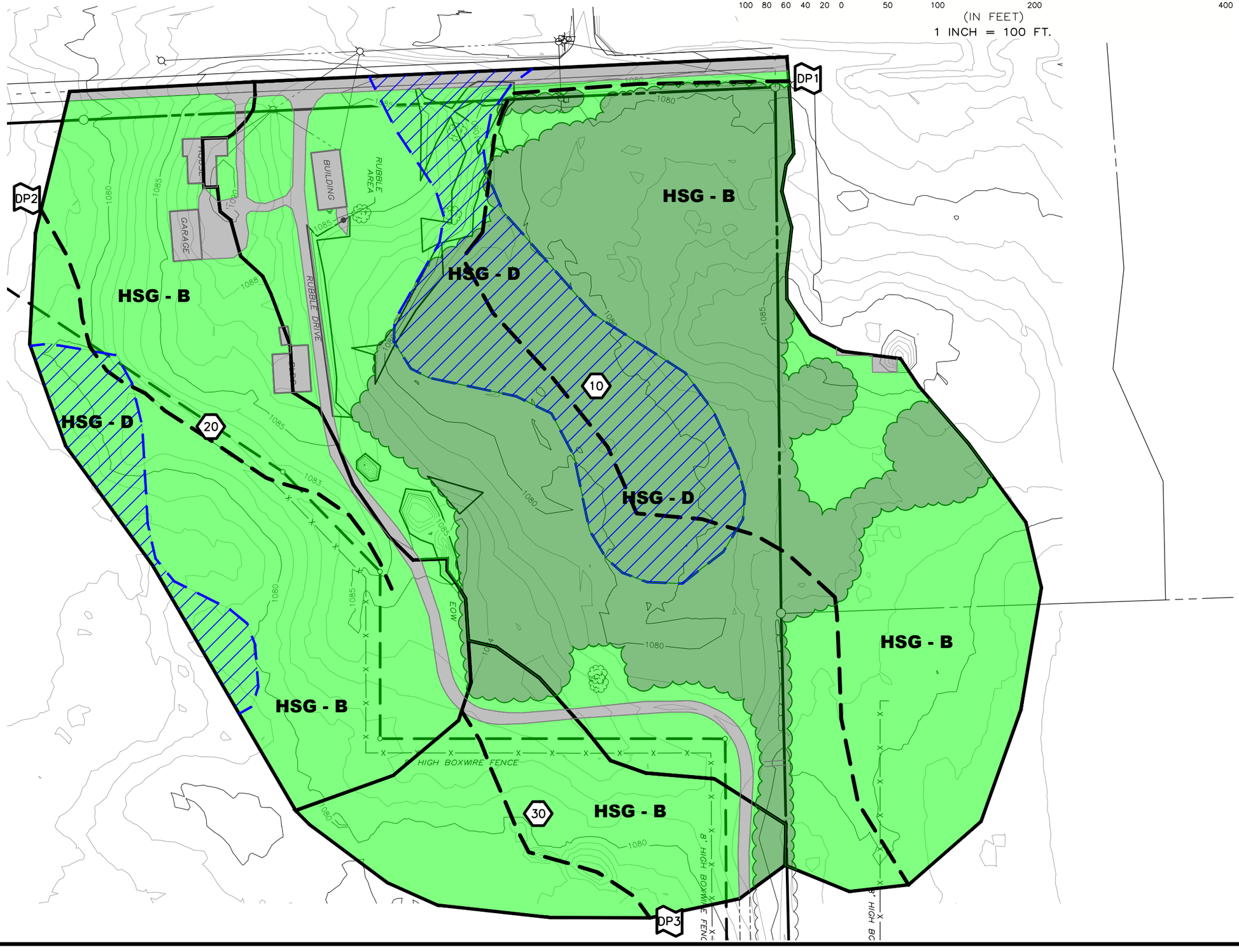
MAP KEY	
	SUBCATCHMENT BOUNDARY
S1	SUBCATCHMENT I.D.
P4	STORMWATER DEVICE
DP	DESIGN POINT
	TC PATH
	MEADOW
	WOODS
	IMPERVIOUS AREA
	HSG D SOILS

GRAPHIC SCALE

100 80 60 40 20 0 50 100 200 400

(IN FEET)

1 INCH = 100 FT.



edp
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edpl

STORMWATER ANALYSIS FOR

JERRY SMITH, LLC

JERRY SMITH ROAD
TOWN OF LANSING
TOMPKINS COUNTY, NEW YORK

JULY 10, 2026

REVISION	DATE	BY

SCALE: 1" = 100'

SHEET TITLE: PRE DEVELOPMENT

SHEET NO. FIGURE 1

657

H:\TOMPKINS\Lansing\Jerry Smith Rd\05-dwg\Detailed\FIGURES\STORMWATER.dwg Jul 09, 2026 01:25:13PM

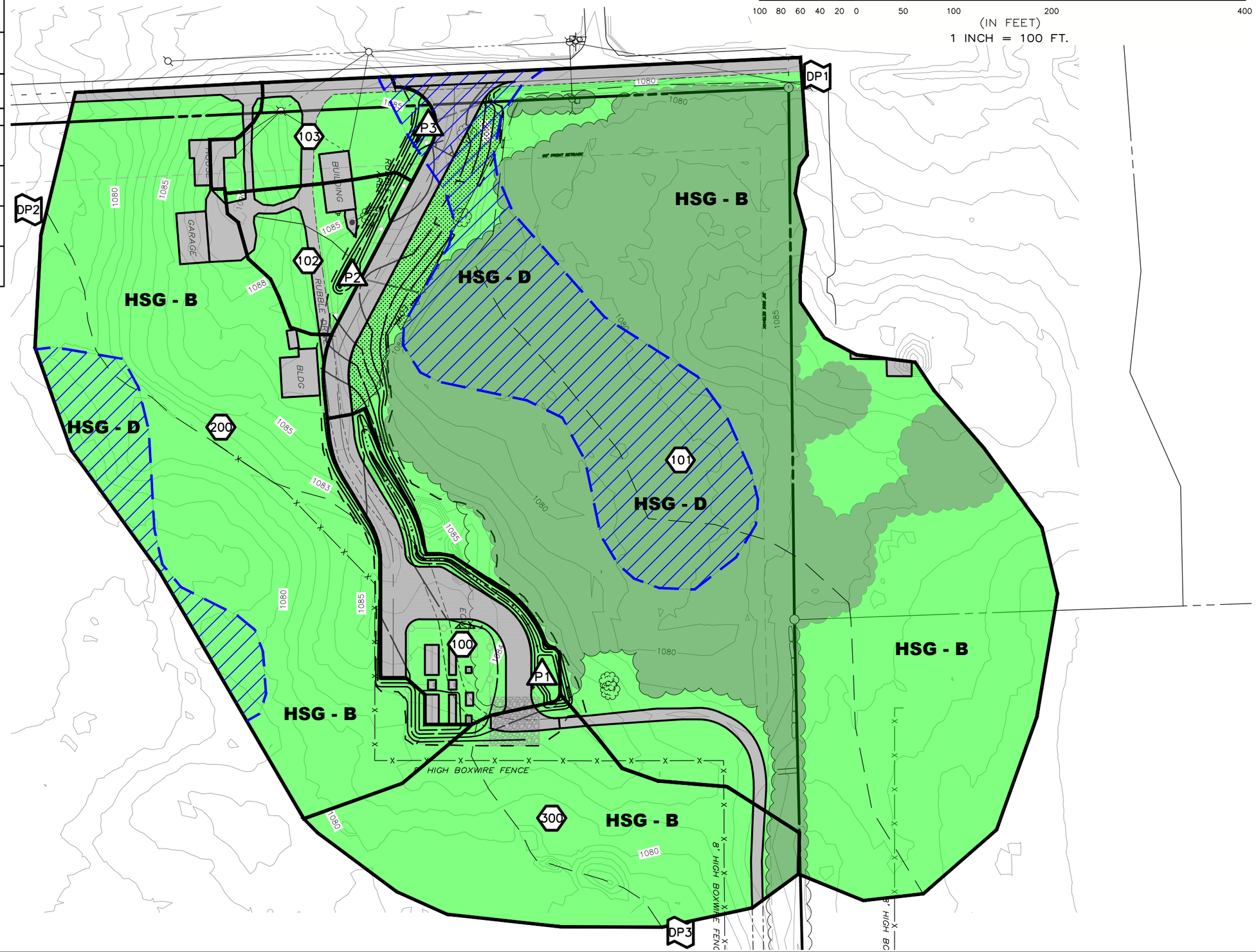
MAP KEY	
	SUBCATCHMENT BOUNDARY
S1	SUBCATCHMENT I.D.
P4	STORMWATER DEVICE
DP	DESIGN POINT
	TC PATH
	MEADOW
	WOODS
	IMPERVIOUS AREA
	HSG D SOILS

GRAPHIC SCALE

100 80 60 40 20 0 50 100 200 400

(IN FEET)

1 INCH = 100 FT.



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900 Route 146 Clifton Park, New York edpl
(518) 371-7621

JULY 10, 2026

STORMWATER ANALYSIS FOR

JERRY SMITH, LLC

JERRY SMITH ROAD
TOWN OF LANSING
TOMPKINS COUNTY, NEW YORK

REVISION	DATE	BY

SCALE: 1" = 100'

SHEET TITLE: POST DEVELOPMENT

SHEET NO. FIGURE 2

H:\TOMPKINS\Lansing\Jerry Smith Rd\05-dwg\Detailed\FIGURES\STORMWATER.dwg Jul 09, 2026 01:25:49PM

Attachment A
Water Quality Calculation
Runoff Reduction Calculation

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phone (518) 371-7621

Step 2 - Calculate Water Quality Volume

Is this project subject to Section 4.3 of the NYS Design Manual for Enhanced Phosphorus Removal?	No
What is the nature of this construction project?	New Construction

Design Point:		
P=	1.00	inches

Enter 90% Rainfall Event as P

Calculate Required WQv

Drainage Area Number	Contributing Area (Acres)	Impervious Area (Acres)	Percent Impervious %	Rv	WQv (cf)	SMP Description
1	0.24	0.24	100	0.95	828	Sheet Flow to Grass Filter Strip
2	0.71	0.37	52	0.52	1,338	Infiltration Basin
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
Total	0.95	0.61	64	0.63	**2165**	**Required WQv**

Steps 3 and 5 - Apply RR Techniques and Standard SM

Runoff Reduction Volume and Treated Volumes						
	Runoff Reduction Techiques/Standard SMPs		**Total Contributing Area**	**Total Contributing Impervious Area**	**WQv Reduced (RRv)**	**WQv Treated**
			(acres)	**(acres)**	**(cf)**	**(cf)**
RR Techniques	Conservation of Natural Areas	RR-1	0.24		0	
	Sheet Flow to Riparian Buffer/Filter Strip	RR-2	0.24	0.24	828	
	Tree Planting/Tree Pit/Tree Trench	RR-3	0.00	0.00	0	
	Disconnection of Rooftop Runoff	RR-4		0.00	0	
	Vegetated Swale	RR-5	0.00	0.00	0	
	Rain Garden	RR-6	0.00	0.00	0	
	Stormwater Planter	RR-7	0.00	0.00	0	
	Rainwater Harvesting Systems	RR-8	0.00	0.00	0	
	Porous Pavement	RR-9	0.00	0.00	0	
	Green Roof (Extensive & Intensive)	RR-10	0.00	0.00	0	
	Stream Daylighting	RR-11				
Standard SMPs w/ RRv Capacity	Infiltration Trench	I-1	0.00	0.00	0	0
	Infiltration Basin	I-2	0.71	0.37	1,338	0
	Dry Well	I-3	0.00	0.00	0	0
	Underground Infiltration System	I-4	0.00	0.00	0	0
	Infiltration Bioretention	F-4	0.00	0.00	0	0
	Filtration Bioretention	F-5	0.00	0.00	0	0
	Bioslope	F-6	0.00	0.00	0	0
	Dry swale	O-1	0.00	0.00	0	0
Standard SMPs	Micropool Extended Detention	P-1	0.00	0.00		0
	Wet Pond	P-2	0.00	0.00		0
	Wet Extended Detention	P-3	0.00	0.00		0
	Multiple Pond System	P-4	0.00	0.00		0
	Shallow Wetland	W-1	0.00	0.00		0
	Extended Detention Shallow Wetland	W-2	0.00	0.00		0
	Pond/Wetland System	W-3	0.00	0.00		0
	Pocket Wetland	W-4	0.00	0.00		0
	Gravel Wetland	W-5	0.00	0.00		0
	Surface Sand Filter	F-1	0.00	0.00		0
	Underground Sand Filter	F-2	0.00	0.00		0
	Perimeter Sand Filter	F-3	0.00	0.00		0
	Wet Swale	O-2	0.71	0.37		0
Alt. SMPs	Flow Based Alternative Practice	-	0.00	0.00		0
	Volume Based Alternative Practice	-				
	Totals by RR Technique	→	0.48	0.24	828	
	Totals by Standard SMP w/RRV	→	0.71	0.37	1,338	0
	Totals by Standard SMP	→	0.71	0.37		0
	Totals by Alternative SMP	→	0.00	0.00		0
	Totals (RR Techniques + all SMPs)	→	1.90	0.98	2,166	0

Step 4 - Calcuate Minimum RRv Required

Enter the Soils Data for the entire site		
Hydrologic Soil Group	Acres	S
A		55%
B	0.95	40%
C		30%
D		20%
Total Area	0.95	

Calculate the Minimum RRv		
S =	**0.40**	
Impervious =	0.61	*acres*
Precipitation	1.00	*inches*
Rv	0.95	
Minimum RRv	**0.019**	***af***
	828	cf

Sheet Flow to Grass Filter Strip (RR-3)

Design Point:	

Enter Site Data For Drainage Area to be Reduced							
Drainage Area Number	**Contributing Area** (Acres)	**Impervious Area** (Acres)	**Percent Impervious** %	**Rv**	**WQv** (cf)	**Precipitation** (in)	**Description**
1	0.24	0.24	100	0.95	828	1.00	Sheet Flow to Grass Filter Strip

Design Criteria		
Is the riparian buffer delineated and permanently protected through establishment of a legal conservation easement?	Yes	
Is the contributing area a designated hotspot?	No	
Is a pretreatment pea gravel diaphragm proposed along the upgradient edge of the buffer?	Yes	
Is runoff entering the buffer as overland sheet flow or a flow spreader proposed upgradient of the buffer?	Yes	
Enter the total length of contributing flow path (ft)	20	
Enter the length of contributing flow path from impervious surfaces (ft)	20	
Enter the slope of contributing flow path (%)	2	
Minimum buffer length based on contriuting flow path slope (ft)	35	
Enter the slope for the first 10 ft of the buffer (%)	2	

Sizing Criteria				
		Value	Units	Notes
Enter Travel Time through Buffer	*T*	6	min	
Enter 2-yr 24-hr Rainfall Depth	*P*	2.17	inch	
Enter Overall Buffer Slope	*S*	0.04	ft/ft	
Enter Manning's Coefficient for Buffer	*n*	0.40		
Calculated Minimum Length of Buffer	*L*	23	ft	
Minimum Length of Buffer	*L*	35	ft	
Is the buffer within HSG C or D soils?		Yes		
Required Length of Buffer	*L*	40	ft	
Enter Provided Length of Buffer	*L*	40	ft	

Calculate Runoff Reduction		
RRv Provided	**828**	**cf**

Infiltration Basin (I-2)

Design Point:	

Enter Site Data For Drainage Area to be Treated by Practice							
Drainage Area Number	**Contributing Area** (Acres)	**Impervious Area** (Acres)	**Percent Impervious** %	**Rv**	**WQv** (cf)	**Precipitation** (in)	**Description**
2	0.71	0.37	52	0.52	1,338	1.00	Infiltration Basin

Design Criteria		
Enter underlying soil infiltration rate (based on geotechnical testing, refer to Appendix D)	0.75	
Is the contributing area to the practice an "Infiltration Restricted" stormwater hotspot?	No	
Is the contributing area to the practice an "Infiltration Prohibited" stormwater hotspot?	No	
Maximum contributing area (acres)	10	
Is the contributing area greater than the maximum allowed contributing area?	No	
Is the practice located in a sole source aquifer?	No	
Enter depth to seasonal high water table (ft)	6	
Enter depth to bedrock (ft)	8	
Enter pretreatment volume provided (cf)	340	
Enter depth of freeboard (ft)	1	
Enter depth of basin (ft)	1.5	
Enter side slopes of the basin (X:1)	3	
Enter slope of maintenance access (%)	1	
Enter width of maintenance access (ft)	20	

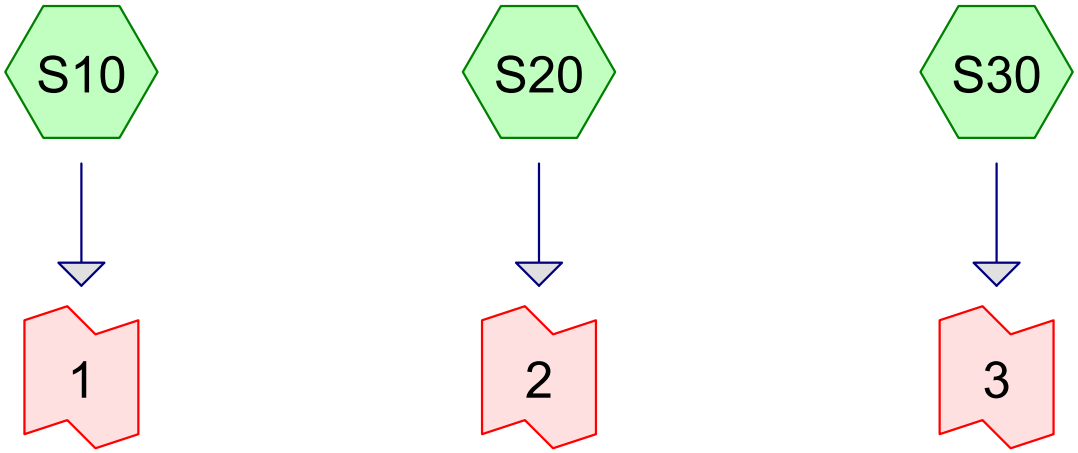
Sizing Criteria				
		Value	Units	Notes
Water Quality Volume	WQv	1338	cf	
Basin depth	db	1.5	ft	
Required Bottom Surface Area	Ab	892	sf	
Enter Bottom Area Provided	Ab	920	sf	

Determine Runoff Reduction		
RRv Provided	**1,338**	***cf***

Attachment B

Stormwater Modeling Calculations

900 Route 146, Clifton Park, New York 12065
phone (518) 371-7621



Subcat Reach Pond Link

Routing Diagram for 2026-06-01 Predevelopment
Prepared by Environmental Design Partnership, Printed 7/9/2026
HydroCAD® 10.20-2h s/n 00476 © 2024 HydroCAD Software Solutions LLC

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-YR	Type II 24-hr		Default	24.00	1	1.97	2
2	10-YR	Type II 24-hr		Default	24.00	1	3.36	2
3	100-YR	Type II 24-hr		Default	24.00	1	5.73	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
8.609	58	Meadow, non-grazed, HSG B (S10, S20, S30)
0.733	78	Meadow, non-grazed, HSG D (S10, S20)
0.856	98	Paved parking, HSG D (S10, S20, S30)
4.332	60	Woods, Fair, HSG B (S10, S20, S30)
1.437	79	Woods, Fair, HSG D (S10)
15.966	**63**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
12.940	HSG B	S10, S20, S30
0.000	HSG C	
3.026	HSG D	S10, S20, S30
0.000	Other	
15.966		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	8.609	0.000	0.733	0.000	9.342	Meadow, non-grazed	S10, S20, S30
0.000	0.000	0.000	0.856	0.000	0.856	Paved parking	S10, S20, S30
0.000	4.332	0.000	1.437	0.000	5.769	Woods, Fair	S10, S20, S30
0.000	**12.940**	**0.000**	**3.026**	**0.000**	**15.966**	**TOTAL AREA**	

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentS10: Runoff Area=446,233 sf 5.37% Impervious Runoff Depth>0.08"
Flow Length=1,335' Tc=49.5 min CN=64 Runoff=0.21 cfs 0.072 af

SubcatchmentS20: Runoff Area=173,284 sf 6.24% Impervious Runoff Depth>0.07"
Flow Length=565' Tc=20.6 min CN=63 Runoff=0.08 cfs 0.024 af

SubcatchmentS30: Runoff Area=75,979 sf 3.29% Impervious Runoff Depth>0.03"
Flow Length=400' Slope=0.0200 '/' Tc=16.6 min CN=59 Runoff=0.01 cfs 0.004 af

Link 1: Inflow=0.21 cfs 0.072 af
Primary=0.21 cfs 0.072 af

Link 2: Inflow=0.08 cfs 0.024 af
Primary=0.08 cfs 0.024 af

Link 3: Inflow=0.01 cfs 0.004 af
Primary=0.01 cfs 0.004 af

Total Runoff Area = 15.966 ac Runoff Volume = 0.100 af Average Runoff Depth = 0.08"
94.64% Pervious = 15.111 ac 5.36% Impervious = 0.856 ac

Summary for Subcatchment S10:

Runoff = 0.21 cfs @ 12.87 hrs, Volume= 0.072 af, Depth> 0.08"
Routed to Link 1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR Rainfall=1.97"

Area (sf)	CN	Description
23,956	98	Paved parking, HSG D
165,183	58	Meadow, non-grazed, HSG B
12,046	78	Meadow, non-grazed, HSG D
182,431	60	Woods, Fair, HSG B
62,617	79	Woods, Fair, HSG D
446,233	64	Weighted Average
422,277		94.63% Pervious Area
23,956		5.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0100	0.23		**Sheet Flow, SF - FARM** Cultivated: Residue<=20% n= 0.060 P2= 2.32"
3.8	205	0.0100	0.90		**Shallow Concentrated Flow, SCF - FARM** Cultivated Straight Rows Kv= 9.0 fps
23.9	600	0.0070	0.42		**Shallow Concentrated Flow, SCF - WOODS** Woodland Kv= 5.0 fps
14.5	430	0.0050	0.49		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
49.5	1,335	Total			

Summary for Subcatchment S20:

Runoff = 0.08 cfs @ 12.49 hrs, Volume= 0.024 af, Depth> 0.07"
Routed to Link 2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR Rainfall=1.97"

Area (sf)	CN	Description
10,811	98	Paved parking, HSG D
141,959	58	Meadow, non-grazed, HSG B
19,882	78	Meadow, non-grazed, HSG D
632	60	Woods, Fair, HSG B
173,284	63	Weighted Average
162,473		93.76% Pervious Area
10,811		6.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	100	0.0250	0.16		**Sheet Flow, SF- GRASS** Grass: Short n= 0.150 P2= 2.32"
10.1	465	0.0120	0.77		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
20.6	565	Total			

Summary for Subcatchment S30:

Runoff = 0.01 cfs @ 13.77 hrs, Volume= 0.004 af, Depth> 0.03"
Routed to Link 3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR Rainfall=1.97"

Area (sf)	CN	Description
2,500	98	Paved parking, HSG D
67,857	58	Meadow, non-grazed, HSG B
5,622	60	Woods, Fair, HSG B
75,979	59	Weighted Average
73,479		96.71% Pervious Area
2,500		3.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	100	0.0200	0.14		**Sheet Flow, SF - GRASS** Grass: Short n= 0.150 P2= 2.32"
5.1	300	0.0200	0.99		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
16.6	400	Total			

Summary for Link 1:

Inflow Area = 10.244 ac, 5.37% Impervious, Inflow Depth > 0.08" for 1-YR event
Inflow = 0.21 cfs @ 12.87 hrs, Volume= 0.072 af
Primary = 0.21 cfs @ 12.87 hrs, Volume= 0.072 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link 2:

Inflow Area = 3.978 ac, 6.24% Impervious, Inflow Depth > 0.07" for 1-YR event
Inflow = 0.08 cfs @ 12.49 hrs, Volume= 0.024 af
Primary = 0.08 cfs @ 12.49 hrs, Volume= 0.024 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link 3:

Inflow Area = 1.744 ac, 3.29% Impervious, Inflow Depth > 0.03" for 1-YR event
Inflow = 0.01 cfs @ 13.77 hrs, Volume= 0.004 af
Primary = 0.01 cfs @ 13.77 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentS10: Runoff Area=446,233 sf 5.37% Impervious Runoff Depth>0.54"
Flow Length=1,335' Tc=49.5 min CN=64 Runoff=3.01 cfs 0.463 af

SubcatchmentS20: Runoff Area=173,284 sf 6.24% Impervious Runoff Depth>0.51"
Flow Length=565' Tc=20.6 min CN=63 Runoff=1.96 cfs 0.170 af

SubcatchmentS30: Runoff Area=75,979 sf 3.29% Impervious Runoff Depth>0.37"
Flow Length=400' Slope=0.0200 '/' Tc=16.6 min CN=59 Runoff=0.60 cfs 0.054 af

Link 1: Inflow=3.01 cfs 0.463 af
Primary=3.01 cfs 0.463 af

Link 2: Inflow=1.96 cfs 0.170 af
Primary=1.96 cfs 0.170 af

Link 3: Inflow=0.60 cfs 0.054 af
Primary=0.60 cfs 0.054 af

Total Runoff Area = 15.966 ac Runoff Volume = 0.687 af Average Runoff Depth = 0.52"
94.64% Pervious = 15.111 ac 5.36% Impervious = 0.856 ac

Summary for Subcatchment S10:

Runoff = 3.01 cfs @ 12.59 hrs, Volume= 0.463 af, Depth> 0.54"
Routed to Link 1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=3.36"

Area (sf)	CN	Description
23,956	98	Paved parking, HSG D
165,183	58	Meadow, non-grazed, HSG B
12,046	78	Meadow, non-grazed, HSG D
182,431	60	Woods, Fair, HSG B
62,617	79	Woods, Fair, HSG D
446,233	64	Weighted Average
422,277		94.63% Pervious Area
23,956		5.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0100	0.23		**Sheet Flow, SF - FARM** Cultivated: Residue<=20% n= 0.060 P2= 2.32"
3.8	205	0.0100	0.90		**Shallow Concentrated Flow, SCF - FARM** Cultivated Straight Rows Kv= 9.0 fps
23.9	600	0.0070	0.42		**Shallow Concentrated Flow, SCF - WOODS** Woodland Kv= 5.0 fps
14.5	430	0.0050	0.49		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
49.5	1,335	Total			

Summary for Subcatchment S20:

Runoff = 1.96 cfs @ 12.17 hrs, Volume= 0.170 af, Depth> 0.51"
Routed to Link 2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=3.36"

Area (sf)	CN	Description
10,811	98	Paved parking, HSG D
141,959	58	Meadow, non-grazed, HSG B
19,882	78	Meadow, non-grazed, HSG D
632	60	Woods, Fair, HSG B
173,284	63	Weighted Average
162,473		93.76% Pervious Area
10,811		6.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	100	0.0250	0.16		**Sheet Flow, SF- GRASS**
					Grass: Short n= 0.150 P2= 2.32"
10.1	465	0.0120	0.77		**Shallow Concentrated Flow, SCF - GRASS**
					Short Grass Pasture Kv= 7.0 fps
20.6	565	Total			

Summary for Subcatchment S30:

Runoff = 0.60 cfs @ 12.14 hrs, Volume= 0.054 af, Depth> 0.37"
Routed to Link 3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=3.36"

Area (sf)	CN	Description
2,500	98	Paved parking, HSG D
67,857	58	Meadow, non-grazed, HSG B
5,622	60	Woods, Fair, HSG B
75,979	59	Weighted Average
73,479		96.71% Pervious Area
2,500		3.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	100	0.0200	0.14		**Sheet Flow, SF - GRASS**
					Grass: Short n= 0.150 P2= 2.32"
5.1	300	0.0200	0.99		**Shallow Concentrated Flow, SCF - GRASS**
					Short Grass Pasture Kv= 7.0 fps
16.6	400	Total			

Summary for Link 1:

Inflow Area = 10.244 ac, 5.37% Impervious, Inflow Depth > 0.54" for 10-YR event
Inflow = 3.01 cfs @ 12.59 hrs, Volume= 0.463 af
Primary = 3.01 cfs @ 12.59 hrs, Volume= 0.463 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link 2:

Inflow Area = 3.978 ac, 6.24% Impervious, Inflow Depth > 0.51" for 10-YR event
Inflow = 1.96 cfs @ 12.17 hrs, Volume= 0.170 af
Primary = 1.96 cfs @ 12.17 hrs, Volume= 0.170 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link 3:

Inflow Area = 1.744 ac, 3.29% Impervious, Inflow Depth > 0.37" for 10-YR event
Inflow = 0.60 cfs @ 12.14 hrs, Volume= 0.054 af
Primary = 0.60 cfs @ 12.14 hrs, Volume= 0.054 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentS10: Runoff Area=446,233 sf 5.37% Impervious Runoff Depth>1.84"
Flow Length=1,335' Tc=49.5 min CN=64 Runoff=12.30 cfs 1.573 af

SubcatchmentS20: Runoff Area=173,284 sf 6.24% Impervious Runoff Depth>1.79"
Flow Length=565' Tc=20.6 min CN=63 Runoff=8.27 cfs 0.593 af

SubcatchmentS30: Runoff Area=75,979 sf 3.29% Impervious Runoff Depth>1.49"
Flow Length=400' Slope=0.0200 '/' Tc=16.6 min CN=59 Runoff=3.34 cfs 0.217 af

Link 1: Inflow=12.30 cfs 1.573 af
Primary=12.30 cfs 1.573 af

Link 2: Inflow=8.27 cfs 0.593 af
Primary=8.27 cfs 0.593 af

Link 3: Inflow=3.34 cfs 0.217 af
Primary=3.34 cfs 0.217 af

Total Runoff Area = 15.966 ac Runoff Volume = 2.383 af Average Runoff Depth = 1.79"
94.64% Pervious = 15.111 ac 5.36% Impervious = 0.856 ac

Summary for Subcatchment S10:

Runoff = 12.30 cfs @ 12.51 hrs, Volume= 1.573 af, Depth> 1.84"
Routed to Link 1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=5.73"

Area (sf)	CN	Description
23,956	98	Paved parking, HSG D
165,183	58	Meadow, non-grazed, HSG B
12,046	78	Meadow, non-grazed, HSG D
182,431	60	Woods, Fair, HSG B
62,617	79	Woods, Fair, HSG D
446,233	64	Weighted Average
422,277		94.63% Pervious Area
23,956		5.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0100	0.23		**Sheet Flow, SF - FARM** Cultivated: Residue<=20% n= 0.060 P2= 2.32"
3.8	205	0.0100	0.90		**Shallow Concentrated Flow, SCF - FARM** Cultivated Straight Rows Kv= 9.0 fps
23.9	600	0.0070	0.42		**Shallow Concentrated Flow, SCF - WOODS** Woodland Kv= 5.0 fps
14.5	430	0.0050	0.49		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
49.5	1,335	Total			

Summary for Subcatchment S20:

Runoff = 8.27 cfs @ 12.15 hrs, Volume= 0.593 af, Depth> 1.79"
Routed to Link 2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=5.73"

Area (sf)	CN	Description
10,811	98	Paved parking, HSG D
141,959	58	Meadow, non-grazed, HSG B
19,882	78	Meadow, non-grazed, HSG D
632	60	Woods, Fair, HSG B
173,284	63	Weighted Average
162,473		93.76% Pervious Area
10,811		6.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	100	0.0250	0.16		**Sheet Flow, SF- GRASS**
					Grass: Short n= 0.150 P2= 2.32"
10.1	465	0.0120	0.77		**Shallow Concentrated Flow, SCF - GRASS**
					Short Grass Pasture Kv= 7.0 fps
20.6	565	Total			

Summary for Subcatchment S30:

Runoff = 3.34 cfs @ 12.10 hrs, Volume= 0.217 af, Depth> 1.49"
Routed to Link 3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=5.73"

Area (sf)	CN	Description
2,500	98	Paved parking, HSG D
67,857	58	Meadow, non-grazed, HSG B
5,622	60	Woods, Fair, HSG B
75,979	59	Weighted Average
73,479		96.71% Pervious Area
2,500		3.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	100	0.0200	0.14		**Sheet Flow, SF - GRASS**
					Grass: Short n= 0.150 P2= 2.32"
5.1	300	0.0200	0.99		**Shallow Concentrated Flow, SCF - GRASS**
					Short Grass Pasture Kv= 7.0 fps
16.6	400	Total			

Summary for Link 1:

Inflow Area = 10.244 ac, 5.37% Impervious, Inflow Depth > 1.84" for 100-YR event
Inflow = 12.30 cfs @ 12.51 hrs, Volume= 1.573 af
Primary = 12.30 cfs @ 12.51 hrs, Volume= 1.573 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link 2:

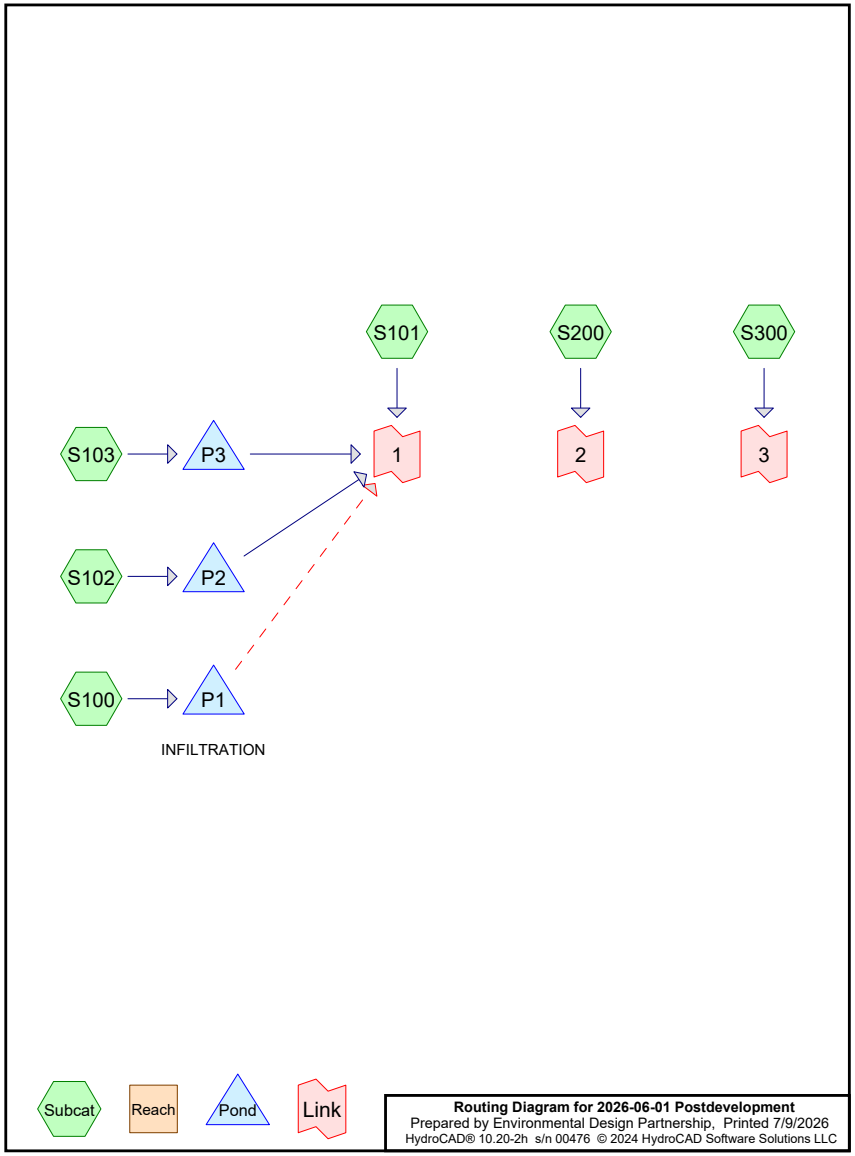
Inflow Area = 3.978 ac, 6.24% Impervious, Inflow Depth > 1.79" for 100-YR event
Inflow = 8.27 cfs @ 12.15 hrs, Volume= 0.593 af
Primary = 8.27 cfs @ 12.15 hrs, Volume= 0.593 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link 3:

Inflow Area = 1.744 ac, 3.29% Impervious, Inflow Depth > 1.49" for 100-YR event
Inflow = 3.34 cfs @ 12.10 hrs, Volume= 0.217 af
Primary = 3.34 cfs @ 12.10 hrs, Volume= 0.217 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs



Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-YR	Type II 24-hr		Default	24.00	1	1.97	2
2	10-YR	Type II 24-hr		Default	24.00	1	3.36	2
3	100-YR	Type II 24-hr		Default	24.00	1	5.73	2

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
8.484	58	Meadow, non-grazed, HSG B (S100, S101, S102, S103, S200, S300)
0.655	78	Meadow, non-grazed, HSG D (S101, S103, S200)
1.351	98	Paved parking, HSG D (S100, S101, S102, S103, S200, S300)
4.031	60	Woods, Fair, HSG B (S101, S300)
1.437	79	Woods, Fair, HSG D (S101)
15.959	**65**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
12.515	HSG B	S100, S101, S102, S103, S200, S300
0.000	HSG C	
3.443	HSG D	S100, S101, S102, S103, S200, S300
0.000	Other	
15.959		**TOTAL AREA**

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	8.484	0.000	0.655	0.000	9.139	Meadow, non-grazed	S100, S101, S102, S103, S200, S300
0.000	0.000	0.000	1.351	0.000	1.351	Paved parking	S100, S101, S102, S103, S200, S300
0.000	4.031	0.000	1.437	0.000	5.469	Woods, Fair	S101, S300
0.000	**12.515**	**0.000**	**3.443**	**0.000**	**15.959**	**TOTAL AREA**	

Pipe Listing (selected nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)
1	P2	1,080.80	1,080.40	75.0	0.0053	0.013	0.0	12.0	0.0
2	P3	1,081.25	1,080.00	72.0	0.0174	0.013	0.0	12.0	0.0

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentS100: Runoff Area=30,980 sf 51.53% Impervious Runoff Depth>0.45"
Tc=6.0 min CN=79 Runoff=0.60 cfs 0.027 af

SubcatchmentS101: Runoff Area=394,374 sf 5.18% Impervious Runoff Depth>0.10"
Flow Length=1,335' Tc=49.5 min CN=65 Runoff=0.25 cfs 0.074 af

SubcatchmentS102: Runoff Area=18,285 sf 25.44% Impervious Runoff Depth>0.15"
Tc=5.0 min CN=68 Runoff=0.08 cfs 0.005 af

SubcatchmentS103: Runoff Area=20,588 sf 29.12% Impervious Runoff Depth>0.24"
Tc=5.0 min CN=72 Runoff=0.19 cfs 0.009 af

SubcatchmentS200: Runoff Area=159,359 sf 5.71% Impervious Runoff Depth>0.07"
Flow Length=515' Tc=19.5 min CN=63 Runoff=0.07 cfs 0.022 af

SubcatchmentS300: Runoff Area=71,567 sf 3.78% Impervious Runoff Depth>0.04"
Flow Length=310' Tc=16.9 min CN=60 Runoff=0.01 cfs 0.005 af

Pond P1: INFILTRATION Peak Elev=1,082.51' Storage=607 cf Inflow=0.60 cfs 0.027 af
Discarded=0.03 cfs 0.017 af Secondary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.017 af

Pond P2: Peak Elev=1,080.95' Storage=11 cf Inflow=0.08 cfs 0.005 af
12.0" Round Culvert n=0.013 L=75.0' S=0.0053 '/' Outflow=0.07 cfs 0.005 af

Pond P3: Peak Elev=1,081.46' Storage=5 cf Inflow=0.19 cfs 0.009 af
12.0" Round Culvert n=0.013 L=72.0' S=0.0174 '/' Outflow=0.19 cfs 0.009 af

Link 1: Inflow=0.28 cfs 0.089 af
Primary=0.28 cfs 0.089 af

Link 2: Inflow=0.07 cfs 0.022 af
Primary=0.07 cfs 0.022 af

Link 3: Inflow=0.01 cfs 0.005 af
Primary=0.01 cfs 0.005 af

Total Runoff Area = 15.959 ac Runoff Volume = 0.143 af Average Runoff Depth = 0.11"
91.54% Pervious = 14.608 ac 8.46% Impervious = 1.351 ac

Summary for Subcatchment S100:

Runoff = 0.60 cfs @ 11.98 hrs, Volume= 0.027 af, Depth> 0.45"
Routed to Pond P1 : INFILTRATION

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR Rainfall=1.97"

Area (sf)	CN	Description
15,965	98	Paved parking, HSG D
15,015	58	Meadow, non-grazed, HSG B
30,980	79	Weighted Average
15,015		48.47% Pervious Area
15,965		51.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, DIRECT**

Summary for Subcatchment S101:

Runoff = 0.25 cfs @ 12.80 hrs, Volume= 0.074 af, Depth> 0.10"
Routed to Link 1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR Rainfall=1.97"

Area (sf)	CN	Description
20,427	98	Paved parking, HSG D
131,155	58	Meadow, non-grazed, HSG B
6,667	78	Meadow, non-grazed, HSG D
173,508	60	Woods, Fair, HSG B
62,617	79	Woods, Fair, HSG D
394,374	65	Weighted Average
373,947		94.82% Pervious Area
20,427		5.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0100	0.23		**Sheet Flow, SF - FARM** Cultivated: Residue<=20% n= 0.060 P2= 2.32"
3.8	205	0.0100	0.90		**Shallow Concentrated Flow, SCF - FARM** Cultivated Straight Rows Kv= 9.0 fps
23.9	600	0.0070	0.42		**Shallow Concentrated Flow, SCF - WOODS** Woodland Kv= 5.0 fps
14.5	430	0.0050	0.49		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
49.5	1,335	Total			

Summary for Subcatchment S102:

Runoff = 0.08 cfs @ 12.00 hrs, Volume= 0.005 af, Depth> 0.15"
Routed to Pond P2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR Rainfall=1.97"

Area (sf)	CN	Description
4,651	98	Paved parking, HSG D
13,634	58	Meadow, non-grazed, HSG B
18,285	68	Weighted Average
13,634		74.56% Pervious Area
4,651		25.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, DIRECT**

Summary for Subcatchment S103:

Runoff = 0.19 cfs @ 11.99 hrs, Volume= 0.009 af, Depth> 0.24"
Routed to Pond P3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR Rainfall=1.97"

Area (sf)	CN	Description
5,996	98	Paved parking, HSG D
12,606	58	Meadow, non-grazed, HSG B
1,986	78	Meadow, non-grazed, HSG D
20,588	72	Weighted Average
14,592		70.88% Pervious Area
5,996		29.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, DIRECT**

Summary for Subcatchment S200:

Runoff = 0.07 cfs @ 12.47 hrs, Volume= 0.022 af, Depth> 0.07"
Routed to Link 2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR Rainfall=1.97"

Area (sf)	CN	Description
9,098	98	Paved parking, HSG D
130,379	58	Meadow, non-grazed, HSG B
19,882	78	Meadow, non-grazed, HSG D
159,359	63	Weighted Average
150,261		94.29% Pervious Area
9,098		5.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	100	0.0250	0.16		**Sheet Flow, SF- GRASS**
					Grass: Short n= 0.150 P2= 2.32"
9.0	415	0.0120	0.77		**Shallow Concentrated Flow, SCF - GRASS**
					Short Grass Pasture Kv= 7.0 fps
19.5	515	Total			

Summary for Subcatchment S300:

Runoff = 0.01 cfs @ 13.41 hrs, Volume= 0.005 af, Depth> 0.04"
Routed to Link 3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR Rainfall=1.97"

Area (sf)	CN	Description
2,703	98	Paved parking, HSG D
66,777	58	Meadow, non-grazed, HSG B
2,087	60	Woods, Fair, HSG B
71,567	60	Weighted Average
68,864		96.22% Pervious Area
2,703		3.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	100	0.0170	0.14		**Sheet Flow, SF - GRASS**
					Grass: Short n= 0.150 P2= 2.32"
4.6	210	0.0120	0.77		**Shallow Concentrated Flow, SCF - GRASS**
					Short Grass Pasture Kv= 7.0 fps
16.9	310	Total			

Summary for Pond P1: INFILTRATION

Inflow Area = 0.711 ac, 51.53% Impervious, Inflow Depth > 0.45" for 1-YR event
Inflow = 0.60 cfs @ 11.98 hrs, Volume= 0.027 af
Outflow = 0.03 cfs @ 14.22 hrs, Volume= 0.017 af, Atten= 96%, Lag= 133.9 min
Discarded = 0.03 cfs @ 14.22 hrs, Volume= 0.017 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Link 1 :

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 1,082.51' @ 14.22 hrs Surf.Area= 1,464 sf Storage= 607 cf

Plug-Flow detention time= 220.8 min calculated for 0.017 af (63% of inflow)
Center-of-Mass det. time= 133.8 min (952.5 - 818.7)

Volume	Invert	Avail.Storage	Storage Description
#1	1,082.00'	6,320 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,082.00	920	130.0	0	0	920
1,083.00	2,095	505.0	1,468	1,468	19,872
1,084.00	3,645	525.0	2,834	4,302	21,590
1,084.50	4,440	535.0	2,018	6,320	22,475

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,082.00'	**0.750 in/hr Exfiltration over Surface area**
#2	Secondary	1,083.50'	**10.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Discarded OutFlow Max=0.03 cfs @ 14.22 hrs HW=1,082.51' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=1,082.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond P2:

Inflow Area = 0.420 ac, 25.44% Impervious, Inflow Depth > 0.15" for 1-YR event
Inflow = 0.08 cfs @ 12.00 hrs, Volume= 0.005 af
Outflow = 0.07 cfs @ 12.04 hrs, Volume= 0.005 af, Atten= 16%, Lag= 2.2 min
Primary = 0.07 cfs @ 12.04 hrs, Volume= 0.005 af
Routed to Link 1 :

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,080.95' @ 12.04 hrs Surf.Area= 106 sf Storage= 11 cf

Plug-Flow detention time= 5.8 min calculated for 0.005 af (99% of inflow)
Center-of-Mass det. time= 3.0 min (870.0 - 867.0)

Volume	Invert	Avail.Storage	Storage Description
#1	1,080.75'	454 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,080.75	1	0	0
1,081.00	130	16	16
1,082.00	745	438	454

Device	Routing	Invert	Outlet Devices
#1	Primary	1,080.80'	**12.0" Round Culvert** L= 75.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,080.80' / 1,080.40' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.07 cfs @ 12.04 hrs HW=1,080.95' (Free Discharge)
└**1=Culvert** (Barrel Controls 0.07 cfs @ 1.41 fps)

Summary for Pond P3:

Inflow Area = 0.473 ac, 29.12% Impervious, Inflow Depth > 0.24" for 1-YR event
Inflow = 0.19 cfs @ 11.99 hrs, Volume= 0.009 af
Outflow = 0.19 cfs @ 11.99 hrs, Volume= 0.009 af, Atten= 0%, Lag= 0.5 min
Primary = 0.19 cfs @ 11.99 hrs, Volume= 0.009 af
Routed to Link 1 :

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,081.46' @ 11.99 hrs Surf.Area= 43 sf Storage= 5 cf

Plug-Flow detention time= 0.4 min calculated for 0.009 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (845.4 - 845.1)

Volume	Invert	Avail.Storage	Storage Description
#1	1,081.25'	432 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,081.25	1	0	0
1,082.00	150	57	57
1,083.00	600	375	432

Device	Routing	Invert	Outlet Devices
#1	Primary	1,081.25'	**12.0" Round Culvert** L= 72.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,081.25' / 1,080.00' S= 0.0174 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.19 cfs @ 11.99 hrs HW=1,081.46' (Free Discharge)
└**1=Culvert** (Inlet Controls 0.19 cfs @ 1.56 fps)

Summary for Link 1:

Inflow Area = 9.946 ac, 7.17% Impervious, Inflow Depth > 0.11" for 1-YR event
Inflow = 0.28 cfs @ 12.79 hrs, Volume= 0.089 af
Primary = 0.28 cfs @ 12.79 hrs, Volume= 0.089 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link 2:

Inflow Area = 3.658 ac, 5.71% Impervious, Inflow Depth > 0.07" for 1-YR event
Inflow = 0.07 cfs @ 12.47 hrs, Volume= 0.022 af
Primary = 0.07 cfs @ 12.47 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link 3:

Inflow Area = 1.643 ac, 3.78% Impervious, Inflow Depth > 0.04" for 1-YR event
Inflow = 0.01 cfs @ 13.41 hrs, Volume= 0.005 af
Primary = 0.01 cfs @ 13.41 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentS100: Runoff Area=30,980 sf 51.53% Impervious Runoff Depth>1.33"
Tc=6.0 min CN=79 Runoff=1.81 cfs 0.079 af

SubcatchmentS101: Runoff Area=394,374 sf 5.18% Impervious Runoff Depth>0.58"
Flow Length=1,335' Tc=49.5 min CN=65 Runoff=2.93 cfs 0.440 af

SubcatchmentS102: Runoff Area=18,285 sf 25.44% Impervious Runoff Depth>0.73"
Tc=5.0 min CN=68 Runoff=0.59 cfs 0.026 af

SubcatchmentS103: Runoff Area=20,588 sf 29.12% Impervious Runoff Depth>0.93"
Tc=5.0 min CN=72 Runoff=0.86 cfs 0.037 af

SubcatchmentS200: Runoff Area=159,359 sf 5.71% Impervious Runoff Depth>0.51"
Flow Length=515' Tc=19.5 min CN=63 Runoff=1.87 cfs 0.156 af

SubcatchmentS300: Runoff Area=71,567 sf 3.78% Impervious Runoff Depth>0.40"
Flow Length=310' Tc=16.9 min CN=60 Runoff=0.64 cfs 0.055 af

Pond P1: INFILTRATION Peak Elev=1,083.34' Storage=2,257 cf Inflow=1.81 cfs 0.079 af
Discarded=0.04 cfs 0.031 af Secondary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.031 af

Pond P2: Peak Elev=1,081.23' Storage=62 cf Inflow=0.59 cfs 0.026 af
12.0" Round Culvert n=0.013 L=75.0' S=0.0053 '/' Outflow=0.55 cfs 0.025 af

Pond P3: Peak Elev=1,081.72' Storage=23 cf Inflow=0.86 cfs 0.037 af
12.0" Round Culvert n=0.013 L=72.0' S=0.0174 '/' Outflow=0.86 cfs 0.037 af

Link 1: Inflow=3.06 cfs 0.502 af
Primary=3.06 cfs 0.502 af

Link 2: Inflow=1.87 cfs 0.156 af
Primary=1.87 cfs 0.156 af

Link 3: Inflow=0.64 cfs 0.055 af
Primary=0.64 cfs 0.055 af

Total Runoff Area = 15.959 ac Runoff Volume = 0.793 af Average Runoff Depth = 0.60"
91.54% Pervious = 14.608 ac 8.46% Impervious = 1.351 ac

Summary for Subcatchment S100:

Runoff = 1.81 cfs @ 11.98 hrs, Volume= 0.079 af, Depth> 1.33"
Routed to Pond P1 : INFILTRATION

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=3.36"

Area (sf)	CN	Description
15,965	98	Paved parking, HSG D
15,015	58	Meadow, non-grazed, HSG B
30,980	79	Weighted Average
15,015		48.47% Pervious Area
15,965		51.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, DIRECT**

Summary for Subcatchment S101:

Runoff = 2.93 cfs @ 12.58 hrs, Volume= 0.440 af, Depth> 0.58"
Routed to Link 1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=3.36"

Area (sf)	CN	Description
20,427	98	Paved parking, HSG D
131,155	58	Meadow, non-grazed, HSG B
6,667	78	Meadow, non-grazed, HSG D
173,508	60	Woods, Fair, HSG B
62,617	79	Woods, Fair, HSG D
394,374	65	Weighted Average
373,947		94.82% Pervious Area
20,427		5.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0100	0.23		**Sheet Flow, SF - FARM** Cultivated: Residue<=20% n= 0.060 P2= 2.32"
3.8	205	0.0100	0.90		**Shallow Concentrated Flow, SCF - FARM** Cultivated Straight Rows Kv= 9.0 fps
23.9	600	0.0070	0.42		**Shallow Concentrated Flow, SCF - WOODS** Woodland Kv= 5.0 fps
14.5	430	0.0050	0.49		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
49.5	1,335	Total			

Summary for Subcatchment S102:

Runoff = 0.59 cfs @ 11.97 hrs, Volume= 0.026 af, Depth> 0.73"
Routed to Pond P2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=3.36"

Area (sf)	CN	Description
4,651	98	Paved parking, HSG D
13,634	58	Meadow, non-grazed, HSG B
18,285	68	Weighted Average
13,634		74.56% Pervious Area
4,651		25.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, DIRECT**

Summary for Subcatchment S103:

Runoff = 0.86 cfs @ 11.97 hrs, Volume= 0.037 af, Depth> 0.93"
Routed to Pond P3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=3.36"

Area (sf)	CN	Description
5,996	98	Paved parking, HSG D
12,606	58	Meadow, non-grazed, HSG B
1,986	78	Meadow, non-grazed, HSG D
20,588	72	Weighted Average
14,592		70.88% Pervious Area
5,996		29.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, DIRECT**

Summary for Subcatchment S200:

Runoff = 1.87 cfs @ 12.16 hrs, Volume= 0.156 af, Depth> 0.51"
Routed to Link 2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=3.36"

Area (sf)	CN	Description
9,098	98	Paved parking, HSG D
130,379	58	Meadow, non-grazed, HSG B
19,882	78	Meadow, non-grazed, HSG D
159,359	63	Weighted Average
150,261		94.29% Pervious Area
9,098		5.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	100	0.0250	0.16		**Sheet Flow, SF- GRASS** Grass: Short n= 0.150 P2= 2.32"
9.0	415	0.0120	0.77		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
19.5	515	Total			

Summary for Subcatchment S300:

Runoff = 0.64 cfs @ 12.14 hrs, Volume= 0.055 af, Depth> 0.40"
Routed to Link 3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=3.36"

Area (sf)	CN	Description
2,703	98	Paved parking, HSG D
66,777	58	Meadow, non-grazed, HSG B
2,087	60	Woods, Fair, HSG B
71,567	60	Weighted Average
68,864		96.22% Pervious Area
2,703		3.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	100	0.0170	0.14		**Sheet Flow, SF - GRASS** Grass: Short n= 0.150 P2= 2.32"
4.6	210	0.0120	0.77		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
16.9	310	Total			

Summary for Pond P1: INFILTRATION

Inflow Area = 0.711 ac, 51.53% Impervious, Inflow Depth > 1.33" for 10-YR event
Inflow = 1.81 cfs @ 11.98 hrs, Volume= 0.079 af
Outflow = 0.04 cfs @ 15.72 hrs, Volume= 0.031 af, Atten= 98%, Lag= 224.5 min
Discarded = 0.04 cfs @ 15.72 hrs, Volume= 0.031 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Link 1 :

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 1,083.34' @ 15.72 hrs Surf.Area= 2,573 sf Storage= 2,257 cf

Plug-Flow detention time= 233.6 min calculated for 0.031 af (39% of inflow)
Center-of-Mass det. time= 147.3 min (942.6 - 795.3)

Volume	Invert	Avail.Storage	Storage Description
#1	1,082.00'	6,320 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,082.00	920	130.0	0	0	920
1,083.00	2,095	505.0	1,468	1,468	19,872
1,084.00	3,645	525.0	2,834	4,302	21,590
1,084.50	4,440	535.0	2,018	6,320	22,475

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,082.00'	**0.750 in/hr Exfiltration over Surface area**
#2	Secondary	1,083.50'	**10.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Discarded OutFlow Max=0.04 cfs @ 15.72 hrs HW=1,083.34' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.04 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=1,082.00' (Free Discharge)
↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond P2:

Inflow Area = 0.420 ac, 25.44% Impervious, Inflow Depth > 0.73" for 10-YR event
Inflow = 0.59 cfs @ 11.97 hrs, Volume= 0.026 af
Outflow = 0.55 cfs @ 12.00 hrs, Volume= 0.025 af, Atten= 7%, Lag= 1.7 min
Primary = 0.55 cfs @ 12.00 hrs, Volume= 0.025 af
Routed to Link 1 :

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,081.23' @ 12.00 hrs Surf.Area= 271 sf Storage= 62 cf

Plug-Flow detention time= 2.9 min calculated for 0.025 af (99% of inflow)
Center-of-Mass det. time= 1.8 min (821.9 - 820.1)

Volume	Invert	Avail.Storage	Storage Description
#1	1,080.75'	454 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,080.75	1	0	0
1,081.00	130	16	16
1,082.00	745	438	454

Device	Routing	Invert	Outlet Devices
#1	Primary	1,080.80'	**12.0" Round Culvert** L= 75.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,080.80' / 1,080.40' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.55 cfs @ 12.00 hrs HW=1,081.23' (Free Discharge)
└**1=Culvert** (Barrel Controls 0.55 cfs @ 2.52 fps)

Summary for Pond P3:

Inflow Area = 0.473 ac, 29.12% Impervious, Inflow Depth > 0.93" for 10-YR event
Inflow = 0.86 cfs @ 11.97 hrs, Volume= 0.037 af
Outflow = 0.86 cfs @ 11.98 hrs, Volume= 0.037 af, Atten= 1%, Lag= 0.7 min
Primary = 0.86 cfs @ 11.98 hrs, Volume= 0.037 af
Routed to Link 1 :

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,081.72' @ 11.98 hrs Surf.Area= 95 sf Storage= 23 cf

Plug-Flow detention time= 0.4 min calculated for 0.037 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (810.6 - 810.3)

Volume	Invert	Avail.Storage	Storage Description
#1	1,081.25'	432 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,081.25	1	0	0
1,082.00	150	57	57
1,083.00	600	375	432

Device	Routing	Invert	Outlet Devices
#1	Primary	1,081.25'	**12.0" Round Culvert** L= 72.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,081.25' / 1,080.00' S= 0.0174 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.82 cfs @ 11.98 hrs HW=1,081.71' (Free Discharge)
└**1=Culvert** (Inlet Controls 0.82 cfs @ 2.31 fps)

Summary for Link 1:

Inflow Area = 9.946 ac, 7.17% Impervious, Inflow Depth > 0.61" for 10-YR event
Inflow = 3.06 cfs @ 12.57 hrs, Volume= 0.502 af
Primary = 3.06 cfs @ 12.57 hrs, Volume= 0.502 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link 2:

Inflow Area = 3.658 ac, 5.71% Impervious, Inflow Depth > 0.51" for 10-YR event
Inflow = 1.87 cfs @ 12.16 hrs, Volume= 0.156 af
Primary = 1.87 cfs @ 12.16 hrs, Volume= 0.156 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link 3:

Inflow Area = 1.643 ac, 3.78% Impervious, Inflow Depth > 0.40" for 10-YR event
Inflow = 0.64 cfs @ 12.14 hrs, Volume= 0.055 af
Primary = 0.64 cfs @ 12.14 hrs, Volume= 0.055 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentS100: Runoff Area=30,980 sf 51.53% Impervious Runoff Depth>3.19"
Tc=6.0 min CN=79 Runoff=4.16 cfs 0.189 af

SubcatchmentS101: Runoff Area=394,374 sf 5.18% Impervious Runoff Depth>1.92"
Flow Length=1,335' Tc=49.5 min CN=65 Runoff=11.41 cfs 1.450 af

SubcatchmentS102: Runoff Area=18,285 sf 25.44% Impervious Runoff Depth>2.21"
Tc=5.0 min CN=68 Runoff=1.83 cfs 0.077 af

SubcatchmentS103: Runoff Area=20,588 sf 29.12% Impervious Runoff Depth>2.55"
Tc=5.0 min CN=72 Runoff=2.36 cfs 0.100 af

SubcatchmentS200: Runoff Area=159,359 sf 5.71% Impervious Runoff Depth>1.79"
Flow Length=515' Tc=19.5 min CN=63 Runoff=7.84 cfs 0.546 af

SubcatchmentS300: Runoff Area=71,567 sf 3.78% Impervious Runoff Depth>1.56"
Flow Length=310' Tc=16.9 min CN=60 Runoff=3.29 cfs 0.214 af

Pond P1: INFILTRATION Peak Elev=1,083.73' Storage=3,387 cf Inflow=4.16 cfs 0.189 af
Discarded=0.06 cfs 0.039 af Secondary=2.67 cfs 0.088 af Outflow=2.73 cfs 0.127 af

Pond P2: Peak Elev=1,081.61' Storage=210 cf Inflow=1.83 cfs 0.077 af
12.0" Round Culvert n=0.013 L=75.0' S=0.0053 '/' Outflow=1.66 cfs 0.077 af

Pond P3: Peak Elev=1,082.12' Storage=78 cf Inflow=2.36 cfs 0.100 af
12.0" Round Culvert n=0.013 L=72.0' S=0.0174 '/' Outflow=2.32 cfs 0.100 af

Link 1: Inflow=12.17 cfs 1.716 af
Primary=12.17 cfs 1.716 af

Link 2: Inflow=7.84 cfs 0.546 af
Primary=7.84 cfs 0.546 af

Link 3: Inflow=3.29 cfs 0.214 af
Primary=3.29 cfs 0.214 af

Total Runoff Area = 15.959 ac Runoff Volume = 2.577 af Average Runoff Depth = 1.94"
91.54% Pervious = 14.608 ac 8.46% Impervious = 1.351 ac

Summary for Subcatchment S100:

Runoff = 4.16 cfs @ 11.97 hrs, Volume= 0.189 af, Depth> 3.19"
Routed to Pond P1 : INFILTRATION

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=5.73"

Area (sf)	CN	Description
15,965	98	Paved parking, HSG D
15,015	58	Meadow, non-grazed, HSG B
30,980	79	Weighted Average
15,015		48.47% Pervious Area
15,965		51.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, DIRECT**

Summary for Subcatchment S101:

Runoff = 11.41 cfs @ 12.51 hrs, Volume= 1.450 af, Depth> 1.92"
Routed to Link 1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=5.73"

Area (sf)	CN	Description
20,427	98	Paved parking, HSG D
131,155	58	Meadow, non-grazed, HSG B
6,667	78	Meadow, non-grazed, HSG D
173,508	60	Woods, Fair, HSG B
62,617	79	Woods, Fair, HSG D
394,374	65	Weighted Average
373,947		94.82% Pervious Area
20,427		5.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0100	0.23		**Sheet Flow, SF - FARM** Cultivated: Residue<=20% n= 0.060 P2= 2.32"
3.8	205	0.0100	0.90		**Shallow Concentrated Flow, SCF - FARM** Cultivated Straight Rows Kv= 9.0 fps
23.9	600	0.0070	0.42		**Shallow Concentrated Flow, SCF - WOODS** Woodland Kv= 5.0 fps
14.5	430	0.0050	0.49		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
49.5	1,335	Total			

Summary for Subcatchment S102:

Runoff = 1.83 cfs @ 11.96 hrs, Volume= 0.077 af, Depth> 2.21"
Routed to Pond P2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=5.73"

Area (sf)	CN	Description
4,651	98	Paved parking, HSG D
13,634	58	Meadow, non-grazed, HSG B
18,285	68	Weighted Average
13,634		74.56% Pervious Area
4,651		25.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, DIRECT**

Summary for Subcatchment S103:

Runoff = 2.36 cfs @ 11.96 hrs, Volume= 0.100 af, Depth> 2.55"
Routed to Pond P3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=5.73"

Area (sf)	CN	Description
5,996	98	Paved parking, HSG D
12,606	58	Meadow, non-grazed, HSG B
1,986	78	Meadow, non-grazed, HSG D
20,588	72	Weighted Average
14,592		70.88% Pervious Area
5,996		29.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, DIRECT**

Summary for Subcatchment S200:

Runoff = 7.84 cfs @ 12.13 hrs, Volume= 0.546 af, Depth> 1.79"
Routed to Link 2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=5.73"

Area (sf)	CN	Description
9,098	98	Paved parking, HSG D
130,379	58	Meadow, non-grazed, HSG B
19,882	78	Meadow, non-grazed, HSG D
159,359	63	Weighted Average
150,261		94.29% Pervious Area
9,098		5.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	100	0.0250	0.16		**Sheet Flow, SF- GRASS**
					Grass: Short n= 0.150 P2= 2.32"
9.0	415	0.0120	0.77		**Shallow Concentrated Flow, SCF - GRASS**
					Short Grass Pasture Kv= 7.0 fps
19.5	515	Total			

Summary for Subcatchment S300:

Runoff = 3.29 cfs @ 12.11 hrs, Volume= 0.214 af, Depth> 1.56"
Routed to Link 3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=5.73"

Area (sf)	CN	Description
2,703	98	Paved parking, HSG D
66,777	58	Meadow, non-grazed, HSG B
2,087	60	Woods, Fair, HSG B
71,567	60	Weighted Average
68,864		96.22% Pervious Area
2,703		3.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	100	0.0170	0.14		**Sheet Flow, SF - GRASS**
					Grass: Short n= 0.150 P2= 2.32"
4.6	210	0.0120	0.77		**Shallow Concentrated Flow, SCF - GRASS**
					Short Grass Pasture Kv= 7.0 fps
16.9	310	Total			

Summary for Pond P1: INFILTRATION

Inflow Area = 0.711 ac, 51.53% Impervious, Inflow Depth > 3.19" for 100-YR event
Inflow = 4.16 cfs @ 11.97 hrs, Volume= 0.189 af
Outflow = 2.73 cfs @ 12.06 hrs, Volume= 0.127 af, Atten= 34%, Lag= 5.2 min
Discarded = 0.06 cfs @ 12.06 hrs, Volume= 0.039 af
Secondary = 2.67 cfs @ 12.06 hrs, Volume= 0.088 af
Routed to Link 1 :

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 1,083.73' @ 12.06 hrs Surf.Area= 3,188 sf Storage= 3,387 cf

Plug-Flow detention time= 112.6 min calculated for 0.127 af (67% of inflow)
Center-of-Mass det. time= 44.2 min (820.7 - 776.5)

Volume	Invert	Avail.Storage	Storage Description
#1	1,082.00'	6,320 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,082.00	920	130.0	0	0	920
1,083.00	2,095	505.0	1,468	1,468	19,872
1,084.00	3,645	525.0	2,834	4,302	21,590
1,084.50	4,440	535.0	2,018	6,320	22,475

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,082.00'	**0.750 in/hr Exfiltration over Surface area**
#2	Secondary	1,083.50'	**10.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Discarded OutFlow Max=0.06 cfs @ 12.06 hrs HW=1,083.73' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.06 cfs)

Secondary OutFlow Max=2.59 cfs @ 12.06 hrs HW=1,083.73' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 2.59 cfs @ 1.14 fps)

Summary for Pond P2:

Inflow Area = 0.420 ac, 25.44% Impervious, Inflow Depth > 2.21" for 100-YR event
Inflow = 1.83 cfs @ 11.96 hrs, Volume= 0.077 af
Outflow = 1.66 cfs @ 11.99 hrs, Volume= 0.077 af, Atten= 9%, Lag= 2.0 min
Primary = 1.66 cfs @ 11.99 hrs, Volume= 0.077 af
Routed to Link 1 :

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,081.61' @ 11.99 hrs Surf.Area= 505 sf Storage= 210 cf

Plug-Flow detention time= 2.4 min calculated for 0.077 af (100% of inflow)
Center-of-Mass det. time= 1.7 min (797.7 - 795.9)

Volume	Invert	Avail.Storage	Storage Description
#1	1,080.75'	454 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,080.75	1	0	0
1,081.00	130	16	16
1,082.00	745	438	454

Device	Routing	Invert	Outlet Devices
#1	Primary	1,080.80'	**12.0" Round Culvert** L= 75.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,080.80' / 1,080.40' S= 0.0053 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.63 cfs @ 11.99 hrs HW=1,081.60' (Free Discharge)
└**1=Culvert** (Barrel Controls 1.63 cfs @ 3.30 fps)

Summary for Pond P3:

Inflow Area = 0.473 ac, 29.12% Impervious, Inflow Depth > 2.55" for 100-YR event
Inflow = 2.36 cfs @ 11.96 hrs, Volume= 0.100 af
Outflow = 2.32 cfs @ 11.98 hrs, Volume= 0.100 af, Atten= 2%, Lag= 1.0 min
Primary = 2.32 cfs @ 11.98 hrs, Volume= 0.100 af
Routed to Link 1 :

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,082.12' @ 11.98 hrs Surf.Area= 205 sf Storage= 78 cf

Plug-Flow detention time= 0.4 min calculated for 0.100 af (100% of inflow)
Center-of-Mass det. time= 0.4 min (789.2 - 788.9)

Volume	Invert	Avail.Storage	Storage Description
#1	1,081.25'	432 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,081.25	1	0	0
1,082.00	150	57	57
1,083.00	600	375	432

Device	Routing	Invert	Outlet Devices
#1	Primary	1,081.25'	**12.0" Round Culvert** L= 72.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,081.25' / 1,080.00' S= 0.0174 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.21 cfs @ 11.98 hrs HW=1,082.09' (Free Discharge)
└**1=Culvert** (Inlet Controls 2.21 cfs @ 3.13 fps)

Summary for Link 1:

Inflow Area = 9.946 ac, 7.17% Impervious, Inflow Depth > 2.07" for 100-YR event
Inflow = 12.17 cfs @ 12.50 hrs, Volume= 1.716 af
Primary = 12.17 cfs @ 12.50 hrs, Volume= 1.716 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link 2:

Inflow Area = 3.658 ac, 5.71% Impervious, Inflow Depth > 1.79" for 100-YR event
Inflow = 7.84 cfs @ 12.13 hrs, Volume= 0.546 af
Primary = 7.84 cfs @ 12.13 hrs, Volume= 0.546 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link 3:

Inflow Area = 1.643 ac, 3.78% Impervious, Inflow Depth > 1.56" for 100-YR event
Inflow = 3.29 cfs @ 12.11 hrs, Volume= 0.214 af
Primary = 3.29 cfs @ 12.11 hrs, Volume= 0.214 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Tompkins County, New York

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

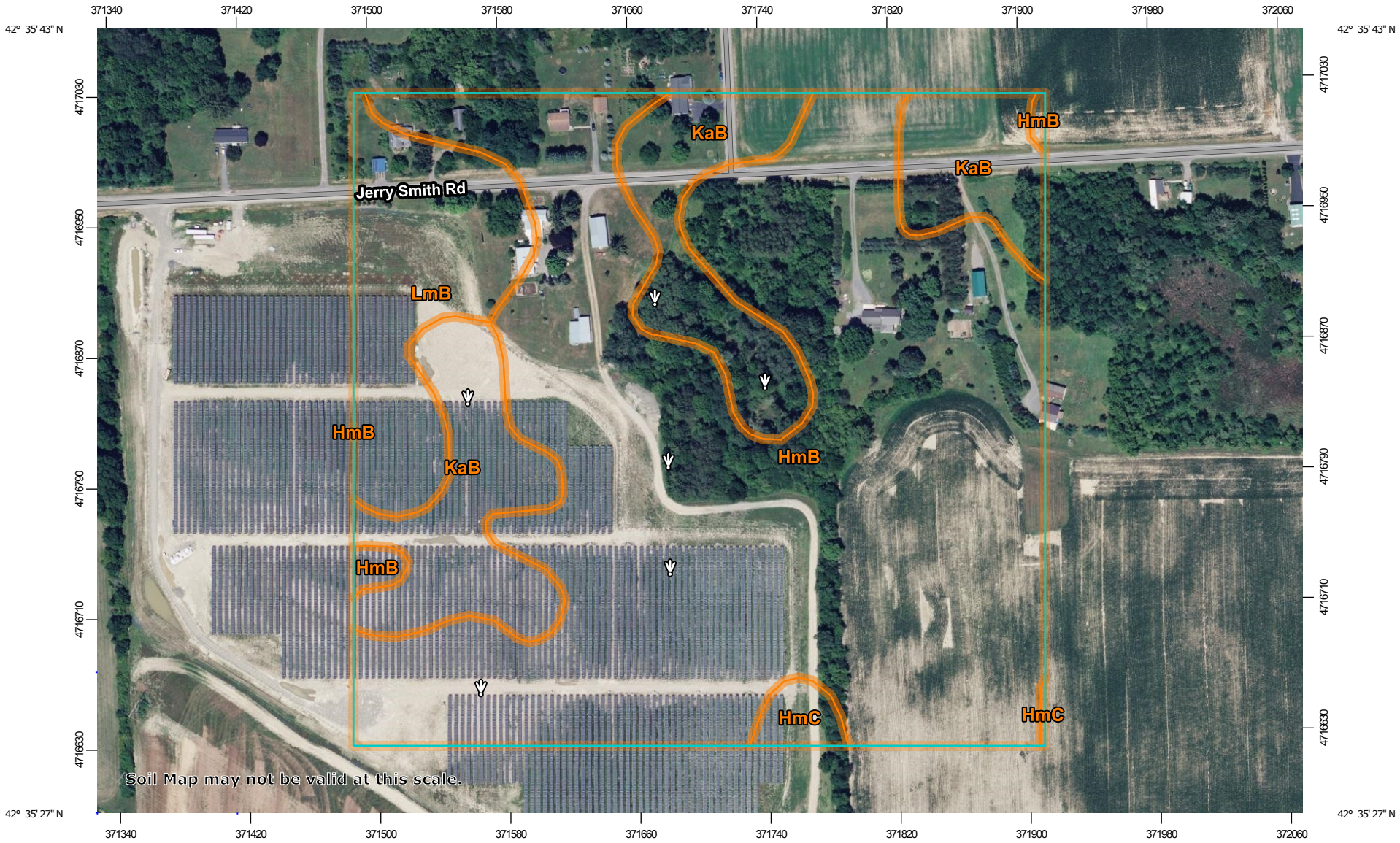
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:3,390 if printed on A landscape (11" x 8.5") sheet.

N

0 50 100 200 300 Meters

0 150 300 600 900 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Tompkins County, New York
Survey Area Data: Version 21, Sep 2, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 1, 2020—Oct 1, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
HmB	Honeoye gravelly silt loam, 2 to 8 percent slopes	29.2	69.2%
HmC	Honeoye gravelly silt loam, 8 to 15 percent slopes	0.5	1.1%
KaB	Kendaia silt loam, 3 to 8 percent slopes	8.2	19.5%
LmB	Lima silt loam, 3 to 8 percent slopes	4.3	10.2%
Totals for Area of Interest		**42.2**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Tompkins County, New York

HmB—Honeoye gravelly silt loam, 2 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2w3p1
Landscape: Till plains
Elevation: 260 to 1,780 feet
Mean annual precipitation: 31 to 57 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 100 to 190 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Honeoye and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Honeoye

Setting

Landscape: Till plains
Landform: Ridges, Till plains, Drumlins
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Calcareous loamy lodgment till derived from limestone, sandstone, and shale

Typical profile

Ap - 0 to 8 inches: gravelly silt loam
E - 8 to 10 inches: silt loam
Bt/E - 10 to 14 inches: loam
Bt1 - 14 to 23 inches: loam
Bt2 - 23 to 29 inches: gravelly loam
C - 29 to 79 inches: gravelly loam

Properties and qualities

Slope: 2 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Available water supply, 0 to 60 inches: Moderate (about 7.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B

Ecological site: F101XY012NY - Till Upland
Hydric soil rating: No

Minor Components

Lima

Percent of map unit: 5 percent
Landscape: Till plains
Landform: Drumlins, Till plains, Ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Lansing

Percent of map unit: 4 percent
Landscape: Till plains
Landform: Till plains, Hills, Drumlins
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Appleton

Percent of map unit: 4 percent
Landscape: Till plains
Landform: Till plains, Ridges, Drumlins
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Wassaic

Percent of map unit: 2 percent
Landscape: Till plains
Landform: Till plains, Ridges, Benches
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

HmC—Honeoye gravelly silt loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2w3p3
Landscape: Till plains
Elevation: 380 to 1,840 feet

Mean annual precipitation: 31 to 57 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 100 to 190 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Honeoye and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Honeoye

Setting

Landscape: Till plains
Landform: Ridges, Till plains, Drumlins
Landform position (two-dimensional): Shoulder, backslope, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Calcareous loamy lodgment till derived from limestone, sandstone, and shale

Typical profile

Ap - 0 to 8 inches: gravelly silt loam
E - 8 to 10 inches: silt loam
Bt/E - 10 to 14 inches: loam
Bt1 - 14 to 23 inches: loam
Bt2 - 23 to 29 inches: gravelly loam
C - 29 to 79 inches: gravelly loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Available water supply, 0 to 60 inches: Moderate (about 7.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F101XY012NY - Till Upland
Hydric soil rating: No

Minor Components

Lima

Percent of map unit: 5 percent
Landscape: Till plains
Landform: Drumlins, Till plains, Ridges
Landform position (two-dimensional): Summit, shoulder

Landform position (three-dimensional): Crest
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Appleton

Percent of map unit: 4 percent
Landscape: Till plains
Landform: Till plains, Ridges, Drumlins
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Lansing

Percent of map unit: 4 percent
Landscape: Till plains
Landform: Till plains, Hills, Drumlins
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Wassaic

Percent of map unit: 2 percent
Landscape: Till plains
Landform: Till plains, Ridges, Benches
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

KaB—Kendaia silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2w5j4
Landscape: Till plains
Elevation: 430 to 1,610 feet
Mean annual precipitation: 31 to 57 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 100 to 190 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Kendaia and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kendaia

Setting

Landscape: Till plains
Landform: Till plains, Ridges, Drumlins
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Calcareous loamy lodgment till derived from limestone, sandstone, and shale

Typical profile

Ap - 0 to 8 inches: silt loam
Bw - 8 to 15 inches: silt loam
Bg - 15 to 20 inches: gravelly silt loam
BCg - 20 to 24 inches: gravelly loam
C - 24 to 79 inches: gravelly loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Available water supply, 0 to 60 inches: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B/D
Ecological site: F101XY013NY - Moist Till
Hydric soil rating: No

Minor Components

Lima

Percent of map unit: 7 percent
Landscape: Till plains
Landform: Till plains, Drumlins
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Lyons

Percent of map unit: 4 percent
Landscape: Till plains
Landform: Drainageways, Depressions
Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Churchville

Percent of map unit: 2 percent
Landscape: Till plains
Landform: Till plains, Proglacial lake plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope, rise, talf
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Ovid

Percent of map unit: 2 percent
Landscape: Till plains
Landform: Till plains, Reworked lake plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

LmB—Lima silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2w3kk
Landscape: Till plains
Elevation: 380 to 1,680 feet
Mean annual precipitation: 31 to 57 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 100 to 190 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Lima and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lima

Setting

Landscape: Till plains
Landform: Till plains, Ridges, Drumlins
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Linear
Across-slope shape: Convex

Parent material: Calcareous loamy lodgment till derived from limestone, sandstone, and shale

Typical profile

Ap - 0 to 9 inches: silt loam
Bt/E - 9 to 12 inches: loam
Bt1 - 12 to 16 inches: loam
Bt2 - 16 to 25 inches: gravelly loam
C - 25 to 79 inches: gravelly loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Available water supply, 0 to 60 inches: Moderate (about 7.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B/D
Ecological site: F101XY013NY - Moist Till
Hydric soil rating: No

Minor Components

Honeoye

Percent of map unit: 6 percent
Landscape: Till plains
Landform: Ridges, Till plains, Drumlins
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Linear, convex
Across-slope shape: Convex
Hydric soil rating: No

Appleton

Percent of map unit: 3 percent
Landscape: Till plains
Landform: Ridges, Drumlins, Till plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Kendaia

Percent of map unit: 3 percent
Landscape: Till plains
Landform: Ridges, Till plains, Drumlins
Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Cazenovia

Percent of map unit: 2 percent
Landscape: Till plains
Landform: Reworked lake plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Concave
Across-slope shape: Convex
Hydric soil rating: No

Lyons

Percent of map unit: 1 percent
Landscape: Till plains
Landform: Drainageways, Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
Phone: (607) 753-9334 Fax: (607) 753-9699
Email Address: fw5es_nyfo@fws.gov

In Reply Refer To: 03/11/2026 14:53:48 UTC
Project code: 2026-0061029
Project Name: Jerry Smith BESS

Federal Nexus: no
Federal Action Agency (if applicable):

Subject: Record of project representative's no effect determination for 'Jerry Smith BESS'

Dear Bailey Godson:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on March 11, 2026, for 'Jerry Smith BESS' (here forward, Project). This project has been assigned Project Code 2026-0061029 and all future correspondence should clearly reference this number. **Please carefully review this letter.**

Ensuring Accurate Determinations When Using IPaC

The Service developed the IPaC system and associated species' determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into IPaC must accurately represent the full scope and details of the Project.

Failure to accurately represent or implement the Project as detailed in IPaC or the **Northern Long-eared Bat and Tricolored Bat Range-wide Determination Key (Dkey)**, invalidates this letter. ***Answers to certain questions in the DKey commit the project proponent to implementation of conservation measures that must be followed for the ESA determination to remain valid.***

Determination for the Northern Long-Eared Bat and/or Tricolored Bat

Based upon your IPaC submission and a standing analysis, your project has reached the following effect determinations:

Species	Listing Status	Determination
Northern Long-eared Bat (*Myotis septentrionalis*)	Endangered	No effect

To make a no effect determination, the full scope of the proposed project implementation (action) should not have any effects (either positive or negative), to a federally listed species or designated critical habitat. Effects of the action are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action. (See § 402.17).

Under Section 7 of the ESA, if a federal action agency makes a no effect determination, no consultation with the Service is required (ESA §7). If a proposed Federal action may affect a listed species or designated critical habitat, formal consultation is required except when the Service concurs, in writing, that a proposed action "is not likely to adversely affect" listed species or designated critical habitat [50 CFR §402.02, 50 CFR§402.13].

Other Species and Critical Habitat that May be Present in the Action Area

The IPaC-assisted determination key for the northern long-eared bat and tricolored bat does not apply to the following ESA-protected species and/or critical habitat that also may occur in your Action area:

- Monarch Butterfly *Danaus plexippus* Proposed Threatened

You may coordinate with our Office to determine whether the Action may affect the animal species listed above and, if so, how they may be affected.

Next Steps

If there are no updates on listed species, no further consultation/coordination for this project is required with respect to the species covered by this key. However, the Service recommends that project proponents re-evaluate the Project in IPaC if: 1) the scope, timing, duration, or location of the Project changes (includes any project changes or amendments); 2) new information reveals the Project may impact (positively or negatively) federally listed species or designated critical habitat; or 3) a new species is listed, or critical habitat designated. If any of the above conditions occurs, additional coordination with the Service should take place to ensure compliance with the Act.

If you have any questions regarding this letter or need further assistance, please contact the New York Ecological Services Field Office and reference Project Code 2026-0061029 associated with this Project.

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

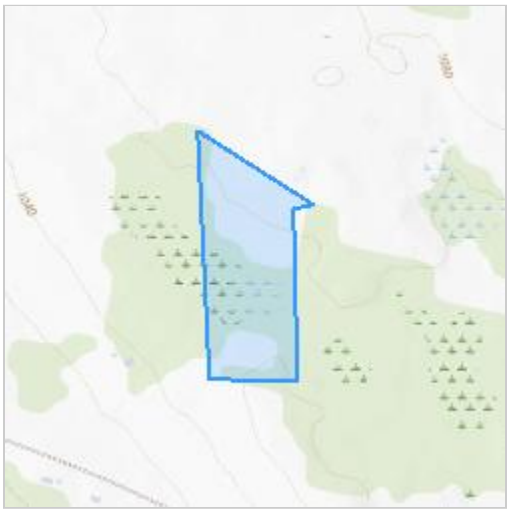
Jerry Smith BESS

2. Description

The following description was provided for the project 'Jerry Smith BESS':

> The client is proposing the construction of a Battery Energy Storage System (BESS) located off of Jerry Smith Road in the Town of Lansing, Tompkins County, NY. The project site will to limited to the northern half of the 14± acre property where active agriculture practices are currently occurring.

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@42.58896325,-76.56704481962775,14z



DETERMINATION KEY RESULT

Based on the information you provided, you have determined that the Proposed Action will have no effect on the species covered by this determination key. Therefore, no consultation with the U.S. Fish and Wildlife Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (87 Stat. 884, as amended 16 U.S.C. 1531 *et seq.*) is required for those species.

QUALIFICATION INTERVIEW

1. Does the proposed project include, or is it reasonably certain to cause, intentional take of listed bats or any other listed species?

   Note: Intentional take is defined as take that is the intended result of a project. Intentional take could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered or proposed species?

   No

2. Is the action area wholly within Zone 2 of the year-round active area for northern long-eared bat and/or tricolored bat?

   Automatically answered
   No

3. Does the action area intersect Zone 1 of the year-round active area for northern long-eared bat and/or tricolored bat?

   Automatically answered
   No

4. Does any component of the action involve leasing, construction or operation of wind turbines? Answer 'yes' if the activities considered are conducted with the intention of gathering survey information to inform the leasing, construction, or operation of wind turbines.

   No

5. Is the proposed action authorized, permitted, licensed, funded, or being carried out by a Federal agency in whole or in part?

   Note for projects in Pennsylvania: Projects requiring authorization under Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act would be considered as having a federal nexus. Since the U.S. Army Corps of Engineers (Corps) has issued the Pennsylvania State Programmatic General Permit (PASPGP), which may be verified by the PA Department of Environmental Protection or certain Conservation Districts, the need to receive a Corps authorization to perform the work under the PASPGP serves as a federal nexus. As such, if proposing to use the PASPGP, you would answer ‘yes’ to this question.

   No

6. [Semantic] Is the action area located within 0.5 miles of a known bat hibernaculum or winter roost? Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your state wildlife agency.

   Automatically answered
   No

7. Does the action area contain any winter roosts or caves (or associated sinkholes, fissures, or other karst features), mines, rocky outcroppings, or tunnels that could provide habitat for hibernating bats?

   No

8. Will the action cause effects to a bridge?

   Note: Covered bridges should be considered as bridges in this question.

   No

9. Will the action result in effects to a culvert or tunnel at any time of year?

   No

10. Are trees present within 1000 feet of the action area?

    Note: If there are trees within the action area that are of a sufficient size to be potential roosts for bats answer "Yes". If unsure, additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    Yes

11. Does the action include the intentional exclusion of bats from a building or building-like structure? **Note:** Exclusion is conducted to deny bats' entry or reentry into a building. To be effective and to avoid harming bats, it should be done according to established standards. If your action includes bat exclusion and you are unsure whether northern long-eared bats or tricolored bats are present, answer "Yes." Answer "No" if there are no signs of bat use in the building/structure. If unsure, contact your local Ecological Services Field Office to help assess whether northern long-eared bats or tricolored bats may be present. Contact a Nuisance Wildlife Control Operator (NWCO) for help in how to exclude bats from a structure safely without causing harm to the bats (to find a NWCO certified in bat standards, search the Internet using the search term "National Wildlife Control Operators Association bats"). Also see the White-Nose Syndrome Response Team's guide for bat control in structures.

    No

12. Does the action involve removal, modification, or maintenance of a human-made building-like structure (barn, house, or other building) **known or suspected to contain roosting bats?**

    No

13. Will the action cause construction of one or more new roads open to the public?

    For federal actions, answer ‘yes’ when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

    No

14. Will the action include or cause any construction or other activity that is reasonably certain to increase average night-time traffic permanently or temporarily on one or more existing roads? **Note:** For federal actions, answer ‘yes’ when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.). .

    No

15. Will the action include or cause any construction or other activity that is reasonably certain to increase the number of travel lanes on an existing thoroughfare?

    For federal actions, answer ‘yes’ when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

    No

16. Will the proposed Action involve the creation of a new water-borne contaminant source (e.g., leachate pond, pits containing chemicals that are not NSF/ANSI 60 compliant)?

    Note: For information regarding NSF/ANSI 60 please visit https://www.nsf.org/knowledge-library/nsf-ansi-standard-60-drinking-water-treatment-chemicals-health-effects

    No

17. Will the proposed action involve the creation of a new point source discharge from a facility other than a water treatment plant or storm water system?

    No

18. Will the proposed action involve blasting or drilling?

    No

19. Will the action involve military training (e.g., smoke operations, obscurant operations, exploding munitions, artillery fire, range use, helicopter or fixed wing aircraft use at night)?

    No

20. Will the proposed action involve the use of herbicides or pesticides (e.g., fungicides, insecticides, or rodenticides)?

    No

21. Will the action include or cause activities that are reasonably certain to cause chronic or intense nighttime noise (above current levels of ambient noise in the area) in suitable summer habitat for the northern long-eared bat or tricolored bat during the active season?

    Chronic noise is noise that is continuous or occurs repeatedly again and again for a long time. Sources of chronic or intense noise that could cause adverse effects to bats may include, but are not limited to: road traffic; trains; aircraft; industrial activities; gas compressor stations; loud music; crowds; oil and gas extraction; construction; and mining.

    Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    No

22. Does the action include, or is it reasonably certain to cause, the use of permanent or temporary artificial lighting within 1000 feet of suitable northern long-eared bat or tricolored bat roosting habitat?

    Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    No

23. Will the action include tree cutting or other means of knocking down or bringing down trees, tree topping, or tree trimming?

    No

24. Will the proposed action result in the use of prescribed fire?

    Note: If the prescribed fire action includes other activities than application of fire (e.g., tree cutting, fire line preparation) please consider impacts from those activities within the previous representative questions in the key. This set of questions only considers impacts from flame and smoke.

    No

25. Does the action area intersect the northern long-eared bat species list area?

    Automatically answered
    Yes

26. [Semantic] Is the action area located within 0.5 miles of radius of an entrance/opening to any known NLEB hibernacula or winter roost? Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

    Automatically answered
    No

27. [Semantic] Is the action area located within 0.25 miles of a culvert that is known to be occupied by northern long-eared or tricolored bats? **Note:** The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

    Automatically answered
    No

28. [Semantic] Is the action area located within 150 feet of a documented northern long-eared bat roost site?

    Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.Have you contacted the appropriate agency to determine if your action is within 150 feet of any documented northern long-eared bat roosts?

    Note: A document with links to Natural Heritage Inventory databases and other state-specific sources of information on the locations of northern long-eared bat roosts is available here. Location information for northern long-eared bat roosts is generally kept in state natural heritage inventory databases – the availability of this data varies by state. Many states provide online access to their data, either directly by providing maps or by providing the opportunity to make a data request. In some cases, to protect those resources, access to the information may be limited.

    Automatically answered
    No

29. Is suitable summer habitat for the northern long-eared bat present within 1000 feet of project activities?
    If unsure, answer "Yes."

    Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    Yes

30. Has a presence/probable absence summer bat survey targeting the northern long-eared bat following the Service's Range-wide Indiana Bat and Northern Long-Eared Bat Survey Guidelines been conducted within the project area?

    No

31. Do you have any documents that you want to include with this submission?

    No

PROJECT QUESTIONNAIRE

IPAC USER CONTACT INFORMATION

Agency: Environmental Design Partnership, LLP (EDP)
Name: Bailey Godson
Address: 900 Route 146
City: Clifton Park
State: NY
Zip: 12065
Email bgodson@edpllp.com
Phone: 8382514798

United States Department of the Interior

FISH AND WILDLIFE SERVICE
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3817 Luker Road
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Phone: (607) 753-9334 Fax: (607) 753-9699
Email Address: fw5es_nyfo@fws.gov

In Reply Refer To: 05/06/2026 18:23:06 UTC
Project Code: 2026-0086469
Project Name: Jerry Smith BESS

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. **Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.**

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
(607) 753-9334

PROJECT SUMMARY

Project Code: 2026-0086469
Project Name: Jerry Smith BESS
Project Type: Battery Energy Storage Systems
Project Description: The client is proposing the construction of a 5 Megawatt Battery Energy Storage System (BESS) south of Jerry Smith Road in the Town of Lansing, Tompkins County, NY. The project area consists of vacant woodlands located on a previously developed parcel of land (solar). The surrounding land use consists of agricultural land, industrial development, residential development, and vacant woodlands.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@42.5938683,-76.56366245682952,14z

Counties: Tompkins County, New York

ENDANGERED SPECIES ACT SPECIES

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: Environmental Design Partnership, LLP (EDP)
Name: Bailey Godson
Address: 900 Route 146
City: Clifton Park
State: NY
Zip: 12065
Email bgodson@edpllp.com
Phone: 8382514798

SECTION 7

Completed Inspection Reports

CIVIL PERMIT PLANS
FOR
JERRY SMITH ENERGY STORAGE SYSTEM
5.0 MW AC
LOCATED AT
JERRY SMITH ROAD
LANSING, NY 14882
JULY 2026

TOWN OF LANSING PLANNING BOARD, NEW YORK

DATED_____
SIGNATURE_____
CHAIRMAN

DATED_____
SIGNATURE_____
CODE ENFORCEMENT OFFICER

DATED_____
SIGNATURE_____
HIGHWAY SUPERINTENDENT

DATED_____
SIGNATURE_____
TOWN ENGINEER

APPLICANT/PROJECT OWNER
JERRY SMITH, LLC
101 SUMMER STREET, 2ND FLOOR
BOSTON, MA 02110

CIVIL ENGINEER
THE ENVIRONMENTAL DESIGN PARTNERSHIP, LLP
900 ROUTE 146
CLIFTON PARK, NY 12065
(518) 371-7621

SURVEYOR
THE ENVIRONMENTAL DESIGN PARTNERSHIP, LLP
900 ROUTE 146
CLIFTON PARK, NY 12065
(518) 371-7621

BATTERY CONSULTANT
NEXAMP, LLC
101 SUMMER STREET, 2ND FLOOR
BOSTON, MA 02110

LOCATION MAP
(NOT TO SCALE)

Sheet List Table

Sheet Number	Sheet Title
C-100	COVER SHEET
C-101	GENERAL NOTES
C-200	EXISTING CONDITIONS
C-201	REMOVALS PLAN
C-300	MATERIALS AND LAYOUT PLAN
C-301	TURNING MOVEMENT PLAN
C-400	EROSION AND SEDIMENT CONTROL PLAN
C-500	GRADING AND DRAINAGE PLAN
C-501	ROAD PROFILE
C-600	EROSION AND SEDIMENT CONTROL DETAILS
C-601	SITE DETAILS
C-602	SITE DETAILS

SITE INFORMATION

PARCEL ZONING
AGRICULTURAL (AG)
PROJECT DESCRIPTION
5.0 MW BATTERY ENERGY STORAGE PROJECT

BENCHMARKS

BENCHMARKS:
CONTROL TO BE SET BY EDPLLP

nexamp
101 Summer Street, Boston, MA 02110
Tel: (617) 431-1440 Fax: (978) 416-2525 Web: nexamp.com

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(518) 371-7621 edpllp.com

Rev	Issued For	Date
A	INTERNAL REVIEW	5/27/26
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Drawing Title: COVER SHEET
Drawn by: BMW Scale: AS SHOWN Approved by: TJM

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GENERAL NOTES:

THE ENVIRONMENTAL DESIGN PARTNERSHIP IS NOT RESPONSIBLE FOR ANY CONSTRUCTION WORK PERFORMED PRIOR TO FINAL APPROVAL OF ALL PLANS AND SECURING OF ALL PERMITS AND FILING OF ALL MAPS.

CONTRACTOR TO ARRANGE A PRECONSTRUCTION CONFERENCE WITH THE ENVIRONMENTAL DESIGN PARTNERSHIP AND MUNICIPALITY PRIOR TO CONSTRUCTION.

FIELD ADJUSTMENTS MUST BE APPROVED BY THE ENVIRONMENTAL DESIGN PARTNERSHIP AND THE OWNER PRIOR TO CONSTRUCTION.

CONTRACTOR IS TO VERIFY THAT ALL NECESSARY WORK PERMITS AND EASEMENTS ARE IN PLACE PRIOR TO COMMENCEMENT OF WORK.

THE CONTRACTOR SHALL CONDUCT THEIR OPERATIONS AND TAKE ALL SPECIAL TEMPORARY AND PERMANENT PRECAUTIONS NECESSARY TO ENSURE A STABLE AND SECURE JOB.

THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY TOWN, COUNTY OR STATE HIGHWAY CUT PERMITS.

THE CONTRACTOR SHALL SECURE ALL NECESSARY PERMITS AND EASEMENTS PRIOR TO CONSTRUCTION AND BECOME FAMILIAR WITH THE CONDITIONS OF EACH PERMIT.

THE CONTRACTOR SHALL PROTECT AND SUSTAIN IN NORMAL SERVICE ALL EXISTING UTILITIES, STRUCTURES, EQUIPMENT, ROADWAYS, AND DRIVEWAYS.

THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES AND RIGHT-OF-WAY PROPERTY LINES PRIOR TO CONSTRUCTION.

THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES SUCH AS GAS, POWER, TELEPHONE, CABLE TV, WATER, SEWER, ETC. PRIOR TO COMMENCEMENT OF CONSTRUCTION.

AS PER NYS INDUSTRIAL CODE 53: CONTRACTOR TO CALL DIG SAFELY NEW YORK, INC. AT 1-800-962-7962 TO LOCATE BURIED CABLES OR OTHER UNDERGROUND UTILITIES NO LESS THAN TWO OR MORE THAN TEN WORKING DAYS PRIOR TO DIGGING, DRILLING, EXCAVATING, DRIVING POSTS, ETC.

ANY EXISTING STORM SEWERS AND UNDERGROUND UTILITIES ARE SHOWN IN THEIR RELATIVE POSITION AND FOR INFORMATION ONLY. THE CONTRACTOR SHALL HAVE THEIR EXACT LOCATION CHECKED AT THE SITE BEFORE CONSTRUCTION BEGINS.

CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING PIPE INVERT ELEVATIONS PRIOR TO COMMENCEMENT OF CONSTRUCTION. ANY DISCREPANCIES WHICH RESULT MUST BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, GRADES, PIPE INVERTS AND ELEVATIONS AND REVIEW WITH CONSULTANT BEFORE CONSTRUCTION.

ALL EXCAVATION TO MEET OSHA AND NYS DOT SAFETY REGULATIONS AND STANDARDS.

THE CONTRACTOR SHALL FILL IN, AND RE-EXCAVATE, AS NECESSARY TO RESUME WORK, ANY EXCAVATIONS OR TRENCHES AT LOCATIONS AND AS OFTEN AS MAY BE REQUIRED TO ENSURE PROTECTION OF THE WORK, ANY ADJACENT EXISTING FACILITIES, OR THE PUBLIC.

THE CONTRACTOR SHALL CLEAN UP THE JOB SITE DAILY BEFORE LEAVING THE JOBSITE. ALL RUBBISH MUST BE CLEANED UP AND CONSTRUCTION EQUIPMENT MUST BE PROPERLY TAKEN CARE OF AND STORED AT THE END OF THE DAY.

CONTRACTOR IS RESPONSIBLE FOR TRAFFIC CONTROL AND SAFETY DURING CONSTRUCTION. THE CONTRACTOR SHALL FURNISH ALL FLAGMEN AND SIGNS, DELINEATORS, BARRIERS, AND DEVICES NECESSARY FOR TRAFFIC CONTROL DURING ANY EARTH-MOVING OPERATION OR OTHER CONSTRUCTION ACTIVITY WHICH INVOLVES PUBLIC HIGHWAYS.

ALL TRAFFIC SIGNS, CONTROL DEVICES AND INFORMATIONAL ITEMS, IF DISTURBED DURING CONSTRUCTION WITHIN CONTRACT LIMIT LINES, SHALL BE RELOCATED AS PER APPROVAL OF MUNICIPALITY.

TOWN OF LANSING APPROVALS SHALL BE KEPT ON SITE AT ALL TIMES.

CONTRACTORS AND SUBCONTRACTORS SHALL THOROUGHLY FAMILIARIZE THEMSELVES WITH ALL CONSTRUCTION DOCUMENTS, SPECIFICATIONS, AND SITE CONDITIONS PRIOR TO BIDDING AND PRIOR TO CONSTRUCTION.

IN NO CASE SHALL PARKING AREAS, LAYDOWN AREAS, CONSTRUCTION TRAILERS, AND PORTABLE TOILETS BE LOCATED WITHIN A WETLAND RESOURCE AREA AND/OR ANY BUFFER ZONES.

RESTORATION OF PAVEMENT IS THE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR SHALL REPLACE AND RESTORE PAVEMENT WITH MATERIAL TO A CONDITION EQUAL TO OR BETTER THAN PRECONSTRUCTION CONDITIONS. ALL PAVEMENT AND RIGHT-OF-WAY RESTORATION WORK TO BE DONE TO THE SATISFACTION OF THE STATE, COUNTY OR LOCAL MUNICIPAL HIGHWAY DEPARTMENT.

CONTRACTOR SHALL RESTORE ALL LAWNS, DRIVEWAYS, WALKS, WALLS, CURBS, FENCES, ETC. TO A CONDITIONS AT LEAST AS GOOD AS THEY WERE BEFORE BEING DISTURBED.

BOX ALL TREES AND HOUSE ALL SHRUBS AND HEDGES BEFORE PLACING EARTH AGAINST OR NEAR THEM. SHRUBS AND HEDGES THAT MUST BE REMOVED DURING CONSTRUCTION SHALL BE HEALED OR REPLANTED IN AS GOOD A CONDITION AS THEY WERE BEFORE THEIR REMOVAL. ANY DAMAGED ITEMS SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

POSTS, MAILBOXES, ETC. SHALL BE PROTECTED, OR REMOVED AND REPLACED EXACTLY AS THEY WERE BEFORE BEING DISTURBED. DAMAGED ITEMS SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

IT MAY BE NECESSARY TO TIE OR HOLD BACK UTILITY POLES DURING CONSTRUCTION. THIS SHOULD BE ACCOMPLISHED IN COOPERATION WITH UTILITY COMPANIES.

NO WORK, STORAGE OR TRESPASS SHALL BE PERMITTED BEYOND THE BOUNDARIES OF ANY EASEMENTS OR R.O.W. AS SHOWN.

CONTRACTOR TO COMPLY WITH ALL OSHA AND OTHER STATE AND LOCAL SAFETY REQUIREMENTS DURING CONSTRUCTION (PROPER SHORING, ETC.).

ALL SITE WORK SHALL BE SMOOTHLY AND EVENLY BLENDED INTO EXISTING CONDITIONS. WHERE ACCESS OR WORK OUTSIDE OF PROPERTY BOUNDARY IS NECESSARY, THE PERMISSION OF ADJOINING PROPERTY OWNER MUST FIRST BE OBTAINED.

ALL AREAS OF THE SITE WHICH ARE DISTURBED AND NOT PAVED SHALL BE TOPSOILED AND SEEDED.

THE INFORMATION REPRESENTED WITHIN THESE DOCUMENTS DOES NOT IMPLY ANY CONTRACT WITH, OR OBLIGATION FOR, PERFORMING ANY OR ALL TOWN, COUNTY, OR STATE REQUIRED INSPECTIONS DURING THE COURSE OF CONSTRUCTION OR PURSUANT TO OBTAINING CERTIFICATE OF OCCUPANCY. SUCH INSPECTION SERVICES, IF PERFORMED BY THIS OFFICE, SHALL BE ESTABLISHED BY SEPARATE CONTRACT.

IN THE EVENT THAT THE CONSTRUCTION STAKEOUT AND INSPECTION OF THE WORK IS NOT PERFORMED BY THE ENVIRONMENTAL DESIGN PARTNERSHIP (EDP), EDP WILL NOT BE HELD RESPONSIBLE FOR ANY ERRORS, OMISSIONS, COSTS, EXPENSES OR LIABILITY OF WHATEVER KIND AND NATURE RESULTING FROM FIELD CHANGES AND/OR ERRORS WHICH EDP WOULD OTHERWISE HAVE HAD AN OPPORTUNITY TO CHECK AND CORRECT WERE THEY IN A POSITION TO CONTROL THE PROJECT THROUGH STAKEOUT AND INSPECTION.

CLAIMS MADE AGAINST CONSULTANT FOR SURVEY STAKEOUT ERRORS WILL BE HONORED ONLY IF CONSULTANT IS NOTIFIED FOR VERIFICATION OF THE ERROR IMMEDIATELY UPON DISCOVERY AND BEFORE ANY CONTROL STAKES ARE DISTURBED. IF, AFTER VERIFICATION, IT IS DETERMINED THAT NO STAKEOUT ERROR OCCURRED, THE CLIENT SHALL REIMBURSE THE CONSULTANT FOR ADDITIONAL EXPENSES INCURRED FOR SUCH VERIFICATION.

ALL ERRORS, OMISSIONS AND DISCREPANCIES MUST BE BROUGHT TO THE ATTENTION OF THE ENVIRONMENTAL DESIGN PARTNERSHIP IMMEDIATELY UPON DISCOVERY, OTHERWISE, THE ENVIRONMENTAL DESIGN PARTNERSHIP WILL ACCEPT NO RESPONSIBILITY.

INSPECTION SERVICES BY THE ENVIRONMENTAL DESIGN PARTNERSHIP ARE NOT SUPERVISORY. ACCORDINGLY, THE ENVIRONMENTAL DESIGN PARTNERSHIP CAN NEITHER GUARANTEE THE PERFORMANCE OF THE CONSTRUCTION CONTRACTS BY CONTRACTORS NOR ASSUME RESPONSIBILITY FOR THE CONTRACTOR'S FAILURE TO FURNISH AND PERFORM WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

EQUIPMENT PAD AND MV UNDERGROUND CABLE LAYOUT WERE PROVIDED BY OTHERS.

EQUIPMENT PAD AND MV UNDERGROUND CABLE DESIGN, INCLUDING, BUT NOT LIMITED TO, SUBGRADE SUITABILITY, PREPARATION, REQUIRED TRENCHING, AND BEDDING TO BE DESIGNED BY OTHERS.

EROSION AND SEDIMENT CONTROL AND STABILIZATION MEASURES, MAINTENANCE AND INSPECTION PRACTICES:

1. THE FOLLOWING IS A LIST OF EROSION AND SEDIMENT CONTROLS TO BE USED ON THIS SITE DURING CONSTRUCTION:

A. STABILIZATION PRACTICES FOR THIS SITE INCLUDE:
- LAND CLEARING ACTIVITIES SHALL BE DONE ONLY IN AREAS WHERE EARTHWORK WILL BE PERFORMED AND SHALL PROGRESS AS EARTHWORK IS NEEDED
- WATERING OF EXCAVATION AND FILL AREAS TO MINIMIZE WIND EROSION DURING CONSTRUCTION AS NEEDED.
- USE OF STABILIZATION FABRIC FOR ALL SLOPES HAVING A SLOPE OF 1V:2H OR GREATER AND FILL SLOPES 1V:3H OR GREATER.
- PERMANENT SEEDING AND PLANTING OF ALL UNPAVED AREAS USING THE HYDROMULCHING GRASS SEEDING TECHNIQUE.

B. STRUCTURAL PRACTICES FOR THIS SITE INCLUDE:
- PERIMETER PROTECTION USING COMPOST FILTER SOCKS
- STABILIZED CONSTRUCTION EXIT POINTS
- SEDIMENT TRAPS OR FILTER SOCKS
- CHECK DAMS

2. THE FOLLOWING INSPECTION AND MAINTENANCE PRACTICES WILL BE USED TO MAINTAIN EROSION AND SEDIMENT CONTROLS AND STABILIZATION MEASURES.

A. ALL CONTROL MEASURES WILL BE INSPECTED ONCE EVERY SEVEN (7) DAYS BY A QUALIFIED INSPECTOR AS DESCRIBED IN PART IV, SECTION C OF THE SPDES PERMIT FOR CONSTRUCTION ACTIVITY NO. GP-0-25-001. SITES THAT HAVE A WAIVER TO DISTURB GREATER THAN FIVE (5) ACRES REQUIRE (2) INSPECTIONS EVERY SEVEN (7) DAYS WITH AT LEAST TWO (2) DAYS BETWEEN INSPECTIONS.

B. DISTURBED AREAS SHALL BE STABILIZED AS SOON AS PRACTICAL AFTER CONSTRUCTION ACTIVITIES HAVE CONCLUDED IN AN AREA. ALL BARE AREAS AND AREAS SUBJECT TO EROSION SHALL BE BLANKETED OR SEEDED AND MULCHED WITHIN 14 DAYS WITH TEMPORARY EROSION CONTROL SEEDING

C. ALL MEASURES WILL BE MAINTAINED IN GOOD WORKING ORDER; IF REPAIRS ARE FOUND TO BE NECESSARY, THEY WILL BE INITIATED WITHIN 24 HOURS OF REPORT.

D. BUILT UP SEDIMENT WILL BE REMOVED FROM FILTER SOCKS WHEN IT HAS REACHED ONE-HALF THE HEIGHT OF THE SOCK. AN ADDITIONAL FILTER SOCK MAY BE INSTALLED ON TOP OF THE ORIGINAL TO INCREASE SEDIMENT STORAGE CAPACITY/PREVENT SEDIMENT DISTURBANCE.

E. FILTER SOCKS WILL BE INSPECTED FOR DEPTH OF SEDIMENT, DISLODGEMENT, BREAKS, TEARS, ETC. DAMAGED OR DISLODGED FILTER SOCKS SHALL BE REPAIRED OR REPLACED IMMEDIATELY.

F. TEMPORARY AND PERMANENT SEEDING AND ALL OTHER STABILIZATION MEASURES WILL BE INSPECTED FOR BARE SPOTS, WASHOUTS, AND HEALTHY GROWTH.

G. SEDIMENT BASINS WILL BE INSPECTED FOR DEPTH OF SEDIMENT. BUILT UP SEDIMENT WILL BE REMOVED WHEN IT REACHES 50 PERCENT OF THE CAPACITY.

H. CHECK DAMS WILL BE INSPECTED FOR DEPTH OF SEDIMENT, WASHOUT, ETC. BUILT UP SEDIMENT WILL BE REMOVED FROM THE CHECK DAM WHEN IT REACHES ONE-THIRD OF THE HEIGHT OF THE CHECK DAM.

I. A MAINTENANCE INSPECTION REPORT WILL BE MADE AFTER EACH INSPECTION. COPIES OF THE REPORT FORMS TO BE COMPLETED BY THE INSPECTOR ARE INCLUDED IN THIS SWPPP. UPON COMPLETION, COPIES OF THE REPORTS SHALL BE SUBMITTED TO THE TOWN.

J. THE JOB SITE SUPERINTENDENT WILL BE RESPONSIBLE FOR SELECTING AND TRAINING THE INDIVIDUALS WHO WILL BE RESPONSIBLE FOR THESE INSPECTIONS, MAINTENANCE AND REPAIR ACTIVITIES, AND FILLING OUT INSPECTION AND MAINTENANCE REPORTS. ALL PERSONNEL PERFORMING INSPECTIONS MUST MEET THE REQUIREMENTS DESCRIBED IN PART IV, SECTION C OF THE SPDES PERMIT FOR CONSTRUCTION ACTIVITY NO. GP-0-25-001.

K. PERSONNEL SELECTED FOR THE INSPECTION AND MAINTENANCE RESPONSIBILITIES WILL RECEIVE APPROPRIATE INSTRUCTION FROM THE JOB SITE SUPERINTENDENT. THEY WILL BE TRAINED IN ALL THE INSPECTION AND MAINTENANCE PRACTICES NECESSARY FOR KEEPING THE EROSION AND SEDIMENT CONTROLS THAT ARE USED ONSITE IN GOOD WORKING ORDER. THEY WILL ALSO BE TRAINED IN THE COMPLETION OF, INITIATION OF ACTIONS REQUIRED BY, AND THE FILING OF THE INSPECTION FORMS. DOCUMENTATION OF THIS PERSONNEL TRAINING WILL BE KEPT ON SITE WITH THE SWPPP. ALL PERSONNEL PERFORMING INSPECTIONS MUST MEET THE REQUIREMENTS DESCRIBED IN PART IV, SECTION C OF THE SPDES PERMIT FOR CONSTRUCTION ACTIVITY NO. GP-0-25-001.

L. DISTURBED AREAS AND MATERIAL STORAGE AREAS WILL BE INSPECTED FOR EVIDENCE OF OR POTENTIAL FOR POLLUTANTS ENTERING STORMWATER SYSTEMS.

M. REPORT TO THE NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION WITHIN 24 HOURS ANY NONCOMPLIANCE WITH THE SWPPP THAT WILL ENDANGER PUBLIC HEALTH OR THE ENVIRONMENT. FOLLOW UP WITH A WRITTEN REPORT WITHIN 5 DAYS OF THE NONCOMPLIANCE EVENT.

N. NECESSARY MEASURES SHALL BE TAKEN TO CONTAIN ANY FUEL OR POLLUTION RUNOFF. NO RE-FUELING SHALL BE OCCUR WITHIN 100 FEET OF ANY WETLAND RESOURCE AREA AND 200 FEET FROM RIVERFRONT. LEAKING EQUIPMENT OR SUPPLIES SHALL IMEEDIATELY BE REPAIRED OR EMOVED FROM THE SITE.

O. CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO PREVENT DUST FROM FORMING.

ADDITIONAL EROSION CONTROL AND GRADING NOTES:

1. MINIMAL EROSION CONTROL DEVICES ARE ILLUSTRATED ON SITE PLAN IN A SCHEMATIC MANNER BASED ON NY STATE GUIDELINES FOR EROSION AND SEDIMENT CONTROL. IT WILL BE NECESSARY TO ADJUST THE ACTUAL LOCATION AND QUANTITY OF EROSION CONTROL DEVICES DEPENDING UPON FIELD CONDITIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING THESE MEASURES AS REQUIRED TO PROTECT THE SITE.
2. SLOPES SHALL TYPICALLY BE GRADED AT A MAXIMUM OF 3:1 (3 HORIZ. 1 VERT.) WITHIN ALL CUT OR FILL AREAS, UNLESS OTHERWISE DESIGNATED ON PLANS.
3. TEMPORARY SEED SHALL BE A COMMERCIALLY AVAILABLE MIXTURE OF PERENNIAL RYE AND UTILITY GRADE FESCUE. PERCENTAGE OF PERENNIAL RYE SHALL NOT EXCEED 50%. PERMANENT SEED SHALL BE AS SPECIFIED ON THE PLANTING PLANS.

4. SEEDED AREAS SHALL BE FULLY COVERED WITH A LEAN STRAW OR MULCH MATERIAL. IF ORDERED BY THE ENGINEER OR MUNICIPALITY, A BIODEGRADABLE NETTING (E.G., EXCELSIOR BLANKET, COIR GEOTEXTILE) SHALL BE ANCHORED OVER SEEDED AREAS WHICH DEMONSTRATE "RILLING" OR OTHER EROSION PROCESSES.
5. TOPSOIL AND SEED SHALL BE REAPPLIED TO ANY AREAS WHICH FAIL TO ESTABLISH AS A RESULT OF INITIAL APPLICATION.
6. FILTER SOCK BARRIERS SHALL BE PLACED WITHIN ALL AREAS OF EXPOSED SLOPES TO CONTROL SOIL EROSION DURING AND AFTER CONSTRUCTION.
7. EROSION CONTROL (ERO-MAT), GEOTEXTILE FABRIC, COMPOST BLANKET, RIPRAP, OR APPROVED EQUAL, SHALL BE INSTALLED ON ALL 4H:1V SLOPES: AN ORGANIC FIBER PROTECTIVE MAT, HALF INCH LAYER OF CHOPPED STRAW, KNITTED INTO A RUGGED MAT WITH A THIN NETTING OF PHOTODEGRADABLE POLYPROPYLENE. SECURE MAT TO SLOPE WITH 6" STEEL U-SHAPED STABLES, 2 STAPLES PER SQUARE YARD, OR AS PER MANUFACTURER'S INSTRUCTIONS.
8. PRIOR TO SEEDING, ACCESS AISLES, TEMPORARY STAGING AREAS, STORAGE, AND PARKING AREAS TO BE DECOMPACTED AND RELOAMED.
9. SEDIMENT BARRIERS SHALL BE CONSTRUCTED AROUND ALL SOIL STOCKPILE AREAS.
10. STREAM REACHES ON-SITE AND DOWNSTREAM OF CONSTRUCTION SHALL NOT HAVE SUBSTANTIAL VISIBLE CONTRAST RELATIVE TO COLOR, TASTE, ODOR, TURBIDITY AND SEDIMENT DEPOSITION FROM THE REACHES UPSTREAM OF THE CONSTRUCTION ACTIVITY.
11. VEHICULAR ACCESS POINTS SHALL BE MONITORED AND INSPECTED AT THE SAME FREQUENCY AS EROSION CONTROL FEATURES TO INSURE THAT DEPOSITS OF SAND, SILT OR OTHER MATERIAL IS NOT BEING DEPOSITED ON PUBLIC ROADWAYS. IN THE EVENT ANY SIGNIFICANT DEPOSITS OCCUR THEY SHALL BE CLEANED UP IMMEDIATELY.
12. A SPDES PERMIT SHALL BE IN PLACE PRIOR TO COMMENCING ANY GROUND DISTURBANCE.
13. PROJECT DRAINAGE FEATURES TO BE CLEANED OUT AFTER COMPLETION OF CONSTRUCTION.

SEQUENCE OF CONSTRUCTION ACTIVITIES:

1. SITE TO BE MOBILIZED.
2. EROSION AND SEDIMENT CONTROL MEASURES TO BE INSTALLED IN CONJUNCTION WITH ANY BRUSH OR TREE CLEARING REQUIRED. NOTE: EROSION AND SEDIMENT CONTROL MEASURES TO BE INSTALLED IN ACCORDANCE WITH SHEET C-500. ASSOCIATED DETAILS AS WELL AS NYS DEC CONSTRUCTION GENERAL PERMIT #GP-0-25-001. IN ANY INSTANCE THAT A CONFLICT BETWEEN THESE TWO GUIDELINES IS PRESENT, THE MORE CONSERVATIVE GUIDELINE TAKES PRECEDENT.
3. CLEARING AND GRUBBING OPERATIONS CREW SHALL CHIP AND MULCH DIRECTLY BEHIND OPERATION TO MAKE SURE NO AREAS ABOVE FIVE ACRES SHALL BE DISTURBED AT ANY TIME. NO MORE THAN FIVE ACRES SHALL BE DISTURBED AT ANY ONE TIME WITHOUT PRIOR APPROVAL FROM NYSDEC.
4. INSTALLATION OF ACCESS ROAD TO COMMENCE. NOTE: ANY AREAS OF DISTURBANCE SHALL BE STABILIZED WITH TEMPORARY SEEDING PER THE REQUIRED TIMELINES AS PER NYS DEC CONSTRUCTION GENERAL PERMIT #GP-0-25-001.
5. MV TRENCHES AND FOUNDATIONS INSTALLATION IN CONJUNCTION WITH THE PLACEMENT OF CONCRETE FOUNDATIONS FOR THE ELECTRICAL EQUIPMENT PADS TO COMMENNCE.
6. WATERING OF THE EXCAVATION AND FILL AREAS SHALL BE DONE TO MINIMIZE WIND EROSION AS NEEDED THROUGHOUT CONSTRUCTION.
7. ELECTRICAL EQUIPMENT INSTALLATION TO COMMENCE.
8. REMOVE LAYDOWN AREA, SPREAD GRAVEL ON ROADWAY, AND SEED AREAS.
9. FINAL SITE STABILIZATION TO COMMENCE.
10. ALL EROSION AND SEDIMENT CONTROL MEASURES TO BE REMOVED ONCE 80% VEGETATIVE COVER HAS BEEN ACHIEVED. REMOVE FILTER SOCKS, STABILIZED CONSTRUCTION ENTRANCES, AND OTHER TEMPORARY EROSION AND SEDIMENT CONTROLS. ANY RESULTING AREAS OF DISTURBANCE FROM SAID REMOVAL TO BE SEEDED PRIOR TO DEMOBILIZATION.
11. SITE TO BE DEMOBILIZED.

PLANTING NOTES:

1. PLANTING CONTRACTOR SHALL VERIFY FINAL SELECTION OF PLANT MATERIALS WITH THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
2. ALL AREAS OF SITE WHICH ARE DISTURBED AND NOT LANDSCAPED, SHALL BE TOPSOILED, SEEDED, AND MULCHED . (MULCH – STRAW, HYDROSEED MIX, OR BIODEGRADABLE NETTING.) MIXTURES TO BE APPLIED SHALL BE DETERMINED BY OWNER'S REPRESENTATIVES. TOPSOIL TO BE 4" MINIMUM.
3. EXISTING VEGETATION SHALL REMAIN UNDISTURBED WITHIN ALL AREAS OF SITE WHICH DO NOT REQUIRE GRADING.
4. ALL PLANTING BEDS TO RECEIVE 3" MINIMUM BARK MULCH WITH FILTER FABRIC WEED CONTROL OR EQUAL.
5. THE PLANTING PLAN IS FOR PLANTING PURPOSES ONLY. REFER TO SITE PLAN FOR DETAILED GRADING AND UTILITY INFORMATION.
6. GUARANTEE:
   A. FOR A PERIOD OF TWELVE MONTHS FROM THE DATE THAT THE WORK UNDER CONTRACT IS CERTIFIED AS COMPLETE, THE CONTRACTOR SHALL:
      1. GUARANTEE ALL PLANTS AND SEEDED AREAS UNDER THIS CONTRACT;
      2. REMOVE AND REPLACE DURING THIS GUARANTEE PERIOD, PLANTS WHICH DIE OR ARE IN A BADLY IMPAIRED CONDITION;
      3. REPLANT WITH STOCK OF SAME SIZE AND QUALITY AS ORIGINALLY SPECIFIED;
      4. GUY AND MAINTAIN AS SPECIFIED HEREIN, AT NO ADDITIONAL COST.
   B. REPLACEMENTS MADE WITHIN SIX MONTHS AFTER BEGINNING OF THE "GUARANTEE PERIOD" SHALL NOT EXTEND THE "GUARANTEE PERIOD" OF THESE PARTICULAR PLANTS; THOSE REPLACEMENTS MADE SIX MONTHS OR MORE AFTER THE BEGINNING OF THE "GUARANTEE PERIOD" SHALL BE MAINTAINED AND GUARANTEED FOR A PERIOD OF SIX MONTHS FROM THE TIME OF REPLACEMENT.

1. APPLICABLE STANDARDS: "AMERICAN STANDARD FOR NURSERY STOCK" BY THE AMERICAN ASSOCIATION OF NURSERYMEN AND "STANDARDIZED PLANT NAMES" BY THE AMERICAN JOINT COMMITTEE ON HORTICULTURAL NOMENCLATURE, ARE A PART OF THIS SPECIFICATION. ALL PLANTS SHALL BE NURSERY GROWN, NOT GATHERED IN THE FIELD.

PLANTING NOTE:

PLANTS LISTED IN THE PLANTING SCHEDULE CAN BE SUBSTITUTED FOR SIMILAR SPECIES OF THE SAME SIZE WITH THE APPROVAL OF THE OWNER AND/OR PROJECT LANDSCAPE ARCHITECT.

ABBREVIATIONS:

±	PLUS/MINUS
BC	BOTTOM OF CURB
BIRF	BENT IRON ROD FOUND
BLDG	BUILDING
BLDR	BOULDER
CB	CATCH BASIN
CBR	CATCH BASIN- ROUND
CIRF	CAPPED IRON ROD FOUND
CMF	CONCRETE MONUMENT FOUND
CMP	CORRUGATED METAL PIPE
CONC	CONCRETE
CP	CONTROL POINT
DIP	DUCTILE IRON PIPE
DWG	DRAWING
EHH	ELECTRIC HANDHOLE
EOB	EDGE OF BRUSH
EOW	EDGE OF WOODS
EX.	EXISTING
GV	GAS VALVE
HC	HANDICAPPED
HYD	FIRE HYDRANT
HDPE	HIGH DENSITY POLYETHYLENE PIPE
IRF	IRON ROD FOUND
LLC	LIMITED LIABILITY CORPORATION
LPLA	LAMP POST
MISC	MISCELLANEOUS
MH	MANHOLE
NAVD	NORTH AMERICAN VERTICAL DATUM
NG	NATIONAL GRID
NM	NIAGRA MOHAWK
NYS	NEW YORK STATE
NYT	NEW YORK TELEPHONE UTILITY POLE
No.	NUMBER
OETL	OVERHEAD ELECTRICAL TRANSMISSION LINE
OHUL	OVERHEAD UTILITY LINE
PVC	POLYVINYL CHLORIDE
RCP	REINFORCED CONCRETE PIPE
R.O.W	RIGHT OF WAY
SAN	SANITARY
SF	SQUARE FEET
SS	STREET SIGN
STM	STORM
STS	STOP SIGN
TF	TOP OF FRAME
(TYP.)	TYPICAL
UGE	UNDERGROUND ELECTRIC
UP	UTILITY POLE
VZ	VERIZON UTILITY POLE
YD	YARD DRAIN

PLANTING BED PREPARATION NOTE:

ALL PAVEMENT, AND GRAVEL BASE SHALL BE REMOVED FROM PROPOSED PLANTING BEDS AREAS. COMPACTED SUB BASE MATERIALS SHALL BE DECOMPACTED FOR A DEPTH OF 12". PLANTING BEDS SHALL BE FREE OF ROOTS TILLED TO A DEPTH 12". INCORPORATE 2" OF COMPOST INTO SOIL AND TOP DRESS WITH 3" OF HARDWOOD MULCH.

TOPSOIL NOTE:

ALL AREAS WHICH ARE DISTURBED AND NOT LANDSCAPED, PAVED OR OTHERWISE RESTORED SHALL RECEIVE A MINIMUM OF 4" OF TOPSOIL. ALL LANDSCAPE BEDS SHALL RECEIVE A MINIMUM OF 12" OF TOPSOIL.
TOP SOIL SHALL HAVE;
2% -20% ORGANIC MATTER
PH OF 6-7.6%
MAXIMUM PARTICLE SIZE 1.5"

SOIL RESTORATION:

AS PER CHAPTER 5 OF THE NEW YORK STATE STORMWATER MANAGEMENT DESIGN MANUAL, SOIL RESTORATION IS REQUIRED ON THIS SITE IN ALL NON-IMPERVIOUS AREAS ONCE FINAL SUBGRADE ELEVATION IS ACHIEVED. IN AREAS OF CUT OR FILL THE SOILS SHALL BE AERATED AND 6 INCHES OF TOPSOIL SHALL BE APPLIED IN HSG A & B SOILS, AND FULL SOIL RESTORATION PER "DEEP RIPPING AND DE-COMPACTION, DEC 2008" SHALL BE APPLIED IN HSG C & D AREAS. IN AREAS OF HEAVY CONSTRUCTION TRAFFIC (ESPECIALLY IN AREAS 5 TO 25 FEET FROM BUILDING, BUT NOT WITHIN 5 FEET OF FOUNDATION WALLS) THE FOLLOWING RESTORATION MUST BE APPLIED:

1. APPLY 3 INCHES OF COMPOST OVER SUBSOIL.
2. TILL COMPOST INTO SUBSOIL TO A DEPTH OF AT LEAST 12 INCHES USING A CAT-MOUNTED RIPPER, TRACTOR-MOUNTED DISC, OR TILLER, MIXING, AND CIRCULATING AIR AND COMPOST INTO SOIL.
3. ROCK-PICK UNTIL UPLIFTED STONE/ROCK MATERIALS OF 4 INCHES AND LARGER SIZE ARE CLEANED OFF THE SITE.
4. APPLY TOPSOIL TO A DEPTH OF 4 INCHES
5. VEGETATE AS REQUIRED BY APPROVED PLAN.

EXISTING:

600	EXISTING GRADE CONTOUR
— G —	UNDERGROUND GAS LINE
—X—	BARBED WIRE FENCE
	DELINEATED WETLANDS
	BASELINE POINT
	HYDRANT
INV=266.3	INVERT ELEVATION
	STREET OR SIGHT LIGHTING
	STORM / SANITARY MANHOLE
	SIGN
TF=189.75	TOP OF FRAME ELEVATION
	UTILITY POLE
BENCHMARK XBOLT ON UP ELEV.=208.14'	VERTICAL BENCHMARK
N 853,136.62 E 751,423.644 ELEV 212.15'	HORIZONTAL CONTROL POINT
	CONIFEROUS TREE
	DECIDUOUS TREE
	TEST PIT LOCATION
C	DENOTES COMMUNICATIONS PEDESTAL

NEW:

DETAIL NUMBER 3 / C-501 SHEET NUMBER	DETAIL REFERENCE
× 335.78	SPOT ELEVATION
	GRASSED SWALE
268	CONTOUR LINE
	PARKING, TRAFFIC OR STORMWATER MANAGEMENT SIGN WITH LABEL
	IMPERVIOUS GRAVEL ACCESS ROAD
	TEMPORARY GRAVEL ACCESS ROAD
	STABILIZED CONSTRUCTION ENTRANCE
	RIP RAP FILL
	TEMPORARY EROSION CONTROL BLANKET (TO BE USED ON SLOPES GREATER THAN OR EQUAL TO 33%)
	FIXED KNOT FENCE FENCE
MV	MEDIUM VOLTAGE TRENCH (BY OTHERS)
	PROPOSED 12 IN COMPOST FILTER SOCK OR SILTE FENCE
	PROPOSED 12 IN COMPOST FILTER SOCK (OR EQUAL) CHECK DAM IN VEGETATED SWALE
	CONCRETE WASHOUT FACILITY
	LIMIT OF DISTURBANCE

NEW YORK STATE DEPARTMENT OF AGRICULTURE AND MARKETS CONSTRUCTION REQUIREMENTS:

1. CONSTRUCTION ACTIVITIES ON THIS SITE MUST COMPLY WITH THE NYS DEPARTMENT OF AGRICULTURE AND MARKETS (NYSDAM) PUBLISHED GUIDELINES FOR CONSTRUCTION MITIGATION FOR AGRICULTURAL LANDS LAST REVISED OCTOBER 18, 2019. THE FOLLOWING REPRESENTS ONLY A CONSOLIDATED SUMMARY OF THE GUIDELINES. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO BE FAMILIAR WITH THE COMPLETE GUIDELINES AND COMPLY WITH THE APPLICABLE REQUIREMENTS DURING CONSTRUCTION.
2. PRIOR TO CONSTRUCTION CONTRACTOR SHALL OBTAIN SOIL SAMPLES FROM AREAS TO BE DISTURBED (ONE (1) SET OF SOIL SAMPLES FOR EVERY 10 ACRES OF DISTURBANCE) AND SUBMITTED TO AN APPROVED LABORATORY FOR TESTING OF PH, PERCENT ORGANIC MATERIAL, CATION EXCHANGE CAPACITY, PHOSPHORUS / PHOSPHATE(P), AND POTASSIUM/POTASH(K). SOIL SAMPLING SHALL BE CONSISTENT WITH CORNELL UNIVERSITY'S SOIL TESTING GUIDELINES WITHIN REPRESENTATIVE AREAS OF THE PROPOSED DISTURBANCE. RESULTS SHALL BE SUBMITTED TO THE OWNER.
3. STRIPPED TOPSOIL SHALL BE STOCKPILED FROM WORK AREAS AND KEPT SEPARATE FROM OTHER EXCAVATED MATERIAL UNTIL THE COMPLETION OF THE FACILITY FOR FINAL RESTORATION. EXCESS TOPSOIL SHALL BE SPREAD EVENLY IN AGRICULTURAL AREAS WITHIN THE LIMIT OF DISTURBANCE OR AS NOTED ON THE PLANS. IN NO CASE SHALL THE SPREADING OF EXCESS TOPSOIL ALTER THE HYDROLOGY OF THE AREA.
4. TOPSOIL STOCKPILES ON AGRICULTURAL AREAS LEFT IN PLACE PRIOR TO OCTOBER 31 SHALL BE SEEDED WITH AROOSTOOK WINTER RYE OR EQUIVALENT AT AN APPLICATION RATE OF THREE BUSHELS (168 LB) PER ACRE AND MULCHED WITH STRAW AT A RATE OF TWO TO THREE BALES PER 1000 SF.
5. TOPSOIL STOCKPILES ON AGRICULTURAL AREAS LEFT IN PLACE BETWEEN OCTOBER 31 AND MAY 31 SHALL BE MULCHED WITH STRAW AT A RATE OF TWO TO THREE BALES PER 1000 SF TO PREVENT SOIL LOSS.
6. THE SURFACE OF ACCESS ROADS LOCATED OUTSIDE OF THE FENCED AREA AND CONSTRUCTED THROUGH AGRICULTURAL FIELDS SHALL BE LEVEL WITH THE ADJACENT FIELD SURFACE UNLESS OTHERWISE NOTED.
7. THE CONTRACTOR SHALL ENSURE THAT NO VEHICLES OR EQUIPMENT ARE ALLOWED OUTSIDE THE DESIGNED LIMIT OF DISTURBANCE. VEHICLE AND EQUIPMENT TRAFFIC, PARKING AND MATERIAL STORAGE SHALL BE LIMITED TO THE ACCESS ROADS AND/OR DESIGNATED WORK AREAS WITH THE EXCEPTION OF LOW GROUND PRESSURE EQUIPMENT.
8. ALL BURIED UTILITIES LOCATED WITHIN THE FENCED AREA MUST HAVE A MINIMUM COVER DEPTH OF 18 INCHES IF LOCATED WITHIN CONDUIT AND 24 INCHES IF DIRECT BURIED
9. ALL BURIED UTILITIES LOCATED OUTSIDE OF THE FENCED AREA SHALL HAVE A MINIMUM COVER DEPTH OF 48 INCHES IF LOCATED WITHIN CROPLAND, HAYLAND OR IMPROVED PASTURE AREAS. IN AREAS WHERE THE DEPTH OF SOIL OVER BEDROCK IS LESS THAN 48 INCHES THE ELECTRICAL CONDUCTORS MUST BE BURIED BELOW THE SURFACE OF THE BEDROCK IF FRIABLE/RIPPABLE OR AS NEAR AS POSSIBLE TO THE SURFACE OF THE BEDROCK. ALL BURIED UTILITIES LOCATED IN UNIMPROVED GRAZING AREAS OR ON LAND PERMANENTLY DEVOTED TO PASTURE SHALL HAVE A MINIMUM COVER DEPTH OF 36 INCHES. WHERE ELECTRICAL CONDUCTORS ARE BURIED DIRECTLY BELOW THE GENERATION FACILITY'S ACCESS ROAD OR IMMEDIATELY ADJACENT TO THE ACCESS ROAD THE MINIMUM DEPTH OF COVER MUST BE 24 INCHES.
10. EXCESS STRIPPED TOPSOIL SHALL NOT BE UTILIZED FOR FILL WITHIN PROJECT AREAS.
11. CONTRACTOR TO REPAIR ALL SURFACE OR SUBSURFACE DRAINAGE STRUCTURES DAMAGED DURING CONSTRUCTION.
12. RESTORATION WORK ON AGRICULTURAL LAND SHALL BE COMPLETED DURING FAVORABLE (WORKABLE, RELATIVELY DRY) CONDITIONS AND NOT WHILE SOILS AREA IN A WET OR PLASTIC STATE OF CONSISTENCY.
13. IN ALL CONTINUED USE AGRICULTURAL LAND WHERE THE TOPSOIL WAS STRIPPED SUBSOIL DECOMPACTION SHALL BE CONDUCTED PRIOR TO TOPSOIL REPLACEMENT TO A DEPTH OF 18 INCHES WITH A TRACTOR MOUNTED DEEP RIPPER OR HEAVY-DUTY CHISEL PLOW.
14. CONTRACTOR SHALL SEED ALL AREAS FROM WHICH VEGETATION WAS REMOVED OR DESTROYED WITH THE SEED MIX SPECIFIED BY OWNER.

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Rev	Issued For	Date
A	INTERNAL REVIEW	5/27/26
B	TOWN COMMENTS	7/10/26

P.E. seal/Consultant:
STATE OF NEW YORK · TRAVIS J. MITCHELL · 081539 · LICENSED PROFESSIONAL ENGINEER
NOT FOR CONSTRUCTION

Project: JERRY SMITH , LLC
JERRY SMITH ROAD, LANSING, NY

Drawing Title: GENERAL NOTES

Drawn by: BMW Scale: AS SHOWN Approved by: TJM

Dwg No: C-101 Size: D Sheet Rev: B

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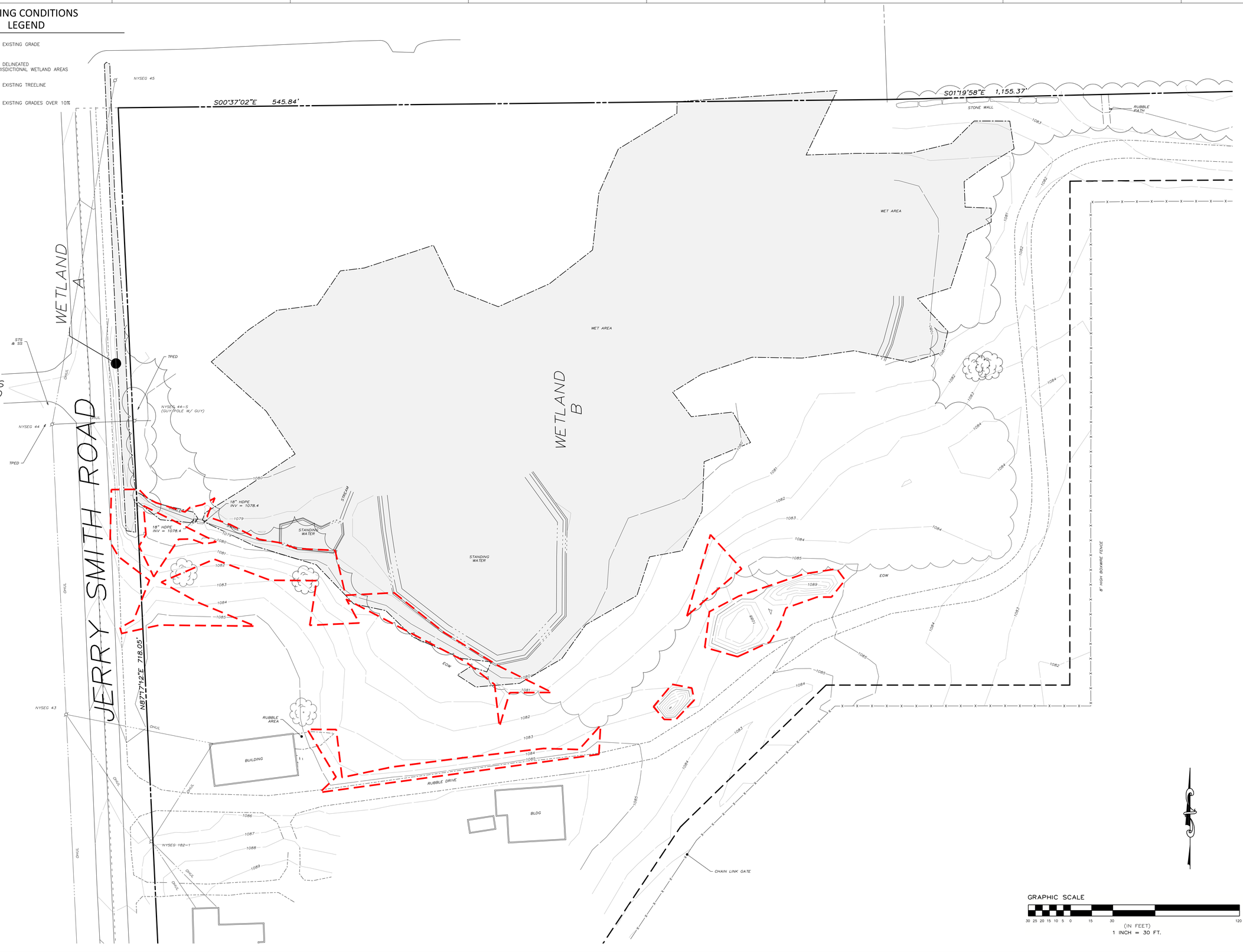
EXISTING CONDITIONS LEGEND

- DENOTES EXISTING GRADE
- DENOTES DELINEATED NON-JURISDICTIONAL WETLAND AREAS
- DENOTES EXISTING TREELINE
- DENOTES EXISTING GRADES OVER 10%



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A	INTERNAL REVIEW	5/27/26
B	TOWN COMMENTS	7/10/26

P.E. seal/Consultant:

STATE OF NEW YORK * PAUL J. MITCHELL * 081839 * LICENSED PROFESSIONAL ENGINEER

Project:
JERRY SMITH , LLC
JERRY SMITH ROAD, LANSING, NY

Drawing Title:
EXISTING CONDITIONS

Drawn by: BMW | Scale: AS SHOWN | Approved by: TJM

Dwg No: C-200 | Size: D | Sheet Rev: A

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REMOVALS NOTES:

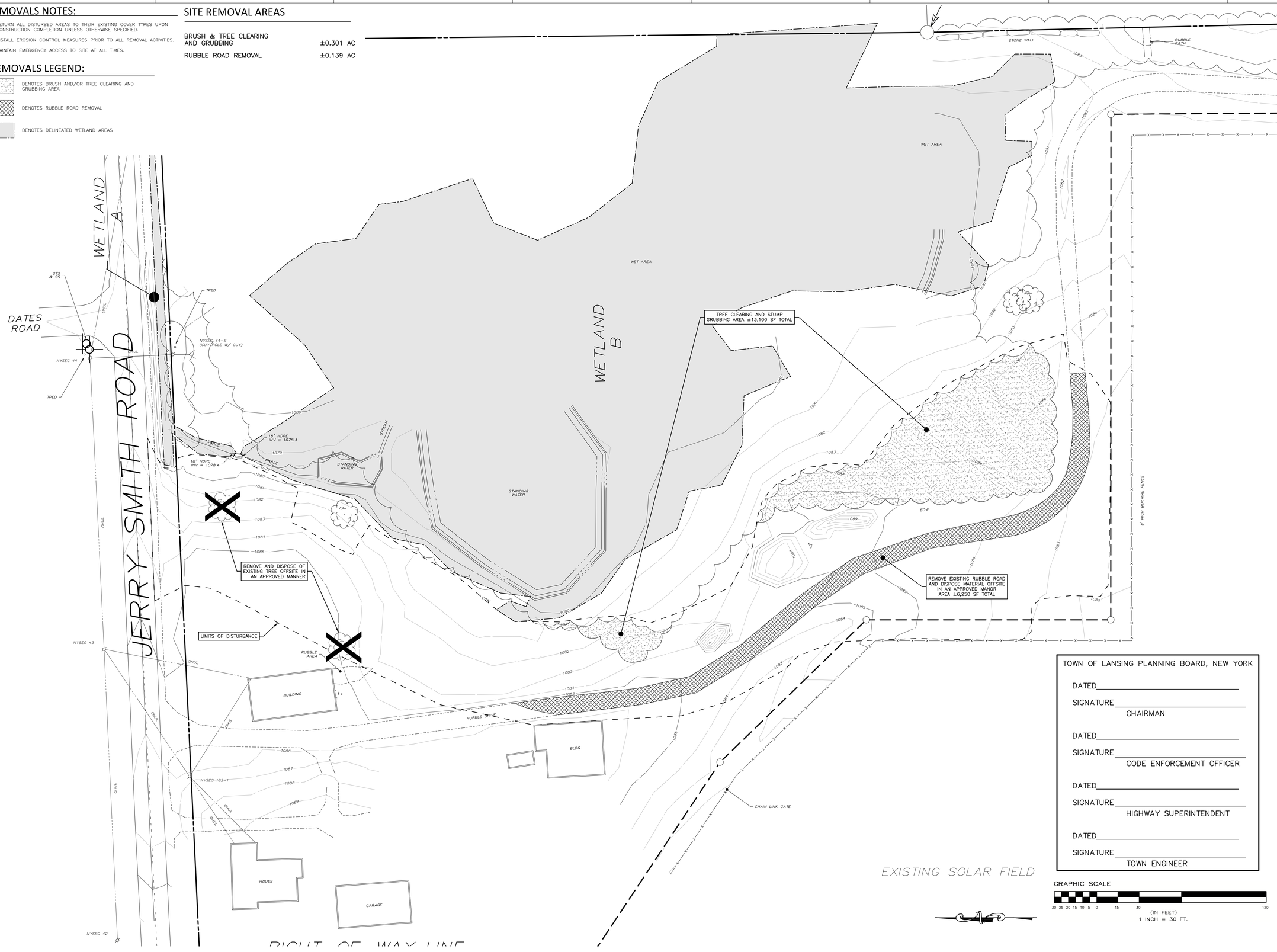
1. RETURN ALL DISTURBED AREAS TO THEIR EXISTING COVER TYPES UPON CONSTRUCTION COMPLETION UNLESS OTHERWISE SPECIFIED.
2. INSTALL EROSION CONTROL MEASURES PRIOR TO ALL REMOVAL ACTIVITIES.
3. MAINTAIN EMERGENCY ACCESS TO SITE AT ALL TIMES.

REMOVALS LEGEND:

- DENOTES BRUSH AND/OR TREE CLEARING AND GRUBBING AREA
- DENOTES RUBBLE ROAD REMOVAL
- DENOTES DELINEATED WETLAND AREAS

SITE REMOVAL AREAS

BRUSH & TREE CLEARING AND GRUBBING	±0.301 AC
RUBBLE ROAD REMOVAL	±0.139 AC



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DATED_____

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CODE ENFORCEMENT OFFICER

DATED_____

SIGNATURE_____
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TOWN ENGINEER

GRAPHIC SCALE

30 25 20 15 10 5 0 15 30 120
(IN FEET)
1 INCH = 30 FT.

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Rev	Issued For	Date
A	INTERNAL REVIEW	5/27/26
B	TOWN COMMENTS	7/10/26

P.E. seal/Consultant:

STATE OF NEW YORK * TIMOTHY J. MITCHELL * 085139 * LICENSED PROFESSIONAL ENGINEER

Project: JERRY SMITH , LLC
JERRY SMITH ROAD, LANSING, NY

Drawing Title: REMOVALS PLAN
Drawn by: BMW Scale: AS SHOWN Approved by: TJM

Dwg No: C-201 Size: D Sheet Rev: B

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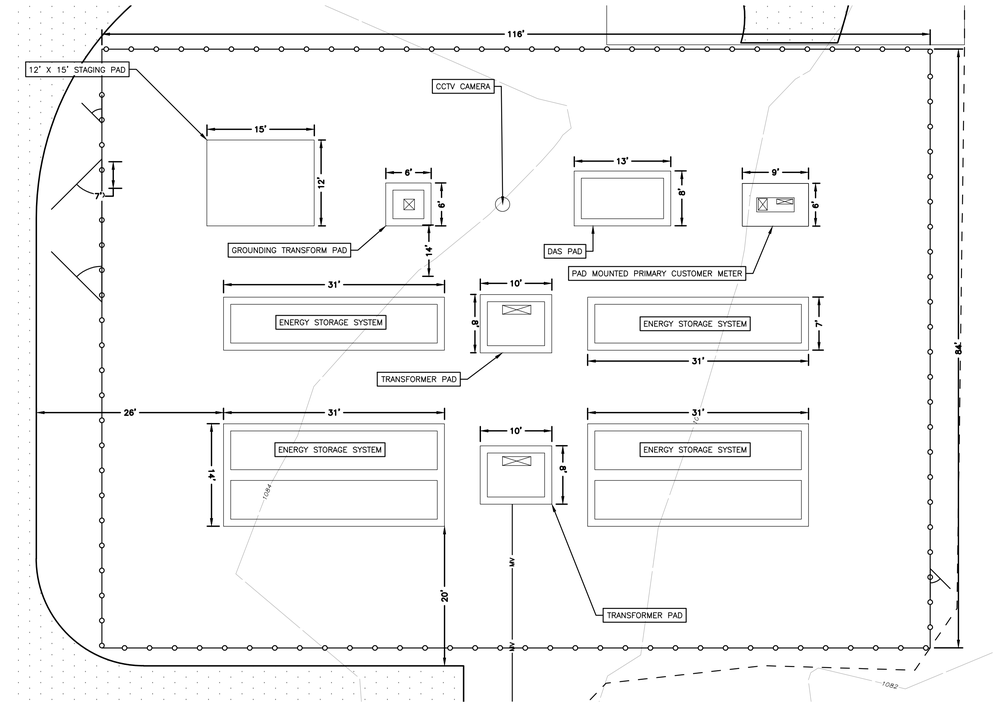


1 INSET PLAN – BESS COMPONENT DETAILS
C-300 SCALE: 1"=10'

UTILITY NOTE:

1. PROPOSED UTILITY AND CUSTOMER POLE LOCATIONS ARE SUBJECT TO UTILITY APPROVAL AND MAY CHANGE. CONTRACTOR SHALL VERIFY FINAL POLE LOCATIONS WITH THE OWNER PRIOR TO ORDERING MATERIALS AND BEGINNING CONSTRUCTION.

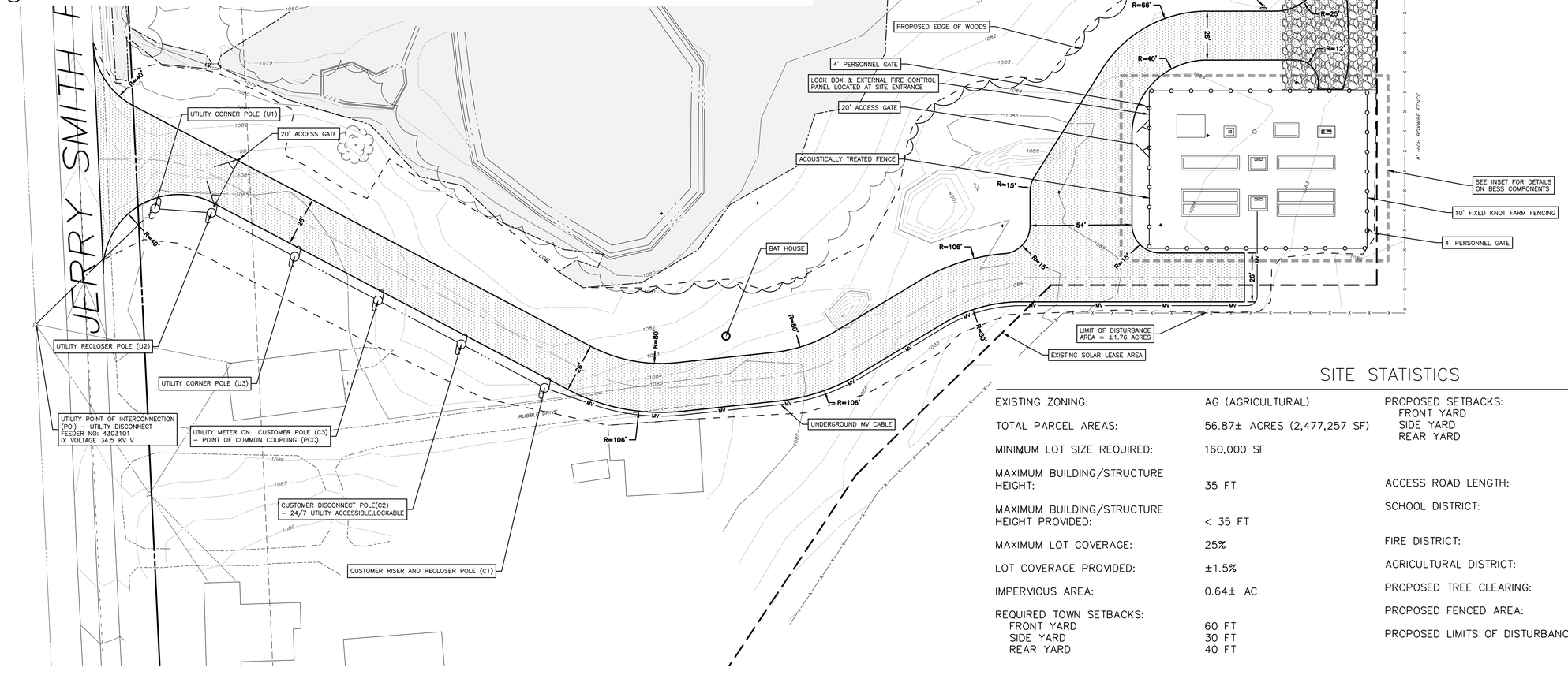
GRAPHIC SCALE

30 25 20 15 10 5 0 15 30 120

(IN FEET)
1 INCH = 30 FT.

LAYOUT AND MATERIALS PLAN LEGEND

- DENOTES EXISTING GRADE
- DENOTES TEMPORARY GRAVEL ACCESS ROAD
- DENOTES IMPERVIOUS GRAVEL ACCESS ROAD
- DENOTES FIXED KNOT FARM FENCE
- DENOTES MEDIUM VOLTAGE TRENCH (SEE ELECTRICAL PLANS FOR DETAILS)



SITE STATISTICS

EXISTING ZONING:	AG (AGRICULTURAL)	PROPOSED SETBACKS:	
TOTAL PARCEL AREAS:	56.87± ACRES (2,477,257 SF)	FRONT YARD	535 FT
MINIMUM LOT SIZE REQUIRED:	160,000 SF	SIDE YARD	322 FT
MAXIMUM BUILDING/STRUCTURE HEIGHT:	35 FT	REAR YARD	>40 FT
MAXIMUM BUILDING/STRUCTURE HEIGHT PROVIDED:	< 35 FT	ACCESS ROAD LENGTH:	±620 FT
MAXIMUM LOT COVERAGE:	25%	SCHOOL DISTRICT:	LANSING CENTRAL SCHOOL DISTRICT
LOT COVERAGE PROVIDED:	±1.5%	FIRE DISTRICT:	LANSING FIRE DEPARTMENT
IMPERVIOUS AREA:	0.64± AC	AGRICULTURAL DISTRICT:	TOMPKINS COUNTY DISTRICT 1
REQUIRED TOWN SETBACKS:		PROPOSED TREE CLEARING:	±0.30 AC
FRONT YARD	60 FT	PROPOSED FENCED AREA:	±0.22 AC
SIDE YARD	30 FT	PROPOSED LIMITS OF DISTURBANCE:	±1.76 AC
REAR YARD	40 FT		

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B	TOWN COMMENTS	7/10/26

P.E. seal/Consultant:
STATE OF NEW YORK * MATTHEW J. MITCHELL * 085139 * LICENSED PROFESSIONAL ENGINEER

Project:
JERRY SMITH , LLC
JERRY SMITH ROAD, LANSING, NY

Drawing Title:
MATERIALS AND LAYOUT PLAN

Drawn by: BMW Scale: AS SHOWN Approved by: TJM

Dwg No:	Size: D	Sheet Rev:
C-300		B

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GRAPHIC SCALE

30 25 20 15 10 5 0 15 30 120

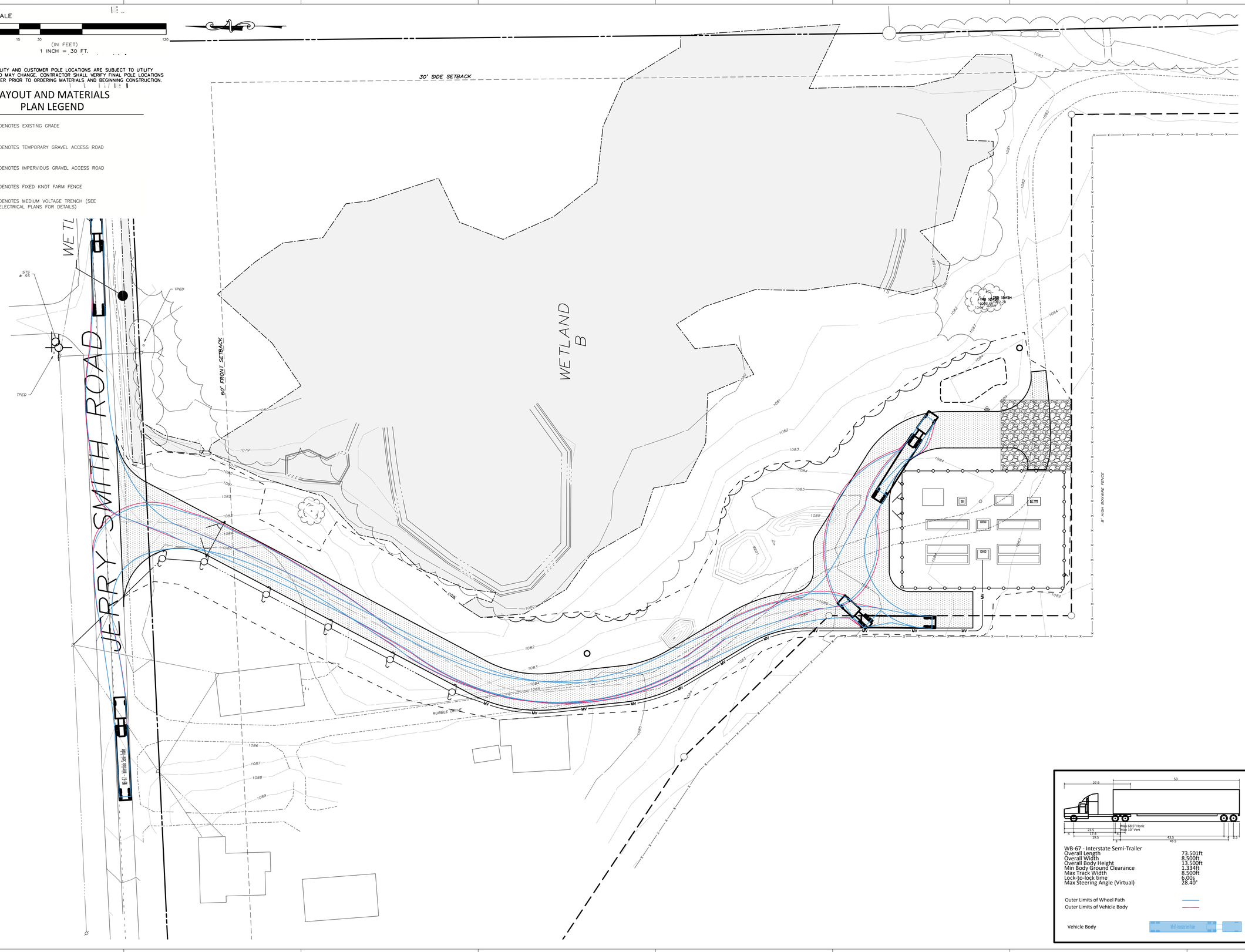
(IN FEET)
1 INCH = 30 FT.

UTILITY NOTE:

1. PROPOSED UTILITY AND CUSTOMER POLE LOCATIONS ARE SUBJECT TO UTILITY APPROVAL AND MAY CHANGE. CONTRACTOR SHALL VERIFY FINAL POLE LOCATIONS WITH THE OWNER PRIOR TO ORDERING MATERIALS AND BEGINNING CONSTRUCTION.

LAYOUT AND MATERIALS PLAN LEGEND

- DENOTES EXISTING GRADE
- DENOTES TEMPORARY GRAVEL ACCESS ROAD
- DENOTES IMPERVIOUS GRAVEL ACCESS ROAD
- DENOTES FIXED KNOT FARM FENCE
- DENOTES MEDIUM VOLTAGE TRENCH (SEE ELECTRICAL PLANS FOR DETAILS)


30' SIDE SETBACK
60' FRONT SETBACK
WETLAND B
WETLAND A
JERRY SMITH ROAD
RUBBLE DRIVE
STS & SS
TPED
TPED
UV
UV
UV

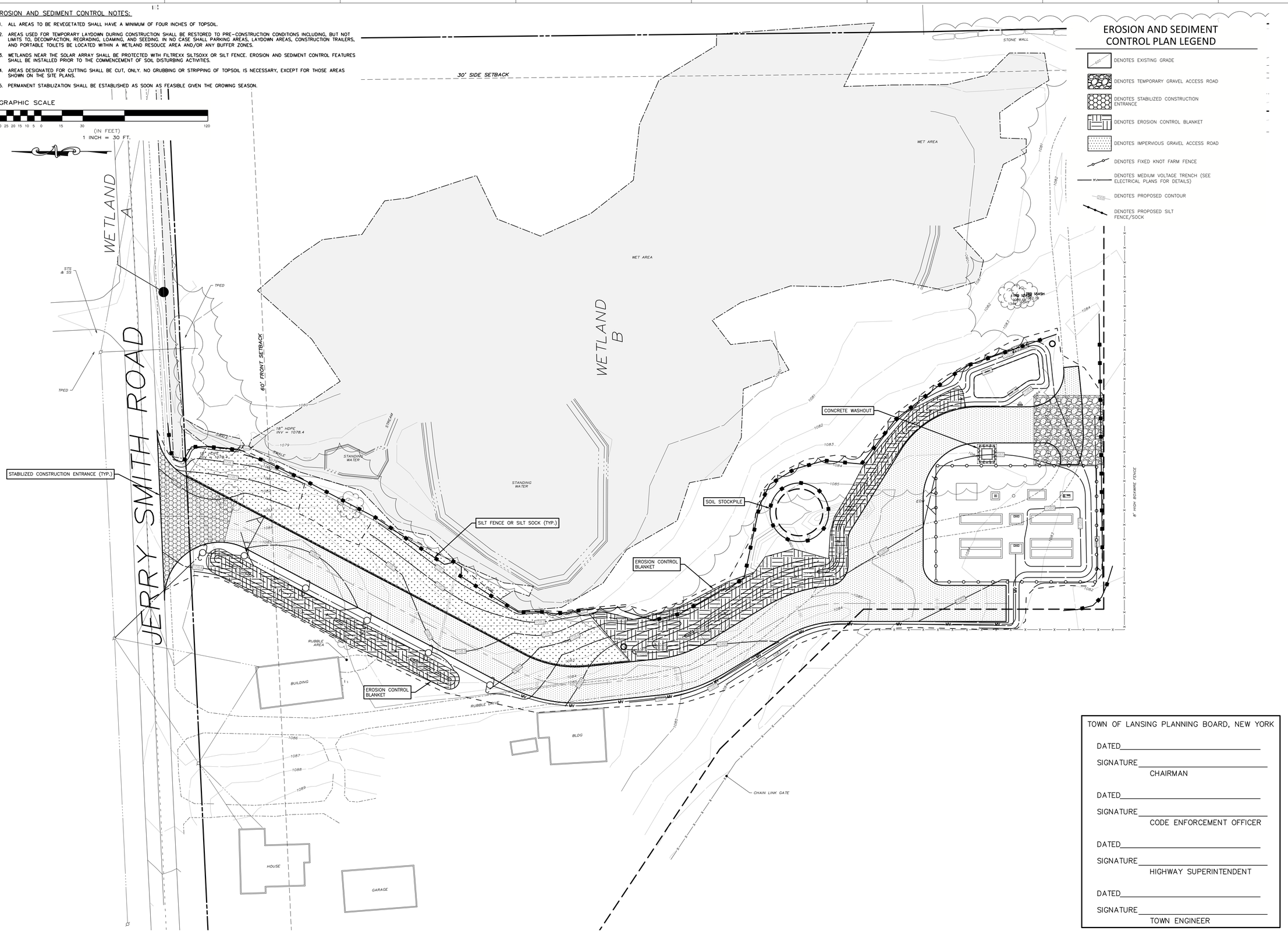
EROSION AND SEDIMENT CONTROL NOTES:

1. ALL AREAS TO BE REVEGETATED SHALL HAVE A MINIMUM OF FOUR INCHES OF TOPSOIL.
2. AREAS USED FOR TEMPORARY LAYDOWN DURING CONSTRUCTION SHALL BE RESTORED TO PRE-CONSTRUCTION CONDITIONS INCLUDING, BUT NOT LIMITS TO, DECOMPACTION, REGRADING, LOAMING, AND SEEDING. IN NO CASE SHALL PARKING AREAS, LAYDOWN AREAS, CONSTRUCTION TRAILERS, AND PORTABLE TOILETS BE LOCATED WITHIN A WETLAND RESOUCE AREA AND/OR ANY BUFFER ZONES.
3. WETLANDS NEAR THE SOLAR ARRAY SHALL BE PROTECTED WITH FILTREXX SILTSOXX OR SILT FENCE. EROSION AND SEDIMENT CONTROL FEATURES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF SOIL DISTURBING ACTIVITIES.
4. AREAS DESIGNATED FOR CUTTING SHALL BE CUT, ONLY. NO GRUBBING OR STRIPPING OF TOPSOIL IS NECESSARY, EXCEPT FOR THOSE AREAS SHOWN ON THE SITE PLANS.
5. PERMANENT STABILIZATION SHALL BE ESTABLISHED AS SOON AS FEASIBLE GIVEN THE GROWING SEASON.

GRAPHIC SCALE

30 25 20 15 10 5 0 15 30 120

(IN FEET)
1 INCH = 30 FT.



EROSION AND SEDIMENT CONTROL PLAN LEGEND

- DENOTES EXISTING GRADE
- DENOTES TEMPORARY GRAVEL ACCESS ROAD
- DENOTES STABILIZED CONSTRUCTION ENTRANCE
- DENOTES EROSION CONTROL BLANKET
- DENOTES IMPERVIOUS GRAVEL ACCESS ROAD
- DENOTES FIXED KNOT FARM FENCE
- DENOTES MEDIUM VOLTAGE TRENCH (SEE ELECTRICAL PLANS FOR DETAILS)
- DENOTES PROPOSED CONTOUR
- DENOTES PROPOSED SILT FENCE/SOCK

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Rev	Issued For	Date
A	INTERNAL REVIEW	5/27/26
B	TOWN COMMENTS	7/10/26

P.E. seal/Consultant:

STATE OF NEW YORK ★ TRAVIS J. MITCHELL ★ 081539 ★ LICENSED PROFESSIONAL ENGINEER

Project:
JERRY SMITH , LLC
JERRY SMITH ROAD, LANSING, NY

Drawing Title:
EROSION AND SEDIMENT CONTROL PLAN

Drawn by: BMW Scale: AS SHOWN Approved by: TJM

Dwg No: C-400 Size: D Sheet Rev: B

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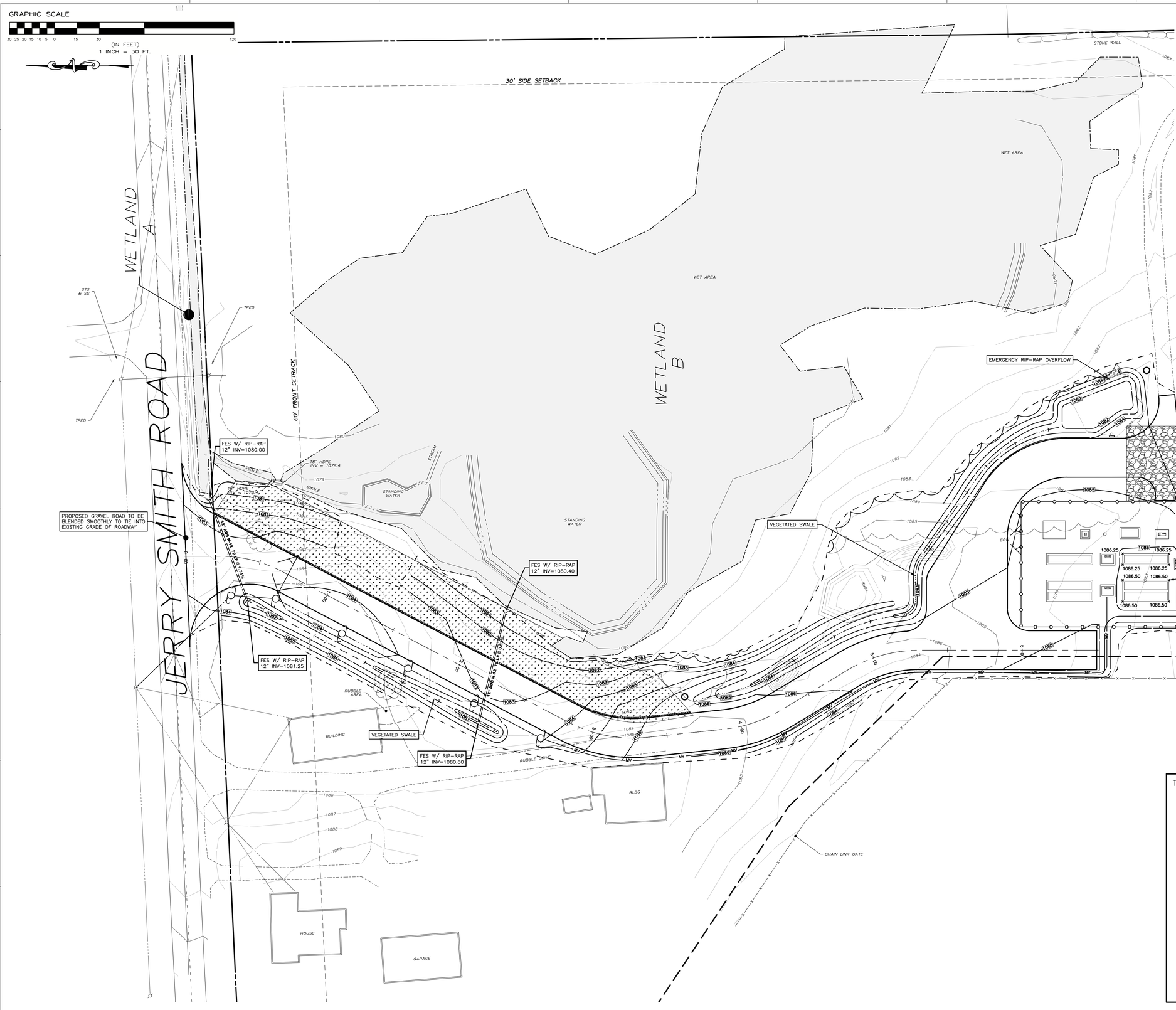

DRAINAGE AND GRADING PLAN LEGEND

- DENOTES EXISTING GRADE
- DENOTES RIP RAP FILL
- DENOTES TEMPORARY GRAVEL ACCESS ROAD
- DENOTES IMPERVIOUS GRAVEL ACCESS ROAD
- DENOTES VEGETATED FILTER STRIP
- DENOTES FIXED KNOT FARM FENCE
- DENOTES MEDIUM VOLTAGE TRENCH (SEE ELECTRICAL PLANS FOR DETAILS)
- DENOTES PROPOSED CONTOUR

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P.E. seal/Consultant:

STATE OF NEW YORK
TRAVIS J. MITCHELL
LICENSED PROFESSIONAL ENGINEER
081539

Project:
JERRY SMITH , LLC
JERRY SMITH ROAD, LANSING, NY

Drawing Title:
GRADING AND DRAINAGE PLAN

Drawn by: BMW Scale: AS SHOWN Approved by: TJM

Dwg No: C-500 Size: D Sheet Rev: B

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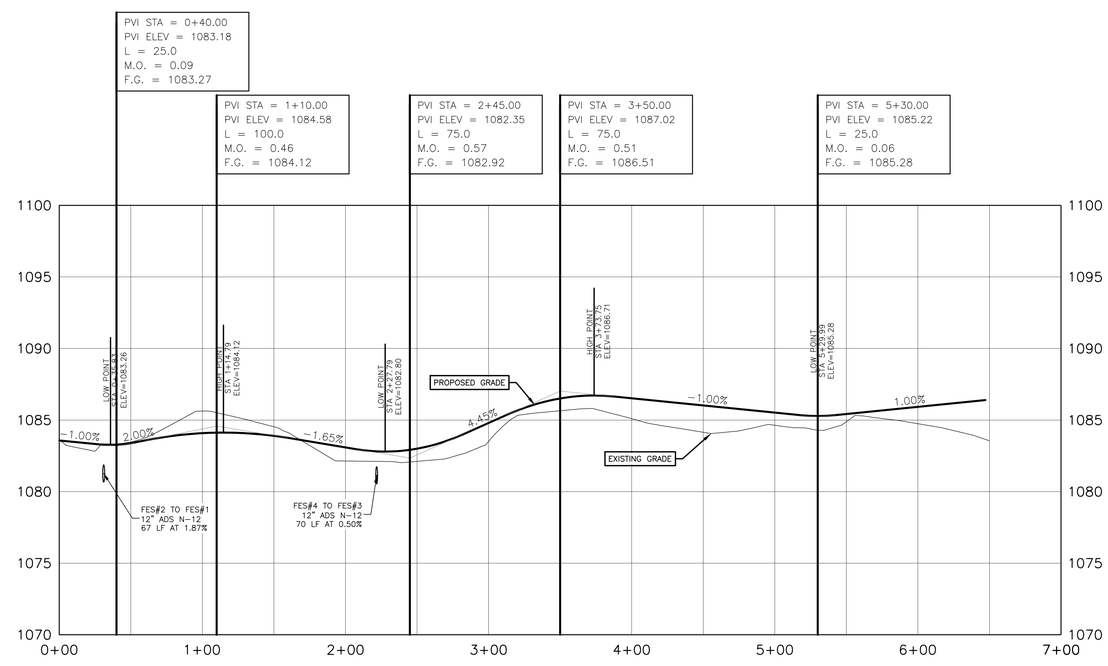
MAINTENANCE ACCESS ROAD PLAN VIEW

SCALE: 1" = 30'

(STA 0+00 TO 6+18.42)



SOLAR MAINTENANCE ACCESS ROAD PROFILE

SCALE: HORIZONTAL 1"=50'
VERTICAL 1"=5'

(STA 0+00 TO 7+00.00)

DRAINAGE AND GRADING PLAN LEGEND

- DENOTES EXISTING GRADE
- DENOTES RIP RAP FILL
- DENOTES TEMPORARY GRAVEL ACCESS ROAD
- DENOTES IMPERVIOUS GRAVEL ACCESS ROAD
- DENOTES VEGETATED FILTER STRIP
- DENOTES FIXED KNOT FARM FENCE
- DENOTES MEDIUM VOLTAGE TRENCH (SEE ELECTRICAL PLANS FOR DETAILS)
- DENOTES PROPOSED CONTOUR

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STATE OF NEW YORK
TRADE J. MITCHELL
LICENSED PROFESSIONAL ENGINEER
081539

Project:

JERRY SMITH , LLC

JERRY SMITH ROAD,
LANSING, NY

Drawing Title:

ROAD PROFILE

Drawn by: BMW Scale: AS SHOWN Approved by: TJM

Dwg No: C-501 Size: D Sheet Rev: B

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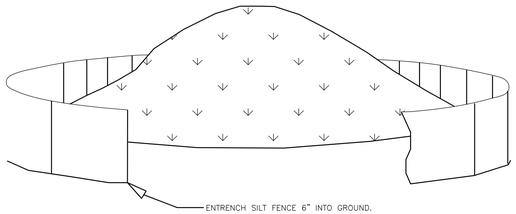
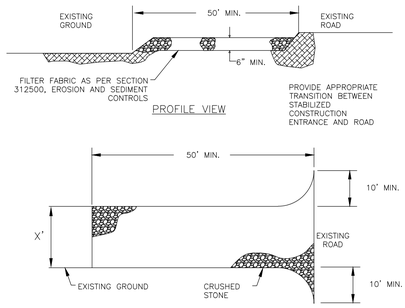
NOTE: CHOOSE DRY AND STABLE AREA FOR STOCKPILE. SHAPE AND STABILIZE STOCK PILE; ALLOW TEMPORARY SEEDING.

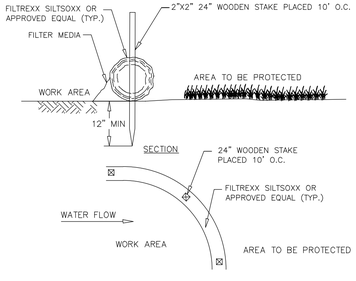


1 C-600 SOIL STOCKPILE AREA
NOT TO SCALE



1. STONE FOR A STABILIZED CONSTRUCTION ENTRANCE SHALL BE 1 TO 2 INCH STONE, RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT.
2. THE LENGTH OF THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 50 FEET.
3. THE THICKNESS OF THE STONE FOR THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 6 INCHES.
4. THE WIDTH OF THE ENTRANCE SHALL NOT BE LESS THAN THE FULL WIDTH OF THE PROPOSED ENTRANCE.
5. GEOTEXTILE FILTER CLOTH SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING THE STONE.
6. ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARDS THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE SURFACE.
7. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO EXISTING ROAD. THIS MANY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR ADDITIONAL LENGTH AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO EXISTING ROAD SHALL BE REMOVED IMMEDIATELY.

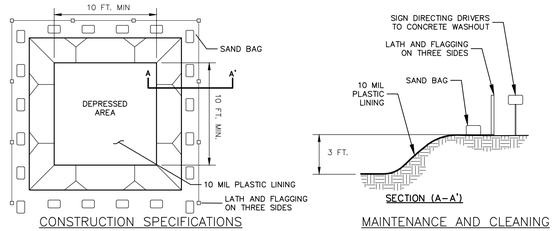
2 C-600 STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE



1. FILTER SOCK SHALL BE 12" DIAMETER MIN.
2. SOCKS TO BE FILLED WITH BIODEGRADABLE COMPOST MATERIAL.

DIA	SLOPE %						
	2	5	10	20	25	33	50
12"	250*	225	125	65	50	40	25

3 C-600 12 IN. FILTER SOCK
NOT TO SCALE



CONSTRUCTION SPECIFICATIONS

1. CONCRETE WASHOUT FACILITY SHALL BE LOCATED A MINIMUM OF FIFTY FEET (50') FROM SENSITIVE AREAS.
2. THE BASIN DIMENSIONS DEPICTED ABOVE ARE REQUIRED MINIMUMS. CONCRETE WASHOUT FACILITY SHALL BE CONSTRUCTED AND MAINTAINED IN SUFFICIENT QUANTITY AND SIZE TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS. (APPROXIMATELY 60 GALLONS OF WASTE AND WATER PER TRUCK).
3. PLASTIC LINING MATERIAL SHALL BE A MINIMUM 10 MIN POLYETHYLENE SHEETING AND SHOULD BE FREE OF HOLES, TEARS, OR OTHER DEFECTS THAT COMPROMISE THE IMPERMEABILITY OF THE MATERIAL.
4. WASHOUT FACILITY MUST BE CLEANED, OR NEW FACILITES MUST BE CONSTRUCTED AND READY FOR USE ONCE THE WASHOUT IS 75% FULL.

MAINTENANCE AND CLEANING

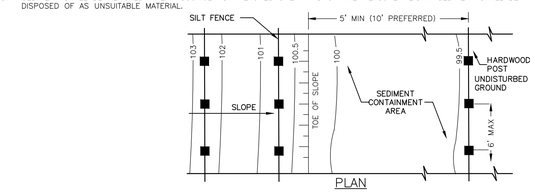
1. DO NOT DISCHARGE LIQUID OR SLURRY TO WATERWAYS, STORM DRAINS OR DIRECTLY ONTO GROUND
2. DO NOT USE SANITARY SEWER WITHOUT LOCAL APPROVAL.
3. PLACE A SECURE NON COLLAPSING, NON–WATER COLLECTING COVER OVER THE FACILITY PRIOR TO PREDICTED WET WEATHER TO PREVENT ACCUMULATION AND OVERFLOW.
4. REMOVE AND DISPOSE OF HARDEN CONCRETE AND RETURN THE STRUCTURE TO A FUNCTIONAL STATE.
5. INSPECT THE WASHOUT FACILITY FOR SIGNS OF WEAKENING OR DAMAGE AND REPAIR AS NESSESARY(RELINE THE STRUCTURE WITH NEW POLY SHEETING AFTER EACH CLEANING).

4 C-600 CONCRETE WASHOUT FACILITY
NOT TO SCALE

1. SILT FENCE SHALL BE PLACED A MINIMUM OF 5 FT. FROM TOE OF SLOPE, 10 FT. PREFERRED, TO PROVIDE ADEQUATE AREA FOR SEDIMENT STORAGE AND FACILITATE MAINTENANCE OF SEDIMENT CONTAINMENT AREA.
2. POSTS MAY BE 1.25"x1.25" (MINIMUM) HARDWOOD, TYPICALLY. FOR WIRE MESH BACK USE 2"x2" NOM. HARDWOOD, OR STEEL "T" OR "U" POSTS (1lb per lf). SILT FENCE SHALL BE WOVEN GEOTEXTILE FABRIC(GEOTEX 2130 OR EQUAL).
3. SILT FENCE ASSEMBLIES MAY HAVE 4 FT. OR 6 FT. POST SPACING, AND MAY OR MAY NOT HAVE MESH REINFORCEMENT. SENSITIVE AREAS TO BE PROTECTED MAY NEED TO BE REINFORCED BY USING HEAVY WIRE FENCING FOR ADDED SUPPORT TO PREVENT COLLAPSE.
4. THE BOTTOM EDGE OF SILT FENCE SHALL BE BURIED A MINIMUM OF 6" BELOW GROUND. THE FENCE SHALL BE INSTALLED WITH THE POSTS ON THE DOWNSTREAM SIDE OF THE FABRIC.
5. MAXIMUM ALLOWABLE SLOPE LENGTHS CONTRIBUTING RUNOFF TO A SILT FENCE PLACED ON A SLOPE ARE:

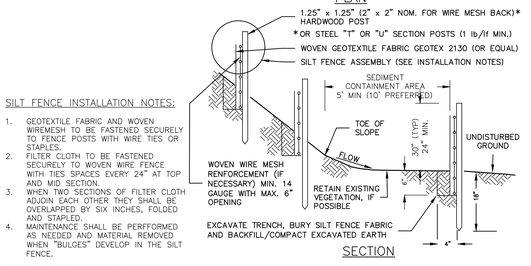
SLOPE STEEPNESS	MAXIMUM SLOPE LENGTH /FENCE LENGTH (ft.)
<2%	500/500
2–10%	125/1000
10–20%	100/250
20–33%	50/200
33–50%	40/250
>50%	25/125

6. MAXIMUM DRAINAGE AREA FOR OVERLAND FLOW TO A SILT FENCE SHALL NOT EXCEED ¼ ACRE PER 100 FEET OF FENCE, WITH MAXIMUM PONDING DEPTH OF 1.5 FEET BEHIND THE FENCE; AND EROSION WOULD OCCUR IN THE FORM OF SHEET EROSION; AND THERE IS NO CONCENTRATION OF WATER FLOWING TO THE BARRIER.
7. MEASURES SHALL BE INSPECTED EVERY SEVEN (7) CALENDAR DAYS, AFTER EACH RAINFALL OF .5" OR MORE WITHIN A 12 HOUR PERIOD, OR DAILY DURING PROLONGED RAINFALL. MEASURES SHALL BE CLEANED AND REPAIRED AS REQUIRED.
8. SEDIMENT SHALL BE REMOVED WHEN ACCUMULATION REACHES ONE–THIRD OF THE MEASURE HEIGHT. SEDIMENT SHALL BE DISPOSED OF AS UNSUITABLE MATERIAL.



SILT FENCE INSTALLATION NOTES:

1. GEOTEXTILE FABRIC AND WOVEN WIREMESH TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACES EVERY 24" AT TOP AND MID SECTION.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES, FOLDED AND STAPLED.
4. MAINTENANCE SHALL BE PERFFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.



5 C-600 SILT FENCE
NOT TO SCALE

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Rev	Issued For	Date
A	INTERNAL REVIEW	5/27/26
B	TOWN COMMENTS	7/10/26

P.E. seal/Consultant:

STATE OF NEW YORK * JOSHUA S. MITCHELL * 098539 * LICENSED PROFESSIONAL ENGINEER

Project:
JERRY SMITH , LLC
JERRY SMITH ROAD, LANSING, NY

Drawing Title:
EROSION AND SEDIMENT CONTROL DETAILS

Drawn by: BMW | Scale: AS SHOWN | Approved by: TJM

Dwg No:	Size: D	Sheet Rev:
C-600		B

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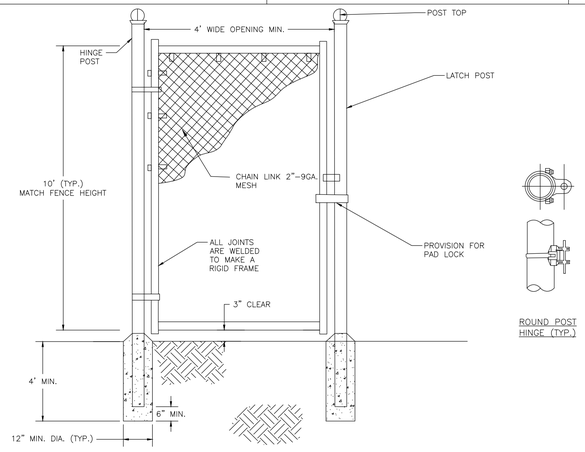
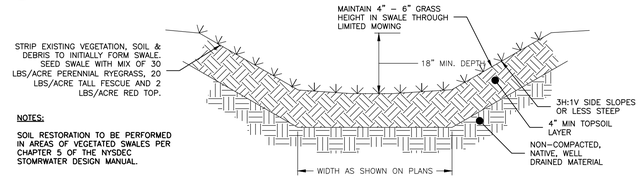


NOTES
1. INSTALL ALL FENCING COMPONENTS PER MANUFACTURES SPECIFICATIONS.
2. ALL FENCING AND HARDWARE SHALL BE GALVANIZED, UNLESS OTHERWISE NOTED.
3. IF CONTRACTOR UTILIZES METAL HINGE POST THAN POSTS SHALL BE SET IN CONCRETE AS SHOWN ON DETAIL.
4. BRACING REQUIRED AT FOR ALL GATES.
5. BRACE RAILS AND/ OR TRUSS RODS ARE NOT SHOWN, MAY BE REQUIRED PER MANUFACTURES RECOMMENDATIONS

8 C-601 CHAIN LINK SECURITY FENCE – PERSONNEL GATE
NOT TO SCALE

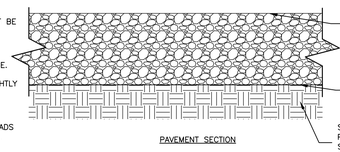


NOTES:

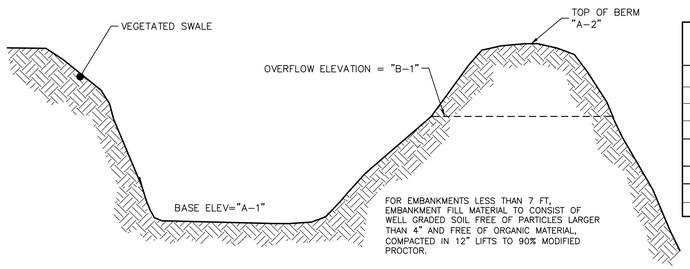
SOIL RESTORATION TO BE PERFORMED IN AREAS OF VEGETATED SWALES PER CHAPTER 5 OF THE NYSDEC STORMWATER DESIGN MANUAL.

2 C-601 VEGETATED SWALE
NOT TO SCALE

1. IF UNSTABLE SUBGRADE IS ENCOUNTERED DURING CONSTRUCTION ENGINEER MUST BE NOTIFIED IMMEDIATELY.
2. SUBGRADE MUST BE PROOF-ROLLED PRIOR TO PLACEMENT OF CRUSHED STONE.
3. PAVEMENT DESIGN IS FOR "LIGHTLY LOADED VEHICLES. ADDITIONAL GRAVEL MAY BE NEEDED FOR CONSTRUCTION ACCESS.
4. TEMPORARY CONSTRUCTION ROADS SHALL HAVE A 24" THICKNESS.

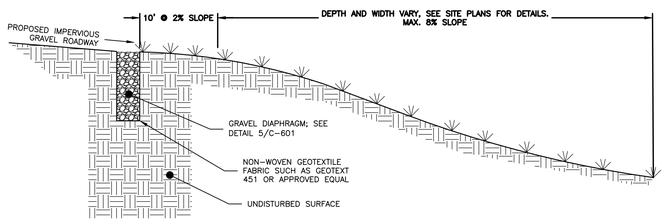


3 C-601 GRAVEL ACCESS DRIVE SECTION
NOT TO SCALE



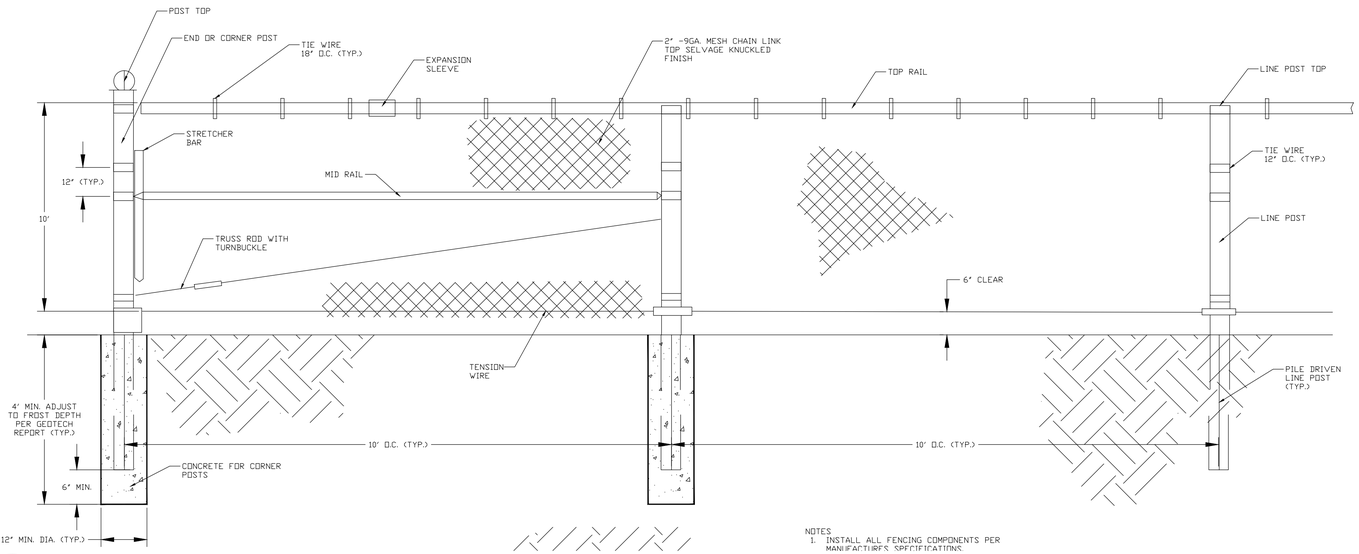
INFILTRATION BASIN ELEVATIONS	SMA #1
A-1 (FT)	1,082.00
A-2 (FT)	1,084.50
B-1 (FT)	1,083.50
STORM EVENT	
1 YR (FT)	1,082.51
10 YR (FT)	1,083.34
100 YR (FT)	1,083.73

4 C-601 INFILTRATION BASIN
NOT TO SCALE



NOTES:
1. HEAVY EQUIPMENT USAGE WITHIN VEGETATED FILTER STRIP AREAS SHALL BE LIMITED TO WHAT IS NECESSARY TO COMPLETE CONSTRUCTION IN ORDER TO PREVENT UNNECESSARY COMPACTION.
2. DISTURBED AREAS WITHIN VEGETATED FILTER STRIP SHALL BE DECOMPACTED AND RELOAMED.
3. THE TOP FOUR INCHES OF TOP SOIL WITHIN DISTURBED AREAS OF THE VEGETATED FILTER STRIP SHALL BE AMENDED WITH AT LEAST ONE INCH DEPTH OF COMPOST.

5 C-601 VEGETATED FILTER STRIP
NOT TO SCALE

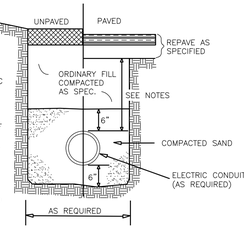


NOTES
1. INSTALL ALL FENCING COMPONENTS PER MANUFACTURES SPECIFICATIONS.

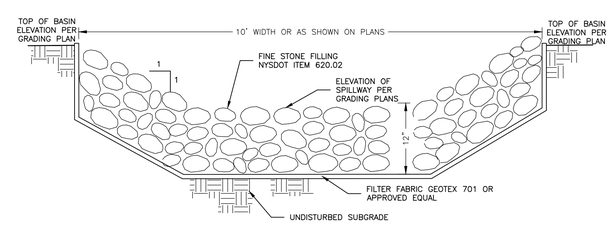
6 C-601 CHAIN LINK SECURITY FENCE
NOT TO SCALE

NOTES:

1. 18" MINIMUM WHEN LOCATED WITHIN FENCED AREA, 24" IF CONDUIT IS NOT UTILIZED AND ELECTRICAL LINES ARE DIRECTLY PLACED.
2. OUTSIDE OF PERIMETER FENCE IN CROPLAND, HAYLAND, AND IMPROVED PASTURE BURIED ELECTRIC CONDUCTORS MUST HAVE A MINIMUM TOTAL DEPTH OF 48" OF COVER.
3. IN AREAS WHERE THE DEPTH OF SOIL OVER BEDROCK IS LESS THAN 48", THE ELECTRIC CONDUIT MUST BE BURIED BELOW THE SURFACE OF THE BEDROCK IF FRIABLE/RIPPABLE, OR AS NEAR AS POSSIBLE TO THE SURFACE OF THE BED ROCK.
4. IN UNIMPROVED GRAZING AREAS OR ON LAND PERMANENTLY DEVOTED TO PASTURE THE MINIMUM DEPTH OF COVER MUST BE 36".
5. WHERE ELECTRICAL CONDUCTORS ARE BURIED DIRECTLY BELOW THE GENERATION FACILITY'S ACCESS ROAD OR IMMEDIATELY ADJACENT (AT ROAD EDGE) TO THE ACCESS ROAD, THE MINIMUM DEPTH OF COVER MUST BE 24".

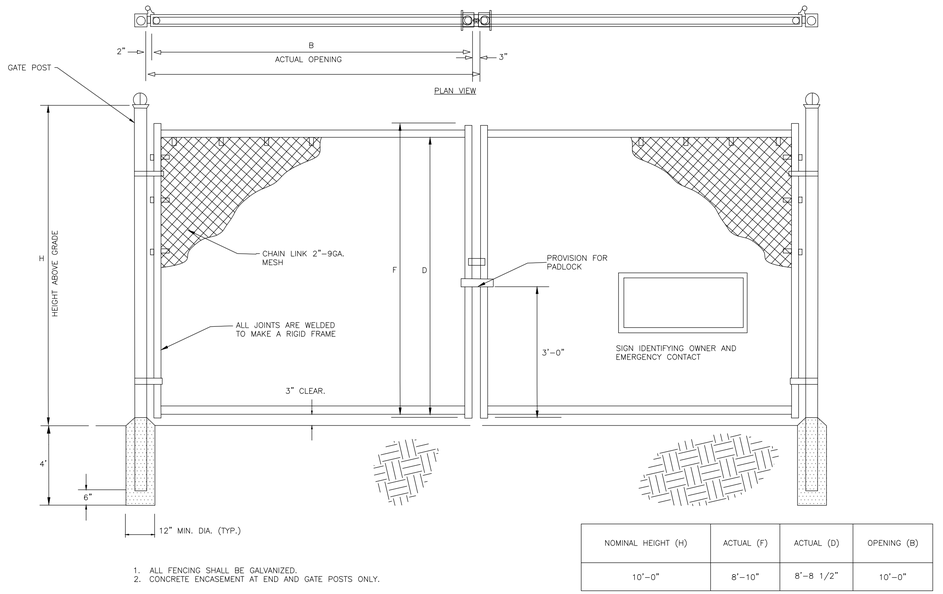


7 C-601 MV CABLE TRENCH
NOT TO SCALE



9 C-601 EMERGENCY OVERFLOW SPILLWAY
NOT TO SCALE

8 C-601 GRAVEL DIAPHRAGM
NOT TO SCALE



NOMINAL HEIGHT (H)	ACTUAL (F)	ACTUAL (D)	OPENING (B)
10'-0"	8'-10"	8'-8 1/2"	10'-0"

1. ALL FENCING SHALL BE GALVANIZED.
2. CONCRETE ENCASEMENT AT END AND GATE POSTS ONLY.

10 C-601 CHAIN LINK SECURITY FENCE DOUBLE GATE
NOT TO SCALE

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Rev	Issued For	Date
A	INTERNAL REVIEW	5/27/26
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P.E. seal/Consultant:

Project: JERRY SMITH , LLC
JERRY SMITH ROAD, LANSING, NY

Drawing Title: SITE DETAILS
Drawn by: BMW | Scale: AS SHOWN | Approved by: TJM

Dwg No: C-601 | Size: D | Sheet Rev: B

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MEGAPACK 2 XL DATASHEET

TESLA.COM/MEGAPACK

Grid transformation for the world's largest energy projects
- Best-in-class energy density and round-trip efficiency
- Industry-leading power electronics and thermal system performance
- Rapid and cost-effective deployment with factory-assembled and pre-tested solution

Scaled and rigorously tested product safety and reliability
- Comprehensive in-house reliability testing by the leading experts in the industry
- Engineered for safety and performance at every level
- Continuous improvement based on large-scale operational experience

Designed with flexibility and configurability in mind
- Modular architecture that allows for a range of configurations across multiple applications and industry-first Archetypes
- Industry experts available to identify site-specific needs
- Integrated solution that allows for battery augmentation over time

POWER AND ENERGY

Megapack is configurable. Standard configurations are 2-Hour cell option C010 or C011, 4-Hour cell option C010 or C011, and 4-Hour cell option C012. Megapack is also capable of non-standard, such as 8-Hour, configurations. Ratings are provided per Megapack. Nominal energy is specified at 25°C (77°F).

	AC Power	Energy
2-Hour C010 / C011	1927 kW	3854 kWh
4-Hour C010 / C011	979 kW	3916 kWh
4-Hour C012	1075 kW	4300 kWh

ELECTRICAL

Nominal AC Voltage	480 V AC 3-phase	
Nominal Frequency	50 or 60 Hz	
Inverter Power per Megapack[1]	2-Hour Max - C010 / C011: 4-Hour Max - C010 / C011: 4-Hour Max - C012:	2400 kVA 1320 kVA 1320 kVA
Round-Trip Efficiency[2]	2-Hour - C010 / C011: 4-Hour - C010 / C011: 4-Hour - C012:	91.7% 93.7% 91.9%

[1] *Scalable from 400 kVA minimum in increments of 50 kVA*
[2] *Full-depth cycle including all power conversion and thermal system losses, at 25°C (77°F)*

WARRANTY

Coverage	All-inclusive, equipment and energy retention
Term	15 years standard, extendable to 20 years

MECHANICAL AND MOUNTING

Ingress Ratings	IP66 / NEMA 3R (Main Enclosure) IP20 (Thermal System)		
Enclosure Dimensions +/- 13 mm (½ in)	Width: Depth: Height:	8800 mm 1650 mm 2785 mm	(346 ½ in) (65 in) (110 in)
Maximum Weight	38,100 kg (84,000 lb)		
Operating Ambient Temperature	–30°C to 50°C (–22°F to 122°F)		

CONTROLS AND COMMUNICATIONS

Protocols	Modbus TCP / DNP3

Archetypes
Advanced control functions and unique design requirements for Utility-Scale and Commercial and Industrial (C&I) projects:
- Utility Battery Only
- Utility Co-Located Plant (Battery Only)
- Utility Hybrid
- C&I Battery Dispatch Only
- C&I Grid-Connected Only
- C&I Backup
- C&I Off-Grid Microgrid
- C&I Grid-Connected Microgrid

REGULATORY

System is designed to be compliant to grid codes and safety standards of all major markets.

System	NRTL listed to UL 1973, UL 9540, UL 9540A, UL 1741 SB, IEC 62619, IEEE 1547
Cells	NRTL listed to UL 1642

PART NUMBER

1848844-XX-Y Where X is a number between 0-9 and Y is a letter

TESLA

MEGAPACK 2 XL DATASHEET - REV. 2.0 - November 13, 2025. © Copyright Tesla, Inc, 2025. All Rights Reserved.

1 C-602 TESLA BATTERY STORAGE SPECIFICATION SHEET

DANGER

HIGH VOLTAGE - KEEP AWAY
AUTHORIZED PERSONNEL ONLY

NO TRESPASSING. THIS SITE IS MONITORED BY SURVEILLANCE.

NOTES:

1. LOCATE ON MAIN GATE AND EVERY 200' OF FENCE LINE.

IN THE EVENT OF AN EMERGENCY
PLEASE DIAL 911

Followed By a Second Call To:
857-239-0057

Your Location Is:
339 Jerry Smith Road
Lansing, New York 14882

8 1/2" × 11"

NOTES:

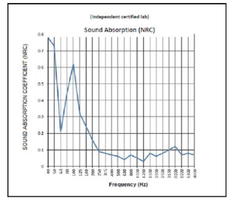
1. WHITE LABEL WITH BLACK LETTERING LOCATED ON SITE ENTRANCE.

2 C-602 SITE SIGNAGE

AcoustiBlok® quieting the world — Product Data Sheet

Product Name
AcoustiFence® Noise Reducing Fences

For Manufacturer Info:
Contact:
Acoustiblok, Inc.
6900 Interbay Boulevard
Tampa, FL 33616
Call - (813) 980-1400
Fax - (813) 549-2653
Email - jholand@acoustiblok.com
www.acoustiblok.com



Sound Absorption Test Results

Product Description
Basic Use

AcoustiFence was originally developed by Acoustiblok, Inc. for noise isolation on offshore oil rigs, but has since proven successful in many other demanding outdoor settings, such as construction sites, commercial/industrial facilities, and residential communities.

Benefits:
- Effectively reduces exterior noise
- Easy to install
- Resistant to UV, dirt and water
- Resistant to corrosion, mold and mildew

AcoustiFence Noise Reducing Fences

AcoustiFence is a unique, heavy-mineral filled, barium free, viscoelastic acoustical material that is made in the U.S.A. Unlike fences or shrubs, this material does extraordinarily well in blocking direct sound, and a unique characteristic of the material sets it apart from other sound barriers when dealing with very low frequencies.

AcoustiBlok® quieting the world — Product Data Sheet

Product Name
AcoustiFence® Noise Reducing Fences

Physical Properties

- Barium free, 15 Flame Spread Index (Class A For Flame Spread)
- Minimum STC 27 per ASTM E90-02 & ASTM E413-87
- Minimum TL 24 dBA @ 100Hz & 16dBA @ 40Hz
- 6' & 8' Wide Acoustifence available. Can be custom configured multiple ways
- Colors - Black & Green
- High UV resistance
- Heat tolerance: 200°F for 7 days, less than 1% shrinkage with no deformation.
- Freezes at -40°F. Do not unroll or flex frozen material. Properties not affected by freeze/thaw cycles.
- 15+ Year life expectancy
- No fungal or algal growth and no visible disfigurement, per ASTM D3273 and ASTM D3274 (rating=10)
- Tensile Strength - Black 1977 psi / Green 1714 psi
- Weight: 1 pound per square foot

Material Specifications – Part # "Acoustifence 6x30 Industrial"

Acoustical Rating	STC 28 / OITC 22
Size	6 ft. (1.83m) x 30 ft. (9. 14m) x 0.125 in. (3mm) 180 ft² (16.72m²)
Weight	185 lbs. (84Kg)
Fastening	Black brass grommets every 6 in. (152mm) along top edge with four grommets spaced along the bottom edge. Commonly installed horizontally.
Color	Black
(This is an industrial product and minor surface blemishes are a possibility.)	

AcoustiBlok® quieting the world
6900 Interbay Blvd.
Tampa, Florida USA 33616
Telephone: (813)980-1400
www.Acoustiblok.com
sales@acoustiblok.com

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Acoustiblok, Inc. | 6900 Interbay Blvd. Tampa, FL 33616 | (813) 980-1400

3 C-602 ACOUSTIFENCE SPECIFICATION SHEETS

ELECTRICAL EQUIPMENT NOTE:

1. ADDITIONAL ELECTRICAL EQUIPMENT SPECIFICATIONS SHALL BE SUBMITTED TO THE TOWN ONCE JERRY SMITH, LLC SELECTS SPECIFIC EQUIPMENT.

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Project:

JERRY SMITH ROAD,
LANSING, NY

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Dwg No:	Size: D	Sheet Rev:
C-602		B

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NY SHPO: Initial Consultation Submission TJW255KYDRUU Received

From New York State Parks CRIS Application <cris.web@parks.ny.gov>
Date Fri 6/5/2026 12:20 PM
To Bailey Godson <bgodson@edpllp.com>

Initial Submission Received

The New York State Historic Preservation Office (SHPO) has received the following initial submission.

> **Initial Submission Token:** TJW255KYDRUU
>
> **Project Type:** Consultation
>
> **Project Name:** Jerry Smith BESS

New York State Historic Preservation Office
Peebles Island State Park, P.O. Box 189, Waterford, NY 12188-0189
518-237-8643 | https://parks.ny.gov/shpo
CRIS: https://cris.parks.ny.gov

Are you registered to vote? Register to vote online today. Moved recently? Update your information with the NYS Board of Elections. Not sure if you're registered to vote? Search your voter registration status.

Who sent this email?

This email is a notification from the New York State Cultural Resource Information System (CRIS). CRIS is an online service administered by the New York State Division for Historic Preservation, also known as the New York State Historic Preservation Office (SHPO), which is a division of New York State Parks, Recreation & Historic Preservation.

This message pertains to a submission for a consultation project. Please see SHPO's Environmental Review web page for more information about the consultation process.

Why did I receive this email?

The submission's contact list includes your email address.

What do I need to do?

You do not need to take any action at this time. The submission is now in SHPO's processing queue.

What will happen next?

If SHPO accepts your submission, you will receive an "Initial Submission Accepted" email notification and SHPO will begin reviewing the project. That email will include the new Project Number.

If SHPO needs more information to process your submission, you will receive an "Initial Submission Found Insufficient" email with the reviewer's comments. You may then revise the submission and resend it to SHPO.

What else can I do?

Please see the following help topics for more information about managing initial submissions in CRIS:

- How do I check the status of my initial submission?
- View an Initial Submission
- Continue or Edit an Existing Initial Submission

Where can I get help?

Please visit the CRIS Online Help System: https://cris.parks.ny.gov/CRISHelp

If you still have questions about CRIS, please contact CRIS Help at CRISHelp@parks.ny.gov.

For any other questions, please call SHPO at 518-237-8643.

ENVIRONMENTAL DESIGN PARTNERSHIP, LLP.
Shaping the physical environment

900 New York 146 Clifton Park, NY 12065
(P) 518.371.7621 edpllp.com

June 6, 2026

New York State Office of Parks, Recreation and Historic Preservation
Division for Historic Preservation
Peebles Island Resource Center
PO Box 189
Waterford, NY 12188-0189

Re: Request for Information
Jerry Smith BESS
339 Jerry Smith Road
Town of Lansing, Tompkins County, NY
SBL# 503289-16.-1-10.2

To whom this may concern:

Nexamp Solar, Inc has retained the Environmental Design Partnership, LLP (EDP) to obtain the necessary permits and approvals for a proposed Battery Energy Storage System (BESS) solar farm located on a 56.87± acre property located in the Town of Lansing, Tompkins County, New York. The project will involve the construction of a 5MW (AC) BESS confined to 1.67± acres in the northeastern corner of the property. The property consists of active farmland to the south, an active solar farm to the north, and a single family residential structure abutting Jerry Smith Road to the south. The project area is located in the northeastern corner of the property on maintained mowed lawn and existing gravel drive and abuts woodlands to the west. Surrounding land use consists of residential development, agricultural land, and woodlands. The project area is not located within a mapped archaeologically sensitive buffer zone.

The following documents are enclosed for your review:

- Project Review Cover Form
- Archaeological Sensitive Area & Location Mapping
- Preliminary Concept Plan

Please review the enclosed materials and provide us with any comments regarding the project's potential to impact or affect historic and/or prehistoric cultural resources. Should you have any questions, please do not hesitate to call me at (838) 251-4798. Thank you for your assistance with this project and I look forward to your response.

Very Truly Yours,

Bailey Godson

Bailey Godson
Environmental Design Partnership
bgodson@edpllp.com
(838) 251-4798 (work cell)
(518) 371-7621 ext. 134 (o)

Attachments

NEW YORK STATE OF OPPORTUNITY. Parks, Recreation, and Historic Preservation

Division for Historic Preservat
Peebles Island Resource Center, PO Box 189, Waterford, N
Delaware Avenue, Cohoes 12047 (Delivery) **(518) 268-2213**

ANDREW M. CUOMO Governor
ROSE HARVEY Commissioner

PROJECT REVIEW COVER FORM

*Please complete this form and attach it to the top of **any and all information submitted to this office** for review.*
Accurate and complete forms will assist this office in the timely processing and response to your request.

This information relates to a previously submitted project.

PROJECT NUMBER ____PR_____

COUNTY _____

☐ If you have checked this box and noted the previous Project Review (PR) number assigned by this office you do not need to continue unless any of the required information below has changed.

---

2. This is a new project. ☑ If you have checked this box you will need to complete ALL of the following information.

Project Name Jerry Smith BESS

Location 339 Jerry Smith Road
You MUST include street number, street name and/or County, State or Interstate route number if applicable

City/Town/Village Town of Lansing
List the correct municipality in which your project is being undertaken. If in a hamlet you must also provide the name of the town.

County Tompkins County
If your undertaking* covers multiple communities/counties please attach a list defining all municipalities/counties included.

TYPE OF REVIEW REQUIRED/REQUESTED (Please answer both questions)

A. Does this action involve a permit approval or funding, now or ultimately from any other governmental agency?

☐ **No** ☑ **Yes**

If Yes, list agency name(s) and permit(s)/approval(s)

Agency involved	Type of permit/approval	State	Federal
NYSDEC	SPDES	☑	☐
		☐	☐
		☐	☐

CONTACT PERSON FOR PROJECT

Name Bailey Godson **Title** Environmental Resource Specialist

Firm/Agency Environmental Design Partnership, LLP (EDP)

Address 900 Route 146 **City** Clifton Park **STATE** NY **Zip** 12065

Phone (838) 251-4798 **Fax** (_____)_____ **E-Mail** bgodson@edpllp.com

The Historic Preservation Review Process in New York State

In order to insure that historic preservation is carefully considered in publicly-funded or permitted undertakings*, there are laws at each level of government that require projects to be reviewed for their potential impact/effect on historic properties. At the federal level, Section 106 of the National Historic Preservation Act of 1966 (NHPA) directs the review of federally funded, licensed or permitted projects. At the state level, Section 14.09 of the New York State Parks, Recreation and Historic Preservation Law of 1980 performs a comparable function. Local environmental review for municipalities is carried out under the State Environmental Quality Review Act (SEQRA) of 1978.

Project review is conducted in two stages. First, the Div. for Historic Preservation assesses affected properties to determine whether or not they are listed or eligible for listing in the New York State or National Registers of Historic Places. If so, it is deemed "historic" and worthy of protection and the second stage of review is undertaken. The project is reviewed to evaluate its impact on the properties significant materials and character. Where adverse effects are identified, alternatives are explored to avoid, or reduce project impacts; where this is unsuccessful, mitigation measures are developed and formal agreement documents are prepared stipulating these measures.

ALL PROJECTS SUBMITTED FOR REVIEW SHOULD INCLUDE THE FOLLOWING MATERIAL(S).

☑ **Project Description**

Attach a full description of the nature and extent of the work to be undertaken as part of this project. Relevant portions of the project applications or environmental statements may be submitted.

☑ **Maps Locating Project**

Include a map locating the project in the community. The map must clearly show street and road names surrounding the project area as well as the location of all portions of the project. Appropriate maps include tax maps, Sanborn Insurance maps, and/or USGS quadrangle maps.

☐ **Photographs**

Digital photographs can be submitted as JPEGs

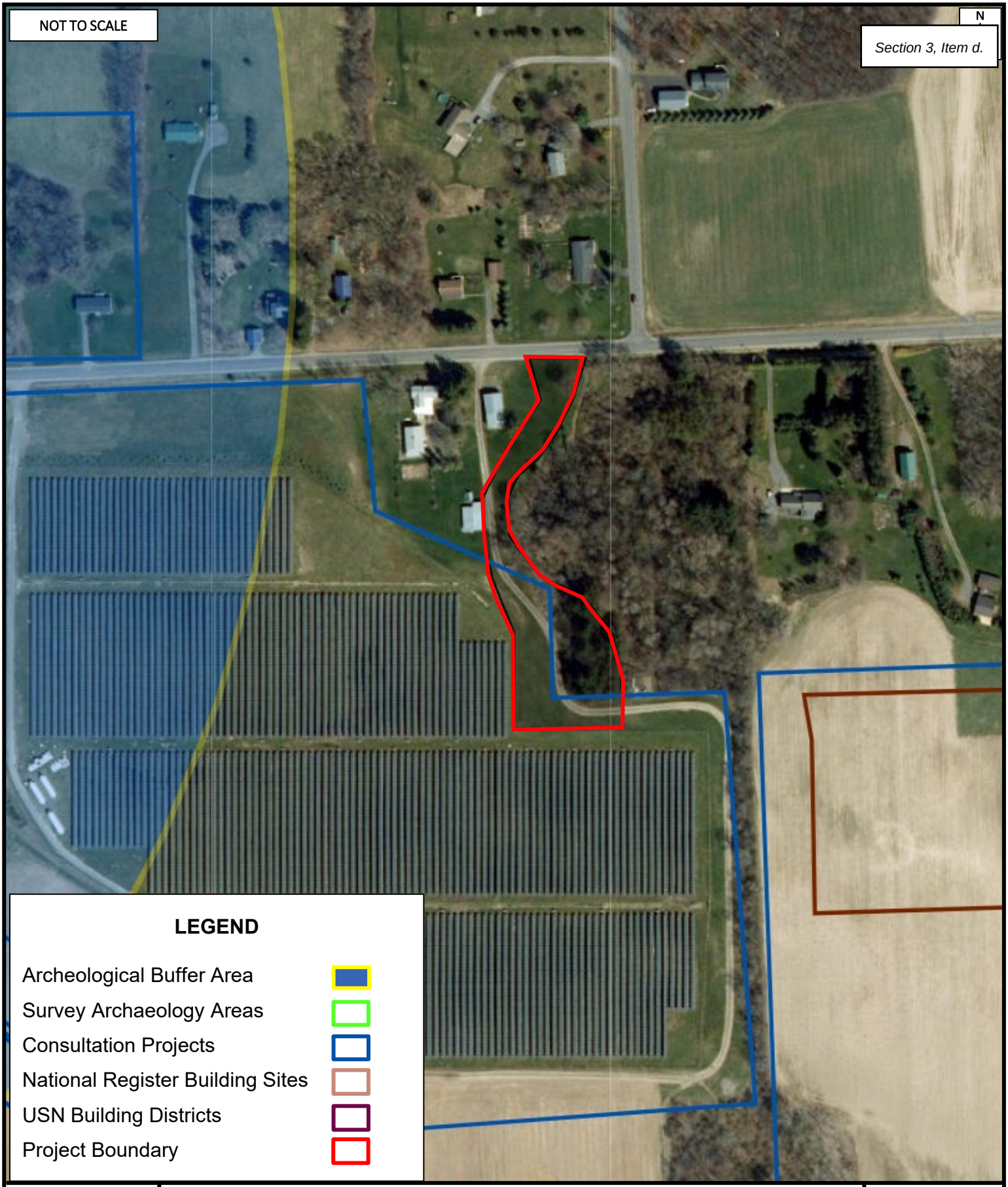
-*If the project involves rehabilitation*, include photographs of the building(s) involved. Label each exterior view to a site map and label all interior views.

-*If the project involves new construction*, include photographs of the surrounding area looking out from the project site. Include photographs of any buildings (more than 50 years old) that are located on the project property or on adjoining property.

*__Undertaking__ is defined as an agency's purchase, lease or sale of a property, assistance through grants, loans or guarantees, issuing of licenses, permits or approvals, and work performed pursuant to delegation or mandate.

NOT TO SCALE

N



LEGEND

- Archeological Buffer Area
- Survey Archaeology Areas
- Consultation Projects
- National Register Building Sites
- USN Building Districts
- Project Boundary

Archaeological Sensitive Area Map
Jerry Smith BESS

Town of Lansing

Tompkins County

Source: SHPO CRIS

June 5, 2026

ENVIRONMENTAL DESIGN PARTNERSHIP

The Environmental Design Partnership, LLP © 2026

GRAPHIC SCALE

30 25 20 15 10 5 0 15 30 120

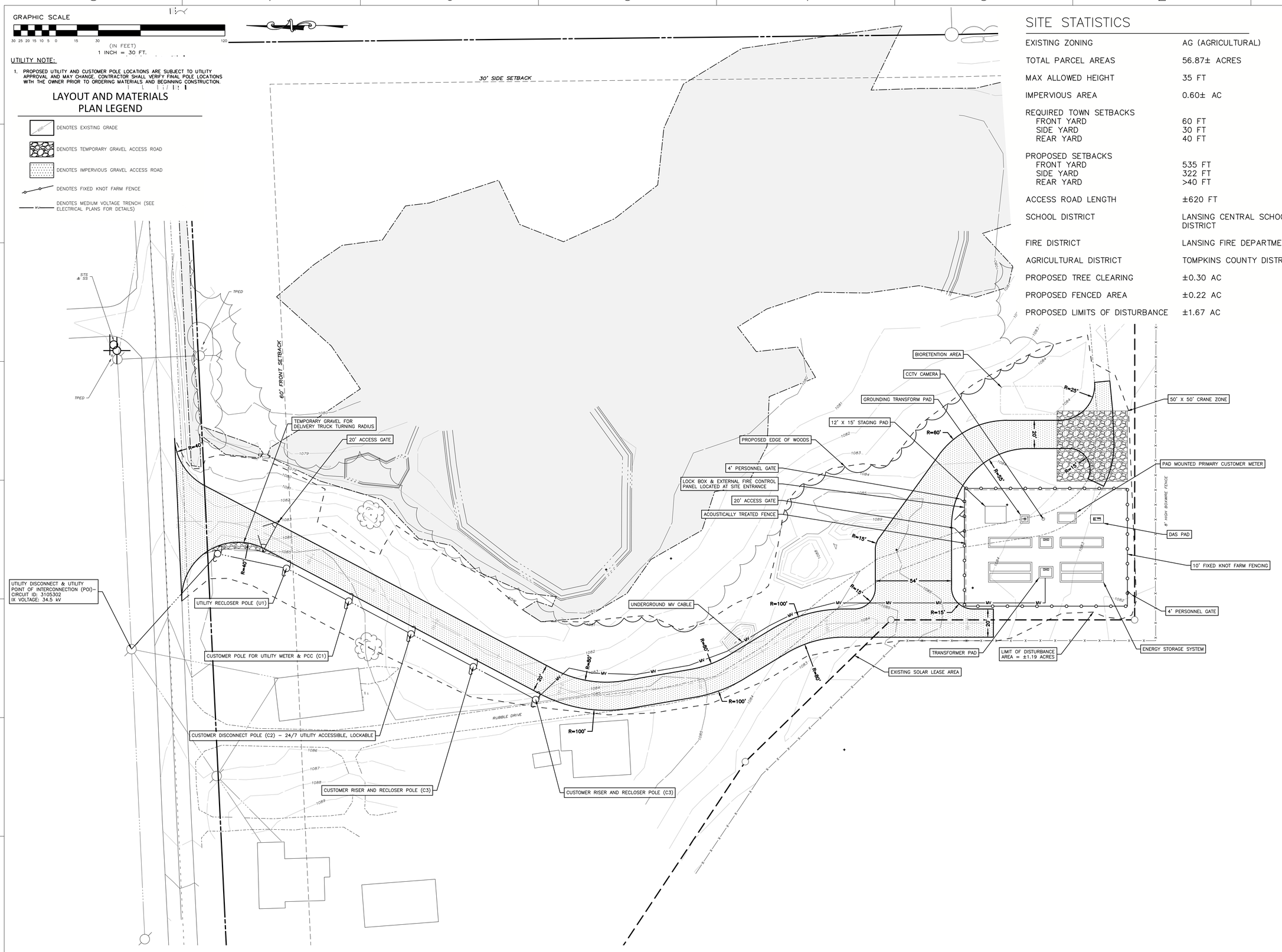
(IN FEET)
1 INCH = 30 FT.

UTILITY NOTE:

1. PROPOSED UTILITY AND CUSTOMER POLE LOCATIONS ARE SUBJECT TO UTILITY APPROVAL AND MAY CHANGE. CONTRACTOR SHALL VERIFY FINAL POLE LOCATIONS WITH THE OWNER PRIOR TO ORDERING MATERIALS AND BEGINNING CONSTRUCTION.

LAYOUT AND MATERIALS PLAN LEGEND

- DENOTES EXISTING GRADE
- DENOTES TEMPORARY GRAVEL ACCESS ROAD
- DENOTES IMPERVIOUS GRAVEL ACCESS ROAD
- DENOTES FIXED KNOT FARM FENCE
- DENOTES MEDIUM VOLTAGE TRENCH (SEE ELECTRICAL PLANS FOR DETAILS)



SITE STATISTICS

EXISTING ZONING	AG (AGRICULTURAL)
TOTAL PARCEL AREAS	56.87± ACRES
MAX ALLOWED HEIGHT	35 FT
IMPERVIOUS AREA	0.60± AC
REQUIRED TOWN SETBACKS	
FRONT YARD	60 FT
SIDE YARD	30 FT
REAR YARD	40 FT
PROPOSED SETBACKS	
FRONT YARD	535 FT
SIDE YARD	322 FT
REAR YARD	>40 FT
ACCESS ROAD LENGTH	±620 FT
SCHOOL DISTRICT	LANSING CENTRAL SCHOOL DISTRICT
FIRE DISTRICT	LANSING FIRE DEPARTMENT
AGRICULTURAL DISTRICT	TOMPKINS COUNTY DISTRICT 1
PROPOSED TREE CLEARING	±0.30 AC
PROPOSED FENCED AREA	±0.22 AC
PROPOSED LIMITS OF DISTURBANCE	±1.67 AC

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(518) 371-7421 edpllp.com

Rev	Issued For	Date
A	INTERNAL REVIEW	5/27/26

P.E. seal/Consultant:

NOT FOR CONSTRUCTION

Project:

JERRY SMITH , LLC

JERRY SMITH ROAD,
LANSING, NY

Drawing Title:

MATERIALS AND LAYOUT PLAN

Drawn by: BMW Scale: AS SHOWN Approved by: TJM

Dwg No:	Size: D	Sheet Rev:
C-300		A

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EROSION AND SEDIMENT CONTROL NOTES:

1. ALL AREAS TO BE REVEGETATED SHALL HAVE A MINIMUM OF FOUR INCHES OF TOPSOIL.
2. AREAS USED FOR TEMPORARY LAYDOWN DURING CONSTRUCTION SHALL BE RESTORED TO PRE-CONSTRUCTION CONDITIONS INCLUDING, BUT NOT LIMITS TO, DECOMPACTION, REGRADING, LOAMING, AND SEEDING. IN NO CASE SHALL PARKING AREAS, LAYDOWN AREAS, CONSTRUCTION TRAILERS, AND PORTABLE TOILETS BE LOCATED WITHIN A WETLAND RESOUCE AREA AND/OR ANY BUFFER ZONES.
3. WETLANDS NEAR THE SOLAR ARRAY SHALL BE PROTECTED WITH FILTREXX SILTSOXX OR SILT FENCE. EROSION AND SEDIMENT CONTROL FEATURES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF SOIL DISTURBING ACTIVITIES.
4. AREAS DESIGNATED FOR CUTTING SHALL BE CUT, ONLY. NO GRUBBING OR STRIPPING OF TOPSOIL IS NECESSARY, EXCEPT FOR THOSE AREAS SHOWN ON THE SITE PLANS.
5. PERMANENT STABILIZATION SHALL BE ESTABLISHED AS SOON AS FEASIBLE GIVEN THE GROWING SEASON.

GRAPHIC SCALE

30 20 20 15 10 5 0 15 30 120

(IN FEET)
1 INCH = 30 FT.

EROSION AND SEDIMENT CONTROL PLAN LEGEND

- DENOTES EXISTING GRADE
- DENOTES TEMPORARY GRAVEL ACCESS ROAD
- DENOTES STABILIZED CONSTRUCTION ENTRANCE
- DENOTES EROSION CONTROL BLANKET
- DENOTES IMPERVIOUS GRAVEL ACCESS ROAD
- DENOTES FIXED KNOT FARM FENCE
- DENOTES MEDIUM VOLTAGE TRENCH (SEE ELECTRICAL PLANS FOR DETAILS)
- DENOTES PROPOSED CONTOUR
- DENOTES PROPOSED SILT FENCE/SOCK

30' SIDE SETBACK
60' FRONT SETBACK
STONE WALL
WET AREA
STANDING WATER
STREAM
STS & SS
TPED
SWALE
18" HDPE INV = 1078.4
STABILIZED CONSTRUCTION ENTRANCE (TYP.)
SILT FENCE OR SILT SOCK (TYP.)
EROSION CONTROL BLANKET
CONCRETE WASHOUT
SOIL STOCKPILE
8' HIGH BOWMIE FENCE
RUBBLE AREA
RUBBLE DRIVE
BUILDING
BLDG
HOUSE
GARAGE
CHAIN LINK GATE

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Rev	Issued For	Date
A	INTERNAL REVIEW	5/27/26

P.E. seal/Consultant:
NOT FOR CONSTRUCTION

Project:
JERRY SMITH , LLC
JERRY SMITH ROAD, LANSING, NY

Drawing Title:
EROSION AND SEDIMENT CONTROL PLAN

Drawn by: BMW | Scale: AS SHOWN | Approved by: TJM

Dwg No:	Size: D	Sheet Rev:
C-400		A

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DRAINAGE AND GRADING PLAN LEGEND

- DENOTES EXISTING GRADE
- DENOTES RIP RAP FILL
- DENOTES TEMPORARY GRAVEL ACCESS ROAD
- DENOTES IMPERVIOUS GRAVEL ACCESS ROAD
- DENOTES VEGETATED FILTER STRIP
- DENOTES FIXED KNOT FARM FENCE
- DENOTES MEDIUM VOLTAGE TRENCH (SEE ELECTRICAL PLANS FOR DETAILS)
- DENOTES PROPOSED CONTOUR

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edp
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(518) 371-7621 edpllp.com

Rev	Issued For	Date
A	INTERNAL REVIEW	5/27/26

P.E. seal/Consultant: NOT FOR CONSTRUCTION

Project: JERRY SMITH , LLC

JERRY SMITH ROAD, LANSING, NY

Drawing Title: GRADING AND DRAINAGE PLAN

Drawn by: BMW Scale: AS SHOWN Approved by: TJM

Dwg No: C-500 Size: D Sheet Rev: A

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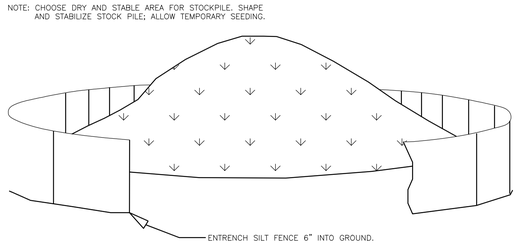
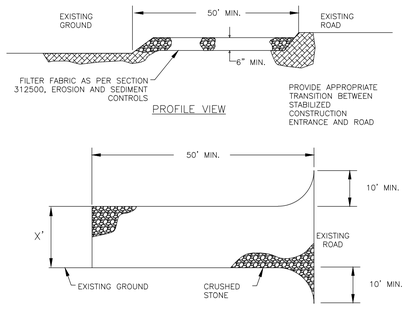
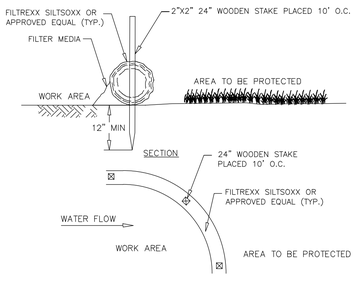


1 C-600 SOIL STOCKPILE AREA
NOT TO SCALE



1. STONE FOR A STABILIZED CONSTRUCTION ENTRANCE SHALL BE 1 TO 2 INCH STONE, RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT.
2. THE LENGTH OF THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 50 FEET.
3. THE THICKNESS OF THE STONE FOR THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 6 INCHES.
4. THE WIDTH OF THE ENTRANCE SHALL NOT BE LESS THAN THE FULL WIDTH OF THE PROPOSED ENTRANCE.
5. GEOTEXTILE FILTER CLOTH SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING THE STONE.
6. ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARDS THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE SURFACE.
7. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO EXISTING ROAD. THIS MANY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR ADDITIONAL LENGTH AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO EXISTING ROAD SHALL BE REMOVED IMMEDIATELY.

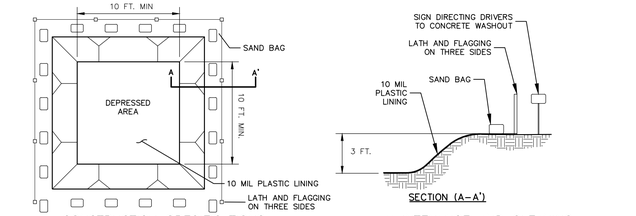
2 C-600 STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE



1. FILTER SOCK SHALL BE 12" DIAMETER MIN.
2. SOCKS TO BE FILLED WITH BIODEGRADABLE COMPOST MATERIAL.

DIA	SLOPE %						
	2	5	10	20	25	33	50
12"	250*	225	125	65	50	40	25

3 C-600 12 IN. FILTER SOCK
NOT TO SCALE



CONSTRUCTION SPECIFICATIONS

1. CONCRETE WASHOUT FACILITY SHALL BE LOCATED A MINIMUM OF FIFTY FEET (50') FROM SENSITIVE AREAS.
2. THE BASIN DIMENSIONS DEPICTED ABOVE ARE REQUIRED MINIMUMS.
3. CONCRETE WASHOUT FACILITY SHALL BE CONSTRUCTED AND MAINTAINED IN SUFFICIENT QUANTITY AND SIZE TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS. (APPROXIMATELY 60 GALLONS OF WASTE AND WATER PER TRUCK).
3. PLASTIC LINING MATERIAL SHALL BE A MINIMUM 10 MIN POLYETHYLENE SHEETING AND SHOULD BE FREE OF HOLES, TEARS, OR OTHER DEFECTS THAT COMPROMISE THE IMPERMEABILITY OF THE MATERIAL.
4. WASHOUT FACILITY MUST BE CLEANED, OR NEW FACILITES MUST BE CONSTRUCTED AND READY FOR USE ONCE THE WASHOUT IS 75% FULL.

MAINTENANCE AND CLEANING

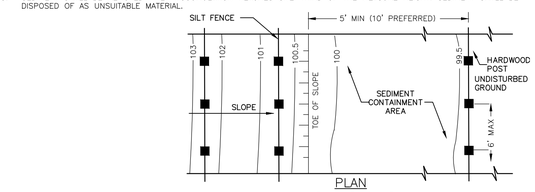
1. DO NOT DISCHARGE LIQUID OR SLURRY TO WATERWAYS, STORM DRAINS OR DIRECTLY ONTO GROUND
2. DO NOT USE SANITARY SEWER WITHOUT LOCAL APPROVAL.
3. PLACE A SECURE NON COLLAPSING, NON–WATER COLLECTING COVER OVER THE FACILITY PRIOR TO PREDICTED WET WEATHER TO PREVENT ACCUMULATION AND OVERFLOW.
4. REMOVE AND DISPOSE OF HARDEN CONCRETE AND RETURN THE STRUCTURE TO A FUNCTIONAL STATE.
5. INSPECT THE WASHOUT FACILITY FOR SIGNS OF WEAKENING OR DAMAGE AND REPAIR AS NESSESARY(RELINE THE STRUCTURE WITH NEW POLY SHEETING AFTER EACH CLEANING).

4 C-600 CONCRETE WASHOUT FACILITY
NOT TO SCALE

1. SILT FENCE SHALL BE PLACED A MINIMUM OF 5 FT. FROM TOE OF SLOPE, 10 FT. PREFERRED, TO PROVIDE ADEQUATE AREA FOR SEDIMENT STORAGE AND FACILITATE MAINTENANCE OF SEDIMENT CONTAINMENT AREA.
2. POSTS MAY BE 1.25"x1.25" (MINIMUM) HARDWOOD, TYPICALLY. FOR WIRE MESH BACK USE 2"x2" NOM. HARDWOOD, OR STEEL "T" OR "U" POSTS (1lb per lf). SILT FENCE SHALL BE WOVEN GEOTEXTILE FABRIC(GEOTEX 2130 OR EQUAL).
3. SILT FENCE ASSEMBLIES MAY HAVE 4 FT. OR 6 FT. POST SPACING, AND MAY OR MAY NOT HAVE MESH REINFORCEMENT. SENSITIVE AREAS TO BE PROTECTED MAY NEED TO BE REINFORCED BY USING HEAVY WIRE FENCING FOR ADDED SUPPORT TO PREVENT COLLAPSE.
4. THE BOTTOM EDGE OF SILT FENCE SHALL BE BURIED A MINIMUM OF 6" BELOW GROUND. THE FENCE SHALL BE INSTALLED WITH THE POSTS ON THE DOWNSTREAM SIDE OF THE FABRIC.
5. MAXIMUM ALLOWABLE SLOPE LENGTHS CONTRIBUTING RUNOFF TO A SILT FENCE PLACED ON A SLOPE ARE:

SLOPE STEEPNESS	MAXIMUM SLOPE LENGTH /FENCE LENGTH (ft.)
<2%	500/500
2–10%	125/1000
10–20%	100/750
20–33%	50/500
33–50%	40/250
>50%	25/125

6. MAXIMUM DRAINAGE AREA FOR OVERLAND FLOW TO A SILT FENCE SHALL NOT EXCEED ¼ ACRE PER 100 FEET OF FENCE, WITH MAXIMUM PONDING DEPTH OF 1.5 FEET BEHIND THE FENCE; AND EROSION WOULD OCCUR IN THE FORM OF SHEET EROSION; AND THERE IS NO CONCENTRATION OF WATER FLOWING TO THE BARRIER.
7. MEASURES SHALL BE INSPECTED EVERY SEVEN (7) CALENDAR DAYS, AFTER EACH RAINFALL OF .5" OR MORE WITHIN A 12 HOUR PERIOD, OR DAILY DURING PROLONGED RAINFALL. MEASURES SHALL BE CLEANED AND REPAIRED AS REQUIRED.
8. SEDIMENT SHALL BE REMOVED WHEN ACCUMULATION REACHES ONE–THIRD OF THE MEASURE HEIGHT. SEDIMENT SHALL BE DISPOSED OF AS UNSUITABLE MATERIAL.



SILT FENCE INSTALLATION NOTES:

1. GEOTEXTILE FABRIC AND WOVEN WIREMESH TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACES EVERY 24" AT TOP AND MID SECTION.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES, FOLDED AND STAPLED.
4. MAINTENANCE SHALL BE PERFFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

5 C-600 SILT FENCE
NOT TO SCALE

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101 Summer Street, Boston, MA 02110
Tel: (617) 431-1440 Fax: (978) 416-2525 Web: nexamp.com

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900 Route 146 Clifton Park, New York 12065
(518) 371-0421 edpllp.com

Rev	Issued For	Date
A	INTERNAL REVIEW	5/27/26

P.E. seal/Consultant: NOT FOR CONSTRUCTION

Project: JERRY SMITH , LLC
JERRY SMITH ROAD, LANSING, NY

Drawing Title: EROSION AND SEDIMENT CONTROL DETAILS

Drawn by: BMW | Scale: AS SHOWN | Approved by: TJM

Dwg No:	Size: D	Sheet Rev:
C-600		A

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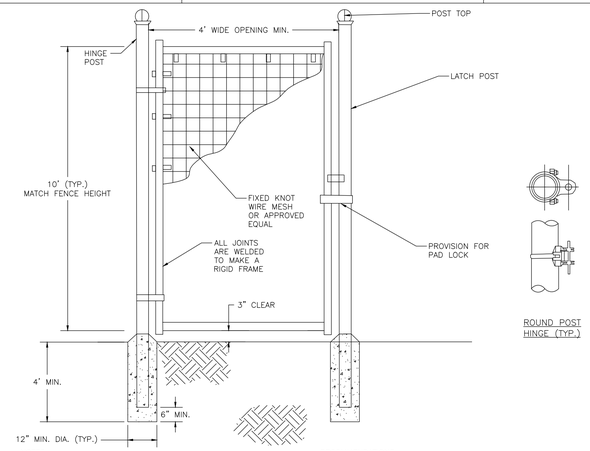
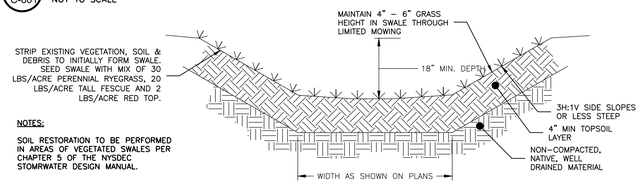


ROUND POST HINGE (TYP.)

NOTES
1. INSTALL ALL FENCING COMPONENTS PER MANUFACTURES SPECIFICATIONS.
2. ALL FENCING AND HARDWARE SHALL BE GALVANIZED, UNLESS OTHERWISE NOTED.
3. HINGE POSTS MAY BE TIMBER IF CONTRACTOR DESIRES, TIMBER HINGE POSTS DO NOT NEED TO BE SET IN CONCRETE. UTILIZE HINGE THRU BOLTS TO CONNECT TO TIMBER HINGE POSTS OR LAG SCREWS, PER MANUFACTURERS RECOMMENDATIONS.
4. IF CONTRACTOR UTILIZES METAL HINGE POST THAN POSTS SHALL BE SET IN CONCRETE AS SHOWN ON DETAIL.
5. BRACING REQUIRED AT FOR ALL GATES. SEE FIXED KNOT FARM FENCE DETAIL.
6. FIXED KNOT WIRE MESH TO BE BEKAERT SOLIDLOCK^2 PRO, 12.5 GAUGE, CLASS 3 GALVANIZED, 6" VERTICAL SPACING OR APPROVED EQUAL
7. BRACE RAILS AND/ OR TRUSS RODS ARE NOT SHOWN, MAY BE REQUIRED PER MANUFACTURES RECOMMENDATIONS

7 C-601 FIXED KNOT FARM FENCE – PERSONNEL GATE
NOT TO SCALE

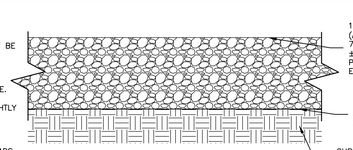


NOTES:

SOIL RESTORATION TO BE PERFORMED IN AREAS OF VEGETATED SWALES PER CHAPTER 5 OF THE NYSDEC STORMWATER DESIGN MANUAL.

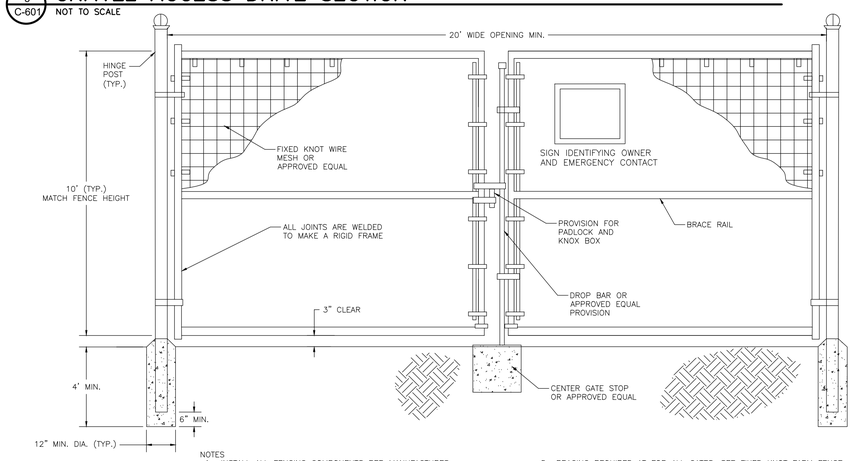
6 C-601 VEGETATED SWALE
NOT TO SCALE

1. IF UNSTABLE SUBGRADE IS ENCOUNTERED DURING CONSTRUCTION ENGINEER MUST BE NOTIFIED IMMEDIATELY.
2. SUBGRADE MUST BE PROOF–ROLLED PRIOR TO PLACEMENT OF CRUSHED STONE.
3. PAVEMENT DESIGN IS FOR "LIGHTLY LOADED VEHICLES. ADDITIONAL GRAVEL MAY BE NEEDED FOR CONSTRUCTION ACCESS.
4. TEMPORARY CONSTRUCTION ROADS SHALL HAVE A 24" THICKNESS.



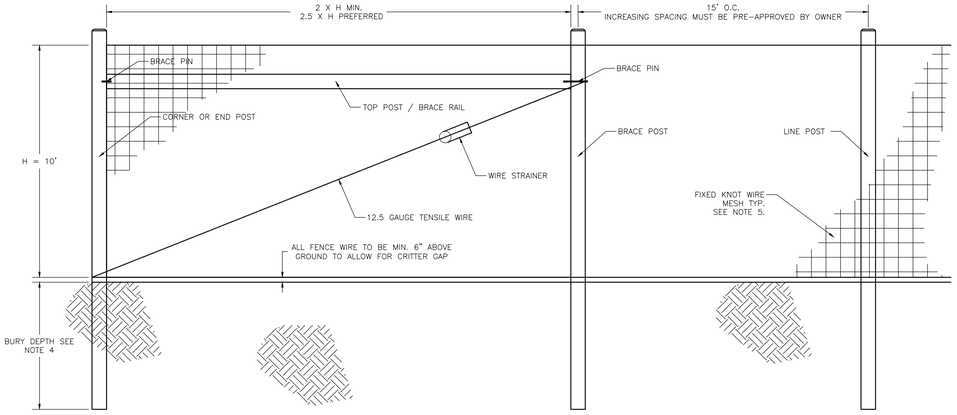
PAVEMENT SECTION

3 C-601 GRAVEL ACCESS DRIVE SECTION
NOT TO SCALE



NOTES
1. INSTALL ALL FENCING COMPONENTS PER MANUFACTURES SPECIFICATIONS.
2. ALL FENCING AND HARDWARE SHALL BE GALVANIZED, UNLESS OTHERWISE NOTED.
3. HINGE POSTS MAY BE TIMBER IF CONTRACTOR DESIRES, TIMBER HINGE POSTS DO NOT NEED TO BE SET IN CONCRETE. UTILIZE HINGE THRU BOLTS TO CONNECT TO TIMBER HINGE POSTS OR LAG SCREWS, PER MANUFACTURERS RECOMMENDATIONS.
4. IF CONTRACTOR UTILIZES METAL HINGE POST THAN POSTS SHALL BE SET IN CONCRETE AS SHOWN ON DETAIL.
5. BRACING REQUIRED AT FOR ALL GATES. SEE FIXED KNOT FARM FENCE DETAIL.
6. FIXED KNOT WIRE MESH TO BE BEKAERT SOLIDLOCK^2 PRO, 12.5 GAUGE, CLASS 3 GALVANIZED, 6" VERTICAL SPACING OR APPROVED EQUAL
7. BRACE RAIL SHOWN FOR REFERENCE ADDITIONAL BRACE RAILS MAY BE REQUIRED (NOT SHOWN) OR TRUSS RODS MAY BE REQUIRED PER MANUFACTURES RECOMMENDATIONS

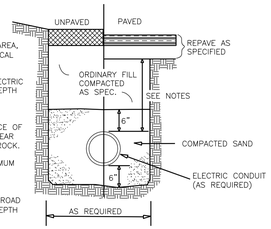
4 C-601 FIXED KNOT FARM FENCE – DOUBLE GATE
NOT TO SCALE



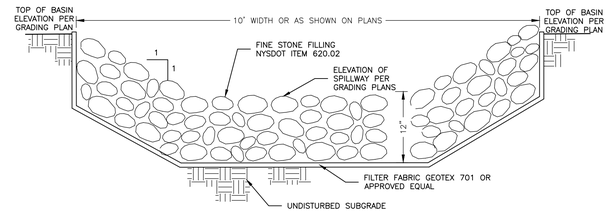
NOTES
1. INSTALL ALL FENCING COMPONENTS PER MANUFACTURES SPECIFICATIONS.
2. ALL FENCING AND HARDWARE SHALL BE GALVANIZED, UNLESS OTHERWISE NOTED.
3. ALL SQUARE POSTS TO BE MIN. 5"X5" NOMINAL SIZE OR ROUND POST WITH MIN. 5" OR 6" DIAMETER PRESSURE TREATED WOOD OR APPROVED EQUAL. PREFER POSTS TO HAVE A CHAMFERED TOP.
4. ALL LINE POST TO BE SET TO A MIN. DEPTH OF 4' BELOW GRADE, ALL CORNER, END OR GATE POSTS SHALL BE SET TO A MIN. DEPTH OF 6' BELOW GRADE, UNLESS OTHERWISE NOTED.
5. FIXED KNOT WIRE MESH TO BE BEKAERT SOLIDLOCK^2 PRO, 12.5 GAUGE, CLASS 3 GALVANIZED, 6" VERTICAL SPACING OR APPROVED EQUAL.
6. BRACING IS REQUIRED AT ALL CORNER, END, AND GATE POSTS. DOUBLE BRACING (TWO BRACE ASSEMBLIES IN A ROW) SHOULD BE USED FOR STRAIGHT RUNS OF FENCE THAT EXCEED 1,000 LF. AN ADDITIONAL BRACE ASSEMBLY SHOULD BE INSTALLED MID SPAN FOR STRAIGHT RUNS OF FENCE THAT EXCEED 1,320 LF. ADDITIONAL BRACING MAY BE STILL BE REQUIRED OVER UNEVEN TERRAIN, CONTRACTOR SHALL INSTALL ADDITIONAL BRACING AS NEEDED IF DEFLECTION IS NOTICED DURING TENSIONING.

8 C-601 FIXED KNOT FARM FENCE
NOT TO SCALE

NOTES:
1. 18" MINIMUM WHEN LOCATED WITHIN FENCED AREA, 24" IF CONDUIT IS NOT UTILIZED AND ELECTRICAL LINES ARE DIRECTLY PLACED.
2. OUTSIDE OF PERIMETER FENCE IN CROPLAND, HAYLAND, AND IMPROVED PASTURE BURIED ELECTRIC CONDUCTORS MUST HAVE A MINIMUM TOTAL DEPTH OF 48" OF COVER.
3. IN AREAS WHERE THE DEPTH OF SOIL OVER BEDROCK IS LESS THAN 48", THE ELECTRIC CONDUIT MUST BE BURIED BELOW THE SURFACE OF THE BEDROCK IF FRIABLE/RIPPABLE, OR AS NEAR AS POSSIBLE TO THE SURFACE OF THE BED ROCK.
4. IN UNIMPROVED GRAZING AREAS OR ON LAND PERMANENTLY DEVOTED TO PASTURE THE MINIMUM DEPTH OF COVER MUST BE 36".
5. WHERE ELECTRICAL CONDUCTORS ARE BURIED DIRECTLY BELOW THE GENERATION FACILITY'S ACCESS ROAD OR IMMEDIATELY ADJACENT (AT ROAD EDGE) TO THE ACCESS ROAD, THE MINIMUM DEPTH OF COVER MUST BE 24".

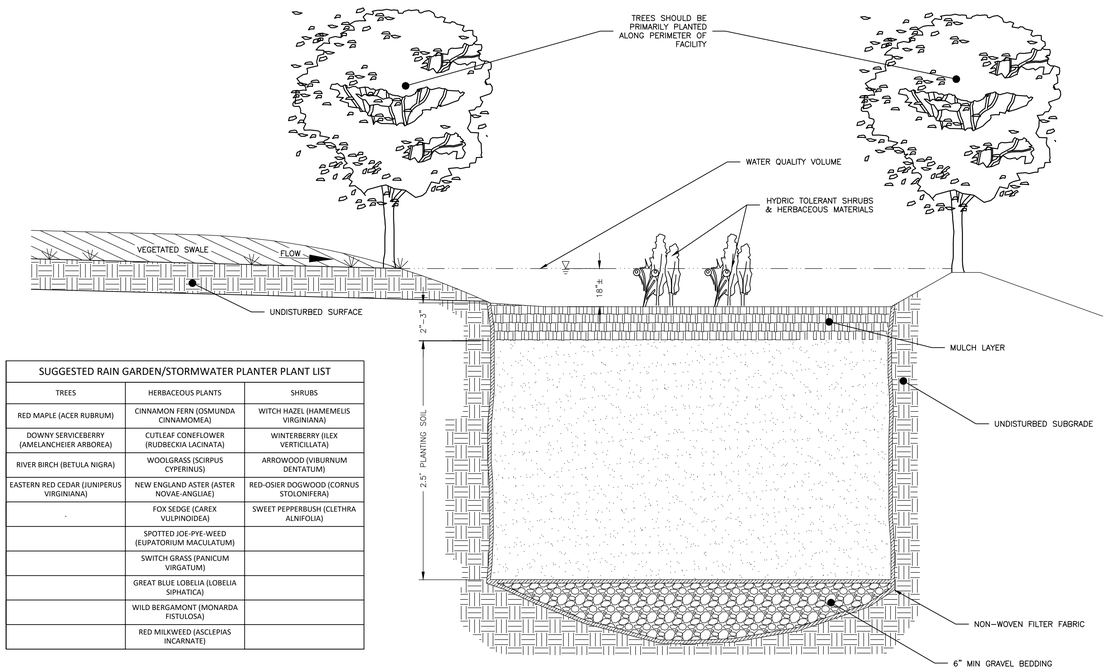


6 C-601 MV CABLE TRENCH
NOT TO SCALE



7 C-601 EMERGENCY OVERFLOW SPILLWAY
NOT TO SCALE

SUGGESTED RAIN GARDEN/STORMWATER PLANTER PLANT LIST		
TREES	HERBACEOUS PLANTS	SHRUBS
RED MAPLE (ACER RUBRUM)	CINNAMON FERN (OSMUNDA CINNAMOMEA)	WITCH HAZEL (HAMEMELIS VIRGINIANA)
DOWNY SERVICEBERRY (AMELANCHEIER ARBOREA)	CUTLEAF CONEFLOWER (RUDBECKIA LACINATA)	WINTERBERRY (ILEX VERTICILLATA)
RIVER BIRCH (BETULA NIGRA)	WOOLGRASS (SCIRPUS CYPERINUS)	ARROWOOD (VIBURNUM DENTATUM)
EASTERN RED CEDAR (JUNIPERUS VIRGINIANA)	NEW ENGLAND ASTER (ASTER NOVAE-ANGLIAE)	RED-OSIER DOGWOOD (CORNUS STOLONIFERA)
.	FOX SEDGE (CAREX VULPINOIDEA)	SWEET PEPPERBUSH (CLETHRA ALNIFOLIA)
	SPOTTED JOE-PYE-WEED (EUPATORIUM MACULATUM)	
	SWITCH GRASS (PANICUM VIRGATUM)	
	GREAT BLUE LOBELIA (LOBELIA SIPHATICA)	
	WILD BERGAMONT (MONARDA FISTULOSA)	
	RED MILKWEED (ASCLEPIAS INCARNATE)	



8 C-601 BIORETENTION AREA
NOT TO SCALE

nexamp
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ENVIRONMENTAL DESIGN PARTNERSHIP, LLP.
900 Route 146 Clifton Park, New York 12065
(518) 371-7021 edpllp.com

Rev	Issued For	Date
A	INTERNAL REVIEW	5/27/26

P.E. seal/Consultant: NOT FOR CONSTRUCTION

Project: JERRY SMITH , LLC
JERRY SMITH ROAD, LANSING, NY

Drawing Title: SITE DETAILS
Drawn by: BMW Scale: AS SHOWN Approved by: TJM

Dwg No: C-601 Size: D Sheet Rev: A

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
Phone: (607) 753-9334 Fax: (607) 753-9699
Email Address: fw5es_nyfo@fws.gov

In Reply Refer To: 06/02/2026 19:33:36 UTC
Project code: 2026-0086469
Project Name: Jerry Smith BESS

Federal Nexus: no
Federal Action Agency (if applicable):

Subject: Technical assistance for 'Jerry Smith BESS'

Dear Bailey Godson:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on June 02, 2026, for 'Jerry Smith BESS' (here forward, Project). This project has been assigned Project Code 2026-0086469 and all future correspondence should clearly reference this number. **Please carefully review this letter. Your Endangered Species Act (Act) requirements may not be complete.**

Ensuring Accurate Determinations When Using IPaC

The Service developed the IPaC system and associated species' determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into IPaC must accurately represent the full scope and details of the Project.

Failure to accurately represent or implement the Project as detailed in IPaC or the Northern Long-eared Bat and Tricolored Bat Range-wide Determination Key (Dkey), invalidates this letter. ***Answers to certain questions in the DKey commit the project proponent to implementation of conservation measures that must be followed for the ESA determination to remain valid. Note that conservation measures for northern long-eared bat and tricolored bat may differ. If both bat species are present in the action area and the key suggests more conservative measures for one of the species for your project, the Project may need to apply the most conservative measures in order to avoid adverse effects. If unsure which conservation measures should be applied, please contact the appropriate Ecological Services Field Office***

Determination for the Northern Long-Eared Bat and Tricolored Bat

Based upon your IPaC submission and a standing analysis completed by the Service, your project has reached the following effect determination(s):

Species	Listing Status	Determination
Northern Long-eared Bat (*Myotis septentrionalis*)	Endangered	NLAA

Other Species and Critical Habitat that May be Present in the Action Area

The IPaC-assisted determination key for the northern long-eared bat and tricolored bat does not apply to the following ESA-protected species and/or critical habitat that also may occur in your Action area:

- Monarch Butterfly *Danaus plexippus* Proposed Threatened

You may coordinate with our Office to determine whether the Action may cause prohibited take of the animal species and/or critical habitat listed above. Note that if a new species is listed that may be affected by the identified action before it is complete, additional review is recommended to ensure compliance with the Endangered Species Act.

Next Steps

Coordination with the Service is complete. This letter serves as technical assistance. All conservation measures should be implemented as proposed. Thank you for considering federally listed species during your project planning.

If no changes occur with the Project or there are no updates on listed species, no further consultation/coordination for this project is required for the northern long-eared bat. However, the Service recommends that project proponents re-evaluate the Project in IPaC if: 1) the scope, timing, duration, or location of the Project changes (includes any project changes or amendments); 2) new information reveals the Project may impact (positively or negatively) federally listed species or designated critical habitat; or 3) a new species is listed, or critical habitat designated. If any of the above conditions occurs, additional coordination with the Service should take place before project implements any changes which are final or commits additional resources.

If you have any questions regarding this letter or need further assistance, please contact the New York Ecological Services Field Office and reference Project Code 2026-0086469 associated with this Project.

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

Jerry Smith BESS

2. Description

The following description was provided for the project 'Jerry Smith BESS':

> The client is proposing the construction of a 5 Megawatt Battery Energy Storage System (BESS) south of Jerry Smith Road in the Town of Lansing, Tompkins County, NY. The project area consists of vacant woodlands located on a previously developed parcel of land (solar). The surrounding land use consists of agricultural land, industrial development, residential development, and vacant woodlands.

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@42.593528649999996,-76.5636628164429,14z

DETERMINATION KEY RESULT

Based on the answers provided, the proposed Action is consistent with a determination of “may affect, but not likely to adversely affect” for a least one species covered by this determination key.

QUALIFICATION INTERVIEW

1. Does the proposed project include, or is it reasonably certain to cause, intentional take of listed bats or any other listed species?

   Note: Intentional take is defined as take that is the intended result of a project. Intentional take could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered or proposed species?

   No

2. Is the action area wholly within Zone 2 of the year-round active area for northern long-eared bat and/or tricolored bat?

   Automatically answered
   No

3. Does the action area intersect Zone 1 of the year-round active area for northern long-eared bat and/or tricolored bat?

   Automatically answered
   No

4. Does any component of the action involve leasing, construction or operation of wind turbines? Answer 'yes' if the activities considered are conducted with the intention of gathering survey information to inform the leasing, construction, or operation of wind turbines.

   No

5. Is the proposed action authorized, permitted, licensed, funded, or being carried out by a Federal agency in whole or in part?

   Note for projects in Pennsylvania: Projects requiring authorization under Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act would be considered as having a federal nexus. Since the U.S. Army Corps of Engineers (Corps) has issued the Pennsylvania State Programmatic General Permit (PASPGP), which may be verified by the PA Department of Environmental Protection or certain Conservation Districts, the need to receive a Corps authorization to perform the work under the PASPGP serves as a federal nexus. As such, if proposing to use the PASPGP, you would answer ‘yes’ to this question.

   No

6. [Semantic] Is the action area located within 0.5 miles of a known bat hibernaculum or winter roost? Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your state wildlife agency.

   Automatically answered
   No

7. Does the action area contain any winter roosts or caves (or associated sinkholes, fissures, or other karst features), mines, rocky outcroppings, or tunnels that could provide habitat for hibernating bats?

   No

8. Is the action located in New England (CT, MA, ME, NH, RI, or VT)?

   No

9. Will the action cause effects to a bridge?

   Note: Covered bridges should be considered as bridges in this question.

   No

10. Will the action result in effects to a culvert or tunnel at any time of year?

    No

11. Are trees present within 1000 feet of the action area? **Note:** If there are trees within the action area that are of a sufficient size to be potential roosts for bats answer "Yes". If unsure, additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines.

    Yes

12. Does the action include the intentional exclusion of bats from a building or building-like structure? **Note:** Exclusion is conducted to deny bats' entry or reentry into a building. To be effective and to avoid harming bats, it should be done according to established standards. If your action includes bat exclusion and you are unsure whether northern long-eared bats or tricolored bats are present, answer "Yes." Answer "No" if there are no signs of bat use in the building/structure. If unsure, contact your local Ecological Services Field Office to help assess whether northern long-eared bats or tricolored bats may be present. Contact a Nuisance Wildlife Control Operator (NWCO) for help in how to exclude bats from a structure safely without causing harm to the bats (to find a NWCO certified in bat standards, search the Internet using the search term "National Wildlife Control Operators Association bats"). Also see the White-Nose Syndrome Response Team's guide for bat control in structures.

    No

13. Does the action involve removal, modification, or maintenance of a human-made building-like structure (barn, house, or other building) **known or suspected to contain roosting bats?**

    No

14. Will the action cause construction of one or more new roads open to the public?

    For federal actions, answer ‘yes’ when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

    No

15. Will the action include or cause any construction or other activity that is reasonably certain to increase average night-time traffic permanently or temporarily on one or more existing roads? **Note:** For federal actions, answer ‘yes’ when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.). .

    No

16. Will the action include or cause any construction or other activity that is reasonably certain to increase the number of travel lanes on an existing thoroughfare?

    For federal actions, answer ‘yes’ when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

    No

17. Will the proposed Action involve the creation of a new water-borne contaminant source (e.g., leachate pond, pits containing chemicals that are not NSF/ANSI 60 compliant)?

    Note: For information regarding NSF/ANSI 60 please visit https://www.nsf.org/knowledge-library/nsf-ansi-standard-60-drinking-water-treatment-chemicals-health-effects

    No

18. Will the proposed action involve the creation of a new point source discharge from a facility other than a water treatment plant or storm water system?

    No

19. Will the proposed action involve blasting or drilling?

    No

20. Will the action involve military training (e.g., smoke operations, obscurant operations, exploding munitions, artillery fire, range use, helicopter or fixed wing aircraft use at night)?

    No

21. Will the proposed action involve the use of herbicides or pesticides (e.g., fungicides, insecticides, or rodenticides)?

    No

22. Will the action include or cause activities that are reasonably certain to cause chronic or intense nighttime noise (above current levels of ambient noise in the area) in suitable summer habitat for the northern long-eared bat or tricolored bat during the active season? Chronic noise is noise that is continuous or occurs repeatedly again and again for a long time. Sources of chronic or intense noise that could cause adverse effects to bats may include, but are not limited to: road traffic; trains; aircraft; industrial activities; gas compressor stations; loud music; crowds; oil and gas extraction; construction; and mining.
    Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines.

    No
23. Does the action include, or is it reasonably certain to cause, the use of permanent or temporary artificial lighting within 1000 feet of suitable forested northern long-eared bat or tricolored bat roosting habitat? **Note:** Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines.

    No
24. Will the action include tree cutting or other means of knocking down or bringing down trees, tree topping, or tree trimming?

    Yes
25. Is the project related to the production of coal, including projects that support the mining of coal, as well as the production and/or distribution of energy produced from coal?

    No
26. Will the proposed action occur exclusively in an already established and currently maintained utility right-of-way?

    No
27. Does the action include emergency cutting or trimming of hazard trees in order to remove an imminent threat to human safety or property? See hazard tree note at the bottom of the key for text that will be added to response letters

    Note: A "hazard tree" is a tree that is an immediate threat to lives, public health and safety, or improved property.

    No
28. Does the project intersect with the 0- 9.9% forest density category?

    Automatically answered
    No
29. Does the project intersect with the 10.0- 19.9% forest density category map?

    Automatically answered
    No
30. Does the project intersect with the 20.0- 29.9% forest density category map?

    Automatically answered
    Yes

31. Does the project intersect with the 30.0- 100% forest density category map?

    Automatically answered
    No

32. Will the action cause trees to be cut, knocked down, or otherwise brought down across an area greater than 40 acres in total extent?

    No

33. Will the proposed action result in the use of prescribed fire?

    Note: If the prescribed fire action includes other activities than application of fire (e.g., tree cutting, fire line preparation) please consider impacts from those activities within the previous representative questions in the key. This set of questions only considers impacts from flame and smoke.

    No

34. Does the action area intersect the northern long-eared bat species list area?

    Automatically answered
    Yes

35. [Semantic] Is the action area located within 0.5 miles of radius of an entrance/opening to any known NLEB hibernacula or winter roost? Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

    Automatically answered
    No

36. [Semantic] Is the action area located within 0.25 miles of a culvert that is known to be occupied by northern long-eared or tricolored bats? **Note:** The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

    Automatically answered
    No

37. [Semantic] Is the action area located within 150 feet of a documented northern long-eared bat roost site?

    Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.Have you contacted the appropriate agency to determine if your action is within 150 feet of any documented northern long-eared bat roosts?

    Note: A document with links to Natural Heritage Inventory databases and other state-specific sources of information on the locations of northern long-eared bat roosts is available here. Location information for northern long-eared bat roosts is generally kept in state natural heritage inventory databases – the availability of this data varies by state. Many states provide online access to their data, either directly by providing maps or by providing the opportunity to make a data request. In some cases, to protect those resources, access to the information may be limited.

    Automatically answered
    No

38. Is suitable summer habitat for the northern long-eared bat present within 1000 feet of project activities? If unsure, answer "Yes." **Note:** Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines

    Yes

39. Has a presence/probable absence summer bat survey targeting the northern long-eared bat following the Service's Range-wide Indiana Bat and Northern Long-Eared Bat Survey Guidelines been conducted within the project area?

    No

40. Are any of the trees proposed for cutting or other means of knocking down, bringing down, topping, or trimming suitable for northern long-eared bat roosting (i.e., live trees and/or snags ≥3 inches dbh that have exfoliating bark, cracks, crevices, and/or cavities)? **Note:** Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines.

    Yes

41. Will any tree cutting/trimming or other knocking or bringing down of trees occur during the **Summer Occupancy season** for northern long-eared bats in the action area? **Note:** Bat activity periods for your state can be found in Appendix 2 of the Service's Northern long-eared Bat and Tricolored Bat Voluntary Environmental Review Process for Development Projects.

    No

42. Do you have any documents that you want to include with this submission?

    No

PROJECT QUESTIONNAIRE

Enter the extent of the action area (in acres) from which trees will be removed - round up to the nearest tenth of an acre. For this question, include the entire area where tree removal will take place, even if some live or dead trees will be left standing.

.25

IPAC USER CONTACT INFORMATION

Agency: Environmental Design Partnership, LLP (EDP)
Name: Bailey Godson
Address: 900 Route 146
City: Clifton Park
State: NY
Zip: 12065
Email bgodson@edpllp.com
Phone: 8382514798

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
Phone: (607) 753-9334 Fax: (607) 753-9699
Email Address: fw5es_nyfo@fws.gov

In Reply Refer To: 05/06/2026 18:23:06 UTC
Project Code: 2026-0086469
Project Name: Jerry Smith BESS

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. **Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.**

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
(607) 753-9334

PROJECT SUMMARY

Project Code: 2026-0086469
Project Name: Jerry Smith BESS
Project Type: Battery Energy Storage Systems
Project Description: The client is proposing the construction of a 5 Megawatt Battery Energy Storage System (BESS) south of Jerry Smith Road in the Town of Lansing, Tompkins County, NY. The project area consists of vacant woodlands located on a previously developed parcel of land (solar). The surrounding land use consists of agricultural land, industrial development, residential development, and vacant woodlands.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@42.5938683,-76.56366245682952,14z

Counties: Tompkins County, New York

ENDANGERED SPECIES ACT SPECIES

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: Environmental Design Partnership, LLP (EDP)
Name: Bailey Godson
Address: 900 Route 146
City: Clifton Park
State: NY
Zip: 12065
Email bgodson@edpllp.com
Phone: 8382514798

5/27/26

Jerry Smith, LLC c/o Nexamp

339 Jerry Smith Road

Town of Lansing, NY

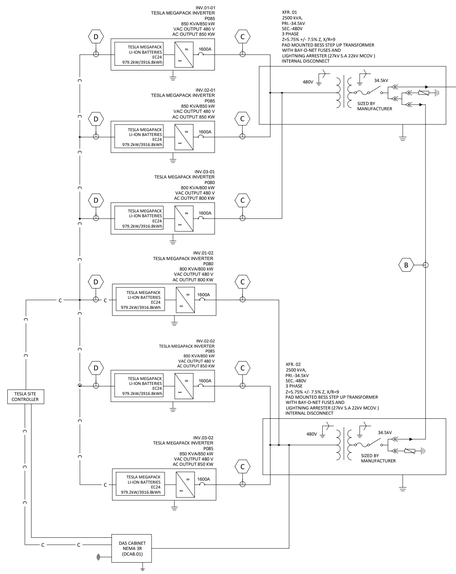
Site lighting

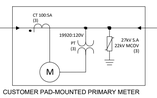
The Applicant is not proposing any site lighting for this project.

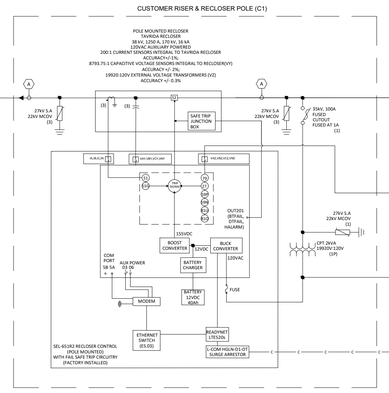
Cable Schedule							
Circuit Id	Voltage Rating	Conductor Quantity, Size and Material	Wire Type	Quantity of Conduits	Size of Conduits	Conduit Type	Notes
A	35kV	(3) #4/0 AWG AL, (1) #4/0 AWG AL N	Covered ACSR	-	-	-	MV Overhead
B	35kV	(3) 350 KCMIL AL Jacketed Concentric Neutral	MV-105	1	5"	PVC	MV Underground XLP/133%
C	480V	5 Sets [(3) 500 KCMIL AL, (1) 500 KCMIL AL G]	XHHW-2	5	3"	PVC	Megapack Output
D	-	(1) CAT6 or (1) Fiber Optic	-	1	1"	PVC	Communications

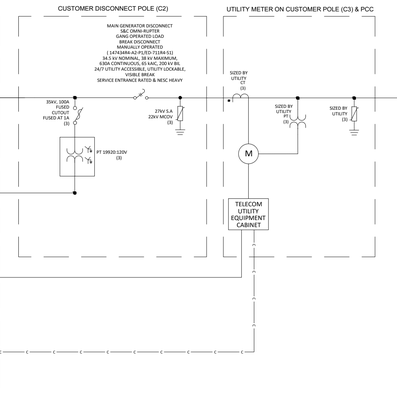
Inverter Protection Settings					
Inverter Protective Function	Enabled	Pickup	Unit	Total Clearing Time Cyc. (Sec.)	Description
27-1	Y	50%	V (L-L)	66 (1.1)	Under Voltage
27-2	Y	88%	V (L-L)	180 (3)	
27-3	N	-	-	-	
59-1	Y	110%	V (L-L)	120 (2)	Over Voltage
59-2	Y	120%	V (L-L)	9.6 (0.16)	
59-I	N	-	-	-	
81U-1	Y	56.5	Hz	9.6 (0.16)	Under Frequency
81U-2	Y	58.5	Hz	18000 (300)	
81O-1	Y	61.2	Hz	18000 (300)	Over Frequency
81O-2	Y	62	Hz	9.6 (0.16)	
79	Y	95%	V (L-L)	18000 (300)	Under Voltage
79	Y	105%	V (L-L)	18000 (300)	Over Voltage
79	Y	59.3	Hz	18000 (300)	Under Frequency
79	Y	60.5	Hz	18000 (300)	Over Frequency
Voltage setting values are L-L					
Settings are based on IEEE-1547 and utility requirements					

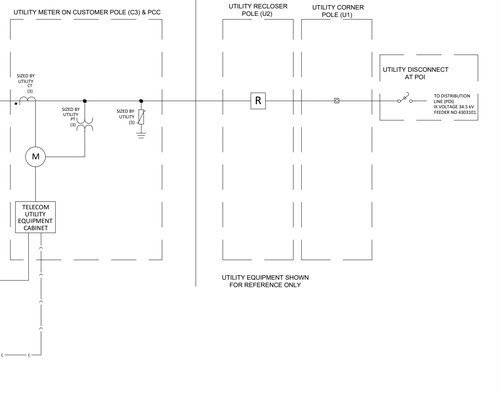
Relay Protection Settings							
Relay Protective Functions	Trip Output	Enabled	Voltage Settings (Sec.) Pri (P.U.)	Frequency Setting (Hz)	Total Clearing Time Cyc. (Sec.)	Current Setting Sec (PRI)	Relay Setting Time Cyc. (Sec.)
27P1 - Fast Undervoltage	X	Y	(60) 9959.3 (50%)	-	66 (1.1)	-	-
27P2 - Undervoltage	X	Y	(105.6) 17528.4 (88%)	-	180 (3)	-	-
27P3 - Undervoltage	-	N	-	-	-	-	-
59P1 - Overvoltage	X	Y	(132) 21910.4 (110%)	-	120 (2)	-	-
59P2 - Fast Overvoltage	X	Y	(144) 23902.3 (120%)	-	9.6 (0.16)	-	-
59N - Neurtral Voltage Displacement	X	Y	(12) 1991.9 (10%)	-	80 (1.33)	-	-
81UP1 - Underfrequency	X	Y	-	56.5	9.6 (0.16)	-	-
81UP2 - Underfrequency	X	Y	-	58.5	18000 (300)	-	-
81OP1 - Overfrequency	X	Y	-	61.2	18000 (300)	-	-
81OP2 - Overfrequency	X	Y	-	62	9.6 (0.16)	-	-
51 - Overcurrent	X	Y	-	-	CURVE: U4 TD: 2.0	0.52 (104.6A)	-
50 - Instantaneous Overcurrent	-	N	-	-		-	-
67 - Directional Overcurrent	-	N	-	-	-	-	-
50G - Instantaneous Ground Overcurrent	-	N	-	-		-	-
51G - Ground Overcurrent	X	Y	-	-	CURVE: U4 TD: 1.0	0.17 (34.9A)	-
79 - Recloser	-	Y	(114) 18922.7 (95%) ≤ V ≤ (126) 20914.5 (105%)	59.3 ≤ f ≤ 60.5	18000 (300)	-	-
32 - Directional Power	-	N	-	-	-	-	-
Alarm	X	Y	-	-	<120	-	-
Primary voltage setting values are L-N							
Time delay shown is total clear time, which includes mechanical operation time of 3 cycles (0.05 sec)							



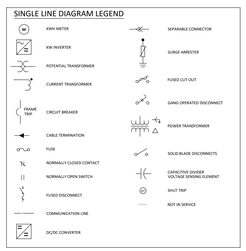








OWNER | NYSEG



GENERAL NOTES:

1. INFORMATION CONTAINED IN THIS DRAWING IS PROPRIETARY AND CONFIDENTIAL BELONGING TO NEXAMP OF BOSTON, MA.
2. USE OF THIS INFORMATION SHALL BE LIMITED TO THE SPECIFIC PROJECT IT WAS DEVELOPED FOR AND SHALL NOT BE REPRODUCED WITHOUT CONSENT FROM NEXAMP, INC.
3. ALL WORK SHALL BE INSTALLED IN A NEAT MANNER AND IN ACCORDANCE WITH THE LATEST VERSION OF THE NATIONAL ELECTRICAL CODE(NEC) AND ALL OTHER LAWS AND STANDARDS.
4. THE CONTRACTOR SHALL ENSURE THAT PHASE CONDUCTORS HAVE ENOUGH SLACK TO BE RELOCATED TO ANY PHASE BUSHING AS NEEDED TO ACCOMMODATE UTILITY PHASE ROTATION.
5. EQUIPMENT ON THE UTILITY-SIDE ARE ASSUMED. ACTUAL EQUIPMENT AND CONFIGURATION SHALL BE VERIFIED BY THE UTILITY. UTILITY'S STANDARDS FOR INTERCONNECTION WILL BE FOLLOWED.
6. ALL SINGLE PHASE DISCONNECTS SHALL BE LEFT CLOSED UNTIL THE GANG OPERATED DISCONNECT SWITCH HAVE BEEN OPENED AND LOCKED OUT.
7. RS-232 COMMUNICATION CABLES SHALL NOT EXCEED 50 FT IN TOTAL LENGTH, INSULATION LEVEL SHALL BE 600V.
8. RS-485 COMMUNICATION CABLES SHALL NOT EXCEED 4000FT IN TOTAL LENGTH.
10. CAT 6 CABLES SHALL NOT EXCEED 300FT IN TOTAL LENGTH DC GEC AND AC EGC SHALL BE IN ACCORDANCE WITH NEC ARTICLE 690.43 AND BE SIZED IN ACCORDANCE WITH 690.45.
11. DC GEC AND AC EGC SHALL BE IN ACCORDANCE WITH NEC ARTICLE 250.4 AND BE SIZED IN ACCORDANCE WITH 250.122. GANG OPERATED DISCONNECT SWITCH SHALL BE OPENED AND LOCKED OUT PRIOR TO ANY WORK INVOLVING EXPOSED ELECTRICAL CIRCUIT PARTS.
12. THE GANG OPERATED DISCONNECT IS A VISIBLE BREAK AND IS ACCESSIBLE TO THE UTILITY 24/7.
13. RECLOSER WILL ONLY BE ALLOWED TO CLOSE WHEN THE VOLTAGE AND FREQUENCY ARE IN COMPLIANCE WITH IEEE 1547 AND ANSI C84.1, TABLE 1. VOLTAGE RANGE 95% TO 105% OF NOMINAL VOLTAGE IS BASED ON LINE TO LINE VOLTAGE, FREQUENCY BETWEEN 59.5Hz TO 60.5Hz
14. 79 FUNCTION IS ONLY ENABLED ON VOLTAGE AND FREQUENCY DISTURBANCES. A 5 MINUTE DELAY FOR THE 79 FUNCTION IS ENABLED ON VOLTAGE AND FREQUENCY DISTURBANCES ONLY. A 5 MINUTE DELAY WILL BE SET FOR RECLOSING UPON GOOD QUALITY VOLTAGE. THE FIVE MINUTE TIME INTERVAL WILL RESTART IF THE UTILITY VOLTAGE OR FREQUENCY FALLS OUTSIDE OF THE WINDOW IDENTIFIED IN NOTE 13. RECLOSER WILL LOCKOUT ON OVERCURRENT OPERATION.
15. RELAY WILL AUTOMATICALLY TRIP AND BLOCK CLOSE IF THERE IS A HARDWARE FAILURE OR POWER SUPPLY FAILURE.
16. THE INVERTERS ARE CAPABLE OF SHUTTING DOWN WITHIN 2 SECONDS IF DE-ENERGIZED.
17. (4) TESLA INTEGRATED PCS P085 (850kW) & (2) TESLA INTEGRATED PCS P080 (800kW) ARE USED AS THE INVERTERS.
18. (8) TESLA MEGAPACK 2XL CO1O 979.2kW (4 HOUR) 3,916.8 kWh ARE USED FOR THE STORAGE.
19. THE SIZE OF THE BESS IS 5,875.2 kW / 23500.8 kWh (4-HOURS).
20. THE OPERATING SIZE OF THE BESS IS 5,000 kW/23,500.8 kWh

Approved
M. Mehboob 09/01/2026

GRIT APPROVAL
Reviewed By: T Altaf
Date: 01/09/2026

NOTE: NOT FOR CONSTRUCTION. FOR UTILITY INTERCONNECTION APPLICATION PURPOSES ONLY.

nexamp
101 Summer Street, 2nd Floor, Boston, MA 02110
Tel: (617) 431-1440 Fax: (978) 416-2525 Web: nexamp.com

Rev	Issued For	Date	Init
A	UIA	12/24/2025	MA
B	UIA	01/02/2026	MA
C	UIA	01/09/2026	MA

P.E. seal/Consultant:

STATE OF NEW YORK
PATRICK THOMAS GANNING
103081
LICENSED PROFESSIONAL ENGINEER
01/11/2026

Project:
133809 - Jerry Smith Storage
Jerry Smith Rd.
Lansing, NY, 14882
42.590659, -76.564286

Drawing Title:
AC Single Line Diagram
Drawn by: M. Ahmed
Scale: N.T.S

Dwg No: E-601
Size: D
Sheet Rev: C

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nexamp

Site-Specific Hazard Mitigation Analysis

Jerry Smith Storage
339 Jerry Smith Rd.,
Lansing, NY 14882

Respondent
Primary Contact:
Eli Shandelman
Product Manager, Energy Storage Solutions
Nexamp, Inc.
101 Summer Street, 2nd Fl
Boston, MA 02110
eshandelman@nexamp.com

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Introduction

On behalf of Jerry Smith Storage, Nexamp has developed a Site-specific Hazard Mitigation Analysis (HMA) for the Lithium-ion Battery Energy Storage System (BESS) sited on 339 Jerry Smith Rd., Lansing, NY 14882. This study includes a comprehensive analysis of hazards and risks associated with the BESS to assess the overall effectiveness of its capability in mitigating various battery failure scenarios.

The HMA consists of this report, a Failure Modes, and Effects Analysis (FMEA) in MS excel format (ref.1), An FMEA is one of several methods of conducting an HMA.

Applicable Codes and Standards

This report and the overall HMA package for the Jerry Smith Storage Energy Storage site was developed in alignment with the following applicable codes:

- 2025 Fire Code of New York State (2025 FCNYS) & 1207 Electrical Energy Storage Systems (ESS)
- New York State Electric Code
- New York State Building Code
- NEC
- NFPA 855 *Standard for the Installation of Stationary Energy Storage,* 2023 Edition
- UL 9540 *Standard for Energy Storage Systems and Equipment, 3rd Edition,* 2023
- UL 9540A *Standard for Test Method for Evaluation Thermal Runaway Fire Propagation in Battery Energy Storage Systems*, 4th edition
- IEC 60812 *Failure Modes and Effects Analysis*
- NFPA 72 *National Fire Alarm and Signaling Code*, 2016 Edition
- UL 1642 *Standard for Lithium Batteries,* 2020 Edition
- UL 1741 *Standard for Inverters, Converters, Controllers and Interconnection System Equipment for Use with Distributed Energy Resources*
- UL 1973 *Standard for Batteries for Use in Stationary, Vehicle Auxiliary Power and Light Electric Rail (LER) Applications*

The Town of Lansing is the Authority Having Jurisdiction (AHJ) and has the responsibility for reviewing and approving BESS siting in Lansing, NY. The Hazard Mitigation Analysis has been requested to comply with the requirements of 2025 FCNYS.

NFPA 855 Section 4.4.2 states that the hazard mitigation analysis shall evaluate the consequences of the following failure modes:

1. A thermal runaway or mechanical failure condition in a single ESS unit
2. Failure of an energy management system or protection system that is not covered by the product-listing failure modes and effects analysis (FMEA)

3. Failure of a required protection system including, but not limited to, ventilation (HVAC), exhaust ventilation, smoke detection, fire detection, fire suppression, or gas detection

NFPA 855 Section 4.4.3 states that the AHJ shall be permitted to approve the hazard mitigation analysis as documentation of the safety of the ESS installation if the consequences of the analysis demonstrate the following:

1. Fires will be contained within unoccupied ESS rooms for the minimum duration of the fire resistance rating specified in Section 9.6.4
    a. *Not applicable, as this is an outdoor system and is a pre-engineered and pre-certified cabinet-style ESS enclosure*
2. Fire and products of combustion will not prevent occupants from evacuating to a safe location
    a. *Not applicable as this is a non-occupied outdoor ESS.*
3. Deflagration hazards will be addressed by an explosion control or other system

Site

The Jerry Smith Storage Battery Energy Storage (BESS) Project consists of a 5 MW / 23.5 MWh (4-hour duration) battery energy storage system. The project is located on the southeast portion of the property at 339 Jerry Smith Rd., Lansing, NY 14882. The project will use advanced lithium-ion battery and control technology that are contained in environmentally rated enclosure ("BESS Unit" or "Tesla Megapack 2XL"). The BESS will consist of Six (6) Tesla Megapack 2XL with associated wiring, cabling, meters, and site controller and data acquisition equipment. The Megapack 2XL will be located at grade on concrete pads and provided site access via a main gate on the northeast side of the site fenced in area. As such, the Megapack 2XL enclosure (the BESS) will be protected from unwarranted access.

Fire department staging and apparatus access is accommodated outside the primary vehicle gate, allowing emergency responders to establish operations without entering the project fence line.

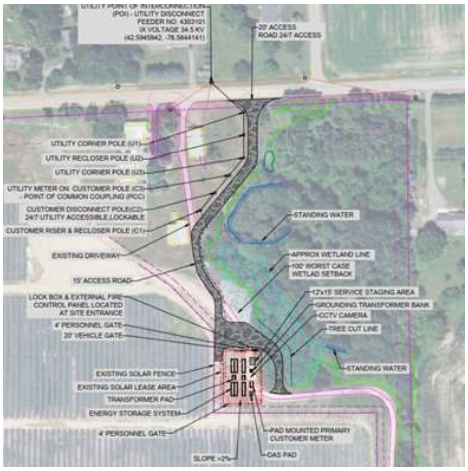

Figure 1 - Site location and layout

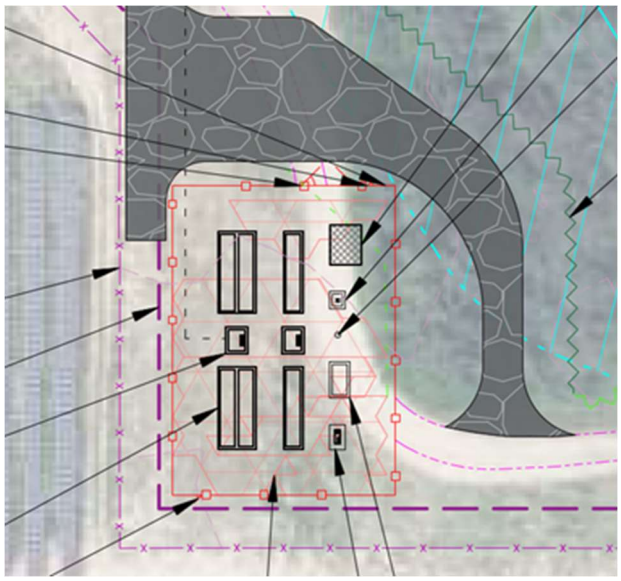

Figure 2 BESS Area - Zoomed In

Nearby Exposures

The site is located with few exposures in the nearby vicinity. Nearby exposures include:

1. Residences to the North and Northwest
    a. Location: ~300 - 600 ft from BESS
    b. Construction: To be identified
2. Existing PV Array to the East, South, and West
    a. Location: ~50 – 500 ft from BESS (portion to the West closes section of PV array)
    b. Construction: Steel and PV modules

Fire Department Access and Water Supply

The nearest fire station (Lansing Fire Department Station 3) is located approximately 2.3 miles from the BESS site (1235 Ridge Road, Lansing, NY 14882).

In the event of an emergency on-site, primary fire department staging should be used. The staging area will be defined upon discussions with Lansing Fire Department

No fire hydrants or permanent water supplies for firefighting operations are noted in the immediate area. Water supply is assumed to be delivered by Lansing Fire Department via the available fire trucks to maintain the surrounding units and exposures cool and moist. It is not recommended to apply lots of water directly to a unit during a thermal event.

Energy Storage System

The BESS consists of six (6) Tesla Megapack 2XL (MP2XL) cabinet-style ESS unit, with a system rating of 979.2 kW/ 3916.8 kWh power and energy capacity, respectively. Each MP2XL unit consists of nine (9) bays, which are designed as follows:

- Eight (8) battery bays – each consisting of three (3) battery modules for a maximum of 24 battery modules
- One (1) bay containing the thermal cabinet and customer interface bay with Battery Management System (BMS).

The MP2XL is a design evolution of Megapack 2 (MP2), which leverages the same core technology platform (cells, vents, sparker system, etc.). Each MP2XL unit contains up to 24 battery modules and has a slightly greater footprint than the MP2 (which contains up to 19 modules), and also uses identical components including batteries, converters, and explosion protection system.

Each battery module is composed of 336 prismatic Lithium-iron-phosphate (LFP) battery cells. The MP2XL is nearly fully populated with battery racks, electrical components, safety systems, and thermal management systems – making it a non-walk-in BESS unit. As such, the MP2XL cannot be physically entered by site personnel, first responders, or members of the public at any time. The MP2XL is secured and can only be accessed with a key or access code.

The MP2XL is equipped with several protective safety system including the BMS, thermal management system, and Tesla site controller (connected to Tesla's and Nexamp's Network Operating Centers), connected to a fire alarm system, and Tesla's proprietary deflagration control system. Each safety system provides an additional layer of protection against different failure modes/conditions attributed to lithium-ion incidents or failures and provides an immense contribution to the overall safety of the MP2XL and the site.

The MP2XL and constituent components are tested and certified to UL 9540, UL 1642, UL 1973, IEC 62619, and IEC 62933-5-2. UL 9540A (4th Edition) large-scale fire testing was performed at the Cell, Module, and Unit level (Installation level testing was not required, as all Unit level performance criteria were met). From the UL 9540A Unit level report by TUV:

> *Based on the limited module propagation observed during MP2 testing (7 cells in runaway) the behavior would be the same with MP2XL. With the increase in volume and sparker count, the deflagration risk is minimized. The testing performed on MP2 is considered harsher with higher gas concentrations, and fundamental engineering analysis for MP2XL shows comparable behavior as worst case.*

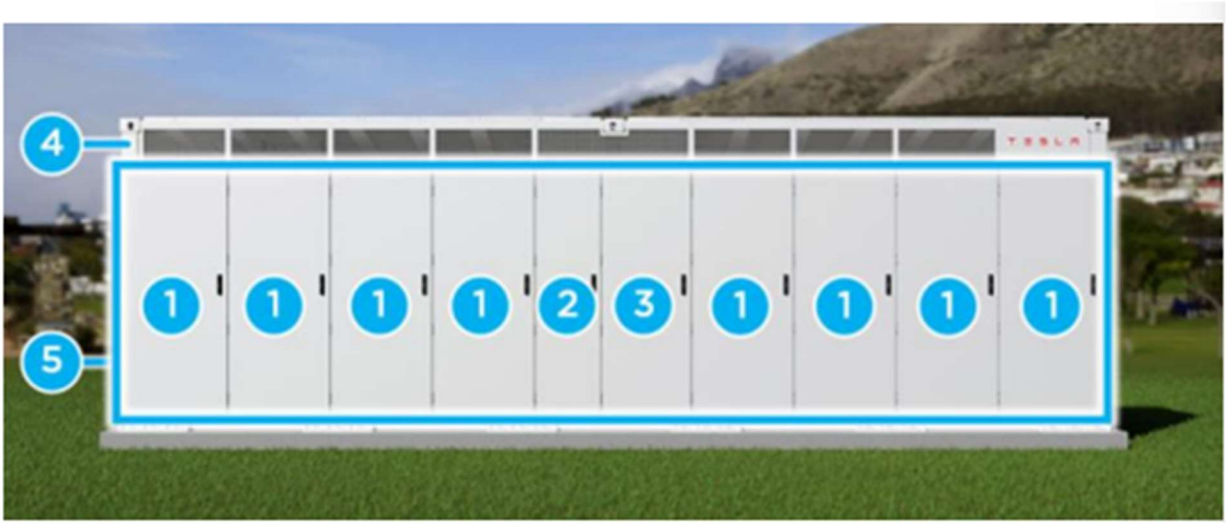

Figure 3 – MP2XL Internal components: (1) Battery Modules Bays, (2) Thermal Cabinet, (3) Customer Interface Bay, (4) IP20 Thermal Roof Enclosure, (5) IP65 enclosure

Tesla Site Controller and Monitoring

Each Tesla MP2XL project includes a Tesla Site Controller where the Site Controller is designed to communicate, monitor, and control all the equipment within the energy storage system. The Site Controller communicates via ethernet connection and built-in cellular modem to communicate on-site and off-site, respectively. Off-site communications are directed toward Nexamp and Tesla's Network Operations Centers (NOC).

Thermal Management System

The thermal management system is a cooling and heating system that is independent of other systems within the MP2XL and consists of a closed loop liquid cooling system that circulates coolant. This coolant is a 50/50 mixture of ethylene glycol and water, and R-134a refrigerant throughout the battery module bays to maintain safe and correct operating temperatures. The BMS allows for battery and ambient temperatures to be monitored. If the temperature within the battery modules exceeds or drops below required temperature range, the BMS will either temporarily or permanently disconnect the battery module or even the MP2XL (depending on the fault condition). The Site Controller provides Tesla and Nexamp control and monitoring of the BMS. An overview of the notifications is provided below:

- Tesla Site Controller provides an alert (Warning or Alarm) to the local operations center and can directly communicate via text alert that the BESS has faulted, and which fault or warning has specifically been triggered
- If the temperatures fall back within the operating limits, the system and/or effected battery module will reintegrate into the system operation and the Tesla Site Controller will communicate this reintegration via text alert that the system warning or fault has been cleared

Battery Management System

The Tesla MP2XL is pre-engineered and delivered with a BMS that is designed and tested to UL standards and industry best practices by the battery manufacturer, Tesla. The BMS is capable and responsible for monitoring the status of numerous system parameters and fault conditions, which includes but is not limited to loss of communications, over/under voltage, over/under temperature, etc. The BMS protects the system by initially isolating the effected battery module and determine if preset systems parameter thresholds have been breached. If system parameter thresholds have been breached, the BMS will permanently disconnect battery module level contactors that will physically disconnect (electrically isolate) the battery modules from the rest of the system. Note that if a BMS disconnect a battery module, it will be required to be manually reengaged and cannot be done remotely.

Fire (flame) Detection Systems

The MP2XL does not have an internal fire detection system.

Coordination of MP2XL control during a fire event and response would be reliant upon trained staff either remotely or on-site as defined by the Emergency Response Plan.

Deflagration Protection

The MP2XL is pre-engineered and delivered with an explosion control system designed to mitigate the risk of uncontrolled deflagration. The explosion control system consists of twenty-six (26) overpressure vents and twelve (12) sparkers/igniters. The sparkers are evenly distributed throughout the MP2XL enclosure and are designed to quickly ignite flammable gases before they become a deflagration hazard. The sparkers will ignite gases as they are generated and then they are vented through the exterior of the MP2XL using the overpressure ventes located at the top of the MP2XL enclosure.

Electrical Fault Protection Devices

Multiple levels of passive and active electrical protections are provided for the MP2XL. At the battery module level, overcurrent protection is provided for each module in the form of single-use fusible links, providing interruption of overcurrent in the battery module in the case of an abnormal electrical event. Inverter modules, which are installed at each of the battery modules, are equipped with both DC protection via high-speed pyrotechnic fuse for passive or active isolation of battery modules, as well as dedicated AC contactor and AC fuses should an abnormal electrical event occur at the inverter module on the AC side of the circuit. Additionally, the MP2XL is equipped with DC ground fault detection system and AC circuit breaker with ground fault trip settings for distribution system protection.

Hazard Mitigation Analysis

As per 2025 FCNYS, one format for an HMA is an FMEA that adheres to IEC 60812 (ref. 3) and UL 9540. As such, IEC 60812 serves as the guide for the FMEA developed for the Jerry Smith Storage project. The FMEA represents a robust set of failure modes associated with the BESS. As such, Nexamp has assessed the failure modes with a numerical scale shown in Figure 4.

Scale	Occurrence	Detection	Severity
1	Remote	Certain	Very Low
2	Low	High	Low
3	Moderate	Medium	Moderate
4	High	Low	High
5	Very High	Impossible	Very High

Figure 4 - Numerical scales for FMEA table

The site-level HMA is built upon the product-specific FMEA developed by the Original Equipment Manufacturer, Tesla. The product-specific FMEA is confidential in nature and cannot be shared without a direct NDA with Tesla. As such, the focus of this report and the HMA package is the site-specific HMA (in the form of an FMEA). The site-specific FMEA develops the product-specific FMEA further to include local hazards and failures specific to this facility such maintenance, vehicular traffic, and nearby exposures.

In leveraging BESS OEM documentation, safety manuals, test data, and industry best practices, Nexamp utilized the following two-staged method to develop Jerry Smith Storage FMEA:

1. Assessing the severity and likelihood of each failure mode without the safeguards in place to identify risk rankings.
2. Assessing the severity, likelihood, and detectability of the same failure modes with safeguards in place to calculate the Risk Priority Number (RPN)
    a. The RPN is a numeric risk assessment that is a result of the product of severity, likelihood, and detectability of a given failure mode. This supports a scale associated with the potential risks of the BESS.

This two-staged approach supports a comprehensive assessment of the effectiveness of the safeguards Tesla (BESS OEM) and Nexamp have incorporated into the Jerry Smith Storage project.

For the site-level HMA, Nexamp defined low, medium, and high-risk rankings for the failure modes based on corresponding risk priority number (RPN) that are inclusive of safeguard considerations. The RPN designations are as follows:

- Low risk if RPN <12
- Medium risk if 12 ≤ RPN < 25
- High risk if RPN ≥ 25

UL 9540A Testing

The Tesla MP2XL has been tested to UL 9540A 4th edition at the cell, module, and unit levels. The UL 9540A test was conducted by TUV Rhineland a well-reputable and certified Nationally Recognized Testing Laboratory (NRTL). The UL 9540A results are summarized in a separate report commissioned by Tesla and an independent consultant. Through unit level testing determined to be conducted in accordance with the UL 9540A testing standard where thermal runaway was initiated in a single module located towards the bottom of the rack. This location was selected as it was determined to be the best location to analyze both vertical and horizontal thermal runaway propagation. For the test, both BMS and thermal management system were disabled as to not interfere with the results of the test (which the test standard requires).

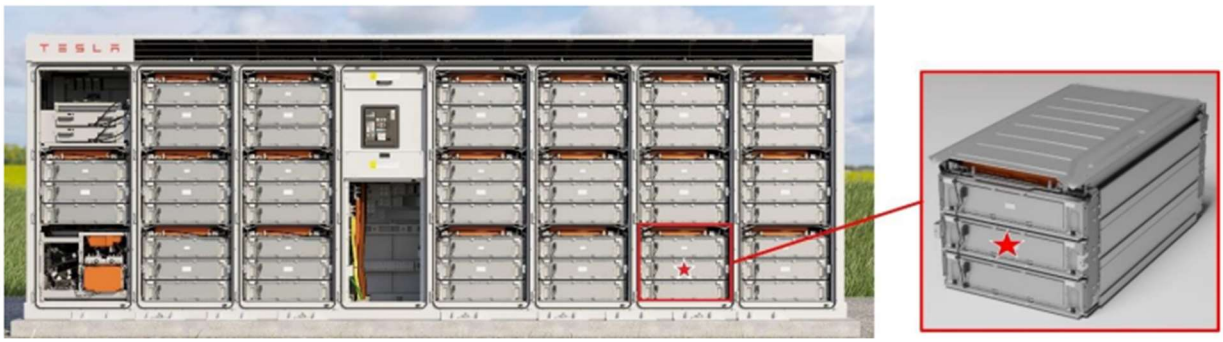

Figure 5 - UL 9540A Unit Level Test, Initiation location

Thermocouples were placed across several areas of the battery module, battery cells, and enclosure, an instrumented wall, and other M2XL units. In addition, heat flux sensors were installed at several distances ranging from 3-30ft. The test set up is displayed in Figure 6.

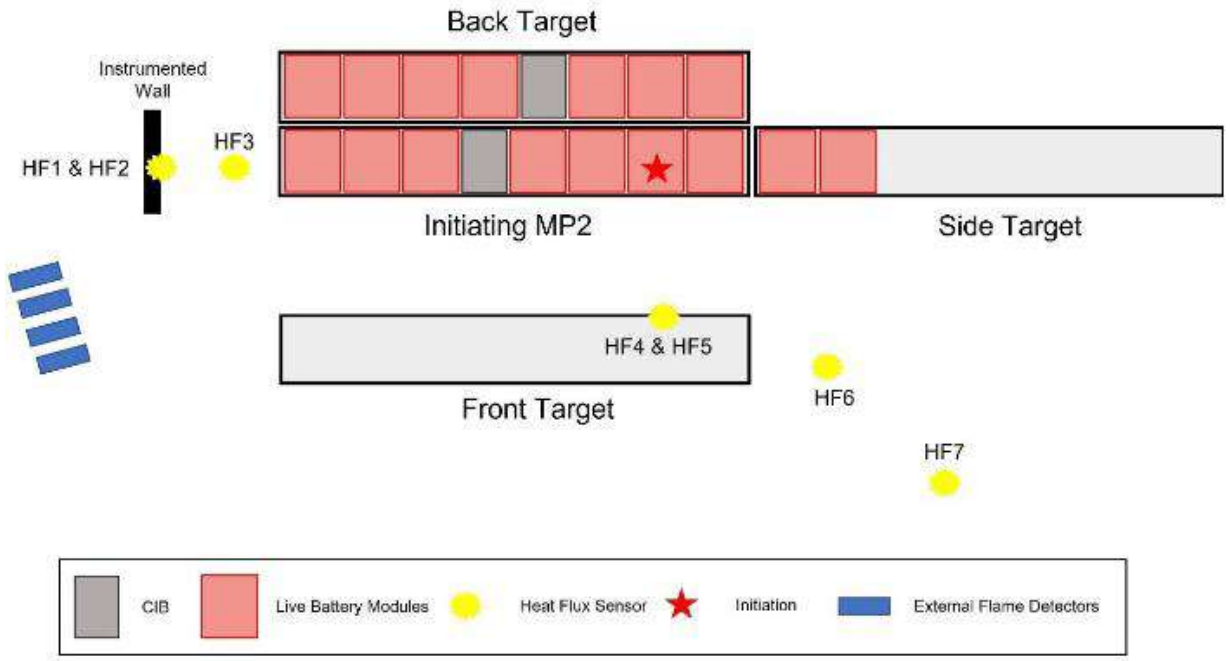

Figure 6 - UL 9540A Unit Level Test, Test Arrangement

Upon heating of the initiating battery cell, thermal runaway was achieved at a temperature of 462°F at 78 minutes into the test. A second cell entered thermal runaway at 93 minutes into the test (15 minutes after the first). Cell venting was observed at the 99-minute mark of the test.

During testing, thermal runaway did not propagate through the initiating module and no significant temperature was observed in adjacent modules. In addition, no external flaming, flying debris, re-ignitions, or explosions were observed during the test. The maximum unit temperature was measured at 9.9 °F over ambient conditions. The maximum heat flux at the target wall was measured at 0.0 kW/m^2. Lastly, light smoking or off-gassing was observed, with no free-flowing electrolyte leakage or runoff observed as well.

Failure Mode and Effects Analysis (FMEA)

Per 2025 FCNYS Section 1207.1.6, the analysis shall evaluate the consequences of the following failure modes and others deemed necessary by the AHJ:

1. A thermal runaway or mechanical failure condition in a single ESS unit
2. A mechanical failure of a nonelectrochemical ESS unit (not applicable)
3. Failure of any battery (energy) management system or fire protection system within the ESS equipment that is not covered by the product listing failure mode effects analysis (FMEA)
4. Failure of any required protection system external to the ESS, including but not limited to ventilation (HVAC), exhaust ventilation, smoke detection, fire detection, gas detection or fire suppression system

For this analysis, Nexamp has considered only a single failure mode at a time. The following table provides a summary of the HMA findings, with each failure mode prescribed by NFPA 855 and FCNYS assessed in the site-level FMEA:

Table 1 - NFPA 855 and FCNYS HMA Failure Modes

Compliance Requirement	Nexamp Assessment
1. A thermal runaway condition in a single electrochemical ESS unit	A number of passive and active measures are implemented to reduce the potential of a thermal runaway event from occurring including BMS control and active cooling to internal components. Battery modules and cells have been listed to UL 1973 and UL 1642. Should a thermal runaway event occur, additional mitigative measures are provided to prevent further propagation of failure throughout the system.
2. A mechanical failure of a nonelectrochemical ESS unit	Not applicable, as the Tesla MP2XL is an electrochemical ESS unit.
3. Failure of any battery (energy) management system or fire protection system within the ESS equipment that is not covered by the product listing failure more effects analysis (FMEA).	In the event of a failure of module-level BMS, the Megapack-level BMS (which may be considered the Energy Management System (EMS) or Energy Storage Management System (ESMS)) shall isolate effected modules, mitigating against further propagation of failure across the system. Should a failure of the Megapack-level BMS occur, each module is equipped with a dedicated BMS to provide corrective actions in case of detection of abnormal operation outside of set parameters. To further isolate any failure stemming from a failure of the energy storage management system, passive and active electrical fault protections are provided at multiple levels, as described in respective sections of this report. The Tesla BMS and Site Controller alongside Nexamp's EMS and NOC, provide active monitoring of temperature, voltage, current, and other parameters. The BMS and Site Controller will take corrective action to isolate failures. In addition, several layers of

	electrical protections are included in the MP2XL and at the site-level. Should failure of an energy management system result in a thermal runaway event, a number of mitigative barriers are in place to prevent further propagation of failure.
4. Failure of any required protection system external to the ESS, including but not limited to ventilation (HVAC), exhaust ventilation, smoke detection, fire detection, gas detection, or fire suppression system.	**Failure of Exhaust Ventilation System** Not applicable, as the Megapack 2 XL does not utilize an exhaust ventilation system, instead using sparker system and overpressure vents for explosion control. **Failure of Smoke, Fire, or Gas Detection System** The Tesla Megapack 2 XL does not utilize smoke or gas detectors, instead opting for external IR detection for fire detection. Should IR detection systems fail, it is anticipated that BMS fault notifications shall be transmitted to remote 24/7 Network Operations Center (NOC), alerting system owner to abnormal conditions. Data from the BMS may be communicated to project SMEs to provide guidance to the fire department in case of emergency. **Failure of Fire Suppression System** The Megapack 2 XL does not utilize fire suppression (either water-based or non-water-based), instead using sparker system to burn off-gasses before an explosive condition is allowed to accumulate within the enclosure. Furthermore, UL 9540A Unit level testing indicates that no flaming occurred and that no propagation of heat from the initiating unit to adjacent units / modules reached levels capable of initiating cell venting or thermal runaway.

The subsections below provide an overview of the assessment of each of the failure modes includes in Table 1. The site-level FMEA attachment of the HMA package provides greater detail in the form of an FMEA all major failure modes noted above and the mitigations implemented to reduce the potential propagation of a failure or hazard. Please refer to the site-level FMEA for a more comprehensive overview of these failure modes.

Failure mode -1: A thermal runaway condition in a single electrochemical ESS unit

Thermal Runaway is defined as follows by NFPA 855:

> "The condition when an electrochemical cell increases its temperature through self-heating in an uncontrollable fashion and progresses when the cell's heat generation is at a higher rate than it can dissipate, potentially leading to off-gassing, fire, or explosion"

The MP2XL incorporated multiple layers of safety protections to reduce the overall potential for thermal runaway as well as limit the spread of thermal runaway across adjacent battery cells and/or modules. The battery cells have been listed to UL 1642 and tested to UL9540A. The battery modules and racks have been listed to UL 1973 and tested to UL 9540A. The MP2XL has been listed to UL 9540 and tested to UL 9540A.

In the event of thermal runaway propagated from a single cell, several barriers are in place to limit the spread of heat, off-gas accumulation, fire spread, or other hazards. The BMS and other communications and controls systems transmit information that could indicate a potential thermal runaway allowing for the MP2XL controls or system operators to attempt to prevent the thermal runaway failure entirely. The information relayed through the Site Controller can be accessed by site-personnel and remote operators 24/7.

The consequence of accumulation of flammable gases from a thermal runaway failure is addressed by the Tesla MP2XL effectively doing the following:

1. Preventing the accumulation of flammable gases with the sparker system
2. Safely exhausting the products of combustion through overpressure vents that are on the top of the MP2XL

The fire department is expected to respond during a BESS thermal runaway incident. The fire department will be trained to respond to the hazard and will have an Emergency Response Plan that is developed well before the construction and operation of the BESS. The Emergency Response Plan will be reviewed annually, and regular training will be provided by the BESS owner.

Mechanical failure conditions can be both caused by internal and external factors. The Tesla Megapack 2XL has several mitigations to mechanical failures such as impact

protection. The MP2XL enclosure is IK09 impact rated, and the site is designed with a site boundary wall (sound barrier) and bollards to further prevent impact protection.

The MP2XL can detect Thermal Management System mechanical failures such as coolant leaks or blockages and has passive containment areas for coolant. The BMS and site controller will trigger an alarm and notify Nexamp/Tesla of the need for repair/replacement.

Unauthorized access and vandalism are prevented by the site fence line. Access is restricted by a locked gate in which only authorized personnel and first responders are allowed to access.

Mechanical failure caused by misuse or mishandling is mitigated by robust training and focus to adhering to the manufacturer's O&M manuals. Furthermore, only certified personnel can partake in O&M activities. Similarly, so for installation, commissioning, and decommissioning.

Failure mode -2: Failure of any battery (energy) management system or fire protection system within the ESS equipment that is not covered by the product listing failure more effects analysis (FMEA).

The Tesla MP2XL is pre-engineered and equipped with module, rack, and system level BMS functionality alongside the Tesla Site Controller, both of which provide robust monitoring and control of the MP2XL. Upon detection of any temperature, voltage, or current measurements beyond the manufacturer's predefined setpoints, protective corrective action will be initiated by both the Site Controller and BMS. This continuous monitoring and control ensure that abnormal conditions are prevented and if they occur, they are prevented from cascading throughout the system.

The Site Controller sends a text alert that system has a warning or that it has reached a fault condition. These notifications will be sent to Tesla and Nexamp directly. Nexamp will communicate these conditions to the Moyers Corners Fire Department.

Failure mode -3: Failure of any required protection system external to the ESS, including but not limited to ventilation (HVAC), exhaust ventilation, smoke detection, fire detection, gas detection, or fire suppression system.

The explosion/deflagration protection system is designed with redundancies such that not all sparkers and/or overpressure vents are required, and the failure of a portion of the sparkers or overpressure vents will not impact the overall performance of the combined safety system. This is due to the protection system being overdesigned as to avoid the worst-case scenario. If all sparkers fail, the overpressure vents are sized accordingly to relieve all potential overpressure from the accumulated gases within MP2XL.

Per NFPA 855 Section 4.4.3 and FCNYS states that the AHJ shall be permitted to approve the hazard mitigation analysis as documentation of the safety of the ESS installation if the consequences of the analysis demonstrate the following:

1. Fires will be contained within unoccupied ESS rooms for the minimum duration of the fire resistance rating specified in Section 9.6.4
2. Fire and products of combustion will not prevent occupants from evacuating to a safe location
3. Deflagration hazards will be addressed by an explosion control or other system

Analysis Approval

Per FCNYS Section 1207.1.6.2, the AHJ shall be permitted to approve the hazard mitigation analysis as documentation of the safety of the ESS installation if the consequences of the analysis demonstrate the following:

1. Fires will be contained within unoccupied ESS rooms or areas for the minimum duration of the fire-resistance-rated separates identified in Section 1207.7.4.
2. Fires involving the ESS will allow occupants or the general public to evacuate to a safe location
3. Deflagration hazards will be addressed by an explosion control or other system

Table 2 provides an evaluation of consequences of all failure modes required by FCNYS Section 1207.1.6.2.

Table 2 - FCNYS Analysis Approval

Compliance Requirement	Nexamp Assessment
1. Fires will be contained within unoccupied ESS rooms for the minimum duration of the fire resistance rating specified in Section 9.6.4	**Not applicable.** The Megapack 2 XL is intended for outdoor ground-mounted installations only and shall not be installed within any ESS rooms or structures
2. Fires and products of combustion will not prevent occupants from evacuating to a safe location	**Compliant.** The facility shall not be occupied except for maintenance purposes. However, in the event of a failure during maintenance, hazardous conditions are anticipated to be detected by the Megapack BMS. Additionally, voluntary testing and third-party analysis performed on products of combustion from the Megapack 2/XL at locations 20 ft and 5 ft conclude no traces of Mercury or 27 different

	metals tested for. HF was detected at values of 0.10 and 0.12 ppm over the course of the test – far below accepted NIOSH Immediately Dangerous to Life or Health (IDLH) value of 30 ppm for HF.
3. Deflagration hazards will be addressed by an explosion control or other system	**Compliant.** The Megapack 2 XL is equipped with deflagration protection in the form of pressure sensitive vents and sparker system designed to ignite any flammable gases and release in a controlled manner before they are allowed to accumulate and create an explosive atmosphere within the enclosure.

Site-Specific Exposure Assessment

To understand whether the product HMA aligns with the site-level HMA, an exposure assessment stemming from the product to external exposures must be conducted. This is performed through a comprehensive analysis of testing reports and independent review of the technology and its test results.

Tesla has commissioned several technical assessments, tests, and analyses on its MP2XL product through independent engineers and NRTLs. In the Megapack 2XL Fire Protection Engineering Report a detailed analysis of the MP2XL's UL 9540A test results is provided. In this analysis, it was demonstrated that at no point during the UL 9540A test did the heat flux generated from the thermal runaway event exceed 1.3 kW/m^2, which is a performance criteria of the UL 9540A test.

Following the UL 9540A test, Tesla conducted additional product testing and fire modeling for the MP2XL. This consisted of destructive testing that exceeded the requirements of UL 9540A and subsequently required for the UL 9540 listing (which the MP2XL is listed to). The test was performed on a fully populated MP2XL. Using the results from this test, Tesla generated a heat flux model that provided the maximum predicted heat flux at various targets, located at various distances. Figure 7 details the results of heat flux modeling.

Radiation Emitting From	Condition	Target Location and Distance		Maximum Predicted Heat Flux (W/m²)
MP2/2XL Cabinet (hot surface)	With or Without Wind	Back and Side Targets	6 in	5,125
			18 in	4,400
			3 ft	3,650
			4 ft	3,175
			8 ft	2,900
Flames: Front of the MP2/2XL Cabinet	No wind (vertical flames)	Front Target	8 ft	8,500
Flames: Front of the MP2/2XL Cabinet	Worst-case wind (45° tilted flames)		8 ft	11,765
Flames: Top of the MP2/2XL Cabinet	Worst-case wind (45° tilted flames)	Back and Side Targets	6 in	12,828

Figure 7 - Tesla Destructive Testing Heat Flux Results

Furthermore, the model was used to predict heat flux targets at distances of 8, 10, 20, 50, and 100 feet. This is further shown in Figure 8. The model demonstrates that the maximum heat flux at 20 feet is approximately 3 kW/m^2, at 50 feet is approximately 0.5 kW/m^2, and at 100 feet is less than 0.25 kW/m^2.

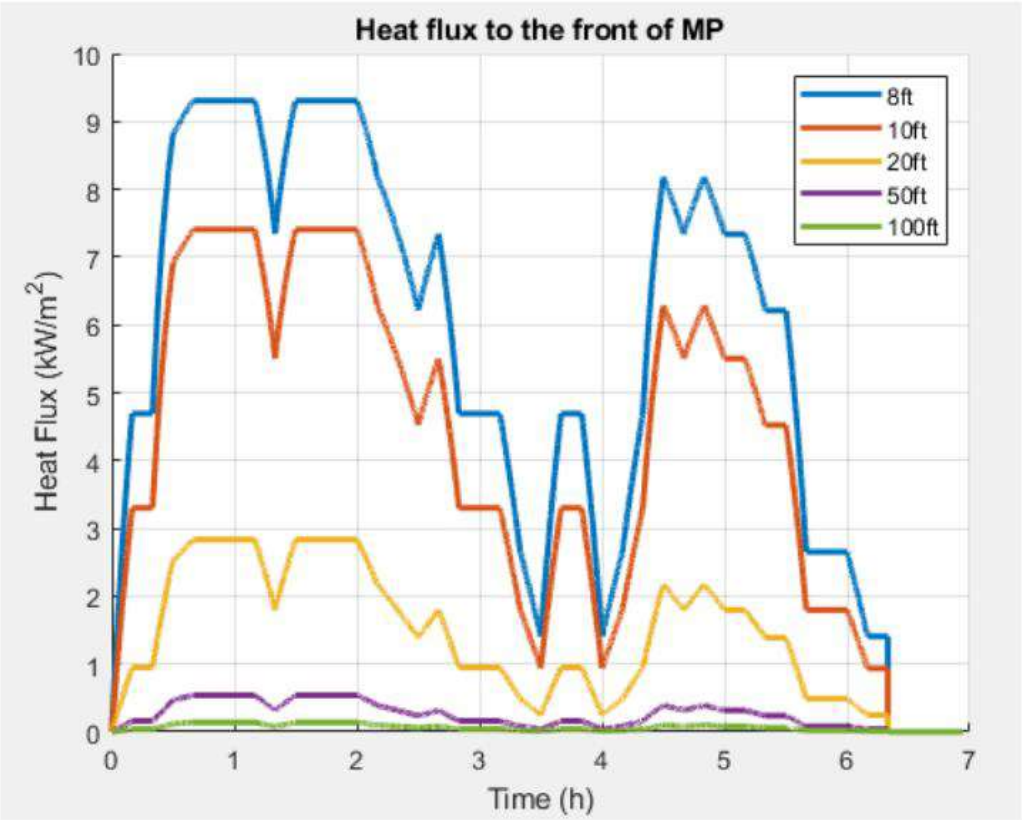

Figure 8 - Tesla Destructive Testing Heat Flux Model Prediction

Exposure Analysis

An impact of all exposures within 100 feet was assessed by Nexamp. Where exposures are negatively impacted, Nexamp is required to implement mitigation measures. Note that the analysis is based on predicted heat flux exposure to the subject locations based on the data provided through Tesla. Exposures are defined in Section 9.6.2.7.1 of NFPA 855 (2026 edition) as follows:

- Lot lines
- Public ways
- Buildings
- Stored combustible materials
- Hazardous materials
- High-piled stock
- Other exposure hazards not associated with electrical grid infrastructure

In the previous Nearby Exposures section of this document, Nexamp has identified residences and the PV array as primary site exposures. As noted earlier, the residences are approximately 300 – 600 feet from the BESS; therefore, significantly reducing heat flux risk according to data provided through Tesla. The PV array, approximately 50 feet from the BESS, as well as certain other site exposures, were analyzed as potential hazards in Nexamp's FMEA. These include, but are not limited to, vegetative/brush fire and BESS noise. Please refer to the MS Excel FMEA provided as a separate document (Ref. 1).

In assessing the site layout, it is evident that heat flux risk minimal at any point of the 100-foot radius with the heat flux anticipated to be at 0.25 kW/m^2. The exposures within a 100ft radius of the BESS include adjacent equipment associated with the BESS. Using the predicted heat flux at those distances it is anticipated that both exposures would be subject to less than 0.5 kW/m^2. It should be noted that 1 kW/m^2 is the equivalent of the nominal solar constant on a clear summer day. In treating the fire as additive to the solar exposure, conservatively the heat exposure would be less than 1.5 kW/m^2. However, at a heat flux of less than 1.5 kW/m^2 the risk is deemed to be low.

References

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7. Megapack 2XL Operation and Maintenance Manual. Tesla. Revision 11.13.2025
8. Megapack 2XL System Specification. Tesla. Revision 11.19.2025
9. Megapack 2XL Design and Installation Manual. Tesla. Revision 11.13.2025
10. Megapack 2XL Transportation and Storage Guidelines. Tesla Revision 11.13.2025

Failure mode #	Potential Hazard	Description	Assembly
1	Thermal Runaway condition	propagating cell failure leading to off-gassing or fire	Megapack Battery Module Battery Tray/Cell

2	Failure of Energy Management System	inoperable site controller	Tesla Site Controller

3	Cell/Module combustion	Combustion leading to fire spread beyond containment	Megapack Battery Module Battery Tray/Cell

4	Cell/Module off-gassing leading to an explosion	explosion or deflagration caused by an accumulation of flammable gases	Megapack Battery Module Battery Tray/Cell

5	Battery cell failure leading to external fire	battery cells cause the balance of system to catch on fire	Megapack Battery Module Battery Tray/Cell BOS

6	Environmental hazard	nearby exposures are subject to a hazard scenario	Megapack Battery Module Battery Tray/Cell BOS Entire site

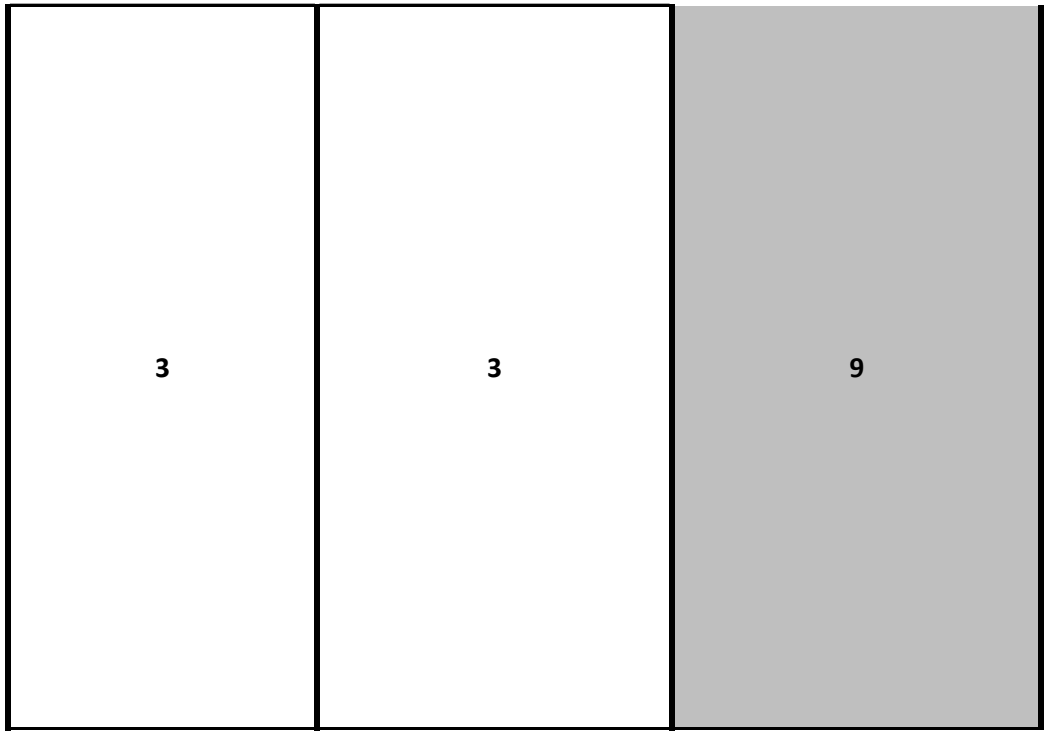
7	Battery module BMS Failure	Battery module communication loss that prevents monitoring and control of the BESS	Megapack Battery Module Battery Tray/Cell
8	Megapack 2XL BMS failure	Megapack 2XL communication loss that prevents monitoring and control of the BESS	Megapack Battery Module Battery Tray/Cell

9	Site Controller/BoP/ PLC Failure	Site controller communication loss or failure preventing the BMS from working with the EMS	Site controller BOS

10	Failure of ventilation or exhaust system	Failure of explosion/deflagration control	Thermal roof Overpressure vents Sparkers
11	Mechanical Failure Condition	Impact to BESS by external force (i.e. vehicle)	Megapack Site wall boundary

12	Mechanical Failure Condition	Cooling system failure (i.e., pump/fan breakdown, coolant leakage, etc.)	Megapack Thermal management system
13	Mechanical Failure Condition	Structural failure (i.e. seismic events)	Megapack Concrete equipment pads
14	Mechanical Failure Condition	Handling and maintenance errors	Megapack BESS area
15	PV Array	Fire or electrical fault originating in the PV array spreads toward the BESS area, causing external heat exposure and/or access obstruction	PV Array (steel foundation) DC collection Inverters
16	Vegetative / Brush Fire	Vegetation or brush fire spreads into the project area, increasing radiant heat exposure and potentially impeding responder access	Site perimter BESS area
17	BESS Noise (Operational / Abnormal Event)	Operational or abnormal equipment noise (HVAC/fans, inverters, alarms, sparker activation) causing nuisance complaints or misinterpretation as an emergency	BESS area Site boundary

Without safeguards: Severity [1 = Very low, 5 = Very high]	Without safeguards: Likelihood of Occurrence [1 = Remote, 5 = Very high]	Without safeguards: Risk Ranking
4	4	16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3
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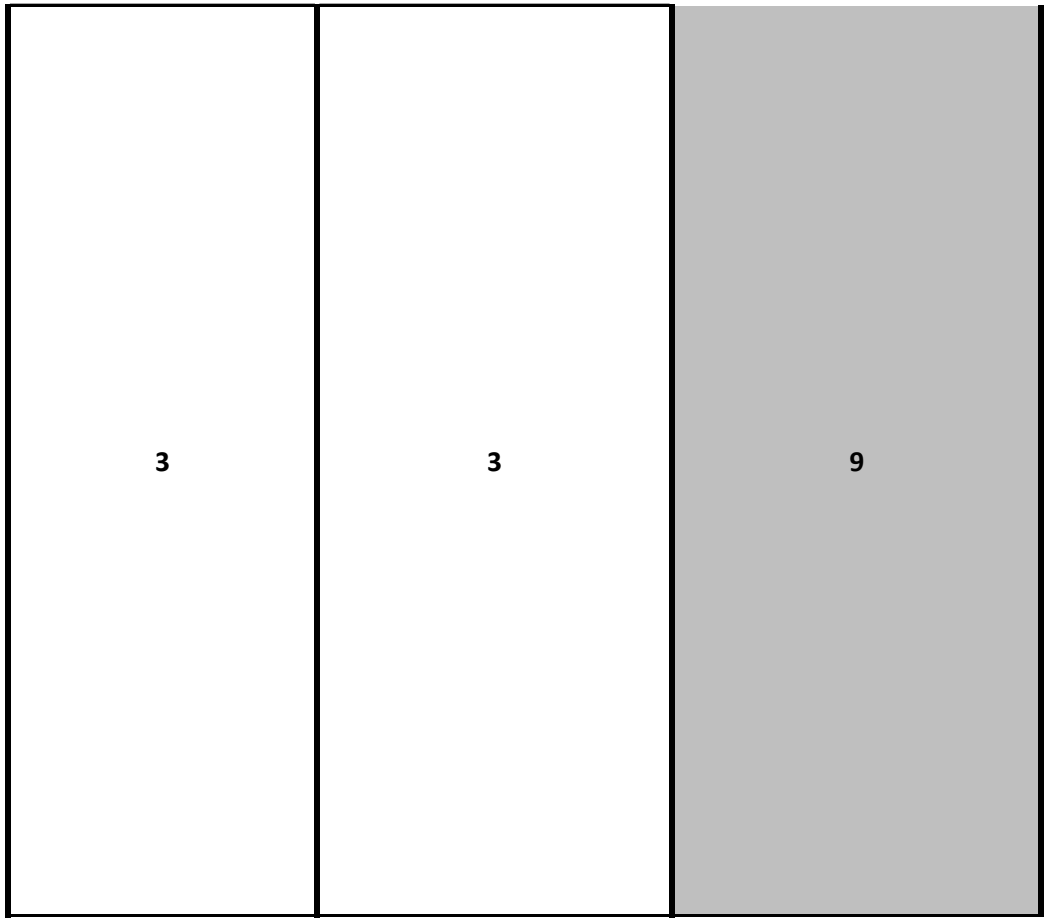
4	**3**	**12**

5	**3**	**15**

4	**3**	**12**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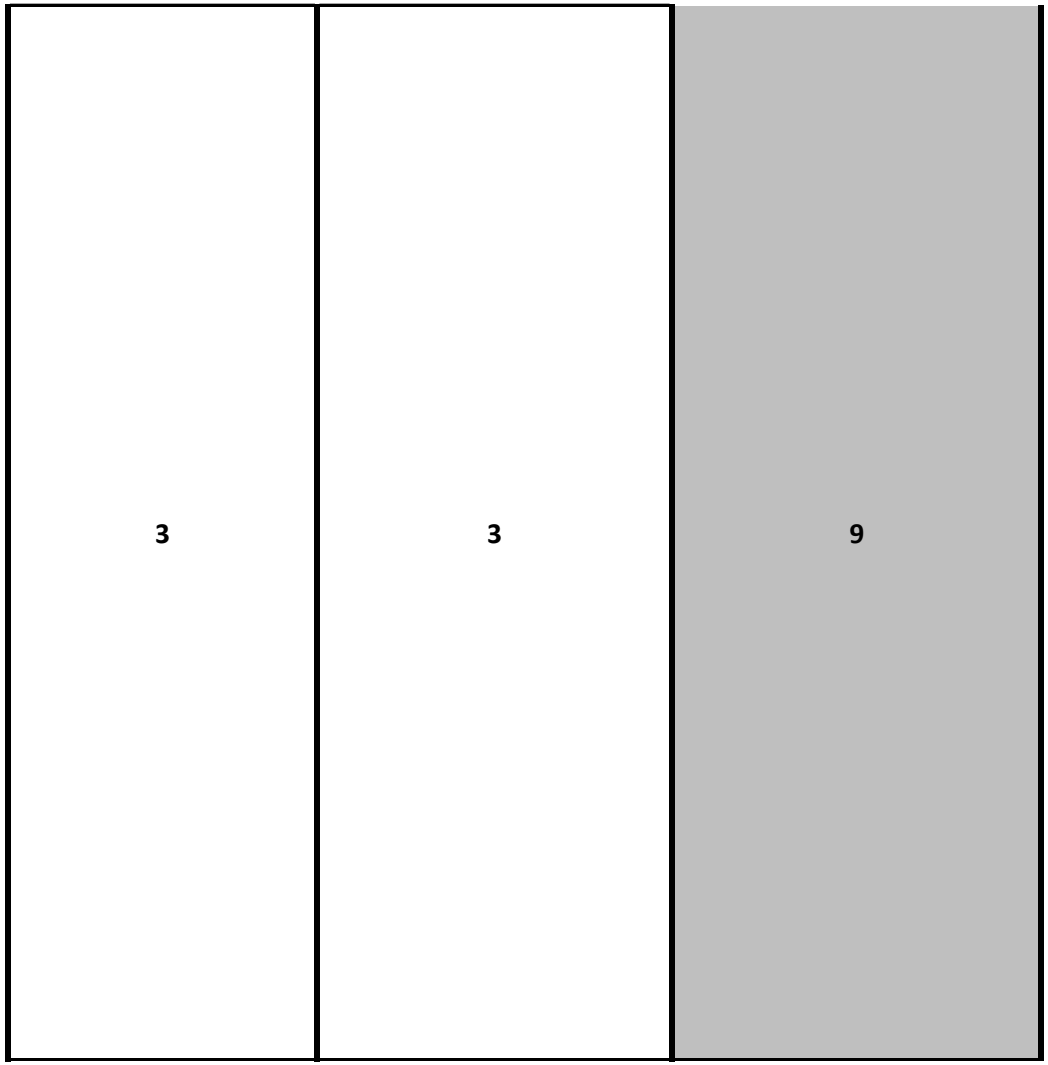
2	**3**	**6**
3	**3**	**9**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4	**3**	**12**
5	**3**	**15**

4	3	12
3	2	6
4	3	12
4	3	12
4	2	8
1	5	5

Prevention (Layer 1)
(Firmware / Resettable Hardware / Design prevention)

1. Battery Management System: The Tesla BMS for The MP2XL actively monitors the battery cells, modules, and unit to provide protective actions against a full-spectrum of failures and ultimately reduce the likelihood and severity of a thermal runaway condition.

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2. Network Operations Center (NOC): The Tesla BMS and Site Controller communicate via network operations center for both Tesla and Nexamp to provide 24/7 data on the BESS.

1. Battery Management System: The Tesla BMS for The MP2XL actively monitors the battery cells, modules, and unit to provide protective actions against a full-spectrum of failures and ultimately reduce the likelihood and severity of a thermal runaway condition.

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1. Battery Management System: The Tesla BMS for The MP2XL actively monitors the battery cells, modules, and unit to provide protective actions against a full-spectrum of failures and ultimately reduce the likelihood and severity of a thermal runaway condition.

2. Network Operations Center (NOC): The Tesla BMS and Site Controller communicate via network operations center for both Tesla and Nexamp to provide 24/7 data on the BESS.

1. Megapack 2XL BMS: The Site Controller and EMS that monitors and supervises all module-level BMS functions . It will provide an isolation condition in the event of BMS failure as to prevent a potential failure mode from cascading.	
1. Module-level BMS: The module level BMS will trigger an isolation in the event of an EMS failure as to prevent a potential failure mode from cascading.	

1. Megapack 2XL BMS: The MP2XL BMS monitors and supervises all the modules at the AC side and will provide an isolation in the event site controller failure.

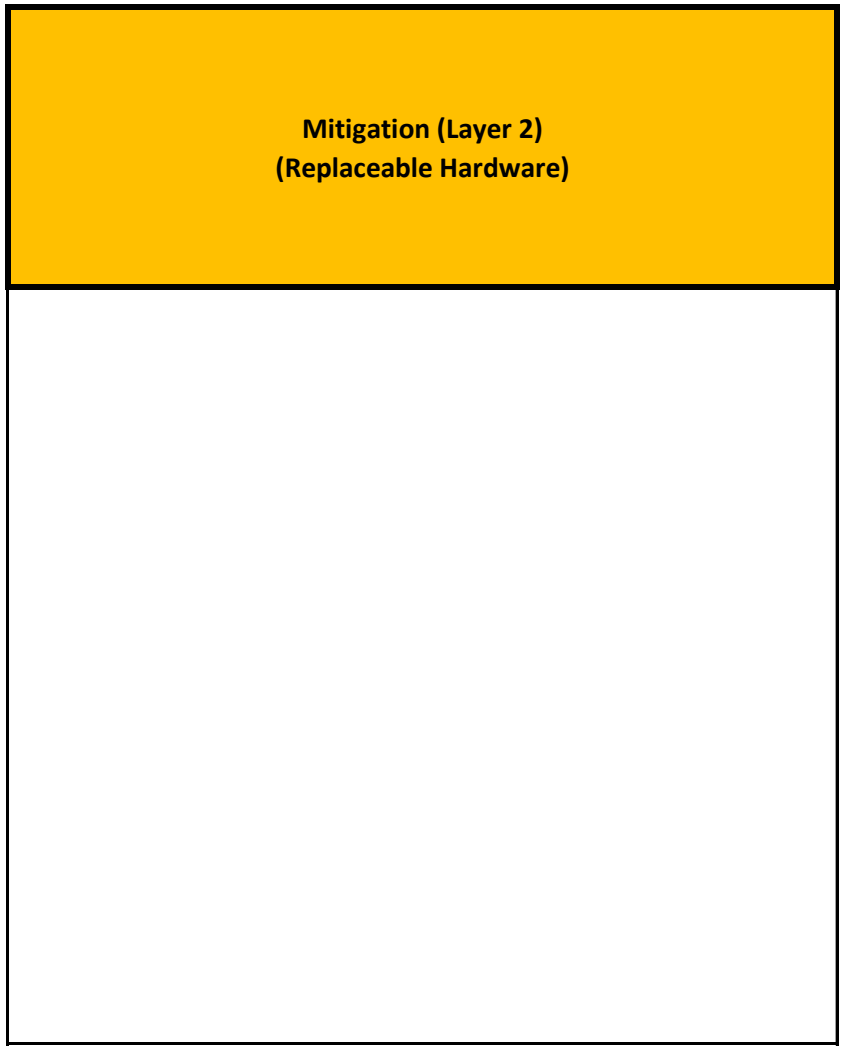
2. Module BMS: The MP2XL module-level BMS will enact an isolation measure upon the failure of the EMS/Site controller

1. Battery Management System: The Tesla BMS for The MP2XL actively monitors the battery cells, modules, and unit to provide protective actions against a full-spectrum of failures and ultimately reduce the likelihood and severity of a thermal runaway condition.

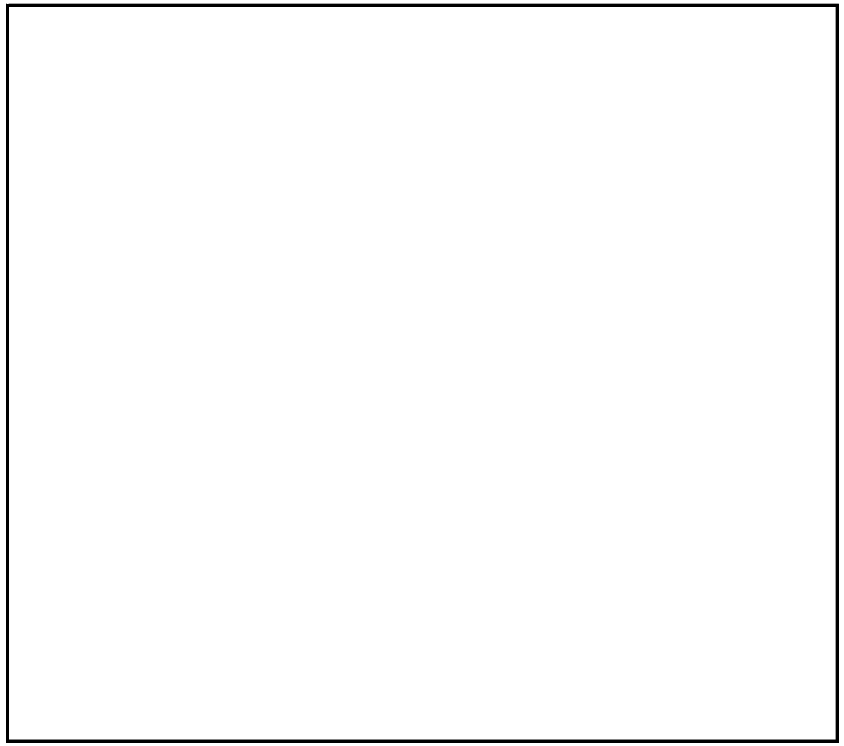
2. Network Operations Center (NOC): The Tesla BMS and Site Controller communicate via network operations center for both Tesla and Nexamp to provide 24/7 data on the BESS.

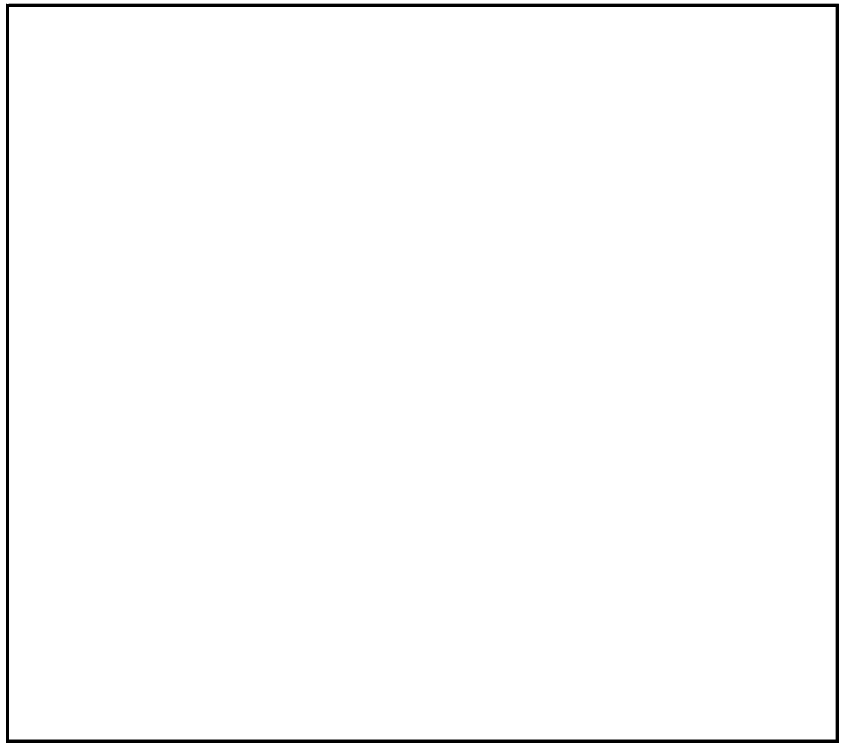
Site boundary wall (sound barrier)
Bollards

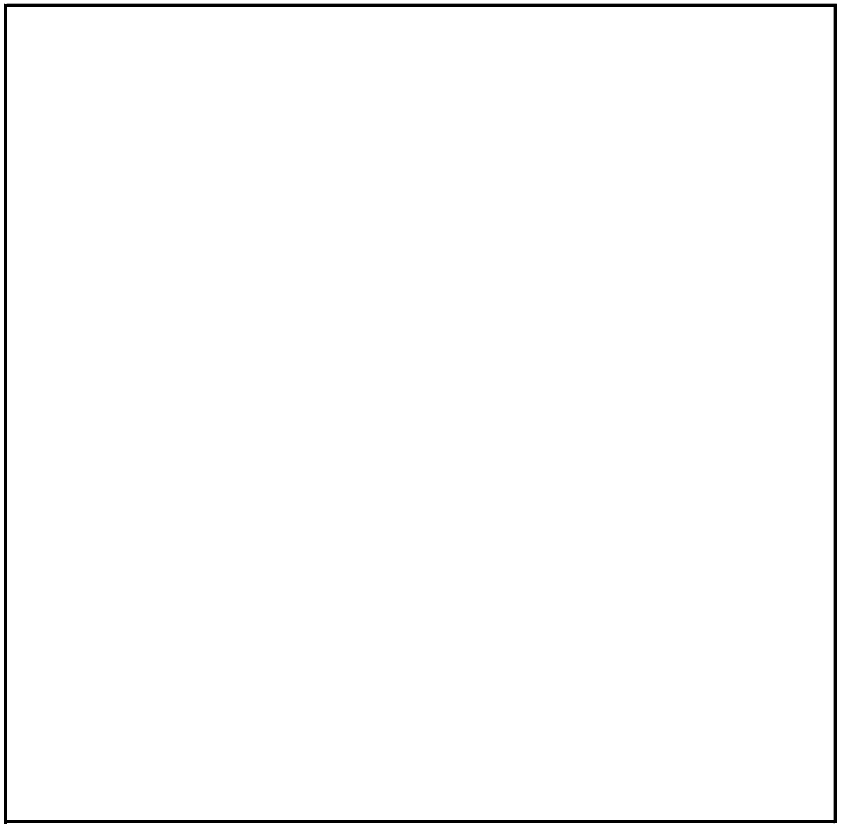
- Firmware detection of low coolant
IBC seismic rating for civil engineering
O&M Manual Training Certified personnel
PV system designed to NEC requirements including rapid shutdown and arc fault protection
Routine vegetation management and defensible space maintenance Code compliant setbacks and gravel covered areas
Noise Study Site distance O&M Manual Training Certified personnel

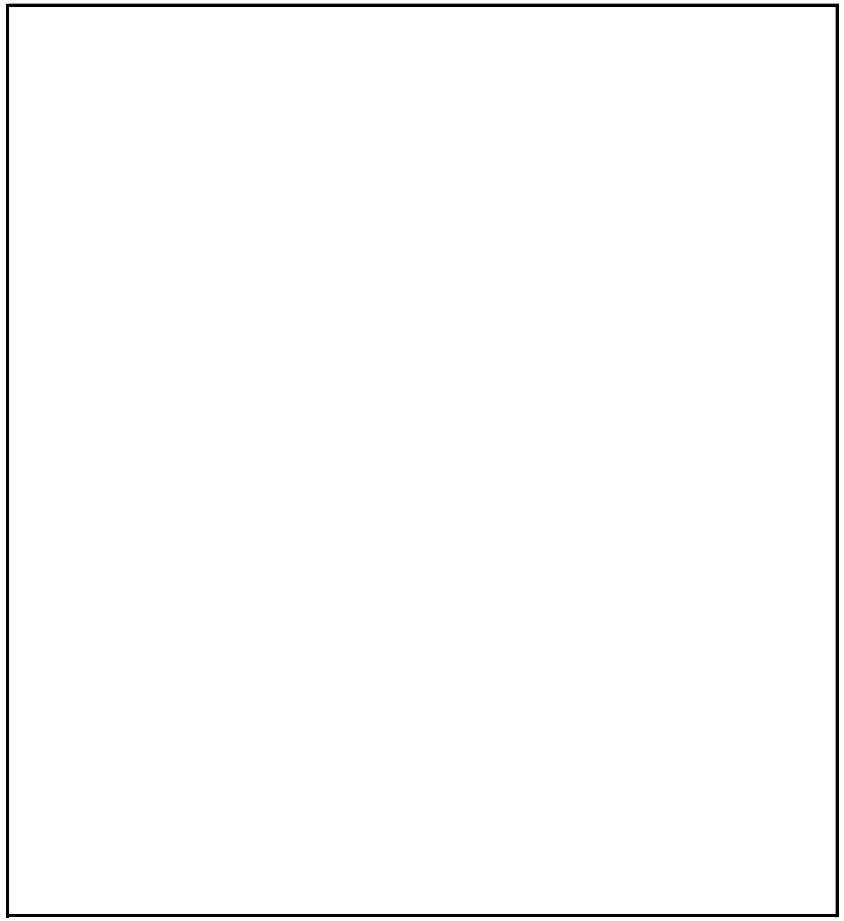

Mitigation (Layer 2)
(Replaceable Hardware)

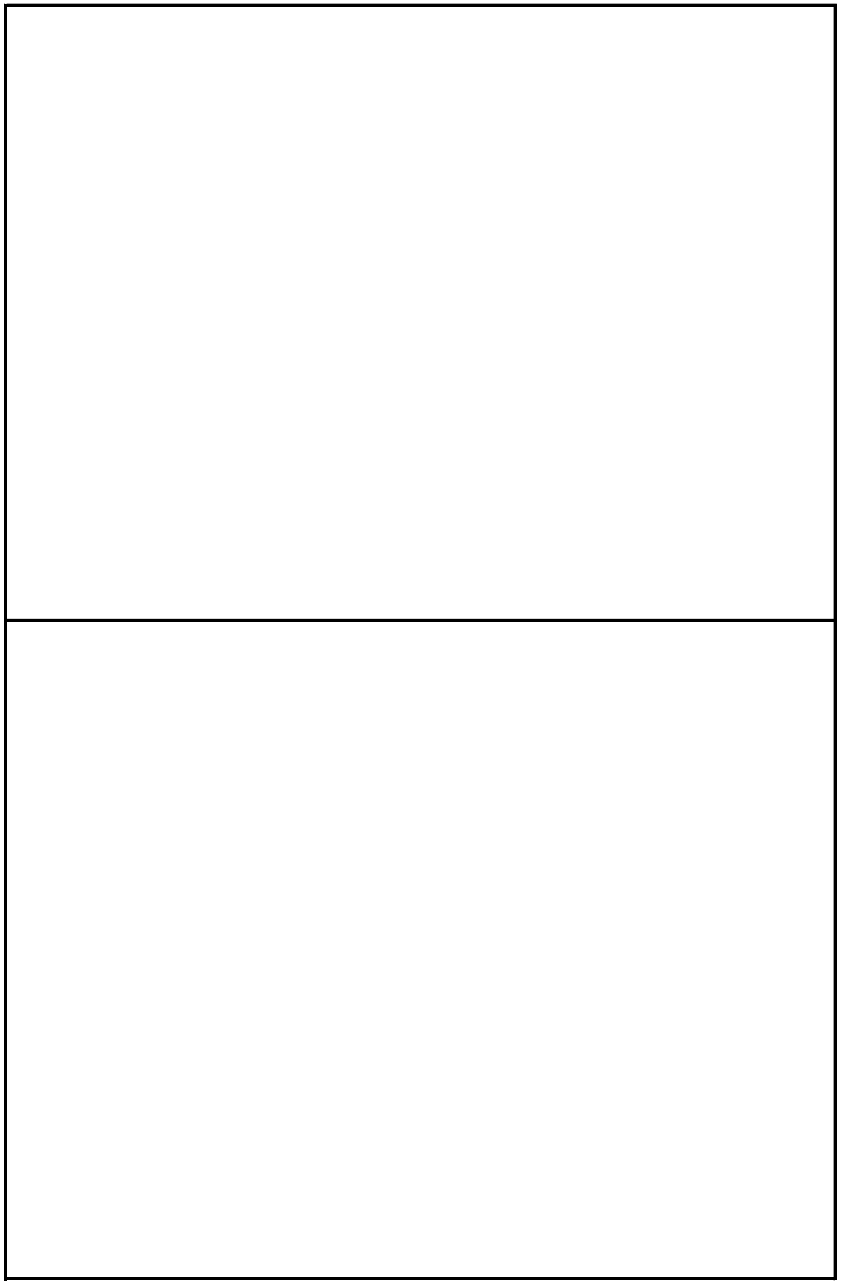
1. If the Tesla Site Controller is unable to be fixed, Tesla will replace the Site Controller under warranty. However, the Site Controller and the data around availability of the system has demonstrated it's great reliability.

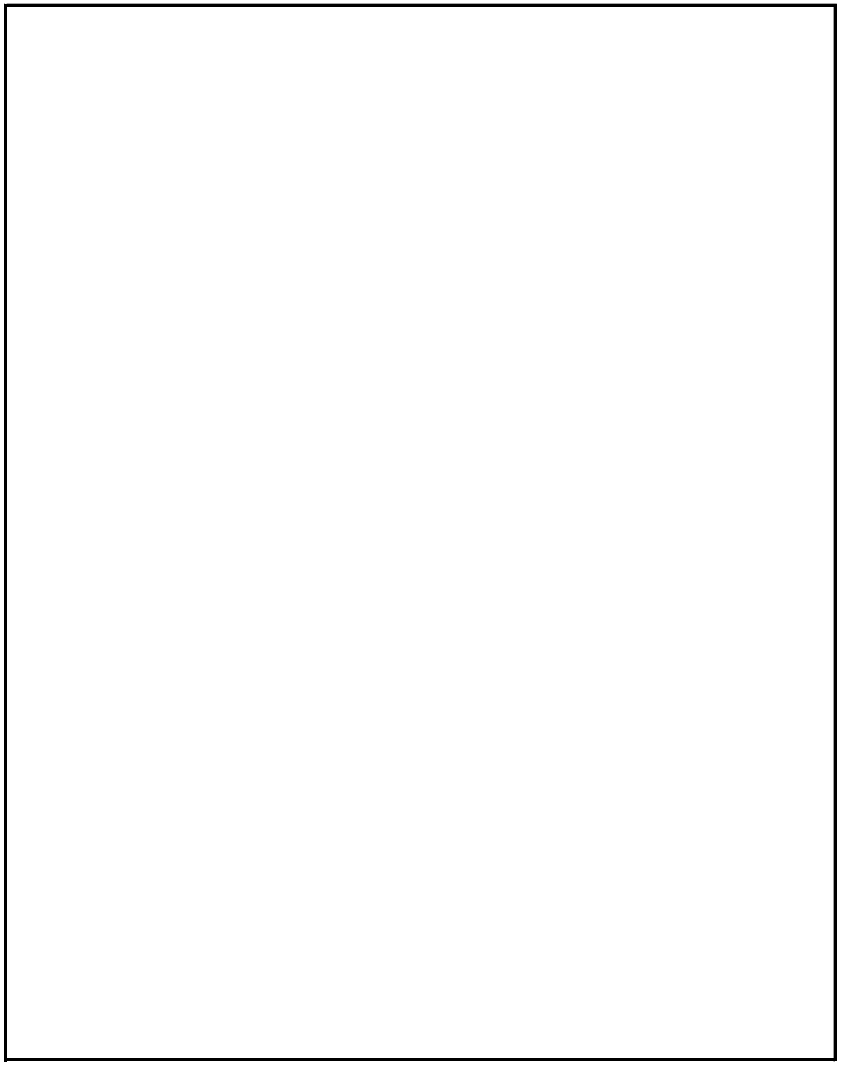


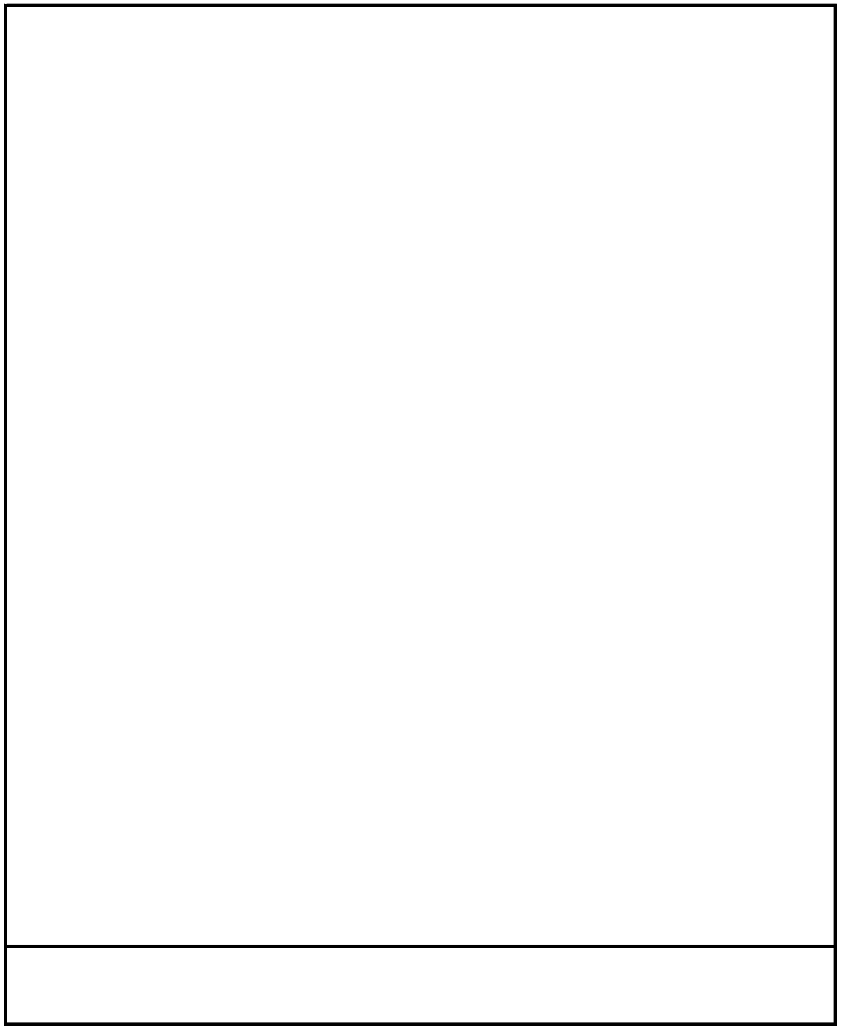












Maintenance determines any required HVAC/equipment replacements

Mitigation 2 (Layer 3) (Hardware Design Mitigation)	With safeguards: Severity [1 = Very low, 5 = Very high]
1. Active cell protection: The battery cells are actively and uniformly cooled through a 50/50 ethylene glycol and water mix in a closed loop system. The thermal management system provides heating and cooling as necessary, which is monitored and controlled through the BMS and Site Controller . 2. Cell thermal abuse tolerance: Battery Cells are tested and listed to UL 1642. The certification requires testing for thermal abuse tolerances. In addition, UL 9540A testing was done at the cell, module and unit level, displaying the systems ability to resist thermal runaway propagation. 3. Module thermal abuse tolerance: Battery Modules are tested and listed to UL 1973. The certification requires testing for thermal abuse tolerances. In addition, UL 9540A testing was done at the cell, module and unit level, displaying the systems ability to resist thermal runaway propagation.	**3**

1. System shutdown/disconnect: The MP2XL is capable of overcurrent and over voltage protection via a fixable link on the DC side of the AC and DC inverters and modules, and ground found protection. 2. Passive circuit protection and design: In addition to ground fault detection and over voltage protection, there are fused disconnects and DC connect switches for isolation mechanisms. 3. Cell thermal abuse tolerance: Battery Cells are tested and listed to UL 1642. The certification requires testing for thermal abuse tolerances. In addition, UL 9540A testing was done at the cell, module and unit level, displaying the systems ability to resist thermal runaway propagation.	**1**

1. Deflagration protection: MP2XL is equipped with an explosion control system that consists of 12 sparkers and 26 overpressure vents to ignite and vent any combustible/flammable gases as they are released. This prevents the accumulation of flammable gases. 2. Thermal isolation/cascading protection: The UL 9540A test demonstrated that thermal isolation limited heat transfer between the MP2XL and external walls, BESS units, and structures. 3. Facility design and siting: Design and siting were developed in line with MA fire code (NFPA 1) and Tesla's requirements. The BESS area will be cleared of vegetation and any combustible materials to prevent the spread of a fire. The non-combustible, ballistic rated noise barrier provides a barrier between the BESS and nearby exposures. 4. Emergency response plan: Tesla provides a MP2XL product specific emergency response guide and the system owner has developed a site-specific emergency response plan in line with NFPA 855. 5. Fire service response: Response of the fire department including staging fire fighters and securing adequate water to cool down nearby exposures (via fire hydrant) is paramount.	**2**

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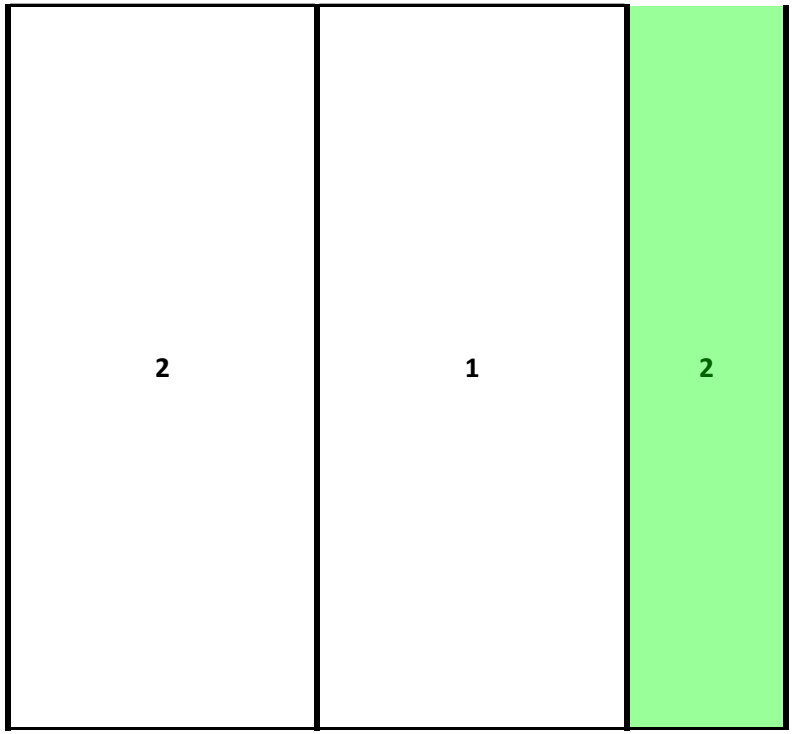
1. Deflagration redundancy: MP2XL is equipped with an explosion control system that consists of 12 sparkers and 26 overpressure vents to ignite and vent any combustible/flammable gases as they are released. This prevents the accumulation of flammable gases. In the event some of the sparkers and/or overpressure vents fail, the system is overdesigned and can successfully remove the potential hazard even with all of the sparkers/overpressure vents not operating. This is demonstrated in modeling and testing. If all sparkers/overpressure vents fail, the other mitigations in this section will be at play. 2. Thermal isolation/cascading protection: The UL 9540A test demonstrated that thermal isolation limited heat transfer between the MP2XL and external walls, BESS units, and structures. 3. Facility design and siting: Design and siting were developed in line with FCNYS and Tesla's requirements. The BESS area will be cleared of vegetation and any combustible materials to prevent the spread of a fire. The non-combustible, ballistic rated noise barrier provides a barrier between the BESS and nearby exposures. 4. Emergency response plan: Tesla provides a MP2XL product specific emergency response guide and the system owner has developed a site-specific emergency response plan in line with NFPA 855. 5. Fire service response: Response of the fire department including staging fire fighters and securing adequate water to cool down nearby exposures (via fire hydrant) is paramount.	**2**
MP2XL IK09 rated	**1**

- Two drains in the floor at opposite ends of the enclosure lead to drain ports that open when in contact with water. These prevent flooding inside the enclosure in case of a coolant leak or if there is a roof penetration. - Every cooling system is positive pressure leak tested at a pressure above the maximum pump output pressure at end of life - Temperature sensor with feedback to the BMS - BMS derates battery output power and therefor heat generation - Since the coolant is conductive it will likely caused either discharging to ground or shorts which will trigger firmware trips, blown fuses, triggered pyros or wire bond/busbar fusing	**2**
	2
	2
Site design - PV array's distance from BESS is a crucial mitigation layer from failure	**3**
	3
Containerized system Varying fan duty cycles depending on operational needs to reduce overall noise	**1**

With safeguards: Likelihood of Occurrence [1 = Remote, 5 = Very high]	With safeguards: Detectability [1 = Certain, 5 = Impossible]	RPN
2	2	12

- Low risk if RPN <1
- Medium risk if 12
- High risk if RPN ≥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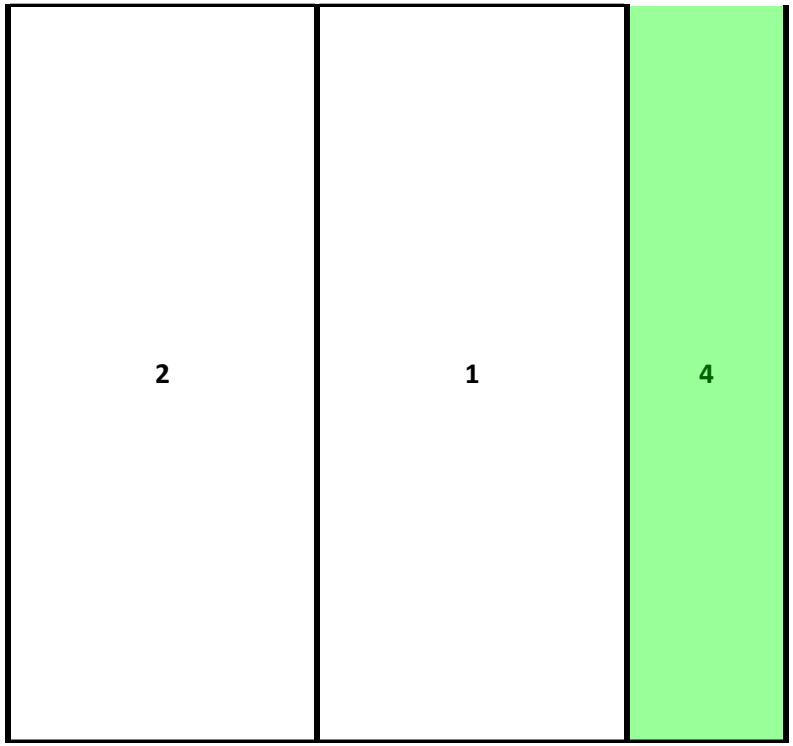
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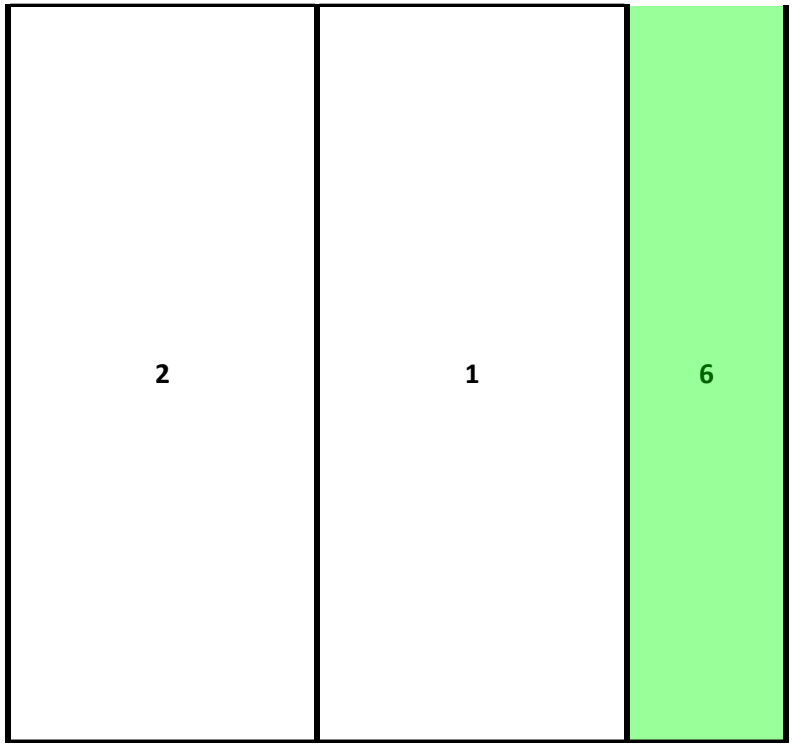
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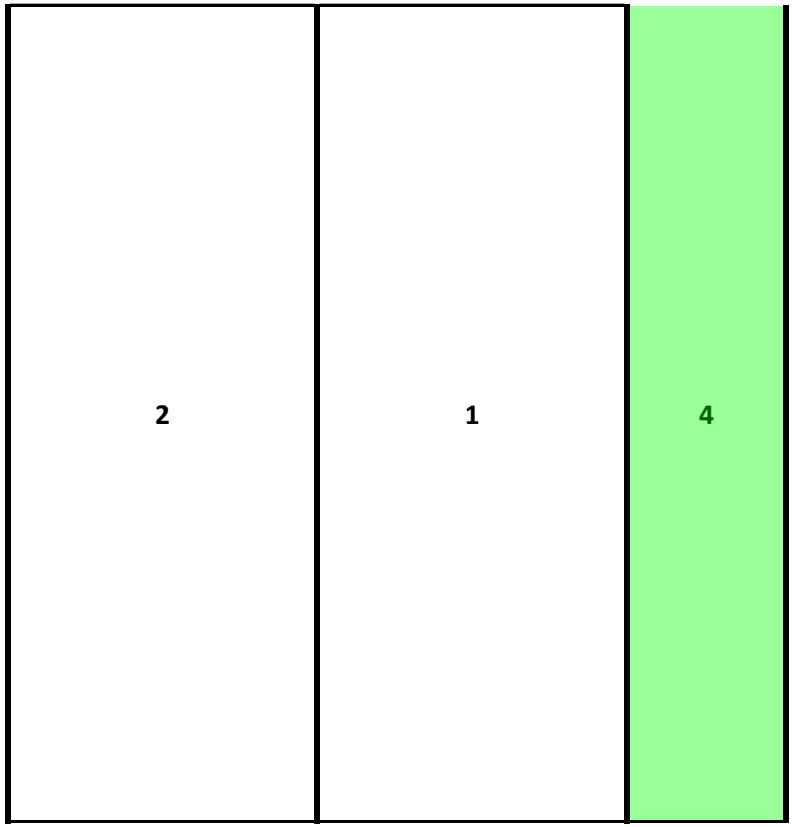
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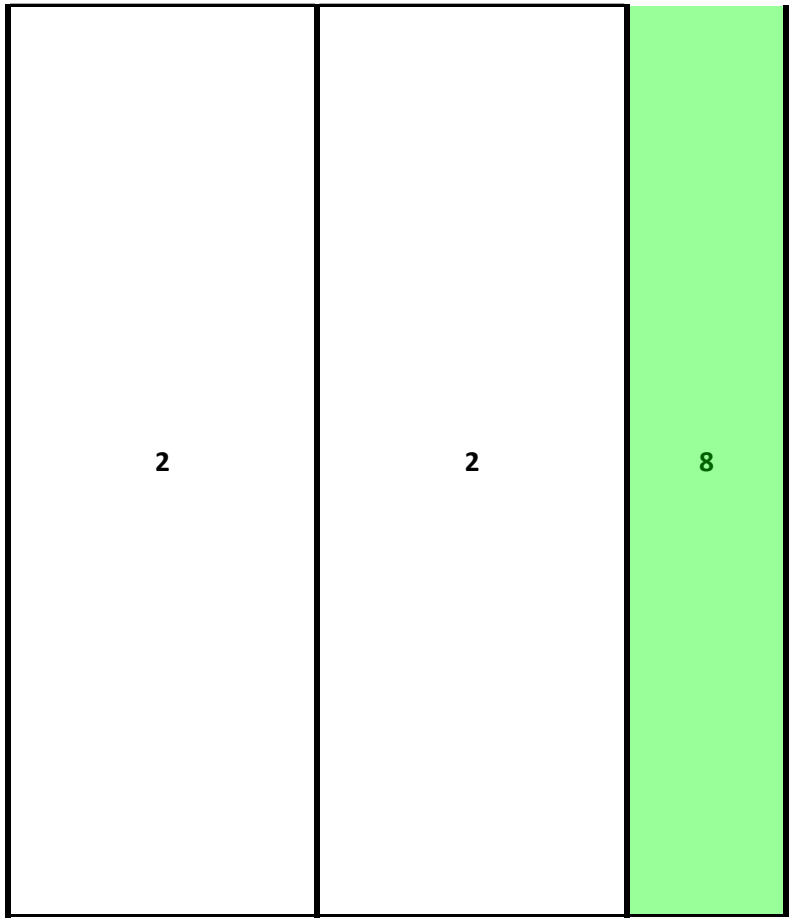
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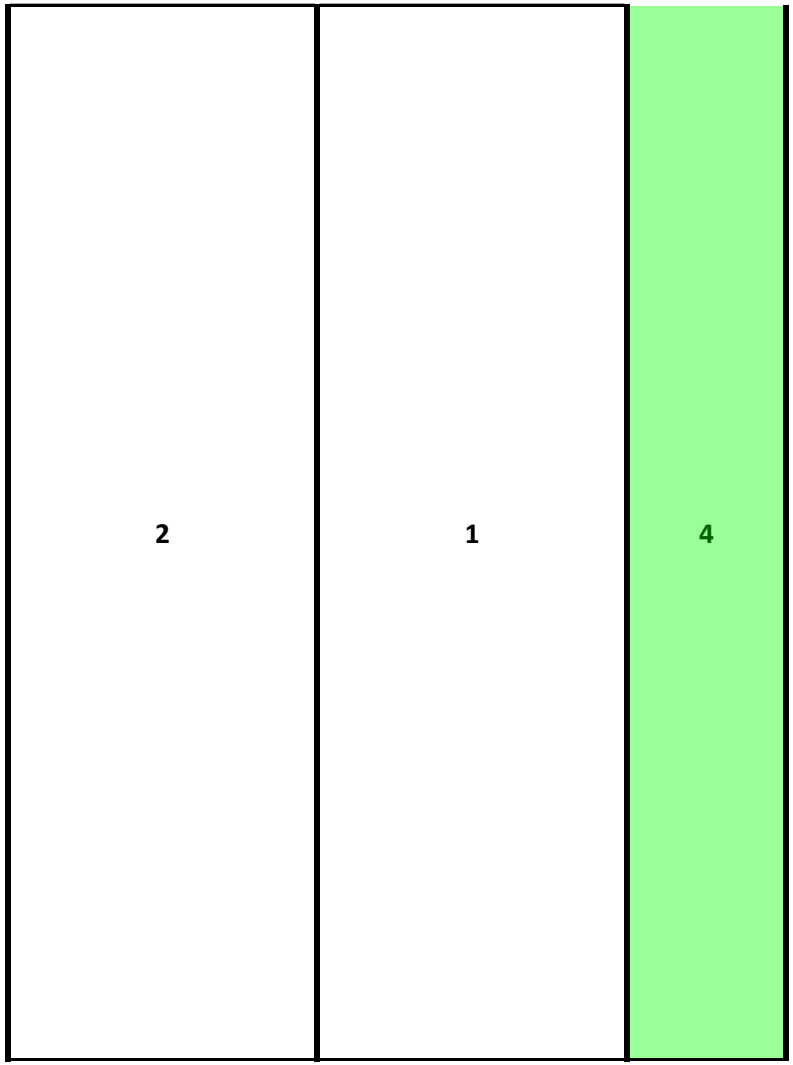
2	1	4
2	1	4


2
1
4

2	2	8
1	4	4

2	2	8
2	1	4
2	1	4
2	2	12
2	1	6
3	1	3

2

≤ RPN < 25

25

Failure mode #	Potential Hazard	Description
1	External Hard Short Circuit	Defined as 5mOhm short between the outputs of the assembly/subassembly
2	Internal Hard Short Circuit	A short circuit that occurs internally in a subassembly or between subassemblies. Could be triggered by loose debris, tools, piercings, conductive fluids, etc.

3	Isolation loss	The impedance to ground for any of the measured components is less than the worst case expected value during normal operations
4	Over Current Charge	Over current overcharge is defined as charging with a higher current than what the battery cell can withstand for the specific temperature and SOC
5	Over Voltage Charge	Over voltage overcharge is defined as charging with a higher voltage than what the cell can withstand for the specific temperature and SOC
6	Over discharge	One or multiple cell (s) are discharged to a state where permanent damage occurs
7	Loss of low voltage power supply	

8	Under Temperature	Temperature low enough to significantly impact functionality and performance
9	Over Temperature	Temperature rises above the maximum allowed temperature for the actual SOC, either limiting functionality, causing damage to the cells or hardware or increase the risk of a thermal runaway or thermal event

10	Thermal Runaway	An increase in temperature changes within the battery cell that leads to conditions that causes further temperature increase (Positive temperature coefficient). Causes irreversible and catastrophic failures to the cells.
11	Externa/Internal Fire Exposure	A substantial heat source in the proximity of the Megapack
12	Inoperable Cooling System	Derated or completely non-functional cooling system
13	Coolant Leak	Partial or complete loss of coolant

14	Impact/shock	
15	Vibration during shipping	
16	Conductive fluid ingress (external flooding)	
17	Lightning (direct)	
18	Lightning (indirect)	
19	Animal caused damage	

20	Dust	
21	Vandalism	
22	Gunfire/ Penetration	
23	Electric Shock/ Arc flash	

Assembly	Without safeguards: Severity [1 = Very low, 5 = Very high]	Without safeguards: Likelihood of Occurrence [1 = Remote, 5 = Very high]
Megapack Battery Module Battery Tray/Cell	**3**	**3**
Megapack Battery Module Battery Tray/Cell	**4**	**3**

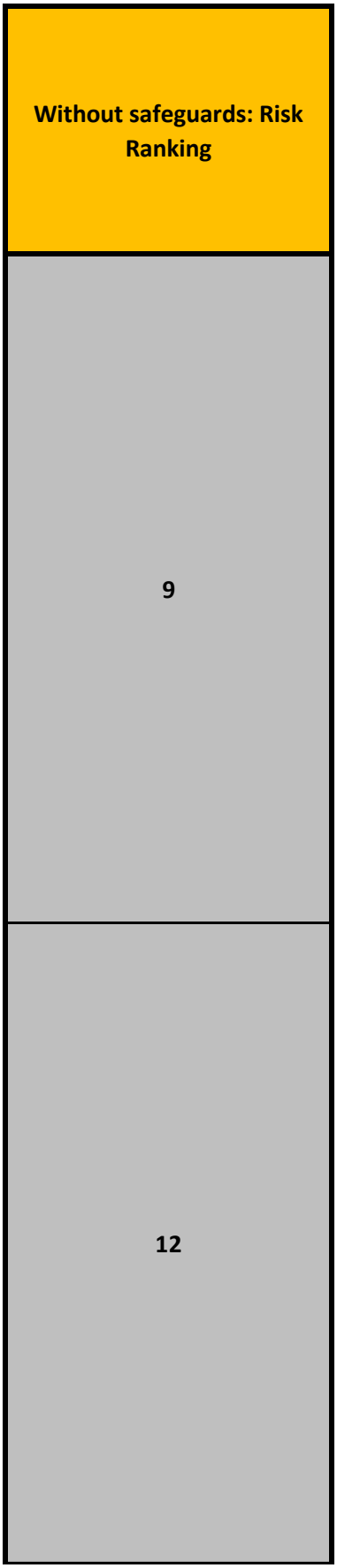
Megapack	**3**	**2**
Megapack Battery Module Battery Tray/Cell	**3**	**3**
Megapack Battery Module Battery Tray/Cell	**4**	**3**
Megapack Battery Module Cell assembly/cell	**3**	**2**
Megapack	**3**	**3**

Megapack Battery Module Cell assembly/cell	**3**	**3**
Megapack Battery Module Cell assembly/cell	**3**	**3**

Megapack Battery Module Cell assembly/cell	**4**	**3**
Megapack	**5**	**2**
Megapack	**4**	**3**
Megapack	**4**	**3**

Megapack Battery Module Cell assembly/cell	**4**	**2**
Megapack	**3**	**3**
Megapack Battery Module Cell assembly/cell	**4**	**3**
Megapack	**4**	**2**
Megapack	**4**	**2**
Megapack	**3**	**3**

Megapack	**2**	**3**
Megapack	**4**	**2**
Megapack	**4**	**2**
Megapack Battery Module	**4**	**3**


Without safeguards: Risk Ranking
9
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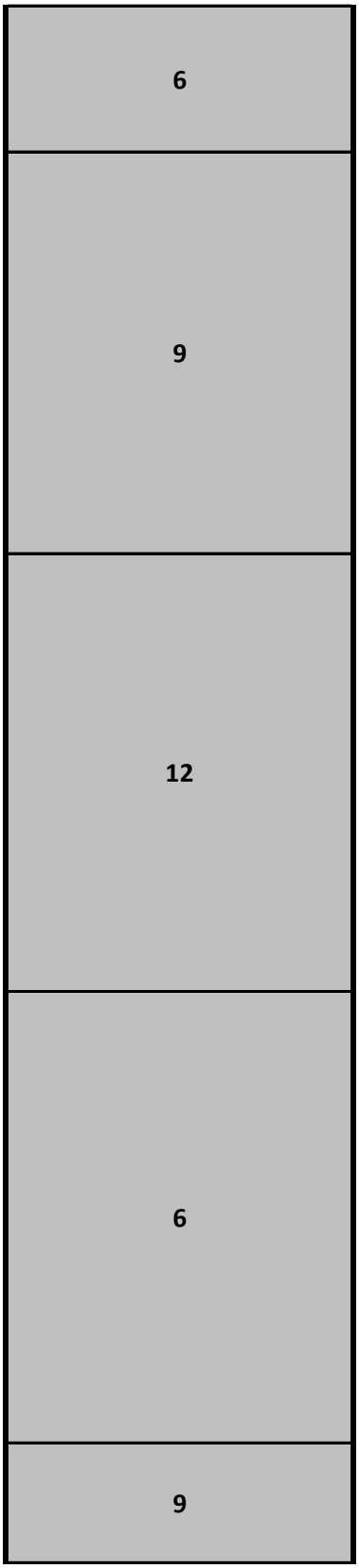
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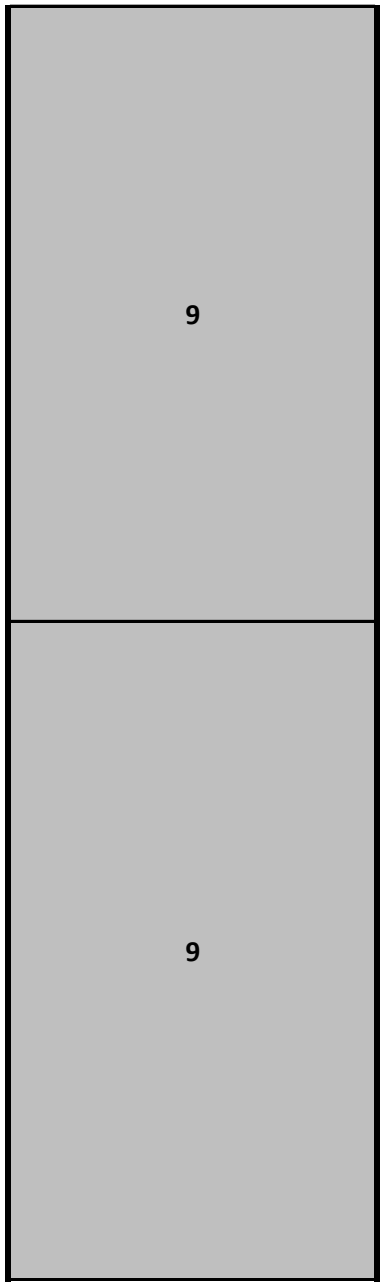
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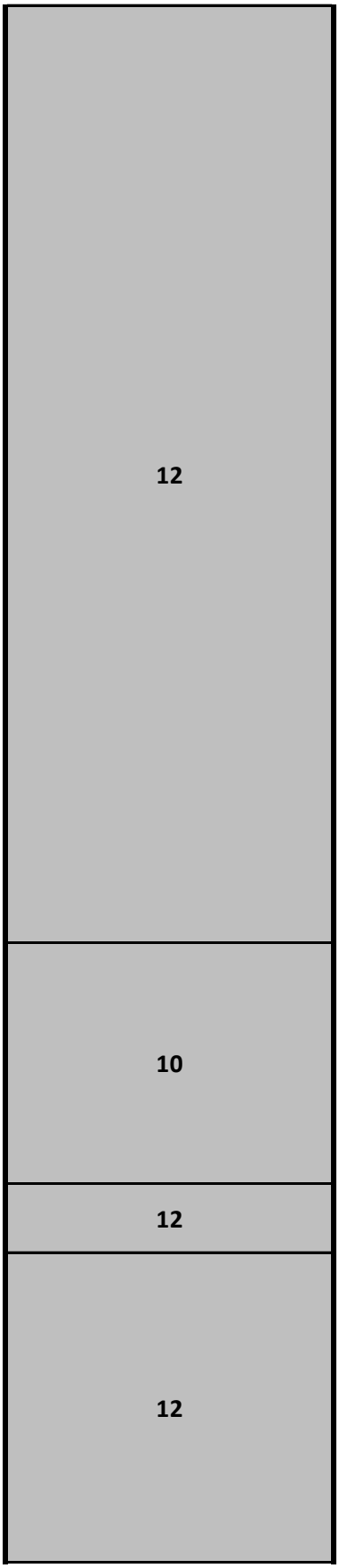
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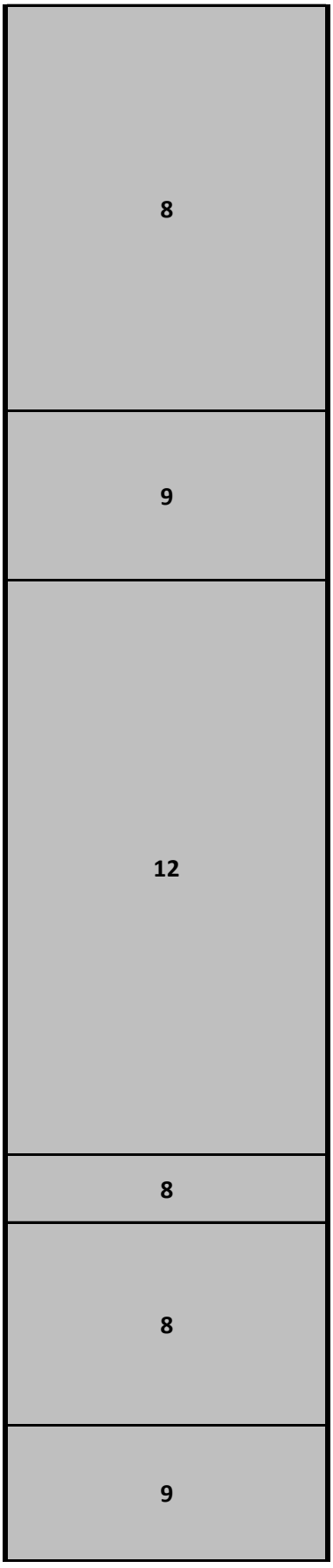
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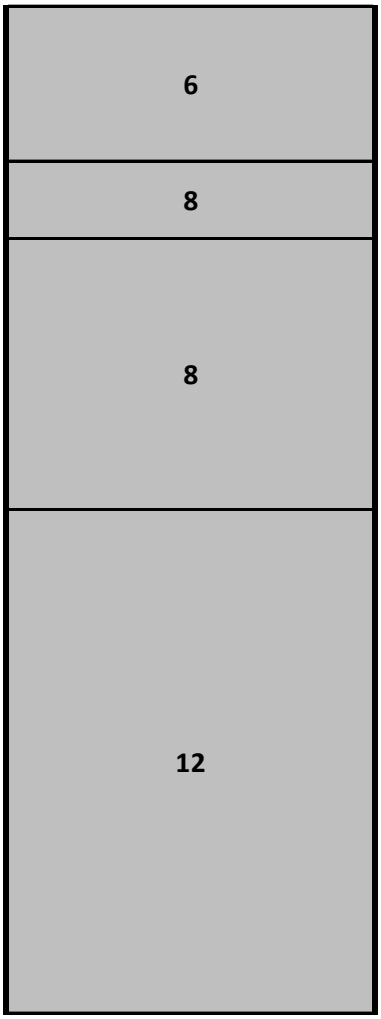
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Prevention (Layer 1) (Firmware / Resettable Hardware / Design prevention)
Megapack - Megapack AC breaker - Firmware trip in Powerstage - Powerstage AC contactors (480VAC) Battery Module - Firmware trip in DC/DC
Megapack - Megapack AC breaker - Firmware trip in Powerstage - Powerstage AC contactors (480VAC) Battery Module - Firmware trip in DC/DC

- Isolation loss detection on DCDC - Detection on HV to ground and MV to ground - Low isolation warning - Firmware trip in DCDC
Megapack - Megapack AC breaker - Firmware trip in Powerstage - Powerstage AC contactors (480VAC) Battery Module - The DCDC includes hardware monitored and triggered Over Voltage protection
Megapack - Powerstage firmware over voltage protection - Product should clamp a 5kV surge (1.2 by 50 microsecond full-wave impulse to a value not exceeding 300% of the peak working voltage, 300V whichever is greater Battery module - Voltage rationality check - DCDC firmware over voltage protection Battery Tray/cell - Cell assembly voltage measurement
Battery module - Voltage rationality check - The BMB (Battery Monitoring Board) shall operate down to a minimum brick voltage of 1.5V to enable non-standard battery recovery through manually triggered software override - End of discharge algorithm - CCV (closed circuit voltage) regulator (trickle charge batteries to prevent further discharge) - Battery off mode (limits quiescent currents) Cell assembly/cell - Cell assembly voltage measurement
- Thermal system derating if one of the power supplied fails

Megapack -Thermal system will always keep the system at optimal temperature using pumps, fans, radiators, and compressor loops. - Heaters in coolant loop can heat the coolant to condition the cells to operating temperature conditions Battery Module - Dual thermistors with sanity check in each cell assembly, for a total of 24+ thermistors per a battery module - Thermal system (normal heating, heat mode) - Firmware trips for under temperature Cell assembly/cell - 2 thermistors at cell assembly level	Megapack -Thermal system will always keep the system at optimal temperature using pumps, fans, radiators, and compressor loops. - Powerstage firmware detects power electronics over temperature and derates current accordingly - Firmware trips for over temperature Battery Module - Dual thermistors with sanity check in each cell assembly, for a total of 24+ thermistors per a battery module - Firmware trips for over temperature. Limits are compliant with UL 1998 - BMS reads over temperature from thermistors, derates the power in the battery module accordingly. If the temperature rises further, the High Voltage Processor disables power to the Battery Module DCDC Cell assembly/cell - 2 thermistors at cell assembly level

Megapack
- Thermal system will operate independently from over temperature alerts, ensuring battery modules can remain cool as long as possible.

Battery Module
- Dual thermistors with sanity check in each cell assembly, for a total of 24+ thermistors per a battery module
- Firmware trips for over temperature. Limits are compliant with UL 1998
- BMS reads over temperature from thermistors, derates the power in the battery module accordingly. If the temperature rises further, the High Voltage Processor disables power to the Battery Module DCDC

Cell assembly/cell
- 2 thermistors at cell assembly level
- Each cell goes through manufacturing diagnostics to ensure the highest quality at end of life
- Cell usage parameters and operational boundaries acquired through years of testing and billions of operational hours through an industry unique variety of products
- UL 1973 and UL 9540 certifications
- UL 9540A testing

- Tesla site installation requirements and new codes and standards prevent placing the megapack in the proximity to flammable materials

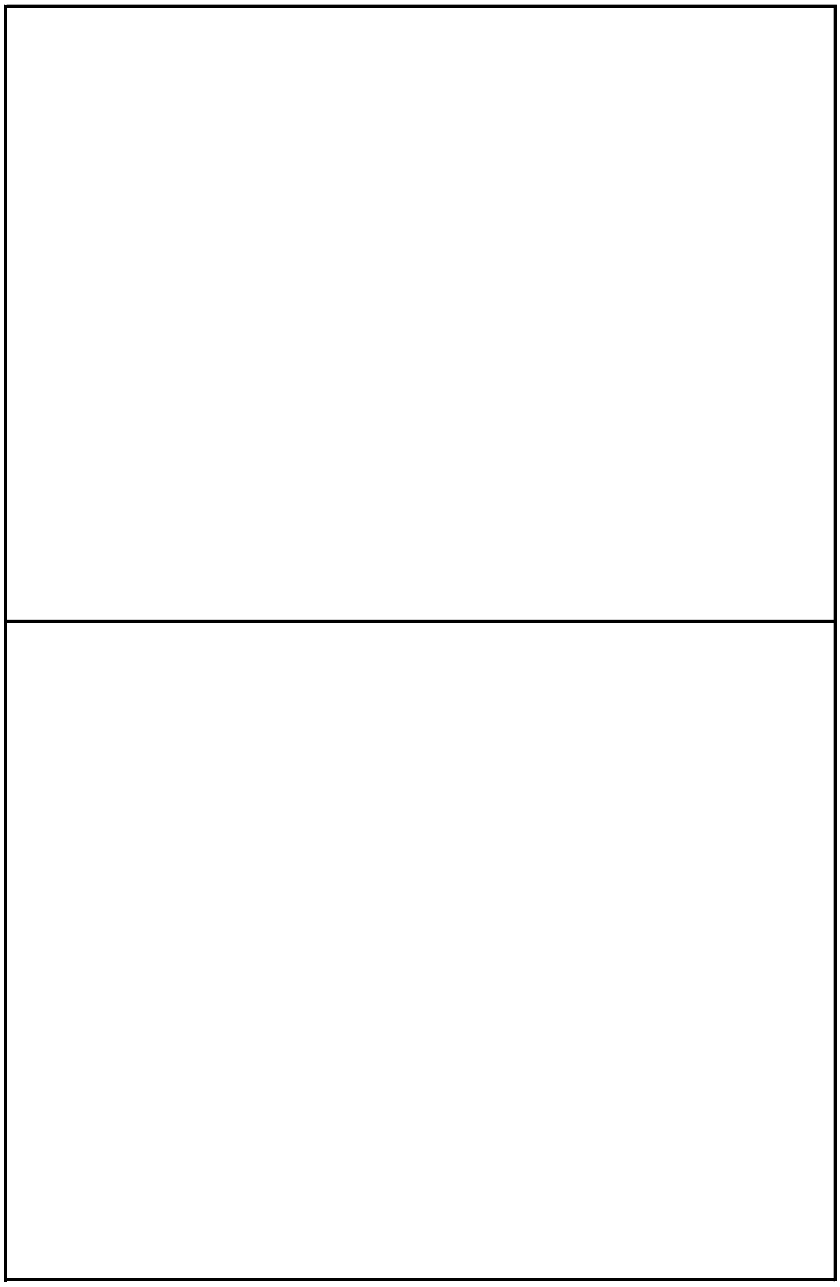
- Firmware detection of low coolant

Megapack - The Megapack should not be installed in an area where flooding is likely - Firmware trips will prevent short circuits - Steel grounded enclosures will prevent shock hazards Battery Module -IP21 protection /(<12.5mm, dripping water) to enable service and replacement in outdoor environments
- No design protection except for grounding together with the faraday's cage principal for the cabinets
- Low voltage ride through -Reactive current injection - Powerstage trip - DCDC trip
- Cabinets designed to IP66 and should prevent most animals/rodents from accessing the enclosure and damaging the system components - O&M and Asset Management will do routine checks for animals and prevent animals from entering the site/BESS area

- Cabinets designed to IP66 - Thermal roof open to the environment, and dust accumulations can be cleaned out during annual preventative maintenance or more frequently in dusty locations (e.g., desert)
- Gated fence to be installed around the BESS site - Megapack ships within 8 combination locks for customers to use on doors
Megapack - Covered by service procedure - Lockable enclosure and breaker - The HVIL circuit is opened before any high voltage connection can be made - Touch-safe customer interface bay Battery Module - Panel coverings to prevent touch access to the trays and cells - Sealed DCDCs with a top panel cover - Comm-enabled DCDC architecture: Power can only flow in/out if a comm signal is sent, which cannot occur until the battery module is plugged into the megapack and the door is closed (HVIL enable line is not tripped)

Mitigation (Layer 2) **(Replaceable Hardware)**
Megapack - Powerstage AC fuses (480VAC) - Powerstage DC fuses (900V) -DC/DC output fuses (900V) - DC/DC input fuses (450V) - Mid-pack shunt controlled pyro disconnect in all battery modules Battery module - DC/DC output fuses (900V) -DC/DC input fuses (450V) -Mid-pack shunt controlled by pyro disconnect in all battery modules
Megapack - Powerstage AC fuses (480VAC) - Powerstage DC fuses (900V) -DC/DC output fuses (900V) - DC/DC input fuses (450V) - Mid-pack shunt controlled pyro disconnect in all battery modules Battery module - DC/DC output fuses (900V) -DC/DC input fuses (450V) -Mid-pack shunt controlled by pyro disconnect in all battery modules

- DC/DCs are fused on both sides, so if any failure occurs on either side of the circuit, it will not propagate
Battery Module - DCDC PCBAs are individually fused on the high voltage (common DC bus) side, as well as the low voltage (battery) side.
Megapack - Mid-pack shunt controlled pyro disconnect in all battery modules Battery Module - Mid-pack shunt controlled pyro disconnect in all battery modules Battery Tray/Cell - Mid-pack shunt controlled pyro disconnect in all battery modules
- Dual DCDC converter for redundancy



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Megapack - The Megapack can withstand up to 6inches of standing water Battery Module - Pyro disconnect is triggered upon detection of flooding conditions as characterized by a 1-hour of continuous period battery module isolation below 100 kOhm - Conformal coating meeting UL 746C and CSA 107.1
- Electrical components are protect with surge protection circuitry in the event of an indirect lightning strike.
- Powerstage AC fuses (480VAC) - Powerstage DC fuses (900V) - DCDC output fuses (900V) -DCDC input fuses (450V) - Mid-pack shunt controlled pyro disconnect in all battery modules

Megapack - Mid-pack shunt controlled pyro disconnect in all battery modules

Mitigation 2 (Layer 3) **(Hardware Design Mitigation)**
Megapack -Battery Tray series connection fuses - Wire bond fusing on each cell - Cell current interrupt device (physically and irreversibly disconnects the cell when activated to an unsafe pressure build up) Battery module -Battery Tray series connection fuses - Wire bond fusing on each cell - Cell current interrupt device (physically and irreversibly disconnects the cell when activated to an unsafe pressure build up) Battery tray/cell -Battery Tray series connection fuses - Wire bond fusing on each cell - Cell current interrupt device (physically and irreversibly disconnects the cell when activated to an unsafe pressure build up)
Megapack -Battery Tray series connection fuses - Wire bond fusing on each cell - Cell current interrupt device (physically and irreversibly disconnects the cell when activated to an unsafe pressure build up) - Cascading failure mitigation (e.g., bus bar wrapping) Battery module -Battery Tray series connection fuses - Wire bond fusing on each cell - Cell current interrupt device (physically and irreversibly disconnects the cell when activated to an unsafe pressure build up) Battery tray/cell -Battery Tray series connection fuses - Wire bond fusing on each cell - Cell current interrupt device (physically and irreversibly disconnects the cell when activated to an unsafe pressure build up)

- Designed in accordance with UL 1741, CSA22.2 No.107.1 & IEC 62109-1
Megapack - Cell current interrupt device (physically and irreversibly disconnects the cell when activated to an unsafe pressure build up) Battery Module - Cell current interrupt device (physically and irreversibly disconnects the cell when activated to an unsafe pressure build up) Battery tray/ cell - Cell current interrupt device (physically and irreversibly disconnects the cell when activated to an unsafe pressure build up)
Megapack - Transient Voltage Surge Suppressive (TVSS) devices are selected in accordance with UL 1449 -Cell current interrupt device (physically and irreversibly disconnects the cell when activated to an unsafe pressure build up) Battery module -Cell current interrupt device (physically and irreversibly disconnects the cell when activated to an unsafe pressure build up) Battery tray/cell -Cell current interrupt device (physically and irreversibly disconnects the cell when activated to an unsafe pressure build up)
Battery module - The BMB set an alert when one of its bricks' resting voltage is below the minimum recovery voltage - Isolated DCDC converter galvanically and electrically isolates isolated batteries from the common DC bus

Megapack - Operating temperature is -30C to 50C. Can support short-term temperature extrusions beyond these operating values
Megapack - If thermal runaway conditions occur, see the thermal runaway failure mode (#10) for prevention and mitigation measures

Megapack
- one- way umbrella valves are built into the roof to release accumulation of gases or pressure to mitigate the risk of deflagration
- 33+ passive overpressure vents are built into the roof of the Megapack to mitigate the impact of thermal runaway to nearby people or enclosures/buildings. These "flaps" only open when pressure builds up as a result of thermal runaway and sparker ignition, directing all hot gases, smoke, and flame out of the top of the Megapack, keeping the front doors shut and users safe.
- A proprietary sparker system located at the top of the battery bays will ignite any localized concentrations of off-gassing from cells in thermal runaway.
- The cabinets are designed to withstand thermal runaway propagation between Megapacks at normal designed site spacing of 6in (15cm)

Battery module
- Cell assembly and potting to minimize the risk for thermal runaway propagation between battery modules, cell assemblies, and cells.

Cell Assembly/cell
- Steel battery cell assemblies have an engineered exhaust pathway to direct therm runaway gases out the top of the ESS. Exhaust pathways also prevents build up of internal pressure that could result in an ESS rupture
- Cell assembly and potting to minimize the risk for thermal runaway propagation between battery module , cell assemblies, and cells
- Propagation tested to IEC 62619 and UL 9540A
- Conducted passive propagation resistance testing, in accordance with UL 1973 and internal test standards to ensure single cell thermal runaway does not spread to neighboring cells
- Tesla Energy battery cells are listed to UL 1642 to ensure that cell thermal runaway will not result in projectiles

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- Battery modules has met and passed the criteria of UL 1973 external fire test
- Megapack has been tested to the Unit Level of UL 9540A
- Fire protection engineers have reviewed and opined the UL 9540A unit level test with favorably opinions
- The cabinets are designed to withstand severe fire impingement, as demonstrated through thermal runaway propagation testing (UL 9540A) between Megapack at normal design site spacing of 6in

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- BMS derates the battery output power, and therefore heat generation, if cell temperatures get above 55C

- Two drains in the floor at opposite ends of the enclosure lead to drain ports that open when in contact with water. These prevent flooding inside the enclosure in case of a coolant leak or if there is a roof penetration.
- Every cooling system is positive pressure leak tested at a pressure above the maximum pump output pressure at end of life
- Temperature sensor with feedback to the BMS
- BMS derates battery output power and therefor heat generation
- Since the coolant is conductive it will likely caused either discharging to ground or shorts which will trigger firmware trips, blown fuses, triggered pyros or wire bond/busbar fusing

Megapack - The enclosure has an IK rating of IK09 for impact protection Battery module - IK09 impact rating: Product must remain functioning and safe after impact, otherwise damage must be visible - Designed to survive 1.9m drop from CG without resulting in explosion, fire, or exposed electrical safety hazard Cell assembly/cells - Battery cells are enclosed in a steel pod to resist mechanical intrusion. Pod tested to UL 1973 impact and shock tests
- Battery cells are securely mounted to endure mechanical loading of cells and limit mechanical deflection of module - A fully populated Megapack passes the ASTM D4169-2016 Table 2 truck unit level shipping and vibration test
Megapack - Battery tray series connection fuses - Wire bond fusing on each cell - Cell current interrupt device (physically and irreversibly disconnects the battery cell when activated to an unsafe pressure build up) Battery Module - Battery tray series connection fuses - Wire bond fusing on each cell - Cell current interrupt device (physically and irreversibly disconnects the battery cell when activated to an unsafe pressure build up) Cell Assembly/ cell - Battery tray series connection fuses - Wire bond fusing on each cell - Cell current interrupt device (physically and irreversibly disconnects the battery cell when activated to an unsafe pressure build up)
- Battery tray series connection fuses - Wire bond fusing on each cell - Cell current interrupt device (physically and irreversibly disconnects the cell when activated to an unsafe pressure build up) - cascading failure mitigations (inquire with system test, like bus bar wrapping)

-Special tools and a key is required to access locations with High Voltage Present - Multiple levels of redundancy on High Voltage area - Door, cover, touch-safe, key-lock
- Enclosure exterior walls are 14 GA (2mm or 0.0075 '' thick) - UL 1642 physical tests subject the battery cells to nail puncture and projectile without exploding - Propagation tested according to IEC 62619 - Conduct passive propagation resistance testing, in accordance with UL 1973 and internal test standards to ensure single cell thermal runaway does not spread to neighboring cells . UL 9540A testing also supports this protection scheme.
Megapack - The Megapack is designed with an Arc flash rating of 85kAIC

With safeguards: Severity [1 = Very low, 5 = Very high]	With safeguards: Likelihood of Occurrence [1 = Remote, 5 = Very high]	With safeguards: Detectability [1 = Certain, 5 = Impossible]	RPN
2	2	2	8
3	2	2	12

3	2	2	12
2	2	1	4
3	2	1	6
2	2	1	4
2	2	1	4

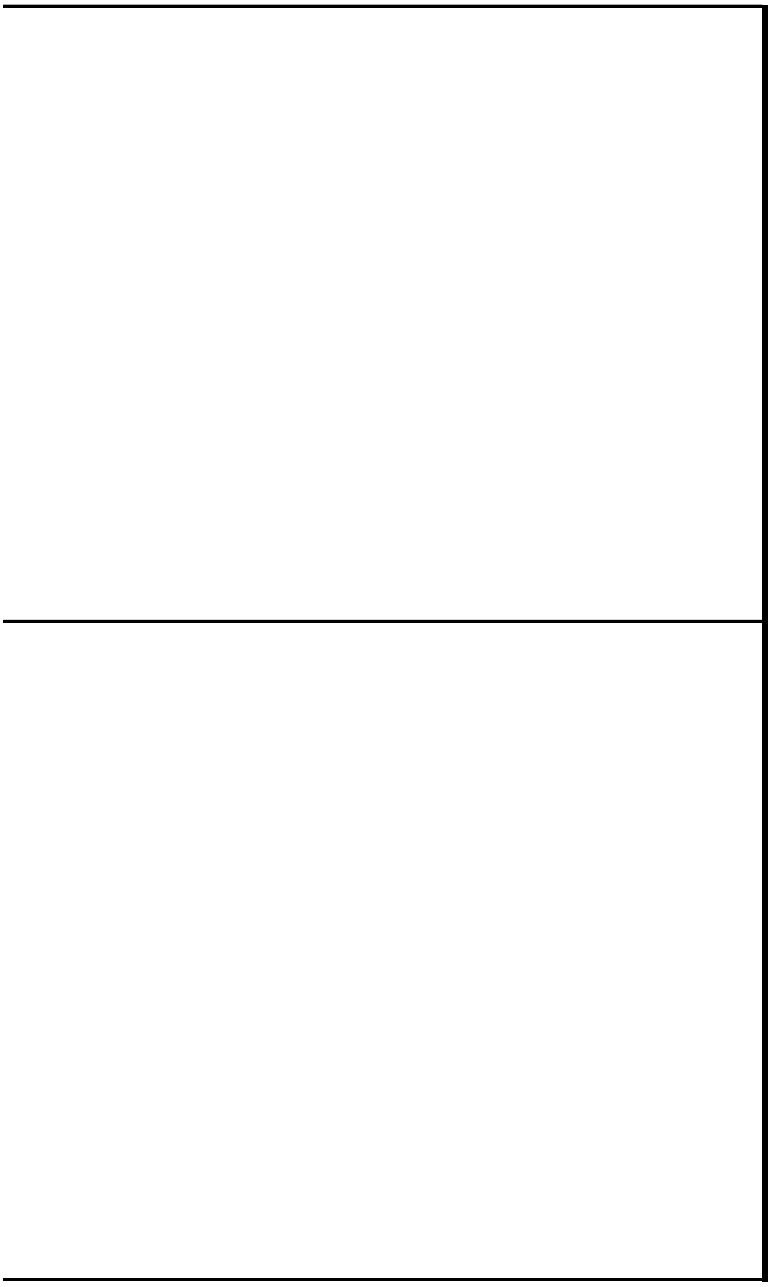
2	2	2	8
2	2	2	8

3	2	2	12
4	1	2	8
3	2	2	12
2	2	2	8

2	2	4	16
2	2	3	12
3	2	3	18
4	2	3	24
3	2	3	18
2	2	3	12

2	2	2	8
2	2	2	8
3	2	3	18
3	2	2	12

- Low risk if RPN
- Medium risk if



N <12

: 12 ≤ RPN < 25

Severity of effect (SEV)	Description
Very high	Extensive damage including loss of entire battery pack, severe injury possible, death possible
High	System inoperable due to major damage to battery pack, severe injury possible
Moderate	Loss of entire module or localized damage to battery pack, minor injury likely
Low	System operable with minimal damage to isolated section of battery pack, injury possible with improper use
Very low	No effect (no injury or damage to battery pack) or superficial damage to battery pack

Ranking
5
4
3
2
1

Probability of occurrence (OCC)	Description
Very high	Incident is inevitable
High	Incident assured with improper use
Moderate	Incident possible with improper use
Low	Incident is unlikely
Remote	Incident is nearly impossible

Ranking
5
4
3
2
1

Likelihood of detection by design control (DET)	Description
Impossible	Design control cannot detect potential cause and subsequent failure mode
Low	Low chance of design control detecting potential cause and subsequent failure mode
Medium	Moderate chance of design control detecting potential cause and subsequent failure mode
High	High chance of design control detecting potential cause and subsequent failure mode
Certain	Design control will detect potential cause and subsequent failure mode

Ranking
5
4
3
2
1

NFPA-855 COMPLIANCE GUIDE FOR TESLA MEGAPACK PRODUCTS

PRODUCT SPECIFICATIONS

All specifications and descriptions contained in this document are verified to be accurate at the time of printing. However, because continuous improvement is a goal at Tesla, we reserve the right to make product or documentation modifications at any time, with or without notice.

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Document Scope and Purpose

This document is for projects using Tesla Megapack (including Megapack, Megapack 2, and Megapack 2 XL) as a reference for the product's applicability to the National Fire Protection Association's NFPA 855 Standard (2023 Edition). This document does not provide the full text for each requirement and should be reviewed in parallel with a subscription-based, digital edition of the NFPA 855 Standard (not provided by Tesla).

This document describes the NFPA standard requirements only as far as they are applicable Megapack products. There may be additional or different requirements customers must follow as described in the applicable *Site Design Manual*.

Reference Documents

- *NFPA 855 Standard for the Installation of Stationary Energy Storage Systems (2023)*
  It is available for reference in the following formats:
  - A digital edition. Select the linked subsection number in the table below to be directed to the corresponding NFPA link in the subscription-based, digital edition.
  - A free access version (www.nfpa.org/855)
  - A printed copy (This version may not include tentative interim amendments)
- *Megapack Site Design Manual* - https://partners.tesla.com/home/en-US/content/download/Megapack_Site_Design_Manual.pdf
- *Megapack 2 Design and Installation Manual* - https://partners.tesla.com/home/en-US/content/download/Megapack_2_Design_and_Installation_Manual.pdf
- *Megapack 2 XL Design and Installation Manual* - https://partners.tesla.com/home/en-US/content/download/Megapack_2_XL_Design_and_Installation_Manual.pdf
- *Industrial Lithium-Ion Battery Emergency Response Guide* - https://www.tesla.com/sites/default/files/downloads/Lithium-Ion_Battery_Emergency_Response_Guide_en.pdf

Common Acronyms Used in this Document

- FPE – Fire Protection Engineer
- AHJ – Authority Having Jurisdiction
- ESS – Energy Storage System

Tesla is committed to helping fire departments and first responders safely handle emergency situations involving all Tesla products. Contact your Tesla representative or Service Provider for additional information.

NOTE: This document has been updated to consider the Tentative Interim Amendment to NFPA 855 issued by the National Fire Protection Association on August 25, 2022, and with an effective date of September 14, 2023.

Chapter 4 – General.		
Subsection	**Tesla comments**	**Provider**
4.1 General. - Compliant as detailed in Chapter 4 and Chapter 9 below.		
4.2 Construction Documents.		
4.2.1 – General.		
4.2.1.1	Compliant. Project related documents to be provided by developer / EPC. Product specific items are Compliant as noted: (1) Project specific (2) N/A for Tesla ESS (3) Project specific (4) Product information available from Tesla (5) Product information available from Tesla (6) Project specific (7) Product information available in FPE report (8) Project specific	Developer/EPC Tesla can support
4.2.1.2	Project specific.	Owner/Operator
4.2.1.3	Compliant. Information for items 1-4 provided in FPE report (NDA required.	Tesla
4.2.1.4	Compliant. Modeling data available in FPE report (NDA required).	Tesla
4.2.2 - Building Owner. - Project specific		Scope of EPC
4.2.3 – Manuals. - Project specific		Scope of EPC
4.2.3.1	Project specific.	Scope of EPC Support from Tesla
4.2.3.2	Project specific.	Scope of EPC Support from Tesla
4.2.4 – Commissioning Plan. - See Chapter 6.		Scope of EPC Support from Tesla
4.3 Emergency Planning and Training.		
4.3.1 – General. - Project specific Required for Megapack and greater than one Powerpack installation.		Owner/Owner's authorized agent See Tesla ERG for more details. www.tesla.com/firstresponders

Chapter 4 – General.		
Subsection	**Tesla comments**	**Provider**
		Tesla can support
4.3.2 – Facility Staff Planning and Training. - Site specific		Owner/Operator
4.3.2.1 - Emergency Operations Plan.		
4.3.2.1.1	Site specific.	Owner/Operator
4.3.2.1.2	Site specific.	Owner/Operator
4.3.2.1.3	Site specific.	Owner/Operator
4.3.2.1.4	Site specific.	Owner/Operator See Tesla ERG for more details. www.tesla.com/firstresponders Tesla can support
4.3.2.1.5	Site specific.	
4.3.2.2 – Facility Staff Training.		
4.3.2.2.1	Site specific.	Owner/Operator
4.3.2.2.2	Site specific.	Owner/Operator
4.4 Hazard Mitigation Analysis (HMA).		
4.4.1	HMA to be provided based on the following: (1) N/A Lithium-ion technology (2) To be determined (3) Per 9.4.1.2 for outside storage – HMA required for Megapack installation or greater than one PP installed. (4) AHJ judgement (5) N/A for Megapack. Required for Powerpack 2 installations (per UL9540) (6) Required for Megapack as exceeds 600 kWh (2,160 MJ)	Scope of EPC Tesla can support Generic HMA available under NDA for Megapack and Megapack 2 XL.
4.4.2 – Failure Modes.		
4.4.2.1	Compliant as noted: (1) Tesla compliant (2) Tesla compliant - Tesla battery management systems are certified to UL1998 and IEC60730 Annex H (3) N/A for Lithium- ion technology, outdoor, non-walk-in enclosure	Scope of EPC Tesla support. Generic HMA available under NDA for Megapack 2 and Megapack 2 XL.

Chapter 4 – General.		
Subsection	**Tesla comments**	**Provider**
4.4.2.2	Compliant available in HMA.	Scope of EPC Tesla support. Generic HMA available under NDA for Megapack 2 and Megapack 2 XL.
4.4.3	(1) N/A – outside installation (2) Compliant – outside installation (3) Compliant – see Tesla FPE report for additional information	Scope of EPC Tesla support. Generic HMA available under NDA for Megapack 2 and Megapack 2 XL.
4.4.4	Compliant – HMA available.	Scope of EPC Tesla support. Generic HMA available under NDA for Megapack2 and Megapack 2 XL.
4.4.5	Project specific.	Scope of EPC
4.5 Combustible Storage.		
4.5.1	N/A – Tesla not a walk-in enclosure.	Owner/Operator
4.5.2	Site specific.	Owner/Operator
4.5.3	N/A – Tesla outside only.	
4.5.4	N/A – Tesla outside only.	
4.5.5	N/A for Megapack and Powerpack.	
4.6 Equipment.		
4.6.1 – Listings. Compliant. All Tesla industrial energy products are listed in accordance with UL9540.		Tesla
4.6.2 – Repairs.		
4.6.2.1	Compliant. All repairs are performed by Tesla certified staff.	
4.6.2.2	Site specific.	Owner/Operator
4.6.2.3	N/A.	

Chapter 4 – General.		
Subsection	**Tesla comments**	**Provider**
4.6.3 – Retrofits.		
4.6.3.1	Compliant. All retrofits are listed in accordance with UL1973.	Tesla
4.6.3.2	N/A for Lithium-ion.	
4.6.3.3	N/A Megapacks are not retrofitted with other technologies or chemistries.	
4.6.4 – Replacements.		
4.6.4.1	Compliant. Replacements are considered new energy storage systems and need to comply with the corresponding requirements.	
4.6.4.2	Compliant. Site specific.	
4.6.5 – Reused Equipment - N/A		
4.6.6 – Increase in Power Rating or Maximum Stored Energy.		
4.6.6.1	Compliant. A complete energy storage unit that is added to an existing system needs to be compliant with the requirements for new systems. An existing energy storage united that is expanded needs to be compliant with the requirements for retrofits.	Scope of EPC Tesla can support
4.6.6.2	Compliant for added units.	
4.6.6.3	Site specific.	
4.6.7 – Environment. N/A - All Tesla industrial energy products have IP66/NEMA 3R rating.		
4.6.8 – Charge Controllers.		
4.6.8.1	Compliant. Products certified to UL1741.	
4.6.8.2	Compliant. Products certified to UL1741.	
4.6.9 – Inverters and Converters.		
4.6.9.1	Compliant. Products certified to UL1741.	
4.6.9.2	Site specific.	
4.6.10 - Energy Storage Management System (ESMS) Compliant – Products certified to UL9540.		
4.6.11 - ESS Toxic and Highly Toxic No release of toxic gas during normal operation Compliant. All Tesla industrial energy products contain hermetically sealed cells that do not release gas during normal operation.		
4.6.12 – Enclosures.		

Chapter 4 – General.		
Subsection	**Tesla comments**	**Provider**
4.6.12.1	Compliant. All Tesla industrial energy products have IP66/NEMA 3R rated enclosures.	
4.6.12.2	Compliant. All Tesla industrial energy products have IP66/NEMA 3R rated enclosures.	
4.7 Installations.		
4.7.1 - Electrical Installation. The electrical installation has to be compliant with NFPA 70, IEEE C2, or equivalent local code. All Tesla industrial energy products are designed to be compliant. Scope of EPC to comply on a project level.		Scope of EPC
4.7.1.1	N/A for Lithium – Ion.	
4.7.1.2	N/A for Lithium – Ion.	
4.7.2 - Seismic Protection. Seismic protection has to be compliant with the local building code. Scope of EPC to comply on a project level.		Scope of EPC
4.7.3 – Design Loads. Scope of EPC to comply on a project level.		Scope of EPC
4.7.4 - Signage.		
4.7.4.1	Scope of EPC to comply on a project level.	Scope of EPC
4.7.4.2	Scope of EPC to comply on a project level.	Scope of EPC
4.7.4.3	Scope of EPC to comply on a project level.	Scope of EPC
4.7.4.3.1	Scope of EPC to comply on a project level.	Scope of EPC
4.7.4.3.2	N/A for Lithium – Ion.	
4.7.4.4	Scope of EPC to comply on a project level.	Scope of EPC
4.7.4.5	Scope of EPC to comply on a project level.	Scope of EPC
4.7.4.6	N/A – Tesla not in an occupied work center.	
4.7.5 – Impact Protection.		
4.7.5.1	The energy storage system shall be protected with guard posts (or other approved fence) when subject to impact by motor vehicles. Scope of EPC to comply on a project level.	Scope of EPC
4.7.5.2	Scope of EPC to comply on a project level.	Scope of EPC
4.7.5.3	Scope of EPC to comply on a project level.	Scope of EPC
4.7.5.4	N/A - Applies to residential only.	

Chapter 4 – General.		
Subsection	**Tesla comments**	**Provider**
4.7.6 – Security of Installations.		
4.7.6.1	The energy storage system location shall be secured against unauthorized entry. All Tesla industrial energy products are secured against unauthorized tampering with locks. Scope of EPC to comply on a project level.	Scope of EPC
4.7.6.2	Scope of EPC to comply on a project level.	Scope of EPC
4.7.7 – Elevation. N/A for energy storage systems located on the ground floor or within reachable elevations for external fire department laddering.		
4.7.7.1 – Below grade Installations.		
4.7.7.1.1	N/A – Tesla installation outdoor only not below grade.	
4.7.7.2	N/A – No rooftop installation at this time.	
4.7.7.3	N/A for Lithium – Ion.	
4.7.8 – Means of Egress.		
4.7.8.1	Means of egress shall be compliant with the local building code. Scope of EPC to comply on a project level.	Scope of EPC
4.7.8.2	Means of egress shall be compliant with the local building code. Scope of EPC to comply on a project level.	
4.7.8.3	Scope of EPC to comply on a project level.	Scope of EPC
4.7.8.4	Scope of EPC to comply on a project level.	Scope of EPC
4.7.9 – Open Rack Installations. N/A - Tesla is outdoor installation only, non-walk-in enclosure.		
4.7.10 – Fire Command Centers. N/A for outdoor located energy storage systems. For indoor locations, it is to be determined on a project-specific basis.		
4.7.11 – Access Roads. Access roads for the fire department shall be provided in accordance with the local fire code. Scope of EPC to comply on a project level.		Scope of EPC per local fire code
4.7.12 - Hazardous (Classified) Locations. Site specific.		Scope of EPC
4.7.13 – Fire Barriers. N/A - Tesla is outdoor installation, non-walk-in enclosure.		
4.8 Smoke and Fire Detection.		

Chapter 4 – General.		
Subsection	**Tesla comments**	**Provider**
4.8.1 Scope of EPC to provide smoke detection or radiant energy-sensing system for external notification.		Scope of EPC
4.8.1.1	N/A for Lithium Ion.	
4.8.1.2	N/A for Lithium Ion.	
4.8.2 - Annunciation.		
4.8.2.1	Site specific.	AHJ
4.8.2.2	Site specific.	AHJ
4.8.3	Site specific.	
4.8.4	Site specific.	
4.9 Fire Control and Suppression.		
4.9.1	N/A for outdoor located energy storage systems with non-walk-in enclosures.	
4.9.1.1	N/A for Lithium-ion.	
4.9.1.2	N/A for Lithium-ion.	
4.9.1.3	N/A for Lithium-ion.	
4.9.1.4	N/A – Not currently installed in parking garages.	
4.9.1.5	N/A – Not in dedicated use buildings.	
4.9.1.6	N/A – Not a walk-in enclosure.	
4.9.2 - Sprinkler System.		
N/A – Not required for outdoor, non-walk-in units.		
4.9.2.1	N/A – Not required for outdoor, non-walk-in units.	
4.9.2.2	N/A – Not required for outdoor, non-walk-in units.	
4.9.3 – Alternate Automatic Fire Control and Suppression Systems.		
4.9.3.1	N/A – Additional fire control/suppression not required.	
4.9.3.2	N/A – Additional fire control/suppression not required.	
4.9.4 – Water Supply.		
4.9.4.1	Scope of EPC to comply on a project level.	Scope of EPC
4.9.4.2	Scope of EPC to comply on a project level – either permanent supply or per NFPA 1142. See Megapack application note for guidance on water supply sizing.	Scope of EPC Tesla can support

Chapter 4 – General.		
Subsection	**Tesla comments**	**Provider**
4.9.4.3	Scope of EPC.	Scope of EPC
4.9.4.4	Scope of EPC.	Scope of EPC
4.10 Mobile ESS Equipment and Operations. N/A – Not mobile.		

Chapter 5 – System Interconnections.		
Subsection	**Tesla Comments**	**Provider**
5.1 General.		
All electrical connections and wiring shall be in accordance with NFPA 70, IEEE C2 or local equivalent code. All Tesla industrial energy products are compliant.		Scope of EPC
5.2 Disconnecting Means.		
Accessible disconnecting means for the ESS. In accordance with NFPA 70 or local equivalent code. All Tesla industrial energy products are compliant.		Scope of EPC
5.2.1 N/A for Lithium-ion.		
5.2.2 N/A for Lithium-ion.		
5.3 Nonelectrical Systems.		
N/A for Section 5.3		
5.4 Support Systems.		
All connections to and from the ESS National recognized standards and manufacturer's instructions. All Tesla industrial energy products are compliant.		Scope of EPC

Chapter 6 – Commissioning		
Subsection	**Tesla Comments**	**Provider**
6.1 System Commissioning.		
6.1.1	Compliant. Commissioning realization and testing of all Tesla industrial energy products performed by Tesla. Required commissioning plan and report are provided. Commissioning of external systems is scope of EPC.	System Owner or their designated agent.
6.1.1.1	N/A for Lithium-ion.	
6.1.1.2	N/A for Lithium-ion.	
6.1.2		Scope of EPC
6.1.3 – Commissioning Plan.		
6.1.3.1	Scope of EPC.	System installer or commissioning agent
6.1.3.2	Need to fill out – Tesla to support	Tesla support
6.1.4 – Commissioning Test.		
6.1.4.1	Scope of EPC.	System installer
6.1.4.2	Scope of EPC.	Scope of EPC
6.1.5 – Commissioning Report.		
6.1.5.1	Scope of EPC.	System installer or commissioning agent
6.1.5.2	Scope of EPC.	Scope of EPC
6.1.5.2.1	Scope of EPC.	Scope of EPC
6.1.5.2.2	Scope of EPC.	Scope of EPC
6.1.5.2.3	Scope of EPC.	Scope of EPC
6.1.5.3 – Corrective Action Plan.		
6.1.5.3.1	Scope of EPC.	Scope of EPC
6.1.5.3.2	Scope of EPC.	Scope of EPC
6.1.5.4	Scope of EPC.	Scope of EPC
6.2 Issues and Resolutions Documentation. (Reserved)		
6.3 Operations and Maintenance Documentation.		
6.3.1	Compliant. All Tesla industrial energy product documentation is provided.	EPC Tesla support

Chapter 6 – Commissioning		
Subsection	**Tesla Comments**	**Provider**
	Project-related documentation is scope of EPC.	
6.3.2	Scope of EPC.	EPC Tesla support
6.3.3	Scope of EPC.	EPC/Owner
6.4 Recommissioning of Existing Systems.		
6.4.1	To be compliant with Section 6.1.	EPC/Owner
6.4.2	To be compliant with Section 6.1.	EPC/Owner
6.4.3	Scope of EPC/Owner.	EPC/Owner
6.4.4	Scope of EPC/Owner.	EPC/Owner

Chapter 7 – Operation and Maintenance		
Subsection	**Tesla Comments**	**Provider**
7.1 System Operation.		
7.1.1 – Electrical Utilities Under NERC Jurisdiction. **Owner - N/A**		
7.1.1.1	Scope of EPC/Owner.	
7.1.1.2	N/A for Lithium-ion.	
7.1.2	Compliant: (1) Owner's manual (2) Owner's manual (3) Owner's manual (4) Owner's manual and Tesla ERG (5) Scope of Owner	
7.1.3 – SDS for Hazardous Materials.		
7.1.3.1	Compliant. SDS available for R134a refrigerant contained within industrial energy products.	
7.1.3.2	Scope of Owner.	
7.1.4	Scope of Owner.	System owner or their designated agent
7.1.5	Scope of Owner.	
7.1.5.1	Scope of Owner.	
7.1.5.2	Scope of Owner.	
7.2 System Maintenance.		
7.2.1	Compliant. Maintenance documentation is provided for all industrial energy products. All maintenance is performed by Tesla certified personnel.	
7.2.2	Compliant. All maintenance is performed by Tesla certified personnel.	
7.2.3	Compliant. All maintenance is performed by Tesla certified personnel.	
7.2.4	Compliant. All maintenance is performed by Tesla certified personnel.	
7.2.5 – Training.		

Chapter 7 – Operation and Maintenance		
Subsection	**Tesla Comments**	**Provider**
7.2.5.1	Owner.	System Owner or their designated agent(s)
7.2.5.2	Owner.	
7.2.5.3	Owner.	
7.3 System Testing.		
7.3.1	Scope of EPC with support from Tesla.	Tesla can support
7.3.2	Scope of EPC/Owner.	
7.3.2.1		

Chapter 8 – Decommissioning		
Subsection	**Tesla Comments**	**Provider**
8.1 Decommissioning Plan. Documentation from Tesla to be provided if needed.		
8.1.1	N/A for Lithium-ion.	Owner of an ESS or their designated agent(s)
8.1.2	N/A for Lithium-ion.	
8.1.3	Scope of Owner.	Owner
8.2 Decommissioning Process.		
8.2.1	Scope of Owner.	
8.2.2		
8.3 Decommissioning Report.		
8.3.1	Scope of Owner.	ESS Owner or their designated agent(s)
8.3.2	Scope of Owner.	Owner
8.3.3	Scope of Owner.	Owner

Chapter 9 – Electrochemical Energy Storage Systems		
Subsection	**Tesla Comments**	**Provider**
9.1 General.		
9.1.1	Chapter 9 applies to Lithium-ion. To be compliant as applicable.	
9.1.2	N/A.	
9.1.3	N/A.	
9.1.4	See chapters 4 through 8 for further details.	
9.1.5 – Fire and Explosion Testing.		
9.1.5.1	Compliant. UL9540A test report available for review.	
9.1.5.1.1	N/A for Lithium-ion.	
9.1.5.1.2	Compliant. FPE report available for review.	
9.1.5.1.3	Compliant. Manufacturer installation requirements align with devices tested.	
9.1.5.1.4	Compliant. FPE report available for review.	
9.1.5.2 - Test Reports.		
9.1.5.2.1	Compliant. UL9540A test report available for review.	
9.1.5.2.2	Compliant. FPE report available for review.	
9.2 Equipment.		
9.2.1 – Listing.		
9.2.1.1	Compliant. UL9540 listed.	
9.2.1.2	N/A for Lithium-ion.	
9.2.2 - HMA for Existing Lithium-Ion ESS.		
9.2.2.1	N/A for Megapack.	
9.2.2.2	N/A for Megapack.	
9.2.3 - Energy Storage Management System (ESMS).		
9.2.3.1	Compliant.	
9.2.3.2	Compliant.	
9.2.3.3	Site specific.	Scope of EPC
9.2.3.4	N/A for Lithium-ion.	
9.2.4 - Repurposed and Refurbished Batteries.		
9.2.4.1	N/A – Tesla does not use repurposed or refurbished batteries.	

Chapter 9 – Electrochemical Energy Storage Systems		
Subsection	**Tesla Comments**	**Provider**
9.2.4.2	N/A – Tesla does not use repurposed or refurbished batteries.	
9.3 Location Classification - Site specific.		Scope of EPC
9.3.1 – Indoor Installation. N/A – Megapack is an outdoor installation only.		
9.3.2 – Outdoor Installations. Site specific for outdoor locations.		
9.4 Installation.		
9.4.1 – Maximum Stored Energy. (1) N/A (2) Near exposures do not exceed the maximum stored energy values in Table 9.4.1 except as permitted by 9.4.1.2. (Generic HMA and fire testing available to meet 9.4.1.2) (3) N/A (4) N/A		Site specific Tesla can support
9.4.1.1	N/A – Megapack is an outdoor installation only.	
9.4.1.2	Site specific.	
9.4.1.3	N/A.	
9.4.1.4	N/A.	
9.4.2 – Size and Separation.		
9.4.2.1	See 9.4.2.3.	
9.4.2.2	See 9.4.2.3.	
9.4.2.3	Compliant. FPE report available for review.	
9.4.2.4	N/A for Lithium-ion.	
9.5 Location and Applications.		
9.5.1 – Indoor Installations. N/A for standard outdoor installations; otherwise, it is to be determined on a project-specific basis.		
9.5.1.1	N/A – Not a dedicated use building.	
9.5.1.2	N/A for standard outdoor installations; otherwise, it is to be determined on a project-specific basis.	
9.5.2 Outdoor Installations. Compliant for outdoor installations.		Scope of EPC

Chapter 9 – Electrochemical Energy Storage Systems		
Subsection	**Tesla Comments**	**Provider**
9.5.2.1	Tesla can provide documents to support HMA and the generic HMA.	Scope of EPC
9.5.2.2		
9.5.2.2.1	Areas within 10 ft (3048 mm) of the outer enclosure should be cleared of combustible vegetation.	Scope of EPC/Owner.
9.5.2.2.2	Exceptions can be made for single trees, cultivated covers (green grass), and other plants.	Scope of EPC/Owner.
9.5.2.3	N/A for 9.5.2.3 section for energy storage systems with non-walk-in enclosure.	
9.5.2.4		
9.5.2.4.1	Compliant. All Tesla industrial energy product enclosures are smaller than the maximum allowed size.	
9.5.2.4.2	N/A – Meet maximum size.	
9.5.2.5	Scope of EPC. Need to review with local code to eliminate water supply. If not, follow NFPA 1142.	ESS Owner and approved by the AHJ
9.5.2.6		
9.5.2.6.1	Site specific. N/A for remote locations. Minimum distance to any external (or hazardous) equipment is of 10 ft (3048 mm). See 9.5.2.6.1.3 and 9.5.2.6.1.4 for possible spacing reductions.	
9.5.2.6.1.1	Site specific.	
9.5.2.6.1.2	Site specific.	
9.5.2.6.1.3	FPE report available for review for spacing reduction.	
9.5.2.6.1.4	FPE report available for review for spacing reduction.	
9.5.2.6.1.5	N/A for Tesla products.	
9.5.2.6.1.6	N/A for Megapack.	
9.5.2.6.1.7	N/A for energy storage systems in Remote locations (see definition in Section 4.4.3.1). Otherwise, minimum distance to any means of egress of 10 ft (3048 mm). Minimum distance can be reduced to 3 ft (917 mm) when accepted by the AHJ through the results of a large-scale fire test (see Section 4.1.5). Scope of EPC to comply on a project level.	
9.5.2.6.1.8	N/A.	

Chapter 9 – Electrochemical Energy Storage Systems		
Subsection	**Tesla Comments**	**Provider**
9.5.3 Specific Outdoor Locations.		
9.5.3.1	N/A for standard outdoor installations; otherwise, it is to be determined on a project-specific basis.	
9.5.3.2	N/A for standard outdoor installations; otherwise, it is to be determined on a project-specific basis.	
9.6 Protection and Remediation.		
9.6.1 – Smoke and Fire Detection. Smoke detection or radiant energy–sensing system to be installed by EPC/Owner.		
9.6.2 – Fire Control and Suppression.		
9.6.2.1	N/A for outdoor located energy storage systems with non-walk-in enclosures; otherwise, it is to be determined on a project-specific basis.	
9.6.2.2	N/A for Lithium-ion.	
9.6.2.3	Scope of EPC.	
9.6.3 – Water Supply.		
9.6.3.1	Compliant. See 4.9.4 for details.	
9.6.3.2	N/A for Lithium ion.	
9.6.4 – Fire Barriers. N/A for outdoor installations.		
9.6.5 – Technology-Specific Requirements. Compliant. Per Table 9.6.5 – only 9.6.5.5 and 9.6.5.5 apply for Lithium-ion technology.		
9.6.5.1	N/A for all 9.6.5.1 section. In accordance with Table 9.6.5 Li-ion batteries do not require exhaust ventilation.	
9.6.5.2	N/A for all 9.6.5.2 section. In accordance with Table 9.6.5.	
9.6.5.3	N/A for all 9.6.5.3 section. In accordance with Table 9.6.5 - Li-ion batteries do not require neutralization.	
9.6.5.4	N/A. In accordance with Table 9.6.5 - Li-ion batteries do not require safety caps.	
9.6.5.5	Compliant. Required by Table 9.6.5 - Permitted to be part of the battery management system compliant to UL 1973 and UL 9540 per 9.6.5.5.2.	
9.6.5.5.1	N/A for Lithium-ion.	

Chapter 9 – Electrochemical Energy Storage Systems		
Subsection	**Tesla Comments**	**Provider**
9.6.5.5.2	Compliant. Battery Management System evaluated as part of UL 1973 and UL 9540.	
9.6.5.6		
9.6.5.6.1	Compliant. Required per Table 9.6.5 for Lithium-ion.	
9.6.5.6.1.1		
9.6.5.6.1.2	N/A for Lithium-ion.	
9.6.5.6.2	N/A for Lithium-ion.	
9.6.5.6.3	Compliant to (2). N/A. Not per NFPA 69 N/A. See 9.6.5.6.4	
9.6.5.6.4	Compliant. Megapack tested per unit level testing. Deflagration analysis available.	
9.6.5.6.5	Compliant. All Tesla industrial energy products' testing completed to UL 9540A that complies with 4.1.5. No deflagrations or ejections of hazardous materials occurred during full unit-level testing. Reports available.	
9.6.5.6.6	Compliant. (1) See 9.6.5.6.3 (2) N/A for Megapack	
9.6.5.6.7	N/A for Megapack. NFPA 69 not utilized.	
9.6.5.6.8	N/A.	
9.6.5.6.9	Compliant. FPE report available for review.	
9.6.6 – Remediation Measures.		
9.6.6.1	Authorized service personnel shall be sent on site in case of a fire event, or other possible event that might cause ignition of the energy storage system. All service personnel are Tesla certified.	
9.6.6.2	Scope of Owner.	Owner or their authorized agent
9.6.6.2.1	Scope of Owner.	
9.6.6.2.2	Scope of Owner.	
9.6.6.2.3	Scope of Owner.	
9.6.6.2.4	Scope of Owner.	Owner
9.6.6.2.5	Scope of Owner.	

Revision History

Revision	Date	Description
1.1	August 1, 2024	Updated to NFPA 855-2023 edition
1.0	August 12, 2022	Initial Revision (current to NFPA 855-2020 edition)

Contact codecompliance@tesla.com with any code-related questions or inquiries.

Tesla Megapack 2 XL

Fire Protection Engineering and
UL 9540A Interpretation Report

FIRE & RISK ALLIANCE

EXECUTIVE SUMMARY

Fire & Risk Alliance (FRA), performed a fire protection engineering (FPE) analysis of Tesla's Megapack 2 XL (MP2XL) battery energy storage system (BESS). The MP2XL (MP2XL) is a lithium-ion BESS with a storage capacity up to four megawatt hours (MWh). The MP2XL is a fully integrated BESS consisting of battery modules, power electronics, control systems, a battery management system, a thermal management system, and an explosion control system all pre-assembled within a single, non-occupiable cabinet. They are meant for outdoor installations, mounted to the ground, for commercial, industrial, and utility applications. This FPE analysis includes a review of the MP2XL, its construction, design, fire safety features, and an analysis of the UL 9540A cell, module, and unit level test data. Based on this review, FRA offers the following summary of our findings:

1. UL 9540A cell and module level testing demonstrated that flammable gases vent from the MP2XL cells during thermal runaway; however, the cells do not release toxic gases sometimes associated with the failure of lithium-ion batteries, such as HCN, HCL and HF.

2. UL 9540A unit level testing forced six cells into thermal runaway, which resulted in propagation to a seventh cell; however, thermal runaway did not propagate beyond the seventh cell.

3. During UL 9540A unit level testing, the MP2XL met all the performance criteria of UL 9540A, Table 9.1. Therefore, UL 9540A installation level testing is not required for a MP2XL installation.

4. The MP2XL can meet or exceed all the installation level codes and standards, such as the IFC and NFPA 855, required for outdoor, ground mounted BESS installations when it is installed in accordance with the MP2XL Design and Installation Manual.

This executive summary is an abbreviated list of findings. Refer to the main report for details of the analysis.

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1. INTRODUCTION

Fire & Risk Alliance (FRA), performed a fire protection engineering (FPE) analysis of Tesla's Megapack 2 XL (MP2XL) battery energy storage system (BESS). The MP2XL is a lithium-ion BESS with a storage capacity of up to four megawatt hours (MWh). The MP2XL is a fully integrated BESS consisting of battery modules, power electronics, control systems, a battery management system, a thermal management system, and an explosion control system all pre-assembled within a single, non-occupiable cabinet. They are meant for outdoor installations, mounted to the ground, for commercial, industrial, and utility applications. This FPE analysis includes a review of the MP2XL, its construction, design, and fire safety features, and an analysis of the UL 9540A cell, module, and unit-level test data. This narrative has been prepared by FRA and summarizes our analysis. It is intended to be used as a tool for a project designer, installer, fire code official (FCO), or an authority having jurisdiction (AHJ) to assist in their design, installation, or review of a MP2XL installation.

1.1 Codes, Standards, and Test Methods

The following codes, standards, and test methods have been applied to this analysis:

- 2024 International Building Code® (IBC).
- 2024 International Fire Code® (IFC).
- 2024 NFPA 1, Fire Code (NFPA 1).
- 2023 NFPA 855, Standard for the Installation of Stationary Energy Storage Systems (NFPA 855).
- 2023 NFPA 68, Standard on Explosion Protection by Deflagration Venting (NFPA 68).
- 2024 NFPA 69, Standard on Explosion Prevention Systems (NFPA 69).
- IEC 60529, Degrees of Protection Provided by Enclosures, 2.2 Edition, January 2019 (IP Code).
- IEC 62619, Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for secondary lithium cells and batteries, for use in industrial applications, Edition 1.0, 2017 (IEC 62619).
- IEC 62933-5-2, Electrical energy storage (EES) systems - Part 5-2: Safety requirements for grid-integrated EES systems - Electrochemical-based systems, April 15, 2020 (IEC 62933-5-2).
- UL 1642, Lithium Batteries, Edition 6, September 29, 2020 (UL 1642).
- UL 1973, Standard for Batteries for Use in Stationary, Vehicle Auxiliary Power and Light Electric Rail (LER) Applications, Edition 2, February 7, 2018 (UL 1973).
- UL 9540, Standard for Safety of Energy Storage Systems and Equipment, Edition 2, February 27, 2020 (UL 9540).
- UL 9540A, Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems, Edition 4, November 12, 2019 (UL 9540A).

1.2 Reference Materials

In addition to the fire codes, standards, and test methods listed above, the following reference materials were reviewed as part of this analysis:

- MP2XL Design and Installation Manual – Rev. 2.2, dated January 30, 2024 (MP2XL DIM).
- MP2XL Operation and Maintenance Manual - Rev. 1.2, dated January 30, 2024 (MP2XL O&MM).
- Industrial Lithium-Ion Battery Emergency Response Guide – Rev. 2.7, dated February 16, 2024 (ERG).
- MP2/2XL UL 9540A Cell Level Fire Test Report, dated February 25, 2022.
- MP2/2XL UL 9540A Module Level Fire Test Report, dated July 15, 2022.
- MP2/2XL UL 9540A Unit Level Fire Test Report, dated August 5, 2022.
- Megapack 2XL Compliance Packet – Rev. 2.8, dated February 14, 2024.

1.3 Acronyms and Abbreviations

Authority Having Jurisdiction	AHJ	Light Electric Rail	LER
Battery Energy Storage System	BESS	Lithium Iron Phosphate	LFP
Battery Management System	BMS	Lower Flammability Limit	LFL
Centimeter	cm	Megapack 2	MP2
Contemporary Amperex Technology Co., LTD	CATL	Megapack 2XL	MP2XL
Controller Area Network	CAN	Megapack 2 & 2 XL	MP2/2XL
Customer Input/Output Terminals	I/O	Megawatt hour	MWh
Customer Interface Bay	CIB	Meter	m
Electrical Energy Storage	EES	Millimeter	mm
Emergency Response Plan	ERP	National Fire Protection Association	NFPA
Energy Storage System	ESS	Nationally Recognized Testing Laboratory	NRTL
Fire Code Official	FCO	Non-walk-in	NWI
Failure Modes and Effects Analysis	FMEA	Parts Per Million	ppm
Feet	ft	Pound Per Square Inch Gauge	psig
Fire Protection Engineering	FPE	Safety Data Sheet	SDS
Fire & Risk Alliance, LLC	FRA	Second	s
Gram	g	State of Charge	SOC
International Electrotechnical Commission	IEC	Supervisory Control and Data Acquisition	SCADA
International Fire Code	IFC	Tesla Site Controller	TSC
Inch	in	Thermal Management System	TMS
Kilogram	kg	TÜV SÜD	TÜV
Kilowatt hour	kWh	UL, LLC	UL

2. MP2XL DESIGN & FIRE SAFETY FEATURES

The MP2XL is a fully integrated BESS consisting of battery modules, power electronics, control systems, a battery management system, a thermal management system, and an explosion control system all pre-assembled within a single, non-occupiable cabinet. The MP2XL has a standardized, modular design that is not customizable or adjustable. MP2XL arrives at the site fully assembled needing just the alternate current (AC) connection and communications cables to be connected on the site. Meaning, every installation has the same MP2XL cabinets that are pre-assembled at the factory. It is approximately 28.9 ft in length, 5.4 ft deep, 9.2 ft in height, and can weigh up to 84,000 pounds (8.800 m by 1.650 m by 2.785 m and 38,100 kg). Below is a brief description of the MP2XL, its components, design listing, and fire safety features. For a more detailed discussion on the MP2XL components, their location, functionality, and purpose, refer to the MP2XL DIM.

2.1 Cabinet Layout

The MP2XL is intended for outdoor installations, ground-mounted to a foundation or base strong enough to support the weight of the equipment and anchor loads (including concrete pads, grade beams, etc.). The thermal roof (part of the thermal management system) is enclosed within an IP20 enclosure that sits above the battery module bays, as shown in Figure 1.

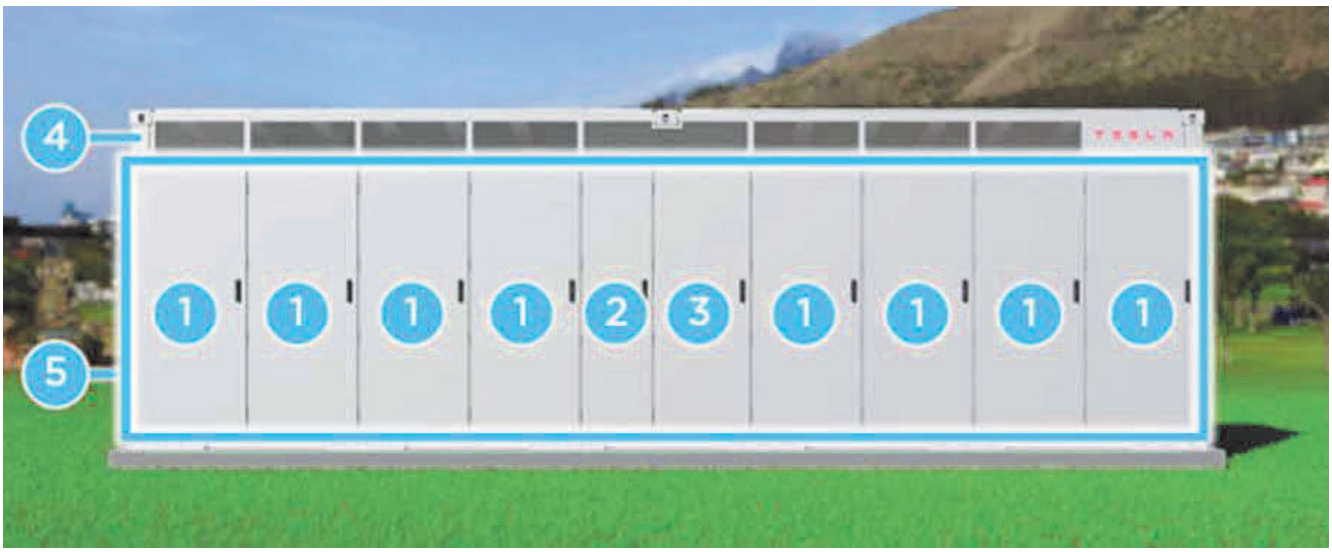

Figure 1 MP2XL internal components: (1) Battery Module Bays, (2) Thermal Cabinet, (3) Customer Interface Bay, (4) IP20 Thermal Roof Enclosure, (5) IP66 Enclosure.

The lithium-ion batteries are housed inside an IP66 steel enclosure (battery module bay) that provides protection against particle and water ingress coming into contact with the battery modules and power electronics. The IP66 enclosure is one continuous unit, meaning each of the ten bays are open to one another. However, when the MP2XL cabinet is populated with battery modules, it cannot be entered. This modular, cabinet style approach allows for the system to be easily maintained and serviced from outside the cabinets

(i.e., the battery modules, thermal management system, and power electronics are serviced through doors located on the front of the cabinets or from the top through the thermal roof), thus eliminating the need for personnel to enter an enclosure, structure, building or container to perform those activities. Since the BESS cabinets do not permit walk-in access, it is a non-walk-in style (NWI) BESS, they are not defined as occupied buildings or structures per the IBC, IFC, NFPA 1, or NFPA 855.

2.2 Cells and Battery Modules

The MP2XL can be populated with up to twenty-four battery modules with a maximum storage capacity of 3,854.4 kWh for the 2-hour duration system, 3,847.2 kWh for the 3-hour duration system, and 3,916.8 kWh for the 4-hour duration system. Each battery module contains three battery trays, as shown in Figure 2, which are arrays of prismatic, lithium phosphate (LFP) cells. The LFP cells (the cells) utilized in the MP2XL are 157.2 amp hour (Ah) with a nominal voltage of 3.22 volts (V) and are individually hermetically sealed. They are approximately 50.75 millimeters (mm) by 166.0 mm by 169.3 mm and weigh 2,991 grams (g). Each battery tray contains 112 cells; therefore, each battery module has 336 cells, and a fully populated MP2XL (twenty-four battery modules) has 8,064 cells. Note the MP2XL utilizes the same cells and battery modules found in the Megapack 2 (MP2).

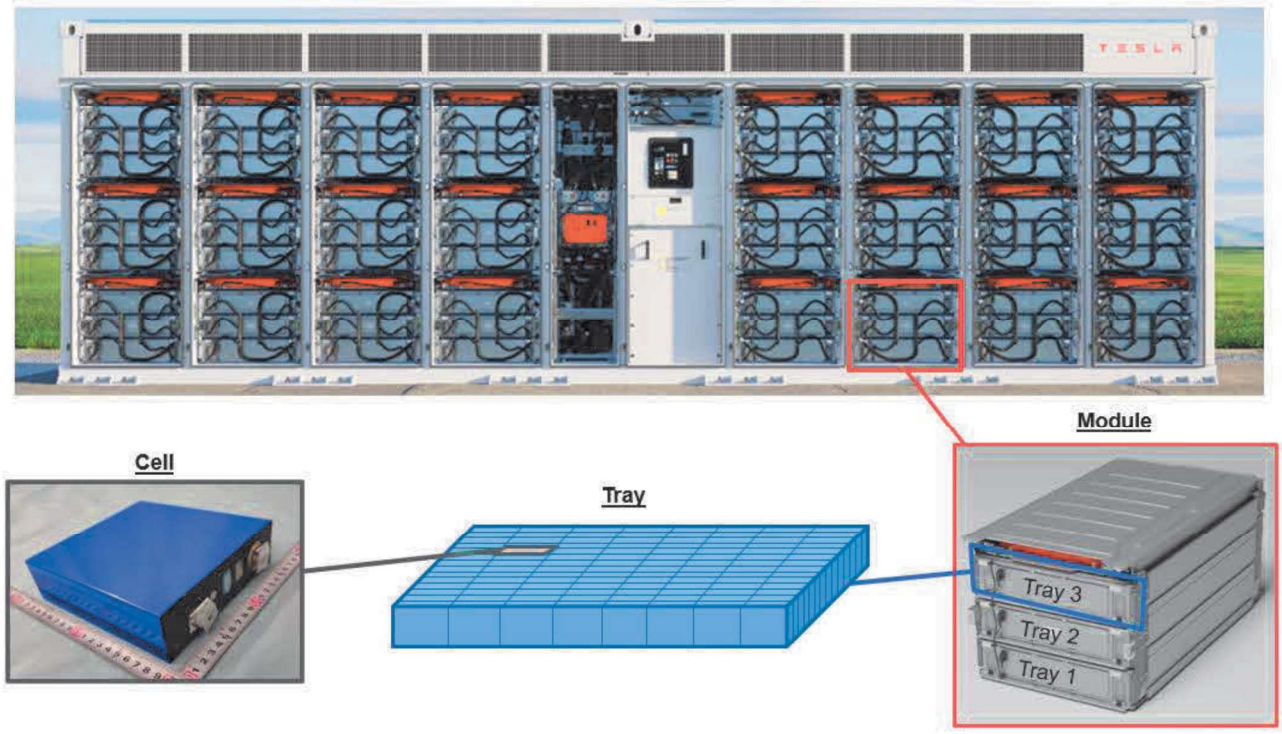

Figure 2 MP2XL, module, generalized tray, and an individual cell layout.

2.3 Customer Interface Bay

The Customer Interface Bay (CIB) is a single bay that includes all the external connections needed for initial MP2XL installation. When the fully assembled MP2XL arrives at the site, the only work necessary inside the cabinet is performed inside the CIB. Once installed, the CIB is a user-accessible area designed for operation and servicing. The CIB includes the main AC breaker, a status panel and controller area network (CAN) interface for service personnel, customer input/output (I/O) terminals, and the keylock switch (a “Lock Out/Tag Out” switch), which shuts down the AC bus to permit MP2XL maintenance by service personnel.

2.4 Thermal Management System

The thermal management system (TMS) provides a suitable operating temperature for MP2XL. The thermal bay and thermal roof house the components of the TMS. The TMS contains a closed-loop liquid cooling system that circulates a 50/50 mixture of ethylene glycol and water throughout the battery modules and power electronics to maintain an optimum battery operating temperature. The TMS works autonomously and does not require user feedback or controls to turn the system on when needed or to adjust temperature settings. The thermal cabinet includes pumps that circulate the liquid coolant through the MP2XL, an in-line heater that can warm the coolant and a compressor that maintains thermal control for the cabinet. The thermal roof, located above the battery bays within its own IP20 enclosure, provides a ventilation airspace for the MP2XL. It contains fans and radiators that cool the ethylene glycol-water solution. Cool air enters the thermal roof through the grates on the front of the MP2XL. The cool air then passes over the radiators, absorbing heat, and then is exhausted out of the top of the thermal roof via fans, as shown in Figure 3. The liquid cooling system utilizes approximately 400 liters (106 gallons) of the ethylene glycol-water solution, and the compressor utilizes 1.5 kilograms (3.3 pounds) of R-134a refrigerant for the 4-hour duration MP2XL and 3.0 kilograms (6.6 pounds) for the 2-hour duration MP2XL.

Figure 3 Airflow through the thermal roof.

2.5 Battery Management System

The MP2XL has an integrated battery management system (BMS) that tracks the performance, voltage, current, and state of charge of the cells (among many other datapoints). The BMS is a layered system, where each battery module has its own BMS and the MP2XL itself has a bus controller supervising the output of all the battery modules at the AC bus level. The BMS is engineered to react to fault conditions in an autonomous manner, with safeguards built into the firmware. These fault conditions include, but are not limited to, over-temperature, loss of communication, over-voltage, and isolation. For instance, to prevent a cell over-temperature the TMS is enabled by the BMS to cool the cells/module. This action by the BMS (which is just one example of many ways the BMS can respond to a fault condition) can either prevent thermal runaway from occurring in the cell or prohibit the propagation of thermal runaway to adjacent cells. Depending on the severity of the fault condition, the BMS can automatically isolate the affected battery module temporarily (less severe fault) or it can permanently disconnect the module.

2.6 Site Controller and Monitoring

Beyond the built-in safeguards of the BMS described above, the MP2XL is supported by a Tesla Local Operations Center (LOC), which is designed to support the global fleet of energy storage products. The MP2XL has 24/7 remote monitoring, diagnostics, and troubleshooting capabilities, without needing a Tesla technician on site. Customers and first responders also benefit from immediate hotline support from trained technicians via these LOCs. Additionally, the local energy provider or the facility can monitor the MP2XL through a local Supervisory Control and Data Acquisition (SCADA) system. All faults are transmitted to a Tesla LOC, alerting them to off-normal conditions that may require corrective action, either through remote means or an in-person field service visit. This communication link is accomplished via the Tesla Site Controller (TSC). The TSC provides the single point of interface for the utility, network operator, and/or the customer's SCADA systems to control and monitor the entire energy storage site. It dictates the charge and discharge functions of the MP2XL cabinets, aggregating real-time information and using the information to optimize the commands sent to each individual MP2XL cabinet. As such, every MP2XL has a wired Ethernet connection to the TSC, which communicates with a Tesla LOC via a built-in cellular modem. If the cellular network in the installation area is not sufficient, a hardwired internet connection can be provided. Additionally, if the BESS owner or operator wants a network connection for a control interface, the TSC becomes that point of connection to the MP2XL cabinet at the site

2.7 Electrical Fault Protection Devices

The MP2XL has several passive and active safety control mechanisms installed within the battery module circuit and distribution circuit that would be available to interrupt a fault current. At a high level, these electrical fault protection features include:

- Battery module overcurrent protection: The battery modules contain DC single-use fusible links mounted directly on the battery modules. These fuses are one-time only use safety devices that can interrupt the flow of an overcurrent in the battery module during an off-normal electrical event.

- Inverter DC protection: The inverter modules, which are installed at each of the battery modules, are equipped with a high-speed pyrotechnic fuse that can isolate the battery module passively or actively during an off-normal event.
- Inverter AC protection: In addition, each inverter module is equipped with its own AC contactor and AC fuses should an off-normal electrical event occur at the inverter module on the AC side of the circuit.
- Ground fault protection: Finally, the MP2XL is also provided with a DC ground fault detection system. It measures insulation resistance prior to operation and looks for excessive leakage current during operation. Additionally, the MP2XL also contains an AC circuit breaker, with ground-fault trip settings, which is installed within the CIB to provide distribution system protection.

2.8 Explosion Control System

The MP2XL includes an explosion control system to mitigate the risk of an uncontrolled deflagration. The system includes pressure-sensitive vents (overpressure vents) and sparkers installed throughout the battery module bay. The sparkers are designed to ignite flammable gases very early in a thermal runaway event before they accumulate within the enclosure and become an explosion hazard. They are installed at a variety of locations and heights throughout the battery module bays to ensure the flammable gases released during thermal runaway quickly meet an ignition source. Note, this explosion control system is the same approach that Tesla has utilized in previous versions of the Megapack (Megapack 1 and Megapack 2) and is not a new concept. It has been extensively validated through installation level testing for these previous Megapack versions as well as the MP2XL and its performance has been demonstrated in the field during thermal events involving Megapacks.

The overpressure vents are installed in the roof of the sealed battery bay's IP66 enclosure, as shown in Figure 4. When activated, the overpressure vents open up into the enclosed thermal roof, ensuring that the release of the overpressure vents does not create a projectile hazard. In addition, since they are installed in between the battery module bays and the thermal roof, the overpressure vents are not exposed to the environment, which means they are protected from the elements, such as falling tree limbs or snow, which could impact their functionality.

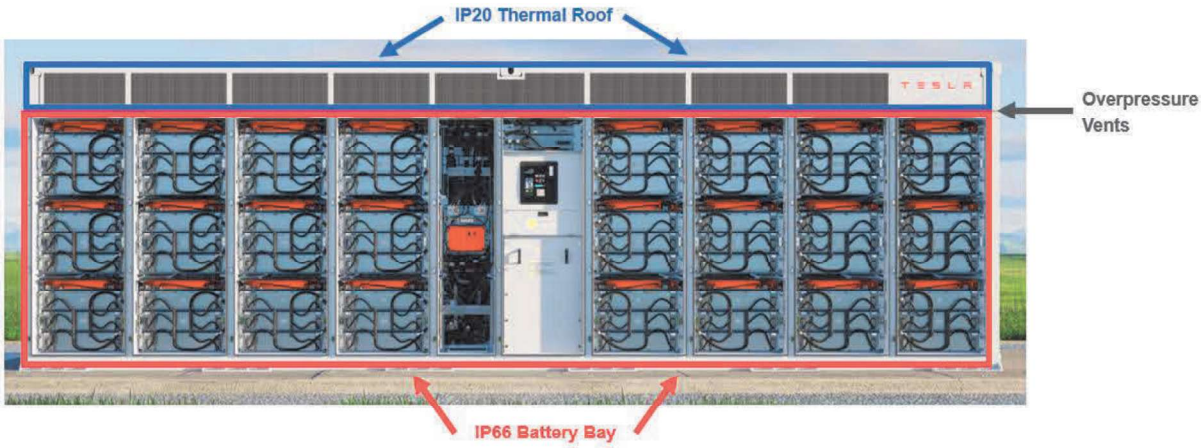

Figure 4 Location of overpressure vents in between the IP66 battery bay and the IP20 thermal roof

Once opened, the overpressure vents permit gases, products of combustion, and flames to safely exhaust through the roof of the MP2XL during a thermal event. By designing this natural ventilation flow path, flammable gases are not permitted to accumulate within the MP2XL cabinet, reducing the risk of a deflagration or explosion that could compromise the cabinet's integrity, push open the front doors, or expel projectiles from the cabinet. In addition, the ventilation path creates a controlled fire condition, should one occur, out the top of the MP2XL cabinet. By maintaining the MP2XL cabinet's integrity, keeping all the doors shut during a fire event, reducing the risk of projectiles, and creating a controlled path for flames to exit the top of the MP2XL cabinet, the likelihood of a thermal event having an impact on life safety, site personnel or first responders, is reduced. In addition, by maintaining these features, the likelihood of a fire propagating to adjacent MP2XL cabinets, electrical equipment, or other exposures is also reduced.

The overpressure vents themselves are passive and are not actuated or controlled by another device. They are designed to release during an overpressure event, such as the rapid ignition of flammable gases by a sparker. The number and total area of overpressure vents were sized following the guidance of NFPA 68 with a safety factor of two times the enclosure's strength, including the front doors. Tesla developed the overpressure vents and sparker system because the direct application of NFPA 68 or NFPA 69 is not suitable for the MP2XL cabinet, which does not have large volumes of open-air space. This engineered approach is permitted by NFPA 855 §9.6.5.6.4 provided it is validated by installation-level fire and explosion testing and an engineering evaluation, which Tesla has performed.

2.9 Fire Detection

The MP2XL does not have an internal fire detection system or one that is integral to its design/construction. If fire detection is required at the BESS site, multi-spectrum IR flame detectors can be installed external to the MP2XL to detect flames exiting the cabinets. Testing performed by Tesla has demonstrated that multi-spectrum IR flame detectors are capable of detecting a fire once flames have exited the cabinet.

2.10 Clearances

The MP2XL can be installed back-to-back and side-to-side with a clearance distance of 6 inches and can be installed 8 feet in front of adjacent MP2XL cabinets. These clearance distances are based on large-scale fire tests and fire modeling results that demonstrate a fire will not propagate from one MP2XL to adjacent MP2XL cabinets.

2.11 Emergency Response

Tesla developed a lithium-ion battery emergency response guide (ERG) to provide guidance to anyone responding to an emergency involving a MP2XL. This guide can be utilized by site owners to develop their own site-specific emergency response plans.

3. MP2XL PRODUCT LISTINGS

The MP2XL and its subcomponents are certified or listed to multiple national and international product design standards. These certifications and listings apply to the cells, battery modules, inverters, power electronics, control systems, integration between the BESS and the grid, as well as the BESS as a whole. The standards highlighted below pertain to the lithium-ion cells, the battery modules, and the MP2XL BESS at the unit level. For a full listing of all certifications and listings for all the MP2XL components, please refer to the MP2XL Compliance Packet.

3.1 Cell and Module Level

The lithium-ion batteries utilized in MP2XL are certified and listed to national and international product safety standards from entities such as UL, LLC (UL) and the International Electrotechnical Commission (IEC). These certifications include, but are not limited to:

UL 1642: This certification standard is applicable to secondary (rechargeable) lithium-ion cells and batteries used as a power source (such as BESS). The standard's requirements are intended to reduce the risk of fire or explosion when the battery is used in a product. For example, the standard subjects lithium-ion batteries to severe abuse conditions and evaluates if they can safely withstand them.

UL 1973: This certification standard is applicable to batteries and battery systems utilized for energy storage. The standard evaluates the battery system's ability to safely withstand simulated abuse conditions. For example, the standard subjects module-level stationary batteries to an internal fire exposure test to force a thermal runaway in one cell to ensure it does not explode, propagate fire to neighboring cells, or propagate to the rest of the modular battery system. UL 1973 applies to stationary BESS applications, such as photovoltaic installations and wind turbine energy storage systems, as well as other specialized energy storage systems, such as light electric rail (LER) operations.

IEC 62619: This safety standard specifies requirements and tests to ensure the safe operation of secondary (rechargeable) lithium-ion cells and batteries used in ESS and in other industrial applications. Electrical safety is covered under Clause 8 of the standard, which requires the completion of a risk analysis to determine specific electrical safety issues associated with the intended use of a given battery system or device.

3.2 Unit Level

The MP2XL, as entire cabinets, are also certified, tested, and listed to national and international product safety standards and test methods, including, but not limited to:

IEC 62933-5-2: This safety standard addresses various aspects of BESS, including the requirements for grid-integrated BESS.

UL 9540: This standard covers energy storage systems (including lithium-ion BESS) for stationary indoor and outdoor installations and establishes the system-level certification for energy storage systems and their associated equipment.

UL 9540A: The test methodology evaluates the fire characteristics and thermal runaway fire propagation of a BESS (including lithium-ion BESS). The test method provides a means to evaluate thermal runaway and fire propagation at the cell level, module level, and unit level. The data generated from the test method can be used to determine the fire and explosion protection required for a BESS installation based on fire test data. This test is specifically referenced by the IFC, NFPA 1, and NFPA 855 to demonstrate the functionality of the BESS fire protection features during large-scale fire testing.

3.3 Installation Level

The MP2XL can meet the installation level requirements in the 2024 Edition of the International Fire Code, the 2023 Edition of NFPA 855, and the 2022 California Fire Code for outdoor, ground-mounted BESS installations when they are installed in accordance with its listing and the MP2XL DIM.

4. UL 9540A TESTING

The UL 9540A test method provides a method to evaluate thermal runaway and fire propagation of a lithium-ion BESS at the cell level, module level, unit level, and installation level. The data generated from the test method can be used to determine the fire and explosion protection systems/features required for a BESS installation. This includes, but is not limited to, thermal runaway characteristics of the cell; cell thermal runaway gas composition; the fire propagation potential from cell to cell, module to module, and unit to unit; products of combustion; heat release rate; smoke release rate; and performance of fire protection systems. A summary of the cell, module, and unit-level test results for the MP2XL is provided below.

4.1 UL 9540A Cell Level Testing

Cell-level testing was conducted at UL in December 2021. UL is an OSHA-approved Nationally Recognized Testing Laboratory (NRTL) and offers the UL mark for products. Testing was performed on five model CB5T0, 3.22 V, 157.2 Ah, LFP cells manufactured by Contemporary Amperex Technology Co., Ltd. (CATL) for use in the Megapack 2 and Megapack 2 XL (MP2/2XL).[1] Each cell was charged to 100% state of charge (SOC) prior to testing. Thermal runaway was initiated via film strip heaters installed on both of the wide side surfaces of each cell, as shown in Figure 5. Meaning two heaters were installed on each cell. The heaters were programmed to increase the temperature of the cell's surface by approximately 4.5°C per minute until the cell vented and went into thermal runaway. The cell was placed within an enclosed enclosure and the products released during testing were collected and analyzed.

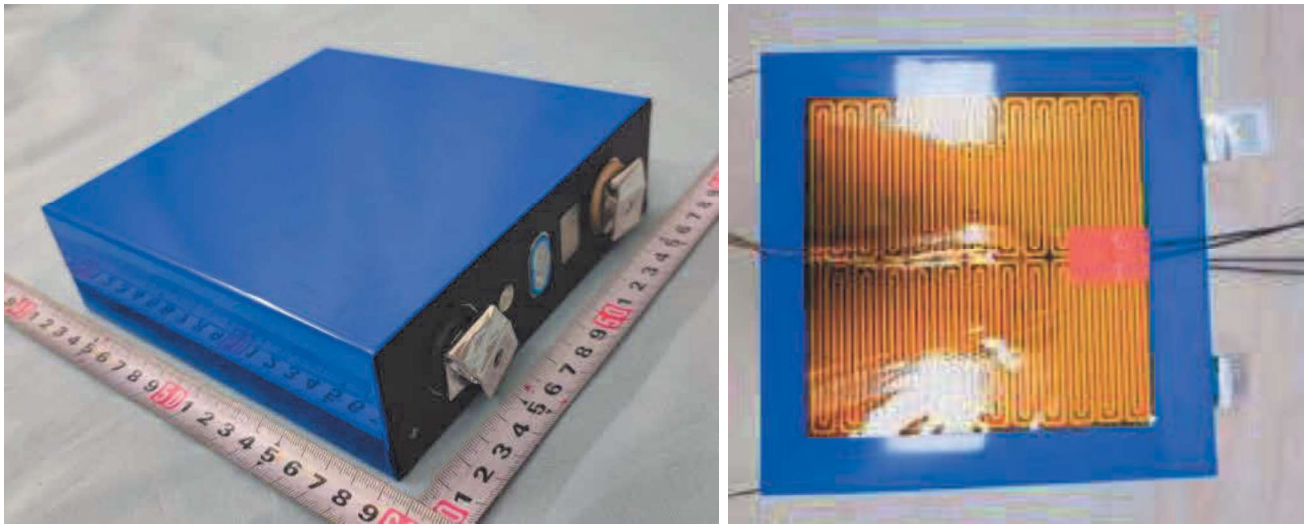

Figure 5 Individual cell tested to UL 9540A (left) and installed film strip heater (right).

[1] Note, as described in Section 2.2, the MP2 and MP2XL utilize the same cells and battery modules.

4.1.1 Test Results

The key flammability and gas composition properties from the UL 9540A cell level tests are summarized below in Table 1 and Table 2.

Table 1 UL 9540A Cell Level Testing: Key Flammability Characteristics

Flammability Property	Value
Average cell surface temperature at gas venting	174°C
Average cell surface temperature at thermal runaway	239°C
Cell vent gas volume released	93.3 L
LFL, % volume in air at the ambient temperature	7.15%
LFL, % volume in air at the venting temperature	6.05%
Burning Velocity (S_u)	90.0 cm/s
Maximum pressure (P_{max})	98.46 psig

Table 2 UL 9540A Cell Level Testing: Cell Vent Gas Composition (Excluding O_2 and N_2)

Gas Name	Chemical Structure	% Measured	Component LFL
Carbon Monoxide	CO	10.881	10.9
Carbon Dioxide	CO2	27.107	N/A
Hydrogen	H2	50.148	4.0
Methane	CH4	6.428	4.4
Acetylene	C2H2	0.264	2.3
Ethylene	C2H4	3.283	2.4
Ethane	C2H6	1.100	2.4
Propene	C3H6	0.379	1.8
Propane	C3H8	0.125	1.7
-	C4 (Total)	0.190	N/A
-	C5 (Total)	0.027	N/A
-	C6 (Total)	0.005	N/A
Benzene	C6H6	0.002	1.2
Toluene	C7H8	0.002	1.0
Dimethyl Carbonate	C3H6O3	0.055	N/A
Ethyl Methyl Carbonate	C4H8O3	0.004	N/A
Total	-	100	-

4.1.2 Key Takeaways

Key takeaways from the tests include:

- The average cell vent and thermal runaway temperature was determined to be 174°C (345°F) and 239°C (462°F), respectively.
- 93.3 liters of cell vent gases were released.
- The cell vent gas mixture is flammable and has an LFL of 7.15% at ambient temperature.
- The cell vent gases were predominantly (approximately 95%) Carbon Monoxide (CO), Carbon Dioxide (CO_2), Hydrogen (H_2), and Methane (CH_4).
- Toxic gases sometimes associated with lithium-ion batteries, such as Hydrogen Fluoride (HF), Hydrogen Chloride (HCL), and Hydrogen Cyanide (HCN) were not vented from the cell.

4.1.3 Performance Criteria

UL 9540A, Section 7.7 outlines the performance criteria for the cell level test. If all these conditions are met, further testing (such as module, unit, or installation level tests) are not required. The acceptable performance criteria during the UL 9540A cell level test are as follows:

1. Thermal runaway cannot be induced in the cell.
2. The cell vent gas does not present a flammability hazard when mixed with any volume of air, at both ambient and vent temperatures.

Given the cell went into thermal runaway and vented flammable gases, UL 9540A module level testing was required.

4.2 UL 9540A Module Level Testing

Module level testing was conducted at a TÜV SÜD (TÜV) laboratory in May 2022. TÜV is an OSHA-approved NRTL and offers the cTÜVus mark, which is equivalent to other NRTL marks such as UL, ETL or CSA. Testing was performed on a 360.64 V, 157.2 Ah, MP2/2XL tray (model MP2 Module), manufactured by CATL.[2] Each tray consists of 112, CATL model CB5T0 LFP cells that were charged to 100% SOC prior to testing. During the test, the MP2XL tray is not connected to the BMS or TMS; meaning, they are not actively operating to prevent thermal runaway in a cell or to prohibit the propagation of thermal runaway from cell to cell. Thermal runaway was initiated via film strip heaters installed on both of the wide side surfaces of two cells, similar to the cell level test (see Figure 5). This resulted in the simultaneous heating of six cells forcing multiple cells into thermal runaway at approximately the same time. The heaters were programmed to increase the temperature of the cell's surface by approximately 4.17 - 4.52°C per minute until the cells vented and went into thermal runaway. The tray was placed under an instrumented hood and the products released during combustion were collected for analysis.

[2] Note, as described in Section 2.2, the MP2 and MP2XL utilize the same cells and battery modules.

Figure 6 Tray tested to UL 9540A module level testing.

4.2.1 Test Results

This simultaneous heating of six cells forced multiple cells to go into thermal runaway that propagated from the initiating cells to all the cells in the MP2/2XL tray. Once ignited, the MP2/2XL tray fire appears to be a slow-progressing thermal event that took approximately 30-35 minutes to burn itself out. Sparks and flying debris were observed during the test; however, there were no explosive discharges of gases. Products of combustion were collected in the hood and flammable gases were identified, as listed in Table 3. However, toxic gases sometimes associated with lithium-ion batteries, such as HF, HCL, and HCN, were not detected during the combustion of the MP2/2XL tray.

4.2.2 Key Takeaways

Key takeaways from the UL 9540A module level test include:

- Thermal runaway propagated from the initiating cells to all the cells in the MP2/2XL tray.
- The MP2/2XL tray fire appears to be a slow-progressing thermal event requiring over 30 minutes to burn itself out.
- Sparks and flying debris were observed, however, there were no explosive discharges of gases.
- Products of combustion were collected and were identified as flammable.
- Toxic gases sometimes associated with lithium-ion batteries, such as HF, HCL, and HCN, were not detected during the combustion of the MP2/2XL tray.

Table 3 UL 9540A Module Level Testing: Products of Combustion

Gas Name	Chemical Structure	Measurement Peak (ppm)
Carbon Monoxide	CO	205
Carbon Dioxide	CO2	6721
Methane	CH4	68.8
Acetylene	C2H2	17.1
Ethene	C2H4	Not Detected
Ethane	C2H6	Not Detected
Propane	C3H8	Not Detected
Butane	C3H4	Not Detected
Pentane	C3H6	Not Detected
Benzene	C6H6	9.0
Hexane	C7H14	Not Detected
Hydrofluoric Acid	HF	Not Detected
Hydrogen Chloride	HCL	Not Detected
Hydrogen Cyanide	HCN	Not Detected
Hydrogen	H2	446
Total Hydrocarbons	(Propane Equivalent)	247

4.2.3 Performance Criteria

UL 9540A, Section 8.4 outlines the performance criteria for the module level test. If all these conditions are met, further testing (such as unit or installation level tests) are not required. The acceptable performance criteria during the UL 9540A module level test are as follows:

1. Thermal runaway is contained by module design.
2. Cell vent gas is nonflammable as determined by the cell level test.

Given the cell vent gases are flammable (as summarized previously) and thermal runaway was not contained by the module design, UL 9540A unit level testing was required.

4.3 UL 9540A Unit Level Testing

The unit level fire test was conducted at the Northern Nevada Research Center on March 9, 2022, and was certified by TÜV. TÜV is an OSHA-approved NRTL and offers the cTÜVus mark, which is equivalent to other NRTL marks such as UL, ETL or CSA. Note, the MP2XL design is almost identical to the MP2 other than being greater in length to accommodate the additional battery modules. It uses the exact same cells, battery modules, and power electronics (i.e., all the same internal components) that the MP2 utilizes in its design. In addition, the design of the cabinet itself, enclosure strength, and fire safety features, such as the BMS, site controller, monitoring, electrical fault protections, and explosion control system are nearly identical for the two products.

After reviewing the MP2 unit level fire test results and comparing the MP2 and MP2XL products to one another, TÜV determined the MP2 UL 9540A unit level fire test results can be applied to the MP2XL and an additional UL 9540A unit level fire test for the MP2XL was not required for its listing. As such, given all these factors, a stand-alone MP2XL unit level fire test was not performed, nor required. Therefore, the UL 9540A unit level fire test results, described below for the MP2, can be applied to the MP2XL.

4.3.1 Test Unit

The test was performed on a fully populated MP2, consisting of nineteen battery modules, with a capacity of 3,100.8 kWh, tested at 100% SOC. Of all the MP2 variations, the unit tested during UL 9540A unit level testing is the largest capacity variation Tesla manufactures. In addition, during the test, the BMS and TMS are disabled; meaning, they are not actively operating to prevent thermal runaway in a cell or to prohibit the propagation of thermal runaway from cell to cell, or module to module. As such, the UL 9540A unit level fire test can be considered a worst-case fire scenario, where: (1) the unit tested was the largest variation in terms of energy capacity; (2) the unit tested was at the highest energy density possible (100% SOC); and (3) the BMS and TMS were disabled and, therefore, unable to actively respond to the thermal runaway condition. As such, any tests performed on a smaller capacity MP2, at a lower SOC, or on an operating MP2 (one with an active BMS and TMS) would be expected to perform similarly, if not better, than this worst-case scenario. Below is a summary of the UL 9540A unit level fire test results as well as a description of the performance of key fire safety features/systems during the test.

4.3.2 Test Setup

The test setup included all the required instrumentation and data collection as required by UL 9540A as well as some additional measurements that go beyond what is required. These additional measurements were collected to provide additional information to project designers, installers, a FCO, or an AHJ to assist in their design, installation, or review of a MP2XL installation.

4.3.3 Initiation

The initiating battery module was chosen to be the bottom battery module from Bay 7, in the middle battery tray, as shown in Figure 7.

Figure 7 Initiation location: Bay 7, bottom battery module within tray 2.

This location was deemed to be the worst-case, given there are battery trays directly above it and below it. In addition, by initiating in the bottom battery module, there are two additional battery modules installed directly above the initiation location. Within the battery tray itself, six interior cells were simultaneously heated via four film heaters, as shown in Figure 8. The heaters were programmed to provide a heating rate of 5°C (9°F) per minute, as specified by UL 9540A. The number of cells and the location were selected to provide the greatest thermal exposure to adjacent cells to ensure cell-to-cell propagation during the test. The objective of this initiation method is to simulate a mass failure of multiple cells in a localized area within the same battery module.

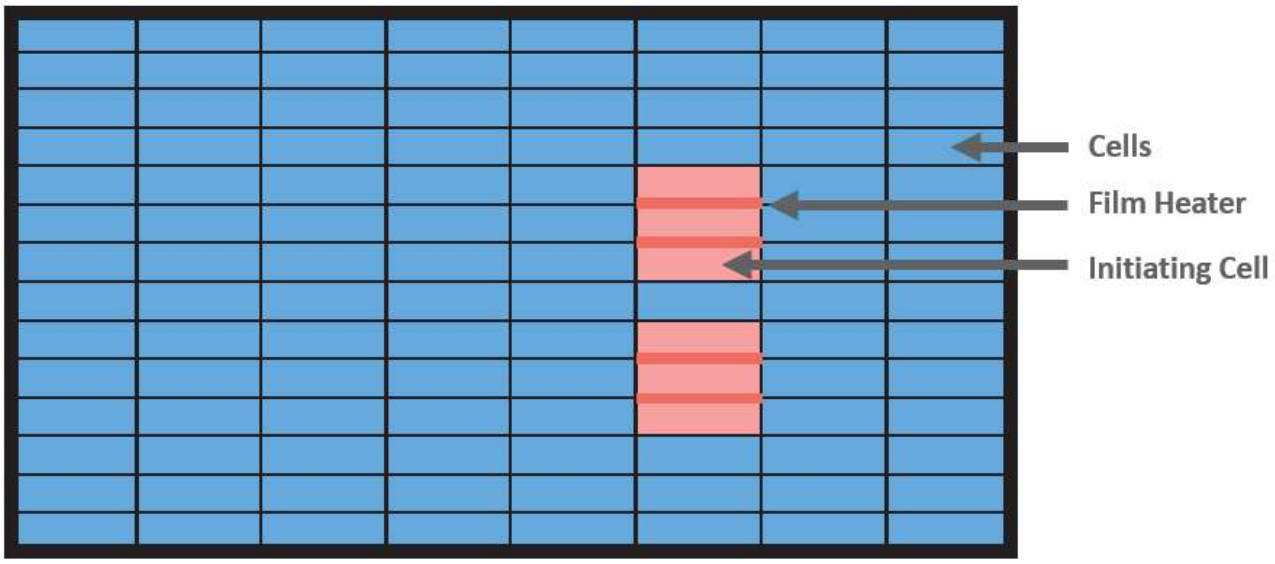

Figure 8 Film heater locations within the initiating tray (top view).

4.3.4 Instrumentation

Outside the initiating battery module and MP2 cabinet, three additional target MP2 cabinets were installed: (1) 6 inches (in) or 150 mm behind the initiating MP2; (2) 6 in (150 mm) to the side of the initiating MP2; and (3) 8 ft (2.44 m) in front the initiating MP2, as shown in Figure 9. The two target MP2 cabinets behind and to the side were populated with 100% SOC battery modules to simulate a multiple MP2 cabinet installation and to determine if thermal runaway and/or fire will propagate from one MP2 cabinet to adjacent cabinets at separation distances of 6 in (150 mm). Additionally, a combustible, instrumented wall (wood framing with plywood facing, painted black) was installed 5 ft (1.52 m) to the side of the initiating MP2 to demonstrate if fire could spread to a combustible surface (plywood wall) during the test.

Thermocouples were installed in the initiating battery module on the external surface of the initiating cells, inside the initiating MP2 cabinet, inside the target MP2 cabinets, on the instrumented wall, and on the exterior surfaces of all the MP2 target cabinets. Heat flux sensors were installed at distances of 3, 5, 8, 20, and 30 ft (0.91, 1.52, 2.44, 6.10, and 9.14 m) from the initiating MP2, as shown in Figure 9. Two external flame detectors and two thermal imagers were installed facing the initiating MP2 to demonstrate their functionality should flames exit the initiating MP2 during the test.

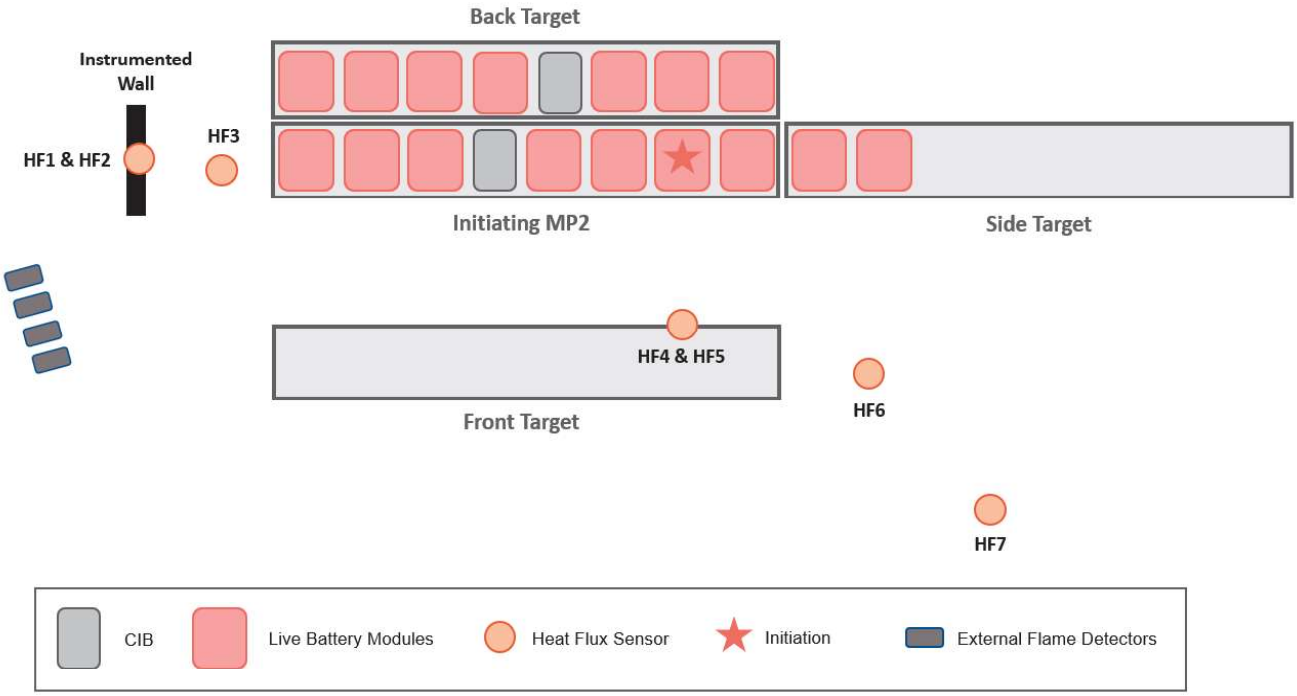

Figure 9 Instrumentation and target MP2 cabinet setup (top view).

4.3.5 Test Results

The test was performed starting around 11:30 am on March 9, 2022. The ambient temperature was between 50.5°F and 52.9°F. It was a sunny, clear day with no precipitation and a relative humidity between 14% and 19%. These outdoor environmental conditions meet the requirements of UL 9540A, Section 9.1.2. The cameras and instrumentation were turned ON at or around time 0:00:00 (hours: minutes: seconds) and the heaters within the initiating MP2 were turned ON at time 0:09:25. Six cells were heated simultaneously for over 1 hour and 18 minutes until the first initiation cell reached its thermal runaway temperature (as measured on the external surface of the cell via a thermocouple) of 239°C (462°F). Fifteen minutes later, the second group of initiating cells reached their thermal runaway temperature. Around 6 minutes later (approximately 1 hour 39 minutes into the test), light smoking/off-gassing was observed exiting the MP2 cabinet in the location where instrumentation was routed into the cabinet (i.e., where thermocouple/power wiring was in contact with the gasket that forms a tight seal for Bay 7's front door). Cell-to-cell propagation (thermal runaway spreading beyond the initial six cells being forcibly heated) was confirmed at approximately 1 hour 45 minutes when a seventh cell reached a temperature of 239°C (462°F). The heaters continued to run for an additional 5 minutes after this observation and then were turned off (at approximately 1 hour and 51 minutes into the test). Thermocouple temperatures inside the initiating MP2 subsided and no additional off-gassing, smoking, or cell thermal runaways were observed. By 2 hours and 30 minutes, the test ended. However, a period of observation and data collection continued for hours afterward to ensure the MP2 did not demonstrate any signs of distress. Table 4 provides a summary of key events from the UL 9540A unit level fire test of the MP2.

Table 4 UL 9540A Unit Level Testing: Timeline of Key Events

Elapsed Time hr:min:sec	Event
00:00:00	Start of Test. Cameras and Data acquisition system (DAQ) turned on.
0:09:25	Heaters ON.
1:18:18	First group of initiating cells reach thermal runaway temperature of 239°C (462°F).
1:33:38	Second group of initiating cells reach thermal runaway temperature of 239°C (462°F).
1:39:28	Smoke observed exiting out the bottom of the initiating MP2 cabinet's bay door where instrumentation was routed into the cabinet.
1:45:48	Confirmation of cell propagation to a 7th cell via internal thermocouple measurements.
1:51:09	Heaters turned OFF.
2:00:00	No additional smoke was observed from the initiating MP2 cabinet. Internal temperatures subside.
2:30:00	End of Test.
Post Test Overhaul	The initiating MP2 cabinet was observed for several hours afterwards and allowed to cool. No additional off-gassing, smoking, elevated temperatures, fire, thermal runaways, or signs of off-normal conditions were observed.

After 24 hours, the initiating MP2 showed no signs of abnormal conditions or distress since the test had concluded (no additional off-gassing, smoking, smells, thermal runaway, or flare-ups) and it was opened for inspection. Prior to opening the initiating MP2, handheld gas detection devices were utilized around the cabinets and did not detect the presence of flammable gases nor were flammable gases detected internally after the Bay 7 door was opened. A visual inspection of the initiating MP2 yielded the following observations:

- Seven cells had gone into thermal runaway: the six that were forcibly heated and one additional cell, as illustrated in Figure 10. This demonstrated that cell-to-cell propagation had occurred during the test, as is required by UL 9540A.

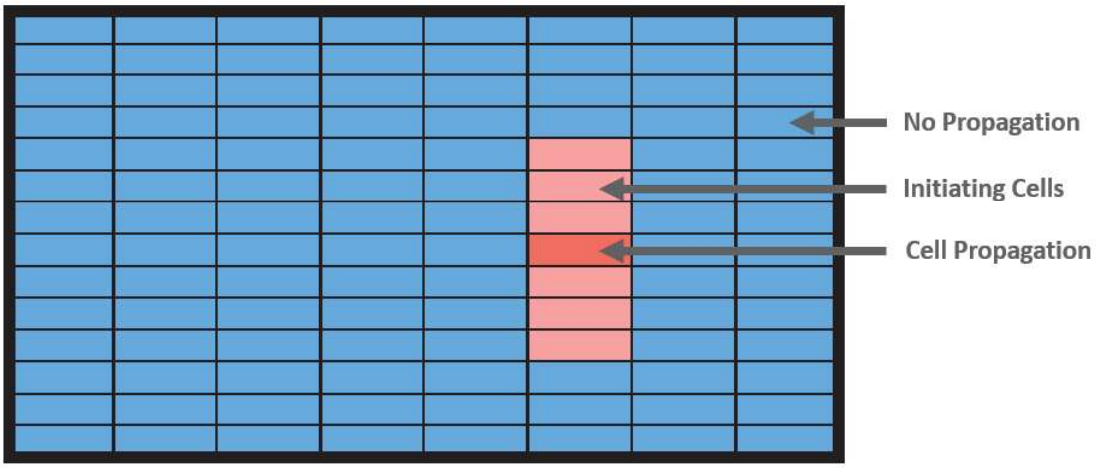

Figure 10 Cell propagation during UL 9540A unit level fire testing (top view).

- No other signs of distress were observed in the initiating battery module. Thermal runway had not propagated beyond the seven cells within Tray 2, nor had it spread to the tray above or below it within the battery module.
- Internal cell components were observed inside the initiating MP2 cabinet in the area of the initiating battery module and around Bay 7's front door; however, no free-flowing liquid or runoff was observed.
- The overpressure vents in Bay 7 had not opened, indicating that the internal pressure within Bay 7 did not see a significant rise during the failure of the seven cells.
- Visible clues of fire damage to surrounding components (plastics, electronics, etc.) were not observed. Based on this observation, it is likely that a sustained fire did not occur around the initiating battery module, even with the failure of seven cells occurring.
- The battery modules within the target MP2 cabinets installed 6 in (150 mm) behind and to the sides were also unaffected.

4.3.6 Fire Propagation

UL 9540A unit level fire testing of the MP2 demonstrated that an internal failure event causing thermal runaway of six cells nearly simultaneously will not propagate thermal runaway throughout the battery module. The nearly simultaneous failure resulted in thermal runaway propagating only to one additional cell and no further. The first group of initiating cells went into thermal runaway approximately 1-hour and 18 minutes into the test, as shown in Figure 11. This observation is based on internal thermocouple measurements installed on the surface of the cells within the initiating battery module.

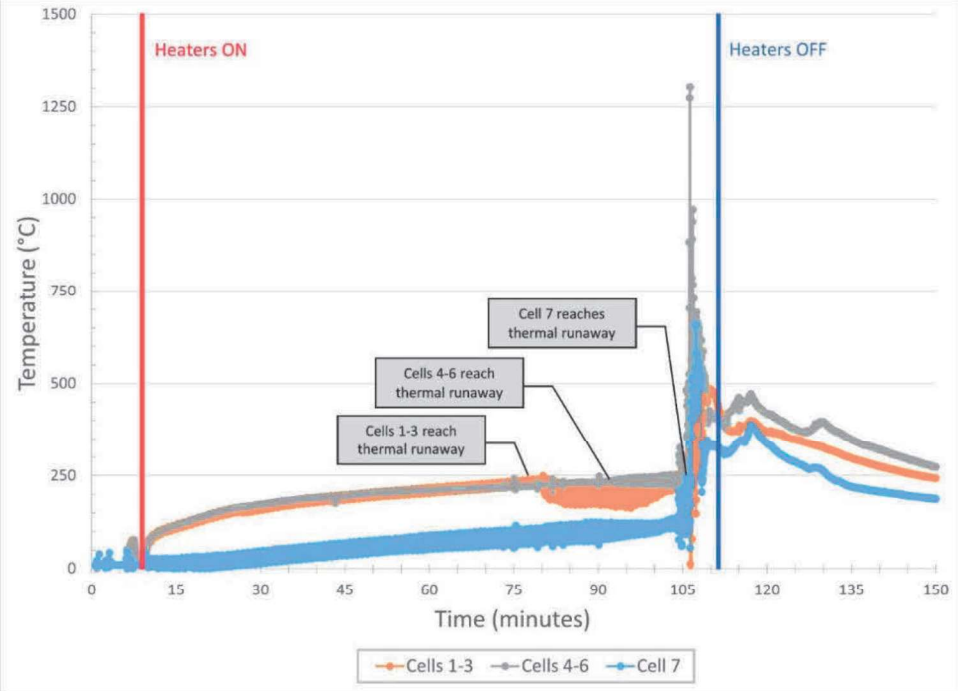

Figure 11 Cell surface temperatures recorded during UL 9540A unit level fire testing.

Fifteen minutes later the second group of initiating cells went into thermal runaway and cell-to-cell propagation was confirmed at approximately 1 hour 45 minutes when a seventh cell reached 239°C (462°F). Note, this result was with a disabled BMS and TMS (i.e., no safety protections were in place). Thermal runaway did not propagate beyond the seventh cell within Tray 2 of the initiating module, nor did it propagate to the battery modules installed above. In addition, thermal runaway did not propagate to the target MP2 cabinets installed 6 in (150 mm) behind and to the sides of the initiating MP2 cabinet. Lastly, no flaming was observed outside of the unit during the test.

4.3.7 Target Battery Module Surface Temperatures

As shown in Table 5, surface temperatures of battery modules within the target MP2 cabinets did not exceed 174°C (345°F), the temperature at which thermally initiated cell venting occurs (as determined during UL 9540A cell level testing).

Table 5 UL 9540A Unit Level Testing: Target Battery Module Surface Temperatures

Location	Maximum Battery Module Temperature Recorded	Ambient Temperature at the Start of Test	Cell Venting Temperature	Cell Thermal Runaway Temperature
Back Target Modules	13.8°C (56.4°F)	10.2°C (50.4°F)	174°C (345°F)	239°C (462°F)
Side Target Modules	13.2°C (55.8°F)	8.0°C (46.4°F)	174°C (345°F)	239°C (462°F)

These temperatures were recorded at the battery modules closest to the initiating battery module, as shown in Figure 12. As plotted in Figure 13, the internal temperature of the target battery modules gently rose throughout the 2½-hour test as the ambient, outdoor temperature also increased from 10.3°C to 11.6°C. These temperature measurements indicate the target battery modules were not affected by the thermal runaway of the seven cells within the initiating battery module.

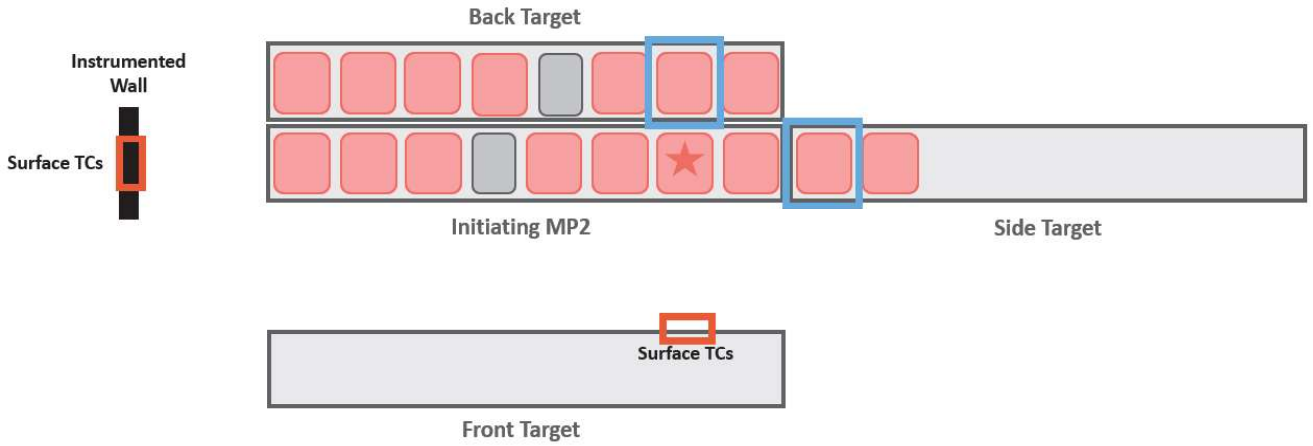

Figure 12 Temperature measurement locations: at side and back target battery modules (blue boxes) and the front target and instrumented wall surface temperatures (brown boxes).

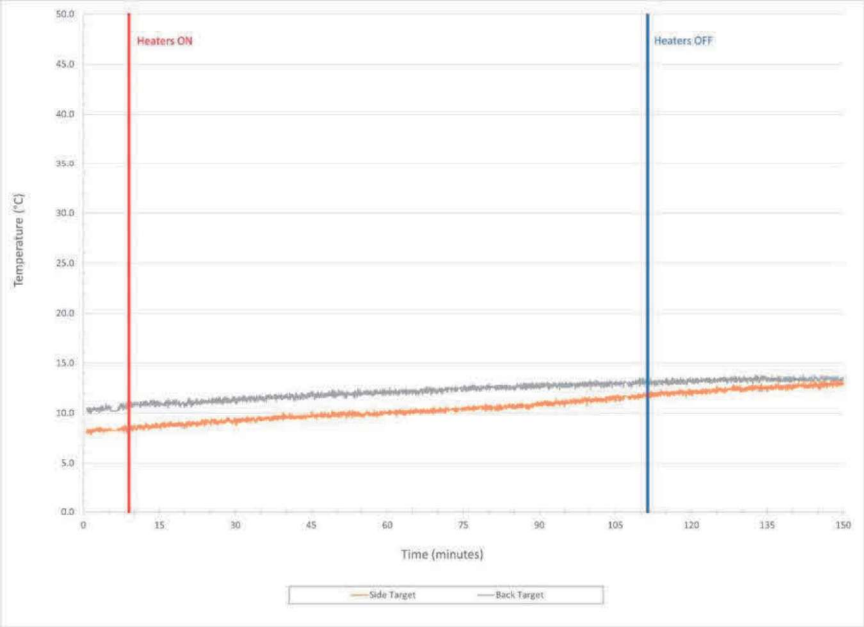

Figure 13 Side and back target battery module temperatures during UL 9540A unit level fire testing.

4.3.8 Exposure Surface Temperatures

As shown in Table 6, surface temperatures on exposures 5 ft (1.52 m) to the side (instrumented wall) and 8 ft (2.44 m) directly in front of the initiating MP2 cabinet (front target) did not exceed 97°C (175°F) above ambient.

Table 6 UL 9540A Unit Level Testing: Exposure Surface Temperatures

Location	Maximum Temperature Recorded	Ambient Temperature Recorded by the TC at the Start of Test	Temperature Rise Above Ambient
Front Target Surface	16.8°C (62.2°F)	11.3°C (52.3°F)	5.5°C (9.9°F)
Instrumented Wall Surface	25.9°C (78.6°F)	20.4°C (68.7°F)	5.5°C (9.9°F)

These temperatures were recorded directly in front of the initiating battery module and at the instrumented wall, as shown in Figure 12. The surface temperature of the front target gently rose throughout the 2½-hour test from a starting temperature of 11.3°C (52.3°F) to a maximum surface temperature of 16.8°C (62.2°F), as shown in Figure 14. Similarly, the 24 thermocouples installed on the instrumented wall also gently rose throughout the test and fluctuated slightly with the outdoor environmental conditions (i.e., wind blowing, sun exposure, increasing ambient temperatures), as shown in Figure 15. The maximum temperature measured on the instrumented wall was 25.9°C (78.6°F), which was a temperature rise of 5.5°C (9.9°F) above its ambient temperature at the start of the test. Note, the temperature rise above ambient can be attributed to the environmental conditions during the 2½-hour test and is not directly related to the thermal runaway of the seven cells within the initiating MP2. As these measurements are surface temperatures, the temperature rise within

the front target surface and the instrumented wall surface is predominantly due to the sun heating up those surfaces during the test (the test was run between 11 am and 1:30 pm on a mostly sunny day). These temperature measurements indicate an exposure surface 5 ft (1.52 m) to the side and adjacent MP2 cabinets 8 ft (2.44 m) in front, were not affected by the thermal runaway of the seven cells within the initiating battery module.

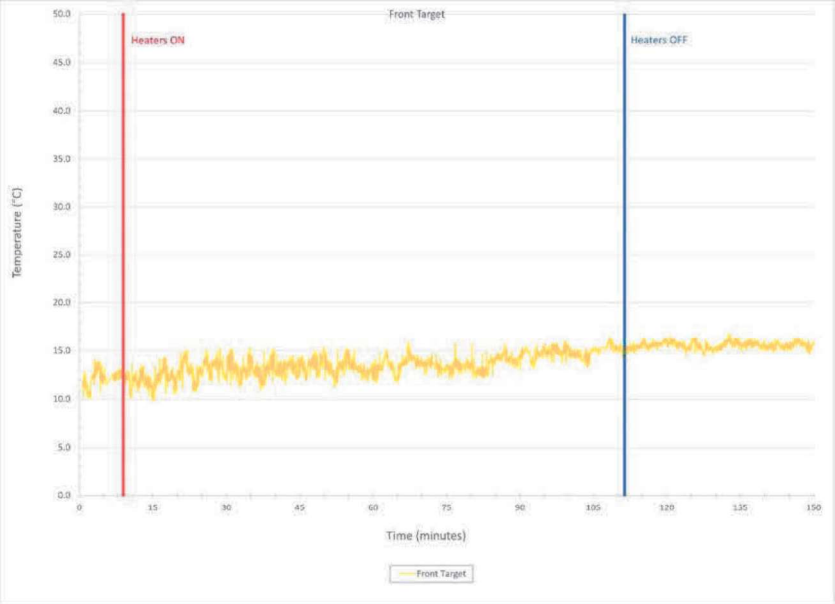

Figure 14 Front target external surface temperature 8 ft (2.44 m) directly in front of the initiating module.

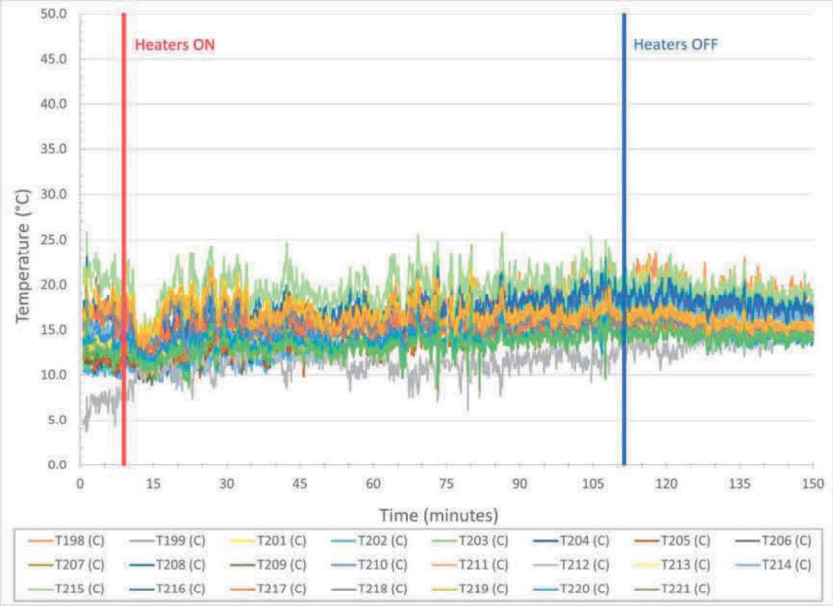

Figure 15 Instrumented wall surface temperatures during UL 9540A unit level fire testing.

Note: T200, the 24th thermocouple installed on the instrumented wall, did not work during testing, and was therefore removed from this plot as the measurements recorded were erroneous.

4.3.9 Heat Flux Measurements

Heat flux measurements were recorded throughout the UL 9540A unit level fire test at distances of 3, 5, 8, 20, and 30 ft (0.91, 1.52, 2.44, 6.10, and 9.14 m). Since flames did not occur outside the initiating MP2 cabinet, predictably, these measurements were essentially 0.00 kW/m^2 throughout the entire test, as summarized in Table 7 and plotted in Figure 16.

Table 7 UL 9540A Unit Level Testing: Maximum Recorded Heat Fluxes

Location	Maximum Heat Flux Recorded (W/m^2)
HF1	0.0000013
HF2	0.0000013
HF3	0.0000014
HF4	0.0000016
HF5	0.0000014
HF6	0.0000016
HF7	0.0000013

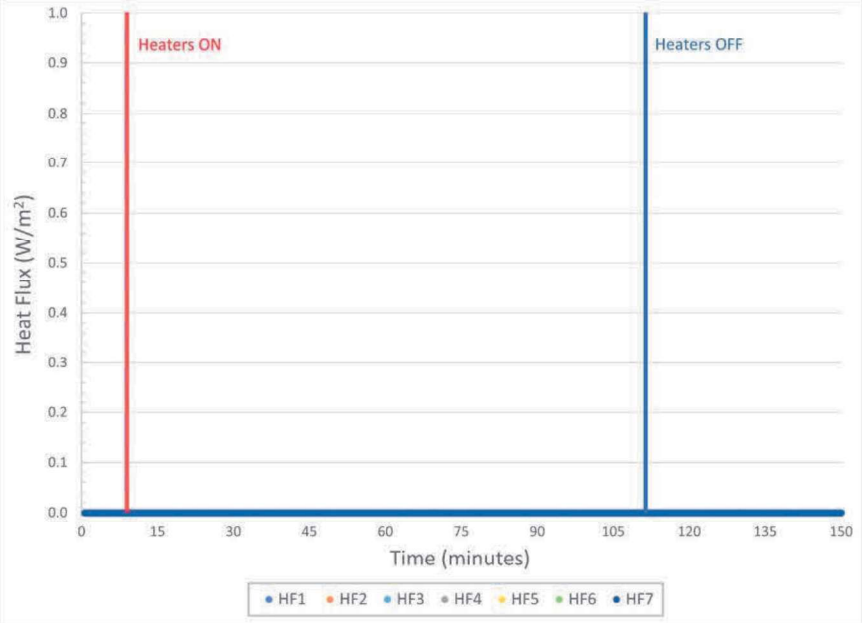

Figure 16 Heat flux measurements recorded during UL 9540A unit level fire testing.

The maximum heat flux recorded was 0.0000016 W/m^2, which was recorded at both the front target and at a distance of 20 ft from the initiating MP2. Note, these heat flux values, in W/m^2, are essentially reading no heat flux values at all, as would be expected given no flaming was observed outside the MP2 cabinet nor was the cabinet itself warmed enough to impose a heat flux on the sensors. These heat flux measurements indicate an exposure surface 3-5 ft (0.91-1.52 m) to the side, an adjacent MP2 cabinet 8 ft (2.44 m) in front, and other

exposures further away at 20-30 ft (6.10-9.14 m), were not affected by the thermal runaway of the seven cells within initiating battery module. Furthermore, the heat flux measurements in front of and to the side of the initiating MP2 cabinet did not exceed 1.3 kW/m^2 at any time during the test.

4.3.10 External Fire Detection System

The MP2 does not have an internal fire detection system or one that is integral to its design/construction. During the UL 9540A unit level fire test, two multi-spectrum IR flame detectors and two thermal imagers from differing manufacturers were installed pointing directly at the front and top of the initiating MP2 cabinet. None of the detectors were activated during the fire test. This result is expected, as no flames were observed during the test. However, previous testing by Tesla on the MP1 has demonstrated that multi-spectrum IR flame detectors can detect a fire should flames exit the cabinet through the thermal roof and can be incorporated into a site design, if required.

4.3.11 Fire Suppression System

The MP2 does not have an internal fire suppression system or one that is integral to its design/construction. The UL 9540A unit level test results demonstrate that a suppression system is not required to stop the spread of fire from cell to cell, module to module, or MP2 cabinet to cabinet when a near-simultaneous failure of up to six cells occurs within the same battery module.

The UL 9540A unit level fire test also demonstrated that manual fire suppression (hose lines) is not required to stop the spread of fire from a MP2 cabinet to adjacent MP2 cabinets installed 6 in (150 mm) behind and to the sides when a near-simultaneous failure of up to six cells occurs within the same battery module.

4.3.12 Explosion Control

UL 9540A unit level fire testing of the MP2 demonstrated that a failure event causing the near-simultaneous thermal runaway of six cells will not cause a deflagration. During the test, pressure transducers were installed within the battery module bay to monitor overpressures within the MP2 cabinet. After the test, no pressure spikes were observed in the data, indicating no sudden increases in pressure, consistent with a deflagration, occurred within the MP2 cabinet during the UL 9540A unit level test. In addition, the overpressure vents did not open, the MP2 cabinet doors were not forced open, nor did the MP2 cabinet fail to hold containment. Meaning, no visual indications of an overpressure event occurring inside the MP2 cabinet were observed. Light smoking/off-gassing (i.e., not a pressurized discharge or deflagration) did escape the initiating MP2 during the test, likely through pathways created by the required instrumentation (thermocouples, film heaters, etc.) for the test; however, explosion hazards, including but not limited to, observations of a deflagration, projectiles, flying debris, detonation, hazardous pressure waves, shrapnel, or other explosive discharge of gases, were not observed.

4.3.13 Runoff/Products of Combustion

UL 9540A unit level fire testing does not require the collection of runoff or products of combustion as part of an outdoor installation test. However, during the unit level test, and afterwards during cleanup, no liquid runoff

(such as the water-glycol solution from the TMS) was observed. Internal cell components were observed after the test on the interior of the cabinet around the Bay 7 door, as would be expected after the failure of seven cells. However, no free-flowing liquid, or runoff was observed once the MP2 doors were opened. If necessary, should a failure event occur, internal cell components/electrolytes can be disposed of in an appropriate manner as specified by Tesla's ERG and Safety Data Sheets (SDS).

4.3.14 Performance Criteria

UL 9540A, Table 9.1 outlines the performance criteria for outdoor, ground-mounted BESS. If all these conditions are met, further testing (such as installation-level testing) is not required. The performance criteria during the UL 9540A unit level fire test is as follows:

1. No flaming observed outside of the unit.
2. Surface temperatures of battery modules within the targets adjacent to the initiating unit cannot exceed the temperature at which thermally initiated cell venting occurs.
3. Surface temperatures on exposures 5 ft (1.52 m) to the side and 8 ft (2.44 m) in front of the initiating unit cannot exceed 97°C (175°F) above ambient.
4. No explosion hazards, including but not limited to, observations of a deflagration, projectiles, flying debris, detonation, or other explosive discharge of gases observed.
5. Heat flux in the center of the accessible means of egress cannot exceed 1.3 kW/m^2.

As described above, no flaming was observed outside the MP2 cabinet during the unit level test. In addition, surface temperatures of the battery modules within the targets were below the temperature at which cell venting occurs (174°C or 345°F), and external surface temperatures on exposures 5 and 8 ft (1.52 and 2.44 m) away did not exceed 97°C (175°F) above ambient. Lastly, no explosion hazards were observed, and all heat fluxes remained below 1.3 kW/m^2. Based on the above UL 9540A unit level fire test results, the MP2 meets all five of the above performance criteria. By meeting the unit level performance criteria, UL 9540A installation-level testing is not required for a MP2 installation.

5. CONCLUSIONS

Based on our review of the available materials, our background, experience and training, and the analysis performed to date described above, the following conclusions are submitted within a reasonable degree of scientific and engineering certainty:

1. The MP2XL is listed to all product design standards (such as UL and IEC) required of a BESS and has been tested to UL 9540A at the cell, module, and unit level.
2. Cell and module level UL 9540A testing demonstrated that the venting and combustion of the MP2XL cells release flammable gases that are commonly detected in a vented lithium-ion cell; however, they do not release toxic gases sometimes associated with the failure of lithium-ion batteries, such as HCN, HCL, and HF.
3. The largest variant of the MP2, a 3,100.8-kWh unit, was tested at a worst-case scenario (i.e., 100% SOC with the BMS and TMS disabled) to the UL 9540A unit level fire test method where six cells within the same battery module were forced into thermal runaway.
4. The MP2XL design is almost identical to the MP2 other than being greater in length to accommodate the additional battery modules. It uses the exact same cells, battery modules, and power electronics (i.e., all the same internal components) that the MP2 utilizes in its design. In addition, the design of the cabinet itself, enclosure strength, and fire safety features, such as the BMS, site controller, monitoring, electrical fault protections, and explosion control system are nearly identical for the two products. As such, TÜV determined the MP2 UL 9540A unit level fire test results summarized below can be applied to the MP2XL.
5. The performance criteria outlined in UL 9540A, Table 9.1 for outdoor, ground-mounted BESS were all met during the unit level test. Specifically, the performance criteria results were:
    a. No flaming was observed outside of the unit.
    b. Surface temperatures of battery modules within the target MP2 cabinets adjacent to the initiating MP2 cabinet did not exceed the temperature at which thermally initiated cell venting occurs. The maximum temperatures recorded at the battery modules of the adjacent MP2 cabinets were 13.8°C (56.4°F) and 13.2°C (55.8°F). These temperatures are significantly below the temperature at which cell venting occurs (174°C or 345°F).
    c. Surface temperatures on exposures 5 ft (1.52 m) to the side and 8 ft (2.44 m) in front of the initiating MP2 cabinet did not exceed 97°C (175°F) above ambient. The maximum external surface temperatures recorded at the instrumented wall 5 ft (1.52 m) to the side was 25.9°C (78.6°F) with a temperature rise above ambient of 5.5°C (9.9°F). The maximum external surface temperatures recorded at the front target 8 ft (2.44 m) directly in front of the initiating MP2 was 16.8°C (62.2°F) with a temperature rise above ambient of 5.5°C (9.9°F). These temperatures are significantly below the maximum permitted temperature rise above ambient of 97°C (175°F).
    d. Explosion hazards, including but not limited to, observations of a deflagration, projectiles, flying debris, detonation, or other explosive discharge of gases were not observed.
    e. Heat flux measurements did not exceed 1.3 kW/m^2. The maximum heat flux recorded was 0.0000016 W/m^2, which was the sensor installed on the front target MP2 cabinet and was the ambient heat flux the sensor was exposed to throughout the test.

6. Based on a review of the MP2XL, its fire safety features, and the UL 9540A unit level fire test results, the MP2XL meets or exceeds all the performance criteria of UL 9540A, Table 9.1 and UL 9540A installation level testing is not required for a MP2XL installation.
7. None of the external fire detectors activated during the UL 9540A unit level fire test (two multi-spectrum IR flame detectors and two thermal imagers). This result is expected, as no flaming was observed outside of the cabinet during the test; however, previous testing by Tesla on the MP1 has demonstrated that multi-spectrum IR flame detectors can detect a fire should flames exit the cabinet through the thermal roof.
8. An integral fire suppression system or an external fire suppression system is not required to stop the spread of fire from cell to cell, module to module, or MP2XL cabinet to cabinet when a near-simultaneous failure of up to six cells occurs within the same battery module.
9. Manual fire suppression (hose lines) is not required to stop the spread of fire from a MP2XL cabinet to adjacent MP2XL cabinets installed 6 in (150 mm) behind and to the sides when a near-simultaneous failure of up to six cells occurs within the same battery module.
10. Based on a review of the MP2XL, its fire safety features, and the UL 9540A test results, the MP2XL can meet or exceed all the installation level codes and standards, such as the IFC and NFPA 855, required for outdoor, ground mounted BESS installations when installed in accordance with the MP2XL DIM.

6. REVISION CONTROL SHEET

Date	Revision	Reason for Issue	Developed By	Reviewed By	Approved By
04/03/2024	Rev0	Initial Report	AFB	BA	NLR

Revision	Section	Changed Noted

Tesla Energy Products
Product: Megapack 2 XL
Last Revised: November 24, 2025
Revision 3.4

MEGAPACK 2 XL COMPLIANCE SUMMARY

This summary documents the available listings for Megapack 2 XL and Megapack 2 XL's main subcomponents. If a certain standard is not listed below, it is a listing to which Megapack 2 XL will not be certified or that has not yet been added to the Megapack 2 XL certification plan. All certificates to these standards are made available in the *Megapack 2 XL Compliance Packet* on the Tesla Partner Portal. Contact your Tesla representative for more information.

Cell

Standard	Description	Filename or Status
ANSI/CAN/UL 1973	Standard for Batteries for Use in Stationary, Vehicle Auxiliary Power and Light Electric Rail (LER) Applications	Certified
UL 1642	Standard for Lithium Batteries	Certified
IEC 62619	Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for secondary lithium cells and batteries for use in industrial applications	Megapack_2_XL_EU_CE_Safety_EMC.pdf
UN38.3	Transportation Testing for Lithium Batteries	Certified

Battery Module

Standard	Description	Filename or Status
ANSI/CAN/UL 1973	Standard for Batteries for Use in Stationary, Vehicle Auxiliary Power and Light Electric Rail (LER) Applications	Megapack_2_and_XL_Battery_Module_NA_UL1973.pdf – for C010 and C011 cell option C012_Megapack_2_XL_Battery_Module_NA_UL1973.pdf – for C012 cell option Supporting Document: Megapack_2_XL_VoC_Ratings_Configurability.pdf
IEC 62619	Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for secondary lithium cells and batteries for use in industrial applications	Megapack_2_XL_EU_CE_Safety_EMC.pdf
UN38.3	Transportation Testing for Lithium Batteries	Certified
UL 1998	Standard for Software in Programmable Components	Evaluated to, as part of general UL certification
IEC 60730 Annex H	Automatic electrical controls for household and similar use - Requirements for electronic controls	Evaluated to, as part of general IEC certification

System

Standard	Description	Filename or Status
Australian Standard AS4991-2004 "Lifting Devices"	Allows Megapack 2 XL to be lifted and transported within Australia	Megapack_2_XL_AS4991-2004.pdf
EU Battery Regulation Article 10	Regulation (EU) 2023/1542 of the European Parliament and of the Council of 12 July 2023	Tesla_EU_Article_10_Documentation.pdf
United Kingdom - Statement of compliance for consumer internet of things (IoT) security	Applicable security requirements specified in Schedule 1 of the Product Security and Telecommunications Infrastructure (Security Requirements for Relevant Connectable Products) Regulations 2023	Tesla_Manufacturer_Statement_of_Compliance_for_Consumer_IoT_Security_UK-EN.pdf
Megapack 2 XL DSA Pre-Check - California	Allows designs for using Megapack 2 XL with pre-approved structural foundations and anchorages in construction projects within the California Division of the State Architect's (DSA) jurisdiction	Megapack_2_XL_DSA_Pre-Check_California.pdf
US VI Water and Power Authorities	US Virgin Islands Water and Power Authority Requirements and procedures for interconnection generating facilities to the electrical distribution system	Megapack_2_XL_USVI_WAPA_Letter.pdf
FDNY TM-2	Approval of Outdoor Stationary Storage Battery Systems	Tesla_Megapack_2_XL_FDNY_Certificate_of_Approval.pdf
NOM-024-SCFI-2013	Commercial Information for packaging, instructions and guarantees of electronic, electric and electrical domestic products	Megapack_2_and_XL_NA_Mexico_NOM-024_Letter.pdf
NOM-001-SCFI-2018	Electronic Apparatus. Electronic household appliances input by different electric power sources. Safety requirements and testing methods for type approval	Megapack_2_XL_NA_Mexico_NOM-001_Letter.pdf
IEEE 2030.5	IEEE Standard for Smart Energy Profile Application Protocol	Megapack_2_and_XL_IEEE2030.5_CSIP.pdf
CSIP	Common Smart Inverter Profile	Megapack_2_and_XL_IEEE2030.5_CSIP.pdf
Netherlands	Decree of the Netherlands Authority for Consumers and Markets of 21 April 2016, reference ACM/DE/2016/202151, concerning the determination of the conditions as referred to in Article 31 of the Electricity Act 1998 (Electricity Grid Code)	Megapack_2_and_XL_VoC_Netherlands.pdf
SRD 2.0	Hawaiian Electric IEEE 1547.1-2020 Source Requirements Document Version 2.0	Megapack_2_and_XL_VoC_SRD_2.0.pdf

Standard	Description	Filename or Status
Japan Type Test Report	Japan Electrical Testing (JET) Type Test Report for Energy Storage Systems	Megapack_2_and_XL_Japan_Type_Test_Report_60Hz.pdf Megapack_2_and_XL_Japan_Type_Test_Report_50Hz.pdf
UL 1741 PCS	Inverters, Converters, Controllers And Interconnection System Equipment For Use With Distributed Energy Resources - Power Control Systems (PCS) - Certification Requirement Decision 3/8/2019	Megapack_2_and_XL_VoC_UL_1741_PCS.pdf
ANSI/CAN/UL 9540	Standard for Energy Storage Systems and Equipment	Megapack_2_XL_NA_UL9540_UL1741_CSA_C22-2_107-1.pdf – for cell option C010 and C011 C012_Megapack_2_XL_NA_UL9540_UL1741_CSA_C22-2_107-1.pdf – for cell option C012 Supporting Document: Megapack_2_XL_VoC_Ratings_Configurability.pdf
UL 9540A	Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems	UL9540A/Megapack_2_and_XL_-_ANSI-UL_9540A_Unit_Level_Report.pdf – for cell option C010 and C011 UL9540A/C012_UL9540A_Megapack_2_XL_-_ANSI-UL_9540A_Unit_Level_Report.pdf – for cell option C012
UL 1741	Standard for Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources	Megapack_2_XL_NA_UL9540_UL1741_CSA_C22-2_107-1.pdf Supporting Document: Megapack_2_XL_VoC_Ratings_Configurability.pdf
Low Voltage Directive 2014/35/EU	Directive on the harmonization of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits	Megapack_2_XL_EU_CE_Safety_EMC.pdf
Electro Magnetic Compatibility	Directive on the harmonization of the laws of the Member States relating to electromagnetic compatibility	Megapack_2_XL_EU_CE_Safety_EMC.pdf

Standard	Description	Filename or Status
Directive 2014/30/EU		
CSA C22.2 NO 107.1	Standard for Power Conversion equipment	Megapack_2_XL_NA_UL9540_UL1741_CSA_C22-2_107-1.pdf
IEC 62933-5-2	Electrical energy storage (EES) systems - Part 5-2: Safety requirements for grid-integrated EES systems - Electrochemical-based systems	Megapack_2_XL_IEC 62933-5-2.pdf Megapack_2_XL_EU_CE_Safety_EMC.pdf
UL/CAN/IEC 62109-1	Safety of power converters for use in photovoltaic power systems - Part 1: General requirements	Megapack_2_XL_EU_CE_Safety_EMC.pdf
IEEE 519	IEEE Recommended Practice and Requirements for Harmonic Control in Electric Power Systems	Evaluated to, as part of IEEE 1547 certification
EN 61000-6-2	Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity for industrial environments	Megapack_2_XL_EU_CE_Safety_EMC.pdf
EN 61000-6-4	Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments	Megapack_2_XL_EU_CE_Safety_EMC.pdf
EN 55011	Industrial, Scientific and medical equipment – Radio frequency disturbance characteristics – Limits and methods of measurement	Megapack_2_XL_EU_CE_Safety_EMC.pdf
EN 61000-3-11	Electromagnetic compatibility (EMC) - Part 3-11: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems - Equipment with rated current ≤ 75 A and subject to conditional connection	Megapack_2_XL_EU_CE_Safety_EMC.pdf
IEC 61000-3-12	Electromagnetic compatibility (EMC) – Part 3-12: Limits – Limits for harmonic currents produced by equipment connected to public low-voltage systems with input current >16A and ≤75A per phase	Megapack_2_XL_EU_CE_Safety_EMC.pdf
IEEE 693	IEEE Recommended Practice for Seismic Design of Substations	Megapack_2_XL_VoC_IEEE_693.pdf
IEEE 1547	IEEE Standard for Interconnection and Interoperability of Distributed Energy Resources with Associated Electric Power Systems Interfaces	Megapack_2_XL_NA_UL9540_UL1741_CSA_C22-2_107-1.pdf Megapack_2_and_XL_DoC_IEEE1547_LROV.pdf

Standard	Description	Filename or Status
UL 1741 SB	Standard for Inverters, Converters, Controllers and Interconnection System Equipment for Use with Distributed Energy Resources – Supplement B	Megapack_2_XL_NA_UL9540_UL1741_CSA_C22-2_107-1.pdf
United Kingdom – G99 Issue 1 Amendment 8	Requirements for the connection of generation equipment in parallel with public distribution networks on or after 27 April 2019	Megapack_2_XL_UK_G99_Amd 8_Form A2_3.pdf Megapack_2_XL_UK_G99_Amd 8_Form B_C_D.pdf
Netherlands - ACM/DE/2016/202151	Electricity grid code concerning the determination of the conditions of connection as referred to in Article 31 of the Netherland's Electricity Act 1998	Megapack_2_and_XL_VoC_Netherlands.pdf
Slovenia – Commission Regulation 2016/631	Approval of the proposals for the non-exhaustive requirements of Commission Regulation 2016/631	Megapack_2_and_XL_VoC_Slovenia.pdf
EN 50549-1	Requirements for generating plants to be connected in parallel with distribution networks - Part 1: Connection to a LV distribution network - Generating plants up to and including Type B	Megapack_2_and_XL_VoC_EN50549.pdf
EN 50549-2	Requirements for generating plants to be connected in parallel with distribution networks - Part 2: Connection to a MV distribution network - Generating plants up to and including Type B	Megapack_2_and_XL_VoC_EN50549.pdf
EN 50549-10	Requirements for generating plants to be connected in parallel with distribution networks Tests for conformity assessment of generating units	Megapack_2_and_XL_VoC_EN50549.pdf

Tesla System Controller

Standard	Description	Filename
SRRC	China State Radio Monitoring and Testing Center – SRRC Certification	Controller_1471208_China_SRRC.pdf
CSIP IEEE 2030.5	Certification to IEEE 2030.5-2018 networking standard in the manner described in the Common Smart Inverter Profile	Controller_GLOBAL_IEEE2030-5.pdf
IEC / EN / UL 61010-1	Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use - Part 1: General Requirements	Controller1471208_NA_CSA-22-2_UL-61010-1.pdf, Controller1471208_APAC_EMEA_IEC-61010-1.pdf
CAN/CSA-C22.2 No. 61010 - 1-12 + GI1 + GI2	Safety Requirements For Electrical Equipment For Measurement, Control, And Laboratory Use - Part 1: General Requirements	Controller1471208_NA_CSA-22-2_UL-61010-1.pdf

Manufacturing

Standard	Description	Filename
ISO 9001:2015	Quality Management System applicable to Manufacturing of Industrial Energy Storage Products (Lathrop, CA, USA)	Megafactory_Lathrop_ISO_9001_Certification.pdf
ISO 9001:2015	Quality Management System applicable to Manufacturing of Industrial Energy Storage Products (Shanghai, China)	Megafactory_Shanghai_ISO_9001_Certification_en-US.pdf
ISO 9001:2015	Quality Management System applicable to Manufacturing of Industrial Energy Storage Products (Shanghai, China)	Megafactory_Shanghai_ISO_9001_Certification_zh-CN.pdf

Megapack 2 XL Operation and Maintenance Manual

Revision 2.1.1

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PRODUCT SPECIFICATIONS

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IMPORTANT SAFETY INFORMATION

SAVE THESE INSTRUCTIONS

THIS MANUAL CONTAINS IMPORTANT INFORMATION THAT MUST BE READ, UNDERSTOOD, AND FOLLOWED DURING OPERATION AND MAINTENANCE OF THE MEGAPACK SYSTEM.

SYMBOLS

This manual uses the following symbols to highlight important information:

DANGER: Indicates a hazardous situation which, if not avoided, could result in severe injury or death.

WARNING: Indicates a hazardous situation which, if not avoided, could result in injury.

CAUTION: Indicates a hazardous situation which, if not avoided, could result in minor injury or damage to the equipment.

NOTE: Indicates an important step or tip that leads to best results but is not safety- or damage-related.

PRODUCT WARNINGS

DANGER: Servicing instructions are for use by qualified personnel only. To reduce the risk of electric shock, do not perform any servicing unless you are qualified to do so.

DANGER: Electric shock can occur when touching live components.

DANGER: Risk of electrical shock. Multiple energy sources terminate inside this equipment. Always check with a properly rated voltmeter that there is no voltage on the bus before touching.

DANGER: Control all forms of hazardous energy at the source before servicing Megapack or removing the Megapack AC circuit breaker or bus bar access panels in the Customer Interface Bay.

DANGER: Controlling hazardous energy by isolating Megapack from other sources does not de-energize the battery, and thus a shock hazard may still be present.

DANGER: Hazardous voltage can cause severe injury or death.

DANGER: Megapack, even in a normally discharged condition, is likely to contain substantial electrical charge and can cause injury or death if mishandled.

DANGER: The batteries used in this device may present a risk of fire or chemical burn if mistreated. Do not disassemble, operate above 50°C (122°F), or incinerate.

WARNING: Failure to read, understand and comply with all instructions in this manual may result in injury.

WARNING: Personal Protective Equipment (PPE) is required when working inside Megapack enclosures. Service personnel must wear safety glasses and gloves with a minimum voltage rating of 1500 V DC, Class 0 per ASTM D120 and IEC EN60903 standards.

WARNING: Megapack has no user-serviceable parts. All service must be performed by Tesla authorized parties or Tesla employees. Only trained service personnel are allowed access.

WARNING: Only use this equipment as specified by Tesla. Use of this equipment in a manner not specified by Tesla may result in impaired protection features and injury to personnel.

WARNING: Batteries are not user-serviceable. Only Tesla-approved personnel must remove, replace, or dispose of batteries.

WARNING: For continued protection against risk of fire, use only replacement fuses of the same type and rating as the original fuse. Fuses must only be replaced by trained personnel.

CAUTION: Do not paint any part of Megapack other than external white metal surfaces, using only Tesla-provided touch-up paint. Internal or external components such as exterior cabinets or grilles should not be painted.

CAUTION: Do not use cleaning solvents to clean the Megapack or expose the system to flammable or harsh chemicals or vapors.

CAUTION: Do not use fluids, parts, or accessories other than those specified in Tesla manuals, including use of non-genuine Tesla parts or accessories, or parts or accessories not purchased directly from Tesla or a Tesla-approved party.

CAUTION: Hearing damage could occur if not wearing hearing protection while Megapack is in operation.

Refer to the Tesla *Industrial Lithium-Ion Battery Emergency Response Guide* for detailed hazard information specific to the lithium-ion battery. The guide also provides hazard information for a single Tesla Megapack.

Voltage Classification

This section defines voltage classification as used in this document.

The table below represents Tesla's standard voltage ranges. The defined ranges, comparable to global codes and standards, help categorize potential electrical hazards where applicable.

NOTE: Any voltage referred to in this document is low voltage unless otherwise specified.

CAUTION: In general, voltages above 49 V are potentially hazardous. What is considered hazardous depends on many factors including your local codes and regulations.

Table 1. Voltage Classifications

Classification	Short Form	Alternating Current (AC) Range	Direct Current (DC) Range
Ultra-low voltage	ULV	0-49 V	0-49 V
Low voltage	LV	50-1,000 V	50-2,000 V
Medium voltage	MV	1,001-35,000 V (1 kV-35 kV)	2,001-35,000 V (2 kV-35 kV)
Sub-transmission medium voltage	STMV	35,001-69,000 V (35 kV-69 kV)	35,001-69,000 V (35 kV-69 kV)
High voltage	HV	Above 69,000 V (>69 kV)	Above 69,000 V (>69 kV)

Shutting Down in an Emergency

DANGER: If smoke or fire is visible, do not approach the Megapack and do not open any of its doors.

DANGER: Refer to the *Industrial Lithium-Ion Battery Emergency Response Guide* for details on response to a hazardous event (*Emergency Response Guide on page 26*).

CAUTION: External safety features such as E-Stops and upstream breakers differ by region and design. Always be aware of your site's safety design and external safety features.

To shut down the system in an emergency or for unknown behavior:

1. If an external E-Stop button or remote shutdown contact to Megapack is present, engage it.
2. If Megapack is serviced upstream by an external AC circuit breaker or disconnect, open the breaker or disconnect.
3. Only if safe to do so and if needed, proceed with de-energizing the Megapack (*Performing Lockout/Tagout on page 56*).
4. Contact Tesla (*Contact Information on page 28*) to advise that the system has been shut down.

Reference Documents

Visit the Tesla Partner Portal at *https://partners.tesla.com/* to find reference material referred to within this guide and other relevant content, including:

- Application Note: Megapack Capacity Augmentation – *https://partners.tesla.com/home/en-us/content/download/megapack_capacity_augmentation_appnote.pdf*
- Application Note: On-Site Maintenance infrastructure Requirements – *https://partners.tesla.com/home/en-us/content/download/on-site_maintenance_infrastructure_requirements_appnote.pdf*
- Application Note: Megapack Site Design Best Practices – *https://partners.tesla.com/home/en-us/content/download/megapack_site_design_application_note.pdf*
- Controls and Communications Manual – *https://partners.tesla.com/home/en-US/content/download/Controls_and_Communications_Manual.pdf*
- Emergency Response Site Information Form – *https://partners.tesla.com/home/en-US/content/download/Emergency_Response_Site_Information_Form.docx*
- Industrial Lithium-Ion Battery Emergency Response Guide – *https://www.tesla.com/firstresponders*
- Megapack 2 XL Design and Installation Manual – *https://partners.tesla.com/home/en-US/content/download/Megapack_2_XL_Design_and_Installation_Manual.pdf*
- Megapack 2 XL Safety Overview – *https://partners.tesla.com/home/en-us/content/download/megapack_2_xl_safety_overview.pdf*
- Megapack 2 XL Transportation and Storage Guidelines – *https://partners.tesla.com/home/en-US/content/download/Megapack_2_XL_Transportation_and_Storage_Guidelines.pdf*
- Microgrid Controller Owner's Manual – *https://partners.tesla.com/home/en-US/content/download/MicrogridController_Manual_Owners.pdf*
- Application Note: Powerhub for Megapack and Powerpack – *https://partners.tesla.com/home/en-US/content/download/Powerhub_for_Megapack_Powerpack_Appnote.pdf*
- Tesla Energy Operations Contact List and Response Times – *https://partners.tesla.com/home/en-US/content/download/Tesla_Energy_Operations_Contact_List_and_Response_Times.pdf*
- Tesla Industrial Energy Controls and Communications Manual – *https://partners.tesla.com/home/en-us/content/download/tesla_industrial_energy_controls_and_communications_manual.pdf*
- Tesla Industrial Energy Approved Vendor List – *https://partners.tesla.com/home/en-us/content/download/tesla_industrialenergy_approved_vendor_list.pdf*
- Application Note: Considerations for Hazardous Materials Business Plans (HMBP) – *https://partners.tesla.com/home/en-US/content/download/Considerations_for_Hazardous_Materials_Business_Plans_AppNote.pdf*
- Application Note: Medium-Voltage Transformer Relay Program – *https://partners.tesla.com/home/en-us/content/download/medium-voltage_transformer_relay_program_appnote.pdf*

1 Introduction

1.1 About this Publication

Tesla Megapack 2 XL (Megapack) is a modular, fully integrated, AC-coupled battery energy storage system (BESS). This publication is targeted for operators of large sites in which the Megapack System is in an operational state. It provides guidance for the safe and productive lifetime operation and maintenance of the Megapack System, which is defined as one or more Megapack 2 XL units and the Tesla System Controller.

An operator is the person responsible for the day-to-day operations of the Megapack site, which consists of the Megapack System plus additional equipment required by the site and supplied by the customer. The operator includes owner-operators, control room operators, performance engineers, maintenance engineers, facility managers, site managers, and non-Tesla field staff.

In addition to the work that you perform to operate the site, which typically includes the maintenance of the site and balance of plant, a Service Provider also performs work that includes various activities to ensure Megapack performance over the system's life.

A Service Provider is defined as one of the following:

- Tesla Energy Service
- Certified Service Provider:
    - System owner certified by Tesla
    - Third party certified by Tesla

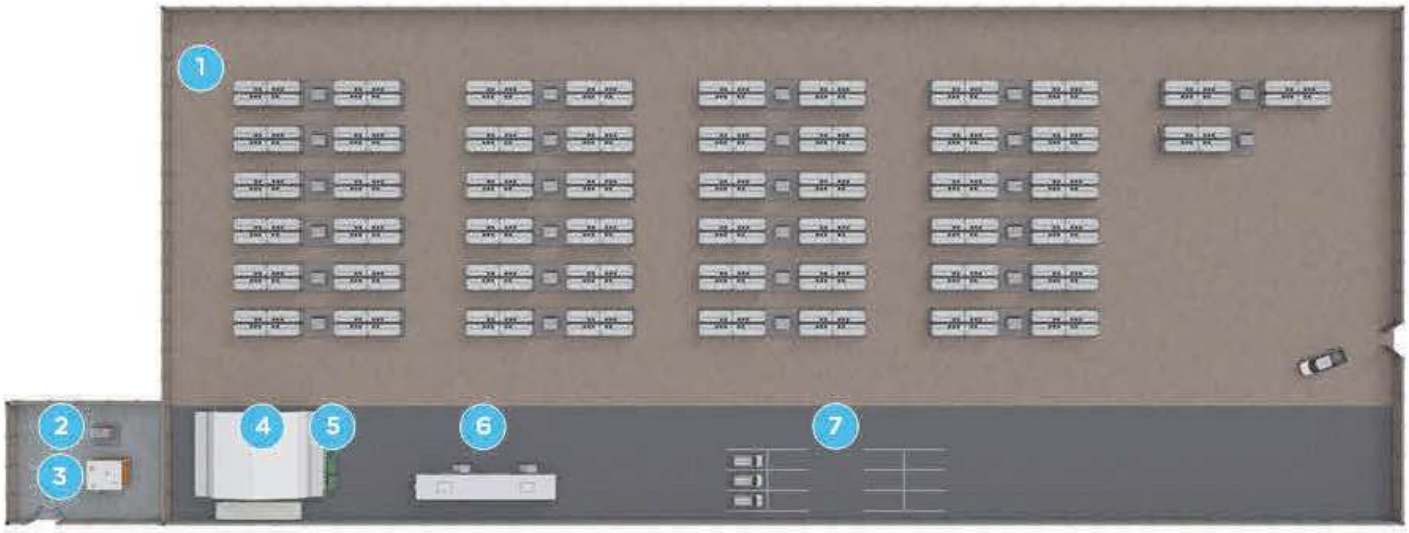
Service activities can include:

- Corrective maintenance as part of the Manufacturer's Limited Warranty and your contracts
- Preventative maintenance as part of your contracts
- Supporting system augmentation or capacity maintenance, if applicable

The Service Provider performs the required preventative maintenance services, or “services," to ensure Megapack System performance. The operator typically performs the required maintenance for the "balance of plant" and of the site. Refer to your contracts for details regarding your maintenance responsibilities.

The following figure shows an example site layout for a large utility with a typical supporting maintenance infrastructure for a Megapack site. Your infrastructure may differ. For more information regarding Megapack maintenance infrastructure requirements, refer to the *Application Note: On-Site Maintenance Infrastructure Requirements*.

Figure 1. Example ~400 MWh Megapack Site with Supporting (Level 4) Infrastructure



1. Megapack area
2. Medium voltage (MV) switchgear
3. Tesla System Controller in control room
4. Storage container and staging area
5. Waste disposal dumpsters
6. Office trailer for Tesla use
7. Parking area

CAUTION: If you are making changes to the site that may affect its design, you must ensure that the site continues to abide by all requirements in the product's *Design and Installation Manual*.

NOTE: For information about typical routes and zones at the site, refer to *Routes and Zones on page 35*.

1.2 Tesla System Components

A Tesla System consists of the following components:

- One or more Megapacks – part number 1848844-XX-Y[1] (*Megapack on page 9*)
- Tesla System Controller: Standard Tesla System Controller – part number 1471208-XX-Y[1], or Large Tesla System Controller – part number 1700130-XX-Y[1] or 1459155-XX-Y[1] (*Tesla System Controller on page 19*)

[1]*Where X is a number between 0 and 9, and Y is a letter.*

Figure 2. Example Megapack Site

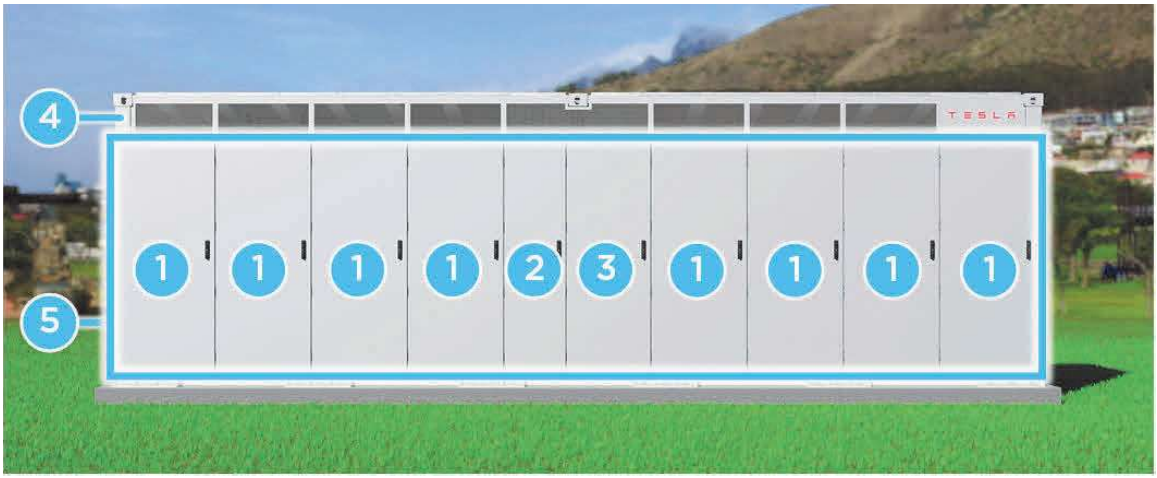
1.3 Megapack

Megapack is a fully integrated battery energy storage unit capable of charging and discharging real power and injecting and absorbing reactive power. Megapack converts power for storage in rechargeable lithium-ion battery modules and is designed to support a range of AC power and energy.

NOTE: Individual Megapack specifications are detailed on the product label (see *Megapack Labels on page 21*).

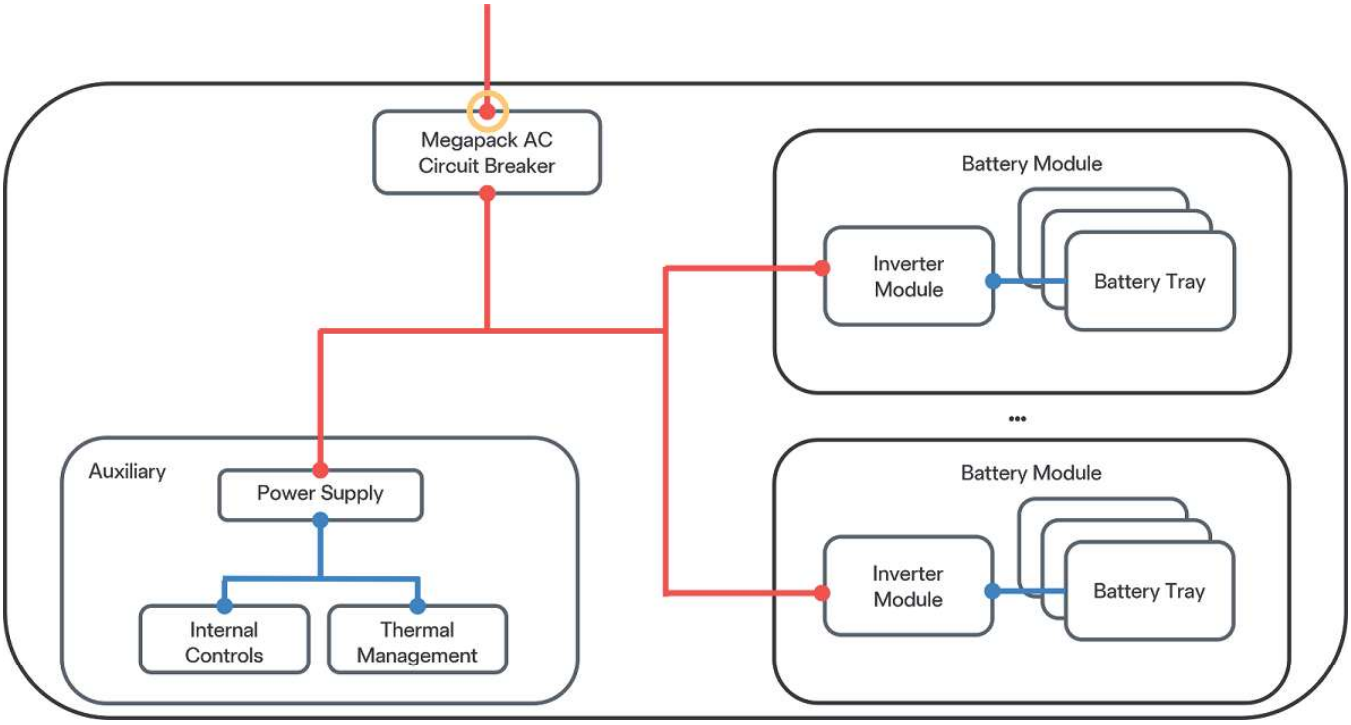
A Megapack unit consists of the following components:

Figure 3. Megapack Overview



1. Battery module bays (*Battery Modules on page 13*)
2. Thermal cabinet (*Thermal System on page 14*)
3. Customer Interface Bay (*Customer Interface Bay on page 14*)
4. Thermal roof (*Thermal System on page 14*)
5. IP66 enclosure (*Enclosure on page 18*)

Figure 4. Megapack Internal Architecture



AC
AC Output Terminals
Internal DC

The AC output terminals are the point on the AC bus bars at which the external AC connections to the Megapack are terminated.

1.3.1 Product Configurations

A Megapack unit is configurable and may vary based on **options** or **variants**. The product (Megapack unit) as built or later reconfigured, complete with its customizations including variants and options, is known as a **configuration**.

1.3.1.1 Megapack Options

An **option** is a product difference that the customer or sales team can select to configure the Megapack unit in a certain way to meet customer or project needs, such as number of battery modules or cell type (*Battery Modules on page 13*). Product options are defined using **option codes**. Not all combinations of option codes are possible, as some option codes are pre-defined by other option codes.

Option codes appear in a list of alphanumerical digits separate from the part number, determined at the time of product configuration during the sales process, and referenced throughout the order-to-delivery process. Finally, they are printed on the Megapack unit's labels (*Megapack Labels on page 21*) for reference throughout the Megapack's operational lifetime.

Option codes are described at a high level below. Refer to the *Megapack 2 XL Option Codes Quick Reference Guide* for detailed calculation and ratings information.

Table 2. Product Options

Option	Option Code	Description
Cell	C###	Cell options can denote different cell characteristics such as specifications or manufacturing location. The following cell options are available: • C010 • C011 • C012
Fan Type	FN##	Fan type options affect the maximum audible noise specification. The following fan type options are available: • FN01 • FN02 • FN03
Number of Battery Modules	EC##	Where ## is a number between 08 and 24, which indicates the number of battery modules. Combine with GT## to derive the Megapack unit's energy capacity (kWh). Combine with GT## and P### to derive the Megapack unit's real power capability (kW).
Inverter Module Configuration	GT##	GT01: 4-Hour inverter module configuration GT02: 2-Hour inverter module configuration Combine with EC## to derive the Megapack unit's energy capacity (kWh).
Apparent Power Configuration	P###	Where ### is a number between 040 - 240, which indicates the Megapack unit's apparent power capability.

Option	Option Code	Description
		Additionally allows for calculation of maximum continuous charge/discharge current (A).
Low-Voltage Augmentation Configuration	CMA#	CMA0: The hardware configuration does not support future low-voltage battery augmentation CMA1: The hardware configuration supports future low-voltage battery augmentation
Grid-Forming Firmware Configuration	VF##	VF00: The configuration does not support grid-forming VF01: The configuration supports grid-forming

Tesla may also configure options (**manufacturing options**) that become part of the product's option codes, such as circuit breaker manufacturing options. Manufacturing options are not customer-configurable.

Table 3. Manufacturing Options

Option	Option Code	Description
Thermal Configuration	TC##	Preconfigured based on heat rejection requirements of the power electronics and battery module count. Option / Refrigerant: TC2P – R-1234yf TC4P – R-1234yf TC2H – R-134a TC4H – R-134a
Internal Bussing Configuration	QB##	Preconfigured based on the inverter module and apparent power configurations. QB01: 1600 A QB02: 3000 A
Megapack AC Circuit Breaker	BB##	Preconfigured based on the inverter module and apparent power configuration. BB01: 1600 A BB02: 3000 A
Shipping Firmware Configuration	SE##	Preconfigured based on delivery location of the Megapack. SE00: Configuration supports transportation over water SE01: Configuration supports transportation over land only
Cellular Configuration	CR##	Preconfigured based on delivery location of the Megapack.

Option	Option Code	Description
		CRNA: North America CRCN: China CRRW: Rest of world

1.3.1.2 Product Variants

A **variant** is a part or product difference that is not optionally configured but is, for example, an incremental product improvement, such as an enclosure variant (*Enclosure on page 18*).

1.3.2 Battery Modules

Battery modules are factory-installed into Megapack battery module bays and contain prismatic lithium-ion battery cells, the smallest non-divisible energy storage components of the Megapack. A battery module in turn is the smallest field-replaceable battery unit. Each Megapack contains up to 24 battery modules.

Battery modules may consist of C010, C011, or C012 cell options.

Figure 5. Battery Module - C010 or C011 Cell Option

Figure 6. Battery Module - C012 Cell Option

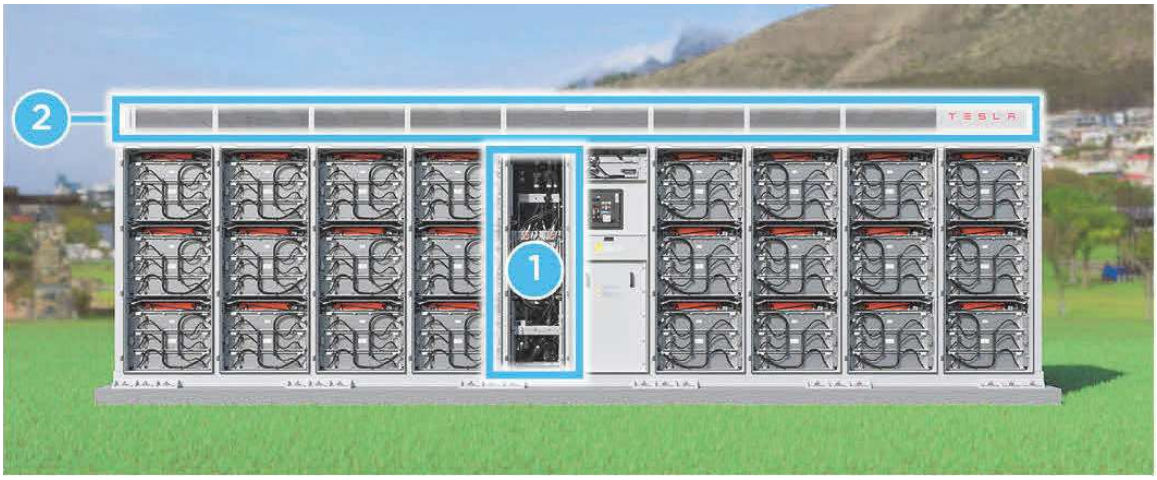
Each battery module includes an integrated inverter module for power conversion. Battery modules are connected in parallel to Megapack's internal AC bus, each with an AC power and communications output connection. The modules do not require any field assembly or adjustments and may only be replaced by Service Providers.

1.3.3 Thermal System

The thermal system provides active cooling and heating to the internal Megapack components. An external HVAC or thermal system is therefore not required for Megapack to operate.

The thermal system is comprised of the thermal cabinet and the thermal roof.

Figure 7. Thermal System



1. Thermal cabinet
2. Thermal roof

WARNING: The thermal management section is locked during operation. Do not open this cabinet while fans are in use, to avoid hazard from moving parts.

NOTE: Megapack includes an enable circuit as a safety feature. Opening the door to the thermal bay shuts down the Megapack. The thermal components located on the roof should not be serviced during operation.

1.3.4 Customer Interface Bay

All of the interface customers require for installation, operation, and maintenance is located in Bay 6, the Customer Interface Bay:

Figure 8. Customer Interface Bay

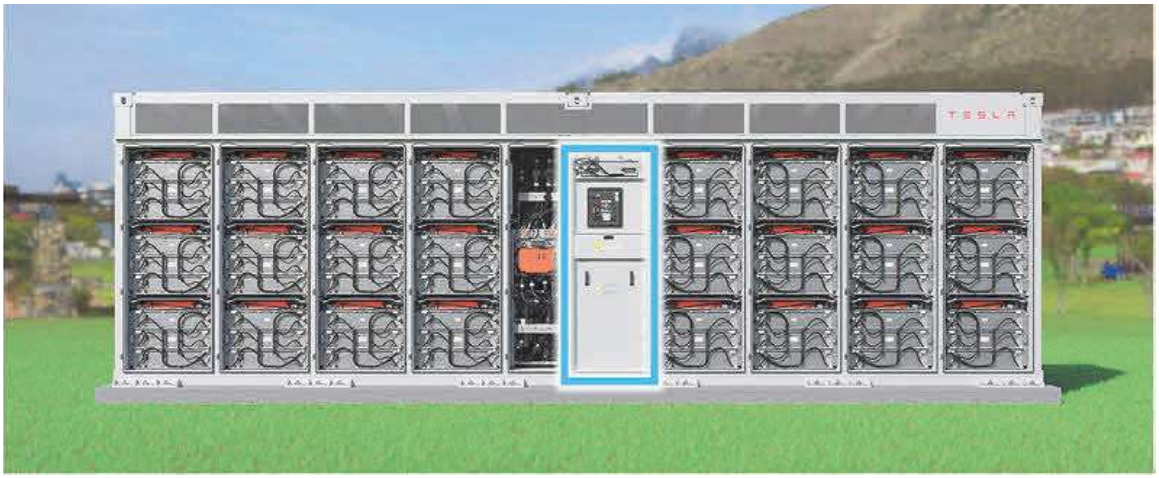


Figure 9. Customer Interface Bay Details

1. Megapack AC circuit breaker - provides distribution system protection
2. Customer I/O area - where all terminations aside from AC bus bars are made
3. AC bus bar area - where terminations to the site distribution transformer or AC distribution panel are made
4. Wireway openings

1.3.5 Megapack AC Circuit Breaker

The Customer Interface Bay contains the Megapack AC circuit breaker, a pre-installed circuit breaker that provides distribution system protection. This breaker is lockable for safe maintenance of the Megapack. Refer to *Safety Disconnect Features on page 31*.

NOTE: Additional protection or switching means at the output of the Megapack may be required depending on the jurisdiction. Protection and switching philosophy must be verified by the customer's engineer of record and should comply with regional and local codes.

Figure 10. Megapack AC Circuit Breaker – UL 489

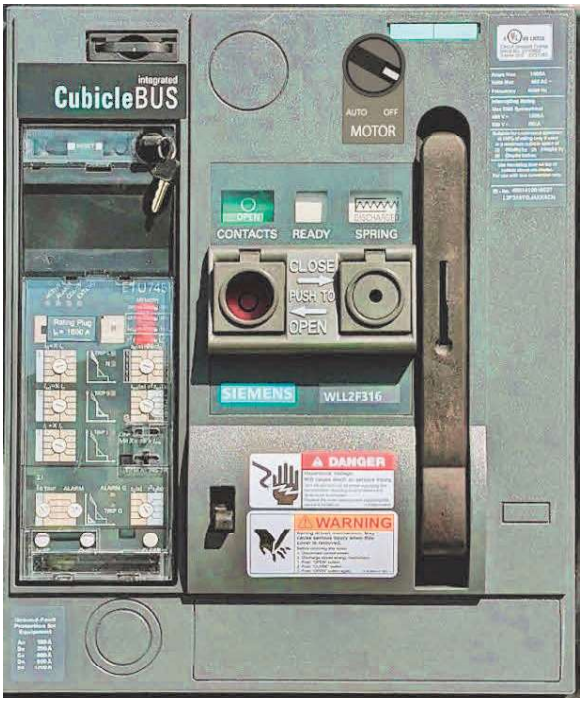


Table 4. Megapack AC Circuit Breaker Specifications – UL 489

Model	UL 489 Siemens WL model with an ETU745 programmable protection unit
Manufacturer Documentation	Siemens Low Voltage WL Circuit Breakers: *https://new.siemens.com/us/en/products/energy/low-voltage/low-voltage-circuit-breakers/wl-power-circuit-breakers.html*→ *UL 489* content
Control Power	A separate power source is not required. While operating normally (above 0% state of energy and not faulted), power is provided by the battery modules. If a separate power source is desired, jumpstart power can also be used.
Button Location	1818 mm (71.6 in) from the base of the Megapack. If the chosen foundation will place these buttons outside of local regulatory height requirements, ensure that another method of compliance is provided (such as raised workstation or remote open/close terminals).
Spring Charge	Megapack comes standard with motor to allow automatic charging of the spring-loaded breaker. The circuit breaker spring may also be manually charged for actuation.
Part Number	• Option code BB02: L2F330WGJAXEACN • Option code BB01: L2F316TGJAXEACN Refer to the unit's label (*Megapack Labels on page 21*) for the option code and the *Megapack 2 XL Option Codes Quick Reference Guide* for more information.

Figure 11. Megapack 2 XL Circuit Breaker – UL 1066

Table 5. Megapack AC Circuit Breaker Specifications – UL 1066

Model	UL 1066 Siemens WA model with an ETU600 programmable protection unit
Manufacturer Documentation	Siemens Low Voltage WA Circuit Breakers: *https://www.siemens.com/us/en/products/energy/low-voltage/low-voltage-circuit-breakers/3wa-power-circuit-breakers.html*→ *UL 1066* content
Control Power	A separate power source is not required. While operating normally (above 0% state of energy and not faulted), power is provided by the battery modules. To view the ETU600 screen, power must be supplied from laptop and/or portable power supply via USB-C port.
Button Location	1818 mm (71.6 in) from the base of the Megapack. If the chosen foundation will place these buttons outside of local regulatory height requirements, ensure that another method of compliance is provided (such as raised workstation or remote open/close terminals).
Spring Charge	Megapack comes standard with motor to allow automatic charging of the spring-loaded breaker. The circuit breaker spring may also be manually charged for actuation.
Part Number	• Option code BB02: 3WA3232-5AF02-2KA5-Z B30+D80+F40+P61+S40 • Option code BB01: 3WA3216-5AF02-2KA5-Z B30+D80+F40+P61+S40 Refer to the unit's label (*Megapack Labels on page 21*) for the option code and the *Megapack 2 XL Option Codes Quick Reference Guide* for more information.

For information about the default AC circuit breaker settings, refer to the *Megapack 2 XL Design and Installation Manual*.

1.3.5.1 Controlling the Circuit Breaker

A circuit breaker is either closed, allowing electricity to flow, or it is open, preventing the flow of electricity. Upon fault detection, the circuit breaker will trip to open state to isolate the Megapack. Megapack will only close the circuit breaker if the system has been deemed safe by Megapack firmware, based on the information provided by its status circuits:

- Enable circuit (*Enable Circuit on page 31*)
- Remote shutdown circuit
- Breaker close circuit

Generally, if all three of these status circuits are closed, the Megapack AC circuit breaker will close. Conversely, if any one of these status circuits are open, the breaker will not close.

A Megapack's circuit breaker can be controlled in three ways:

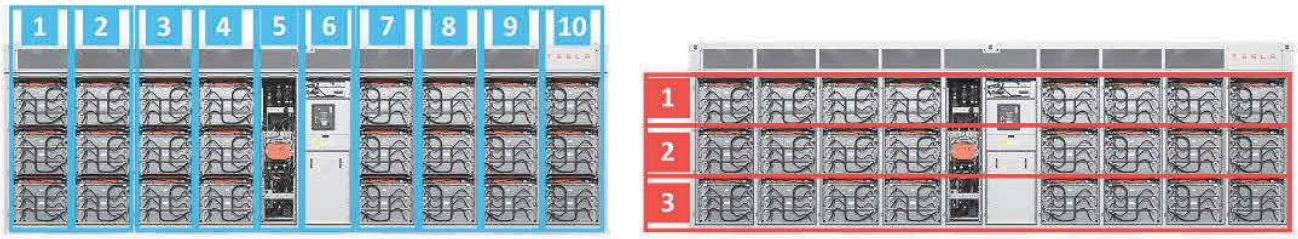
Table 6. Control Method Summary

Control Method	Open Circuit Breaker	Close Circuit Breaker
Manual	Open button	Close button
DNP3	Point = Open Megapack Breaker	Point = Close Megapack Breaker
Remote	Remote shutdown terminals	Breaker close terminals

1.3.6 Megapack Numbering Key

A numbering key can help identify locations of Megapack enclosure components to assist you when referring to them during installation or service. Below are the numbering keys for **bay** (vertical tower) and **shelf** (horizontal row) locations:

Figure 12. Megapack Bay Numbering (Left) and Shelf Numbering (Right)



For example, as depicted in *Megapack Overview on page 10*:

- The thermal bay is in bay 5
- The Customer Interface Bay is bay 6
- Battery modules are located on shelves 1-3 in bays 1-4 and 7-10.

1.3.7 Enclosure

Megapack's enclosure is rated according to IP (ingress protection) code IP66. This means it provides a high level of protection against particle and water ingress for components internal to the enclosure.

This high protection rating must be maintained at all times. In particular, special precautions must be observed while installing or servicing Megapack to prevent particles, water, or debris from entering the enclosure.

Refer to the *Megapack 2 XL Design and Installation Manual* for more information.

There are two enclosure variants:

Table 8. Megapack Enclosure Variants

Variant	Number of Anchor Brackets	Wireway Configuration
-C enclosure	12	Two single-channel trays
-D enclosure	10	Two four-channel trays

Graphics in this publication reflect the -C enclosure variant unless otherwise specified.

Refer to the *Megapack 2 XL Layout* drawings in the *Megapack 2 XL Drawings* package for detailed information.

1.4 Tesla System Controller

The Tesla System Controller is the single point of interface with which to monitor and control the entire Tesla System and approved third-party generation sources as specified in the *Tesla Industrial Energy Approved Vendor List*. It manages control functions of the Tesla System and approved third-party generation sources, aggregating real-time information and using it to optimize commands. The Tesla System Controller communicates over a private TCP network.

By default, Tesla provides two Tesla System Controllers (with the same part number). Refer to the *SCADA Design Manual* for additional details on alternative configurations. Tesla does not include additional networking equipment that may be required for the system to operate.

The Tesla System Controller has three network interfaces:

- LAN 1 RJ45/Ethernet port, which connects to the Customer Network and can be configured for WAN access
- LAN 2 RJ45/Ethernet port, which connects to the Tesla Network
- Integrated cellular modem, which by default provides cellular access for Tesla's remote connection (part numbers 1471208 and 1700130)

Refer to the relevant *Controls and Communications Manual* for complete instructions on how to interface with the Tesla System Controller.

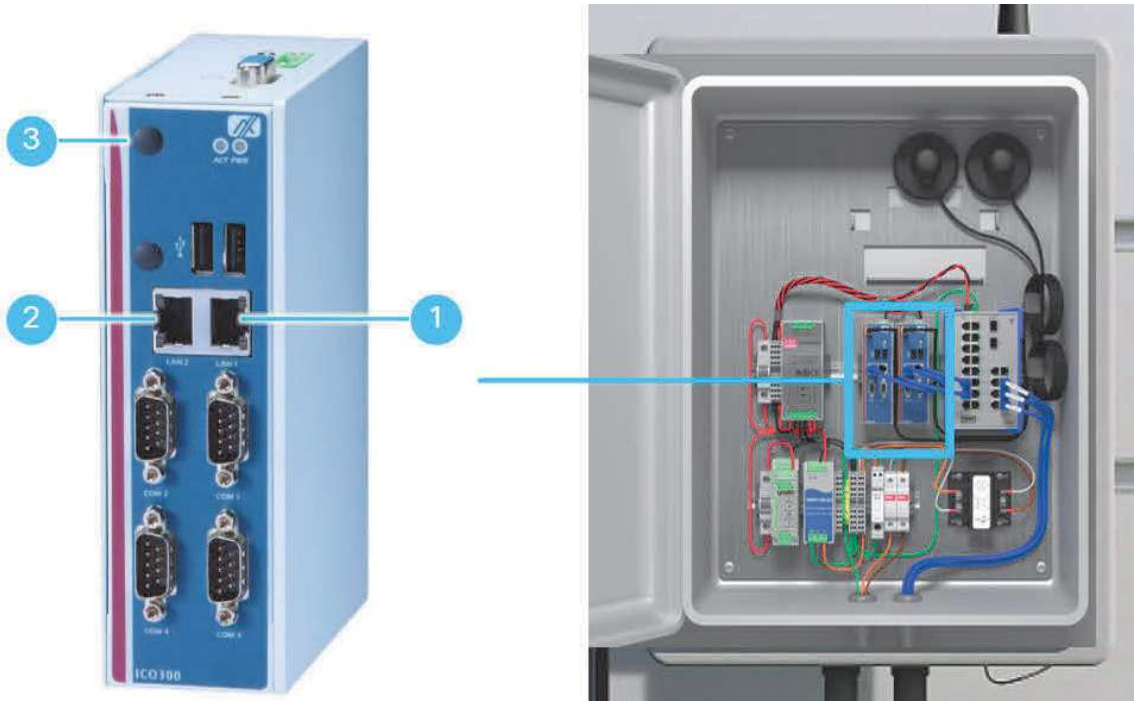
Tesla requires network separation between the Tesla Network and the Customer Network. The Tesla Network shall only contain devices that are critical for Tesla System operation. System operators can interface with the Tesla System Controller over the Customer Network.

There are two physical variations of the Tesla System Controller:

- **Standard Tesla System Controller**: Used in Tesla Systems with up to 16 battery units (not including augmentation units). Delivered in the Standard Tesla System Controller Enclosure, which includes two Standard Tesla System Controllers. Refer to the *Standard Tesla System Controller Enclosure Installation Manual* for installation details.
- **Large Tesla System Controller**: Used in Tesla Systems with greater than 16 and up to 1,000 battery units (not including augmentation units). A single Large Tesla System Controller (or pair of controllers acting in automatic failover) supports up to 1,000 battery units. For projects with more than 1,000 battery units, additional Large Tesla System Controller(s) may be required. Contact your Tesla representative for more information on controller architectures for larger system sizes.

NOTE: If you have contracted a Certified Service Provider to operate and maintain your Tesla System, contact your Tesla representative for requirements.

Figure 13. Two Standard Tesla System Controllers in the Standard Tesla System Controller Enclosure (Part Number 1471208)

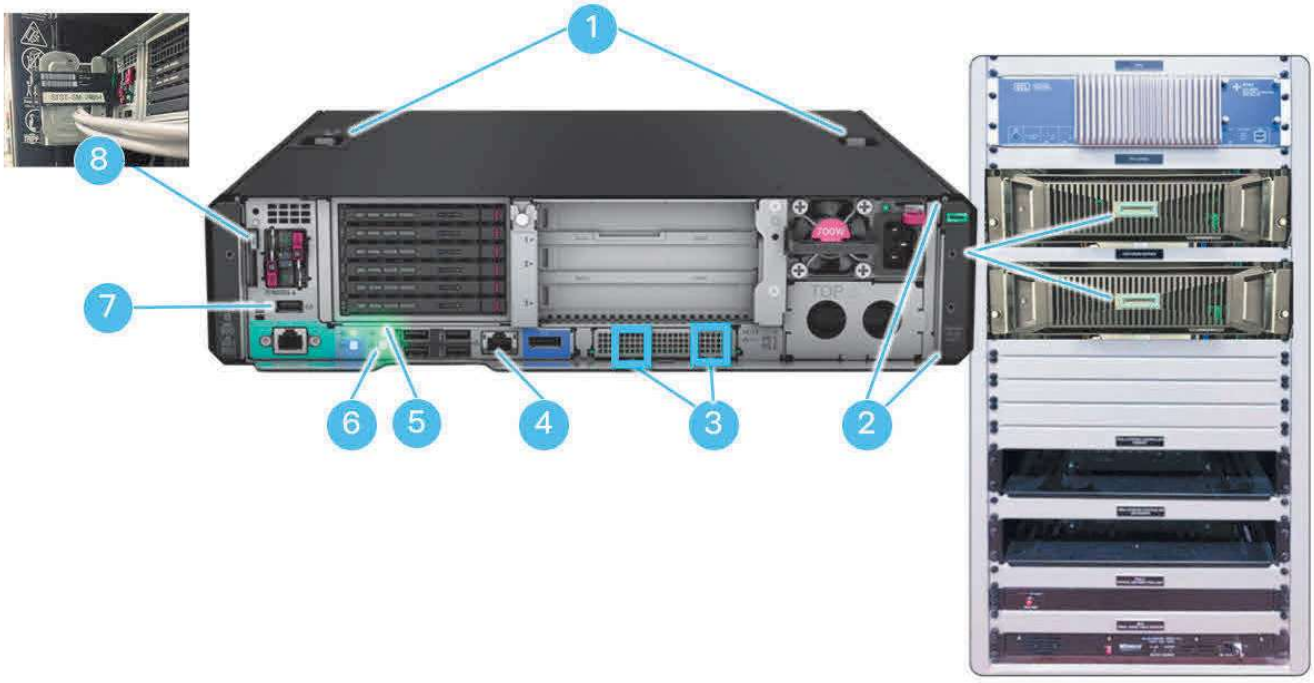


1. LAN 1 port - Customer Network
2. LAN 2 port - Tesla Network
3. Cellular WAN connection

Figure 14. Two Large Tesla System Controllers in a SCADA Network Enclosure (Part Number 1700130)

1. LAN 1 port - Customer Network
2. LAN 2 port - Tesla Network
3. Cellular WAN connection

Figure 15. Two Large Tesla System Controllers in a SCADA Network Enclosure (Part Number 1459155)



1. Quick Removal Access Panel
2. Two Power Supply Slots
3. LAN1 (left) and LAN2 (right) RJ45 ports
4. Remote Management Port
5. Health LED
6. Power On / Standby Button and System Power LED
7. Service Port
8. Information Pull Tab (Serial Number)

1.5 Product Labels

1.5.1 Megapack Labels

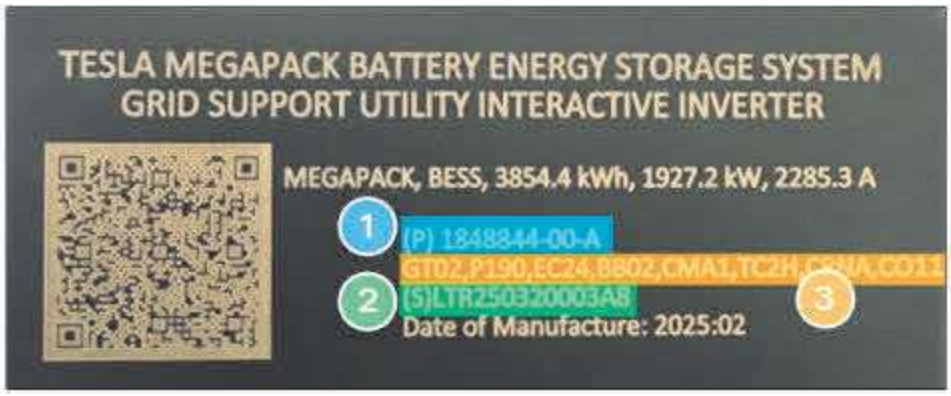
Megapack labels provide the specifications and product reference for each individual Megapack unit.

NOTE: The labels pictured here are example labels. Refer to the labels on the Megapack units themselves for specific product configuration information.

The **Megapack external label** is a small metal label laser-etched onto the outside of the Customer Interface Bay door above the handle. It contains:

- Description of the product, with kWh, kW, and amp ratings
- Part number followed by option codes
- Serial number
- Date of manufacture

Figure 16. Megapack External Label - Example

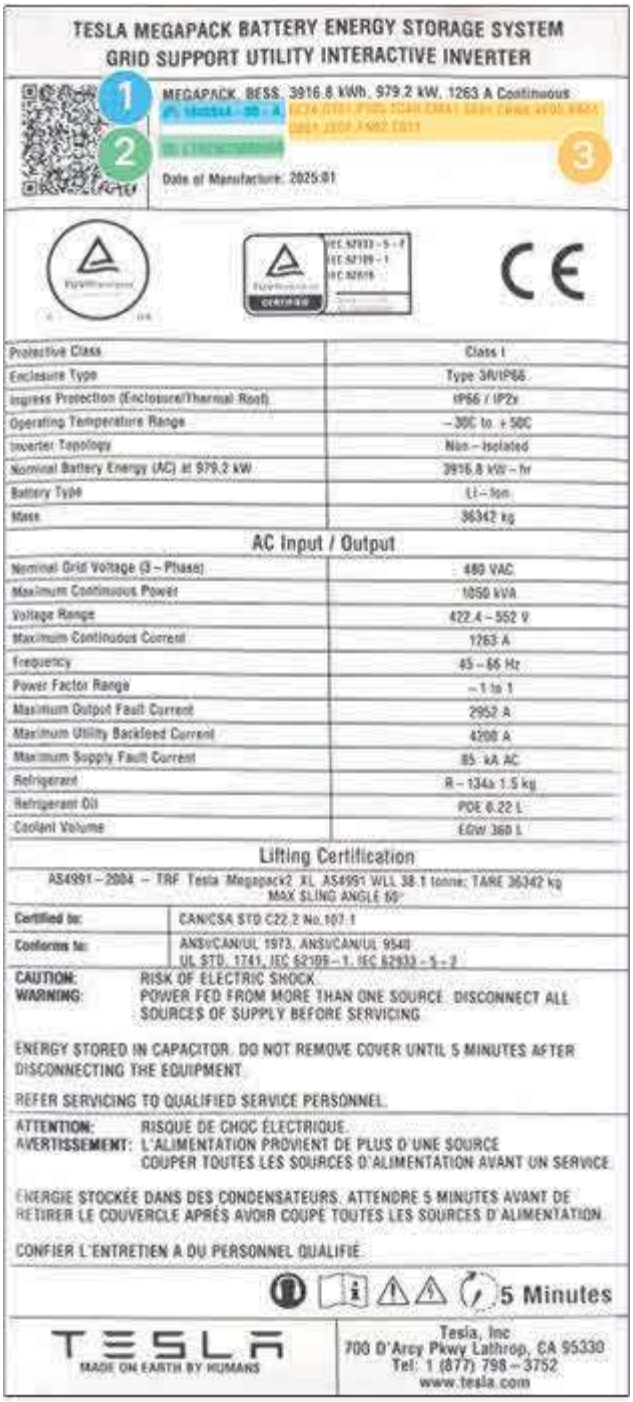


1. Part number
2. Serial number
3. Option codes

The **Megapack nameplate label** is a large sticker affixed to the inside of the Customer Interface Bay door, and contains nameplate information such as:

- AC input/output specifications including relevant power and energy ratings, in kWh, kW, and amps
- Part number followed by complete list of option codes
- Serial number
- Date of manufacture
- Weight (mass)
- Other detailed product specifics and compliance marks

Figure 17. Megapack Nameplate Label - Example



1. Part number
2. Serial number
3. Option codes

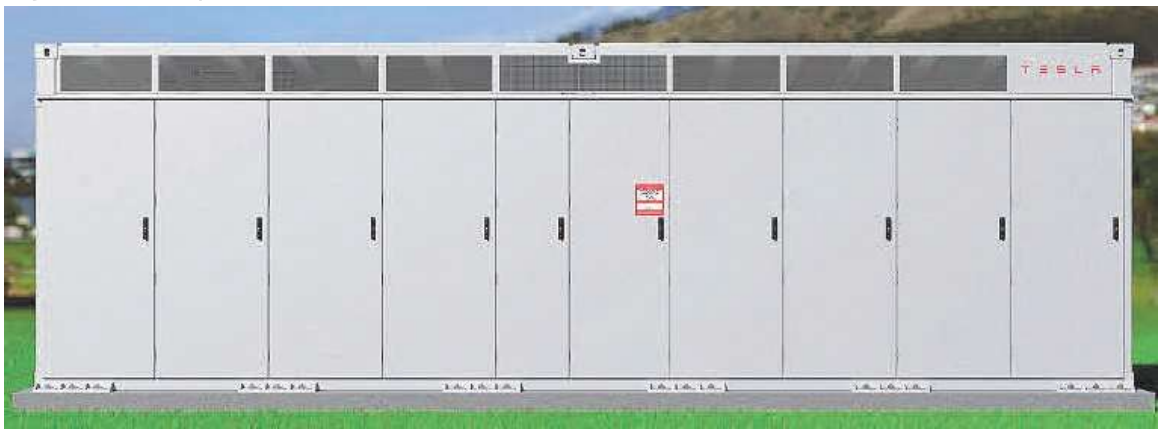
1.5.2 Arc Flash Label

An arc flash label is affixed to the outside of the Customer Interface Bay door for each Megapack. The label designates:

- Working distance
- Expected incident energy

- Recommended PPE
- Nominal voltage

Figure 18. Example Location of Arc Flash Label



NOTE: Arc flash labels are required for Service Providers to perform any work on Megapack. If the label is not present, Tesla will require Megapack and upstream devices to be completely de-energized before any work on Megapack can take place.

1.5.3 Tesla System Controller Labels

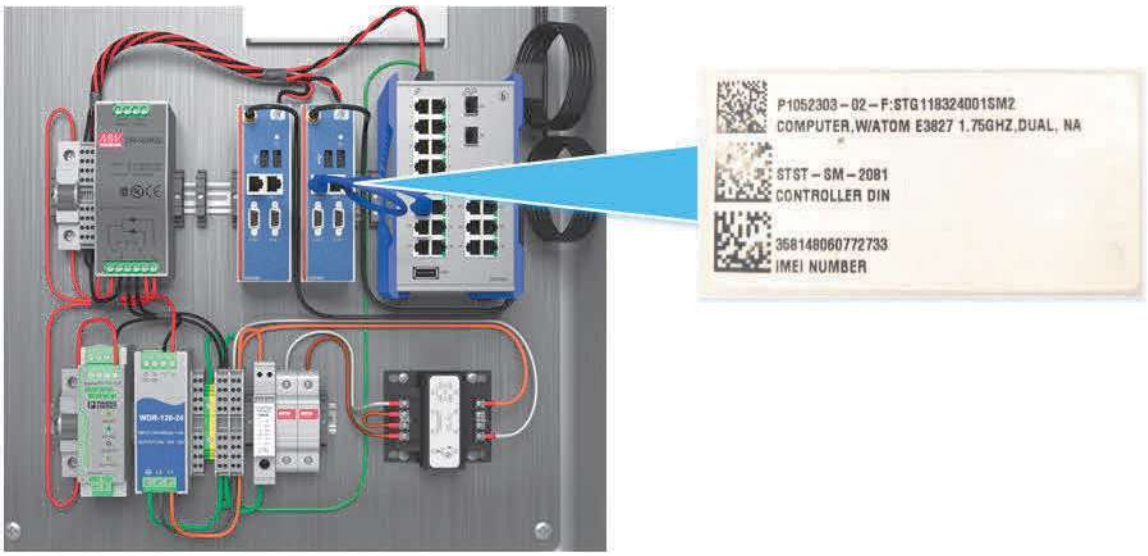
Look on the controller computer of any variant of the Tesla System Controller to locate its labels. The part number is typically identified with P or PN. The VIN is typically labeled *CONTROLLER DIN* and takes the format *STST-SM-####*.

For more information about the Tesla System Controller and its variants, refer to *Tesla System Controller on page 19*.

1.5.3.1 Standard Tesla System Controller

Standard Tesla System Controller labels are located on the side of the computers in the Standard Tesla System Controller Enclosure:

Figure 19. Standard Tesla System Controller Label (Example)



NOTE: There may be two Standard Tesla System Controllers in the Standard Tesla System Controller Enclosure. Each has its own identifiers.

1.5.3.2 Large Tesla System Controller

The labels for the Large Tesla System Controller (part number 1700130) are located on the top and side of the computer:

Figure 20. Large Tesla System Controller (1700130) Label on Top (Example)

Figure 21. Large Tesla System Controller (1700130) Label on Side (Example)

The labels for the Large Tesla System Controller (part number 1459157 or 1459158) are located on the top of the computer and on the information pull tab:

Figure 22. Large Tesla System Controller (1459155) Information Pull Tab Label (Example)

NOTE: Typically, two Large Tesla System Controllers are provided. Each has its own identifiers.

1.6 Emergency Response Guide

The *Industrial Lithium-Ion Battery Emergency Response Guide* (ERG) provides an overview of product materials, handling and use precautions, hazards, emergency response procedures, and storage and transportation instructions. Tesla recommends that a physical copy of the ERG is transported along with Megapack, and subsequently remains on site and accessible at all times for the life of the product. The ERG is periodically updated. Download the latest revision from *https://tesla.com/firstresponders*.

The ERG may be used in place of traditional Safety Data Sheets (SDS) commonly associated with the health and safety of a chemical product, however Safety Data Sheets are available for materials in Tesla Energy products. Refer to the Tesla Partner Portal or contact Tesla for more information.

NOTE: Tesla BESS coolant is not a regulated substance according to the United States Department of Transportation (USDOT). Tesla BESS refrigerant is a regulated substance according to the USDOT.

1.6.1 Available ERG Translations

The *Industrial Lithium-Ion Battery Emergency Response Guide* (ERG) is available in various languages as indicated below. As information in the ERG is periodically updated and translations are periodically added, always check the Tesla First Responders Information page at *https://www.tesla.com/firstresponders* for the latest revision of this guide, for ERGs for other Tesla products, and for the latest additional translated versions.

English	Deutsch	Español	Français
עִבְרִית	Italiano	日本語	한국어
Nederlands	体中文	繁體中文	Português
Slovenščina			

1.7 Getting Support

For Megapack support or to provide product feedback, contact Tesla via *https://ion.tesla.com/*.

For urgent support, refer to *Contact Information on page 28*.

Have the following information ready when contacting Tesla:

- Site name
- Best point of contact for Tesla to return contact (name, phone number, email)

- Tesla System Controller VIN (*Example VIN format: STST-SM-XXXX*)
- Brief description of the observed issue, including the time, date, and symptoms of the event
- If the issue is specific to one Megapack, the Megapack serial number

1.7.1 Contact Information

In case of critical performance issues (for example, if the Tesla site is 100% non-operational), call the appropriate Tesla telephone number listed below and select **Urgent** for 24/7 support.

For other inquiries, visit the **Online Support and Ticketing Portal** or telephone the support contacts provided below.

Online Support and Ticketing Portal
https://ion.tesla.com/ For information about using the Energy Service Portal, refer to the *Energy Service Portal User Guide*: *https://partners.tesla.com/home/en-us/content/download/tesla_ion_user_guide_en-na.pdf*

Urgent Support via Telephone (24x7)
Asia: +1 571 573 9163
Australia/New Zealand: +61 2 432 802 81
Europe/Middle East/Africa: +31 2 08 88 53 32
Japan: +1 571 573 9163
North America: +1 650-681-6060

Technical Support via Telephone		
North America: +1 650-681-6060	Asia/Pacific: +61 2 432 802 81	France: +33 173218702
Japan: +0120 312-441	The Netherlands: +31 208885332	Slovenia: +38 617778699
South Africa: +27 213004878	Switzerland: +41 445155607	United Kingdom: +44 1628450645

1.7.2 Contact Details

Team Member	Email	Phone	Expected Response Time
Project Engineer	Defined on a project-by-project basis. Tesla Project Engineer will provide their contact details.	Defined on a project-by-project basis	< 3 business days

1009

Team Member	Email	Phone	Expected Response Time
Industrial Storage Support	Ticketing Portal: *https://ion.tesla.com/*	See *Contact Information on page 28*	< 5 business days
Sales Account Manager	Defined on a project-by-project basis. Tesla Sales Account Manager will provide their contact details.	Defined on a project-by-project basis	< 3 business days
Service Account Manager	*commercialaccounts@tesla.com*	N/A	< 3 business days
Field Service Coordinator	Defined on an as-needed basis.	Defined on an as-needed basis.	< 5 business days

2 Hazard Mitigation Features

There are hazards inherent in any energy system. In battery energy storage systems, chemical energy in the battery cells can be transmitted as electricity or heat and gases which, when unmitigated, may result in fire.

Hazards are mitigated in multiple ways by the Tesla System, as described in this section.

2.1 Electrical Hazard Mitigation

Electrical hazards can include shock from unexpected voltage, heat from unanticipated escape of stored energy, and environmental hazards such as electrical storms. Megapack's electrical hazard mitigation includes:

- **Battery module overcurrent protection:** The battery modules contain DC single-use fusible links.
- **Inverter DC protection:** Each inverter module is equipped with its own high-speed DC disconnect.
- **Inverter AC protection:** Each inverter module is equipped with its own AC contactor and AC fuses.
- **Ground fault protection:** Megapack is provided with a DC ground fault detection system. Megapack measures insulation resistance prior to operation and looks for ground fault during operation. Megapack also contains an AC circuit breaker with ground-fault trip settings.
- **Protective internal frame**: The enclosure's internal frame can act like a Faraday cage, diverting currents from electrical storms to flow around the internal components but not through them to ground.
- **Power electronics sizing:** The power electronics of the unit provides component sizing and creepage clearance in addition to monitored surge protection on the load side of the Megapack breaker.

2.2 Explosion Hazard Mitigation

The Megapack battery enclosure has an explosion control system that mitigates the potential of the enclosure to fail in the event of a deflagration. This system includes:

- **Sparker System:** A protective feature that uses spark plugs ("Sparkers") to proactively ignite flammable discharge gases from compromised battery cells before the gases accumulate within the enclosure and could lead to an explosion hazard.
- **Overpressure vents:** Vents installed in the ceiling of the battery bay's IP66 enclosure that are designed to open during an overpressure event, such as the rapid ignition of flammable gases by a Sparker. Once opened, the overpressure vents permit gases, products of combustion, and flames to exhaust in a controlled path from the battery bay into the thermal roof. From the thermal roof, this exhaust releases out of the roof vents.

2.3 Fire Hazard Mitigation

If fire occurs as a result of these hazards, the battery enclosure is designed to prevent it from propagating to nearby enclosures or exposures.

2.4 Other Safety Features

In addition to features provided to mitigate hazards, the Tesla System provides additional features that you can use to enhance safety, including:

- *Safety Disconnect Features on page 31*
- **Battery management system:** Megapack provides firmware and software that can be used to monitor the system including battery cell temperature and fault tolerance.

2.5 Safety Disconnect Features

2.5.1 Megapack AC Circuit Breaker

The Customer Interface Bay contains an AC circuit breaker that can be locked in the open position.

WARNING: Operating the Megapack AC circuit breaker does not completely remove potential electrical hazards from the Megapack unit. See *Performing Lockout/Tagout on page 56* for more information.

2.5.2 Enable Circuit

Megapack includes an internal safety circuit called an *enable circuit* (also known as *HVIL - high-voltage interlock loop*) that isolates all major power components whenever the circuit is opened. Certain factors trigger opening this circuit, including opening bay doors or turning the enable switch (*Enable Switch on page 31*) off.

The Megapack internal monitoring system uses the enable circuit to monitor for critical system faults and prevent operation of the Megapack unit if needed. It is not recommended to open a Megapack door during operation.

WARNING: Opening the enable circuit does not completely remove potential electrical hazards from the Megapack unit. See *Performing Lockout/Tagout on page 56* for more information.

Figure 23. Enable Circuit Examples

1. The enable circuit is closed. Megapack is able to operate.
2. The enable circuit is open due to an open bay door. Megapack is unable to operate.
3. The enable circuit is open because the enable switch in the off position. Megapack is unable to operate.

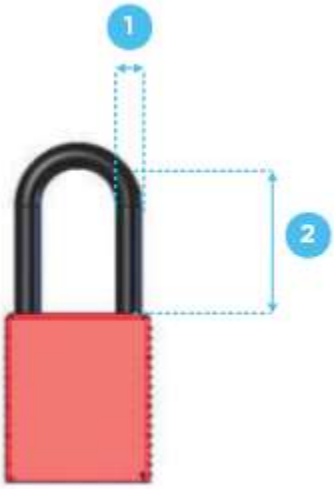
2.5.3 Enable Switch

The customer I/O area in the Customer Interface Bay includes an enable switch that can interrupt the enable circuit and prevent the system from energizing. This switch is part of the enable circuit, and provides a lockable isolation point for procedures that involve actively working inside Megapack. It is the recommended customer interface to the enable circuit. When the switch is turned off, the enable circuit is open and the product will not actively operate.

WARNING: The enable switch must be turned off at any time when working inside Megapack. See *Performing Lockout/Tagout on page 56* for more information.

If applying a lock to the enable switch, the lock must observe the specifications indicated below:

Figure 24. Lock Specifications



1. Nominal shackle diameter: 6.4 mm (¼ in)
2. Minimum shackle clearance: 38.1 mm (1 ½ in)

2.5.4 Remote Shutdown Terminals

The customer I/O area in the Customer Interface Bay contains a pair of terminals used to perform a remote shutdown, which commands the inverter to cease operation (isolating the Megapack AC bus from the battery DC source) and opens the Megapack AC circuit breaker. These terminals may be used by the customer to provision an E-Stop button, for example, which can be activated to place the system in a standby state. Refer to *Controlling the Circuit Breaker on page 18* for more information.

Table 9. Remote Shutdown Trip Times

Component	Time
Inverter shutdown time	35 ms
Breaker clearing time	100 ms
Combined total	**135 ms**

NOTE: Remote shutdown is software-driven functionality that may not comply with emergency stop regulations in all locales. Check with the local codes and AHJ before using this functionality to provision an E-Stop button.

2.5.5 Remote Shutdown in Islanding Applications

Systems used in islanding applications may be configured to provide an additional source of power in the absence of utility power. Therefore, an additional means may be required to prevent the Megapack System from creating a hazardous situation by introducing unexpected power to interconnected equipment during emergency response.

Using the remote shutdown terminals or a locally accessible human machine interface (HMI), an E-Stop button shall prevent the connected Megapack unit from providing an additional source of power to interconnected equipment. Tesla strongly recommends the E-Stop be readily accessible to emergency responders.

NOTE: As a best practice, add any E-Stop information to the *Emergency Response Site Information Form* and use that to inform local fire authorities about this functionality at your site.

2.6 Fire Response

Megapack does not contain built-in smoke, gas, or fire detection or suppression features. Megapack provides hazard mitigation as described in *Hazard Mitigation Features on page 30*.

If fire or smoke is observed emanating from a Megapack at any time, evacuate the area and notify appropriately trained first responders and the local fire department. Consult the *Industrial Lithium-Ion Battery Emergency Response Guide* (*Emergency Response Guide on page 26*) for details around hazards and recommended response. For emergency shutdown procedures, see *Shutting Down in an Emergency on page 5*.

NOTE: As part of a site's fire safety preparations, site owners can use the *Emergency Response Site Information Form* provided by Tesla to coordinate and establish communication with local fire departments.

2.7 Service De-Energization

In order to perform many of the service actions, de-energization of the Megapack is required, including of the line-side bus bars entering the Megapack.

Follow the procedures in *Performing Lockout/Tagout on page 56* to de-energize Megapack.

3 Operations

Operators, as designated by system owners, are responsible for the day-to-day operations of the Megapack site. Responsibilities of operators include:

- Monitoring and operating the site as required
- Providing for site access for Service Providers (*Maintaining Access, Routes, and Zones on page 47*)
- Providing a safe work environment for Service Providers (*Providing a Safe Work Environment on page 54*)
- If requested by a local authority, providing total material quantities as indicated in the *Application Note: Considerations for Hazardous Materials Business Plans (HMBP)*
- Arranging for decommissioning (*Decommissioning and Disposal on page 66*)
- Reviewing and acknowledging the site's *Electrical Control Plan on page 54*

The Tesla System Controller provides the single point of interface through which you control and communicate with the Megapack System. For more information about the Tesla System Controller, refer to the *Controls and Communications Manual - Tesla System Controller*.

For troubleshooting the Megapack System, refer to *Appendix A: Troubleshooting on page 70*.

3.1 Critical Operational Considerations

If the system reaches a 0% state of energy, energy must be restored within 30 days. Tesla recommends maintaining a minimum of 20-30% state of energy. If the system stays at 0% state of energy for more than 30 days, it may result in permanent system damage and loss of warranty. Contact Tesla for more information.

4 Site and Balance-of-Plant Maintenance

Typically, as the operator, you are responsible for the maintenance of the site and the balance of plant, which may include MV transformers, MV switchgear, meters, field network enclosures, cabling connecting these units, thermal imaging cameras, air quality, and site lighting. You are also responsible for the upkeep of the maintenance infrastructure for the Megapack System, described in *On-Site Maintenance Infrastructure Requirements Overview on page 47*.

Refer to your contracts with Tesla to confirm the maintenance obligations between the parties.

Refer to *Application Note: Megapack Site Design Best Practices* for additional information on the site design best practices for operations and maintenance.

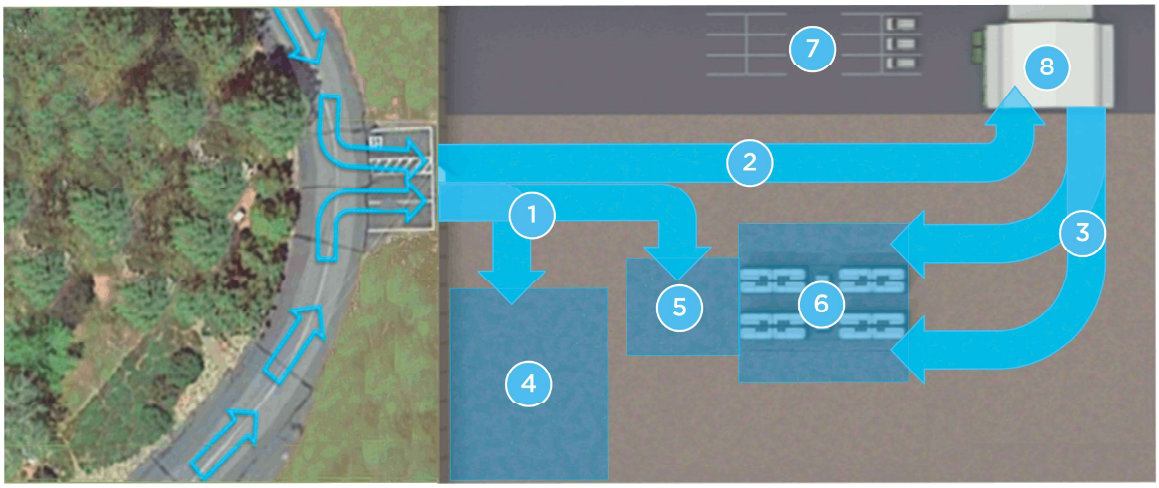
WARNING: Before operating or maintaining Megapack, read and understand all safety information as detailed in *IMPORTANT SAFETY INFORMATION on page 3*.

4.1 Routes and Zones

A site generally consists of routes and zones as indicated below. A **route** is defined as the full path between two or more locations and includes the surface being traveled upon. A **zone** is a defined area of the site that is typically distinguished by function. A zone can be in multiple locations on a site and is dependent on the site layout. Routes and zones are generally allowed to overlap as needed.

NOTE: Route and zone requirements are for non-emergency operations only. Follow local codes and standards as appropriate for emergency vehicle access.

Figure 25. Routes and Zones -- Example



1. Delivery Route
2. Service Access Route
3. Battery Service Route
4. Construction Staging Zone
5. Crane Zone
6. Battery Zone:
    - Foundation Zone
    - Battery Service Zone
7. Parking Zone
8. Service Staging Zone

4.1.1 General Requirements

The site must maintain routes and zones to the requirements described in this section for the life of the project. For vehicle de refer to *Typical Vehicles on page 42*. Any temporary obstructions to routes or zones, such as snow or storm debris, are the res clear and may impact service if left unaddressed.

CAUTION: Standing water in any routes or zones may impact serviceability or structural integrity and should be mitigate

NOTE: The requirements for routes and zones generally apply at any site regardless of whether it is a single- or multiple- Tesla representative for more information.

Table 10. General Requirements for All Routes and Zones

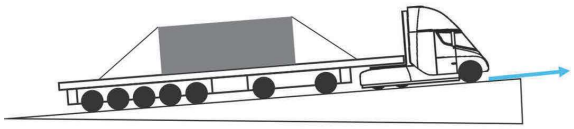
Slope	Vehicle Requirements	Surfac
Battery Service Zone: • Maximum 5% in any direction Foundation Zone: • Refer to the product *Design and Installation Manual* All other routes and zones: • Maximum 5% cross slope • Maximum 10% slope (grade) 	• Support for axle loads for designated vehicle types. • Support for adequate width for designated vehicle travel. • Support for minimum turning radii of designated vehicle types.	Required: • No potholes, ruts • Adequately comp work on and for d operate on (*Grou page 38*). • Engineered with s traction. Recommended: • All-weather surfa upkeep and resur weather events. • A material that ha or regional Depar • Graded or crowne prevent ponding.

Figure 26. Ground Surface Conditions

For additional information, refer to *Ground Surface Maintenance Considerations on page 43*.

4.1.2 Route Requirements

Uses and additional requirements and recommendations specific to each route are described below.

Table 11. Route Uses and Requirements

Route or Zone	Use	Designated Vehicle Types	Requirements and
Delivery Route	Transport between the public right-of-way, the designated project entrance, and the vehicle unloading point (Crane Zone or Construction Staging Zone).	• Megapack delivery vehicle • Crane • Utility vehicle • Telescopic forklift • Fixed-mast forklift • Service delivery vehicle	Required: • Delivery vehicles and cr to all designated Crane Staging Zones for instal Recommended: • Looped route or cul-de- reverse the delivery veh • Ability for delivery vehic alongside the Crane Zor
Service Access Route	Transport between the public right-of-way and the Service Staging Zone.	• Megapack delivery vehicle • Crane • Utility vehicle • Telescopic forklift • Fixed-mast forklift • Service delivery vehicle	No additional requirements.
Battery Service Route	Transport between the Service Staging Zone and each Battery Service Zone.	• Fixed-mast forklift • Utility vehicle	Required: • Designated vehicle type the public right of way t **every** Battery Service Z

4.1.3 Zone Requirements

Descriptions and additional requirements and recommendations specific to each zone are described below.

Table 12. Zone Descriptions and Requirements

Route or Zone	Description	Designated Vehicle Types	Requireme
Construction Staging Zone	Portions of the site set aside for construction activities. Typical uses include material handling and temporary stockpiling, equipment and contractor parking, and occasionally the storage of battery units.	• Megapack delivery vehicle • Crane • Utility vehicle • Telescopic forklift • Fixed-mast forklift	Recommende • Conside construc with the
Crane Zone	Portions of the site that have been allocated for the set up or operation of a crane.	• Crane	Required: • Depend plan, ac load co if delive close pr
Battery Zone – Foundation Zone	The area upon which the battery unit is installed. Figure 27. Megapack Foundation Zone - Side View 	• None	Refer to the pr *Manual*. **CAUTIO** must be more th standin 30 minu down ar be cont
Battery Zone – Battery Service Zone	The area in which service actions take place, as defined in *Clearance - Battery Service Zone on page 46*.	• Utility vehicle	Required:

Route or Zone	Description	Designated Vehicle Types	Requireme
		• Fixed-mast forklift	• Suppor routes, people the eve
Parking Zone	Vehicle parking, required at all stages of the project life, but the quantity and usage of the parking will vary.	• Utility vehicle	Required: • Cannot clearan • Does nc or servi • Parking 2.75 m Recommende • Tempor option f during t project.
Service Staging Zone	Portions of the site set aside for service preparation activities. Typical uses include material handling and temporary stockpiling, and occasionally the storage of supplies. **NOTE:** Details of this zone are provided in the *Application Note: On-Site Maintenance Infrastructure Requirements*.	• Utility vehicle • Telescopic forklift • Fixed-mast forklift • Service delivery vehicle	Required: • Must be delivery forklift forklift the deli

4.1.4 Typical Vehicles

Various vehicles are required to access routes and zones at the site as designed by the engineer of record.

The figure below shows the relative scale of typical vehicles compared to the Megapack:

Figure 28. Typical Vehicle Scale Compared to Megapack (Examples)

Examples of vehicles that may require access during construction, delivery, and for serviceability are listed below.

Table 13. Typical Vehicle Examples and Requirements

Type and Usage	Design Gross Vehicle Weight	Design Axle Weight	Approx. Dimensions	Vehicle (Example) - Not to Scale
Utility vehicle Van or truck. Transports personnel and supplies.	4,545 kg (10,000 lb)	2,723 kg (6,000 lb)	Length: 6.7 m (22 ft) Height: 2.7 m (9 ft) Width: 2.4 m (8 ft)	
Service delivery vehicle Transports personnel and supplies for service and maintenance activities.	15,000 kg (33,000 lb)	8,165 kg (18,000 lb)	Length: 8 m (26 ft) Height: 4.2 m (13.6 ft) Width: 2.6 m (8.5 ft)	
Fixed-mast forklift Used during certain service activities to move components, most notably the battery module, as well as to unload service delivery vehicles.	6,350 kg (14,000 lb)	3,629 kg (8,000 lb)	Length: 3.8 m (12.4 ft) Height: 2 m (6.8 ft) Width: 1.6 m (5.4 ft)	

Type and Usage	Design Gross Vehicle Weight	Design Axle Weight	Approx. Dimensions	Vehicle (Example) - Not to Scale
				Shown with battery module removal tool for context.
Telescopic forklift Typically used during construction to move various materials or components. Not typically used by Tesla during service.	5,910 kg (13,000 lb)	3,175 kg (7,000 lb)	Length: 5.8 m (19 ft) Height: 6 m (20 ft) Width: 3 m (8 ft)	
Crane Lifts heavy equipment such as Megapack units and other units for system augmentation or other construction activities.	112,000 kg (246,918 lb)	9,072 kg (20,000 lb)	Length: 15.7 m Height: 4 m (13.1 ft) Width: 3 m (9.3 ft)	
Megapack delivery vehicle Brings Megapack units to a Construction Staging Zone or a Crane Zone.	63,200 kg (139,000 lb)	9,072 kg (20,000 lb)	Length: 24.1 m (79 ft) Height: 4.2 m (13.5 ft) Width: 2.6 m (8.5 ft)	

4.1.5 Ground Surface Maintenance Considerations

When designing or maintaining ground cover and ground improvements within the site's routes and zones, consider the *Typical Vehicles on page 42* that will be traveling the site in addition to the following recommendations:

- Structural fill to be compacted to minimum 95% of maximum dry density as determined by a Standard Proctor (ASTM D698) and placed in loose lifts not exceeding 200 mm (8 in) to within 4 % of the optimal moisture content or as specified in the geotechnical report.
- Moisture content and compaction to be within the value determined by in the geotechnical report.
- Recommended compaction testing shall be performed on each lift of the compacted material at a rate of one test for every 460 m^2 (5000 ft^2) within the Foundation Zone and 920 m^2 (10,000 ft^2) elsewhere.
- Test recommendations: ASTM D698, ASTM D1557, California Bearing Ratio (CBR).

NOTE:

- Always consult a geotechnical engineer and have a site-specific geotechnical investigation performed prior to design and construction.
- All recommended guidance does not constitute approval of site-specific geotechnical conditions.

4.2 Maintaining the Perimeter

- When deterring access, maintain fence height as specified in the product's *Design and Installation Manual*.
- Fencing may be locked and posted with a placard stating "Authorized Users Only" or similar. Refer to local code for fencing placard requirements.
- Any fencing must follow clearance requirements as designated in *Maintaining Megapack Clearance on page 44* and *Maintaining Exposures and Fire Clearances on page 46*, or as noted per the following exceptions:
  - If the installation is located within a property that already contains perimeter fencing to prevent unauthorized public access, additional fencing might not be required.
  - Permanent chain link fence without fill or slats can be installed according to the designated clearances.
  - Removable chain link fencing (such as with a swing gate, or similar) without fill or slats may be installed according to the designated clearances. When removed, the fence and its support structure must allow unobstructed equipment maintenance access and clearance for equipment door swing.

4.3 Maintaining Megapack Clearance

The clearances listed in this section are as required by the product. Additional clearances to non-Megapack equipment may be required per local codes and regulations.

Equipment clearances must be maintained throughout the operating life of the system. See the *Equipment Clearance Requirements on page 45* table below for dimensions. Shaded areas indicate the Battery Service Zone.

Figure 29. Equipment Clearance Requirements - Side View

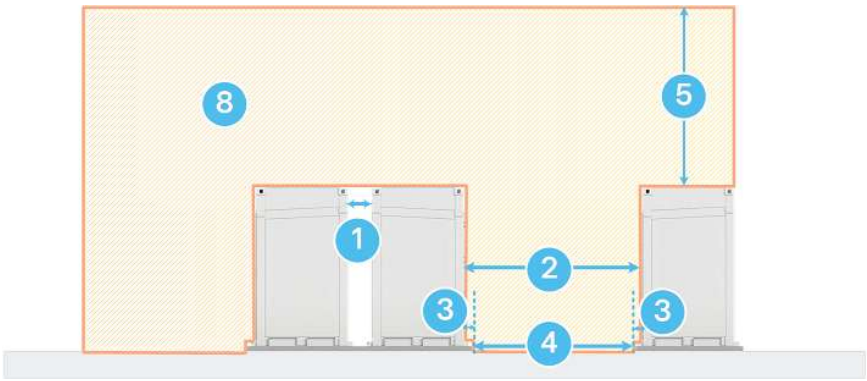


Figure 30. Equipment Clearance Requirements - Front View

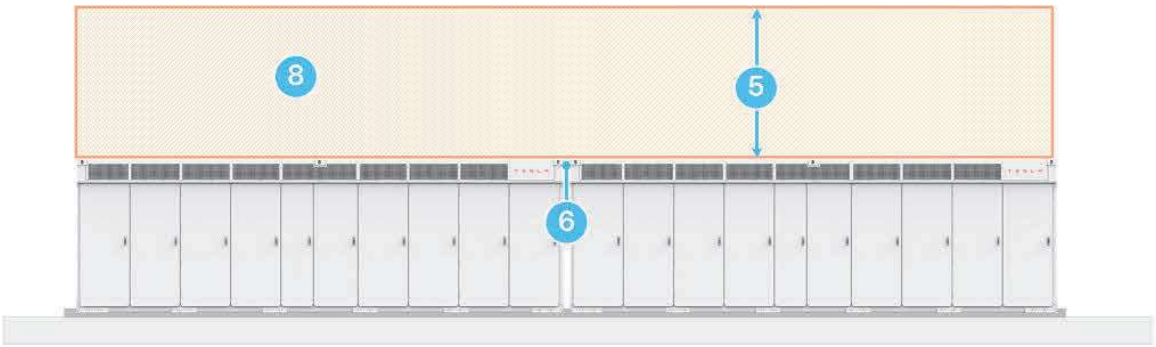
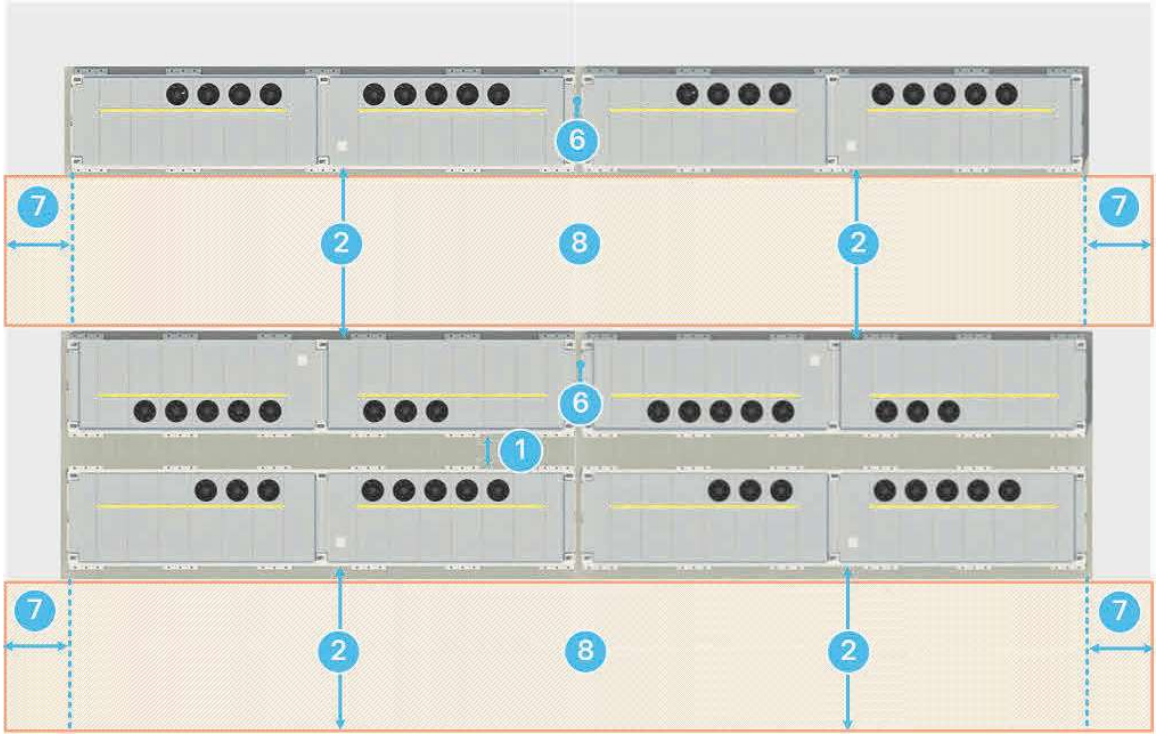


Figure 31. Equipment Clearance Requirements - Plan View



NOTE: All clearances listed must be observed from Megapack to any obstruction, including customer equipment or structures as well as other Tesla-provided components such as the Standard Tesla System Controller Enclosure.

Table 14. Equipment Clearance Requirements

Callout	Type	Minimum	Maximum	Notes
1	Back-to-back clearance	460 mm (18 in) *recommended* for access purposes. 230 mm (9 in) with prior Tesla review.	None	Measured from the back faces of the Megapacks.
2	Front clearance	2440 mm (96 in)	None	Measured from the face of the door(s). Tesla-required clearance for maintenance access. **NOTE:** Removable bollards may be installed within this area with prior Tesla approval. No permanent obstructions are allowed.
3	Foundation overhang	100 mm (4 in)	305 mm (12 in)	Varies depending on anchor and site design but must fall within this range.
4	Drive aisle clearance	1960 mm (77 in)	None	Measured from foundation. Tesla-required clearance for maintenance access.
5	Vertical clearance	2440 mm (96 in)	None	Must extend across the Battery Service Zone, as some service equipment extends beyond the roof of the enclosure.

Callout	Type	Minimum	Maximum	Notes
				Megapack may only be installed by a crane, thus actual clearance during installation will be greater.
6	Side-to-side clearance	150 mm (6 in)	None	Measured from the side faces of each Megapack.
7	Service side clearance	915 mm (36 in)	None	Measured from the face of each side of the Megapack, except where side-by-side with another Megapack.
8	Battery Service Zone	--	--	The Battery Service Zone, shown shaded above, consists of the *Front* **(2)**, *Vertical* **(5)**, and *Service side* **(7)** clearances. **NOTE:** Small inclusions for foundations are allowed as long as the foundation does not infringe on the *Foundation overhang* **(3)** and *Drive aisle* **(4)** clearances.

4.4 Maintaining Exposures and Fire Clearances

The dimensions and requirements as specified below are the product minimums and persist throughout the design, installation, and operating life of the system. Many jurisdictions have guidelines or restrictions about how close potentially combustible objects can be located to battery systems. Designers, owners, and operators are responsible for ensuring that the site meets the requirements of the local jurisdictions.

Figure 32. Exposure Clearances - Isometric View / Side View

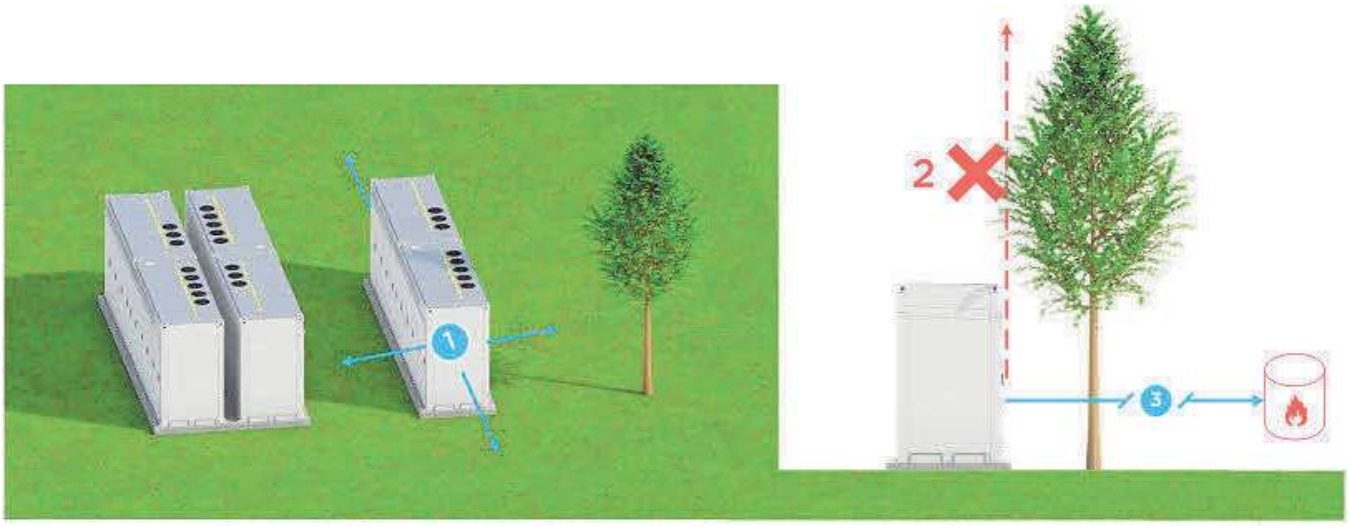


Table 15. Exposure Clearance Requirements

Callout	Type	Minimum	Maximum	Notes
1	Ordinary combustibles	1530 mm (60 in)	None	Minimum clearance as noted is required on all sides to ordinary combustible objects including trees, wooden fences, and other combustible structures.
2	Vertical combustible or ignitable	NA	NA	**Do not install Megapack under combustible or ignitable objects, at any distance.**

Callout	Type	Minimum	Maximum	Notes
3	Ignitable liquids	6096 mm (240 in)	None	Minimum clearance as noted is required on all sides to ignitable liquids sources.

NOTE:

- Megapack is not intended to be installed within 3050 mm (120 in) from accessible means of egress and exposures (such as buildings, public ways, and hazards not associated with electrical grid infrastructure as defined by the clearance requirements in the International Fire Code and NFPA 855).
- Any installation that requires clearances of less than 3050 mm (120 in) to accessible means of egress or exposures may require a freestanding fire barrier per requirements in the International Fire Code and NFPA 855.

4.5 Maintaining Access, Routes, and Zones

To service Megapack, Service Providers will require frequent access to the site and to the Megapacks themselves, over the full duration of the project's life. Routes and zones at the site must allow for year-round access, including for support of all vehicles as designated by the site's engineer of record. Refer to *Routes and Zones on page 35* for more information.

NOTE: For installations not at grade, owners must provide the ability for Service Providers to safely service Megapack and the Tesla System Controller. A written agreement must be approved by Tesla before commissioning for installations not at grade.

4.5.1 Megapack Access

- The Service Provider must be allowed to have the ability to remove any locks preventing access. Refer to *Megapack Door Security on page 62* for information on securing and locking doors while retaining Service Provider access.
- You must keep the doors of all enclosures free of all obstructions such as snow, sand, and blown debris during system operation.
- You must ensure the area in front of each Megapack can support any of the vehicles described in *Typical Vehicles on page 42*.

4.5.2 Lift Plan

The original lift plan used to install Megapack at commissioning must be provided to Service Providers. This provides background information that can be used to plan for Megapack removal or replacement during the operations phase.

4.6 On-Site Maintenance Infrastructure Requirements Overview

On-site maintenance infrastructure (OMI) is essential to the rapid and effective maintenance of Megapack sites. The table below summarizes the aspects of the installed infrastructure for on-site maintenance infrastructure. Most on-site maintenance infrastructure is contained within the Service Staging Zone.

Refer to your contracts for more information.

NOTE: Regional differences may apply. Australia and New Zealand have distinct requirements that must be followed. Contact Tesla for more information.

Table 16. On-Site Maintenance Infrastructure

Level	Applicability	Minimum On-Site Maintenance Infrastructure Requirements	Minimum Critical Services Requirements
1	Projects with 1 or more Megapacks require Level 1 or higher	• Service Staging Zone • Parking Zone	• Portable Restroom • Cellular service • Electricity
2	Projects with 15 or more Megapacks require Level 2 or higher	• One 20-foot storage container • Service Staging Zone • Parking Zone • Storage Clearance Area	• Portable Restroom • Cellular service • Electricity • Waste disposal
3	Projects with 36 or more Megapacks require Level 3 or higher	• One 40-foot storage container • Service Staging Zone • Parking Zone • Storage Clearance Area	• Portable Restroom • Cellular service • Electricity • Waste disposal
4	Projects with 75 or more Megapacks require Level 4 or higher	• Two 40-foot storage containers • Service Staging Zone • Parking Zone • Storage Clearance Area	• Portable Restroom • Cellular service • Electricity • Waste disposal
5	Projects with 146 or more Megapacks require Level 5 or higher	• Three 40-foot storage containers • Service Staging Zone • Parking Zone • Storage Clearance Area	• Portable Restroom • Cellular service • Electricity • Waste disposal
6	Projects with 261 or more Megapacks require Level 6 or higher	• Four 40-foot storage containers • One 60 x 12-foot office trailer • Service Staging Zone • Parking Zone • Storage Clearance Area	• Restroom • Electricity • Internet and cellular service • Waste disposal • Water
7	Projects with 376 or more Megapacks require Level 7	• Five 40-foot storage containers • One 60 x 12-foot office trailer • Service Staging Zone • Parking Zone • Storage Clearance Area	• Restroom • Electricity • Internet and cellular service • Waste disposal • Water
8	Projects with 501 or more Megapacks require Level 8	• Six 40-foot storage containers • One 60 × 24-foot double-wide office trailer	• Restroom • Electricity • Internet and cellular service

Level	Applicability	Minimum On-Site Maintenance Infrastructure Requirements	Minimum Critical Services Requirements
		• Service Staging Zone • Parking Zone • Storage Clearance Area	• Waste disposal • Water
9	Projects with 651 or more Megapacks require Level 9	• Eight 40-foot storage containers • One 60 × 24-foot double-wide office trailer • Service Staging Zone • Parking Zone • Storage Clearance Area	• Restroom • Electricity • Internet and cellular service • Waste disposal • Water
10	Projects with 800 or more Megapacks require Level 10	• Ten 40-foot storage containers • One 60 × 36-foot triple-wide office trailer • Service Staging Zone • Parking Zone • Storage Clearance Area	• Restroom • Electricity • Internet and cellular service • Waste disposal • Water
11	Projects with 1000 or more Megapacks require Level 11	• Contact Tesla for infrastructure requirements	• Contact Tesla for infrastructure requirements

NOTE:

- This table provides general guidance on the minimum requirements for the preliminary development of a site
- Project-specific requirements may vary based on site-specific factors
- The applicable category of maintenance and project-specific requirements are defined in the contract
- Always follow all local codes and regulations

4.7 Environmental Considerations

Each Megapack contains coolant and refrigerant in its thermal system (*Thermal System on page 14*). Depending on the number of Megapacks installed on a site, storage, use and handling of these substances may require reporting, hazard management plans, or containment procedures as required by local codes and regulations. All local codes and regulations related to this matter must be followed. Refer to the *Megapack 2 XL Design and Installation Manual* on the Tesla Partner Portal for more information.

4.8 Energy Meters

The Tesla System Controller uses various meter inputs for different control functions. The meters are expected to be installed during the installation phase of the project and are the operator's responsibility to maintain.

For additional information and for a list of supported meters, refer to the *Megapack 2 XL Design and Installation Manual*.

NOTE: When communication to any of the meters is lost during on-grid normal operation, the system ceases to operate until communication is resumed. If communication is lost, the values reported are the last values read from the meter until communication is resumed.

5 Megapack System Maintenance

The Megapack System requires maintenance to ensure performance over its lifetime. The Service Provider performs this maintenance, which includes Megapack preventative maintenance, Megapack corrective maintenance and Tesla System Controller maintenance.

For Tesla to perform this service, you must provide access to the system and a safe work environment. For accessing the Megapack System, refer to *Maintaining Access, Routes, and Zones on page 47*. For providing a safe work environment, refer to *Providing a Safe Work Environment on page 54*.

It is not recommended that personnel without sufficient training and product knowledge work within Megapack without explicit guidance from Tesla. If individuals other than Service Providers perform maintenance on Megapack or the Tesla System Controller, the project's warranty may be voided.

NOTE: Access is only allowed for Service Providers.

CAUTION: Do not power wash the unit. Only use a low-pressure hose to wash it.

5.1 Tesla System Controller Maintenance

If required, Service Providers will need to be able to safely work at the Tesla System Controller, wherever the Tesla System Controller is installed.

5.2 Megapack Maintenance

5.2.1 Preventative Maintenance

Service Providers will perform specific preventative maintenance activities that are scheduled annually. This section outlines these maintenance schedules. Preventative maintenance includes inspection or part replacements specified explicitly below. All other actions that result from preventative maintenance will not be considered preventative maintenance.

Annual Maintenance

Table 17. Annual Maintenance Activities

Type	Activity
General Walkthrough	• Inspect anchor torque marks • Inspect drain valve • Inspect door locks • Inspect enclosure cleanliness and integrity – touch up paint or clean as needed • Inspect exposure clearances as specified in *Maintaining Exposures and Fire Clearances on page 46* • Inspect grade conditions as specified in the product *Design Manual*
Bay Checks	• Inspect door latches • Inspect door gaskets

Type	Activity
	• Inspect door grounding conductors • Inspect door switch • Harness inspection • Thermal system inspection • Torque checks • Check for moisture
Thermal Roof	• Coolant level check • Inspect cabinet ventilation system • Clean radiators if needed • Remove any debris blocking air inlets
Close Out	• Secure door locks • Secure fascia covers, if applicable • Update service records
--	• Tesla System Controller inspection, service as applicable
--	• Field Network Enclosure inspection, service if applicable

5-Year Maintenance

Table 18. 5-Year Maintenance Activities

Preventative Maintenance Services for the System
Annual maintenance
Sparker inspection, cleaning if needed

10-Year Maintenance

Table 19. 10-Year Maintenance Activities

Preventative Maintenance Services for the System
Annual maintenance
Stirring fan replacement, if needed
BESS coolant refill
BESS radiator fan replacement, if needed
BESS coolant pump replacement, if needed
BESS door gasket replacement, if needed
BESS compressor replacement, if needed
BESS coolant valve replacement, if needed

15-Year Maintenance

Table 20. 15-Year Maintenance Activities

Preventative Maintenance Services for the System
Annual maintenance
BESS radiator replacement, if needed
BESS heater replacement, if needed
BESS coolant pump replacement, if needed

5.2.2 Corrective Maintenance

As part of the Manufacturer's Limited Warranty, Service Providers will perform corrective maintenance on the Megapack System. This includes component replacements, configuration, and troubleshooting.

5.2.3 Maintaining the Enclosure

- Enclosures must be regularly visually inspected for any areas of damage, which shall be reported to a Service Provider.
- Enclosures must be regularly visually inspected to ensure they remain free of debris or rodents.

5.2.3.1 Responding to Imperfections or Damage

Transportation, installation, and operation of the Megapack unit can result in minor or cosmetic imperfections on the unit. Such imperfections are not damaging to the unit and do not usually require remediation. The following table provides guidance to help determine what conditions may be considered minor, what should be considered for remediation, and how to respond.

Table 21. Megapack Imperfection or Damage Classifications

Condition	Classification	Possible Remediation
Imperfections in color or finish, or dirt on the Megapack unit.	Minor imperfection	None required. Customer may wash unit with automotive grade soap or automotive buffing compound for persistent discolorations.
Areas of bare metal less than 25 mm (1 in) diameter in size.	Medium damage	Customer should report to Tesla or remediate using touch up paint.
Leaking coolant, apparent water ingress, structural damage, mechanical failures.	Major damage	Contact Tesla if not already advised (*Contact Information on page 28*). Tesla to investigate on site or return unit.

DANGER: Refer to the *Industrial Lithium-Ion Battery Emergency Response Guide* for details on response to a hazardous event (*Emergency Response Guide on page 26*).

6 Providing a Safe Work Environment

Over the operating life of your Megapack System, you may need to isolate and de-energize the Megapack for various reasons:

- For Tesla to perform service on the Megapack System
- For providers other than Tesla to perform work upstream or around the Megapack
- To put the Megapack in an idle state by de-energizing the equipment due to an upstream fault or other reason

If a Service Provider needs to perform maintenance, you will need to provide both access to the Megapack System and a safe work environment. Providing a safe work environment will typically require the Megapack to be isolated and de-energized.

Depending on the scope of service and the site design, the Megapack will either need to be de-energized at the Megapack AC circuit breaker or at an upstream AC disconnect.

6.1 Maintaining Electrical Protection

Sites may use different kinds of electrical protection equipment as designated by the Engineer of Record, including relays, fuses, and other schemes as described in the *Application Note: Electrical Protection Architecture*. These protections must be maintained and updated according to applicable code for the life of the site in order to preserve safe working conditions for Service Providers.

For more information about safe working conditions, refer to *Isolating Megapack from Upstream AC Sources on page 56*.

DANGER: Operators must not manipulate protection equipment without contacting Tesla first.

6.2 Electrical Control Plan

An Electrical Control Plan is a document that outlines the design, implementation, and operation of an energy site's electrical system, its hazards, and how any parties on site are expected to control the electrical hazards. For Tesla sites, such plans are required to include control of the battery system's electrical hazards (for example, those detailed in *Electrical Hazard Mitigation on page 30*).

Generally, an Electrical Control Plan may include details on how the site's electrical components, such as inverters, transformers, batteries, and protection relays, are properly integrated and function according to requirements. Such details may be communicated in the plan using wiring diagrams and schematics, operational and safety sequences, fault response, and documentation of compliance with regulatory standards.

The Electrical Control Plan is typically developed by the installation contractor and the site owner or operator with the support of the electrical engineer of record. It is then reviewed by the electrical engineer of record and Tesla to ensure that the document is consistent with how the site has been designed and how on-site activities are intended to be conducted. It then serves as an electrical safety plan for the site in order to ensure the safety of any parties on site including customer and Tesla parties.

If the plan is updated at any point during the life of the project, the site owner or operator must review with Tesla.

For Tesla systems, the Electrical Control Plan serves as an electrical safety plan for the site in order to ensure the safety of any parties on site including customer and Tesla parties, and must include the following elements:

- **Levels of isolation:** The approved levels (for example, block, feeder, site) at which isolation can be established, and the identified lockout device for each level

- **Control procedures:** Detailed procedures for isolating power supplies, including automatic switching devices and circuit reclosers, particularly at the medium-voltage transformer (MV transformer) and any interconnect power supplies
- **Responsible parties:** The name of the party responsible for executing each step in each of the procedures
- **Verification of isolation:** Detailed procedures for confirming isolation, such as using open viewing windows or designated testing points
- **Lockout participation:** Description of how Tesla will engage in the owner / operator lockout process, specifically using a group lock box to ensure multiple personnel can secure the system

6.3 AC Disconnect Responsibilities

AC disconnect responsibilities encompass the operation of a disconnect device and the maintenance thereof. Responsibilities may vary depending on the service provider or the scope of work. A Certified Service Provider is responsible based on the specific terms agreed upon with the Operator.

If Tesla is your service provider, the following applies to safely perform maintenance:

Table 22. Division of Service Responsibilities

Disconnect Location	Disconnect Operating Responsibilities	Disconnect Maintenance Responsibilities
Megapack AC circuit breaker	Tesla Energy Service	Tesla Energy Service
Upstream low-voltage disconnect devices	Tesla Energy Service	Operator
All medium-voltage disconnect devices	Operator	Operator

There are some exceptions and regional considerations. Contact your Tesla representative to confirm AC disconnect responsibilities.

Any deviations from standard practice that are not documented in the contracts must be provided in writing to Tesla. For example, if you determine that you want to own all medium-voltage disconnect and breaker operation responsibilities upstream of the Megapack AC breaker, this must be provided in writing.

Service Providers will begin maintenance services when the Megapack(s) that need to be serviced are safely de-energized (*Performing Lockout/Tagout on page 56*).

6.4 Accessing the Megapack Enclosure

Megapack is an IP66-rated enclosure (*Enclosure on page 18*) and affords high protection against particle and water ingress. This section contains critical information about when and how to properly access Megapack in order to both maintain its high protection rating and to provide a safe work environment.

At any time when accessing the enclosure is required, ensure that all information in this section is taken into account.

6.4.1 Critical Door-Opening Considerations

Do NOT open a Megapack's doors in any of the conditions below.

CAUTION: Megapack doors should never be opened when it is actively raining or snowing, with no exceptions, to prevent damage to Megapack.

Do NOT Open Megapack Doors When:		
Actively raining or snowing.	Wind speeds 25 MPH or higher. Wind speed must be monitored.	Airborne dust and debris present on site.

Do NOT Open Megapack Doors When:		

CAUTION: When opening a Megapack door, do not force its door handle. Excessive torque could damage the handle. If the handle does not readily rotate, contact Tesla for assistance.

6.4.2 Performing Lockout/Tagout

Operators are responsible for ensuring a safe work environment. When work is required inside Megapack, the unit must first be de-energized the unit by performing the lockout/tagout procedure (LOTO). Before beginning these procedures, refer to *AC Disconnect Responsibilities on page 55* and ensure you are aware of whether operators or Tesla must perform certain steps in this section.

The LOTO procedure for Megapack consists of the tasks below, which must be performed in order:

1. *Isolating Megapack from Upstream AC Sources on page 56*
2. *Opening and Locking the Megapack AC Circuit Breaker on page 57*
3. *Turning the Enable Switch Off on page 60*
4. *Verifying Load-Side De-Energization on page 60*
5. *Verifying Line-Side De-Energization on page 61*

DANGER: Refer to *IMPORTANT SAFETY INFORMATION on page 3* for information on safety warnings and PPE recommendations before beginning any work on Megapack.

NOTE: Only Service Providers shall perform any corrective maintenance within the Megapack.

NOTE: Some equipment isolation can be performed by sending commands using the Tesla System Controller or other SCADA devices. For more information, see the *SCADA Design Manual* or the *Controls and Communications Manual – Tesla System Controller*, or reach out to your Tesla project engineer.

NOTE: When active work is **not** being performed, and AC grid power can be restored to the AC output terminals, Tesla recommends that the enable switch remains **on**.

6.4.2.1 Isolating Megapack from Upstream AC Sources

Megapack may need to be isolated from upstream AC sources, including other Megapacks, before performing work. Isolating Megapack is required if work is being performed in the AC bus bar area or if the arc flash incident energy values exceed the maximum allowed. Isolating from upstream AC sources requires an AC disconnect device capable of supporting lockout/tagout.

To determine arc flash incident energy, check the arc flash label on the outside of the Customer Interface Bay door (*Arc Flash Label on page 23*). The arc flash label contains information about expected arc flash incident energy and recommended PPE.

Figure 33. Arc Flash Label -- Danger and Warning Examples

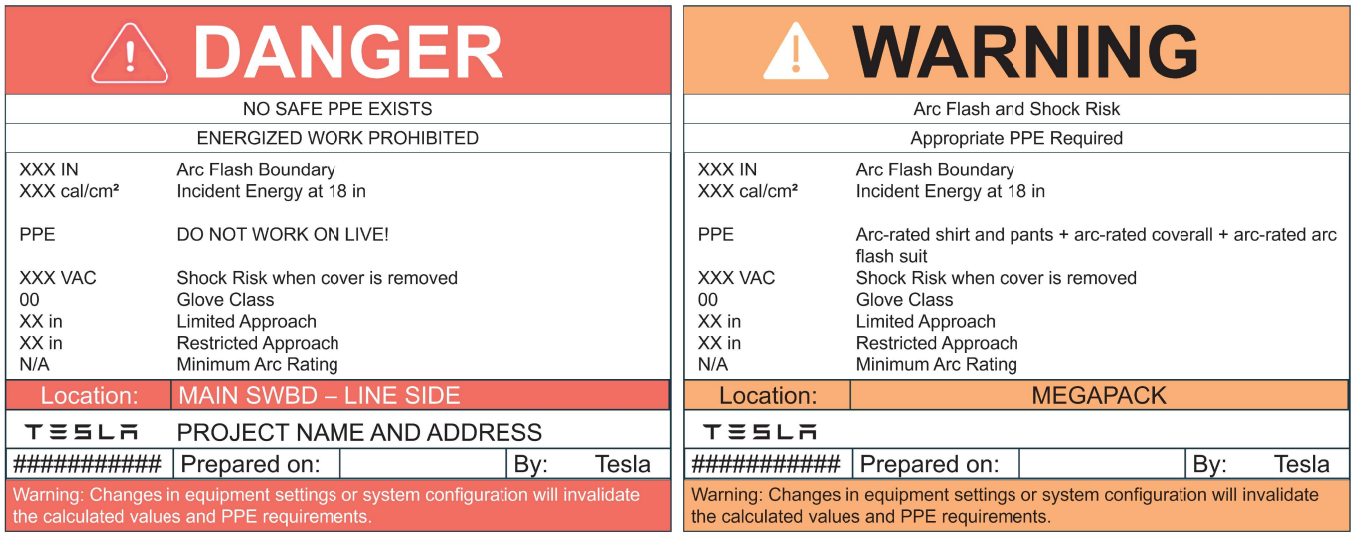


Table 24. Maximum Allowable Arc Flash Incident Energy

All Regions
14 cal/cm^2

If the label specifies either that no safe PPE exists or the arc flash incident energy exceeds the maximum allowed per the table above, you must first ensure that external AC power is removed from the Megapack by opening the upstream AC disconnect before continuing the LOTO procedure.

Customers must employ a protection scheme that does not exceed maximum allowable energy. For recommended protection schemes, refer to the *Application Note: Electrical Protection Architecture*. Customers must adhere to Telsa-required administrative controls when using relays as the protection scheme. For more information, refer to the *Application Note: Medium-Voltage Transformer Relay Program*.

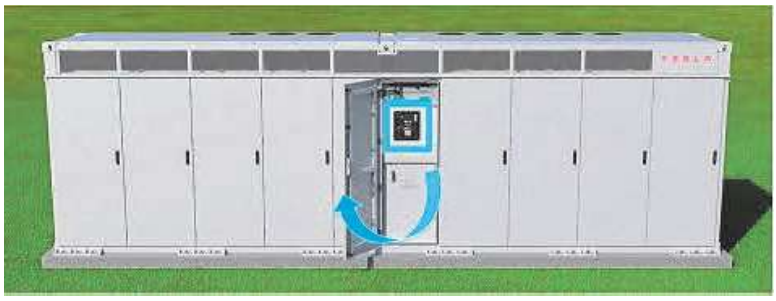
If the label specifies that the arc flash incident energy falls below the maximum allowed, opening an upstream AC disconnect is not required unless work is being performed in the AC bus bar area or if it is required by a Service Provider. Follow the recommended PPE and other details on the label and then continue the LOTO procedure.

DANGER: If no arc flash label exists and Megapack has already been commissioned and is operating, all upstream devices must be completely de-energized before work can take place. Contact your site owner or Tesla about the arc flash label requirement.

6.4.2.2 Opening and Locking the Megapack AC Circuit Breaker

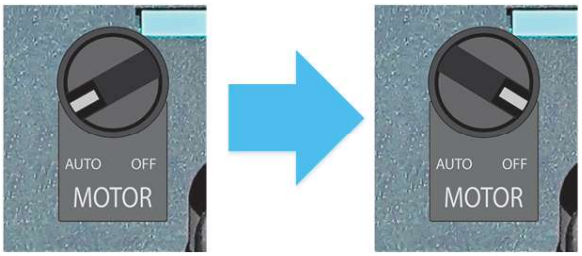
Perform this procedure only after *Isolating Megapack from Upstream AC Sources on page 56*.

1. Assess the steps in *Critical Door-Opening Considerations on page 55* and proceed if conditions allow.
2. Open the Customer Interface Bay door to access the Megapack AC circuit breaker:

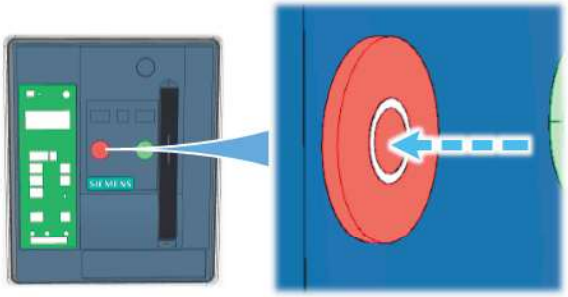


1 - Lock ring. 2 - Motor switch (some models). 3 - Contacts window. 4 - Open button. 5 - Spring-loaded lever.

3. If present, turn the motor switch from **auto** to **off**:

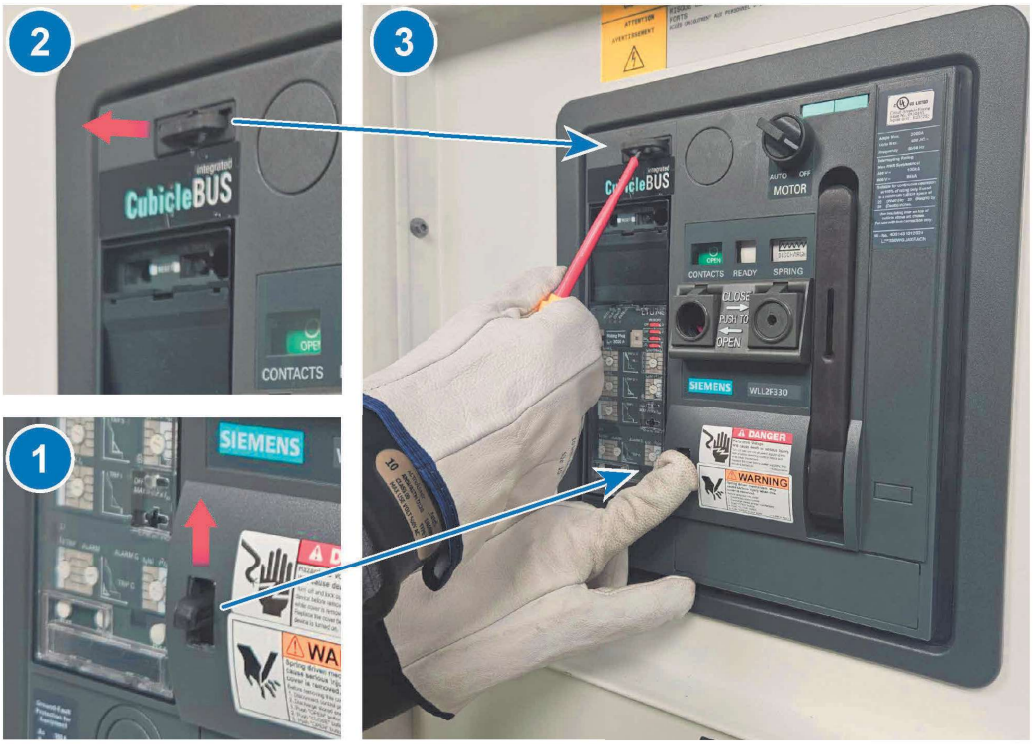


4. Open the breaker by pressing the red open button firmly until it clicks. When the breaker is open, the contacts window displays green and **OPEN**:



NOTE: Pressing the button manually opens the breaker. You may use other methods to open the Megapack AC circuit breaker (*Controlling the Circuit Breaker on page 18*).

5. Push up on the spring-loaded lever (1) to unlock the lock ring (2), and use a flat-head screwdriver to pull out the lock ring: (3):

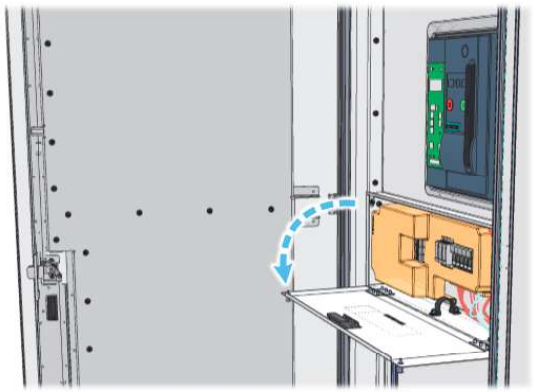


6. Insert the lock and lock it to secure the Megapack AC circuit breaker:

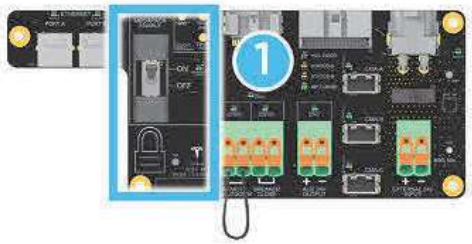
7. If isolation is required per *Isolating Megapack from Upstream AC Sources on page 56* and more than one Megapack is connected to the same circuit or transformer, repeat this procedure for each Megapack.

6.4.2.3 Turning the Enable Switch Off

1. Use a T30 Torx bit to remove the 2 screws securing the customer I/O area cover to the enclosure. Grab the handle and pull outward, then downward to expose the customer I/O area:



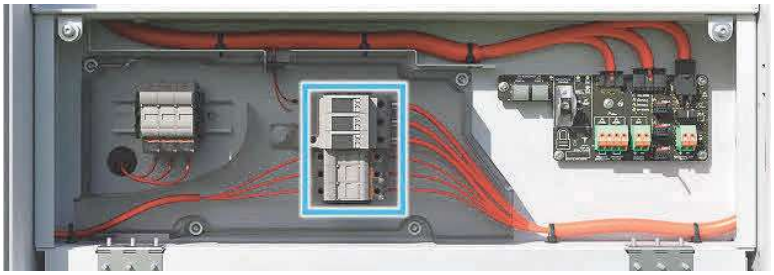
2. The Megapack enable switch is located on the customer interface board (1). Press **down** to turn the enable switch to the **off** position (2), and apply a lock (3):



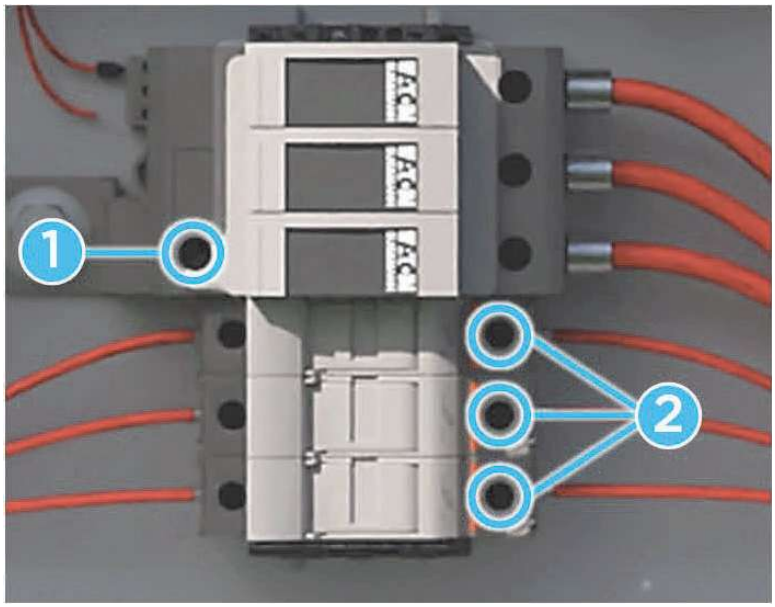
6.4.2.4 Verifying Load-Side De-Energization

NOTE: This check for dead should only take place after all previous steps were successfully completed.

Check the load-side (inverter-side) voltage in the customer I/O area at the terminals indicated below:



1. Using a CAT IV voltmeter rated for 1000 V AC, first verify the voltmeter on a known live source.
2. Measure AC phase-to-phase and phase-to-ground voltage at the load-side test points as shown below:



1 - Ground. 2 - Phase test points.

3. Confirm that the voltage is 0 V AC.

WARNING: You may initially measure greater than 0 V AC due to residual capacitive energy. Stop and wait five minutes before testing again. **Do not proceed unless you have measured 0 V AC.**

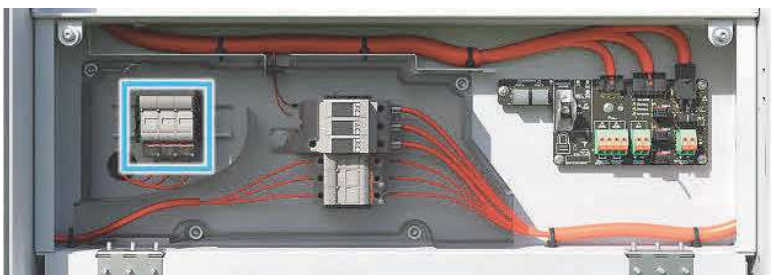
4. Re-verify the voltmeter on known live source.
5. Repeat the above, now measuring DC voltage.

NOTE: You will measure a voltage of up to 50 V DC. This is normal and expected. If voltage above 50 V DC is detected, stop and contact Tesla.

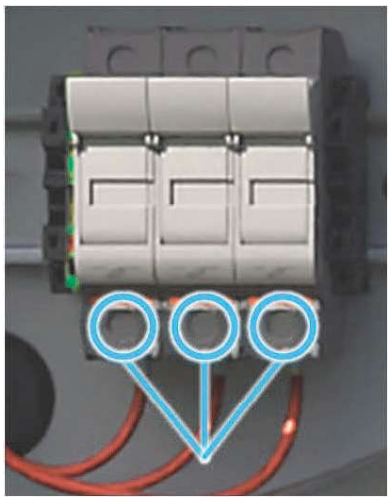
6.4.2.5 Verifying Line-Side De-Energization

NOTE: This check for dead should only take place after all previous steps were successfully completed.

If isolation is required per *Isolating Megapack from Upstream AC Sources on page 56*, check the line-side (grid-side) voltage at the line-side tap in the customer I/O area:



1. Open the fuse holder for the line-side tap.
2. Using CAT IV voltmeter rated for 1000 V AC, first verify the voltmeter on a known live source.
3. Measure AC phase-to-phase and phase-to-ground voltage at the line-side test points as shown below:



4. Confirm that the voltage is 0 V AC.

   WARNING: You may initially measure greater than 0 V AC due to residual capacitive energy. Stop and wait five minutes before testing again. **Do not proceed unless you have measured 0 V AC.**

   NOTE: If upstream isolation was **not** required per *Isolating Megapack from Upstream AC Sources on page 56*, you may measure a nominal voltage.

5. Re-verify the voltmeter on known live source.

6.4.3 Megapack Door Security

All Megapack doors have the provisions for the use of a padlock. The Customer Interface Bay (*Customer Interface Bay on page 14*), as the primary customer interface for Megapack, is recommended to be locked. The other doors do not need regular access and should remain closed and locked.

NOTE: Access to the Customer Interface Bay may be subject to local codes and regulations.

About the Locks

Combination locks are shipped with Megapack, either pre-installed on Megapack doors or delivered in the accessory kit. Install these locks to ensure doors are not left open unnecessarily:

- **Set combination to 4585** for coordinated access with Service Providers. Tesla must have ability to unlock doors. If you choose a different combination, advise your Tesla contact in writing.
- If Tesla field service personnel arrives on site and observes locks are not installed on all doors except the Customer Interface Bay door, they will communicate the requirement with on-site personnel.
- For keyed locks, a double hasp is required to allow Tesla access by unlocking Tesla's lock.

6.5 Energizing, Site Isolation, and Storage

For all procedures, follow the guidelines in the site's *Electrical Control Plan on page 54*. Work with the site owner or operator with any questions related to the Electrical Control Plan.

6.5.1 Energizing the Megapack

After Tesla has completed the commissioning and initial start-up of Megapack, the system is ready for operation. You should not need to perform extra steps to start the system.

If a Service Provider gives the direction to re-energize a Megapack during installation or after upstream maintenance or short-term storage, the steps below must generally be performed to energize the Megapack.

WARNING: Notify operations and on-site personnel and clear working areas as necessary before re-energizing.

NOTE: These are general steps. The procedure may vary during specific installation or operational phases or at specific sites.

NOTE: Refer to *AC Disconnect Responsibilities on page 55* for information about whether operators or Tesla must perform certain steps.

1. Verify that the equipment and area, including the inside of the Customer Interface Bay and AC bus bar area, is clear of tools, materials, workers, equipment, and debris.
2. Secure the bus bar access panel to the AC bus bar area, if it has been removed.
3. Reinstate the remote shutdown contact on the customer interface board, if it had been removed.
4. Turn the enable switch ON on the customer interface board (removing the lock if necessary) and close and secure the customer I/O area cover.
5. Remove the lock on the Megapack AC circuit breaker, if needed.
6. If present, turn the Megapack AC circuit breaker motor switch from OFF to AUTO.
7. Close the Megapack AC circuit breaker (*Controlling the Circuit Breaker on page 18*).
8. Close the Customer Interface Bay door.
9. Close any upstream external circuit breakers that had been opened.

6.5.2 Isolating the Site from Megapack

Follow the isolation procedures below to prevent Megapack(s) from providing energy to other components at the site.

6.5.2.1 Isolating a Single-Megapack System

Perform this procedure at sites with a single Megapack:

1. Command an off state using the Tesla System Controller or other SCADA equipment. If the site operator or system owner does not have the means to send commands, contact Tesla (*Contact Information on page 28*).
2. Isolate the Megapack from upstream AC if required (*Isolating Megapack from Upstream AC Sources on page 56*).
3. Open and lock the Megapack AC circuit breaker (*Opening and Locking the Megapack AC Circuit Breaker on page 57*).

6.5.2.2 Isolating a Multiple-Megapack System

Perform this procedure at sites with multiple Megapacks:

1. Determine whether all Megapacks should be isolated or only one Megapack:
   - If isolating all Megapacks, send the appropriate command using the Tesla System Controller or other SCADA equipment. The appropriate command varies depending on whether this is an on-grid or a microgrid site. If the site operator or system owner does not have the means to send commands, contact Tesla (*Contact Information on page 28*).
   - If isolating only one Megapack, the power commands do not require a change (but a change is permitted if desired).

2. Isolate AC power at the appropriate circuit breaker:
    - If isolating all Megapacks, open the site-wide external circuit breaker or disconnect to remove grid power.
    - If isolating only one Megapack, open the upstream AC disconnect.

6.5.3 Configuring for Short-Term Storage

This procedure is only to be performed when a Megapack needs to be shut down and removed from grid power **for more than 24 hours and up to 14 days**.

NOTE: Contact Tesla for assistance with configuring Megapack for storage periods of longer than 14 days.

WARNING: Active work cannot be performed inside Megapack while it is in storage. If active work is required, ensure the Megapack is de-energized per *Performing Lockout/Tagout on page 56*.

1. Ensure that conditions, including duration and temperature range, will abide by the requirements in the *Megapack 2 XL Transportation and Storage Guidelines* for the duration of storage.
2. Charge Megapack to at least 50% state of energy.
3. Open a ticket using Tesla's online support portal (*Contact Information on page 28*) and note the following in the ticket:
    a. Inform that the system will be shut down soon.
    b. State the amount of the time the system is expected to be idle.
4. Command to off state using the Tesla System Controller or other SCADA equipment. If the site operator or system owner does not have the means to send commands, contact Tesla (*Contact Information on page 28*).
5. Open the site or external circuit breaker or disconnect (if one is present).
6. Assess the steps in *Critical Door-Opening Considerations on page 55* and open the Customer Interface Bay door if conditions allow.
7. Turn the enable switch off (*Turning the Enable Switch Off on page 60*).
8. Wait five minutes.
9. Open and lock the Megapack AC circuit breaker (*Opening and Locking the Megapack AC Circuit Breaker on page 57*).
10. **Turn the enable switch back on.**
11. Close and secure the customer I/O area cover, and close the Customer Interface Bay Door.
12. Up to 14 days later, proceed with re-energization (*Energizing the Megapack on page 62*).

CAUTION: The enable switch must remain on during storage.

7 System Augmentation

Tesla provides guidance at the time of purchase for augmentation of energy storage. If the plans to augment the site have been made, you must also plan for and accommodate the activities surrounding augmentation and maintenance of these additional energy storage units, including site access. Refer to *Maintaining Access, Routes, and Zones on page 47*.

For more information on system augmentation and its site layout, refer to *Application Note: Megapack Capacity Augmentation*.

8 Decommissioning and Disposal

8.1 Purpose

This section provides details about decommissioning Megapack Systems that are no longer functional, including how to return Megapacks to either Tesla or another facility for recycling.

NOTE: To ensure compliant decommissioning, always refer to local regulations as applicable.

8.2 Safety

Refer to the *Industrial Lithium-Ion Battery Emergency Response Guide* (ERG) on the Tesla First Responders Information Page at *https://www.tesla.com/firstresponders* for detailed hazard information specific to Megapack's lithium-ion batteries. The *Transportation* section of the ERG provides guidance and cites example regulations for shipment of dangerous goods. All logistics and transportation companies in the supply chain are responsible for knowing and following all applicable regulations pertaining to the storage, handling, and transportation of dangerous goods. The ERG is periodically updated. Download the latest revision of the ERG from *https://www.tesla.com/firstresponders*.

Tesla recommends that a physical copy of the ERG is transported along with Megapack, and subsequently remains on site and accessible at all times, for the life of the product.

Safety Data Sheets (SDS) are available for materials in Tesla Energy products. Refer to the Tesla Partner Portal for more information.

8.3 Decommissioning

This section outlines the considerations necessary to decommission a Megapack System.

NOTE: Refer to *Decommissioning Damaged Equipment on page 68* for guidance if the system has sustained damages.

8.3.1 Verifying Maximum State of Energy

When planning decommissioning, you must first clarify the maximum state of energy (SOE) at which the system must be returned. Prior to shutting down and decommissioning Megapack, discharge the system accordingly as required by applicable regulations.

NOTE: If no regulations apply, Tesla recommends discharging the system below 30% SOE for transportation.

8.3.2 De-Energizing and Disconnecting the Equipment

After the system has been safely shut down and de-energized, take these steps to disconnect the equipment:

1. Follow the procedures in *Performing Lockout/Tagout on page 56* to de-energize the system.
2. Disconnect wires, referring to the appropriate procedure in the *Disconnecting AC Conductors on page 67* or reaching out to Tesla for more information.
3. Detach the foundation anchors as applicable. Reach out to Tesla for more information.

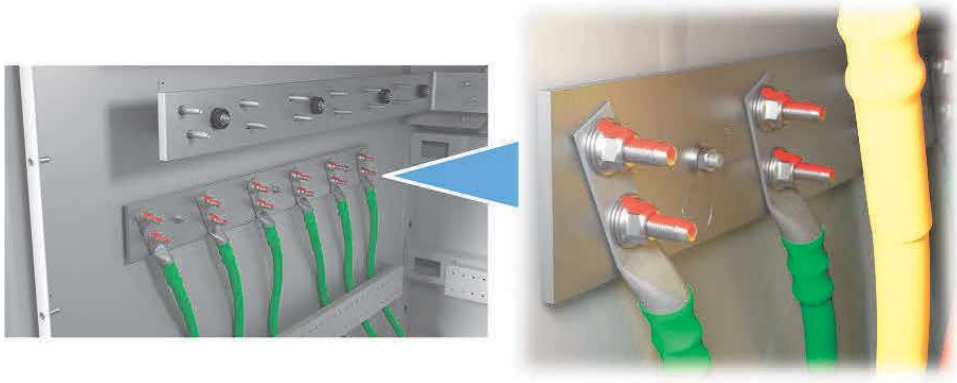
8.3.2.1 Disconnecting AC Conductors

DANGER: Ensure that the appropriate measures have first been taken to remove electrical hazards.

To disconnect the AC conductors:

1. Loosen all AC conductor lugs.
2. Disconnect all AC conductors from the Megapack bus bars using an approved disconnection method.

Figure 34. Unfastening the AC Conductors



3. Pull the conductors out of Megapack through the wireway openings.

8.3.3 Returning Equipment

Tesla energy products contain recyclable materials. Tesla recommends recycling our energy products by returning them to Tesla or to an alternate facility as described in the sections below.

CAUTION: Always refer to the latest applicable *Transportation and Storage Guidelines* for details about handling, lifting, and transportation of Megapack.

8.3.3.1 Returning to a Tesla Recycling Facility

Tesla strongly encourages recycling and recommends that when a Tesla energy product must be decommissioned, it be returned to a Tesla facility for disassembly and further processing. However, the customer may elect to send the equipment to an alternate recycling facility (*Returning to an Alternate Recycling Facility on page 67*).

Contact Tesla to confirm the facility to which Megapack should be returned.

8.3.3.2 Returning to an Alternate Recycling Facility

Tesla energy products should be disposed of or recycled in accordance with local, state, and federal regulations. Note that regulations regarding disposal of batteries vary by jurisdiction. As of December 2021, in the United States, batteries are classified as Universal Waste, and in addition, many individual states have specific regulations regarding disposal of battery packs. For example, in California, all batteries must be taken to a Universal Waste handler or authorized recycling facility.

If disposing without return to Tesla, consult with local, state, and/or federal authorities on the appropriate methods for disposal and recycling. If disassembly of the Megapack is necessary, contact Tesla for guidance.

8.4 Decommissioning Damaged Equipment

This section provides generic guidance around how to handle a damaged Megapack System after all immediate risks following an incident have been mitigated. Damages can be the result of, but not limited to:

- Severe physical impact
- Thermal runaway event
- Transportation accident

Tesla will establish incident-specific guidance on-site as described in this section.

CAUTION: These instructions assume that any immediate risks to personal safety have been mitigated. If any signs of risk such as fire or smoke are still present, consult the *Industrial Lithium-Ion Battery Emergency Response Guide* and refer to contact information in *Contact Information on page 28*.

8.4.1 Determining if Megapack is Safe to Approach

If not already present on site or contacted, contact technical support for guidance prior to any interaction with the Megapack (*Contact Information on page 28*).

Once all immediate risks have been mitigated, follow these steps to determine whether Megapack is safe to approach:

1. Isolate the Megapack as required per *Isolating Megapack from Upstream AC Sources on page 56*.
2. Ensure that there have been no visible signs of risks (such as smoke, flames, suspicious odor) for 12 hours.
3. From a distance, use a thermal imaging camera to determine that the damaged Megapack's temperatures have decreased to safe enough levels to touch and that there is no evidence of cell vent gases.
4. From a safe distance, use a hydrogen meter to validate that no vented gases are present.

WARNING: Avoid contact with vented gases. Upon exit from a cell, their temperatures can exceed 600°C (1110°F).

DANGER: Do not make physical contact with a damaged Megapack unit until all the steps above have been completed. A damaged Megapack can present a hazardous situation which could result in severe injury or death.

8.4.2 Performing Diagnostics

Once Megapack is deemed safe to approach, Megapack diagnostics can begin.

WARNING: Megapack diagnostics must be performed by Service Providers.

Diagnosing the Megapack aims at evaluating its status and determining how to handle the damaged unit until recycling, and as a result whether, for example, to disassemble and ship its sub-components to various recycling facilities, or not disassemble and ship to a single recycling facility.

This process generally begins with a visual inspection of the unit in order to establish an initial plan that may evolve during the inspection. Subsequent steps generally proceed as per below:

1. Once Megapack temperatures are deemed touch-safe and no hydrogen gas is detected, you may begin to physically interact with the system.

2. Take electrical measurements of the Megapack System to determine if any faults are present.
3. If faults are found to be present, these must be cleared before proceeding with decommissioning.

8.4.3 Preparing Damaged Equipment for Transport

After performing diagnostics, Tesla will determine the best and safest way to handle the equipment and transport it to a recycling facility.

Refer to the local applicable transportation regulations for such equipment. Transportation regulations can vary by region. The shipper must always comply with the applicable regulations in the region in which Megapack will be transported.

Following Tesla's diagnostics, Tesla may establish that disassembly of battery modules is necessary in order to safely transport the equipment back to a recycling facility. Tesla may also determine that battery modules must be discharged for safe transportation. In this case, the following should be performed:

1. Identify whether energy is still stored in Megapack battery cells.
2. Discharge all detected energy per Tesla-approved methods.
3. Once all energy is removed from the Megapack System, disassembly and shipping can commence.

8.4.4 Returning Damaged Equipment to Tesla

When a damaged Tesla product must be decommissioned, we request that it be returned to a Tesla facility for disassembly and further processing. Contact Tesla with any questions regarding recycling of damaged equipment.

8.4.5 Returning Damaged Equipment to an Alternate Recycling Facility

If disposing without return to Tesla, please consult with local, state, and/or federal authorities on the appropriate methods for disposal and recycling. Contact Tesla with any questions regarding recycling of damaged equipment.

Appendix A: Troubleshooting

Operators can use a SCADA interface to monitor a Megapack System during operations. In the event of an alert, you can use t
alert and determine a course of action. If you see an alert that requires additional support, refer to *Getting Support on page 27*
accessing and viewing these alerts, refer to the *Controls and Communications Manual* associated with your specific site.

- *Priority 1 (P1) Alerts - Troubleshooting Actions on page 70*
- *Priority 2 (P2) Alerts - Troubleshooting Actions on page 72*
- *Priority 3 (P3) Alerts - Troubleshooting Actions on page 79*

Priority 1 (P1) Alerts - Troubleshooting Actions

Alert	Description	Effect	Recommended Action/ Next Steps: Customer	Priority	S
Megapack Isolation Failure	Megapack has reported an isolation measurement below its acceptable threshold.	The impacted system will not operate, resulting in a potential decrease in available power. Impacted systems could range from individual battery modules to full Megapacks.	No action required.	P1: Critical	An ala Servic issue i Field S to exe action
Extreme Temperature Warning	The Megapack has detected a temperature increase above the temperature increase warning threshold.	Megapack has reached critical temperatures and the equipment is at risk for thermal runaway.	Clear the area and notify Tesla Industrial Storage Support and your Service Provider immediately.	P1: Critical	An ala Servic Servic exped require
Extreme Temperature Fault	The Megapack has detected a temperature increase above the temperature increase fault threshold.	Megapack has reached critical temperatures and equipment is at risk for thermal runaway.	Clear the area and notify Tesla Industrial Storage Support and your Service Provider immediately.	P1: Critical	An ala Servic Servic exped require

Alert	Description	Effect	Recommended Action/ Next Steps: Customer	Priority	
Low State of Energy	Megapack is at a very low state of energy and at least one battery module has entered the battery off state as a protection. Remaining at low state of energy can lead to cell damage.	Remaining in this state could lead to permanent cell damage.	1. Attempt to execute a charge command on the system. 2. If unsuccessful, contact your Service Provider.	P1: Critical	An ala Servic issue i Field S to exe action

Priority 2 (P2) Alerts - Troubleshooting Actions

Alert	Description	Effect	Recommended Action/Next Steps: Customer	Priority
Sparker Fault	One or more Sparkers are behaving incorrectly. Sparkers are located inside the Megapack and control the levels of combustible gas by providing a spark to combust low levels of these gasses before they accumulate.	A faulted Sparker is one that does not spark in the expected fashion (pulse length, pulse interval) or at all. Pulse data is low-level and not exposed to the operators.	With a faulted Sparker, a service ticket will be created with follow-up actions. Contact your Service Provider.	P1: Critical - multiple Sparkers are faulted P2: Non-Critical - if only one Sparker is faulted
Loss of Site Meter Communication	The Tesla System Controller has lost communication with the site meter.	The battery system power output will be curtailed to zero if the meter is required for the control function in use. Meter readings are frozen at their last value.	1. Verify meter is powered on. 2. Power cycle the meter. 3. Inspect the physical network connection between the Tesla System Controller and the site meter. 4. Verify meter settings. 5. If additional support is needed, contact your Service Provider.	P2: Non-Critical
Loss of Battery Meter Communication	The Tesla System Controller has lost communication with the battery meter.	The battery system power output will be curtailed to zero if the meter is required for the control function in use. Meter readings are frozen at their last value.	1. Verify meter is powered on. 2. Power cycle the meter. 3. Inspect the physical network connection between the Tesla System Controller and the battery meter. 4. Verify meter settings.	P2: Non-Critical

Alert	Description	Effect	Recommended Action/Next Steps: Customer	Priority
			5. If additional support is needed, contact your Service Provider.	
Loss of Load Meter Communication	The Tesla System Controller has lost communication with the load meter.	The battery system power output will be curtailed to zero if the meter is required for the control function in use. Meter readings are frozen at their last value.	1. Verify meter is powered on. 2. Power cycle the meter. 3. Inspect the physical network connection between the Tesla System Controller and the load meter. 4. Verify meter settings. 5. If additional support is needed, contact your Service Provider.	P2: Non-Critical
Loss of Solar Meter Communication	The Tesla System Controller has lost communication with the solar meter.	The battery system power output will be curtailed to zero if the meter is required for the control function in use. Meter readings are frozen at their last value.	1. Verify meter is powered on. 2. Power cycle the meter. 3. Inspect the physical network connection between the Tesla System Controller and the solar meter. 4. Verify meter settings. 5. Contact your Service Provider if additional support is needed.	P2: Non-Critical
Loss of Bus Meter Communication	The Tesla System Controller has lost communication with the bus meter.	The battery system power output will be curtailed to zero if the meter is required for the control function in use. Meter readings are frozen at their last value.	1. Verify meter is powered on. 2. Power cycle the meter.	P2: Non-Critical

Alert	Description	Effect	Recommended Action/Next Steps: Customer	Priority
			3. Inspect the physical network connection between the Tesla System Controller and the bus meter. 4. Verify meter settings. 5. Contact your Service Provider if additional support is needed.	
Loss of Generator Meter Communication	The Tesla System Controller has lost communication with the generator meter.	The battery system power output will be curtailed to zero if the meter is required for the control function in use. Meter readings are frozen at their last value.	1. Verify meter is powered on. 2. Power cycle the meter. 3. Inspect the physical network connection between the Tesla System Controller and the generator meter. 4. Verify meter settings. 5. Contact your Service Provider if additional support is needed.	P2: Non-Critical
Megapack Fault	One or more Megapacks is in a faulted state. The Megapack has stopped operating to protect itself, and will not charge or discharge.	The Megapack will stop operating to protect itself and will not charge or discharge.	No action required.	P2: Non-Critical

Alert	Description	Effect	Recommended Action/Next Steps: Customer	Priority
High Latency Megapack Communication	Tesla System Controller is experiencing high latency communication with one or more Megapacks.	The inverter block(s) power output may be reduced intermittently.	1. Inspect the physical network connections between the Tesla System Controller, the network switch, and the inverter block. 2. Contact your Service Provider if the issue persists.	P2: Non-Critical
Direct Real Power Command Timeout	The Direct Real Power Command has not been re-written, or the Heartbeat has not been toggled, before the expiration of the Direct Real Power Command Timeout.	The battery system power output will be curtailed to zero.	1. If the timeout was unintentional, verify direct commands are being properly sent to the Tesla System Controller within the calibrated command timeout. Refer to the *Tesla Energy Controls and Communications Manual* for more information. 2. Contact your Service Provider if additional support is needed.	P2: Non-Critical
Direct Reactive Power Command Timeout	The Direct Reactive Power Command has not been re-written, or the Heartbeat has not been toggled, before the expiration of the Direct Reactive Power Command Timeout.	The battery system power output will be curtailed to zero.	1. If the timeout was unintentional, verify direct commands are being properly sent to the Tesla System Controller within the calibrated command timeout. Refer to the *Tesla Energy Controls and Communications Manual* for more information. 2. Contact your Service Provider if additional support is needed.	P2: Non-Critical
Loss of Islanding Controller Communication	The Tesla System Controller has lost communication with the Islanding Controller.	If communication with the Islanding Controller is lost while on-grid, the battery system will not transition to an off-grid state in the event of a	1. Inspect the physical network connections between the Tesla System Controller LAN 1 and the Islanding Controller.	P2: Non-Critical

Alert	Description	Effect	Recommended Action/Next Steps: Customer	Priority
		grid issue or under command to intentionally island. The battery system can still continue to operate on-grid. If communication with the Islanding Controller is lost while off-grid, the system will shut down until communication is restored.	2. Verify that the Islanding Controller is powered on and power connections are secure. 3. Contact your Service Provider if additional support is needed.	
Loss of Megapack Communication	The Tesla System Controller has persistently lost communication with the Megapack, meaning the Tesla System Controller has not received Megapack communications for the timeout duration of 120 seconds, unless otherwise configured. Megapack power output will ramp down over the course of 60 seconds.	Megapack power output will be curtailed to zero.	1. Confirm that the enable switch on the customer interface board is in the "ON" position. 2. Inspect the physical network connections between the Tesla System Controller, the network switch, and the Megapack. 3. Verify that the Tesla System Controller LAN 2 lights are blinking. 4. Verify that the network switch is powered. 5. Contact your Service Provider if additional support is needed.	P2: Non-Critical
Megapack Communications Warning	The Tesla System Controller has not received communications from the Megapack for at least 133ms (8 control ticks at 60Hz). The	Megapack power output will be curtailed to zero.	1. Confirm that the enable switch on the customer interface board is in the "ON" position.	P2: Non-Critical

Alert	Description	Effect	Recommended Action/Next Steps: Customer	Priority
	communication interruption should be investigated.		2. Inspect the physical network connections between the Tesla System Controller, the network switch, and the Megapack. 3. Verify that the Tesla System Controller LAN 2 lights are blinking. 4. Verify that the network switch is powered. 5. Contact your Service Provider if additional support is needed.	
Megapack Inverter Fault	All inverters in the Megapack are faulted.	The inverter block(s) power output will be curtailed to zero.	No action required.	P2: Non-Critical
Breaker Irrational	The Megapack AC circuit breaker is reporting open and closed simultaneously.	The inverter block(s) power output will be curtailed to zero.	Visually confirm breaker status and contact your Service Provider with observations for additional support.	P2: Non-Critical
Bus Controller Prolonged Fault	Megapack has experienced several consecutive faults and has entered a prolonged fault state, which will stop operation .	The inverter block will be curtailed to 0 and will be unavailable for 1 hour.	No action required.	P2: Non-Critical
Megapack Disabled	The Megapack is disabled, meaning its battery modules and thermal system are commanded to the Off state. **Warning:** This does not replace the	The power command to the affected Megapack will be curtailed to 0 while under this condition.	1. Verify that the Shutdown Battery System command is not being sent. 2. Contact your Service Provider if additional support is needed.	P2: Non-Critical

Alert	Description	Effect	Recommended Action/Next Steps: Customer	Priority
	need for operators to follow proper de-energization procedures.			
Power Electronics Over Temperature	Over 25% of the Megapack power electronics are experiencing an overtemperature.	Megapack power output may be reduced.	Contact your Service Provider if the fault persists.	P2: Non-Critical
Enable Circuit Open	The Megapack enable circuit is open. This can be caused by door switch, enable switch, or remote shutdown.	The Megapack's power output will be curtailed to zero.	1. Verify that all doors are closed. 2. Verify that the bus bar access panel is installed. 3. Verify that remote shutdown is not enabled. 4. Inspect the CMA enable lines located on the customer interface board for signs of damage. 5. Contact your Service Provider if additional support is needed.	P2: Informational
AC Breaker Status	A value of 1 indicates that the Megapack AC circuit breaker is closed. A value of 0 indicates that the Megapack AC circuit breaker is open.	If status changes to 0 while the system is operating, the bus controller cannot utilize AC and the Megapack's power output will be curtailed to zero.	1. Visually confirm Megapack AC circuit breaker status. 2. If breaker is open and this was not done intentionally, contact your Service Provider.	P2: Informational

Priority 3 (P3) Alerts - Troubleshooting Actions

Alert	Description	Effect	Recommended Action/Next Steps: Customer	Tesla Path	
Coolant Low (P1 if leakage is found during visual inspection; otherwise P3)	Coolant level is low as reported by the coolant sensor.	The cooling system may not function properly, which may result in reduced Megapack power output.	Visually inspect exterior of Megapack and check for signs of coolant leakage. 1. If leakage is found, escalate this alert to P1 (critical path). 2. Communicate any notable findings to your Service Provider.	P1: Critical if leakage found; P3: Informational if no leakage	A cr re sit ce be Pr
Enable Switch Off	Megapack enable switch is in the off position, preventing operation.	The Megapack's power output will be curtailed to zero and will turn off within 500 ms of the alert triggering.	1. Verify that the enable switch on the customer interface board is in the "ON" position. 2. If the enable switch is on and the alert is still active, contact your The Service Provider	P3: Informational	Th pr ne su Ge
Door Switch Open	One or more of the Megapack doors is open. Does not apply to the Customer Interface Bay door.	Megapack power output will be curtailed to zero and the enable circuit will break.	1. Verify that door is closed. 2. If door is closed, inspect door switch for signs of damage. 3. Contact your Service Provider if additional support is needed.	P3: Informational	Th pr ne su Ge

Revision History

Revision	Date	Details
2.1.1	March 18, 2026	• Removed empty steps (*Energizing the Megapack on page 62*, *Configuring for Short-Term Storage on page 64*)
2.1	February 25, 2026	• Clarified AC disconnect responsibilities by breaker operations (*AC Disconnect Responsibilities on page 55*) • Clarified isolation requirements (*Isolating Megapack from Upstream AC Sources on page 56*) • Added troubleshooting alerts (*Appendix A: Troubleshooting on page 70*)
2.0	November 13, 2025	• Provided additional thermal system manufacturing option information (*Product Configurations on page 11*) • Provided remote shutdown trip times (*Remote Shutdown Trip Times on page 32*) • Clarified Electrical Control Plan responsibilities (*Electrical Control Plan on page 54*)
1.9	September 5, 2025	• Clarified Preventative Maintenance requirements and added guidance for 15-year maintenance (*Preventative Maintenance on page 51*)
1.8	May 29, 2025	• Updated the maximum allowable arc flash incident energy from 8 to 14 cal/cm^2 for all regions. Updated the protection scheme requirements to ensure admin controls related to relays are clearly defined (*Performing Lockout/Tagout on page 56*) • Provided details about the Electrical Control Plan (*Electrical Control Plan on page 54*) • Updated *Tesla System Controller on page 19*, *Tesla System Components on page 8*, and *Product Labels on page 21* to include additional Large Tesla System Controller • Updated troubleshooting to provide guidance for Service Providers (*Appendix A: Troubleshooting on page 70*)
1.7	February 12, 2025	• Provided additional considerations for ground surface maintenance (*Ground Surface Maintenance Considerations on page 43*) • Provided guidelines about responding to enclosure imperfections or damage (*Responding to Imperfections or Damage on page 53*) • Introduced the C011 cell option (*Battery Modules on page 13*, *Product Configurations on page 11*) • Introduced fan type options (*Megapack Options on page 11*)
1.6	December 2, 2024	• Provided product configuration, option, and variant descriptions (*Product Configurations on page 11*) • Introduced the C012 cell option (*Battery Modules on page 13*)

Revision	Date	Details
1.5	October 23, 2024	• Clarified considerations for maintaining state of energy (*Critical Operational Considerations on page 34*) • Provided requirements for maintaining electrical protection (*Maintaining Electrical Protection on page 54*) • Removed guidance about turning enable switch back on when active work pauses for 1 hour or longer (*Turning the Enable Switch Off on page 60*) • Provided considerations for turning the enable switch back on under conditions described in this *Note on page 56* • Provided equipment clearance, which must be maintained for the operating life of the system (*Maintaining Megapack Clearance on page 44*) • Updated safety features to provide improved context (*Hazard Mitigation Features on page 30*) • Provided additional contact details (*Contact Details on page 28*)
1.4	May 31, 2024	• Provided exposure and fire clearance information and requirements (*Maintaining Exposures and Fire Clearances on page 46*) • Added a topic describing routes and zones to clarify maintenance requirements (*Routes and Zones on page 35*) • Updated vehicle dimensions and added Megapack delivery vehicle (*Typical Vehicles on page 42*) • Removed inspection of drain valves from annual maintenance activities (*Annual Maintenance on page 51*) • Provided reference to the *Application Note: Considerations for Hazardous Materials Business Plans (HMBP)* (*Operations on page 34*)
1.3	March 6, 2024	• Added critical operational considerations (*Critical Operational Considerations on page 34*) • Clarified previous updates to on-site maintenance infrastructure Levels 1-5 (*On-Site Maintenance Infrastructure on page 48*)
1.2	January 30, 2024	• Updated on-site maintenance infrastructure levels (*On-Site Maintenance Infrastructure Requirements Overview on page 47*) • Provided specifications for UL 1066 circuit breaker (*Megapack AC Circuit Breaker on page 15*)
1.1	November 8, 2023	• Modified door-opening guidance and removed the requirement to contact Tesla before opening doors (*Critical Door-Opening Considerations on page 55*) • Introduced the -D enclosure variant (*Enclosure on page 18*) • Disambiguated safe work environment procedures including isolation and performing lockout/tagout (*Providing a Safe Work Environment on page 54*) • Provided arc flash label information (*Arc Flash Label on page 23*) • Updated Asia hotline information (*Contact Information on page 28*)
1.0	July 5, 2023	Initial Revision.

CONFIDENTIAL INFORMATION – SHARED UNDER NDA ONLY

Megapack 2 XL Operation and Maintenance Manual – Revision 2.1.1

Last Updated March 18, 2026

Jerry Smith Storage Decommissioning Plan

MAY 26, 2026

NEXAMP | 101 SUMMER STREET, BOSTON, MA

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Summary

Purpose

This Decommissioning Plan provides an overview for the safe and proper retiring of the Robinson Road Storage Battery Energy Storage System (BESS) facility at the end of its operational life and ensuring all activities are performed in compliance with regulatory standards.

Project Overview

The Robinson Road Storage project is located within parcel 339 Jerry Smith Road, Lansing, NY, 14882. The project consists of an energy storage system with a system capacity of 5,000 kW/ 23,500.8 kWhs which includes Six (6) Tesla Megapack 2XL BESS units, ancillary electrical equipment and fencing. The total fenced in area of the BESS is 9,689 ft^2 and is expected to be installed as shown in Figure 1. The expected operational life of the BESS facility is 20 years, which is assumed under the guidance of the Original Equipment Manufacturer (OEM).

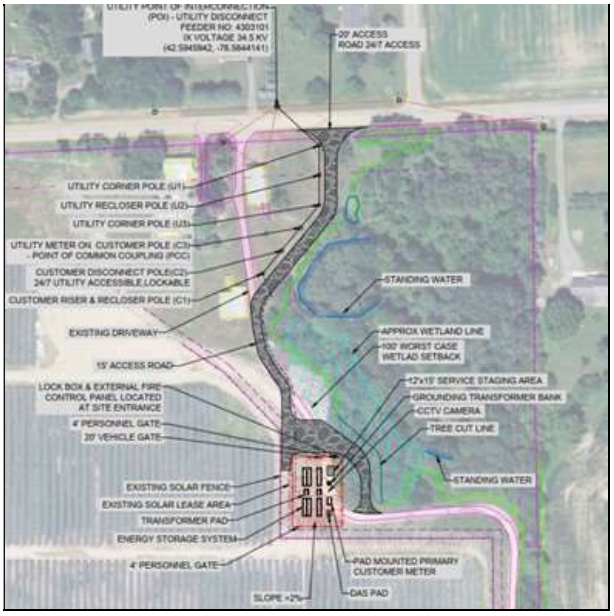


Figure 1 BESS layout

Requirements

Decommissioning will be conducted in accordance with the New York State regulations, ensuring all system equipment/components are removed, recycled, and/or disposed of safely and properly. This includes but is not limited to adhering to the following:

- Town of Lansing Building Code
- NFPA 855 2026 Edition
- 2025 FCNYS
- NYSDEC
- NYSEG DER Interconnection Guidelines

Introduction

Overview

Decommissioning activities will ensure that the site is suitable for future use by removing all equipment and its components' parts of the BESS. This will be performed to restore the site to its pre-construction condition. This protocol includes the disconnection, dismantling, material recycling, and land restoration.

Pre-planning Activities

The following activities will be done in pre-planning:

- Review and update the decommissioning plan and funding mechanism
- Establish a detailed decommissioning schedule with clear milestones
- Notify stakeholders, including local Authorities Having Jurisdiction (AHJs) and utility companies (NYSEG) at least Six (6) months before decommissioning activities begin, with Lansing Fire Department receiving written notice at least 30 days prior to the start of decommissioning
- Gather technical documents, equipment manuals, engineering drawings, material safety data sheets (MSDS) and transportation guidelines
- Secure necessary permits and approvals

Decommissioning Process

Equipment Removal

Decommissioning will proceed in the reverse order of installation, with activities including the following:

1. Electrical disconnection
    a. Disconnect the BESS from Grid and ancillary electrical equipment
    b. Remove above and underground electrical lines/cables, poles, and conduits
2. Removal of Major Components
    a. BESS units (including batteries and inverters), MV transformers, and other electrical equipment will be removed and transported to certified and pre-approved facilities
    b. Hazardous materials, including batteries and transformer oil, will be managed as per EPA, DOT, and NYSDEC standards
    c. NYSEG Interconnection Equipment:
        i. Remote trip/SCADA disconnect will be disconnected and decommissioned
        ii. Metering equipment will be removed and returned to NYSEG
3. Structural Removal
    a. Dismantle and recycle fencing, concrete foundations, and equipment pads
4. Debris and Waste Management
    a. Separate and transport waste to approved recycling and/or disposal facilities

Material Recycling and Disposal

The following materials will be recycled and disposed of:

- Batteries will be transported to OEM and their recycling partners for proper recycling and disposal
    - Due to the nature of energy storage facilities, a Tesla Megapack 2XL specific decommissioning plan is provided within Appendix 1 (Tesla Megapack 2XL Operations

and Maintenance Manual). This plan is developed by the OEM and is intended to guide owner/operators of the energy storage system.

- Transformer oils will be sent to certified facility
- Metals and wiring will be salvaged for recycling
- Concrete foundations will be broken and transported for reuse
- Gravel and geotextiles will be reused where possible or sent to approved facilities

Site Restoration

Site restoration will include the following:

- Grade disturbed areas to restore drainage patterns to the original design
- Apply topsoil and reseed with a native seed mix to prevent the possibility of erosion
- Verify restoration quality through inspections and photographic documentation

Town of Lansing final sign-off and restoration inspection will be conducted to confirm all structures are removed or restored.

Environmental Safety and Impact

Safety Protocols

A comprehensive environmental Health & Safety Plan (EH&S) will be developed and will govern all decommissioning activities. This plan will comply with OSHA standards (29 CFR 1910.120) and incorporate best practices for protecting workers and the community. The key components of this plan includes but is not limited to the following:

- Job Hazard Analysis (JHA): Detailed risk assessment for each job/task, identifying potential hazards and their mitigating measures
- Personal Protective Equipment (PPE): Appropriate PPE will be provided to workers, including arc flash suits, gloves, etc., based on the nature of the work activity
- Fire Prevention and Control:
    - All fire protection systems will remain operational during decommissioning
    - Fire department will be made aware of the decommissioning activities in the event an emergency arises
- Emergency Response Plan:
    - Site-specific procedures for handling emergencies such as fires, thermal runaway, chemical spills, or injuries will be available, and the fire department would have been trained with respect to this plan.
    - Coordination with local emergency response teams and Lansing Fire Department for incident management.
- Emergency Response Access:
    - Nexamp will ensure that Lansing Fire Department will have site access and keys (if required) during the decommissioning phase
- Site Security:
    - Fencing and restricted zones will ensure unauthorized personnel are kept out of active work areas.

- Security measures will also safeguard equipment and prevent theft and/or vandalism.

Hazardous Material Handling

The handling and disposal of hazardous materials, such as lithium-ion batteries and transformer oils, will follow local and federal regulations, including those outlined in EPA standards. Key protocols include but are not limited to the following:

- Identification of Hazardous Materials: A thorough inventory of all regulated materials, including batteries, transformers, and associated electrical equipment.
- Containment and Transportation: Ensuring all hazardous materials are securely packaged, labeled, and transported to certified facilities using licensed hazardous material handlers/carriers.
- Spill Prevention and Control:
  - A Spill Prevention, Control, and Countermeasure (SPCC) Plan will be implemented to address potential leaks or spills during the dismantling process.
  - Secondary containment systems will be utilized for any containers exceeding 55 gallons
  - Each Tesla Megapack 2XL includes a plenum for electrolyte (hazardous material in the lithium-ion battery) leakage that has the potential to contain 200+% of the hazardous material present in a single Megapack 2XL unit
  - Trained personnel will manage cleanup of any spills, and incidents will be reported to the appropriate authorities

Lithium-ion batteries have a hazard classification of Class 9. As such, the shipping UN 38.3 classifications for the batteries ensure that safe transportation and labeling compliance can be achieved.

Stormwater Management

Nexamp will implement any required stormwater management controls as required by local AHJs and ensure compliance with the New York State Department of Environmental Conservation (NYSDEC) at the time of decommissioning. Specific measures include:

- Minimizing soil disturbance and controlling sediment runoff during decommissioning activities.
- Stabilizing disturbed areas with appropriate erosion and sediment control methods, such as silt fencing and sediment traps.
- Regular monitoring of stormwater discharge to ensure compliance with State Pollutant Discharge Elimination System permit conditions.

If any potential contaminated areas are disturbed, appropriate mitigation will be undertaken in coordination with the NYSDEC and regional water management authorities.

Financing

Robinson Road Storage, LLC will pay for the decommissioning of the system from the existing balance sheet.

Decommissioning Timeline

The following table provides an overview of the Decommissioning Timeline:

Table 1 Decommissioning Timeline

Decommissioning Activity	Timeline (Months)
Stakeholder Notifications	0-6
Permitting and Approvals	2-6
Equipment Removal and Recycling	6-9
Site Restoration	9-15
Final Reporting	15

The decommissioning process for the facility will adhere to a structured and carefully planned timeline to ensure the safe dismantling, compliance to regulations and OEM guidance, and thorough site restoration. The Decommissioning activities outlined in Table 1 are outlined in greater detail below:

1. **Stakeholder Notifications (Months 0-6)**
   In this activity, Nexamp will notify all stakeholders of the intent to decommission the BESS facility. Notifications will be issued to Lansing Building Department, NYSEG, OEMs, and relevant AHJs (local and federal). A stakeholder list will be updated to include all involved and responsible parties, and preliminary discussions regarding permits and approvals will commence.

2. **Permitting and Approvals (Months 2-6)**
   In parallel with Stakeholder Notifications, Nexamp will secure all necessary permits and approvals for decommissioning activities. This activity includes the submission of permit applications for decommissioning, environmental reviews, and compliance certifications. Nexamp will coordinate with regulatory agencies to ensure that all documentation is updated, complete, and compliant with the latest standards and best practices. Preparations for safe material handling and waste management will be finalized in this activity.

3. **Equipment Removal and Recycling (Months 6-9)**
   The physical dismantling of the Facility will begin at month six and its activities include:
   a. Disconnecting the BESS from the electrical grid an ancillary equipment
   b. Removing above and underground components
   c. Transporting recyclable materials
   d. Handling and disposing of hazardous materials per EPA and NYSDEC guidelines

   This phase ensures that all components are safely removed while maximizing recycling opportunities to minimize the environmental impact of the Facility and its decommissioning.

4. **Site Restoration (Months 9-15)**
   Once all equipment has been dismantled and removed from the site, Nexamp will restore the site to a vegetated and vacant condition. Restoration activities include:
   a. Grading the land to match the original drainage patterns
   b. Applying topsoil and seeding to disturbed areas with native seed mix to stabilize soil and prevent any erosion
   c. Conducting inspections to verify restoration quality

d. Review of restoration activities with local AHJs for approval

5. **Final Reporting (Month 15)**
   Nexamp will prepare a comprehensive decommissioning report as part of the final reporting activity. This document will detail the timeline and milestones, components removed and their whereabouts, final site conditions (with photographs and inspection results), and compliance validation to regulation and permits. The report will be submitted to any relevant AHJs to confirm the successful completion of the decommissioning process of the Facility.

Appendix 1 – Tesla Megapack 2XL Operations and Maintenance Manual

1.1 Commissioning Prerequisites

The following steps describe the Commissioning process that Tesla Industrial Storage Support will follow. Tesla may perform this work either on site or remotely at the discretion of the Tesla representative and in accordance with any site-specific commissioning plan. Tesla will perform Commissioning at Tesla's earliest convenience, unless the Customer has indicated a necessary scheduled time.

The following conditions must be met before commissioning can begin:

Pre-Commision Step	Completed (Yes/No)
The Construction Checklist has been fully completed, sent back to Tesla, and approved by Tesla.	
Megapack is ready to be energized: • Trip terminals are open or closed as appropriate • Remote shut down terminals are closed. • Close permissive terminals are closed. • Key is on	
AC distribution to the terminals of all Tesla Megapacks must be complete and grid power available. Exemptions to this may be made at the discretion of the Tesla Project Engineer following a review of the current site conditions	
Energize the Tesla Site Controller, all meters (Site, Battery, PV), and networking.	
Tesla requires an onsite presence that is able to perform the following work: • Operate any circuit breakers • Measure circuit voltages • Debug and resolve any networking connection issues • Debug and resolve any meter connection issues • Debug and resolve power connection issues	
Charge and Discharge limits are identified in the Construction Checklist.	
Stable internet connection to Tesla/Internet from the Tesla Site Controller	
Internet access for Tesla personnel onsite, if applicable	

1.2 Sample Commissioning Activity Overview

Reach out to your Tesla Project Engineer for a Commissioning Timeline. Below is a list of specific activities that take a minimum of 8 hours to complete on a single Megapack site.

- Confirm communication to the Tesla Site Controller: Tesla remotely accesses the Tesla Site Controller and confirms its communication to the Tesla Servers.
- SCADA communications check: Tesla confirms communications from the Tesla Site Controller to any meters or other SCADA equipment present on the network as well as to the Megapacks. At this stage, Tesla requires power to all devices.
- Tesla internal system communication check: Tesla performs an initial communication check to each component of the Megapack system from the Tesla Site Controller.
- Firmware Update: Tesla performs an initial firmware update of the system. This update also involves loading the required Grid Codes. Onsite and Controls power must be maintained for the duration of the update; interruption of power may require personnel to manually update the firmware of every component in the system, which extends the commissioning timeline. The Tesla system does not charge or discharge during the Firmware Update.
- DC Self-test: Tesla performs a DC Self-test. The DC Self-test energizes the system's DC bus and tests the internal components, namely the thermal and controls subsystems. The system does not charge or discharge during a DC Self-test, but Onsite and Controls power are maintained for the duration of the update. Fans and other thermal subsystems operate during the test. Tesla may re-run the DC Self-test multiple times to confirm the system's operation.
- AC Self-test: Tesla performs an AC Self-test which energizes the system's DC bus and relies on grid voltage. Main component coverage are the power electronics. This test will place a parasitic load of <20kW on the grid AC connection.
- Grid Interactive Functionality: If applicable and as determined by the sales contract, Tesla will perform Grid Interactive, Performance, and/or Microgrid functionality tests. Tesla will confirm test results with written reports upon request.

NOTE: Additional activities such as setup of site networking, controls features and performance testing require site specific commissioning plans

1.3 Commissioning Results

Step	Measurement	Results
Tesla Database updated with site information	Pass/Fail:	
Confirm communications to Tesla Site Controller	Pass/Fail:	
File transfer	Pass/Fail:	
Meter communication check	Site Comms Check, P/F:	
	Battery Comms Check, P/F:	
	PV Solar Comms Check, P/F:	
Tesla internal communication check	Enable Line P/F:	
	No. Blocks:	
	No. Packs:	
Firmware update	Pass/Fail:	
	Firmware Githash:	
	Grid Code:	
DC Self-Test **CAUTION:** Warn site before test begins	Pass/Fail:	
Initial AC Self-Test **CAUTION:** Warn site before test begins	Site Meter Check, P/F:	
	Battery Meter Check, P/F:	
	PV Solar Meter Check, P/F:	
	Charge Power Achieved:	
	Discharge Power Achieved:	
Full AC Self-Test **CAUTION:** Warn site before test begins	Site Meter Check, P/F:	
	Battery Meter Check, P/F:	
	PV Solar Meter Check, P/F:	
	Charge Power Achieved:	
	Discharge Power Achieved:	
Grid Interactive Functionality **CAUTION:** Warn site before test begins	Off-Grid Functionality, P/F:Islanding Functionality, P/F:	

1.4 Site and Administrative Information

Site Name	Location	Controller VIN	Date	Tesla Personnel	Onsite Personnel	Other Notes

1.5 Outstanding Items (No Impact to System Nameplate)

	Outstanding Item
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

MEGAPACK SYSTEM COMMISSIONING PROTOCOL

This document outlines the scope of work required to commission a Tesla **Megapack System**, and identifies the responsible party for each requirement. Tesla defines the commissioning process as the period between the initial submission of the Construction Checklist through the submittal of the signed Commissioning Completion Form.

Reference Documents

- Megapack Onsite Commissioning Overview

https://partners.teslamotors.com/en-us/EnergyDocs/Tesla_Megapack_Onsite_Commissioning_Overview_Checklist.pdf

Definitions and Cautions

This document defines the key stakeholders using the following names and roles:

Customer	The purchaser of the Megapack System. This is the facility manager, unless a third party operates the energy solution on behalf of the facility manager.
Facility Manager	The owner of the property on which the system is installed.
Construction Manager	The lead in charge of completing the entire Megapack System installation. Also serves as the default point of contact for site access, unless otherwise notified by the customer.
Tesla Project Engineer	The Tesla engineer responsible for reviewing site design and working with the construction manager to complete installation.
Tesla Megapack Support	Tesla Customer Support for Megapack Systems.
Tesla Field Service Technician	Tesla employee or Tesla-approved contractor trained to commission and service Megapack Systems.
Tesla Account Management	Tesla representative responsible for the Commissioning Completion Form.

NOTE: This document is written for projects where Tesla is not responsible for construction. For “turnkey” projects where Tesla manages construction, Tesla performs all roles attributed to the Construction Manager in this document and some of the roles attributed to the Customer. The detailed split in responsibilities is defined in the project Scope of Work document that forms part of a turnkey project contract.

NOTE: Commissioning requires the Tesla Service team to perform test charging and discharging of the system. **If there are restricted times or conditions when this can occur,** please notify Tesla at Megapacksupport@tesla.com.

CAUTION: Failure to enable and execute charge at the end of 12 months storage may result in permanent system damage and would void the warranty, as described in the Limited Warranty. If units are expected to sit for longer than 12 months between the date of manufacture and installation, the site manager must contact Tesla at Megapacksupport@tesla.com to ensure

system readiness. See Tesla's *Megapack Transportation and Storage Guidelines* for additional information.

For allowable storage temperatures before system installation, refer to the *Megapack System Transportation and Storage Guidelines*. For the procedure to put an installed system safely into storage mode, refer to the *Megapack System Operation and Maintenance Manual*.

Order of Commissioning and Site Events

The order of events for a site is as follows:

1. **Construction begins.**

   Responsible Party: Construction Manager

   The designated contractor transports all components to the site and physically installs the Megapack System, including positioning, cabinet anchoring, conduit wiring, wiring to all terminals, and site cleanup, per the procedures and standards in the *Megapack System Installation Manual*. The installation team tracks completion on the Tesla-provided Construction Checklist, which the Construction Manager signs and submits in step 3.

2. **Determine tentative commissioning date.**

   Responsible Party: Customer

   The customer must provide a *tentative* commissioning date to the Tesla Project Engineer. This request is a tentative placeholder for scheduling purposes; however, the actual onsite commissioning date is subject applicability and scheduling change. The Construction Checklist must be successfully completed before an Onsite Commissioning can begin.

3. **Submit completed Construction Checklist.**

   Responsible Party: Construction Manager

   Upon construction completion, the construction manager must submit the completed Construction Checklist and its associated photos and documents to the Tesla Project Engineer (if one has been assigned). The completion form generated from the Installation Validation App must also be submitted. If you do not receive a response from your Tesla Project engineer within 3 days, please email the documentation to Megapacksupport@tesla.com.

4. **Communicate outstanding Construction Checklist items.**

   Responsible Party: Tesla Project Engineer

   Confirms receipt of the Construction Checklist within 3 business days and communicates any outstanding/incomplete items to the Construction Manager to rectify. The

Construction Manager must then rectify any problems and re-submit the Construction Checklist for review. Note that multiple submission-review cycles may be required.

5. **Confirm Construction Checklist is complete.**

   Responsible Party: Tesla Project Engineer

   Confirms the Construction Checklist as complete once all outstanding items have been rectified as indicted in the last Construction Checklist submission. This step may involve Tesla accessing the system remotely to confirm the installation validation.

6. **Onsite Commissioning (If Applicable)**

   Responsible Party: Tesla Onsite Commissioning Personnel

   In the event that any issues cannot be rectified, Tesla is able to provide Onsite Commissioning personnel per contractual agreement. See Appendix B below for details regarding Onsite Commissioning.

   a) Responsible Party: Tesla Megapack Support

      Schedules the date for Onsite Commissioning to occur. The onsite commissioning is scheduled for 10 business days after the unsuccessful completion of Remote Commissioning for On-Grid sites, or 20 business days for Grid Interactive or Microgrid sites.

   b) Responsible Party: Tesla Field Service technician

      Performs Onsite Commissioning after rectifying any outstanding issues. Onsite commissioning typically takes one day per Megapack AC transformer block; however, this is highly variable from site to site (Large Utility sites will have individual commissioning plans). See Appendix B below for details of the tasks performed during the onsite commissioning for each Megapack.

7. **Review and send completed Commissioning Completion Form.**

   Responsible Party: Tesla Account Management

   Reviews the Commissioning Completion Form and sends it to the Customer within 3 business days of commissioning completion.

8. **Sign and return the Commissioning Completion Form.**

   Responsible Party: Customer

   Countersigns the signed Commissioning Completion Form and returns it to Tesla Account Management to show acceptance of site completion within 3 business days of receiving the completed form in step 9.

Figure 1 below provides an overview and timeline of the steps outlined above.

What	Who	When
1. Begin Construction	**Construction Manager**	Varies by site
2. Provide desired onsite commissioning date. Placeholder for step 6 only.	**Customer**	Varies by site
3. Send completed Construction checklist and other deliverables.	**Construction Manager**	At construction completion
4. Confirm receipt of Construction Checklist. Provide list of items to be rectified.	**Project Engineer / Megapack Support**	3 business days after Step 3
4 (response). Rectify identified problems, send updated Construction Checklist for review.	**Construction Manager**	Varies by site
5. Confirm Construction Manager has fully completed Construction Check list with no issues remaining.	**Project Engineer / Megapack Support**	Varies by site
6a. Schedule Onsite Commissioning (if applicable)	**Tesla Field Service Manager**	Up to 10 business days after any issue identified in Step 5
6b. Perform Onsite Commissioning (if applicable)	**Tesla technician**	Varies by site
7. Review and deliver Commissioning Completion Form for sign off	**Project Engineer / Megapack Support**	Within 3 business days after completion of Step 5, or Step 6 if applicable.
8. Sign and return Commissioning Completion Form to Megapack Support	**Customer**	Within 3 business days of completion of Step 7

Figure 1: Commissioning and Site Events Overview and Timeline

Appendix A: Onsite Commissioning (If Applicable)

In the event of unrectified critical issues, Tesla is able to provide onsite personnel per contractual agreement. This is a brief summary of the Onsite Commissioning process. Refer to the *Megapack System Onsite Commissioning Overview* for further details.

The following scope requires approximately 8 hours per Megapack block, and will be run in parallel for each AC transformer block. Only Tesla Service or a Tesla-approved contractor may perform the steps outlined in the procedure below. The exact order and scope of some tests may vary depending on site conditions and configuration.

1. Rectify any outstanding issues identified in the Construction Checklist review and Installation Validation app. This may involve:
    a) De-energize the system for a full visual inspection of all mechanical and electrical connections.
    b) Re-energize the system.
    c) Test communication between all components as listed in the section above.
2. Update system firmware for all inverter blocks to the latest version.
3. Perform basic functional testing, including charge and discharge functions, controller data verification, and thermal system verification.

NOTE: If a full power charge could create a peak onsite or trigger export, specify a charge limit when requesting the onsite commissioning visit.

NOTE: Tesla may charge all Megapack Units to an 80% State of Charge during commissioning. This can take up to 24-48 hours to complete.

NOTE: If the system will be de-energized before regular use begins, the Customer must follow the Storage Mode shutdown procedure in the *Megapack System Operation and Maintenance Manual* to protect battery life.

Revision Log

Revision #	Date	Description
1.0.0	06-24-2019	• Initial Release
1.0.1	07-02-2019	• Changed summary language to clarify scope of document

TESLA Megapack Commissioning Documents

Project Number:	
Project Address:	
Project Name:	
Prepared By:	
Date:	

Tesla Checklist Forms to be completed and copies attached to this submittal:

- ☐ Completed SITE INFORMATION Form
- ☐ Completed SECTION C: CIVIL WORK CHECKLIST AND TORQUE VALUES Form
- ☐ Completed SECTION E: ELECTRICAL WORK CHECKLIST, ENERGIZATION Form (One form per each Megapack)
- ☐ Completed SECTION G: ELECTRICAL WORK CHECKLIST, GENERAL Form
- ☐ Completed SECTION P: SCADA POI CHECKLIST Form
- ☐ Completed SECTION R: METER CHECKLIST Form
- ☐ Completed SECTION S: ELECTRICAL WORK CHECKLIST, SITE-LEVEL Form (One form per each Megapack)
- ☐ Completed SWITCHING SCHEME Form
- ☐ Completed PHOTO CHECKLIST AND PROJECT DOCUEMNTATION (Include ALL Photos in .JPG Format)
- ☐ Completed METERS Form
- ☐ Completed MEGAPACK SERIAL NUMBERS Form (One form per each Megapack)
- ☐ Completed EARTH CONTINUITY TEST RESULTS Form
- ☐ Completed CONSTRUCTION MANAGER SIGNATURE PAGE

Deliverables:

- ☐ ALL Photos listed in the PHOTO CHECKLIST AND PROJECT DOCUMENTATION Form.
- ☐ Availability, capacity, and RTE test results performed by EPC Contractor
  (Reference Exhibit M-3)
- ☐ Pad Mount Transformer Photos:
  (Include Transformer Label IDs from Construction Set with each photo – Ex. *XFR.01 High Side*)
  - ☐ High Side Terminations
  - ☐ Low Side Terminations
- ☐ TESLA On-Line Portal Screen Shots:
  - ☐ Charge Rates During Testing
  - ☐ Discharge Rates During Testing
- ☐ ALL As-Built documents listed in the PHOTO CHECKLIST AND PROJECT DOCUMENTATION Form.

For Questions, please contact commissioning@nexamp.com

101 Summer Street, 2nd Floor
Boston, MA 02110
617.431.1440
www.nexamp.com

Jerry Smith Energy Storage
Commissioning Services Plan

May 2026

Jerry Smith Storage, LLC
339 Jerry Smith Rd., Lansing, NY
14882

Project Description

Nexamp will be installing a 5 MW / 23.5 MWh standalone Battery Energy Storage System (BESS) project (Jerry Smith Storage) at 339 Jerry Smith Rd., Lansing, NY. The system is comprised of six Tesla Megapack 2XL batteries, each rated at 979.2 kW / 3916.8 kWh. Two 2.5 MVA step-up transformers (34.5 kV/480 V) will connect the BESS to the NYSEG distribution system at the point of interconnection (POI) via customer-owned switchgear and revenue metering.

The Jerry Smith site includes access road improvements, underground conduit, MV transformers, AC switchgear, a data acquisition system (DAS), perimeter fencing, and associated interconnection infrastructure. The site is designed for a 25-year operational life. At end-of-life, the system will be decommissioned with an emphasis on recycling BESS components

Commissioning Process Overview

Commissioning verifies that the system is installed correctly, operates safely, and meets performance and interconnection requirements. The process will include:

- Installation inspections.
- Equipment startups.
- Functional and performance testing.
- Balance-of-system (BOS) verification (transformers, switchgear, SCADA/DAS).
- Utility coordination for interconnection compliance.

The plan defines roles, responsibilities, commissioning documentation, inspections, and tests required to achieve final acceptance.

Participants and Responsibilities

Participant	Role
Nexamp, Inc.	Project Manager (PM) / Construction Manager (CM)
Independent CxA	Commissioning Authority (CxA)
Engineer of Record (EOR)	System Design Engineer
Tesla	OEM / Manufacturer
NYSEG	Utility / Interconnection Authority

Responsibilities

- **PM/CM (Nexamp):** Coordinate site access, distribute documentation, schedule commissioning, support Tesla startup, and resolve deficiencies. Perform insulation resistance and hi-pot testing.
- **CxA:** Generate commissioning plan, inspection sheets, review test results, oversee Tesla and contractor testing, maintain deficiency list.
- **EOR:** Provide design clarifications, ensure installation conforms to approved drawings.
- **Tesla:** Provide startup/commissioning documentation, conduct commissioning with CxA and Nexamp support.
- **Utility (NYSEG):** Witness interconnection testing, approve operational readiness, verify metering.

Commissioning Process

- Pre-Construction: Review design documents and incorporate utility/CxA feedback.
- Construction: Submit schedules, complete initial testing (insulation resistance, grounding). CxA to inspect Megapacks and BOS equipment (transformers, switchgear, SCADA panels).
- Equipment Startup: Tesla and contractors perform Megapack and inverter startup; BOS equipment energized and tested after AHJ approval.
- System Testing: Functional performance testing of charge/discharge, SCADA/DAS, alarms, transformer loading, relay settings, protection devices, emergency shutdowns, and interconnection requirements.
- Training: Conduct operator and emergency response training with system IOM manuals, including BOS systems.

Documentation

Commissioning documentation includes:

- As-built drawings (SLD, dev set).
- Startup and test reports (Megapacks, transformers, switchgear, SCADA/DAS).
- Utility interconnection approval.
- Deficiency list and closeout report.

Commissioning Activities

Overview

- Inspections: Mechanical/electrical inspections of Megapacks, transformers, MV switchgear/recloser, revenue metering, communications, and SCADA/DAS.
- Testing: Insulation resistance, hi-pot, transformer test suite, relay/protection verification (including recloser and SEL relays), end-to-end trip testing, DTT, and interconnection/witness tests.
- Integration: SCADA/EMS mapping, Tesla Site Controller integration, DAS validation, cybersecurity hardening, and metering validation.

Balance of System (BoS) Components Under Commissioning Scope

- Step up transformers (2 × 2.5 MVA, 34.5 kV/480 V)
- MV recloser & relay controls (e.g., SEL651R) and visible, lockable disconnects
- Customer 3in1 interconnection switchgear (protection, metering, disconnect)
- Revenue metering (e.g., SEL735) and CT/VT circuits
- Direct Transfer Trip (DTT) equipment (e.g., RFL Guard 8000) and telecom
- SCADA/RTU (e.g., SEL3505 RTAC), Tesla Site Controller, DAS cabinet
- Communications network (fiber/Cat6), time sync (GPS/NTP), and firewall

Fire and Safety Systems

- Tesla Megapack 2XL includes deflagration control, BMS, fire detection, fault protection, and SCADA reporting.
- Each safety feature will undergo startup self-tests and verification by Tesla/CxA.

Utility and Grid Compliance

- Protection relay testing per IEEE-1547, NPCC, and NYSEG standards.
- Voltage/frequency ride-through, reactive power, and AGC response testing.

Record of Commissioning

Upon completion, Nexamp will maintain a full commissioning record, including: Tesla commissioning reports, SCADA and communications testing results, interconnection/witness test results, and operator training records.

Transformer Commissioning (each MV Step-up transformer)

Pre-energization: nameplate verification; oil level/condition; grounding and bonding; bushing integrity; tap position; cooling fans/controls; surge arrester installation.
Electrical tests: insulation resistance (winding-to-winding and winding-to-ground); TTR (turns ratio) with phase verification; winding resistance; polarity; excitation current; sweep frequency response (as applicable).
Functional: temperature devices (RTDs), fan/alarms, secondary wiring checks, phase rotation confirmation at LV terminals, MV terminations torque check, and protection device wiring checks.
Acceptance: review of factory test reports and onsite results against manufacturer tolerances.

Recloser and Protection Relays

Inspection: cubicle/enclosure integrity, heaters, space clearances, labeling, torque checks, ground bus continuity.
Instrument transformers: CT/VT ratio and polarity checks; secondary burden checks; point-to-point wiring verification.
Relay settings & logic: load and verify final settings per approved coordination study; password management and NERCCIP aligned user roles; time synchronization.
Functional tests:

- **Recloser/SEL651R:** close/open, manual and remote; reconfirm reclosing disabled/enabled per NYSEG requirements; verify safe trip circuit.
- **Trip schemes:** 27/59/81 (UV/OV/UF/OF), 50/51/50G/51G overcurrent, 59N NVD, sync/ant islanding, and 79.
- **End-to-end tests:** secondary injection and end to end trip to Megapack PCS via site controller; breaker fail logic and interlocks.

Direct Transfer Trip and Telecom

- **DTT path verification:** continuity and quality of the DTT channel(s) between site and utility substation; alarm on channel loss.
- **Functional:** simulate DTT receive; confirm immediate trip of BESS export and event logging.
- **Redundancy/alarms:** verify comm fail alarms to SCADA; document cutover and failover behavior.

Revenue Metering

- **Device & wiring checks:** meter model/firmware, CT/VT ratios, burdens, and wiring; seal integrity as required by NYSEG.
- **Accuracy tests:** primary or secondary injection to validate meter constants; NYSEG witness.
- **Telemetry:** real time delivery of W, VAR, PF, V, A, frequency, and energy to utility and Nexamp DAS; tie to settlement requirements.

SCADA/RTU/Tesla Site Controller/DAS

- **Architecture & cybersecurity:** network diagram signoff; VLANs; firewall rules; remote access controls; time sync (NTP/GPS).
- **Point-to-point mapping:** verify DNP3/IEC points from Tesla Site Controller → RTU (SEL3505) → DAS/Utility.
- **Controls & commands:** dispatch charge/discharge, MW/MVAR setpoints, AGC/automatic dispatch where applicable; confirm command authority hierarchy and interlocks.
- **Alarms & events:** verify alarm priorities, latching behavior, and SOE timestamps; loss of comms behavior; data archival.

Interconnection and Grid Performance Tests (Witnessed)

- **Open circuit energization:** transformer/MV bus energization and no-load verification.
- **Protection response:** verify UV/OV/UF/OF trip thresholds and clearing times; NVD; OC elements; compare to approved settings.
- **Ride through & dynamic tests:** frequency/voltage ride through demonstrations; reactive capability (leading/lagging) and power factor control.
- **Ant islanding:** functional demonstration per utility test procedure.
- **System performance:** capacity test (discharge to rated energy at rated power), RTE, ramp rate and AGC step response, thermal behavior under sustained dispatch.
- **Revenue metering & telemetry:** final validation with utility before Permission to Operate (PTO).

Conclusion

This Commissioning Plan provides a structured process to ensure the Jerry Smith Storage Project is safely constructed and commissioned. Nexamp, Tesla, the CxA, and NYSEG will collaborate to ensure all requirements are met, performance is verified, and the project delivers reliable grid services to NY.

Attached to this Services Plan is a typical scope of work for commissioning a Battery Energy Storage System. Nexamp has used this scope of work as the basis for its services for infrastructure that it currently maintains. In the following, the corresponding parties are identified for responsibility as designated.

Below are the primary services under the scope of commissioning. In addition, Nexamp will coordinate with Tesla on all commissioning activities.

The primary services under the scope of commissioning the site include the following:

Commissioning Matrix I-1

Document	Responsible Party												Milestone Due By
	Executing/Documenting				Approval				Forms				
	Nexamp	Nexamp's Electrical Sub	MV Contractor	Manufacturer	Nexamp	Nexamp Asset Management	Manufacturer	Nexamp's 3rd Party Engineer	Nexamp Supplied	Manufacturer Supplied	Contractor Supplied	3rd Party Engineer Supplied	
(AA) Mechanical Component Torque Certification Letter	X				X								PRE-MC
(B) & (C) Megohmmeter Form	X				X								PRE-MC
VLF Test Report									X				PRE-MC
(D) Grounding System Test Report	X or			X	X or		X	X		X			PRE-MC
(E) Combiner Box and/or Inverter DC Commissioning Pre-Check Form with IV Curve Trace Test	X or												PRE-MC
(MC) Mechanical Completion Request & Checklist (Engineering Grp.)	X		X		X				X				PRE-MC
(WT) Witness Test Scheduling Request (GRID Integration Team)	X							X		X			Pre-WT
(NEC-B) DAS Commissioning Form	X or				X and		X	X	X				SC
Transformer commissioning	X						X and			X			PRE-MC/SC
Dissolved Gas Analysis	X				X and		X	X					PRE-MC/SC
Fluid Dielectric Testing	X				X and				X				PRE-MC/SC
Recloser commissioning													SC
Recloser programing					X and		X and	X		X			SC
Relay commissioning					X and		X and		X				SC
Switchgear commissioning					X and					X			SC
Energy Storage PCS Commissioning	X				X and		X	X					SC
Energy Storage HVAC & Auxiliaries Commissioning					X and				X	X			SC
Energy Storage Fire Suppression Commissioning	X or												SC
Energy Storage System Commissioning	X or				X and		X and						SC

Short Environmental Assessment Form
Part 1 - Project Information

Instructions for Completing

Part 1 – Project Information. The applicant or project sponsor is responsible for the completion of Part 1. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification. Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information.

Complete all items in Part 1. You may also provide any additional information which you believe will be needed by or useful to the lead agency; attach additional pages as necessary to supplement any item.

Part 1 – Project and Sponsor Information

Name of Action or Project:
JERRY SMITH BATTERY ENERGY STORAGE SYSTEM

Project Location (describe, and attach a location map):
339 JERRY SMITH ROAD, LANSING, NY

Brief Description of Proposed Action:
The Applicant is proposing a standalone, front-of the-meter battery energy storage system(BESS) interconnected to the NYSEG distribution system at 34.5 kV. the project will have an operating capacity of approximately 5,000kW/23,500.8 kWh (4-hour duration)using six Tesla Megapack 2XL units with integrated PCS inverters, step transformers, associated communications and protection equipment, access roadway, and perimeter fencing.The project will be located at 339 Jerry Smith Road, Lansing, NY in Tompkins County,Tax Id 16.-1-10.2.

Name of Applicant or Sponsor:	Telephone: 607-237-5254
JERRY SMITH, LLC	E-Mail: MDeAngelo@nexamp.com

Address:
101 SUMMER STREET FLOOR 2

City/PO:	State:	Zip Code:
BOSTON	MA	02110

	NO	YES
1. Does the proposed action only involve the legislative adoption of a plan, local law, ordinance, administrative rule, or regulation? If Yes, attach a narrative description of the intent of the proposed action and the environmental resources that may be affected in the municipality and proceed to Part 2. If no, continue to question 2.	☑	☐
2. Does the proposed action require a permit, approval or funding from any other government Agency? If Yes, list agency(s) name and permit or approval:	☑	☐

3. a. Total acreage of the site of the proposed action? 1.7 acres
   b. Total acreage to be physically disturbed? 1.7 acres
   c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 56.87 acres

4. Check all land uses that occur on, are adjoining or near the proposed action:

5. ☐ Urban ☑ Rural (non-agriculture) ☐ Industrial ☑ Commercial ☑ Residential (suburban)
   ☑ Forest ☐ Agriculture ☐ Aquatic ☐ Other(Specify):
   ☐ Parkland

	NO		YES
5. Is the proposed action,			
a. A permitted use under the zoning regulations?	☐	☑	☐
b. Consistent with the adopted comprehensive plan?	☐	☑	☐

	NO	YES
6. Is the proposed action consistent with the predominant character of the existing built or natural landscape?	☐	☑

	NO	YES
7. Is the site of the proposed action located in, or does it adjoin, a state listed Critical Environmental Area?		
If Yes, identify: _____	☑	☐

	NO	YES
8. a. Will the proposed action result in a substantial increase in traffic above present levels?	☑	☐
b. Are public transportation services available at or near the site of the proposed action?	☑	☐
c. Are any pedestrian accommodations or bicycle routes available on or near the site of the proposed action?	☑	☐

	NO	YES
9. Does the proposed action meet or exceed the state energy code requirements?		
If the proposed action will exceed requirements, describe design features and technologies: _____ _____	☐	☑

	NO	YES
10. Will the proposed action connect to an existing public/private water supply?		
If No, describe method for providing potable water: _____ _____	☑	☐

	NO	YES
11. Will the proposed action connect to existing wastewater utilities?		
If No, describe method for providing wastewater treatment: _____ _____	☑	☐

	NO	YES
12. a. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places?	☑	☐
b. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory?	☑	☐

	NO	YES
13. a. Does any portion of the site of the proposed action, or lands adjoining the proposed action, contain wetlands or other waterbodies regulated by a federal, state or local agency?	☐	☑
b. Would the proposed action physically alter, or encroach into, any existing wetland or waterbody?	☑	☐
If Yes, identify the wetland or waterbody and extent of alterations in square feet or acres: _____ _____ _____		

14. Identify the typical habitat types that occur on, or are likely to be found on the project site. Check all that apply:

☐ Shoreline ☑ Forest ☑ Agricultural/grasslands ☐ Early mid-successional

☑ Wetland ☐ Urban ☐ Suburban

	NO	YES
15. Does the site of the proposed action contain any species of animal, or associated habitats, listed by the State or Federal government as threatened or endangered?	☑	☐
16. Is the project site located in the 100-year flood plan?	☑	☐
17. Will the proposed action create storm water discharge, either from point or non-point sources?	☐	☑
If Yes,		
a. Will storm water discharges flow to adjacent properties?	☑	☐
b. Will storm water discharges be directed to established conveyance systems (runoff and storm drains)?	☐	☑
If Yes, briefly describe: STORMWATER PRACTICES INCLUDING SWALES, CULVERTS, VEGETATED FILTER STRIP, AND A BIORETENTION AREA HAVE BEEN DESIGNED TO CONVEY AND TREAT STORMWATER RUNOFF FROM THE PROPOSED PROJECT		
18. Does the proposed action include construction or other activities that would result in the impoundment of water or other liquids (e.g., retention pond, waste lagoon, dam)? If Yes, explain the purpose and size of the impoundment:	☑	☐
19. Has the site of the proposed action or an adjoining property been the location of an active or closed solid waste management facility? If Yes, describe:	☑	☐
20.Has the site of the proposed action or an adjoining property been the subject of remediation (ongoing or completed) for hazardous waste? If Yes, describe:	☑	☐

I CERTIFY THAT THE INFORMATION PROVIDED ABOVE IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE

Applicant/sponsor/name: Benjamin Willson Date: 5/27/26

Signature: _____ Title: Project Engineer

PRINT FORM

EAF Mapper Summary Report

Wednesday, May 27, 202

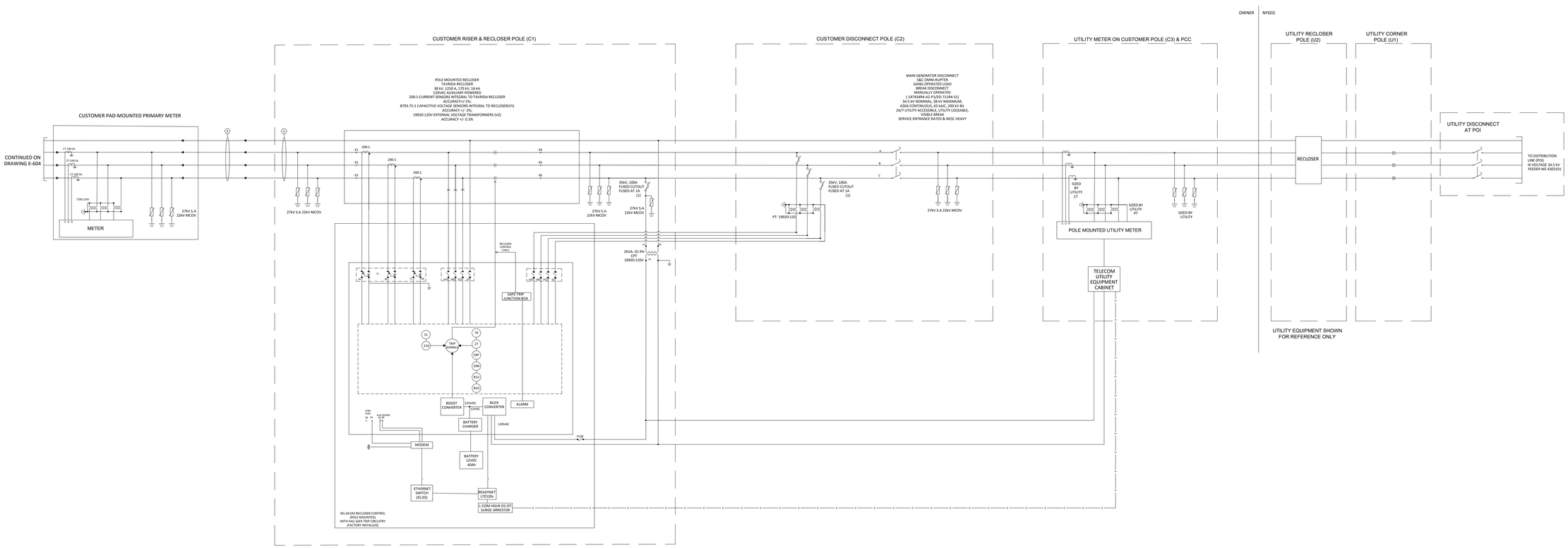
Disclaimer: The EAF Mapper is a screening tool intended to assist project sponsors and reviewing agencies in preparing an environmental assessment form (EAF). Not all questions asked in the EAF are answered by the EAF Mapper. Additional information on any EAF question can be obtained by consulting the EAF Workbooks. Although the EAF Mapper provides the most up-to-date digital data available to DEC, you may also need to contact local or other data sources to confirm data provided by the Mapper or to obtain data not provided by the Mapper.

Part 1 / Question 7 [Critical Environmental Area]	No
Part 1 / Question 12a [National or State Register of Historic Places or State Eligible Sites]	No
Part 1 / Question 12b [Archeological Sites]	No
Part 1 / Question 13a [Wetlands or Other Regulated Waterbodies]	Yes - Digital mapping information on local, New York State, and federal wetlands and waterbodies is known to be incomplete. Refer to the EAF Workbook.
Part 1 / Question 15 [Threatened or Endangered Animal]	No
Part 1 / Question 16 [100 Year Flood Plain]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
Part 1 / Question 20 [Remediation Site]	No

Cable Schedule							
Circuit Id	Voltage Rating	Conductor Quantity, Size and Material	Wire Type	Quantity of Conduits	Size of Conduits	Conduit Type	Notes
A	35kV	(3) #4/0 AWG AL, (1) #4/0 AWG AL N	Covered ACSR	-	-	-	MV Overhead
B	35kV	(3) 350 KCMIL AL Jacketed Concentric Neutral	MV-105	1	5"	PVC	MV Underground XLP/133%
C	480V	5 Sets [(3) 500 KCMIL AL, (1) 500 KCMIL AL G]	XHHW-2	5	3"	PVC	Megapack Output
D	-	(1) CAT6 or (1) Fiber Optic	-	1	1"	PVC	Communications

THREE LINE DIAGRAM LEGEND

- KWH METER
- KW INVERTER
- POTENTIAL TRANSFORMER
- CURRENT TRANSFORMER
- CIRCUIT BREAKER (FRAME TRIP)
- CABLE TERMINATION
- FUSE
- NORMALLY CLOSED CONTACT
- NORMALLY OPEN SWITCH
- FUSED DISCONNECT
- COMMUNICATION LINE
- DC/DC CONVERTER
- SEPARABLE CONNECTOR
- SURGE ARRESTER
- FUSED CUT OUT
- GANG OPERATED DISCONNECT
- POWER TRANSFORMER
- SOLID BLADE DISCONNECTS
- CAPACITIVE DIVIDER VOLTAGE SENSING ELEMENT
- SHUT TRIP
- NOT IN SERVICE



Approved
M. Mehboob 09/01/2026

GRIT APPROVAL
Reviewed By: T Altaf
Date: 01/09/2026

NOTE: NOT FOR CONSTRUCTION. FOR UTILITY INTERCONNECTION APPLICATION PURPOSES ONLY.

nexamp
101 Summer Street, 2nd Floor, Boston, MA 02110
Tel: (617) 431-1440 Fax: (978) 416-2525 Web: nexamp.com

Rev	Issued For	Date	Init
A	UIA	12/24/2025	MA
B	UIA	01/02/2026	MA
C	UIA	01/09/2026	MA

P.E. seal/Consultant:

STATE OF NEW YORK · PATRICK THOMAS GUINAN · 103081 · LICENSED PROFESSIONAL ENGINEER

Project:
133809 - Jerry Smith Storage
Jerry Smith Rd,
Lansing, NY, 14882
42.590659, -76.564286

Drawing Title:
AC Three Line Diagram
Drawn by: M. Ahmed
Scale: N.T.S

Dwg No:	Size: D	Sheet Rev:
E-603		C

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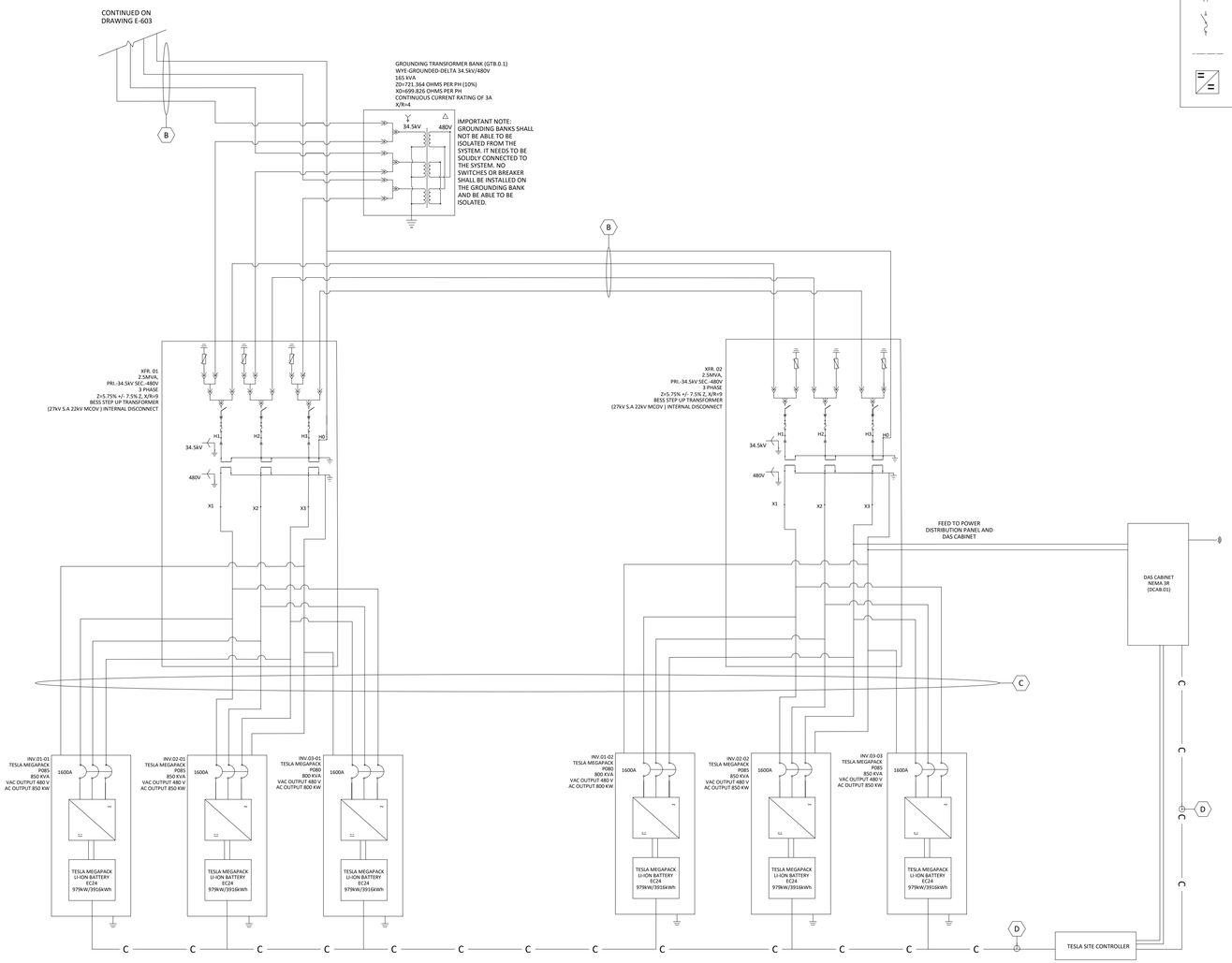
Cable Schedule							
Circuit Id	Voltage Rating	Conductor Quantity, Size and Material	Wire Type	Quantity of Conduits	Size of Conduits	Conduit Type	Notes
A	35kV	(3) #4/0 AWG AL, (1) #4/0 AWG AL N	Covered ACSR	-	-	-	MV Overhead
B	35kV	(3) 350 KCMIL AL Jacketed Concentric Neutral	MV-105	1	5"	PVC	MV Underground XLP/133%
C	480V	5 Sets [(3) 500 KCMIL AL, (1) 500 KCMIL AL G]	XHHW-2	5	3"	PVC	Megapack Output
D	-	(1) CAT6 or (1) Fiber Optic	-	1	1"	PVC	Communications



THREE LINE DIAGRAM LEGEND

- KWH METER
- KW INVERTER
- POTENTIAL TRANSFORMER
- CURRENT TRANSFORMER
- FRAME TRIP — CIRCUIT BREAKER
- CABLE TERMINATION
- FUSE
- NORMALLY CLOSED CONTACT
- NORMALLY OPEN SWITCH
- FUSED DISCONNECT
- COMMUNICATION LINE
- DC/DC CONVERTER
- SEPARABLE CONNECTOR
- SURGE ARRESTER
- FUSED CUT OUT
- GANG OPERATED DISCONNECT
- POWER TRANSFORMER
- SOLID BLADE DISCONNECTS
- CAPACITIVE DIVIDER VOLTAGE SENSING ELEMENT
- SHUT TRIP
- NOT IN SERVICE

NOTE: NOT FOR CONSTRUCTION. FOR UTILITY INTERCONNECTION APPLICATION PURPOSES ONLY.

nexamp
101 Summer Street, 2nd Floor, Boston, MA 02110
Tel: (617) 431-1440 Fax: (978) 416-2525 Web: nexamp.com

Rev	Issued For	Date	Init
A	UIA	12/24/2025	MA
B	UIA	01/02/2026	MA
C	UIA	01/09/2026	MA

P.E. seal/Consultant:

STATE OF NEW YORK · PATRICK THOMAS CANNING · 103081 · LICENSED PROFESSIONAL ENGINEER
01/12/2026 3:07:05 PM

Project:
133809 - Jerry Smith Storage
Jerry Smith Rd,
Lansing, NY, 14882
42.590659, -76.564286

Drawing Title:
AC Three Line Diagram
Drawn by: M. Ahmed
Scale: N.T.S

Dwg No: E-604
Size: D
Sheet Rev: C

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Start Date & Time	LAeq	LASmin	LASmax	LAS 10%	LAS 50%	LAS 90%
05/20/2026 13:18	54.4	31.3	79.8	46.3	39.0	34.0
05/20/2026 14:18	47.0	32.3	72.7	45.8	40.6	36.7
05/20/2026 15:18	57.3	30.0	83.5	49.1	38.8	34.2
05/20/2026 16:18	41.8	31.5	56.4	44.8	39.5	35.4
05/20/2026 17:18	42.4	30.7	58.4	44.8	39.5	34.8
05/20/2026 18:18	51.8	31.4	76.8	53.3	43.4	36.3
05/20/2026 19:18	44.2	24.4	67.1	47.6	36.0	29.6
05/20/2026 20:18	34.2	21.9	47.3	36.9	30.7	27.2
05/20/2026 21:18	31.6	20.1	49.3	33.0	28.1	22.6
05/20/2026 22:18	33.1	19.2	55.4	28.4	23.0	20.4
05/20/2026 23:18	24.5	18.9	37.7	27.1	22.6	20.1
05/21/2026 00:18	23.3	18.1	31.6	25.8	22.2	20.2
05/21/2026 01:18	25.5	18.7	44.0	27.9	22.8	20.0
05/21/2026 02:18	24.7	18.2	44.2	25.5	21.5	<20.0
05/21/2026 03:18	30.5	22.0	42.7	33.1	28.4	25.7
05/21/2026 04:18	36.4	23.8	57.5	40.5	30.1	26.5
05/21/2026 05:18	42.5	27.9	65.4	44.4	36.2	31.6
05/21/2026 06:18	36.8	28.1	51.6	39.7	34.6	31.4
05/21/2026 07:18	39.0	28.9	54.6	41.4	36.0	32.2
05/21/2026 08:18	37.6	26.6	60.6	40.2	34.0	29.8
05/21/2026 09:18	42.3	26.6	66.9	40.8	34.1	30.7
05/21/2026 10:18	44.9	26.6	66.9	45.8	35.5	31.1
05/21/2026 11:18	36.7	27.5	54.4	39.2	35.0	30.9
05/21/2026 12:18	37.6	25.7	55.9	39.5	33.9	29.8

day	42.9
night	30.8

Notes

Name	Result. PWL Day (dBA)	Evening (dBA)
srcBatt1NW	82.3	82.3
srcBatt2N	82.3	82.3
srcBatt3NE	82.3	82.3
srcBatt4SW	82.3	82.3
srcBatt5S	82.3	82.3
srcBatt6SE	82.3	82.3
srcTrans1W	74.4	74.4
srcTrans2E	74.4	74.4

Source	Type	Product Name
1	Battery Energy Storage System	Tesla Megpack 2XL 4H 5 Fan - FN03 Option
2	Battery Energy Storage System	Tesla Megpack 2XL 4H 5 Fan - FN03 Option
3	Battery Energy Storage System	Tesla Megpack 2XL 4H 5 Fan - FN03 Option
4	Battery Energy Storage System	Tesla Megpack 2XL 4H 5 Fan - FN03 Option
5	Battery Energy Storage System	Tesla Megpack 2XL 4H 5 Fan - FN03 Option
6	Battery Energy Storage System	Tesla Megpack 2XL 4H 5 Fan - FN03 Option
1	Medium Voltage Dry Type Transformer	Eaton LNY0027509-012
2	Medium Voltage Dry Type Transformer	Eaton LNY0027509-012

Night (dBA)	Lw / Li Type	Value	Direct.	Coordinates X (ft)	Y (ft)	Z (ft)	
82.3	Lw	fourHpForty	fourHpForty	825347.8	944717.6	3.27	
82.3	Lw	fourHpForty	fourHpForty	825355.3	944717.6	3.27	
82.3	Lw	fourHpForty	fourHpForty	825373	944717.2	3.27	
82.3	Lw	fourHpForty	fourHpForty	825348.1	944667.7	3.27	
82.3	Lw	fourHpForty	fourHpForty	825354.9	944668	3.27	
82.3	Lw	fourHpForty	fourHpForty	825372.7	944668.3	3.27	
74.4	Lw	transformerEaton	transformerEaton	825351.5	944692.9	2.4	
74.4	Lw	transformerEaton	transformerEaton	825373.3	944692.8	2.4	

Source of Data
from Megapack 2 XL Option code FN03 Sound Data Report 2025
from Megapack 2 XL Option code FN03 Sound Data Report 2025
from Megapack 2 XL Option code FN03 Sound Data Report 2025
from Megapack 2 XL Option code FN03 Sound Data Report 2025
from Megapack 2 XL Option code FN03 Sound Data Report 2025
from Megapack 2 XL Option code FN03 Sound Data Report 2025
from Eaton 2025 Spec Sheet and GZA Measurements
from Eaton 2025 Spec Sheet and GZA Measurements

Name	Level Lr Day (dBA)	Night (dBA)
rcv1resNW	27.4	27.4
rcv2resN	30.4	30.4
rcv3resNE	35.9	35.9
rcv4resE	31.7	31.7

Name	Level Lr Day (dBA)	Night (dBA)
rcv1resNW	27.1	27.1
rcv2resN	30.3	30.3
rcv3resNE	33.9	33.9
rcv4resE	29.9	29.9

Name	Level Lr Day (dBA)	Night (dBA)
rcv1resNW	39.6	39.6
rcv2resN	39.2	39.2
rcv3resNE	47.6	47.6
rcv4resE	43.3	43.3

Name	Level Lr Day (dBA)	Night (dBA)
rcv1resNW	39.3	39.3
rcv2resN	39.0	39.0
rcv3resNE	44.8	44.8
rcv4resE	40.5	40.5

Overall Noise Modeling Results at Residential Façade (dB(A))

Receiver	Floor	40% Operation w/o Barrier
1: 340 Jerry Smith Road (Residential Façade)	GF	27.4
2: 339 Jerry Smith Road (Residential Façade)	2Fl	30.4
3: 361 Jerry Smith Road (Residential Façade)	2FL	35.9
4: 383 Jerry Smith Road (Residential Façade)	2Fl	31.7

Increase Over Nighttime Ambient at Property Line

Receiver	Floor	40% Operation w/o Barrier
1: 340 Jerry Smith Road (Residential Façade)	GF	1.6
2: 339 Jerry Smith Road (Residential Façade)	2Fl	2.8
3: 361 Jerry Smith Road (Residential Façade)	2FL	6.3
4: 383 Jerry Smith Road (Residential Façade)	2Fl	3.5

40% Operation with Barrier	100% Operation w/o Barrier	100% Operation with Barrier	
27.1	39.6	39.3	<- only wor
30.3	39.2	39.0	
33.9	47.6	44.8	
29.9	43.3	40.5	

40% Operation w/o Barrier	100% Operation w/o Barrier	100% Operation w/o Barrier
1.5	9.3	9.1
2.8	9.0	8.8
4.8	16.9	14.2
2.6	12.7	10.1

'st case floor listed in this table, but we have other levels in cadnaA model

- noise code exceedance for possible realistic use case
- noise code exceedance for unrealistic use case

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Fairfield, NJ 07004

Manhattan, NY
104 West 29th Street
10th Floor
New York, NY 10001

May 27, 2026
File No. 12.0078319.00

Alex Reilly
Director, Energy Storage
Nexamp, Inc.
361 Madison Avenue, 18th Floor
New York, New York 10016

Re: Noise Study Results
Jerry Smith Road BESS
Lansing, New York

Dear Mr. Reilly,

As requested, GZA GeoEnvironmental, Inc. (GZA) has completed ambient noise monitoring, CadnaA Acoustic Modeling, and an evaluation of local noise requirements for the proposed Battery Energy Storage Systems (BESS) development located at 339 Jerry Smith Road, Lansing, New York (Project Site). Our work and the findings described herein are subject to the limitations included in **Attachment A**.

PROJECT SCOPE

GZA understands that Nexamp, Inc. plans to develop the Project Site as a single site on a parcel of land located at 339 Jerry Smith Road, Lansing, NY. The proposed system is to include six (6) Tesla MegaPack B2 XL systems. The Project Site is shown in **Figure 1** below.

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Figure 1 – Project Site Location

NOISE REQUIREMENT FINDINGS

The local noise code is set forth in the Town of Lansing Code, Chapter 270.

Town of Lansing
§ 270-35. Special Conditions.

T) Large-scale battery energy storage systems special conditions, including site plan review.

1) Building and electrical permits shall be required for all battery energy storage systems. A development review application must be accompanied by all the appropriate application fees, forms, and number of copies of all plans and supporting documentation, including but not limited to the following:

a) A State Environmental Quality Review Act ("SEQRA") environmental assessment form, substantially completed, with accompanying data, schedules and mappings as reasonably requested by the Town.

New York DEC Assessing and Mitigating Noise Impacts

Since the Town of Lansing Code requires that large-scale battery energy storage systems (defined as systems with an aggregate energy nameplate capacity greater than or equal to 280 kWh) complete a SEQRA application, the New York State Department of Environmental Conservation (DEC) Program Policy for Assessing and Mitigating Noise Impacts is applicable to the Site. Below is the language from Section C of the New York DEC guidance document titled Assessing and Mitigating Noise Impacts.

C. Thresholds for Significant Sound Pressure Level Increases
The goal for many permitted operations is to minimize perceptible increases in sound pressure level (L_P) above ambient at chosen points deemed sensitive receivers. Increases ranging from 0-3 dB should have no appreciable effect on receptors. Increases from 3-6 dB may have potential for adverse noise impact only in cases where the most sensitive of receptors are present. Sound pressure increases of more than 6 dB may require a closer analysis of impact potential depending on existing levels and the character of surrounding land use and receptors. SPL increases approaching 10 dB result in a perceived doubling of loudness because they are measured on a logarithmic scale. An increase of 10 dB deserves consideration of avoidance and mitigation measures in most cases. The above thresholds as indicators of impact potential should be viewed as guidelines subject to adjustment as appropriate for the specific noise impact analysis.

Establishing a maximum SPL at the point of reception can be an appropriate approach to addressing potential adverse noise impacts. Most humans find a sound level of 60 - 70 dB(A) as beginning to create a condition of significant noise effect (EPA 550/9-79-100, November 1978). In general, the EPA's "Protective Noise Levels" guidance found that ambient noise levels 55 dBA L(dn) was sufficient to protect public health and welfare and, in most cases, did not create an annoyance (EPA 550/9-79-100, November 1978). In non-industrial settings the SPL should not exceed ambient noise by more than 6 dB(A) at the receptor as an increase of 6 dB(A) may cause complaints. There may be occasions where an increase in SPL of greater than 6 dB(A) might be acceptable. The addition of any noise source, in a non-industrial setting, should not raise the ambient noise level above a maximum of 65 dB(A). This would be considered the "upper end" limit since 65 dB(A) allows for undisturbed speech at a distance of approximately three feet. Some outdoor activities can be conducted at a SPL of 65 dB(A). Still lower ambient noise levels may be necessary if there are sensitive receptors nearby. These limits and guidance are outlined in *NYSDEC: Assessing and Mitigating Noise Impacts*.

Increase Over Ambient Effects and Guidance

Increase in Sound Pressure Level in dB	Effect/Guidance
0-3	No appreciable effect on receptors
3-6	Potential for adverse noise impact only in cases where the most sensitive of receptors are present
More than 6	May require a closer analysis of impact potential depending on DEP-00-1rev.2/2/01
Approaching 10	Deserves consideration of avoidance and mitigation measures in most cases

MODELING STANDARDS

This acoustic model was completed using the CadnaA acoustic modeling software, based on the standard ISO 9613-2:2024 for outdoor acoustic propagation. The method conservatively predicts the equivalent continuous A-weighted sound pressure level under meteorological conditions favorable for downwind propagation or propagation under a moderate ground-based temperature inversion. It accounts for worst possible wind and temperature gradient conditions in the model. The standard was approved by ISO/TC 43/SC 1 and has been recognized and adopted by American professional organizations such as the Acoustical Society of America (ASA) and Institute of Noise Control Engineering of the USA (INCE-USA).

MODELED SOUND SOURCES

The acoustic sources that were included in the model were six (6) Tesla Megapack 2 XL units (Option Code FN03), each equipped with a five-fan cooling system, and two (2) medium power Eaton transformers. Acoustic source details are provided in **Table 1**.

Table 1 – Source Details

Quantity	Type	Product Name	Source of Data
6	Battery Energy Storage System	Tesla Megpack 2 XL 4H 5 Fan - FN03 Option	Megapack 2 XL Option code FN03 Sound Data Report 2025
2	Medium Voltage Dry Type Transformer	Eaton LNY0027509-012	Eaton 2025 Spec Sheet and GZA Measurements

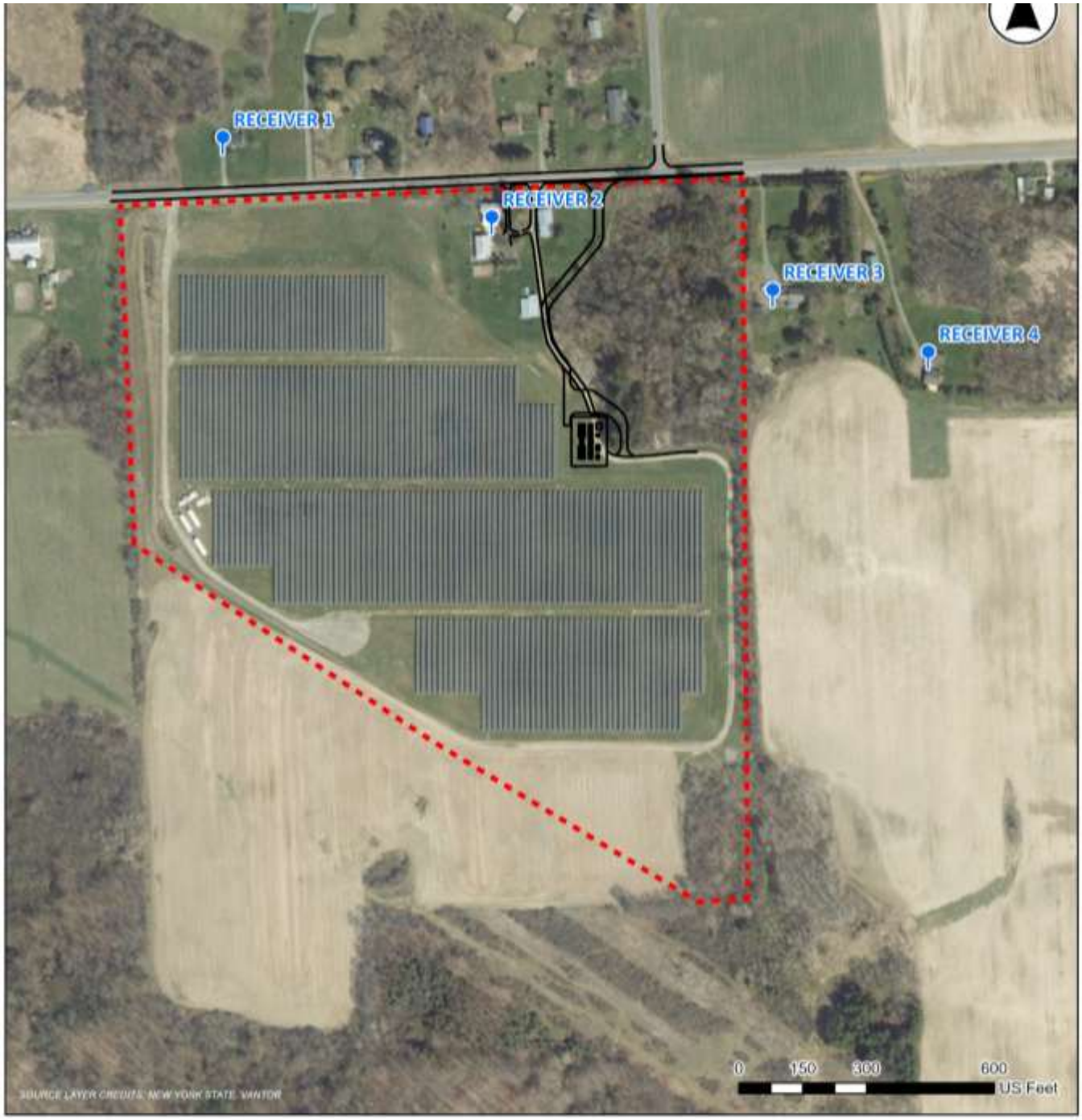
SENSITIVE RECEIVERS

The nearest sensitive receivers to the Site that were analyzed were 340 Jerry Smith Road, 339 Jerry Smith Road, 361 Jerry Smith Road, 383 Jerry Smith Road. The sensitive receivers are shown in **Table 2** and **Figure 2** below.

Table 2 – Sensitive Receiver Details

Receiver ID	Sensitive Receiver	Address
1	Residential Property	340 Jerry Smith Road
2	Residential Property	339 Jerry Smith Road
3	Residential Property	361 Jerry Smith Road
4	Residential Property	383 Jerry Smith Road

Figure 2 – Noise Sensitive Receivers



BACKGROUND SOUND LEVEL MEASUREMENTS

Monitoring was conducted for 24 hours on Wednesday May 20, 2026, through Thursday May 21, 2026. The weather was dry and wind speeds were moderate during all monitoring periods. It is noted that the Site has an existing solar array.

GZA conducted noise monitoring using a Larson Davis 821 Sound Expert Type I sound level meter with wind screen. The monitor was placed on a tripod at a height of approximately five feet above the ground, away from any other noise-reflective surfaces. The monitor calibration was confirmed prior to and following the monitoring session. Back up data is provided as **Attachment B**, and noise meter calibration data may be provided upon request.

The 24-hour noise monitoring data is presented below in **Table 3**. A photo of the noise monitoring location is shown in **Photo 1** below. The noise monitoring location is shown in **Figure 3** below.

Table 3 – 24-Hour Noise Monitoring Data in dB

Start Date & Time	LAeq	LASmin	LASmax	LAS 10%	LAS 50%	LAS 90%
05/20/2026 13:18	54.4	31.3	79.8	46.3	39.0	34.0
05/20/2026 14:18	47.0	32.3	72.7	45.8	40.6	36.7
05/20/2026 15:18	57.3	30.0	83.5	49.1	38.8	34.2
05/20/2026 16:18	41.8	31.5	56.4	44.8	39.5	35.4
05/20/2026 17:18	42.4	30.7	58.4	44.8	39.5	34.8
05/20/2026 18:18	51.8	31.4	76.8	53.3	43.4	36.3
05/20/2026 19:18	44.2	24.4	67.1	47.6	36.0	29.6
05/20/2026 20:18	34.2	21.9	47.3	36.9	30.7	27.2
05/20/2026 21:18	31.6	20.1	49.3	33.0	28.1	22.6
05/20/2026 22:18	33.1	19.2	55.4	28.4	23.0	20.4
05/20/2026 23:18	24.5	18.9	37.7	27.1	22.6	20.1
05/21/2026 00:18	23.3	18.1	31.6	25.8	22.2	20.2
05/21/2026 01:18	25.5	18.7	44.0	27.9	22.8	20.0
05/21/2026 02:18	24.7	18.2	44.2	25.5	21.5	<20.0
05/21/2026 03:18	30.5	22.0	42.7	33.1	28.4	25.7
05/21/2026 04:18	36.4	23.8	57.5	40.5	30.1	26.5
05/21/2026 05:18	42.5	27.9	65.4	44.4	36.2	31.6
05/21/2026 06:18	36.8	28.1	51.6	39.7	34.6	31.4
05/21/2026 07:18	39.0	28.9	54.6	41.4	36.0	32.2
05/21/2026 08:18	37.6	26.6	60.6	40.2	34.0	29.8
05/21/2026 09:18	42.3	26.6	66.9	40.8	34.1	30.7
05/21/2026 10:18	44.9	26.6	66.9	45.8	35.5	31.1
05/21/2026 11:18	36.7	27.5	54.4	39.2	35.0	30.9
05/21/2026 12:18	37.6	25.7	55.9	39.5	33.9	29.8

Figure 3 – Noise Monitoring Location

Photo 1 – 24-Hour Noise Monitoring Location

The Equivalent Sound Level (L_{eq}) assigns a single value of sound level for a period of time in which varying levels of sound are experienced. The L_{eq} value provides an indication of the effects of sound on people and characterizes the ambient sound levels at a potential noise source. The average daytime (7 am – 10 pm) L_{eq} sound level was 42.9 dB(A). The average nighttime (10 pm – 7 am) L_{eq} sound level was 30.8 dB(A). The average nighttime level was selected as an ambient baseline for analysis as it the lowest of the two, so it represents a worst-case scenario (lowest sound level).

NOISE MODELING / EXPECTED SOUND LEVELS

Noise emissions were estimated for the proposed BESS using CadnaA acoustical modeling software. The scenarios and iterations are described below. If revisions to the Site Plan, layout, and/or barriers are made, GZA can revise the acoustical model accordingly. The anticipated maximum the BESS will operate at in this region is 40% based on climate, and therefore, sound levels meeting the noise code at 40% load are considered an acceptable result.

Modeling Scenarios

Four separate scenarios were modeled for the Site. In all scenarios, the 5-fan units and the transformers were modeled. In the first scenario, the units were modeled at 100% load with no sound barriers. In the second scenario, the units were modeled at 100% load with a 10' acoustifence sound barrier on the fence along the northern and eastern boundary of the BESS equipment yard, between the equipment and the closest sensitive receptors. In the third scenario, the units were modeled at 40% load with no sound barriers. In the fourth scenario, the units were modeled at 40% load with a 10' acoustifence sound barrier on the fence along the northern and eastern boundary of the BESS equipment yard. A sketch of the layout of the sound barriers modeled is shown as **Figure 4.** The results of Iteration 1 are shown below in **Table 4**. Static (constant) sound sources are assumed at the Site and therefore the values in **Table 4** are sound pressure levels with no statistical metrics.

Figure 4 – Barrier Location Sketch

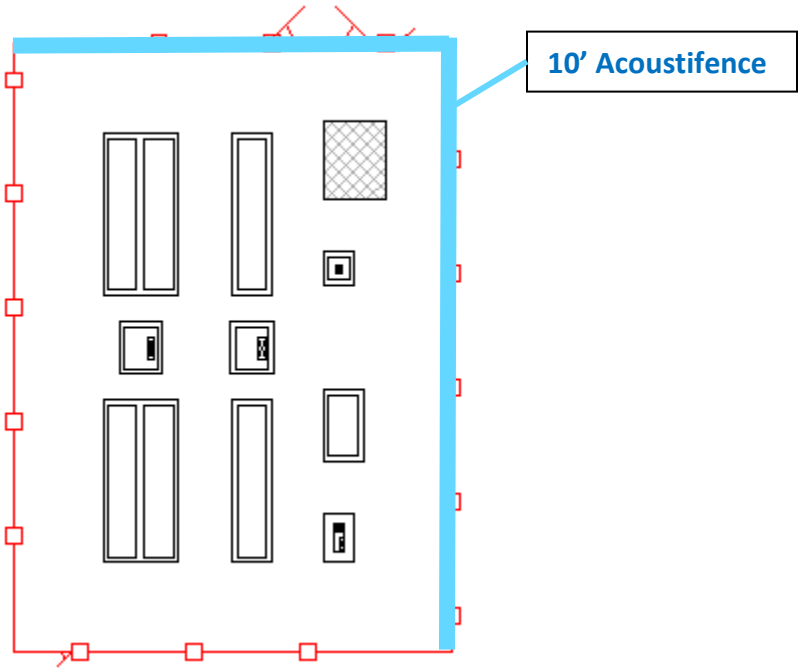


Table 4 – Modeling Results in dB(A)

Receiver	Floor	40% Operation w/o Barrier	40% Operation with Barrier	100% Operation w/o Barrier	100% Operation with Barrier
1: 340 Jerry Smith Road (Residential Façade)	GF	27.4	27.1	39.6	39.3
Increase over Nighttime Ambient at Receiver 1		1.6	1.5	9.3	9.1
2: 339 Jerry Smith Road (Residential Façade)	2 Fl	30.4	30.3	39.2	39.0
Increase over Ambient at Receiver 2		2.8	2.8	9.0	8.8
3: 361 Jerry Smith Road (Residential Façade)	2 Fl	35.9	33.9	47.6	44.8
Increase over Ambient at Receiver 3		6.3	4.8	16.9	14.2
4: 383 Jerry Smith Road (Residential Façade)	2 Fl	31.7	29.9	43.3	40.5
Increase over Ambient at Receiver 4		3.5	2.6	12.7	10.1

NOISE CODE ANALYSIS

The noise monitoring results showed that there was an average ambient sound level of 42.9 dB(A) during the day and 30.8 dB(A) during the night. With each unit operating at 40% load with no sound barriers as described, modelling suggests that the proposed BESS would increase the ambient noise levels by up to 6.3 dB(A) at neighboring properties (Receiver 3). This increase of more than 6 dB(A) over ambient levels suggests the need for mitigation per the New York DEC Program Policy for Assessing and Mitigating Noise Impacts.

With each unit operating at 40% load with the 10’ acoustifence sound barriers as described, modelling suggests that the proposed BESS would increase the ambient noise levels by up to 4.8 dB(A) at neighboring properties (Receiver 3) and would therefore meet the requirements of the New York DEC Thresholds for Significant Sound Pressure Level Increases.

There are no octave band requirements listed in the Town of Lansing Code, so octave band sound levels were not evaluated for the proposed BESS. Model spectra output is included in the model calculations and can be provided upon request.

CLOSING

In summary, the acoustic model indicates that the Project with each unit operating at 40% with 10' Acoustifence sound barriers as described would be in compliance with the local noise code. Therefore, no adverse impacts related to noise are anticipated as a result of the proposed BESS.

We appreciate this opportunity to assist Nexamp, Inc. with this matter and look forward to working with you as this important project progresses. Should you have any questions regarding the information provided herein, please contact Gene Bove at 973-534-4090.

Sincerely,

GZA GEOENVIRONMENTAL, INC.

Gene Bove, INCE
Senior Project Manager

Victoria Curran
Assistant Project Manager

Kevin Williams, AICP, PP
Principal

James Heineman
Consultant Reviewer

Attachments:
Attachment A – Limitations
Attachment B – Noise Monitoring Backup (Excel Attached Separately)
Attachment C – Excel Modeling Results (Attached Separately)

Attachment A – Limitations

USE OF REPORT

1. GZA GeoEnvironmental, Inc. (GZA) has prepared this report on behalf of, and for the exclusive use of Client for the stated purpose(s) and location(s) identified in the Report. Use of this report, in whole or in part, at other locations, or for other purposes, may lead to inappropriate conclusions; and we do not accept any responsibility for the consequences of such use(s). Further, reliance by any party not identified in the agreement, for any use, without our prior written permission, shall be at that party's sole risk, and without any liability to GZA.

STANDARD OF CARE

2. The conclusions presented in this report were based solely upon the services described in this report, and not on scientific tasks or procedures beyond the scope of described services or the time and budgetary constraints imposed by Client. Conditions at the facility are subject to change, therefore the compliance status at any given time could differ from the status at the time of ourreport.

3. This report describes the compliance status with respect to the environmental regulatory program(s) outlined in the report. Compliance with regulatory programs or specific regulatory requirements other than the program(s) outlined in this report have not been evaluated.

4. Information pertaining to the facility, structures, and operations and activities conducted at the facility was provided to GZA by Client as indicated within the report. In performing the services described oin the report, GZA has relied on the information provided by Client, including the accuracy and completeness thereof.

5. The purpose of this study was to review the regulatory compliance of current operations and activities conducted at the facility within the limits of the objective and scope of work described in our proposal and/or report. We did not attempt to assess the compliance status of present or past owners or operators of the facility.

6. Unless otherwise specified in the report, GZA did not perform testing or analyses to determine the presence or concentration of any chemicals, oils, asbestos, or polychlorinated biphenyls at the site, within site buildings, or in the environment at the site. Where such analyses have been conducted by an outside laboratory, GZA has relied upon the data provided, and has not conducted an independent evaluation of the reliability of these data.

COMPLIANCE WITH CODES AND REGULATIONS

7. The regulatory compliance status described in this report has been evaluated based on our interpretation of regulations, and where appropriate, the interpretations provided by the applicable regulatory authority personnel at the time of our study. In some cases, these interpretations require subjective judgment and we cannot guarantee that all applicable regulatory authority personnel will interpret the regulations in the same manner as we have, or in the manner that the agency personnel we may have spoken to have. Applicable regulatory authorities' interpretations, requirements, and enforcement policies vary from district office to district office, from state to state, and between federal and state agencies. In addition, statues, rules, standards, and regulations may be legislatively changed and inter-agency and intra-agency policies may be changed from present practices from time to time.

8. In preparing this report, GZA has relied on certain information provided by federal, State, or local applicable regulatory authorities and other parties referenced herein, and on information contained in the files of federal, State, and/or local applicable regulatory authorities available to GZA at the time of our compliance study. Although there may have been some degree of overlap in the information provided by these various sources, GZA did not attempt to independently verify the accuracy or completeness of all information reviewed or received during the course of the study. Where information provided by Client was not complete, representations regarding the regulatory compliance of such operations and activities has not been made.

INTERPRETATION OF DATA

9. GZA's work was performed in accordance with generally accepted practices of other consultants undertaking similar studies at the same time and in the same geographical area, and GZA observed that degree of care and skill generally exercised by other consultants under similar circumstances and conditions. GZA's findings and conclusions must be considered not as scientific certainties, but rather as our professional opinion concerning the significance of the limited data gathered during the course of the study. No warranty, express or implied, is made. Specifically, GZA does not and cannot represent that the Site contains no hazardous material, oil, or other latent condition beyond that observed by GZA during its study. Additionally, GZA makes no warranty that any response action or recommended action will achieve all of its objectives or that the findings of this study will be upheld by an applicable regulatory authority.

NEW INFORMATION

10. In the event that the Client or others authorized to use this report obtain information on environmental regulatory compliance issues at the facility not contained in this report, such information shall be brought to GZA's attention forthwith. GZA will evaluate such information and, on the basis of this study, may modify the conclusions stated in this report.

Attachment B – Noise Monitoring Backup (Excel Attached Separately)

Attachment C – Excel Modeling Results (Attached Separately)

MEGAPACK 2 XL DATASHEET

Grid transformation for the world's largest energy projects
- Best-in-class energy density and round-trip efficiency
- Industry-leading power electronics and thermal system performance
- Rapid and cost-effective deployment with factory-assembled and pre-tested solution

Scaled and rigorously tested product safety and reliability
- Comprehensive in-house reliability testing by the leading experts in the industry
- Engineered for safety and performance at every level
- Continuous improvement based on large-scale operational experience

Designed with flexibility and configurability in mind
- Modular architecture that allows for a range of configurations across multiple applications and industry-first Archetypes
- Industry experts available to identify site-specific needs
- Integrated solution that allows for battery augmentation over time

POWER AND ENERGY

Megapack is configurable. Standard configurations are 2-Hour cell option C010 or C011, 4-Hour cell option C010 or C011, and 4-Hour cell option C012. Megapack is also capable of non-standard, such as 8-Hour, configurations. Ratings are provided per Megapack. Nominal energy is specified at 25°C (77°F).

	AC Power	Energy
2-Hour C010 / C011	1927 kW	3854 kWh
4-Hour C010 / C011	979 kW	3916 kWh
4-Hour C012	1075 kW	4300 kWh

ELECTRICAL

Nominal AC Voltage	480 V AC 3-phase	
Nominal Frequency	50 or 60 Hz	
Inverter Power per Megapack[1]	2-Hour Max - C010 / C011: 4-Hour Max - C010 / C011: 4-Hour Max - C012:	2400 kVA 1320 kVA 1320 kVA
Round-Trip Efficiency[2]	2-Hour - C010 / C011: 4-Hour - C010 / C011: 4-Hour - C012:	91.7% 93.7% 91.9%

[1] *Scalable from 400 kVA minimum in increments of 50 kVA*

[2] *Full-depth cycle including all power conversion and thermal system losses, at 25°C (77°F)*

WARRANTY

Coverage	All-inclusive, equipment and energy retention
Term	15 years standard, extendable to 20 years

MECHANICAL AND MOUNTING

Ingress Ratings	IP66 / NEMA 3R (Main Enclosure) IP20 (Thermal System)		
Enclosure Dimensions +/- 13 mm (½ in)	Width: Depth: Height:	8800 mm 1650 mm 2785 mm	(346 ½ in) (65 in) (110 in)
Maximum Weight	38,100 kg (84,000 lb)		
Operating Ambient Temperature	–30°C to 50°C (–22°F to 122°F)		

CONTROLS AND COMMUNICATIONS

Protocols	Modbus TCP / DNP3

Archetypes
Advanced control functions and unique design requirements for Utility-Scale and Commercial and Industrial (C&I) projects:
- Utility Battery Only
- Utility Co-Located Plant (Battery Only)
- Utility Hybrid
- C&I Battery Dispatch Only
- C&I Grid-Connected Only
- C&I Backup
- C&I Off-Grid Microgrid
- C&I Grid-Connected Microgrid

REGULATORY

System is designed to be compliant to grid codes and safety standards of all major markets.

System	NRTL listed to UL 1973, UL 9540, UL 9540A, UL 1741 SB, IEC 62619, IEEE 1547
Cells	NRTL listed to UL 1642

PART NUMBER

1848844-XX-Y Where X is a number between 0-9 and Y is a letter

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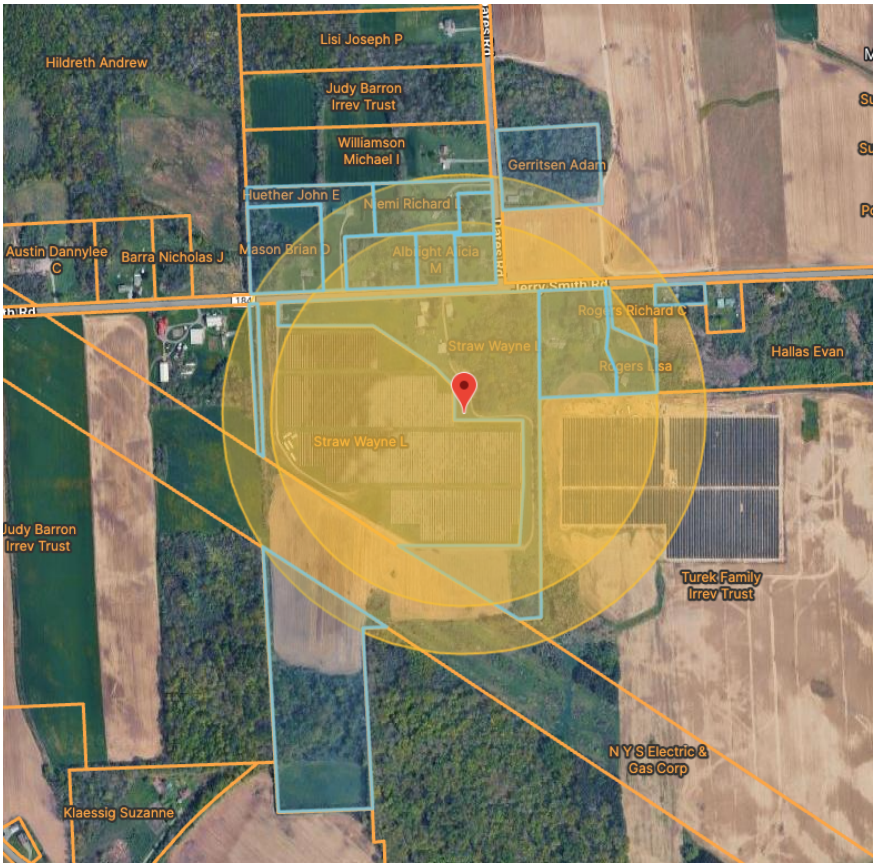
Jerry Smith Solar

Adjacent Neighbors – Mapping



Buffer	Primary Owner	Street Address (Mailing Address)	APN/PIN
1000	Richard C Rogers	361 JERRY SMITH RD	503289-16.-1-12.32
1000	Lisa Rogers	383 JERRY SMITH RD	503289-16.-1-12.31
1000	John A Myers	6 DATES RD	503289-9.-1-21.11
1000	Alicia M Albright	336 JERRY SMITH RD	503289-9.-1-21.33
1000	Frank G Benenati	330 JERRY SMITH RD	503289-9.-1-21.32
1000	Seth J Littlejohn	10 DATES RD	503289-9.-1-21.12
1000	Wayne L Straw	339 JERRY SMITH RD	503289-16.-1-10.2
1250	Brian D Mason	340 JERRY SMITH RD	503289-9.-1-21.5
1250	John E Huether	287 JERRY SMITH RD	503289-9.-1-21.82
1250	Richard L Niemi	14 DATES RD	503289-9.-1-21.81
1250	Carlton Moshier	Po Box 235	503289-16.-1-11

GRAPHIC SCALE

50 40 30 20 10 0 25 50 100 200

(IN FEET)

1 INCH = 50 FT.

nexamp

101 Summer Street, Boston, MA 02110

Tel: (617) 431-1440 Fax: (978) 416-2525 Web: nexamp.com

ENVIRONMENTAL DESIGN PARTNERSHIP, LLP.

900 Route 146 Clifton Park, New York 12065

(518) 371-7421 edpllp.com

Rev	Issued For	Date
A	INTERNAL REVIEW	5/27/26

P.E. seal/Consultant:

NOT FOR CONSTRUCTION

Project:

JERRY SMITH , LLC

JERRY SMITH ROAD,
LANSING, NY

Drawing Title:

VISUAL PROFILE PLAN

Drawn by: BMW Scale: AS SHOWN Approved by: TJM

Dwg No:	Size: D	Sheet Rev:
FIG 1		-

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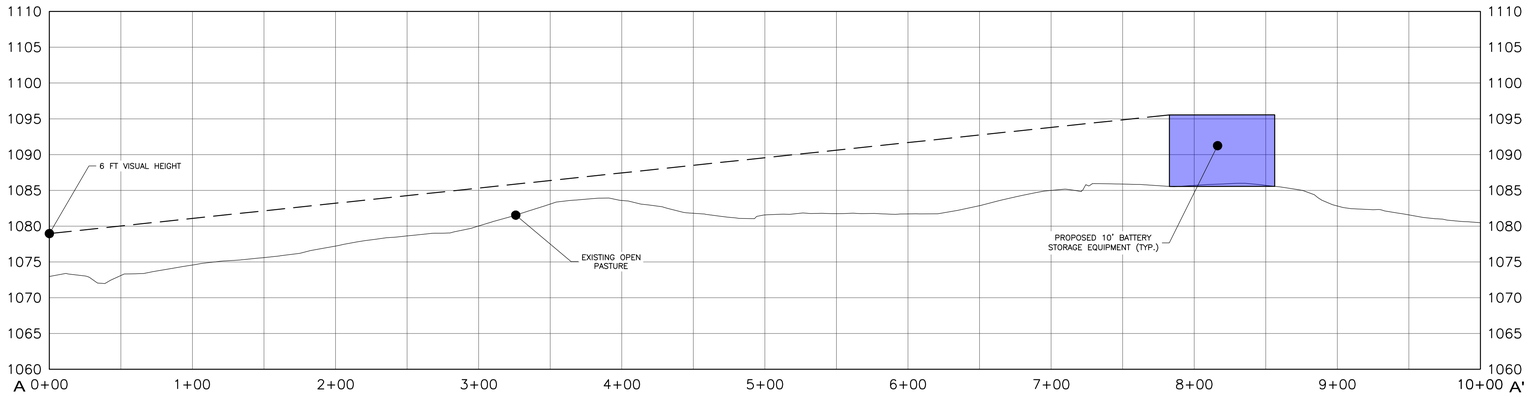
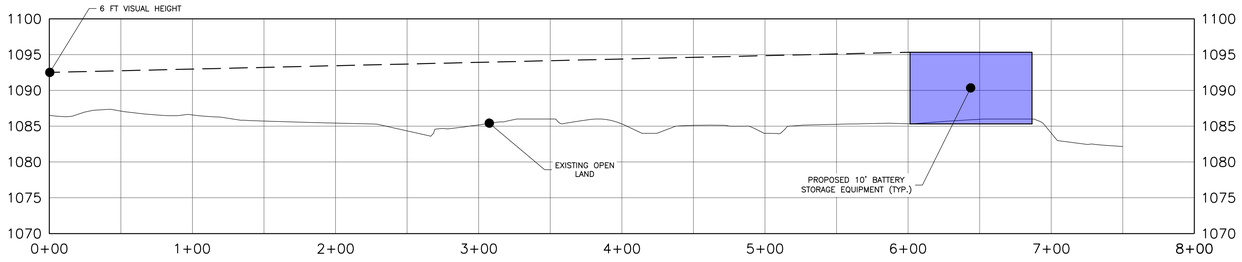
1125



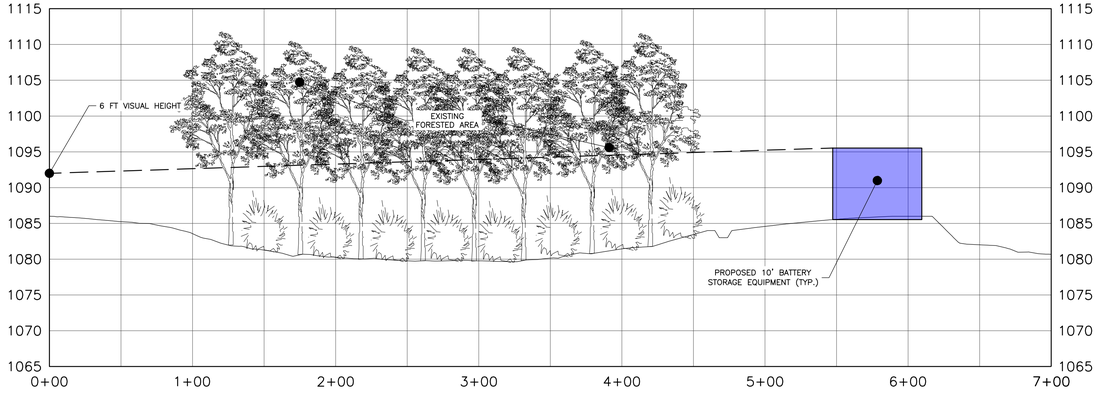
VISUAL PROFILE A–A'

SCALE HORIZONTAL: 1" = 50' VERTICAL: 1" = 10'



VISUAL PROFILE B–B'

SCALE HORIZONTAL: 1" = 50' VERTICAL: 1" = 10'



VISUAL PROFILE C–C'

SCALE HORIZONTAL: 1" = 50' VERTICAL: 1" = 10'

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Project:
JERRY SMITH , LLC
JERRY SMITH ROAD,
LANSING, NY

Drawing Title:
VISUAL PROFILE PLAN

Drawn by: BMW Scale: AS SHOWN Approved by: TJM

Dwg No: FIG 2 Size: D Sheet Rev: -

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Project Overview & Narrative

Jerry Smith Road Energy Storage

339 Jerry Smith Road | Town of Lansing, NY

Jerry Smith, LLC

Primary Contact:

Michael D'Angelo
Business Development Manager
MDandelo@nexamp.com
Phone: 607.237.5254

Project Engineer:

EDP, LLP
Melissa Acompaugh
maucompaugh@edpllp.com
518.371.7621 ext. 126

Project Summary

Members of the Town Board and Planning Board,

Nexamp is excited to present the Town of Lansing with plans for a standalone battery energy storage facility located at 339 Jerry Smith Road in Lansing, New York. The proposed project will be constructed on lands identified as Tax Parcel 16.-1-10.1 and located within the Town's Agricultural ("AG") zoning district. As Nexamp advances through the local permitting and environmental review process, our team looks forward to working collaboratively with Town staff, the Planning Board, and emergency responders to ensure the project is designed and operated in compliance with all applicable provisions of the Town of Lansing Zoning Code and applicable Energy Storage regulations.

The proposed facility is a 5MWac / 23.5MWh Battery Energy Storage System ("BESS") utilizing six Tesla Megapack battery units. The project has been designed to occupy approximately ±0.25 acres of fenced area, with a total anticipated disturbance area of approximately ±1.67 acres associated with access road improvements, equipment pad installation, utility interconnection infrastructure, and stormwater controls. No solar photovoltaic panels are proposed as part of this project.

Stormwater management measures associated with the access drive and site improvements will be designed in accordance with the Town of Lansing's stormwater management requirements and applicable NYS stormwater design standards. Nexamp has proposed stormwater solution in the provided plans and is seeking any initial feedback prior to finalizing the required SWPPP. Due to the limited scale of site disturbance, stormwater infrastructure is anticipated to be associated primarily with treatment and stabilization of the proposed access road improvements.

At the end of the facility's useful life, the energy storage equipment and associated infrastructure will be decommissioned and removed from the site in accordance with a decommissioning plan to be submitted as part of the application materials.

Best,

The Nexamp Team

Project Details

Address	339 Jerry Smith Road, Lansing, NY	**Project Technology**	Energy Storage
Tax Parcels	16.-1-10.1	**System Size**	5MWac / 23.4 MWh
Zoning District	AG	**Energy Storage**	6 Tesla Megapack 2XLs
Solar Panels	NONE	**Project Area**	± .22 acres
Disturbance	± 1.67 acres		

*Equipment subject to change due to procurement and supply chain conditions.

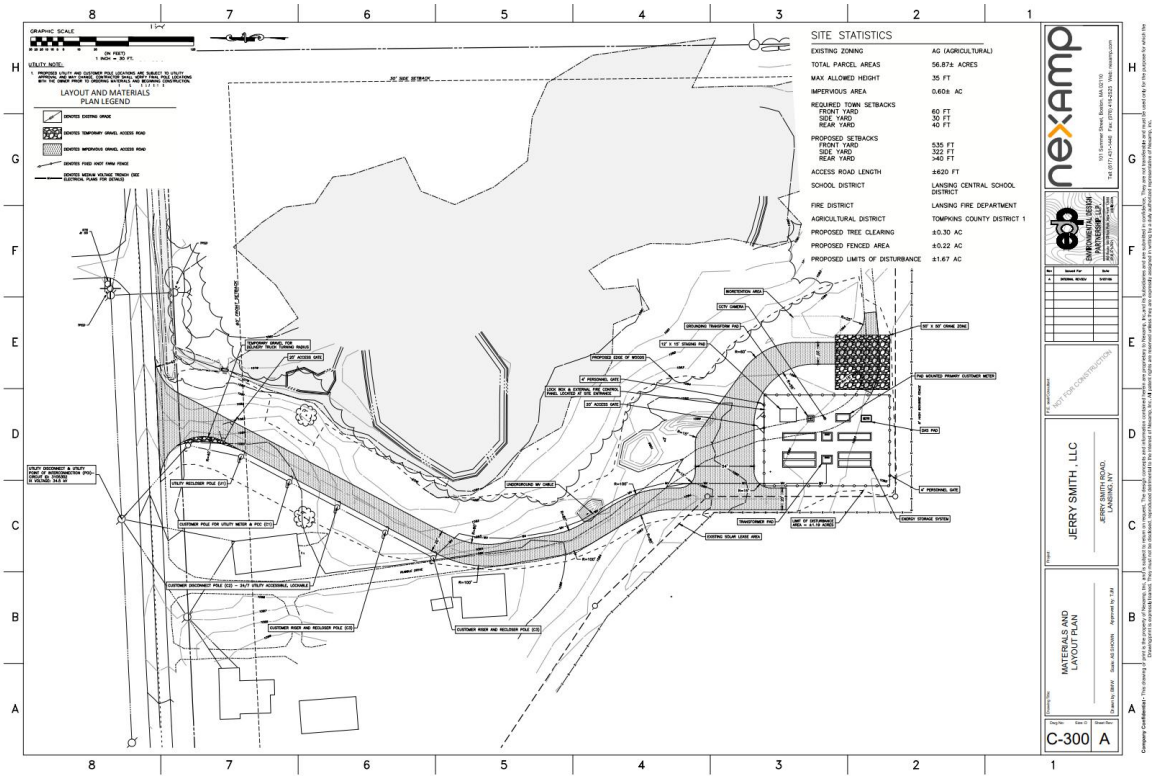
Existing Site Conditions

As part of its initial due diligence efforts, Nexamp has coordinated with civil engineering, environmental, and permitting consultants to evaluate existing site conditions associated with the proposed project area. On site investigations demonstrate the proposed facility can be developed with limited site disturbance and minimal impacts to surrounding land uses. There are no wetlands within the development area, however there is a ~2.6A isolated wetland to the northeast of the proposed development. Approximately 13,100sqft of tree clearing is proposed to allow for sufficient circulation around the facility.

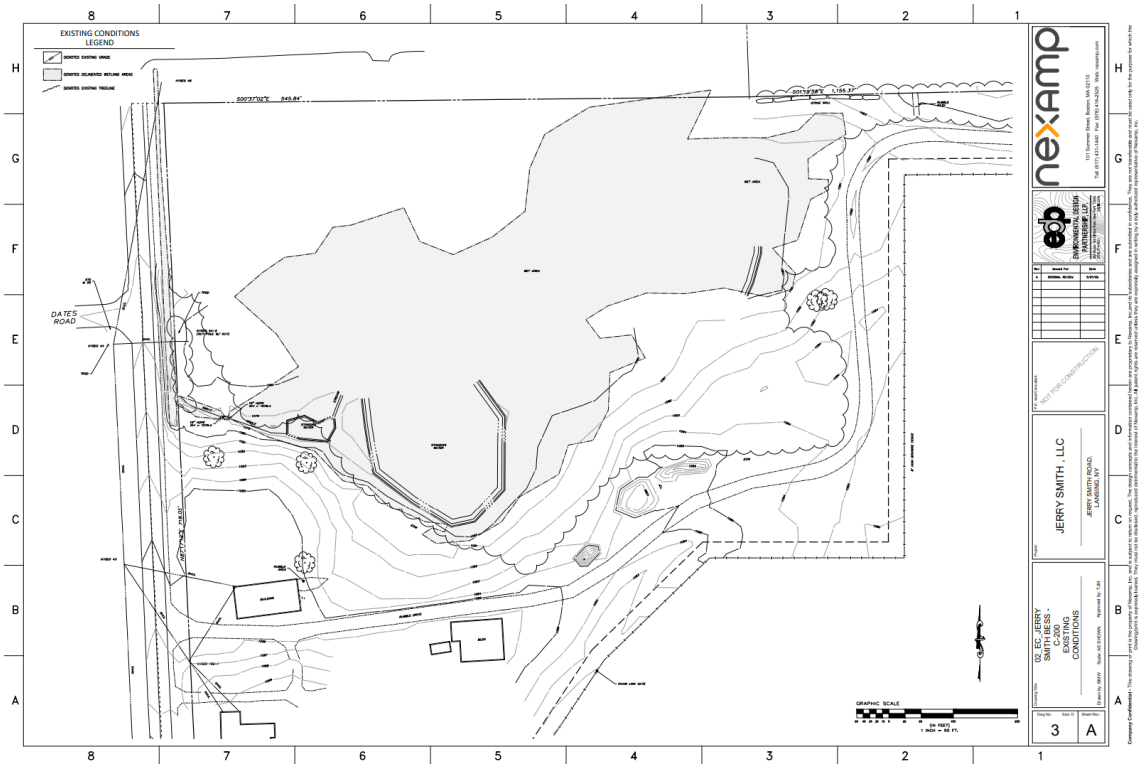
The project footprint has been intentionally minimized to reduce grading requirements and preserve existing site conditions to the maximum extent practicable. The majority of proposed disturbance is associated with construction of the access road, equipment pads, underground conduit installation, and stormwater treatment infrastructure.

Based upon the currently proposed disturbance area, the project is anticipated to require stormwater review associated primarily with the proposed gravel access road and related site improvements. Stormwater management measures have been designed in accordance with the Town of Lansing's requirements and applicable NYS stormwater design standards and Nexamp is seeking initial feedback on the proposal prior to finalizing the required SWPPP.

Proposed Site Layout



Existing Conditions



Permitting and Project Design

Nexamp has progressed through the design process while consulting the Town of Lansing Zoning Code and applicable sections governing battery energy storage systems and utility infrastructure. As currently designed, the project is anticipated to comply with applicable zoning, safety, screening, and operational requirements established by the Town.

The project is expected to require Site Plan Approval and associated environmental review by the Town of Lansing Planning Board. The following materials have been delivered to the town per the Town's local law, and discrete requests by the Planning Board during the Sketch Plan Review of the project in May of 2026.

1. Project Narrative
2. Site Plan and Special Use Application Materials
3. Property Survey
4. Site Plan and Civil Design Drawings
5. Stormwater and Erosion Control Plans
6. Emergency Response Plan
7. Fire Safety Compliance Documentation
8. Equipment Specification Sheets
9. Noise Specification Documentation
10. Operations and Maintenance Plan
11. Decommissioning Plan
12. Electrical One-Line and Three-Line Diagrams
13. SEQRA Documentation
14. Adjacent Neighbor Map and Property List

Anticipated Permitting Matrix

Jurisdiction	Permit	Status
Town of Lansing	Site Plan Approval	In Process
	Special Use Permit	In Process
	SEQR Declaration	In Process
	Building Permit	Not Started
Tompkins County	239-M Review	Not Started
	Highway Permit (Curb Cut)	Not Started
New York State	DEC Wetland JD	In Process*
	SWPPP	In Process
	SHPO No Impact	In Process
Federal Government	FAA No Hazard	Complete

*It is not anticipated that a DEC Wetland JD is required due to the small, isolated nature of the wetland but engagement with the DEC to be undertaken.

Permitting and Design Compliance

The proposed project is located within the Town of Lansing Agricultural ("AG") zoning district. The project consists solely of a standalone battery energy storage system and associated utility infrastructure.

The project will include a gravel access road designed to provide safe access for operations, maintenance personnel, utility representatives, and emergency responders. Security fencing and emergency signage will be installed consistent with applicable code requirements and utility-scale energy storage best practices.

Acoustic treatment to the fence on two sides will be required to meet applicable noise codes and is documented in noise study report.

Stormwater controls have been be designed in accordance with the Town of Lansing's requirements and applicable NYS stormwater design standards and Nexamp is seeking initial feedback on the proposal prior to finalizing the required SWPPP.

Draft Construction Schedule

Following issuance of the building permits and signoff by all appropriate agencies, the projects construction schedule is anticipated to last 4-7 months. Schedule may be delayed, or truncated due to weather or logistics concerns.

Project Stage	Activities	Traffic Estimates
Months 0-2	Mobilization, erosion and sediment control installation, access road construction	• 2-4 deliveries per week • 4-6 light duty visits per day • 1-2 large equipment deliveries
Months 2-4	Equipment pad installation and underground conduit installation	• 2-4 deliveries per week • 4-6 light duty visits per day
Months 4-6	Delivery and installation of Tesla Megapacks and electrical infrastructure	• 2-4 deliveries per week • 4-6 light duty visits per day • Up to 6 heavy duty deliveries • One mobile crane delivery
Months 6-7	Testing, commissioning, and final stabilization	

Company Overview

In 2007, U.S. Army veterans Will Thompson and Dan Leary realized a vision for making renewable energy more affordable and accessible to homeowners, businesses, municipalities, and communities throughout the United States. Today, Nexamp develops, constructs, owns, and operates renewable energy projects throughout the country, including numerous projects across New York State.

Company Information

Year Founded	2007
Ownership Status	Privately Held, Delaware Corporation
Parent Company	Nexamp, Inc.
Other Legal Names	Nexamp Capital, LLC; Nexamp Solar, LLC; Nexamp Asset Management Services, LLC
Employees	470+ Full-Time Employees

CIVIL PERMIT PLANS

FOR

JERRY SMITH ENERGY STORAGE SYSTEM

5.0 MW AC

LOCATED AT

JERRY SMITH ROAD
LANSING, NY 14882

MAY 2026

APPLICANT/PROJECT OWNER

JERRY SMITH, LLC
101 SUMMER STREET, 2ND FLOOR
BOSTON, MA 02110

CIVIL ENGINEER

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(518) 371-7621

SURVEYOR

THE ENVIRONMENTAL DESIGN PARTNERSHIP, LLP
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(518) 371-7621

BATTERY CONSULTANT

NEXAMP, LLC
101 SUMMER STREET, 2ND FLOOR
BOSTON, MA 02110

LOCATION MAP

(NOT TO SCALE)

Sheet List Table	
Sheet Number	Sheet Title
C-100	COVER SHEET
C-101	GENERAL NOTES
C-200	EXISTING CONDITIONS
C-201	REMOVALS PLAN
C-300	MATERIALS AND LAYOUT PLAN
C-301	TURNING MOVEMENT PLAN
C-400	EROSION AND SEDIMENT CONTROL PLAN
C-500	GRADING AND DRAINAGE PLAN
C-501	ROAD PROFILE
C-600	EROSION AND SEDIMENT CONTROL DETAILS
C-601	SITE DETAILS

SITE INFORMATION

PARCEL ZONING
AGRICULTURAL (AG)
PROJECT DESCRIPTION
5.0 MW BATTERY ENERGY STORAGE PROJECT

BENCHMARKS

BENCHMARKS:
CONTROL TO BE SET BY EDPLLP

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Rev	Issued For	Date
A	INTERNAL REVIEW	5/27/26

P.E. seal/Consultant: NOT FOR CONSTRUCTION

Project: JERRY SMITH , LLC
JERRY SMITH ROAD,
LANSING, NY

Drawing Title: COVER SHEET
Drawn by: BMW Scale: AS SHOWN Approved by: TJM

Dwg No: C-100 Size: D Sheet Rev: A

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GENERAL NOTES:

THE ENVIRONMENTAL DESIGN PARTNERSHIP IS NOT RESPONSIBLE FOR ANY CONSTRUCTION WORK PERFORMED PRIOR TO FINAL APPROVAL OF ALL PLANS AND SECURING OF ALL PERMITS AND FILING OF ALL MAPS.

CONTRACTOR TO ARRANGE A PRECONSTRUCTION CONFERENCE WITH THE ENVIRONMENTAL DESIGN PARTNERSHIP AND MUNICIPALITY PRIOR TO CONSTRUCTION.

FIELD ADJUSTMENTS MUST BE APPROVED BY THE ENVIRONMENTAL DESIGN PARTNERSHIP AND THE OWNER PRIOR TO CONSTRUCTION.

CONTRACTOR IS TO VERIFY THAT ALL NECESSARY WORK PERMITS AND EASEMENTS ARE IN PLACE PRIOR TO COMMENCEMENT OF WORK.

THE CONTRACTOR SHALL CONDUCT THEIR OPERATIONS AND TAKE ALL SPECIAL TEMPORARY AND PERMANENT PRECAUTIONS NECESSARY TO ENSURE A STABLE AND SECURE JOB.

THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY TOWN, COUNTY OR STATE HIGHWAY CUT PERMITS.

THE CONTRACTOR SHALL SECURE ALL NECESSARY PERMITS AND EASEMENTS PRIOR TO CONSTRUCTION AND BECOME FAMILIAR WITH THE CONDITIONS OF EACH PERMIT.

THE CONTRACTOR SHALL PROTECT AND SUSTAIN IN NORMAL SERVICE ALL EXISTING UTILITIES, STRUCTURES, EQUIPMENT, ROADWAYS, AND DRIVEWAYS.

THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES AND RIGHT-OF-WAY PROPERTY LINES PRIOR TO CONSTRUCTION.

THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES SUCH AS GAS, POWER, TELEPHONE, CABLE TV, WATER, SEWER, ETC. PRIOR TO COMMENCEMENT OF CONSTRUCTION.

AS PER NYS INDUSTRIAL CODE 53: CONTRACTOR TO CALL DIG SAFELY NEW YORK, INC. AT 1-800-962-7962 TO LOCATE BURIED CABLES OR OTHER UNDERGROUND UTILITIES NO LESS THAN TWO OR MORE THAN TEN WORKING DAYS PRIOR TO DIGGING, DRILLING, EXCAVATING, DRIVING POSTS, ETC.

ANY EXISTING STORM SEWERS AND UNDERGROUND UTILITIES ARE SHOWN IN THEIR RELATIVE POSITION AND FOR INFORMATION ONLY. THE CONTRACTOR SHALL HAVE THEIR EXACT LOCATION CHECKED AT THE SITE BEFORE CONSTRUCTION BEGINS.

CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING PIPE INVERT ELEVATIONS PRIOR TO COMMENCEMENT OF CONSTRUCTION. ANY DISCREPANCIES WHICH RESULT MUST BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, GRADES, PIPE INVERTS AND ELEVATIONS AND REVIEW WITH CONSULTANT BEFORE CONSTRUCTION.

ALL EXCAVATION TO MEET OSHA AND NYS DOT SAFETY REGULATIONS AND STANDARDS.

THE CONTRACTOR SHALL FILL IN, AND RE-EXCAVATE, AS NECESSARY TO RESUME WORK, ANY EXCAVATIONS OR TRENCHES AT LOCATIONS AND AS OFTEN AS MAY BE REQUIRED TO ENSURE PROTECTION OF THE WORK, ANY ADJACENT EXISTING FACILITIES, OR THE PUBLIC.

THE CONTRACTOR SHALL CLEAN UP THE JOB SITE DAILY BEFORE LEAVING THE JOBSITE. ALL RUBBISH MUST BE CLEANED UP AND CONSTRUCTION EQUIPMENT MUST BE PROPERLY TAKEN CARE OF AND STORED AT THE END OF THE DAY.

CONTRACTOR IS RESPONSIBLE FOR TRAFFIC CONTROL AND SAFETY DURING CONSTRUCTION. THE CONTRACTOR SHALL FURNISH ALL FLAGMEN AND SIGNS, DELINEATORS, BARRIERS, AND DEVICES NECESSARY FOR TRAFFIC CONTROL DURING ANY EARTH-MOVING OPERATION OR OTHER CONSTRUCTION ACTIVITY WHICH INVOLVES PUBLIC HIGHWAYS.

ALL TRAFFIC SIGNS, CONTROL DEVICES AND INFORMATIONAL ITEMS, IF DISTURBED DURING CONSTRUCTION WITHIN CONTRACT LIMIT LINES, SHALL BE RELOCATED AS PER APPROVAL OF MUNICIPALITY.

TOWN OF LANSING APPROVALS SHALL BE KEPT ON SITE AT ALL TIMES.

CONTRACTORS AND SUBCONTRACTORS SHALL THOROUGHLY FAMILIARIZE THEMSELVES WITH ALL CONSTRUCTION DOCUMENTS, SPECIFICATIONS, AND SITE CONDITIONS PRIOR TO BIDDING AND PRIOR TO CONSTRUCTION.

IN NO CASE SHALL PARKING AREAS, LAYDOWN AREAS, CONSTRUCTION TRAILERS, AND PORTABLE TOILETS BE LOCATED WITHIN A WETLAND RESOURCE AREA AND/OR ANY BUFFER ZONES.

RESTORATION OF PAVEMENT IS THE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR SHALL REPLACE AND RESTORE PAVEMENT WITH MATERIAL TO A CONDITION EQUAL TO OR BETTER THAN PRECONSTRUCTION CONDITIONS. ALL PAVEMENT AND RIGHT-OF-WAY RESTORATION WORK TO BE DONE TO THE SATISFACTION OF THE STATE, COUNTY OR LOCAL MUNICIPAL HIGHWAY DEPARTMENT.

CONTRACTOR SHALL RESTORE ALL LAWNS, DRIVEWAYS, WALKS, WALLS, CURBS, FENCES, ETC. TO A CONDITIONS AT LEAST AS GOOD AS THEY WERE BEFORE BEING DISTURBED.

BOX ALL TREES AND HOUSE ALL SHRUBS AND HEDGES BEFORE PLACING EARTH AGAINST OR NEAR THEM. SHRUBS AND HEDGES THAT MUST BE REMOVED DURING CONSTRUCTION SHALL BE HEALED OR REPLANTED IN AS GOOD A CONDITION AS THEY WERE BEFORE THEIR REMOVAL. ANY DAMAGED ITEMS SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

POSTS, MAILBOXES, ETC. SHALL BE PROTECTED, OR REMOVED AND REPLACED EXACTLY AS THEY WERE BEFORE BEING DISTURBED. DAMAGED ITEMS SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

IT MAY BE NECESSARY TO TIE OR HOLD BACK UTILITY POLES DURING CONSTRUCTION. THIS SHOULD BE ACCOMPLISHED IN COOPERATION WITH UTILITY COMPANIES.

NO WORK, STORAGE OR TRESPASS SHALL BE PERMITTED BEYOND THE BOUNDARIES OF ANY EASEMENTS OR R.O.W. AS SHOWN.

CONTRACTOR TO COMPLY WITH ALL OSHA AND OTHER STATE AND LOCAL SAFETY REQUIREMENTS DURING CONSTRUCTION (PROPER SHORING, ETC.).

ALL SITE WORK SHALL BE SMOOTHLY AND EVENLY BLENDED INTO EXISTING CONDITIONS. WHERE ACCESS OR WORK OUTSIDE OF PROPERTY BOUNDARY IS NECESSARY, THE PERMISSION OF ADJOINING PROPERTY OWNER MUST FIRST BE OBTAINED.

ALL AREAS OF THE SITE WHICH ARE DISTURBED AND NOT PAVED SHALL BE TOPSOILED AND SEEDED.

THE INFORMATION REPRESENTED WITHIN THESE DOCUMENTS DOES NOT IMPLY ANY CONTRACT WITH, OR OBLIGATION FOR, PERFORMING ANY OR ALL TOWN, COUNTY, OR STATE REQUIRED INSPECTIONS DURING THE COURSE OF CONSTRUCTION OR PURSUANT TO OBTAINING CERTIFICATE OF OCCUPANCY. SUCH INSPECTION SERVICES, IF PERFORMED BY THIS OFFICE, SHALL BE ESTABLISHED BY SEPARATE CONTRACT.

IN THE EVENT THAT THE CONSTRUCTION STAKEOUT AND INSPECTION OF THE WORK IS NOT PERFORMED BY THE ENVIRONMENTAL DESIGN PARTNERSHIP (EDP), EDP WILL NOT BE HELD RESPONSIBLE FOR ANY ERRORS, OMISSIONS, COSTS, EXPENSES OR LIABILITY OF WHATEVER KIND AND NATURE RESULTING FROM FIELD CHANGES AND/OR ERRORS WHICH EDP WOULD OTHERWISE HAVE HAD AN OPPORTUNITY TO CHECK AND CORRECT WERE THEY IN A POSITION TO CONTROL THE PROJECT THROUGH STAKEOUT AND INSPECTION.

CLAIMS MADE AGAINST CONSULTANT FOR SURVEY STAKEOUT ERRORS WILL BE HONORED ONLY IF CONSULTANT IS NOTIFIED FOR VERIFICATION OF THE ERROR IMMEDIATELY UPON DISCOVERY AND BEFORE ANY CONTROL STAKES ARE DISTURBED. IF, AFTER VERIFICATION, IT IS DETERMINED THAT NO STAKEOUT ERROR OCCURRED, THE CLIENT SHALL REIMBURSE THE CONSULTANT FOR ADDITIONAL EXPENSES INCURRED FOR SUCH VERIFICATION.

ALL ERRORS, OMISSIONS AND DISCREPANCIES MUST BE BROUGHT TO THE ATTENTION OF THE ENVIRONMENTAL DESIGN PARTNERSHIP IMMEDIATELY UPON DISCOVERY, OTHERWISE, THE ENVIRONMENTAL DESIGN PARTNERSHIP WILL ACCEPT NO RESPONSIBILITY.

INSPECTION SERVICES BY THE ENVIRONMENTAL DESIGN PARTNERSHIP ARE NOT SUPERVISORY. ACCORDINGLY, THE ENVIRONMENTAL DESIGN PARTNERSHIP CAN NEITHER GUARANTEE THE PERFORMANCE OF THE CONSTRUCTION CONTRACTS BY CONTRACTORS NOR ASSUME RESPONSIBILITY FOR THE CONTRACTOR'S FAILURE TO FURNISH AND PERFORM WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

EQUIPMENT PAD AND MV UNDERGROUND CABLE LAYOUT WERE PROVIDED BY OTHERS.

EQUIPMENT PAD AND MV UNDERGROUND CABLE DESIGN, INCLUDING, BUT NOT LIMITED TO, SUBGRADE SUITABILITY, PREPARATION, REQUIRED TRENCHING, AND BEDDING TO BE DESIGNED BY OTHERS.

EROSION AND SEDIMENT CONTROL AND STABILIZATION MEASURES, MAINTENANCE AND INSPECTION PRACTICES:

1. THE FOLLOWING IS A LIST OF EROSION AND SEDIMENT CONTROLS TO BE USED ON THIS SITE DURING CONSTRUCTION:

A. STABILIZATION PRACTICES FOR THIS SITE INCLUDE:
- LAND CLEARING ACTIVITIES SHALL BE DONE ONLY IN AREAS WHERE EARTHWORK WILL BE PERFORMED AND SHALL PROGRESS AS EARTHWORK IS NEEDED
- WATERING OF EXCAVATION AND FILL AREAS TO MINIMIZE WIND EROSION DURING CONSTRUCTION AS NEEDED.
- USE OF STABILIZATION FABRIC FOR ALL SLOPES HAVING A SLOPE OF 1V:2H OR GREATER AND FILL SLOPES 1V:3H OR GREATER.
- PERMANENT SEEDING AND PLANTING OF ALL UNPAVED AREAS USING THE HYDROMULCHING GRASS SEEDING TECHNIQUE.

B. STRUCTURAL PRACTICES FOR THIS SITE INCLUDE:
- PERIMETER PROTECTION USING COMPOST FILTER SOCKS
- STABILIZED CONSTRUCTION EXIT POINTS
- SEDIMENT TRAPS OR FILTER SOCKS
- CHECK DAMS

2. THE FOLLOWING INSPECTION AND MAINTENANCE PRACTICES WILL BE USED TO MAINTAIN EROSION AND SEDIMENT CONTROLS AND STABILIZATION MEASURES.

A. ALL CONTROL MEASURES WILL BE INSPECTED ONCE EVERY SEVEN (7) DAYS BY A QUALIFIED INSPECTOR AS DESCRIBED IN PART IV, SECTION C OF THE SPDES PERMIT FOR CONSTRUCTION ACTIVITY NO. GP-0-25-001. SITES THAT HAVE A WAIVER TO DISTURB GREATER THAN FIVE (5) ACRES REQUIRE (2) INSPECTIONS EVERY SEVEN (7) DAYS WITH AT LEAST TWO (2) DAYS BETWEEN INSPECTIONS.

B. DISTURBED AREAS SHALL BE STABILIZED AS SOON AS PRACTICAL AFTER CONSTRUCTION ACTIVITIES HAVE CONCLUDED IN AN AREA. ALL BARE AREAS AND AREAS SUBJECT TO EROSION SHALL BE BLANKETED OR SEEDED AND MULCHED WITHIN 14 DAYS WITH TEMPORARY EROSION CONTROL SEEDING

C. ALL MEASURES WILL BE MAINTAINED IN GOOD WORKING ORDER; IF REPAIRS ARE FOUND TO BE NECESSARY, THEY WILL BE INITIATED WITHIN 24 HOURS OF REPORT.

D. BUILT UP SEDIMENT WILL BE REMOVED FROM FILTER SOCKS WHEN IT HAS REACHED ONE-HALF THE HEIGHT OF THE SOCK. AN ADDITIONAL FILTER SOCK MAY BE INSTALLED ON TOP OF THE ORIGINAL TO INCREASE SEDIMENT STORAGE CAPACITY/PREVENT SEDIMENT DISTURBANCE.

E. FILTER SOCKS WILL BE INSPECTED FOR DEPTH OF SEDIMENT, DISLODGEMENT, BREAKS, TEARS, ETC. DAMAGED OR DISLODGED FILTER SOCKS SHALL BE REPAIRED OR REPLACED IMMEDIATELY.

F. TEMPORARY AND PERMANENT SEEDING AND ALL OTHER STABILIZATION MEASURES WILL BE INSPECTED FOR BARE SPOTS, WASHOUTS, AND HEALTHY GROWTH.

G. SEDIMENT BASINS WILL BE INSPECTED FOR DEPTH OF SEDIMENT. BUILT UP SEDIMENT WILL BE REMOVED WHEN IT REACHES 50 PERCENT OF THE CAPACITY.

H. CHECK DAMS WILL BE INSPECTED FOR DEPTH OF SEDIMENT, WASHOUT, ETC. BUILT UP SEDIMENT WILL BE REMOVED FROM THE CHECK DAM WHEN IT REACHES ONE-THIRD OF THE HEIGHT OF THE CHECK DAM.

I. A MAINTENANCE INSPECTION REPORT WILL BE MADE AFTER EACH INSPECTION. COPIES OF THE REPORT FORMS TO BE COMPLETED BY THE INSPECTOR ARE INCLUDED IN THIS SWPPP. UPON COMPLETION, COPIES OF THE REPORTS SHALL BE SUBMITTED TO THE TOWN.

J. THE JOB SITE SUPERINTENDENT WILL BE RESPONSIBLE FOR SELECTING AND TRAINING THE INDIVIDUALS WHO WILL BE RESPONSIBLE FOR THESE INSPECTIONS, MAINTENANCE AND REPAIR ACTIVITIES, AND FILLING OUT INSPECTION AND MAINTENANCE REPORTS. ALL PERSONNEL PERFORMING INSPECTIONS MUST MEET THE REQUIREMENTS DESCRIBED IN PART IV, SECTION C OF THE SPDES PERMIT FOR CONSTRUCTION ACTIVITY NO. GP-0-25-001.

K. PERSONNEL SELECTED FOR THE INSPECTION AND MAINTENANCE RESPONSIBILITIES WILL RECEIVE APPROPRIATE INSTRUCTION FROM THE JOB SITE SUPERINTENDENT. THEY WILL BE TRAINED IN ALL THE INSPECTION AND MAINTENANCE PRACTICES NECESSARY FOR KEEPING THE EROSION AND SEDIMENT CONTROLS THAT ARE USED ONSITE IN GOOD WORKING ORDER. THEY WILL ALSO BE TRAINED IN THE COMPLETION OF, INITIATION OF ACTIONS REQUIRED BY, AND THE FILING OF THE INSPECTION FORMS. DOCUMENTATION OF THIS PERSONNEL TRAINING WILL BE KEPT ON SITE WITH THE SWPPP. ALL PERSONNEL PERFORMING INSPECTIONS MUST MEET THE REQUIREMENTS DESCRIBED IN PART IV, SECTION C OF THE SPDES PERMIT FOR CONSTRUCTION ACTIVITY NO. GP-0-25-001.

L. DISTURBED AREAS AND MATERIAL STORAGE AREAS WILL BE INSPECTED FOR EVIDENCE OF OR POTENTIAL FOR POLLUTANTS ENTERING STORMWATER SYSTEMS.

M. REPORT TO THE NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION WITHIN 24 HOURS ANY NONCOMPLIANCE WITH THE SWPPP THAT WILL ENDANGER PUBLIC HEALTH OR THE ENVIRONMENT. FOLLOW UP WITH A WRITTEN REPORT WITHIN 5 DAYS OF THE NONCOMPLIANCE EVENT.

N. NECESSARY MEASURES SHALL BE TAKEN TO CONTAIN ANY FUEL OR POLLUTION RUNOFF. NO RE-FUELING SHALL BE OCCUR WITHIN 100 FEET OF ANY WETLAND RESOURCE AREA AND 200 FEET FROM RIVERFRONT. LEAKING EQUIPMENT OR SUPPLIES SHALL IMEEDIATELY BE REPAIRED OR EMOVED FROM THE SITE.

O. CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO PREVENT DUST FROM FORMING.

ADDITIONAL EROSION CONTROL AND GRADING NOTES:

1. MINIMAL EROSION CONTROL DEVICES ARE ILLUSTRATED ON SITE PLAN IN A SCHEMATIC MANNER BASED ON NY STATE GUIDELINES FOR EROSION AND SEDIMENT CONTROL. IT WILL BE NECESSARY TO ADJUST THE ACTUAL LOCATION AND QUANTITY OF EROSION CONTROL DEVICES DEPENDING UPON FIELD CONDITIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING THESE MEASURES AS REQUIRED TO PROTECT THE SITE.

2. SLOPES SHALL TYPICALLY BE GRADED AT A MAXIMUM OF 3:1 (3 HORIZ. 1 VERT.) WITHIN ALL CUT OR FILL AREAS, UNLESS OTHERWISE DESIGNATED ON PLANS.

3. TEMPORARY SEED SHALL BE A COMMERCIALLY AVAILABLE MIXTURE OF PERENNIAL RYE AND UTILITY GRADE FESCUE. PERCENTAGE OF PERENNIAL RYE SHALL NOT EXCEED 50%. PERMANENT SEED SHALL BE AS SPECIFIED ON THE PLANTING PLANS.

4. SEEDED AREAS SHALL BE FULLY COVERED WITH A LEAN STRAW OR MULCH MATERIAL, IF ORDERED BY THE ENGINEER OR MUNICIPALITY, A BIODEGRADABLE NETTING (E.G., EXCELSIOR BLANKET, COIR GEOTEXTILE) SHALL BE ANCHORED OVER SEEDED AREAS WHICH DEMONSTRATE "RILLING" OR OTHER EROSION PROCESSES.

5. TOPSOIL AND SEED SHALL BE REAPPLIED TO ANY AREAS WHICH FAIL TO ESTABLISH AS A RESULT OF INITIAL APPLICATION.

6. FILTER SOCK BARRIERS SHALL BE PLACED WITHIN ALL AREAS OF EXPOSED SLOPES TO CONTROL SOIL EROSION DURING AND AFTER CONSTRUCTION.

7. EROSION CONTROL (ERO-MAT), GEOTEXTILE FABRIC, COMPOST BLANKET, RIPRAP, OR APPROVED EQUAL, SHALL BE INSTALLED ON ALL 4H:1V SLOPES: AN ORGANIC FIBER PROTECTIVE MAT, HALF INCH LAYER OF CHOPPED STRAW, KNITTED INTO A RUGGED MAT WITH A THIN NETTING OF PHOTODEGRADABLE POLYPROPYLENE. SECURE MAT TO SLOPE WITH 6" STEEL U-SHAPED STABLES, 2 STAPLES PER SQUARE YARD, OR AS PER MANUFACTURER'S INSTRUCTIONS.

8. PRIOR TO SEEDING, ACCESS AISLES, TEMPORARY STAGING AREAS, STORAGE, AND PARKING AREAS TO BE DECOMPACTED AND RELOAMED.

9. SEDIMENT BARRIERS SHALL BE CONSTRUCTED AROUND ALL SOIL STOCKPILE AREAS.

10. STREAM REACHES ON-SITE AND DOWNSTREAM OF CONSTRUCTION SHALL NOT HAVE SUBSTANTIAL VISIBLE CONTRAST RELATIVE TO COLOR, TASTE, ODOR, TURBIDITY AND SEDIMENT DEPOSITION FROM THE REACHES UPSTREAM OF THE CONSTRUCTION ACTIVITY.

11. VEHICULAR ACCESS POINTS SHALL BE MONITORED AND INSPECTED AT THE SAME FREQUENCY AS EROSION CONTROL FEATURES TO INSURE THAT DEPOSITS OF SAND, SILT OR OTHER MATERIAL IS NOT BEING DEPOSITED ON PUBLIC ROADWAYS. IN THE EVENT ANY SIGNIFICANT DEPOSITS OCCUR THEY SHALL BE CLEANED UP IMMEDIATELY.

12. A SPDES PERMIT SHALL BE IN PLACE PRIOR TO COMMENCING ANY GROUND DISTURBANCE.

13. PROJECT DRAINAGE FEATURES TO BE CLEANED OUT AFTER COMPLETION OF CONSTRUCTION.

SEQUENCE OF CONSTRUCTION ACTIVITIES:

1. SITE TO BE MOBILIZED.

2. EROSION AND SEDIMENT CONTROL MEASURES TO BE INSTALLED IN CONJUNCTION WITH ANY BRUSH OR TREE CLEARING REQUIRED. NOTE: EROSION AND SEDIMENT CONTROL MEASURES TO BE INSTALLED IN ACCORDANCE WITH SHEET C-500, ASSOCIATED DETAILS AS WELL AS NYS DEC CONSTRUCTION GENERAL PERMIT #GP-0-25-001. IN ANY INSTANCE THAT A CONFLICT BETWEEN THESE TWO GUIDELINES IS PRESENT, THE MORE CONSERVATIVE GUIDELINE TAKES PRECEDENT.

3. CLEARING AND GRUBBING OPERATIONS CREW SHALL CHIP AND MULCH DIRECTLY BEHIND OPERATION TO MAKE SURE NO AREAS ABOVE FIVE ACRES SHALL BE DISTURBED AT ANY TIME. NO MORE THAN FIVE ACRES SHALL BE DISTURBED AT ANY ONE TIME WITHOUT PRIOR APPROVAL FROM NYSDEC.

4. INSTALLATION OF ACCESS ROAD TO COMMENCE. NOTE: ANY AREAS OF DISTURBANCE SHALL BE STABILIZED WITH TEMPORARY SEEDING PER THE REQUIRED TIMELINES AS PER NYS DEC CONSTRUCTION GENERAL PERMIT #GP-0-25-001.

5. MV TRENCHES AND FOUNDATIONS INSTALLATION IN CONJUNCTION WITH THE PLACEMENT OF CONCRETE FOUNDATIONS FOR THE ELECTRICAL EQUIPMENT PADS TO COMMENNCE.

6. WATERING OF THE EXCAVATION AND FILL AREAS SHALL BE DONE TO MINIMIZE WIND EROSION AS NEEDED THROUGHOUT CONSTRUCTION.

7. ELECTRICAL EQUIPMENT INSTALLATION TO COMMENCE.

8. REMOVE LAYDOWN AREA, SPREAD GRAVEL ON ROADWAY, AND SEED AREAS.

9. FINAL SITE STABILIZATION TO COMMENCE.

10. ALL EROSION AND SEDIMENT CONTROL MEASURES TO BE REMOVED ONCE 80% VEGETATIVE COVER HAS BEEN ACHIEVED. REMOVE FILTER SOCKS, STABILIZED CONSTRUCTION ENTRANCES, AND OTHER TEMPORARY EROSION AND SEDIMENT CONTROLS. ANY RESULTING AREAS OF DISTURBANCE FROM SAID REMOVAL TO BE SEEDED PRIOR TO DEMOBILIZATION.

11. SITE TO BE DEMOBILIZED.

PLANTING NOTES:

1. PLANTING CONTRACTOR SHALL VERIFY FINAL SELECTION OF PLANT MATERIALS WITH THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.

2. ALL AREAS OF SITE WHICH ARE DISTURBED AND NOT LANDSCAPED, SHALL BE TOPSOILED, SEEDED, AND MULCHED . (MULCH – STRAW, HYDROSEED MIX, OR BIODEGRADABLE NETTING.) MIXTURES TO BE APPLIED SHALL BE DETERMINED BY OWNER'S REPRESENTATIVES. TOPSOIL TO BE 4" MINIMUM.

3. EXISTING VEGETATION SHALL REMAIN UNDISTURBED WITHIN ALL AREAS OF SITE WHICH DO NOT REQUIRE GRADING.

4. ALL PLANTING BEDS TO RECEIVE 3" MINIMUM BARK MULCH WITH FILTER FABRIC WEED CONTROL OR EQUAL.

5. THE PLANTING PLAN IS FOR PLANTING PURPOSES ONLY. REFER TO SITE PLAN FOR DETAILED GRADING AND UTILITY INFORMATION.

6. GUARANTEE:
   A. FOR A PERIOD OF TWELVE MONTHS FROM THE DATE THAT THE WORK UNDER CONTRACT IS CERTIFIED AS COMPLETE, THE CONTRACTOR SHALL:
      1. GUARANTEE ALL PLANTS AND SEEDED AREAS UNDER THIS CONTRACT;
      2. REMOVE AND REPLACE DURING THIS GUARANTEE PERIOD, PLANTS WHICH DIE OR ARE IN A BADLY IMPAIRED CONDITION;
      3. REPLANT WITH STOCK OF SAME SIZE AND QUALITY AS ORIGINALLY SPECIFIED;
      4. GUY AND MAINTAIN AS SPECIFIED HEREIN, AT NO ADDITIONAL COST.
   B. REPLACEMENTS MADE WITHIN SIX MONTHS AFTER BEGINNING OF THE "GUARANTEE PERIOD" SHALL NOT EXTEND THE "GUARANTEE PERIOD" OF THESE PARTICULAR PLANTS; THOSE REPLACEMENTS MADE SIX MONTHS OR MORE AFTER THE BEGINNING OF THE "GUARANTEE PERIOD" SHALL BE MAINTAINED AND GUARANTEED FOR A PERIOD OF SIX MONTHS FROM THE TIME OF REPLACEMENT.

1. APPLICABLE STANDARDS: "AMERICAN STANDARD FOR NURSERY STOCK" BY THE AMERICAN ASSOCIATION OF NURSERYMEN AND "STANDARDIZED PLANT NAMES" BY THE AMERICAN JOINT COMMITTEE ON HORTICULTURAL NOMENCLATURE, ARE A PART OF THIS SPECIFICATION. ALL PLANTS SHALL BE NURSERY GROWN, NOT GATHERED IN THE FIELD.

PLANTING NOTE:

PLANTS LISTED IN THE PLANTING SCHEDULE CAN BE SUBSTITUTED FOR SIMILAR SPECIES OF THE SAME SIZE WITH THE APPROVAL OF THE OWNER AND/OR PROJECT LANDSCAPE ARCHITECT.

ABBREVIATIONS:

±	PLUS/MINUS
BC	BOTTOM OF CURB
BIRF	BENT IRON ROD FOUND
BLDG	BUILDING
BLDR	BOULDER
CB	CATCH BASIN
CBR	CATCH BASIN– ROUND
CIRF	CAPPED IRON ROD FOUND
CMF	CONCRETE MONUMENT FOUND
CMP	CORRUGATED METAL PIPE
CONC	CONCRETE
CP	CONTROL POINT
DIP	DUCTILE IRON PIPE
DWG	DRAWING
EHH	ELECTRIC HANDHOLE
EOB	EDGE OF BRUSH
EOW	EDGE OF WOODS
EX.	EXISTING
GV	GAS VALVE
HC	HANDICAPPED
HYD	FIRE HYDRANT
HDPE	HIGH DENSITY POLYETHYLENE PIPE
IRF	IRON ROD FOUND
LLC	LIMITED LIABILITY CORPORATION
LPLA	LAMP POST
MISC	MISCELLANEOUS
MH	MANHOLE
NAVD	NORTH AMERICAN VERTICAL DATUM
NG	NATIONAL GRID
NM	NIAGRA MOHAWK
NYS	NEW YORK STATE
NYT	NEW YORK TELEPHONE UTILITY POLE
No.	NUMBER
OETL	OVERHEAD ELECTRICAL TRANSMISSION LINE
OHUL	OVERHEAD UTILITY LINE
PVC	POLYVINYL CHLORIDE
RCP	REINFORCED CONCRETE PIPE
R.O.W	RIGHT OF WAY
SAN	SANITARY
SF	SQUARE FEET
SS	STREET SIGN
STM	STORM
STS	STOP SIGN
TF	TOP OF FRAME
(TYP.)	TYPICAL
UGE	UNDERGROUND ELECTRIC
UP	UTILITY POLE
VZ	VERIZON UTILITY POLE
YD	YARD DRAIN

EXISTING:

EXISTING GRADE CONTOUR
G — UNDERGROUND GAS LINE
X — BARBED WIRE FENCE
DELINEATED WETLANDS
BASELINE POINT
HYDRANT
INV=266.3 INVERT ELEVATION
STREET OR SIGHT LIGHTING
STORM / SANITARY MANHOLE
SIGN
TF=189.75 TOP OF FRAME ELEVATION
UTILITY POLE
BENCHMARK XBOLT ON UP ELEV.=208.14' N 853,136.62 E 751,423.644 ELEV 212.15'
VERTICAL BENCHMARK
HORIZONTAL CONTROL POINT
CONIFEROUS TREE
DECIDUOUS TREE
TEST PIT LOCATION
DENOTES COMMUNICATIONS PEDESTAL

NEW:

DETAIL NUMBER 3 / C-501 SHEET NUMBER — DETAIL REFERENCE
× 335.78 SPOT ELEVATION
GRASSED SWALE
268 CONTOUR LINE
PARKING, TRAFFIC OR STORMWATER MANAGEMENT SIGN WITH LABEL
IMPERVIOUS GRAVEL ACCESS ROAD
TEMPORARY GRAVEL ACCESS ROAD
STABILIZED CONSTRUCTION ENTRANCE
RIP RAP FILL
TEMPORARY EROSION CONTROL BLANKET (TO BE USED ON SLOPES GREATER THAN OR EQUAL TO 33%)
FIXED KNOT FENCE FENCE
MV MEDIUM VOLTAGE TRENCH (BY OTHERS)
PROPOSED 12 IN COMPOST FILTER SOCK OR SILTE FENCE
PROPOSED 12 IN COMPOST FILTER SOCK (OR EQUAL) CHECK DAM IN VEGETATED SWALE
CONCRETE WASHOUT FACILITY
LIMIT OF DISTURBANCE

PLANTING BED PREPARATION NOTE:

ALL PAVEMENT, AND GRAVEL BASE SHALL BE REMOVED FROM PROPOSED PLANTING BEDS AREAS. COMPACTED SUB BASE MATERIALS SHALL BE DECOMPACTED FOR A DEPTH OF 12". PLANTING BEDS SHALL BE FREE OF ROOTS TILLED TO A DEPTH 12". INCORPORATE 2" OF COMPOST INTO SOIL AND TOP DRESS WITH 3" OF HARDWOOD MULCH.

TOPSOIL NOTE:

ALL AREAS WHICH ARE DISTURBED AND NOT LANDSCAPED, PAVED OR OTHERWISE RESTORED SHALL RECEIVE A MINIMUM OF 4" OF TOPSOIL. ALL LANDSCAPE BEDS SHALL RECEIVE A MINIMUM OF 12" OF TOPSOIL.
TOP SOIL SHALL HAVE;
2% -20% ORGANIC MATTER
PH OF 6-7.6%
MAXIMUM PARTICLE SIZE 1.5"

SOIL RESTORATION:

AS PER CHAPTER 5 OF THE NEW YORK STATE STORMWATER MANAGEMENT DESIGN MANUAL, SOIL RESTORATION IS REQUIRED ON THIS SITE IN ALL NON-IMPERVIOUS AREAS ONCE FINAL SUBGRADE ELEVATION IS ACHIEVED. IN AREAS OF CUT OR FILL THE SOILS SHALL BE AERATED AND 6 INCHES OF TOPSOIL SHALL BE APPLIED IN HSG A & B SOILS, AND FULL SOIL RESTORATION PER "DEEP RIPPING AND DE-COMPACTION, DEC 2008" SHALL BE APPLIED IN HSG C & D AREAS. IN AREAS OF HEAVY CONSTRUCTION TRAFFIC (ESPECIALLY IN AREAS 5 TO 25 FEET FROM BUILDING, BUT NOT WITHIN 5 FEET OF FOUNDATION WALLS) THE FOLLOWING RESTORATION MUST BE APPLIED:

1. APPLY 3 INCHES OF COMPOST OVER SUBSOIL.
2. TILL COMPOST INTO SUBSOIL TO A DEPTH OF AT LEAST 12 INCHES USING A CAT-MOUNTED RIPPER, TRACTOR-MOUNTED DISC, OR TILLER, MIXING, AND CIRCULATING AIR AND COMPOST INTO SOIL.
3. ROCK-PICK UNTIL UPLIFTED STONE/ROCK MATERIALS OF 4 INCHES AND LARGER SIZE ARE CLEANED OFF THE SITE.
4. APPLY TOPSOIL TO A DEPTH OF 4 INCHES
5. VEGETATE AS REQUIRED BY APPROVED PLAN.

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Rev	Issued For	Date
A	INTERNAL REVIEW	5/27/26

P.E. seal/Consultant: NOT FOR CONSTRUCTION

Project: JERRY SMITH , LLC — JERRY SMITH ROAD, LANSING, NY

Drawing Title: GENERAL NOTES — Scale: AS SHOWN — Approved by: TJM — Drawn by: BMW

Dwg No:	Size: D	Sheet Rev:
C-101		A

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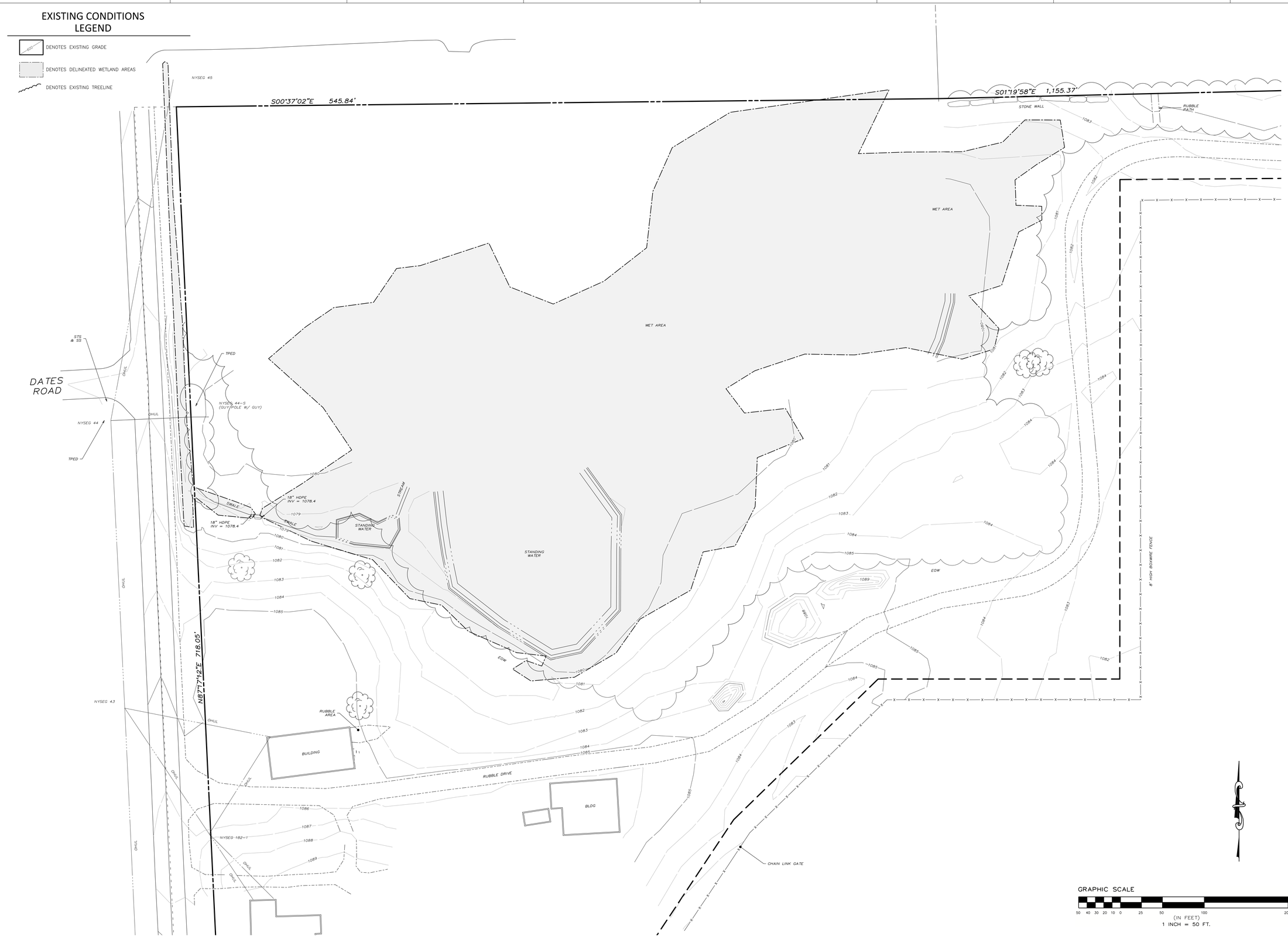
EXISTING CONDITIONS LEGEND

- DENOTES EXISTING GRADE
- DENOTES DELINEATED WETLAND AREAS
- DENOTES EXISTING TREELINE



GRAPHIC SCALE

50 40 30 20 10 0 25 50 100 200

(IN FEET)

1 INCH = 50 FT.

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NOT FOR CONSTRUCTION

Project:

JERRY SMITH , LLC

JERRY SMITH ROAD,
LANSING, NY

Drawing Title:

02_EC_JERRY SMITH BESS - C-200 EXISTING CONDITIONS

Drawn by: BMW | Scale: AS SHOWN | Approved by: TJM

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REMOVALS NOTES:

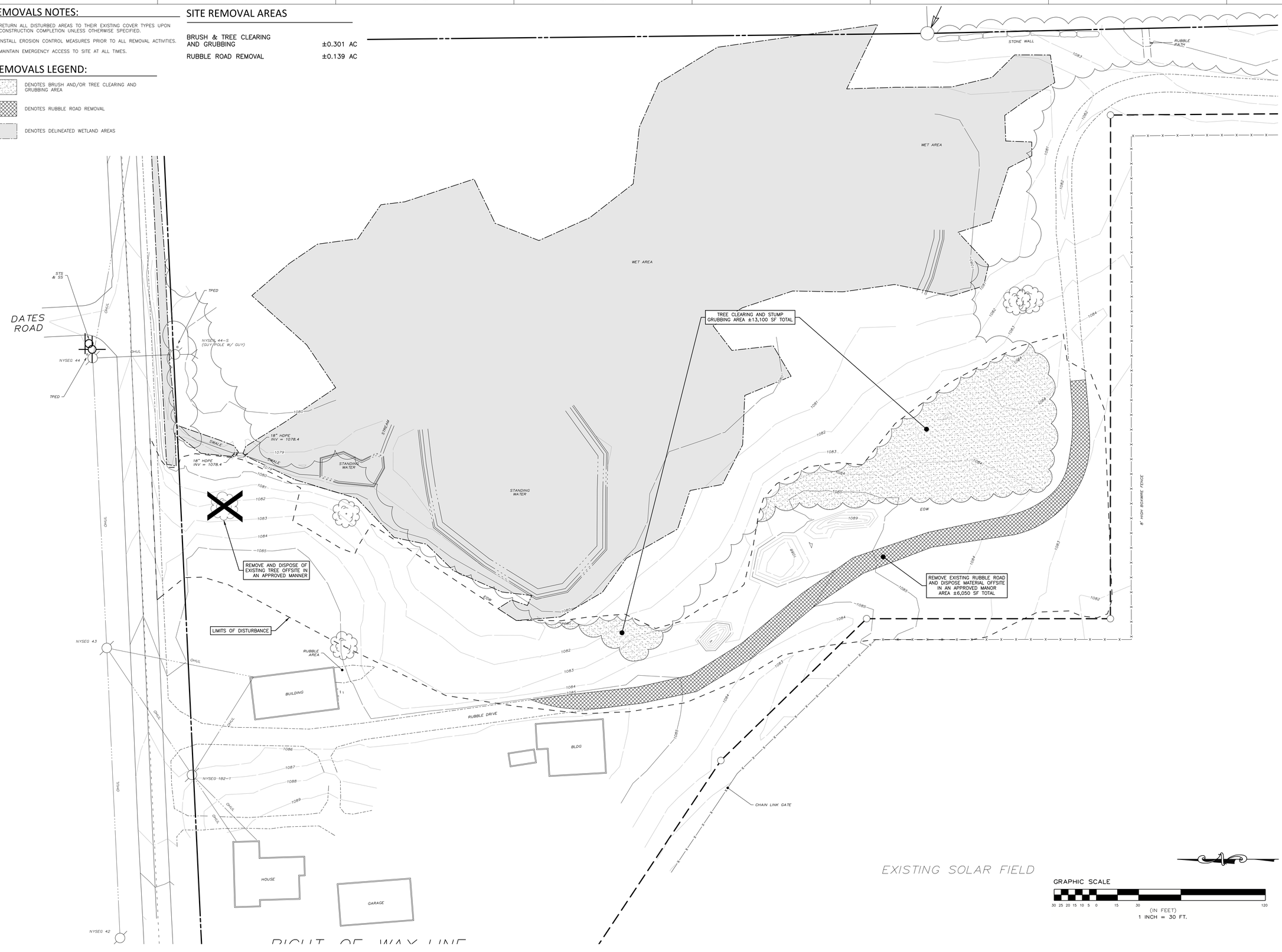
1. RETURN ALL DISTURBED AREAS TO THEIR EXISTING COVER TYPES UPON CONSTRUCTION COMPLETION UNLESS OTHERWISE SPECIFIED.
2. INSTALL EROSION CONTROL MEASURES PRIOR TO ALL REMOVAL ACTIVITIES.
3. MAINTAIN EMERGENCY ACCESS TO SITE AT ALL TIMES.

REMOVALS LEGEND:

- DENOTES BRUSH AND/OR TREE CLEARING AND GRUBBING AREA
- DENOTES RUBBLE ROAD REMOVAL
- DENOTES DELINEATED WETLAND AREAS

SITE REMOVAL AREAS

BRUSH & TREE CLEARING AND GRUBBING	±0.301 AC
RUBBLE ROAD REMOVAL	±0.139 AC



GRAPHIC SCALE

30 25 20 15 10 5 0 15 30 120

(IN FEET)
1 INCH = 30 FT.

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Rev	Issued For	Date
A	INTERNAL REVIEW	5/27/26

P.E. seal/Consultant: NOT FOR CONSTRUCTION

Project: JERRY SMITH , LLC
JERRY SMITH ROAD, LANSING, NY

Drawing Title: REMOVALS PLAN
Drawn by: BMW Scale: AS SHOWN Approved by: TJM

Dwg No: C-201 Size: D Sheet Rev: A

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GRAPHIC SCALE

30 25 20 15 10 5 0 15 30 120

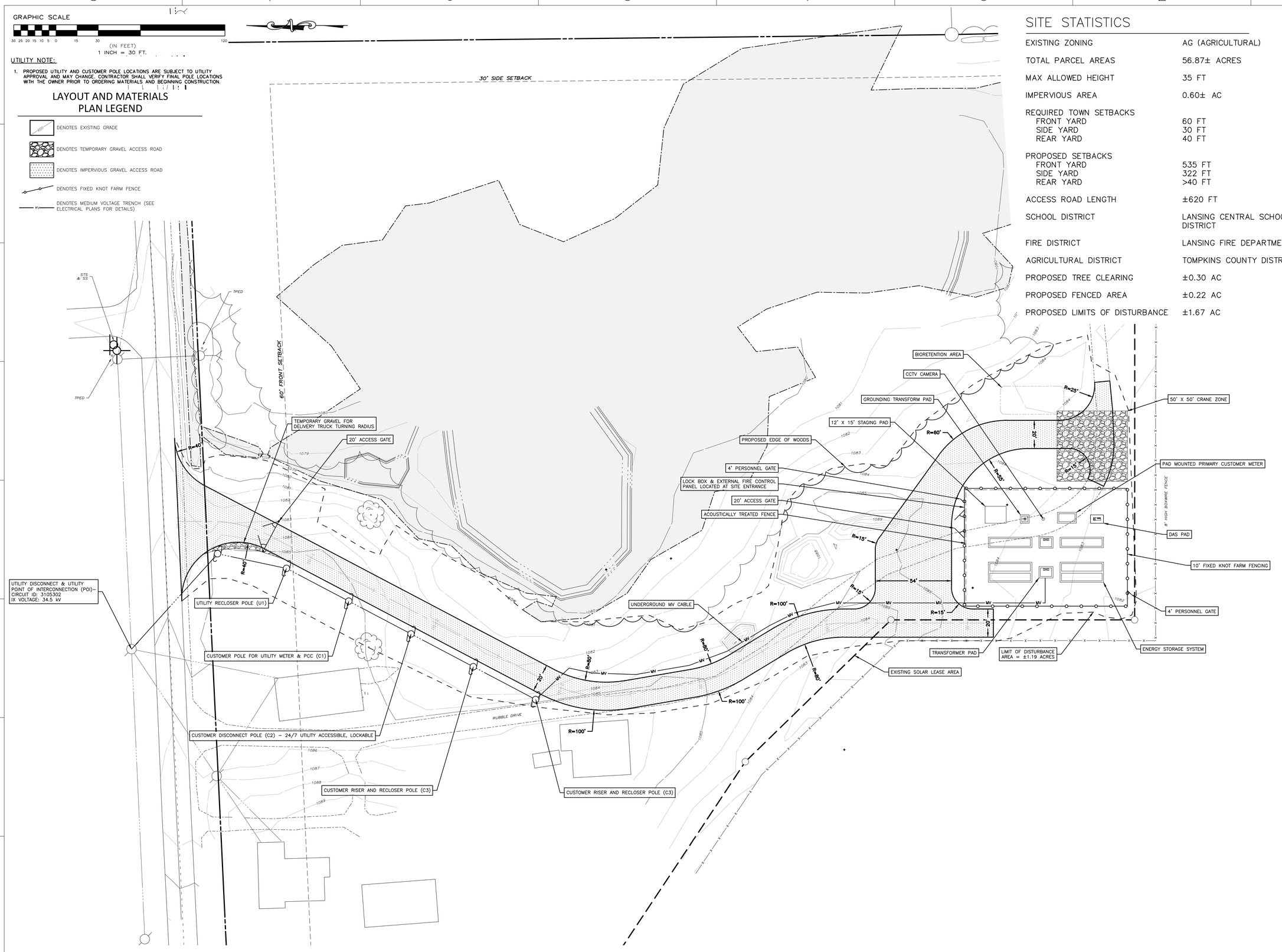
(IN FEET)
1 INCH = 30 FT.

UTILITY NOTE:

1. PROPOSED UTILITY AND CUSTOMER POLE LOCATIONS ARE SUBJECT TO UTILITY APPROVAL AND MAY CHANGE. CONTRACTOR SHALL VERIFY FINAL POLE LOCATIONS WITH THE OWNER PRIOR TO ORDERING MATERIALS AND BEGINNING CONSTRUCTION.

LAYOUT AND MATERIALS PLAN LEGEND

- DENOTES EXISTING GRADE
- DENOTES TEMPORARY GRAVEL ACCESS ROAD
- DENOTES IMPERVIOUS GRAVEL ACCESS ROAD
- DENOTES FIXED KNOT FARM FENCE
- DENOTES MEDIUM VOLTAGE TRENCH (SEE ELECTRICAL PLANS FOR DETAILS)



SITE STATISTICS

EXISTING ZONING	AG (AGRICULTURAL)
TOTAL PARCEL AREAS	56.87± ACRES
MAX ALLOWED HEIGHT	35 FT
IMPERVIOUS AREA	0.60± AC
REQUIRED TOWN SETBACKS	
FRONT YARD	60 FT
SIDE YARD	30 FT
REAR YARD	40 FT
PROPOSED SETBACKS	
FRONT YARD	535 FT
SIDE YARD	322 FT
REAR YARD	>40 FT
ACCESS ROAD LENGTH	±620 FT
SCHOOL DISTRICT	LANSING CENTRAL SCHOOL DISTRICT
FIRE DISTRICT	LANSING FIRE DEPARTMENT
AGRICULTURAL DISTRICT	TOMPKINS COUNTY DISTRICT 1
PROPOSED TREE CLEARING	±0.30 AC
PROPOSED FENCED AREA	±0.22 AC
PROPOSED LIMITS OF DISTURBANCE	±1.67 AC

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Rev	Issued For	Date
A	INTERNAL REVIEW	5/27/26

P.E. seal/Consultant:

NOT FOR CONSTRUCTION

Project:

JERRY SMITH , LLC

JERRY SMITH ROAD, LANSING, NY

Drawing Title:

MATERIALS AND LAYOUT PLAN

Drawn by: BMW Scale: AS SHOWN Approved by: TJM

Dwg No:	Size: D	Sheet Rev:
C-300		A

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GRAPHIC SCALE

30 25 20 15 10 5 0 15 30 120

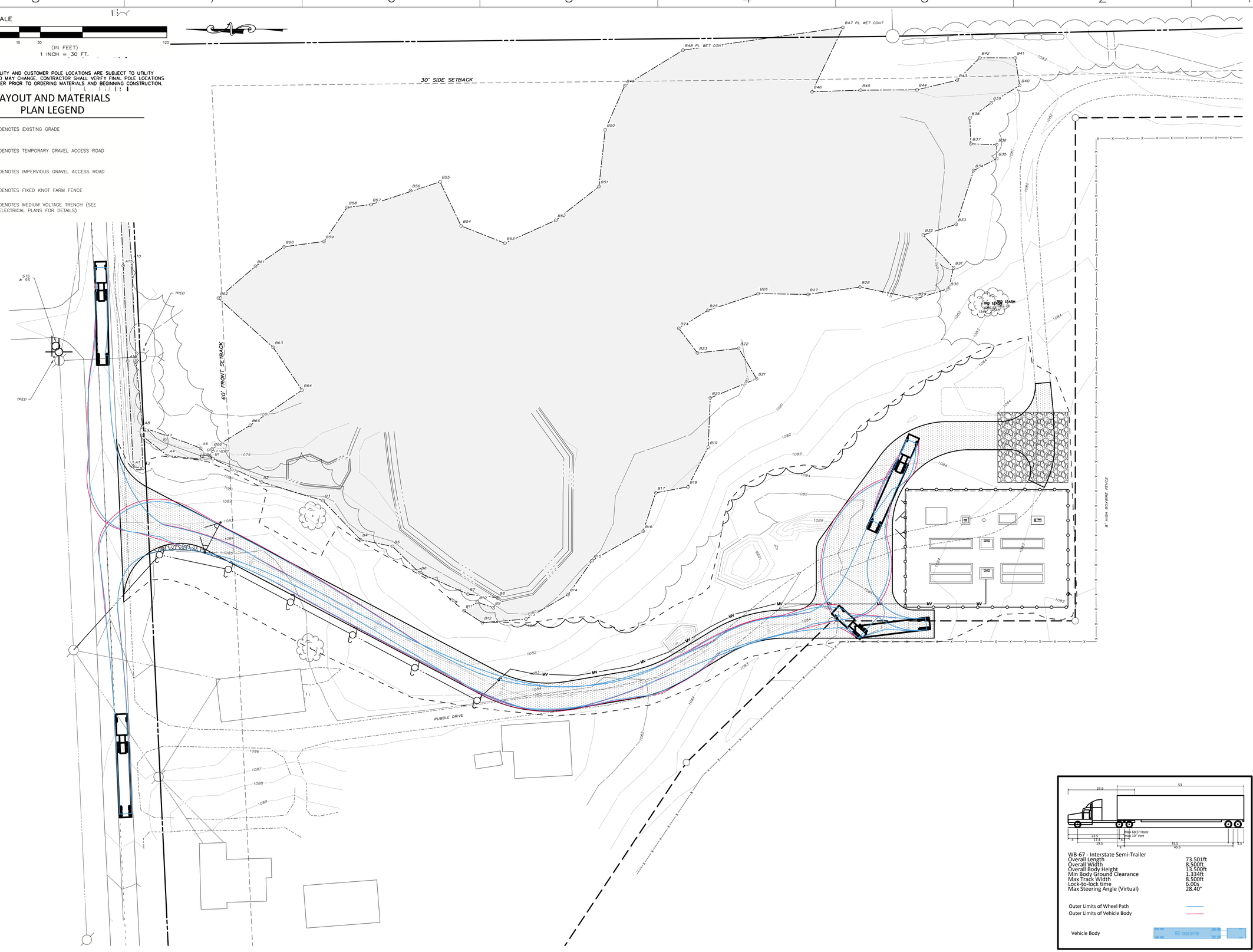
(IN FEET)
1 INCH = 30 FT.

UTILITY NOTE:

1. PROPOSED UTILITY AND CUSTOMER POLE LOCATIONS ARE SUBJECT TO UTILITY APPROVAL AND MAY CHANGE. CONTRACTOR SHALL VERIFY FINAL POLE LOCATIONS WITH THE OWNER PRIOR TO ORDERING MATERIALS AND BEGINNING CONSTRUCTION.

LAYOUT AND MATERIALS PLAN LEGEND

- DENOTES EXISTING GRADE
- DENOTES TEMPORARY GRAVEL ACCESS ROAD
- DENOTES IMPERVIOUS GRAVEL ACCESS ROAD
- DENOTES FIXED KNOT FARM FENCE
- DENOTES MEDIUM VOLTAGE TRENCH (SEE ELECTRICAL PLANS FOR DETAILS)



WB-67 - Interstate Semi-Trailer

Overall Length	73.501ft
Overall Width	8.500ft
Overall Body Height	13.500ft
Min Body Ground Clearance	1.334ft
Max Track Width	8.500ft
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	28.40°

Outer Limits of Wheel Path
Outer Limits of Vehicle Body

Vehicle Body

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Rev	Issued For	Date
A	INTERNAL REVIEW	5/27/26

P.E. seal/Consultant:

NOT FOR CONSTRUCTION

Project:
JERRY SMITH , LLC
JERRY SMITH ROAD,
LANSING, NY

Drawing Title:
TURNING MOVEMENT PLAN

Drawn by: BMW Scale: AS SHOWN Approved by: TJM

Dwg No: C-301 Size: D Sheet Rev: A

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EROSION AND SEDIMENT CONTROL NOTES:

1. ALL AREAS TO BE REVEGETATED SHALL HAVE A MINIMUM OF FOUR INCHES OF TOPSOIL.
2. AREAS USED FOR TEMPORARY LAYDOWN DURING CONSTRUCTION SHALL BE RESTORED TO PRE-CONSTRUCTION CONDITIONS INCLUDING, BUT NOT LIMITS TO, DECOMPACTION, REGRADING, LOAMING, AND SEEDING. IN NO CASE SHALL PARKING AREAS, LAYDOWN AREAS, CONSTRUCTION TRAILERS, AND PORTABLE TOILETS BE LOCATED WITHIN A WETLAND RESOUCE AREA AND/OR ANY BUFFER ZONES.
3. WETLANDS NEAR THE SOLAR ARRAY SHALL BE PROTECTED WITH FILTREXX SILTSOXX OR SILT FENCE. EROSION AND SEDIMENT CONTROL FEATURES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF SOIL DISTURBING ACTIVITIES.
4. AREAS DESIGNATED FOR CUTTING SHALL BE CUT, ONLY. NO GRUBBING OR STRIPPING OF TOPSOIL IS NECESSARY, EXCEPT FOR THOSE AREAS SHOWN ON THE SITE PLANS.
5. PERMANENT STABILIZATION SHALL BE ESTABLISHED AS SOON AS FEASIBLE GIVEN THE GROWING SEASON.

GRAPHIC SCALE

30 20 20 15 10 5 0 15 30 120

(IN FEET)
1 INCH = 30 FT.

EROSION AND SEDIMENT CONTROL PLAN LEGEND

- DENOTES EXISTING GRADE
- DENOTES TEMPORARY GRAVEL ACCESS ROAD
- DENOTES STABILIZED CONSTRUCTION ENTRANCE
- DENOTES EROSION CONTROL BLANKET
- DENOTES IMPERVIOUS GRAVEL ACCESS ROAD
- DENOTES FIXED KNOT FARM FENCE
- DENOTES MEDIUM VOLTAGE TRENCH (SEE ELECTRICAL PLANS FOR DETAILS)
- DENOTES PROPOSED CONTOUR
- DENOTES PROPOSED SILT FENCE/SOCK

30' SIDE SETBACK
60' FRONT SETBACK
STONE WALL
WET AREA
STANDING WATER
STREAM
STS & SS
TPED
SWALE
18" HDPE INV = 1078.4
STABILIZED CONSTRUCTION ENTRANCE (TYP.)
SILT FENCE OR SILT SOCK (TYP.)
EROSION CONTROL BLANKET
CONCRETE WASHOUT
SOIL STOCKPILE
8' HIGH BOWIRE FENCE
CHAIN LINK GATE
RUBBLE AREA
RUBBLE DRIVE
BUILDING
BLDG
HOUSE
GARAGE
1 HD 12 T30 15ASH
WATER 0.0 %
SAND 0.0 %
SILT 0.0 %
CLAY 0.0 %

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P.E. seal/Consultant:

NOT FOR CONSTRUCTION

Project:
JERRY SMITH , LLC
JERRY SMITH ROAD,
LANSING, NY

Drawing Title:
EROSION AND SEDIMENT CONTROL PLAN

Drawn by: BMW | Scale: AS SHOWN | Approved by: TJM

Dwg No: C-400 | Size: D | Sheet Rev: A

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DRAINAGE AND GRADING PLAN LEGEND

- DENOTES EXISTING GRADE
- DENOTES RIP RAP FILL
- DENOTES TEMPORARY GRAVEL ACCESS ROAD
- DENOTES IMPERVIOUS GRAVEL ACCESS ROAD
- DENOTES VEGETATED FILTER STRIP
- DENOTES FIXED KNOT FARM FENCE
- DENOTES MEDIUM VOLTAGE TRENCH (SEE ELECTRICAL PLANS FOR DETAILS)
- DENOTES PROPOSED CONTOUR

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P.E. seal/Consultant: NOT FOR CONSTRUCTION

Project: JERRY SMITH , LLC

JERRY SMITH ROAD, LANSING, NY

Drawing Title: GRADING AND DRAINAGE PLAN

Drawn by: BMW Scale: AS SHOWN Approved by: TJM

Dwg No: C-500 Size: D Sheet Rev: A

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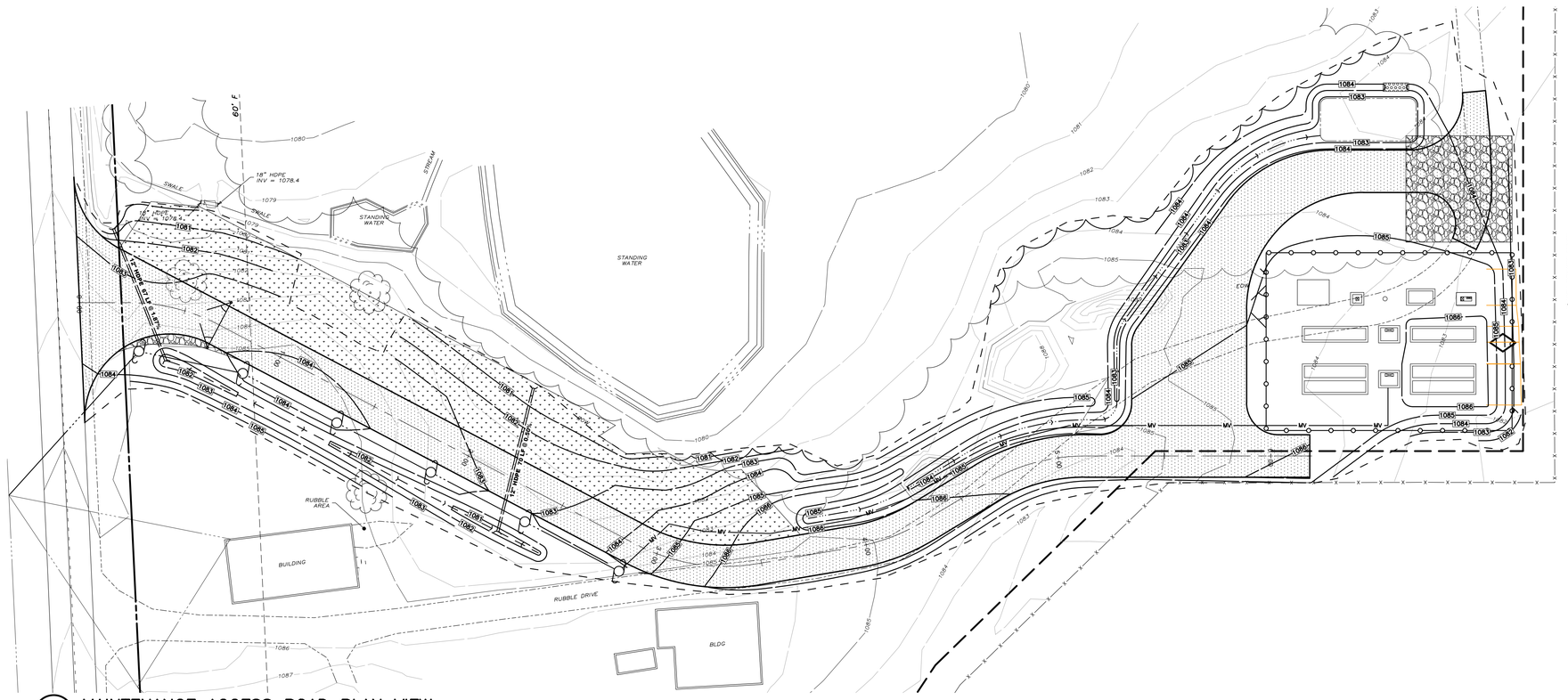


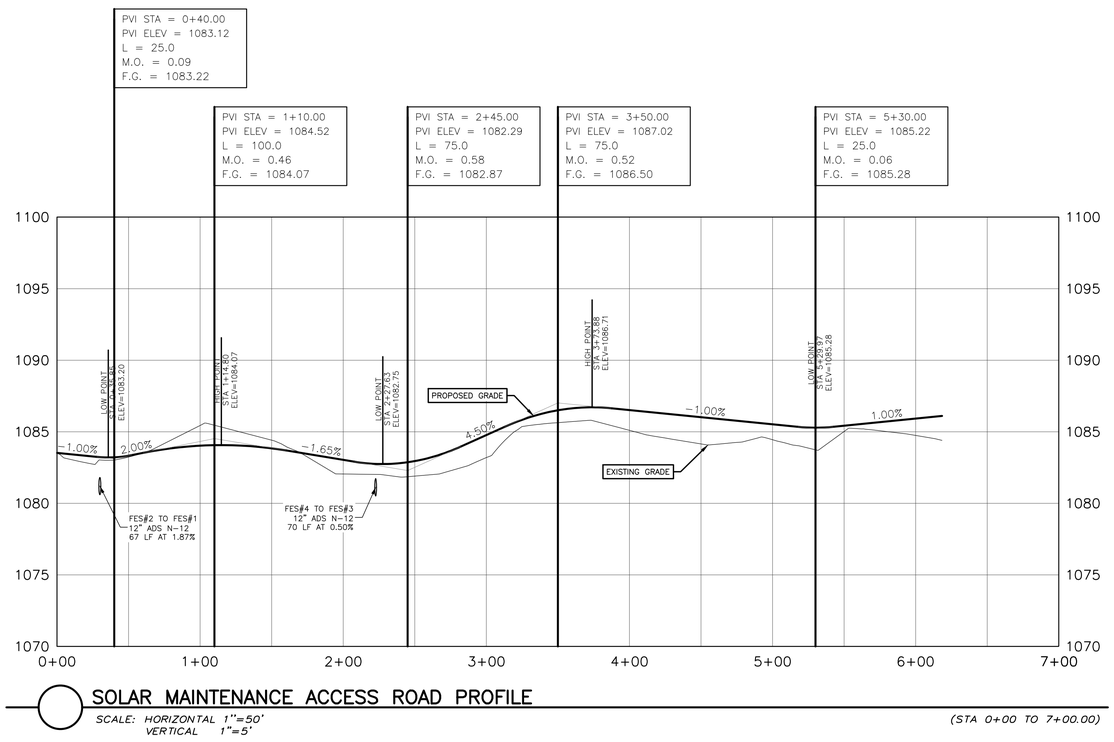
MAINTENANCE ACCESS ROAD PLAN VIEW

SCALE: 1" = 30'

(STA 0+00 TO 6+18.42)

DRAINAGE AND GRADING PLAN LEGEND

- DENOTES EXISTING GRADE
- DENOTES RIP RAP FILL
- DENOTES TEMPORARY GRAVEL ACCESS ROAD
- DENOTES IMPERVIOUS GRAVEL ACCESS ROAD
- DENOTES VEGETATED FILTER STRIP
- DENOTES FIXED KNOT FARM FENCE
- MV — DENOTES MEDIUM VOLTAGE TRENCH (SEE ELECTRICAL PLANS FOR DETAILS)
- 265 — DENOTES PROPOSED CONTOUR



SOLAR MAINTENANCE ACCESS ROAD PROFILE

SCALE: HORIZONTAL 1"=50'
VERTICAL 1"=5'

(STA 0+00 TO 7+00.00)

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Project:

JERRY SMITH , LLC

JERRY SMITH ROAD,
LANSING, NY

Drawing Title:

ROAD PROFILE

Drawn by: BMW | Scale: AS SHOWN | Approved by: TJM

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C-501		A

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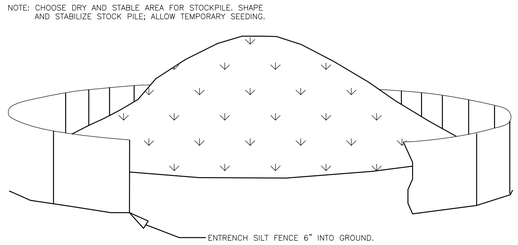
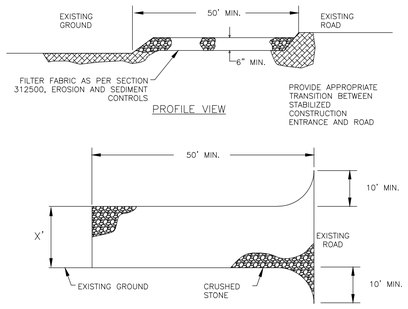
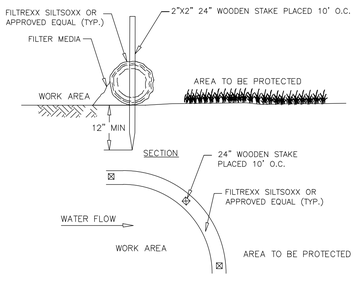


1 C-600 SOIL STOCKPILE AREA
NOT TO SCALE



1. STONE FOR A STABILIZED CONSTRUCTION ENTRANCE SHALL BE 1 TO 2 INCH STONE, RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT.
2. THE LENGTH OF THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 50 FEET.
3. THE THICKNESS OF THE STONE FOR THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 6 INCHES.
4. THE WIDTH OF THE ENTRANCE SHALL NOT BE LESS THAN THE FULL WIDTH OF THE PROPOSED ENTRANCE.
5. GEOTEXTILE FILTER CLOTH SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING THE STONE.
6. ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARDS THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE SURFACE.
7. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO EXISTING ROAD. THIS MANY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR ADDITIONAL LENGTH AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED, OR TRACKED ONTO EXISTING ROAD SHALL BE REMOVED IMMEDIATELY.

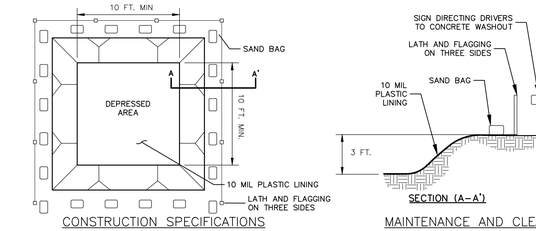
2 C-600 STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE



1. FILTER SOCK SHALL BE 12" DIAMETER MIN.
2. SOCKS TO BE FILLED WITH BIODEGRADABLE COMPOST MATERIAL.

DIA	SLOPE %						
	2	5	10	20	25	33	50
12"	250*	225	125	65	50	40	25

3 C-600 12 IN. FILTER SOCK
NOT TO SCALE



CONSTRUCTION SPECIFICATIONS

1. CONCRETE WASHOUT FACILITY SHALL BE LOCATED A MINIMUM OF FIFTY FEET (50') FROM SENSITIVE AREAS.
2. THE BASIN DIMENSIONS DEPICTED ABOVE ARE REQUIRED MINIMUMS.
3. CONCRETE WASHOUT FACILITY SHALL BE CONSTRUCTED AND MAINTAINED IN SUFFICIENT QUANTITY AND SIZE TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS. (APPROXIMATELY 60 GALLONS OF WASTE AND WATER PER TRUCK).
3. PLASTIC LINING MATERIAL SHALL BE A MINIMUM 10 MIN POLYETHYLENE SHEETING AND SHOULD BE FREE OF HOLES, TEARS, OR OTHER DEFECTS THAT COMPROMISE THE IMPERMEABILITY OF THE MATERIAL.
4. WASHOUT FACILITY MUST BE CLEANED, OR NEW FACILITES MUST BE CONSTRUCTED AND READY FOR USE ONCE THE WASHOUT IS 75% FULL.

MAINTENANCE AND CLEANING

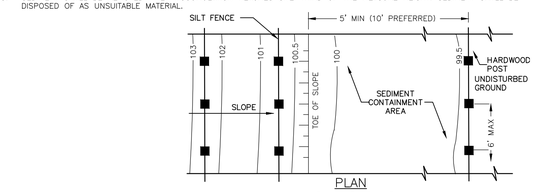
1. DO NOT DISCHARGE LIQUID OR SLURRY TO WATERWAYS, STORM DRAINS OR DIRECTLY ONTO GROUND
2. DO NOT USE SANITARY SEWER WITHOUT LOCAL APPROVAL.
3. PLACE A SECURE NON COLLAPSING, NON–WATER COLLECTING COVER OVER THE FACILITY PRIOR TO PREDICTED WET WEATHER TO PREVENT ACCUMULATION AND OVERFLOW.
4. REMOVE AND DISPOSE OF HARDEN CONCRETE AND RETURN THE STRUCTURE TO A FUNCTIONAL STATE.
5. INSPECT THE WASHOUT FACILITY FOR SIGNS OF WEAKENING OR DAMAGE AND REPAIR AS NESSESARY(RELINE THE STRUCTURE WITH NEW POLY SHEETING AFTER EACH CLEANING).

4 C-600 CONCRETE WASHOUT FACILITY
NOT TO SCALE

1. SILT FENCE SHALL BE PLACED A MINIMUM OF 5 FT. FROM TOE OF SLOPE, 10 FT. PREFERRED, TO PROVIDE ADEQUATE AREA FOR SEDIMENT STORAGE AND FACILITATE MAINTENANCE OF SEDIMENT CONTAINMENT AREA.
2. POSTS MAY BE 1.25"x1.25" (MINIMUM) HARDWOOD, TYPICALLY. FOR WIRE MESH BACK USE 2"x2" NOM. HARDWOOD, OR STEEL "I" OR "U" POSTS (1lb per lf). SILT FENCE SHALL BE WOVEN GEOTEXTILE FABRIC(GEOTEX 2130 OR EQUAL).
3. SILT FENCE ASSEMBLIES MAY HAVE 4 FT. OR 6 FT. POST SPACING, AND MAY OR MAY NOT HAVE MESH REINFORCEMENT. SENSITIVE AREAS TO BE PROTECTED MAY NEED TO BE REINFORCED BY USING HEAVY WIRE FENCING FOR ADDED SUPPORT TO PREVENT COLLAPSE.
4. THE BOTTOM EDGE OF SILT FENCE SHALL BE BURIED A MINIMUM OF 6" BELOW GROUND. THE FENCE SHALL BE INSTALLED WITH THE POSTS ON THE DOWNSTREAM SIDE OF THE FABRIC.
5. MAXIMUM ALLOWABLE SLOPE LENGTHS CONTRIBUTING RUNOFF TO A SILT FENCE PLACED ON A SLOPE ARE:

SLOPE STEEPNESS	MAXIMUM SLOPE LENGTH /FENCE LENGTH (ft.)
<2%	500/500
2–10%	125/1000
10–20%	100/750
20–33%	50/500
33–50%	40/250
>50%	25/125

6. MAXIMUM DRAINAGE AREA FOR OVERLAND FLOW TO A SILT FENCE SHALL NOT EXCEED ¼ ACRE PER 100 FEET OF FENCE, WITH MAXIMUM PONDING DEPTH OF 1.5 FEET BEHIND THE FENCE; AND EROSION WOULD OCCUR IN THE FORM OF SHEET EROSION; AND THERE IS NO CONCENTRATION OF WATER FLOWING TO THE BARRIER.
7. MEASURES SHALL BE INSPECTED EVERY SEVEN (7) CALENDAR DAYS, AFTER EACH RAINFALL OF .5" OR MORE WITHIN A 12 HOUR PERIOD, OR DAILY DURING PROLONGED RAINFALL. MEASURES SHALL BE CLEANED AND REPAIRED AS REQUIRED.
8. SEDIMENT SHALL BE REMOVED WHEN ACCUMULATION REACHES ONE–THIRD OF THE MEASURE HEIGHT. SEDIMENT SHALL BE DISPOSED OF AS UNSUITABLE MATERIAL.



SILT FENCE INSTALLATION NOTES:

1. GEOTEXTILE FABRIC AND WOVEN WIREMESH TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES.
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACES EVERY 24" AT TOP AND MID SECTION.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES, FOLDED AND STAPLED.
4. MAINTENANCE SHALL BE PERFFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

5 C-600 SILT FENCE
NOT TO SCALE

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P.E. seal/Consultant: NOT FOR CONSTRUCTION

Project: JERRY SMITH , LLC — JERRY SMITH ROAD, LANSING, NY

Drawing Title: EROSION AND SEDIMENT CONTROL DETAILS

Drawn by: BMW | Scale: AS SHOWN | Approved by: TJM

Dwg No:	Size: D	Sheet Rev:
C-600		A

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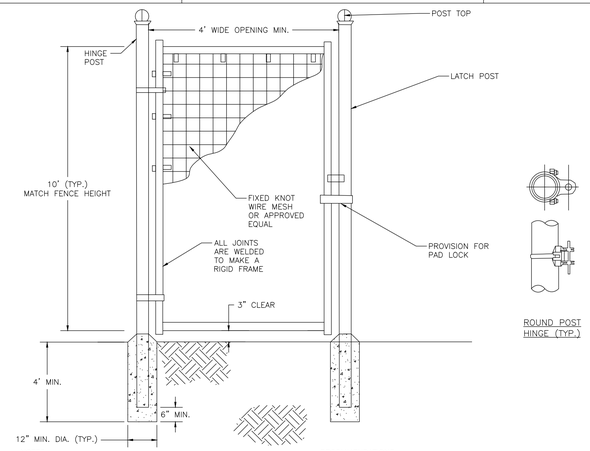
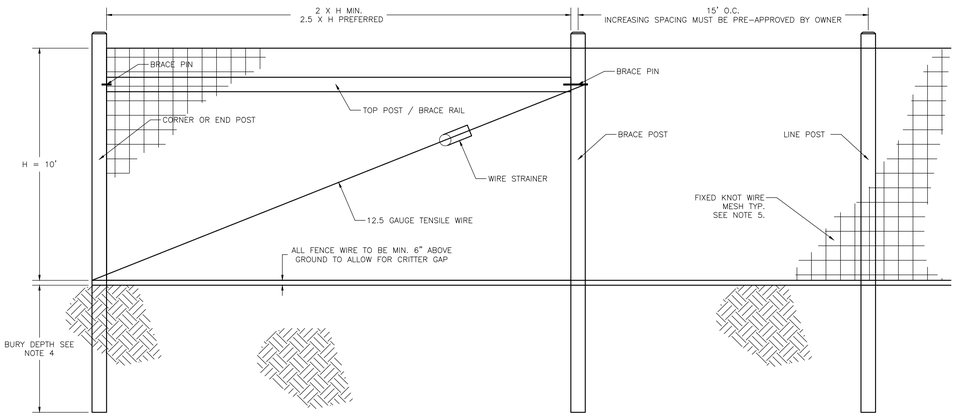


NOTES
1. INSTALL ALL FENCING COMPONENTS PER MANUFACTURES SPECIFICATIONS.
2. ALL FENCING AND HARDWARE SHALL BE GALVANIZED, UNLESS OTHERWISE NOTED.
3. HINGE POSTS MAY BE TIMBER IF CONTRACTOR DESIRES, TIMBER HINGE POSTS DO NOT NEED TO BE SET IN CONCRETE. UTILIZE HINGE THRU BOLTS TO CONNECT TO TIMBER HINGE POSTS OR LAG SCREWS, PER MANUFACTURERS RECOMMENDATIONS.
4. IF CONTRACTOR UTILIZES METAL HINGE POST THAN POSTS SHALL BE SET IN CONCRETE AS SHOWN ON DETAIL.
5. BRACING REQUIRED AT FOR ALL GATES. SEE FIXED KNOT FARM FENCE DETAIL.
6. FIXED KNOT WIRE MESH TO BE BEKAERT SOLIDLOCK^2 PRO, 12.5 GAUGE, CLASS 3 GALVANIZED, 6" VERTICAL SPACING OR APPROVED EQUAL
7. BRACE RAILS AND/ OR TRUSS RODS ARE NOT SHOWN, MAY BE REQUIRED PER MANUFACTURES RECOMMENDATIONS

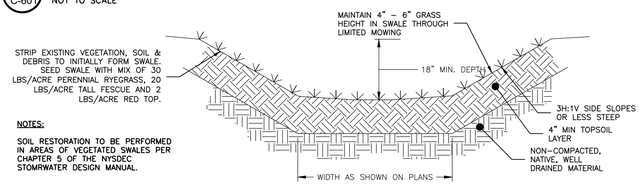
7 C-601 FIXED KNOT FARM FENCE – PERSONNEL GATE
NOT TO SCALE



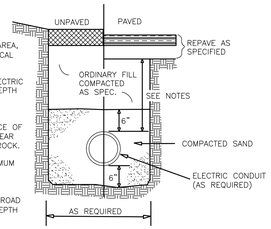
NOTES
1. INSTALL ALL FENCING COMPONENTS PER MANUFACTURES SPECIFICATIONS.
2. ALL FENCING AND HARDWARE SHALL BE GALVANIZED, UNLESS OTHERWISE NOTED.
3. ALL SQUARE POSTS TO BE MIN. 5"X5" NOMINAL SIZE OR ROUND POST WITH MIN. 5" OR 6" DIAMETER PRESSURE TREATED WOOD OR APPROVED EQUAL. PREFER POSTS TO HAVE A CHAMFERED TOP.
4. ALL LINE POST TO BE SET TO A MIN. DEPTH OF 4' BELOW GRADE, ALL CORNER, END OR GATE POSTS SHALL BE SET TO A MIN. DEPTH OF 6' BELOW GRADE, UNLESS OTHERWISE NOTED.
5. FIXED KNOT WIRE MESH TO BE BEKAERT SOLIDLOCK^2 PRO, 12.5 GAUGE, CLASS 3 GALVANIZED, 6" VERTICAL SPACING OR APPROVED EQUAL.
6. BRACING IS REQUIRED AT ALL CORNER, END, AND GATE POSTS. DOUBLE BRACING (TWO BRACE ASSEMBLIES IN A ROW) SHOULD BE USED FOR STRAIGHT RUNS OF FENCE THAT EXCEED 1,000 LF. AN ADDITIONAL BRACE ASSEMBLY SHOULD BE INSTALLED MID SPAN FOR STRAIGHT RUNS OF FENCE THAT EXCEED 1,320 LF. ADDITIONAL BRACING MAY BE STILL BE REQUIRED OVER UNEVEN TERRAIN, CONTRACTOR SHALL INSTALL ADDITIONAL BRACING AS NEEDED IF DEFLECTION IS NOTICED DURING TENSIONING.

8 C-601 FIXED KNOT FARM FENCE
NOT TO SCALE

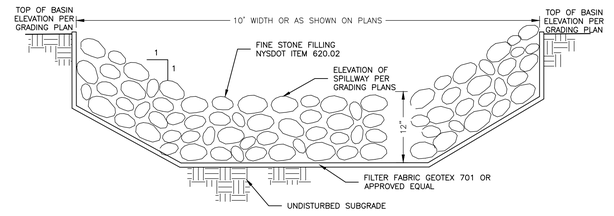
6 C-601 VEGETATED SWALE
NOT TO SCALE



NOTES:
1. 18" MINIMUM WHEN LOCATED WITHIN FENCED AREA, 24" IF CONDUIT IS NOT UTILIZED AND ELECTRICAL LINES ARE DIRECTLY PLACED.
2. OUTSIDE OF PERIMETER FENCE IN CROPLAND, HAYLAND, AND IMPROVED PASTURE BURIED ELECTRIC CONDUCTORS MUST HAVE A MINIMUM TOTAL DEPTH OF 48" OF COVER.
3. IN AREAS WHERE THE DEPTH OF SOIL OVER BEDROCK IS LESS THAN 48", THE ELECTRIC CONDUIT MUST BE BURIED BELOW THE SURFACE OF THE BEDROCK IF FRIABLE/RIPPABLE, OR AS NEAR AS POSSIBLE TO THE SURFACE OF THE BED ROCK.
4. IN UNIMPROVED GRAZING AREAS OR ON LAND PERMANENTLY DEVOTED TO PASTURE THE MINIMUM DEPTH OF COVER MUST BE 36".
5. WHERE ELECTRICAL CONDUCTORS ARE BURIED DIRECTLY BELOW THE GENERATION FACILITY'S ACCESS ROAD OR IMMEDIATELY ADJACENT (AT ROAD EDGE) TO THE ACCESS ROAD, THE MINIMUM DEPTH OF COVER MUST BE 24".

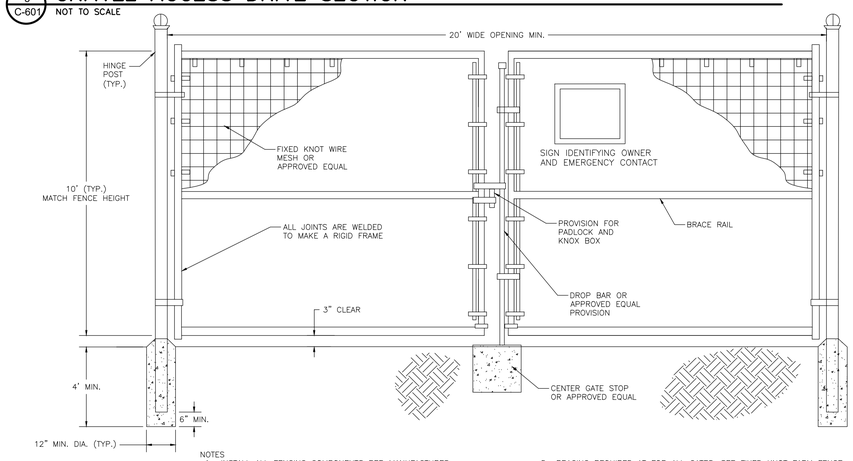


6 C-601 MV CABLE TRENCH
NOT TO SCALE



7 C-601 EMERGENCY OVERFLOW SPILLWAY
NOT TO SCALE

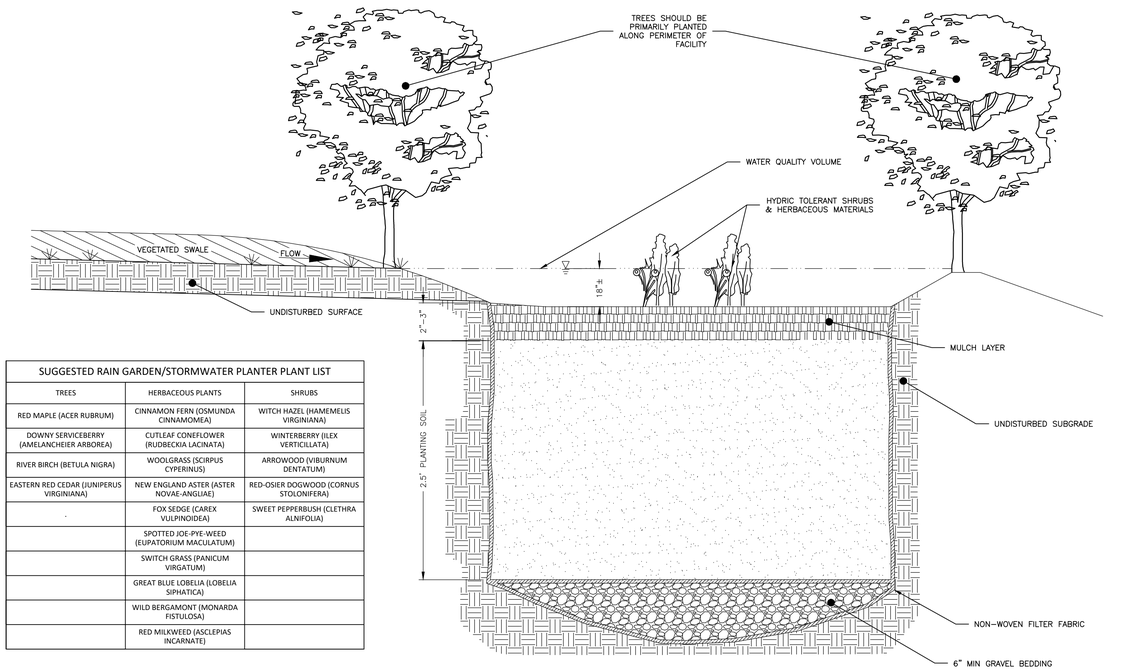
3 C-601 GRAVEL ACCESS DRIVE SECTION
NOT TO SCALE



NOTES
1. INSTALL ALL FENCING COMPONENTS PER MANUFACTURES SPECIFICATIONS.
2. ALL FENCING AND HARDWARE SHALL BE GALVANIZED, UNLESS OTHERWISE NOTED.
3. HINGE POSTS MAY BE TIMBER IF CONTRACTOR DESIRES, TIMBER HINGE POSTS DO NOT NEED TO BE SET IN CONCRETE. UTILIZE HINGE THRU BOLTS TO CONNECT TO TIMBER HINGE POSTS OR LAG SCREWS, PER MANUFACTURERS RECOMMENDATIONS.
4. IF CONTRACTOR UTILIZES METAL HINGE POST THAN POSTS SHALL BE SET IN CONCRETE AS SHOWN ON DETAIL.
5. BRACING REQUIRED AT FOR ALL GATES. SEE FIXED KNOT FARM FENCE DETAIL.
6. FIXED KNOT WIRE MESH TO BE BEKAERT SOLIDLOCK^2 PRO, 12.5 GAUGE, CLASS 3 GALVANIZED, 6" VERTICAL SPACING OR APPROVED EQUAL.
7. BRACE RAIL SHOWN FOR REFERENCE ADDITIONAL BRACE RAILS MAY BE REQUIRED (NOT SHOWN) OR TRUSS RODS MAY BE REQUIRED PER MANUFACTURES RECOMMENDATIONS

4 C-601 FIXED KNOT FARM FENCE – DOUBLE GATE
NOT TO SCALE

SUGGESTED RAIN GARDEN/STORMWATER PLANTER PLANT LIST		
TREES	HERBACEOUS PLANTS	SHRUBS
RED MAPLE (ACER RUBRUM)	CINNAMON FERN (OSMUNDA CINNAMOMEA)	WITCH HAZEL (HAMEMELIS VIRGINIANA)
DOWNY SERVICEBERRY (AMELANCHEIER ARBOREA)	CUTLEAF CONEFLOWER (RUDBECKIA LACINATA)	WINTERBERRY (ILEX VERTICILLATA)
RIVER BIRCH (BETULA NIGRA)	WOOLGRASS (SCIRPUS CYPERINUS)	ARROWOOD (VIBURNUM DENTATUM)
EASTERN RED CEDAR (JUNIPERUS VIRGINIANA)	NEW ENGLAND ASTER (ASTER NOVAE-ANGLIAE)	RED-OSIER DOGWOOD (CORNUS STOLONIFERA)
.	FOX SEDGE (CAREX VULPINOIDEA)	SWEET PEPPERBUSH (CLETHRA ALNIFOLIA)
	SPOTTED JOE-PYE-WEED (EUPATORIUM MACULATUM)	
	SWITCH GRASS (PANICUM VIRGATUM)	
	GREAT BLUE LOBELIA (LOBELIA SIPHATICA)	
	WILD BERGAMONT (MONARDA FISTULOSA)	
	RED MILKWEED (ASCLEPIAS INCARNATE)	



8 C-601 BIORETENTION AREA
NOT TO SCALE

nexamp
101 Summer Street, Boston, MA 02110
Tel: (617) 431-1440 Fax: (978) 416-2525 Web: nexamp.com

ENVIRONMENTAL DESIGN PARTNERSHIP, LLP.
900 Route 146 Clifton Park, New York 12065
(518) 371-7021 edpllp.com

Rev	Issued For	Date
A	INTERNAL REVIEW	5/27/26

P.E. seal/Consultant: NOT FOR CONSTRUCTION

Project: JERRY SMITH , LLC
JERRY SMITH ROAD, LANSING, NY

Drawing Title: SITE DETAILS
Drawn by: BMW Scale: AS SHOWN Approved by: TJM

Dwg No: C-601 Size: D Sheet Rev: A

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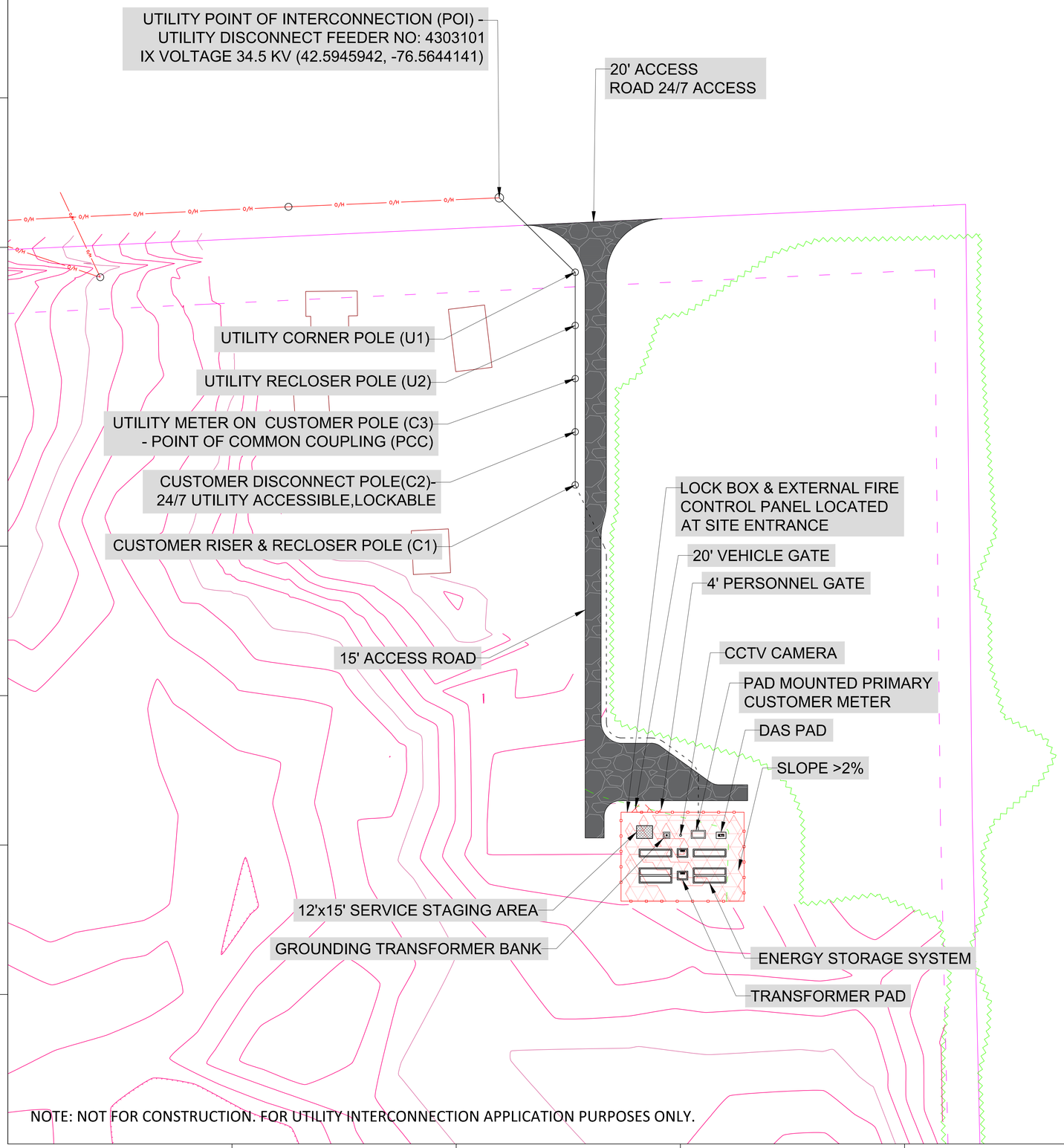


NOTE: NOT FOR CONSTRUCTION. FOR UTILITY INTERCONNECTION APPLICATION PURPOSES ONLY.

ENERGY STORAGE SYSTEM INFORMATION	
ENERGY STORAGE MODEL	(6) Tesla MP2XL C010 3916.8kWh (4-HR)
ENERGY STORAGE INVERTER	(4) Tesla Integrated PCS P085 (2) Tesla Integrated PCS P080
ENERGY STORAGE TRANSFORMER	(2) 2,500 kW
INSTALLED ESS CAPACITY (AC)	5,875.2 kW / 23,500.8 kWh
TOTAL ESS OPERATING CAPACITY (AC)	5,000 kW / 23,500.8 kWh

LAYOUT AND EQUIPMENT SUBJECT TO SITE EVALUATION

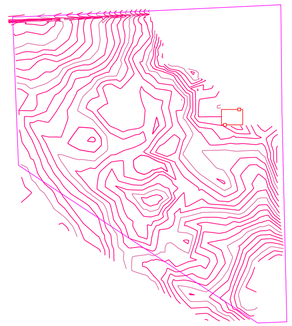
- PROPERTY OFFSET: FRONT = 60', SIDE = 30', BACK = 40', PROPERTY AREA = 1,914,522 SF
- WETLAND OFFSET = 100', STREAM OFFSET = N/A
- TREE HEIGHT = 70', TREE CUT = 48,705 SF
- PROPOSED ROAD = 16,780 SF, EXISTING ROAD = 00 SF, GRASS ROAD = 00 SF
- FENCE LENGTH = 399', FENCED AREA = 9,689 SF
- UTILITY OWNED OVERHEAD LINE = 200', NEXAMP OWNED OVERHEAD LINE = 100'
- UNDERGROUND LINE = 391' , TOPO SOURCE = SURVEY ALTA

POLES

- 40' IN HEIGHT, SPACED A MINIMUM OF 25' APART, MAXIMUM OF 30' APART
- TREE OFFSET FROM POLES = 15'
- PLACED A MINIMUM OF 5', MAXIMUM OF 15' OFF OF ROAD

NOTES

- UTILITY DISCONNECT WILL BE INSTALLED IN THE FORM OF CUTOUTS ON THE POI.



LEGEND:

- PROPERTY LINE
- PROPERTY SETBACK
- FENCE LINE
- SHADE LINE
- STREAM AREA
- STREAM SETBACK AREA
- WETLAND AREA
- WETLAND SETBACK AREA
- TREE LINE
- TREE FALL LINE
- UNDERGROUND MV LINE
- OVERHEAD MV LINE
- EXISTING ACCESS ROAD
- NEW ACCESS ROAD
- GRASS ROAD
- HIGH SLOPE AREA

TRUE_NORTH

SCALE IN FEET

0 50 100 150 250

nexamp
101 Summer Street, Boston, MA 02110
Tel: (617) 431-1440 Fax: (978) 416-2525 Web: nexamp.com

Rev	Issued For	Date	Init
A	Permit DWG	04/20/2026	MU

P.E. seal/Consultant:

Project:
133809 Jerry Smith Storage
339 Jerry Smith Rd,
Lansing, NY, 14882
42.590658, -76.564285

Drawing Title:
Conceptual Layout

Drawn by: M Useman
Scale:1"=50'

Dwg No: PV-101
Size: D
Sheet Rev: A

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Instructions for Completing Part 1

Part 1 is to be completed by the applicant or project sponsor. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification.

Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information; indicate whether missing information does not exist, or is not reasonably available to the sponsor; and, when possible, generally describe work or studies which would be necessary to update or fully develop that information.

Applicants/sponsors must complete all items in Sections A & B. In Sections C, D & E, most items contain an initial question that must be answered either "Yes" or "No". If the answer to the initial question is "Yes", complete the sub-questions that follow. If the answer to the initial question is "No", proceed to the next question. Section F allows the project sponsor to identify and attach any additional information. Section G requires the name and signature of the applicant or project sponsor to verify that the information contained in Part 1is accurate and complete.

A. Project and Applicant/Sponsor Information.

Name of Action or Project: Jerry Smith Storage		
Project Location (describe, and attach a general location map): 339 Jerry Smith Road, Lansing, NY		
Brief Description of Proposed Action (include purpose or need): The Applicant is proposing a standalone, front-of the-meter battery energy storage system(BESS) interconnected to the NYSEG distribution system at 34.5 kV. the project will have an operating capacity of approximately 5,000kW/23,500.8 kWh (4-hour duration)using six Tesla Megapack 2XL units with integrated PCS inverters, step transformers, associated communications and protection equipment, access roadway, and perimeter fencing.The project will be located at 339 Jerry Smith Road, Lansing, NY in Tompkins County,Tax Id 16.-1-10.2.		
Name of Applicant/Sponsor: Jerry Smith, LLC	Telephone:607-237-5254 E-Mail:MDeAngelo@nexamp.com	
Address:101 Summer Street, 2nd floor		
City/PO:Boston	State:MA	Zip Code:02110
Project Contact (if not same as sponsor; give name and title/role): Travis Mitchell, Environmental Design Partnership	Telephone:518-347-7139 E-Mail:tmitchell@edpllp.com	
Address: 900 Route 146		
City/PO: Clifton Park	State: NY	Zip Code: 12065
Property Owner (if not same as sponsor): Wayne L and Doris K Straw	Telephone: E-Mail:	
Address: 339 Jerry Smith Road		
City/PO: Lansing	State: NY	Zip Code:14882

B. Government Approvals

B. Government Approvals, Funding, or Sponsorship. ("Funding" includes grants, loans, tax relief, and any other forms of financial assistance.)

Government Entity	If Yes: Identify Agency and Approval(s) Required	Application Date (Actual or projected)
a. City Counsel, Town Board, or Village Board of Trustees ☐Yes ☐No		
b. City, Town or Village Planning Board or Commission ☐Yes ☐No		
c. City, Town or Village Zoning Board of Appeals ☐Yes ☐No		
d. Other local agencies ☐Yes ☐No		
e. County agencies ☐Yes ☐No		
f. Regional agencies ☐Yes ☐No		
g. State agencies ☐Yes ☐No		
h. Federal agencies ☐Yes ☐No		

i. Coastal Resources.

i. Is the project site within a Coastal Area, or the waterfront area of a Designated Inland Waterway? ☐Yes ☑No

ii. Is the project site located in a community with an approved Local Waterfront Revitalization Program? ☐Yes ☑No

iii. Is the project site within a Coastal Erosion Hazard Area? ☐Yes ☐No

C. Planning and Zoning

C.1. Planning and zoning actions.

Will administrative or legislative adoption, or amendment of a plan, local law, ordinance, rule or regulation be the only approval(s) which must be granted to enable the proposed action to proceed? ☐Yes ☐No

- **If Yes,** complete sections C, F and G.
- **If No,** proceed to question C.2 and complete all remaining sections and questions in Part 1

C.2. Adopted land use plans.

a. Do any municipally- adopted (city, town, village or county) comprehensive land use plan(s) include the site where the proposed action would be located? ☐Yes ☐No

If Yes, does the comprehensive plan include specific recommendations for the site where the proposed action would be located? ☐Yes ☐No

b. Is the site of the proposed action within any local or regional special planning district (for example: Greenway; Brownfield Opportunity Area (BOA); designated State or Federal heritage area; watershed management plan; or other?) ☐Yes ☐No

If Yes, identify the plan(s):

_____

_____

_____

c. Is the proposed action located wholly or partially within an area listed in an adopted municipal open space plan, or an adopted municipal farmland protection plan? ☐Yes ☐No

If Yes, identify the plan(s):

_____

_____

_____

C.3. Zoning

a. Is the site of the proposed action located in a municipality with an adopted zoning law or ordinance. ☐Yes ☐No
If Yes, what is the zoning classification(s) including any applicable overlay district?

_____
_____

b. Is the use permitted or allowed by a special or conditional use permit? ☐Yes ☐No

c. Is a zoning change requested as part of the proposed action? ☐Yes ☐No
If Yes,
i. What is the proposed new zoning for the site? _____

C.4. Existing community services.

a. In what school district is the project site located? _____

b. What police or other public protection forces serve the project site?

_____

c. Which fire protection and emergency medical services serve the project site?

_____

d. What parks serve the project site?

_____
_____

D. Project Details

D.1. Proposed and Potential Development

a. What is the general nature of the proposed action (e.g., residential, industrial, commercial, recreational; if mixed, include all components)?

_____

b. a. Total acreage of the site of the proposed action? _____ acres
b. Total acreage to be physically disturbed? _____ acres
c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? _____ acres

c. Is the proposed action an expansion of an existing project or use? ☐Yes ☐No
i. If Yes, what is the approximate percentage of the proposed expansion and identify the units (e.g., acres, miles, housing units, square feet)? % _____ Units: _____

d. Is the proposed action a subdivision, or does it include a subdivision? ☐Yes ☐No
If Yes,
i. Purpose or type of subdivision? (e.g., residential, industrial, commercial; if mixed, specify types)

_____
ii. Is a cluster/conservation layout proposed? ☐Yes ☐No
iii. Number of lots proposed? _____
iv. Minimum and maximum proposed lot sizes? Minimum _____ Maximum _____

e. Will the proposed action be constructed in multiple phases? ☐Yes ☐No
i. If No, anticipated period of construction: _____ months
ii. If Yes:

- Total number of phases anticipated _____
- Anticipated commencement date of phase 1 (including demolition) _____ month _____ year
- Anticipated completion date of final phase _____ month _____year
- Generally describe connections or relationships among phases, including any contingencies where progress of one phase may determine timing or duration of future phases: _____

_____
_____

f. Does the project include new residential uses? ☐Yes ☐No
If Yes, show numbers of units proposed.

	One Family	Two Family	Three Family	Multiple Family (four or more)
Initial Phase	_____	_____	_____	_____
At completion of all phases	_____	_____	_____	_____

g. Does the proposed action include new non-residential construction (including expansions)? ☐Yes ☐No
If Yes,
i. Total number of structures _____
ii. Dimensions (in feet) of largest proposed structure: _____height; _____width; and _____ length
iii. Approximate extent of building space to be heated or cooled: _____ square feet

h. Does the proposed action include construction or other activities that will result in the impoundment of any liquids, such as creation of a water supply, reservoir, pond, lake, waste lagoon or other storage? ☐Yes ☐No
If Yes,
i. Purpose of the impoundment: _____
ii. If a water impoundment, the principal source of the water: ☐ Ground water ☐ Surface water streams ☐Other specify:
_____
iii. If other than water, identify the type of impounded/contained liquids and their source.
_____
iv. Approximate size of the proposed impoundment. Volume: _____ million gallons; surface area: _____ acres
v. Dimensions of the proposed dam or impounding structure: _____ height; _____ length
vi. Construction method/materials for the proposed dam or impounding structure (e.g., earth fill, rock, wood, concrete):
_____

D.2. Project Operations

a. Does the proposed action include any excavation, mining, or dredging, during construction, operations, or both? ☐Yes ☐No
(Not including general site preparation, grading or installation of utilities or foundations where all excavated materials will remain onsite)
If Yes:
i .What is the purpose of the excavation or dredging? _____
ii. How much material (including rock, earth, sediments, etc.) is proposed to be removed from the site?
- Volume (specify tons or cubic yards): _____
- Over what duration of time? _____

iii. Describe nature and characteristics of materials to be excavated or dredged, and plans to use, manage or dispose of them.
_____
_____
i*v.* Will there be onsite dewatering or processing of excavated materials? ☐Yes ☐No
If yes, describe. _____
_____
v. What is the total area to be dredged or excavated? _____acres
vi. What is the maximum area to be worked at any one time? _____ acres
vii. What would be the maximum depth of excavation or dredging? _____ feet
viii. Will the excavation require blasting? ☐Yes ☐No
ix. Summarize site reclamation goals and plan: _____
_____
_____

b. Would the proposed action cause or result in alteration of, increase or decrease in size of, or encroachment into any existing wetland, waterbody, shoreline, beach or adjacent area? ☐Yes ☐No
If Yes:
i. Identify the wetland or waterbody which would be affected (by name, water index number, wetland map number or geographic description): _____
_____

ii. Describe how the proposed action would affect that waterbody or wetland, e.g. excavation, fill, placement of structures, or alteration of channels, banks and shorelines. Indicate extent of activities, alterations and additions in square feet o

_____
_____
_____
_____

iii. Will the proposed action cause or result in disturbance to bottom sediments? ☐Yes ☐No
If Yes, describe: _____

iv. Will the proposed action cause or result in the destruction or removal of aquatic vegetation? ☐Yes ☐No
If Yes:

- acres of aquatic vegetation proposed to be removed: _____
- expected acreage of aquatic vegetation remaining after project completion: _____
- purpose of proposed removal (e.g. beach clearing, invasive species control, boat access): _____
  _____
- proposed method of plant removal: _____
- if chemical/herbicide treatment will be used, specify product(s): _____

v. Describe any proposed reclamation/mitigation following disturbance: _____
_____

c. Will the proposed action use, or create a new demand for water? ☐Yes ☐No
If Yes:

i. Total anticipated water usage/demand per day: _____ gallons/day

ii. Will the proposed action obtain water from an existing public water supply? ☐Yes ☐No
If Yes:

- Name of district or service area: _____
- Does the existing public water supply have capacity to serve the proposal? ☐Yes ☐No
- Is the project site in the existing district? ☐Yes ☐No
- Is expansion of the district needed? ☐Yes ☐No
- Do existing lines serve the project site? ☐Yes ☐No

iii. Will line extension within an existing district be necessary to supply the project? ☐Yes ☐No
If Yes:

- Describe extensions or capacity expansions proposed to serve this project: _____
  _____
- Source(s) of supply for the district: _____

iv. Is a new water supply district or service area proposed to be formed to serve the project site? ☐Yes ☐No
If, Yes:

- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- Proposed source(s) of supply for new district: _____

v. If a public water supply will not be used, describe plans to provide water supply for the project: _____
_____

vi. If water supply will be from wells (public or private), what is the maximum pumping capacity: _____ gallons/minute.

d. Will the proposed action generate liquid wastes? ☐Yes ☐No
If Yes:

i. Total anticipated liquid waste generation per day: _____ gallons/day

ii. Nature of liquid wastes to be generated (e.g., sanitary wastewater, industrial; if combination, describe all components and approximate volumes or proportions of each): _____
_____
_____

iii. Will the proposed action use any existing public wastewater treatment facilities? ☐Yes ☐No
If Yes:

- Name of wastewater treatment plant to be used: _____
- Name of district: _____
- Does the existing wastewater treatment plant have capacity to serve the project? ☐Yes ☐No
- Is the project site in the existing district? ☐Yes ☐No
- Is expansion of the district needed? ☐Yes ☐No

- Do existing sewer lines serve the project site? ☐Yes ☐No
- Will a line extension within an existing district be necessary to serve the project? ☐Yes ☐No

If Yes:

- Describe extensions or capacity expansions proposed to serve this project: _____

_____

_____

iv. Will a new wastewater (sewage) treatment district be formed to serve the project site? ☐Yes ☐No

If Yes:

- Applicant/sponsor for new district: _____
- Date application submitted or anticipated: _____
- What is the receiving water for the wastewater discharge? _____

v. If public facilities will not be used, describe plans to provide wastewater treatment for the project, including specifying proposed receiving water (name and classification if surface discharge or describe subsurface disposal plans):

_____

_____

vi. Describe any plans or designs to capture, recycle or reuse liquid waste: _____

_____

_____

e. Will the proposed action disturb more than one acre and create stormwater runoff, either from new point sources (i.e. ditches, pipes, swales, curbs, gutters or other concentrated flows of stormwater) or non-point source (i.e. sheet flow) during construction or post construction? ☐Yes ☐No

If Yes:

i. How much impervious surface will the project create in relation to total size of project parcel?

_____ Square feet or _____ acres (impervious surface)

_____ Square feet or _____ acres (parcel size)

ii. Describe types of new point sources. _____

_____

iii. Where will the stormwater runoff be directed (i.e. on-site stormwater management facility/structures, adjacent properties, groundwater, on-site surface water or off-site surface waters)?

_____

_____

- If to surface waters, identify receiving water bodies or wetlands: _____

_____

_____

- Will stormwater runoff flow to adjacent properties? ☐Yes ☐No

iv. Does the proposed plan minimize impervious surfaces, use pervious materials or collect and re-use stormwater? ☐Yes ☐No

f. Does the proposed action include, or will it use on-site, one or more sources of air emissions, including fuel combustion, waste incineration, or other processes or operations? ☐Yes ☐No

If Yes, identify:

i. Mobile sources during project operations (e.g., heavy equipment, fleet or delivery vehicles)

_____

ii. Stationary sources during construction (e.g., power generation, structural heating, batch plant, crushers)

_____

iii. Stationary sources during operations (e.g., process emissions, large boilers, electric generation)

_____

g. Will any air emission sources named in D.2.f (above), require a NY State Air Registration, Air Facility Permit, or Federal Clean Air Act Title IV or Title V Permit? ☐Yes ☐No

If Yes:

i. Is the project site located in an Air quality non-attainment area? (Area routinely or periodically fails to meet ambient air quality standards for all or some parts of the year) ☐Yes ☐No

ii. In addition to emissions as calculated in the application, the project will generate:

- _____Tons/year (short tons) of Carbon Dioxide (CO_2)
- _____Tons/year (short tons) of Nitrous Oxide (N_2O)
- _____Tons/year (short tons) of Perfluorocarbons (PFCs)
- _____Tons/year (short tons) of Sulfur Hexafluoride (SF_6)
- _____Tons/year (short tons) of Carbon Dioxide equivalent of Hydroflourocarbons (HFCs)
- _____Tons/year (short tons) of Hazardous Air Pollutants (HAPs)

h. Will the proposed action generate or emit methane (including, but not limited to, sewage treatment plants, landfills, composting facilities)? ☐Yes ☐No

If Yes:

i. Estimate methane generation in tons/year (metric): _____

ii. Describe any methane capture, control or elimination measures included in project design (e.g., combustion to generate heat or electricity, flaring): _____

_____

i. Will the proposed action result in the release of air pollutants from open-air operations or processes, such as quarry or landfill operations? ☐Yes ☐No

If Yes: Describe operations and nature of emissions (e.g., diesel exhaust, rock particulates/dust):

_____

_____

j. Will the proposed action result in a substantial increase in traffic above present levels or generate substantial new demand for transportation facilities or services? ☐Yes ☐No

If Yes:

i. When is the peak traffic expected (Check all that apply): ☐ Morning ☐ Evening ☐Weekend ☐ Randomly between hours of _____ to _____.

ii. For commercial activities only, projected number of truck trips/day and type (e.g., semi trailers and dump trucks): _____

_____

iii. Parking spaces: Existing _____ Proposed _____ Net increase/decrease _____

iv. Does the proposed action include any shared use parking? ☐Yes ☐No

v. If the proposed action includes any modification of existing roads, creation of new roads or change in existing access, describe:

_____

vi. Are public/private transportation service(s) or facilities available within ½ mile of the proposed site? ☐Yes ☐No

vii Will the proposed action include access to public transportation or accommodations for use of hybrid, electric or other alternative fueled vehicles? ☐Yes ☐No

viii. Will the proposed action include plans for pedestrian or bicycle accommodations for connections to existing pedestrian or bicycle routes? ☐Yes ☐No

k. Will the proposed action (for commercial or industrial projects only) generate new or additional demand for energy? ☐Yes ☐No

If Yes:

i. Estimate annual electricity demand during operation of the proposed action: _____

_____

ii. Anticipated sources/suppliers of electricity for the project (e.g., on-site combustion, on-site renewable, via grid/local utility, or other):

_____

iii. Will the proposed action require a new, or an upgrade, to an existing substation? ☐Yes ☐No

l. Hours of operation. Answer all items which apply.

i. During Construction:

- Monday - Friday: _____
- Saturday: _____
- Sunday: _____
- Holidays: _____

ii. During Operations:

- Monday - Friday: _____
- Saturday: _____
- Sunday: _____
- Holidays: _____

m. Will the proposed action produce noise that will exceed existing ambient noise levels during construction, operation, or both? ☐ Yes ☐ No

If yes:

i. Provide details including sources, time of day and duration:

_____

_____

ii. Will the proposed action remove existing natural barriers that could act as a noise barrier or screen? ☐ Yes ☐ No

Describe: _____

_____

n. Will the proposed action have outdoor lighting? ☐ Yes ☐ No

If yes:

i. Describe source(s), location(s), height of fixture(s), direction/aim, and proximity to nearest occupied structures:

_____

_____

ii. Will proposed action remove existing natural barriers that could act as a light barrier or screen? ☐ Yes ☐ No

Describe: _____

_____

o. Does the proposed action have the potential to produce odors for more than one hour per day? ☐ Yes ☐ No

If Yes, describe possible sources, potential frequency and duration of odor emissions, and proximity to nearest occupied structures: _____

_____

_____

p. Will the proposed action include any bulk storage of petroleum (combined capacity of over 1,100 gallons) or chemical products 185 gallons in above ground storage or any amount in underground storage? ☐ Yes ☐ No

If Yes:

i. Product(s) to be stored _____

ii. Volume(s) _____ per unit time _____ (e.g., month, year)

iii. Generally, describe the proposed storage facilities:_____

_____

q. Will the proposed action (commercial, industrial and recreational projects only) use pesticides (i.e., herbicides, insecticides) during construction or operation? ☐ Yes ☐ No

If Yes:

i. Describe proposed treatment(s):

_____

_____

_____

_____

ii. Will the proposed action use Integrated Pest Management Practices? ☐ Yes ☐ No

r. Will the proposed action (commercial or industrial projects only) involve or require the management or disposal of solid waste (excluding hazardous materials)? ☐ Yes ☐ No

If Yes:

i. Describe any solid waste(s) to be generated during construction or operation of the facility:

- Construction: _____ tons per _____ (unit of time)
- Operation : _____ tons per _____ (unit of time)

ii. Describe any proposals for on-site minimization, recycling or reuse of materials to avoid disposal as solid waste:

- Construction: _____

  _____
- Operation: _____

  _____

iii. Proposed disposal methods/facilities for solid waste generated on-site:

- Construction: _____

  _____
- Operation: _____

  _____

s. Does the proposed action include construction or modification of a solid waste management facility? ☐ Yes ☐ No

If Yes:

i. Type of management or handling of waste proposed for the site (e.g., recycling or transfer station, composting, landfill, or other disposal activities): _____

ii. Anticipated rate of disposal/processing:

- _____ Tons/month, if transfer or other non-combustion/thermal treatment, or
- _____ Tons/hour, if combustion or thermal treatment

iii. If landfill, anticipated site life: _____ years

t. Will the proposed action at the site involve the commercial generation, treatment, storage, or disposal of hazardous waste? ☐ Yes ☐ No

If Yes:

i. Name(s) of all hazardous wastes or constituents to be generated, handled or managed at facility: _____

_____

_____

ii. Generally describe processes or activities involving hazardous wastes or constituents: _____

_____

_____

iii. Specify amount to be handled or generated _____ tons/month

iv. Describe any proposals for on-site minimization, recycling or reuse of hazardous constituents: _____

_____

_____

v. Will any hazardous wastes be disposed at an existing offsite hazardous waste facility? ☐ Yes ☐ No

If Yes: provide name and location of facility: _____

_____

If No: describe proposed management of any hazardous wastes which will not be sent to a hazardous waste facility:

_____

_____

E. Site and Setting of Proposed Action

E.1. Land uses on and surrounding the project site

a. Existing land uses.

i. Check all uses that occur on, adjoining and near the project site.

☐ Urban ☐ Industrial ☐ Commercial ☐ Residential (suburban) ☐ Rural (non-farm)

☐ Forest ☐ Agriculture ☐ Aquatic ☐ Other (specify): _____

ii. If mix of uses, generally describe:

_____

_____

b. Land uses and covertypes on the project site.

Land use or Covertype	Current Acreage	Acreage After Project Completion	Change (Acres +/-)
• Roads, buildings, and other paved or impervious surfaces			
• Forested			
• Meadows, grasslands or brushlands (non-agricultural, including abandoned agricultural)			
• Agricultural (includes active orchards, field, greenhouse etc.)			
• Surface water features (lakes, ponds, streams, rivers, etc.)			
• Wetlands (freshwater or tidal)			
• Non-vegetated (bare rock, earth or fill)			
• Other Describe: _____ _____			

c. Is the project site presently used by members of the community for public recreation? ☐ Yes ☐ No
i. If Yes: explain: _____

d. Are there any facilities serving children, the elderly, people with disabilities (e.g., schools, hospitals, licensed day care centers, or group homes) within 1500 feet of the project site? ☐ Yes ☐ No
If Yes,
i. Identify Facilities:
_____
_____

e. Does the project site contain an existing dam? ☐ Yes ☐ No
If Yes:
i. Dimensions of the dam and impoundment:
- Dam height: _____ feet
- Dam length: _____ feet
- Surface area: _____ acres
- Volume impounded: _____ gallons OR acre-feet

ii. Dam's existing hazard classification: _____
iii. Provide date and summarize results of last inspection:
_____
_____

f. Has the project site ever been used as a municipal, commercial or industrial solid waste management facility, or does the project site adjoin property which is now, or was at one time, used as a solid waste management facility? ☐ Yes ☐ No
If Yes:
i. Has the facility been formally closed? ☐ Yes ☐ No
- If yes, cite sources/documentation: _____

ii. Describe the location of the project site relative to the boundaries of the solid waste management facility:
_____
_____
iii. Describe any development constraints due to the prior solid waste activities: _____
_____

g. Have hazardous wastes been generated, treated and/or disposed of at the site, or does the project site adjoin property which is now or was at one time used to commercially treat, store and/or dispose of hazardous waste? ☐ Yes ☐ No
If Yes:
i. Describe waste(s) handled and waste management activities, including approximate time when activities occurred:
_____
_____

h. Potential contamination history. Has there been a reported spill at the proposed project site, or have any remedial actions been conducted at or adjacent to the proposed site? ☐ Yes ☐ No
If Yes:
i. Is any portion of the site listed on the NYSDEC Spills Incidents database or Environmental Site Remediation database? Check all that apply: ☐ Yes ☐ No
☐ Yes – Spills Incidents database Provide DEC ID number(s): _____
☐ Yes – Environmental Site Remediation database Provide DEC ID number(s): _____
☐ Neither database

ii. If site has been subject of RCRA corrective activities, describe control measures:_____
_____
_____
iii. Is the project within 2000 feet of any site in the NYSDEC Environmental Site Remediation database? ☐ Yes ☑ No
If yes, provide DEC ID number(s): _____
iv. If yes to (i), (ii) or (iii) above, describe current status of site(s):
_____
_____

v. Is the project site subject to an institutional control limiting property uses? ☐ Yes ☐ No

- If yes, DEC site ID number: _____
- Describe the type of institutional control (e.g., deed restriction or easement): _____
- Describe any use limitations: _____
- Describe any engineering controls: _____
- Will the project affect the institutional or engineering controls in place? ☐ Yes ☐ No
- Explain: _____

E.2. Natural Resources On or Near Project Site

a. What is the average depth to bedrock on the project site? _____ feet

b. Are there bedrock outcroppings on the project site? ☐ Yes ☐ No
If Yes, what proportion of the site is comprised of bedrock outcroppings? _____%

c. Predominant soil type(s) present on project site: _____ _____%
_____ _____%
_____ _____%

d. What is the average depth to the water table on the project site? Average: _____ feet

e. Drainage status of project site soils: ☐ Well Drained: _____% of site
☐ Moderately Well Drained: _____% of site
☐ Poorly Drained _____% of site

f. Approximate proportion of proposed action site with slopes: ☐ 0-10%: _____% of site
☐ 10-15%: _____% of site
☐ 15% or greater: _____% of site

g. Are there any unique geologic features on the project site? ☐ Yes ☑ No
If Yes, describe: _____

h. Surface water features.

i. Does any portion of the project site contain wetlands or other waterbodies (including streams, rivers, ponds or lakes)? ☑ Yes ☐ No

ii. Do any wetlands or other waterbodies adjoin the project site? ☑ Yes ☐ No

If Yes to either *i* or *ii*, continue. If No, skip to E.2.i.

iii. Are any of the wetlands or waterbodies within or adjoining the project site regulated by any federal, state or local agency? ☑ Yes ☐ No

iv. For each identified regulated wetland and waterbody on the project site, provide the following information:

- Streams: Name _____ Classification _____
- Lakes or Ponds: Name _____ Classification _____
- Wetlands: Name Federal Waters Approximate Size _____
- Wetland No. (if regulated by DEC) _____

v. Are any of the above water bodies listed in the most recent compilation of NYS water quality-impaired waterbodies? ☐ Yes ☑ No

If yes, name of impaired water body/bodies and basis for listing as impaired: _____

i. Is the project site in a designated Floodway? ☐ Yes ☐ No

j. Is the project site in the 100-year Floodplain? ☐ Yes ☐ No

k. Is the project site in the 500-year Floodplain? ☐ Yes ☐ No

l. Is the project site located over, or immediately adjoining, a primary, principal or sole source aquifer? ☐ Yes ☑ No
If Yes:

i. Name of aquifer: _____

m. Identify the predominant wildlife species that occupy or use the project site: _____

_____ _____ _____

_____ _____ _____

n. Does the project site contain a designated significant natural community? ☐ Yes ☑ No

If Yes:

i. Describe the habitat/community (composition, function, and basis for designation): _____

_____

ii. Source(s) of description or evaluation: _____

iii. Extent of community/habitat:

- Currently: _____ acres
- Following completion of project as proposed: _____ acres
- Gain or loss (indicate + or -): _____ acres

o. Does project site contain any species of plant or animal that is listed by the federal government or NYS as endangered or threatened, or does it contain any areas identified as habitat for an endangered or threatened species? ☐ Yes ☑ No

If Yes:

i. Species and listing (endangered or threatened): _____

_____

_____

p. Does the project site contain any species of plant or animal that is listed by NYS as rare, or as a species of special concern? ☐ Yes ☑ No

If Yes:

i. Species and listing: _____

_____

q. Is the project site or adjoining area currently used for hunting, trapping, fishing or shell fishing? ☐ Yes ☐ No

If yes, give a brief description of how the proposed action may affect that use: _____

_____

E.3. Designated Public Resources On or Near Project Site

a. Is the project site, or any portion of it, located in a designated agricultural district certified pursuant to Agriculture and Markets Law, Article 25-AA, Section 303 and 304? ☑ Yes ☐ No

If Yes, provide county plus district name/number: TOMP001

b. Are agricultural lands consisting of highly productive soils present? ☐ Yes ☐ No

i. If Yes: acreage(s) on project site? _____

ii. Source(s) of soil rating(s): _____

c. Does the project site contain all or part of, or is it substantially contiguous to, a registered National Natural Landmark? ☐ Yes ☑ No

If Yes:

i. Nature of the natural landmark: ☐ Biological Community ☐ Geological Feature

ii. Provide brief description of landmark, including values behind designation and approximate size/extent: _____

_____

_____

d. Is the project site located in or does it adjoin a state listed Critical Environmental Area? ☐ Yes ☑ No

If Yes:

i. CEA name: _____

ii. Basis for designation: _____

iii. Designating agency and date: _____

e. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places? ☐ Yes ☐ No

If Yes:

i. Nature of historic/archaeological resource: ☐ Archaeological Site ☐ Historic Building or District

ii. Name: _____

iii. Brief description of attributes on which listing is based:

_____

f. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory? ☐ Yes ☑ No

g. Have additional archaeological or historic site(s) or resources been identified on the project site? ☐ Yes ☐ No

If Yes:

i. Describe possible resource(s): _____

ii. Basis for identification: _____

h. Is the project site within fives miles of any officially designated and publicly accessible federal, state, or local scenic or aesthetic resource? ☐ Yes ☐ No

If Yes:

i. Identify resource: _____

ii. Nature of, or basis for, designation (e.g., established highway overlook, state or local park, state historic trail or scenic byway, etc.): _____

iii. Distance between project and resource: _____ miles.

i. Is the project site located within a designated river corridor under the Wild, Scenic and Recreational Rivers Program 6 NYCRR 666? ☐ Yes ☑ No

If Yes:

i. Identify the name of the river and its designation: _____

ii. Is the activity consistent with development restrictions contained in 6NYCRR Part 666? ☐ Yes ☐ No

F. Additional Information

Attach any additional information which may be needed to clarify your project.

If you have identified any adverse impacts which could be associated with your proposal, please describe those impacts plus any measures which you propose to avoid or minimize them.

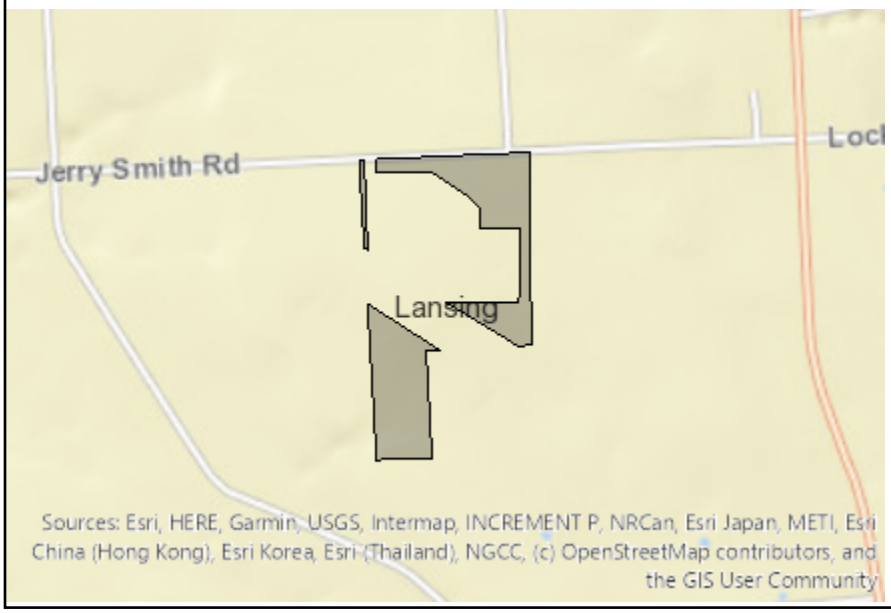
G. Verification

I certify that the information provided is true to the best of my knowledge.

Applicant/Sponsor Name _____ Date_____

Signature_____ Title_____

PRINT FORM



Disclaimer: The EAF Mapper is a screening tool intended to assist project sponsors and reviewing agencies in preparing an environmental assessment form (EAF). Not all questions asked in the EAF are answered by the EAF Mapper. Additional information on any EAF question can be obtained by consulting the EAF Workbooks. Although the EAF Mapper provides the most up-to-date digital data available to DEC, you may also need to contact local or other data sources to confirm data provided by the Mapper or to obtain data not provided by the Mapper.

B.i.i [Coastal or Waterfront Area]	No
B.i.ii [Local Waterfront Revitalization Area]	No
C.2.b. [Special Planning District]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.iii [Within 2,000' of DEC Remediation Site]	No
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	Yes - Digital mapping information on local, New York State, and federal wetlands and waterbodies is known to be incomplete. Refer to the EAF Workbook.
E.2.h.ii [Surface Water Features]	Yes - Digital mapping information on local, New York State, and federal wetlands and waterbodies is known to be incomplete. Refer to the EAF Workbook.
E.2.h.iii [Surface Water Features]	Yes - Digital mapping information on local, New York State, and federal wetlands and waterbodies is known to be incomplete. Refer to the EAF Workbook.
E.2.h.iv [Surface Water Features - Wetlands Name]	Federal Waters
E.2.h.v [Impaired Water Bodies]	No
E.2.i. [Floodway]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.2.j. [100 Year Floodplain]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.

E.2.k. [500 Year Floodplain]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.2.l. [Aquifers]	No
E.2.n. [Natural Communities]	No
E.2.o. [Endangered or Threatened Species]	No
E.2.p. [Rare Plants or Animals]	No
E.3.a. [Agricultural District]	Yes
E.3.a. [Agricultural District]	TOMP001
E.3.c. [National Natural Landmark]	No
E.3.d [Critical Environmental Area]	No
E.3.e. [National or State Register of Historic Places or State Eligible Sites]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.3.f. [Archeological Sites]	No
E.3.i. [Designated River Corridor]	No

STORMWATER POLLUTION PREVENTION PLAN for CONSTRUCTION ACTIVITIES at

JERRY SMITH BATTERY ENERGY STORAGE SYSTEM
TOWN OF LANSING

Prepared for

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JUNE 2026

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SECTION 1

Written Stormwater Pollution Prevention Plan

JERRY SMITH BATTERY ENERGY STORAGE SYSTEM

I. SCOPE

A. **PURPOSE:** JERRY SMITH LLC intends to implement the appropriate Stormwater Pollution Prevention Plan measures in accordance with the SPDES general permit governing stormwater discharges during construction, and in accordance with erosion control practices. This section provides a descriptive explanation of the means by which JERRY SMITH LLC will comply with the National Stormwater Pollution Prevention Program.

B. **NPDES GENERAL PERMITS FOR STORMWATER DISCHARGE FROM CONSTRUCTION SITES:** Regulations promulgated by the New York State Department of Environmental Conservation (NYSDEC) regulate the discharge of storm water from construction activities on sites where one (1) or more acres of soil is disturbed. One of the ways to comply with these regulations for affected sites is to request coverage under the General Permit for Construction Activities. (Copy enclosed herewith) In order to be authorized to discharge under the General Permit, a Stormwater Pollution Prevention Plan (SWPPP) for the site must be prepared in accordance with all applicable requirements of this permit and followed during the construction activities. If the construction activity is **not** subject to the requirements of a regulated, traditional land use control MS4 a Notice of Intent (NOI) form must be completed and received by the New York State Department of Environmental Conservation at least 5-days prior to any earth-disturbing activities. If the construction activity is subject to the requirements of a regulated, traditional land use control MS4, then the owner/operator must have its SWPPP reviewed and accepted by the MS4 prior to submitting the NOI to the Department. The owner/operator shall have the "MS4 SWPPP Acceptance" form signed and then submit that form along with the NOI to the Department.

C. **RESPONSIBILITIES OF CONTRACTOR REGARDING THE GENERAL PERMIT:** The CONTRACTOR shall manage the discharge of stormwater from the site in accordance with the SPDES General Permit for Construction Activities conditions and the following provisions of this section of the specifications. The CONTRACTOR shall be responsible for conducting the stormwater management practices in accordance with the permit. The CONTRACTOR shall be responsible for providing qualified inspectors to conduct the inspections required by the SWPPP. The CONTRACTOR shall be responsible for any enforcement action taken or imposed by federal, state, or local agencies, including the cost of fines, construction delays, and remedial actions resulting from the CONTRACTOR'S failure to comply with the permit provisions. It shall be the responsibility of the CONTRACTOR to make any changes to the SWPPP necessary when the CONTRACTOR or any of his subcontractors elects to use borrow or fill or material storage sites, either contiguous to or remote from the construction site, when such sites are used solely for this construction site. Such sites are considered to be part of the construction site covered by the permit and this SWPPP. Off-site borrow, fill, or material storage sites which are used for multiple construction projects are not subject to this requirement, unless specifically required by state or local jurisdictional entity regulations. The CONTRACTOR should consider this requirement in negotiating with earthwork subcontractors, since the choice of an off-site borrow, fill, or material storage site JUNE impact their duty to implement, make changes to, and perform inspections required by the SWPPP for the site.

D. **NOTICE OF INTENT:** The NOI Permittee petitions the New York State Department of Environmental Conservation for the stormwater discharges during construction at this site to be covered by the SPDES General Permit for Construction Activity for the State of New York. A Notice of Intent (NOI) (using the form required by the NYSDEC) to be covered under this permit is hereby filed. An Erosion and Sediment Control Plan has been prepared and is attached herewith.

E. **CONTRACTOR RESPONSIBILITIES**: The SWPPP and associated Erosion and Sediment Control Plans represent the **MINIMUM** erosion and sediment control measures that will be required to protect the site during construction. JERRY SMITH LLC and the CONTRACTOR understand that additional erosion and sediment control measures will be necessary during construction. It will be the responsibility of the CONTRACTOR to implement additional erosion and sediment control measures as necessary to protect the site

during construction. JERRY SMITH LLC and the CONTRACTOR shall designate a Project Manager prior to commencing construction. The Project Manager will ensure that all construction managers and sub-contractors are appropriately assigned and understand the importance of the following topics:

- Erosion and Sedimentation Control for Water Quality Protection
- Implementation of the Erosion and Sedimentation Control Plan
- The Importance to Proper Installation of Erosion and Sedimentation Control Measures
- Regular Inspection by qualified personnel of Erosion and Sedimentation Control Measures
- Diligent Maintenance of Erosion and Sedimentation Control Measures
- Contemporaneous preparation of accurate and complete records regarding inspection and maintenance of Erosion and Sedimentation Control Measures
- Record Keeping for Inspections and Maintenance activities

F. **REQUIREMENTS FOR THE CONTRACTOR AND SUBCONTRACTOR(S):** The *SWPPP Ledger* shall provide a "Contractor's Certification Log" **(Form 2)**, identifying the Company Name, Business Address and Telephone Number along with the Responsible Person for the CONTRACTOR and all subcontractors' who will implement the measures identified in the SWPPP. Each of the entities identified on **Form 2** shall sign a "Contractor's Certification" **(Form 3)**, verifying they have been instructed and fully understand the requirements of the New York State Department of Environmental Conservation and SWPPP. **This certification must be signed, by a fully qualified individual on behalf of each entity, prior to the beginning of any construction activities and shall be filed in the project's *SWPPP* Ledger.**

Additionally, the "Trained Contractor" must be identified on Form 3 and his/her credentials should be kept on-site in the SWPPP ledger.

G. **STORMWATER POLLUTION PREVENTION PROGRAM LOCATION REQUIREMENTS:** The *SWPPP Ledger* is meant to be a working document that shall be maintained at the site of the Construction Activities at all times throughout the project, shall be readily available upon request by the NOI Permittee's personnel or New York State Department of Environmental Conservation or any other agency with regulatory authority over stormwater issues, and shall be kept on-site until the site complies with the Final Stabilization section of this document. Refer to Part VII., F., Duty to Provide Information, of the General Permit for additional public viewing requirements.

H. **SWPPP LEDGER:** The SWPPP Ledger shall be a 3-ring Binder, tabbed and indexed for the following sections:

SECTION 1:
- **Written SWPPP**

SECTION 2:
- **Site Map and General Location Map**
- **Erosion and Sediment Control Plan(s)**

SECTION 3:
- **New York State Notice of Intent**
- **New York State NOI Acknowledgement Letter**
- **New York State MS4 SWPPP Acceptance Form**

SECTION 4:

- **New York State SPDES General Permit**

SECTION 5:

- **NOI Permittee's Certification (Form 1)**
- **Contractor's/Subcontractor's Certification Log (Form 2)**
- **Contractor's Certification for each contractor listed on Form 2 (Form 3)**
- **Inspection Report (Form 4)**
- **Modification Report (Form 5)**
- **Record of Stabilization and Construction Activities Report (Form 6)**
- **Record of Temporary Erosion and Sediment Control Practices (Form 6A)**
- **Project Rainfall Log (Form 7)**
- **Final Stabilization/Termination Checklist (Form 8)**

SECTION 6:

- **Supplemental Information**
  – Stormwater Management Report

SECTION 7:

- **Completed Inspection Forms**

The Project Manager must review and evaluate for compliance the *SWPPP Ledger* at each Project Review meeting. All Inspection and Maintenance Forms (*Forms 4 - 7*) will be initialed by the Project Manager at each reporting interval.

I. **INSPECTIONS AND RECORD KEEPING:** Inspections are required at least weekly by a "Qualified Inspector". Sites that have a waiver to disturb greater than five (5) acres require two (2) inspections every seven (7) days with at least two (2) days between inspections. Inspections shall continue until the site complies with the "Final Stabilization" section of this document and a Notice of Termination (NOT) has been filed with the NYSDEC. Each inspection must be followed up by a report documenting the inspector's findings and request the required maintenance and/or repair for the erosion and sedimentation control measures. The inspector shall notify the Project Manager within one day of the inspection of any deficiencies. Within one day of this notification the Project Manager must commence with corrective measures. It is imperative that the Project Manager documents the Inspection and Maintenance of all erosion and sedimentation control measures as soon as possible after the inspection and/or maintenance is completed. These records are used to prove that the required inspection and maintenance were performed and shall be placed in the *SWPPP Ledger*. In addition to inspection and maintenance reports, records should be kept of the Construction Activities that occur on the site. The Project Sponsor shall retain copies of the SWPPP, all reports and data for a minimum of five (5) years after the project is complete. The following list identifies the **required** Inspection and Maintenance documentation that must be maintained by the Project Manager under this SWPPP.

- **Form 4 Inspection Report for SWPPP**
- **Form 5 Requested Changes to the SWPPP (Modification Report)**
- **Form 6 Record of Stabilization and Construction Activities**
- **Form 6A Record of Temporary Erosion and Sediment Control Practices**
- **Form 7 Project Rainfall Log**

J. **SWPPP MODIFICATIONS:** The inspection report should also identify if any revisions to the SWPPP are warranted due to unexpected conditions. The SWPPP is meant to be a dynamic working guide that is to be kept current and amended whenever the design, construction, operation, or maintenance of the site changes in a way which significantly affects the potential for the discharge of pollutants or when the plan proves to be ineffective in eliminating or significantly minimizing pollutant discharges. Any such changes to the SWPPP must be made in writing on the Modification Report Form **(Form 5)** within 7 days of the date such modification or amendment is made. The CONTRACTOR'S failure to monitor or report deficiencies to the NOI Permittee will

result in the CONTRACTOR being liable for fines and construction delays resulting from any federal, state, or local agency enforcement action.

K. **FINAL STABILIZATION AND TERMINATION OF PERMIT COVERAGE:** The site will be considered finally stabilized when all soil disturbing activities have been completed and a uniform perennial vegetative cover for the unpaved areas and areas not covered by permanent structures has been established or equivalent permanent stabilization measures have been established and the development area no longer discharges stormwater associated with construction activities and a Notice of Termination (NOT) form filed by the NOI Permittee with the New York State Department of Environmental Conservation. This filing terminates coverage under the General Permit and terminates the CONTRACTOR'S responsibility to implement the SWPPP. Requirements of the SWPPP, including periodic inspections, must be continued until the NOT is filed.

II. SITE DESCRIPTION

A. PROJECT NAME AND LOCATION

The JERRY SMITH BATTERY ENERGY STORAGE SYSTEM PROJECT site is geographically situated at Latitude N 42° 35' 35", Longitude W 76° 33' 50" in the TOWN OF LANSING, TOMPKINS COUNTY, NEW YORK. The site is located on the south side of JERRY SMITH ROAD. The project site is comprised of 56.87 +/- acres of land. The overall disturbance area is 1.67 +/- acres. The project is bounded on the north, south, east and west by PRIVATE FORESTED. Access to the project will be from JERRY SMITH ROAD. The entire parcel will remain privately owned and maintained. Approximately 0.60 +/- acres of impervious surfaces, including travel surfaces will be constructed. On-going reclamation during construction will consist of all activities listed in Section 1.III.A.1 for temporary actions. Permanent reclamation activities for the laydown area and other compacted areas shall follow the NYSDEC Deep-Ripping and Decompaction JUNE 2008 guidance. Final stabilization is defined as the completion of all soil disturbance activities with the phase area having perennial vegetative cover with a density of eighty (80) percent, or other equivalent stabilization measures such as permanent landscape mulches, rock rip-rap or washed/crushed stone.

B. NOI PERMITTEE'S NAME AND ADDRESS

JERRY SMITH LLC
101 SUMMER STREET, SECOND FLOOR
BOSTON, MA 02110

C. PROJECT DESCRIPTION

The project will involve the installation of a 5-MWac battery energy storage system on an approximately 57-acre site. The design will include a fenced battery storage development footprint of under 1 acres. The installation will also include associated infrastructure such as a concrete equipment pad, a wooden "knot farm fence" and improved site access via a new gravel access road. Soil disturbing activities will include:

1. Construction of stabilized construction access points
2. Clearing and grubbing
3. Installation of batteries
4. Construction of stormwater areas
5. Construction of utilities on site
6. Construction of landscaped areas
7. Final grading

D. RUNOFF COEFFICIENT, SOILS, AND RAINFALL INFORMATION

The site consists of hydrologic soil types (HSG) B and D. The predevelopment Curve Number (CN) for meadow areas was determined to be 58 for B, and 78 for D; farmland area was 78; and wooded areas were determined to be 60 and 79. Soil within the project area varies from silt loam to gravelly silt loam with areas of well draining soils and poor draining soils, as described by the Soil Conservation Service. The post development CN for all disturbed areas was modeled to be the same as predevelopment. A CN of 98 was used for all post-development impervious surface areas.

E. NAME OF RECEIVING WATERS

Drainage will be directed via an on-site vegetated filter strip or bioretention area with emergency overflow swales directed to existing drainage ways, and eventually into the Riley Brook.

F. INDIAN COUNTRY LANDS

The site is not located on any known current or previously designated Indian Country lands.

G. ENDANGERED OR THREATENED SPECIES

A review of the New York State Department of Environmental Conservation's (NYSDEC) Environmental Resource Mapper (http://www.dec.ny.gov/imsmaps/ERM/viewer.htm) indicated no known State regulated rare plants, rare animals or significant natural communities on-site. A letter has been received from the NYSDEC New York Natural Heritage Program stating that the project is likely to have no impact on endangered or threatened species. This letter is included within Section 6 of the SWPPP.

H. HISTORIC PLACES

A review of the New York State Historic Preservation Office (OPRHP) Geographic Information System Mapper (http://www.oprhp.state.ny.us/nr/main.asp) indicated that the site is not located in an archeo sensitive area.

I. CLIMATE CHANGE RESILIENCY PLANNING

With the Community Risk and Resiliency Act (CRRA) being adopted in New York State, JERRY SMITH LLC has demonstrated consideration of several future risks due to the effects of climate change.

Increasing Temperature: When developing the battery layout, JERRY SMITH LLC is only proposing to develop approximately 1.67 +/- acres of land. The roadway and equipment pads include only 0.60 +/- acres of impervious surfaces to reduce material heat absorption (Urban Heat Island Effect) to the maximum extent possible. The stormwater management area on site is a vegetated filter strip and bioretention area which will prevent runoff from entering heat-vulnerable environments.

Increasing Precipitation: The use of a vegetated filter strip and bioretention area will allow infiltration on-site which will minimize the amount of runoff and water quality pollution from leaving the site JERRY SMITH LLC will provide the proper long-term operation/maintenance procedures to ensure conveyance systems will not be overwhelmed during large and more frequent storm events. In the event of drought, there will be no physical or ecological risks due to the vegetated filter strip not retaining water.

Rising Sea Level: According to the FEMA Flood Insurance Rate Map (Map No. 36019C0470E) the project area is located within Zone X (unshaded), which is considered to be outside of the 500-year floodplain, see Section 6 if a map was available. As such, there will also be no increase in storm surge within the project limits.

Shifting Ecology: As stated in part G of this section, there are known State regulated rare plants, rare animals or significant natural communities on-site, but will remain unaffected by the development. The predominant wildlife species that might occupy the project site include squirrels, birds, and deer. The development of this project site will promote sustainable development and should not have any impact on the local ecosystem.

III. CONTROLS

A. EROSION AND SEDIMENT CONTROLS

The following section describes the anticipated Erosion and Sediment Controls required for use during construction of the proposed site. These controls represent the **MINIMUM** erosion and sediment control measures that will be required to protect the site during construction. **Additional erosion and sediment control measures will be necessary during construction.** It will be the responsibility of the NOI permittee to authorize the CONTRACTOR to implement all additional erosion and sediment control measures necessary to protect the site during construction.

1. Stabilization practices include (but not limited to):
   a) Land clearing activities shall be done only in areas where earthwork will be performed and shall progress as earthwork is needed
   b) Frequent watering of excavation and fill areas to minimize wind erosion during construction.
   c) Use of stabilization fabric for all slopes having a slope of 1V:3H or greater.
   d) Seeding and planting of all unpaved areas
      - Temporary seedings should be made within 24 hours of construction or disturbance. If not, the soil must be scarified prior to seeding.
      - Broadcasting or hydroseeding JUNE be used as seeding methods.
      - Seeding mixtures should be as follows
        a) Ryegrass (annual or perennial) applied at 30 lbs. per acre (0.7 lbs./1000 sq. ft.)
        b) Certified "Aroostook" winter rye (cereal rye) applied at 100 lbs. per acre (2.5 lbs./1000 sq. ft.) *Winter rye shall be used if seeding in October/November.
   e) Topsoiling
      - Scarify all compact, slowly permeable, medium and fine textured subsoil areas. Scarify at approximately right angles to the slope direction in soil areas that are steeper than 5 percent.
      - Remove refuse, woody plant parts, stones over 3 inches in diameter, and other liter.
      - Topsoil material shall have at least 2 percent by weight of fine textured stable organic material, and no greater than 6 percent.
      - Topsoil shall have no less than 20 percent fine textured material (passing the No. 200 sieve) and not more than 15 percent clay.
      - Topsoil shall not be placed when it is partly frozen, muddy, or on frozen slopes or over ice, snow, or standing water.
   f) Mulching
      - For grass / legume establishment apply straw mulch applied at 2 ton/acre (90 lbs./1000 sq. ft.) and anchor with wood fiber mulch (hydromulch) at 500-750 lbs./acre (11 – 17 lbs./1000 sq. ft.)
   g) Protecting Vegetation During Construction
      - Limit soil placement over existing tree and shrub roots to a maximum of 3 inches.
      - Use retaining walls and terraces to protect roots of trees and shrubs when grades are lowered. Lowered grades should start no closer than the dripline of the tree.
      - Avoid trenching within the dripline of the tree.
      - Construction limits should be identified and clearly marked to exclude equipment.

2. Structural practices include (but not limited to):

a) Perimeter protection using silt fences
b) Sediment basin(s)
c) Stabilized construction exit points
   - Aggregate size shall be 2 inch stone or reclaimed / recycled concrete equivalent
   - Thickness shall be not less than 6 inches
   - Width to be the full width of the access point, but not less than 12 ft
   - Length shall be as required, but not less than 50 ft.
   - Filter cloth shall be applied over the entire area to be covered with aggregate
   - The entrance shall be maintained in a condition which will prevent tracking of sediment onto public rights-of-way or streets. When necessary, wheels must be cleaned to remove sediment prior to entrance onto public rights-of-way.
d) Stormwater detention ponds (which JUNE also serve as a temporary sediment basin)
e) Stone Check Dam
   - Use graded stone 2 to 15 inches in size
   - Sediment accumulated behind the check dam shall be removed as needed to allow drainage through the check dam and prevent large flows from carrying sediment over the dam.

3. Sequence of Major Activities

The CONTRACTOR will be responsible for implementing erosion and sediment control measures outlined in the SWPPP and any additional erosion and sediment control measures required to stabilize the site. The CONTRACTOR JUNE designate these tasks to certain subcontractors as appropriate, but the ultimate responsibility for implementing these controls and ensuring their proper functioning remains with the CONTRACTOR. The order of activities will be as follows (refer to Stormwater Pollution Prevention Plan Sheet contained in this SWPPP for additional details):

a) Construct temporary construction exits at locations shown on the SWPPP plan sheet.

b) Install perimeter silt fences.

c) Begin clearing and grubbing operations. Clearing and grubbing shall be done only in areas where earthwork will be performed and only in areas where building is planned to commence within 7 days after clearing and grubbing.

d) Frequent watering of the excavation and fill areas shall be done to minimize wind erosion.

e) Commence site grading and battery construction.

f) Disturbed areas of the site where construction activity has ceased for more than 7 days should be temporarily seeded and watered.

g) Finalize access road subgrade preparation.

h) Install base material as required for pavement.

i) Carry out final grading and seeding and planting, including stormwater management areas.

j) Remove silt fencing only after all paving is complete and exposed surfaces are stabilized.

k) Remove temporary construction exits only prior to pavement construction in these areas (These areas are to be paved last).

4. Stormwater Management

The proposed stormwater management system was designed by The Environmental Design Partnership, Clifton Park, NY. The following paragraphs summarize the stormwater management measures to be incorporated on the site to control pollutants in stormwater discharges after construction is completed. A copy of the Stormwater Management Report is enclosed under Section 6 – Supplemental Information.

Two (2) stormwater management areas, constructed as a vegetated filter strip and a bioretention area, will be constructed to provide sufficient water quality treatment and allow the water to recharge into the ground.

5. Post-Construction Maintenance of the Stormwater Management System

Post construction maintenance and protection of the Stormwater Management System shall be performed in accordance with Section VI. LONG TERM OPERATION AND MAINTENANCE PROCEDURES of the SWPPP.

B. OTHER CONTROLS

1. Waste Disposal

All waste materials will be collected and stored in a securely lidded metal dumpster rented from a local waste management company which must be a solid waste management company licensed to do business in New York State. The dumpster will comply with all local and state solid waste management regulations.

All trash and construction debris from the site will be deposited in the dumpster. The dumpster will be emptied as often as necessary, and the trash will be hauled to a landfill approved by New York State and the local government authority. No construction waste materials will be buried on site. All personnel will be instructed regarding the correct procedures for waste disposal. Notices stating these practices will be posted in the job site construction office trailer, and the job site superintendent will be responsible for seeing that these procedures are followed.

2. Sanitary Waste

All sanitary waste will be collected from the portable units a minimum of two times per week by a licensed portable facility provider in complete compliance with local and state regulations.

3. Off-Site Vehicle Tracking

A stabilized construction exit will be provided to help reduce vehicle tracking of sediments. The paved streets adjacent to the site entrance will be inspected daily and swept as necessary to remove any excess mud, dirt, or rock tracked from the site. Dump trucks hauling material from the construction site will be covered with a tarpaulin. The job site superintendent will be responsible for seeing that these procedures are followed.

4. Concrete Waste From Concrete Trucks

a) Emptying of excess concrete and/or washout from concrete delivery trucks will be allowed on the job site, but only in either (1) specifically designated diked areas which have been prepared to prevent contact between the concrete and/or washout and stormwater which will be discharged from the site or (2) in locations where waste concrete can be poured into forms to make riprap or other useful concrete products.

b) The hardened residue from the concrete washout diked areas will be disposed of in accordance with the procedures given in the Spill Prevention Control and Countermeasures (SPCC) Plan and in accordance with applicable state and federal regulations. The job site superintendent will be responsible for seeing that these procedures are followed.

5. Hazardous Substances and Hazardous Waste

a) All hazardous waste materials will be disposed of by the CONTRACTOR in the manner specified by local, state, and/or federal regulations and by the manufacturer of such products. Site personnel will be instructed in these practices by the job site superintendent, who will also be responsible for seeing that these practices are followed. Material Safety Data Sheets (MSDS's) for each substance with hazardous properties that is used on the job site will be obtained and used for the proper management of potential wastes that JUNE result from these products. An MSDS will be posted in the immediate area where such product is stored and/or used and another copy of each MSDS will be maintained in the SWPPP file at the job site construction trailer office. Each employee who must handle a substance with hazardous properties will be instructed on the use of MSDS sheets and the specific information in the applicable MSDS for the product he/she is using, particularly regarding spill control techniques.

b) The CONTRACTOR will implement the Spill Prevention Control and Countermeasures (SPCC) Plan found within this SWPPP and will train all personnel in the proper cleanup and handling of spilled materials. No spilled hazardous materials or hazardous wastes will be allowed to come in contact with stormwater discharges. If such contact occurs, the stormwater discharge will be contained on site until appropriate measures in compliance with state and federal regulations are taken to dispose of such contaminated stormwater. It shall be the responsibility of the job site superintendent to properly train all personnel in the use of the SPCC plan.

c) Any spills of hazardous materials which are in quantities in excess of Reportable Quantities as defined by EPA regulations shall be immediately reported to the EPA National Response Center 1-800-424-8802.

d) In order to minimize the potential for a spill of hazardous materials to come into contact with stormwater, the following steps will be implemented:

- All materials with hazardous properties (such as pesticides, petroleum products, fertilizers, detergents, construction chemicals, acids, paints, paint solvents, cleaning solvents, additives for soil stabilization, concrete curing compounds and additives, etc.) will be stored in a secure location, under cover, when not in use. All such materials shall have secondary containment to prevent contamination of soil and runoff.

- The minimum practical quantity of all such materials will be kept on the job site.

- A spill control and containment kit (containing, for example, absorbent such as kitty litter or sawdust, acid neutralizing powder, brooms, dust pans, mops, rags, gloves, goggles, plastic and metal trash containers, etc.) will be provided at the storage site.

- All of the product in a container will be used before the container is disposed of. All such containers will be triple-rinsed with water prior to disposal. The rinse water used in these containers will be disposed of in a manner in compliance with state and federal regulations and will not be allowed to mix with stormwater discharges.

- All products will be stored in and used from the original container with the original product label.

- All products will be used in strict compliance with instructions on the product label.
- The disposal of excess or used products will be in strict compliance with instructions on the product label.

6. Contaminated Soils

a) Any contaminated soils (resulting from spills of materials with hazardous properties) which JUNE result from construction activities will be contained and cleaned up immediately in accordance with the procedures given in the Spill Prevention Control and Countermeasures (SPCC) Plan and in accordance with applicable state and federal regulations.

b) The job site superintendent will be responsible for seeing that these procedures are followed.

IV. COMPLIANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS

A. The CONTRACTOR will obtain copies of any and all local and state regulations that are applicable to stormwater management, erosion control, and pollution minimization at this job site and will comply fully with such regulations. The CONTRACTOR will submit written evidence of such compliance if requested by any agent of a regulatory body. The CONTRACTOR will comply with all conditions of the New York State Department of Environmental Conservation SPDES General Permit for Construction Activities, including the conditions related to maintaining the SWPPP and evidence of compliance with the SWPPP at the job site and allowing regulatory personnel access to the job site and to records in order to determine compliance.

V. MAINTENANCE/INSPECTION PROCEDURES DURING CONSTRUCTION

A. Erosion and Sediment Control and Stabilization Measures Maintenance and Inspection Practices

1. The following is a list of erosion and sediment controls to be used on this site during construction practice.

a) Stabilization practices for this site include:
- Land clearing activities shall be done only in areas where earthwork will be performed and shall progress as earthwork is needed
- Frequent watering of excavation and fill areas to minimize wind erosion during construction.
- Use of stabilization fabric for all slopes having a slope of 1V:3H or greater.
- Permanent seeding and planting of all unpaved areas using the hydromulching grass seeding technique.

b) Structural practices for this site include:
- Perimeter protection using silt fences
- Stabilized construction exit points
- Stormwater detention ponds (which JUNE also serve as a temporary sediment basin)

2. The following inspection and maintenance practices will be used to maintain erosion and sediment controls and stabilization measures.

a) All control measures will be inspected once every seven (7) days at a minimum. Sites that have a waiver to disturb greater than five (5) acres require two (2) inspections every seven (7) days with at least two (2) days between inspections.
b) All measures will be maintained in good working order; if repairs are found to be necessary, they will be initiated within 24 hours of report.
c) Built up sediment will be removed from silt fence when it has reached one-third the height of the fence.

d) Silt fences will be inspected for depth of sediment, tears, etc., to see if the fabric is securely attached to the fence posts, and to see that the fence posts are securely in the ground.
e) The sediment basins will be inspected for depth of sediment, and built up sediment will be removed when it reaches 50 percent of the capacity.
f) Temporary and permanent seeding and all other stabilization measures will be inspected for bare spots, washouts, and healthy growth.
g) A maintenance inspection report will be made after each inspection. Copies of the report forms to be completed by the inspector are included in this SWPPP.
h) The job site superintendent will be responsible for selecting and training the individuals who will be responsible for these inspections, maintenance and repair activities, and filling out inspection and maintenance reports.
i) Personnel selected for the inspection and maintenance responsibilities will receive appropriate instruction from the job site superintendent. They will be trained in all the inspection and maintenance practices necessary for keeping the erosion and sediment controls that are used onsite in good working order. They will also be trained in the completion of, initiation of actions required by, and the filing of the inspection forms. Documentation of this personnel training will be kept on site with the SWPPP.
j) Disturbed areas and material storage areas will be inspected for evidence of or potential for pollutants entering stormwater systems.
k) Report to the NYS Department of Environmental Conservation within 24 hours any noncompliance with the SWPPP that will endanger public health or the environment. Follow up with a written report within 5 days of the noncompliance event.

B. Inspection and Maintenance Report Forms

Once installation of any required or optional erosion control device or measure has been implemented, weekly inspections of each measure shall be performed by the CONTRACTOR'S inspection personnel. The Inspection and Maintenance Reports found in this SWPPP shall be used by the inspectors to inventory and report the condition of each measure to assist in maintaining the erosion and sediment control measures in good working order.

These report forms shall become an integral part of the SWPPP and shall be made readily accessible to governmental inspection officials, the NOI Permittee's Engineer, and the NOI Permittee for review upon request during visits to the project site. In addition, copies of the reports shall be provided to any of these persons, upon request, via mail or facsimile transmission. Inspection and maintenance report forms are to be maintained by the NOI Permittee for five years following the final stabilization of the site.

C. Other Record-Keeping Requirements

The CONTRACTOR shall keep the following records related to construction activities at the site:
- Dates when major grading activities occur and the areas that were graded
- Dates and details concerning the installation of structural controls
- Dates when construction activities cease in an area
- Dates when areas are stabilized, either temporarily or permanently
- Dates of rainfall and the amount of rainfall
- Dates and descriptions of the character and amount of any spills of hazardous materials
- Records of reports filed with regulatory agencies if reportable quantities of hazardous materials spilled

D. Winter Operations

The following is a list of erosion and sediment controls and inspection and maintenance practices for winter operations for this site.

a) **Prior to November 1st of any given year all exposed soil areas must be covered with:**
   - Mulch

- Seed and mulch
- Geotextile
- Erosion control matting
- Rock or
- Other approved mulch to prevent soil from eroding

b) Install sediment barriers (silt fence or drop inlet protection) at ALL necessary perimeter and sensitive locations BEFORE SOIL FREEZES.

c) Slopes and Stockpiles:
- Protect slopes and stockpiles with anchored straw or mulch, rolled erosion control product or other durable covering.
- Sediment barrier must be installed around piles and at slope toes to prevent soil transport from the pile or slope.
- Stabilize exposed areas BEFORE snow covers them.

d) All entrance/exit locations must be properly stabilized and maintained to accommodate snow management.

e) Inspections:
- If soil disturbance is COMPLETELY suspended AND site is PROPERLY STABILIZED, qualified inspection frequency JUNE be reduced with written notification to NYSDEC or MS4.
- Confirmation must be received from NYSDEC prior to reducing inspection frequency.
- Monthly inspections must be performed at a minimum.
- Sediment control measures should be checked after rain or snowmelt events.
- Regular inspections must resume by March 15th.

VI. LONG TERM OPERATION AND MAINTENANCE PROCEDURES

The proposed JERRY SMITH BATTERY ENERGY STORAGE SYSTEM project will be PRIVATELY OWNED and the operation and maintenance requirements will be the responsibility of the private owner. The entire Stormwater Management System shall be inspected on a yearly basis to ensure that the system operates in the manner originally intended. Specific components of the system shall require additional attention as described below.

1. Vegetated Filter Strip
   a. Vegetated Filter Strips shall be inspected annually and following major storm events to ensure the system operates in the manner originally intended.
   b. Debris and litter shall be removed from the filter strop and gravel diaphragm as necessary.
   c. Accumulated sand, grit and/pr debris shall be removed from the filter strip and gravel diaphragm if present.
   d. If rill erosion is present, fill in areas with native soil and reseed as required. Gravel diaphragm shall be increased in width above rill erosion locations to ensure sheet flow onto the vegetated filter strip.

2. Bioretention Areas
   a. Bioretention Areas shall be inspected annually and following major storm events to ensure the system operates in the manner originally intended. The inspection should include, but not be limited to, the following components; all outlet orifices, embankment, emergency spillway, drain, accumulation of sediment, and general erosion control measures.
   b. Re-grading and re-vegetation shall be performed as necessary and rip-rap shall be replaced as necessary.

c. Embankments shall be mowed a minimum of twice per year to discourage woody growth and control weeds.
d. Debris and litter shall be removed from basins during regular mowing operations or more frequently as necessary.
e. Accumulated sediment shall be removed from the wet pond area when 10 percent of the basin capacity has been lost due to sedimentation or at a minimum of every 10 to 20 years.

3. Closed Drainage System
   a. Pipes shall be inspected annually and following major storm events to ensure the system operates in the manner originally intended.

STORMWATER POLLUTION PREVENTION PLAN
SUMMARY OF EROSION AND SEDIMENT CONTROL AND STABILIZATION MEASURES
MAINTENANCE/INSPECTION PROCEDURES

All control measures will be inspected at least once every seven (7) days. Sites that have a waiver to disturb greater than five (5) acres require two (2) inspections every seven (7) days with at least two (2) days between inspections.

☐ All measures will be maintained in good working order; if a repair is necessary, it will be initiated within 24 hours of report.

☐ Built-up sediment will be removed from silt fences when it has reached one-third the height of the fence.

☐ Silt fences will be inspected for depth of sediment, tears, to see if the fabric is securely attached to the fence posts, and to see that the fence posts are firmly in the ground.

☐ Sediment basins, if present, will be inspected for depth of sediment, and built-up sediment will be removed when it reaches 50% of the design capacity or at the end of the job.

☐ Diversion dikes, if present, will be inspected and any breaches promptly repaired.

☐ Temporary and permanent seeding and planting and other stabilization measures will be inspected for bare spots, washouts, and healthy growth.

☐ A maintenance inspection report will be made after each inspection. Copies of the report forms to be used are included in this SWPPP.

☐ The site job superintendent will select the individuals who will be responsible for inspections, maintenance and repair activities, and filling out the inspection and maintenance reports.

☐ Personnel selected for inspection and maintenance responsibilities will receive training from the site job superintendent. They will be trained in all the inspection and maintenance practices necessary for keeping the erosion and sediment controls used onsite in good working order.

☐ Disturbed areas and materials storage areas will be inspected for evidence of or potential for pollutants entering stormwater systems.

☐ Report to The Department of Environmental Conservation within 24 hours any noncompliance with the SWPPP that will endanger public health or the environment. Follow up with a written report within 5 days of the noncompliance event.

STORMWATER POLLUTION PREVENTION PLAN

CONSTRUCTION/IMPLEMENTATION CHECKLIST

1. Maintain Records (Project Manager) of Construction Activities, including:

   ☐ Dates when major grading activities occur

   ☐ Dates when construction activities temporarily cease on a portion of the site

   ☐ Dates when construction activities permanently cease on a portion of the site

   ☐ Dates when stabilization measures are initiated on the site

   ☐ Dates of rainfall and the amount of rainfall

   ☐ Dates and descriptions of the character and amount of any spills of hazardous materials

   ☐ Records of reports filed with regulatory agencies if reportable quantities of hazardous materials spilled

2. Prepare Inspection Reports (Qualified Inspector) summarizing:

   ☐ Name of inspector

   ☐ Qualifications of inspector

   ☐ Measures/areas inspected

   ☐ Observed conditions

   ☐ Changes necessary to the SWPPP

3. Report Releases of Reportable Quantities of Oil or Hazardous Materials (Project Manager, if they occur):

   ☐ Notify National Response Center (1-800-424-8802) immediately

   ☐ Notify permitting authority in writing within 14 days

   ☐ Modify the pollution prevention plan to include:

   - the date of release
   - circumstances leading to the release
   - steps taken to prevent reoccurrence of the release

4. Modify Pollution Prevention Plan (per Qualified Inspector) as necessary to:

   ☐ Comply with the minimum permit requirements when notified by The Department of Environmental Conservation that the plan does not comply

   ☐ Address a change in design, construction operation, or maintenance that has an effect on the potential for discharge of pollutants

   ☐ Prevent reoccurrence of reportable quantity releases of a hazardous material or oil

VII. SPILL PREVENTION CONTROL AND COUNTERMEASURES (SPCC) PLAN

A. MATERIALS COVERED

The following materials or substances with known hazardous properties are expected to be present onsite during construction:

Concrete	Cleaning solvents
Detergents	Petroleum based products
Paints	Pesticides
Paint solvents	Acids
Fertilizers	Concrete additives
Soil stabilization additives	

B. MATERIAL MANAGEMENT PRACTICES

The following are the material management practices that will be used to reduce the risk of spills or other accidental exposure of materials and substances to stormwater runoff.

1. Good Housekeeping

The following good housekeeping practices will be followed onsite during the construction project.

a) An effort will be made to store only enough product required to do the job.

b) All materials stored onsite will be stored in a neat, orderly manner and, if possible, under a roof or other enclosure.

c) Products will be kept in their original containers with the original manufacturer's label in legible condition.

d) Substances will not be mixed with one another unless recommended by the manufacturer.

e) Whenever possible, all of a product will be used up before disposing of the container.

f) Manufacturer's recommendations for proper use and disposal will be followed.

g) The job site superintendent will be responsible for daily inspections to ensure proper use and disposal of materials.

2. Hazardous Products

These practices will be used to reduce the risks associated with hazardous materials.

a) Products will be kept in original containers with the original labels in legible condition.

b) Original labels and material safety data sheets (MSDS's) will be procured and used for each material.

c) If surplus product must be disposed of, manufacturer's or local/state/federal recommended methods for proper disposal will be followed.

d) A spill control and containment kit (containing, for example, absorbent such as kitty litter or sawdust, acid neutralizing powder, brooms, dust pans, mops, rags, gloves, goggles, plastic and metal trash containers, etc.) will be provided at the storage site.

e) All of the product in a container will be used before the container is disposed of. All such containers will be triple-rinsed with water prior to disposal. The rinse water used in these containers will be disposed of in a manner in compliance with state and federal regulations and will not be allowed to mix with stormwater discharges.

3. Product Specific Practices

The following product specific practices will be followed on the job site.

a) Petroleum Products

All onsite vehicles will be monitored for leaks and receive regular preventative maintenance to reduce the chance of leakage. Petroleum products will be stored in tightly sealed containers which are clearly labeled. Any petroleum storage tanks used onsite will have a dike or berm containment structure constructed around it to contain any spills that JUNE occur. Any asphalt substances used onsite will be applied according to the manufacturer's recommendations.

b) Fertilizers

Fertilizers will be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer will be worked in the soil to limit exposure to stormwater. Storage will be in a covered shed. The contents of any partially used bags of fertilizer will be transferred to a sealable plastic bin to avoid spills.

c) Paints, Paint Solvents, and Cleaning Solvents

All containers will be tightly sealed and stored when not in use. Excess paint and solvents will not be discharged to the storm sewer system but will be properly disposed of according to manufacturer's instructions or state and federal regulations.

d) Concrete Trucks

Concrete trucks will be allowed to wash out or discharge surplus concrete or drum wash water on the site, but only in either (1) specifically designated diked areas which have been prepared to prevent contact between the concrete and/or washout and stormwater which will be discharged from the site or (2) in locations where waste concrete can be poured into forms to make riprap or other useful concrete products.

The hardened residue from the concrete washout diked areas will be disposed of in the same manner as other non-hazardous construction waste materials or JUNE be broken up and used on site as deemed appropriate by the CONTRACTOR. The job site superintendent will be responsible for seeing that these procedures are followed.

4. Spill Prevention Practices

In addition to the good housekeeping and material management practices discussed in the previous sections of this plan, the following practices will be followed for spill prevention and cleanup.

a) Manufacturer's recommended methods for spill cleanup will be clearly posted and site personnel will be trained regarding these procedures and the location of the information and cleanup supplies.

b) Materials and equipment necessary for spill cleanup will be kept in the material storage area onsite in spill control and containment kit (containing, for example, absorbent such as kitty litter or sawdust, acid neutralizing powder, brooms, dust pans, mops, rags, gloves, goggles, plastic and metal trash containers, etc.).

c) All spills will be cleaned up immediately after discovery.

d) The spill area will be kept well ventilated and personnel will wear appropriate protective clothing to prevent injury from contact with the hazardous substances.

e) Spills of toxic or hazardous materials will be reported to the appropriate federal, state, and/or local government agency, regardless of the size of the spill. Spills of amounts that exceed Reportable Quantities of certain substances specifically mentioned in federal regulations (40 CFR 302 list and oil) will be immediately reported to the EPA National Response Center, telephone 1-800-424-8802. Reportable Quantities of some substances which JUNE be used at the job site are as follows:

oil - appearance of a film or sheen on water

pesticides - usually 1 lb.

acids - 5000 lb.

solvents, flammable - 100 lb.

f) The SPCC plan will be adjusted to include measures to prevent this type of spill from recurring and how to clean up the spill if there is another one. A description of the spill, what caused it, and the cleanup measures will also be included. If the spill exceeds a Reportable Quantity, all federal regulations regarding reports of the incident will be complied with.

g) The job site superintendent will be the spill prevention and cleanup coordinator. He will designate the individuals who will receive spill prevention and cleanup training. These individuals will each become responsible for a particular phase of prevention and cleanup. The names of these personnel will be posted in the material storage area and in the office trailer onsite.

VIII. CONTROL OF ALLOWABLE NON-STORMWATER DISCHARGES

A. Certain types of discharges are allowable under the NYS Department of Environmental Conservation SPDES General Permit for Construction Activity, and it is the intent of this SWPPP to allow such discharges. These types of discharges will be allowed under the conditions that no pollutants will be allowed to come in contact with the water prior to or after its discharge. The control measures, which have been outlined previously in this SWPPP, will be strictly followed to ensure that no contamination of these non-stormwater discharges takes place. The following allowable non-stormwater discharges that JUNE occur from the job site include:

a) Discharges from fire fighting activities

b) Fire hydrant flushings (see note below)

c) Waters used to wash vehicles or control dust in order to minimize offsite sediment tracking

d) Potable water sources such as waterline flushings (see note below), irrigation drainage from watering vegetation, routine exterior building washdown (without detergents present) (See Note below)

e) Pavement washwaters where spills or leaks of hazardous materials have not occurred or detergents have not been used

f) Springs and other uncontaminated groundwater, including dewatering ground water infiltration

g) Foundation or footing drains where no contamination with process materials such as solvents is present

NOTE: CONTRACTOR shall neutralize any super-chlorinated water from water distribution pipes before releasing it into the environment. Neutralization techniques are available from the Operator's Engineer.

IX. CERTIFICATION AND NOTIFICATION

A. The NYS Department of Environmental Conservation requires that certifications of knowledge of the contents of this SWPPP and agreement to follow the SWPPP be made by the NOI Permittee and the CONTRACTOR. The terms of the General Permit also require that each CONTRACTOR sign the SWPPP plan, (Form 3) thereby making them co-permittees and acknowledging their responsibility for certain operational aspects of the plan. These certifications should be signed before the CONTRACTOR begins activities and should be filed with the site's SWPPP at the jobsite. These certifications are provided within this document, see Table of Contents for location.

SECTION 2

Erosion and Sedimentation Control Plan

Site Map and General Location Map

NOT TO SCALE

Site Location Map
Jerry Smith BESS

Town of Lansing

Source: Google Earth

Tompkins County, NY

June 2026

The Environmental Design Partnership, LLP
© 2023

Figure:

1185

EROSION AND SEDIMENT CONTROL NOTES:

1. ALL AREAS TO BE REVEGETATED SHALL HAVE A MINIMUM OF FOUR INCHES OF TOPSOIL.
2. AREAS USED FOR TEMPORARY LAYDOWN DURING CONSTRUCTION SHALL BE RESTORED TO PRE-CONSTRUCTION CONDITIONS INCLUDING, BUT NOT LIMITS TO, DECOMPACTION, REGRADING, LOAMING, AND SEEDING. IN NO CASE SHALL PARKING AREAS, LAYDOWN AREAS, CONSTRUCTION TRAILERS, AND PORTABLE TOILETS BE LOCATED WITHIN A WETLAND RESOUCE AREA AND/OR ANY BUFFER ZONES.
3. WETLANDS NEAR THE SOLAR ARRAY SHALL BE PROTECTED WITH FILTREXX SILTSOXX OR SILT FENCE. EROSION AND SEDIMENT CONTROL FEATURES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF SOIL DISTURBING ACTIVITIES.
4. AREAS DESIGNATED FOR CUTTING SHALL BE CUT, ONLY. NO GRUBBING OR STRIPPING OF TOPSOIL IS NECESSARY, EXCEPT FOR THOSE AREAS SHOWN ON THE SITE PLANS.
5. PERMANENT STABILIZATION SHALL BE ESTABLISHED AS SOON AS FEASIBLE GIVEN THE GROWING SEASON.

GRAPHIC SCALE

30 20 20 15 10 5 0 15 30 120

(IN FEET)
1 INCH = 30 FT.

EROSION AND SEDIMENT CONTROL PLAN LEGEND

- DENOTES EXISTING GRADE
- DENOTES TEMPORARY GRAVEL ACCESS ROAD
- DENOTES STABILIZED CONSTRUCTION ENTRANCE
- DENOTES EROSION CONTROL BLANKET
- DENOTES IMPERVIOUS GRAVEL ACCESS ROAD
- DENOTES FIXED KNOT FARM FENCE
- DENOTES MEDIUM VOLTAGE TRENCH (SEE ELECTRICAL PLANS FOR DETAILS)
- DENOTES PROPOSED CONTOUR
- DENOTES PROPOSED SILT FENCE/SOCK

30' SIDE SETBACK
60' FRONT SETBACK
STONE WALL
WET AREA
STANDING WATER
STREAM
18" HDPE INV = 1078.4
STS & SS
TPED
SWALE
STABILIZED CONSTRUCTION ENTRANCE (TYP.)
SILT FENCE OR SILT SOCK (TYP.)
EROSION CONTROL BLANKET
CONCRETE WASHOUT
SOIL STOCKPILE
RUBBLE AREA
RUBBLE DRIVE
BUILDING
BLDG
HOUSE
GARAGE
CHAIN LINK GATE
8' HIGH BOWIRE FENCE
THD 12/30 15ASH
1080' CONTOUR
1085' CONTOUR

nexamp
101 Summer Street, Boston, MA 02110
Tel: (617) 431-1440 Fax: (978) 416-2525 Web: nexamp.com

ENVIRONMENTAL DESIGN PARTNERSHIP, LLP.
900 Route 146 Clifton Park, New York 12065
(518) 371-7421 edpllp.com

Rev	Issued For	Date
A	INTERNAL REVIEW	5/27/26

P.E. seal/Consultant:
NOT FOR CONSTRUCTION

Project:
JERRY SMITH , LLC
JERRY SMITH ROAD,
LANSING, NY

Drawing Title:
EROSION AND SEDIMENT CONTROL PLAN

Drawn by: BMW | Scale: AS SHOWN | Approved by: TJM

Dwg No:	Size: D	Sheet Rev:
C-400		A

Company Confidential - This drawing or print is the property of Nexamp, Inc. and is subject to return on request. The design concepts and information contained herein are proprietary to Nexamp, Inc.and its subsidiaries and are submitted in confidence. They are not transferable and must be used only for the purpose for which the Drawing/print is expressly loaned. They must not be disclosed, reproduced detrimental to the interest of Nexamp, Inc. All patent rights are reserved unless they are expressly assigned in writing by a duly authorized representative of Nexamp, inc.

SECTION 3

Federal, State or Local Notice of Intent (NOI)

NYSDEC NOI Acknowledgement Letter - Pending

NYSDEC MS4 SWPPP Acceptance Form

SECTION 4

Federal, State or Local NPDES General Permit

SECTION 5

Certifications, Forms, Reports, and Daily Logs

STORMWATER POLLUTION PREVENTION PLAN
NOI PERMITTEE'S CERTIFICATION

FORM 1

Construction Site
JERRY SMITH BATTERY ENERGY STORAGE SYSTEM
JERRY SMITH LLC, TOMPKINS County, New York

STORMWATER POLLUTION PREVENTION PLAN DATED JUNE 2026

NOI PERMITTEE'S CERTIFICATION:

"I certify under penalty of law that this document was prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that false statements made herein are punishable as a class A misdemeanor pursuant to Section 210.45 of the Penal Law."

NOI Permittee's
Designated Project Manager: _____

Signed: _____

Printed Name: _____

Position: _____

Date: _____

STORMWATER POLLUTION PREVENTION PLAN
CONTRACTOR'S CERTIFICATION LOG

FORM 2

Construction Site
JERRY SMITH BATTERY ENERGY STORAGE SYSTEM
JERRY SMITH LLC, TOMPKINS County, New York

Company Name	
Address	
Contact Name	
Telephone Number	
Cell Phone/Pager	
Scope of Services	
Certification Date	

Company Name	
Address	
Contact Name	
Telephone Number	
Cell Phone/Pager	
Scope of Services	
Certification Date	

Company Name	
Address	
Contact Name	
Telephone Number	
Cell Phone/Pager	
Scope of Services	
Certification Date	

Designated Project Manager_____

STORMWATER POLLUTION PREVENTION PLAN
CONTRACTOR'S/SUBCONTRACTOR'S CERTIFICATION
FORM 3

This form to be completed for each contractor listed on Form 2. Reproduce as needed

Construction Site

JERRY SMITH BATTERY ENERGY STORAGE SYSTEM
JERRY SMITH LLC, TOMPKINS County, New York
CONSTRUCTION POLLUTION PREVENTION PROGRAM
DATED JUNE 2026

CONTRACTOR'S CERTIFICATION:

"I hereby certify under penalty of law that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the *qualified inspector* during a site inspection. I also understand that the *owner or operator* must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I am aware that there are significant penalties for submitting false information, that I do not believe to be true, including the possibility of fine and imprisonment for knowing violations."

The Contractor/Subcontractor further understands that the SWPPP and associated Erosion and Sediment Control Plans represent the **MINIMUM** erosion and sediment control measures that will be required to protect the site during construction. Additional erosion and sediment control measures will be necessary during construction. It will be the responsibility of Contractor/Subcontractor to implement all additional erosion and sediment control measures necessary to protect the site during construction.

CONTRACTOR:	**SUB**CONTRACTOR:
Name (Print): _____	Name (Print): _____
Signature: _____	Signature: _____
Date: _____	Date: _____
Title: _____	Title: _____
Company Name: _____	Company Name: _____
Address: _____	Address: _____
_____	_____
Phone: _____	Phone: _____

Elements of SWPPP Contractor/Subcontractor responsible for: _____

Name of Trained Contractor Responsible for SWPPP Implementation: _____

Title of Trained Contractor Responsible for SWPPP Implementation: _____

FORM 4
JERRY SMITH BATTERY ENERGY STORAGE SYSTEM
SWPPP # _____
This form to be completed by Contractor's designated inspector at least weekly. Reproduce as needed.

SWPPP INSPECTION REPORTS

Page 1 of _____
Date _____

Weather and Soil Conditions
Weather Conditions: _____
Soil Conditions: Dry [ ] Wet [ ] Saturated [ ] Snow Covered [ ] Frozen [ ]

Maintaining Water Quality

Yes	No	NA	
[ ]	[ ]	[ ]	Is there an increase in turbidity causing a substantial visible contrast to natural conditions?
[ ]	[ ]	[ ]	Is there residue from oil and floating substances, visible oil film, or globules or grease?
[ ]	[ ]	[ ]	All disturbance is within the limits of the approved plans.
[ ]	[ ]	[ ]	Have receiving lake/bay, stream, and/or wetland been impacted by silt from project?

Housekeeping
1. General Site Conditions

Yes	No	NA	
[ ]	[ ]	[ ]	Is construction site litter and debris appropriately managed?
[ ]	[ ]	[ ]	Are facilities and equipment necessary for implementation of erosion and sediment control in working order and/or properly maintained?
[ ]	[ ]	[ ]	Is construction impacting the adjacent property?
[ ]	[ ]	[ ]	Is dust adequately controlled?

2. Temporary Stream Crossing

Yes	No	NA	
[ ]	[ ]	[ ]	Maximum diameter pipes necessary to span creek without dredging are installed.
[ ]	[ ]	[ ]	Installed non-woven geotextile fabric beneath approaches.
[ ]	[ ]	[ ]	Is fill composed of aggregate (no earth or soil)?
[ ]	[ ]	[ ]	Rock on approaches is clean enough to remove mud from vehicles and prevent sediment from entering stream during high flow.

Runoff Control Practices
1. Excavation Dewatering

Yes	No	NA	
[ ]	[ ]	[ ]	Upstream and downstream berms (sandbags, inflatable dams, etc.) are installed per plan.
[ ]	[ ]	[ ]	Clean water from upstream pool is being pumped to the downstream pool.
[ ]	[ ]	[ ]	Sediment-laden water from work area is being discharged to a silt-trapping device.
[ ]	[ ]	[ ]	Constructed upstream berm with one-foot minimum freeboard.

2. Water Bar

Yes	No	NA	
[ ]	[ ]	[ ]	Installed per plan with vehicle crossings stabilized with gravel.
[ ]	[ ]	[ ]	Outlet located on undisturbed soil or lined with riprap.
[ ]	[ ]	[ ]	Bar height is 12-inch minimum from bottom of channel with minimum base width of 6-foot.

3. Interceptor Dikes and Swales

Yes	No	NA	
[ ]	[ ]	[ ]	Installed per plan with minimum side slopes 1V:3H or flatter.
[ ]	[ ]	[ ]	Stabilized by geotextile fabric, seed, or mulch with no erosion occurring.
[ ]	[ ]	[ ]	Sediment-laden runoff directed to sediment trapping structure.

FORM 4
JERRY SMITH BATTERY ENERGY STORAGE SYSTEM
SWPPP # _____
This form to be completed by Contractor's designated inspector at least weekly. Reproduce as needed.

SWPPP INSPECTION REPORT Page 2 of _____
Date _____

4. Stone Check Dam

Yes	No	NA	
[ ]	[ ]	[ ]	Is channel stable? (flow is not eroding soil underneath or around the structure).
[ ]	[ ]	[ ]	Check is in good condition (rocks in place and no permanent pools behind the structure).
[ ]	[ ]	[ ]	Has accumulated sediment been removed?

5. Rock Outlet Protection

Yes	No	NA	
[ ]	[ ]	[ ]	Installed per plan.
[ ]	[ ]	[ ]	Installed concurrently with pipe installation.

Soil Stabilization

1. Topsoil and Spoil Stockpiles

Yes	No	NA	
[ ]	[ ]	[ ]	Stockpiles are stabilized with vegetation and/or mulch.
[ ]	[ ]	[ ]	Sediment control is installed at the toe of the slope.

2. Revegetation

Yes	No	NA	
[ ]	[ ]	[ ]	Temporary seedings and mulch have been applied to idle areas.
[ ]	[ ]	[ ]	Four inches minimum of topsoil has been applied under permanent seedings.

Sediment Control Practices

1. Stabilized Construction Entrance

Yes	No	NA	
[ ]	[ ]	[ ]	Stone is clean enough to effectively remove mud from vehicles.
[ ]	[ ]	[ ]	Installed per standards and specifications?
[ ]	[ ]	[ ]	Does all traffic use the stabilized entrance to enter and leave site?
[ ]	[ ]	[ ]	Is adequate drainage provided to prevent ponding at entrance?

2. Silt Fence

Yes	No	NA	
[ ]	[ ]	[ ]	Installed on Contour, ten feet from toe of slope (not across conveyance channels).
[ ]	[ ]	[ ]	Joints constructed by wrapping the two ends together for continuous support.
[ ]	[ ]	[ ]	Fabric buried six inches minimum.
[ ]	[ ]	[ ]	Posts are stable, fabric is tight and without rips or frayed areas.

Sediment accumulation is _____% of design capacity.

3. Storm Drain Inlet Protection (Use for Stone & Block; Filter Fabric; Curb; or, Excavated practices)

Yes	No	NA	
[ ]	[ ]	[ ]	Installed concrete blocks lengthwise so open ends face outward, not upward.
[ ]	[ ]	[ ]	Placed wire screen between No. 3 crushed stone and concrete blocks.
[ ]	[ ]	[ ]	Drainage area is one acre or less.
[ ]	[ ]	[ ]	Excavated area is 900 cubic feet.
[ ]	[ ]	[ ]	Excavated side slopes should be 2:1.
[ ]	[ ]	[ ]	2" x 4" frame is constructed and structurally sound.
[ ]	[ ]	[ ]	Posts three-foot maximum spacing between posts.
[ ]	[ ]	[ ]	Fabric is embedded 1 to 1.5 feet below ground and secured to frame/posts with staples at maximum eight inch spacing.
[ ]	[ ]	[ ]	Posts are stable, fabric is tight and without rips or frayed areas.

Sediment accumulation _____% of design capacity.

FORM 4
JERRY SMITH BATTERY ENERGY STORAGE SYSTEM
SWPPP # _____

This form to be completed by Contractor's designated inspector at least weekly. Reproduce as needed.

SWPPP INSPECTION REPORT

Date _____

4. Temporary Sediment Trap

Yes	No	NA	
[ ]	[ ]	[ ]	Outlet structure is constructed per the approved plan or drawing.
[ ]	[ ]	[ ]	Geotextile fabric has been placed beneath rock fill.

Sediment accumulation is _____% of design capacity.

5. Temporary Sediment Basin

Yes	No	NA	
[ ]	[ ]	[ ]	Basin and outlet structure constructed per the approved plan.
[ ]	[ ]	[ ]	Basin side slopes are stabilized with seed/mulch.
[ ]	[ ]	[ ]	Drainage structure flushed and basin surface restored upon removal of sediment basin facility.

Sediment accumulation is _____% of design capacity.

Dust Control Practices

1. Haul Road and Current Work Areas

Yes	No	NA	
[ ]	[ ]	[ ]	Are all traffic surface areas sufficiently treated to prevent fugitive dust?
[ ]	[ ]	[ ]	Are any areas of site's non-traffic and work area experiencing wind erosion?
[ ]	[ ]	[ ]	Are there any disturbed areas in need of temporary seed and mulch to protect surface from wind erosion?
[ ]	[ ]	[ ]	Is watering truck on-site?
[ ]	[ ]	[ ]	Is dust visible in air at any location of the site?

Note: Not all erosion and sediment control practices are included in this listing. Add additional pages to this list as required by site-specific design.
Construction inspection checklists for post-development stormwater management practices can be found in Appendix F of the New York Stormwater Management Design Manual.

Description of condition of runoff at all points of discharge from the construction site. (This shall include identification of discharges of sediment from the construction site. Include discharges from conveyance systems (i.e. pipes, culverts, ditches, etc.) and overland flow.) _____

_____

_____

_____

Description of areas that are disturbed at the time of the inspection and areas that have been stabilized (temporary and/or final) since the last inspection (see Page 5 for Sketch). _____

_____

_____

_____

FORM 4
JERRY SMITH BATTERY ENERGY STORAGE SYSTEM
SWPPP # _____
This form to be completed by Contractor's designated inspector at least weekly. Reproduce as needed.

SWPPP INSPECTION REPORT

Page 4 of _____
Date _____

ADDITIONAL COMMENTS*:

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____ _____
Inspector (print name and title) Date and Time of Inspection

_____ _____
Qualified Professional (print name) Qualified Professional Signature

The above signed acknowledges that, to the best of his/her knowledge, all information provided on the forms is accurate and complete.

***Attach photographs of practices identified as needing corrective actions.**

NOTE: IN ACCORDANCE WITH PART IV.C.4 OF THE SPDES GENERAL PERMIT (GP-0-20-001), THE QUALIFIED INSPECTOR MUST NOTIFY THE OWNER OR OPERATOR AND APPROPRIATE CONTRACTOR OF ANY CORRECTIVE ACTIONS THAT NEED TO BE TAKEN. THE CONTRACTOR SHALL BEGIN IMPLEMENTING THE CORRECTIVE ACTIONS WITHIN ONE (1) BUSINESS DAY OF THIS NOTIFICATION AND SHALL COMPLETE THE CORRECTIVE ACTIONS IN A REASONABLE TIME FRAME.

STORMWATER POLLUTION PREVENTION PLAN
MODIFICATION REPORT
FORM 5

This form to be used only when Contractor's designated inspector believes changes to the SWPPP and/or Erosion and Sediment control plans is warranted. For example, additional erosion control measures needed or removal of specific control measures can be done without adverse impact. This form must be approved by Designated Project Manager prior to implementation.

Construction Site
JERRY SMITH BATTERY ENERGY STORAGE SYSTEM
JERRY SMITH LLC, TOMPKINS County, New York

CHANGES REQUIRED FOR STORMWATER POLLUTION PREVENTION PLAN

To:	**Designated Project Manager**	**Date:**	
Address:			
Telephone:			
Facsimile:			
Sent Via:	☐ **Facsimile**	☐ **E-mail**	☐ **US Mail**

INSPECTOR: _____ DATE: _____
(Print)

_____
(Signature)

QUALIFICATIONS OF INSPECTOR: _____

CHANGES REQUIRED TO THE STORMWATER POLLUTION PREVENTION PLAN: _____

_____

_____

REASONS FOR CHANGES: _____

_____

_____

TO BE PERFORMED BY: _____ ON OR BEFORE: _____

APPROVED BY DESIGNATED PROJECT MANAGER _____ DATE: _____

STORMWATER POLLUTION PREVENTION PLAN
RECORD OF STABILIZATION AND CONSTRUCTION ACTIVITIES
FORM 6

Construction Site

JERRY SMITH BATTERY ENERGY STORAGE SYSTEM

JERRY SMITH LLC, TOMPKINS County, New York

A record of dates when major grading activities occur, when construction activities temporarily or permanently cease on a portion of the site, and when stabilization measures are initiated shall be maintained until final site stabilization is achieved and the Notice of Termination is filed. *Reproduce copies of this form as needed.*

MAJOR GRADING, CONSTRUCTION, OR STABILIZATION ACTIVITIES

Description of Activity: _____

Begin Date:_____ Site Contractor: _____

Location: _____

End Date: _____

Description of Activity: _____

Begin Date:_____ Site Contractor: _____

Location: _____

End Date: _____

Description of Activity: _____

Begin Date:_____ Site Contractor: _____

Location: _____

End Date: _____

Description of Activity: _____

Begin Date:_____ Site Contractor: _____

Location: _____

End Date: _____

Description of Activity: _____

Begin Date:_____ Site Contractor: _____

Location: _____

End Date: _____

Description of Activity: _____

Begin Date:_____ Site Contractor: _____

Location: _____

End Date: _____

Designated Project Manager_____

STORMWATER POLLUTION PREVENTION PLAN
RECORD OF TEMPORARY EROSION AND SEDIMENT CONTROL PRACTICES
FORM 6A

Construction Site

JERRY SMITH BATTERY ENERGY STORAGE SYSTEM

JERRY SMITH LLC, TOMPKINS County, New York

A record of the timing of temporary erosion and sediment control practices to be implemented, including the timing of initial placement and the duration that each practice should remain in place. The record JUNE reflect the actual date of planned installation or the specific construction activity with which it will be associated. The timing of removal JUNE reflect an actual date or the length of time over which the practice will be implemented.

TEMPORARY EROSION AND SEDIMENT CONTROL PRACTICES

Description of Practice: _____

Date/Timing of Initial Placement:_____ Site Contractor: _____

Location: _____

Projected Date/Timing of Removal: _____

Description of Practice: _____

Date/Timing of Initial Placement:_____ Site Contractor: _____

Location: _____

Projected Date/Timing of Removal: _____

Description of Practice: _____

Date/Timing of Initial Placement:_____ Site Contractor: _____

Location: _____

Projected Date/Timing of Removal: _____

Description of Practice: _____

Date/Timing of Initial Placement:_____ Site Contractor: _____

Location: _____

Projected Date/Timing of Removal: _____

Description of Practice: _____

Date/Timing of Initial Placement:_____ Site Contractor: _____

Location: _____

Projected Date/Timing of Removal: _____

Designated Project Manager_____

YEAR 20___ **STORMWATER POLLUTION PREVENTION PLAN** **FORM 7**

PROJECT RAINFALL LOG (to be completed by Contractor)

Month	Jan	Feb	Mar	Apr	JUNE	June	July	Aug	Sep	Oct	Nov	Dec
Day												
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
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27												
28												
29												
30												
31												
PM Initials												

STORMWATER POLLUTION PREVENTION PLAN

FINAL STABILIZATION CERTIFICATION /NOTICE OF TERMINATION CHECKLIST

FORM 8

This form is to be completed by Contractor and submitted to Designated Project Manager for approval only afterContractor believes all work regulated by SWPPP is complete.

Construction Site
JERRY SMITH BATTERY ENERGY STORAGE SYSTEM
JERRY SMITH LLC, TOMPKINS County, New York

1. ☐ **All soil disturbing activities are complete.**

2. ☐ **Temporary Erosion and Sediment Control Measures have been removed or will be removed at the appropriate time.**

3. ☐ **All areas of the Construction Site not otherwise covered by a permanent pavement or structure have been stabilized with a uniform perennial vegetative cover with a density of 85% or equivalent measures have been employed.**

CONTRACTOR'S CERTIFICATION:

"I certify under penalty of law that all storm water discharges associated with industrial activity from the identified project that are authorized by NPDES general permit have been eliminated and that all disturbed areas and soils at the construction site have achieved Final Stabilization and all temporary erosion and sediment control measures have been removed or will be removed at the appropriate time."

Company Name _____

Name (Print) _____

Signature _____

Date _____

APPROVED BY DESIGNATED PROJECT MANAGER_____ DATE: _____

SECTION 6

Supplemental Information

1. Stormwater Management Narrative
2. Soil Mapper
3. SHPO Correspondence
4. Endangered and Threatened Species Correspondence

Stormwater Management Narrative

Jerry Smith
BESS Project

Jerry Smith Road

Town of Lansing

Tompkins County, New York

Applicant:

Jerry Smith, LLC

101 Summer Street, 2nd Floor

Boston, MA 02110

JUNE 2026

Revised: JUNE 2026

Prepared By:

The Environmental Design Partnership, LLP

900 Route 146

Clifton Park, NY 12065

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Figures

Figure 1 – Site Location Map

Figure 2 – Pre-development Drainage Map

Figure 3 – Post-development Drainage Map

Attachments

Attachment A – WQv Calculations

Attachment B – Stormwater Modeling Calculations

900 Route 146, Clifton Park, New York 12065
phone (518) 371-7621

1.0 Introduction

Jerry Smith, LLC is proposing the development of a Battery Energy Storage System (BESS) for on an existing parcel of land totaling approximately 57+/- acres located on Jerry Smith Road in the Town of Lansing, New York. The proposed site development includes a BESS which consists of approximately 620 +/- linear feet (LF) of access road, equipment pads, stormwater management areas, and ten-foot-high perimeter fencing. The total area of proposed disturbance is approximately 1.67 +/- acres and 0.60 +/- acres of new impervious area will be associated with the project.

A stormwater management system has been developed to provide pollutant removal, reduce channel erosion, prevent overbank flooding, and safely control extreme flood events in accordance with the NYS Stormwater Management Design Manual (Design Manual). The temporary erosion control measures and post-construction stormwater management systems for this project have been designed in accordance with those guidelines and subsequent discussions with the NYSDEC relative to their guidelines. Section 7.0 of this report addresses specific BESS panel application guidance.

The proposed stormwater management system for the project will include the use of a vegetated filter strip and bioretention area designed to convey runoff from the gravel access road and concrete equipment pads. Runoff from the impervious access road is directed into the vegetated filter strip or bioretention area prior to discharging offsite.

This narrative presents a review of the design concepts and parameters of the stormwater management system for the proposed increased impervious areas, in accordance with NYSDEC application guidance, including the access roads and the equipment pads. The purpose of the stormwater management narrative is to ensure that changes in the surface runoff characteristics, as a result of the proposed construction, will not adversely impact adjacent or downstream properties. On-site stormwater management will be implemented in accordance with the Design Manual and NYSDEC application guidance to accommodate both additional stormwater runoff and to provide water quality treatment according to the green infrastructure standards.

2.0 Existing Conditions

The site consists of mostly wooded and field areas with residential development on the northern side of the parcel. The topography of the land consists of drainage from a highpoint in the middle of the site out to all directions. The typical slopes within the area of the proposed development range from 1% to 10% Elevations at the site vary between 1086 and 1078 feet above sea level.

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2.1 Soil and Groundwater Conditions

The USDA Natural Resources Conservation Service Soil Survey identifies the soils on the site, in the proposed development, consist of a variety of soil types from silt loam to a gravelly silt loam. These soils vary as Hydrologic Soil Groups (HSG) B and D. The results from the USDA Natural Resources Conservation Soil Survey (NRCS Soil Survey) are included in Section 6 of the SWPPP.

3.0 Predevelopment Stormwater Analysis

The existing hydrologic conditions, in the area to be disturbed as a result of the proposed construction, were analyzed using Applied Microcomputer Systems' "HydroCAD" computer modeling program. The HydroCAD stormwater modeling program employs the United States Department of Agriculture's Soil Conservation Service (SCS) Technical Release 20 (TR-20) method for stormwater analysis. Using this modeling technique, the site is divided into "subcatchments" that represent specific areas contributing stormwater runoff to an existing, or proposed drainage feature. The subcatchments typically flow through "reaches" (i.e., swales, channels, or pipes) that convey the stormwater to storm basins or discharge areas.

A hydrologic model of the existing site was prepared using the Hydrocad program. Three (3) large sub catchments were used to represent the existing drainage condition, see Figure 2.

The existing parameters of topography, vegetation, slope and soil type are all incorporated into the predevelopment model.

Table 1 presents a summary of the pre-development stormwater peak discharge for the 1 year, 10 year and 100-year design storm events at the respective Design Point. As will be discussed in subsequent sections, the post development stormwater discharge rate has been limited to the predevelopment discharge rate for the 1-year, 10-year, and 100-year storm events.

Table 1: Pre-Development Runoff Rates

Storm Event	Total Discharge (cfs)
1-Year (1.97")	0.65
10-Year (3.36")	6.89
100-Year (5.73")	26.36

The pre-development Curve Numbers (CN) for the existing ground covers are listed in Table 2.

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Table 2: Pre-Development Ground Cover

Pre-Development Ground Cover Description	Curve Number
Meadow, Non-grazed, HSG B	58
Meadow, Non-grazed, HSG D	78
Row Crops, Straight Row, Good, HSG B	78
Woods, Fair, HSG B	60
Woods, Fair, HSG D	79
Impervious	98

The weighted CN for the pre-development conditions for the site is approximately 66. The HydroCAD model results for the pre-development conditions are included within Attachment B.

4.0 Stormwater Management Planning and Practice Selection

The site layout and stormwater design for this project was completed while taking into consideration the potential impacts on the existing site and downstream hydrology. Stormwater runoff from the existing site predominately sheet flows to low areas. The stormwater management system will replicate similar practices.

Stormwater from impervious areas on the site is designed to be treated with a vegetated filter strip and a bioretention area. This design method was chosen on this site due to the minor amount of impervious surface and the uniform grade of the access road. Vegetated filter strips are considered standard stormwater management practices with runoff reduction volume capacity.

The total disturbance for the project will be on the order of 1.67± acres. The proposed development will result in an increase of impervious cover by 0.60± acres.

5.0 Post-Development Stormwater Analysis

The post-development conditions were analyzed using the HydroCAD computer modeling program.

Six (6) subcatchments were used to represent the post development drainage conditions of the site in the areas of the proposed BESS development. Site improvements to the property will consist of approximately 620 +/- LF of access road, a BESS equipment pad, and perimeter fencing. Also included, as permanent elements of the development, is the on-site stormwater

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management area depicted as a vegetated filter strip and a bioretention area. This vegetated filter strip and bioretention area have been designed to provide treatment and attenuation of stormwater runoff from the proposed impervious surfaces on the site.

Runoff from the undeveloped portion of the project site, outside of the stormwater management areas, will sheet flow off site, which is similar to predevelopment drainage patterns.

The post-development ground cover Curve Numbers (CN) are listed in Table 3.

Table 3: Post-Development Ground Cover

Post-Development Ground Cover Description	Curve Number
Meadow, Non-grazed, HSG B	58
Meadow, Non-grazed, HSG D	78
Row Crops, Straight Row, Good, HSG B	78
Woods, Fair, HSG B	60
Woods, Fair, HSG D	79
Impervious	98

The weighted CN for the post-development conditions for the site is approximately 67. The HydroCAD model results for the post-development conditions are included within Attachment B. The contributing area to each stormwater management area is identified in Figure 3.

Table 4 presents a summary of the post-development stormwater peak discharge for the 1 year, 10 year and 100-year design storm events at the respective Design Points. The 1-Year design storm for the post development conditions is greater than the pre development conditions by 0.07 cfs and is not a significant increase and should not cause any flooding or additional soil erosion.

Table 4: Post-Development Runoff Rates

Storm Event	Total Discharge (cfs)
1-Year (1.97")	0.72
10-Year (3.36")	6.82
100-Year (5.73")	25.49

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5.1 Stormwater Management Area #1 – Vegetated Filter Strip

Stormwater Management Area #1 is designed as a vegetated filter strip with a gravel diaphragm. The filter strip and diaphragm will provide treatment and attenuation of stormwater runoff from the impervious access road and concrete equipment pad. Runoff contributing to SMA #1 will be conveyed via shallow concentrated flow and sheet flow.

5.2 Stormwater Management Area #2 – Bioretention Area

Stormwater Management Area #2 is designed as a bioretention area. The vegetated swale and bioretention area will provide treatment and attenuation of stormwater runoff from the impervious access road and concrete equipment pad. Runoff contributing to SMA #2 will be conveyed via vegetated swale.

5.3 NYS Unified Stormwater Sizing Criteria

The area to be disturbed as a result of the proposed development was modeled in HydroCAD under the post-development conditions using two subcatchments (Figure 3) routed into the stormwater management areas. The contributing area of each stormwater management area is identified in Figure 3. The post-development stormwater management system has been designed based on the Unified Stormwater Sizing Criteria as described in the following sections.

5.3.1 Water Quality (WQ_v)

In general, small storm events and the initial runoff from larger storm events are an environmental concern as this stormwater runoff typically contains roadway pollutants and thermal energy stored by the asphalt. In accordance with the Design Manual, this initial runoff is designated as the Water Quality Volume (WQ_v) and special attention is given to this volume of runoff to meet water quality objectives.

The Design Manual identifies several standard practices, such as the proposed infiltration basins which are acceptable for water quality treatment. These acceptable Stormwater Management Practices (SMPs) can capture and treat the full water quality volume (WQ_v), are capable of 80% TSS removal and 40% TP removal, have acceptable longevity in the field, and have pretreatment mechanism.

The water quality storage volume, WQ_v, is calculated as follows:

$$WQ_v = \frac{P \cdot R_v \cdot A}{12}$$

Where: WQ_v = water quality volume (acre-feet)

P = 90% rainfall event number

R_v = 0.05+0.009(I), where I is percent impervious cover

A = site area (acres), impervious area used with I = 100%

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Table 5: Required Water Quality Volume

Drainage Area	P	R_v	A (Acres)	Required WQ_v (cf)	Provided WQ_v (cf)
SMA #1	1.00	0.95	0.19	655	655
SMA #2	1.00	0.95	0.66	1,133	1,133

5.3.2 Runoff Reduction Volume (RRv)

The Design Manual specifies that runoff shall be reduced by 100% of the site WQv using standard SMPs with RRv capacity and green infrastructure techniques. The proposed project area on the site is approximately 1.67 acres. The total watershed area contributing to the SMA for analysis is approximately 0.85 acres, with a total post-development impervious area on the order of 0.60 acres. The resulting RRv for these site coverages is computed as 697 CF. Runoff reduction will be provided by standard SMP's with RRv capacity. (See Appendix A for summary of calculations)

5.3.2.1 Stormwater Management Practices (SMP's)

A bioretention area has been proposed to collect and treat the stormwater runoff from the site. The bioretention area is considered a standard stormwater treatment practice with RRv capabilities. The WQv provided by the wet swale is 1,167 CF.

5.3.2.2 Green Infrastructure Practices

The vegetated filter strip is considered a green infrastructure practice. The RRv provided by the practice is on the order of 655 CF. Greater than the minimum RRv required.

The following Table provides a summary of the Runoff Reduction provided for the proposed development, based on each management practice and technique.

Table 6: Runoff Reduction Volume Summary

Runoff Reduction Technique	RRv (cf)
Vegetated Filter Strip	655
Bioretention Area	1,133
Total Site Reduction	1788
% WQv. Reduction	**>100%**

Many of the green infrastructure practices recommended in the Design Manual were not applied to the stormwater management design on this site due to either site restrictions or the use of more feasible green infrastructure in place of the more restrictive and/or maintenance

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intensive practices. The following table discusses why the unused green infrastructure practices were not feasible.

Table 7: Non-Feasible Green Infrastructure Practices

Green Infrastructure Practice	Reason use is not feasible
Vegetated Swales	There are no swales proposed to receive runoff from impervious areas onsite
Tree Planting/Tree Pit	Trees will be saved on the site to the greatest extent possible. Trees will also be planted to maintain a buffer from the surrounding properties to the proposed site, though the resulting runoff reduction value for adding additional trees is minimal.
Conservation of Natural Areas	Natural areas will be conserved on site as much as possible, but the resulting runoff reduction value is minimal.
Stream Daylighting	No existing piped streams are located on the site.
Green Roofs	There is no building construction proposed as part of the project
Stormwater Planters	The proposed practices were deemed more economically feasible and effective as opposed to stormwater planters. Additionally, they require less maintenance.
Rain Barrels/Cisterns	Rain Barrels/Cisterns would require the ability to use the water between storm events which is not feasible for this project type.
Rain Gardens	Rain gardens are not recommended for commercial applications as well as not economically feasible.
Disconnection of Rooftop Runoff	There is no building construction proposed as part of the project

5.3.3 Channel Protection (Cp_v)

In accordance with the Design Manual, stream channel protection, designed to protect stream channels from erosion, is accomplished by providing 24-hour extended detention of the one-year, 24-hour storm event. The Cp_v requirement is typically satisfied by providing additional storage above the water quality (WQ_v) volume.

According to Chapter 4 of the Design Manual, the stream channel protection requirement does not apply when the entire channel protection volume is reduced through green infrastructure or infiltration systems. The stormwater management practice onsite is designed as a green infrastructure practice; additionally, stormwater modelling indicates the proposed stormwater management areas designed to fully attenuate and infiltrate the contributing stormwater runoff for stormwater events up to the 100-Year design storm.

5.3.4 Overbank Flood (Q_p)

Overbank Flood Control Criteria has been established to limit the frequency and magnitude of out-of-bank flooding generated through changes in runoff characteristics as a result of

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increased impervious surface area. In accordance with the Design Manual, providing sufficient storage volume to attenuate the post development 10-year, 24-hour peak discharge rate to the equivalent pre-development discharge rate controls overbank flooding.

The 10-year design storm event was analyzed using the HydroCAD stormwater modeling program (TR-20) under the post-development drainage conditions shown on Figure 3. Using a 10-year, 24-hour design storm of 3.36 inches, the stormwater management area was designed with sufficient storage volume to limit the post-development 10-year, 24-hour peak discharge rate to the pre-development discharge rate. The following table presents the pre- and post-development discharge rates for the offsite discharge. As indicated, the post-development discharge rate is less than the pre-development rate as required.

Table 8: Overbank Flow Runoff Summary

	10-year (3.36") runoff rate (cfs)	
	Predevelopment	Post-Development
DP-1	6.89	6.82

5.3.5 Extreme Storm (Q_f)

In accordance with the Design Manual, the stormwater management system must attenuate the post development 100-year, 24-hour peak discharge rate to the predevelopment rate while providing safe passage of this storm event.

The 100-year storm event was analyzed using the HydroCAD stormwater modeling program (TR-20) under the post-development drainage conditions shown in Figure 3. Using a 100-year, 24-hour design storm of 5.73 inches, the stormwater management areas were designed with sufficient storage volume to limit the post-development 100-year, 24-hour peak discharge rate to the predevelopment discharge rate. The following table presents the pre and post development discharge rates for the offsite discharge. As indicated, the post-development discharge rate is less than the predevelopment rate as required.

Table 9: Extreme Storm Runoff Summary

	100-year (5.73") runoff rate (cfs)	
	Predevelopment	Post-Development
DP-1	26.36	25.49

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6.0 Summary

Development of the proposed project site will alter the stormwater drainage characteristics of the site; impervious area will be added in the form of an improved compacted gravel or paved access road, BESS, and a equipment pad. Changes to the stormwater drainage characteristics of the site have been evaluated in accordance with the Design Manual. The proposed stormwater management system has been designed to comply with the recommendations in the Design Manual and the NYSDEC SPCG as it relates to maintaining sheet flow, providing water quality/runoff reduction/channel protection volume, overbank flood control and extreme flood control for new development projects.

The proposed stormwater management system has been designed to attenuate and treat the stormwater runoff generated from the contributing areas for storm events to the pre-development rates, up to and including the 100-Year design storm event. The proposed stormwater management design includes the use of a vegetated filter strip. Stormwater modeling results indicate the ability to reduce the overall post-development discharge rate from the site as summarized in Table 10.

Table 10: Reduction in Peak Discharge Rates

Peak Discharge Rates in cfs	1-Year Storm	10-Year Storm	100-Year Storm
Pre-Development	0.65	6.89	26.36
Post-Development	0.72	6.82	25.49
Overall Reduction (cfs)	-0.07	0.07	0.87

Through the implementation of acceptable stormwater management practices, recommended by the NYS Stormwater Management Design Manual, the proposed project will not adversely affect adjacent or downstream properties.

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The Environmental Design Partnership, LLP

Reviewed by:

Travis Mitchell, P.E.

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Figures

1. Site Location map
2. Pre-Development Drainage Map
3. Post Development Drainage Map

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Figure 1: Site Location Map

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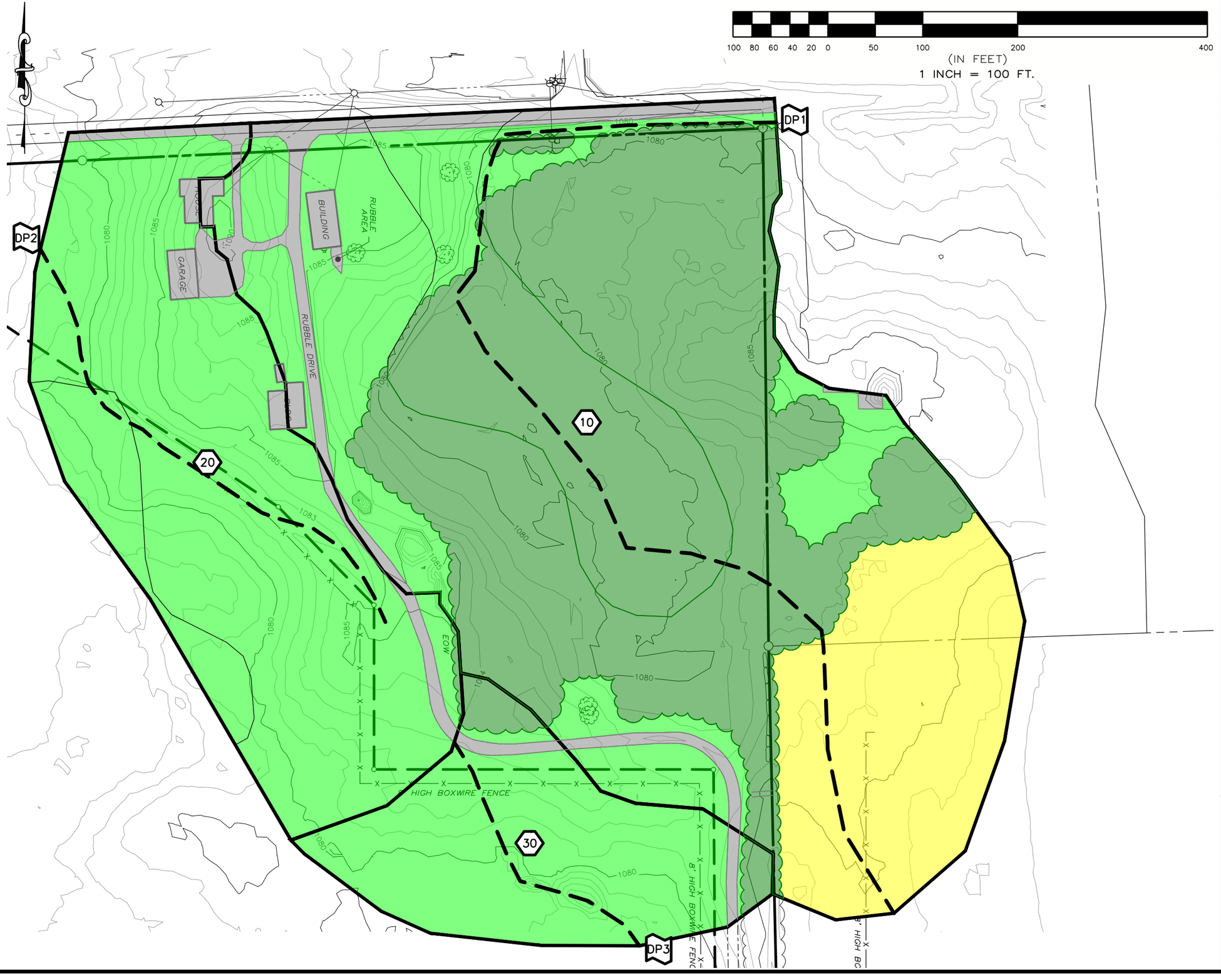
MAP KEY	
	SUBCATCHMENT BOUNDARY
S1	SUBCATCHMENT I.D.
4P	STORMWATER DEVICE
DP	DESIGN POINT
	TC PATH

GRAPHIC SCALE

100 80 60 40 20 0 50 100 200 400

(IN FEET)

1 INCH = 100 FT.



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STORMWATER ANALYSIS FOR
JERRY SMITH, LLC

JERRY SMITH ROAD
TOWN OF LANSING
TOMPKINS COUNTY, NEW YORK

JUNE 1, 2026

REVISION	DATE	BY

SCALE: 1" = 100'

SHEET TITLE: PRE DEVELOPMENT

SHEET NO. FIGURE 1

1218

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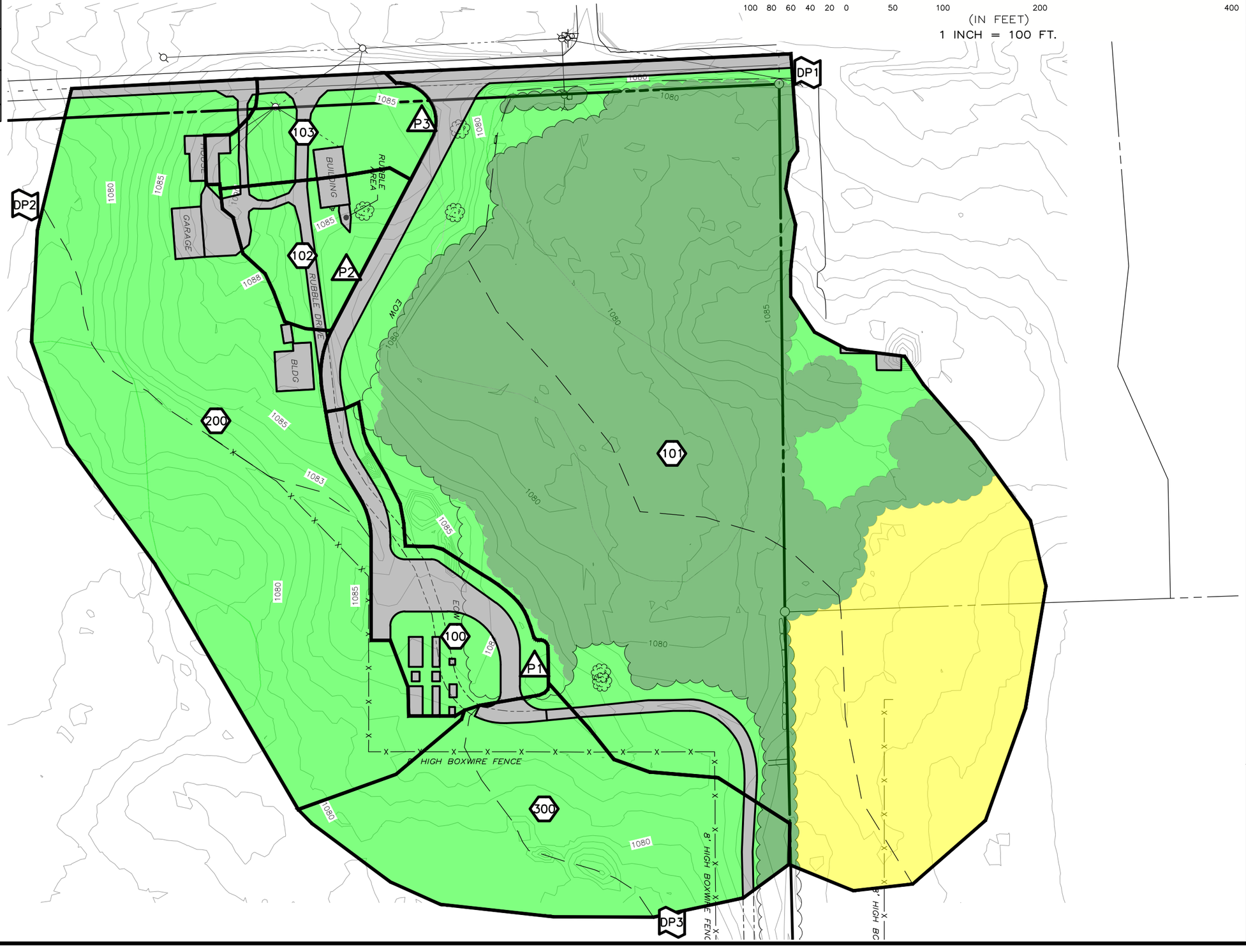
MAP KEY	
	SUBCATCHMENT BOUNDARY
S1	SUBCATCHMENT I.D.
P4	STORMWATER DEVICE
DP	DESIGN POINT
	TC PATH

GRAPHIC SCALE

100 80 60 40 20 0 50 100 200 400

(IN FEET)

1 INCH = 100 FT.



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JUNE 1, 2026

STORMWATER ANALYSIS FOR JERRY SMITH, LLC

JERRY SMITH ROAD
TOWN OF LANSING
TOMPKINS COUNTY, NEW YORK

REVISION	DATE	BY

SCALE: 1" = 100'

SHEET TITLE: POST DEVELOPMENT

SHEET NO. FIGURE 2

1219

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Attachment A
Water Quality Calculation
Runoff Reduction Calculation

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Step 2 - Calculate Water Quality Volume

Is this project subject to Section 4.3 of the NYS Design Manual for Enhanced Phosphorus Removal?	No
What is the nature of this construction project?	New Construction

Design Point:		
P=	1.00	inches

Enter 90% Rainfall Event as P

Calculate Required WQv

Drainage Area Number	Contributing Area (Acres)	Impervious Area (Acres)	Percent Impervious %	Rv	WQv (cf)	SMP Description
1	0.19	0.19	100	0.95	655	Sheet Flow to Grass Filter Strip
2	0.66	0.31	47	0.47	1,133	Infiltration Bioretention
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
Total	0.85	0.50	59	0.58	**1788**	**Required WQv**

Steps 3 and 5 - Apply RR Techniques and Standard SM

Runoff Reduction Volume and Treated Volumes						
	Runoff Reduction Techiques/Standard SMPs		**Total Contributing Area**	**Total Contributing Impervious Area**	**WQv Reduced (RRv)**	**WQv Treated**
			(acres)	**(acres)**	**(cf)**	**(cf)**
RR Techniques	Conservation of Natural Areas	RR-1	0.19		0	
	Sheet Flow to Riparian Buffer/Filter Strip	RR-2	0.19	0.19	655	
	Tree Planting/Tree Pit/Tree Trench	RR-3	0.00	0.00	0	
	Disconnection of Rooftop Runoff	RR-4		0.00	0	
	Vegetated Swale	RR-5	0.00	0.00	0	
	Rain Garden	RR-6	0.00	0.00	0	
	Stormwater Planter	RR-7	0.00	0.00	0	
	Rainwater Harvesting Systems	RR-8	0.00	0.00	0	
	Porous Pavement	RR-9	0.00	0.00	0	
	Green Roof (Extensive & Intensive)	RR-10	0.00	0.00	0	
	Stream Daylighting	RR-11				
Standard SMPs w/ RRv Capacity	Infiltration Trench	I-1	0.00	0.00	0	0
	Infiltration Basin	I-2	0.00	0.00	0	0
	Dry Well	I-3	0.00	0.00	0	0
	Underground Infiltration System	I-4	0.00	0.00	0	0
	Infiltration Bioretention	F-4	0.66	0.31	1,133	0
	Filtration Bioretention	F-5	0.00	0.00	0	0
	Bioslope	F-6	0.00	0.00	0	0
	Dry swale	O-1	0.00	0.00	0	0
Standard SMPs	Micropool Extended Detention	P-1	0.00	0.00		0
	Wet Pond	P-2	0.00	0.00		0
	Wet Extended Detention	P-3	0.00	0.00		0
	Multiple Pond System	P-4	0.00	0.00		0
	Shallow Wetland	W-1	0.00	0.00		0
	Extended Detention Shallow Wetland	W-2	0.00	0.00		0
	Pond/Wetland System	W-3	0.00	0.00		0
	Pocket Wetland	W-4	0.00	0.00		0
	Gravel Wetland	W-5	0.00	0.00		0
	Surface Sand Filter	F-1	0.00	0.00		0
	Underground Sand Filter	F-2	0.00	0.00		0
	Perimeter Sand Filter	F-3	0.00	0.00		0
	Wet Swale	O-2	0.66	0.31		0
Alt. SMPs	Flow Based Alternative Practice	-	0.00	0.00		0
	Volume Based Alternative Practice	-				
	Totals by RR Technique	→	0.38	0.19	655	
	Totals by Standard SMP w/RRV	→	0.66	0.31	1,133	0
	Totals by Standard SMP	→	0.66	0.31		0
	Totals by Alternative SMP	→	0.00	0.00		0
	Totals (RR Techniques + all SMPs)	→	1.70	0.81	1,788	0

Step 4 - Calcuate Minimum RRv Required

Enter the Soils Data for the entire site		
Hydrologic Soil Group	Acres	S
A		55%
B	0.85	40%
C		30%
D		20%
Total Area	0.85	

Calculate the Minimum RRv		
S =	**0.40**	
Impervious =	0.50	*acres*
Precipitation	1.00	*inches*
Rv	0.95	
Minimum RRv	**0.016**	***af***
	697	cf

Sheet Flow to Grass Filter Strip (RR-3)

Design Point:	

Enter Site Data For Drainage Area to be Reduced							
Drainage Area Number	**Contributing Area** (Acres)	**Impervious Area** (Acres)	**Percent Impervious** %	**Rv**	**WQv** (cf)	**Precipitation** (in)	**Description**
1	0.19	0.19	100	0.95	655	1.00	Sheet Flow to Grass Filter Strip

Design Criteria		
Is the riparian buffer delineated and permanently protected through establishment of a legal conservation easement?	Yes	
Is the contributing area a designated hotspot?	No	
Is a pretreatment pea gravel diaphragm proposed along the upgradient edge of the buffer?	Yes	
Is runoff entering the buffer as overland sheet flow or a flow spreader proposed upgradient of the buffer?	Yes	
Enter the total length of contributing flow path (ft)	20	
Enter the length of contributing flow path from impervious surfaces (ft)	20	
Enter the slope of contributing flow path (%)	2	
Minimum buffer length based on contriuting flow path slope (ft)	35	
Enter the slope for the first 10 ft of the buffer (%)	2	

Sizing Criteria				
		Value	Units	Notes
Enter Travel Time through Buffer	*T*	6	min	
Enter 2-yr 24-hr Rainfall Depth	*P*	2.17	inch	
Enter Overall Buffer Slope	*S*	0.04	ft/ft	
Enter Manning's Coefficient for Buffer	*n*	0.40		
Calculated Minimum Length of Buffer	*L*	23	ft	
Minimum Length of Buffer	*L*	35	ft	
Is the buffer within HSG C or D soils?		Yes		
Required Length of Buffer	*L*	40	ft	
Enter Provided Length of Buffer	*L*	40	ft	

Calculate Runoff Reduction		
RRv Provided	**655**	**cf**

Infiltration Bioretention (F-4)

Design Point:	

Enter Site Data For Drainage Area to be Treated by Practice							
Drainage Area Number	**Contributing Area** (Acres)	**Impervious Area** (Acres)	**Percent Impervious** %	**Rv**	**WQv** (cf)	**Precipitation** (in)	**Description**
2	0.66	0.31	47	0.47	1,133	1.00	Infiltration Bioretention

Design Criteria		
Enter underlying soil infiltration rate (based on geotechnical testing, refer to Appendix D)	0.75	
Is the contributing area to the practice an "Infiltration Restricted" stormwater hotspot?	No	
Is the contributing area to the practice an "Infiltration Prohibited" stormwater hotspot?	No	
Is contributing area greater than max. contributing area?	No	
Enter depth to seasonal high water table (ft) (4 ft min separation in sole source aquifer)	2	
Enter depth to bedrock (ft)	10	
Is pretreatment provided, in conformance with Section 6.4.3.1?	Yes	
Enter average height of ponding (ft)	0.5	
Enter depth of surface layer (inches)	3	
Enter depth of filter media (ft)	2.5	
Enter depth of drainage layer (inches)	6	
Enter slope of maintenance access (%)	1	
Enter width of maintenance access (ft)	20	

Sizing Criteria				
		Value	Units	Notes
Permeability Flow Rate	k	1	ft/day	
Filter Time	tf	2	days	
Required Filter Area	Af	473	sf	
Enter Provided Filter Area	Af	800	sf	

Calculate Runoff Reduction		
RRv Provided	**1,133**	***cf***

Attachment B

Stormwater Modeling Calculations

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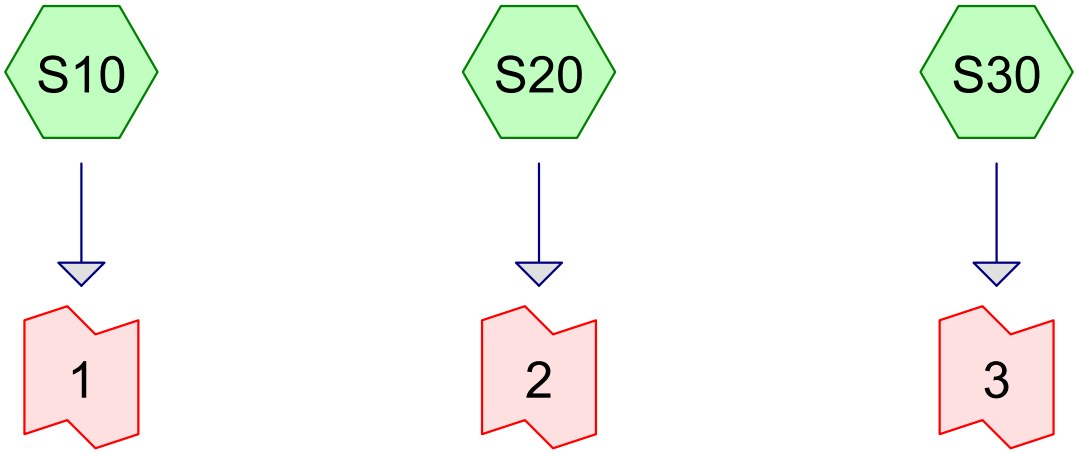
phone (518) 371-7621



Subcat Reach Pond Link

Routing Diagram for 2026-06-01 Predevelopment
Prepared by Environmental Design Partnership, Printed 6/1/2026
HydroCAD® 10.20-2h s/n 00476 © 2024 HydroCAD Software Solutions LLC

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-YR	Type II 24-hr		Default	24.00	1	1.97	2
2	10-YR	Type II 24-hr		Default	24.00	1	3.36	2
3	100-YR	Type II 24-hr		Default	24.00	1	5.73	2

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
6.748	58	Meadow, non-grazed, HSG B (S10, S20, S30)
0.733	78	Meadow, non-grazed, HSG D (S10, S20)
0.856	98	Paved parking, HSG D (S10, S20, S30)
1.861	78	Row crops, straight row, Good, HSG B (S10)
4.332	60	Woods, Fair, HSG B (S10, S20, S30)
1.437	79	Woods, Fair, HSG D (S10)
15.966	**66**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
12.940	HSG B	S10, S20, S30
0.000	HSG C	
3.026	HSG D	S10, S20, S30
0.000	Other	
15.966		**TOTAL AREA**

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	6.748	0.000	0.733	0.000	7.481	Meadow, non-grazed	S10, S20, S30
0.000	0.000	0.000	0.856	0.000	0.856	Paved parking	S10, S20, S30
0.000	1.861	0.000	0.000	0.000	1.861	Row crops, straight row, Good	S10
0.000	4.332	0.000	1.437	0.000	5.769	Woods, Fair	S10, S20, S30
0.000	**12.940**	**0.000**	**3.026**	**0.000**	**15.966**	**TOTAL AREA**	

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentS10: Runoff Area=446,233 sf 5.37% Impervious Runoff Depth>0.15"
Flow Length=1,335' Tc=49.5 min CN=68 Runoff=0.56 cfs 0.127 af

SubcatchmentS20: Runoff Area=173,284 sf 6.24% Impervious Runoff Depth>0.07"
Flow Length=565' Tc=20.6 min CN=63 Runoff=0.08 cfs 0.024 af

SubcatchmentS30: Runoff Area=75,979 sf 3.29% Impervious Runoff Depth>0.03"
Flow Length=400' Slope=0.0200 '/' Tc=16.6 min CN=59 Runoff=0.01 cfs 0.004 af

Link 1: Inflow=0.56 cfs 0.127 af
Primary=0.56 cfs 0.127 af

Link 2: Inflow=0.08 cfs 0.024 af
Primary=0.08 cfs 0.024 af

Link 3: Inflow=0.01 cfs 0.004 af
Primary=0.01 cfs 0.004 af

Total Runoff Area = 15.966 ac Runoff Volume = 0.156 af Average Runoff Depth = 0.12"
94.64% Pervious = 15.111 ac 5.36% Impervious = 0.856 ac

Summary for Subcatchment S10:

Runoff = 0.56 cfs @ 12.70 hrs, Volume= 0.127 af, Depth> 0.15"
Routed to Link 1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR Rainfall=1.97"

Area (sf)	CN	Description
23,956	98	Paved parking, HSG D
84,111	58	Meadow, non-grazed, HSG B
12,046	78	Meadow, non-grazed, HSG D
182,431	60	Woods, Fair, HSG B
62,617	79	Woods, Fair, HSG D
81,072	78	Row crops, straight row, Good, HSG B
446,233	68	Weighted Average
422,277		94.63% Pervious Area
23,956		5.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0100	0.23		**Sheet Flow, SF - FARM** Cultivated: Residue<=20% n= 0.060 P2= 2.32"
3.8	205	0.0100	0.90		**Shallow Concentrated Flow, SCF - FARM** Cultivated Straight Rows Kv= 9.0 fps
23.9	600	0.0070	0.42		**Shallow Concentrated Flow, SCF - WOODS** Woodland Kv= 5.0 fps
14.5	430	0.0050	0.49		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
49.5	1,335	Total			

Summary for Subcatchment S20:

Runoff = 0.08 cfs @ 12.49 hrs, Volume= 0.024 af, Depth> 0.07"
Routed to Link 2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR Rainfall=1.97"

Area (sf)	CN	Description
10,811	98	Paved parking, HSG D
141,959	58	Meadow, non-grazed, HSG B
19,882	78	Meadow, non-grazed, HSG D
632	60	Woods, Fair, HSG B
173,284	63	Weighted Average
162,473		93.76% Pervious Area
10,811		6.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	100	0.0250	0.16		**Sheet Flow, SF- GRASS** Grass: Short n= 0.150 P2= 2.32"
10.1	465	0.0120	0.77		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
20.6	565	Total			

Summary for Subcatchment S30:

Runoff = 0.01 cfs @ 13.77 hrs, Volume= 0.004 af, Depth> 0.03"
Routed to Link 3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR Rainfall=1.97"

Area (sf)	CN	Description
2,500	98	Paved parking, HSG D
67,857	58	Meadow, non-grazed, HSG B
5,622	60	Woods, Fair, HSG B
75,979	59	Weighted Average
73,479		96.71% Pervious Area
2,500		3.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	100	0.0200	0.14		**Sheet Flow, SF - GRASS** Grass: Short n= 0.150 P2= 2.32"
5.1	300	0.0200	0.99		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
16.6	400	Total			

Summary for Link 1:

Inflow Area = 10.244 ac, 5.37% Impervious, Inflow Depth > 0.15" for 1-YR event
Inflow = 0.56 cfs @ 12.70 hrs, Volume= 0.127 af
Primary = 0.56 cfs @ 12.70 hrs, Volume= 0.127 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link 2:

Inflow Area = 3.978 ac, 6.24% Impervious, Inflow Depth > 0.07" for 1-YR event
Inflow = 0.08 cfs @ 12.49 hrs, Volume= 0.024 af
Primary = 0.08 cfs @ 12.49 hrs, Volume= 0.024 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link 3:

Inflow Area = 1.744 ac, 3.29% Impervious, Inflow Depth > 0.03" for 1-YR event
Inflow = 0.01 cfs @ 13.77 hrs, Volume= 0.004 af
Primary = 0.01 cfs @ 13.77 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentS10: Runoff Area=446,233 sf 5.37% Impervious Runoff Depth>0.71"
Flow Length=1,335' Tc=49.5 min CN=68 Runoff=4.33 cfs 0.609 af

SubcatchmentS20: Runoff Area=173,284 sf 6.24% Impervious Runoff Depth>0.51"
Flow Length=565' Tc=20.6 min CN=63 Runoff=1.96 cfs 0.170 af

SubcatchmentS30: Runoff Area=75,979 sf 3.29% Impervious Runoff Depth>0.37"
Flow Length=400' Slope=0.0200 '/' Tc=16.6 min CN=59 Runoff=0.60 cfs 0.054 af

Link 1: Inflow=4.33 cfs 0.609 af
Primary=4.33 cfs 0.609 af

Link 2: Inflow=1.96 cfs 0.170 af
Primary=1.96 cfs 0.170 af

Link 3: Inflow=0.60 cfs 0.054 af
Primary=0.60 cfs 0.054 af

Total Runoff Area = 15.966 ac Runoff Volume = 0.832 af Average Runoff Depth = 0.63"
94.64% Pervious = 15.111 ac 5.36% Impervious = 0.856 ac

Summary for Subcatchment S10:

Runoff = 4.33 cfs @ 12.56 hrs, Volume= 0.609 af, Depth> 0.71"
Routed to Link 1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=3.36"

Area (sf)	CN	Description
23,956	98	Paved parking, HSG D
84,111	58	Meadow, non-grazed, HSG B
12,046	78	Meadow, non-grazed, HSG D
182,431	60	Woods, Fair, HSG B
62,617	79	Woods, Fair, HSG D
81,072	78	Row crops, straight row, Good, HSG B
446,233	68	Weighted Average
422,277		94.63% Pervious Area
23,956		5.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0100	0.23		**Sheet Flow, SF - FARM** Cultivated: Residue<=20% n= 0.060 P2= 2.32"
3.8	205	0.0100	0.90		**Shallow Concentrated Flow, SCF - FARM** Cultivated Straight Rows Kv= 9.0 fps
23.9	600	0.0070	0.42		**Shallow Concentrated Flow, SCF - WOODS** Woodland Kv= 5.0 fps
14.5	430	0.0050	0.49		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
49.5	1,335	Total			

Summary for Subcatchment S20:

Runoff = 1.96 cfs @ 12.17 hrs, Volume= 0.170 af, Depth> 0.51"
Routed to Link 2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=3.36"

Area (sf)	CN	Description
10,811	98	Paved parking, HSG D
141,959	58	Meadow, non-grazed, HSG B
19,882	78	Meadow, non-grazed, HSG D
632	60	Woods, Fair, HSG B
173,284	63	Weighted Average
162,473		93.76% Pervious Area
10,811		6.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	100	0.0250	0.16		**Sheet Flow, SF- GRASS**
					Grass: Short n= 0.150 P2= 2.32"
10.1	465	0.0120	0.77		**Shallow Concentrated Flow, SCF - GRASS**
					Short Grass Pasture Kv= 7.0 fps
20.6	565	Total			

Summary for Subcatchment S30:

Runoff = 0.60 cfs @ 12.14 hrs, Volume= 0.054 af, Depth> 0.37"
Routed to Link 3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=3.36"

Area (sf)	CN	Description
2,500	98	Paved parking, HSG D
67,857	58	Meadow, non-grazed, HSG B
5,622	60	Woods, Fair, HSG B
75,979	59	Weighted Average
73,479		96.71% Pervious Area
2,500		3.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	100	0.0200	0.14		**Sheet Flow, SF - GRASS**
					Grass: Short n= 0.150 P2= 2.32"
5.1	300	0.0200	0.99		**Shallow Concentrated Flow, SCF - GRASS**
					Short Grass Pasture Kv= 7.0 fps
16.6	400	Total			

Summary for Link 1:

Inflow Area = 10.244 ac, 5.37% Impervious, Inflow Depth > 0.71" for 10-YR event
Inflow = 4.33 cfs @ 12.56 hrs, Volume= 0.609 af
Primary = 4.33 cfs @ 12.56 hrs, Volume= 0.609 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link 2:

Inflow Area = 3.978 ac, 6.24% Impervious, Inflow Depth > 0.51" for 10-YR event
Inflow = 1.96 cfs @ 12.17 hrs, Volume= 0.170 af
Primary = 1.96 cfs @ 12.17 hrs, Volume= 0.170 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link 3:

Inflow Area = 1.744 ac, 3.29% Impervious, Inflow Depth > 0.37" for 10-YR event
Inflow = 0.60 cfs @ 12.14 hrs, Volume= 0.054 af
Primary = 0.60 cfs @ 12.14 hrs, Volume= 0.054 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentS10: Runoff Area=446,233 sf 5.37% Impervious Runoff Depth>2.17"
Flow Length=1,335' Tc=49.5 min CN=68 Runoff=14.75 cfs 1.849 af

SubcatchmentS20: Runoff Area=173,284 sf 6.24% Impervious Runoff Depth>1.79"
Flow Length=565' Tc=20.6 min CN=63 Runoff=8.27 cfs 0.593 af

SubcatchmentS30: Runoff Area=75,979 sf 3.29% Impervious Runoff Depth>1.49"
Flow Length=400' Slope=0.0200 '/' Tc=16.6 min CN=59 Runoff=3.34 cfs 0.217 af

Link 1: Inflow=14.75 cfs 1.849 af
Primary=14.75 cfs 1.849 af

Link 2: Inflow=8.27 cfs 0.593 af
Primary=8.27 cfs 0.593 af

Link 3: Inflow=3.34 cfs 0.217 af
Primary=3.34 cfs 0.217 af

Total Runoff Area = 15.966 ac Runoff Volume = 2.658 af Average Runoff Depth = 2.00"
94.64% Pervious = 15.111 ac 5.36% Impervious = 0.856 ac

Summary for Subcatchment S10:

Runoff = 14.75 cfs @ 12.51 hrs, Volume= 1.849 af, Depth> 2.17"
Routed to Link 1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=5.73"

Area (sf)	CN	Description
23,956	98	Paved parking, HSG D
84,111	58	Meadow, non-grazed, HSG B
12,046	78	Meadow, non-grazed, HSG D
182,431	60	Woods, Fair, HSG B
62,617	79	Woods, Fair, HSG D
81,072	78	Row crops, straight row, Good, HSG B
446,233	68	Weighted Average
422,277		94.63% Pervious Area
23,956		5.37% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0100	0.23		**Sheet Flow, SF - FARM** Cultivated: Residue<=20% n= 0.060 P2= 2.32"
3.8	205	0.0100	0.90		**Shallow Concentrated Flow, SCF - FARM** Cultivated Straight Rows Kv= 9.0 fps
23.9	600	0.0070	0.42		**Shallow Concentrated Flow, SCF - WOODS** Woodland Kv= 5.0 fps
14.5	430	0.0050	0.49		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
49.5	1,335	Total			

Summary for Subcatchment S20:

Runoff = 8.27 cfs @ 12.15 hrs, Volume= 0.593 af, Depth> 1.79"
Routed to Link 2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=5.73"

Area (sf)	CN	Description
10,811	98	Paved parking, HSG D
141,959	58	Meadow, non-grazed, HSG B
19,882	78	Meadow, non-grazed, HSG D
632	60	Woods, Fair, HSG B
173,284	63	Weighted Average
162,473		93.76% Pervious Area
10,811		6.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	100	0.0250	0.16		**Sheet Flow, SF- GRASS**
					Grass: Short n= 0.150 P2= 2.32"
10.1	465	0.0120	0.77		**Shallow Concentrated Flow, SCF - GRASS**
					Short Grass Pasture Kv= 7.0 fps
20.6	565	Total			

Summary for Subcatchment S30:

Runoff = 3.34 cfs @ 12.10 hrs, Volume= 0.217 af, Depth> 1.49"
Routed to Link 3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=5.73"

Area (sf)	CN	Description
2,500	98	Paved parking, HSG D
67,857	58	Meadow, non-grazed, HSG B
5,622	60	Woods, Fair, HSG B
75,979	59	Weighted Average
73,479		96.71% Pervious Area
2,500		3.29% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.5	100	0.0200	0.14		**Sheet Flow, SF - GRASS**
					Grass: Short n= 0.150 P2= 2.32"
5.1	300	0.0200	0.99		**Shallow Concentrated Flow, SCF - GRASS**
					Short Grass Pasture Kv= 7.0 fps
16.6	400	Total			

Summary for Link 1:

Inflow Area = 10.244 ac, 5.37% Impervious, Inflow Depth > 2.17" for 100-YR event
Inflow = 14.75 cfs @ 12.51 hrs, Volume= 1.849 af
Primary = 14.75 cfs @ 12.51 hrs, Volume= 1.849 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link 2:

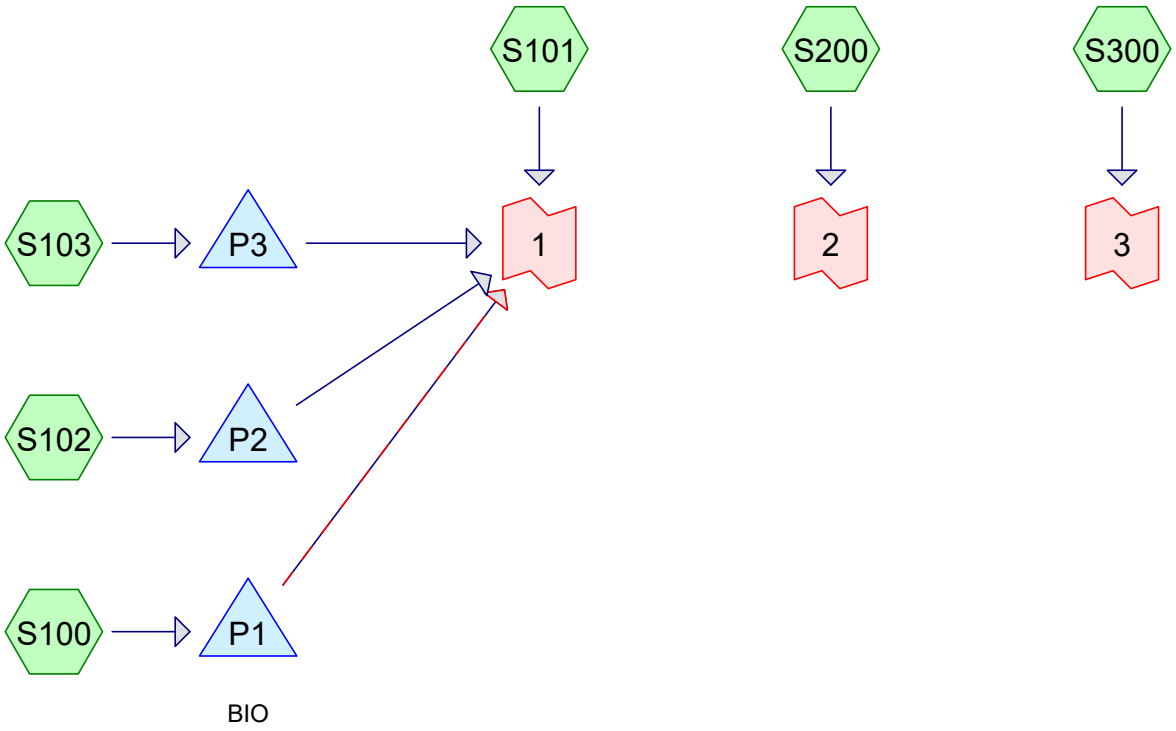
Inflow Area = 3.978 ac, 6.24% Impervious, Inflow Depth > 1.79" for 100-YR event
Inflow = 8.27 cfs @ 12.15 hrs, Volume= 0.593 af
Primary = 8.27 cfs @ 12.15 hrs, Volume= 0.593 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link 3:

Inflow Area = 1.744 ac, 3.29% Impervious, Inflow Depth > 1.49" for 100-YR event
Inflow = 3.34 cfs @ 12.10 hrs, Volume= 0.217 af
Primary = 3.34 cfs @ 12.10 hrs, Volume= 0.217 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs



Subcat Reach Pond Link

Routing Diagram for 2026-06-01 Postdevelopment
Prepared by Environmental Design Partnership, Printed 6/1/2026
HydroCAD® 10.20-2h s/n 00476 © 2024 HydroCAD Software Solutions LLC

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-YR	Type II 24-hr		Default	24.00	1	1.97	2
2	10-YR	Type II 24-hr		Default	24.00	1	3.36	2
3	100-YR	Type II 24-hr		Default	24.00	1	5.73	2

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
6.719	58	Meadow, non-grazed, HSG B (S100, S101, S102, S103, S200, S300)
0.667	78	Meadow, non-grazed, HSG D (S101, S103, S200)
1.253	98	Paved parking, HSG D (S100, S101, S102, S103, S200, S300)
1.861	78	Row crops, straight row, Good, HSG B (S101)
4.031	60	Woods, Fair, HSG B (S101, S300)
1.437	79	Woods, Fair, HSG D (S101)
15.969	**67**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
12.612	HSG B	S100, S101, S102, S103, S200, S300
0.000	HSG C	
3.357	HSG D	S100, S101, S102, S103, S200, S300
0.000	Other	
15.969		**TOTAL AREA**

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	6.719	0.000	0.667	0.000	7.386	Meadow, non-grazed	S100, S101, S102, S103, S200, S300
0.000	0.000	0.000	1.253	0.000	1.253	Paved parking	S100, S101, S102, S103, S200, S300
0.000	1.861	0.000	0.000	0.000	1.861	Row crops, straight row, Good	S101
0.000	4.031	0.000	1.437	0.000	5.469	Woods, Fair	S101, S300
0.000	**12.612**	**0.000**	**3.357**	**0.000**	**15.969**	**TOTAL AREA**	

Pipe Listing (selected nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)
1	P2	1,080.75	1,080.40	70.0	0.0050	0.013	0.0	12.0	0.0
2	P3	1,081.25	1,080.00	67.0	0.0187	0.013	0.0	12.0	0.0

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentS100: Runoff Area=28,717 sf 47.53% Impervious Runoff Depth>0.38"
Tc=6.0 min CN=77 Runoff=0.46 cfs 0.021 af

SubcatchmentS101: Runoff Area=393,734 sf 4.61% Impervious Runoff Depth>0.17"
Flow Length=1,335' Tc=49.5 min CN=69 Runoff=0.60 cfs 0.126 af

SubcatchmentS102: Runoff Area=19,363 sf 24.08% Impervious Runoff Depth>0.15"
Tc=6.0 min CN=68 Runoff=0.08 cfs 0.006 af

SubcatchmentS103: Runoff Area=21,314 sf 28.45% Impervious Runoff Depth>0.24"
Tc=6.0 min CN=72 Runoff=0.19 cfs 0.010 af

SubcatchmentS200: Runoff Area=160,176 sf 5.78% Impervious Runoff Depth>0.07"
Flow Length=515' Tc=19.5 min CN=63 Runoff=0.07 cfs 0.022 af

SubcatchmentS300: Runoff Area=72,287 sf 3.85% Impervious Runoff Depth>0.04"
Flow Length=310' Tc=16.9 min CN=60 Runoff=0.01 cfs 0.006 af

Pond P1: BIO Peak Elev=1,081.60' Storage=501 cf Inflow=0.46 cfs 0.021 af
Discarded=0.02 cfs 0.011 af Secondary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.011 af

Pond P2: Peak Elev=1,080.91' Storage=7 cf Inflow=0.08 cfs 0.006 af
12.0" Round Culvert n=0.013 L=70.0' S=0.0050 '/' Outflow=0.08 cfs 0.006 af

Pond P3: Peak Elev=1,081.46' Storage=5 cf Inflow=0.19 cfs 0.010 af
12.0" Round Culvert n=0.013 L=67.0' S=0.0187 '/' Outflow=0.19 cfs 0.010 af

Link 1: Inflow=0.64 cfs 0.142 af
Primary=0.64 cfs 0.142 af

Link 2: Inflow=0.07 cfs 0.022 af
Primary=0.07 cfs 0.022 af

Link 3: Inflow=0.01 cfs 0.006 af
Primary=0.01 cfs 0.006 af

Total Runoff Area = 15.969 ac Runoff Volume = 0.191 af Average Runoff Depth = 0.14"
92.16% Pervious = 14.716 ac 7.84% Impervious = 1.253 ac

Summary for Subcatchment S100:

Runoff = 0.46 cfs @ 11.99 hrs, Volume= 0.021 af, Depth> 0.38"
Routed to Pond P1 : BIO

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR Rainfall=1.97"

Area (sf)	CN	Description
13,650	98	Paved parking, HSG D
15,067	58	Meadow, non-grazed, HSG B
28,717	77	Weighted Average
15,067		52.47% Pervious Area
13,650		47.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, DIRECT**

Summary for Subcatchment S101:

Runoff = 0.60 cfs @ 12.68 hrs, Volume= 0.126 af, Depth> 0.17"
Routed to Link 1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR Rainfall=1.97"

Area (sf)	CN	Description
18,153	98	Paved parking, HSG D
51,717	58	Meadow, non-grazed, HSG B
6,667	78	Meadow, non-grazed, HSG D
173,508	60	Woods, Fair, HSG B
62,617	79	Woods, Fair, HSG D
81,072	78	Row crops, straight row, Good, HSG B
393,734	69	Weighted Average
375,581		95.39% Pervious Area
18,153		4.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0100	0.23		**Sheet Flow, SF - FARM** Cultivated: Residue<=20% n= 0.060 P2= 2.32"
3.8	205	0.0100	0.90		**Shallow Concentrated Flow, SCF - FARM** Cultivated Straight Rows Kv= 9.0 fps
23.9	600	0.0070	0.42		**Shallow Concentrated Flow, SCF - WOODS** Woodland Kv= 5.0 fps
14.5	430	0.0050	0.49		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
49.5	1,335	Total			

Summary for Subcatchment S102:

Runoff = 0.08 cfs @ 12.01 hrs, Volume= 0.006 af, Depth> 0.15"
Routed to Pond P2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR Rainfall=1.97"

Area (sf)	CN	Description
4,663	98	Paved parking, HSG D
14,700	58	Meadow, non-grazed, HSG B
19,363	68	Weighted Average
14,700		75.92% Pervious Area
4,663		24.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, DIRECT**

Summary for Subcatchment S103:

Runoff = 0.19 cfs @ 12.00 hrs, Volume= 0.010 af, Depth> 0.24"
Routed to Pond P3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR Rainfall=1.97"

Area (sf)	CN	Description
6,064	98	Paved parking, HSG D
12,750	58	Meadow, non-grazed, HSG B
2,500	78	Meadow, non-grazed, HSG D
21,314	72	Weighted Average
15,250		71.55% Pervious Area
6,064		28.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, DIRECT**

Summary for Subcatchment S200:

Runoff = 0.07 cfs @ 12.47 hrs, Volume= 0.022 af, Depth> 0.07"
Routed to Link 2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR Rainfall=1.97"

Area (sf)	CN	Description
9,254	98	Paved parking, HSG D
131,040	58	Meadow, non-grazed, HSG B
19,882	78	Meadow, non-grazed, HSG D
160,176	63	Weighted Average
150,922		94.22% Pervious Area
9,254		5.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	100	0.0250	0.16		**Sheet Flow, SF- GRASS** Grass: Short n= 0.150 P2= 2.32"
9.0	415	0.0120	0.77		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
19.5	515	Total			

Summary for Subcatchment S300:

Runoff = 0.01 cfs @ 13.41 hrs, Volume= 0.006 af, Depth> 0.04"
Routed to Link 3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-YR Rainfall=1.97"

Area (sf)	CN	Description
2,782	98	Paved parking, HSG D
67,418	58	Meadow, non-grazed, HSG B
2,087	60	Woods, Fair, HSG B
72,287	60	Weighted Average
69,505		96.15% Pervious Area
2,782		3.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	100	0.0170	0.14		**Sheet Flow, SF - GRASS** Grass: Short n= 0.150 P2= 2.32"
4.6	210	0.0120	0.77		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
16.9	310	Total			

Summary for Pond P1: BIO

Inflow Area = 0.659 ac, 47.53% Impervious, Inflow Depth > 0.38" for 1-YR event
Inflow = 0.46 cfs @ 11.99 hrs, Volume= 0.021 af
Outflow = 0.02 cfs @ 11.85 hrs, Volume= 0.011 af, Atten= 97%, Lag= 0.0 min
Discarded = 0.02 cfs @ 11.85 hrs, Volume= 0.011 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Link 1 :

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 1,081.60' @ 15.65 hrs Surf.Area= 925 sf Storage= 501 cf

Plug-Flow detention time= 227.2 min calculated for 0.011 af (52% of inflow)
Center-of-Mass det. time= 128.3 min (953.8 - 825.5)

Volume	Invert	Avail.Storage	Storage Description
#1	1,080.25'	925 cf	**Custom Stage Data (Irregular)** Listed below (Recalc) 2,313 cf Overall x 40.0% Voids
#2	1,082.75'	2,743 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)
		3,668 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,080.25	925	125.0	0	0	925
1,082.75	925	125.0	2,313	2,313	1,238

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,082.75	925	125.0	0	0	925
1,083.00	1,740	465.0	328	328	16,888
1,084.00	3,160	480.0	2,415	2,743	18,111

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,080.25'	**0.750 in/hr Exfiltration over Surface area**
#2	Secondary	1,083.25'	**10.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Discarded OutFlow Max=0.02 cfs @ 11.85 hrs HW=1,080.32' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.02 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=1,080.25' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond P2:

Inflow Area = 0.445 ac, 24.08% Impervious, Inflow Depth > 0.15" for 1-YR event
Inflow = 0.08 cfs @ 12.01 hrs, Volume= 0.006 af
Outflow = 0.08 cfs @ 12.04 hrs, Volume= 0.006 af, Atten= 9%, Lag= 1.8 min
Primary = 0.08 cfs @ 12.04 hrs, Volume= 0.006 af
Routed to Link 1 :

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,080.91' @ 12.04 hrs Surf.Area= 84 sf Storage= 7 cf

Plug-Flow detention time= 1.7 min calculated for 0.006 af (100% of inflow)
Center-of-Mass det. time= 1.2 min (868.9 - 867.7)

Volume	Invert	Avail.Storage	Storage Description
#1	1,080.75'	454 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,080.75	1	0	0
1,081.00	130	16	16
1,082.00	745	438	454

Device	Routing	Invert	Outlet Devices
#1	Primary	1,080.75'	**12.0" Round Culvert** L= 70.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,080.75' / 1,080.40' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.07 cfs @ 12.04 hrs HW=1,080.91' (Free Discharge)
1=Culvert (Barrel Controls 0.07 cfs @ 1.42 fps)

Summary for Pond P3:

Inflow Area = 0.489 ac, 28.45% Impervious, Inflow Depth > 0.24" for 1-YR event
Inflow = 0.19 cfs @ 12.00 hrs, Volume= 0.010 af
Outflow = 0.19 cfs @ 12.00 hrs, Volume= 0.010 af, Atten= 1%, Lag= 0.4 min
Primary = 0.19 cfs @ 12.00 hrs, Volume= 0.010 af
Routed to Link 1 :

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,081.46' @ 12.00 hrs Surf.Area= 43 sf Storage= 5 cf

Plug-Flow detention time= 0.4 min calculated for 0.010 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (846.1 - 845.8)

Volume	Invert	Avail.Storage	Storage Description
#1	1,081.25'	432 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,081.25	1	0	0
1,082.00	150	57	57
1,083.00	600	375	432

Device	Routing	Invert	Outlet Devices
#1	Primary	1,081.25'	**12.0" Round Culvert** L= 67.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,081.25' / 1,080.00' S= 0.0187 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.19 cfs @ 12.00 hrs HW=1,081.46' (Free Discharge)
1=Culvert (Inlet Controls 0.19 cfs @ 1.56 fps)

Summary for Link 1:

Inflow Area = 10.632 ac, 9.18% Impervious, Inflow Depth > 0.16" for 1-YR event
Inflow = 0.64 cfs @ 12.67 hrs, Volume= 0.142 af
Primary = 0.64 cfs @ 12.67 hrs, Volume= 0.142 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link 2:

Inflow Area = 3.677 ac, 5.78% Impervious, Inflow Depth > 0.07" for 1-YR event
Inflow = 0.07 cfs @ 12.47 hrs, Volume= 0.022 af
Primary = 0.07 cfs @ 12.47 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link 3:

Inflow Area = 1.659 ac, 3.85% Impervious, Inflow Depth > 0.04" for 1-YR event
Inflow = 0.01 cfs @ 13.41 hrs, Volume= 0.006 af
Primary = 0.01 cfs @ 13.41 hrs, Volume= 0.006 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentS100: Runoff Area=28,717 sf 47.53% Impervious Runoff Depth>1.21"
Tc=6.0 min CN=77 Runoff=1.52 cfs 0.066 af

SubcatchmentS101: Runoff Area=393,734 sf 4.61% Impervious Runoff Depth>0.76"
Flow Length=1,335' Tc=49.5 min CN=69 Runoff=4.14 cfs 0.572 af

SubcatchmentS102: Runoff Area=19,363 sf 24.08% Impervious Runoff Depth>0.73"
Tc=6.0 min CN=68 Runoff=0.61 cfs 0.027 af

SubcatchmentS103: Runoff Area=21,314 sf 28.45% Impervious Runoff Depth>0.93"
Tc=6.0 min CN=72 Runoff=0.86 cfs 0.038 af

SubcatchmentS200: Runoff Area=160,176 sf 5.78% Impervious Runoff Depth>0.51"
Flow Length=515' Tc=19.5 min CN=63 Runoff=1.88 cfs 0.157 af

SubcatchmentS300: Runoff Area=72,287 sf 3.85% Impervious Runoff Depth>0.40"
Flow Length=310' Tc=16.9 min CN=60 Runoff=0.65 cfs 0.056 af

Pond P1: BIO Peak Elev=1,083.25' Storage=1,721 cf Inflow=1.52 cfs 0.066 af
Discarded=0.05 cfs 0.035 af Secondary=0.00 cfs 0.000 af Outflow=0.05 cfs 0.035 af

Pond P2: Peak Elev=1,081.19' Storage=53 cf Inflow=0.61 cfs 0.027 af
12.0" Round Culvert n=0.013 L=70.0' S=0.0050 '/' Outflow=0.57 cfs 0.027 af

Pond P3: Peak Elev=1,081.72' Storage=23 cf Inflow=0.86 cfs 0.038 af
12.0" Round Culvert n=0.013 L=67.0' S=0.0187 '/' Outflow=0.86 cfs 0.038 af

Link 1: Inflow=4.29 cfs 0.637 af
Primary=4.29 cfs 0.637 af

Link 2: Inflow=1.88 cfs 0.157 af
Primary=1.88 cfs 0.157 af

Link 3: Inflow=0.65 cfs 0.056 af
Primary=0.65 cfs 0.056 af

Total Runoff Area = 15.969 ac Runoff Volume = 0.916 af Average Runoff Depth = 0.69"
92.16% Pervious = 14.716 ac 7.84% Impervious = 1.253 ac

Summary for Subcatchment S100:

Runoff = 1.52 cfs @ 11.98 hrs, Volume= 0.066 af, Depth> 1.21"
Routed to Pond P1 : BIO

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=3.36"

Area (sf)	CN	Description
13,650	98	Paved parking, HSG D
15,067	58	Meadow, non-grazed, HSG B
28,717	77	Weighted Average
15,067		52.47% Pervious Area
13,650		47.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, DIRECT**

Summary for Subcatchment S101:

Runoff = 4.14 cfs @ 12.55 hrs, Volume= 0.572 af, Depth> 0.76"
Routed to Link 1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=3.36"

Area (sf)	CN	Description
18,153	98	Paved parking, HSG D
51,717	58	Meadow, non-grazed, HSG B
6,667	78	Meadow, non-grazed, HSG D
173,508	60	Woods, Fair, HSG B
62,617	79	Woods, Fair, HSG D
81,072	78	Row crops, straight row, Good, HSG B
393,734	69	Weighted Average
375,581		95.39% Pervious Area
18,153		4.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0100	0.23		**Sheet Flow, SF - FARM** Cultivated: Residue<=20% n= 0.060 P2= 2.32"
3.8	205	0.0100	0.90		**Shallow Concentrated Flow, SCF - FARM** Cultivated Straight Rows Kv= 9.0 fps
23.9	600	0.0070	0.42		**Shallow Concentrated Flow, SCF - WOODS** Woodland Kv= 5.0 fps
14.5	430	0.0050	0.49		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
49.5	1,335	Total			

Summary for Subcatchment S102:

Runoff = 0.61 cfs @ 11.99 hrs, Volume= 0.027 af, Depth> 0.73"
Routed to Pond P2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=3.36"

Area (sf)	CN	Description
4,663	98	Paved parking, HSG D
14,700	58	Meadow, non-grazed, HSG B
19,363	68	Weighted Average
14,700		75.92% Pervious Area
4,663		24.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, DIRECT**

Summary for Subcatchment S103:

Runoff = 0.86 cfs @ 11.98 hrs, Volume= 0.038 af, Depth> 0.93"
Routed to Pond P3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=3.36"

Area (sf)	CN	Description
6,064	98	Paved parking, HSG D
12,750	58	Meadow, non-grazed, HSG B
2,500	78	Meadow, non-grazed, HSG D
21,314	72	Weighted Average
15,250		71.55% Pervious Area
6,064		28.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, DIRECT**

Summary for Subcatchment S200:

Runoff = 1.88 cfs @ 12.16 hrs, Volume= 0.157 af, Depth> 0.51"
Routed to Link 2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=3.36"

Area (sf)	CN	Description
9,254	98	Paved parking, HSG D
131,040	58	Meadow, non-grazed, HSG B
19,882	78	Meadow, non-grazed, HSG D
160,176	63	Weighted Average
150,922		94.22% Pervious Area
9,254		5.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	100	0.0250	0.16		**Sheet Flow, SF- GRASS** Grass: Short n= 0.150 P2= 2.32"
9.0	415	0.0120	0.77		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
19.5	515	Total			

Summary for Subcatchment S300:

Runoff = 0.65 cfs @ 12.14 hrs, Volume= 0.056 af, Depth> 0.40"
Routed to Link 3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-YR Rainfall=3.36"

Area (sf)	CN	Description
2,782	98	Paved parking, HSG D
67,418	58	Meadow, non-grazed, HSG B
2,087	60	Woods, Fair, HSG B
72,287	60	Weighted Average
69,505		96.15% Pervious Area
2,782		3.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	100	0.0170	0.14		**Sheet Flow, SF - GRASS** Grass: Short n= 0.150 P2= 2.32"
4.6	210	0.0120	0.77		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
16.9	310	Total			

Summary for Pond P1: BIO

Inflow Area = 0.659 ac, 47.53% Impervious, Inflow Depth > 1.21" for 10-YR event
Inflow = 1.52 cfs @ 11.98 hrs, Volume= 0.066 af
Outflow = 0.05 cfs @ 14.43 hrs, Volume= 0.035 af, Atten= 97%, Lag= 147.3 min
Discarded = 0.05 cfs @ 14.43 hrs, Volume= 0.035 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Routed to Link 1 :

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 1,083.25' @ 14.43 hrs Surf.Area= 2,977 sf Storage= 1,721 cf

Plug-Flow detention time= 231.3 min calculated for 0.035 af (52% of inflow)
Center-of-Mass det. time= 147.0 min (946.8 - 799.8)

Volume	Invert	Avail.Storage	Storage Description
#1	1,080.25'	925 cf	**Custom Stage Data (Irregular)** Listed below (Recalc) 2,313 cf Overall x 40.0% Voids
#2	1,082.75'	2,743 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)
		3,668 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,080.25	925	125.0	0	0	925
1,082.75	925	125.0	2,313	2,313	1,238

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,082.75	925	125.0	0	0	925
1,083.00	1,740	465.0	328	328	16,888
1,084.00	3,160	480.0	2,415	2,743	18,111

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,080.25'	**0.750 in/hr Exfiltration over Surface area**
#2	Secondary	1,083.25'	**10.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Discarded OutFlow Max=0.05 cfs @ 14.43 hrs HW=1,083.25' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=1,080.25' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond P2:

Inflow Area = 0.445 ac, 24.08% Impervious, Inflow Depth > 0.73" for 10-YR event
Inflow = 0.61 cfs @ 11.99 hrs, Volume= 0.027 af
Outflow = 0.57 cfs @ 12.01 hrs, Volume= 0.027 af, Atten= 7%, Lag= 1.4 min
Primary = 0.57 cfs @ 12.01 hrs, Volume= 0.027 af
Routed to Link 1 :

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,081.19' @ 12.01 hrs Surf.Area= 248 sf Storage= 53 cf

Plug-Flow detention time= 1.5 min calculated for 0.027 af (100% of inflow)
Center-of-Mass det. time= 1.2 min (822.0 - 820.8)

Volume	Invert	Avail.Storage	Storage Description
#1	1,080.75'	454 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,080.75	1	0	0
1,081.00	130	16	16
1,082.00	745	438	454

Device	Routing	Invert	Outlet Devices
#1	Primary	1,080.75'	**12.0" Round Culvert** L= 70.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,080.75' / 1,080.40' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.55 cfs @ 12.01 hrs HW=1,081.19' (Free Discharge)
1=Culvert (Barrel Controls 0.55 cfs @ 2.48 fps)

Summary for Pond P3:

Inflow Area = 0.489 ac, 28.45% Impervious, Inflow Depth > 0.93" for 10-YR event
Inflow = 0.86 cfs @ 11.98 hrs, Volume= 0.038 af
Outflow = 0.86 cfs @ 11.99 hrs, Volume= 0.038 af, Atten= 0%, Lag= 0.5 min
Primary = 0.86 cfs @ 11.99 hrs, Volume= 0.038 af
Routed to Link 1 :

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,081.72' @ 11.99 hrs Surf.Area= 95 sf Storage= 23 cf

Plug-Flow detention time= 0.4 min calculated for 0.038 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (811.4 - 811.0)

Volume	Invert	Avail.Storage	Storage Description
#1	1,081.25'	432 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,081.25	1	0	0
1,082.00	150	57	57
1,083.00	600	375	432

Device	Routing	Invert	Outlet Devices
#1	Primary	1,081.25'	**12.0" Round Culvert** L= 67.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,081.25' / 1,080.00' S= 0.0187 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.83 cfs @ 11.99 hrs HW=1,081.72' (Free Discharge)
1=Culvert (Inlet Controls 0.83 cfs @ 2.32 fps)

Summary for Link 1:

Inflow Area = 10.632 ac, 9.18% Impervious, Inflow Depth > 0.72" for 10-YR event
Inflow = 4.29 cfs @ 12.54 hrs, Volume= 0.637 af
Primary = 4.29 cfs @ 12.54 hrs, Volume= 0.637 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link 2:

Inflow Area = 3.677 ac, 5.78% Impervious, Inflow Depth > 0.51" for 10-YR event
Inflow = 1.88 cfs @ 12.16 hrs, Volume= 0.157 af
Primary = 1.88 cfs @ 12.16 hrs, Volume= 0.157 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link 3:

Inflow Area = 1.659 ac, 3.85% Impervious, Inflow Depth > 0.40" for 10-YR event
Inflow = 0.65 cfs @ 12.14 hrs, Volume= 0.056 af
Primary = 0.65 cfs @ 12.14 hrs, Volume= 0.056 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

SubcatchmentS100: Runoff Area=28,717 sf 47.53% Impervious Runoff Depth>3.00"
Tc=6.0 min CN=77 Runoff=3.66 cfs 0.165 af

SubcatchmentS101: Runoff Area=393,734 sf 4.61% Impervious Runoff Depth>2.25"
Flow Length=1,335' Tc=49.5 min CN=69 Runoff=13.56 cfs 1.694 af

SubcatchmentS102: Runoff Area=19,363 sf 24.08% Impervious Runoff Depth>2.21"
Tc=6.0 min CN=68 Runoff=1.87 cfs 0.082 af

SubcatchmentS103: Runoff Area=21,314 sf 28.45% Impervious Runoff Depth>2.55"
Tc=6.0 min CN=72 Runoff=2.34 cfs 0.104 af

SubcatchmentS200: Runoff Area=160,176 sf 5.78% Impervious Runoff Depth>1.79"
Flow Length=515' Tc=19.5 min CN=63 Runoff=7.88 cfs 0.549 af

SubcatchmentS300: Runoff Area=72,287 sf 3.85% Impervious Runoff Depth>1.56"
Flow Length=310' Tc=16.9 min CN=60 Runoff=3.32 cfs 0.216 af

Pond P1: BIO Peak Elev=1,083.51' Storage=2,306 cf Inflow=3.66 cfs 0.165 af
Discarded=0.06 cfs 0.040 af Secondary=3.18 cfs 0.086 af Outflow=3.24 cfs 0.126 af

Pond P2: Peak Elev=1,081.59' Storage=199 cf Inflow=1.87 cfs 0.082 af
12.0" Round Culvert n=0.013 L=70.0' S=0.0050 '/' Outflow=1.70 cfs 0.082 af

Pond P3: Peak Elev=1,082.13' Storage=79 cf Inflow=2.34 cfs 0.104 af
12.0" Round Culvert n=0.013 L=67.0' S=0.0187 '/' Outflow=2.32 cfs 0.104 af

Link 1: Inflow=14.29 cfs 1.966 af
Primary=14.29 cfs 1.966 af

Link 2: Inflow=7.88 cfs 0.549 af
Primary=7.88 cfs 0.549 af

Link 3: Inflow=3.32 cfs 0.216 af
Primary=3.32 cfs 0.216 af

Total Runoff Area = 15.969 ac Runoff Volume = 2.810 af Average Runoff Depth = 2.11"
92.16% Pervious = 14.716 ac 7.84% Impervious = 1.253 ac

Summary for Subcatchment S100:

Runoff = 3.66 cfs @ 11.97 hrs, Volume= 0.165 af, Depth> 3.00"
Routed to Pond P1 : BIO

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=5.73"

Area (sf)	CN	Description
13,650	98	Paved parking, HSG D
15,067	58	Meadow, non-grazed, HSG B
28,717	77	Weighted Average
15,067		52.47% Pervious Area
13,650		47.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, DIRECT**

Summary for Subcatchment S101:

Runoff = 13.56 cfs @ 12.50 hrs, Volume= 1.694 af, Depth> 2.25"
Routed to Link 1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=5.73"

Area (sf)	CN	Description
18,153	98	Paved parking, HSG D
51,717	58	Meadow, non-grazed, HSG B
6,667	78	Meadow, non-grazed, HSG D
173,508	60	Woods, Fair, HSG B
62,617	79	Woods, Fair, HSG D
81,072	78	Row crops, straight row, Good, HSG B
393,734	69	Weighted Average
375,581		95.39% Pervious Area
18,153		4.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	100	0.0100	0.23		**Sheet Flow, SF - FARM** Cultivated: Residue<=20% n= 0.060 P2= 2.32"
3.8	205	0.0100	0.90		**Shallow Concentrated Flow, SCF - FARM** Cultivated Straight Rows Kv= 9.0 fps
23.9	600	0.0070	0.42		**Shallow Concentrated Flow, SCF - WOODS** Woodland Kv= 5.0 fps
14.5	430	0.0050	0.49		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
49.5	1,335	Total			

Summary for Subcatchment S102:

Runoff = 1.87 cfs @ 11.98 hrs, Volume= 0.082 af, Depth> 2.21"
Routed to Pond P2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=5.73"

Area (sf)	CN	Description
4,663	98	Paved parking, HSG D
14,700	58	Meadow, non-grazed, HSG B
19,363	68	Weighted Average
14,700		75.92% Pervious Area
4,663		24.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, DIRECT**

Summary for Subcatchment S103:

Runoff = 2.34 cfs @ 11.97 hrs, Volume= 0.104 af, Depth> 2.55"
Routed to Pond P3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=5.73"

Area (sf)	CN	Description
6,064	98	Paved parking, HSG D
12,750	58	Meadow, non-grazed, HSG B
2,500	78	Meadow, non-grazed, HSG D
21,314	72	Weighted Average
15,250		71.55% Pervious Area
6,064		28.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, DIRECT**

Summary for Subcatchment S200:

Runoff = 7.88 cfs @ 12.13 hrs, Volume= 0.549 af, Depth> 1.79"
Routed to Link 2 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=5.73"

Area (sf)	CN	Description
9,254	98	Paved parking, HSG D
131,040	58	Meadow, non-grazed, HSG B
19,882	78	Meadow, non-grazed, HSG D
160,176	63	Weighted Average
150,922		94.22% Pervious Area
9,254		5.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.5	100	0.0250	0.16		**Sheet Flow, SF- GRASS** Grass: Short n= 0.150 P2= 2.32"
9.0	415	0.0120	0.77		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
19.5	515	Total			

Summary for Subcatchment S300:

Runoff = 3.32 cfs @ 12.11 hrs, Volume= 0.216 af, Depth> 1.56"
Routed to Link 3 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-YR Rainfall=5.73"

Area (sf)	CN	Description
2,782	98	Paved parking, HSG D
67,418	58	Meadow, non-grazed, HSG B
2,087	60	Woods, Fair, HSG B
72,287	60	Weighted Average
69,505		96.15% Pervious Area
2,782		3.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	100	0.0170	0.14		**Sheet Flow, SF - GRASS** Grass: Short n= 0.150 P2= 2.32"
4.6	210	0.0120	0.77		**Shallow Concentrated Flow, SCF - GRASS** Short Grass Pasture Kv= 7.0 fps
16.9	310	Total			

Summary for Pond P1: BIO

Inflow Area = 0.659 ac, 47.53% Impervious, Inflow Depth > 3.00" for 100-YR event
Inflow = 3.66 cfs @ 11.97 hrs, Volume= 0.165 af
Outflow = 3.24 cfs @ 12.02 hrs, Volume= 0.126 af, Atten= 11%, Lag= 2.9 min
Discarded = 0.06 cfs @ 12.02 hrs, Volume= 0.040 af
Secondary = 3.18 cfs @ 12.02 hrs, Volume= 0.086 af
Routed to Link 1 :

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 1,083.51' @ 12.02 hrs Surf.Area= 3,336 sf Storage= 2,306 cf

Plug-Flow detention time= 92.9 min calculated for 0.126 af (76% of inflow)
Center-of-Mass det. time= 31.8 min (812.2 - 780.4)

Volume	Invert	Avail.Storage	Storage Description
#1	1,080.25'	925 cf	**Custom Stage Data (Irregular)** Listed below (Recalc) 2,313 cf Overall x 40.0% Voids
#2	1,082.75'	2,743 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)
		3,668 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,080.25	925	125.0	0	0	925
1,082.75	925	125.0	2,313	2,313	1,238

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
1,082.75	925	125.0	0	0	925
1,083.00	1,740	465.0	328	328	16,888
1,084.00	3,160	480.0	2,415	2,743	18,111

Device	Routing	Invert	Outlet Devices
#1	Discarded	1,080.25'	**0.750 in/hr Exfiltration over Surface area**
#2	Secondary	1,083.25'	**10.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Discarded OutFlow Max=0.06 cfs @ 12.02 hrs HW=1,083.50' (Free Discharge)
↑—**1=Exfiltration** (Exfiltration Controls 0.06 cfs)

Secondary OutFlow Max=2.97 cfs @ 12.02 hrs HW=1,083.50' (Free Discharge)
↑—**2=Broad-Crested Rectangular Weir** (Weir Controls 2.97 cfs @ 1.20 fps)

Summary for Pond P2:

Inflow Area = 0.445 ac, 24.08% Impervious, Inflow Depth > 2.21" for 100-YR event
Inflow = 1.87 cfs @ 11.98 hrs, Volume= 0.082 af
Outflow = 1.70 cfs @ 12.01 hrs, Volume= 0.082 af, Atten= 9%, Lag= 1.8 min
Primary = 1.70 cfs @ 12.01 hrs, Volume= 0.082 af
Routed to Link 1 :

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,081.59' @ 12.01 hrs Surf.Area= 492 sf Storage= 199 cf

Plug-Flow detention time= 1.6 min calculated for 0.082 af (100% of inflow)
Center-of-Mass det. time= 1.3 min (798.0 - 796.7)

Volume	Invert	Avail.Storage	Storage Description
#1	1,080.75'	454 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,080.75	1	0	0
1,081.00	130	16	16
1,082.00	745	438	454

Device	Routing	Invert	Outlet Devices
#1	Primary	1,080.75'	**12.0" Round Culvert** L= 70.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,080.75' / 1,080.40' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.68 cfs @ 12.01 hrs HW=1,081.58' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 1.68 cfs @ 3.27 fps)

Summary for Pond P3:

Inflow Area = 0.489 ac, 28.45% Impervious, Inflow Depth > 2.55" for 100-YR event
Inflow = 2.34 cfs @ 11.97 hrs, Volume= 0.104 af
Outflow = 2.32 cfs @ 11.99 hrs, Volume= 0.104 af, Atten= 1%, Lag= 0.8 min
Primary = 2.32 cfs @ 11.99 hrs, Volume= 0.104 af
Routed to Link 1 :

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,082.13' @ 11.99 hrs Surf.Area= 206 sf Storage= 79 cf

Plug-Flow detention time= 0.4 min calculated for 0.104 af (100% of inflow)
Center-of-Mass det. time= 0.4 min (790.0 - 789.6)

Volume	Invert	Avail.Storage	Storage Description
#1	1,081.25'	432 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,081.25	1	0	0
1,082.00	150	57	57
1,083.00	600	375	432

Device	Routing	Invert	Outlet Devices
#1	Primary	1,081.25'	**12.0" Round Culvert** L= 67.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,081.25' / 1,080.00' S= 0.0187 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.25 cfs @ 11.99 hrs HW=1,082.10' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 2.25 cfs @ 3.15 fps)

Summary for Link 1:

Inflow Area = 10.632 ac, 9.18% Impervious, Inflow Depth > 2.22" for 100-YR event
Inflow = 14.29 cfs @ 12.49 hrs, Volume= 1.966 af
Primary = 14.29 cfs @ 12.49 hrs, Volume= 1.966 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link 2:

Inflow Area = 3.677 ac, 5.78% Impervious, Inflow Depth > 1.79" for 100-YR event
Inflow = 7.88 cfs @ 12.13 hrs, Volume= 0.549 af
Primary = 7.88 cfs @ 12.13 hrs, Volume= 0.549 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Link 3:

Inflow Area = 1.659 ac, 3.85% Impervious, Inflow Depth > 1.56" for 100-YR event
Inflow = 3.32 cfs @ 12.11 hrs, Volume= 0.216 af
Primary = 3.32 cfs @ 12.11 hrs, Volume= 0.216 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Tompkins County, New York

May 29,

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

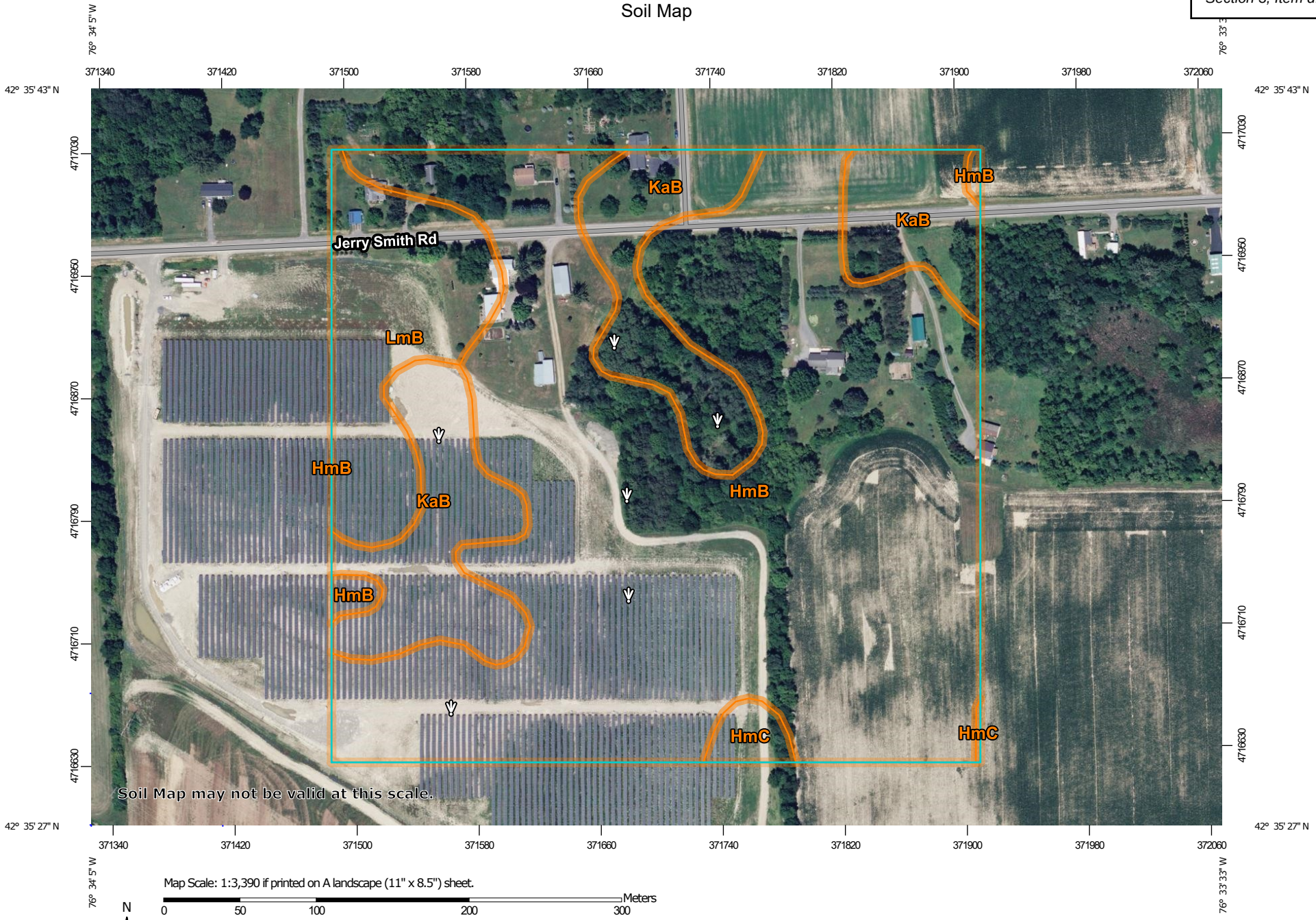
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:3,390 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 50 100 200 300

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Tompkins County, New York
Survey Area Data: Version 21, Sep 2, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 1, 2020—Oct 1, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
HmB	Honeoye gravelly silt loam, 2 to 8 percent slopes	29.2	69.2%
HmC	Honeoye gravelly silt loam, 8 to 15 percent slopes	0.5	1.1%
KaB	Kendaia silt loam, 3 to 8 percent slopes	8.2	19.5%
LmB	Lima silt loam, 3 to 8 percent slopes	4.3	10.2%
Totals for Area of Interest		**42.2**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Tompkins County, New York

HmB—Honeoye gravelly silt loam, 2 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2w3p1
Landscape: Till plains
Elevation: 260 to 1,780 feet
Mean annual precipitation: 31 to 57 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 100 to 190 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Honeoye and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Honeoye

Setting

Landscape: Till plains
Landform: Ridges, Till plains, Drumlins
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Calcareous loamy lodgment till derived from limestone, sandstone, and shale

Typical profile

Ap - 0 to 8 inches: gravelly silt loam
E - 8 to 10 inches: silt loam
Bt/E - 10 to 14 inches: loam
Bt1 - 14 to 23 inches: loam
Bt2 - 23 to 29 inches: gravelly loam
C - 29 to 79 inches: gravelly loam

Properties and qualities

Slope: 2 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Available water supply, 0 to 60 inches: Moderate (about 7.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B

Ecological site: F101XY012NY - Till Upland
Hydric soil rating: No

Minor Components

Lima

Percent of map unit: 5 percent
Landscape: Till plains
Landform: Drumlins, Till plains, Ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Lansing

Percent of map unit: 4 percent
Landscape: Till plains
Landform: Till plains, Hills, Drumlins
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Appleton

Percent of map unit: 4 percent
Landscape: Till plains
Landform: Till plains, Ridges, Drumlins
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Wassaic

Percent of map unit: 2 percent
Landscape: Till plains
Landform: Till plains, Ridges, Benches
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

HmC—Honeoye gravelly silt loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2w3p3
Landscape: Till plains
Elevation: 380 to 1,840 feet

Mean annual precipitation: 31 to 57 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 100 to 190 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Honeoye and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Honeoye

Setting

Landscape: Till plains
Landform: Ridges, Till plains, Drumlins
Landform position (two-dimensional): Shoulder, backslope, summit
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Calcareous loamy lodgment till derived from limestone, sandstone, and shale

Typical profile

Ap - 0 to 8 inches: gravelly silt loam
E - 8 to 10 inches: silt loam
Bt/E - 10 to 14 inches: loam
Bt1 - 14 to 23 inches: loam
Bt2 - 23 to 29 inches: gravelly loam
C - 29 to 79 inches: gravelly loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Available water supply, 0 to 60 inches: Moderate (about 7.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F101XY012NY - Till Upland
Hydric soil rating: No

Minor Components

Lima

Percent of map unit: 5 percent
Landscape: Till plains
Landform: Drumlins, Till plains, Ridges
Landform position (two-dimensional): Summit, shoulder

Landform position (three-dimensional): Crest
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

Appleton

Percent of map unit: 4 percent
Landscape: Till plains
Landform: Till plains, Ridges, Drumlins
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Lansing

Percent of map unit: 4 percent
Landscape: Till plains
Landform: Till plains, Hills, Drumlins
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Wassaic

Percent of map unit: 2 percent
Landscape: Till plains
Landform: Till plains, Ridges, Benches
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

KaB—Kendaia silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2w5j4
Landscape: Till plains
Elevation: 430 to 1,610 feet
Mean annual precipitation: 31 to 57 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 100 to 190 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Kendaia and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kendaia

Setting

Landscape: Till plains
Landform: Till plains, Ridges, Drumlins
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Calcareous loamy lodgment till derived from limestone, sandstone, and shale

Typical profile

Ap - 0 to 8 inches: silt loam
Bw - 8 to 15 inches: silt loam
Bg - 15 to 20 inches: gravelly silt loam
BCg - 20 to 24 inches: gravelly loam
C - 24 to 79 inches: gravelly loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Available water supply, 0 to 60 inches: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B/D
Ecological site: F101XY013NY - Moist Till
Hydric soil rating: No

Minor Components

Lima

Percent of map unit: 7 percent
Landscape: Till plains
Landform: Till plains, Drumlins
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Lyons

Percent of map unit: 4 percent
Landscape: Till plains
Landform: Drainageways, Depressions
Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Churchville

Percent of map unit: 2 percent
Landscape: Till plains
Landform: Till plains, Proglacial lake plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope, rise, talf
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Ovid

Percent of map unit: 2 percent
Landscape: Till plains
Landform: Till plains, Reworked lake plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

LmB—Lima silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2w3kk
Landscape: Till plains
Elevation: 380 to 1,680 feet
Mean annual precipitation: 31 to 57 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 100 to 190 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Lima and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lima

Setting

Landscape: Till plains
Landform: Till plains, Ridges, Drumlins
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Linear
Across-slope shape: Convex

Parent material: Calcareous loamy lodgment till derived from limestone, sandstone, and shale

Typical profile

Ap - 0 to 9 inches: silt loam
Bt/E - 9 to 12 inches: loam
Bt1 - 12 to 16 inches: loam
Bt2 - 16 to 25 inches: gravelly loam
C - 25 to 79 inches: gravelly loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Available water supply, 0 to 60 inches: Moderate (about 7.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B/D
Ecological site: F101XY013NY - Moist Till
Hydric soil rating: No

Minor Components

Honeoye

Percent of map unit: 6 percent
Landscape: Till plains
Landform: Ridges, Till plains, Drumlins
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Linear, convex
Across-slope shape: Convex
Hydric soil rating: No

Appleton

Percent of map unit: 3 percent
Landscape: Till plains
Landform: Ridges, Drumlins, Till plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Kendaia

Percent of map unit: 3 percent
Landscape: Till plains
Landform: Ridges, Till plains, Drumlins
Landform position (two-dimensional): Footslope

Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Cazenovia

Percent of map unit: 2 percent
Landscape: Till plains
Landform: Reworked lake plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Concave
Across-slope shape: Convex
Hydric soil rating: No

Lyons

Percent of map unit: 1 percent
Landscape: Till plains
Landform: Drainageways, Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

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Project code: 2026-0061029
Project Name: Jerry Smith BESS

Federal Nexus: no
Federal Action Agency (if applicable):

Subject: Record of project representative's no effect determination for 'Jerry Smith BESS'

Dear Bailey Godson:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on March 11, 2026, for 'Jerry Smith BESS' (here forward, Project). This project has been assigned Project Code 2026-0061029 and all future correspondence should clearly reference this number. **Please carefully review this letter.**

Ensuring Accurate Determinations When Using IPaC

The Service developed the IPaC system and associated species' determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into IPaC must accurately represent the full scope and details of the Project.

Failure to accurately represent or implement the Project as detailed in IPaC or the **Northern Long-eared Bat and Tricolored Bat Range-wide Determination Key (Dkey)**, invalidates this letter. ***Answers to certain questions in the DKey commit the project proponent to implementation of conservation measures that must be followed for the ESA determination to remain valid.***

Determination for the Northern Long-Eared Bat and/or Tricolored Bat

Based upon your IPaC submission and a standing analysis, your project has reached the following effect determinations:

Species	Listing Status	Determination
Northern Long-eared Bat (*Myotis septentrionalis*)	Endangered	No effect

To make a no effect determination, the full scope of the proposed project implementation (action) should not have any effects (either positive or negative), to a federally listed species or designated critical habitat. Effects of the action are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action. (See § 402.17).

Under Section 7 of the ESA, if a federal action agency makes a no effect determination, no consultation with the Service is required (ESA §7). If a proposed Federal action may affect a listed species or designated critical habitat, formal consultation is required except when the Service concurs, in writing, that a proposed action "is not likely to adversely affect" listed species or designated critical habitat [50 CFR §402.02, 50 CFR§402.13].

Other Species and Critical Habitat that May be Present in the Action Area

The IPaC-assisted determination key for the northern long-eared bat and tricolored bat does not apply to the following ESA-protected species and/or critical habitat that also may occur in your Action area:

- Monarch Butterfly *Danaus plexippus* Proposed Threatened

You may coordinate with our Office to determine whether the Action may affect the animal species listed above and, if so, how they may be affected.

Next Steps

If there are no updates on listed species, no further consultation/coordination for this project is required with respect to the species covered by this key. However, the Service recommends that project proponents re-evaluate the Project in IPaC if: 1) the scope, timing, duration, or location of the Project changes (includes any project changes or amendments); 2) new information reveals the Project may impact (positively or negatively) federally listed species or designated critical habitat; or 3) a new species is listed, or critical habitat designated. If any of the above conditions occurs, additional coordination with the Service should take place to ensure compliance with the Act.

If you have any questions regarding this letter or need further assistance, please contact the New York Ecological Services Field Office and reference Project Code 2026-0061029 associated with this Project.

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

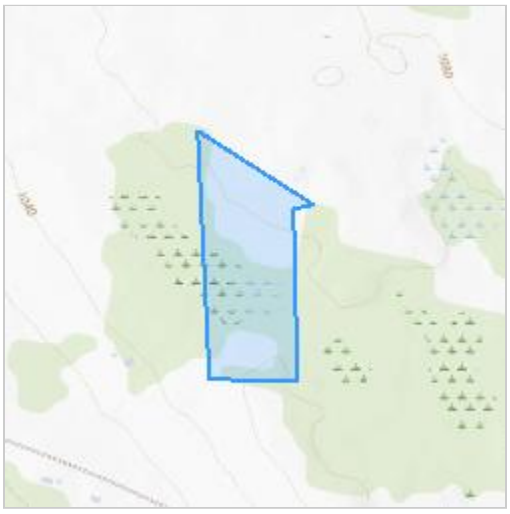
Jerry Smith BESS

2. Description

The following description was provided for the project 'Jerry Smith BESS':

> The client is proposing the construction of a Battery Energy Storage System (BESS) located off of Jerry Smith Road in the Town of Lansing, Tompkins County, NY. The project site will to limited to the northern half of the 14± acre property where active agriculture practices are currently occurring.

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@42.58896325,-76.56704481962775,14z



DETERMINATION KEY RESULT

Based on the information you provided, you have determined that the Proposed Action will have no effect on the species covered by this determination key. Therefore, no consultation with the U.S. Fish and Wildlife Service pursuant to Section 7(a)(2) of the Endangered Species Act of 1973 (87 Stat. 884, as amended 16 U.S.C. 1531 *et seq.*) is required for those species.

QUALIFICATION INTERVIEW

1. Does the proposed project include, or is it reasonably certain to cause, intentional take of listed bats or any other listed species?

   Note: Intentional take is defined as take that is the intended result of a project. Intentional take could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered or proposed species?

   No

2. Is the action area wholly within Zone 2 of the year-round active area for northern long-eared bat and/or tricolored bat?

   Automatically answered
   No

3. Does the action area intersect Zone 1 of the year-round active area for northern long-eared bat and/or tricolored bat?

   Automatically answered
   No

4. Does any component of the action involve leasing, construction or operation of wind turbines? Answer 'yes' if the activities considered are conducted with the intention of gathering survey information to inform the leasing, construction, or operation of wind turbines.

   No

5. Is the proposed action authorized, permitted, licensed, funded, or being carried out by a Federal agency in whole or in part?

   Note for projects in Pennsylvania: Projects requiring authorization under Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act would be considered as having a federal nexus. Since the U.S. Army Corps of Engineers (Corps) has issued the Pennsylvania State Programmatic General Permit (PASPGP), which may be verified by the PA Department of Environmental Protection or certain Conservation Districts, the need to receive a Corps authorization to perform the work under the PASPGP serves as a federal nexus. As such, if proposing to use the PASPGP, you would answer ‘yes’ to this question.

   No

6. [Semantic] Is the action area located within 0.5 miles of a known bat hibernaculum or winter roost? Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your state wildlife agency.

   Automatically answered
   No

7. Does the action area contain any winter roosts or caves (or associated sinkholes, fissures, or other karst features), mines, rocky outcroppings, or tunnels that could provide habitat for hibernating bats?

   No

8. Will the action cause effects to a bridge?

   Note: Covered bridges should be considered as bridges in this question.

   No

9. Will the action result in effects to a culvert or tunnel at any time of year?

   No

10. Are trees present within 1000 feet of the action area?

    Note: If there are trees within the action area that are of a sufficient size to be potential roosts for bats answer "Yes". If unsure, additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    Yes

11. Does the action include the intentional exclusion of bats from a building or building-like structure? **Note:** Exclusion is conducted to deny bats' entry or reentry into a building. To be effective and to avoid harming bats, it should be done according to established standards. If your action includes bat exclusion and you are unsure whether northern long-eared bats or tricolored bats are present, answer "Yes." Answer "No" if there are no signs of bat use in the building/structure. If unsure, contact your local Ecological Services Field Office to help assess whether northern long-eared bats or tricolored bats may be present. Contact a Nuisance Wildlife Control Operator (NWCO) for help in how to exclude bats from a structure safely without causing harm to the bats (to find a NWCO certified in bat standards, search the Internet using the search term "National Wildlife Control Operators Association bats"). Also see the White-Nose Syndrome Response Team's guide for bat control in structures.

    No

12. Does the action involve removal, modification, or maintenance of a human-made building-like structure (barn, house, or other building) **known or suspected to contain roosting bats?**

    No

13. Will the action cause construction of one or more new roads open to the public?

    For federal actions, answer ‘yes’ when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

    No

14. Will the action include or cause any construction or other activity that is reasonably certain to increase average night-time traffic permanently or temporarily on one or more existing roads? **Note:** For federal actions, answer ‘yes’ when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.). .

    No

15. Will the action include or cause any construction or other activity that is reasonably certain to increase the number of travel lanes on an existing thoroughfare?

    For federal actions, answer ‘yes’ when the construction or operation of these facilities is either (1) part of the federal action or (2) would not occur but for an action taken by a federal agency (federal permit, funding, etc.).

    No

16. Will the proposed Action involve the creation of a new water-borne contaminant source (e.g., leachate pond, pits containing chemicals that are not NSF/ANSI 60 compliant)?

    Note: For information regarding NSF/ANSI 60 please visit https://www.nsf.org/knowledge-library/nsf-ansi-standard-60-drinking-water-treatment-chemicals-health-effects

    No

17. Will the proposed action involve the creation of a new point source discharge from a facility other than a water treatment plant or storm water system?

    No

18. Will the proposed action involve blasting or drilling?

    No

19. Will the action involve military training (e.g., smoke operations, obscurant operations, exploding munitions, artillery fire, range use, helicopter or fixed wing aircraft use at night)?

    No

20. Will the proposed action involve the use of herbicides or pesticides (e.g., fungicides, insecticides, or rodenticides)?

    No

21. Will the action include or cause activities that are reasonably certain to cause chronic or intense nighttime noise (above current levels of ambient noise in the area) in suitable summer habitat for the northern long-eared bat or tricolored bat during the active season?

    Chronic noise is noise that is continuous or occurs repeatedly again and again for a long time. Sources of chronic or intense noise that could cause adverse effects to bats may include, but are not limited to: road traffic; trains; aircraft; industrial activities; gas compressor stations; loud music; crowds; oil and gas extraction; construction; and mining.

    Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    No

22. Does the action include, or is it reasonably certain to cause, the use of permanent or temporary artificial lighting within 1000 feet of suitable northern long-eared bat or tricolored bat roosting habitat?

    Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    No

23. Will the action include tree cutting or other means of knocking down or bringing down trees, tree topping, or tree trimming?

    No

24. Will the proposed action result in the use of prescribed fire?

    Note: If the prescribed fire action includes other activities than application of fire (e.g., tree cutting, fire line preparation) please consider impacts from those activities within the previous representative questions in the key. This set of questions only considers impacts from flame and smoke.

    No

25. Does the action area intersect the northern long-eared bat species list area?

    Automatically answered
    Yes

26. [Semantic] Is the action area located within 0.5 miles of radius of an entrance/opening to any known NLEB hibernacula or winter roost? Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

    Automatically answered
    No

27. [Semantic] Is the action area located within 0.25 miles of a culvert that is known to be occupied by northern long-eared or tricolored bats? **Note:** The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.

    Automatically answered
    No

28. [Semantic] Is the action area located within 150 feet of a documented northern long-eared bat roost site?

    Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency.Have you contacted the appropriate agency to determine if your action is within 150 feet of any documented northern long-eared bat roosts?

    Note: A document with links to Natural Heritage Inventory databases and other state-specific sources of information on the locations of northern long-eared bat roosts is available here. Location information for northern long-eared bat roosts is generally kept in state natural heritage inventory databases – the availability of this data varies by state. Many states provide online access to their data, either directly by providing maps or by providing the opportunity to make a data request. In some cases, to protect those resources, access to the information may be limited.

    Automatically answered
    No

29. Is suitable summer habitat for the northern long-eared bat present within 1000 feet of project activities?
    If unsure, answer "Yes."

    Note: Additional information defining suitable summer habitat for the northern long-eared bat and tricolored bat can be found in Appendix A of the USFWS' Range-wide Indiana Bat and Northern long-eared bat Survey Guidelines at: https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    Yes

30. Has a presence/probable absence summer bat survey targeting the northern long-eared bat following the Service's Range-wide Indiana Bat and Northern Long-Eared Bat Survey Guidelines been conducted within the project area?

    No

31. Do you have any documents that you want to include with this submission?

    No

PROJECT QUESTIONNAIRE

IPAC USER CONTACT INFORMATION

Agency: Environmental Design Partnership, LLP (EDP)
Name: Bailey Godson
Address: 900 Route 146
City: Clifton Park
State: NY
Zip: 12065
Email bgodson@edpllp.com
Phone: 8382514798

United States Department of the Interior

FISH AND WILDLIFE SERVICE
New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
Phone: (607) 753-9334 Fax: (607) 753-9699
Email Address: fw5es_nyfo@fws.gov

In Reply Refer To: 05/06/2026 18:23:06 UTC
Project Code: 2026-0086469
Project Name: Jerry Smith BESS

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)

(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/program/migratory-bird-permit/what-we-do.

It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. **Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.**

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New York Ecological Services Field Office
3817 Luker Road
Cortland, NY 13045-9385
(607) 753-9334

PROJECT SUMMARY

Project Code: 2026-0086469
Project Name: Jerry Smith BESS
Project Type: Battery Energy Storage Systems
Project Description: The client is proposing the construction of a 5 Megawatt Battery Energy Storage System (BESS) south of Jerry Smith Road in the Town of Lansing, Tompkins County, NY. The project area consists of vacant woodlands located on a previously developed parcel of land (solar). The surrounding land use consists of agricultural land, industrial development, residential development, and vacant woodlands.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@42.5938683,-76.56366245682952,14z

Counties: Tompkins County, New York

ENDANGERED SPECIES ACT SPECIES

There is a total of 2 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: Environmental Design Partnership, LLP (EDP)
Name: Bailey Godson
Address: 900 Route 146
City: Clifton Park
State: NY
Zip: 12065
Email bgodson@edpllp.com
Phone: 8382514798

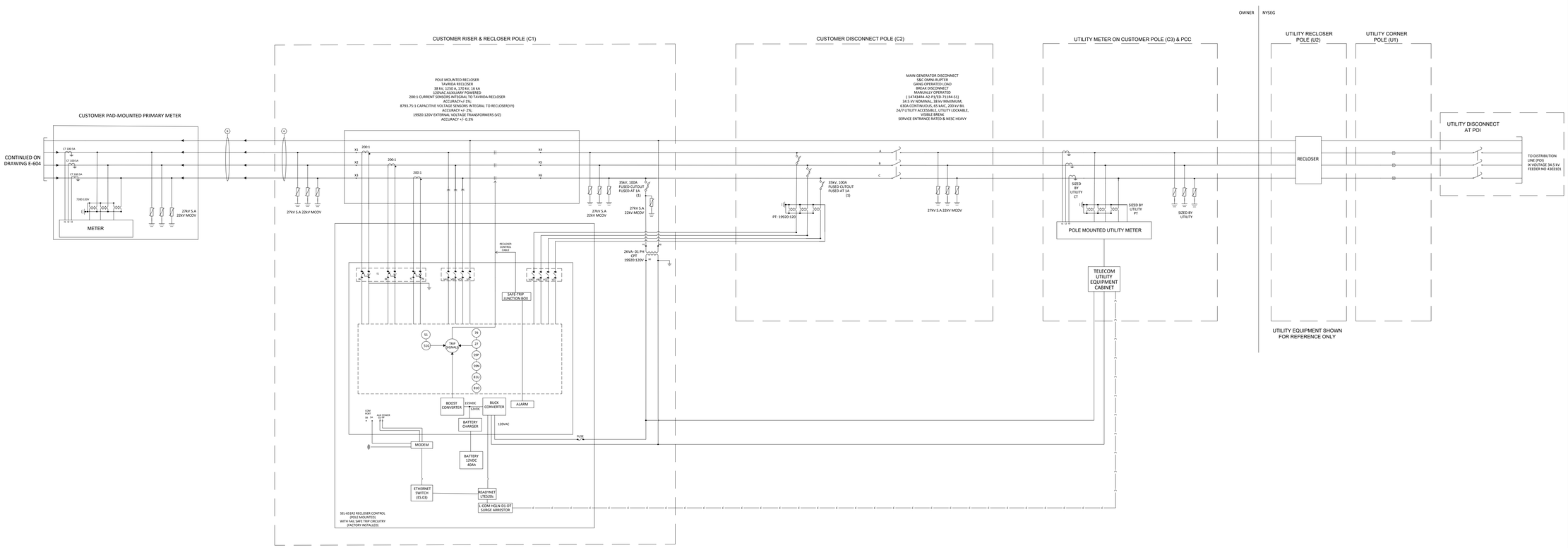
SECTION 7

Completed Inspection Reports

Cable Schedule							
Circuit Id	Voltage Rating	Conductor Quantity, Size and Material	Wire Type	Quantity of Conduits	Size of Conduits	Conduit Type	Notes
A	35kV	(3) #4/0 AWG AL, (1) #4/0 AWG AL N	Covered ACSR	-	-	-	MV Overhead
B	35kV	(3) 350 KCMIL AL Jacketed Concentric Neutral	MV-105	1	5"	PVC	MV Underground XLP/133%
C	480V	5 Sets [(3) 500 KCMIL AL, (1) 500 KCMIL AL G]	XHHW-2	5	3"	PVC	Megapack Output
D	-	(1) CAT6 or (1) Fiber Optic	-	1	1"	PVC	Communications

THREE LINE DIAGRAM LEGEND

- KWH METER
- KW INVERTER
- POTENTIAL TRANSFORMER
- CURRENT TRANSFORMER
- CIRCUIT BREAKER (FRAME TRIP)
- CABLE TERMINATION
- FUSE
- NORMALLY CLOSED CONTACT
- NORMALLY OPEN SWITCH
- FUSED DISCONNECT
- COMMUNICATION LINE
- DC/DC CONVERTER
- SEPARABLE CONNECTOR
- SURGE ARRESTER
- FUSED CUT OUT
- GANG OPERATED DISCONNECT
- POWER TRANSFORMER
- SOLID BLADE DISCONNECTS
- CAPACITIVE DIVIDER VOLTAGE SENSING ELEMENT
- SHUT TRIP
- NOT IN SERVICE



Approved
M. Mehboob 09/01/2026

GRIT APPROVAL
Reviewed By: T Altaf
Date: 01/09/2026

NOTE: NOT FOR CONSTRUCTION. FOR UTILITY INTERCONNECTION APPLICATION PURPOSES ONLY.

nexamp
101 Summer Street, 2nd Floor, Boston, MA 02110
Tel: (617) 431-1440 Fax: (978) 416-2525 Web: nexamp.com

Rev	Issued For	Date	Init
A	UIA	12/24/2025	MA
B	UIA	01/02/2026	MA
C	UIA	01/09/2026	MA

P.E. seal/Consultant:

STATE OF NEW YORK
PATRICK THOMAS GUINAN
103081
LICENSED PROFESSIONAL ENGINEER

Project:
133809 - Jerry Smith Storage
Jerry Smith Rd,
Lansing, NY, 14882
42.590659, -76.564286

Drawing Title:
AC Three Line Diagram
Drawn by: M. Ahmed
Scale: N.T.S

Dwg No: E-603
Size: D
Sheet Rev: C

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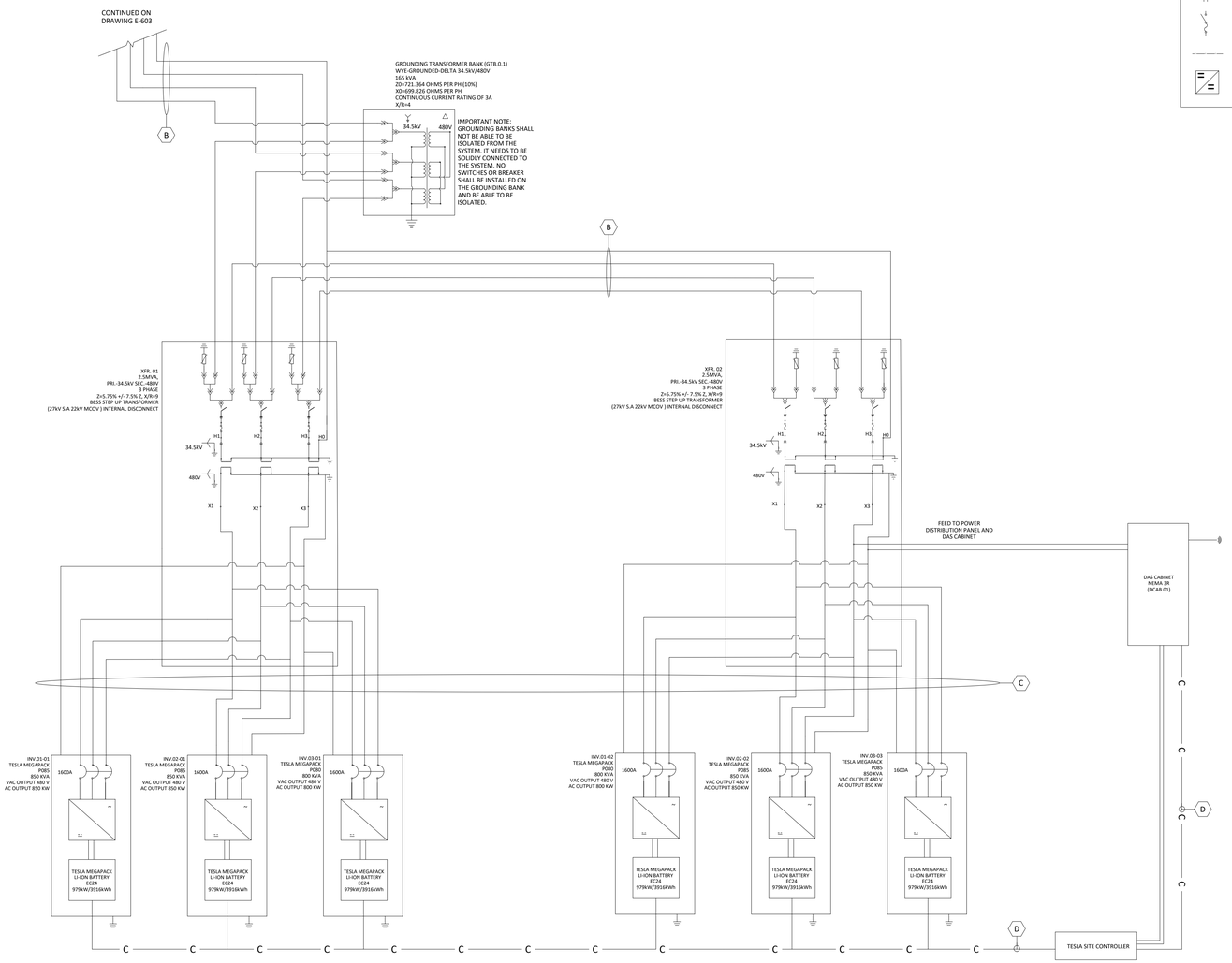
Cable Schedule							
Circuit Id	Voltage Rating	Conductor Quantity, Size and Material	Wire Type	Quantity of Conduits	Size of Conduits	Conduit Type	Notes
A	35kV	(3) #4/0 AWG AL, (1) #4/0 AWG AL N	Covered ACSR	-	-	-	MV Overhead
B	35kV	(3) 350 KCMIL AL Jacketed Concentric Neutral	MV-105	1	5"	PVC	MV Underground XLP/133%
C	480V	5 Sets [(3) 500 KCMIL AL, (1) 500 KCMIL AL G]	XHHW-2	5	3"	PVC	Megapack Output
D	-	(1) CAT6 or (1) Fiber Optic	-	1	1"	PVC	Communications



THREE LINE DIAGRAM LEGEND

- KWH METER
- KW INVERTER
- POTENTIAL TRANSFORMER
- CURRENT TRANSFORMER
- FRAME TRIP — CIRCUIT BREAKER
- CABLE TERMINATION
- FUSE
- NORMALLY CLOSED CONTACT
- NORMALLY OPEN SWITCH
- FUSED DISCONNECT
- COMMUNICATION LINE
- DC/DC CONVERTER
- SEPARABLE CONNECTOR
- SURGE ARRESTER
- FUSED CUT OUT
- GANG OPERATED DISCONNECT
- POWER TRANSFORMER
- SOLID BLADE DISCONNECTS
- CAPACITIVE DIVIDER VOLTAGE SENSING ELEMENT
- 67 — SHUT TRIP
- NOT IN SERVICE

NOTE: NOT FOR CONSTRUCTION. FOR UTILITY INTERCONNECTION APPLICATION PURPOSES ONLY.

nexamp
101 Summer Street, 2nd Floor, Boston, MA 02110
Tel: (617) 431-1440 Fax: (978) 416-2525 Web: nexamp.com

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A	UIA	12/24/2025	MA
B	UIA	01/02/2026	MA
C	UIA	01/09/2026	MA

P.E. seal/Consultant:

STATE OF NEW YORK · PATRICK THOMAS CANNING · 103081 · LICENSED PROFESSIONAL ENGINEER
01/12/2026 3:07:05 PM

Project:
133809 - Jerry Smith Storage
Jerry Smith Rd,
Lansing, NY, 14882
42.590659, -76.564286

Drawing Title:
AC Three Line Diagram
Drawn by: M. Ahmed
Scale: N.T.S

Dwg No: E-604
Size: D
Sheet Rev: C

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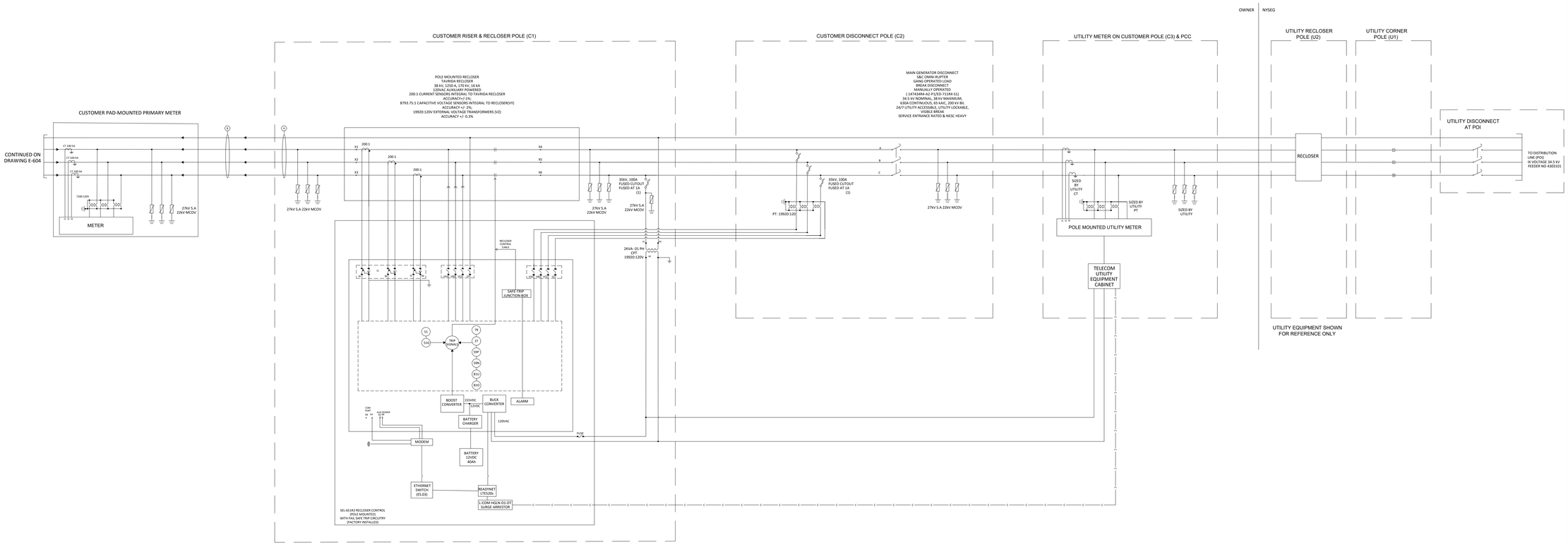
A	35kV	(3) #4/0 AWG AL, (1) #4/0 AWG AL N	Covered ACSR	-	-	-	MV Overhead
B	35kV	(3) 350 KCMIL AL Jacketed Concentric Neutral	MV-105	1	5"	PVC	MV Underground XLP/133%
C	480V	5 Sets [(3) 500 KCMIL AL, (1) 500 KCMIL AL G]	XHHW-2	5	3"	PVC	Megapack Output
D	-	(1) CAT6 or (1) Fiber Optic	-	1	1"	PVC	Communications

THREE LINE DIAGRAM LEGEND

- KWH METER
- KW INVERTER
- POTENTIAL TRANSFORMER
- CURRENT TRANSFORMER
- CIRCUIT BREAKER (FRAME TRIP)
- CABLE TERMINATION
- FUSE
- NORMALLY CLOSED CONTACT
- NORMALLY OPEN SWITCH
- FUSED DISCONNECT
- COMMUNICATION LINE
- DC/DC CONVERTER
- SEPARABLE CONNECTOR
- SURGE ARRESTER
- FUSED CUT OUT
- GANG OPERATED DISCONNECT
- POWER TRANSFORMER
- SOLID BLADE DISCONNECTS
- CAPACITIVE DIVIDER VOLTAGE SENSING ELEMENT
- SHUT TRIP
- NOT IN SERVICE



Approved
M. Mehboob 09/01/2026

GRIT APPROVAL
Reviewed By: T Altaf
Date: 01/09/2026

NOTE: NOT FOR CONSTRUCTION. FOR UTILITY INTERCONNECTION APPLICATION PURPOSES ONLY.

nexamp
101 Summer Street, 2nd Floor, Boston, MA 02110
Tel: (617) 431-1440 Fax: (978) 416-2525 Web: nexamp.com

Rev	Issued For	Date	Init
A	UIA	12/24/2025	MA
B	UIA	01/02/2026	MA
C	UIA	01/09/2026	MA

P.E. seal/Consultant:

STATE OF NEW YORK
PATRICK THOMAS GUINAN
103081
LICENSED PROFESSIONAL ENGINEER

Project:
133809 - Jerry Smith Storage
Jerry Smith Rd,
Lansing, NY, 14882
42.590659, -76.564286

Drawing Title:
AC Three Line Diagram
Drawn by: M. Ahmed
Scale: N.T.S

Dwg No: E-603
Size: D
Sheet Rev: C

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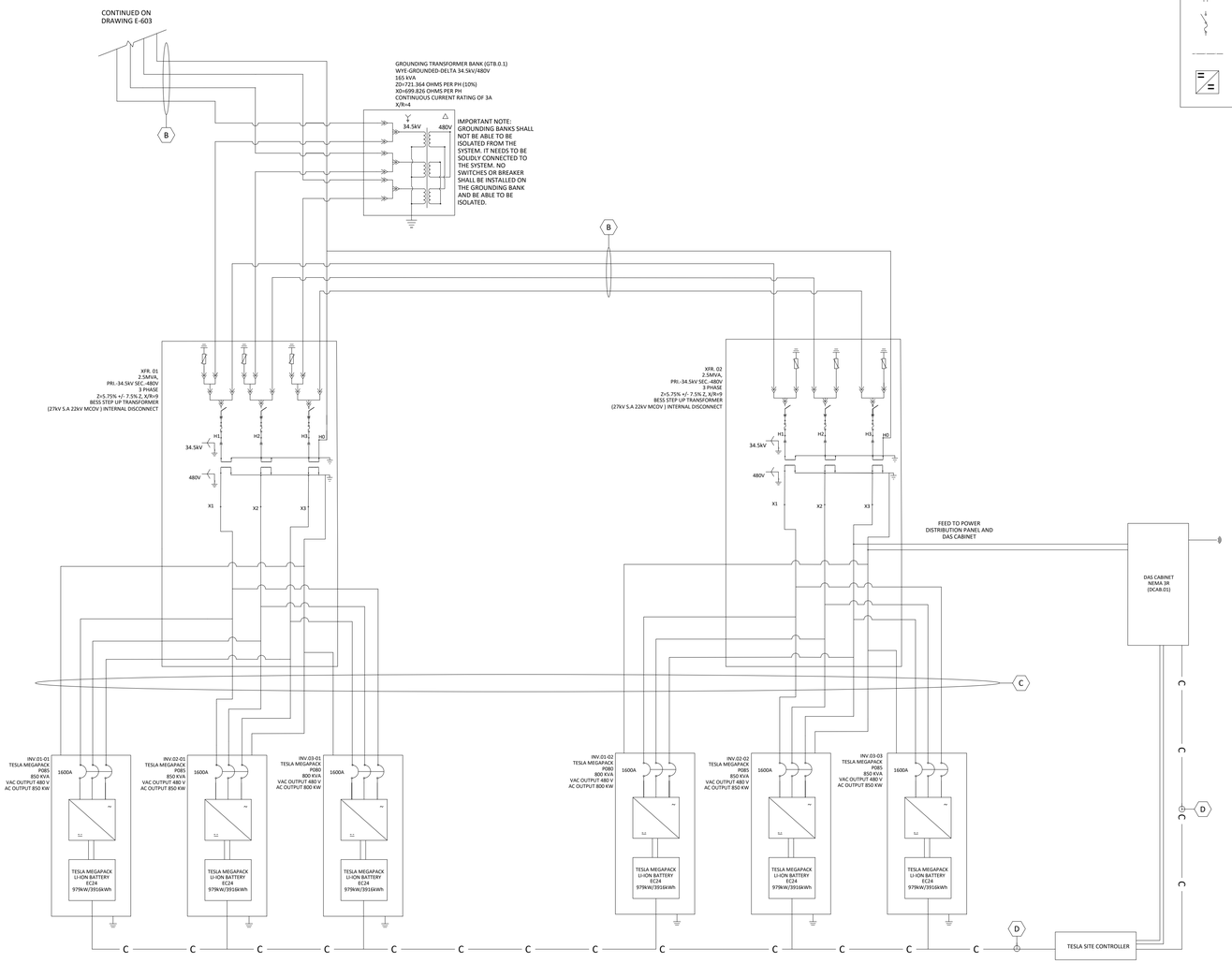
Cable Schedule							
Circuit Id	Voltage Rating	Conductor Quantity, Size and Material	Wire Type	Quantity of Conduits	Size of Conduits	Conduit Type	Notes
A	35kV	(3) #4/0 AWG AL, (1) #4/0 AWG AL N	Covered ACSR	-	-	-	MV Overhead
B	35kV	(3) 350 KCMIL AL Jacketed Concentric Neutral	MV-105	1	5"	PVC	MV Underground XLP/133%
C	480V	5 Sets [(3) 500 KCMIL AL, (1) 500 KCMIL AL G]	XHHW-2	5	3"	PVC	Megapack Output
D	-	(1) CAT6 or (1) Fiber Optic	-	1	1"	PVC	Communications



THREE LINE DIAGRAM LEGEND

- KWH METER
- KW INVERTER
- POTENTIAL TRANSFORMER
- CURRENT TRANSFORMER
- FRAME TRIP — CIRCUIT BREAKER
- CABLE TERMINATION
- FUSE
- NORMALLY CLOSED CONTACT
- NORMALLY OPEN SWITCH
- FUSED DISCONNECT
- COMMUNICATION LINE
- DC/DC CONVERTER
- SEPARABLE CONNECTOR
- SURGE ARRESTER
- FUSED CUT OUT
- GANG OPERATED DISCONNECT
- POWER TRANSFORMER
- SOLID BLADE DISCONNECTS
- CAPACITIVE DIVIDER VOLTAGE SENSING ELEMENT
- SHUT TRIP
- NOT IN SERVICE

NOTE: NOT FOR CONSTRUCTION. FOR UTILITY INTERCONNECTION APPLICATION PURPOSES ONLY.

nexamp
101 Summer Street, 2nd Floor, Boston, MA 02110
Tel: (617) 431-1440 Fax: (978) 416-2525 Web: nexamp.com

Rev	Issued For	Date	Init
A	UIA	12/24/2025	MA
B	UIA	01/02/2026	MA
C	UIA	01/09/2026	MA

P.E. seal/Consultant:

STATE OF NEW YORK · PATRICK THOMAS CANNING · 103081 · LICENSED PROFESSIONAL ENGINEER
01/12/2026 3:07:05 PM

Project:
133809 - Jerry Smith Storage
Jerry Smith Rd.
Lansing, NY, 14882
42.590659, -76.564286

Drawing Title:
AC Three Line Diagram
Drawn by: M. Ahmed
Scale: N.T.S

Dwg No: E-604
Size: D
Sheet Rev: C

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Tompkins County Clerk Recording Page

Return To

NEXAMP, INC.
101 SUMMER ST
BOSTON, MA 02110-1287

Maureen Reynolds, County Clerk
Tompkins County Clerk
320 North Tioga Street
Ithaca, NY 14850
(607) 274-5431

Document Type: **LEASE**

Receipt Number: 26-478719

Grantor (Party 1)
STRAW, WAYNE L

Grantee (Party 2)
NEXAMP SOLAR LLC

Fees	
Recording Fee	$20.00
TP-584 Form Fee	$5.00
Pages Fee	$45.00
State Surcharge	$20.00
Total Fees Paid:	$90.00

Transfer Amt: $0.00

Instrument #: 2026-02314
Transfer Tax #: 001275

Property located in **Lansing**

Refers To
2024-09600

State of New York
County of Tompkins

Recorded on March 12th, 2026 at 1:26:36 PM
with a total page count of **9**.

Tompkins County Clerk

This sheet constitutes the Clerk's endorsement required by section 319 of the Real Property Law of the State of New York

JC

Do Not Detach

1315

This instrument was prepared by
and after recording return to:
Nexamp Solar LLC
101 Summer Street, 2nd Floor
Boston, MA 02110
Attn: ~~Alex Reilly~~ Erin McCormack

County: Tompkins
Tax ID No.: 16.-1-10
Address: 339 Jerry Smith Road
Township: Lansing

FIRST AMENDMENT TO MEMORANDUM OF BATTERY STORAGE LEASE AND EASEMENT AGREEMENT

THIS FIRST AMENDMENT TO MEMORANDUM OF BATTERY STORAGE LEASE AND EASEMENT AGREEMENT (this "**Amendment**") is made and entered into as of ~~January~~ February 2, 2026 by and between **NEXAMP SOLAR LLC**, a Delaware limited liability company ("**Grantee**" or "**Lessee**"), and **WAYNE L. AND DORIS K. STRAW** (collectively, "**Owner**" or "**Lessor**").

Recitals

A. Owner and Grantee are parties to that certain Battery Storage Lease and Easement Agreement dated November 3, 2023, as amended by that certain First Amendment to Battery Storage Lease and Easement Agreement dated 2/2/26 (collectively, and as may be further amended, the "**Lease**") for all or a portion of the property located in Tompkins County, New York, commonly known as Tax ID No. 16.-1-10, as more particularly described on Exhibit A-1 attached hereto and incorporated herein by reference (the "**Property**").

B. The Lease was further memorialized by that certain Memorandum of Battery Storage Lease and Easement Agreement dated November 2, 2023, recorded on October 10, 2024 as Instrument No. 2024-09600 in the Register and Recorder of Tompkins County (the "**Memorandum**").

C. Owner and Grantee desire to amend the Memorandum to reflect an update to the Property description.

NOW, THEREFORE, the Landlord and Tenant hereby agree as follows:

1. The foregoing recitals are incorporated herein by reference as though fully set forth herein.

2. Owner and Grantee acknowledge and agree that pursuant to the Lease, the Construction Term of the Lease has commenced as of November 2, 2025.

3. Owner and Grantee acknowledge and agree that "Nexamp Solar, LLC, a Delaware limited liability company" is the correct Grantee or Lessee party to the Memorandum and the Lease.

4. Exhibit A-1 of the Memorandum is hereby deleted in its entirety and replaced with the attached Exhibit A-1.

5. Exhibit A-2 of the Memorandum is hereby deleted in its entirety and replaced with the attached Exhibit A-2.

6. The Lease is subject to the trust fund provisions of Section 13 of the New York State Lien Law.

7. The Lease is hereby ratified and affirmed and remains in full force and effect.

8. Counterpart originals may be assembled in order to make one complete copy of this Amendment and all such counterpart originals, when taken together, shall comprise but one and the same instrument.

9. Any capitalized term used but not defined herein shall have the meaning ascribed to such term in the Lease.

[REMAINDER OF PAGE BLANK; SIGNATURE PAGES FOLLOW]

IN WITNESS WHEREOF, the parties hereto have executed this Amendment as of the day and year first written above.

OWNER:

By: Wayne L. Straw
Name: Wayne L. Straw

By: Doris K. Straw
Name: Doris K. Straw

Commonwealth/State of New York §
§ ss:
County of Tompkins §

On February 2 2026, before me, Michele Bennett Notary Public, personally appeared Wayne L. Straw, personally known to me to be the persons whose names are subscribed to the within instrument and acknowledged to me that they executed the instrument.

Notary Public
My commission expires: 10-10-29

Michele Bennett
Notary Public, State of New York
Registration no. 01BE6030007
Qualified in Tompkins County
Commission Expires October 10, 2029

Commonwealth/State of New York §

§ ss:
County of Tompkins §

On February 2 2026, before me, Michele Bennett, Notary Public, personally appeared Doris K. Straw, personally known to me to be the persons whose names are subscribed to the within instrument and acknowledged to me that they executed the instrument.

Notary Public

My commission expires: 10-10-29

Michele Bennett
Notary Public, State of New York
Registration no. 01BE6030007
Qualified in Tompkins County
Commission Expires October 10, 2029

TENANT:

NEXAMP SOLAR LLC
a Delaware limited liability company

By: _____
Name: Chris Clark
Title: Senior Vice President

ACKNOWLEDGMENT

Commonwealth/State of Massachusetts §
§ ss:
County of Suffolk §

Before me, on February 17, 2026, personally appeared Chris Clark, Senior Vice President of Nexamp Solar, LLC, a limited liability company and as such Senior Vice President, subscribed to the within instrument and acknowledged that (s)he executed the instrument on behalf of said limited liability company.

_____
Name Erin K. McCormack
My commission expires: November 01, 2030

ERIN K MCCORMACK
Notary Public
COMMONWEALTH OF MASSACHUSETTS
My Commission Expires
November 01, 2030

EXHIBIT A-1

LEGAL DESCRIPTION OF PROPERTY

[Pursuant to the terms of the Agreement, the legal description of the Property contained on this Exhibit A-1 shall, upon request by Grantee, be replaced with a more detailed legal description approved by Grantee and its title company or surveyor]

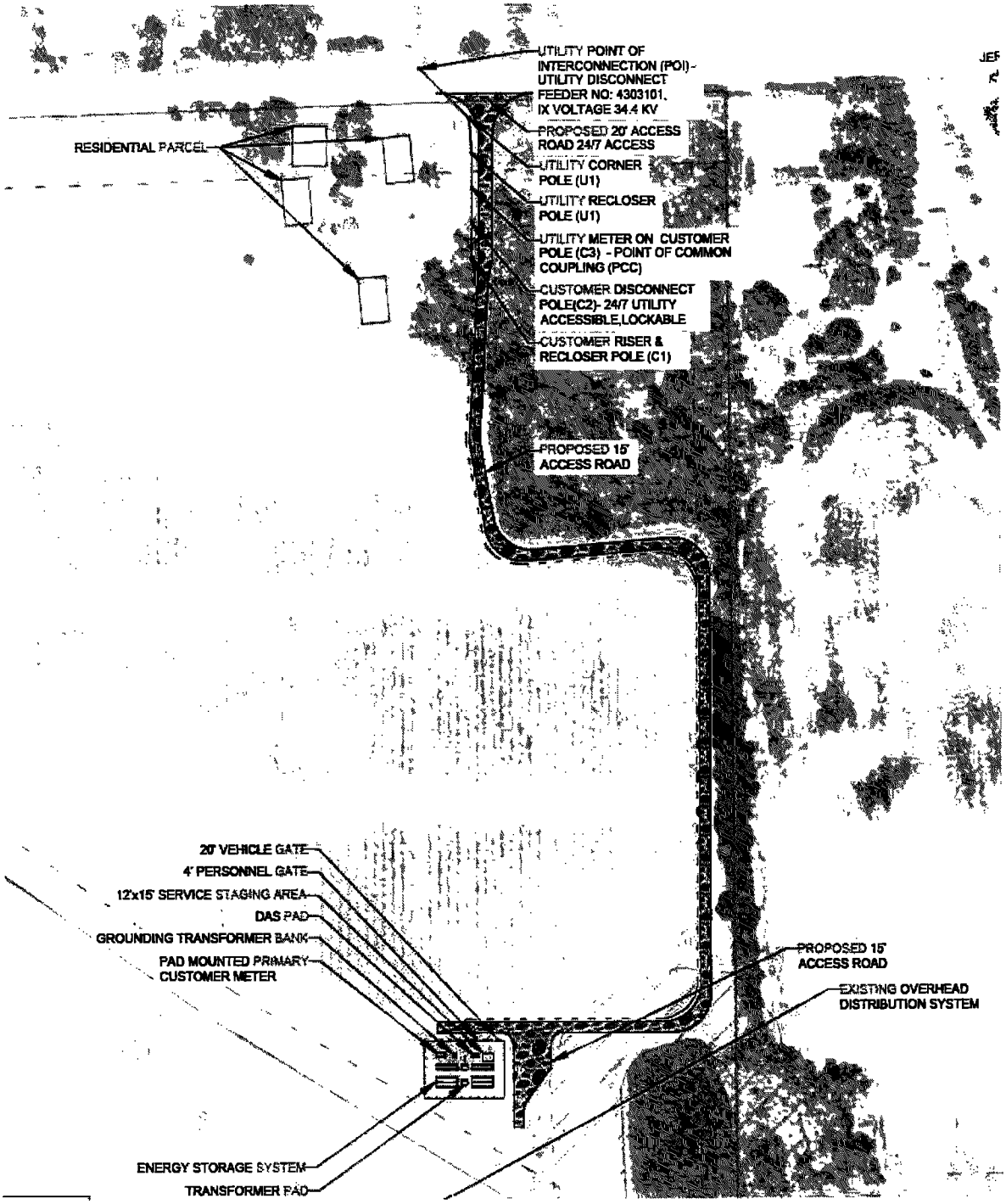
Approximately Ten Thousand (10,000) square feet in the area depicted and outlined in red on Exhibit A-2 attached hereto within the boundary of the following described land located in Lansing Township, TOMPKINS County, State of New York, containing 57.79 acres, more or less:

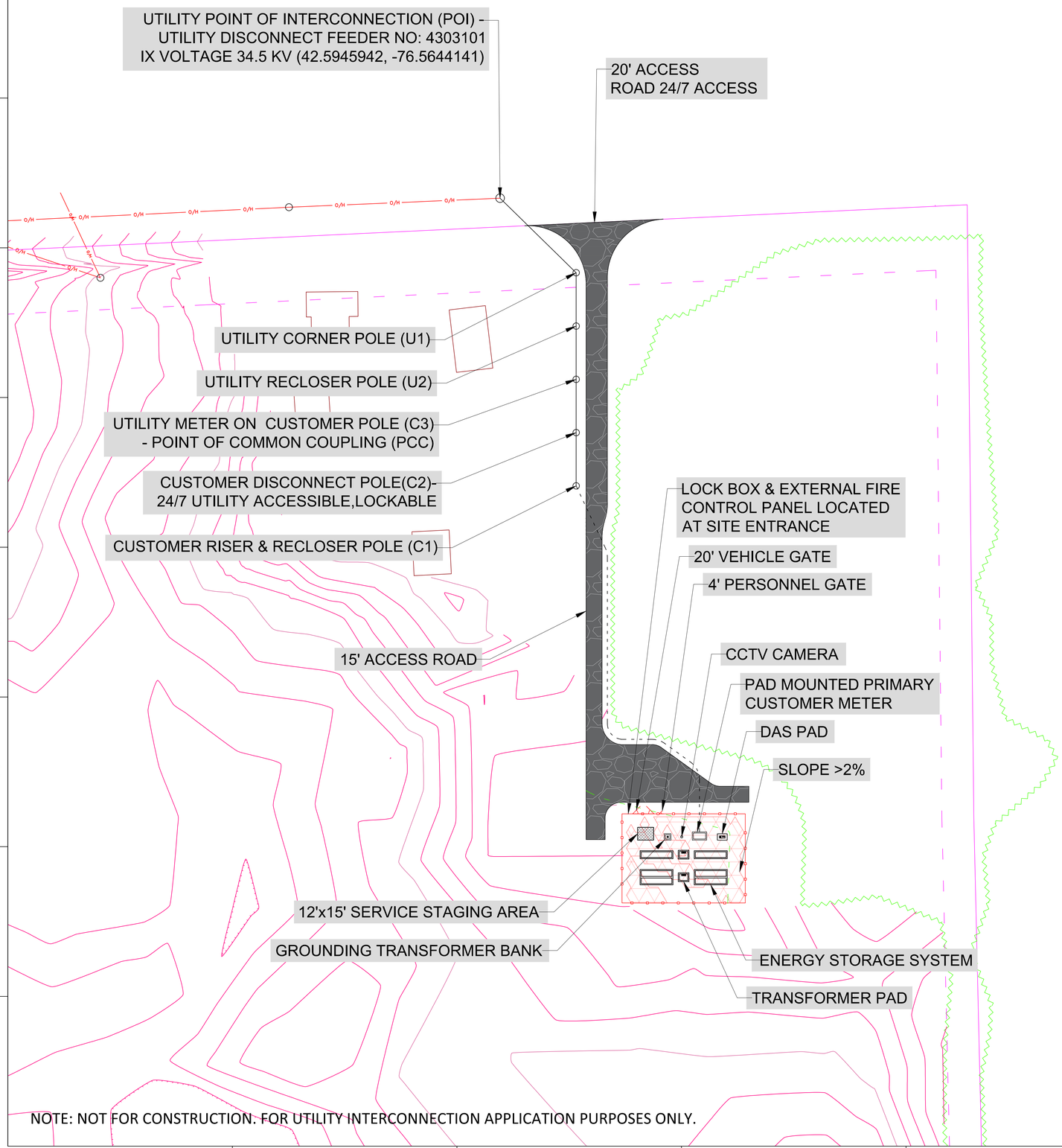
ALL THAT TRACT OR PARCEL OF LAND situate in the Town of Lansing, being parts of Military Lot No. 62 in said town, bounded and being more fully described in Volume 535, Page 680 and Instrument No. 0294 in the deed records of Tompkins County, New York.

EXHIBIT A-2

LEASE PLAN

The Property is shown outlined in red on the attached Lease Plan. In addition to the Property, Owner shall grant to Grantee an easement for ingress/egress to the Property as well as the right to place electric transmission within the approximate area described as the "Proposed 15' Access Road" on the attached Lease Plan.


UTILITY POINT OF INTERCONNECTION (POI) - UTILITY DISCONNECT FEEDER NO: 4303101, IX VOLTAGE 34.4 KV
RESIDENTIAL PARCEL
PROPOSED 20' ACCESS ROAD 24/7 ACCESS
UTILITY CORNER POLE (U1)
UTILITY RECLOSER POLE (U1)
UTILITY METER ON CUSTOMER POLE (C3) - POINT OF COMMON COUPLING (PCC)
CUSTOMER DISCONNECT POLE(C2)- 24/7 UTILITY ACCESSIBLE,LOCKABLE
CUSTOMER RISER & RECLOSER POLE (C1)
PROPOSED 15' ACCESS ROAD
20' VEHICLE GATE
4' PERSONNEL GATE
12'x15' SERVICE STAGING AREA
DAS PAD
GROUNDING TRANSFORMER BANK
PAD MOUNTED PRIMARY CUSTOMER METER
PROPOSED 15' ACCESS ROAD
EXISTING OVERHEAD DISTRIBUTION SYSTEM
ENERGY STORAGE SYSTEM
TRANSFORMER PAD



NOTE: NOT FOR CONSTRUCTION. FOR UTILITY INTERCONNECTION APPLICATION PURPOSES ONLY.

ENERGY STORAGE SYSTEM INFORMATION	
ENERGY STORAGE MODEL	(6) Tesla MP2XL C010 3916.8kWh (4-HR)
ENERGY STORAGE INVERTER	(4) Tesla Integrated PCS P085 (2) Tesla Integrated PCS P080
ENERGY STORAGE TRANSFORMER	(2) 2,500 kW
INSTALLED ESS CAPACITY (AC)	5,875.2 kW / 23,500.8 kWh
TOTAL ESS OPERATING CAPACITY (AC)	5,000 kW / 23,500.8 kWh

LAYOUT AND EQUIPMENT SUBJECT TO SITE EVALUATION

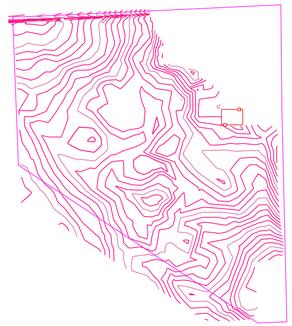
- PROPERTY OFFSET: FRONT = 60', SIDE = 30', BACK = 40', PROPERTY AREA = 1,914,522 SF
- WETLAND OFFSET = 100', STREAM OFFSET = N/A
- TREE HEIGHT = 70', TREE CUT = 48,705 SF
- PROPOSED ROAD = 16,780 SF, EXISTING ROAD = 00 SF, GRASS ROAD = 00 SF
- FENCE LENGTH = 399', FENCED AREA = 9,689 SF
- UTILITY OWNED OVERHEAD LINE = 200', NEXAMP OWNED OVERHEAD LINE = 100'
- UNDERGROUND LINE = 391' , TOPO SOURCE = SURVEY ALTA

POLES

- 40' IN HEIGHT, SPACED A MINIMUM OF 25' APART, MAXIMUM OF 30' APART
- TREE OFFSET FROM POLES = 15'
- PLACED A MINIMUM OF 5', MAXIMUM OF 15' OFF OF ROAD

NOTES

- UTILITY DISCONNECT WILL BE INSTALLED IN THE FORM OF CUTOUTS ON THE POI.



LEGEND:

- PROPERTY LINE
- PROPERTY SETBACK
- FENCE LINE
- SHADE LINE
- STREAM AREA
- STREAM SETBACK AREA
- WETLAND AREA
- WETLAND SETBACK AREA
- TREE LINE
- TREE FALL LINE
- UNDERGROUND MV LINE
- OVERHEAD MV LINE
- EXISTING ACCESS ROAD
- NEW ACCESS ROAD
- GRASS ROAD
- HIGH SLOPE AREA

TRUE_NORTH

SCALE IN FEET

0 50 100 150 250

nexamp
101 Summer Street, Boston, MA 02110
Tel: (617) 431-1440 Fax: (978) 416-2525 Web: nexamp.com

Rev	Issued For	Date	Init
A	Permit DWG	04/20/2026	MU

P.E. seal/Consultant:

Project:
133809 Jerry Smith Storage
339 Jerry Smith Rd.
Lansing, NY, 14882
42.590658, -76.564285

Drawing Title:
Conceptual Layout
Drawn by: M Useman
Scale:1"=50'

Dwg No: PV-101
Size: D
Sheet Rev: A

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ENVIRONMENTAL DESIGN PARTNERSHIP, LLP.
Shaping the physical environment

900 Route 146 Clifton Park, NY 12065
(P) 518.371.7621 edpllp.com

May 27, 2026

Brad George
Fire Chief
Lansing fire Department
Central Station
80 Ridge Road
Lansing, NY 14882

Re: Jerry Smith, LLC c/o Nexamp Solar, Inc,-339 Jerry Smith Road, Site Plan/Special Conditions Application, Tax Map 16.-1-10.2

Dear Brad,

The Environmental Design Partnership, LLP (EDP) represents the Applicant Jerry Smith, LLC c/o Nexamp Solar Inc., in pursuit of a Site Plan/Special Conditions for Jerry Smith Battery Energy Storage project.

Enclosed herewith please find one (1) copy of the following materials in support of a Site Plan/ Special Conditions Application for the project:

-Jerry Smith Plan Set

-Project Overview and Narrative

-Visual Profile Plan

-Adjacent Property List

-Megapack datasheet

-Noise Analysis

-Commissioning Documents

-Decommissioning documents

-Operations and Maintenance Manual

-Emergency response Plan

-Fire Safety Compliance Plan

-Compliance Summary Analysis

-Megapack System Specification

-Compliance Guide

-Hazard MitigationAnalysis

-One and three line diagram

-Site Lighting memo

ENVIRONMENTAL DESIGN PARTNERSHIP, LLP.
Shaping the physical environment

On behalf of the Applicant, we respectfully request that the Applicant be placed on the June 22, 2026, Planning Board meeting for Site plan Review.

Please do not hesitate to contact me at 518-376-1134 with any questions or if you require additional information.

Sincerely,

Melissa Aucompaugh
Project Manager
Environmental Design Partnership

cc: Mike DeAngelo Alex Reilly, Nate Rogers

900 Route 146 Clifton Park, NY 12065
(P) 518.371.7621 edpllp.com

OE/AAA Pre-screening Results

Wed Jun 10 2026 08:15:25 GMT-0400 (Eastern Daylight Time)

Structure: Other

Latitude	Longitude	Height	Site Elevation	AMSL
42 35 33.83 N	76 33 51.04 W	12	1083	1095

Based on the information you provided, you are not required to file notice with the FAA.

Meeting Mintues and Responses

Town of Lansing Planning Board Meeting, July 27, 2026

O'tooles Contractor Yard, Lansing, NY

Comment: The project will require a Full SWPPP.
Response: A Full SWPPP has been provided

Comment: Please provide a strategy on how the site intends to address dust mitigation
Response: Dust mitigation is a component of the Stormwater Pollution Prevention Control (SWPPP) narrative and will be incorporated as such. Asphalt millings are used on the main drive into the site.

Comment: Please provide describe any maintenance procedures used on the storm practice to date.
Response: The storm practice has been historically cleaned once sedimentation has reached a level of between 6" and 1'. The last full cleanout was in the summer of 2024 and it is cleaned approximately every 4-6 years.

Comment: Please provide proof of DEC certification for asphalt storage
Response: DEC certification has been obtained and has been provided to the Planning Board

Comment: The existing asphalt pile appears to encroach setback requirements for the rear of the property (50' near duplex's).
Response: The piles have been pulled back to within 50' of the setback line

Comment: The existing work yard appears to encroach the frontage setback (75') which should be in-line with the existing concrete bunker.
Response: The work yard was pulled back along the lot frontage to meet the 75' setback. The area will be finished graded and seeded by mid September.

Comment: Please confirm the type of materials that will be accepted/used on the property to determine whether they are in concert with the original agreement.

Response: Materials are identified on the stormwater site plan. Because the original apartment complex was never realized, the Owner viewed the stipulations and conditions on the work site as null and void since they related directly to the development.

Comment: Please request a maximum pile height from the Planning Board for discussion.
Response: Pile height will be limited to no higher than the tallest reach of an excavator loader. This is approximately 20 – 25'.

Comment: Please provide a screening plan for the lot frontage(s). Also remove any dead vegetation.
Response: A screening plan has been provided on the stormwater drawings. The site will use arborvitae placed every 4' along the site frontage of Peruville Road.

Comment: Please provide details on the hoop building along with any permitting received for construction.
Response: Building details and permitting are attached. The building is 50' x 80'.

Comment: Please review the November 28, 2016 site conditions resolution and update the project with anticipated hours of operation and site longevity expectations.
Response: Hours of operation will be will be by appointment only and the site will remain in operation until permanent.

Comment: Please identify whether the site has or will require a lighting plan.
Response: There are no plans to illuminate the site.

Comment: Please review and confirm traffic numbers and update if required.
Response: Anticipated traffic will be no different than has been in the area since the work yard has been in operation (2011). In fact, it is likely less since the property is used by appointment only. Actual numbers from 7/13/26 to the present can be made available.

Attachments:

DEC Certification
Hoop House permit (registered with DEC)
Traffic Numbers

NEW YORK STATE | Department of Environmental Conservation

KATHY HOCHUL
Governor

AMANDA LEFTON
Commissioner

July 13, 2026

ATTN: Tracy Pinney
Scott Pinney
6 Otti Drive
Lansing, NY 14882 United States

Re: O'Tooles Stone & Gravel - Lansing
CDDHRF - uncontaminated soil sand gravel rock - registration Registration # 55C60019

Dear Tracy Pinney:

Enclosed is the validated copy of your 6 NYCRR Part 360 registration, which becomes effective on July 13, 2026 and expires on July 12, 2031.

This letter only acknowledges receipt of your registration form and does not, in any way, verify that the information which you provided on the form is true or correct.

You are reminded that 6NYCRR Part 360 contains various requirements that must be followed to warrant your facility's continued status as a registered facility. Enclosed is a list of general requirements for a registered facility described in Section 360.15. Additional requirements of specific registration types may also be enclosed. You are required to keep appropriate records regarding the use of the facility in order to accurately file an annual report as required by Paragraph 360.19(k)(3).

This registration does not exempt or preclude you from complying with any other applicable federal, state, or local laws, rules or regulations. If you have any questions regarding this matter, please contact me at the above telephone number.

Sincerely,

Amy Miller

Amy Miller

Enclosure

NEW YORK STATE | Department of Environmental Conservation

DIVISION OF MATERIALS MANAGEMENT

REGISTRATION FOR A SOLID WASTE MANAGEMENT FACILITY

THIS IS NOT A UPA PERMIT

DATE ISSUED: 07/13/2026
DATE EXPIRES: 07/12/2031

1. FACILITY	2. FACILITY OWNER
O'Tooles Stone & Gravel 430 Peruville Rd Lansing Tompkins (*county*)	Scott Pinney 6 Otti Drive Lansing NY 14882 (607)227-9698
3. FACILITY OPERATOR	**4. SITE OWNER**

5. REGISTERED ACTIVITY

Types	Authorized Waste
CDDHRF - uncontaminated soil sand gravel rock - registration (55C60019) [361-5]	Soil (Clean)
Maximum Throughput Limit: 2000.00 cubic yards/year	
Storage: 4000.00 cubic yards	
6. OPERATIONS SCHEDULE - Normal schedule of operation By appointment only; Monday-Friday 7:30-4	**7. NAME(S) OF ALL MUNICIPALITIES SERVED** - Tompkins(Co)

This registration does not exempt or preclude you from complying with any other applicable federal, state, or local laws, rules or regulations.

NEW YORK STATE | Department of Environmental Conservation

KATHY HOCHUL
Governor

AMANDA LEFTON
Commissioner

July 13, 2026

ATTN: Tracy Pinney
Scott Pinney
6 Otti Drive
Lansing, NY 14882 United States

Re: O'Tooles Stone & Gravel - Lansing
CDDHRF - concrete, rock, brick, asphalt pavement or millings - registration

Registration # 55C90019

Dear Tracy Pinney:

Enclosed is the validated copy of your 6 NYCRR Part 360 registration, which becomes effective on July 13, 2026 and expires on July 12, 2031.

This letter only acknowledges receipt of your registration form and does not, in any way, verify that the information which you provided on the form is true or correct.

You are reminded that 6NYCRR Part 360 contains various requirements that must be followed to warrant your facility's continued status as a registered facility. Enclosed is a list of general requirements for a registered facility described in Section 360.15. Additional requirements of specific registration types may also be enclosed. You are required to keep appropriate records regarding the use of the facility in order to accurately file an annual report as required by Paragraph 360.19(k)(3).

This registration does not exempt or preclude you from complying with any other applicable federal, state, or local laws, rules or regulations. If you have any questions regarding this matter, please contact me at the above telephone number.

Sincerely,

Amy Miller

Amy Miller

Enclosure

Division of Materials Management, Region 7
5786 Widewaters Parkway, Syracuse, NY 13214 | dec.ny.gov | (315) 426-7400

NEW YORK STATE | Department of Environmental Conservation

DIVISION OF MATERIALS MANAGEMENT

REGISTRATION FOR A SOLID WASTE MANAGEMENT FACILITY

THIS IS NOT A UPA PERMIT

DATE ISSUED: 07/13/2026
DATE EXPIRES: 07/12/2031

1. FACILITY	2. FACILITY OWNER
O'Tooles Stone & Gravel 430 Peruville Rd Lansing Tompkins (*county*)	Scott Pinney 6 Otti Drive Lansing NY 14882 (607)227-9698
3. FACILITY OPERATOR	**4. SITE OWNER**

5. REGISTERED ACTIVITY

Types	Authorized Waste
CDDHRF - concrete, rock, brick, asphalt pavement or millings - registration (55C90019) [361-5]	Asphalt Millings, Asphalt Pavement, Concrete
Maximum Throughput Limit: 7000.00 cubic yards/year	
Storage: 12500.00 cubic yards	

6. OPERATIONS SCHEDULE - Normal schedule of operation	7. NAME(S) OF ALL MUNICIPALITIES SERVED - Tompkins(Co)
By appointment only; Monday-Friday 7:30-4	

This registration does not exempt or preclude you from complying with any other applicable federal, state, or local laws, rules or regulations.

TOWN of LANSING
"Home of Industry, Agriculture, and Scenic Beauty"

PLANNING AND CODE ENFORCEMENT
Box 186
Lansing, NY 14882
Phone: 607-533-7054
E-mail: tolcodes@lansingtown.com

BUILDING PERMIT

THIS PERMIT HAS BEEN ISSUED TO:

APPLICANT: **CHARLES GUTTMAN**
LANDOWNER: **Pinney Properties, LLC**
TAX MAP#: **30.-1-28.212**
LOCATION OF PROPERTY: **428 Scofield Rd**
WORK TO BE UNDERTAKEN:
SPECIAL CONDITIONS:

1. Please call for the following inspections: framing/attachments, and a final inspection when work is complete.
2. Please note that pictures are not accepted in place of in-person inspections per Town of Lansing Town Code §108.5A.
3. All electrical work is to be inspected by a qualified Independent 3rd party agency/electrical inspector.
4. We need to be notified 24 – 48 hours ahead of time (not including weekends) to make the inspections as outlined above. Please call 607-533-7054 Monday through Thursday 8:00AM to 12:30PM and 8:00AM to 11:45AM Friday to schedule appointments. Inspection appointments are available Monday through Thursday 8:30AM-11:30AM and 1:30PM–3PM. No inspections are completed on Friday, Saturday, or Sunday.

Occupancy: **U** Construction: **VB** Hazard: **N/A**

BY:
Scott Russell

ISSUED: **July 8, 2024**
EXPIRATION DATE:
Permit #: 24-124

"This property may border a farm, as defined in Town of Lansing Local Law No. 2 of the year 1997, a Local Law known as The Right to Farm Law. Residents should be aware that farmers have the right to undertake good or acceptable farm practices which may generate dust, odor, smoke, noise and vibration."

We need to be notified 24 – 48 hours ahead of time to make the inspections as outlined above. Please call Heather Monday through Thursday 8:30AM to 12:30PM and 8:30AM to 11:45AM Friday at 607-533-7054. Inspection appointments are available Monday through Thursday 8:30AM-11:30AM and 1:30PM–3PM. No inspections are completed on Friday, Saturday, or Sunday.

It's the Law

Call UFPO 2 working days

Before You Dig

1-800-962-7962

ENGINEER'S REPORT - September 2026
O'tooles Contractor Yard, 430 Peruville Road, Lansing, NY 14882

Owner, Scott Pinney
6 Otti Road
Lansing, NY 14882

Land Use

An existing contactor's work yard located at the intersection of Scofield and Peruville Roads in the Town of Lansing has been owned and operated by Mr. Scott Pinney since 2011. In 2016, the owner proposed a large townhome development just to the west of the site and a subsequent Full Stormwater Pollution Prevention Plan was approved by the Town of Lansing soon after. As a condition of approval, the Town required Mr. Pinney to prepare a temporary erosion and sediment control plan for the work yard which included the installation of a sedimentation basin to capture and treat runoff. Constraints were also placed on the project to limit the breath and scope of future activity to ensure the protection of planned development below.

In 2020, the townhome portion of the land was sold off, and the project was never realized under its new ownership. Mr. Pinney is desirous in obtaining approval to expand the work yard and developing permanent runoff management.

Soil and Site Conditions
The area is comprised of A & C type soils over brush and scrub type land. The bulk of the site is an existing contractor work yard with hard packed dirt.

Site Soils: The predominant soil types throughout the site are Palmyra, gravely loams (PaC) in the hydrologic soil group A and Kendaia and Conesus (KnA, CfB) gravely loams in the hydrologic soil group C. Data indicates that the A type matrices have moderately high to high permeability rate between 0.57 to 5.95 in/hr and the C matrices at a moderately low to moderately high permeability rate between 0.01 – 1.42 in/hr.

Soils data was obtained from the USDA Web Soil Survey. Site Topography: The site as a whole has a flat uniform slope of between 1-3% primarily moving downhill from northeast to southwest. Site Watershed: Of the 10.32-acre watershed, the area of disturbance will be approximately 4.93-AC.

Transportation

1. There will be no highway dedication associated with this project.
2. There will be no additional driveways or modification to existing driveways.
3. Existing driveway entrances allow for even circulation for existing activity.
4. There is no anticipated increase in vehicular activity or traffic from activity that has occurred on and off over the past 15 years.

Public Services

There is no need for additional public services or change from current activity.

Utility Services
There is no change to existing utilities.

Flood Hazard
All buildings are well above the 100 year flood plain.

Agriculture
This property is not part of an Ag District. The existing activity is well removed from any agriculture or horse rearing activities. There should be no conflict of noise or odors.

Lighting
There are no lighting changes to the property.

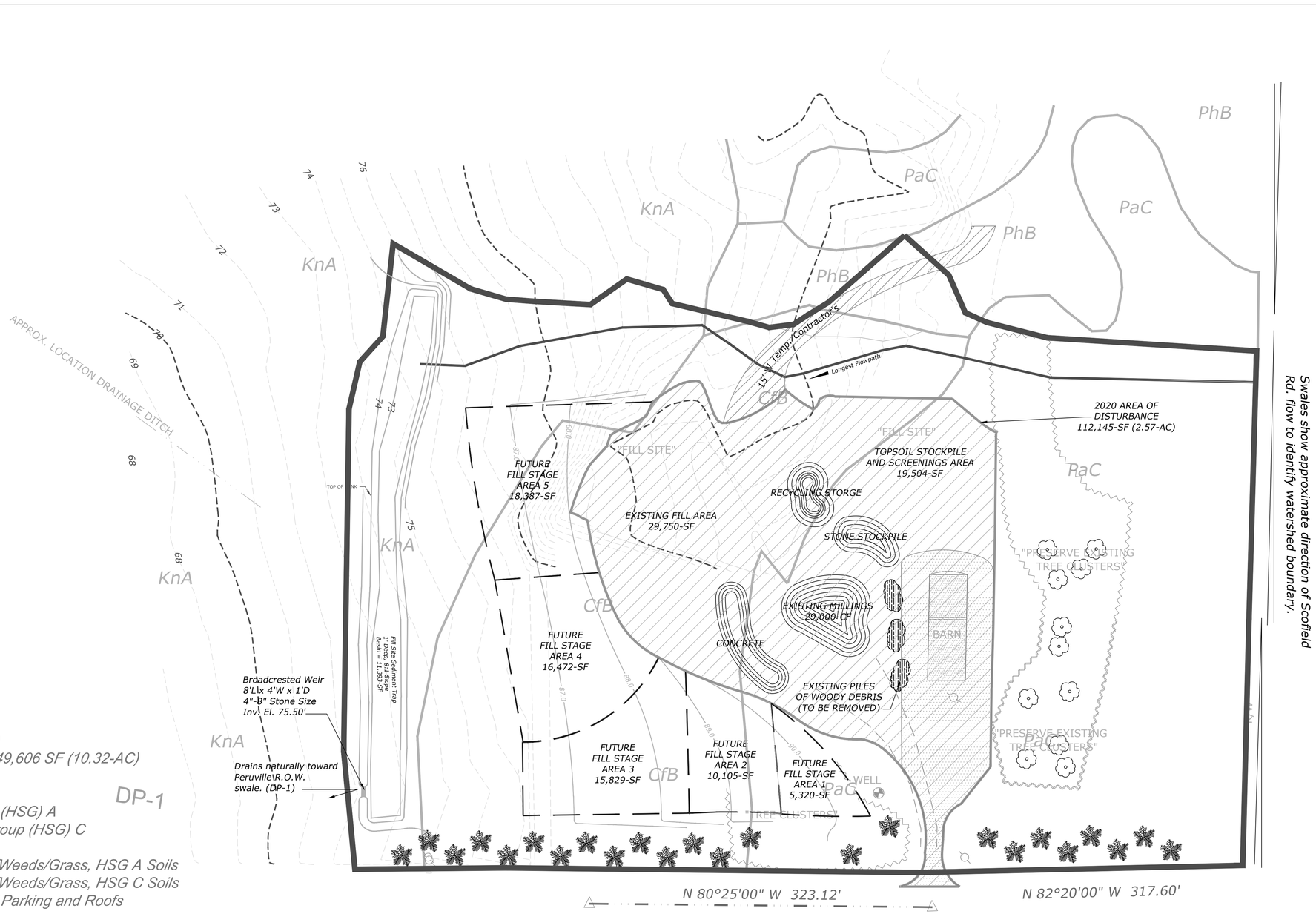
Sewerage
There is no change to existing sewer.

Water System
There is no change to existing water

Stormwater Quality & Quantity
A Full Stormwater Pollution Prevention Plan (SWPPP) was prepared to address any runoff concerns. There is no significant flow for the 1 or 10 years storm. A sedimentation basin captures and treats 100% of the WQv and attenuates runoff to less than existing conditions.

A hydraulic and hydrologic runoff model was prepared to compare 2020 activity with that of planned work in 2026. Recommendations were made to increase the volume of the sedimentation basin so that the project meets the

1, 10, and 100 yr storms since the site had expanded through the years from roughly 2.8-AC to 4.93-AC.



Swales show approximate direction of Scofield Rd. flow to identify watershed boundary.

Existing Subcatchment - 1 (ESC-1)
Existing Site Conditions - Area = 449,606 SF (10.32-AC)

Surface Conditions & Soils:
50.0% PaC, Hyrdologic Soil Group (HSG) A
50.0% KnA, CfB Hydrologic Soil Group (HSG) C

Runoff Curve Number = 30, Brush/Weeds/Grass, HSG A Soils
Runoff Curve Number = 65, Brush/Weeds/Grass, HSG C Soils
Runoff Curve Number = 98, Paved Parking and Roofs

Overland Stormwater Runoff - Longest Flowpath = 814 lf +/-
Sheet Flow, Dense Grass - 100 lf @ S = 1.0% avg.
Shallow Concentrated Flow, Grassed Waterway - 714 lf @ S = 3.2% avg.

To Design Point 1 - (DP 1)

EXISTING SUBCATCHMENT (As of 2020)
REFERENCE HYDROCAD (HYDRAULIC & HYDROLOGIC) MODELING RESULTS PRESENTED WITH THESE PLANS

REVISIONS

No.	Date	SYM.	Description
	6/15/16		Modified ESC-1 and ESC-2 boundary and notes
	01/31/20		New Owner

EXISTING (2020)
HYDRAULIC AND HYDROLOGIC SUBCATCHMENT
WORKSHEET

PINNEY GRAVEL SITE EXPANSION
PERUVILLE RD & SCOFIELD RD
(T) LANSING, NY

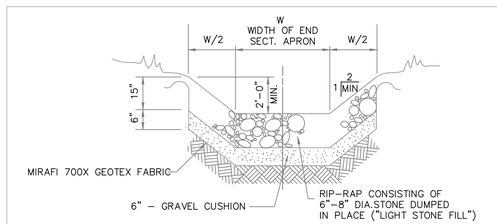
O'TOOLES GRAVEL
(T) LANSING, NY

STATE OF NEW YORK — TIMOTHY C. BUHL — 093174 — LICENSED PROFESSIONAL ENGINEER

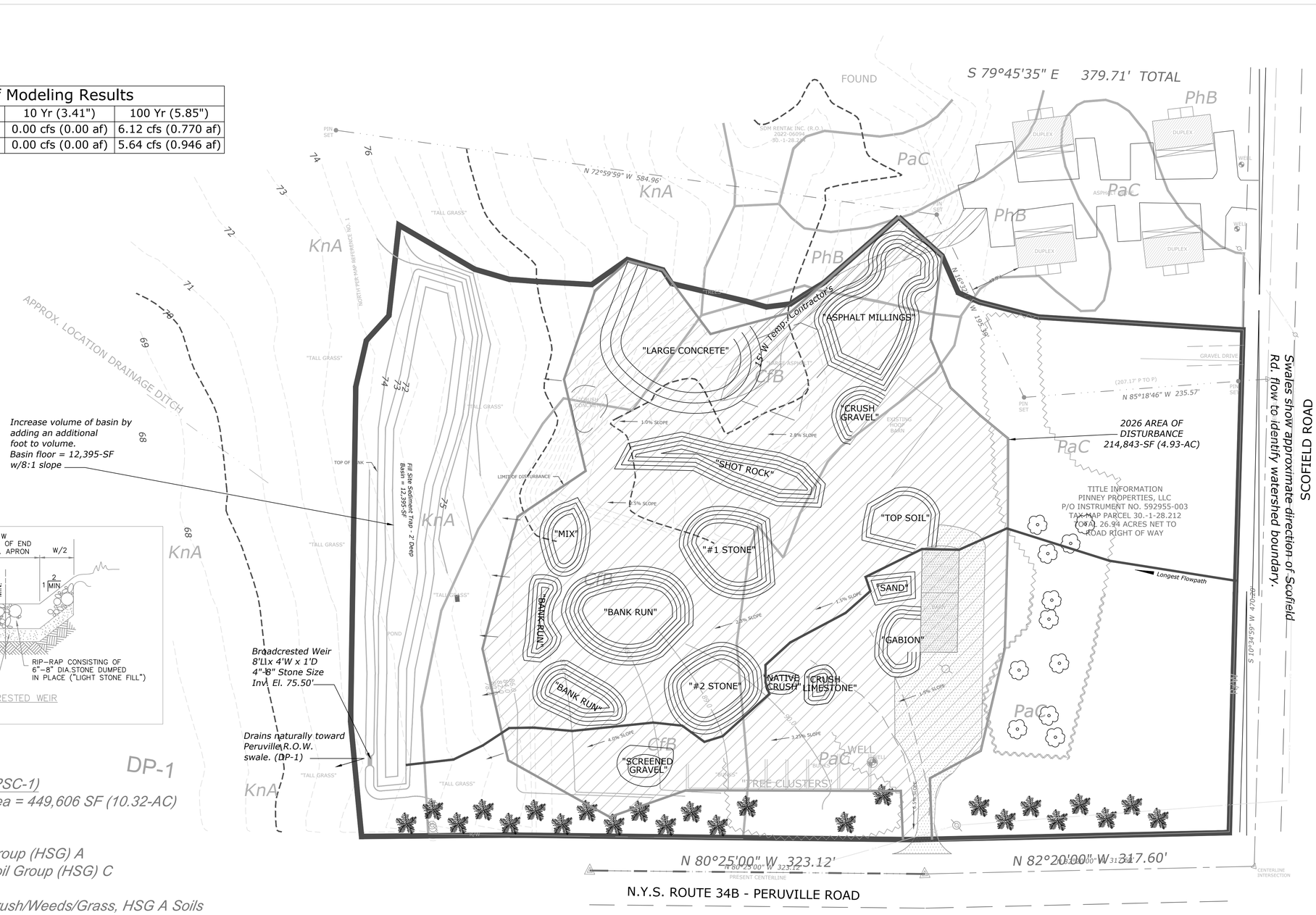
TIMOTHY C. BUHL, P.E.
GOODRICH HILL ROAD, LOCKE N.Y. 13092 607 423-1919

DATE: SEPT 18, 2026
SCALE: 1" = 50'
DRAWN: SDG
JOB:
SHEET: S-1

Hydraulic Runoff Modeling Results			
	1 Yr (2.00")	10 Yr (3.41")	100 Yr (5.85")
Existing	0.00 cfs (0.00 af)	0.00 cfs (0.00 af)	6.12 cfs (0.770 af)
Proposed	0.00 cfs (0.00 af)	0.00 cfs (0.00 af)	5.64 cfs (0.946 af)



SECTION BROADCRESTED WEIR



PSC-1
10.32-AC

Proposed Subcatchment - 1 (PSC-1)
Proposed Site Conditions - Area = 449,606 SF (10.32-AC)

Surface Conditions & Soils:
50.0% PaC, Hyrdologic Soil Group (HSG) A
50.0% KnA, CfB Hydrologic Soil Group (HSG) C

Runoff Curve Number = 30, Brush/Weeds/Grass, HSG A Soils
Runoff Curve Number = 65, Brush/Weeds/Grass, HSG C Soils
Runoff Curve Number = 98, Paved Parking and Roofs

Overland Stormwater Runoff - Longest Flowpath = 923 lf +/-
Sheet Flow, Dense Grass - 100 lf @ S = 1.0% avg.
Shallow Concentrated Flow, Unpaved - 823 lf @ S = 1.8% avg.

To Design Point 1 - (DP 1)

PROPOSED SUBCATCHMENT (2026)
REFERENCE HYDROCAD (HYDRAULIC & HYDROLOGIC) MODELING RESULTS PRESENTED WITH THESE PLANS

REVISIONS

No.	Date	SYM.	Description

PROPOSED (2026)
HYDRAULIC AND HYDROLOGIC SUBCATCHMENT WORKSHEET

PINNEY GRAVEL SITE EXPANSION
PERUVILLE RD & SCOFIELD RD
(T) LANSING, NY

O'TOOLES GRAVEL
(T) LANSING, LANSING, NY

STATE OF NEW YORK
TIMOTHY C. BUHL
LICENSED PROFESSIONAL ENGINEER

TIMOTHY C. BUHL, P.E.
GOODRICH HILL ROAD, LOCKE N.Y. 13092 607 423-1919

DATE: SEPT 18, 2026
SCALE: 1" = 50'
DRAWN: SDG
JOB:
SHEET: S-2

GENERAL NOTES

NYS STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL, NOVEMBER 2016

1. PHYSICALLY MARK LIMITS OF LAND DISTURBANCE ON THE SITE WITH TAPE, SIGNS, OR ORANGE CONSTRUCTION FENCE, SO THAT WORKERS CAN SEE THE AREAS TO BE PROTECTED.

2. DIVERT OFF-SITE RUNOFF FROM HIGHLY ERODIBLE SOILS AND STEEP SLOPES TO STABLE AREAS.

3. CLEAR ONLY WHAT IS REQUIRED FOR IMMEDIATE CONSTRUCTION ACTIVITY. LARGE PROJECTS SHOULD BE CLEARED AND GRADED AS CONSTRUCTION PROGRESSES. AREAS EXCEEDING TWO ACRES IN SIZE SHOULD NOT BE DISTURBED WITHOUT A SEQUENCING PLAN THAT REQUIRES PRACTICES TO BE INSTALLED AND THE SOIL STABILIZED, AS DISTURBANCE BEYOND THE TWO ACRES CONTINUES. MASS CLEARINGS AND GRADING OF ENTIRE SITE SHOULD BE AVOIDED.

4. RESTABILIZE DISTURBED AREAS AS SOON AS POSSIBLE AFTER CONSTRUCTION IS COMPLETED. ON SITES GREATER THAN TWO ACRES IN SIZE, WAITING UNTIL ALL DISTURBED AREAS ARE READY FOR SEEDING IS UNACCEPTABLE. FOURTEEN DAYS SHALL BE THE MAXIMUM EXPOSURE PERIOD. MAINTENANCE MUST BE PERFORMED AS NECESSARY TO ENSURE CONTINUED STABILIZATION. EXCEPT AS NOTED BELOW, ALL SITES SHALL BE SEEDED AND STABILIZED WITH EROSION CONTROL MATERIALS, SUCH AS STRAW MULCH, JUTE MESH, OR EXCELSIOR, INCLUDING AREAS WHERE CONSTRUCTION HAS BEEN SUSPENDED OR SECTIONS COMPLETED:

A. FOR ACTIVE CONSTRUCTION AREAS SUCH AS BORROW OR STOCKPILE AREAS, ROADWAY IMPROVEMENTS AND AREAS WITHIN 50 FT. OF A BUILDING UNDER CONSTRUCTION, A PERIMETER SEDIMENT CONTROL SYSTEM CONSISTING, FOR EXAMPLE, SILT FENCING, SHALL BE INSTALLED AND MAINTAINED TO CONTAIN SOIL. EXPOSED DISTURBED AREAS ADJACENT TO A CONVEYANCE THAT PROVIDES RAPID OFF-SITE DISCHARGE OF SEDIMENT, SUCH AS A CUT SLOPE AT AN ENTRANCE, SHALL BE COVERED WITH PLASTIC OR, GEOTEXTILE FABRIC TO PREVENT SOIL LOSS UNTIL IT CAN BE STABILIZED. STABILIZED CONSTRUCTION ENTRANCES WILL BE MAINTAINED TO CONTROL VEHICLE TRACKING MATERIAL OFF-SITE.

B. ON THE CUT SIDE OF ROADS, DITCHES SHALL BE STABILIZED IMMEDIATELY WITH ROCK RIP-RAP OR OTHER NON-ERODIBLE LINERS (EG. ROLLED EROSION PRODUCTS), OR WHERE APPROPRIATE, VEGETATIVE MEASURES SUCH AS SOD.

C. PERMANENT SEEDING SHOULD OPTIMALLY BE UNDERTAKEN IN THE SPRING FROM MARCH THROUGH MAY, AND IN LATE SUMMER AND EARLY FALL FROM SEPTEMBER TO OCTOBER 15. DURING THE PEAK SUMMER MONTHS AND IN THE FALL AFTER OCTOBER 15, WHEN SEEDING IS FOUND TO BE IMPRACTICABLE, AN APPROPRIATE TEMPORARY MULCH SHALL BE APPLIED. PERMANENT SEEDING MAY BE UNDERTAKEN DURING THE SUMMER IF PLANS PROVIDE FOR ADEQUATE WATERING. TEMPORARY SEEDING WITH RYE CAN BE UTILIZED THROUGH NOVEMBER.

D. ALL SLOPES STEEPER THAN 3:1 (H:V), OR 33.3%, AS WELL AS PERIMETER DIKES, SEDIMENT BASINS AND TRAPS, AND EMBANKMENTS SHALL, UPON COMPLETION, BE IMMEDIATELY STABILIZED WITH SOD, SEED AND ANCHORED STRAW MULCH, OR OTHER APPROVED STABILIZATION MEASURES. AREAS OUTSIDE OF THE PERIMETER SEDIMENT CONTROL SYSTEM SHALL NOT BE DISTURBED. MAINTENANCE SHALL BE PERFORMED AS NECESSARY TO ENSURE CONTINUED STABILIZATION.

E. TEMPORARY SEDIMENT TRAPPING DEVICES SHALL NOT BE REMOVED UNTIL PERMANENT STABILIZATION IS ESTABLISHED IN ALL CONTIRBUTORY DRAINAGE AREAS. SIMILARLY, STABILIZATION SHALL BE ESTABLISHED PRIOR TO CONVERTING SEDIMENT TRAPS/BASINS INTO PERMANENT (POST-CONSTRUCTION) STORMWATER MANAGEMENT PRACTICES.

5. IF TEMPORARY WORK ROADS OR HAUL ROADS CROSS STREAM CHANNELS, ADEQUATE WATERWAY OPENINGS SHALL BE CONSTRUCTED USING SPANS, CULVERTS, WASHED ROCK BACKFILL, OR OTHER ACCEPTABLE, CLEAN METHODS THAT WILL ENSURE THAT ROAD CONSTRUCTION AND THEIR USE DO NOT RESULT IN TURBIDITY AND SEDIMENT DOWNSTREAM. ALL CROSSING ACTIVITIES AND APPURTENANCES ON STREAMS REGULATED BY ARTICLE 15 OF THE ENVIRONMENTAL CONSERVATION LAW SHALL BE IN COMPLIANCE WITH A PERMIT ISSUED PURSUANT TO ARTICLE 15 OF THE ECL.

6. MAKE SURE THAT ALL CONTRACTORS AND SUB-CONTRACTORS UNDERSTAND THE ESC PLAN AND SIGN THE CERTIFICATION STATEMENT REQUIRED BY NYSDEC GP.

7. DESIGNATE RESPONSIBLITY FOR THE ESC PLAN TO ONE INDIVIDUAL. THIS PERSON SHALL BE NAMED IN THE NOTICE OF INTENT.

8. AN ESC PLAN INSPECTION PROGRAM MEETING THE REQUIREMENTS OF THE NYSDEC GP, IS NECESSARY TO DETERMINE WHEN ESC MEASURES NEED MAINTENANCE OR REPAIR. PAY PARTICULAR ATTENTION TO INSPECTIONS REQUIRED AFTER RAINFALL. THE INSPECTION PROGRAM SHALL ALSO STATE THE COMPLETION OF IDENTIFIED REPAIR AND MAINTENANCE ITEMS.

9. IF CONSTRUCTION ACTIVITIES CONTINUE DURING WINTER, ACCESS POINTS SHOULD BE ENLARGED AND STABILIZED TO PROVIDE FOR SNOW STOCKPILING. IN ADDITION SNOW MANAGEMENT PLAN SHOULD BE PREPARED WITH ADEQUATE STORAGE AND CONTROL OF MELTWATER. A MINIMUM 25 FOOT BUFFER SHALL BE MAINTAINED FROM PERIMETER CONTROLS SUCH AS SILT FENCING. KEEP DRAINAGE STRUCTURES OPEN AND FREE OF SNOW AND ICE DAMS. INSPECTION AND MAINTENANCE ARE NECESSARY TO ENSURE THE FUNCTION OF THESE PRACTICES DURING RUNOFF EVENTS.

LAND GRADING SPECIFICATIONS

1. ALL FILLS SHALL BE COMPACTED AS REQUIRED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS. FILL INTENDED TO SUPPORT BUILDINGS, STRUCTURES AND CONDUITS, ETC, SHALL BE COMPACTED IN ACCORDANCE WITH LOCAL REQUIREMENTS OR CODES.

2. ALL FILL TO BE PLACED AND COMPACTED IN LAYERS NOT TO EXCEED 9 INCHES IN THICKNESS.

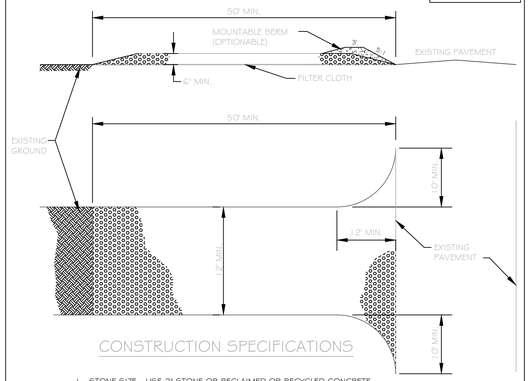
3. FILL MATERIAL SHALL BE FREE OF FROZEN PARTICLES, BRUSH, ROOTS, SOD, OR OTHER FOREIGN OR OTHER OBJECTIONABLE MATERIALS THAT WOULD INTERFERE WITH OR PREVENT CONSTRUCTION OF SATISFACTORY FILLS.

4. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED IN ACCORDANCE WITH THE STANDARD AND SPECIFICATION FOR SUBSURFACE DRAIN OR OTHER APPROVED METHOD.

5. STOCKPILES, BORROW AREAS AND SPOIL AREAS SHALL BE SHOWN ON THE PLANS AND SHALL BE SUBJECT TO THE PROVISIONS OF THIS STANDARD AND SPECIFICATION.

STABILIZED CONSTRUCTION ENTRANCE

SYMBOL: SCE



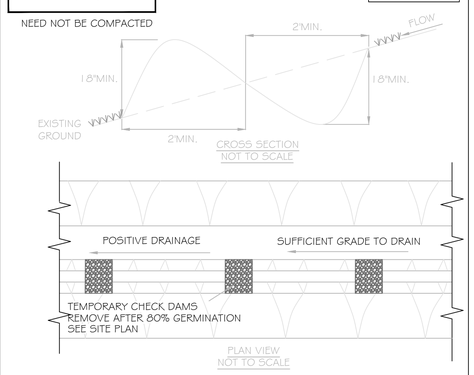
CONSTRUCTION SPECIFICATIONS

1. STONE SIZE - USE 2" STONE OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - NOT LESS THAN 50 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MIN. LENGTH WOULD APPLY).
3. THICKNESS - NOT LESS THAN SIX (6) INCHES.
4. WIDTH - TWELVE (12) FOOT MIN. BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS. TWENTY-FOUR (24) FOOT IF SINGLE ENTRANCE TO SITE.
5. FILTER CLOTH - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5:1 SLOPES WILL BE PERMITTED.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACTED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPINGS DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.
10. TEMPORARY CONSTRUCTION ENTRANCES, EXITS AND TEMPORARY ACCESS SHALL BE SUBJECT TO THE APPROVAL OF THE APPROPRIATE AUTHORITIES.

GRASSED/VEGETATED SWALE

SYMBOL: G

NEED NOT BE COMPACTED



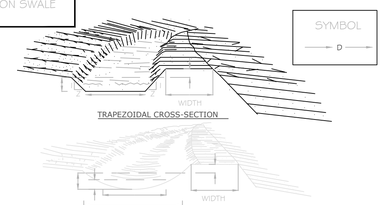
CONSTRUCTION SPECIFICATIONS

GRASSED/VEGETATED SWALE

1. DRAINAGE AREA SHALL BE LESS THAN 5 ACRES.
2. HEIGHT SHALL BE NO LESS THAN 18-INCHES FROM BOTTOM OF SWALE TO TOP OF DIKE EVENLY DIVIDED BETWEEN DIKE HEIGHT AND SWALE DEPTH.
3. BOTTOM WIDTH OF DIKE SHALL BE NO LESS THAN 2-FEET.
4. WIDTH OF SWALE SHALL BE NO LESS THAN 2-FEET.
5. SWALE SHALL HAVE POSITIVE DRAINAGE TO AN ADEQUATELY STABILIZED OUTLET TO AN UNDISTURBED AREA. MAXIMUM ALLOWABLE GRADE NOT TO EXCEED 8%.
6. THE DISTURBED AREA OF THE DIKE AND SWALE SHALL BE STABILIZED WITHIN 7 DAYS OF INSTALLATION, IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR TEMPORARY SWALES.
7. DIVERTED RUNOFF FROM A DISTURBED OR EXPOSED UPLAND AREA SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE SUCH AS A TRAP, BASIN, OR TO AN AREA PROTECTED BY ANY OF THESE PRACTICES
8. PERIODIC INSPECTION AND REQUIRED MAINTENANCE MUST BE PROVIDED AFTER EACH RAIN EVENT.

DIVERSION SWALE

SYMBOL: D

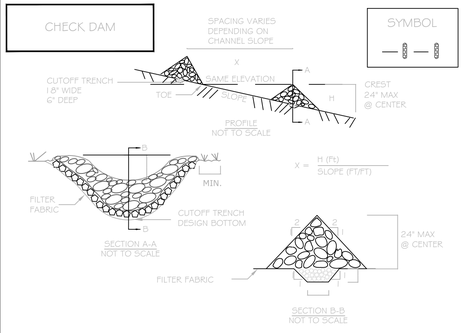


CONSTRUCTION SPECIFICATIONS

1. ALL TREES, BRUSH, STUMPS, OBSTRUCTIONS, AND OTHER OBJECTIONABLE MATERIAL SHALL BE REMOVED AND DISPOSED OF SO AS NOT TO INTERFERE WITH THE PROPER FUNCTIONING OF THE DIVERSION.
2. THE DIVERSION SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE, AND CROSS SECTION AS REQUIRED TO MEET THE CRITERIA SPECIFIED HEREIN, AND BE FREE OF BANK PROJECTIONS OR OTHER IRREGULARITIES WHICH WILL IMPEDE NORMAL FLOW.
3. FILLS SHALL BE COMPACTED AS NEEDED TO PREVENT UNEQUAL SETTLEMENT THAT WOULD CAUSE DAMAGE IN THE COMPLETE DIVERSION.
4. ALL EARTH REMOVED AND NOT NEEDED IN CONSTRUCTION SHALL BE SPREAD OR DISPOSED OF SO THAT IT WILL NOT INTERFERE WITH THE FUNCTIONING OF THE DIVERSION.
5. STABILIZATION SHALL BE DONE ACCORDING TO THE APPROPRIATE STANDARD AND SPECIFICATIONS FOR VEGETATIVE PRACTICES.
   A. FOR DESIGN VELOCITIES OF LESS THAN 3.5 FT. PER. SEC., SEEDING AND MULCHING MAY BE USED FOR THE ESTABLISHMENT OF THE VEGETATION. IT IS RECOMMENDED THAT, WHEN CONDITIONS PERMIT, TEMPORARY DIVERSIONS OR OTHER MEANS SHOULD BE USED TO PREVENT WATER FROM ENTERING THE DIVERSION DURING THE ESTABLISHMENT OF THE VEGETATION.
   B. FOR DESIGN VELOCITIES OF MORE THAN 3.5 FT. PER. SEC., THE DIVERSION SHALL BE STABILIZED WITH SOD, WITH SEEDING PROTECTED BY JUTE OR EXCELSIOR MATTING OR WITH SEEDING AND MULCHING INCLUDING TEMPORARY DIVERSION OF THE WATER UNTIL THE VEGETATION IS ESTABLISHED.

CHECK DAM

SYMBOL: — S —



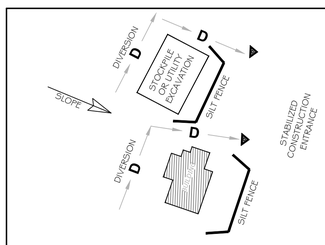
CONSTRUCTION SPECIFICATIONS

1. STONE WILL BE PLACED ON A FILTER FABRIC FOUNDATION TO THE LINES, GRADES AND LOCATIONS SHOWN IN THE PLAN.
2. SET SPACING OF CHECK DAMS TO ASSUME THAT THE ELEVATIONS OF THE CREST OF THE DOWNSTREAM DAM IS AT THE SAME ELEVATION OF THE TOE OF THE UPSTREAM DAM.
3. EXTEND THE STONE A MINIMUM OF 1.5 FEET BEYOND THE DITCH BANKS TO PREVENT CUTTING AROUND THE DAM.
4. PROTECT THE CHANNEL DOWNSTREAM OF THE LOWEST CHECK DAM FROM SCOUR AND EROSION WITH STONE OR LINER AS APPROPRIATE.
5. ENSURE THAT CHANNEL APPURTENANCES SUCH AS CULVERT ENTRANCES BELOW CHECK DAMS ARE NOT SUBJECT TO DAMAGE OR BLOCKAGE FROM DISPLACED STONE.

MAXIMUM DRAINAGE AREA 2 ACRES.

TOP SOILING SPECIFICATIONS

1. PRESERVE EXISTING TOPSOIL IN PLACE WHERE POSSIBLE, THEREBY REDUCING THE NEED FOR ADDED TOPSOIL.
2. AS NEEDED, INSTALL EROSION CONTROL PRACTICES SUCH AS DIVERSIONS, CHANNELS, SEDIMENT TRAPS, AND STABILIZING MEASURES, OR MAINTAIN IF ALREADY INSTALLED.
3. COMPLETE ROUGH GRADING AND FINAL GRADE, ALLOWING FOR DEPTH OF TOPSOIL TO BE ADDED.
4. SCARIFY ALL COMPACT, SLOWLY PERMEABLE, MEDIUM AND FINE TEXTURED SUBSOIL AREAS. SCARIFY AT APPROXIMATELY RIGHT ANGLES TO THE SLOPE DIRECTION IN SOIL AREAS THAT ARE STEEPER THAN 5%. AREAS THAT HAVE BEEN OVERLY COMPACTED SHALL BE DECOMPACTED TO A MINIMUM DEPTH OF 12-INCHES WITH A DEEP RIPPER OR CHISEL PLOW PRIOR TO TOPSOILING.
5. REMOVE REFUSE, WOODY PLANT PARTS, STONES OVER 3-INCHES IN DIAMETER, AND OTHER LITTER.
6. TOPSOIL SHALL HAVE AT LEAST 6% BY WEIGHT OF FINE TEXTURED STABLE ORGANIC MATERIAL, AND NO GREATER THAN 20%. MUCK SOIL SHALL NOT BE CONSIDERED TOPSOIL.
7. TOPSOIL SHALL HAVE NOT LESS THAN 20% FINE TEXTURED MATERIAL (PASSING THE NO. 200 SIEVE) AND NOT MORE THAN 15% CLAY.
8. TOPSOIL TREATED WITH SOIL STERILANTS OR HERBICIDES SHALL BE SO IDENTIFIED TO THE PURCHASER.
9. TOPSOIL SHALL BE RELATIVELY FREE OF STONES OVER 1 1/2-INCHES IN DIAMETER, TRASH, NOXIOUS WEEDS SUCH AS NUT SEDGE AND QUACKGRASS, AND WILL HAVE LESS THAN 10% GRAVEL.
10. TOPSOIL CONTAINING SOLUBLE SALTS GREATER THAN 500 PARTS PER MILLION SHALL NOT BE USED.
11. TOPSOIL SHALL BE DISTRIBUTED TO A UNIFORM DEPTH OVER THE AREA. IT SHALL NOT BE PLACED WHEN IT IS PARTIALLY FROZEN, MUDDY, OR ON FROZEN SLOPES OR OVER ICE, SNOW, OR STANDING WATER PUDDLES.
12. TOPSOIL PLACED AND GRADED ON SLOPES STEEPER THAN 5% SHALL BE PROMPTLY FERTILIZED, SEEDED, MULCHED, AND STABILIZED BY "TRACKING" WITH SUITABLE EQUIPMENT.



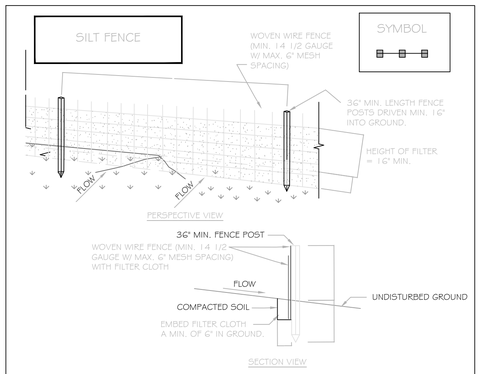
SEDIMENT & EROSION CONTROL MEASURES
TYPICAL
N.T.S.

MATERIAL STOCKPILING

1. FOR RESIDENTIAL CONSTRUCTION, ONE SPECIFIC AREA ON EACH LOT SHALL BE DESIGNATED FOR TEMPORARY STOCKPILING OF TOPSOIL AND ALL OTHER CONSTRUCTION MATERIALS CONTAINING FINES THAT CAN BE MOVED BY RUNOFF. THIS AREA SHALL BE AS SMALL AS PRACTICABLE
2. STOCK PILES WILL HAVE DOWN HILL SIDE PERIMETER SILT FENCING PROTECTION. REFERENCE SILT FENCE DETAILS THESE PLANS.
3. STOCK PILES WILL BE SEEDED AND MULCHED IF ANTICPATED TO BE LEFT IN PLACE 14-DAYS OR MORE. REFERENCE DETAIL SHEET NOTES AND SPECIFICATIONS THIS PLANT SET AND STORMWATER POLLUTION PREVENTION PLAN (SWPPP) ACCOMPANYING THIS PLAN SET.
4. SILT FENCE AND OTHER TEMPORARY CONTROL MEASURES SHALL BE IN PLACE BEFORE STOCKPILING OF MATERIALS.

SILT FENCE

SYMBOL



CONSTRUCTION SPECIFICATIONS

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES OR STAPLES. POSTS SHALL BE STEEL EITHER "T" OR "U" TYPE OR HARDWOOD.
2. FILTER CLOTH TO BE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 12 1/2 GAUGE, 6" MAXIMUM MESH OPENING.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVER-LAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
4. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE.

CONCRETE WASHOUT

CONSTRUCTION SPECIFICATIONS

DESIGN CRITERIA

1. THE WASHOUT FACILITY SHOULD BE SIZED TO CONTAIN SOLIDS, WASHWATER AND RAINFALL AND SIZED TO ALLOW FOR THE EVAPORATION OF THE WASHWATER AND RAINFALL.
2. WASHWATER SHALL BE ESTIMATED AT 7 GALLONS PER CHUTE AND 50 GALLONS PER HOPPER OF CONCRETE PUMP TRUCK AND/OR DISCHARGING DRUM.
3. THE MINIMUM SIZE SHALL BE 8' X 8' AT THE BOTTOM AND 2' DEEP. IF EXCAVATED, THE SIDE SLOPES SHALL BNE 2 HORIZONTAL : 1 VERTICAL.
4. LOCATE THE FACILITY A MINIMUM OF 100' FROM DRAINAGE SWALES, STORM DRAIN INLETS, WETALANDS, STREAMS AND OTHER SURFACE WATERS. PREVENT SURFACE WATER FROM ENTERING THE STRUCTURE EXCEPT FOR THE ACCESS ROAD.
5. PROVIDE APPROPRIATE ACCESS WITH A GRAVEL ACCESS ROAD SLOPED DOWN TO STRUCTURE.
6. SIGNS SHALL BE PLACED TO DIRECT DRIVERS TO THE FACILITY AFTER THEIR LOAD IS DISCHARGED.

THE LINER SHALL BE PLASTIC SHEETING WITH A MIN. THICKNESS OF 10 MILS WITH NO HOLES OR TEARS. ANCHOR THE LINER TO THE TOP OF THE PIT WITH AN EARTHEN BERM, SAND BAGS, STONE, ETC.

MAINTENANCE

1. INSPECT ALL FACILITIES DAILY. REPAIR ALL DAMAGED OR LEAKING WASHOUT STATIONS IMMEDIATELY.
2. PUMP OUT ANY ACCUMULATED RAINWATER OVER HARDENED CONCRETE.
3. ACCUMULATED HARDENED MATERIAL SHALL BE REMOVED WHEN 75% OF THE STORAGE CAPACITY OF THE STRUCTURE IS FILLED.
4. DISPOSE OF HARDENED MATERIAL OFF-SITE IN A C/D LANDFILL. ON-SITE DISPOSAL IS ACCEPTABLE IF IT HAS BEEN APPORVED AND ACCEPTED AS PART OF THE SWPPP.
5. REPLACE THE PLASTIC LINER WITH EACH CLEANING OF WASHOUT FACILITY.
6. INSPECT THE PROJECT SITE FREQUENTLY TO ENSURE THAT NO CONCRETE DISCHARGES ARE TAKING PLACE IN NON-DESIGNATED AREAS.

EXCERPTS FROM NYS STANDARDS AND SPECIFICATIONS FOR EROSION AND SEDIMENT CONTROL
NOVEMBER 2016

REVISIONS

No.	Date	SYM.	Description

EROSION AND SEDIMENT CONTROL DETAILS

O'TOOLES GRAVEL
(T) LANSING, LANSING, NY

PINNEY GRAVEL SITE EXPANSION
PERUVILLE RD & SCOFIELD RD
(T) LANSING, NY

STATE OF NEW YORK — TIMOTHY C. BUHL — LICENSED PROFESSIONAL ENGINEER

TIMOTHY C. BUHL, P.E.
GOODRICH HILL ROAD, LOCKE N.Y. 13092 607 423-1919

DATE: SEPT 18, 2026
SCALE: N.T.S.
DRAWN: SDG
JOB:
SHEET: S-3

Storm Water Pollution Prevention Plan
for

O'tooles Contractor Yard

Town of Lansing
Lansing, New York

September 2026

Prepared by:

Timothy C. Buhl, PE
NYSPE#: 053134

For:

Scott Pinney
70 Oak Hill
Moravia, NY 13118

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ATTACHMENTS

Attachment A: Notice of Intent, (NOI) and MS4 Acceptance Form (if applicable)

Attachment B: Notice of Termination, (NOT)

Attachment C: Certification Forms

Attachment D: State Historic Preservation Mapping

Attachment E: Environmental Mapping

Attachment F: Inspection Report (Sample Form)

Attachment G: Record of Stabilization and Construction Activity Dates

Attachment H: Vegetative and Structural Measures for Erosion and Sediment Control *New York State Standards & Specifications for Erosion and Sediment Control*

Attachment I: NYSDEC Stormwater Controls Construction Checklist

Attachment J: NYSDEC Controls Operation & Maintenance Check List

Attachment K: Stormwater Management Summary

1.0 EXECUTIVE SUMMARY

The engineer, owner and all contractors involved with construction activity that disturb site soil or who implement pollutant control measures identified in the Storm Water Pollution Prevention Plan (SWPPP) are responsible for complying with the requirements set forth in the New York State Department of Environmental Conservations SPDES General Permit from Construction Activity Permit No. GP-0-25-001 and any local and/or state governing agencies having jurisdiction with regards to erosion and sediment control. The requirements of the SPDES Permit are as follows:

A. **Owner:**

Scott Pinney
70 Oak Hill Road
Moravia, NY 13118
(607) 227-9698

Project Site:

Tax Parcel #30.-1-28.212
Peruville and Scofield Roads
Lansing, NY 14882

This contractor yard is subject to the requirements of a regulated, traditional land use control MS4. Therefore, the following requirements must be met before continued construction activity is authorized to discharge stormwater.

1. An owner or operator that is subject to the requirements of a regulated, traditional land use control MS4, must have its SWPPP reviewed and accepted by the regulated MS4 prior to submitting the NOI to the Department. The owner or operator shall then have the "MS4 SWPPP Acceptance Form," as provided in Attachment A, authorized by the MS4 and submitted to the Department along with the NOI for approval.

2. Complete the Notice of Intent (NOI) provided in Attachment A and forward to the recipients following this section. Five (5) business days from the date the Department receives a complete electronic version of the NOI (eNOI) for construction activities with a SWPPP that has been preopared in conformance with the design criteria in the technical standard referenced in Part III.B.1. of the SPDES General Permit and the performance cirteria in the technical standard referenced in Parts III.B., 2 or 3 of the SPDES general permit, for construction activities that require post-construction stormwater management practices pursuant to Part III.C. of the SPDES General Permit; or

3. Sixty (60) business days from the date the Department receives a complete NOI (electronic or paper version) for construction activities with a SWPPP that has not been prepared in conformance with the design criteria in technical standard referenced in Part III.B.1. or, for construction activities that require post-construction stormwater management practices pursuant to Part III.C., the performance criteria in the technical standard referenced in Parts III.B., 2 or 3, or;

4. Ten (10) business days from the date the Department receives a complete paper version of the NOI for construction activities with a SWPPP that has not been prepared in conformance with the design criteria in technical standard referenced in Part III.B.1. or, for construction activities that require post-construction stormwater.

NYS Department of Environmental Conservation (DEC)
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

Town of Lansing Town Hall
29 Auburn Road
Lansing, New York 14882
(607) 533-4142

All notifications shall be sent via certified mail with return receipt. Copies of mailing receipts shall be kept on record at the project site with the SWPPP and shall be considered part of the contract documents.

The Town's representative shall be included on all correspondence involving changes to the operation or SWPPP. Copies of the SWPPP must be provided to the Town of Lansing once all signatures and attachments are complete.

B. A copy of the General Construction Permit (GP-0-25-001), Notice of Intent (NOI), NOI acknowledgement letter received by the DEC, and MS4 Acceptance Form (if applicable), shall be posted in a prominent place for public viewing at the project site.

C. A complete copy of the SWPPP, NOI, NOI Acknowledgement letter, MS4 Acceptance form (if applicable), including copies of all inspection reports, plan revisions, etc., must be retained at the project site at all times during working hours and kept as part of the permanent project records for a duration of no less than five (5) years following submission of the Notice of Termination (NOT).

D. The site development contractors must provide names and addresses of all subcontractors working on the project who will be involved with the major construction activities that will result in soil disturbance. The Owner shall ensure that each contracting firm identifies one trained individual who will be responsible for implementation of the SWPPP. The owner shall also ensure that at least one trained individual is on site daily when soil disturbance activities are being performed. This information must be retained as part of the SWPPP.

E. The site development contractor(s) and all subcontractors involved with the major work yard activities that disturb site soil must sign a copy of the appropriate certification statement included in Attachment C along with the identity of the appropriate trained individual as described in paragraph D of this section.

F. Regular inspections must be made to determine effectiveness of the SWPPP. It would be modified as needed to prevent pollutants from discharging from the site. The inspector must be a person familiar with the site, the nature of the major construction activities, and qualified to evaluate both overall system performance and individual component performance. Additionally, the inspector must either be someone empowered to implement modifications to the SWPPP and the pollutant control devices, if needed, in order to increase effectiveness to an acceptable level, or someone with the authority to cause such events to happen.

G. This SWPPP must be updated each time there is a significant modification to the pollutant prevention system or a change of contractors working on the project who may disturb site soil. The site development contractor must notify the governing agency(s) as soon as these modifications are implemented.

H. Discharge of oil or other hazardous substances into the storm water is subject to reporting and cleanup requirements. Refer to Part I.B.1.d of the SPDES General Permit for additional information. Copies of the SPDES General Permit and the Notice of Intent Forms may be found on-line.

I. **Notice of Termination (NOT)** - Once the site reaches final stabilization upon completion or closure of the operation, Scott Pinney, as Owner, may terminate coverage of SPDES permit coverage by submitting a Notice of Termination, Form (included in Attachment B), when one or more of the following conditions are met:

1. Total Project Completion - All construction activity identified in the SWPPP has been completed; and all disturbance have achieved final

stabilization and all temporary, structural erosion and sediment control measures have been removed, and all post-construction stormwater management practices have been constructed in conformance with the SWPPP and are operational.

2. Planned shutdown with partial project completion – All soil disturbance activities have ceased; and all areas disturbed as of the project shut down date have achieved final stabilization, and all temporary, structural erosion and sediment control measures have been removed, and all post-construction stormwater management practices have been constructed in conformance with the SWPPP and are operational.

3. A new owner or operator has obtained coverage under the General SPDES Permit in accordance with Part II.E.

4. The owner or operator obtains coverage under an alternative SPDES General Permit or individual SPDES permit.

For construction activities meeting 1.0.I above, the owner or operator shall have a qualified inspector perform a final site inspection prior to submitting the NOT. The qualified inspector shall, by signing the "final stabilization" and "Post-Construction Stormwater Management Practice certification statements on the NOT, certify that all requirements of the SPDES General Permit have been met. Further, construction activities subject to the requirements of a regulated, transitional land use control MS4, must have the MS4 sign the "MS4 acceptance" statement on the NOT, indicating that the project has been constructed in accordance SPDES General Permit requirements.

Lastly, for construction activities that require post-construction stormwater management practices, the owner or operator must, prior to submitting the NOT, ensure one of the following:

1. The post-construction stormwater management practices and any right of ways needed to maintain such practices have been deeded to the municipality in which the practice is located.

2. An executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practices.

3. If the post-constructed management practices are privately owned, the owner or operator must have a mechanism in place that requires operation and maintenance of the practices in accordance with the

operation and maintenance plan, such as a deed covenant in the owner or operator's deed of record.

4. If the post-constructed practices are owned by a public or private institution, government agency or authority, or public utility, the owner or operator has policy and procedure in place that ensures operation and maintenance of the practices in accordance with the operation and maintenance plan.

J. This SWPPP intends to control water-borne and liquid pollutant discharges by some combination of interception, filtration, and containment. The general contractor and subcontractors implementing this SWPPP must remain alert to the need to periodically refine and update the SWPPP in order to accomplish the intended goals.

K. This SWPPP must be amended as necessary during the course of operations in order to keep it current with the pollutant control measures utilized at the site. Amending the SWPPP does not mean that it has to be reprinted. It is acceptable to add addenda, sketches, new sections, and/or revised drawings.

L. A record of the dates when major grading activities occur, when construction activities temporarily or permanently cease on a portion of the site, and when stabilization measures are initiated must be maintained until the NOT is filed. A log for keeping such records is included in Attachment G. A different form for the log may be substituted if it is found to be more useful.

2.0 INTRODUCTION

This SWPPP has been prepared for major activities associated with the ongoing operation of a contractor work yard in the Town of Lansing. The production originally started in 2011 which was allowed use by right through the Town. In 2016, a full site plan review process was conducted for a conceptual apartment complex located downslope from the facility which included an approved SWPPP. As part of the storm plan, the work yard was allowed continued use by right but several restrictions were placed on the property limiting the size and scope of the work zone while also requiring the installation of a stormwater management sump practice to provide runoff mitigation and attenuation. Because the apartment complex was never realized, the 2016 restrictions became null and void with the exception that the operation would now be required to carry its SWPPP.

The O'tooles Contractor Work Yard is located in the Town of Lansing, New York at Tax Parcel #30.-1-28.212 at the intersection of Peruville and Scofield Roads. The property sits within a drainage area of approximately 10.32-AC of which, the cumulative on-going land disturbance is approximately 4.93 acres. The entire site

is assumed to be impervious given the fact that it is hard packed dirt due to typical work yard activity. The original 2016 project called for a 1' sump to capture and treat on-going runoff from the operation. The modified plan adds an additional 1' of depth to the practice to meet attenuation requirements but the footprint largely remains the same.

Reference the Project Plans for the permanent stormwater management facilities planned. This SWPPP includes the elements necessary to comply with the SPDES General Permit for Stormwater Discharges GP-0-25-001 administered by the New York State Department of Environmental Protection, the U.S. Environmental Protection Agency (EPA) under the National Pollutant Discharge Elimination System (NPDES) program and all local governing agency requirements. This SWPPP must be implemented at the start of construction.

Construction phase pollutant sources anticipated at the site are disturbed (bare) soil, vehicle fuels and lubricants, chemicals associated with various stockpiled materials (asphalt), and general debris. Without adequate control there is the potential for each type of pollutant to be transported by storm water.

Aside from the commercial work site, an asphalt driveway apron, landscape screening, storage bunkers, and a hoop building are on the property. There are no utilities including water, sewer, or electric. Permanent stormwater management facilities are in place including one (1) dry sump. The pond will provide any water quality volume treatment and satisfy requirements for quantity attenuation necessary to control runoff to less than pre-developed conditions as required by the NYSDEC General SPDES Permit. Please see Attachment K for this information.

A. Purpose

The major goal of pollution prevention efforts during operations is to control the migration of soil and pollutants that originate on-site and prevent them from impacting surface waters and the environment. The purpose of this SWPPP is to provide guidelines for achieving that goal. A successful pollution prevention program also relies upon careful inspection and adjustments during the construction process in order to enhance its effectiveness.

B. Scope

This SWPPP must be implemented at all times while operations and soil disturbances are active on-site. It primarily addresses the impact of storm rainfall and runoff in areas of the ground surface disturbed during the work yard. This SWPPP will terminate when disturbed areas are stabilized, construction type activities covered herein have ceased, and a completed

Notice of Termination (NOT) is mailed to the governing agency requiring the NOT. See Section 1.0.I for specific NOT eligibility requirements.

Particular forms are included which are necessary for implementing the SWPPP.

The SPDES General Permit for Storm Water Discharges from Construction Activities prohibits most non-storm water discharges during the construction phase. Allowable non-storm water discharges that could occur during construction on this project, which would therefore be covered by the General Permit, include:

1. Discharges from fire fighting activities;

2. Fire hydrant flushing;

3. Waters to which cleansers or other components have not been added that are used to wash vehicles or control dust;

4. Routine external building washdown which does not use detergents;

5. Irrigation drainage;

6. Uncontaminated discharges from construction site de-watering operations;

7. External building wash down which does not use detergents;

8. Runoff from pavement wash down where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents have not been used;

9. Springs and uncontaminated groundwater; and

10. Foundation or footing drains where flows are not contaminated with process materials such as solvents.

The techniques described in this SWPPP focus on providing control of pollutant discharges with practical approaches that utilize readily available expertise, materials, and equipment.

The Owner/Developer referred to in this SWPPP is Scott Pinney who will be responsible for full development and build-out of the subject parcel.

3.0 PROJECT DESCRIPTION

Described below are the major construction activities that are subject to this SWPPP. The Owner shall not disturb greater than five (5) acres of soil at any one time without prior written authorization from the DEC, or, in areas under the jurisdiction of a regulated MS4, authorization by that municipality. They are presented in the order (or sequence) they are expected to begin, but each activity will not necessarily be completed before the next begins. Install erosion and sediment control measures as shown on Drainage, Sediment and Erosion Control Plans, down slope from construction activities that disturb site soil before disturbance of soil;

CONTRACTOR YARD – REQUIRED FOR ON-GOING OPERATIONS

A. Increase volume of existing dry pond (sump) by establishing another foot in depth with side slope of 4:1 and as shown on plan sheets S-1 and S-2.

Note: Sediment barriers such as silt fencing, proper seeding and mulching will be utilized as required to bind the down slope side of the pond and soil stockpiles shall be established as needed;

B. Remove any accumulated sedimentation from the pond as accumulations increase by at least 6"

4.0 RUNOFF REDUCTION VOLUME

This project follows guidelines set forth by the DEC for runoff reduction. Chapter 3 of the New York State Stormwater Management Design Manual requires a five step planning process to document compliance with required processes. However, as this is a contractor yard with operations that have already been in place for the past 15 years, much of this section is exempt from consideration.

Step 1 – Protect natural resources and utilize site hydrology

This planning step is designed to preserve area natural resources by protecting areas, avoiding sensitive locations, and minimizing grading and soil disturbances. There were no erodible soils, critical areas, wetlands, riparian buffer areas, or locally listed protected areas.

Another component of the planning process is an evaluation of all green infrastructure practices that might be acceptable for runoff reduction on site. This project will utilize filter strips.

The selection process is described as follows:

- Conservation of natural areas – Pre-development hydrology and water quality characteristics of undisturbed natural areas remains unaltered.
- Sheetflow to riparian buffers
- Vegetated open swales – Site runoff will be collected and directed to specific treatment practices using the site's existing slope to direct sheet flow.
- Tree planting/tree box
- Disconnection of rooftop runoff
- Stream daylighting for redevelopment projects
- Bioswale
- Green roof
- Stormwater planters
- Rain cistern
- Porous pavement

Step 2 – Determine Overall Water Quality Treatment Volume (WQv)

See Attachment K for the calculation summary.

Step 3 – Runoff reduction by applying green infrastructure technology and standard SMPs.

Runoff reduction was calculated as required. Flow is directed into a dry pond sump which acts as an infiltration practice. 100% of the site water quality volume is captured. As shown in Attachment K, minimum requirements for runoff reduction volume were met.

Step 4 – Provide standard practices to address remaining water quality volume

A dry pond captures 100% of the water quality volume.

Reference Attachment K for the overall treatment calculations.

Step 5 – Apply volume and peak rate control practices if still required

Peak rate control is met using one dry pond. The pond reduces runoff from the operation to less than pre-developed conditions. See modeling report output for further information.

5.0 STORM WATER POLLUTION PREVENTION MEASURES AND CONTROLS

Various erosion and sediment control measures have been incorporated into the design of the project, Reference Stormwater, Sediment and Erosion Control Plans accompanying this SWPPP. These measures will be implemented during operations to minimize soil erosion and to protect the character and integrity of downstream receiving waters. A single dry pond (sump) is used to control the quality and quantity of storm water runoff from the work yard site.

The site owner shall take all appropriate precautions to prevent soil erosion and discharge of sediment and other pollutants to receiving water bodies and wetlands. Specific measures are outlined in this plan. In general, disturbance areas shall be limited to the smallest practical areas at any given time, and the areas are to be reseeded as soon as possible. During construction the measures outlined in this document and shown on the plans are to be installed as described. Additional measures may be warranted or required by site and climatic conditions.

Specific erosion control measures, designed to minimize soil loss, and sediment control measures devised to retain eroded soil and prevent it from reaching water bodies or adjoining properties have been developed in accordance with the New *York State Stormwater Management Design Manual*, 2015, NYSDEC and *New York Standards & Specifications for Erosion and Sedimentation Control*, November 2016. Reference Attachment H for copy of *Vegetative and Structural, Measures for Erosion and Sediment Control, New York State Standards & Specifications for Erosion and Sedimentation Control*. (Vegetative; November 2016, Structural; August 2005)

A variety of storm water pollutant controls are recommended for this project. Some controls are intended to function temporarily and will be used as needed for pollutant control during the operations. These include sediment and erosion control measures as shown on the plans and permanent stormwater facilities including, a dry pond. For all disturbed areas, permanent stabilization will be accomplished by covering the disturbed soil with vegetation, pavement, or commercial structures.

A. Erosion and Sediment Controls

1. Soil Stabilization – The purpose of soil stabilization is to prevent soil from leaving the site. In the natural condition, soil is stabilized by

native vegetation. The primary technique to be used under this project for stabilizing site soil will be to provide a protective cover of turf grass, pavement, or building structure.

a. Temporary Seeding - Where land disturbance is necessary, temporary seeding with fast-germinating temporary seed and a protection of mulch must be used on areas which will be exposed for more than 14 days.

b. Permanent Seeding – All areas at final grade must be seeded and mulched within 7 days after completion of the major activity.

c. Structural Controls – The storm water will be managed on site utilizing proposed site grading and a dry. Their design is shown on the Project Site Stormwater Plan S-1 and S-2.

Final site stabilization is achieved when there is a uniform 80 percent density of permanent vegetation on all previously disturbed soil surfaces, exclusive of areas that have been paved.

B. Other Pollutant Controls

Control of sediments has been described previously. Other aspects of this SWPPP are listed below:

1. Dust Control – Construction traffic must enter and exit the site at the stabilized work yard/driveway entrance. The purpose is to trap dust and mud that would otherwise be carried off-site by construction traffic.

   Dust control must be provided by the owner, and in compliance with applicable local and state dust control regulations. After operations are complete, the site will be stabilized (as described elsewhere), which will reduce the potential for dust generation.

2. Solid Waste Disposal – No solid materials are allowed to be discharged from the site with storm water. All solid waste, including disposable materials incidental to the major work yard activities, must be collected and placed in containers. The containers will be emptied periodically by a contract trash disposal service and hauled away from the site.

   Substances that have the potential for polluting surface and/or groundwater must be controlled by whatever means necessary in order

to ensure that they do not discharge from the site. As an example, special care must be exercised during equipment fueling and servicing operations. If a spill occurs, it must be contained and disposed so that it will not flow from the site or enter groundwater, even if this requires removal, treatment, and disposal of soil. In this regard, potentially polluting substances should be handled in a manner consistent with the impact they represent.

3. Sanitary Facilities – There are no sanitary facilities on-site.

4. Water Source – There are no water sources provided on-site.

5. Long-Term Pollutant Controls – Storm water pollutant control measures installed during construction that will also provide benefits during operations, include one (1) dry pond. Those sediment barriers, such as check dams (if required), that do not interfere with normal operations and appear to provide long-term benefits can be left in place after once operations are completed. All silt fencing must be removed once the site has received proper stabilization.

C. Construction Phase "Best Management Practices"

During the construction phase, the general contractor will implement the following measures:

1. Permanent traffic corridors shall be established and "routes of convenience" shall be avoided;

2. Preservation of existing vegetation as much as possible. Following the completion or closure of work yard operations and activities in any portion of the site permanent vegetation shall be established an all exposed soils;

3. Site preparation activities shall be planned to minimize the area and duration of soil disruption;

4. Minimizing soil erosion and sedimentation by stabilization of disturbed areas and by removing sediment from site discharges;

5. Material resulting from any clearing and grubbing operation will be stockpiled up slope from adequate sedimentation controls.

6. The owner will designate areas for equipment, maintenance, and stockpiling. The areas will be protected by a temporary perimeter berm.

7. Use of detergents for large scale washing is prohibited (i.e., vehicles, buildings, pavement surfaces, etc.)

8. Chemicals, paints, solvents, fertilizers, and other toxic material must be stored in waterproof containers. Except during application, the contents must be kept in trucks or within storage facilities. Runoff containing such material must be collected, removed from the site, treated and disposed at an approved solid waste or chemical disposal facility.

6.0 LOCAL PLANS

In addition to this SWPPP, work yard activities associated with this project must comply with any guidelines set forth by local and state regulatory agencies. Reference Project Plans and the Stormwater Management Design Summary (Attachment K) prepared to meet Local and State requirements for post-development stormwater quantity & quality.

7.0 NYSHPO

A search was conducted on the New York State Parks, Recreation and Historic Preservation Office website to identify whether the subject parcel is listed under natural or historic places registration, or if the area resides within an archaeologically sensitive location. Attachment D, includes a "grey map" indicating that the property is not within a sensitive area.

8.0 ENVIRONMENTAL MAPPING

A search was conducted on the Tompkins County, New York State, and Federal Inventory websites to identify any areas with known wetlands, protected plants or animal species, or any significant environmental concerns that could be impacted by this project. No issues or concerns were noted. Please see Attachment E for screen prints of this review.

9.0 INSPECTIONS AND SYSTEM MAINTENANCE

Between the time this SWPPP is implemented and final site stabilization is achieved, all disturbed areas and pollutant controls must be inspected at least once every seven calendar days by a licensed professional or Qualified Inspector, as identified by the SPDES General Permit. The purpose of site inspections is to

assess performance of pollutant controls. The inspections will be conducted by an independent third party Qualified Inspector to be provided by the Owner using a form similar to the example provided in Attachment F. The Owner/Operator will also be required to arrange for a designated Trained Contractor (as defined by the SPDES General Permit) to be responsible for the management of this SWPPP during construction, while on-site. Based on these inspections, the Trained Contractor will decide whether it is necessary to modify this SWPPP, add or relocate sediment barriers, or whatever else may be needed in order to prevent pollutants from leaving the site via storm water runoff. The Trained Contractor has the duty to cause pollutant control measures to be repaired, modified, maintained, supplemented, or whatever else is necessary in order to achieve effective pollutant control.

Examples of particular items to evaluate during site inspections are listed below. This list is not intended to be comprehensive. During each inspection the inspector must evaluate overall pollutant control system performance as well as particular details of individual system components. Additional factors should be considered as appropriate to the circumstances.

A. Construction of stormwater facilities. Insure facilities are constructed substantially in accordance with the plans. (Also, Reference Attachment I for sample inspection checklist - NYSDEC Stormwater Construction Checklist):

B. Locations where vehicles enter and exit the site must be inspected for evidence of off-site sediment tracking. A stabilized construction entrance will be monitored where vehicles enter and exit. This entrance will be maintained or supplemented as necessary to prevent sediment from leaving the site on vehicles.

C. Sediment barriers must be inspected and, if necessary, they must be enlarged or cleaned in order to provide additional capacity. All material from behind sediment barriers will be stockpiled on the up slope side. Additional sediment barriers must be constructed as needed.

D. Inspections will evaluate disturbed areas and areas used for storing materials that are exposed to rainfall for evidence of, or the potential for, pollutants entering the drainage system. If necessary, the materials must be covered or original covers must be repaired or supplemented. Also, protective berms must be constructed, if needed, in order to contain runoff from material storage areas.

E. Grassed areas will be inspected to confirm that a healthy stand of grass is maintained. The site has achieved final stabilization once all areas are covered with building foundation or pavement, or have a stand of grass with

at least 80 percent density. The density of 80 percent or greater must be maintained to be considered as stabilized. Areas must be watered, fertilized, and reseeded as needed to achieve this goal.

F. All discharge points must be inspected to determine whether erosion control measures are effective in preventing significant impacts to receiving waters.

Based on inspection results, any modification necessary to increase effectiveness of this SWPPP to an acceptable level must be made within seven calendar days of the inspection. The inspection reports must be completed entirely and additional remarks should be included if needed to fully describe a situation. An important aspect of the inspection report is the description of additional measures that need to be taken to enhance plan effectiveness. The inspection report must identify whether the site was in compliance with the SWPPP at the time of inspection and specifically identify all incidents of non-compliance.

Inspection reports must be kept on file by the Trained Contractor as an integral part of this SWPPP for at least five years from the date of completion and filing of NOT for the project.

Ultimately, it is the responsibility of the site Trained Contractor to assure the adequacy of site pollutant discharge controls. Actual physical site conditions or contractor practices could make it necessary to install more structural controls than are shown on the plans. (For example, localized concentrations of runoff could make it necessary to install additional sediment barriers.) Assessing the need for additional controls and implementing them or adjusting existing controls will be a continuing aspect of this SWPPP until the site achieves final stabilization.

10.0 POST CONSTRUCTION INSPECTION, OPERATION AND MAINTENANCE PLAN

A. Maintenance Responsibility

Short and Long term maintenance responsibilities for the dry pond shall lie with the owner, Scott Pinney.

1. Copies of the SWPPP and details about the dry pond practice shall also be forwarded to the Town of Lansing for archival purposes.

B. Sediment & Debris Removal

Silt/sediment shall be removed from the dry pond when the accumulation exceeds 6 inches. The removed sediments shall be disposed in an acceptable manner (ie. Landfill)

C. Inspection & Periodic Maintenance

To ensure the continued operation and long term performance of the proposed stormwater management system(s), inspections shall be conducted periodically for the first few months following any inactivity of the contractor work yard and then on an annual basis. Site inspection should also be performed following major storm events (i.e., intense storms, thunder storms, cloud bursts, etc.). Items to check for include, but are not limited to the following: (Reference Attachment J for complete inspection checklist - NYSDEC Stormwater Operation, Maintenance and Management Inspection Checklists):

i) Embankment & Structural;

- Check basin embankments, outlets and spillways note cracks, bulges, animal burrows, differential settlement, damage to or fatigue of stormwater pipe, structures and permanent erosion control. Components of the system that require repair or replacement should be addressed immediately following identification. Check pipes, channels, grates, inlet structures and spillways to insure design capacity. Look for objects or accumulations of sediments and debris obstructing flow path.

ii) Vegetation;

- Preclude deep rooted woody plant growth on structure embankment by mowing at least once annually.

- Maintain a dense vigorous growth of grass cover. Spot seed, mulch and fertilize where necessary.

Attachment A:
Notice of Intent, (NOI) and
MS4 Acceptance Form (if applicable)

Construction General Permit (CGP) Electronic Notice of Intent (eNOI) GP-0-25-001

version 1.19

(Submission #: HQR-NMYQ-WXG2F, version 1)

Details

Originally Started By	Scott Gibson
Alternate Identifier	O'Tooles Contractor Yard—Region 7
Submission ID	HQR-NMYQ-WXG2F
Status	Draft

Form Input

Eligibility

Disturbance Threshold

1. Will the construction activity involve soil disturbances listed in Part I.A.1 of GP-0-25-001?
Yes

1.a. Will any runoff from the site enter a sewer system classified as a combined sewer?
No

1.b. Is this a remediation project being done under a Department approved work plan (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.) with a SWPPP which meets the substantive requirements of GP-0-25-001?
No

1.c. Is the construction activity related to a stormwater discharge that does not require a permit as described in 40 CFR 122.3(e), e.g. non-point source agriculture or silviculture activities?
No

Other SPDES Permits

2. Will the discharge from the construction activity meet all conditions listed in Part I.A.2 of GP-0-25-001?
Yes

Threatened and Endangered Species

3. Will the construction activity potentially adversely affect a species that is endangered or threatened per Part I.A.3.?
No

State Historic Preservation Act (SHPA)

4. Is the construction activity designated by the Commissioner of the Office of Parks, Recreation and Historic Preservation (OPRHP), pursuant to 9 NYCRR §§428.12 or 428.13 as exempt from the SHPA review (see Attachment 2 of the Letter of Resolution between NYSDEC and OPRHP, dated January 9, 2015)?
No

4.a. Will the construction activity:

a) occur within an archeologically sensitive area indicated on the sensitivity map, or

b) have the potential to affect a property that is listed or determined to be eligible for listing on the National or State Registers of Historic Places, or

c) include a new permanent building on the construction site within the following distances from a building, structure, or object that is more than 50 years old and OPRHP, a Historic Preservation Commission of a Certified Local Government, or a qualified preservation professional has determined is a historically/archeologically significant building, structure, or object:

- 1-5 acres of disturbance—20 feet
- 5-20 acres of disturbance—50 feet

- 20+ acres of disturbance—100 feet?

No

4.b. Is there documentation at the construction site demonstrating:

a) that the construction activity is not within an archeologically sensitive area indicated on the sensitivity map, and that the construction activity is not immediately adjacent to a property listed or determined to be eligible for listing on the National or State Registers of Historic Places, and

b) that there is no new permanent building to be built on the construction site within the following distances from a building, structure, or object that is more than 50 years old, or if there is such a new permanent building on the construction site within those parameters that OPRHP, a Historic Preservation Commission of a Certified Local Government, or a qualified preservation professional has determined that the building, structure, or object more than 50 years old is not historically/archeologically significant:

- 1-5 acres of disturbance – 20 feet
- 5-20 acres of disturbance – 50 feet
- 20+ acres of disturbance – 100 feet?

Yes

State Environmental Quality Review (SEQR)

5. Is the construction activity subject to SEQR (Part I.A.5.), or the equivalent environmental review from another NYS or federal agency (Part I.A.6.)?
Yes

5.a. Has the owner/operator obtained documentation that the project review pursuant to SEQR, or the equivalent, has been satisfied per Part I.A.5. or I.A.6. of GP-0-25-001?
Yes

Uniform Procedures Act (UPA) Permits

6. Has the owner/operator obtained all necessary UPA permits from NYSDEC, or the equivalent from another NYS or federal agency per Part I.A.7.a. of GP-0-25-001? Select "Yes" if no UPA permits, or the equivalent, are required for this construction activity.
Yes

Steep Slope

7. Is the construction activity within the watershed of surface waters of the State classified as AA or AA-S identified utilizing the Stormwater Interactive Map on NYSDEC's website?
No

Owner/Operator Information

8. Owner/Operator Name
Scott Pinney

9. Owner/Operator Contact Person Information

First and Last Name	Phone	E-mail
Scott Pinney	607-227-9698	alexcolepave1@gmail.com

10. Owner/Operator Mailing Address

70 Oak Hill Road
Moravia, NY 13118
USA

11. Is the billing contact different from the Owner/Operator Contact?
No

12. What type of organization is the owner/operator?
Individual

Site Information

13. Project/Site Name
O'Tooles Contractor Yard

14. Site Address
Corner of Peruville and Scofield Roads
Lansing, NY 14882
Tompkins

DEC Region
7

15. Site Latitude & Longitude
42.5403700927705,-76.45479573463871

Project Details

16. This eNOI submission is for:
A construction activity not part of a common plan of development or sale in accordance with Part I.D.1.a.

17. Does the project type fall under Table 1 or Table 2 of Appendix B of GP-0-25-001? If any portion of the construction activity falls under Table 2, regardless of the size of the disturbance, select "Table 2".
Table 2

18. Consistent with Part III.B.1.c.i. of GP-0-25-001, provide a concise overview of the project. Describe existing and proposed conditions, and include any other relevant information.
A contractor work yard that has been in operation since 2011. It had consistently received "allowed use by Right" by the Town of Lansing but now requires a Full SWPPP. Nothing will change from the original concept other than an improvement to an existing stormwater practice.

Enter the total project site acreage, the acreage to be disturbed, and the future impervious area (acreage) within the disturbed area, rounded to the nearest tenth of an acre.

19. Total Site Area (acres)
10.3

20. Total Area to be Disturbed (acres)
4.9

21. Existing Impervious Area to be Disturbed (acres)
4.9

22. Future Impervious Area Within Disturbed Area (acres)
0.0

Nature of the project:
Redevelopment with no increase in impervious area

23. Do you plan to disturb more than 5 acres of soil at any one time?
No

---

24. Indicate the percentage (%) of each Hydrologic Soil Group(HSG) at the site.

A (%)
50

B (%)
0

C (%)
50

D (%)
0

25. Enter the planned start and end dates of the disturbance activities.

Start Date
06/01/2026

End Date
06/01/2030

26. Identify the nearest surface waterbody(ies) to which construction site runoff will discharge.
18-mile trib/The Gulf trib and tribs - 0301-0058

27. Type of waterbody identified in question 26?
Stream/Creek Off Site

28. Has the surface waterbody in question 26 been identified as a 303(d) segment in Appendix D of GP-0-25-001?
No

29. Is this project located in one of the Watersheds identified in Appendix C of GP-0-25-001?
No

30. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area?
No

31. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)?
Yes

31.a. What is the name of the municipality/entity that owns the separate storm sewer system? If the separate sewer system is owned by an MS4 Operator, enter the MS4 Operator name.
Town of Lansing

32. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law?
No

33. Is this property owned by a state authority, state agency, federal government or local government?
No

Required SWPPP Components

General SWPPP Requirements

34. Has a SWPPP been developed in conformance with the requirements in Part III. of GP-0-25-001?
Yes

35. Does the SWPPP demonstrate consideration of the future physical risks due to climate change pursuant to the CRRA, 6 NYCRR Part 490, and associated guidance per Part III.A.2. of GP-0-25-001?
Yes

36. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)?
Yes

37. Which version of the NYS Stormwater Management Design Manual was used to develop the SWPPP?
2015

37.a. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the NYS Stormwater Management Design Manual?
Yes

38. Has the post-construction stormwater management practice component of the SWPPP been developed by a qualified professional per Part III.A.4.?
Yes

SWPPP Preparer

39. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:
Professional Engineer (P.E.)

40. Name of the person who prepared the SWPPP
Timothy C. Buhl

41. SWPPP Preparer Organization Name
Timothy C. Buhl, PE

42. SWPPP Preparer Contact Information

First and Last Name	Phone	E-mail
Scott Gibson	6072280662	scottgibson198@gmail.com

43. SWPPP Preparer Address
5 Orchard Avenue
Watkins Glen, NY 14891

Download SWPPP Preparer Certification Form

Please take the following steps to prepare and upload your preparer certification form:

1) Click on the link below to download a blank certification form
2) The certified SWPPP preparer should sign this form
3) Upload the completed form
Download SWPPP Preparer Certification Form

44. Please upload the SWPPP Preparer Certification
NONE PROVIDED
Comment
NONE PROVIDED

44.a. Has the SWPPP Preparer Certification Form been signed by the SWPPP preparer in accordance with Part VII.J of GP-0-25-001?
Yes

Erosion & Sediment Control Criteria

45. Has a construction sequence schedule for the planned management practices been prepared?
Yes

Post-Construction Criteria

Site Planning and Soil Restoration

46. Identify all site planning practices that were used to prepare the final site plan/layout for the project.
Preservation of Buffers
Locating Development in Less Sensitive Areas

47. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6 ("Soil Restoration") of the Design Manual.
All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).

Water Quality Criteria

48. Is the reduction in impervious area greater than 25%?
No

49. Water Quality Sizing Criteria

Total WQv required (acre-feet)	Total RRv provided (acre-feet)	Minimum RRv (acre-feet)	Total WQv provided (acre-feet)	Sum of RRv and WQv provided
0.39	0.39			0.39

Water Quantity Criteria

50. Per Section 9.2.1.C.VI and VII of the 2024 Design Manual, is there 0% change to hydrology that increases the discharge rate and volume from the project site?
Yes

Operation and Maintenance

53. Has a long-term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed?
Yes

53.a. Identify the entity responsible for the long-term Operation and Maintenance.
Scott Pinney

Post-Construction SMP Identification

54. Post-Construction RR Techniques and Standard SMPs

RR Techniques and SMPs	Contributing Impervious Area (acres)	Total Contributing Area (acres)
Infiltration Basin (I-2)	4.9	

55. Alternative SMPs

Type of Alternative SMP	Manufacturer of the Alternative SMP	Name of the Alternative SMP	Contributing Impervious Area (acres)
NONE PROVIDED	*NONE PROVIDED*	*NONE PROVIDED*	*NONE PROVIDED*

Other Permits

56. Identify other permits, existing and new, that are required for this project/facility.
None

57. Is this NOI for a change in owner/operator per Part I.G.?
No

MS4 SWPPP Acceptance

59. Will the construction activities be within the municipal boundary(ies) of Traditional Land Use Control MS4 Operator(s) and discharge to the MS4(s)?
Yes

59.a. Which form is required per Part I.D.2.b.ii.?
MS4 SWPPP Acceptance Form

MS4 SWPPP Acceptance Form Download

Download the MS4 SWPPP Acceptance Form from the link below.
MS4 SWPPP Acceptance Form

60. MS4 Acceptance or No Jurisdiction Form Upload
NONE PROVIDED
Comment
NONE PROVIDED

60.a. Has the form been signed by the principal executive officer or ranking elected official—or duly authorized representative of that person—in accordance with Part VII.J. and submitted along with this NOI?
Yes

Owner/Operator Certification

Owner/Operator Certification Form Download

Download the Owner/Operator Certification Form by clicking the link below.
Owner/Operator Certification Form

61. Upload Owner/Operator Certification Form
NONE PROVIDED
Comment
NONE PROVIDED

61.a. Has the Owner/Operator Certification Form from Appendix J been signed by the owner/operator, or a representative of the owner/operator in accordance with Part VII.J of GP-0-25-001 and uploaded to the eNOI?
Yes

Additional Project Information

62. Enter any additional pertinent project information in the text box below.
NONE PROVIDED

NEW YORK STATE | Department of Environmental Conservation

SWPPP Preparer Certification Form

SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP)

(In accordance with CGP Part I.D.2.b., the completed form must be attached to the eNOI and submitted to NYSDEC electronically.)

Project/Site Name: O'Tooles Contractor Yard

eNOI Submission ID: HQR-NMYQ-WXG2F

Owner/Operator Name: Scott Pinney

Certification Statement – SWPPP Preparer

I hereby certify that the Stormwater Pollution Prevention Plan (SWPPP) has been prepared in accordance with the requirements of GP-0-25-001. I certify under penalty of law that the SWPPP and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Timothy	C	Buhl, PE
SWPPP Preparer First Name	MI	SWPPP Preparer Last Name

Signature

Date

MS4 SWPPP Acceptance Form

for construction activities seeking authorization under the

SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP)

(In accordance with CGP Part I.D.2.b., the completed form must be attached to the eNOI and submitted to NYSDEC electronically.)

I. Project Owner/Operator Information	
1. Owner/Operator Name:	Scott Pinney
2. Contact Person:	Scott Pinney
3. Street Address:	70 Oak Hill Road
4. City/State/Zip:	Moravia, NY 13118
II. Project Site Information	
5. Project/Site Name:	O'tooles Contractor Yard
6. Street Address:	Corner or Peruville and Scofield Roads
7. City/State/Zip:	Lansing, NY 14882
III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance Information	
8. SWPPP Reviewed by:	
9. Title/Position:	
10. Date Final SWPPP Reviewed and Accepted:	
IV. Regulated MS4 Information	
11. Name of MS4 Operator:	
12. MS4 SPDES Permit Identification Number: NYR20A	
13. Street Address:	
14. City/State/Zip:	
15. Telephone Number:	

MS4 SWPPP Acceptance Form - continued

V. Certification Statement - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative

I hereby certify that the final Stormwater Pollution Prevention Plan (SWPPP) for the construction project identified in section II. of this form has been reviewed and meets the substantive requirements in the SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP). Note: The MS4 Operator, through the acceptance of the SWPPP, assumes no responsibility for the accuracy and adequacy of the design included in the SWPPP. In addition, review and acceptance of the SWPPP by the MS4 Operator does not relieve the owner/operator or their SWPPP preparer of responsibility or liability for errors or omissions in the plan.

Printed Name[1]:

Title/Position:

Signature:

Date:

VI. Additional Information

[1] Printed name of the principal executive officer or ranking elected official for the MS4 Operator or their duly authorized representative in accordance with CGP Part VII.J.2.

(NYSDEC - MS4 SWPPP Acceptance Form - January 2025)

NEW YORK STATE | Department of Environmental Conservation

Owner/Operator Certification Form

SPDES General Permit for Stormwater Discharges from Construction Activity, GP-0-25-001 (CGP)

(In accordance with CGP Part I.D.2.b. or Part I.F.2. and 3., the completed form must be attached to the eNOI or the Request to Continue Coverage, and submitted to NYSDEC electronically.

Project/Site Name: O'tooles Contractor Yard

eNOI Submission ID: HQR-NMYQ-WXG2F

eNOI Submitted by: ☐ **Owner/Operator** ☑ **SWPPP Preparer** ☐ **Other**

Certification Statement - Owner/Operator

I hereby certify that I read, and will comply with, the GP-0-25-001 permit requirements. I understand that authorization to discharge under the permit for the project/site named above is dependent on receipt of a Letter of Authorization (LOA) or a Letter of Continued Coverage (LOCC) from the New York State Department of Environmental Conservation (NYSDEC) in accordance with CGP Part I.D.3.b. or Part I.F.4. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Scott		Pinney
Owner/Operator First Name	MI	Owner/Operator Last Name

_____

Signature

_____

Date

Attachment B:
Notice of Termination, (NOT)

New York State Department of Environmental Conservation
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505
(NOTE: Submit completed form to address above)

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity

Please indicate your permit identification number: NYR ___ ___ ___ ___ ___ ___

I. Owner or Operator Information

1. Owner/Operator Name:

2. Street Address:

3. City/State/Zip:

4. Contact Person: | 4a.Telephone:

5. Contact Person E-Mail:

II. Project Site Information

5. Project/Site Name:

6. Street Address:

7. City/Zip:

8. County:

III. Reason for Termination

9a. ☐ All disturbed areas have achieved final stabilization in accordance with the general permit and SWPPP.
***Date final stabilization completed** (month/year): _____

9b. ☐ Permit coverage has been transferred to new owner/operator. Indicate new owner/operator's permit identification number: NYR ___ ___ ___ ___ ___ ___
(Note: Permit coverage can not be terminated by owner identified in I.1. above until new owner/operator obtains coverage under the general permit)

9c. ☐ Other (Explain on Page 2)

IV. Final Site Information:

10a. Did this construction activity require the development of a SWPPP that includes post-construction stormwater management practices? ☐ yes ☐ no (If no, go to question 10f.)

10b. Have all post-construction stormwater management practices included in the final SWPPP been constructed?
☐ yes ☐ no (If no, explain on Page 2)

10c. Identify the entity responsible for long-term operation and maintenance of practice(s)?

_____

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued

10d. Has the entity responsible for long-term operation and maintenance been given a copy of the operation and maintenance plan required by the general permit? ☐ yes ☐ no

10e. Indicate the method used to ensure long-term operation and maintenance of the post-construction stormwater management practice(s):

- ☐ Post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain practice(s) have been deeded to the municipality.
- ☐ Executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s).
- ☐ For post-construction stormwater management practices that are privately owned, the deed of record has been modified to include a deed covenant that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.
- ☐ For post-construction stormwater management practices that are owned by a public or private institution (e.g. school, college, university), or government agency or authority, policy and procedures are in place that ensures operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.

10f. Provide the total area of impervious surface (i.e. roof, pavement, concrete, gravel, etc.) constructed within the disturbance area? _____ (acres)

11. Is this project subject to the requirements of a regulated, traditional land use control MS4? ☐ yes ☐ no
(If Yes, complete section VI - "MS4 Acceptance" statement

V. Additional Information/Explanation:
(Use this section to answer questions 9c. and 10b., if applicable)

VI. MS4 Acceptance - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative (Note: Not required when 9b. is checked -transfer of coverage)

I have determined that it is acceptable for the owner or operator of the construction project identified in question 5 to submit the Notice of Termination at this time.

Printed Name:

Title/Position:

Signature:	Date:

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued

VII. Qualified Inspector Certification - Final Stabilization:

I hereby certify that all disturbed areas have achieved final stabilization as defined in the current version of the general permit, and that all temporary, structural erosion and sediment control measures have been removed. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

VIII. Qualified Inspector Certification - Post-construction Stormwater Management Practice(s):

I hereby certify that all post-construction stormwater management practices have been constructed in conformance with the SWPPP. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

IX. Owner or Operator Certification

I hereby certify that this document was prepared by me or under my direction or supervision. My determination, based upon my inquiry of the person(s) who managed the construction activity, or those persons directly responsible for gathering the information, is that the information provided in this document is true, accurate and complete. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Printed Name:	
Title/Position:	
Signature:	Date:

(NYS DEC Notice of Termination - January 2010)

Attachment C:
Certification Forms

CONTRACTOR and SUBCONTRACTOR CERTIFICATION STATEMENT

for the New York State Department of Environmental Conservation (DEC) State Pollutant Discharge Elimination System Permit for Stormwater Discharges from Construction Activity (GP-0-20-001)

As per *Part III.A.6* on page 13 of *GP-0-20-001* (effective January 29, 2010):

'Prior to the *commencement of construction activity*, the *owner or operator* must identify the contractor(s) and subcontractor(s) that will be responsible for installing, constructing, repairing, replacing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and the contractor(s) and subcontractor(s) that will be responsible for constructing the post-construction stormwater management practices included in the SWPPP. The *owner or operator* shall have each of the contractors and sub-contractors identify at least one person from their company that will be responsible for implementation of the SWPPP. This person shall be known as the *trained contractor*. The *owner or operator* shall ensure that at least one *trained contractor* is on site on a daily basis when soil disturbance activities are being performed.'

The *owner or operator* shall have each contractor and subcontractor involved in soil disturbance sign a copy of the following certification statement before they commence any *construction activity*:

_____	**NYR** _____	_____
Name of Construction Site	*DEC Permit ID*	*Municipality (MS4)*

"I hereby certify that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a site inspection. I also understand that the owner or operator must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

Responsible Corporate Officer/Partner Signature	Date
Name of above Signatory	Name of Company
Title of above Signatory	Mailing Address
Telephone of Company	City, State and Zip

Identify the specific elements of the SWPPP the contractor or subcontractor is responsible for:

***'TRAINED CONTRACTOR'* FOR THE CERTIFIED CONTRACTOR OR SUBCONTRACTOR**

_____	_____	_____
Name of Trained Employee	*Title of Trained Employee*	*NYSDEC SWT #*

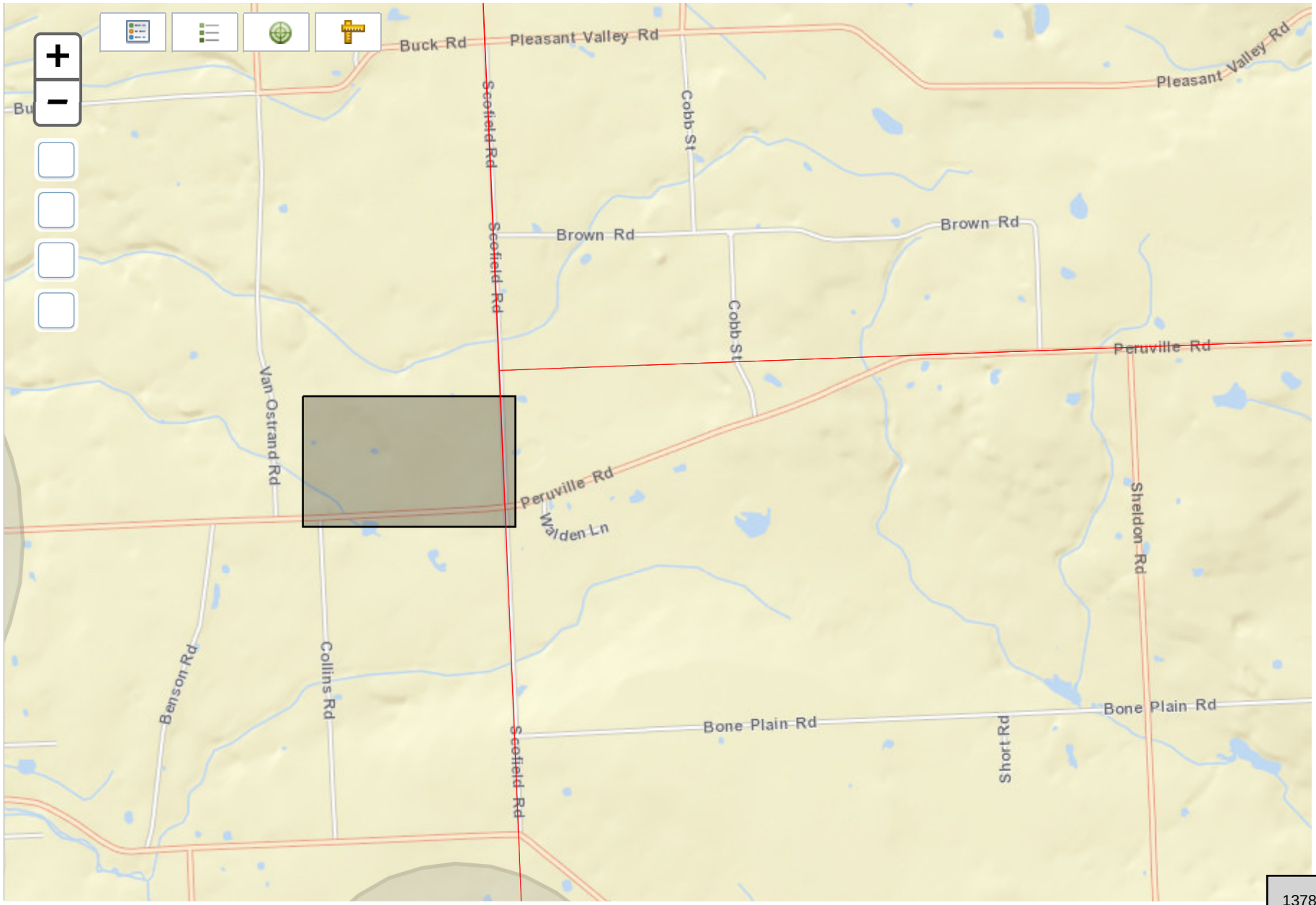
A copy of this signed contractor certification statement must be maintained at the SWPPP on site

Attachment D:
State Historic Preservation Mapping

Section 3, Item e.

CRIS NYS Cultural Resource Information System

HOME SUBMIT SEARCH COMMUNICATE



1378

NEW YORK STATE OF OPPORTUNITY. | Parks, Recreation, and Historic Preservation

ANDREW M. CUOMO
Governor

ROSE HARVEY
Commissioner

October 15, 2015

Mr. Scott Gibson
5 Orchard Avenue
Watkins Glen, NY 14891

Re: DEC
Pinney Duplex Apartments
Town of Lansing, Tompkins County
15PR05870

Dear Mr. Gibson:

Thank you for requesting the comments of the Office of Parks, Recreation and Historic Preservation (OPRHP). We have reviewed the project in accordance with the New York State Historic Preservation Act of 1980 (Section 14.09 of the New York Parks, Recreation and Historic Preservation Law). These comments are those of the OPRHP and relate only to Historic/Cultural resources. They do not include potential environmental impacts to New York State Parkland that may be involved in or near your project. Such impacts must be considered as part of the environmental review of the project pursuant to the State Environmental Quality Review Act (New York Environmental Conservation Law Article 8) and its implementing regulations (6 NYCRR Part 617).

Based upon this review, it is the New York State Office of Parks, Recreation and Historic Preservation's opinion that your project will have no impact on archaeological and/or historic resources listed in or eligible for the New York State and National Registers of Historic Places.

If further correspondence is required regarding this project, please be sure to refer to the OPRHP Project Review (PR) number noted above.

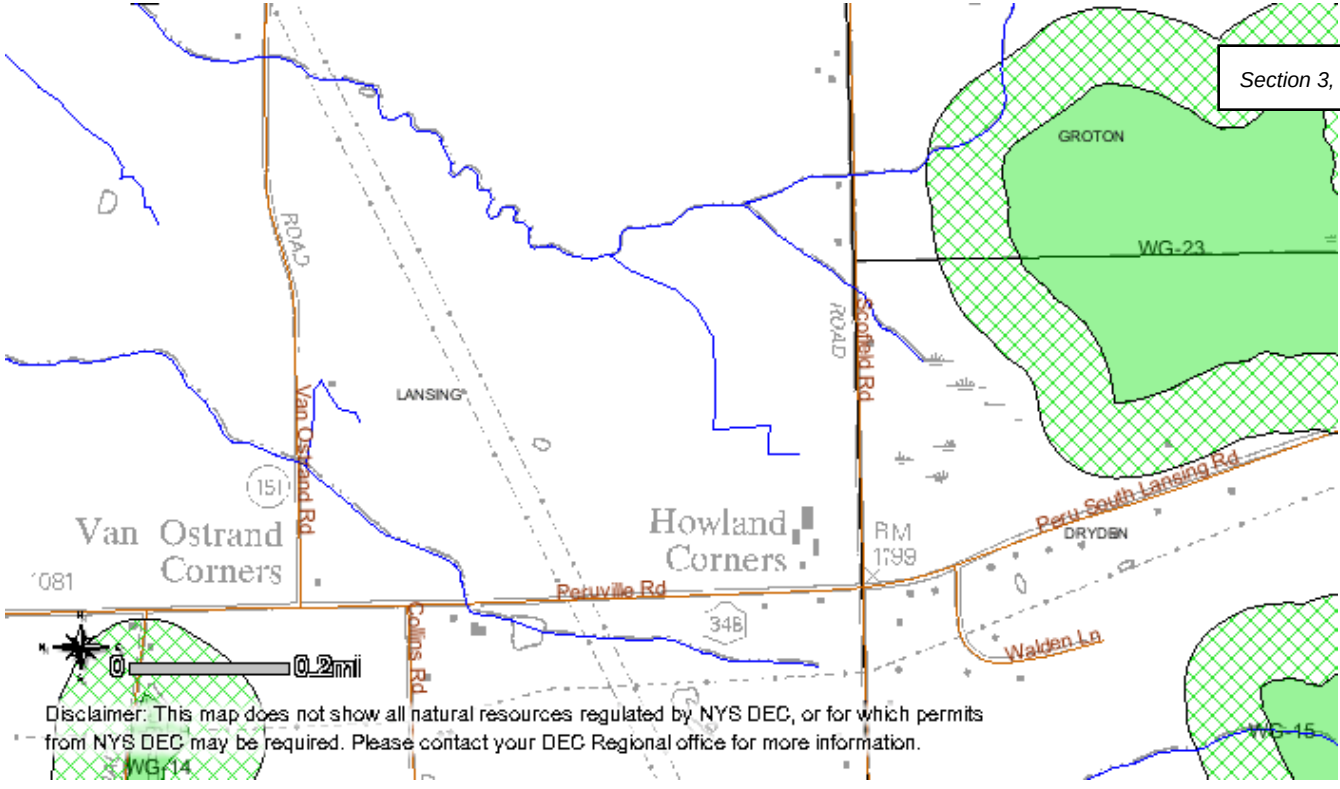
Sincerely,

Ruth L. Pierpont

Ruth L. Pierpont

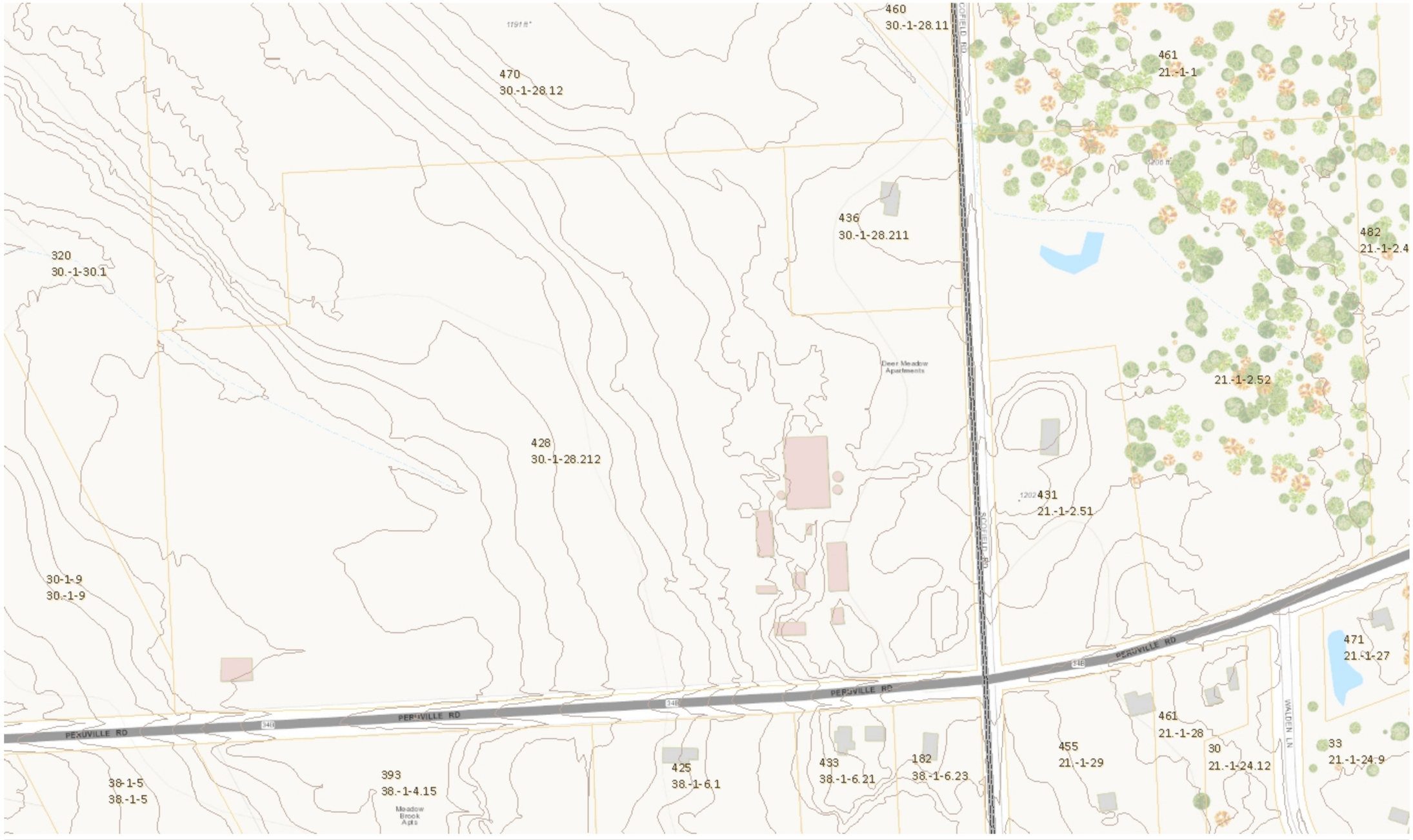
Deputy Commissioner for Historic Preservation

Attachment E:
Environmental Mapping



Pinney - Wetlands Map

Pinney Duplex Project Flood Zone Map



Legend

- Address
- Open Water
- Streams
  - Intermittent Streams
  - Perennial Streams
- PARCELS
- Flood Zones
  - 100 Year
  - 500 Year
  - Not Included in Flood Map
- Building
- Municipalities
- ULY-SE
- ULY-SW
- ULY-NW
- ULY-tNE
- NEW-SW
- NEW-SE
- NEW-NE
- NEW-NW
- LAN2ftSouth
- LAN-NE
- LAN-NW
- LAN2ftMiddle
- GRO-SE
- GRO-SW
- GRO-NE
- GRO-NW
- ENF-SE
- ENF-SW
- ENF-NE
- ENF-NW
- DRY-SE
- DRY-SW
- DRY-NE
- DRY-tNW
- DAN2ftSW
- DAN2ftSE
- DAN2ftNW
- DAN2ftNE
- CAR-SW
- CAR-SE

1: 3,287

547.9 0 273.93 547.9 Feet

WGS_1984_Web_Mercator_Auxiliary_Sphere

© Tompkins County GIS 2011

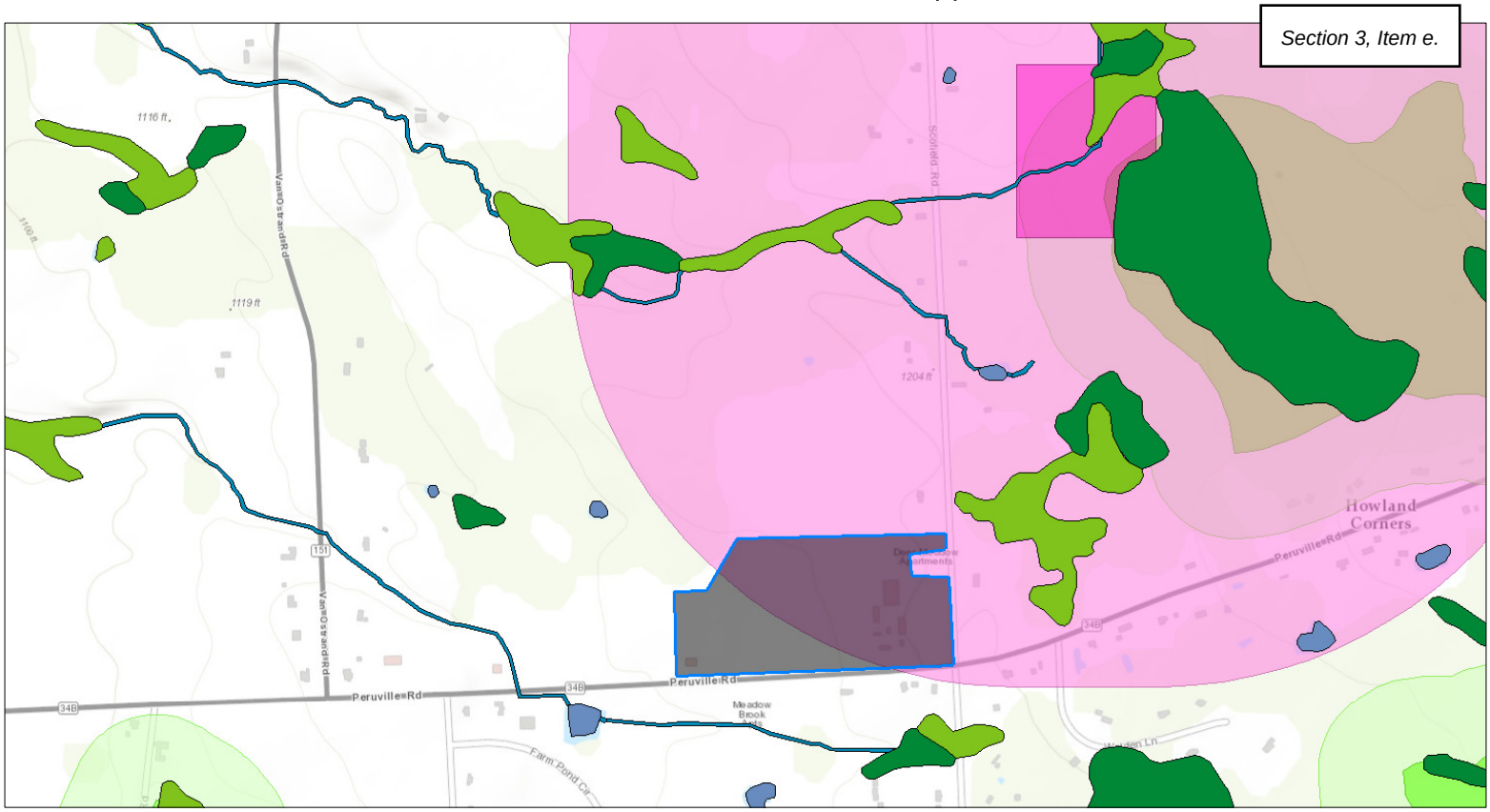
This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

THIS MAP IS NOT TO BE USED FOR NAVIGATION

Notes

This map was automatically generated using Geocortex Essentials. You at work!

Environmental Resource Mapper



November 16, 2016

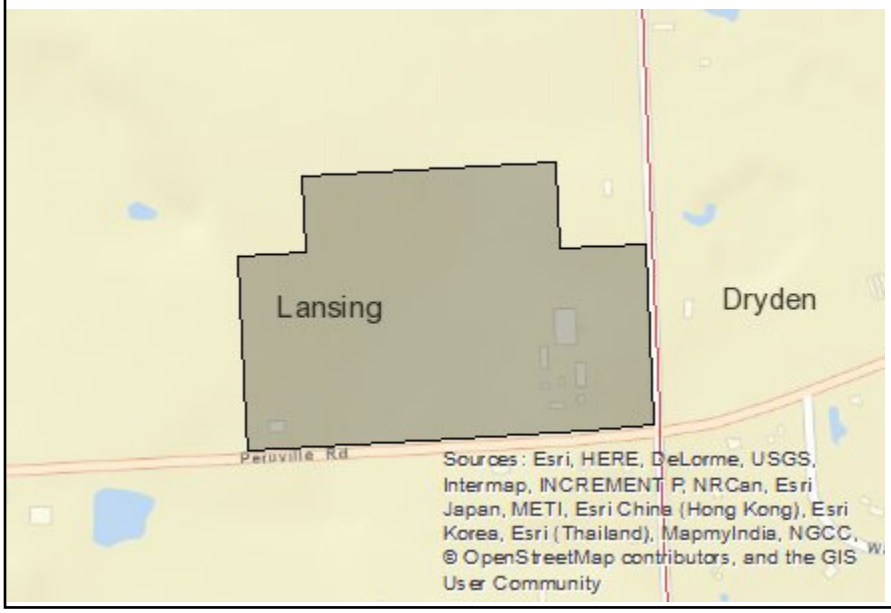
1:9,028

0 0.1 0.2 0.4 mi

0 0.175 0.35 0.7 km

Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

NYS Department of Environmental Conservation
Not a legal document



Disclaimer: The EAF Mapper is a screening tool intended to assist project sponsors and reviewing agencies in preparing an environmental assessment form (EAF). Not all questions asked in the EAF are answered by the EAF Mapper. Additional information on any EAF question can be obtained by consulting the EAF Workbooks. Although the EAF Mapper provides the most up-to-date digital data available to DEC, you may also need to contact local or other data sources in order to obtain data not provided by the Mapper. Digital data is not a substitute for agency determinations.

B.i.i [Coastal or Waterfront Area]	No
B.i.ii [Local Waterfront Revitalization Area]	No
C.2.b. [Special Planning District]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h [DEC Spills or Remediation Site - Potential Contamination History]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Listed]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.i [DEC Spills or Remediation Site - Environmental Site Remediation Database]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.1.h.iii [Within 2,000' of DEC Remediation Site]	No
E.2.g [Unique Geologic Features]	No
E.2.h.i [Surface Water Features]	Yes
E.2.h.ii [Surface Water Features]	Yes
E.2.h.iii [Surface Water Features]	Yes - Digital mapping information on local and federal wetlands and waterbodies is known to be incomplete. Refer to EAF Workbook.
E.2.h.iv [Surface Water Features - Stream Name]	898-239
E.2.h.iv [Surface Water Features - Stream Classification]	C
E.2.h.iv [Surface Water Features - Wetlands Name]	Federal Waters
E.2.h.v [Impaired Water Bodies]	No
E.2.i. [Floodway]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.

E.2.j. [100 Year Floodplain]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.2.k. [500 Year Floodplain]	Digital mapping data are not available or are incomplete. Refe Workbook.
E.2.l. [Aquifers]	No
E.2.n. [Natural Communities]	Yes
E.2.n.i [Natural Communities - Name]	Rich Hemlock-Hardwood Peat Swamp
E.2.n.i [Natural Communities - Acres]	11.0
E.2.o. [Endangered or Threatened Species]	No
E.2.p. [Rare Plants or Animals]	No
E.3.a. [Agricultural District]	Yes
E.3.a. [Agricultural District]	TOMP001
E.3.c. [National Natural Landmark]	No
E.3.d [Critical Environmental Area]	No
E.3.e. [National Register of Historic Places]	Digital mapping data are not available or are incomplete. Refer to EAF Workbook.
E.3.f. [Archeological Sites]	No
E.3.i. [Designated River Corridor]	No

Attachment F:
Inspection Report (Sample Form)

TOWN OF

Construction Stormwater Inspection Report for SPDES General Permit GP-0- 15-002

Project Name and Location:		Date:	Weather:
		Permit # (if any): **NYR10**	
Municipality:	County:	Entry Time:	Exit Time:
Name of SPDES Permittee:	Contacted: Yes ☐ No ☐	Inspection Type: ☐ Compliance ☐ Referral ☐ Complaint ☐ NOT	
Phone Number:			
On-site Representative(s) and Company(s):			
Phone Number(s):			

SPDES Authority

	Yes	No	N/A	
1.	☐	☐	☐	Does the project have permit coverage?
2.	☐	☐	☐	Is a copy of the NOI and Acknowledgment Letter available on site and accessible for viewing?
3.	☐	☐	☐	Is a copy of the MS4 SWPPP Acceptance Form available on site and accessible for viewing?
4.	☐	☐	☐	Is an up-to-date copy of the signed SWPPP retained at the construction site?
5.	☐	☐	☐	Is a copy of the SPDES General Permit retained at the construction site?
6.	☐	☐	☐	Does the NOI accurately report the number of acres to be disturbed?

SWPPP Content

	Yes	No	N/A	
7.	☐	☐	☐	Does the SWPPP describe and identify the erosion and sediment control measures to be employed?
8.	☐	☐	☐	Does the SWPPP provide an inspection schedule and maintenance requirements for the E&SC measures?
9.	☐	☐	☐	Does the SWPPP describe and identify the stormwater management practices to be employed?
10.	☐	☐	☐	Does the SWPPP identify the contractor(s) and subcontractor(s) responsible for each measure?
11.	☐	☐	☐	Does the SWPPP identify at least one trained individual from each contractor(s) and subcontractor(s) companies
12.	☐	☐	☐	Does the SWPPP include all the necessary Contractor Certification Statements and signatures?
13.	☐	☐	☐	Is the SWPPP signed by the permittee?
14.	☐	☐	☐	Is the SWPPP prepared by a qualified professional (if post-construction stormwater management required)?
15.	☐	☐	☐	Do the SMPs conform to the Enhanced Phosphorus Removal Standards (projects in TMDL watersheds)?

Recordkeeping

	Yes	No	N/A	
16.	☐	☐	☐	Are self-inspections performed as required by the permit (weekly, or twice weekly for >5 acres disturbed)?
17.	☐	☐	☐	Are the self-inspections performed by and signed by a qualified inspector and retained on site?
18.	☐	☐	☐	Do the qualified inspector's reports include the minimum reporting requirements?
19.	☐	☐	☐	Do inspection reports identify corrective measures that have not been implemented or are recurring?

Visual Observations

	Yes	No	N/A	
20.	☐	☐	☐	Are all erosion and sediment control measures installed properly?
21.	☐	☐	☐	Are all erosion and sediment control measures being maintained properly?
22.	☐	☐	☐	Was written authorization issued for any disturbance greater than 5 acres?
23.	☐	☐	☐	Have stabilization measures been implemented in inactive areas per Permit (>5 acres) and E&SC Standards?
24.	☐	☐	☐	Are post-construction stormwater management practices constructed/installed correctly?
25.	☐	☐	☐	Has final site stabilization been achieved and temporary E&SC measures removed prior to NOT submittal?
26.	☐	☐	☐	Was there a discharge from the site on the day of inspection?
27.	☐	☐	☐	Is there evidence that a discharge caused or contributed to a violation of water quality standards?

Water Quality Observations

Describe the discharge(s): location, source(s), impact on receiving water(s), etc.

Describe the quality of the receiving water(s) both upstream and downstream of the discharge

Describe any other water quality standards or permit violations

Additional Comments

☐ Photographs attached

Overall Inspection Rating: ☐ Satisfactory ☐ Marginal ☐ Unsatisfactory	
Name/Agency of Lead Inspector:	**Signature of Lead Inspector:**
Names/Agencies of Other Inspectors:	

Attachment G:
Record of Stabilization and Construction Activity Dates
(Sample Form)

SITE STABILIZATION
and
CONSTRUCTION ACTIVITY DATES

A record of dates when major grading activities occur, when construction activities temporarily or permanently cease on a portion of the site, and when stabilization measures are initiated shall be maintained until final site stabilization is achieved and the Notice of Termination is filed. The dates can be entered in the following form, or on a different form.

MAJOR GRADING ACTIVITIES:

Description of Activity: _____
Begin (date): _____ Site Contractor: _____
Location: _____
End (date): _____

Description of Activity: _____
Begin (date): _____ Site Contractor: _____
Location: _____
End (date): _____

Description of Activity: _____
Begin (date): _____ Site Contractor: _____
Location: _____
End (date): _____

Description of Activity: _____
Begin (date): _____ Site Contractor: _____
Location: _____
End (date): _____

Description of Activity: _____
Begin (date): _____ Site Contractor: _____
Location: _____
End (date): _____

Description of Activity: _____
Begin (date): _____ Site Contractor: _____
Location: _____
End (date): _____

Description of Activity: _____
Begin (date): _____ Site Contractor: _____
Location: _____
End (date): _____

Attachment H:
Vegetative and Structural Measures For Erosion and Sediment Control
(NYS Standards & Specifications for Erosion & Sediment Control)
(Reference)

STANDARD AND SPECIFICATIONS FOR MULCHING

Definition and Scope

Applying coarse plant residue or chips, or other suitable materials, to cover the soil surface to provide initial erosion control while a seeding or shrub planting is establishing. Mulch will conserve moisture and modify the surface soil temperature and reduce fluctuation of both. Mulch will prevent soil surface crusting and aid in weed control. Mulch can also be used alone for temporary stabilization in non-growing months. Use of stone as a mulch could be more permanent and should not be limited to non-growing months.

Conditions Where Practice Applies

On soils subject to erosion and on new seedings and shrub plantings. Mulch is useful on soils with low infiltration rates by retarding runoff.

Criteria

Site preparation prior to mulching requires the installation of necessary erosion control or water management practices and drainage systems.

Slope, grade and smooth the site to fit needs of selected mulch products.

Remove all undesirable stones and other debris to meet the needs of the anticipated land use and maintenance required.

Apply mulch after soil amendments and planting is accomplished or simultaneously if hydroseeding is used.

Select appropriate mulch material and application rate or material needs. Hay mulch shall not be used in wetlands or in areas of permanent seeding. Clean straw mulch is preferred alternative in wetland application. Determine local availability.

Select appropriate mulch anchoring material.

NOTE: The best combination for grass/legume establishment is straw (cereal grain) mulch applied at 2 ton/ acre (90 lbs./1000sq.ft.) and anchored with wood fiber mulch (hydromulch) at 500 – 750 lbs./acre (11 – 17 lbs./1000 sq. ft.). The wood fiber mulch must be applied through a hydroseeder immediately after mulching.

Table 4.2
Guide to Mulch Materials, Rates, and Uses

Mulch Material	Quality Standards	per 1000 Sq. Ft.	per Acre	Depth of Application	Remarks
Wood chips or shavings	Air-dried. Free of objectionable coarse material	500-900 lbs.	10-20 tons	2-7”	Used primarily around shrub and tree plantings and recreation trails to inhibit weed competition. Resistant to wind blowing. Decomposes slowly.
Wood fiber cellulose (partly digested wood fibers)	Made from natural wood usually with green dye and dispersing agent	50 lbs.	2,000 lbs.	—	Apply with hydromulcher. No tie down required. Less erosion control provided than 2 tons of hay or straw.
Gravel, Crushed Stone or Slag	Washed; Size 2B or 3A—1 1/2”	9 cu. yds.	405 cu. yds.	3”	Excellent mulch for short slopes and around plants and ornamentals. Use 2B where subject to traffic. (Approximately 2,000 lbs./cu. yd.). Frequently used over filter fabric for better weed control.
Hay or Straw	Air-dried; free of undesirable seeds & coarse materials	90-100 lbs. 2-3 bales	2 tons (100-120 bales)	cover about 90% surface	Use small grain straw where mulch is maintained for more than three months. Subject to wind blowing unless anchored. Most commonly used mulching material. Provides the best micro-environment for germinating seeds.
Jute twisted yarn	Undyed, unbleached plain weave. Warp 78 ends/yd., Weft 41 ends/ yd. 60-90 lbs./roll	48” x 50 yds. or 48” x 75 yds.	—	—	Use without additional mulch. Tie down as per manufacturers specifications. Good for center line of concentrated water flow.
Excelsior wood fiber mats	Interlocking web of excelsior fibers with photodegradable plastic netting	4’ x 112.5’ or 8’ x 112.5’.	—	—	Use without additional mulch. Excellent for seeding establishment. Anchor as per manufacturers specifications. Approximately 72 lbs./roll for excelsior with plastic on both sides. Use two sided plastic for centerline of waterways.
Straw or coconut fiber, or combination	Photodegradable plastic net on one or two sides	Most are 6.5 ft. x 3.5 ft.	81 rolls	—	Designed to tolerate higher velocity water flow, centerlines of waterways, 60 sq. yds. per roll.

Table 4.3
Mulch Anchoring Guide

Anchoring Method or Material	Kind of Mulch to be Anchored	How to Apply
1. Peg and Twine	Hay or straw	After mulching, divide areas into blocks approximately 1 sq. yd. in size. Drive 4-6 pegs per block to within 2" to 3" of soil surface. Secure mulch to surface by stretching twine between pegs in criss-cross pattern on each block. Secure twine around each peg with 2 or more tight turns. Drive pegs flush with soil. Driving stakes into ground tightens the twine.
2. Mulch netting	Hay or straw	Staple the light-weight paper, jute, wood fiber, or plastic nettings to soil surface according to manufacturer's recommendations. Should be biodegradable. Most products are not suitable for foot traffic.
3. Wood cellulose fiber	Hay or straw	Apply with hydroseeder immediately after mulching. Use 500 lbs. wood fiber per acre. Some products contain an adhesive material ("tackifier"), possibly advantageous.
4. Mulch anchoring tool	Hay or straw	Apply mulch and pull a mulch anchoring tool (blunt, straight discs) over mulch as near to the contour as possible. Mulch material should be "tucked" into soil surface about 3".
5. Tackifier	Hay or straw	Mix and apply polymeric and gum tackifiers according to manufacturer's instructions. Avoid application during rain. A 24-hour curing period and a soil temperature higher than 45^0 Fahrenheit are required.

STANDARD AND SPECIFICATIONS FOR PERMANENT CONSTRUCTION AREA PLANTING

Definition & Scope

Establishing **permanent** grasses with other forbs and/or shrubs to provide a minimum 80% perennial vegetative cover on areas disturbed by construction and critical areas to reduce erosion and sediment transport. Critical areas may include but are not limited to steep excavated cut or fill slopes as well as eroding or denuded natural slopes and areas subject to erosion.

Conditions Where Practice Applies

This practice applies to all disturbed areas void of, or having insufficient, cover to prevent erosion and sediment transport. See additional standards for special situations such as sand dunes and sand and gravel pits.

Criteria

All water control measures will be installed as needed prior to final grading and seedbed preparation. Any severely compacted sections will require chiseling or disking to provide an adequate rooting zone, to a minimum depth of 12", see Soil Restoration Standard. The seedbed must be prepared to allow good soil to seed contact, with the soil not too soft and not too compact. Adequate soil moisture must be present to accomplish this. If surface is powder dry or sticky wet, postpone operations until moisture changes to a favorable condition. If seeding is accomplished within 24 hours of final grading, additional scarification is generally not needed, especially on ditch or stream banks. Remove all stones and other debris from the surface that are greater than 4 inches, or that will interfere with future mowing or maintenance.

Soil amendments should be incorporated into the upper 2 inches of soil when feasible. **The soil should be tested to determine the amounts of amendments needed.** Apply ground agricultural limestone to attain a pH of 6.0 in the upper 2 inches of soil. If soil must be fertilized before results of a soil test can be obtained to determine fertilizer needs, apply commercial fertilizer at 600 lbs. per acre of 5-5 -10 or equivalent. If manure is used, apply a quantity to meet the nutrients of the above fertilizer. This requires an appropriate manure analysis prior to applying to the site. Do not use manure on sites to be planted with birdsfoot trefoil or in the path of concentrated water flow.

Seed mixtures may vary depending on location within the state and time of seeding. Generally, warm season grasses should only be seeded during early spring, April to May. These grasses are primarily used for vegetating excessively drained sands and gravels. See Standard and Specification for Sand and Gravel Mine Reclamation. Other grasses may be seeded any time of the year when the soil is not frozen and is workable. When legumes such as birdsfoot trefoil are included, spring seeding is preferred. See Table 4.4, "Permanent Construction Area Planting Mixture Recommendations" for additional seed mixtures.

General Seed Mix:	**Variety**	**lbs./ acre**	**lbs/1000 sq. ft.**
Red Clover[1] OR	Acclaim, Rally, Red Head II, Renegade	8[2]	0.20
Common white clover[1]	Common	8	0.20
PLUS			
Creeping Red Fescue	Common	20	0.45
PLUS			
Smooth Bromegrass OR	Common	2	0.05
Ryegrass (perennial)	Pennfine/Linn	5	0.10

[1] add inoculant immediately prior to seeding
[2] Mix 4 lbs each of Empire and Pardee OR 4 lbs of Birdsfoot and 4 lbs white clover per acre. All seeding rates are given for Pure Live Seed (PLS)

Pure Live Seed, or (PLS) refers to the amount of live seed in a lot of bulk seed. Information on the seed bag label includes the type of seed, supplier, test date, source of seed, purity, and germination. Purity is the percentage of pure seed. Germination is the percentage of pure seed that will produce normal plants when planted under favorable conditions.

To compute Pure Live Seed multiply the "germination percent" times the "purity" and divide that by 100 to get Pure Live Seed.

$$\text{Pure Live Seed (PLS)} = \frac{\%\,\text{Germination} \times \%\,\text{Purity}}{100}$$

For example, the PLS for a lot of Kentucky Blue grass with 75% purity and 96% germination would be calculated as follows:

$$\frac{(96) \times (75)}{100} = 72\%\ \text{Pure Live Seed}$$

For 10lbs of PLS from this lot =

$$\frac{10}{0.72} = 13.9\ \text{lbs}$$

Therefore, 13.9 lbs of seed is the actual weight needed to meet 10lbs PSL from this specific seed lot.

Time of Seeding: The optimum timing for the general seed mixture is early spring. Permanent seedings may be made any time of year if properly mulched and adequate moisture is provided. Late June through early August is not a good time to seed, but may facilitate covering the land without additional disturbance if construction is completed. Portions of the seeding may fail due to drought and heat. These areas may need reseeding in late summer/fall or the following spring.

Method of seeding: Broadcasting, drilling, cultipack type seeding, or hydroseeding are acceptable methods. Proper soil to seed contact is key to successful seedings.

Mulching: Mulching is essential to obtain a uniform stand of seeded plants. Optimum benefits of mulching new seedings are obtained with the use of small grain straw applied at a rate of 2 tons per acre, and anchored with a netting or tackifier. See the Standard and Specifications for Mulching for choices and requirements.

Irrigation: Watering may be essential to establish a new seeding when a drought condition occurs shortly after a new seeding emerges. Irrigation is a specialized practice and care must be taken not to exceed the application rate for the soil or subsoil. When disconnecting irrigation pipe, be sure pipes are drained in a safe manor, not creating an erosion concern.

80% Perennial Vegetative Cover

50% Perennial Vegetative Cover

Table 4.4
Permanent Construction Area Planting Mixture Recommendations

Seed Mixture	Variety	Rate in lbs./acre (PLS)	Rate in lbs./ 1, 000 ft^2
Mix #1			
Creeping red fescue	Ensylva, Pennlawn, Boreal	10	.25
Perennial ryegrass	Pennfine, Linn	10	.25
*This mix is used extensively for shaded areas.			
Mix #2			
Switchgrass	Shelter, Pathfinder, Trailblazer, or Blackwell	20	.50
*This rate is in pure live seed, this would be an excellent choice along the upland edge of a wetland to filter runoff and provide wildlife benefits. In areas where erosion may be a problem, a companion seeding of sand lovegrass should be added to provide quick cover at a rate of 2 lbs. per acre (0.05 lbs. per 1000 sq. ft.).			
Mix #3			
Switchgrass	Shelter, Pathfinder, Trailblazer, or Blackwell	4	.10
Big bluestem	Niagara	4	.10
Little bluestem	Aldous or Camper	2	.05
Indiangrass	Rumsey	4	.10
Coastal panicgrass	Atlantic	2	.05
Sideoats grama	El Reno or Trailway	2	.05
Wildflower mix		.50	.01
*This mix has been successful on sand and gravel plantings. It is very difficult to seed without a warm season grass seeder such as a Truax seed drill. Broadcasting this seed is very difficult due to the fluffy nature of some of the seed, such as bluestems and indiangrass.			
Mix #4			
Switchgrass	Shelter, Pathfinder, Trailblazer, or Blackwell	10	.25
Coastal panicgrass	Atlantic	10	.25
*This mix is salt tolerant, a good choice along the upland edge of tidal areas and roadsides.			
Mix #5			
Saltmeadow cordgrass (Spartina patens)—This grass is used for tidal shoreline protection and tidal marsh restoration. It is planted by vegetative stem divisions. 'Cape' American beachgrass can be planted for sand dune stabilization above the saltmeadow cordgrass zone.			
Mix #6			
Creeping red fescue	Ensylva, Pennlawn, Boreal	20	.45
Chewings Fescue	Common	20	.45
Perennial ryegrass	Pennfine, Linn	5	.10
Red Clover	Common	10	.45
*General purpose erosion control mix. Not to be used for a turf planting or play grounds.			

STANDARD AND SPECIFICATIONS FOR TEMPORARY CONSTRUCTION AREA SEEDING

Definition & Scope

Providing temporary erosion control protection to disturbed areas and/or localized critical areas for an interim period by covering all bare ground that exists as a result of construction activities or a natural event. Critical areas may include but are not limited to steep excavated cut or fill slopes and any disturbed, denuded natural slopes subject to erosion.

Conditions Where Practice Applies

Temporary seedings may be necessary on construction sites to protect an area, or section, where final grading is complete, when preparing for winter work shutdown, or to provide cover when permanent seedings are likely to fail due to mid-summer heat and drought. The intent is to provide temporary protective cover during temporary shutdown of construction and/or while waiting for optimal planting time.

Criteria

Water management practices must be installed as appropriate for site conditions. The area must be rough graded and slopes physically stable. Large debris and rocks are usually removed. Seedbed must be seeded within 24 hours of disturbance or scarification of the soil surface will be necessary prior to seeding.

Fertilizer or lime are not typically used for temporary seedings.

IF: Spring or summer or early fall, then seed the area with ryegrass (annual or perennial) at 30 lbs. per acre (Approximately 0.7 lb./1000 sq. ft. or use 1 lb./1000 sq. ft.).

IF: Late fall or early winter, then seed Certified 'Aroostook' winter rye (cereal rye) at 100 lbs. per acre (2.5 lbs./1000 sq. ft.).

Any seeding method may be used that will provide uniform application of seed to the area and result in relatively good soil to seed contact.

Mulch the area with hay or straw at 2 tons/acre (approx. 90 lbs./1000 sq. ft. or 2 bales). Quality of hay or straw mulch allowable will be determined based on long term use and visual concerns. Mulch anchoring will be required where wind or areas of concentrated water are of concern. Wood fiber hydromulch or other sprayable products approved for erosion control (nylon web or mesh) may be used if applied according to manufacturers' specification. Caution is advised when using nylon or other synthetic products. They may be difficult to remove prior to final seeding and can be a hazard to young wildlife species.

STANDARD AND SPECIFICATIONS FOR TOPSOILING

Definition & Scope

Spreading a specified quality and quantity of topsoil materials on graded or constructed subsoil areas to provide acceptable plant cover growing conditions, thereby reducing erosion; to reduce irrigation water needs; and to reduce the need for nitrogen fertilizer application.

Conditions Where Practice Applies

Topsoil is applied to subsoils that are droughty (low available moisture for plants), stony, slowly permeable, salty or extremely acid. It is also used to backfill around shrub and tree transplants. This standard does not apply to wetland soils.

Design Criteria

1. Preserve existing topsoil in place where possible, thereby reducing the need for added topsoil.
2. Conserve by stockpiling topsoil and friable fine textured subsoils that must be stripped from the excavated site and applied after final grading where vegetation will be established. Topsoil stockpiles must be stabilized. Stockpile surfaces can be stabilized by vegetation, geotextile or plastic covers. This can be aided by orientating the stockpile lengthwise into prevailing winds.
3. Refer to USDA Natural Resource Conservation Service soil surveys or soil interpretation record sheets for further soil texture information for selecting appropriate design topsoil depths.

Site Preparation

1. As needed, install erosion and sediment control practices such as diversions, channels, sediment traps, and stabilizing measures, or maintain if already installed.
2. Complete rough grading and final grade, allowing for depth of topsoil to be added.
3. Scarify all compact, slowly permeable, medium and fine textured subsoil areas. Scarify at approximately right angles to the slope direction in soil areas that are steeper than 5 percent. Areas that have been overly compacted shall be decompacted in accordance with the Soil Restoration Standard.
4. Remove refuse, woody plant parts, stones over 3 inches in diameter, and other litter.

Topsoil Materials

1. Topsoil shall have at least 6 percent by weight of fine textured stable organic material, and no greater than 20 percent. Muck soil shall not be considered topsoil.
2. Topsoil shall have not less than 20 percent fine textured material (passing the NO. 200 sieve) and not more than 15 percent clay.
3. Topsoil treated with soil sterilants or herbicides shall be so identified to the purchaser.
4. Topsoil shall be relatively free of stones over 1 1/2 inches in diameter, trash, noxious weeds such as nut sedge and quackgrass, and will have less than 10 percent gravel.
5. Topsoil containing soluble salts greater than 500 parts per million shall not be used.
6. Topsoil may be manufactured as a mixture of a mineral component and organic material such as compost.

Application and Grading

1. Topsoil shall be distributed to a uniform depth over the area. It shall not be placed when it is partly frozen, muddy, or on frozen slopes or over ice, snow, or standing water puddles.
2. Topsoil placed and graded on slopes steeper than 5 percent shall be promptly fertilized, seeded, mulched, and stabilized by “tracking” with suitable equipment.
3. Apply topsoil in the amounts shown in Table 4.7 below:

Table 4.7 - Topsoil Application Depth		
Site Conditions	**Intended Use**	**Minimum Topsoil Depth**
1. Deep sand or loamy sand	Mowed lawn	6 in.
	Tall legumes, unmowed	2 in.
	Tall grass, unmowed	1 in.
2. Deep sandy loam	Mowed lawn	5 in.
	Tall legumes, unmowed	2 in.
	Tall grass, unmowed	none
3. Six inches or more: silt loam, clay loam, loam, or silt	Mowed lawn	4 in.
	Tall legumes, unmowed	1 in.
	Tall grass, unmowed	1 in.

STRUCTURAL MEASURES FOR EROSION AND SEDIMENT CONTROL

General

Uncontrolled runoff and excess erosion often occurs in urban developments, particularly during the construction stage. This erosion forms rills and gullies; washes out roads; scours cut and fill areas; fills road ditches, storm drains, and streams; and does other damage that is costly to the developers and damaging to land and water users below. Careful inclusion of proven conservation practices in the development plan can prevent or alleviate much of this damage and should be a part of every development plan.

These practices will usually be a combination of vegetative and structural measures. They may be temporary and serve only during the construction stage or they may be permanent in nature and become a part of the completed development. Permanent structural practices should be installed as early as possible in the construction stage. This section deals with the more common structural measures that may be used. Adequate designs, plans, and specification should be prepared for the measures to be used. A number of measures and specifications are included throughout this section. The designer shall determine those elements to be installed to control erosion (Section 2) and follow the criteria included in these standards and specifications.

Introduction

Structural erosion and sediment control practices have been classified as either temporary or permanent, according to how they are used. Temporary structural practices are used during construction to prevent offsite sedimentation. The length of time that temporary practices are functional varies from project to project, since the sediment control strategy may change as construction activity progresses. Permanent structural practices are used to convey surface water runoff to a safe outlet. Permanent structural practices will remain in place and continue to function after the completion of construction.

Regardless of whether the practices are temporary or permanent, runoff control measures should be the first items constructed when grading begins, and be completely functional before downslope land disturbance takes place. Earthen structures such as diversions, dikes, and swales should be stabilized before being considered functional. Only after the runoff control structures are operational and sediment control measures are in place, should clearing and grading on the rest of the construction site begin.

While clearing and grading the site, it is important to minimize the amount of sediment that is produced. In general, it is advantageous to clear only as much area as is necessary to accommodate construction needs. Grade and stabilize large sites in stages whenever possible. Limiting the amount of disturbed area limits the amount of sediment that is generated, thus decreasing the amount of maintenance required on sediment control measures.

Sediment generated during the construction of cut and fill slopes can also be minimized through design and grading techniques. When designing either a cut or fill slope, factors to consider include slope length and steepness, soil type, and upslope drainage area. In general, it is important to leave soil surfaces on disturbed slopes in a roughened condition and to construct a water diversion practice at the top of slopes. Rough soil surfaces do not erode as readily as smooth soil surfaces.

Although design and grading techniques can reduce soil erosion, they cannot eliminate it entirely. Therefore, practices must be installed to prevent offsite sedimentation.

Even though the specific conditions of each site determine what measures are necessary to control erosion and sedimentation, some general principles apply to the selection and placement of sediment control measures.

1. Prevent clean water from becoming turbid, by diverting runoff from upslope areas away from disturbed areas. Earth dikes, temporary swales, perimeter dike/swales, or diversions that outlet in stable areas can be used in this capacity.

2. Remove sediment from turbid water before the water leaves the site. The method of sediment removal depends upon how the water drains from the site. Concentrated flow must be diverted to a trapping device so that suspended sediment can be deposited. Dikes or swales that outlet into traps or basins can accomplish this. A storm drain system may be used to convey concentrated sediment laden water only if the system empties into a trap or basin. Otherwise, all storm drain inlets must be protected so that sediment laden water cannot enter the drainage system before being treated to remove the sediment.

3. Surface runoff draining in sheet flow must be controlled and treated before the water leaves the site. Straw bale dikes, silt fences, or vegetative buffer strips can be used to treat sheet flow.

All practices designed and implemented must be properly maintained in order to remain functional. Sediment accumulated in basins and traps must be removed and disposed of in a manner that stabilizes them on the construction site.

Other factors should be observed during construction in order to make erosion and sediment control measures more effective in pollution control.

These are:

1. Sprinkle or apply dust suppressors. Keep dust down to a tolerable limit on construction sites and haul roads.

2. Use temporary bridges or culverts where fording of streams is objectionable. Avoid borrow areas where pollution from this operation is inevitable.

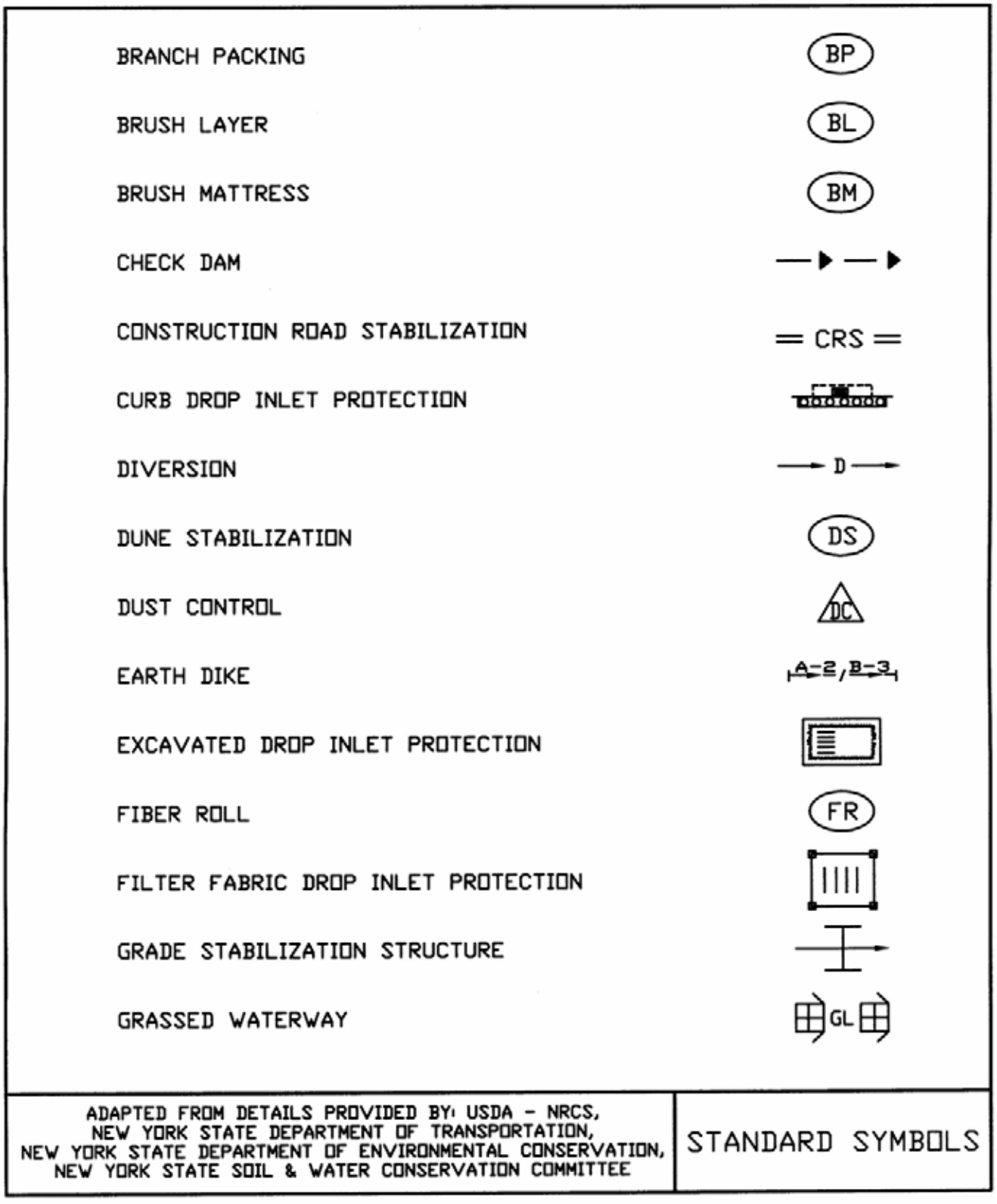
3. Protect streams from chemicals, fuel, lubricants, sewage, or other pollutants.

4. Avoid disposal of fill in floodplains or drainage ways. This reduces the capacity of these areas to pass flood flows.

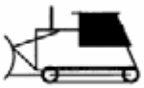
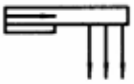
5. Do not locate sanitary facilities over, or adjacent to, waterways, wells, or springs.

6. Locate storage yards and stockpiles where erosion and sediment hazards are slight. Where this is not possible, apply necessary erosion control practices.

STANDARD SYMBOLS

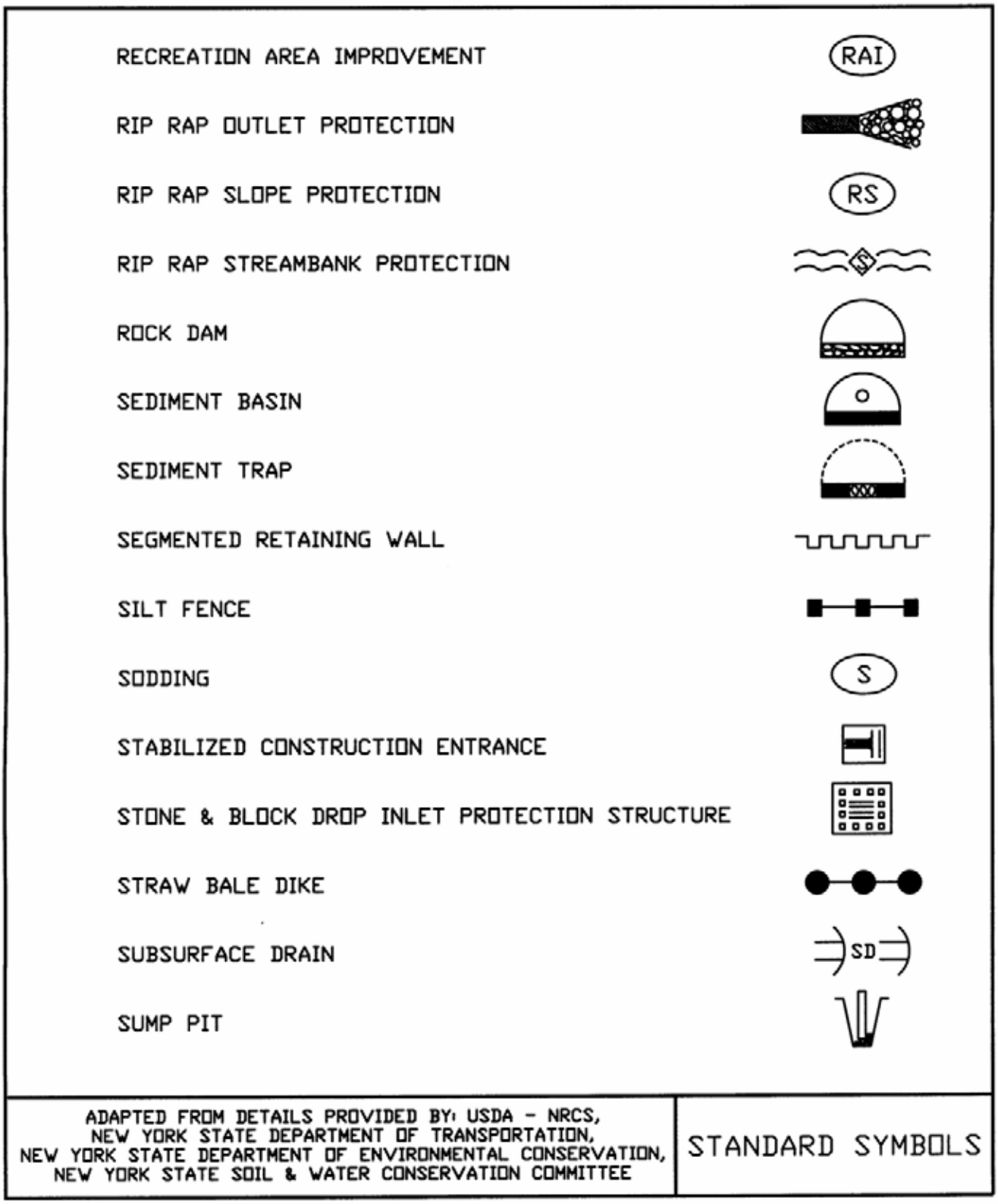


STANDARD SYMBOLS (cont'd)

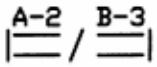
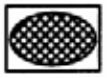
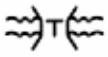
LAND GRADING	
LEVEL SPREADER	
LINED WATERWAY	
LIVE CRIBWALL	LCW
LIVE CUTTINGS/LIVE STAKES PLANTING	LC/LS
LIVE FASCINE	LF
MULCHING	M
OPTIONAL SEDIMENT TRAP DEWATERING DEVICE	
PAVED FLUME	
PERIMETER DIKE OR SWALE	PD
PERMANENT SEEDING	PS
PIPE OUTLET SEDIMENT TRAP	
PIPE SLOPE DRAIN FLEXIBLE	PSD
PORTABLE SEDIMENT TANK	
PROTECTING VEGETATION	

ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE	STANDARD SYMBOLS

STANDARD SYMBOLS (cont'd)



STANDARD SYMBOLS (cont'd)

SURFACE ROUGHENING	
TEMPORARY SEEDING	
TEMPORARY SWALE	
TOPSOILING	
TREE REVETMENT	
TURBIDITY CURTAIN	
VEGETATED ROCK GABIONS	
WATER BAR	
WATERWAY CROSSING	

ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE	STANDARD SYMBOLS

Attachment I:
NYSDEC Stormwater Construction Checklists (Sample Form)

Stormwater/Wetland Pond Construction Inspection Checklist

Project:
Location:
Site Status:

Date:

Time:

Inspector:

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
Pre-Construction/Materials and Equipment		
Pre-construction meeting		
Pipe and appurtenances on-site prior to construction and dimensions checked		
1. Material (including protective coating, if specified)		
2. Diameter		
3. Dimensions of metal riser or pre-cast concrete outlet structure		
4. Required dimensions between water control structures (orifices, weirs, etc.) are in accordance with approved plans		
5. Barrel stub for prefabricated pipe structures at proper angle for design barrel slope		
6. Number and dimensions of prefabricated anti-seep collars		
7. Watertight connectors and gaskets		
8. Outlet drain valve		
Project benchmark near pond site		
Equipment for temporary de-watering		

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
2. Subgrade Preparation		
Area beneath embankment stripped of all vegetation, topsoil, and organic matter		
3. Pipe Spillway Installation		
Method of installation detailed on plans		
A. Bed preparation		
Installation trench excavated with specified side slopes		
Stable, uniform, dry subgrade of relatively impervious material (If subgrade is wet, contractor shall have defined steps before proceeding with installation)		
Invert at proper elevation and grade		
B. Pipe placement		
Metal / plastic pipe		
1. Watertight connectors and gaskets properly installed		
2. Anti-seep collars properly spaced and having watertight connections to pipe		
3. Backfill placed and tamped by hand under “haunches” of pipe		
4. Remaining backfill placed in max. 8 inch lifts using small power tamping equipment until 2 feet cover over pipe is reached		

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
3. Pipe Spillway Installation		
Concrete pipe		
1. Pipe set on blocks or concrete slab for pouring of low cradle		
2. Pipe installed with rubber gasket joints with no spalling in gasket interface area		
3. Excavation for lower half of anti-seep collar(s) with reinforcing steel set		
4. Entire area where anti-seep collar(s) will come in contact with pipe coated with mastic or other approved waterproof sealant		
5. Low cradle and bottom half of anti-seep collar installed as monolithic pour and of an approved mix		
6. Upper half of anti-seep collar(s) formed with reinforcing steel set		
7. Concrete for collar of an approved mix and vibrated into place (protected from freezing while curing, if necessary)		
8. Forms stripped and collar inspected for honeycomb prior to backfilling. Parge if necessary.		
C. Backfilling		
Fill placed in maximum 8 inch lifts		
Backfill taken minimum 2 feet above top of anti-seep collar elevation before traversing with heavy equipment		

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
4. Riser / Outlet Structure Installation		
Riser located within embankment		
A. Metal riser		
Riser base excavated or formed on stable subgrade to design dimensions		
Set on blocks to design elevations and plumbed		
Reinforcing bars placed at right angles and projecting into sides of riser		
Concrete poured so as to fill inside of riser to invert of barrel		
B. Pre-cast concrete structure		
Dry and stable subgrade		
Riser base set to design elevation		
If more than one section, no spalling in gasket interface area; gasket or approved caulking material placed securely		
Watertight and structurally sound collar or gasket joint where structure connects to pipe spillway		
C. Poured concrete structure		
Footing excavated or formed on stable subgrade, to design dimensions with reinforcing steel set		
Structure formed to design dimensions, with reinforcing steel set as per plan		
Concrete of an approved mix and vibrated into place (protected from freezing while curing, if necessary)		
Forms stripped & inspected for “honeycomb” prior to backfilling; parge if necessary		

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
5. Embankment Construction		
Fill material		
Compaction		
Embankment		
1. Fill placed in specified lifts and compacted with appropriate equipment		
2. Constructed to design cross-section, side slopes and top width		
3. Constructed to design elevation plus allowance for settlement		
6. Impounded Area Construction		
Excavated / graded to design contours and side slopes		
Inlet pipes have adequate outfall protection		
Forebay(s)		
Pond benches		
7. Earth Emergency Spillway Construction		
Spillway located in cut or structurally stabilized with riprap, gabions, concrete, etc.		
Excavated to proper cross-section, side slopes and bottom width		
Entrance channel, crest, and exit channel constructed to design grades and elevations		

CONSTRUCTION SEQUENCE	SATISFACTORY / UNSATISFACTORY	COMMENTS
8. Outlet Protection		
A. End section		
Securely in place and properly backfilled		
B. Endwall		
Footing excavated or formed on stable subgrade, to design dimensions and reinforcing steel set, if specified		
Endwall formed to design dimensions with reinforcing steel set as per plan		
Concrete of an approved mix and vibrated into place (protected from freezing, if necessary)		
Forms stripped and structure inspected for "honeycomb" prior to backfilling; parge if necessary		
C. Riprap apron / channel		
Apron / channel excavated to design cross-section with proper transition to existing ground		
Filter fabric in place		
Stone sized as per plan and uniformly place at the thickness specified		
9. Vegetative Stabilization		
Approved seed mixture or sod		
Proper surface preparation and required soil amendments		
Excelsior mat or other stabilization, as per plan		

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
10. Miscellaneous		
Drain for ponds having a permanent pool		
Trash rack / anti-vortex device secured to outlet structure		
Trash protection for low flow pipes, orifices, etc.		
Fencing (when required)		
Access road		
Set aside for clean-out maintenance		
11. Stormwater Wetlands		
Adequate water balance		
Variety of depth zones present		
Approved pondscaping plan in place Reinforcement budget for additional plantings		
Plants and materials ordered 6 months prior to construction		
Construction planned to allow for adequate planting and establishment of plant community (April-June planting window)		
Wetland buffer area preserved to maximum extent possible		

Comments:

Actions to be Taken:

Open Channel System Construction Inspection Checklist

Project:
Location:
Site Status:

Date:

Time:

Inspector:

CONSTRUCTION SEQUENCE	SATISFACTORY / UNSATISFACTORY	COMMENTS
1. Pre-Construction		
Pre-construction meeting		
Runoff diverted		
Facility location staked out		
2. Excavation		
Size and location		
Side slope stable		
Soil permeability		
Groundwater / bedrock		
Lateral slopes completely level		
Longitudinal slopes within design range		
Excavation does not compact subsoils		
3. Check dams		
Dimensions		
Spacing		
Materials		

CONSTRUCTION SEQUENCE	SATISFACTORY / UNSATISFACTORY	COMMENTS
4. Structural Components		
Underdrain installed correctly		
Inflow installed correctly		
Pretreatment devices installed		
5. Vegetation		
Complies with planting specifications		
Topsoil adequate in composition and placement		
Adequate erosion control measures in place		
6. Final inspection		
Dimensions		
Check dams		
Proper outlet		
Effective stand of vegetation and stabilization		
Contributing watershed stabilized before flow is routed to the factility		

Comments:

Actions to be Taken:

Attachment J:
NYSDEC
Operation & Maintenance
Checklist
(Sample Form)

Stormwater Pond/Wetland Operation, Maintenance and Management Inspection Checklist

Project _____
Location: _____
Site Status: _____

Date: _____
Time: _____

Inspector: _____

Maintenance Item	Satisfactory/ Unsatisfactory	Comments
1. Embankment and emergency spillway (Annual, After Major Storms)		
1. Vegetation and ground cover adequate		
2. Embankment erosion		
3. Animal burrows		
4. Unauthorized planting		
5. Cracking, bulging, or sliding of dam		
a. Upstream face		
b. Downstream face		
c. At or beyond toe		
downstream		
upstream		
d. Emergency spillway		
6.Pond, toe & chimney drains clear and functioning		
7.Seeps/leaks on downstream face		
8.Slope protection or riprap failure		
9. Vertical/horizontal alignment of top of dam “As-Built”		

Maintenance Item	Satisfactory/ Unsatisfactory	Comments
10. Emergency spillway clear of obstructions and debris		
11. Other (specify)		
2. Riser and principal spillway (Annual)		
Type: Reinforced concrete _____ Corrugated pipe _____ Masonry _____ 1. Low flow orifice obstructed		
2. Low flow trash rack. a. Debris removal necessary		
b. Corrosion control		
3. Weir trash rack maintenance a. Debris removal necessary		
b. corrosion control		
4. Excessive sediment accumulation insider riser		
5. Concrete/masonry condition riser and barrels a. cracks or displacement		
b. Minor spalling (<1")		
c. Major spalling (rebars exposed)		
d. Joint failures		
e. Water tightness		
6. Metal pipe condition		
7. Control valve a. Operational/exercised		
b. Chained and locked		
8. Pond drain valve a. Operational/exercised		
b. Chained and locked		
9. Outfall channels functioning		
10. Other (specify)		

Maintenance Item	Satisfactory/ Unsatisfactory	Comments
3. Permanent Pool (Wet Ponds) (monthly)		
1. Undesirable vegetative growth		
2. Floating or floatable debris removal required		
3. Visible pollution		
4. Shoreline problem		
5. Other (specify)		
4. Sediment Forebays		
1.Sedimentation noted		
2. Sediment cleanout when depth < 50% design depth		
5. Dry Pond Areas		
1. Vegetation adequate		
2. Undesirable vegetative growth		
3. Undesirable woody vegetation		
4. Low flow channels clear of obstructions		
5. Standing water or wet spots		
6. Sediment and / or trash accumulation		
7. Other (specify)		
6. Condition of Outfalls (Annual , After Major Storms)		
1. Riprap failures		
2. Slope erosion		
3. Storm drain pipes		
4.Endwalls / Headwalls		
5. Other (specify)		
7. Other (Monthly)		
1. Encroachment on pond, wetland or easement area		

Maintenance Item	Satisfactory/ Unsatisfactory	Comments
2. Complaints from residents		
3.Aesthetics a. Grass growing required		
b. Graffiti removal needed		
c. Other (specify)		
4. Conditions of maintenance access routes.		
5. Signs of hydrocarbon build-up		
6. Any public hazards (specify)		
8. Wetland Vegetation (Annual)		
1. Vegetation healthy and growing Wetland maintaining 50% surface area coverage of wetland plants after the second growing season. (If unsatisfactory, reinforcement plantings needed)		
2. Dominant wetland plants: Survival of desired wetland plant species Distribution according to landscaping plan?		
3. Evidence of invasive species		
4. Maintenance of adequate water depths for desired wetland plant species		
5. Harvesting of emergent plantings needed		
6. Have sediment accumulations reduced pool volume significantly or are plants “choked” with sediment		
7. Eutrophication level of the wetland.		
8. Other (specify)		

Comments:

Actions to be Taken:

Open Channel Operation, Maintenance, and Management Inspection Checklist

Project:
Location:
Site Status:

Date:

Time:

Inspector:

MAINTENANCE ITEM	SATISFACTORY/ UNSATISFACTORY	COMMENTS
1. Debris Cleanout (Monthly)		
Contributing areas clean of debris		
2. Check Dams or Energy Dissipators (Annual, After Major Storms)		
No evidence of flow going around structures		
No evidence of erosion at downstream toe		
Soil permeability		
Groundwater / bedrock		
3. Vegetation (Monthly)		
Mowing done when needed		
Minimum mowing depth not exceeded		
No evidence of erosion		
Fertilized per specification		
4. Dewatering (Monthly)		
Dewaters between storms		

MAINTENANCE ITEM	SATISFACTORY/ UNSATISFACTORY	COMMENTS
5. Sediment deposition (Annual)		
Clean of sediment		
6. Outlet/Overflow Spillway (Annual)		
Good condition, no need for repairs		
No evidence of erosion		

Comments:

Actions to be Taken:

Attachment K:
Stormwater Management Summary

INDEX

Stormwater Management Summary

Site Date – General 2

Runoff Reduction Management Strategy 4

Design Point 1 Summary (DP-1) 6

Methodology 7

Design Modeling Results 8

Stage Storage Tables 9

Water Quality Volume/Runoff Reduction Volume Worksheets ..... Appendix 1

Hydraulic Modeling Results ..... Appendix 2

Soils ..... Appendix 3

Precipitation Data ..... Appendix 4

STORMWATER MANAGEMENT SUMMARY

SITE DATA - GENERAL

Site Notes: This summary has been prepared for major activities associated with the ongoing operation of a contractor work yard in the Town of Lansing. The production originally started in 2011 which was allowed use by right through the Town. In 2016, a full site plan review process was conducted for a conceptual apartment complex located downslope from the facility which included an approved SWPPP. As part of the storm plan, the work yard was allowed continued use by right but several restrictions were placed on the property limiting the size and scope of the work zone while also requiring the installation of a stormwater management sump practice to provide runoff mitigation and attenuation. Because the apartment complex was never realized, the 2016 restrictions became null and void with the exception that the operation would now be required to carry its own SWPPP.

Subcatchment Evaluation: There is one pre-developed (existing) watershed subcatchments (ESC-1) for this site totaling 449,606-SF (10.32-AC). This area is isolated from eastern upland watershed runoff by a road R.O.W. drainage ditch along Scofield Road and a large berm along the southern parcel line Peruville Road. In as much as flow naturally moves in a northwest direction across the site, this prevents influences onto the parcel from the north. General site runoff is directed toward the west over moderately flat slopes where it terminates into an existing 1' dry pond (sump) sedimentation basin designed to capture and treat flow. Any surge from the practice outlets harmlessly where it eventually finds its way into the Peruville Road R.O.W. swale below. (DP-1).

Because the contractor work yard has been in operation since 2011, this Full Stormwater Pollution Prevention Plan (SWPPP) addresses runoff concerns. As such, the proposed runoff model generally mirrors that of the existing site conditions with the exception that the site has expanded from 2.57-Ac to 4.93-AC through the years. As such the sedimentation basin will need an additional 1' of volume added to ensure that it can continue to meet runoff attenuation requirements from Proposed Subcatchment 1 (PSC-1)

Site Control Methods: This project follows DEC design standards on runoff reduction by applying a sedimentation basin to address runoff concerns.

Site Soils: There are a two soil types in hydrologic soil groups A and C located across the site. Palmyra gravelly loam (PaC) belongs in the hydrologic soil group A with a well drained permeability range of 0.63 – 6.3 inches per hour. Finally, Kendaia (KnA) is a somewhat poorly drained C type soil with a slow permeability of 0.20 inches per hour. See Appendix 3 for more information.

Soils data was obtained from the Tompkins County Soil Survey conducted by the USDA Soil Conservation Service and the on-line Web Soil Survey.

Site Topography: The site as a whole has a varied slope of <1% - 5% primarily moving downhill from east to west.

Site Watershed: Of the 10.32-acre watershed, the area of disturbance will continue to be approximately 4.93-acres. Flow is channeled across the property into a sedimentation basin.

Rainfall: Rainfall data used in the modeling and analysis was taken from www.precipt.net, from the Northeast Regional Climate Center which is an accepted NYSDEC reference. Rainfall data specific to Tompkins County under consideration, for various 24-hour storm events tabled below:

RAINFALL DATA

STORM	24-HOUR RAINFALL
1-year	2.0 inches
10-year	3.41 inches
100-year	5.85 inches

These values were used in modeling for the evaluation of existing and proposed stormwater run-off conditions.

RUNOFF REDUCTION VOLUME MANAGEMENT STRATEGY

(See Appendix 1 for Worksheet Analyses)

1. **Water Quality Volume and Runoff Reduction Stormwater Management Strategy** - *Reference modeling results and WQv/RRv worksheets which follow this summary:*

The total site water quality volume for DP-1 is

DP-1 WQv = 17,000 cu-ft (0.390)

Of this amount, there was no potential for the conservation of natural areas, protection of riparian areas, tree planting, rooftop disconnection, etc. that would lend to a reduction in total WQv.

WQv credit = 0 *cuft (0.00 af)*

The minimum RRv was based on the following calculation:

Soil group for site:

A – 2.47-AC S = 55%
C – 2.47-AC S = 30%

Minimum RRv:

S = 0.43
Impervious Area = 4.93-AC
Precipitation = 1.0 in
Rv = 0.95

Minimum Rv = [(P)(Rv)(A)] /12 = ((1.0 **** 0.95"/AC * 4.93AC**)/12)0.43* =

7,225 cuft or, 0.170-acft

2. **Water Quality Volume Treatment Practices**

A single sedimentation basin dry pond is used to capture and treat runoff. A summary of total runoff reduction volumes is provided in the table below:

Subcatchment	Required RRv (cuft)	RRv Applied (Cuft)	Practice
PSC-1	7,225	17,000	3P

3. Total of RRv

Total RRv provided by practices 17,000 cuft (0.390-AF)
Total Remaining Storage Volume for practices (after RRv) 17000 cuft - 17000 cuft = 0 cuft (0.0af)

Is provided RRv > minimum RRv for all soils from #1? 0.390 acft > 0.170 acft **YES**
Is provided RRv > adjusted WQv from #1? 0.390 acft > 0.390 acft **YES**

Is volume available within standard practices for remaining untreated WQv?

Total WQv 0.390AF
RRv 0.390 AF
Remaining WQv 0.0AF (0-CF)

YES

Is all of the watershed drainage area treated by either area reduction or source control practices? **YES**

Is all of the watershed impervious area treated with either reduction or source control practices? **YES**

Minimum runoff reduction requirements are met for this project.

DP-1

Design Point 1 Summary (DP-1)

CONTROL SIZING

Sedimentation Basin

Please see the attached worksheets to determine bioretention area sizing.

Cpv = 24 hour extended detention of post-developed 1-year, 24-hour Storm event. The required CPv is a summation of the modeled 1 yr runoff output from each untreated subcatchment (**2.0-inch rainfall Tompkins County**) after runoff reduction (RRv). **1 yr Cpv 0.193-AF – RRV 0.390-AF = -0.00-AF (-0.00)-CF**

The **Cpv** Channel Protection Volume is provided by the basin practices as determined by measuring the storage volume allowed between the floor of the practice at (0.0') and the primary outlet (1.5'), less the amount required for RRV.

CPv conditions are met.

Overbank Flood (Qp) – DP1

Qp = Controls the peak discharge from the 10-year storm **(3.41-inch rainfall Tompkins County)** to 10-year predevelopment rates.

Pre-developed max rate = **0.00-CFS**, Total Volume = 0.000AF (0-CF).

The maximum post-developed run-off rate with the bioretention areas in-line is 0-CFS, and the total run-off volume is 0.000-AF (0-CF).

The **Qp** Overbank Flood control criterion is met with the sump area in-line.

Extreme Storm (Qf) – DP1

Control the peak discharge from the 100-year storm **(5.85-inch rainfall Tompkins County)** to 100-year predevelopment rates. Safely pass the 100-year storm event.

Pre-developed max run-off rate = **6.12-CFS**, Total Volume = 0.770-AF (33,541-CF).

The maximum post-developed run-off rate with the structure inline is 5.64-CFS, and the total run-off volume is 0.946-AF (41,208-CF).

The **Qf** Extreme Storm control criterion is met with the sedimentation basin in-line.

METHODOLOGY

The methodology used for the hydrologic and hydraulic analysis was obtained from the United States Department of Agriculture (USDA) Soil Conservation Service's (SCS) Technical Release No. 20, as implemented by the application program HydroCAD. HydroCAD, developed by Applied Microcomputer Systems of Chocorua, New Hampshire, is a Computer-Aided-Design (CAD) program for analyzing the hydrologic and hydraulic characteristics of a given watershed and associated stormwater management facilities. It utilizes the latest modeling techniques to predict the consequences of any given storm.

HydroCAD has the capability of computing hydrographs and routing flows through pipes, streams and ponds. Hydrographs represent discharge rates characteristic of specified watershed conditions, precipitation and geologic factors.

For this analysis, the watershed and drainage system was broken down into a network consisting of three types of components described below:

Subcatchment: A relatively homogeneous area of land, which produces a volume and rate of surface run-off unique to that area.

Reach: Uniform streams, channels or pipes which convey stormwater from one distinct point to another reach or pond.

Pond: Natural or man-made impoundment (ie. pond), which temporarily stores stormwater run-off and empties in a manner determined by its geometry and the hydraulic structure located at its outlet(s).

Subcatchments, reaches and ponds are represented by hexagons, squares and triangles, respectively, on the watershed routing diagrams provided with the computations reference modeling results attached.

Modeling Results Tabled:

(See Appendix 2 for actual modeling data)

DP1

EXISTING
EXISTING FLOW CONDITIONS AT DESIGN POINT (DP1)

STORM EVENT	*PEAK FLOW (CFS)*	*TOTAL VOLUME (AF)*
1-year	*0.00*	*0.000*
10-year	*0.00*	*0.000*
100-year	*6.12*	*0.770*

PROPOSED
WITH SEDIMENTATION BASIN IN-LINE
PROPOSED FLOW CONDITIONS AT DESIGN POINT (DP1)

STORM EVENT	*PEAK FLOW (CFS)*	*TOTAL VOLUME (AF)*
1-year	*0.00*	*0.000*
10-year	*0.00*	*0.000*
100-year	*5.64*	*0.946*

The run-off rates decrease for the 10 and 100 yr storm events as modeled.

Stage Storage Tables:

BASIN 1 STAGE-STORAGE TABLE 3P

STORM EVENT	*PEAK STORAGE (CF)*	*PEAK DEPTH (FT)*
WQv	*17000*	*1.03'*
*1 year (***Cpv***)*	*0*	*0.00'*
10 year	*0*	*0.00'*
100 year	*55,753*	*2.92'*

Notes:
Bottom of Practice El. = 0.00'
8' x 4' Broad Crested Weir Outlet inv. = 2.50'
Top of Embankment Elev. = 3.00'

APPENDIX 1

WATER QUALITY VOLUME/RUNOFF REDUCTION WORKSHEETS

Version 1.6
Last Updated: 03/28/2014

Total Water Quality Volume Calculation
WQv(acre-feet) = [(P)(Rv)(A)] /12

Is this project subject to Chapter 10 of the NYS Design Manual (i.e. WQv is equal to post-development 1 year runoff volume)?.....	No

Design Point:	1	
P=	1.00	*inch*

Manually enter P, Total Area and Impervious Cover.

Breakdown of Subcatchments

Catchment Number	Total Area *(Acres)*	Impervious Area *(Acres)*	Percent Impervious *%*	Rv	WQv *(ft^3)*	Description
1	4.93	4.93	100%	0.95	17,001	Sedimentation Basin
2						
3						
4						
5						
6						
7						
8						
9						
10						
Subtotal (1-30)	4.93	4.93	100%	0.95	**17,001**	**Subtotal 1**
Total	4.93	4.93	100%	0.95	**17,001**	**Initial WQv**

Identify Runoff Reduction Techniques By Area

Technique	Total Contributing Area *(Acre)*	Contributing Impervious Area *(Acre)*	Notes
Conservation of Natural Areas	0.00	0.00	*minimum 10,000 sf*
Riparian Buffers	0.00	0.00	*maximum contributing length 75 feet to 150 feet*
Filter Strips	0.00	0.00	
Tree Planting	0.00	0.00	*Up to 100 sf directly connected impervious area may be subtracted per tree*
Total	**0.00**	**0.00**	

Recalculate WQv after application of Area Reduction Techniques

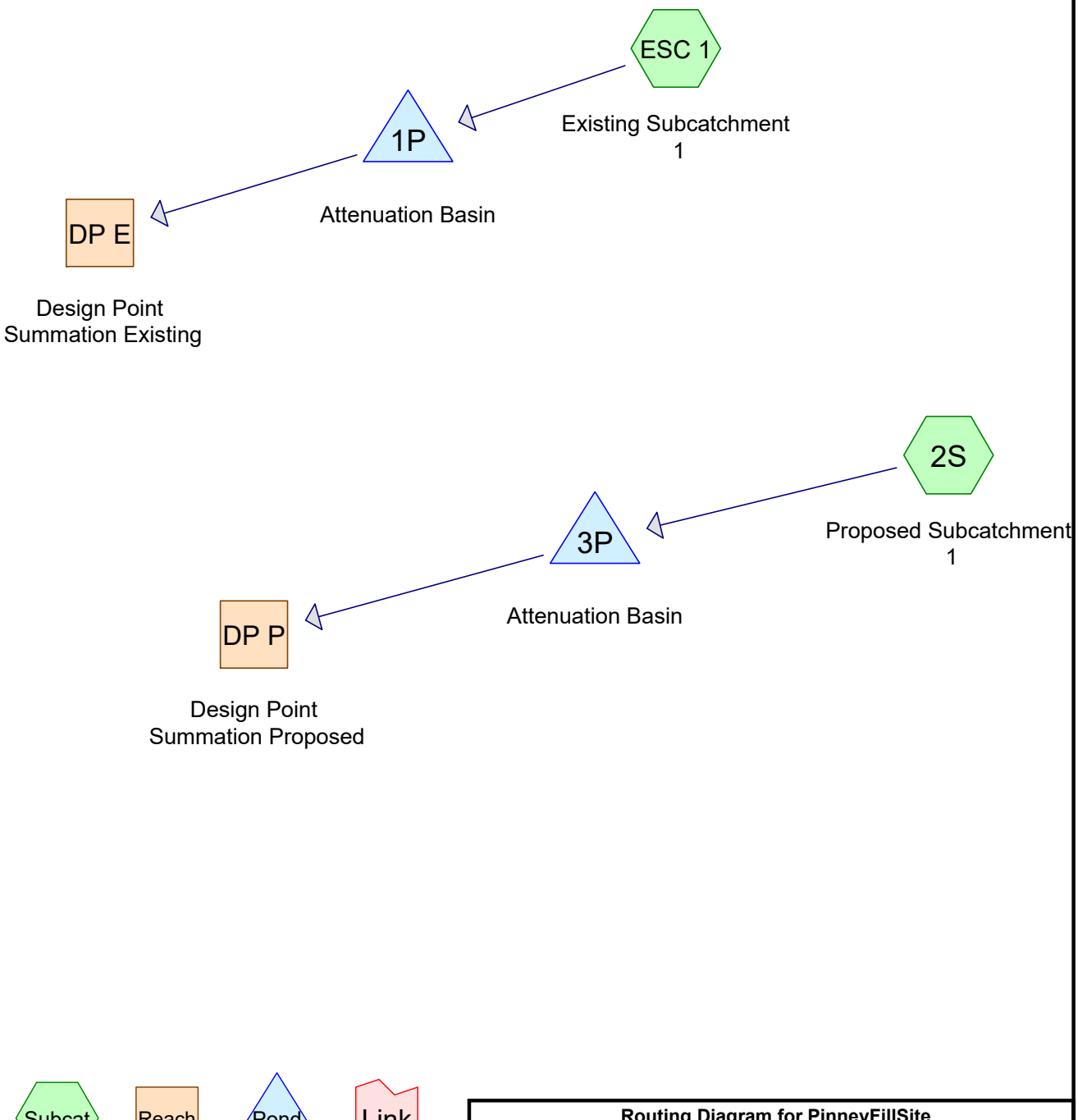
	Total Area *(Acres)*	Impervious Area *(Acres)*	Percent Impervious *%*	Runoff Coefficient Rv	WQv *(ft^3)*
"<<Initial WQv"	4.93	4.93	100%	0.95	17,001
Subtract Area	0.00	0.00			
WQv adjusted after Area Reductions	**4.93**	**4.93**	100%	0.95	17,001
Disconnection of Rooftops		0.00			

Minimum RRv

Enter the Soils Data for the site		
Soil Group	Acres	S
A	2.47	55%
B		40%
C	2.47	30%
D		20%
Total Area	4.94	
Calculate the Minimum RRv		
S =	**0.43**	
Impervious =	4.93	*acre*
Precipitation	1	*in*
Rv	0.95	
Minimum RRv	**7,225**	***ft3***
	0.17	af

APPENDIX 2

HYDRAULIC MODELING DATA



Subcat Reach Pond Link

Routing Diagram for PinneyFillSite
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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
5.971	30	Brush, Good, HSG A (2S, ESC 1)
5.648	65	Brush, Good, HSG C (2S, ESC 1)
6.630	98	Compacted Fill Site A & C Soils (2S, ESC 1)
1.328	30	Future Fill Site Brush, Good, HSG A (ESC 1)
0.190	65	Future Fill Site Brush, Good, HSG C (ESC 1)
0.877	98	Paved parking & roofs (2S, ESC 1)
20.643	**65**	**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
5.971	0.000	5.648	0.000	0.000	11.619	Brush, Good	2S, ES C 1
0.000	0.000	0.000	0.000	6.630	6.630	Compacted Fill Site A & C Soils	2S, ES C 1
1.328	0.000	0.190	0.000	0.000	1.518	Future Fill Site Brush, Good	ES C 1
0.000	0.000	0.000	0.000	0.877	0.877	Paved parking & roofs	2S, ES C 1
7.299	**0.000**	**5.838**	**0.000**	**7.507**	**20.643**	**TOTAL AREA**	

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 2S: Proposed Runoff Area=449,606 sf 47.78% Impervious Runoff Depth>0.22"
Flow Length=932' Tc=26.9 min CN=71 Runoff=1.58 cfs 0.193 af

Subcatchment ESC 1: Existing Runoff Area=449,606 sf 24.94% Impervious Runoff Depth>0.03"
Flow Length=814' Tc=24.9 min CN=58 Runoff=0.04 cfs 0.022 af

Reach DP E: Design Point Summation Existing Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach DP P: Design Point Summation Proposed Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Pond 1P: Attenuation Basin Peak Elev=73.08' Storage=966 cf Inflow=0.04 cfs 0.022 af
Outflow=0.00 cfs 0.000 af

Pond 3P: Attenuation Basin Peak Elev=72.57' Storage=8,402 cf Inflow=1.58 cfs 0.193 af
Outflow=0.00 cfs 0.000 af

Total Runoff Area = 20.643 ac Runoff Volume = 0.215 af Average Runoff Depth = 0.13"
63.64% Pervious = 13.136 ac 36.36% Impervious = 7.507 ac

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Summary for Subcatchment 2S: Proposed Subcatchment 1

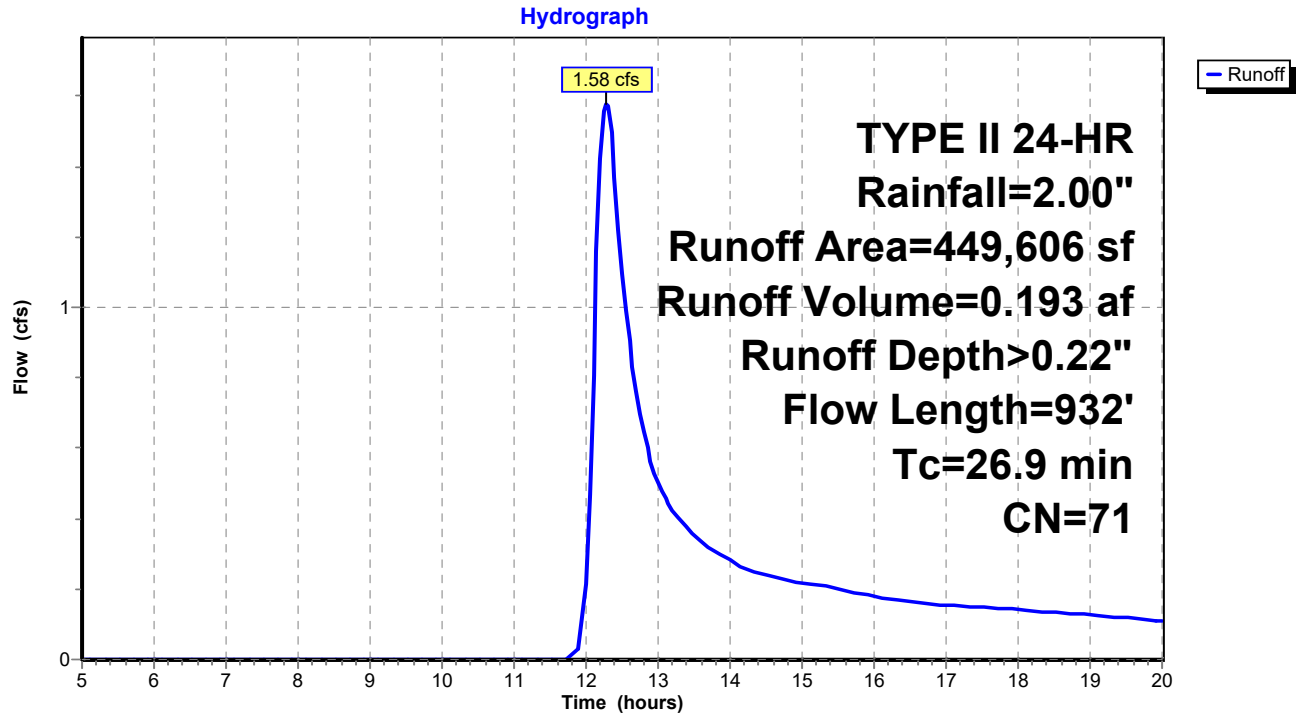
Runoff = 1.58 cfs @ 12.28 hrs, Volume= 0.193 af, Depth> 0.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=2.00"

	Area (sf)	CN	Description
	113,251	65	Brush, Good, HSG C
	121,512	30	Brush, Good, HSG A
	17,128	98	Paved parking & roofs
*	197,715	98	Compacted Fill Site A & C Soils
	449,606	71	Weighted Average
	234,763		52.22% Pervious Area
	214,843		47.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.5	100	0.0100	0.08		**Sheet Flow, First 100' Flowpath** Grass: Dense n= 0.240 P2= 2.70"
6.4	832	0.0180	2.16		**Shallow Concentrated Flow, Balance of Longest Flowpath** Unpaved Kv= 16.1 fps
26.9	932	Total			

Subcatchment 2S: Proposed Subcatchment 1



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Summary for Subcatchment ESC 1: Existing Subcatchment 1

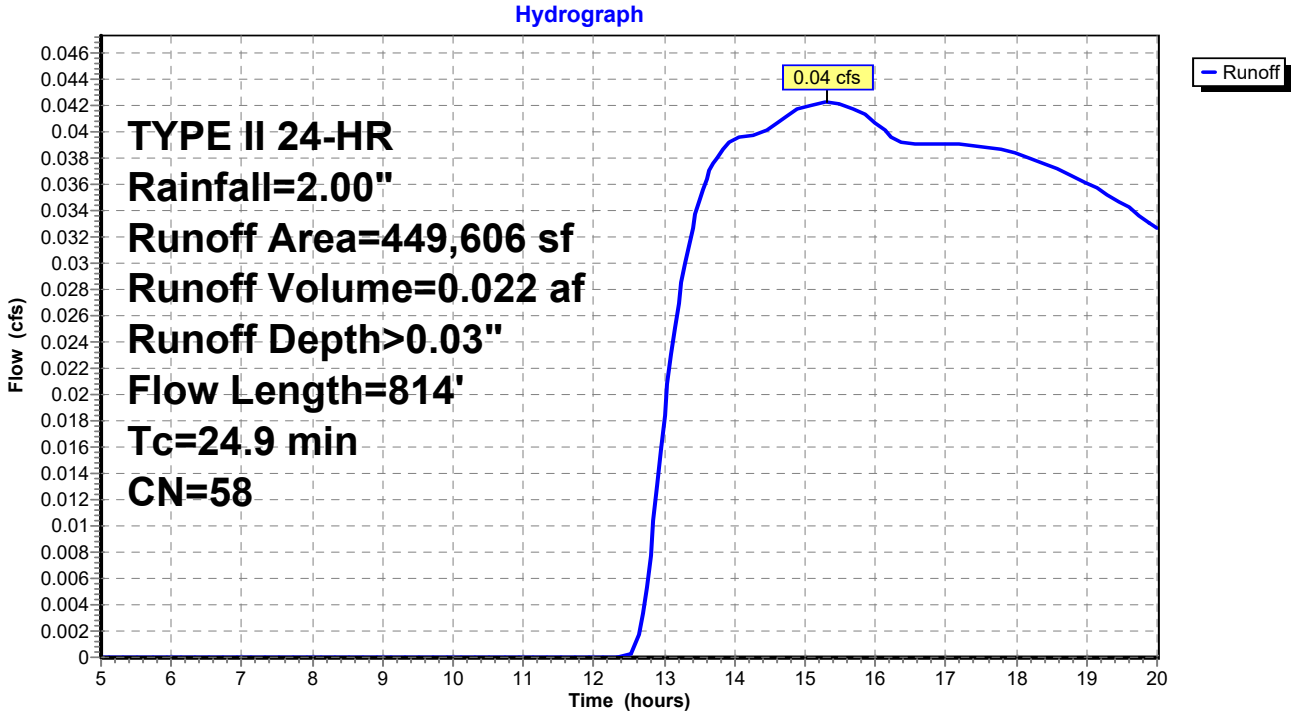
Runoff = 0.04 cfs @ 15.31 hrs, Volume= 0.022 af, Depth> 0.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=2.00"

	Area (sf)	CN	Description
	132,773	65	Brush, Good, HSG C
	138,575	30	Brush, Good, HSG A
	21,061	98	Paved parking & roofs
*	91,084	98	Compacted Fill Site A & C Soils
*	57,845	30	Future Fill Site Brush, Good, HSG A
*	8,268	65	Future Fill Site Brush, Good, HSG C
	449,606	58	Weighted Average
	337,461		75.06% Pervious Area
	112,145		24.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.5	100	0.0100	0.08		**Sheet Flow, First 100' Flowpath** Grass: Dense n= 0.240 P2= 2.70"
4.4	714	0.0320	2.68		**Shallow Concentrated Flow, Balance of Longest Flowpath** Grassed Waterway Kv= 15.0 fps
24.9	814	Total			

Subcatchment ESC 1: Existing Subcatchment 1



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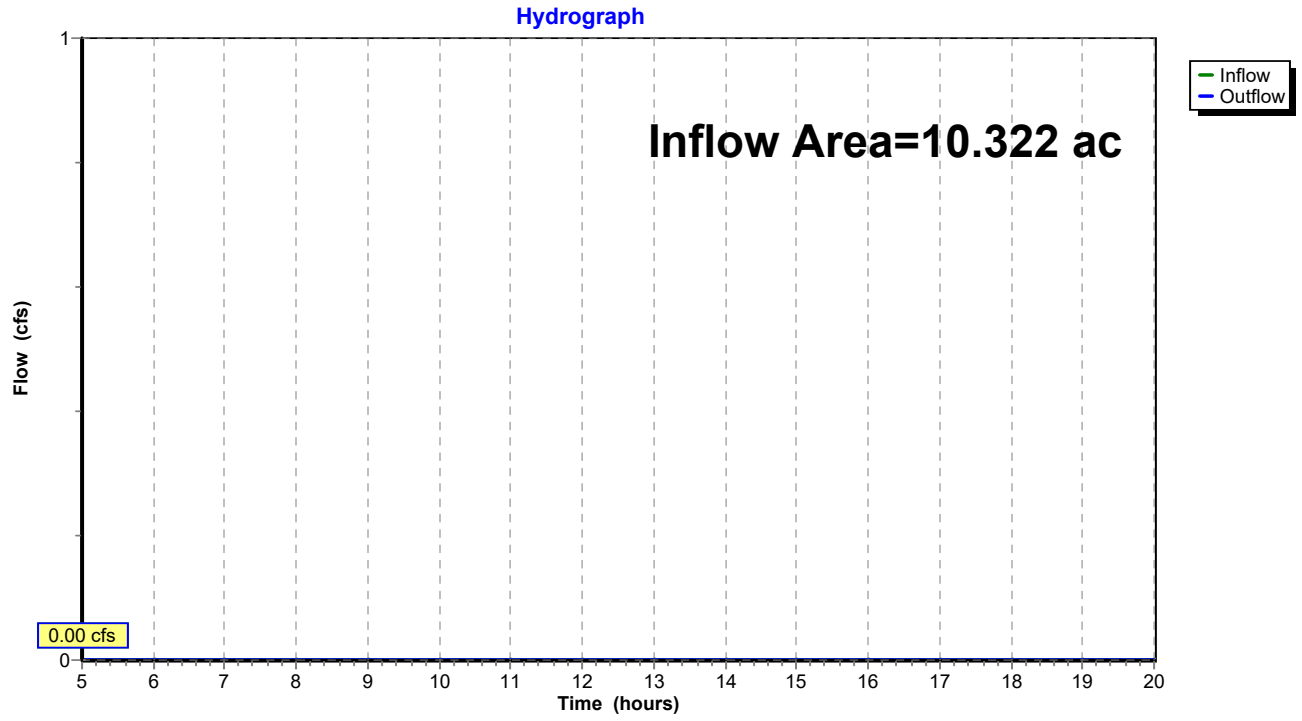
Summary for Reach DP E: Design Point Summation Existing

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 10.322 ac, 24.94% Impervious, Inflow Depth = 0.00"
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach DP E: Design Point Summation Existing



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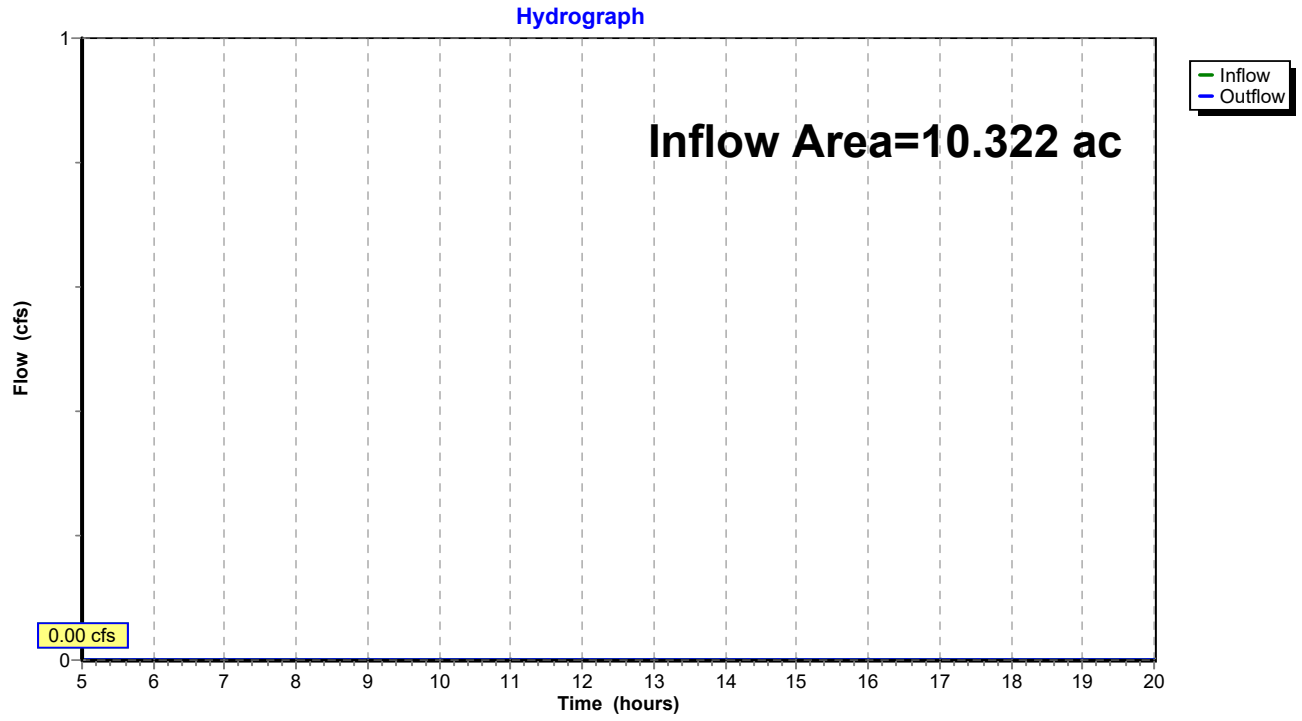
Summary for Reach DP P: Design Point Summation Proposed

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 10.322 ac, 47.78% Impervious, Inflow Depth = 0.00"
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach DP P: Design Point Summation Proposed



Summary for Pond 1P: Attenuation Basin

Inflow Area = 10.322 ac, 24.94% Impervious, Inflow Depth > 0.03"
Inflow = 0.04 cfs @ 15.31 hrs, Volume= 0.022 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 73.08' @ 20.00 hrs Surf.Area= 11,884 sf Storage= 966 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

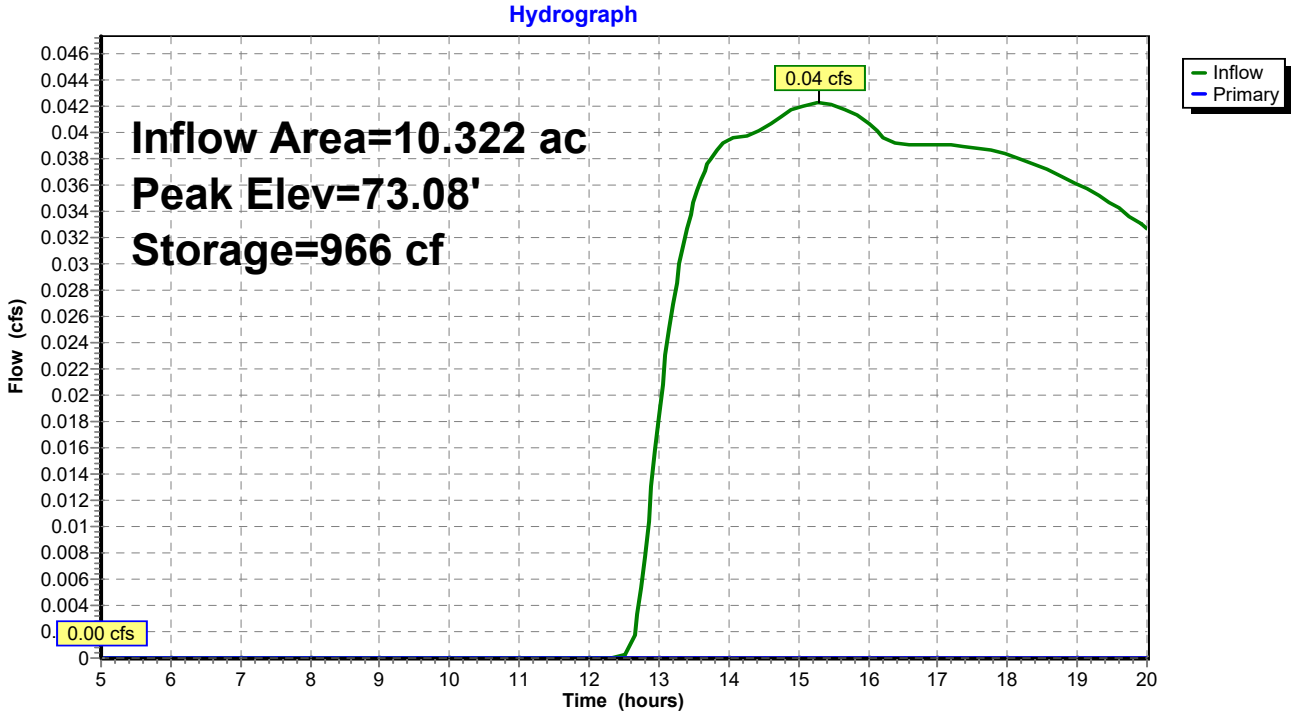
Volume	Invert	Avail.Storage	Storage Description
#1	73.00'	23,317 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
73.00	11,363	0	0
74.00	17,635	14,499	14,499
75.00	0	8,818	23,317

Device	Routing	Invert	Outlet Devices
#1	Primary	74.50'	**8.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=73.00' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 1P: Attenuation Basin



Summary for Pond 3P: Attenuation Basin

Inflow Area = 10.322 ac, 47.78% Impervious, Inflow Depth > 0.22"
Inflow = 1.58 cfs @ 12.28 hrs, Volume= 0.193 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 72.57' @ 20.00 hrs Surf.Area= 17,031 sf Storage= 8,402 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

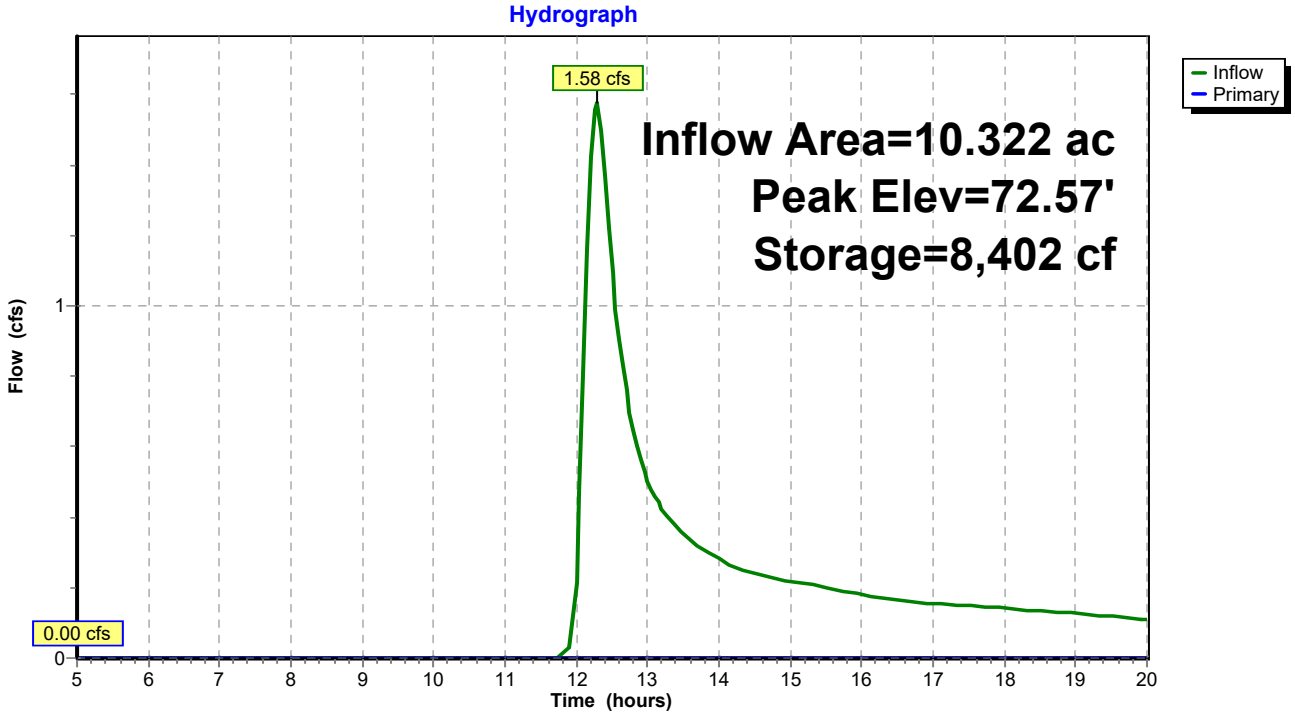
Volume	Invert	Avail.Storage	Storage Description
#1	72.00'	55,838 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
72.00	12,395	0	0
73.00	20,512	16,454	16,454
74.00	29,128	24,820	41,274
75.00	0	14,564	55,838

Device	Routing	Invert	Outlet Devices
#1	Primary	74.50'	**8.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=72.00' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 3P: Attenuation Basin



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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
5.971	30	Brush, Good, HSG A (2S, ESC 1)
5.648	65	Brush, Good, HSG C (2S, ESC 1)
6.630	98	Compacted Fill Site A & C Soils (2S, ESC 1)
1.328	30	Future Fill Site Brush, Good, HSG A (ESC 1)
0.190	65	Future Fill Site Brush, Good, HSG C (ESC 1)
0.877	98	Paved parking & roofs (2S, ESC 1)
20.643	**65**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
7.299	HSG A	2S, ESC 1
0.000	HSG B	
5.838	HSG C	2S, ESC 1
0.000	HSG D	
7.507	Other	2S, ESC 1
20.643		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
5.971	0.000	5.648	0.000	0.000	11.619	Brush, Good	2S, ES C 1
0.000	0.000	0.000	0.000	6.630	6.630	Compacted Fill Site A & C Soils	2S, ES C 1
1.328	0.000	0.190	0.000	0.000	1.518	Future Fill Site Brush, Good	ES C 1
0.000	0.000	0.000	0.000	0.877	0.877	Paved parking & roofs	2S, ES C 1
7.299	**0.000**	**5.838**	**0.000**	**7.507**	**20.643**	**TOTAL AREA**	

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 2S: Proposed Runoff Area=449,606 sf 47.78% Impervious Runoff Depth>0.90"
Flow Length=932' Tc=26.9 min CN=71 Runoff=8.79 cfs 0.770 af

Subcatchment ESC 1: Existing Runoff Area=449,606 sf 24.94% Impervious Runoff Depth>0.35"
Flow Length=814' Tc=24.9 min CN=58 Runoff=2.47 cfs 0.303 af

Reach DP E: Design Point Summation Existing Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Reach DP P: Design Point Summation Proposed Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Pond 1P: Attenuation Basin Peak Elev=73.92' Storage=13,162 cf Inflow=2.47 cfs 0.303 af
Outflow=0.00 cfs 0.000 af

Pond 3P: Attenuation Basin Peak Elev=73.72' Storage=33,508 cf Inflow=8.79 cfs 0.770 af
Outflow=0.00 cfs 0.000 af

Total Runoff Area = 20.643 ac Runoff Volume = 1.072 af Average Runoff Depth = 0.62"
63.64% Pervious = 13.136 ac 36.36% Impervious = 7.507 ac

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Summary for Subcatchment 2S: Proposed Subcatchment 1

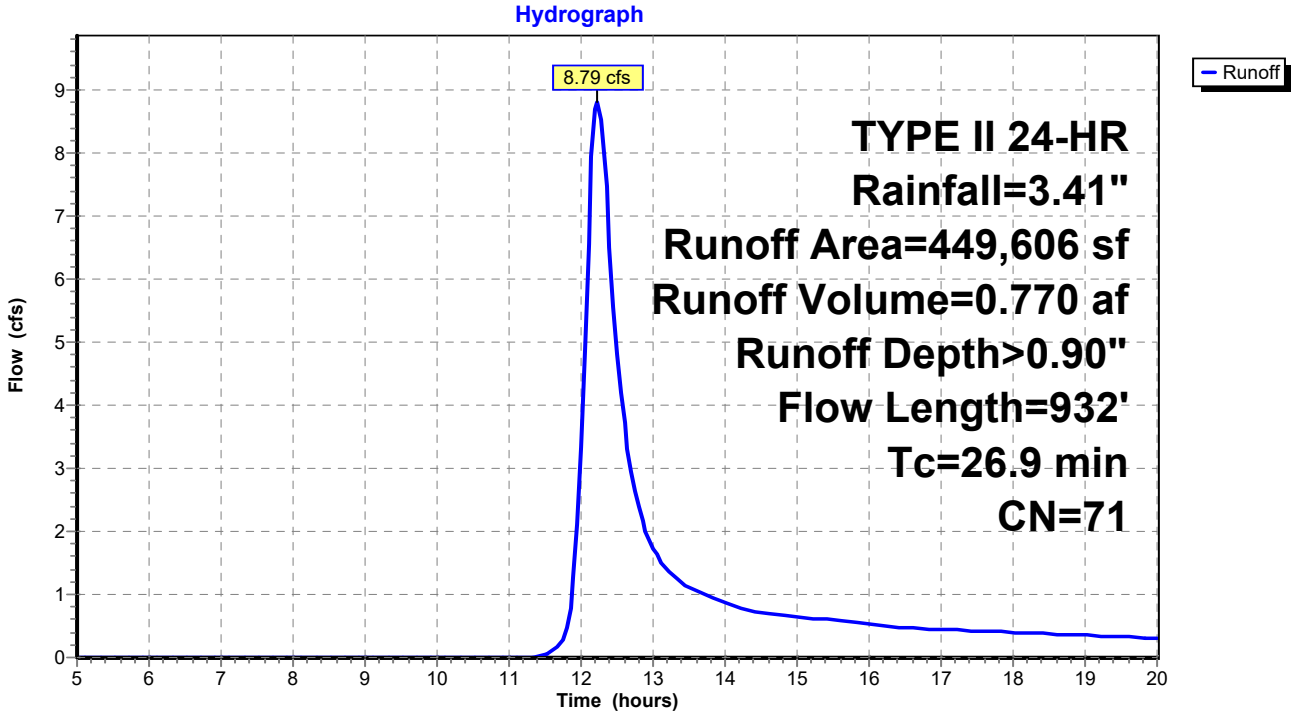
Runoff = 8.79 cfs @ 12.23 hrs, Volume= 0.770 af, Depth> 0.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=3.41"

	Area (sf)	CN	Description
	113,251	65	Brush, Good, HSG C
	121,512	30	Brush, Good, HSG A
	17,128	98	Paved parking & roofs
*	197,715	98	Compacted Fill Site A & C Soils
	449,606	71	Weighted Average
	234,763		52.22% Pervious Area
	214,843		47.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.5	100	0.0100	0.08		**Sheet Flow, First 100' Flowpath** Grass: Dense n= 0.240 P2= 2.70"
6.4	832	0.0180	2.16		**Shallow Concentrated Flow, Balance of Longest Flowpath** Unpaved Kv= 16.1 fps
26.9	932	Total			

Subcatchment 2S: Proposed Subcatchment 1



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Summary for Subcatchment ESC 1: Existing Subcatchment 1

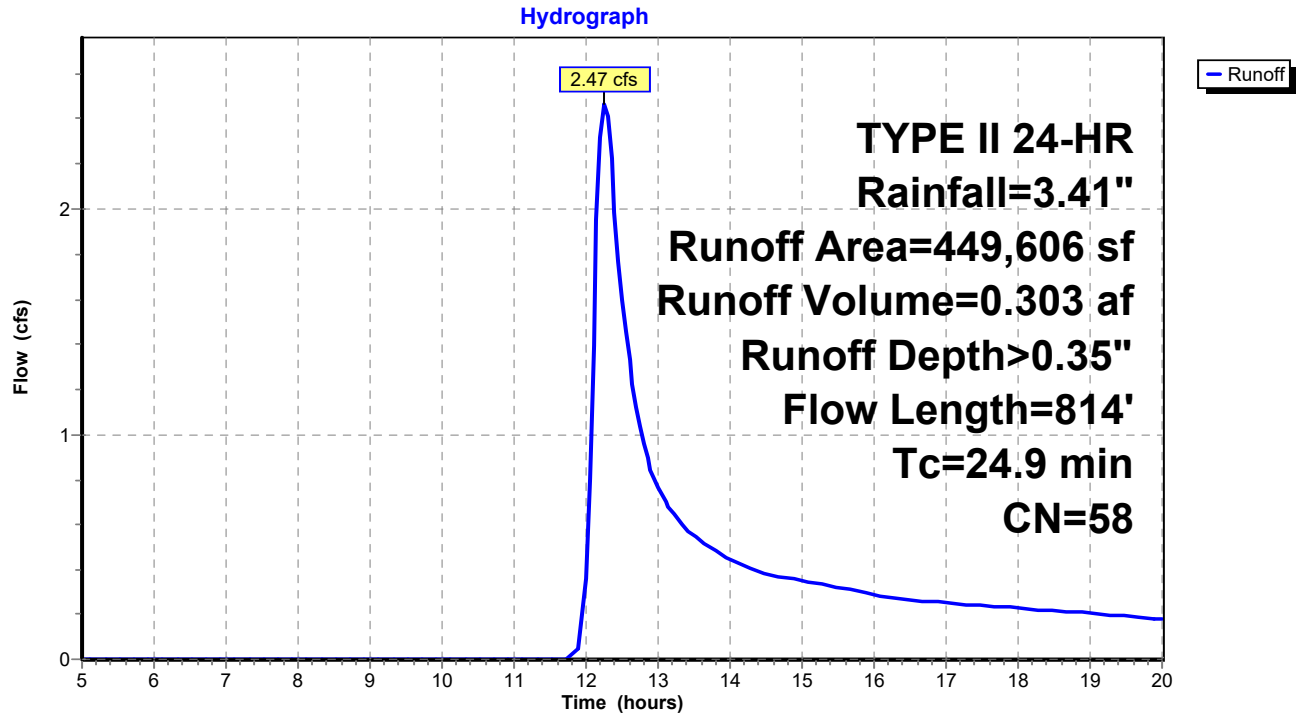
Runoff = 2.47 cfs @ 12.26 hrs, Volume= 0.303 af, Depth> 0.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=3.41"

	Area (sf)	CN	Description
	132,773	65	Brush, Good, HSG C
	138,575	30	Brush, Good, HSG A
	21,061	98	Paved parking & roofs
*	91,084	98	Compacted Fill Site A & C Soils
*	57,845	30	Future Fill Site Brush, Good, HSG A
*	8,268	65	Future Fill Site Brush, Good, HSG C
	449,606	58	Weighted Average
	337,461		75.06% Pervious Area
	112,145		24.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.5	100	0.0100	0.08		**Sheet Flow, First 100' Flowpath** Grass: Dense n= 0.240 P2= 2.70"
4.4	714	0.0320	2.68		**Shallow Concentrated Flow, Balance of Longest Flowpath** Grassed Waterway Kv= 15.0 fps
24.9	814	Total			

Subcatchment ESC 1: Existing Subcatchment 1



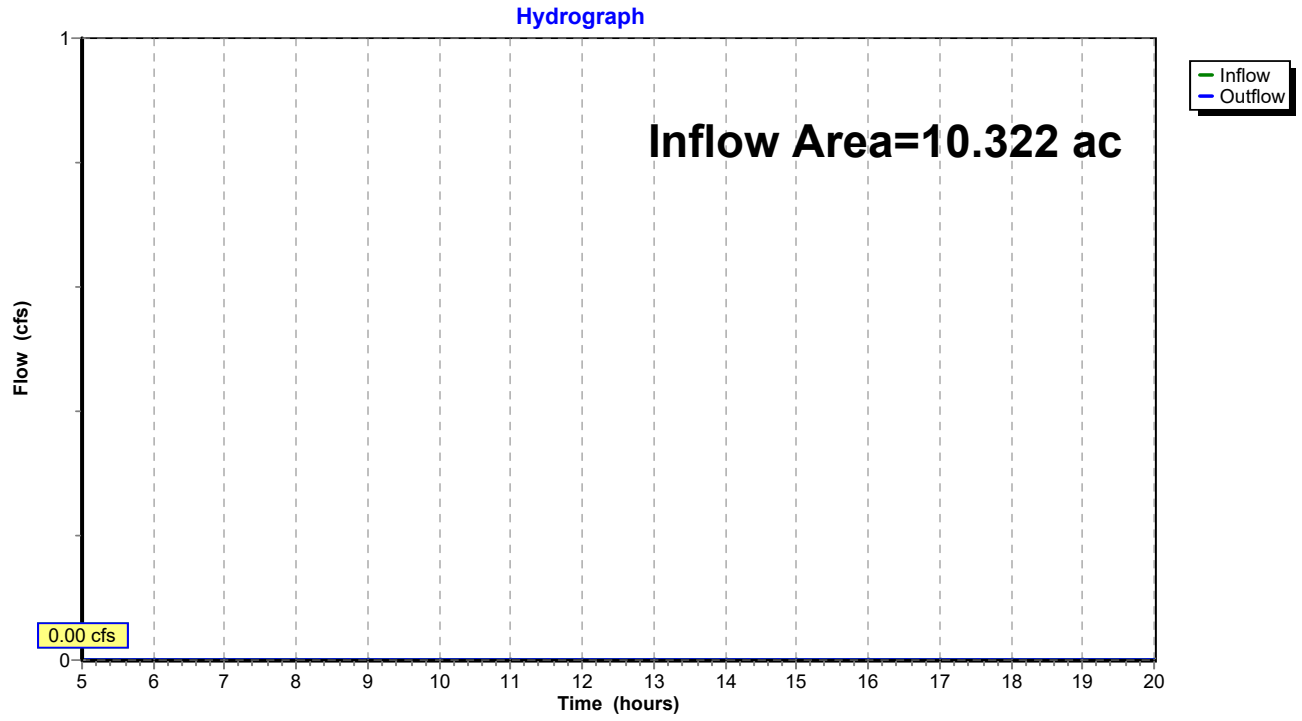
Summary for Reach DP E: Design Point Summation Existing

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 10.322 ac, 24.94% Impervious, Inflow Depth = 0.00"
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach DP E: Design Point Summation Existing



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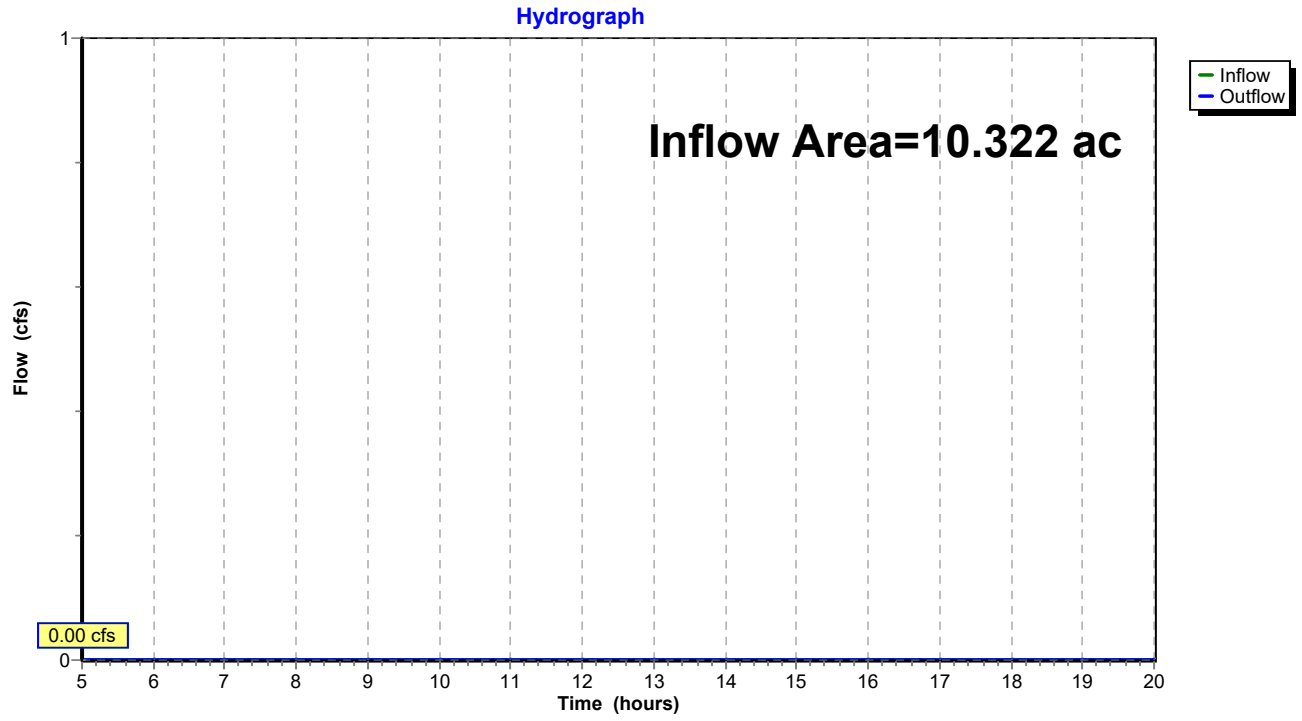
Summary for Reach DP P: Design Point Summation Proposed

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 10.322 ac, 47.78% Impervious, Inflow Depth = 0.00"
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach DP P: Design Point Summation Proposed



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Summary for Pond 1P: Attenuation Basin

Inflow Area = 10.322 ac, 24.94% Impervious, Inflow Depth > 0.35"
Inflow = 2.47 cfs @ 12.26 hrs, Volume= 0.303 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 73.92' @ 20.00 hrs Surf.Area= 17,153 sf Storage= 13,162 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	73.00'	23,317 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
73.00	11,363	0	0
74.00	17,635	14,499	14,499
75.00	0	8,818	23,317

Device	Routing	Invert	Outlet Devices
#1	Primary	74.50'	**8.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=73.00' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

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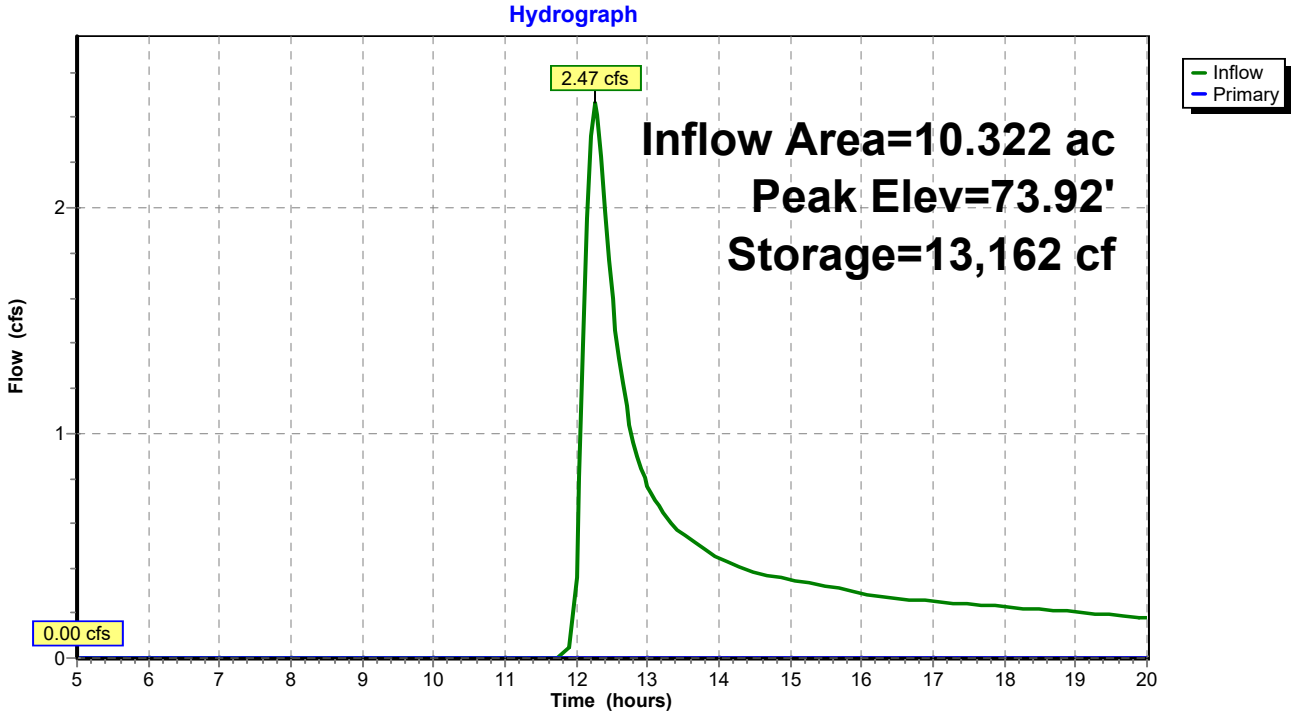
Pond 1P: Attenuation Basin



Summary for Pond 3P: Attenuation Basin

Inflow Area = 10.322 ac, 47.78% Impervious, Inflow Depth > 0.90"
Inflow = 8.79 cfs @ 12.23 hrs, Volume= 0.770 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 73.72' @ 20.00 hrs Surf.Area= 26,733 sf Storage= 33,508 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	72.00'	55,838 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
72.00	12,395	0	0
73.00	20,512	16,454	16,454
74.00	29,128	24,820	41,274
75.00	0	14,564	55,838

Device	Routing	Invert	Outlet Devices
#1	Primary	74.50'	**8.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=72.00' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

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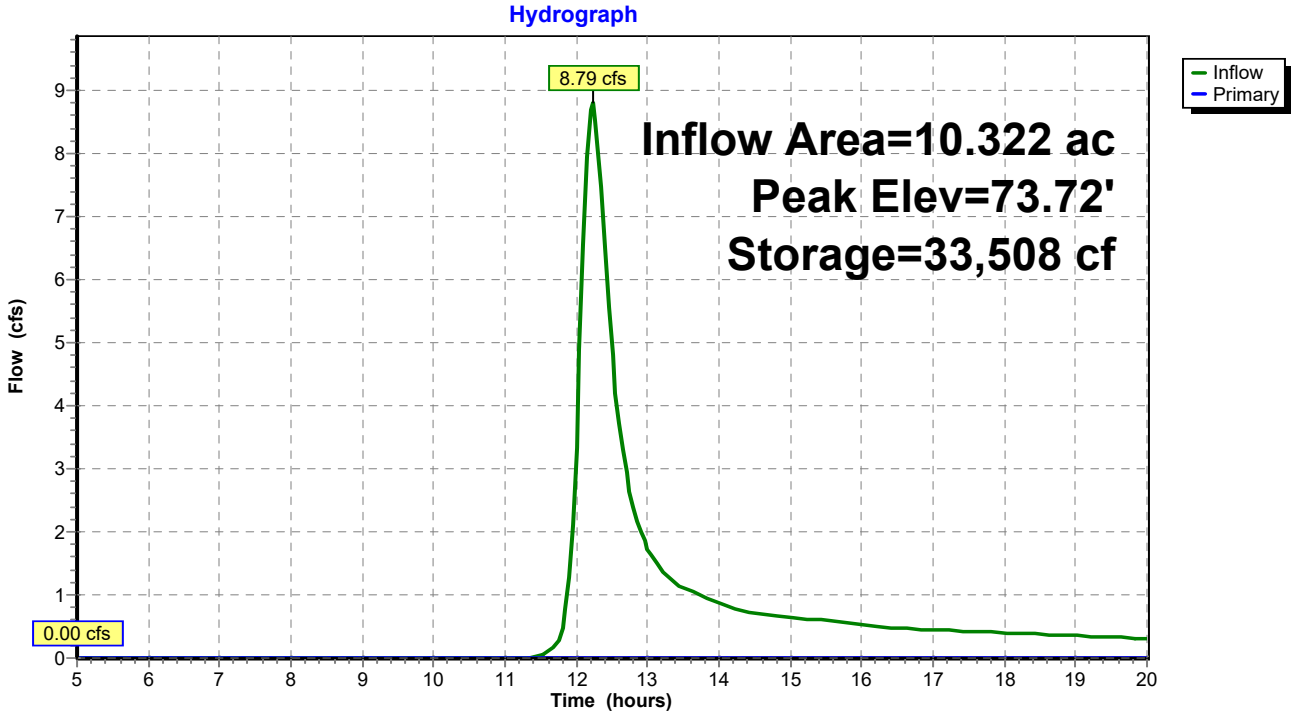
Pond 3P: Attenuation Basin



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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
5.971	30	Brush, Good, HSG A (2S, ESC 1)
5.648	65	Brush, Good, HSG C (2S, ESC 1)
6.630	98	Compacted Fill Site A & C Soils (2S, ESC 1)
1.328	30	Future Fill Site Brush, Good, HSG A (ESC 1)
0.190	65	Future Fill Site Brush, Good, HSG C (ESC 1)
0.877	98	Paved parking & roofs (2S, ESC 1)
20.643	**65**	**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
5.971	0.000	5.648	0.000	0.000	11.619	Brush, Good	2S, ES C 1
0.000	0.000	0.000	0.000	6.630	6.630	Compacted Fill Site A & C Soils	2S, ES C 1
1.328	0.000	0.190	0.000	0.000	1.518	Future Fill Site Brush, Good	ES C 1
0.000	0.000	0.000	0.000	0.877	0.877	Paved parking & roofs	2S, ES C 1
7.299	**0.000**	**5.838**	**0.000**	**7.507**	**20.643**	**TOTAL AREA**	

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 2S: Proposed Runoff Area=449,606 sf 47.78% Impervious Runoff Depth>2.53"
Flow Length=932' Tc=26.9 min CN=71 Runoff=26.36 cfs 2.177 af

Subcatchment ESC 1: Existing Runoff Area=449,606 sf 24.94% Impervious Runoff Depth>1.48"
Flow Length=814' Tc=24.9 min CN=58 Runoff=15.19 cfs 1.271 af

Reach DP E: Design Point Summation Existing Inflow=6.12 cfs 0.770 af
Outflow=6.12 cfs 0.770 af

Reach DP P: Design Point Summation Proposed Inflow=5.64 cfs 0.946 af
Outflow=5.64 cfs 0.946 af

Pond 1P: Attenuation Basin Peak Elev=74.95' Storage=23,290 cf Inflow=15.19 cfs 1.271 af
Outflow=6.12 cfs 0.770 af

Pond 3P: Attenuation Basin Peak Elev=74.92' Storage=55,753 cf Inflow=26.36 cfs 2.177 af
Outflow=5.64 cfs 0.946 af

Total Runoff Area = 20.643 ac Runoff Volume = 3.448 af Average Runoff Depth = 2.00"
63.64% Pervious = 13.136 ac 36.36% Impervious = 7.507 ac

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Summary for Subcatchment 2S: Proposed Subcatchment 1

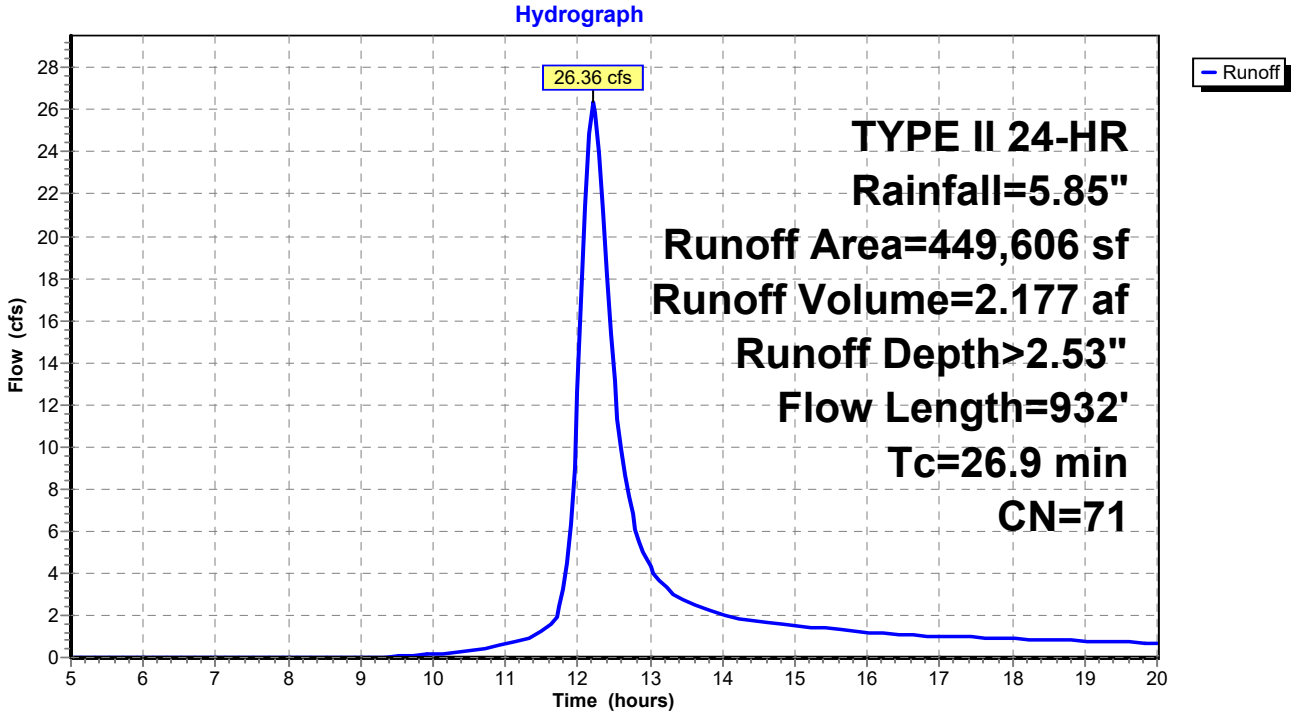
Runoff = 26.36 cfs @ 12.21 hrs, Volume= 2.177 af, Depth> 2.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=5.85"

	Area (sf)	CN	Description
	113,251	65	Brush, Good, HSG C
	121,512	30	Brush, Good, HSG A
	17,128	98	Paved parking & roofs
*	197,715	98	Compacted Fill Site A & C Soils
	449,606	71	Weighted Average
	234,763		52.22% Pervious Area
	214,843		47.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.5	100	0.0100	0.08		**Sheet Flow, First 100' Flowpath** Grass: Dense n= 0.240 P2= 2.70"
6.4	832	0.0180	2.16		**Shallow Concentrated Flow, Balance of Longest Flowpath** Unpaved Kv= 16.1 fps
26.9	932	Total			

Subcatchment 2S: Proposed Subcatchment 1



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Summary for Subcatchment ESC 1: Existing Subcatchment 1

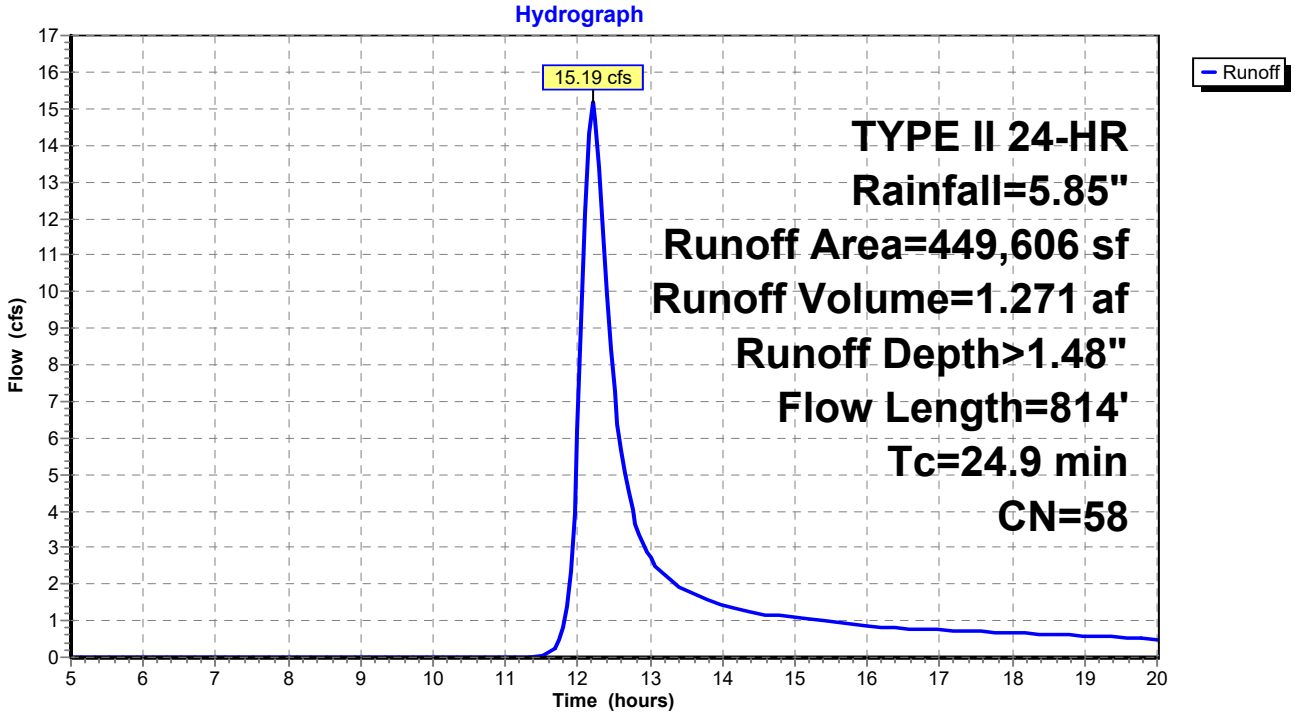
Runoff = 15.19 cfs @ 12.21 hrs, Volume= 1.271 af, Depth> 1.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=5.85"

	Area (sf)	CN	Description
	132,773	65	Brush, Good, HSG C
	138,575	30	Brush, Good, HSG A
	21,061	98	Paved parking & roofs
*	91,084	98	Compacted Fill Site A & C Soils
*	57,845	30	Future Fill Site Brush, Good, HSG A
*	8,268	65	Future Fill Site Brush, Good, HSG C
	449,606	58	Weighted Average
	337,461		75.06% Pervious Area
	112,145		24.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.5	100	0.0100	0.08		**Sheet Flow, First 100' Flowpath** Grass: Dense n= 0.240 P2= 2.70"
4.4	714	0.0320	2.68		**Shallow Concentrated Flow, Balance of Longest Flowpath** Grassed Waterway Kv= 15.0 fps
24.9	814	Total			

Subcatchment ESC 1: Existing Subcatchment 1



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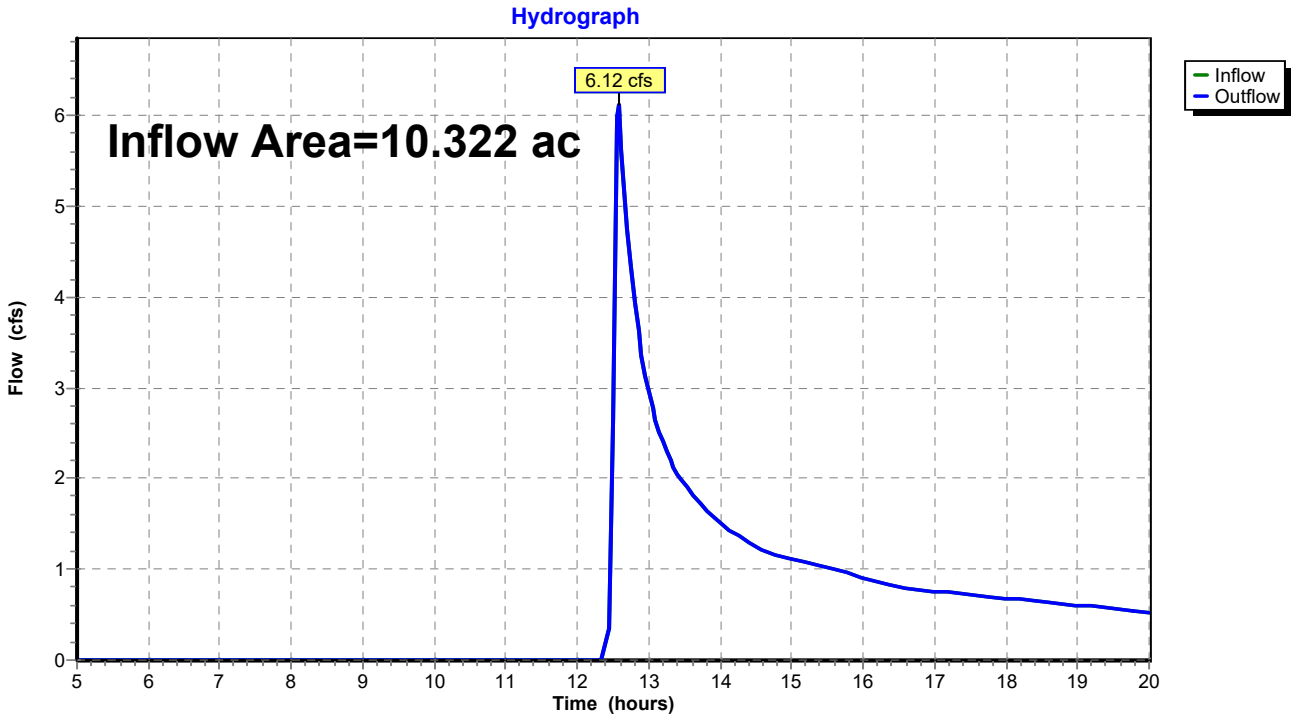
Summary for Reach DP E: Design Point Summation Existing

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 10.322 ac, 24.94% Impervious, Inflow Depth > 0.89"
Inflow = 6.12 cfs @ 12.58 hrs, Volume= 0.770 af
Outflow = 6.12 cfs @ 12.58 hrs, Volume= 0.770 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach DP E: Design Point Summation Existing



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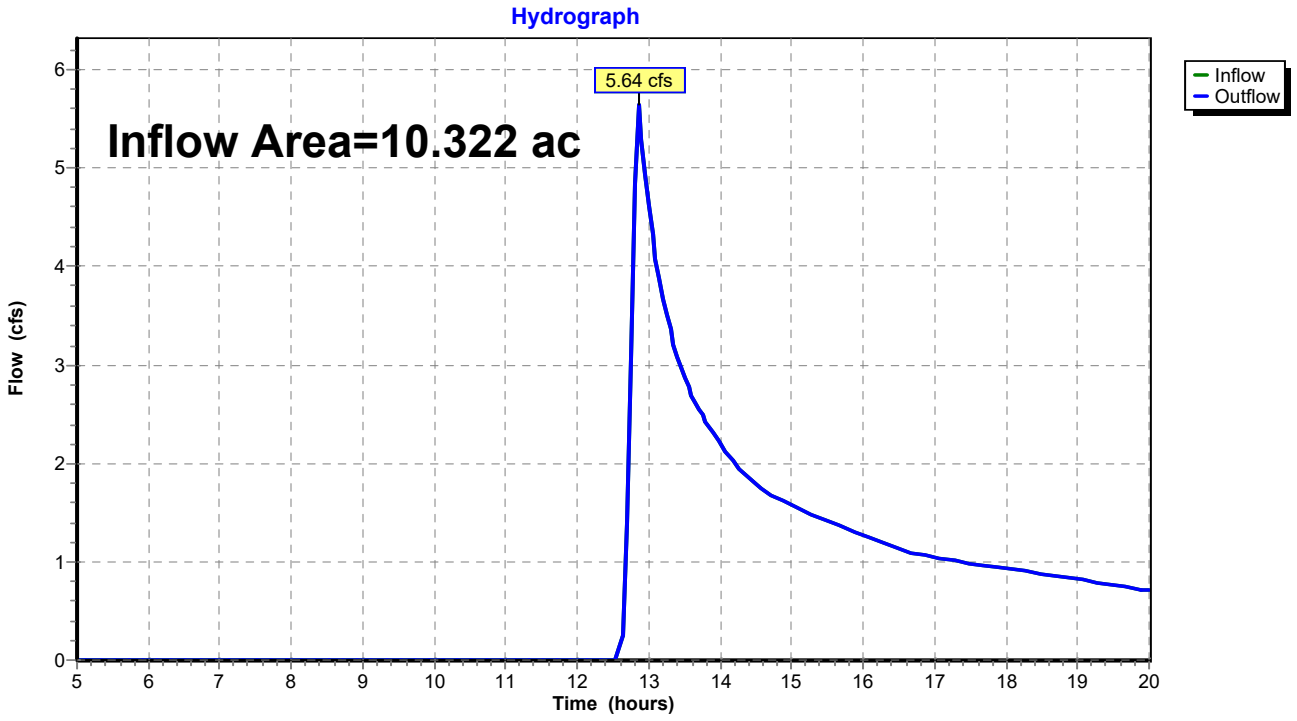
Summary for Reach DP P: Design Point Summation Proposed

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 10.322 ac, 47.78% Impervious, Inflow Depth > 1.10"
Inflow = 5.64 cfs @ 12.86 hrs, Volume= 0.946 af
Outflow = 5.64 cfs @ 12.86 hrs, Volume= 0.946 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach DP P: Design Point Summation Proposed



Summary for Pond 1P: Attenuation Basin

Inflow Area = 10.322 ac, 24.94% Impervious, Inflow Depth > 1.48"
Inflow = 15.19 cfs @ 12.21 hrs, Volume= 1.271 af
Outflow = 6.12 cfs @ 12.58 hrs, Volume= 0.770 af, Atten= 60%, Lag= 22.2 min
Primary = 6.12 cfs @ 12.58 hrs, Volume= 0.770 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 74.95' @ 12.58 hrs Surf.Area= 961 sf Storage= 23,290 cf

Plug-Flow detention time= 152.1 min calculated for 0.770 af (61% of inflow)
Center-of-Mass det. time= 67.9 min (896.1 - 828.2)

Volume	Invert	Avail.Storage	Storage Description
#1	73.00'	23,317 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
73.00	11,363	0	0
74.00	17,635	14,499	14,499
75.00	0	8,818	23,317

Device	Routing	Invert	Outlet Devices
#1	Primary	74.50'	**8.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=6.01 cfs @ 12.58 hrs HW=74.94' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 6.01 cfs @ 1.71 fps)

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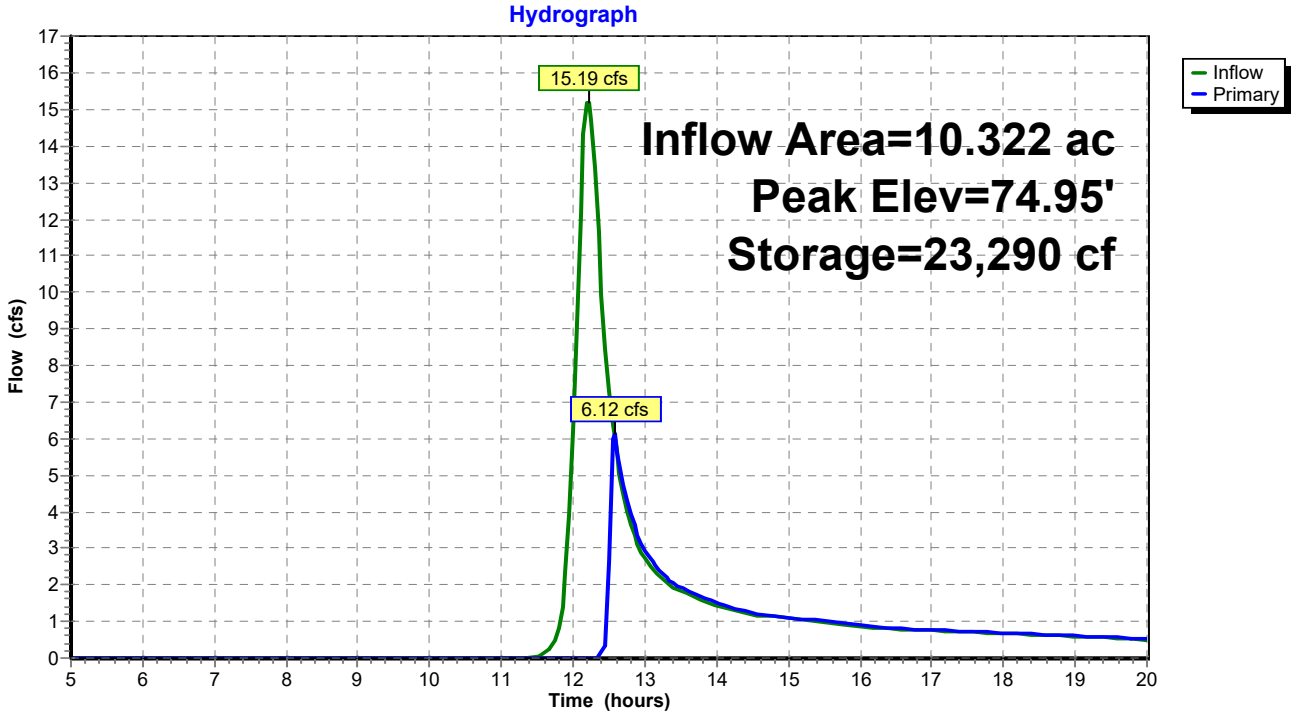
Pond 1P: Attenuation Basin



Summary for Pond 3P: Attenuation Basin

Inflow Area = 10.322 ac, 47.78% Impervious, Inflow Depth > 2.53"
Inflow = 26.36 cfs @ 12.21 hrs, Volume= 2.177 af
Outflow = 5.64 cfs @ 12.86 hrs, Volume= 0.946 af, Atten= 79%, Lag= 38.8 min
Primary = 5.64 cfs @ 12.86 hrs, Volume= 0.946 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 74.92' @ 12.86 hrs Surf.Area= 2,225 sf Storage= 55,753 cf

Plug-Flow detention time= 190.9 min calculated for 0.946 af (43% of inflow)
Center-of-Mass det. time= 107.5 min (914.3 - 806.8)

Volume	Invert	Avail.Storage	Storage Description
#1	72.00'	55,838 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
72.00	12,395	0	0
73.00	20,512	16,454	16,454
74.00	29,128	24,820	41,274
75.00	0	14,564	55,838

Device	Routing	Invert	Outlet Devices
#1	Primary	74.50'	**8.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=5.55 cfs @ 12.86 hrs HW=74.92' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 5.55 cfs @ 1.65 fps)

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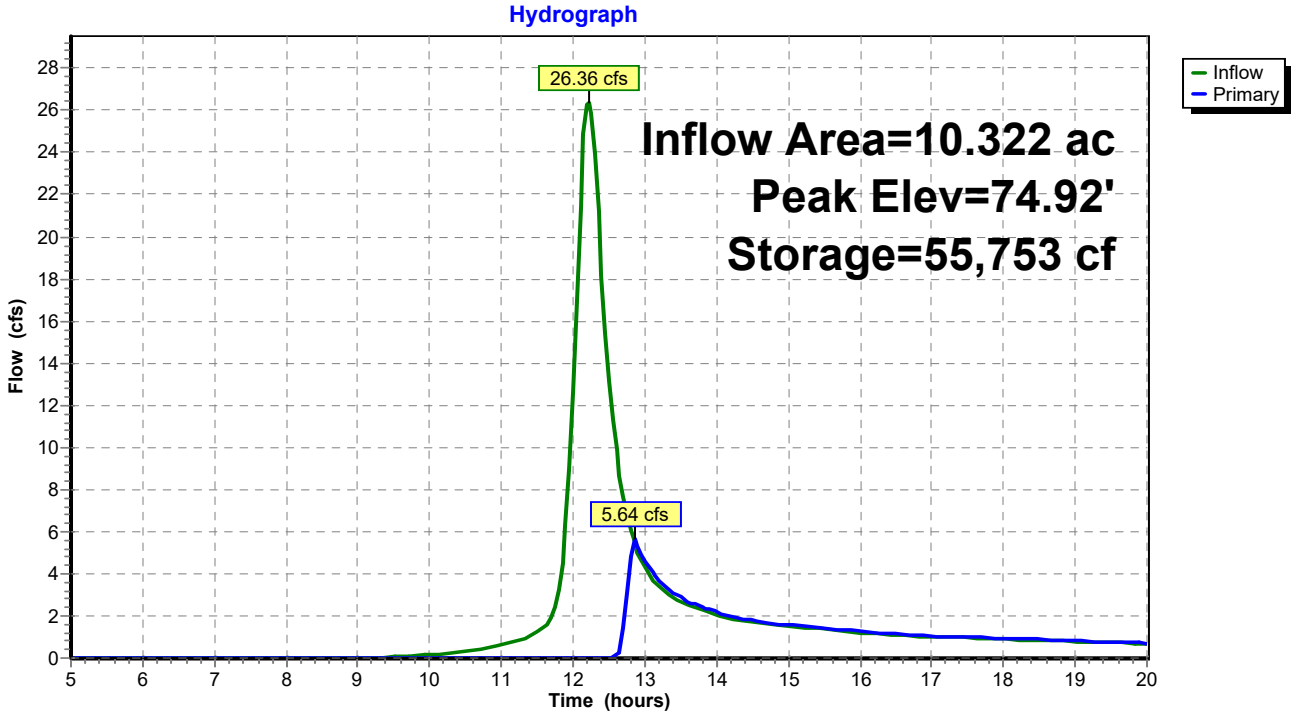
Pond 3P: Attenuation Basin



APPENDIX 3

SOILS DATA

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Tompkins County, New York

Pinney Duplex Apartments

May 11,

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

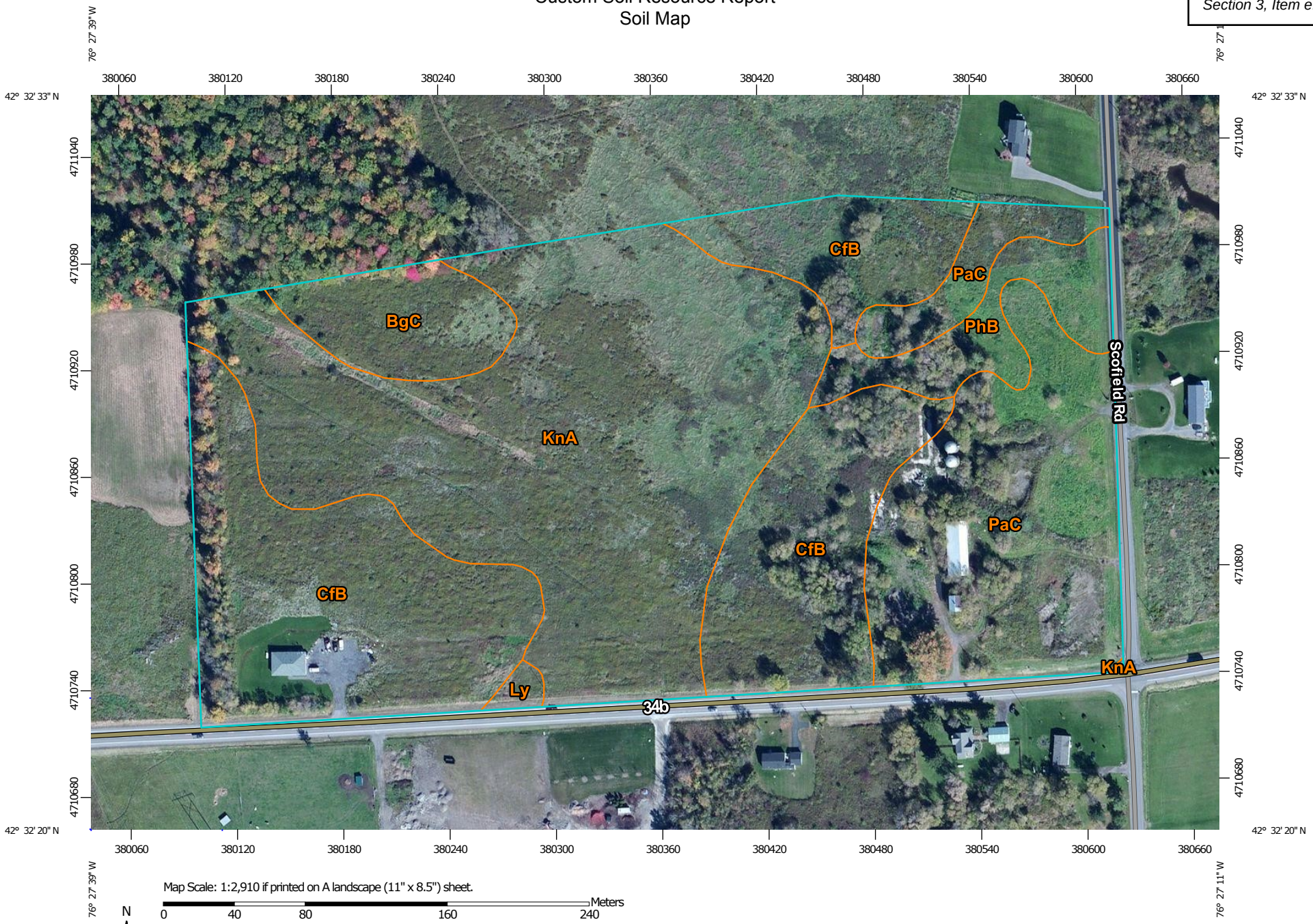
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Tompkins County, New York
Survey Area Data: Version 10, Sep 24, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 2, 2010—Oct 8, 2010

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Tompkins County, New York (NY109)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
BgC	Bath and Valois soils, 5 to 15 percent slopes	1.6	4.8%
CfB	Conesus gravelly silt loam, 3 to 8 percent slopes	11.2	33.0%
KnA	Kendaia and Lyons soils, 0 to 3 percent slopes	12.6	37.2%
Ly	Lyons soils, 0 to 3 percent slopes	0.1	0.4%
PaC	Palmyra gravelly loam, 5 to 15 percent simple slopes	6.8	20.0%
PhB	Phelps gravelly silt loam, 3 to 8 percent slopes	1.6	4.6%
Totals for Area of Interest		**33.9**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially

where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Tompkins County, New York

BgC—Bath and Valois soils, 5 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2v32c
Elevation: 330 to 2,460 feet
Mean annual precipitation: 31 to 70 inches
Mean annual air temperature: 39 to 52 degrees F
Frost-free period: 105 to 180 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Bath and similar soils: 40 percent
Valois and similar soils: 35 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bath

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loamy till derived mainly from gray and brown siltstone, sandstone, and shale

Typical profile

Ap - 0 to 9 inches: channery silt loam
Bw1 - 9 to 15 inches: channery silt loam
Bw2 - 15 to 25 inches: channery loam
E - 25 to 29 inches: channery loam
Bx - 29 to 52 inches: very channery silt loam
C - 52 to 72 inches: very channery silt loam

Properties and qualities

Slope: 5 to 15 percent
Percent of area covered with surface fragments: 0.0 percent
Depth to restrictive feature: 26 to 38 inches to fragipan
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 24 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Available water storage in profile: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C

Description of Valois

Setting

Landform: End moraines, lateral moraines, valley sides
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till derived mainly from sandstone, siltstone, and shale

Typical profile

H1 - 0 to 2 inches: gravelly silt loam
H2 - 2 to 32 inches: gravelly silt loam
H3 - 32 to 49 inches: gravelly silt loam
H4 - 49 to 60 inches: gravelly silt loam

Properties and qualities

Slope: 5 to 15 percent
Depth to restrictive feature: 24 to 36 inches to fragipan
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 24 to 35 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C

Minor Components

Lordstown

Percent of map unit: 5 percent
Landform: Benches, ridges, hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex

Langford

Percent of map unit: 5 percent
Landform: Hills, till plains, drumlinoid ridges
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex

Volusia

Percent of map unit: 5 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, summit
Landform position (three-dimensional): Base slope, interfluve, side slope
Down-slope shape: Concave
Across-slope shape: Linear

Mardin

Percent of map unit: 5 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Convex

Erie

Percent of map unit: 5 percent
Landform: Hills, till plains, drumlinoid ridges
Landform position (two-dimensional): Footslope, summit
Landform position (three-dimensional): Base slope, side slope
Down-slope shape: Concave
Across-slope shape: Linear

CfB—Conesus gravelly silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2w3j3
Elevation: 820 to 1,800 feet
Mean annual precipitation: 31 to 57 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 100 to 190 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Conesus and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Conesus

Setting

Landform: Drumlins, hills, till plains
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Calcareous loamy lodgment till derived from limestone, sandstone, and shale

Typical profile

Ap - 0 to 9 inches: gravelly silt loam
E/B - 9 to 14 inches: gravelly silt loam
Bt/E - 14 to 19 inches: gravelly silt loam
Bt1 - 19 to 25 inches: gravelly silt loam
Bt2 - 25 to 36 inches: gravelly silt loam
C - 36 to 79 inches: gravelly loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.01 to 1.42 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 40 percent
Available water storage in profile: Moderate (about 7.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B/D

Minor Components

Lansing

Percent of map unit: 7 percent
Landform: Drumlins, hills, till plains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex
Across-slope shape: Convex

Kendaia

Percent of map unit: 3 percent
Landform: Drumlins, till plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear

Nunda

Percent of map unit: 2 percent
Landform: Hills, drumlinoid ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Concave
Across-slope shape: Convex

Appleton

Percent of map unit: 2 percent
Landform: Drumlins, till plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear

Lyons

Percent of map unit: 1 percent
Landform: Depressions, drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope

Down-slope shape: Concave
Across-slope shape: Concave

KnA—Kendaia and Lyons soils, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2trwv
Elevation: 430 to 1,510 feet
Mean annual precipitation: 31 to 57 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 100 to 190 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Kendaia and similar soils: 50 percent
Lyons and similar soils: 25 percent
Lyons, frequently ponded, and similar soils: 15 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kendaia

Setting

Landform: Drumlins, ridges, till plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Calcareous loamy lodgment till derived from limestone, sandstone, and shale

Typical profile

Ap - 0 to 8 inches: silt loam
Bw - 8 to 15 inches: silt loam
Bg - 15 to 20 inches: gravelly silt loam
BCg - 20 to 24 inches: gravelly loam
C - 24 to 79 inches: gravelly loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 40 percent
Available water storage in profile: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B/D

Description of Lyons

Setting

Landform: Depressions, drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Calcareous loamy lodgment till derived from limestone and shale

Typical profile

Ap - 0 to 10 inches: silt loam
Bg1 - 10 to 19 inches: silt loam
Bg2 - 19 to 25 inches: silty clay loam
BCg - 25 to 34 inches: gravelly silt loam
C - 34 to 79 inches: gravelly loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 40 percent
Available water storage in profile: Moderate (about 8.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: C/D

Description of Lyons, Frequently Ponded

Setting

Landform: Depressions, drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Calcareous loamy lodgment till derived from limestone and shale

Typical profile

Ap - 0 to 10 inches: mucky silt loam
Bg1 - 10 to 19 inches: silt loam
Bg2 - 19 to 25 inches: silty clay loam
BCg - 25 to 34 inches: gravelly silt loam
C - 34 to 79 inches: gravelly loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum in profile: 40 percent
Available water storage in profile: High (about 9.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: C/D

Minor Components

Conesus

Percent of map unit: 3 percent
Landform: Hills, till plains, drumlinoid ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Concave
Across-slope shape: Convex

Lima

Percent of map unit: 3 percent
Landform: Drumlins, till plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Concave
Across-slope shape: Convex

Palms

Percent of map unit: 2 percent
Landform: Marshes, swamps
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Concave

Ilion

Percent of map unit: 2 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave

Ly—Lyons soils, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2spjy
Elevation: 250 to 1,900 feet
Mean annual precipitation: 31 to 57 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 100 to 190 days
Farmland classification: Not prime farmland

Map Unit Composition

Lyons and similar soils: 75 percent
Lyons, frequently ponded, and similar soils: 15 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lyons

Setting

Landform: Depressions, drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Calcareous loamy lodgment till derived from limestone and shale

Typical profile

Ap - 0 to 10 inches: silt loam
Bg1 - 10 to 19 inches: silt loam
Bg2 - 19 to 25 inches: silty clay loam
BCg - 25 to 34 inches: gravelly silt loam
C - 34 to 79 inches: gravelly loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 40 percent
Available water storage in profile: Moderate (about 8.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: C/D

Description of Lyons, Frequently Ponded

Setting

Landform: Depressions, drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Calcareous loamy lodgment till derived from limestone and shale

Typical profile

Ap - 0 to 10 inches: mucky silt loam
Bg1 - 10 to 19 inches: silt loam
Bg2 - 19 to 25 inches: silty clay loam
BCg - 25 to 34 inches: gravelly silt loam
C - 34 to 79 inches: gravelly loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum in profile: 40 percent
Available water storage in profile: High (about 9.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: C/D

Minor Components

Canandaigua

Percent of map unit: 3 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave

Appleton

Percent of map unit: 3 percent
Landform: Drumlins, till plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear

Kendaia

Percent of map unit: 2 percent
Landform: Drumlins, till plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear

Ilion

Percent of map unit: 1 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave

Palms

Percent of map unit: 1 percent
Landform: Marshes, swamps
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Concave

PaC—Palmyra gravelly loam, 5 to 15 percent simple slopes

Map Unit Setting

National map unit symbol: 9xnt
Mean annual precipitation: 32 to 42 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 120 to 160 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Palmyra and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Palmyra

Setting

Landform: Deltas, outwash plains, terraces
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy over sandy and gravelly glaciofluvial deposits, derived mainly from limestone and other sedimentary rocks

Typical profile

H1 - 0 to 12 inches: gravelly loam
H2 - 12 to 21 inches: gravelly clay loam
H3 - 21 to 60 inches: stratified extremely gravelly sand

Properties and qualities

Slope: 5 to 15 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Available water storage in profile: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: A

Minor Components

Fredon

Percent of map unit: 5 percent

Phelps

Percent of map unit: 5 percent

Genesee (hamlin)

Percent of map unit: 5 percent

Howard

Percent of map unit: 5 percent

Honeoye

Percent of map unit: 5 percent

PhB—Phelps gravelly silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9xny
Mean annual precipitation: 32 to 42 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 120 to 160 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Phelps and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Phelps

Setting

Landform: Terraces, valley trains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Loamy glaciofluvial deposits over sandy and gravelly glaciofluvial deposits, containing significant amounts of limestone

Typical profile

H1 - 0 to 9 inches: gravelly silt loam
H2 - 9 to 15 inches: gravelly loam
H3 - 15 to 25 inches: silt loam
H4 - 25 to 60 inches: stratified gravelly loam to silt

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 15 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Available water storage in profile: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B/D

Minor Components

Howard

Percent of map unit: 5 percent

Palmyra

Percent of map unit: 5 percent

Fredon

Percent of map unit: 5 percent

Arkport

Percent of map unit: 5 percent

Braceville

Percent of map unit: 5 percent

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APPENDIX 4

PRECIPITATION DATA

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Smoothing	Yes
State	New York
Location	
Longitude	76.457 degrees West
Latitude	42.541 degrees North
Elevation	Unknown/Unavailable
Date/Time	Mon, 05 Oct 2015 10:10:17 -0400

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.43	0.53	0.70	0.87	1.07	**1yr**	0.75	0.95	1.21	1.44	1.70	2.00	2.26	**1yr**	1.77	2.17	2.57	3.10	3.57	**1yr**
2yr	0.32	0.49	0.62	0.81	1.02	1.26	**2yr**	0.88	1.12	1.42	1.70	2.00	2.34	2.61	**2yr**	2.07	2.51	2.95	3.50	4.01	**2yr**
5yr	0.38	0.59	0.74	0.99	1.26	1.56	**5yr**	1.09	1.39	1.77	2.12	2.49	2.90	3.23	**5yr**	2.56	3.11	3.62	4.21	4.81	**5yr**
10yr	0.42	0.66	0.84	1.14	1.48	1.85	**10yr**	1.28	1.63	2.10	2.51	2.94	3.41	3.80	**10yr**	3.01	3.66	4.23	4.84	5.53	**10yr**
25yr	0.50	0.79	1.00	1.38	1.83	2.30	**25yr**	1.58	2.02	2.63	3.13	3.67	4.22	4.72	**25yr**	3.74	4.53	5.21	5.83	6.66	**25yr**
50yr	0.56	0.90	1.15	1.60	2.15	2.72	**50yr**	1.86	2.38	3.11	3.71	4.33	4.97	5.55	**50yr**	4.40	5.34	6.10	6.72	7.66	**50yr**
100yr	0.63	1.01	1.31	1.86	2.53	3.23	**100yr**	2.19	2.80	3.69	4.40	5.12	5.85	6.54	**100yr**	5.18	6.29	7.14	7.74	8.81	**100yr**
200yr	0.72	1.17	1.51	2.16	2.98	3.81	**200yr**	2.58	3.30	4.37	5.20	6.04	6.89	7.70	**200yr**	6.10	7.41	8.36	8.91	10.15	**200yr**
500yr	0.85	1.39	1.82	2.64	3.71	4.76	**500yr**	3.20	4.10	5.46	6.50	7.53	8.56	9.57	**500yr**	7.57	9.20	10.31	10.75	12.22	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.25	0.39	0.47	0.64	0.78	0.82	**1yr**	0.68	0.80	0.94	1.06	1.49	1.86	2.10	**1yr**	1.65	2.02	2.43	2.96	3.33	**1yr**
2yr	0.32	0.49	0.60	0.82	1.01	1.11	**2yr**	0.87	1.09	1.23	1.52	1.85	2.28	2.55	**2yr**	2.02	2.45	2.87	3.42	3.93	**2yr**
5yr	0.36	0.55	0.69	0.94	1.20	1.32	**5yr**	1.03	1.29	1.44	1.78	2.17	2.71	3.03	**5yr**	2.40	2.92	3.41	3.98	4.58	**5yr**
10yr	0.40	0.61	0.76	1.06	1.36	1.50	**10yr**	1.18	1.47	1.63	1.98	2.45	3.09	3.44	**10yr**	2.74	3.31	3.87	4.47	5.14	**10yr**
25yr	0.45	0.69	0.86	1.23	1.61	1.78	**25yr**	1.39	1.74	1.92	2.29	2.85	3.66	4.05	**25yr**	3.24	3.90	4.57	5.20	6.00	**25yr**
50yr	0.50	0.76	0.95	1.36	1.83	2.03	**50yr**	1.58	1.99	2.17	2.56	3.21	4.17	4.59	**50yr**	3.69	4.41	5.18	5.82	6.75	**50yr**
100yr	0.55	0.83	1.04	1.51	2.07	2.33	**100yr**	1.78	2.28	2.46	2.85	3.60	4.74	5.19	**100yr**	4.19	4.99	5.87	6.54	7.59	**100yr**
200yr	0.61	0.92	1.17	1.69	2.36	2.66	**200yr**	2.03	2.60	2.80	3.18	4.05	5.39	5.88	**200yr**	4.77	5.66	6.65	7.32	8.54	**200yr**
500yr	0.72	1.06	1.37	1.99	2.83	3.20	**500yr**	2.44	3.13	3.32	3.67	4.72	6.38	6.92	**500yr**	5.65	6.65	7.85	8.50	9.98	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.30	0.47	0.57	0.77	0.94	1.03	**1yr**	0.81	1.01	1.16	1.44	1.77	2.12	2.38	**1yr**	1.88	2.29	2.72	3.25	3.74	**1yr**
2yr	0.34	0.52	0.64	0.87	1.07	1.18	**2yr**	0.92	1.15	1.31	1.62	1.98	2.41	2.71	**2yr**	2.13	2.60	3.03	3.59	4.11	**2yr**
5yr	0.40	0.62	0.76	1.05	1.33	1.52	**5yr**	1.15	1.49	1.68	2.06	2.53	3.09	3.43	**5yr**	2.73	3.30	3.85	4.44	5.08	**5yr**
10yr	0.46	0.71	0.88	1.23	1.59	1.86	**10yr**	1.37	1.81	2.04	2.48	3.06	3.73	4.14	**10yr**	3.31	3.98	4.62	5.23	5.97	**10yr**
25yr	0.57	0.86	1.07	1.53	2.01	2.41	**25yr**	1.74	2.36	2.63	3.17	3.95	4.81	5.30	**25yr**	4.25	5.10	5.89	6.49	7.42	**25yr**
50yr	0.66	1.00	1.25	1.80	2.42	2.93	**50yr**	2.09	2.87	3.19	3.83	4.79	5.82	6.40	**50yr**	5.15	6.15	7.10	7.65	8.74	**50yr**
100yr	0.77	1.16	1.46	2.11	2.89	3.57	**100yr**	2.49	3.49	3.86	4.64	5.80	7.06	7.72	**100yr**	6.25	7.43	8.56	9.03	10.29	**100yr**
200yr	0.90	1.35	1.71	2.48	3.46	4.35	**200yr**	2.98	4.25	4.69	5.60	7.04	8.56	9.34	**200yr**	7.58	8.98	10.31	10.65	12.13	**200yr**
500yr	1.11	1.65	2.13	3.09	4.40	5.63	**500yr**	3.79	5.51	6.05	7.18	9.12	11.07	12.00	**500yr**	9.79	11.54	13.21	13.25	15.07	**500yr**

Powered by ACIS Northeast Regional Climate Center

1503

ENGINEER'S REPORT - June 2026
O'tooles Contractor Yard, 430 Peruville Road, Lansing, NY 14882

Owner, Scott Pinney
6 Otti Road
Lansing, NY 14882

Land Use

An existing contactor's work yard located at the intersection of Scofield and Peruville Roads in the Town of Lansing has been owned and operated by Mr. Scott Pinney since 2011. In 2016, the owner proposed a large townhome development just to the west of the site and a subsequent Full Stormwater Pollution Prevention Plan was approved by the Town of Lansing soon after. As a condition of approval, the Town required Mr. Pinney to prepare a temporary erosion and sediment control plan for the work yard above which included the installation of a sedimentation basin to capture and treat runoff. Constraints were also placed on the project to limit the breath and scope of future activity to ensure the protection of planned development below.

In 2020, the townhome portion of the land was sold off, and the project was never realized under its new ownership. Activity within the work yard continued and in 2024, Mr. Pinney sought approval for a new on-site storage building prompting the need for an additional site plan review. Since the work yard was no longer bound to 2016 conditions regarding the townhome community, Mr. Pinney is desirous in obtaining approval to expand the work yard and developing permanent runoff management.

Soil and Site Conditions
The area is comprised of A & C type soils over brush and scrub type land. The bulk of the site is an existing contractor work yard with hard packed dirt.

Site Soils: The predominant soil types throughout the site are Palmyra, gravely loams (PaC) in the hydrologic soil group A and Kendaia and Conesus (KnA, CfB) gravely loams in the hydrologic soil group C. Data indicates that the A type matrices have moderately high to high permeability rate between 0.57 to 5.95 in/hr and the C matrices at a moderately low to moderately high permeability rate between 0.01 – 1.42 in/hr.

Soils data was obtained from the USDA Web Soil Survey. Site Topography: The site as a whole has a flat uniform slope of between 1-3% primarily

moving downhill from northeast to southwest. Site Watershed: Of the 10.32-acre watershed, the area of disturbance will be approximately 4.93-AC.

Transportation

1. There will be no highway dedication associated with this project.
2. There will be no additional driveways or modification to existing driveways.
3. Existing driveway entrances allow for even circulation for existing activity.
4. There is no anticipated increase in vehicular activity or traffic.

Public Services

There is no need for additional public services or change from current activity.

Utility Services
There is no change to existing utilities.

Flood Hazard
All buildings are well above the 100 year flood plain.

Agriculture
This property is not part of an Ag District. The existing activity is well removed from any agriculture or horse rearing activities. There should be no conflict of noise or odors.

Lighting
There are no lighting changes to the property.

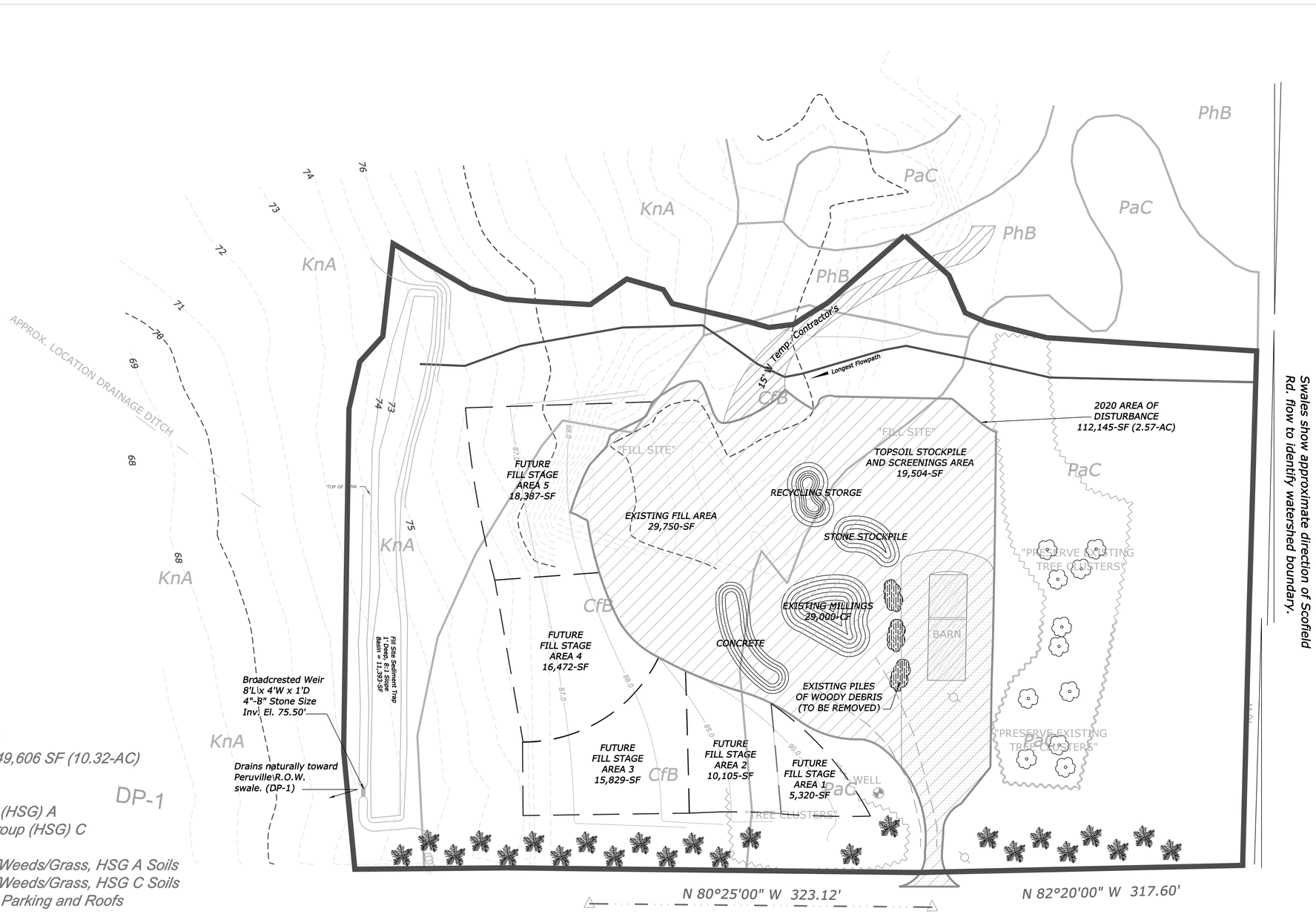
Sewerage
There is no change to existing sewer.

Water System
There is no change to existing water

Stormwater Quality & Quantity
In 2016, a Full Stormwater Pollution Prevention Plan (SWPPP) was prepared for a conceptual town home community just to the west of the contractor's work yard. As a condition of approval, the Town of Lansing required temporary erosion and control measures to control runoff and separate the work yard from the townhome development below. A sedimentation basin was installed and limits were placed on future activities to prevent sprawl.

Because the townhome development was never constructed making those conditions moot, the owner wishes to expand activities into a larger 4.93-AC area.

A hydraulic and hydrologic runoff model was prepared to compare 2020 activity with that of planned work in 2026. Recommendations were made to increase the volume of the sedimentation basin so that the project meets the 1, 10, and 100 yr storms.



ESC-1
10.32-AC

Existing Subcatchment - 1 (ESC-1)
Existing Site Conditions - Area = 449,606 SF (10.32-AC)

Surface Conditions & Soils:
50.0% PaC, Hyrdologic Soil Group (HSG) A
50.0% KnA, CfB Hydrologic Soil Group (HSG) C

Runoff Curve Number = 30, Brush/Weeds/Grass, HSG A Soils
Runoff Curve Number = 65, Brush/Weeds/Grass, HSG C Soils
Runoff Curve Number = 98, Paved Parking and Roofs

Overland Stormwater Runoff - Longest Flowpath = 814 lf +/-
Sheet Flow, Dense Grass - 100 lf @ S = 1.0% avg.
Shallow Concentrated Flow, Grassed Waterway - 714 lf @ S = 3.2% avg.

To Design Point 1 - (DP 1)

EXISTING SUBCATCHMENT (As of 2020)
REFERENCE HYDROCAD (HYDRAULIC & HYDROLOGIC) MODELING RESULTS PRESENTED WITH THESE PLANS

REVISIONS

No.	Date	SYM.	Description
	6/15/16		Modified ESC-1 and ESC-2 boundary and notes
	01/31/20		New Owner

EXISTING (2020)
HYDRAULIC AND HYDROLOGIC SUBCATCHMENT WORKSHEET

PINNEY GRAVEL SITE EXPANSION
PERUVILLE RD & SCOFIELD RD
(T) LANSING, NY

O'TOOLES GRAVEL
(T) LANSING, LANSING, NY

STATE OF NEW YORK
TIMOTHY C. BUHL
LICENSED PROFESSIONAL ENGINEER

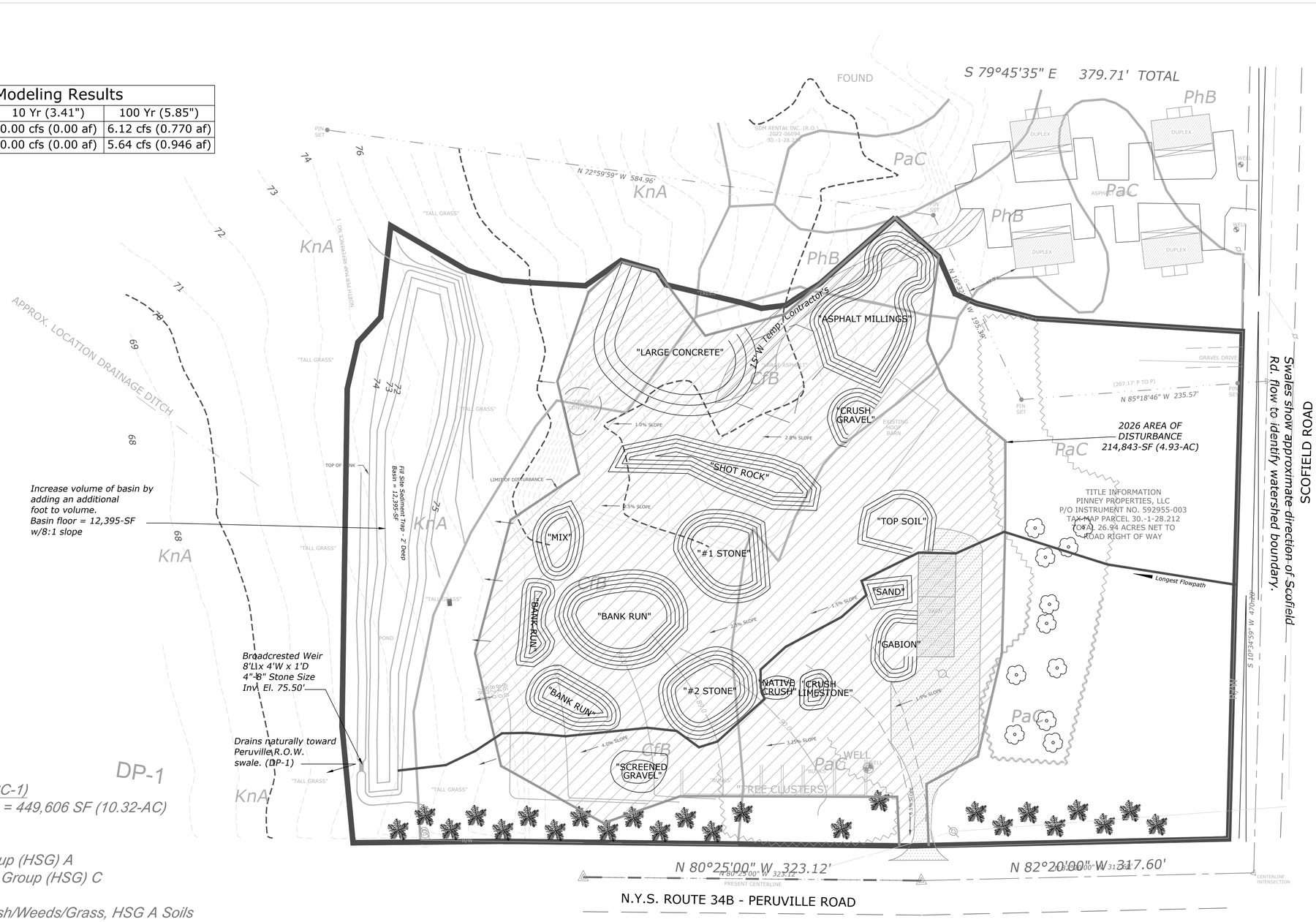
TIMOTHY C. BUHL, P.E.
GOODRICH HILL ROAD, LOCKE N.Y. 13092 607 423-1919

DATE: JUN 22, 2026
SCALE: 1" = 50'
DRAWN: SDG
JOB:
SHEET: S-1

1507

Section 3, Item e.

Hydraulic Runoff Modeling Results			
	1 Yr (2.00")	10 Yr (3.41")	100 Yr (5.85")
Existing	0.00 cfs (0.00 af)	0.00 cfs (0.00 af)	6.12 cfs (0.770 af)
Proposed	0.00 cfs (0.00 af)	0.00 cfs (0.00 af)	5.64 cfs (0.946 af)



PSC-1
10.32-AC

Proposed Subcatchment - 1 (PSC-1)
Proposed Site Conditions - Area = 449,606 SF (10.32-AC)

Surface Conditions & Soils:
50.0% PaC, Hyrdologic Soil Group (HSG) A
50.0% KnA, CfB Hydrologic Soil Group (HSG) C

Runoff Curve Number = 30, Brush/Weeds/Grass, HSG A Soils
Runoff Curve Number = 65, Brush/Weeds/Grass, HSG C Soils
Runoff Curve Number = 98, Paved Parking and Roofs

Overland Stormwater Runoff - Longest Flowpath = 923 lf +/-
Sheet Flow, Dense Grass - 100 lf @ S = 1.0% avg.
Shallow Concentrated Flow, Unpaved - 823 lf @ S = 1.8% avg.

To Design Point 1 - (DP 1)

PROPOSED SUBCATCHMENT (2026)
REFERENCE HYDROCAD (HYDRAULIC & HYDROLOGIC) MODELING RESULTS PRESENTED WITH THESE PLANS

REVISIONS

No.	Date	SYM.	Description

PROPOSED (2026)
HYDRAULIC AND HYDROLOGIC SUBCATCHMENT WORKSHEET

O'TOOLES GRAVEL
(T) LANSING, LANSING, NY

PINNEY GRAVEL SITE EXPANSION
PERUVILLE RD & SCOFIELD RD
(T) LANSING, NY

STATE OF NEW YORK
TIMOTHY C. BUHL
LICENSED PROFESSIONAL ENGINEER

TIMOTHY C. BUHL, P.E.
GOODRICH HILL ROAD, LOCKE N.Y. 13092 607 423-1919

DATE: JUN 22, 2026
SCALE: 1" = 50'
DRAWN: SDG
JOB:
SHEET: S-2

1508

AGRICULTURAL DATA STATEMENT

Per § 305-a of the New York State Agriculture and Markets Law, any application for a special use permit, site plan approval, use variance, or subdivision approval requiring municipal review and approval that would occur on property within a New York State Certified Agricultural District containing a farm operation or property with boundaries within 500 feet of a farm operation located in an Agricultural District shall include an Agricultural Data Statement.

A. Name of applicant: A. Scott Pinney
Mailing address: 6 Otti Dr.
Lansing, NY 14882

B. Description of the proposed project: Existing Contractors yard

C. Project site address: 430 Peruville Rd. Town: Lansing

D. Project site tax map number: 30-1-28.212

E: The project is located on property:
☒ within an Agricultural District containing a farm operation, or
☐ with boundaries within 500 feet of a farm operation located in an Agricultural District.

F. Number of acres affected by project: 4.93

G. Is any portion of the project site currently being farmed?
☐ Yes. If yes, how many acres_____ or square feet_____ ?
☒ No.

H. Name and address of any owner of land containing farm operations within the Agricultural District and is located within 500 feet of the boundary of the property upon which the project is proposed.

None

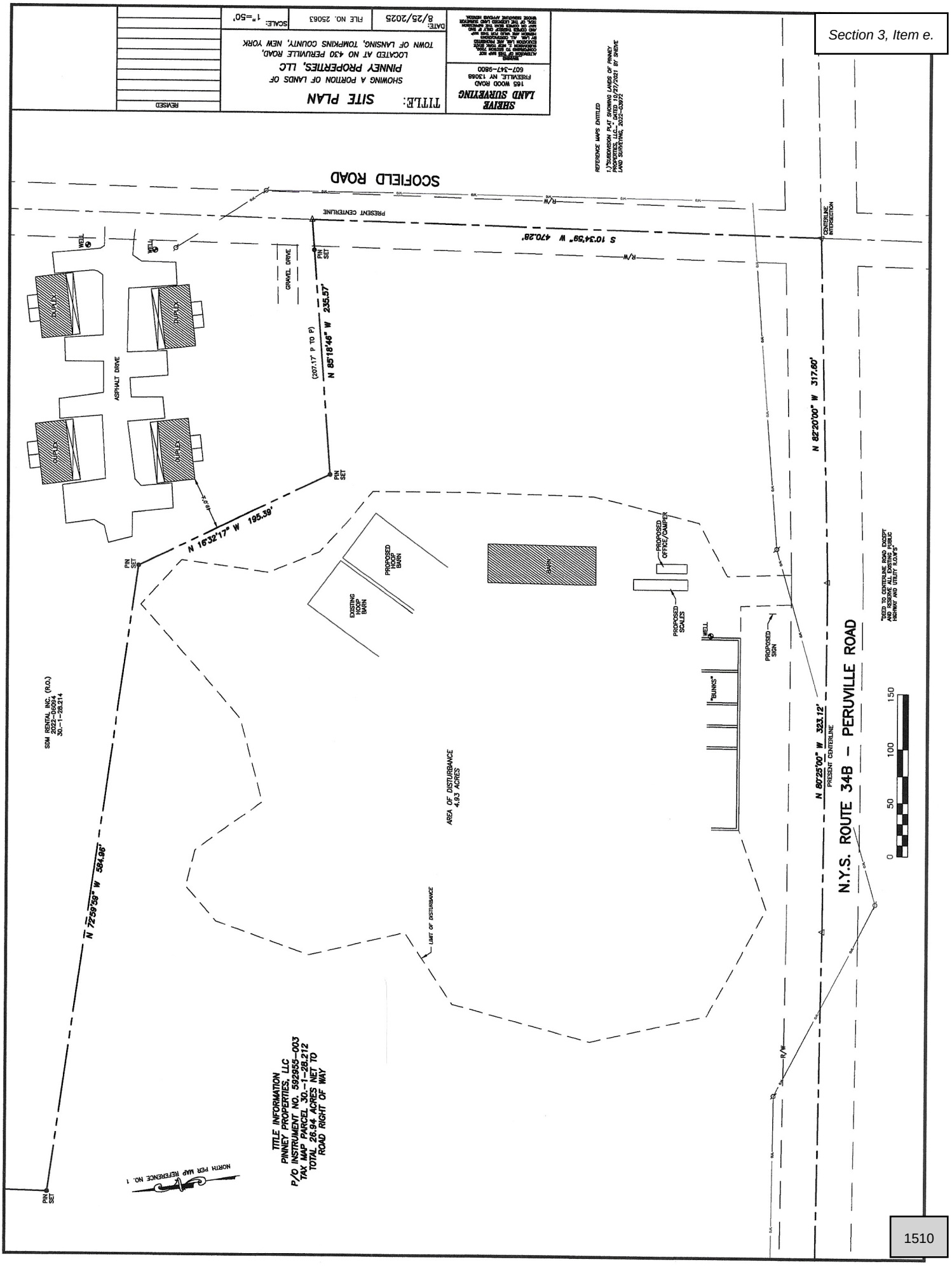
I. Attach a copy of the current tax map showing the site of the proposed project relative to the location of farm operations identified in Item H above.

FARM NOTE

Prospective residents should be aware that farm operations may generate dust, odor, smoke, noise, vibration and other conditions that may be objectionable to nearby properties. Local governments shall not unreasonably restrict or regulate farm operations within State Certified Agricultural Districts unless it can be shown that the public health or safety is threatened.

A. Scott Pinney
Name and Title of Person Completing Form

6/16/2016
Date


SHERIFF
LAND SURVEYING
165 WOOD ROAD
FREEVILLE, NY 13068
607-347-9800
TITLE: SITE PLAN
SHOWING A PORTION OF LANDS OF
PINNEY PROPERTIES, LLC
LOCATED AT NO 430 PERUVILLE ROAD,
TOWN OF LANSING, TOMPKINS COUNTY, NEW YORK
DATE: 8/25/2025
FILE NO. 25063
SCALE: 1"=50'
REVISED
REFERENCE MAPS ENTITLED
1.) "SUBDIVISION PLAT SHOWING LANDS OF PINNEY PROPERTIES, LLC." DATED 10/27/2021 BY SHEIVE LAND SURVEYING, 2022-0972
SCOFIELD ROAD
PRESENT CENTERLINE
R/W
S 10°34'59" W 470.28'
CENTERLINE INTERSECTION
WELL
GRAVEL DRIVE
PIN SET
(207.17' P TO P)
N 85°18'46" W 235.57'
ASPHALT DRIVE
DWLG.
DWLG.
DWLG.
DWLG.
N 16°32'17" W 195.39'
PROPOSED HOOP BARN
EXISTING HOOP BARN
BARN
PROPOSED OFFICE/CAMPER
PROPOSED SCALES
PROPOSED SIGN
"BUNKS"
N 82°20'00" W 317.60'
N 80°25'00" W 323.12'
PRESENT CENTERLINE
N.Y.S. ROUTE 34B – PERUVILLE ROAD
TIED TO CENTERLINE ROAD EXCEPT AS DESCRIBED IN EXISTING PUBLIC HIGHWAY AND UTILITY AGREEMENT
0
50
100
150
SDM RENTAL INC. (R.O.)
2022-06914
30.-1-28.214
N 72°39'39" W 584.96'
AREA OF DISTURBANCE
4.93 ACRES
LIMIT OF DISTURBANCE
TITLE INFORMATION
PINNEY PROPERTIES, LLC
P/O INSTRUMENT NO. 592955-003
TAX MAP PARCEL 30.-1-28.212
TOTAL 28.94 ACRES NET TO
ROAD RIGHT OF WAY
NORTH PER MAP REFERENCE NO. 1
PIN SET

Short Environmental Assessment Form
Part 1 - Project Information

Instructions for Completing

Part 1 – Project Information. The applicant or project sponsor is responsible for the completion of Part 1. Responses become part of the application for approval or funding, are subject to public review, and may be subject to further verification. Complete Part 1 based on information currently available. If additional research or investigation would be needed to fully respond to any item, please answer as thoroughly as possible based on current information.

Complete all items in Part 1. You may also provide any additional information you believe will be needed by or useful to the lead agency; attach additional pages as necessary to supplement any item.

Part 1 – Project and Sponsor Information

Scott Pinney

Name of Action or Project:
O'Tooles Contractor Yard

Project Location (describe, and attach a location map):
430 Peruville Road Groton

Brief Description of Proposed Action:
Existing Contractors Yard

Name of Applicant or Sponsor:	Telephone: 607-227-9698
Scott Pinney	E-Mail: alexcolepave1@gmail.com

Address:
6 Otti Drive

City/PO:	State:	Zip Code:
Lansing	NY	14882

	NO	YES
1. Does the proposed action only involve the legislative adoption of a plan, local law, ordinance, administrative rule, or regulation? If Yes, attach a narrative description of the intent of the proposed action and the environmental resources that may be affected in the municipality and proceed to Part 2. If No, continue to question 2.	☑	☐
2. Does the proposed action require a permit, approval or funding from any other government Agency? If Yes, list agency(s) name and permit or approval:	☑	☐

3. a. Total acreage of the site of the proposed action? 4.93 acres
   b. Total acreage to be physically disturbed? 0 acres
   c. Total acreage (project site and any contiguous properties) owned or controlled by the applicant or project sponsor? 26.94 acres

4. Check all land uses that occur on, are adjoining or near the proposed action:
   ☐ Urban ☒ Rural (non-agriculture) ☐ Industrial ☒ Commercial ☒ Residential (suburban)
   ☐ Forest ☐ Agriculture ☐ Aquatic ☐ Other(Specify):
   ☐ Parkland

	NO	YES	N/A
5. Is the proposed action,			
a. A permitted use under the zoning regulations?	☑	☑	☐
b. Consistent with the adopted comprehensive plan?	☑	☑	☐

	NO	YES
6. Is the proposed action consistent with the predominant character of the existing built or natural landscape?	☐	☑

	NO	YES
7. Is the site of the proposed action located in, or does it adjoin, a state listed Critical Environmental Area?		
If Yes, identify:	☑	☐

	NO	YES
8. a. Will the proposed action result in a substantial increase in traffic above present levels?	☑	☐
b. Are public transportation services available at or near the site of the proposed action?	☑	☐
c. Are any pedestrian accommodations or bicycle routes available on or near the site of the proposed action?	☑	☐

	NO	YES
9. Does the proposed action meet or exceed the state energy code requirements?		
If the proposed action will exceed requirements, describe design features and technologies: _____	☑	☐

	NO	YES
10. Will the proposed action connect to an existing public/private water supply?		
If No, describe method for providing potable water: _____	☑	☐

	NO	YES
11. Will the proposed action connect to existing wastewater utilities?		
If No, describe method for providing wastewater treatment: _____	☑	☐

	NO	YES
12. a. Does the project site contain, or is it substantially contiguous to, a building, archaeological site, or district which is listed on the National or State Register of Historic Places, or that has been determined by the Commissioner of the NYS Office of Parks, Recreation and Historic Preservation to be eligible for listing on the State Register of Historic Places?	☑	☐
b. Is the project site, or any portion of it, located in or adjacent to an area designated as sensitive for archaeological sites on the NY State Historic Preservation Office (SHPO) archaeological site inventory?	☑	☐

	NO	YES
13. a. Does any portion of the site of the proposed action, or lands adjoining the proposed action, contain wetlands or other waterbodies regulated by a federal, state or local agency?	☑	☐
b. Would the proposed action physically alter, or encroach into, any existing wetland or waterbody?	☑	☐
If Yes, identify the wetland or waterbody and extent of alterations in square feet or acres: _____		

14. Identify the typical habitat types that occur on, or are likely to be found on the project site. Check all that apply:

☐ Shoreline ☐ Forest ☒ Agricultural/grasslands ☐ Early mid-successional

☐ Wetland ☐ Urban ☐ Suburban

	NO	YES
15. Does the site of the proposed action contain any species of animal, or associated habitats, listed by the State or Federal government as threatened or endangered?	☑	☐
16. Is the project site located in the 100-year or 500-year flood plain?	☑	☐
17. Will the proposed action create storm water discharge, either from point or non-point sources? If Yes,	☑	☐
a. Will storm water discharges flow to adjacent properties?	☑	☐
b. Will storm water discharges be directed to established conveyance systems (runoff and storm drains)?	☑	☐
If Yes, briefly describe: _____		
18. Does the proposed action include construction or other activities that would result in the impoundment of water or other liquids (e.g., retention pond, waste lagoon, dam)? If Yes, explain the purpose and size of the impoundment: _____	☑	☐
19. Has the site of the proposed action or an adjoining property been the location of an active or closed solid waste management facility? If Yes, describe: _____	☑	☐
20. Has the site of the proposed action or an adjoining property been the subject of remediation (ongoing or completed) for hazardous waste? If Yes, describe: _____	☑	☐
21. Is the project located within, or within ½ mile of, a disadvantaged community?	☑	☐
If No, could impacts from the project affect a disadvantaged community?	☐	☐
If Yes to either question in 21, answer the following question.		
a. Identify the potential pollution impacts of the project, either direct or indirect, that may occur within the disadvantaged community (e.g., wastewater discharges, air emissions, noise, odors, solid or hazardous waste generation or management):		

I CERTIFY THAT THE INFORMATION PROVIDED ABOVE IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE

Applicant/sponsor/name: A. Scott Pinney Date: 06/16/2026

Signature: A Scott Pinney Title: Owner

Storm Water Pollution Prevention Plan
for

Proposed SDM Rentals Duplex Apartments

Town of Lansing
Lansing, New York

Revised January 2020

Prepared by:

Timothy C. Buhl, PE
NYSPE#: 053134

For:

Scott Morgan
(T) Lansing, Lansing, NY

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ATTACHMENTS

Attachment A: Notice of Intent, (NOI) and MS4 Acceptance Form

Attachment B: Notice of Termination, (NOT)

Attachment C: Certification Forms

Attachment D: Wetlands and Flood Plain Maps

Attachment E: Circles and Squares Map – NYSSHPO

Attachment F: Inspection Report (Sample Form)

Attachment G: Record of Stabilization and Construction Activity Dates

Attachment H: Vegetative and Structural Measures for Erosion and Sediment Control
Sections 3 and 5 New York Standards & Specifications for Erosion and Sediment Control, August 2005

Attachment I: NYSDEC Stormwater Controls Construction Checklist

Attachment J: NYSDEC Controls Operation & Maintenance Check List

Attachment K: Stormwater Management Summary and Hydraulic Modeling Results

1.0 EXECUTIVE SUMMARY

Notes on Change of Ownership

This SWPPP, including stormwater design, modeling, and accompanying documentation were originally approved by the Town of Lansing on November 28, 2016 under the previous site owner, Scott Pinney. Mr. Pinney subsequently filed for Notice of Intent with the New York State Department of Conservation, and received permit acknowledgement and approval. Construction was never begun and the property since changed ownership to Mr. Scott Morgan of SDM Rentals, LLC. Mr. Morgan intends to complete the original project under the same stormwater pollution prevention plan design, using the same approach for quality treatment and quantity attenuation. As such, this plan is being re-submitted to the Town of Lansing under new ownership only. No changes were made to the original document or design.

Summary

The engineer, owner and all contractors involved with construction activity that disturb site soil or who implement pollutant control measures identified in the Storm Water Pollution Prevention Plan (SWPPP) are responsible for complying with the requirements set forth in the National Discharge Elimination System (NPDES) General Permit and any local and/or state governing agencies having jurisdiction with regards to erosion and sediment control. The requirements of the NPDES are as follows:

A. The owner (Scott Morgan) must complete the Notice of Intent (NOI) provided in Attachment A and forward this document to the following agencies at least 5 days prior to starting any construction activity. If the construction activity is located within a permitted municipal separate storm sewer system (MS4), the local municipality must complete and authorize the attached MS4 Acceptance Form and provide that along with the NOI.

NYS Department of Environmental Conservation (DEC)
Division of Water
625 Broadway, 4th Floor
Albany, New York 12233-3505

Town of Lansing – Lansing Town Hall
29 Auburn Road
Lansing, New York 14882
(607) 433-4142

All notifications shall be sent via certified mail with return receipt. Copies of mailing receipts shall be kept on record at the project site with the SWPPP and shall be considered part of the contract documents.

The Town's representative shall be included in the pre-construction meeting. Copies of the SWPPP must be provided to the Town of Lansing once all signatures and attachments are complete.

B. A copy of the General Construction Permit (GP-0-15-002), Notice of Intent (NOI), NOI acknowledgement letter received by the DEC, and MS4 Acceptance Form (if applicable), shall be posted in a prominent place for public viewing at the project site.

C. A complete copy of the SWPPP, including copies of all inspection reports, plan revisions, etc., must be retained at the project site at all times during working hours and kept as part of the permanent project records for a duration of no less than three years following submission of the Notice of Termination (NOT).

D. The site development contractors must provide names and addresses of all subcontractors working on the project who will be involved with the major construction activities that will result in soil disturbance. The Owner shall ensure that each contracting firm identifies one trained individual who will be responsible for implementation of the SWPPP. The owner shall also ensure that at least one trained individual is on site on a daily basis when soil disturbance activities are being performed. This information must be retained as part of the SWPPP.

E. The site development contractor and all subcontractors involved with the major construction activities that disturb site soil must sign a copy of the appropriate certification statement included in Attachment C along with the identity of the appropriate trained individual as described in paragraph D of this section.

F. Regular inspections must be made to determine effectiveness of the SWPPP. It would be modified as needed to prevent pollutants from discharging from the site. The inspector must be a person familiar with the site, the nature of the major construction activities, and qualified to evaluate both overall system performance and individual component performance. Additionally, the inspector must either be someone empowered to implement modifications to the SWPPP and the pollutant control devices, if needed, in order to increase effectiveness to an acceptable level, or someone with the authority to cause such events to happen.

G. This SWPPP must be updated each time there is a significant modification to the pollutant prevention system or a change of contractors working on the project who may disturb site soil. The site development contractor must notify the governing agency(s) as soon as these modifications are implemented.

H. Discharge of oil or other hazardous substances into the storm water is subject to reporting and cleanup requirements. Refer to Part III.B of the NPDES General Permit for additional information. Copies of the NPDES General Permit and the Notice of Intent Forms are available by calling 1-703-821-4823.

I. Once the site reaches final stabilization upon completion of the project, Scott Morgan, as Owner, must complete and submit a Notice of Termination (NOT), Form Included in Attachment B.

J. This SWPPP intends to control water-borne and liquid pollutant discharges by some combination of interception, filtration, and containment. The general contractor and subcontractors implementing this SWPPP must remain alert to the need to periodically refine and update the SWPPP in order to accomplish the intended goals.

K. This SWPPP must be amended as necessary during the course of construction in order to keep it current with the pollutant control measures utilized at the site. Amending the SWPPP does not mean that it has to be reprinted. It is acceptable to add addenda, sketches, new sections, and/or revised drawings.

L. A record of the dates when major grading activities occur, when construction activities temporarily or permanently cease on a portion of the site, and when stabilization measures are initiated must be maintained until the NOT is filed. A log for keeping such records is included in the Attachments. A different form for the log may be substituted if it is found to be more useful.

2.0 INTRODUCTION

This SWPPP has been prepared for major activities associated with the construction of a 15 building duplex apartment subdivision on 35.74-AC of land. The property will include associated asphalt driveways, roads, associated landscaping and public and private utilities. The SDM Rentals Duplex Apartment complex is located in the Town of Lansing, Lansing, New York approximately 8,000 feet east of the intersection of Van Ostrand Road and State Hwy 34b and 1,000 feet west of the intersection of Walden Lane and State Hwy 34b. The property sits on 35.74-acres in area of which, the total land disturbance will be approximately 14.9 acres over a multiple construction phase. The additional total impervious area added to the site will be 6.4% based on the calculated ratio of proposed new impervious surface to existing cover. Reference the Project Plans for the permanent stormwater

management facilities planned. This SWPPP includes the elements necessary to comply with the national baseline general permit for construction activities administered by the U.S. Environmental Protection Agency (EPA) under the National Pollutant Discharge Elimination System (NPDES) program and all local governing agency requirements. This SWPPP must be implemented at the start of construction.

Construction phase pollutant sources anticipated at the site are disturbed (bare) soil, vehicle fuels and lubricants, chemicals associated with building construction, and building materials. Without adequate control there is the potential for each type of pollutant to be transported by storm water.

The project will consist of the construction of 15 duplex apartment buildings consisting of 2,000-SF structures, asphalt driveways, roads, and landscaping. There will be public water, private sewer, as well as connections to other service utilities ie. (gas, electric, phone). Permanent stormwater management facilities are proposed including seven (7) bioretention areas, one (1) dry swale, one (1) pond, and diversion and interceptor swales to improve water quality from proposed impervious areas and provide water quality attenuation to that of pre-developed conditions.

A. Purpose

The major goal of pollution prevention efforts during project construction is to control the migration of soil and pollutants that originate on-site and prevent them from impacting surface waters and the environment. The purpose of this SWPPP is to provide guidelines for achieving that goal. A successful pollution prevention program also relies upon careful inspection and adjustments during the construction process in order to enhance its effectiveness.

B. Scope

This SWPPP must be implemented before construction begins on the site. It primarily addresses the impact of storm rainfall and runoff in areas of the ground surface disturbed during the construction process. In addition, there are recommendations for controlling other sources of pollution that could accompany the major construction activities. This SWPPP will terminate when disturbed areas are stabilized, construction activities covered herein have ceased, and a completed Notice of Termination (NOT) is mailed to the governing agency requiring the NOT.

Particular forms are included which are necessary for implementing the SWPPP.

The national baseline General Permit for Storm Water Discharges from Construction Activities prohibits most non-storm water discharges during the construction phase. Allowable non-storm water discharges that could occur during construction on this project, which would therefore be covered by the General Permit, include:

1. Discharges from fire fighting activities;

2. Fire hydrant flushing;

3. Water used to wash vehicles or control dust;

4. Water flowing from potable sources and water line flushing:

5. Irrigation drainage;

6. External building wash down which does not use detergents;

7. Runoff from pavement wash down where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents have not been used;

8. Air conditioning condensate;

9. Springs and uncontaminated groundwater; and

10. Foundation or footing drains where flows are not contaminated with process materials such as solvents.

The techniques described in this SWPPP focus on providing control of pollutant discharges with practical approaches that utilize readily available expertise, materials, and equipment.

The Owner/Developer referred to in this SWPPP is Scott Morgan who will be responsible for full development and build-out of the subject parcel.

3.0 PROJECT DESCRIPTION

Described below are the major construction activities that are subject to this SWPPP. The Owner shall not disturb greater than five (5) acres of soil at any one time without prior written authorization from the DEC, or, in areas under the jurisdiction of a regulated MS4, authorization by that municipality. They are presented in the order (or sequence) they are expected to begin, but each activity will not necessarily be completed before the next begins. Install erosion and sediment control measures as shown on Drainage, Sediment and Erosion Control

Plans, down slope from construction activities that disturb site soil before disturbance of soil;

CONSTRUCTION – EACH PHASE

A. Construction of stabilized construction entrance(s);

B. Placement of silt fence;

C. Construction of grassed diversion swales along the northern property boundary, and at the west end of subcatchment OSC-4 as shown on plans. These will be used as necessary, to channel upstream flow into areas directed by the Erosion and Sediment Control Plan;

D. Downstream stormwater controls must be installed before development takes place within each subcatchment. Individual stormwater practices shall correspond to the localized disturbance area as shown on construction drawings. For example, in anticipation of work planned within subcatchment PSC-2, the Owner shall first complete the installation of the bioretention area, BR-2, and all of its associated interceptor swales. Similarly, the Pond shall be constructed prior to any soil disturbance planned in PSC-7.

E. Construction of development roadway to gain access to each individual construction area.

F. Construction activities for the development of building and associated driveway/parking area:

   a. Install bioretention areas in locations shown on plans ***before*** major construction activities associated with lot development occur.

   b. Construct drainage swales/plumbing to bring local runoff into retention areas.

   c. Ensure that site is graded toward local retention areas;

   d. Construct driveways and individual lot temporary parking;

   e. Construct general utility services (ie. water and sewer piping, storm piping, etc.)

   f. Construct buildings;

   g. Construct other utility service connections (gas, electric, phone);

Note: For all Underground Utilities– Sediment barriers will be utilized as required to bind the down slope side of utility construction and soil stockpiles;

G. Remove any accumulated sedimentation from bioretention swales, dry swale, diversion swales, and pond. Return property to permanent lines and grades;

H. Final Grading Mulching & Seeding – Sediment barriers will be maintained down slope from disturbed soil during these operations;

I. Completion of site stabilization, ie. Vegetative cover, driveway surface. Sediment & Erosion Controls to remain in place until vegetative cover reaches 80% density.

4.0 RUNOFF REDUCTION VOLUME

This project follows the newer guidelines set forth by the DEC for runoff reduction. Chapter 3 or the New York State Stormwater Management Design Manual requires a five step planning process to document compliance with required processes.

Step 1 – Protect natural resources and utilize site hydrology

This planning step is designed to preserve area natural resources by protecting areas, avoiding sensitive locations, and minimizing grading and soil disturbances. There were no erodible soils, critical areas, wetlands, riparian buffer areas, or locally listed protected areas.

Another component of the planning process is an evaluation of all green infrastructure practices that might be acceptable for runoff reduction on site. This project will utilize bioretention areas and a dry swale.

The selection process is described as follows:

- Conservation of natural areas – Pre-development hydrology and water quality characteristics of undisturbed natural areas remains unaltered.
- Sheetflow to riparian buffers – None were available on-site.
- Vegetated open swales – Interceptor/Diversion swales will be used to direct on-site runoff into appropriate treatment practices.
- Tree planting/tree box – This was not a specific reduction practice considered for this project.

- Disconnection of rooftop runoff – There were no low lying natural areas that runoff could be directed to that could be disconnected from the design point. As such, rooftop runoff will be channeled to associated site bioretention areas.

- Stream daylighting for redevelopment projects – None on site.

- Bioswale – Bioretention areas will be utilized to control building and driveway runoff. The basins are designed for quality treatment.

- Green roof – This practice was cost prohibitive to the project and is impractical for individual homes. As such, this option was not considered.

- Stormwater planters – Bioretention areas were utilized to control runoff from rooftop, parking, and driveway areas due to the large surface areas involved.

- Rain cistern – This practice was considered impractical for the overall usage and square footage of the developed parcels. Source control measures like bioretention areas were considered instead.

- Porous pavement - This practice was cost prohibitive to the project and as such, this was not considered.

Step 2 – Determine Overall Water Quality Treatment Volume (WQv)

As required, the project originally planned to meet 100% of the WQv using green infrastructure practices and an infiltration basin was designed to capture and treat approximately 6,900 CF of runoff volume. An infiltration test was conducted at the proposed location of the basin on May 14, 2016 in accordance with Appendix D of the NYSDEC Stormwater Management Design Manual. The soil did not meet the necessary minimum percolation rate (0.5"/hr) and a standard practice to meet the remaining WQv after runoff reduction volume was implemented. See Attachment K for the calculation summary.

Step 3 – Runoff reduction by applying green infrastructure technology and standard SMPs.

Green infrastructure techniques were evaluated to potentially reduce the overall water quality volume. Green infrastructure practices used for this project were identified in Steps 1 and 2. The majority of site controls was through the use of standard infiltration practices including bioretention areas and a dry swale. As shown in Attachment K, minimum requirements for runoff reduction volume were met.

Step 4 – Provide standard practices to address remaining water quality volume

A pond was designed to provide treatment to address the remaining water quality volume after runoff reduction. See Step 2 above for an explanation as to why green infrastructure practices were impractical for this step. Reference Attachment K for the overall treatment calculations.

Step 5 – Apply volume and peak rate control practices if still required

A pond was added to the design to provide quantity attenuation to that of pre-developed conditions.

5.0 STORM WATER POLLUTION PREVENTION MEASURES AND CONTROLS

Various erosion and sediment control measures have been incorporated into the design of the project, Reference Stormwater, Sediment and Erosion Control Plans accompanying this SWPPP. These measures will be implemented during construction to minimize soil erosion and to protect the character and integrity of downstream receiving waters. The bioretention areas, dry swale, pond, and interceptor/diversion swales, will remain upon completion of the project to control the quality and quantity of storm water runoff from the developed site.

The site development contractor shall take all appropriate precautions to prevent soil erosion and discharge of sediment and other pollutants to receiving water bodies and wetlands. Specific measures are outlined in this plan. In general, disturbance areas shall be limited to the smallest practical areas at any given time, and the areas are to be reseeded as soon as possible. During construction the measures outlined in this document and shown on the plans are to be installed as described. Additional measures may be warranted or required by site and climatic conditions.

Specific erosion control measures, designed to minimize soil loss, and sediment control measures devised to retain eroded soil and prevent it from reaching water bodies or adjoining properties have been developed in accordance with the New *York State Stormwater Management Design Manual*, 2010, NYSDEC and *New York Standards & Specifications for Erosion and Sedimentation Control*, August 2005. Reference Attachment H for copy of *Vegetative and Structural, Measures for Erosion and Sediment Control, Sections 3 and 5 of the New York Standards & Specifications for Erosion and Sedimentation Control,* August 2005.

A variety of storm water pollutant controls are recommended for this project. Some controls are intended to function temporarily and will be used as needed for pollutant control during the construction period. These include temporary sediment and erosion control measures as shown on the plans and permanent stormwater facilities including, seven bioretention areas, a dry swale, a pond, and interceptor/diversion swales. For all disturbed areas, permanent stabilization will

be accomplished by covering the disturbed soil with vegetation, pavement, or commercial structures.

A. Erosion and Sediment Controls

1. Soil Stabilization – The purpose of soil stabilization is to prevent soil from leaving the site. In the natural condition, soil is stabilized by native vegetation. The primary technique to be used at this project for stabilizing site soil will be to provide a protective cover of turf grass, pavement, or building structure.

   a. Temporary Seeding - Where land disturbance is necessary, temporary seeding with fast-germinating temporary seed and a protection of mulch must be used on areas which will be exposed for more than 14 days.

   b. Permanent Seeding – All areas at final grade must be seeded and mulched within 7 days after completion of the major activity.

   c. Structural Controls – The storm water will be managed on the site utilizing proposed site grading, bioretention areas, dry swale, pond, and associated swale based drainage systems. Their design is shown on the Project Site Stormwater Plans.

   Final site stabilization is achieved when there is a uniform 80 percent density of permanent vegetation on all previously disturbed soil surfaces, exclusive of areas that have been paved.

B. Other Pollutant Controls

Control of sediments has been described previously. Other aspects of this SWPPP are listed below:

1. Dust Control – Construction traffic must enter and exit the site at the stabilized construction/driveway entrance. The purpose is to trap dust and mud that would otherwise be carried off-site by construction traffic.

   Dust control must be provided by the general contractor to a degree that is acceptable to the Owner, and in compliance with applicable local and state dust control regulations. After construction, the site will be stabilized (as described elsewhere), which will reduce the potential for dust generation.

2. Solid Waste Disposal – No solid materials, including building materials, are allowed to be discharged from the site with storm water.

All solid waste, including disposable materials incidental to the major construction activities, must be collected and placed in containers. The containers will be emptied periodically by a contract trash disposal service and hauled away from the site.

Substances that have the potential for polluting surface and/or groundwater must be controlled by whatever means necessary in order to ensure that they do not discharge from the site. As an example, special care must be exercised during equipment fueling and servicing operations. If a spill occurs, it must be contained and disposed so that it will not flow from the site or enter groundwater, even if this requires removal, treatment, and disposal of soil. In this regard, potentially polluting substances should be handled in a manner consistent with the impact they represent.

3. Sanitary Facilities – All personnel involved with construction activities must comply with state and local sanitary or septic system regulations. Temporary sanitary facilities will be provided at the site throughout the construction phase. They must be utilized by all construction personnel and will be serviced by a commercial contractor.

4. Water Source – Non-storm water components of site discharge must be clean water. Water used for construction, which discharges from the site, must originate from a public water supply or private well approved by the State Health Department. Water used for construction that does not originate from an approved public supply must not discharge from the site. It can be retained in temporary ponds until it infiltrates and evaporates.

5. Long-Term Pollutant Controls – Storm water pollutant control measures installed during construction that will also provide benefits after construction, include seven (7) bioretention areas, one (1) dry swale, one (1) pond, and interceptor/diversion swales. Those sediment barriers that do not interfere with normal operations and appear to provide long-term benefits can be left in place after construction is completed.

C. Construction Phase "Best Management Practices"

During the construction phase, the general contractor will implement the following measures:

1. Permanent traffic corridors shall be established and "routes of convenience" shall be avoided;

2. Preservation of existing vegetation as much as possible. Following the completion of construction activities in any portion of the site permanent vegetation shall be established an all exposed soils;

3. Site preparation activities shall be planned to minimize the area and duration of soil disruption;

4. Minimizing soil erosion and sedimentation by stabilization of disturbed areas and by removing sediment from construction site discharges;

5. Material resulting from the clearing and grubbing operation will be stockpiled up slope from adequate sedimentation controls.

6. The general contractor will designate areas for equipment cleaning, maintenance, and repair. The general contractor and subcontractors will utilize those areas. The areas will be protected by a temporary perimeter berm.

7. Use of detergents for large scale washing is prohibited (i.e., vehicles, buildings, pavement surfaces, etc.)

8. Chemicals, paints, solvents, fertilizers, and other toxic material must be stored in waterproof containers. Except during application, the contents must be kept in trucks or within storage facilities. Runoff containing such material must be collected, removed from the site, treated and disposed at an approved solid waste or chemical disposal facility.

6.0 LOCAL PLANS

In addition to this SWPPP, construction activities associated with this project must comply with any guidelines set forth by local and state regulatory agencies. Reference Project Plans and the Stormwater Management Design Summary (Attachment K) prepared to meet Local and State requirements for post-development stormwater quantity & quality.

7.0 WETLANDS, FLOODPLAINS, AND FLOOD LIMITS

A search was made on the State DEC Environmental Mapper web site to identify any state regulated wetlands in the project vicinity. In addition, a review from the Tompkins County Natural Resources Mapper web site was conducted to evaluate flood plain zones in the area. On both accounts, it appears that the project is well outside of any known target zones, respectively. Please see Attachment D for area mapping.

8.0 NYSHPO

A search was conducted on the New York State Parks, Recreation and Historic Preservation Office (SHPO) website to identify whether the subject parcel is listed under natural or historic places registration, or if the area resides within an archaeologically sensitive location. Attachment E, includes a "circles and squares map" indicating that the property is not found to be within this type of area designation. An application was made to the SHPO office and the project received confirmation on October 15, 2015 regarding the same.

9.0 INSPECTIONS AND SYSTEM MAINTENANCE

Between the time this SWPPP is implemented and final site stabilization is achieved, all disturbed areas and pollutant controls must be inspected at least once every seven calendar days by a licensed professional. The purpose of site inspections is to assess performance of pollutant controls. The inspections will be conducted by a third party professional provided by the Owner. The development contractor will also be required to arrange for a designated trained representative to be responsible for the management of this SWPPP. Based on these inspections, the contractor will decide whether it is necessary to modify this SWPPP, add or relocate sediment barriers, or whatever else may be needed in order to prevent pollutants from leaving the site via storm water runoff. The general contractor has the duty to cause pollutant control measures to be repaired, modified, maintained, supplemented, or whatever else is necessary in order to achieve effective pollutant control.

Examples of particular items to evaluate during site inspections are listed below. This list is not intended to be comprehensive. During each inspection the inspector must evaluate overall pollutant control system performance as well as particular details of individual system components. Additional factors should be considered as appropriate to the circumstances.

A. Construction of stormwater facilities. Insure facilities are constructed substantially in accordance with the plans. (Also, Reference Attachment F for sample inspection checklist - NYSDEC Stormwater Construction Checklist):

B. Locations where vehicles enter and exit the site must be inspected for evidence of off-site sediment tracking. A stabilized construction entrance will be constructed where vehicles enter and exit. This entrance will be maintained or supplemented as necessary to prevent sediment from leaving the site on vehicles.

C. Sediment barriers must be inspected and, if necessary, they must be enlarged or cleaned in order to provide additional capacity. All material from behind sediment barriers will be stockpiled on the up slope side. Additional sediment barriers must be constructed as needed.

D. Inspections will evaluate disturbed areas and areas used for storing materials that are exposed to rainfall for evidence of, or the potential for, pollutants entering the drainage system. If necessary, the materials must be covered or original covers must be repaired or supplemented. Also, protective berms must be constructed, if needed, in order to contain runoff from material storage areas.

E. Grassed areas will be inspected to confirm that a healthy stand of grass is maintained. The site has achieved final stabilization once all areas are covered with building foundation or pavement, or have a stand of grass with at least 80 percent density. The density of 80 percent or greater must be maintained to be considered as stabilized. Areas must be watered, fertilized, and reseeded as needed to achieve this goal.

F. All discharge points must be inspected to determine whether erosion control measures are effective in preventing significant impacts to receiving waters.

Based on inspection results, any modification necessary to increase effectiveness of this SWPPP to an acceptable level must be made within seven calendar days of the inspection. The inspection reports must be completed entirely and additional remarks should be included if needed to fully describe a situation. An important aspect of the inspection report is the description of additional measures that need to be taken to enhance plan effectiveness. The inspection report must identify whether the site was in compliance with the SWPP at the time of inspection and specifically identify all incidents of non-compliance.

Inspection reports must be kept on file by the general contractor as an integral part of this SWPPP for at least three years from the date of completion of the project.

Ultimately, it is the responsibility of the site development contractor to assure the adequacy of site pollutant discharge controls. Actual physical site conditions or contractor practices could make it necessary to install more structural controls than are shown on the plans. (For example, localized concentrations of runoff could make it necessary to install additional sediment barriers.) Assessing the need for additional controls and implementing them or adjusting existing controls will be a continuing aspect of this SWPPP until the site achieves final stabilization.

10.0 POST CONSTRUCTION INSPECTION, OPERATION AND MAINTENANCE PLAN

A. Maintenance Responsibility

Short and long term maintenance responsibilities for the bioretention areas, dry swale, pond, and associated swales and culvert drainage systems will lay with Scott Morgan.

Specifically, Scott Morgan is aware that the following shall be incorporated into the project as part of an O&M post construction management plan:

1. A sign shall be erected in a conspicuous area (ie. close proximity to each developed practice) to identify each stormwater management practice including: the six bioretention areas, dry swale, pond, and diversion swales. The sign shall be of a size not less than 18" x 24" (or 10" x 12" for footprints smaller than 400 SF) bearing the following information:

   STORMWATER MANAGEMENT PRACTICE
   Project Identification (*SPDES Permit* #)
   Bioretention area, pond, dry swale, diversion swales
   Must be maintained in Accordance with O&M Plan

2. A legally binding mechanism shall be used to ensure long term operation and maintenance and protection of the bioretention areas, dry swale, pond, and general diversion swales. This mechanism shall be through execution of an agreement with the Town of Lansing, carried by deed which shall be transferred upon full build-out between Scott Morgan and the Town of Lansing.

3. Copies of the practice designs and details shall be kept on record and be made available at all times. Copies shall also be forwarded to the Town of Lansing for archival purposes.

B. Sediment & Debris Removal

Sediment removal in the retention areas shall occur every five to six years or after 50% of total capacity has been lost. Inspection of the infiltration practices shall take place annually after the spring melt to determine if maintenance is necessary. Sediments excavated from the stormwater controls that have not received runoff from designated hotspots and are generally not considered toxic or hazardous may be safely excavated, transported and used as fill.

C. Inspection & Periodic Maintenance

To ensure the continued operation and long term performance of the proposed stormwater management system, inspections shall be conducted periodically for the first few months following construction and then on an annual basis. Site inspection should also be performed following major storm events (i.e., intense storms, thunder storms, cloud bursts, etc.). Items to check for include, but are not limited to the following: (Reference Attachment I and Attachment J for complete inspection checklist - NYSDEC Stormwater Operation, Maintenance and Management Inspection Checklists):

i) Embankment & Structural;

 Check basin embankments, outlets and spillways note cracks, bulges, animal burrows, differential settlement, damage to or fatigue of stormwater pipe, structures and permanent erosion control. Components of the system that require repair or replacement should be addressed immediately following identification. Check pipes, channels, grates, inlet structures and spillways to insure design capacity. Look for objects or accumulations of sediments and debris obstructing flow path.

ii) Vegetation;

 Preclude deep rooted woody plant growth on pond embankment by mowing at least once annually.

 Maintain a dense vigorous growth of grass cover. Spot seed, mulch and fertilize where necessary.

Attachment A:
Notice of Intent, (NOI) and
MS4 Acceptance Form

NOI for coverage under Stormwater General Permit for Construction Activity

Alternate ID SDM Rentals Duplex Apartments **Submission** HNX-1S7Z-B2SNG **Revision** 1 **Form Version** 1.20

Review

This step allows you to review the form to confirm the form is populated completely and accurately, prior to certification and submission.

Please note: Any work you perform filling out a form will not be accessible by NYSDEC staff or the public until you actually submit the form in the 'Certify & Submit' step.

OWNER/OPERATOR INFORMATION

Owner/Operator Name (Company/Private Owner/Municipality/Agency/Institution, etc.)
SDM Rentals, LLC

Owner/Operator Contact Person Last Name (NOT CONSULTANT)
Morgan

Owner/Operator Contact Person First Name
Scott

Owner/Operator Mailing Address
P.O. Box 4925

City
Ithaca

State
NY

Zip
14852

Phone
6072795609

Email
sdmlandscaping@hotmail.com

Federal Tax ID
None Specified

PROJECT LOCATION

Project/Site Name
SDM Rentals Duplex Apartments

Street Address (Not P.O. Box)
Peruville Road

Side of Street
North

City/Town/Village (THAT ISSUES BUILDING PERMIT)
(T) Lansing

State
NY

Zip
14882

County
TOMPKINS

DEC Region
7

Name of Nearest Cross Street
Walton Lane

Distance to Nearest Cross Street (Feet)
1000

Project In Relation to Cross Street
West

Tax Map Numbers Section-Block-Parcel
None Specified

Tax Map Numbers
None Specified

1. Coordinates

Provide the Geographic Coordinates for the project site. The two methods are:
- Navigate to the project location on the map (below) and click to place a marker and obtain the XY coordinates.
- The "Find Me" button will provide the lat/long for the person filling out this form. Then pan the map to the correct location and click the map to place a marker and obtain the XY coordinates.

Navigate to your location and click on the map to get the X,Y coordinates

Latitude	Longitude
42.53999034775728	-76.45904901880583

PROJECT DETAILS

1536

2. What is the nature of this project?
New Construction

3. Select the predominant land use for both pre and post development conditions.

Pre-Development Existing Landuse
Pasture/Open Land

Post-Development Future Land Use
Multifamily Residential

3a. If Single Family Subdivision was selected in question 3, enter the number of subdivision lots.
None Specified

---

4. In accordance with the larger common plan of development or sale, enter the total project site acreage, the acreage to be disturbed and the future impervious area (acreage)within the disturbed area.

*** ROUND TO THE NEAREST TENTH OF AN ACRE. ***

Total Site Area (acres)
35.74

Total Area to be Disturbed (acres)
14.9

Existing Impervious Area to be Disturbed (acres)
0

Future Impervious Area Within Disturbed Area (acres)
2.28

5. Do you plan to disturb more than 5 acres of soil at any one time?
No

6. Indicate the percentage (%) of each Hydrologic Soil Group(HSG) at the site.

A (%)
16

B (%)
3

C (%)
81

D (%)
0

7. Is this a phased project?
Yes

8. Enter the planned start and end dates of the disturbance activities.

Start Date
06/01/2020

End Date
06/01/2022

9. Identify the nearest surface waterbody(ies) to which construction site runoff will discharge.
Class B Stream - #898-238

9a. Type of waterbody identified in question 9?
Stream/Creek Off Site

Other Waterbody Type Off Site Description
None Specified

9b. If "wetland" was selected in 9A, how was the wetland identified?
None Specified

10. Has the surface waterbody(ies in question 9 been identified as a 303(d) segment in Appendix E of GP-0-15-002?
No

11. Is this project located in one of the Watersheds identified in Appendix C of GP-0-15-002?
No

12. Is the project located in one of the watershed areas associated with AA and AA-S classified waters?
Yes

If No, skip question 13.

13. Does this construction activity disturb land with no existing impervious cover and where the Soil Slope Phase is identified as an E or F on the USDA Soil Survey?
No

If Yes, what is the acreage to be disturbed?
None Specified

14. Will the project disturb soils within a State regulated wetland or the protected 100 foot adjacent area?
No

15. Does the site runoff enter a separate storm sewer system (including roadside drains, swales, ditches, culverts, etc)?
Yes

16. What is the name of the municipality/entity that owns the separate storm sewer system?
Town of Lansing

17. Does any runoff from the site enter a sewer classified as a Combined Sewer?
No

18. Will future use of this site be an agricultural property as defined by the NYS Agriculture and Markets Law?
No

19. Is this property owned by a state authority, state agency, federal government or local government?
No

20. Is this a remediation project being done under a Department approved work plan? (i.e. CERCLA, RCRA, Voluntary Cleanup Agreement, etc.)
No

REQUIRED SWPPP COMPONENTS

21. Has the required Erosion and Sediment Control component of the SWPPP been developed in conformance with the current NYS Standards and Specifications for Erosion and Sediment Control (aka Blue Book)?
Yes

22. Does this construction activity require the development of a SWPPP that includes the post-construction stormwater management practice component (i.e. Runoff Reduction, Water Quality and Quantity Control practices/techniques)?
Yes

If you answered No in question 22, skip question 23 and the Post-construction Criteria and Post-construction SMP Identification sections.

23. Has the post-construction stormwater management practice component of the SWPPP been developed in conformance with the current NYS Stormwater Management Design Manual?
Yes

24. The Stormwater Pollution Prevention Plan (SWPPP) was prepared by:
Professional Engineer (P.E.)

SWPPP Preparer
Timothy C. Buhl

Contact Name (Last, Space, First)
Gibson, Scott

Mailing Address
5 Orchard Avenue

City
Watkins Glen

1540

State
New York

Zip
14891

Phone
6072280662

Email
scottg@stny.rr.com

Download SWPPP Preparer Certification Form

Please take the following steps to prepare and upload your preparer certification form:

1) Click on the link below to download a blank certification form
2) The certified SWPPP preparer should sign this form
3) Scan the signed form
4) Upload the scanned document

Download SWPPP Preparer Certification Form

Please upload the SWPPP Preparer Certification

No files uploaded

Comment
None Specified

At least one file is required.

EROSION & SEDIMENT CONTROL CRITERIA

25. Has a construction sequence schedule for the planned management practices been prepared?
Yes

26. Select all of the erosion and sediment control practices that will be employed on the project site:

1541

Temporary Structural

Check Dams
Perimeter Dike/Swale
Sediment Traps
Stabilized Construction Entrance
Silt Fence
Construction Road Stabilization

Biotechnical
None

Vegetative Measures
Grassed Waterway
Mulching
Seeding
Sodding
Topsoiling

Permanent Structural
Diversion

Other
None Specified

POST-CONSTRUCTION CRITERIA

*** IMPORTANT: Completion of Questions 27-39 is not required if response to Question 22 is No.**

27. Identify all site planning practices that were used to prepare the final site plan/layout for the project.
Reduction of Clearing and Grading
Roadway Reduction

27a. Indicate which of the following soil restoration criteria was used to address the requirements in Section 5.1.6("Soil Restoration") of the Design Manual (latest version).

All disturbed areas will be restored in accordance with the Soil Restoration requirements in Table 5.3 of the Design Manual (see page 5-22).

28. Provide the total Water Quality Volume (WQv) required for this project (based on final site plan/layout). (Acre-feet)

0.232

29. Post-construction SMP Identification

Use the Post-construction SMP Identification section to identify the RR techniques (Area Reduction), RR techniques(Volume Reduction) and Standard SMPs with RRv Capacity that were used to reduce the Total WQv Required (#28).

Identify the SMPs to be used by providing the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

Note: Redevelopment projects shall use the Post-Construction SMP Identification section to identify the SMPs used to treat and/or reduce the WQv required. If runoff reduction techniques will not be used to reduce the required WQv, skip to question 33a after identifying the SMPs.

30. Indicate the Total RRv provided by the RR techniques (Area/Volume Reduction) and Standard SMPs with RRv capacity identified in question 29. (acre-feet)

0.068

31. Is the Total RRv provided (#30) greater than or equal to the total WQv required (#28)?

No

If Yes, go to question 36. If No, go to question 32.

32. Provide the Minimum RRv required based on HSG. [Minimum RRv Required = (P) (0.95) (Ai) / 12, Ai=(s) (Aic)] (acre-feet)

0.064

32a. Is the Total RRv provided (#30) greater than or equal to the Minimum RRv Required (#32)?

Yes

1543

If Yes, go to question 33.

Note: Use the space provided in question #39 to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). A detailed evaluation of the specific site limitations and justification for not reducing 100% of the WQv required (#28) must also be included in the SWPPP.

If No, sizing criteria has not been met; therefore, NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

33. SMPs

Use the Post-construction SMP Identification section to identify the Standard SMPs and, if applicable, the Alternative SMPs to be used to treat the remaining total WQv (=Total WQv Required in #28 - Total RRv Provided in #30).

Also, provide the total impervious area that contributes runoff to each practice selected.

NOTE: Use the Post-construction SMP Identification section to identify the SMPs used on Redevelopment projects.

33a. Indicate the Total WQv provided (i.e. WQv treated) by the SMPs identified in question #33 and Standard SMPs with RRv Capacity identified in question #29. (acre-feet)

0.164

Note: For the standard SMPs with RRv capacity, the WQv provided by each practice = the WQv calculated using the contributing drainage area to the practice - provided by the practice. (See Table 3.5 in Design Manual)

34. Provide the sum of the Total RRv provided (#30) and the WQv provided (#33a).

0.232

35. Is the sum of the RRv provided (#30) and the WQv provided (#33a) greater than or equal to the total WQv required (#28)?

Yes

If Yes, go to question 36.

If No, sizing criteria has not been met; therefore, NOI can not be processed. SWPPP preparer must modify design to meet sizing criteria.

36. Provide the total Channel Protection Storage Volume (CPv required and provided or select waiver (#36a), if applicable.

CPv Required (acre-feet)
0.235

CPv Provided (acre-feet)
0.434

36a. The need to provide channel protection has been waived because:
None Specified

37. Provide the Overbank Flood (Qp) and Extreme Flood (Qf) control criteria or select waiver (#37a), if applicable.

Overbank Flood Control Criteria (Qp)

Pre-Development (CFS)
12.35

Post-Development (CFS)
9.43

Total Extreme Flood Control Criteria (Qf)

Pre-Development (CFS)
64.97

Post-Development (CFS)
54.21

37a. The need to meet the Qp and Qf criteria has been waived because:

None Specified

38. Has a long term Operation and Maintenance Plan for the post-construction stormwater management practice(s) been developed?
Yes

If Yes, Identify the entity responsible for the long term Operation and Maintenance
Scott Morgan

39. Use this space to summarize the specific site limitations and justification for not reducing 100% of WQv required (#28). (See question #32a) This space can also be used for other pertinent project information.
As required, the project originally planned to meet 100% of the WQv using green infiltration practices and an infiltration basin was designed to capture and treat approximately 6,900-CF of runoff volume. A centralized basin was chosen due to site limitations in slope and contour. An infiltration test was conducted at the proposed basin location on May 14, 2016 with testing in accordance with Appendix D of the NYSDEC Stormwater Management Design Manual. The soil did not meet the minimum percolation rate of 0.5"/hr and a standard practice to meet the remaining WQv after minimum RRv was implemented instead.

POST-CONSTRUCTION SMP IDENTIFICATION

Runoff Reduction (RR) Techniques, Standard Stormwater Management Practices (SMPs) and Alternative SMPs

Identify the Post-construction SMPs to be used by providing the total impervious area that contributes runoff to each technique/practice selected. For the Area Reduction Techniques, provide the total contributing area (includes pervious area) and, if applicable, the total impervious area that contributes runoff to the technique/practice.

RR Techniques (Area Reduction)

Round to the nearest tenth

1546

Total Contributing Acres for Conservation of Natural Area (RR-1)
None Specified

Total Contributing Impervious Acres for Conservation of Natural Area (RR-1)
None Specified

Total Contributing Acres for Sheetflow to Riparian Buffers/Filter Strips (RR-2)
None Specified

Total Contributing Impervious Acres for Sheetflow to Riparian Buffers/Filter Strips (RR-2)
None Specified

Total Contributing Acres for Tree Planting/Tree Pit (RR-3)
None Specified

Total Contributing Impervious Acres for Tree Planting/Tree Pit (RR-3)
None Specified

Total Contributing Acres for Disconnection of Rooftop Runoff (RR-4)
None Specified

RR Techniques (Volume Reduction)

Total Contributing Impervious Acres for Disconnection of Rooftop Runoff (RR-4)
None Specified

Total Contributing Impervious Acres for Vegetated Swale (RR-5)
None Specified

Total Contributing Impervious Acres for Rain Garden (RR-6)
None Specified

Total Contributing Impervious Acres for Stormwater Planter (RR-7)
None Specified

Total Contributing Impervious Acres for Rain Barrel/Cistern (RR-8)
None Specified

Total Contributing Impervious Acres for Porous Pavement (RR-9)
None Specified

Total Contributing Impervious Acres for Green Roof (RR-10)
None Specified

Standard SMPs with RRv Capacity

Total Contributing Impervious Acres for Infiltration Trench (I-1)
None Specified

Total Contributing Impervious Acres for Infiltration Basin (I-2)
None Specified

Total Contributing Impervious Acres for Dry Well (I-3)
None Specified

Total Contributing Impervious Acres for Underground Infiltration System (I-4)
None Specified

Total Contributing Impervious Acres for Bioretention (F-5)
0.69

Total Contributing Impervious Acres for Dry Swale (O-1)
0.07

Standard SMPs

Total Contributing Impervious Acres for Micropool Extended Detention (P-1)
None Specified

Total Contributing Impervious Acres for Wet Pond (P-2)
1.72

Total Contributing Impervious Acres for Wet Extended Detention (P-3)
None Specified

Total Contributing Impervious Acres for Multiple Pond System (P-4)
None Specified

Total Contributing Impervious Acres for Pocket Pond (P-5)
None Specified

Total Contributing Impervious Acres for Surface Sand Filter (F-1)
None Specified

Total Contributing Impervious Acres for Underground Sand Filter (F-2)
None Specified

Total Contributing Impervious Acres for Perimeter Sand Filter (F-3)
None Specified

Total Contributing Impervious Acres for Organic Filter (F-4)
None Specified

Total Contributing Impervious Acres for Shallow Wetland (W-1)
None Specified

Total Contributing Impervious Acres for Extended Detention Wetland (W-2)
None Specified

Total Contributing Impervious Acres for Pond/Wetland System (W-3)
None Specified

Total Contributing Impervious Acres for Pocket Wetland (W-4)
None Specified

1549

Total Contributing Impervious Acres for Wet Swale (O-2)
None Specified

Alternative SMPs (DO NOT INCLUDE PRACTICES BEING USED FOR PRETREATMENT ONLY)

Total Contributing Impervious Area for Hydrodynamic
None Specified

Total Contributing Impervious Area for Wet Vault
None Specified

Total Contributing Impervious Area for Media Filter
None Specified

"Other" Alternative SMP?
None Specified

Total Contributing Impervious Area for "Other"
None Specified

Provide the name and manufaturer of the alternative SMPs (i.e. proprietary practice(s)) being used for WQv treatment.

Note: Redevelopment projects which do not use RR techniques, shall use questions 28, 29, 33 and 33a to provide SMPs used, total WQv required and total WQv provided for the project.

Manufacturer of Alternative SMP
None Specified

Name of Alternative SMP
None Specified

OTHER PERMITS

40. Identify other DEC permits, existing and new, that are required for this project/facility.
None

1550

If SPDES Multi-Sector GP, then give permit ID
None Specified

If Other, then identify
None Specified

41. Does this project require a US Army Corps of Engineers Wetland Permit?
No

If "Yes," then indicate Size of Impact, in acres, to the nearest tenth
None Specified

42. If this NOI is being submitted for the purpose of continuing or transferring coverage under a general permit for stormwater runoff from construction activities, please indicate the former SPDES number assigned.
None Specified

MS4 SWPPP ACCEPTANCE

43. Is this project subject to the requirements of a regulated, traditional land use control MS4?
Yes - Please attach the MS4 Acceptance form below

If No, skip question 44

44. Has the "MS4 SWPPP Acceptance" form been signed by the principal executive officer or ranking elected official and submitted along with this NOI?
Yes

MS4 SWPPP Acceptance Form Download

Download form from the link below. Complete, sign, and upload.

MS4 SWPPP Acceptance Form

MS4 Acceptance Form Upload

No files uploaded

Comment

None Specified

OWNER/OPERATOR CERTIFICATION

The owner/operator must download, sign, and upload the certification form in order to complete this application.

Owner/Operator Certification Form Download

Download the certification form by clicking the link below. Complete, sign, scan, and upload the form.

Owner/Operator Certification Form (PDF, 45KB)

Upload Owner/Operator Certification Form

No files uploaded

Comment

None Specified

At least one file is required.

New York State Department of Environmental Conservation Division of Water 625 Broadway, 4th Floor Albany, New York 12233-3505 MS4 Stormwater Pollution Prevention Plan (SWPPP) Acceptance Form for Construction Activities Seeking Authorization Under SPDES General Permit *(NOTE: Attach Completed Form to Notice Of Intent and Submit to Address Above)

I. Project Owner/Operator Information
1. Owner/Operator Name:
2. Contact Person:
3. Street Address:
4. City/State/Zip:
II. Project Site Information
5. Project/Site Name:
6. Street Address:
7. City/State/Zip:
III. Stormwater Pollution Prevention Plan (SWPPP) Review and Acceptance Information
8. SWPPP Reviewed by:
9. Title/Position:
10. Date Final SWPPP Reviewed and Accepted:
IV. Regulated MS4 Information
11. Name of MS4:
12. MS4 SPDES Permit Identification Number: NYR20A
13. Contact Person:
14. Street Address:
15. City/State/Zip:
16. Telephone Number:

MS4 SWPPP Acceptance Form -continued

V. Certification Statement - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative

I hereby certify that the final Stormwater Pollution Prevention Plan (SWPPP) for the construction project identified in question 5 has been reviewed and meets the substantive requirements in the SPDES General Permit For Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4s). Note: The MS4, through the acceptance of the SWPPP, assumes no responsibility for the accuracy and adequacy of the design included in the SWPPP. In addition, review and acceptance of the SWPPP by the MS4 does not relieve the owner/operator or their SWPPP preparer of responsibility or liability for errors or omissions in the plan.

Printed Name:

Title/Position:

Signature:

Date:

VI. Additional Information

Attachment B:
Notice of Termination, (NOT)

New York State Department of Environmental Conservation Division of Water 625 Broadway, 4th Floor Albany, New York 12233-3505 ***(NOTE: Submit completed form to address above)*** **NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity**

Please indicate your permit identification number: NYR ___ ___ ___ ___ ___ ___

I. Owner or Operator Information

1. Owner/Operator Name:

2. Street Address:

3. City/State/Zip:

4. Contact Person:	4a.Telephone:

5. Contact Person E-Mail:

II. Project Site Information

5. Project/Site Name:

6. Street Address:

7. City/Zip:

8. County:

III. Reason for Termination

9a. G All disturbed areas have achieved final stabilization in accordance with the general permit and SWPPP.
***Date final stabilization completed** (month/year):

9b. G Permit coverage has been transferred to new owner/operator. Indicate new owner/operator's permit identification number: NYR ___ ___ ___ ___ ___ ___ (Note: Permit coverage can not be terminated by owner identified in I.1. above until new owner/operator obtains coverage under the general permit)

9c. G Other (Explain on Page 2)

IV. Final Site Information:

10a. Did this construction activity require the development of a SWPPP that includes post-construction stormwater management practices? G yes G no (If no, go to question 10f.)

10b. Have all post-construction stormwater management practices included in the final SWPPP been constructed? G yes G no (If no, explain on Page 2)

10c. Identify the entity responsible for long-term operation and maintenance of practice(s)?

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued

10d. Has the entity responsible for long-term operation and maintenance been given a copy of the operation and maintenance plan required by the general permit? G yes G no

10e. Indicate the method used to ensure long-term operation and maintenance of the post-construction stormwater management practice(s): G Post-construction stormwater management practice(s) and any right-of-way(s) needed to maintain practice(s) have been deeded to the municipality. G Executed maintenance agreement is in place with the municipality that will maintain the post-construction stormwater management practice(s). G For post-construction stormwater management practices that are privately owned, the deed of record has been modified to include a deed covenant that requires operation and maintenance of the practice(s) in accordance with the operation and maintenance plan. G For post-construction stormwater management practices that are owned by a public or private institution (e.g. school, college, university), or government agency or authority, policy and procedures are in place that ensures operation and maintenance of the practice(s) in accordance with the operation and maintenance plan.

10f. Provide the total area of impervious surface (i.e. roof, pavement, concrete, gravel, etc.) constructed within the disturbance area? (acres)

11. Is this project subject to the requirements of a regulated, traditional land use control MS4? G yes G no (If Yes, complete section VI - "MS4 Acceptance" statement

V. Additional Information/Explanation: (Use this section to answer questions 9c. and 10b., if applicable)

VI. MS4 Acceptance - MS4 Official (principal executive officer or ranking elected official) or Duly Authorized Representative (Note: Not required when 9b. is checked -transfer of coverage)

I have determined that it is acceptable for the owner or operator of the construction project identified in question 5 to submit the Notice of Termination at this time.

Printed Name:

Title/Position:

Signature:	Date:

NOTICE OF TERMINATION for Storm Water Discharges Authorized under the SPDES General Permit for Construction Activity - continued

VII. Qualified Inspector Certification - Final Stabilization:

I hereby certify that all disturbed areas have achieved final stabilization as defined in the current version of the general permit, and that all temporary, structural erosion and sediment control measures have been removed. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.	
Printed Name:	
Title/Position:	
Signature:	Date:
VIII. Qualified Inspector Certification - Post-construction Stormwater Management Practice(s):	
I hereby certify that all post-construction stormwater management practices have been constructed in conformance with the SWPPP. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.	
Printed Name:	
Title/Position:	
Signature:	Date:
IX. Owner or Operator Certification	
I hereby certify that this document was prepared by me or under my direction or supervision. My determination, based upon my inquiry of the person(s) who managed the construction activity, or those persons directly responsible for gathering the information, is that the information provided in this document is true, accurate and complete. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.	
Printed Name:	
Title/Position:	
Signature:	Date:

Attachment C:
Certification Forms

CONTRACTOR and SUBCONTRACTOR CERTIFICATION STATEMENT

for the New York State Department of Environmental Conservation (DEC) State Pollutant Discharge Elimination System Permit for Stormwater Discharges from Construction Activity (GP-0-10-001)

As per *Part III.A.6* on page 13 of *GP-0-10-001* (effective January 29, 2010):

'Prior to the *commencement of construction activity*, the *owner or operator* must identify the contractor(s) and subcontractor(s) that will be responsible for installing, constructing, repairing, replacing, inspecting and maintaining the erosion and sediment control practices included in the SWPPP; and the contractor(s) and subcontractor(s) that will be responsible for constructing the post-construction stormwater management practices included in the SWPPP. The *owner or operator* shall have each of the contractors and sub-contractors identify at least one person from their company that will be responsible for implementation of the SWPPP. This person shall be known as the *trained contractor*. The *owner or operator* shall ensure that at least one *trained contractor* is on site on a daily basis when soil disturbance activities are being performed.'

The *owner or operator* shall have each contractor and subcontractor involved in soil disturbance sign a copy of the following certification statement before they commence <u>any</u> *construction activity*:

_____	**NYR** _____	_____
Name of Construction Site	*DEC Permit ID*	*Municipality (MS4)*

"I hereby certify that I understand and agree to comply with the terms and conditions of the SWPPP and agree to implement any corrective actions identified by the qualified inspector during a site inspection. I also understand that the owner or operator must comply with the terms and conditions of the most current version of the New York State Pollutant Discharge Elimination System ("SPDES") general permit for stormwater discharges from construction activities and that it is unlawful for any person to cause or contribute to a violation of water quality standards. Furthermore, I understand that certifying false, incorrect or inaccurate information is a violation of the referenced permit and the laws of the State of New York and could subject me to criminal, civil and/or administrative proceedings.

_____ Responsible Corporate Officer/Partner Signature	_____ Date
_____ Name of above Signatory	_____ Name of Company
_____ Title of above Signatory	_____ Mailing Address
_____ Telephone of Company	_____ City, State and Zip

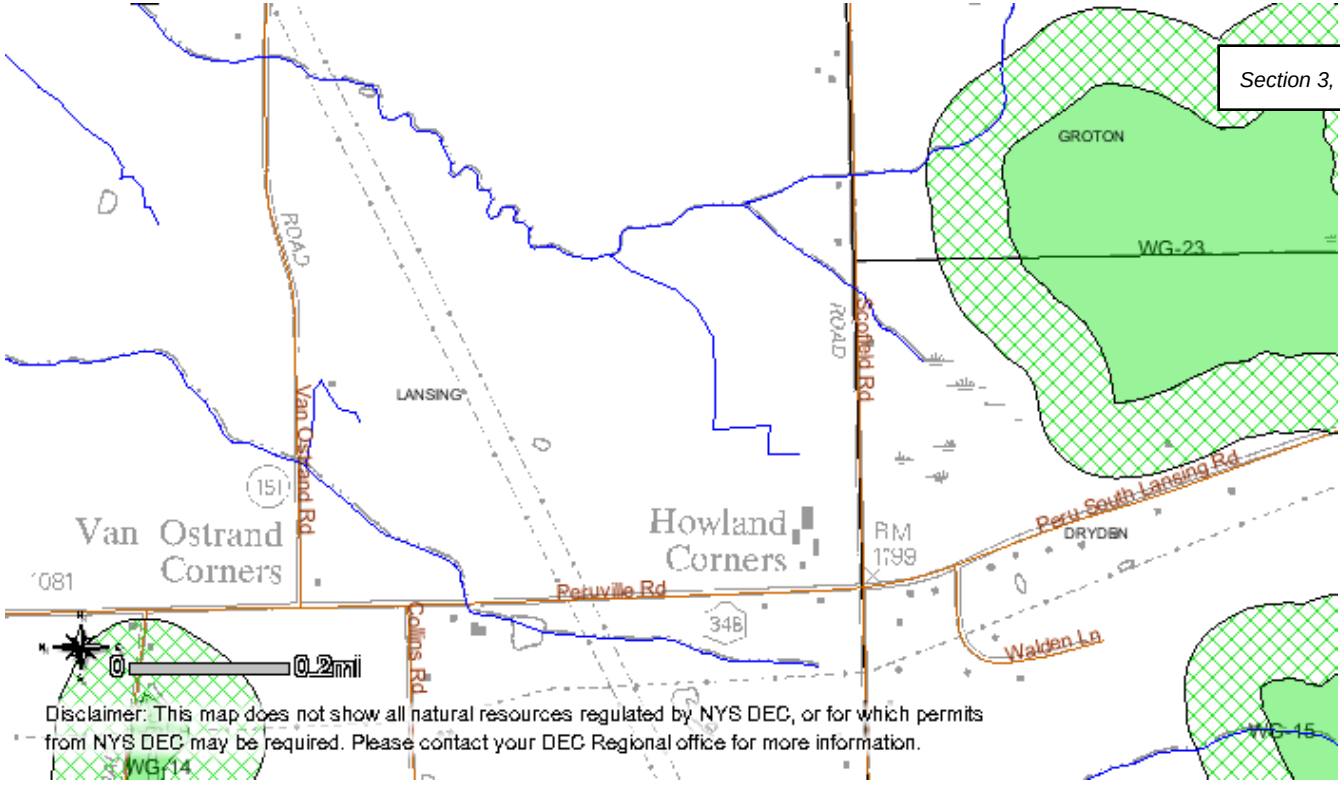
Identify the specific elements of the SWPPP the contractor or subcontractor is responsible for:

***'TRAINED CONTRACTOR'* FOR THE CERTIFIED CONTRACTOR OR SUBCONTRACTOR**

_____	_____	_____
Name of Trained Employee	*Title of Trained Employee*	*NYSDEC SWT #*

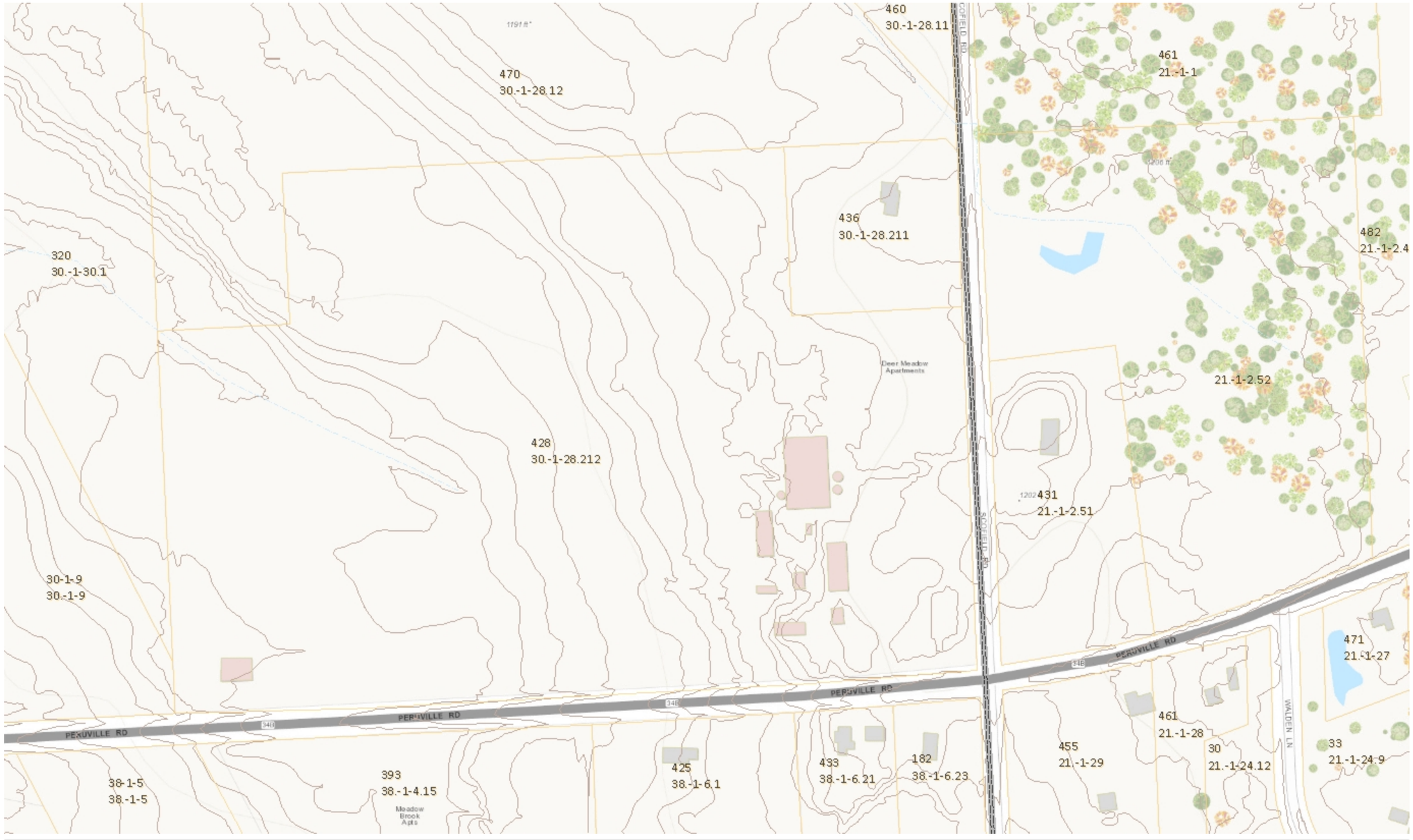
A copy of this signed contractor certification statement must be maintained at the SWPPP on site

Attachment D:
Wetlands and Floodplain Mapping



Pinney - Wetlands Map

Pinney Duplex Project Flood Zone Map



Legend

- Address
- Open Water
- Streams
  - Intermittent Streams
  - Perennial Streams
- PARCELS
- Flood Zones
  - 100 Year
  - 500 Year
  - Not Included in Flood Map
- Building
- Municipalities
- ULY-SE
- ULY-SW
- ULY-NW
- ULY-tNE
- NEW-SW
- NEW-SE
- NEW-NE
- NEW-NW
- LAN2ftSouth
- LAN-NE
- LAN-NW
- LAN2ftMiddle
- GRO-SE
- GRO-SW
- GRO-NE
- GRO-NW
- ENF-SE
- ENF-SW
- ENF-NE
- ENF-NW
- DRY-SE
- DRY-SW
- DRY-NE
- DRY-tNW
- DAN2ftSW
- DAN2ftSE
- DAN2ftNW
- DAN2ftNE
- CAR-SW
- CAR-SE

1: 3,287

547.9 0 273.93 547.9 Feet

WGS_1984_Web_Mercator_Auxiliary_Sphere

© Tompkins County GIS 2011

This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.

THIS MAP IS NOT TO BE USED FOR NAVIGATION

Notes

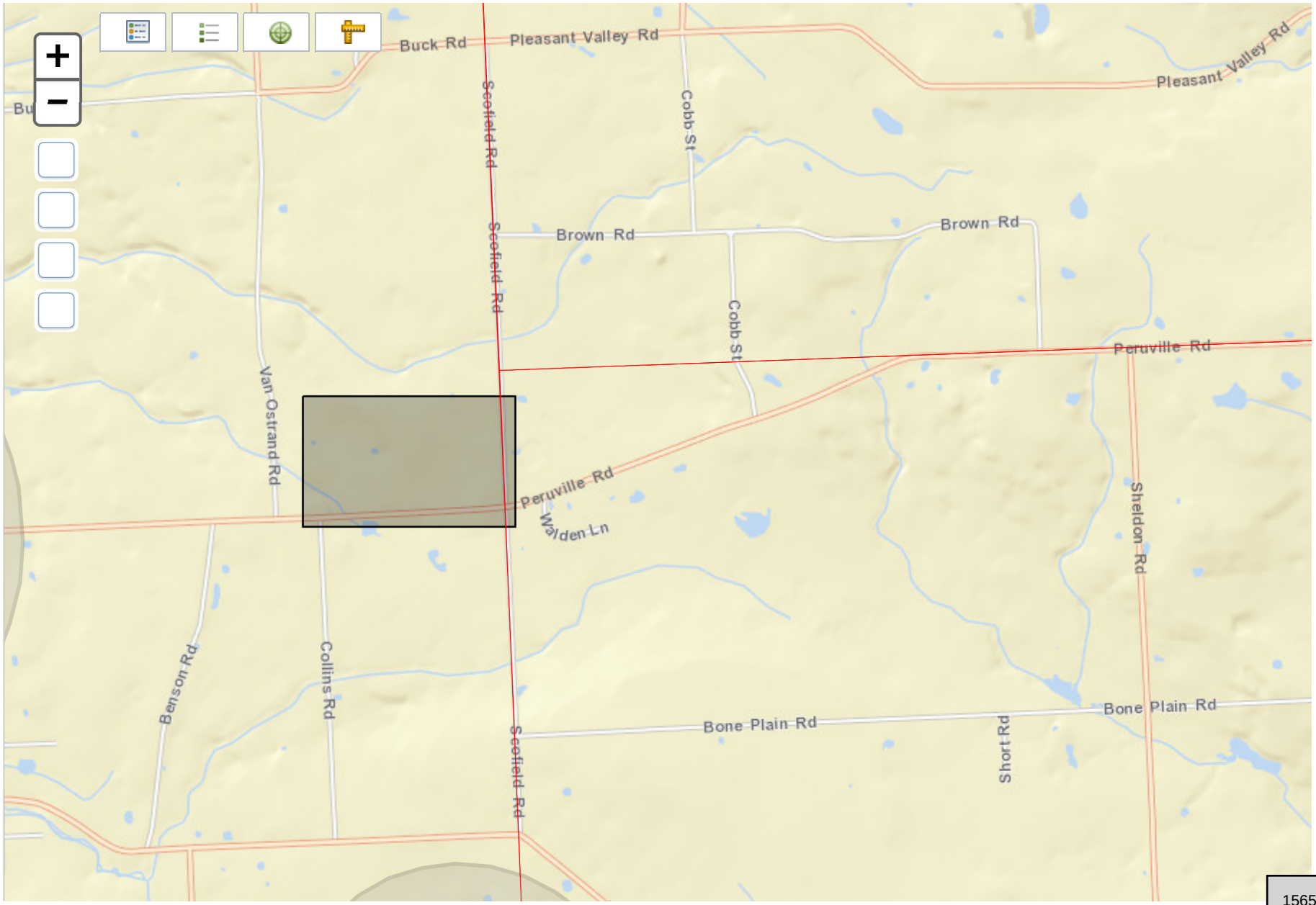
This map was automatically generated using Geocortex Essentials. You at work!

Attachment E:
NYSHPO – Circles and Squares Map

Section 3, Item e.

CRIS NYS Cultural Resource Information System

HOME SUBMIT SEARCH COMMUNICATE



1565

NEW YORK STATE OF OPPORTUNITY. | Parks, Recreation, and Historic Preservation

ANDREW M. CUOMO
Governor

ROSE HARVEY
Commissioner

October 15, 2015

Mr. Scott Gibson
5 Orchard Avenue
Watkins Glen, NY 14891

Re: DEC
Pinney Duplex Apartments
Town of Lansing, Tompkins County
15PR05870

Dear Mr. Gibson:

Thank you for requesting the comments of the Office of Parks, Recreation and Historic Preservation (OPRHP). We have reviewed the project in accordance with the New York State Historic Preservation Act of 1980 (Section 14.09 of the New York Parks, Recreation and Historic Preservation Law). These comments are those of the OPRHP and relate only to Historic/Cultural resources. They do not include potential environmental impacts to New York State Parkland that may be involved in or near your project. Such impacts must be considered as part of the environmental review of the project pursuant to the State Environmental Quality Review Act (New York Environmental Conservation Law Article 8) and its implementing regulations (6 NYCRR Part 617).

Based upon this review, it is the New York State Office of Parks, Recreation and Historic Preservation's opinion that your project will have no impact on archaeological and/or historic resources listed in or eligible for the New York State and National Registers of Historic Places.

If further correspondence is required regarding this project, please be sure to refer to the OPRHP Project Review (PR) number noted above.

Sincerely,

Ruth L. Pierpont

Ruth L. Pierpont

Deputy Commissioner for Historic Preservation

Attachment F:
Inspection Report (Sample Form)

INSPECTION REPORT
for
STORM WATER POLLUTION PREVENTION PLAN

PROJECT TITLE: _____

PROJECT LOCATION: _____

INSPECTOR: _____
DATE: _____

SITE CONDITIONS:

POLLUTANT CONTROL	IN CONFORMANCE	EFFECTIVE
Stabilized Construction Entrance	YES/NO (See Below)	YES/NO (See Below)
Silt Fence	YES/NO (See Below)	YES/NO (See Below)
Temporary Seeding & Mulching	YES/NO (See Below)	YES/NO (See Below)
Swales, Ditches, Channels	YES/NO (See Below)	YES/NO (See Below)
Rock Check Dams	YES/NO (See Below)	YES/NO (See Below)
Wet Pond & Forebays	YES/NO (See Below)	YES/NO (See Below)
Material Storage	YES/NO (See Below)	YES/NO (See Below)
Other: _____	YES/NO (See Below)	YES/NO (See Below)

VIOLATION NOTED: (Explain each "NO" circled above) _____

RECOMMENDED REMEDIAL ACTION(S): _____

COMMENTS: _____

Based on the results of the inspection, necessary control modifications shall be implemented within 7 calendar days. These reports shall be kept on file as part of the Storm Water Pollution Prevention Plan for at least three years from the date of completion and submission of the Notice of Termination. A copy of the SWPPP shall be kept at the site at all times during construction.

CERTIFICATION STATEMENT

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person(s) who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonments for knowing violations.

_____ _____
Signature Date

_____
Printed Name

Attachment G:
Record of Stabilization and Construction Activity Dates
(Sample Form)

SITE STABILIZATION
and
CONSTRUCTION ACTIVITY DATES

A record of dates when major grading activities occur, when construction activities temporarily or permanently cease on a portion of the site, and when stabilization measures are initiated shall be maintained until final site stabilization is achieved and the Notice of Termination is filed. The dates can be entered in the following form, or on a different form.

MAJOR GRADING ACTIVITIES:

Description of Activity: _____
Begin (date): _____ Site Contractor: _____
Location: _____
End (date): _____

Description of Activity: _____
Begin (date): _____ Site Contractor: _____
Location: _____
End (date): _____

Description of Activity: _____
Begin (date): _____ Site Contractor: _____
Location: _____
End (date): _____

Description of Activity: _____
Begin (date): _____ Site Contractor: _____
Location: _____
End (date): _____

Description of Activity: _____
Begin (date): _____ Site Contractor: _____
Location: _____
End (date): _____

Description of Activity: _____
Begin (date): _____ Site Contractor: _____
Location: _____
End (date): _____

Description of Activity: _____
Begin (date): _____ Site Contractor: _____
Location: _____
End (date): _____

Attachment H:
Vegetative and Structural Measures For Erosion and Sediment Control

(*Sections 3 and 5 NY Standards & Specifications for Erosion & Sediment Control)*

(Reference)

VEGETATIVE MEASURES FOR EROSION AND SEDIMENT CONTROL

Erosion is the gradual wearing away of the land surface as a result of uncontrolled wind and water energy. Sedimentation is the result of transport and delivery of eroded soil particles, deposited at some point. Erosion and sediment control is a complex interaction of soils, engineering water management, agronomic and horticultural practices. Decisions for resolving erosion conditions, both on site and within the upper watershed, are formulated based on surface and subsurface water, soil material, climatic conditions, and anticipated land use. Creating a stable slope is necessary prior to vegetating. Sloughing and slumping are not helpful in establishing a uniform protective cover.

General planning considerations for vegetating a steep slope will include evaluating the soil. Factors such as soil texture and steepness affect the stability of the slope. Texture also influences the permeability and water holding capacity of the soil. Many slopes are stripped of topsoil during the construction phase, leaving an infertile, compacted soil surface, void of valuable organic matter. Topsoil must be reapplied. Overly compacted slopes should be decompacted with appropriate equipment. Soil pH and nutrient level are determined by obtaining a representative soil sample for analysis from an accredited lab. Appropriate plants are selected to meet the final slope and soil conditions for the site.

Liming material sold in New York varies considerably in several ways. The mineral content (calcium and magnesium) of the limestone may be high or low, the fineness or particle sizes vary between suppliers, and the cost varies greatly. Two types of limestone are sold. The most common is limestone high in calcium. Dolomitic limestone contains magnesium (Mg) and calcium (Ca). Limestone sold in NY varies from 0 to 20% Mg while the calcium content of lime varies from 14.7% to 51.5%. Particle size determines how rapidly the calcium and magnesium will react with the acid in the soil. The finer the particle sizes, the quicker the reaction.

When purchasing agricultural limestone, one should state on the order that the amount should be adjusted to 100% effective neutralizing value (ENV). This is the way to compare materials as it adjusts for the reactive Ca and Mg and the particle size. The ENV is stated as the ratio needed to convert a limestone recommendation to 100% ENV. Thus, if the recommendation is 4 tons/acre of 100% ENV lime and the lime being used had an 80% ENV (1/ENV = 1.25), 4 times 1.25 or 5 tons/acre would be required.

The amount of limestone needed can be estimated by using the table below. A soil test is the only way to determine the soil pH. This table is very general, but it is useful for planning.

General lime guidelines (at 100% ENV)

Initial Soil pH	*Sands*	*Sandy Loams*	*Loams and Silt Loams*	*Silty Clay Loams*
		T/A of lime[1]		
4.5	2.5	6.0	9.5	13.0
4.6-4.7	2.5	6.0	9.0	12.5
4.8-4.9	2.5	5.5	8.5	12.0
5.0-5.1	2.0	5.0	7.5	10.5
5.2-5.3	1.5	4.0	6.5	8.5
5.4-5.5	1.0	3.0	4.0	6.0
5.6-5.7	1.0	2.0	3.0	4.5
5.8-5.9	0.7	1.5	2.5	3.5
6.0-6.1	0.6	1.5	2.0	3.0
6.2-6.3	0.4	1.0	1.5	2.0
6.~6.5	0.3	0.7	1.0	1.5
6.6-6.7	0.2	0.5	0.7	1.0

Lime guidelines are in tons per acre and are based on a plow depth of 8.0 inches. Correct rate if plowing to a different depth.

REFERENCE: Cornell Cooperative Extension. 2003 Cornell Guide for Integrated Field Crop Management, Pg. 32.

Fertilizer is sold with an analysis printed on the tag or bag. The first number is the percent of nitrogen (N), the second is phosphorus (P), and the third is potassium (K). Other elements are sometimes included and are listed with these basic three components. For example, a forty pound bag of 5-10-5 contains 2 lbs. N, 4 lbs. P (as P_2O_5), and 2 lbs. of K (as K_20). Select an appropriate analysis to meet the nutrients required for the specific site. Always apply as closely as possible the required amount of fertilizer to meet the requirements of the site. Adding surplus nitrogen may cause pollution of drinking water and saltwater ecosystems. Excessive phosphorus may accelerate the aging process of freshwater ecosystems. Excessive amounts of N and K2O may result in 'burning' the grass and killing it.

Water management on and above potentially eroding sites is extremely important. Large watersheds above a site may require extensive water control measures. Water flow paths must be controlled to allow the safe delivery of the water to an outlet to the side or bottom of the slope. Shallow ditches or diversions across the slope and above the area to be seeded is an effective method of avoiding wash-out of the seed and soil. Diversions may be constructed at a point where surface runoff water is intercepted and carried away from the slope and to a safe outlet. On large slopes,

benching may be necessary for bench drains or future maintenance (see standard for Land Grading). Subsurface drainage is frequently included to prevent long term saturated soil conditions and sloughing.

Conservation plantings need to effectively hold soil and control erosion, and they should enhance and blend with their surroundings. Mature plant size, form, and appearance must be considered along with their functionality to match the anticipated land use. Basic erosion control is accomplished by providing cover to the soil surface utilizing plants and/or mulch. It is the system of seedbed preparation, soil amendments, plant selection, proper timing of planting, and mulching that will optimize the chances of success. Characteristics of grasses such as low growth, horizontal above and below ground stems, leafy growth, and many fine roots for binding soil particles, make them the primary choice for vegetating slopes. Once the grass type is selected, then appropriate forbs, shrubs, or trees may be added to meet site conditions. The use of appropriate mulches will depend on site criteria and should be carefully evaluated. Although some materials are costly, they may prevent the need for more costly reshaping and reseeding.

Selection of proper vegetative materials for site stabilization is critical for environmental success. Species should be selected that are not considered "invasive." A primary list of invasive plants can be found at the website of the Invasive Plant Council of New York State (http://www.ipcnys.org). Any species not on this list but considered suspect should be verified at the appropriate regional or local level for acceptance.

STRUCTURAL MEASURES FOR EROSION AND SEDIMENT CONTROL

General

Uncontrolled runoff and excess erosion often occurs in urban developments, particularly during the construction stage. This erosion forms rills and gullies; washes out roads; scours cut and fill areas; fills road ditches, storm drains, and streams; and does other damage that is costly to the developers and damaging to land and water users below. Careful inclusion of proven conservation practices in the development plan can prevent or alleviate much of this damage and should be a part of every development plan.

These practices will usually be a combination of vegetative and structural measures. They may be temporary and serve only during the construction stage or they may be permanent in nature and become a part of the completed development. Permanent structural practices should be installed as early as possible in the construction stage. This section deals with the more common structural measures that may be used. Adequate designs, plans, and specification should be prepared for the measures to be used. A number of measures and specifications are included throughout this section. The designer shall determine those elements to be installed to control erosion (Section 2) and follow the criteria included in these standards and specifications.

Introduction

Structural erosion and sediment control practices have been classified as either temporary or permanent, according to how they are used. Temporary structural practices are used during construction to prevent offsite sedimentation. The length of time that temporary practices are functional varies from project to project, since the sediment control strategy may change as construction activity progresses. Permanent structural practices are used to convey surface water runoff to a safe outlet. Permanent structural practices will remain in place and continue to function after the completion of construction.

Regardless of whether the practices are temporary or permanent, runoff control measures should be the first items constructed when grading begins, and be completely functional before downslope land disturbance takes place. Earthen structures such as diversions, dikes, and swales should be stabilized before being considered functional. Only after the runoff control structures are operational and sediment control measures are in place, should clearing and grading on the rest of the construction site begin.

While clearing and grading the site, it is important to minimize the amount of sediment that is produced. In general, it is advantageous to clear only as much area as is necessary to accommodate construction needs. Grade and stabilize large sites in stages whenever possible. Limiting the amount of disturbed area limits the amount of sediment that is generated, thus decreasing the amount of maintenance required on sediment control measures.

Sediment generated during the construction of cut and fill slopes can also be minimized through design and grading techniques. When designing either a cut or fill slope, factors to consider include slope length and steepness, soil type, and upslope drainage area. In general, it is important to leave soil surfaces on disturbed slopes in a roughened condition and to construct a water diversion practice at the top of slopes. Rough soil surfaces do not erode as readily as smooth soil surfaces.

Although design and grading techniques can reduce soil erosion, they cannot eliminate it entirely. Therefore, practices must be installed to prevent offsite sedimentation.

Even though the specific conditions of each site determine what measures are necessary to control erosion and sedimentation, some general principles apply to the selection and placement of sediment control measures.

1. Prevent clean water from becoming turbid, by diverting runoff from upslope areas away from disturbed areas. Earth dikes, temporary swales, perimeter dike/swales, or diversions that outlet in stable areas can be used in this capacity.

2. Remove sediment from turbid water before the water leaves the site. The method of sediment removal depends upon how the water drains from the site. Concentrated flow must be diverted to a trapping device so that suspended sediment can be deposited. Dikes or swales that outlet into traps or basins can accomplish this. A storm drain system may be used to convey concentrated sediment laden water only if the system empties into a trap or basin. Otherwise, all storm drain inlets must be protected so that sediment laden water cannot enter the drainage system before being treated to remove the sediment.

3. Surface runoff draining in sheet flow must be controlled and treated before the water leaves the site. Straw bale dikes, silt fences, or vegetative buffer strips can be used to treat sheet flow.

All practices designed and implemented must be properly maintained in order to remain functional. Sediment accumulated in basins and traps must be removed and disposed of in a manner that stabilizes them on the construction site.

Other factors should be observed during construction in order to make erosion and sediment control measures more effective in pollution control.

These are:

1. Sprinkle or apply dust suppressors. Keep dust down to a tolerable limit on construction sites and haul roads.

2. Use temporary bridges or culverts where fording of streams is objectionable. Avoid borrow areas where pollution from this operation is inevitable.

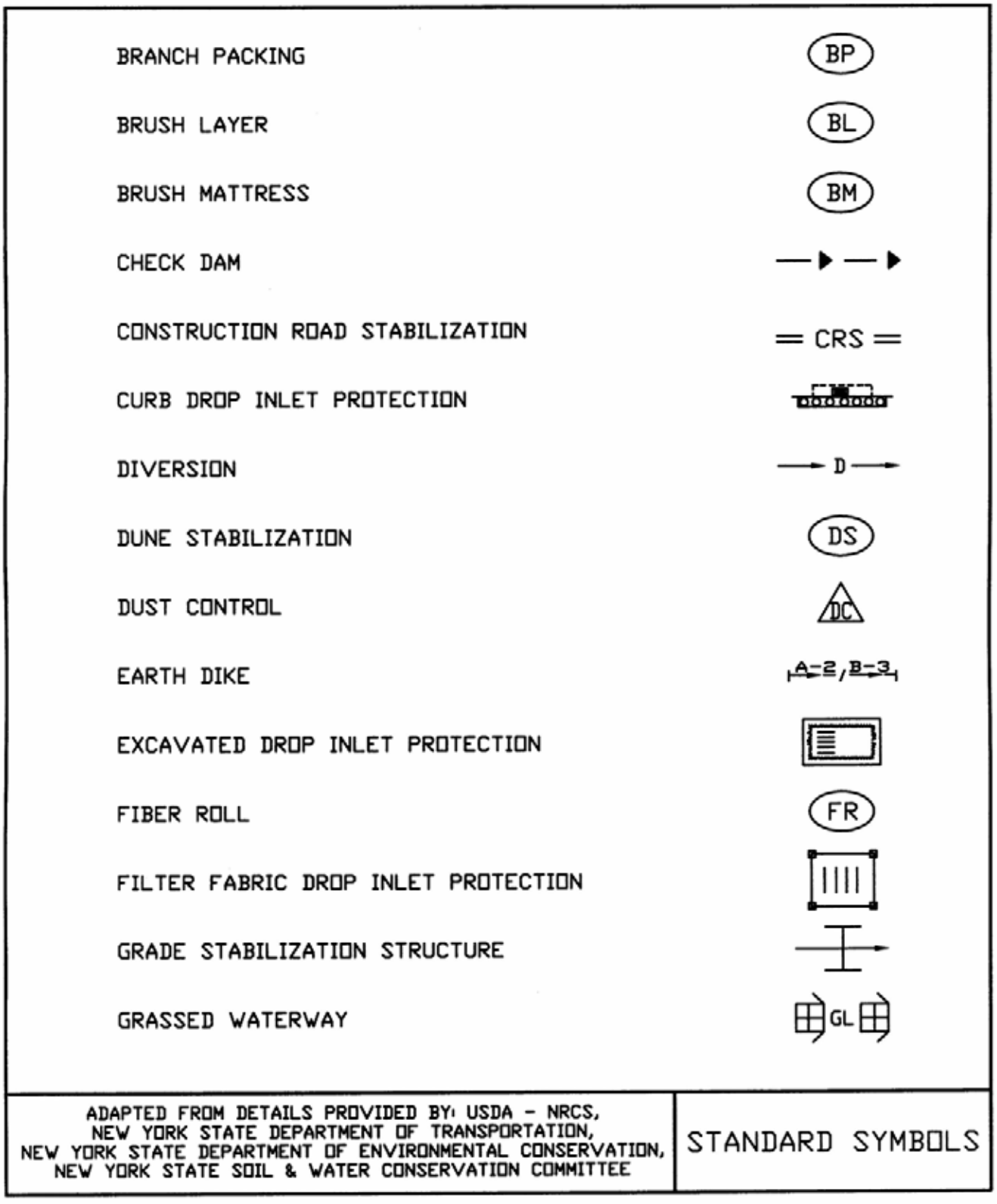
3. Protect streams from chemicals, fuel, lubricants, sewage, or other pollutants.

4. Avoid disposal of fill in floodplains or drainage ways. This reduces the capacity of these areas to pass flood flows.

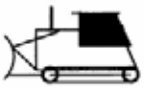
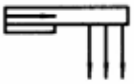
5. Do not locate sanitary facilities over, or adjacent to, waterways, wells, or springs.

6. Locate storage yards and stockpiles where erosion and sediment hazards are slight. Where this is not possible, apply necessary erosion control practices.

STANDARD SYMBOLS

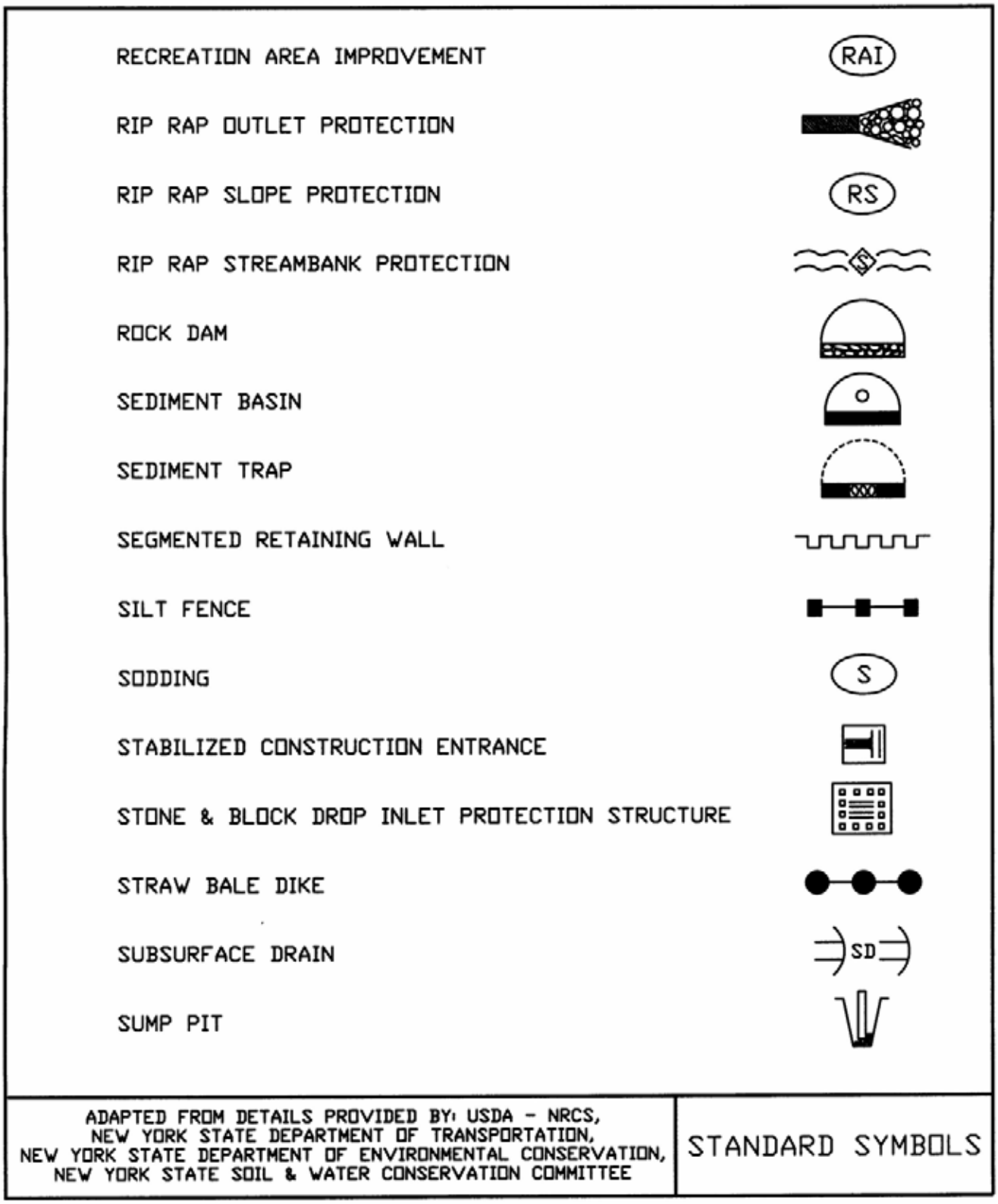


STANDARD SYMBOLS (cont'd)

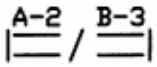
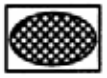
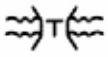
LAND GRADING	
LEVEL SPREADER	
LINED WATERWAY	
LIVE CRIBWALL	LCW
LIVE CUTTINGS/LIVE STAKES PLANTING	LC/LS
LIVE FASCINE	LF
MULCHING	M
OPTIONAL SEDIMENT TRAP DEWATERING DEVICE	
PAVED FLUME	
PERIMETER DIKE OR SWALE	PD
PERMANENT SEEDING	PS
PIPE OUTLET SEDIMENT TRAP	
PIPE SLOPE DRAIN FLEXIBLE	PSD
PORTABLE SEDIMENT TANK	
PROTECTING VEGETATION	

ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE	STANDARD SYMBOLS

STANDARD SYMBOLS (cont'd)



STANDARD SYMBOLS (cont'd)

SURFACE ROUGHENING	
TEMPORARY SEEDING	
TEMPORARY SWALE	
TOPSOILING	
TREE REVETMENT	
TURBIDITY CURTAIN	
VEGETATED ROCK GABIONS	
WATER BAR	
WATERWAY CROSSING	

ADAPTED FROM DETAILS PROVIDED BY: USDA – NRCS, NEW YORK STATE DEPARTMENT OF TRANSPORTATION, NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NEW YORK STATE SOIL & WATER CONSERVATION COMMITTEE	STANDARD SYMBOLS

Attachment I: NYSDEC Stormwater Construction Checklists (Sample Form)

Stormwater/Wetland Pond Construction Inspection Checklist

Project:
Location:
Site Status:

Date:

Time:

Inspector:

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
Pre-Construction/Materials and Equipment		
Pre-construction meeting		
Pipe and appurtenances on-site prior to construction and dimensions checked		
1. Material (including protective coating, if specified)		
2. Diameter		
3. Dimensions of metal riser or pre-cast concrete outlet structure		
4. Required dimensions between water control structures (orifices, weirs, etc.) are in accordance with approved plans		
5. Barrel stub for prefabricated pipe structures at proper angle for design barrel slope		
6. Number and dimensions of prefabricated anti-seep collars		
7. Watertight connectors and gaskets		
8. Outlet drain valve		
Project benchmark near pond site		
Equipment for temporary de-watering		

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
2. Subgrade Preparation		
Area beneath embankment stripped of all vegetation, topsoil, and organic matter		
3. Pipe Spillway Installation		
Method of installation detailed on plans		
A. Bed preparation		
Installation trench excavated with specified side slopes		
Stable, uniform, dry subgrade of relatively impervious material (If subgrade is wet, contractor shall have defined steps before proceeding with installation)		
Invert at proper elevation and grade		
B. Pipe placement		
Metal / plastic pipe		
1. Watertight connectors and gaskets properly installed		
2. Anti-seep collars properly spaced and having watertight connections to pipe		
3. Backfill placed and tamped by hand under “haunches” of pipe		
4. Remaining backfill placed in max. 8 inch lifts using small power tamping equipment until 2 feet cover over pipe is reached		

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
3. Pipe Spillway Installation		
Concrete pipe		
1. Pipe set on blocks or concrete slab for pouring of low cradle		
2. Pipe installed with rubber gasket joints with no spalling in gasket interface area		
3. Excavation for lower half of anti-seep collar(s) with reinforcing steel set		
4. Entire area where anti-seep collar(s) will come in contact with pipe coated with mastic or other approved waterproof sealant		
5. Low cradle and bottom half of anti-seep collar installed as monolithic pour and of an approved mix		
6. Upper half of anti-seep collar(s) formed with reinforcing steel set		
7. Concrete for collar of an approved mix and vibrated into place (protected from freezing while curing, if necessary)		
8. Forms stripped and collar inspected for honeycomb prior to backfilling. Parge if necessary.		
C. Backfilling		
Fill placed in maximum 8 inch lifts		
Backfill taken minimum 2 feet above top of anti-seep collar elevation before traversing with heavy equipment		

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
4. Riser / Outlet Structure Installation		
Riser located within embankment		
A. Metal riser		
Riser base excavated or formed on stable subgrade to design dimensions		
Set on blocks to design elevations and plumbed		
Reinforcing bars placed at right angles and projecting into sides of riser		
Concrete poured so as to fill inside of riser to invert of barrel		
B. Pre-cast concrete structure		
Dry and stable subgrade		
Riser base set to design elevation		
If more than one section, no spalling in gasket interface area; gasket or approved caulking material placed securely		
Watertight and structurally sound collar or gasket joint where structure connects to pipe spillway		
C. Poured concrete structure		
Footing excavated or formed on stable subgrade, to design dimensions with reinforcing steel set		
Structure formed to design dimensions, with reinforcing steel set as per plan		
Concrete of an approved mix and vibrated into place (protected from freezing while curing, if necessary)		
Forms stripped & inspected for “honeycomb” prior to backfilling; parge if necessary		

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
5. Embankment Construction		
Fill material		
Compaction		
Embankment		
1. Fill placed in specified lifts and compacted with appropriate equipment		
2. Constructed to design cross-section, side slopes and top width		
3. Constructed to design elevation plus allowance for settlement		
6. Impounded Area Construction		
Excavated / graded to design contours and side slopes		
Inlet pipes have adequate outfall protection		
Forebay(s)		
Pond benches		
7. Earth Emergency Spillway Construction		
Spillway located in cut or structurally stabilized with riprap, gabions, concrete, etc.		
Excavated to proper cross-section, side slopes and bottom width		
Entrance channel, crest, and exit channel constructed to design grades and elevations		

CONSTRUCTION SEQUENCE	SATISFACTORY / UNSATISFACTORY	COMMENTS
8. Outlet Protection		
A. End section		
Securely in place and properly backfilled		
B. Endwall		
Footing excavated or formed on stable subgrade, to design dimensions and reinforcing steel set, if specified		
Endwall formed to design dimensions with reinforcing steel set as per plan		
Concrete of an approved mix and vibrated into place (protected from freezing, if necessary)		
Forms stripped and structure inspected for "honeycomb" prior to backfilling; parge if necessary		
C. Riprap apron / channel		
Apron / channel excavated to design cross-section with proper transition to existing ground		
Filter fabric in place		
Stone sized as per plan and uniformly place at the thickness specified		
9. Vegetative Stabilization		
Approved seed mixture or sod		
Proper surface preparation and required soil amendments		
Excelsior mat or other stabilization, as per plan		

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
10. Miscellaneous		
Drain for ponds having a permanent pool		
Trash rack / anti-vortex device secured to outlet structure		
Trash protection for low flow pipes, orifices, etc.		
Fencing (when required)		
Access road		
Set aside for clean-out maintenance		
11. Stormwater Wetlands		
Adequate water balance		
Variety of depth zones present		
Approved pondscaping plan in place Reinforcement budget for additional plantings		
Plants and materials ordered 6 months prior to construction		
Construction planned to allow for adequate planting and establishment of plant community (April-June planting window)		
Wetland buffer area preserved to maximum extent possible		

Comments:

Actions to be Taken:

Bioretention Construction Inspection Checklist

Project:
Location:
Site Status:

Date:

Time:

Inspector:

CONSTRUCTION SEQUENCE	SATISFACTORY/ UNSATISFACTORY	COMMENTS
1. Pre-Construction		
Pre-construction meeting		
Runoff diverted		
Facility area cleared		
If designed as exfilter, soil testing for permeability		
Facility location staked out		
2. Excavation		
Size and location		
Lateral slopes completely level		
If designed as exfilter, ensure that excavation does not compact susoils.		
Longitudinal slopes within design range		

CONSTRUCTION SEQUENCE	SATISFACTORY / UNSATISFACTORY	COMMENTS
3. Structural Components		
Stone diaphragm installed correctly		
Outlets installed correctly		
Underdrain		
Pretreatment devices installed		
Soil bed composition and texture		
4. Vegetation		
Complies with planting specs		
Topsoil adequate in composition and placement		
Adequate erosion control measures in place		
5. Final Inspection		
Dimensions		
Proper stone diaphragm		
Proper outlet		
Soil/ filter bed permeability testing		
Effective stand of vegetation and stabilization		
Construction generated sediments removed		
Contributing watershed stabilized before flow is diverted to the practice		

Comments:

Actions to be Taken:

Open Channel System Construction Inspection Checklist

Project:
Location:
Site Status:

Date:

Time:

Inspector:

CONSTRUCTION SEQUENCE	SATISFACTORY / UNSATISFACTORY	COMMENTS
1. Pre-Construction		
Pre-construction meeting		
Runoff diverted		
Facility location staked out		
2. Excavation		
Size and location		
Side slope stable		
Soil permeability		
Groundwater / bedrock		
Lateral slopes completely level		
Longitudinal slopes within design range		
Excavation does not compact subsoils		
3. Check dams		
Dimensions		
Spacing		
Materials		

CONSTRUCTION SEQUENCE	SATISFACTORY / UNSATISFACTORY	COMMENTS
4. Structural Components		
Underdrain installed correctly		
Inflow installed correctly		
Pretreatment devices installed		
5. Vegetation		
Complies with planting specifications		
Topsoil adequate in composition and placement		
Adequate erosion control measures in place		
6. Final inspection		
Dimensions		
Check dams		
Proper outlet		
Effective stand of vegetation and stabilization		
Contributing watershed stabilized before flow is routed to the factility		

Comments:

Actions to be Taken:

Attachment J: NYSDEC Operation & Maintenance Checklist (Sample Form)

Stormwater Pond/Wetland Operation, Maintenance and Management Inspection Checklist

Project _____
Location: _____
Site Status: _____

Date: _____
Time: _____

Inspector: _____

Maintenance Item	Satisfactory/ Unsatisfactory	Comments
1. Embankment and emergency spillway (Annual, After Major Storms)		
1. Vegetation and ground cover adequate		
2. Embankment erosion		
3. Animal burrows		
4. Unauthorized planting		
5. Cracking, bulging, or sliding of dam		
a. Upstream face		
b. Downstream face		
c. At or beyond toe		
downstream		
upstream		
d. Emergency spillway		
6.Pond, toe & chimney drains clear and functioning		
7.Seeps/leaks on downstream face		
8.Slope protection or riprap failure		
9. Vertical/horizontal alignment of top of dam “As-Built”		

Maintenance Item	Satisfactory/ Unsatisfactory	Comments
10. Emergency spillway clear of obstructions and debris		
11. Other (specify)		
2. Riser and principal spillway (Annual)		
Type: Reinforced concrete _____ Corrugated pipe _____ Masonry _____ 1. Low flow orifice obstructed		
2. Low flow trash rack. a. Debris removal necessary		
b. Corrosion control		
3. Weir trash rack maintenance a. Debris removal necessary		
b. corrosion control		
4. Excessive sediment accumulation insider riser		
5. Concrete/masonry condition riser and barrels a. cracks or displacement		
b. Minor spalling (<1")		
c. Major spalling (rebars exposed)		
d. Joint failures		
e. Water tightness		
6. Metal pipe condition		
7. Control valve a. Operational/exercised		
b. Chained and locked		
8. Pond drain valve a. Operational/exercised		
b. Chained and locked		
9. Outfall channels functioning		
10. Other (specify)		

Maintenance Item	Satisfactory/ Unsatisfactory	Comments
3. Permanent Pool (Wet Ponds) (monthly)		
1. Undesirable vegetative growth		
2. Floating or floatable debris removal required		
3. Visible pollution		
4. Shoreline problem		
5. Other (specify)		
4. Sediment Forebays		
1.Sedimentation noted		
2. Sediment cleanout when depth < 50% design depth		
5. Dry Pond Areas		
1. Vegetation adequate		
2. Undesirable vegetative growth		
3. Undesirable woody vegetation		
4. Low flow channels clear of obstructions		
5. Standing water or wet spots		
6. Sediment and / or trash accumulation		
7. Other (specify)		
6. Condition of Outfalls (Annual , After Major Storms)		
1. Riprap failures		
2. Slope erosion		
3. Storm drain pipes		
4.Endwalls / Headwalls		
5. Other (specify)		
7. Other (Monthly)		
1. Encroachment on pond, wetland or easement area		

Maintenance Item	Satisfactory/ Unsatisfactory	Comments
2. Complaints from residents		
3.Aesthetics a. Grass growing required		
b. Graffiti removal needed		
c. Other (specify)		
4. Conditions of maintenance access routes.		
5. Signs of hydrocarbon build-up		
6. Any public hazards (specify)		
8. Wetland Vegetation (Annual)		
1. Vegetation healthy and growing Wetland maintaining 50% surface area coverage of wetland plants after the second growing season. (If unsatisfactory, reinforcement plantings needed)		
2. Dominant wetland plants: Survival of desired wetland plant species Distribution according to landscaping plan?		
3. Evidence of invasive species		
4. Maintenance of adequate water depths for desired wetland plant species		
5. Harvesting of emergent plantings needed		
6. Have sediment accumulations reduced pool volume significantly or are plants “choked” with sediment		
7. Eutrophication level of the wetland.		
8. Other (specify)		

Comments:

Actions to be Taken:

Bioretention Operation, Maintenance and Management Inspection Checklist

Project:
Location:
Site Status:

Date:

Time:

Inspector:

MAINTENANCE ITEM	SATISFACTORY / UNSATISFACTORY	COMMENTS
1. Debris Cleanout (Monthly)		
Bioretention and contributing areas clean of debris		
No dumping of yard wastes into practice		
Litter (branches, etc.) have been removed		
2. Vegetation (Monthly)		
Plant height not less than design water depth		
Fertilized per specifications		
Plant composition according to approved plans		
No placement of inappropriate plants		
Grass height not greater than 6 inches		
No evidence of erosion		
3. Check Dams/Energy Dissipaters/Sumps (Annual, After Major Storms)		
No evidence of sediment buildup		

MAINTENANCE ITEM	SATISFACTORY / UNSATISFACTORY	COMMENTS
Sumps should not be more than 50% full of sediment		
No evidence of erosion at downstream toe of drop structure		
4. Dewatering (Monthly)		
Dewaters between storms		
No evidence of standing water		
5. Sediment Deposition (Annual)		
Swale clean of sediments		
Sediments should not be > 20% of swale design depth		
6. Outlet/Overflow Spillway (Annual, After Major Storms)		
Good condition, no need for repair		
No evidence of erosion		
No evidence of any blockages		
7. Integrity of Filter Bed (Annual)		
Filter bed has not been blocked or filled inappropriately		

Comments:

Actions to be Taken:

Open Channel Operation, Maintenance, and Management Inspection Checklist

Project:
Location:
Site Status:

Date:

Time:

Inspector:

MAINTENANCE ITEM	SATISFACTORY/ UNSATISFACTORY	COMMENTS
1. Debris Cleanout (Monthly)		
Contributing areas clean of debris		
2. Check Dams or Energy Dissipators (Annual, After Major Storms)		
No evidence of flow going around structures		
No evidence of erosion at downstream toe		
Soil permeability		
Groundwater / bedrock		
3. Vegetation (Monthly)		
Mowing done when needed		
Minimum mowing depth not exceeded		
No evidence of erosion		
Fertilized per specification		
4. Dewatering (Monthly)		
Dewaters between storms		

MAINTENANCE ITEM	SATISFACTORY/ UNSATISFACTORY	COMMENTS
5. Sediment deposition (Annual)		
Clean of sediment		
6. Outlet/Overflow Spillway (Annual)		
Good condition, no need for repairs		
No evidence of erosion		

Comments:

Actions to be Taken:

Attachment K:
Stormwater Management Summary and Hydraulic Modeling Results

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STORMWATER MANAGEMENT SUMMARY

SITE DATA - GENERAL

Site Notes: This summary is for a proposed duplex apartment development consisting of fifteen (15), 2,000-SF buildings, associated asphalt roadway and parking areas, public water and private sewer, sidewalks, and landscaping on a 1,556,932-SF (35.74-AC) parcel in the Town of Lansing, NY. The project will disturb roughly 650,000-SF (14.9-AC) of former brush, weeds, and grassed locations. Of this, there will be 107,584-SF (2.47-AC) of new impervious surfaces which will increase the site total by 7.0%.

Subcatchment Evaluation: There are two (2) pre-developed (existing) watershed subcatchments (ESC-1 through ESC-2) for this site totaling 1,571,206-SF (36.07-AC). These areas are isolated from upland watershed runoff from the east by a road R.O.W. drainage ditch that splits flow to the north and south along the western edge of Scofield Road. To the north, a low lying drainage channel follows the project property line capturing flow from the northeast and diverting it due west preventing it from entering the property. Along the southern line, flow is captured in a R.O.W ditchline along the northern edge of Peruville Road where it is channeled to the west. Finally, a berm prevents site runoff from leaving the property along the western boundary. Flow is directed to the south into the Peruville Road ditch from ESC-1 (DP-1) and to the north into an existing central channel that flows east to west through much of ESC-2 (DP-2).

Approximately 1,093,226-SF (25.10-AC) are areas that are largely outside of the major activities of development and any surfaces that see any temporary soil disturbance during construction will be restored to original condition upon completion of the project. These parcels have been identified as off-site subcatchments OSC-1 through OSC-4 on Proposed Conditions runoff analyses worksheets that have been provided in the stormwater drawings attached to this report.

Generally, the existing topography moves in an east to west direction over gentle slopes (<1% - 5% avg.) where flow eventually finds its way off-site through two distinct design points. The site is located across all soil class types with the majority being hydrologic soil class C.

The proposed development will disturb approximately 650,000-SF (14.9-AC) of land. Drainage areas impacted by construction have been divided into 8 separate subcatchments (PSC 1 – PSC 8) to identify how runoff will be affected by the project. Two diversion swales will be installed to prevent upland neighboring runoff from impacting the future development and the final design volume characteristics of any water quality or quantity treatment practices planned for the site. The property's northern border will capture limited off-site flow from the northeast which would normally flow across PSC-7 and into an existing low lying drainage ditch that runs southeast-northwest through OSC-3 where it continues off site to eventually join the Salmon Creek tributary system. Flow from the new diversion swale will be diverted

around the parcel boundary where it will terminate into the same drainage channel further downstream. Similarly, another swale will be installed on the western edge of OSC-4 to capture flow from the east. Originally, flow would continue westward and terminate in a north south ditch that runs into the Peruville Road R.O.W. ditchline just to the west of the Pinney parcel. The new swale would cut off this runoff approximately 300-lf further east by diverting it due south where it will find its way into the same ditchline slightly upstream. The Pervuville Road ditchline currently runs to the west where it eventually winds its way to the northwest becoming part of the Salmon Creek tributary system.

All proposed subcatchment delineations have been identified as areas in need of water quality and quantity treatment due to impacts from construction and added impervious surfaces. Overall, there are seven (7) bioretention practices, one (1) dry swale, and one (1) pond that have been planned to address runoff reduction volume, remaining water quality volume (after RRv) and attenuation concerns.

Flow to each treatment practice will be directed by a series of new road and local site swales to ensure that runoff will be confined to the subcatchment boundary for which it is intended. As these are infiltration based practices, percolation tests will need to be performed to ensure that they will meet design requirements. All practices will contain a piped underdrain system to ensure that they will not have any prolonged periods of standing water.

Site Control Methods: This project follows the newer DEC design standards on runoff reduction by applying green infrastructure techniques and standard stormwater management practices to provide source control for impervious surfaces. The site incorporates several engineered infiltration structures to meet water quality and quantity needs. Seven bioretention areas and a dry swale basin have been chosen to meet NYSDEC guidance requirements. Although an infiltration basin was originally considered to meet quality, RRv and quantity requirements for PSC-7, the area did not meet the required minimum infiltration testing parameters and a standard practice pond was designed instead.

Site Soils: There are a total of four soil types in hydrologic soil groups A through C located throughout the site. Palmyra gravelly loam (PaC) belongs to the hydrologic soil group A with a well drained permeability range of 0.63 – 6.3 inches per hour. Phelps (PhB), is a gravelly silt loam in the hydrologic soil group B with a moderately well drained permeability of 0.63 – 2.0 inches per hour. Finally, Conesus (CfB) (0.63 – 2.0 in/hr), is a gravelly silt loam with moderately well drained soil and Kendaia (KnA), a somewhat poorly drained soil (0.20 – 2.0 in/hr, make up the hydrologic soil group C has a slow permeability of 0.20 inches per hour. See Appendix 3 for more information.

Soils data was obtained from the Tompkins County Soil Survey conducted by the USDA Soil Conservation Service and the on-line Web Soil Survey.

Site Topography: The site as a whole has a varied slope of <1% - 5% primarily moving downhill from east to west.

Site Watershed: Of the 35.74-acre watershed, the area of disturbance will be approximately 14.9-acres. Diversion swales located along the site's northern property line and lower mid-section have been designed to channel off-site runoff away from the development. Interceptor swales are used throughout the site to channel on-site runoff from to effectively contain flow to the site proper to designated treatment and attenuation systems for water quality and quantity controls.

Rainfall: Rainfall data used in the modeling and analysis was taken from www.precipt.net, from the Northeast Regional Climate Center which is an accepted NYSDEC reference. Rainfall data specific to Tompkins County under consideration, for various 24-hour storm events tabled below:

RAINFALL DATA

STORM	24-HOUR RAINFALL
1-year	2.0 inches
10-year	3.4 inches
100-year	5.85 inches

These values were used in modeling for the evaluation of existing and proposed stormwater run-off conditions.

RUNOFF REDUCTION VOLUME MANAGEMENT STRATEGY

(See Appendix 1 for Worksheet Analyses)

1. **Water Quality Volume and Runoff Reduction Stormwater Management Strategy** - *Reference modeling results and WQv/RRv worksheets which follow this summary:*

The total site water quality volume for DP-1 and DP-2 is

DP-1 WQv = 1,481 cu-ft (0.034af)
DP-2 WQv = 8,629 cu-ft (0.198af)

Total: 10,110 cu-ft (0.232af)

Of this amount, there was no potential for the conservation of natural areas, protection of riparian areas, tree planting, rooftop disconnection, etc. that would lend to a reduction in total WQv.

WQv credit = 0 ***cuft (0.00 af)***

The minimum RRv was based on the following calculation:

Soil group for site:

A – 0.80-AC S = 55%
B – 0.82-AC S = 40%
C – 9.51-AC S = 30%

Minimum RRv:

S = 0.32
Impervious Area = 2.47-AC
Precipitation = 1.0 in
Rv = 0.95

Minimum Rv = [(P)(Rv)(A)] /12 = ((1.0 * ***0.95"/AC * 2.47AC)/12)0.32*** =

2,780 cuft or, 0.064-acft

2. **Water Quality Volume Treatment Practices**

Seven bioretention (BR) practices, and a dry swale (DS) have been designed to the minimum total volume specifications as calculated in the attached practice worksheets. A summary of total runoff reduction volumes is provided in the table below:

Subcatchment	Required RRv (cuft)	RRv Applied (Cuft)	Practice
PSC-1	612	612	BR-1
PSC-4	466	466	BR-4
PSC-5	403	403	BR-5
PSC-2	495	495	BR-2
PSC-3	198	198	BR-3
PSC-6	345	345	BR-6
PSC-7	7,149	0	None
PSC-7A	187	187	BR-7
PSC-8	254	254	DS
	10,110	2,960	

3. Total of RRv

Total RRv provided by practices 2,960 cuft (0.068-AF)
Total Remaining Storage Volume for practices (after RRv) 10,110 cuft - 2,960 cuft = 7,150 cuft (0.164af)

Is provided RRv > minimum RRv for all soils from #1? 0.068 acft > 0.064 acft **YES**
Is provided RRv > adjusted WQv from #1? 0.068 acft > 0.232 acft **NO**

Is volume available within standard practices for remaining untreated WQv?

Total WQv 0.232AF
RRv 0.068 AF
Remaining WQv 0.164AF (7,144-CF)

Additional volume is available in the pond forebay and in the pond permanent pool. The pond forebay has 1,400-CF of storage volume which is at least 10% of the WQv as required. In addition, the storage volume of the pond permanent pool at 4.00' is 5,821-CF, the total of which is more than 100% of the required Water Quality Volume. **YES**

Is all of the watershed drainage area treated by either area reduction or source control practices? **YES**

Is all of the watershed impervious area treated with either reduction or source control practices? **YES**

Minimum runoff reduction requirements are met for this project.

DP-1

Design Point 1 Summary (DP-1)

CONTROL SIZING

Bioretention Areas

Please see the attached worksheets to determine bioretention area sizing.

Cpv = 24 hour extended detention of post-developed 1-year, 24-hour Storm event. The required CPv is a summation of the modeled 1 yr runoff output from each untreated subcatchment (**2.0-inch rainfall Tompkins County**) after runoff reduction (RRv). **1 yr Cpv 0.057-AF – RRV 0.034-AF = 0.023-AF (1,002)-CF**

The **Cpv** Channel Protection Volume is provided by the basin practices as determined by measuring the storage volume allowed through extended detention between the elevation at the bottom of each structure (0.0') and the primary outlet (4.0'), less the amount required for RRV.

BR 1 for PSC-1 = 1,680 – 612 = 1,068-CF of storage
BR 4 for PSC-4 = 1,346 – 466 = 880 CF of storage
BR 5 for PSC-5 = 1,226 – 403 = 823 CF of storage

Total – 2,771 CF

The combined available storage volume between the bioretention areas is 0.064-AF which exceeds the minimum requirement of 0.023. Flow is captured and exfiltrated into the surrounding soil structure and outlet through the underdrain system.

CPv conditions are met.

Overbank Flood (Qp) – DP1

Qp = Controls the peak discharge from the 10-year storm **(3.4-inch rainfall Tompkins County)** to 10-year predevelopment rates.

Pre-developed max rate = **1.86-CFS**, Total Volume = 0.291AF (12,676-CF). Post-developed w/o controls max rate = 3.32-CFS, Total Volume = 0.380-AF (16,553-CF).

The maximum post-developed run-off rate with the bioretention areas in-line is 1.64-CFS, and the total run-off volume is 0.343-AF (14,941-CF).

The **Qp** Overbank Flood control criterion is met with the bioretention areas in-line.

Extreme Storm (Qf) – DP1

Control the peak discharge from the 100-year storm **(5.85-inch rainfall Tompkins County)** to 100-year predevelopment rates. Safely pass the 100-year storm event.

Pre-developed max run-off rate = **12.78-CFS**, Total Volume = 1.294-AF (56,367-CF). Post-developed w/o controls max rate = 10.92-CFS, Total Volume = 1.429 -AF (62,247-CF).

The maximum post-developed run-off rate with the structures inline is 10.79-CFS, and the total run-off volume is 1.389-AF (60,505-CF).

The **Qf** Extreme Storm control criterion is met with the bioretention areas in-line.

DP-2

Design Point 2 Summary (DP-2)

CONTROL SIZING

Bioretention Areas

Please see the attached worksheets to determine bioretention area sizing.

Cpv = 24 hour extended detention of post-developed 1-year, 24-hour Storm event. The required CPv is a summation of the modeled 1 yr runoff output from each untreated subcatchment (**2.0-inch rainfall Tompkins County**) after runoff reduction (RRv). **1 yr Cpv 0.246-AF – RRV 0.034-AF = 0.212-AF (9,235)-CF**

The **Cpv** Channel Protection Volume is provided by the basin practices as determined by measuring the storage volume allowed through extended detention between the elevation at the bottom of each structure (0.0') and the primary outlet (4.0'), less the amount required for RRV.

BR 2 for PSC-2 = 1,680 – 495 = 1,185-CF of storage
BR 3 for PSC-3 = 795 – 198 = 597 CF of storage
BR 6 for PSC-6 = 843 – 345 = 498 CF of storage
BR 7 for PSC-7A = 795 – 187 = 608 CF of storage
DS for PSC-8 = 698 – 254 = 444 CF of storage

Total – 3,332 CF

In addition, the pond provides 12,771-CF between the primary outlet at 5.25' and the 1 yr CPv orifice at 4.0'.

The combined available storage volume between the bioretention areas and pond is **16,103-CF (0.370-AF)** of storage which exceeds the minimum requirement of 0.212. Flow is captured and exfiltrated into the surrounding soil structure and outlet through the underdrain systems.

CPv conditions are met.

Pond 1 *CPv orifice*

1. Determine H – Avg head above centerline of proposed orifice invert for 1 yr storm. H between 4.55 and 4.00 = 0.55/2 = 0.28'

2. Determine Q – Flow over 24 hr period.

   Stage storage table volume between 4.28' and 4.00' = 2,719 cuft

2,719 cuft/day x 1d/24hrs x 1hr/60min x 1 min/60sec = 0.032cfs

3. $A = Q/C_\delta * Sqrt\ (2gH)$

   Where, $C_\delta = 0.6$ and $g = 32.2\ ft/s^2$

   $A = 0.032\ cfs/0.6*(Sqrt\ (2(32.2\ ft/s^2) \times 0.28\ ft) = 0.0125\ ft^2$

4. $A = \pi\ r^2$

   $r^2 = Sqrt(0.0125\ ft^2 / 3.14\ ) * 2 = 0.126$ ft or **1.5"**

Orifice can adequately outlet the 1 yr 24 hour storm

Overbank Flood (Qp) – DP2

Qp = Controls the peak discharge from the 10-year storm **(3.4-inch rainfall Tompkins County)** to 10-year predevelopment rates.

Pre-developed max rate = **10.49-CFS**, Total Volume = 1.169AF (50,922-CF). Post-developed w/o controls max rate = 17.13-CFS, Total Volume = 1.668-AF (72,658-CF).

The maximum post-developed run-off rate with the bioretention areas and pond in-line is 7.79-CFS, and the total run-off volume is 1.225-AF (53,361-CF).

The **Qp** Overbank Flood control criterion is met with the bioretention areas and pond in-line.

Extreme Storm (Qf) – DP2

Control the peak discharge from the 100-year storm **(5.85-inch rainfall Tompkins County)** to 100-year predevelopment rates. Safely pass the 100-year storm event.

Pre-developed max run-off rate = **52.19-CFS**, Total Volume = 4.392-AF (191,316-CF). Post-developed w/o controls max rate = 63.29-CFS, Total Volume = 5.297 -AF (230,737-CF). The bioretention areas and pond attenuate the post-developed 100-year storm event less than or equal to pre-developed 100 year storm event. **The maximum post-developed run-off rate with the structures inline is 43.42-CFS, and the total run-off volume is 4.821-AF (210,003-CF).**

The **Qf** Extreme Storm control criterion is met with the bioretention areas and pond in-line.

METHODOLOGY

The methodology used for the hydrologic and hydraulic analysis was obtained from the United States Department of Agriculture (USDA) Soil Conservation Service's (SCS) Technical Release No. 20, as implemented by the application program HydroCAD. HydroCAD, developed by Applied Microcomputer Systems of Chocorua, New Hampshire, is a Computer-Aided-Design (CAD) program for analyzing the hydrologic and hydraulic characteristics of a given watershed and associated stormwater management facilities. It utilizes the latest modeling techniques to predict the consequences of any given storm.

HydroCAD has the capability of computing hydrographs and routing flows through pipes, streams and ponds. Hydrographs represent discharge rates characteristic of specified watershed conditions, precipitation and geologic factors.

For this analysis, the watershed and drainage system was broken down into a network consisting of three types of components described below:

Subcatchment: A relatively homogeneous area of land, which produces a volume and rate of surface run-off unique to that area.

Reach: Uniform streams, channels or pipes which convey stormwater from one distinct point to another reach or pond.

Pond: Natural or man-made impoundment (ie. pond), which temporarily stores stormwater run-off and empties in a manner determined by its geometry and the hydraulic structure located at its outlet(s).

Subcatchments, reaches and ponds are represented by hexagons, squares and triangles, respectively, on the watershed routing diagrams provided with the computations reference modeling results attached.

Modeling Results Tabled:

(See Appendix 2 for actual modeling data)

DP1

EXISTING
EXISTING FLOW CONDITIONS AT DESIGN POINT (DP1)

STORM EVENT	*PEAK FLOW (CFS)*	*TOTAL VOLUME (AF)*
1-year	*0.03*	*0.017*
10-year	*1.86*	*0.291*
100-year	*12.78*	*1.294*

PROPOSED
WITHOUT STORMWATER MANAGEMENT
FLOW CONDITIONS AT DESIGN POINT (DP1)

STORM EVENT	*PEAK FLOW (CFS)*	*TOTAL VOLUME (AF)*
1-year	*0.95*	*0.066*
10-year	*3.32*	*0.380*
100-year	*10.92*	*1.429*

PROPOSED
WITH BIORETENTION AREAS IN-LINE
PROPOSED FLOW CONDITIONS AT DESIGN POINT (DP1)

STORM EVENT	*PEAK FLOW (CFS)*	*TOTAL VOLUME (AF)*
1-year	*0.07*	*0.031*
10-year	*1.64*	*0.343*
100-year	*10.79*	*1.389*

The run-off rates decrease for the 10 and 100 yr storm events as modeled.

DP2

EXISTING
EXISTING FLOW CONDITIONS AT DESIGN POINT (DP2)

STORM EVENT	*PEAK FLOW (CFS)*	*TOTAL VOLUME (AF)*
1-year	*0.32*	*0.144*
10-year	*10.49*	*1.169*
100-year	*52.19*	*4.392*

PROPOSED
<u>WITHOUT</u> STORMWATER MANAGEMENT
FLOW CONDITIONS AT DESIGN POINT (DP2)

STORM EVENT	*PEAK FLOW (CFS)*	*TOTAL VOLUME (AF)*
1-year	*2.52*	*0.356*
10-year	*17.13*	*1.668*
100-year	*63.29*	*5.297*

PROPOSED
WITH BIORETENTION AREAS AND PONDS IN-LINE
PROPOSED FLOW CONDITIONS AT DESIGN POINT (DP2)

STORM EVENT	*PEAK FLOW (CFS)*	*TOTAL VOLUME (AF)*
1-year	*0.32*	*0.136*
10-year	*7.79*	*1.225*
100-year	*43.42*	*4.821*

The run-off rates decrease for the 10 and 100 yr storm events as modeled.

Stage Storage Tables:

BIORETENTION 1 STAGE-STORAGE TABLE BR-1

STORM EVENT	*PEAK STORAGE (CF)*	*PEAK DEPTH (FT)*
WQv	*612*	*1.75'*
*1 year (***Cpv***)*	*494*	*1.21'*
10 year	*1,481*	*3.86'*
100 year	*2,203*	*4.38'*

Notes:
Invert Washed Stone Drainage Layer 0'
Invert of Drainage Pipe 0.5'
Invert of Soil Drainage Layer 1.0'
Bottom of Swale El. = 3.50'
6'-Broad Crested Weir Outlet inv. = 4.00'
Top of Swale Embankment Elev. = 5.00'

BIORETENTION 2 STAGE-STORAGE TABLE BR-2

STORM EVENT	*PEAK STORAGE (CF)*	*PEAK DEPTH (FT)*
WQv	*495*	*1.21'*
*1 year (***Cpv***)*	*688*	*2.09'*
10 year	*1,050*	*3.54'*
100 year	*1,946*	*4.19'*

Notes:
Invert Washed Stone Drainage Layer 0'
Invert of Drainage Pipe 0.5'
Invert of Soil Drainage Layer 1.0'
Bottom of Swale El. = 3.50'
6'-Broad Crested Weir Outlet inv. = 4.00'
Top of Swale Embankment Elev. = 5.00'

BIORETENTION 3 STAGE-STORAGE TABLE BR-3

STORM EVENT	*PEAK STORAGE (CF)*	*PEAK DEPTH (FT)*
WQv	*198*	*1.00'*
*1 year (***Cpv***)*	*306*	*2.04'*
10 year	*391*	*2.90'*
100 year	*845*	*4.07'*

Notes:
Invert Washed Stone Drainage Layer 0'
Invert of Drainage Pipe 0.5'
Invert of Soil Drainage Layer 1.0'
Bottom of Swale El. = 3.50'
6'-Broad Crested Weir Outlet inv. = 4.00'
Top of Swale Embankment Elev. = 5.00'

BIORETENTION 4 STAGE-STORAGE TABLE BR-4

STORM EVENT	*PEAK STORAGE (CF)*	*PEAK DEPTH (FT)*
WQv	*466*	*1.60'*
*1 year (***Cpv***)*	*688*	*2.86'*
10 year	*1,113*	*3.79'*
100 year	*1,631*	*4.26'*

Notes:
Invert Washed Stone Drainage Layer 0'
Invert of Drainage Pipe 0.5'
Invert of Soil Drainage Layer 1.0'
Bottom of Swale El. = 3.50'
6'-Broad Crested Weir Outlet inv. = 4.00'
Top of Swale Embankment Elev. = 5.00'

BIORETENTION 5 STAGE-STORAGE TABLE BR-5

STORM EVENT	*PEAK STORAGE (CF)*	*PEAK DEPTH (FT)*
WQv	*403*	*1.52'*
*1 year (***Cpv***)*	*348*	*1.17'*
10 year	*719*	*3.51'*
100 year	*1,390*	*4.16'*

Notes:
Invert Washed Stone Drainage Layer 0'
Invert of Drainage Pipe 0.5'
Invert of Soil Drainage Layer 1.0'

Bottom of Swale El. = 3.50'
6'-Broad Crested Weir Outlet inv. = 4.00'
Top of Swale Embankment Elev. = 5.00'

BIORETENTION 6 STAGE-STORAGE TABLE BR-6

STORM EVENT	*PEAK STORAGE (CF)*	*PEAK DEPTH (FT)*
WQv	*345*	*2.78'*
*1 year (***Cpv***)*	*330*	*2.62'*
10 year	*659*	*3.79'*
100 year	*1,034*	*4.22'*

Notes:
Invert Washed Stone Drainage Layer 0'
Invert of Drainage Pipe 0.5'
Invert of Soil Drainage Layer 1.0'
Bottom of Swale El. = 3.50'
6'-Broad Crested Weir Outlet inv. = 4.00'
Top of Swale Embankment Elev. = 5.00'

BIORETENTION 7 STAGE-STORAGE TABLE BR-7A

STORM EVENT	*PEAK STORAGE (CF)*	*PEAK DEPTH (FT)*
WQv	*187*	*0.95'*
*1 year (***Cpv***)*	*294*	*1.92'*
10 year	*354*	*2.52'*
100 year	*708*	*3.87'*

Notes:
Invert Washed Stone Drainage Layer 0'
Invert of Drainage Pipe 0.5'
Invert of Soil Drainage Layer 1.0'
Bottom of Swale El. = 3.50'
6'-Broad Crested Weir Outlet inv. = 4.00'
Top of Swale Embankment Elev. = 5.00'

POND STAGE-STORAGE TABLE P

STORM EVENT	*PEAK STORAGE (CF)*	*PEAK DEPTH (FT)*
WQv	*7,149*	*4.12'*
*1 year (***Cpv***)*	*10,418*	*4.47'*
10 year	*20,998*	*5.43'*
100 year	*38,587*	*6.70'*

Notes:
Notes:
Bottom of Basin El. = 0.00'
1.5" Permanent Pool Orifice = 4.00'
12" 10 Yr Overflow Horizontal Orifice = 5.25'
25' x 6' *100 Yr* Broadcrested Weir = 6.50'
Top of Basin Embankment Elev. = 7.50'

APPENDIX 1

WATER QUALITY VOLUME/RUNOFF REDUCTION WORKSHEETS

Version 1.6
Last Updated: 03/28/2014

Total Water Quality Volume Calculation
WQv(acre-feet) = [(P)(Rv)(A)] /12

Is this project subject to Chapter 10 of the NYS Design Manual (i.e. WQv is equal to post-development 1 year runoff volume)?.....	No

Design Point:	1	
P=	1.00	*inch*

Manually enter P, Total Area and Impervious Cover.

Breakdown of Subcatchments

Catchment Number	Total Area *(Acres)*	Impervious Area *(Acres)*	Percent Impervious *%*	Rv	WQv *(ft^3)*	Description
1	0.85	0.14	16%	0.20	612	PSC 1 - Bioretention, BR 1
2	0.41	0.12	29%	0.31	466	PSC 4 - Bioretention, BR 4
3	0.24	0.11	46%	0.46	403	PSC 5 - Bioretention, BR 5
4						
5						
6						
7						
8						
9						
10						
Subtotal (1-30)	1.50	0.37	25%	0.27	**1,481**	**Subtotal 1**
Total	1.50	0.37	25%	0.27	**1,481**	**Initial WQv**

Identify Runoff Reduction Techniques By Area

Technique	Total Contributing Area *(Acre)*	Contributing Impervious Area *(Acre)*	Notes
Conservation of Natural Areas	0.00	0.00	*minimum 10,000 sf*
Riparian Buffers	0.00	0.00	*maximum contributing length 75 feet to 150 feet*
Filter Strips	0.00	0.00	
Tree Planting	0.00	0.00	*Up to 100 sf directly connected impervious area may be subtracted per tree*
Total	**0.00**	**0.00**	

Recalculate WQv after application of Area Reduction Techniques

	Total Area *(Acres)*	Impervious Area *(Acres)*	Percent Impervious *%*	Runoff Coefficient Rv	WQv *(ft^3)*
"<<Initial WQv"	1.50	0.37	25%	0.27	1,481
Subtract Area	0.00	0.00			
WQv adjusted after Area Reductions	**1.50**	**0.37**	25%	0.27	1,481
Disconnection of Rooftops		0.00			

Total Water Quality Volume Calculation
WQv(acre-feet) = [(P)(Rv)(A)] /12

Adjusted WQv after Area Reduction and Rooftop Disconnect	1.50	0.37	25%	0.27	**1,481**
WQv reduced by Area Reduction techniques					0

Total Water Quality Volume Calculation
WQv(acre-feet) = [(P)(Rv)(A)] /12

All Subcatchments						
Catchment	**Total Area** *(Acres)*	**Impervious Cover** *(Acres)*	**Percent Impervious** *%*	**Runoff Coefficient** *Rv*	**WQv** *(ft^3)*	**Description**
1	0.85	0.14	0.16	0.20	611.66	PSC 1 - Bioretention,
2	0.41	0.12	0.29	0.31	466	PSC 4 - Bioretention,
3	0.24	0.11	0.46	0.46	402.93	PSC 5 - Bioretention,
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						

Runoff Reduction Volume and Treated volumes						
	Runoff Reduction Techiques/Standard SMPs		**Total Contributing Area**	**Total Contributing Impervious Area**	**WQv Reduced (RRv)**	**WQv Treated**
			(acres)	**(acres)**	**cf**	**cf**
Area/Volume Reduction	Conservation of Natural Areas	RR-1	0.00	0.00		
	Sheetflow to Riparian Buffers/Filter Strips	RR-2	0.00	0.00		
	Tree Planting/Tree Pit	RR-3	0.00	0.00		
	Disconnection of Rooftop Runoff	RR-4		0.00		
	Vegetated Swale	RR-5	0.00	0.00	0	
	Rain Garden	RR-6	0.00	0.00	0	
	Stormwater Planter	RR-7	0.00	0.00	0	
	Rain Barrel/Cistern	RR-8	0.00	0.00	0	
	Porous Pavement	RR-9	0.00	0.00	0	
	Green Roof (Intensive & Extensive)	RR-10	0.00	0.00	0	
Standard SMPs w/RRv Capacity	Infiltration Trench	I-1	0.00	0.00	0	0
	Infiltration Basin	I-2	0.00	0.00	0	0
	Dry Well	I-3	0.00	0.00	0	0
	Underground Infiltration System	I-4	0.00			
	Bioretention & Infiltration Bioretention	F-5	1.50	0.37	1481	0
	Dry swale	O-1	0.00	0.00	0	0
Standard SMPs	Micropool Extended Detention (P-1)	P-1				
	Wet Pond (P-2)	P-2				
	Wet Extended Detention (P-3)	P-3				
	Multiple Pond system (P-4)	P-4				
	Pocket Pond (p-5)	P-5				
	Surface Sand filter (F-1)	F-1				
	Underground Sand filter (F-2)	F-2				
	Perimeter Sand Filter (F-3)	F-3				
	Organic Filter (F-4	F-4				
	Shallow Wetland (W-1)	W-1				
	Extended Detention Wetland (W-2	W-2				
	Pond/Wetland System (W-3)	W-3				
	Pocket Wetland (W-4)	W-4				
	Wet Swale (O-2)	O-2				
Totals by Area Reduction →			0.00	0.00	0	
Totals by Volume Reduction →			0.00	0.00	0	
Totals by Standard SMP w/RRV →			1.50	0.37	1481	0
Totals by Standard SMP →			0.00	0.00		0
Totals (Area + Volume + all SMPs) →			1.50	0.37	1,481	0
	Impervious Cover √	okay				

Minimum RRv

Enter the Soils Data for the site		
Soil Group	Acres	S
A		55%
B		40%
C	1.50	30%
D		20%
Total Area	1.5	
Calculate the Minimum RRv		
S =	**0.30**	
Impervious =	0.37	*acre*
Precipitation	1	*in*
Rv	0.95	
Minimum RRv	**383**	***ft3***
	0.01	af

Bioretention Worksheet

(For use on HSG C or D Soils with underdrains)

Af=WQv*(df)/[k*(hf+df)(tf)]

Af	Required Surface Area (ft2)
WQv	Water Quality Volume (ft3)
df	Depth of the Soil Medium (feet)
hf	Average height of water above the planter bed
tf	Volume Through the Filter Media (days)

k — The hydraulic conductivity [ft/day], can be varied depending on the properties of the soil media. Some reported conductivity values are: ***Sand*** - 3.5 ft/day (City of Austin 1988); ***Peat*** - 2.0 ft/day (Galli 1990); ***Leaf Compost*** - 8.7 ft/day (Claytor and Schueler, 1996); ***Bioretention Soil*** (0.5 ft/day (Claytor &

Design Point:	1

Enter Site Data For Drainage Area to be Treated by Practice							
Catchment Number	**Total Area** *(Acres)*	**Impervious Area** *(Acres)*	**Percent Impervious** *%*	**Rv**	**WQv** *(ft^3)*	**Precipitation** *(in)*	**Description**
1	0.85	0.14	0.16	0.20	611.66	1.00	PSC 1 - Bioretention, BR 1
Enter Impervious Area Reduced by Disconnection of Rooftops			16%	0.20	612	<<WQv after adjusting for Disconnected Rooftops	
Enter the portion of the WQv that is not reduced for all practices routed to this practice.						*ft^3*	

Soil Information			
Soil Group	C		
Soil Infiltration Rate	0.20	*in/hour*	*Okay*
Using Underdrains?	Yes	*Okay*	

Calculate the Minimum Filter Area				
		Value	Units	Notes
WQv		612	*ft^3*	
Enter Depth of Soil Media	*df*	2.5	*ft*	*2.5-4 ft*
Enter Hydraulic Conductivity	*k*	0.5	*ft/day*	
Enter Average Height of Ponding	*hf*	0.5	*ft*	*6 inches max.*
Enter Filter Time	*tf*	2	*days*	
Required Filter Area	***Af***	**510**	***ft^2***	

Determine Actual Bio-Retention Area			
Filter Width	24	*ft*	
Filter Length	55	*ft*	
Filter Area	1320	*ft^2*	
Actual Volume Provided	1584	*ft^3*	

Determine Runoff Reduction				
Is the Bioretention contributing flow to another practice?			Select Practice	
RRv	634			
RRv applied	**612**	***ft^3***	***This is 40% of the storage provided or WQv whichever is less.***	
Volume Treated	0	*ft^3*	*This is the portion of the WQv that is not reduced in the practice.*	
Volume Directed	0	*ft^3*	This volume is directed another practice	
Sizing √	OK		*Check to be sure Area provided ≥ Af*	

Bioretention Worksheet

(For use on HSG C or D Soils with underdrains)

Af=WQv*(df)/[k*(hf+df)(tf)]

Af	Required Surface Area (ft2)
WQv	Water Quality Volume (ft3)
df	Depth of the Soil Medium (feet)
hf	Average height of water above the planter bed
tf	Volume Through the Filter Media (days)

k — The hydraulic conductivity [ft/day], can be varied depending on the properties of the soil media. Some reported conductivity values are: ***Sand*** - 3.5 ft/day (City of Austin 1988); ***Peat*** - 2.0 ft/day (Galli 1990); ***Leaf Compost*** - 8.7 ft/day (Claytor and Schueler, 1996); ***Bioretention Soil*** (0.5 ft/day (Claytor & Schueler, 1996)

Design Point:	**1**

Enter Site Data For Drainage Area to be Treated by Practice							
Catchment Number	**Total Area** *(Acres)*	**Impervious Area** *(Acres)*	**Percent Impervious** *%*	**Rv**	**WQv** *(ft^3)*	**Precipitation** *(in)*	**Description**
2	0.41	0.12	0.29	0.31	466.46	1.00	PSC 4 - Bioretention, BR 4
Enter Impervious Area Reduced by Disconnection of Rooftops			29%	0.31	466	<<WQv after adjusting for Disconnected Rooftops	
Enter the portion of the WQv that is not reduced for all practices routed to this practice.						*ft^3*	

Soil Information			
Soil Group	C		
Soil Infiltration Rate	0.20	*in/hour*	*Okay*
Using Underdrains?	Yes	*Okay*	

Calculate the Minimum Filter Area				
		Value	Units	Notes
WQv		466	*ft^3*	
Enter Depth of Soil Media	*df*	2.5	*ft*	*2.5-4 ft*
Enter Hydraulic Conductivity	*k*	0.5	*ft/day*	
Enter Average Height of Ponding	*hf*	0.5	*ft*	*6 inches max.*
Enter Filter Time	*tf*	2	*days*	
Required Filter Area	***Af***	**389**	***ft^2***	

Determine Actual Bio-Retention Area			
Filter Width	22	*ft*	
Filter Length	45	*ft*	
Filter Area	990	*ft^2*	
Actual Volume Provided	1188	*ft^3*	

Determine Runoff Reduction				
Is the Bioretention contributing flow to another practice?			Select Practice	
RRv	475			
RRv applied	**466**	***ft^3***	***This is 40% of the storage provided or WQv whichever is less.***	
Volume Treated	0	*ft^3*	*This is the portion of the WQv that is not reduced in the practice.*	
Volume Directed	0	*ft^3*	This volume is directed another practice	
Sizing √	OK		*Check to be sure Area provided ≥ Af*	

Bioretention Worksheet

(For use on HSG C or D Soils with underdrains)

Af=WQv*(df)/[k*(hf+df)(tf)]

Af	Required Surface Area (ft2)
WQv	Water Quality Volume (ft3)
df	Depth of the Soil Medium (feet)
hf	Average height of water above the planter bed
tf	Volume Through the Filter Media (days)

k — The hydraulic conductivity [ft/day], can be varied depending on the properties of the soil media. Some reported conductivity values are: ***Sand*** - 3.5 ft/day (City of Austin 1988); ***Peat*** - 2.0 ft/day (Galli 1990); ***Leaf Compost*** - 8.7 ft/day (Claytor and Schueler, 1996); ***Bioretention Soil*** (0.5 ft/day (Claytor &

Design Point:	**1**

Enter Site Data For Drainage Area to be Treated by Practice							
Catchment Number	**Total Area** *(Acres)*	**Impervious Area** *(Acres)*	**Percent Impervious** *%*	**Rv**	**WQv** *(ft^3)*	**Precipitation** *(in)*	**Description**
3	0.24	0.11	0.46	0.46	402.93	1.00	PSC 5 - Bioretention, BR 5
Enter Impervious Area Reduced by Disconnection of Rooftops			46%	0.46	403	<<WQv after adjusting for Disconnected Rooftops	
Enter the portion of the WQv that is not reduced for all practices routed to this practice.						*ft^3*	

Soil Information			
Soil Group	C		
Soil Infiltration Rate	0.20	*in/hour*	*Okay*
Using Underdrains?	Yes	*Okay*	

Calculate the Minimum Filter Area				
		Value	Units	Notes
WQv		403	*ft^3*	
Enter Depth of Soil Media	*df*	2.5	*ft*	*2.5-4 ft*
Enter Hydraulic Conductivity	*k*	0.5	*ft/day*	
Enter Average Height of Ponding	*hf*	0.5	*ft*	*6 inches max.*
Enter Filter Time	*tf*	2	*days*	
Required Filter Area	***Af***	**336**	***ft^2***	

Determine Actual Bio-Retention Area			
Filter Width	20	*ft*	
Filter Length	42	*ft*	
Filter Area	840	*ft^2*	
Actual Volume Provided	1008	*ft^3*	

Determine Runoff Reduction				
Is the Bioretention contributing flow to another practice?			Select Practice	
RRv	403			
RRv applied	**403**	***ft^3***	***This is 40% of the storage provided or WQv whichever is less.***	
Volume Treated	0	*ft^3*	*This is the portion of the WQv that is not reduced in the practice.*	
Volume Directed	0	*ft^3*	This volume is directed another practice	
Sizing √	OK		*Check to be sure Area provided ≥ Af*	

Version 1.6
Last Updated: 03/28/2014

Total Water Quality Volume Calculation
WQv(acre-feet) = [(P)(Rv)(A)] /12

Is this project subject to Chapter 10 of the NYS Design Manual (i.e. WQv is equal to post-development 1 year runoff volume)?.....	No

Design Point:	2	
P=	1.00	*inch*

Manually enter P, Total Area and Impervious Cover.

Breakdown of Subcatchments

Catchment Number	Total Area *(Acres)*	Impervious Area *(Acres)*	Percent Impervious *%*	Rv	WQv *(ft^3)*	Description
1	0.39	0.13	33%	0.35	495	PSC 2 - Bioretention, BR 2
2	0.19	0.05	26%	0.29	198	PSC 3 - Bioretention, BR 3
3	0.28	0.09	32%	0.34	345	PSC 6 - Bioretention, BR 6
4	8.43	1.72	20%	0.23	7,149	PSC 7 - Standard Practice; Pond
5	0.14	0.07	50%	0.50	254	PSC 8 - DrySwale
6	0.13	0.05	38%	0.40	187	PSC 7A - Bioretention, BR 7
7						
8						
9						
10						
Subtotal (1-30)	9.56	2.11	22%	0.25	**8,629**	**Subtotal 1**
Total	9.56	2.11	22%	0.25	**8,629**	**Initial WQv**

Identify Runoff Reduction Techniques By Area

Technique	Total Contributing Area *(Acre)*	Contributing Impervious Area *(Acre)*	Notes
Conservation of Natural Areas	0.00	0.00	*minimum 10,000 sf*
Riparian Buffers	0.00	0.00	*maximum contributing length 75 feet to 150 feet*
Filter Strips	0.00	0.00	
Tree Planting	0.00	0.00	*Up to 100 sf directly connected impervious area may be subtracted per tree*
Total	**0.00**	**0.00**	

Recalculate WQv after application of Area Reduction Techniques

	Total Area *(Acres)*	Impervious Area *(Acres)*	Percent Impervious *%*	Runoff Coefficient Rv	WQv *(ft^3)*
"<<Initial WQv"	9.56	2.11	22%	0.25	8,629
Subtract Area	0.00	0.00			

Total Water Quality Volume Calculation
WQv(acre-feet) = [(P)(Rv)(A)] /12

WQv adjusted after Area Reductions	**9.56**	**2.11**	22%	0.25	8,629
Disconnection of Rooftops		0.00			
Adjusted WQv after Area Reduction and Rooftop Disconnect	9.56	2.11	22%	0.25	**8,629**
WQv reduced by Area Reduction techniques					0

Total Water Quality Volume Calculation
WQv(acre-feet) = [(P)(Rv)(A)] /12

All Subcatchments						
Catchment	**Total Area** *(Acres)*	**Impervious Cover** *(Acres)*	**Percent Impervious** *%*	**Runoff Coefficient** *Rv*	**WQv** *(ft^3)*	**Description**
1	0.39	0.13	0.33	0.35	495.50	PSC 2 - Bioretention,
2	0.19	0.05	0.26	0.29	198	PSC 3 - Bioretention,
3	0.28	0.09	0.32	0.34	344.85	PSC 6 - Bioretention,
4	8.43	1.72	0.20	0.23	7149.29	PSC 7 -
5	0.14	0.07	0.50	0.50	254.10	PSC 8 - DrySwale
6	0.13	0.05	0.38	0.40	186.95	PSC 7A -
7						
8						
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Runoff Reduction Volume and Treated volumes						
	Runoff Reduction Techiques/Standard SMPs		**Total Contributing Area**	**Total Contributing Impervious Area**	**WQv Reduced (RRv)**	**WQv Treated**
			(acres)	**(acres)**	**cf**	**cf**
Area/Volume Reduction	Conservation of Natural Areas	RR-1	0.00	0.00		
	Sheetflow to Riparian Buffers/Filter Strips	RR-2	0.00	0.00		
	Tree Planting/Tree Pit	RR-3	0.00	0.00		
	Disconnection of Rooftop Runoff	RR-4		0.00		
	Vegetated Swale	RR-5	0.00	0.00	0	
	Rain Garden	RR-6	0.00	0.00	0	
	Stormwater Planter	RR-7	0.00	0.00	0	
	Rain Barrel/Cistern	RR-8	0.00	0.00	0	
	Porous Pavement	RR-9	0.00	0.00	0	
	Green Roof (Intensive & Extensive)	RR-10	0.00	0.00	0	
Standard SMPs w/RRv Capacity	Infiltration Trench	I-1	0.00	0.00	0	0
	Infiltration Basin	I-2	0.00	0.00	0	0
	Dry Well	I-3	0.00	0.00	0	0
	Underground Infiltration System	I-4	0.00			
	Bioretention & Infiltration Bioretention	F-5	0.99	0.32	1225	0
	Dry swale	O-1	0.14	0.07	254	0
Standard SMPs	Micropool Extended Detention (P-1)	P-1				
	Wet Pond (P-2)	P-2	8.46	1.66		7149.000
	Wet Extended Detention (P-3)	P-3				
	Multiple Pond system (P-4)	P-4				
	Pocket Pond (p-5)	P-5				
	Surface Sand filter (F-1)	F-1				
	Underground Sand filter (F-2)	F-2				
	Perimeter Sand Filter (F-3)	F-3				
	Organic Filter (F-4	F-4				
	Shallow Wetland (W-1)	W-1				
	Extended Detention Wetland (W-2	W-2				
	Pond/Wetland System (W-3)	W-3				
	Pocket Wetland (W-4)	W-4				
	Wet Swale (O-2)	O-2				
Totals by Area Reduction →			0.00	0.00	0	
Totals by Volume Reduction →			0.00	0.00	0	
Totals by Standard SMP w/RRV →			1.13	0.39	1479	0
Totals by Standard SMP →			8.46	1.66		7149
Totals (Area + Volume + all SMPs) →			9.59	2.05	1,479	7,149
	Impervious Cover √	error				

Minimum RRv

Enter the Soils Data for the site		
Soil Group	Acres	S
A	0.80	55%
B	0.82	40%
C	7.95	30%
D		20%
Total Area	9.57	
Calculate the Minimum RRv		
S =	**0.33**	
Impervious =	2.11	*acre*
Precipitation	1	*in*
Rv	0.95	
Minimum RRv	**2,397**	***ft3***
	0.06	af

Bioretention Worksheet

(For use on HSG C or D Soils with underdrains)

Af=WQv*(df)/[k*(hf+df)(tf)]

Af	Required Surface Area (ft2)
WQv	Water Quality Volume (ft3)
df	Depth of the Soil Medium (feet)
hf	Average height of water above the planter bed
tf	Volume Through the Filter Media (days)

k — The hydraulic conductivity [ft/day], can be varied depending on the properties of the soil media. Some reported conductivity values are: ***Sand*** - 3.5 ft/day (City of Austin 1988); ***Peat*** - 2.0 ft/day (Galli 1990); ***Leaf Compost*** - 8.7 ft/day (Claytor and Schueler, 1996); ***Bioretention Soil*** (0.5 ft/day (Claytor &

Design Point:	**2**

Enter Site Data For Drainage Area to be Treated by Practice							
Catchment Number	**Total Area** *(Acres)*	**Impervious Area** *(Acres)*	**Percent Impervious** *%*	**Rv**	**WQv** *(ft^3)*	**Precipitation** *(in)*	**Description**
1	0.39	0.13	0.33	0.35	495.50	1.00	PSC 2 - Bioretention, BR 2
Enter Impervious Area Reduced by Disconnection of Rooftops			33%	0.35	495	<<WQv after adjusting for Disconnected Rooftops	
Enter the portion of the WQv that is not reduced for all practices routed to this practice.						*ft^3*	

Soil Information			
Soil Group	C		
Soil Infiltration Rate	0.20	*in/hour*	*Okay*
Using Underdrains?	Yes	*Okay*	

Calculate the Minimum Filter Area				
		Value	Units	Notes
WQv		495	*ft^3*	
Enter Depth of Soil Media	*df*	2.5	*ft*	*2.5-4 ft*
Enter Hydraulic Conductivity	*k*	0.5	*ft/day*	
Enter Average Height of Ponding	*hf*	0.5	*ft*	*6 inches max.*
Enter Filter Time	*tf*	2	*days*	
Required Filter Area	***Af***	**413**	***ft^2***	

Determine Actual Bio-Retention Area			
Filter Width	26	*ft*	
Filter Length	40	*ft*	
Filter Area	1040	*ft^2*	
Actual Volume Provided	1248	*ft^3*	

Determine Runoff Reduction				
Is the Bioretention contributing flow to another practice?			Select Practice	
RRv	499			
RRv applied	**495**	***ft^3***	***This is 40% of the storage provided or WQv whichever is less.***	
Volume Treated	0	*ft^3*	*This is the portion of the WQv that is not reduced in the practice.*	
Volume Directed	0	*ft^3*	This volume is directed another practice	
Sizing √	OK		*Check to be sure Area provided ≥ Af*	

Bioretention Worksheet

(For use on HSG C or D Soils with underdrains)

Af=WQv*(df)/[k*(hf+df)(tf)]

Af	Required Surface Area (ft2)
WQv	Water Quality Volume (ft3)
df	Depth of the Soil Medium (feet)
hf	Average height of water above the planter bed
tf	Volume Through the Filter Media (days)

k — The hydraulic conductivity [ft/day], can be varied depending on the properties of the soil media. Some reported conductivity values are: ***Sand*** - 3.5 ft/day (City of Austin 1988); ***Peat*** - 2.0 ft/day (Galli 1990); ***Leaf Compost*** - 8.7 ft/day (Claytor and Schueler, 1996); ***Bioretention Soil*** (0.5 ft/day (Claytor & Schueler, 1996)

Design Point:	**2**

Enter Site Data For Drainage Area to be Treated by Practice							
Catchment Number	**Total Area** *(Acres)*	**Impervious Area** *(Acres)*	**Percent Impervious** *%*	**Rv**	**WQv** *(ft^3)*	**Precipitation** *(in)*	**Description**
2	0.19	0.05	0.26	0.29	197.84	1.00	PSC 3 - Bioretention, BR 3
Enter Impervious Area Reduced by Disconnection of Rooftops			26%	0.29	198	<<WQv after adjusting for Disconnected Rooftops	
Enter the portion of the WQv that is not reduced for all practices routed to this practice.						*ft^3*	

Soil Information			
Soil Group	C		
Soil Infiltration Rate	0.20	*in/hour*	*Okay*
Using Underdrains?	Yes	*Okay*	

Calculate the Minimum Filter Area				
		Value	Units	Notes
WQv		198	*ft^3*	
Enter Depth of Soil Media	*df*	2.5	*ft*	*2.5-4 ft*
Enter Hydraulic Conductivity	*k*	0.5	*ft/day*	
Enter Average Height of Ponding	*hf*	0.5	*ft*	*6 inches max.*
Enter Filter Time	*tf*	2	*days*	
Required Filter Area	***Af***	**165**	***ft^2***	

Determine Actual Bio-Retention Area			
Filter Width	15	*ft*	
Filter Length	30	*ft*	
Filter Area	450	*ft^2*	
Actual Volume Provided	540	*ft^3*	

Determine Runoff Reduction				
Is the Bioretention contributing flow to another practice?			Select Practice	
RRv	216			
RRv applied	**198**	***ft^3***	***This is 40% of the storage provided or WQv whichever is less.***	
Volume Treated	0	*ft^3*	*This is the portion of the WQv that is not reduced in the practice.*	
Volume Directed	0	*ft^3*	This volume is directed another practice	
Sizing √	OK		*Check to be sure Area provided ≥ Af*	

Bioretention Worksheet

(For use on HSG C or D Soils with underdrains)

Af=WQv*(df)/[k*(hf+df)(tf)]

Af	Required Surface Area (ft2)
WQv	Water Quality Volume (ft3)
df	Depth of the Soil Medium (feet)
hf	Average height of water above the planter bed
tf	Volume Through the Filter Media (days)

k — The hydraulic conductivity [ft/day], can be varied depending on the properties of the soil media. Some reported conductivity values are: ***Sand*** - 3.5 ft/day (City of Austin 1988); ***Peat*** - 2.0 ft/day (Galli 1990); ***Leaf Compost*** - 8.7 ft/day (Claytor and Schueler, 1996); ***Bioretention Soil*** (0.5 ft/day (Claytor &

Design Point:	**2**

Enter Site Data For Drainage Area to be Treated by Practice

Catchment Number	**Total Area** *(Acres)*	**Impervious Area** *(Acres)*	**Percent Impervious** *%*	**Rv**	**WQv** *(ft^3)*	**Precipitation** *(in)*	**Description**
3	0.28	0.09	0.32	0.34	344.85	1.00	PSC 6 - Bioretention, BR 6
Enter Impervious Area Reduced by Disconnection of Rooftops			32%	0.34	345	<<WQv after adjusting for Disconnected Rooftops	
Enter the portion of the WQv that is not reduced for all practices routed to this practice.						*ft^3*	

Soil Information

Soil Group	C		
Soil Infiltration Rate	0.20	*in/hour*	*Okay*
Using Underdrains?	Yes	*Okay*	

Calculate the Minimum Filter Area

		Value	Units	Notes
WQv		345	*ft^3*	
Enter Depth of Soil Media	*df*	2.5	*ft*	*2.5-4 ft*
Enter Hydraulic Conductivity	*k*	0.5	*ft/day*	
Enter Average Height of Ponding	*hf*	0.5	*ft*	*6 inches max.*
Enter Filter Time	*tf*	2	*days*	
Required Filter Area	***Af***	**287**	***ft^2***	

Determine Actual Bio-Retention Area

Filter Width	9	*ft*	
Filter Length	80	*ft*	
Filter Area	720	*ft^2*	
Actual Volume Provided	864	*ft^3*	

Determine Runoff Reduction

Is the Bioretention contributing flow to another practice?			Select Practice	
RRv	346			
RRv applied	**345**	***ft^3***	***This is 40% of the storage provided or WQv whichever is less.***	
Volume Treated	0	*ft^3*	*This is the portion of the WQv that is not reduced in the practice.*	
Volume Directed	0	*ft^3*	This volume is directed another practice	
Sizing √	OK		*Check to be sure Area provided ≥ Af*	

Bioretention Worksheet

(For use on HSG C or D Soils with underdrains)

Af=WQv*(df)/[k*(hf+df)(tf)]

Af	Required Surface Area (ft2)
WQv	Water Quality Volume (ft3)
df	Depth of the Soil Medium (feet)
hf	Average height of water above the planter bed
tf	Volume Through the Filter Media (days)

k — The hydraulic conductivity [ft/day], can be varied depending on the properties of the soil media. Some reported conductivity values are: ***Sand*** - 3.5 ft/day (City of Austin 1988); ***Peat*** - 2.0 ft/day (Galli 1990); ***Leaf Compost*** - 8.7 ft/day (Claytor and Schueler, 1996); ***Bioretention Soil*** (0.5 ft/day (Claytor &

Design Point:	**2**

Enter Site Data For Drainage Area to be Treated by Practice							
Catchment Number	**Total Area** *(Acres)*	**Impervious Area** *(Acres)*	**Percent Impervious** *%*	**Rv**	**WQv** *(ft^3)*	**Precipitation** *(in)*	**Description**
6	0.13	0.05	0.38	0.40	186.95	1.00	PSC 7A - Bioretention, BR 7
Enter Impervious Area Reduced by Disconnection of Rooftops			38%	0.40	187	<<WQv after adjusting for Disconnected Rooftops	
Enter the portion of the WQv that is not reduced for all practices routed to this practice.						*ft^3*	

Soil Information			
Soil Group	C		
Soil Infiltration Rate	0.20	*in/hour*	*Okay*
Using Underdrains?	Yes	*Okay*	

Calculate the Minimum Filter Area				
		Value	Units	Notes
WQv		187	*ft^3*	
Enter Depth of Soil Media	*df*	2.5	*ft*	*2.5-4 ft*
Enter Hydraulic Conductivity	*k*	0.5	*ft/day*	
Enter Average Height of Ponding	*hf*	0.5	*ft*	*6 inches max.*
Enter Filter Time	*tf*	2	*days*	
Required Filter Area	***Af***	**156**	***ft^2***	

Determine Actual Bio-Retention Area			
Filter Width	15	*ft*	
Filter Length	30	*ft*	
Filter Area	450	*ft^2*	
Actual Volume Provided	540	*ft^3*	

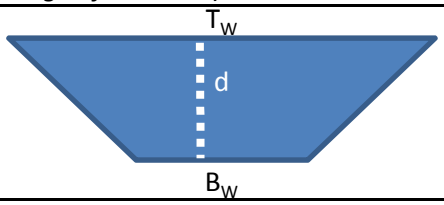
Determine Runoff Reduction				
Is the Bioretention contributing flow to another practice?			Select Practice	
RRv	216			
RRv applied	**187**	***ft^3***	***This is 40% of the storage provided or WQv whichever is less.***	
Volume Treated	0	*ft^3*	*This is the portion of the WQv that is not reduced in the practice.*	
Volume Directed	0	*ft^3*	This volume is directed another practice	
Sizing √	OK		*Check to be sure Area provided ≥ Af*	

Dry Swale Worksheet

Design Point:	2

Enter Site Data For Drainage Area to be Treated by Practice							
Catchment Number	**Total Area** *(Acres)*	**Impervious Area** *(Acres)*	**Percent Impervious** *%*	**Rv**	**WQv** *(ft^3)*	**Precipitation** *(in)*	**Description**
5	0.14	0.07	0.50	0.50	254.10	1.00	PSC 8 - DrySwale
Enter Impervious Area Reduced by Disconnection of Rooftops			50%	0.50	254	<<WQv after adjusting for Disconnected Rooftops	

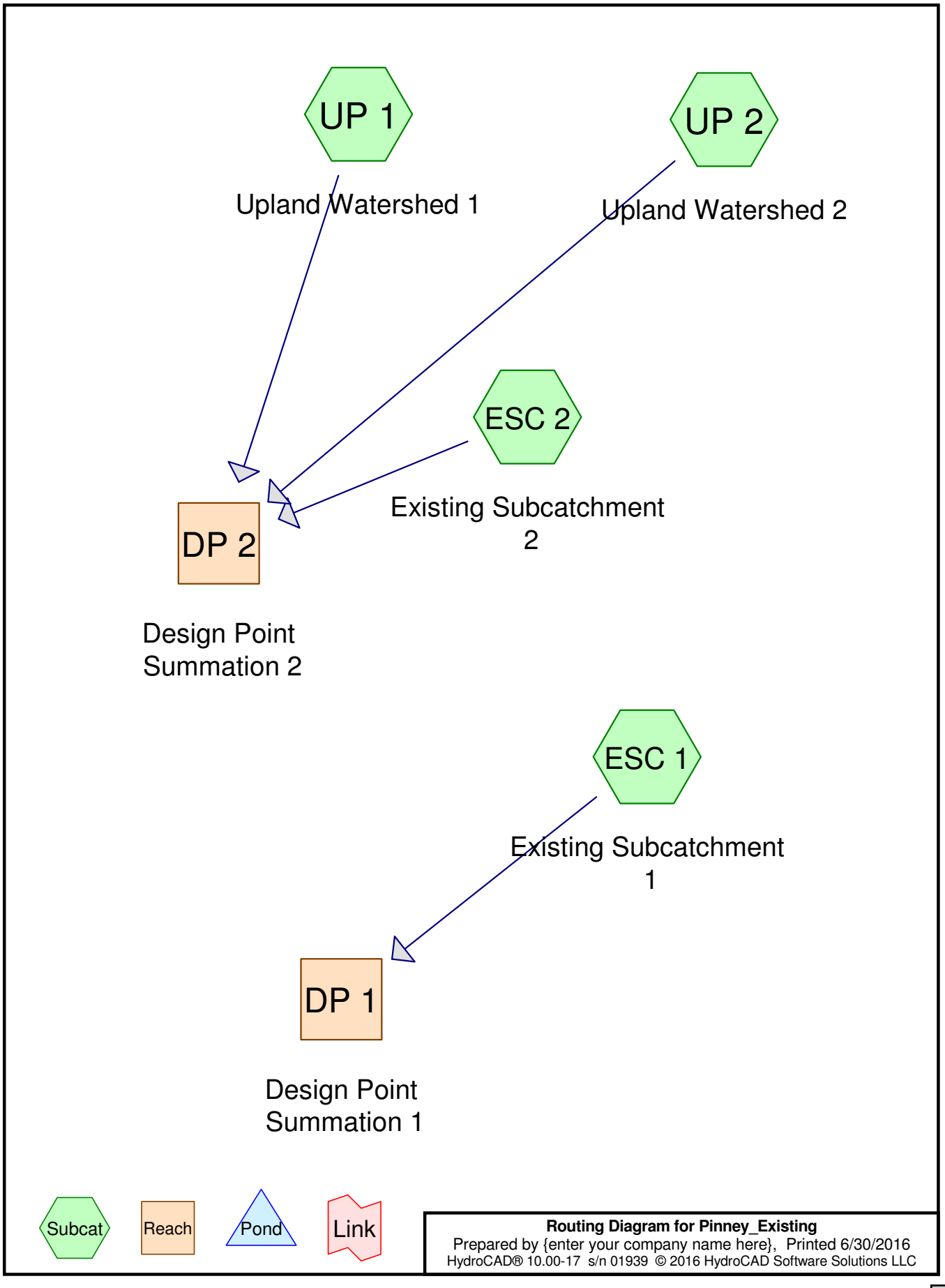
Pretreatment Provided			Pretreatment Technique
Pretreatment (10% of WQv)	25	ft^3	

Calculate Available Storage Capacity			
Bottom Width	4	*ft*	Design with a bottom width no greater than eight feet to avoid potential gullying and channel braiding, but no less than two feet
Side Slope (X:1)	4	*Okay*	Channels shall be designed with moderate side slopes (flatter than 3:1) for most conditions. 2:1 is the absolute maximum side slope
Longitudinal Slope	2%	*Okay*	*Maximum longitudinal slope shall be 4%*
Flow Depth	1	*ft*	*Maximum ponding depth of one foot at the mid-point of the channel, and a maximum depth of 18" at the end point of the channel (for storage of the WQv)*
Top Width	12	*ft*	
Area	8.00	*sf*	
Minimum Length	29	*ft*	
Actual Length	156	*ft*	
End Point Depth check	0.50	*Okay*	*A maximum depth of 18" at the end point of the channel (for storage of the WQv)*
Storage Capacity	1,273	ft^3	
Soil Group (HSG)		C	

Runoff Reduction				
Is the Dry Swale contributing flow to another practice?		No	Select Practice	
RRv	**254**	***ft^3***	**Runnoff Reduction equals 40% in HSG A and B and 20% in HSG C and D up to the WQv**	
Volume Treated	0	ft^3	This is the difference between the WQv calculated and the runoff reduction achieved in the swale	
Volume Directed	0	ft^3	This volume is directed another practice	
Volume √	*Okay*		Check to be sure that channel is long enough to store WQv	

APPENDIX 2

HYDRAULIC MODELING DATA



Routing Diagram for Pinney_Existing
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Pinney_Existing

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
5.827	30	Brush, Good, HSG A (ESC 1, ESC 2)
1.271	48	Brush, Good, HSG B (ESC 2)
34.825	65	Brush, Good, HSG C (ESC 1, ESC 2, UP 1, UP 2)
0.082	98	Paved parking & roofs (ESC 1, ESC 2)
42.006	**60**	**TOTAL AREA**

Pinney_Existing

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
5.827	HSG A	ESC 1, ESC 2
1.271	HSG B	ESC 2
34.825	HSG C	ESC 1, ESC 2, UP 1, UP 2
0.000	HSG D	
0.082	Other	ESC 1, ESC 2
42.006		**TOTAL AREA**

Pinney_Existing

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
5.827	1.271	34.825	0.000	0.000	41.924	Brush, Good	ESC 1, ESC 2, UP 1, UP 2
0.000	0.000	0.000	0.000	0.082	0.082	Paved parking & roofs	ESC 1, ESC 2
5.827	**1.271**	**34.825**	**0.000**	**0.082**	**42.006**	**TOTAL AREA**	

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment ESC 1: Existing Runoff Area=483,408 sf 0.43% Impervious Runoff Depth>0.02"
Flow Length=1,275' Tc=32.4 min CN=57 Runoff=0.03 cfs 0.017 af

Subcatchment ESC 2: Existing Runoff Area=1,087,798 sf 0.14% Impervious Runoff Depth>0.04"
Flow Length=1,657' Tc=25.6 min CN=60 Runoff=0.19 cfs 0.090 af

Subcatchment UP 1: Upland Watershed 1 Runoff Area=187,023 sf 0.00% Impervious Runoff Depth>0.11"
Flow Length=557' Tc=15.0 min CN=65 Runoff=0.23 cfs 0.039 af

Subcatchment UP 2: Upland Watershed 2 Runoff Area=71,533 sf 0.00% Impervious Runoff Depth>0.11"
Flow Length=410' Slope=0.0300 '/' Tc=14.5 min CN=65 Runoff=0.09 cfs 0.015 af

Reach DP 1: Design Point Summation 1 Inflow=0.03 cfs 0.017 af
Outflow=0.03 cfs 0.017 af

Reach DP 2: Design Point Summation 2 Inflow=0.32 cfs 0.144 af
Outflow=0.32 cfs 0.144 af

Total Runoff Area = 42.006 ac Runoff Volume = 0.161 af Average Runoff Depth = 0.05"
99.80% Pervious = 41.924 ac 0.20% Impervious = 0.082 ac

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Summary for Subcatchment ESC 1: Existing Subcatchment 1

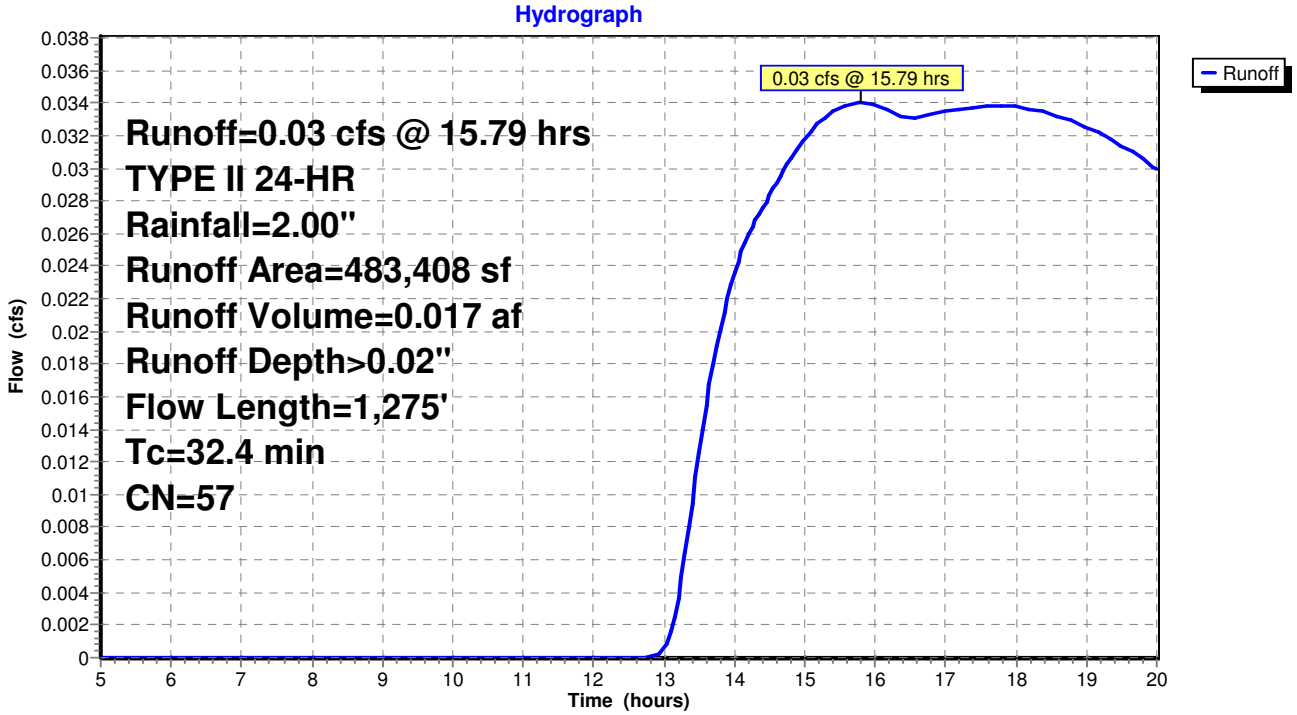
Runoff = 0.03 cfs @ 15.79 hrs, Volume= 0.017 af, Depth> 0.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=2.00"

Area (sf)	CN	Description
112,111	30	Brush, Good, HSG A
369,232	65	Brush, Good, HSG C
2,065	98	Paved parking & roofs
483,408	57	Weighted Average
481,343		99.57% Pervious Area
2,065		0.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.5	100	0.0100	0.08		**Sheet Flow, First 100' Flowpath** Grass: Dense n= 0.240 P2= 2.70"
11.9	1,175	0.0120	1.64		**Shallow Concentrated Flow, Balance of Flow to Channel** Grassed Waterway Kv= 15.0 fps
32.4	1,275	Total			

Subcatchment ESC 1: Existing Subcatchment 1



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Summary for Subcatchment ESC 2: Existing Subcatchment 2

Runoff = 0.19 cfs @ 13.31 hrs, Volume= 0.090 af, Depth> 0.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=2.00"

Area (sf)	CN	Description
141,720	30	Brush, Good, HSG A
55,371	48	Brush, Good, HSG B
889,202	65	Brush, Good, HSG C
1,505	98	Paved parking & roofs
1,087,798	60	Weighted Average
1,086,293		99.86% Pervious Area
1,505		0.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.4	100	0.0150	0.10		**Sheet Flow, First 100' Flowpath** Grass: Dense n= 0.240 P2= 2.70"
6.6	957	0.0260	2.42		**Shallow Concentrated Flow, Balance of Flow to Channel** Grassed Waterway Kv= 15.0 fps
1.6	600	0.0100	6.22	124.39	**Trap/Vee/Rect Channel Flow, Balance of Longest Flowpath** Bot.W=4.00' D=2.00' Z= 3.0 '/' Top.W=16.00' n= 0.027
25.6	1,657	Total			

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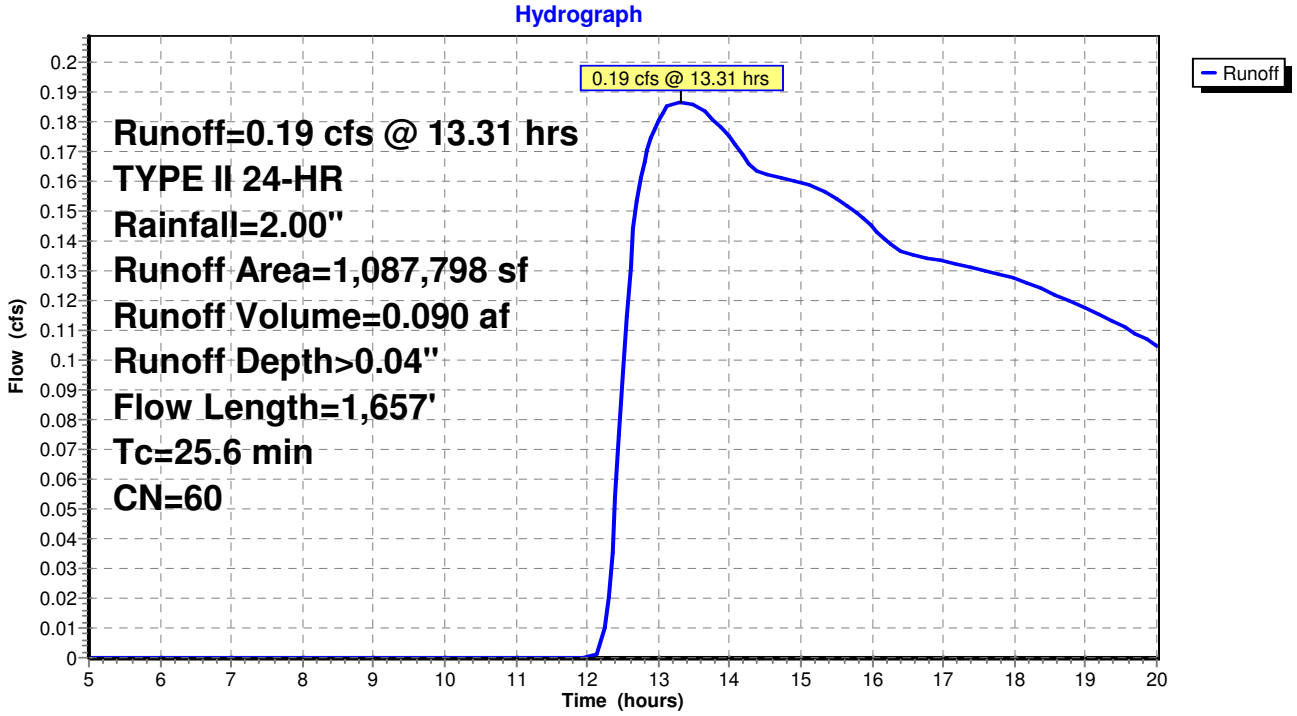
Subcatchment ESC 2: Existing Subcatchment 2



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Summary for Subcatchment UP 1: Upland Watershed 1

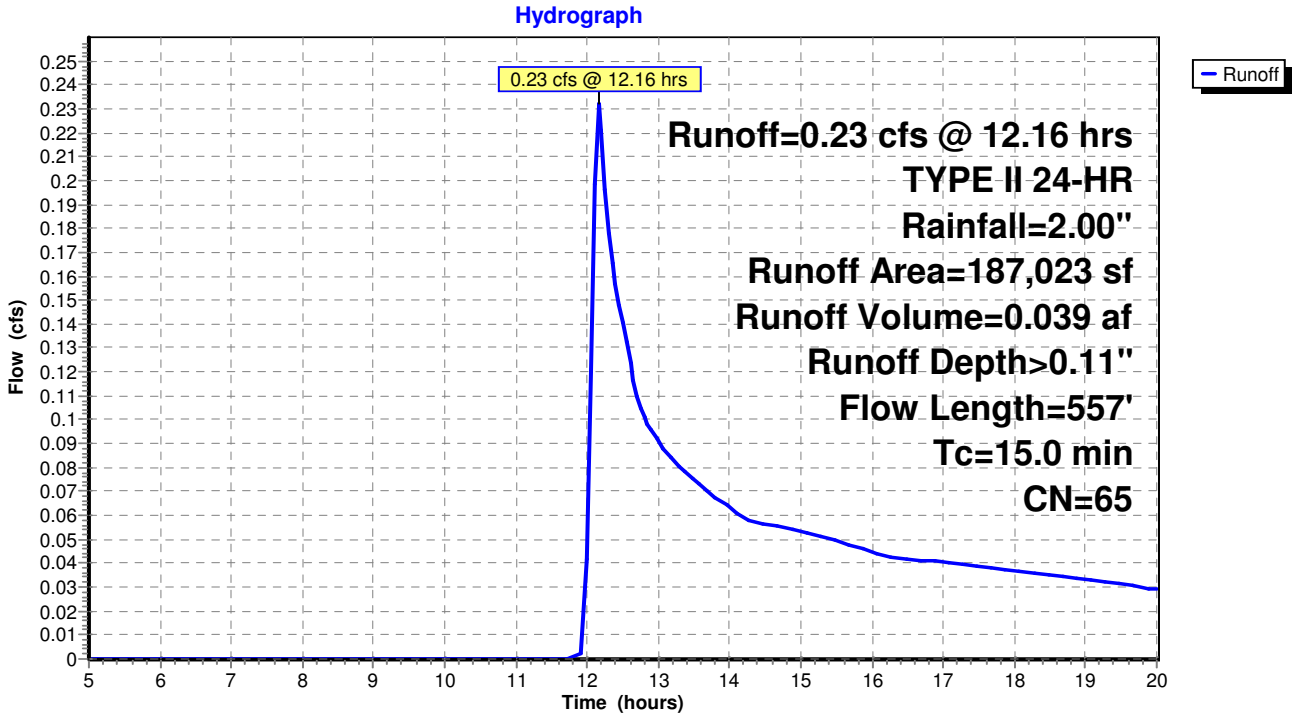
Runoff = 0.23 cfs @ 12.16 hrs, Volume= 0.039 af, Depth> 0.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=2.00"

Area (sf)	CN	Description
187,023	65	Brush, Good, HSG C
187,023		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	100	0.0360	0.14		**Sheet Flow, First 100' Flowpath** Grass: Dense n= 0.240 P2= 2.70"
2.7	457	0.0350	2.81		**Shallow Concentrated Flow, Balance of Longest Flowpath** Grassed Waterway Kv= 15.0 fps
15.0	557	Total			

Subcatchment UP 1: Upland Watershed 1



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Summary for Subcatchment UP 2: Upland Watershed 2

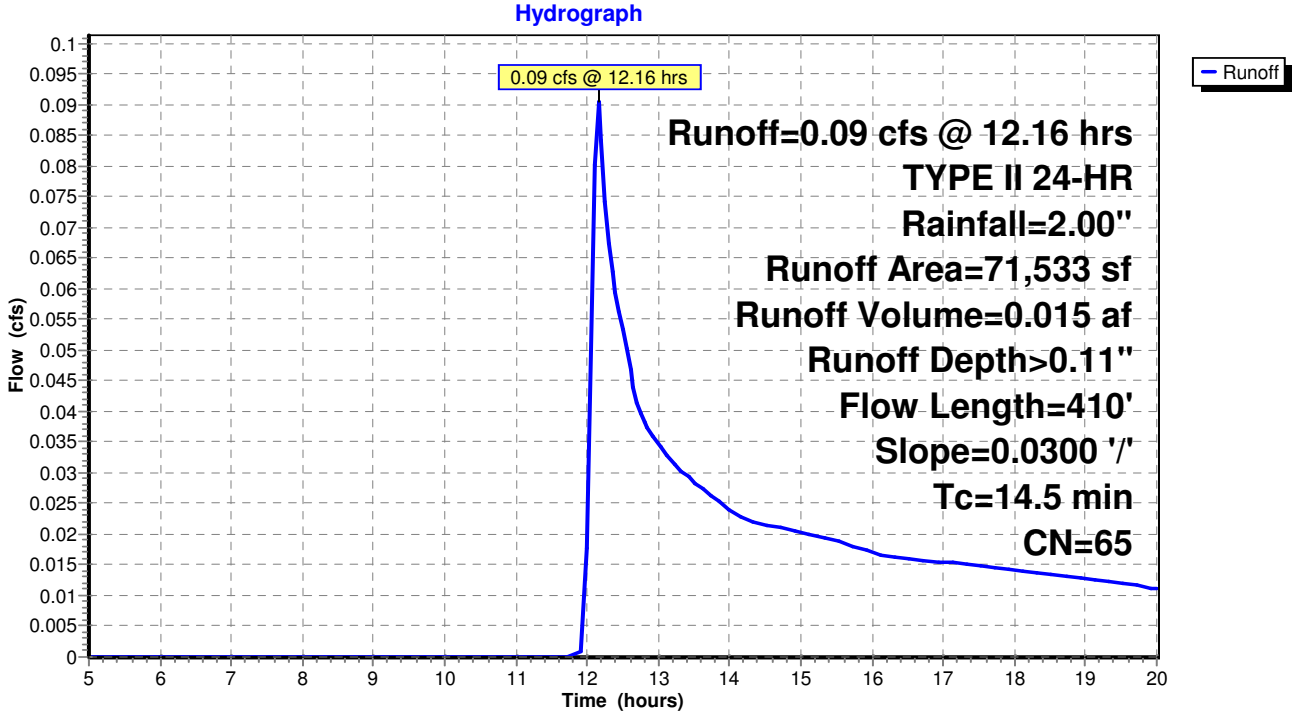
Runoff = 0.09 cfs @ 12.16 hrs, Volume= 0.015 af, Depth> 0.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=2.00"

Area (sf)	CN	Description
71,533	65	Brush, Good, HSG C
71,533		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.9	155	0.0300	0.20		**Sheet Flow, First 100' Flowpath** Grass: Short n= 0.150 P2= 2.70"
1.6	255	0.0300	2.60		**Shallow Concentrated Flow, Balance of Longest Flowpath** Grassed Waterway Kv= 15.0 fps
14.5	410	Total			

Subcatchment UP 2: Upland Watershed 2



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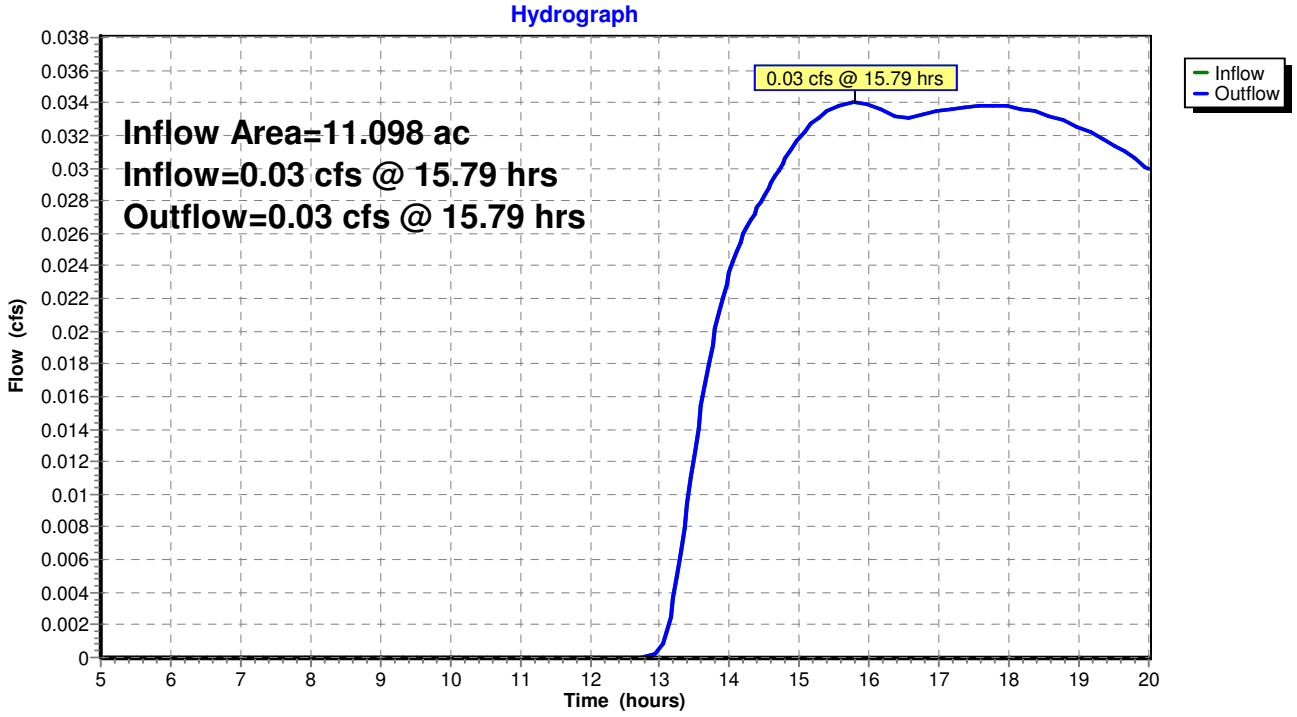
Summary for Reach DP 1: Design Point Summation 1

Inflow Area = 11.098 ac, 0.43% Impervious, Inflow Depth > 0.02"
Inflow = 0.03 cfs @ 15.79 hrs, Volume= 0.017 af
Outflow = 0.03 cfs @ 15.79 hrs, Volume= 0.017 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach DP 1: Design Point Summation 1



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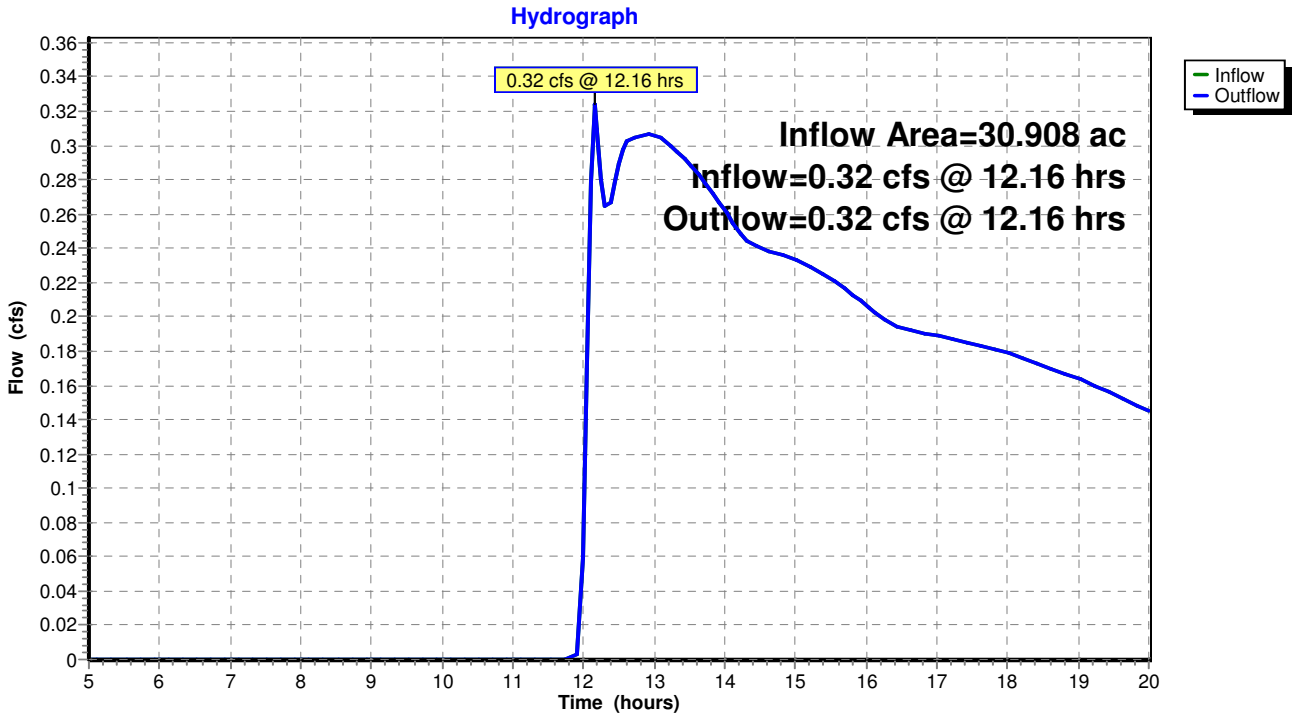
Summary for Reach DP 2: Design Point Summation 2

Inflow Area = 30.908 ac, 0.11% Impervious, Inflow Depth > 0.06"
Inflow = 0.32 cfs @ 12.16 hrs, Volume= 0.144 af
Outflow = 0.32 cfs @ 12.16 hrs, Volume= 0.144 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach DP 2: Design Point Summation 2



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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
5.827	30	Brush, Good, HSG A (ESC 1, ESC 2)
1.271	48	Brush, Good, HSG B (ESC 2)
34.825	65	Brush, Good, HSG C (ESC 1, ESC 2, UP 1, UP 2)
0.082	98	Paved parking & roofs (ESC 1, ESC 2)
42.006	**60**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
5.827	HSG A	ESC 1, ESC 2
1.271	HSG B	ESC 2
34.825	HSG C	ESC 1, ESC 2, UP 1, UP 2
0.000	HSG D	
0.082	Other	ESC 1, ESC 2
42.006		**TOTAL AREA**

Pinney_Existing

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
5.827	1.271	34.825	0.000	0.000	41.924	Brush, Good	ESC 1, ESC 2, UP 1, UP 2
0.000	0.000	0.000	0.000	0.082	0.082	Paved parking & roofs	ESC 1, ESC 2
5.827	**1.271**	**34.825**	**0.000**	**0.082**	**42.006**	**TOTAL AREA**	

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment ESC 1: Existing Runoff Area=483,408 sf 0.43% Impervious Runoff Depth>0.31"
Flow Length=1,275' Tc=32.4 min CN=57 Runoff=1.86 cfs 0.291 af

Subcatchment ESC 2: Existing Runoff Area=1,087,798 sf 0.14% Impervious Runoff Depth>0.42"
Flow Length=1,657' Tc=25.6 min CN=60 Runoff=7.70 cfs 0.866 af

Subcatchment UP 1: Upland Watershed 1 Runoff Area=187,023 sf 0.00% Impervious Runoff Depth>0.61"
Flow Length=557' Tc=15.0 min CN=65 Runoff=3.29 cfs 0.220 af

Subcatchment UP 2: Upland Watershed 2 Runoff Area=71,533 sf 0.00% Impervious Runoff Depth>0.61"
Flow Length=410' Slope=0.0300 '/' Tc=14.5 min CN=65 Runoff=1.28 cfs 0.084 af

Reach DP 1: Design Point Summation 1 Inflow=1.86 cfs 0.291 af
Outflow=1.86 cfs 0.291 af

Reach DP 2: Design Point Summation 2 Inflow=10.49 cfs 1.169 af
Outflow=10.49 cfs 1.169 af

Total Runoff Area = 42.006 ac Runoff Volume = 1.460 af Average Runoff Depth = 0.42"
99.80% Pervious = 41.924 ac 0.20% Impervious = 0.082 ac

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Summary for Subcatchment ESC 1: Existing Subcatchment 1

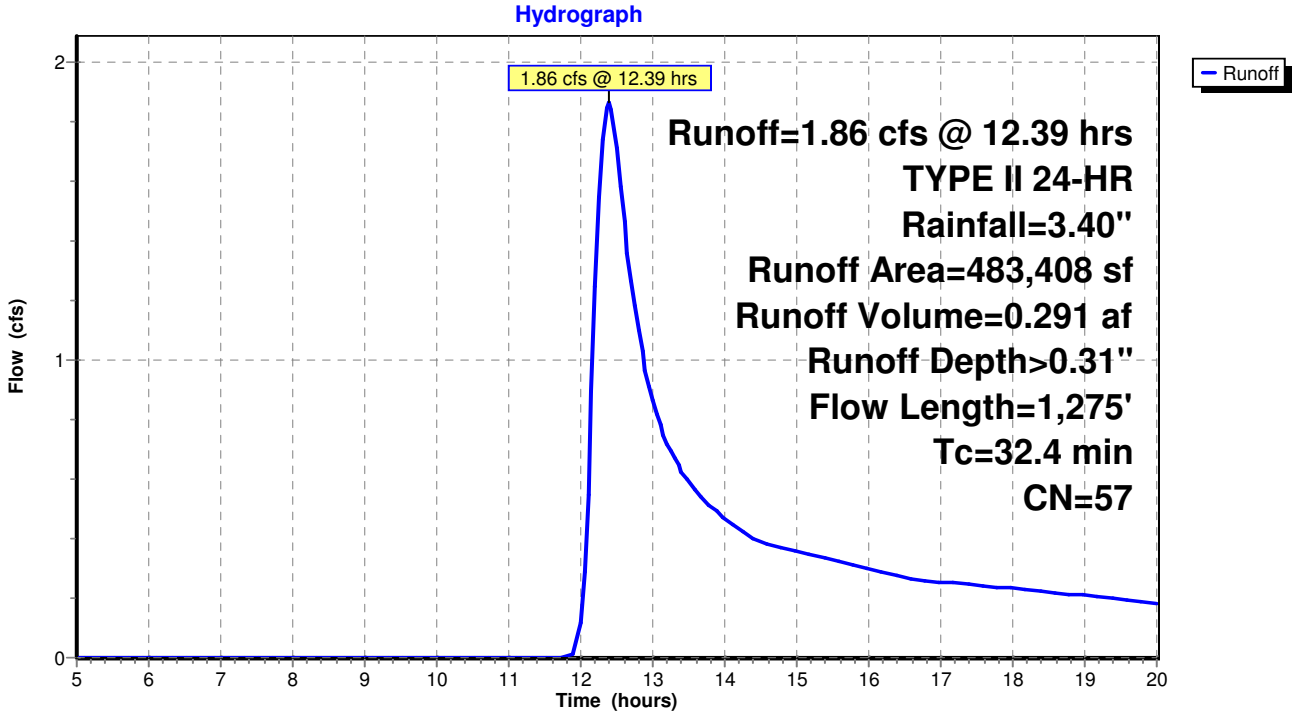
Runoff = 1.86 cfs @ 12.39 hrs, Volume= 0.291 af, Depth> 0.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=3.40"

Area (sf)	CN	Description
112,111	30	Brush, Good, HSG A
369,232	65	Brush, Good, HSG C
2,065	98	Paved parking & roofs
483,408	57	Weighted Average
481,343		99.57% Pervious Area
2,065		0.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.5	100	0.0100	0.08		**Sheet Flow, First 100' Flowpath** Grass: Dense n= 0.240 P2= 2.70"
11.9	1,175	0.0120	1.64		**Shallow Concentrated Flow, Balance of Flow to Channel** Grassed Waterway Kv= 15.0 fps
32.4	1,275	Total			

Subcatchment ESC 1: Existing Subcatchment 1



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Summary for Subcatchment ESC 2: Existing Subcatchment 2

Runoff = 7.70 cfs @ 12.26 hrs, Volume= 0.866 af, Depth> 0.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=3.40"

Area (sf)	CN	Description
141,720	30	Brush, Good, HSG A
55,371	48	Brush, Good, HSG B
889,202	65	Brush, Good, HSG C
1,505	98	Paved parking & roofs
1,087,798	60	Weighted Average
1,086,293		99.86% Pervious Area
1,505		0.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.4	100	0.0150	0.10		**Sheet Flow, First 100' Flowpath** Grass: Dense n= 0.240 P2= 2.70"
6.6	957	0.0260	2.42		**Shallow Concentrated Flow, Balance of Flow to Channel** Grassed Waterway Kv= 15.0 fps
1.6	600	0.0100	6.22	124.39	**Trap/Vee/Rect Channel Flow, Balance of Longest Flowpath** Bot.W=4.00' D=2.00' Z= 3.0 '/' Top.W=16.00' n= 0.027
25.6	1,657	Total			

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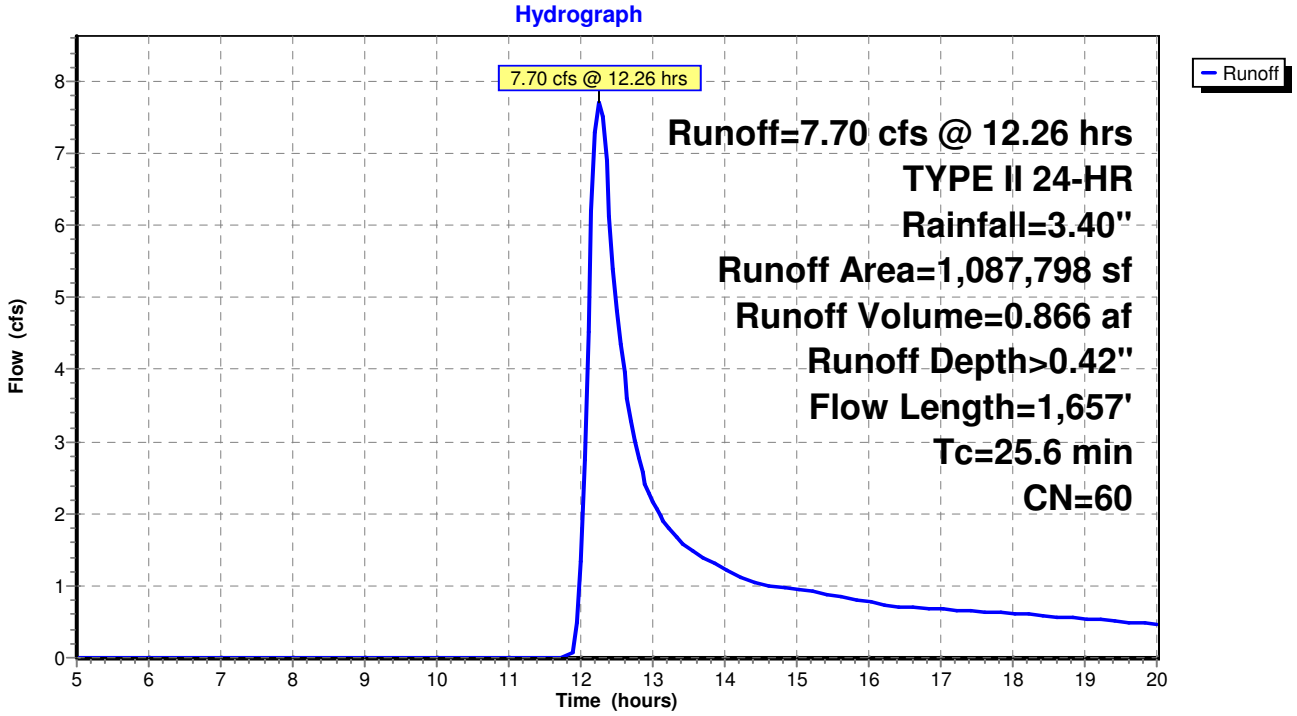
Subcatchment ESC 2: Existing Subcatchment 2



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Summary for Subcatchment UP 1: Upland Watershed 1

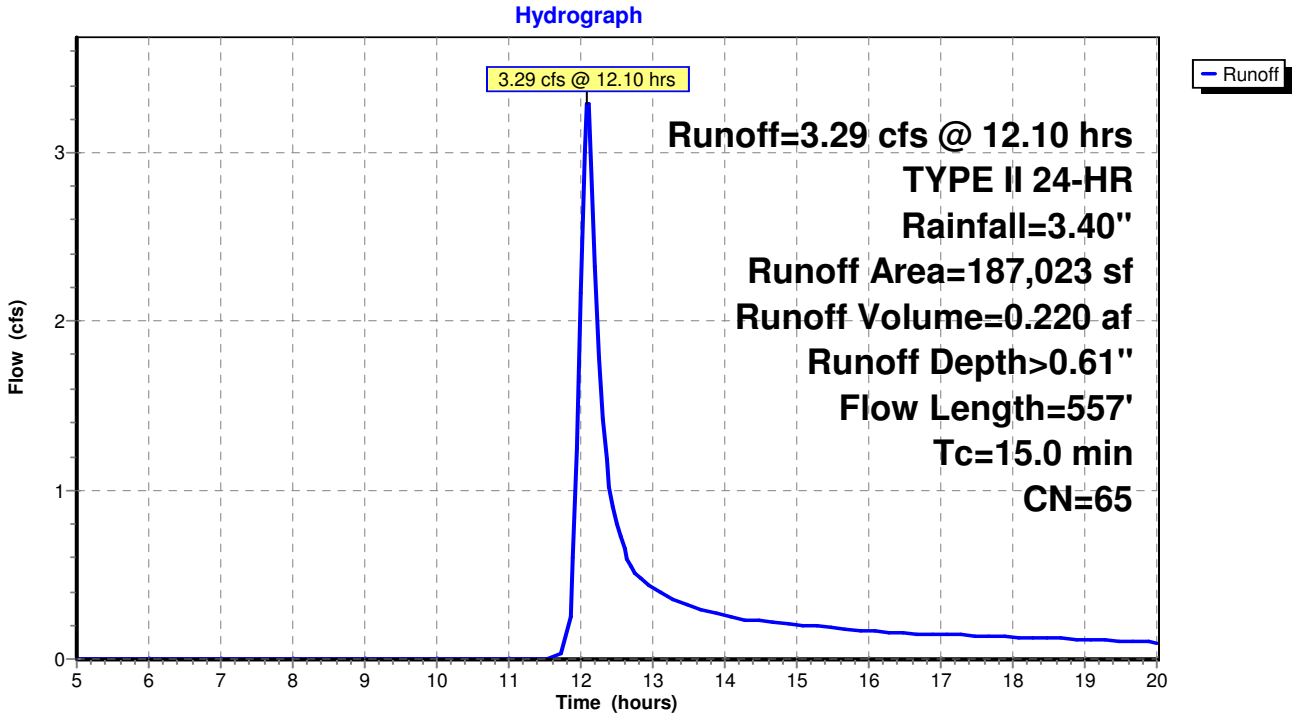
Runoff = 3.29 cfs @ 12.10 hrs, Volume= 0.220 af, Depth> 0.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=3.40"

Area (sf)	CN	Description
187,023	65	Brush, Good, HSG C
187,023		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	100	0.0360	0.14		**Sheet Flow, First 100' Flowpath** Grass: Dense n= 0.240 P2= 2.70"
2.7	457	0.0350	2.81		**Shallow Concentrated Flow, Balance of Longest Flowpath** Grassed Waterway Kv= 15.0 fps
15.0	557	Total			

Subcatchment UP 1: Upland Watershed 1



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Summary for Subcatchment UP 2: Upland Watershed 2

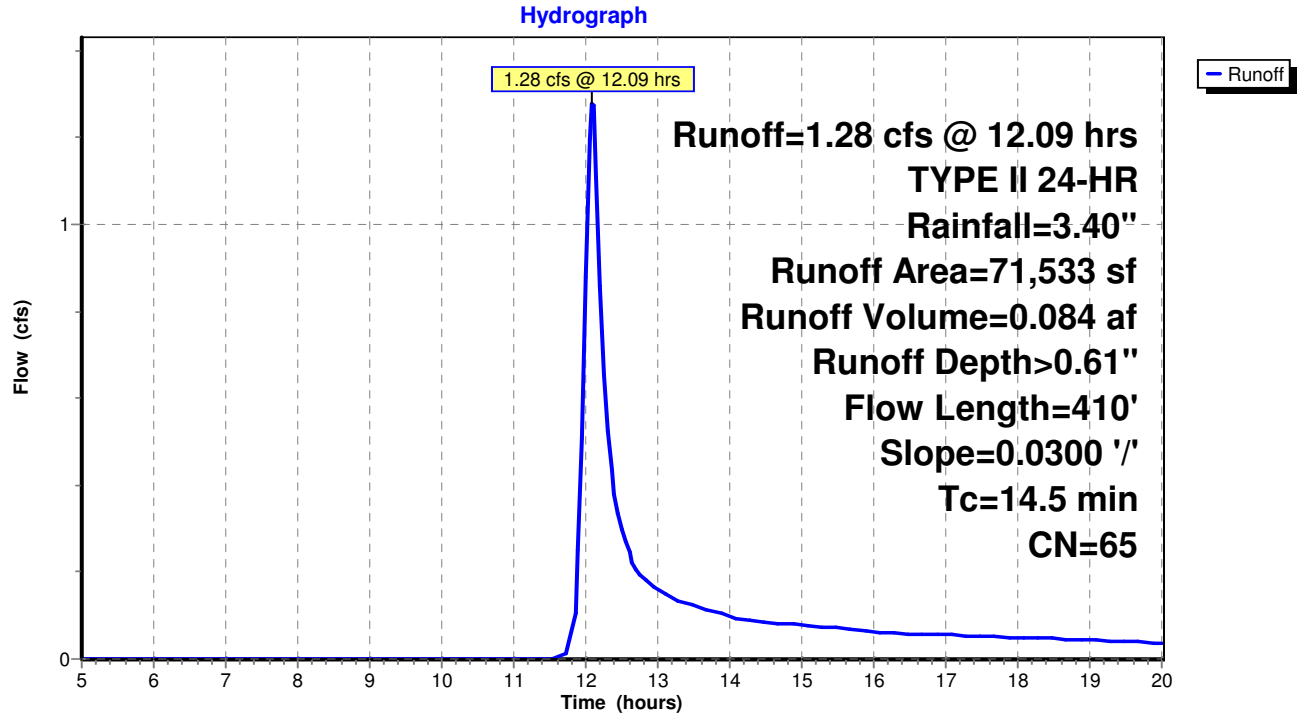
Runoff = 1.28 cfs @ 12.09 hrs, Volume= 0.084 af, Depth> 0.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=3.40"

Area (sf)	CN	Description
71,533	65	Brush, Good, HSG C
71,533		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.9	155	0.0300	0.20		**Sheet Flow, First 100' Flowpath** Grass: Short n= 0.150 P2= 2.70"
1.6	255	0.0300	2.60		**Shallow Concentrated Flow, Balance of Longest Flowpath** Grassed Waterway Kv= 15.0 fps
14.5	410	Total			

Subcatchment UP 2: Upland Watershed 2



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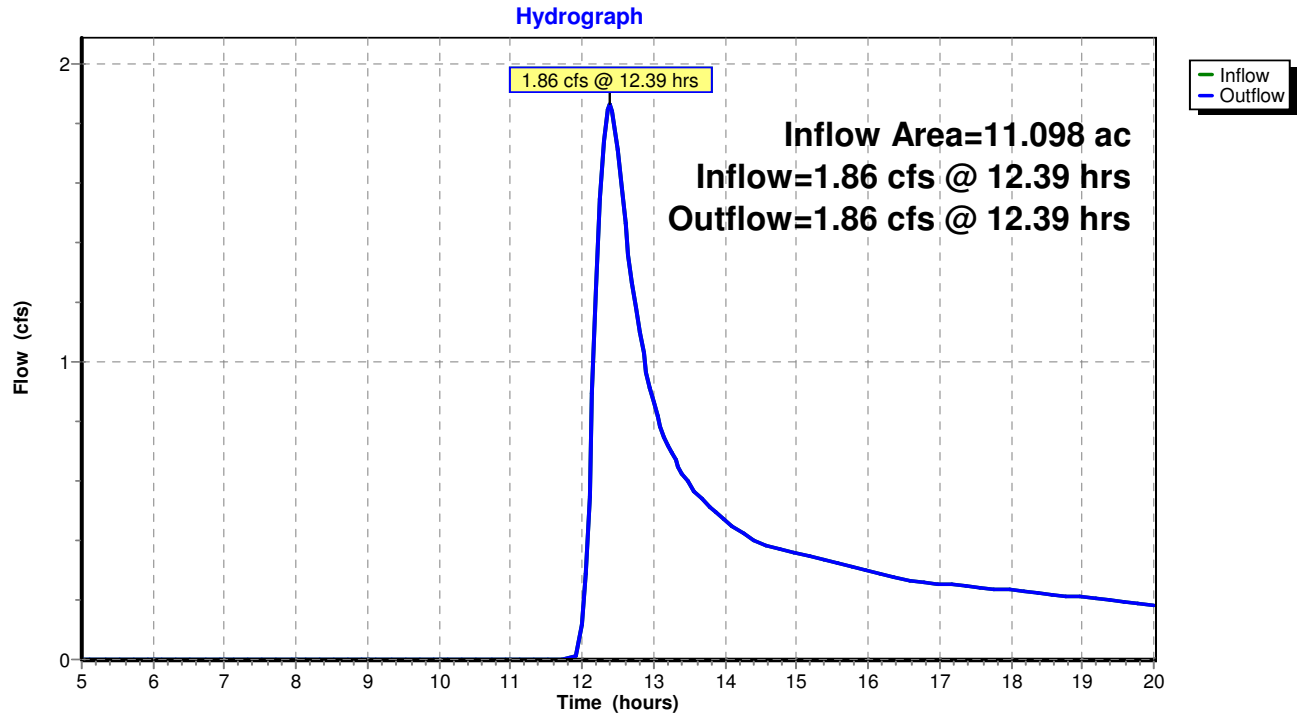
Summary for Reach DP 1: Design Point Summation 1

Inflow Area = 11.098 ac, 0.43% Impervious, Inflow Depth > 0.31"
Inflow = 1.86 cfs @ 12.39 hrs, Volume= 0.291 af
Outflow = 1.86 cfs @ 12.39 hrs, Volume= 0.291 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach DP 1: Design Point Summation 1



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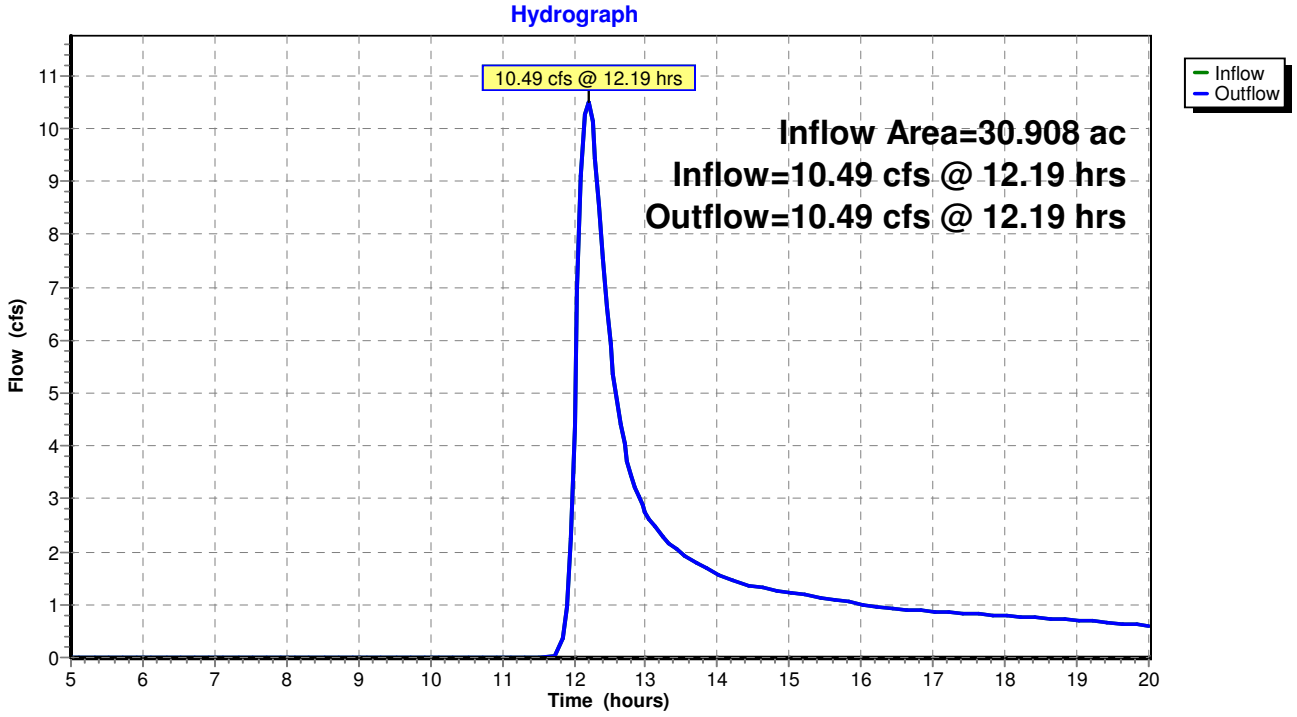
Summary for Reach DP 2: Design Point Summation 2

Inflow Area = 30.908 ac, 0.11% Impervious, Inflow Depth > 0.45"
Inflow = 10.49 cfs @ 12.19 hrs, Volume= 1.169 af
Outflow = 10.49 cfs @ 12.19 hrs, Volume= 1.169 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach DP 2: Design Point Summation 2



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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
5.827	30	Brush, Good, HSG A (ESC 1, ESC 2)
1.271	48	Brush, Good, HSG B (ESC 2)
34.825	65	Brush, Good, HSG C (ESC 1, ESC 2, UP 1, UP 2)
0.082	98	Paved parking & roofs (ESC 1, ESC 2)
42.006	**60**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
5.827	HSG A	ESC 1, ESC 2
1.271	HSG B	ESC 2
34.825	HSG C	ESC 1, ESC 2, UP 1, UP 2
0.000	HSG D	
0.082	Other	ESC 1, ESC 2
42.006		**TOTAL AREA**

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
5.827	1.271	34.825	0.000	0.000	41.924	Brush, Good	ESC 1, ESC 2, UP 1, UP 2
0.000	0.000	0.000	0.000	0.082	0.082	Paved parking & roofs	ESC 1, ESC 2
5.827	**1.271**	**34.825**	**0.000**	**0.082**	**42.006**	**TOTAL AREA**	

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Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment ESC 1: Existing Runoff Area=483,408 sf 0.43% Impervious Runoff Depth>1.40"
Flow Length=1,275' Tc=32.4 min CN=57 Runoff=12.78 cfs 1.294 af

Subcatchment ESC 2: Existing Runoff Area=1,087,798 sf 0.14% Impervious Runoff Depth>1.63"
Flow Length=1,657' Tc=25.6 min CN=60 Runoff=40.52 cfs 3.387 af

Subcatchment UP 1: Upland Watershed 1 Runoff Area=187,023 sf 0.00% Impervious Runoff Depth>2.03"
Flow Length=557' Tc=15.0 min CN=65 Runoff=12.13 cfs 0.727 af

Subcatchment UP 2: Upland Watershed 2 Runoff Area=71,533 sf 0.00% Impervious Runoff Depth>2.03"
Flow Length=410' Slope=0.0300 '/' Tc=14.5 min CN=65 Runoff=4.73 cfs 0.278 af

Reach DP 1: Design Point Summation 1 Inflow=12.78 cfs 1.294 af
Outflow=12.78 cfs 1.294 af

Reach DP 2: Design Point Summation 2 Inflow=52.19 cfs 4.392 af
Outflow=52.19 cfs 4.392 af

Total Runoff Area = 42.006 ac Runoff Volume = 5.685 af Average Runoff Depth = 1.62"
99.80% Pervious = 41.924 ac 0.20% Impervious = 0.082 ac

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Summary for Subcatchment ESC 1: Existing Subcatchment 1

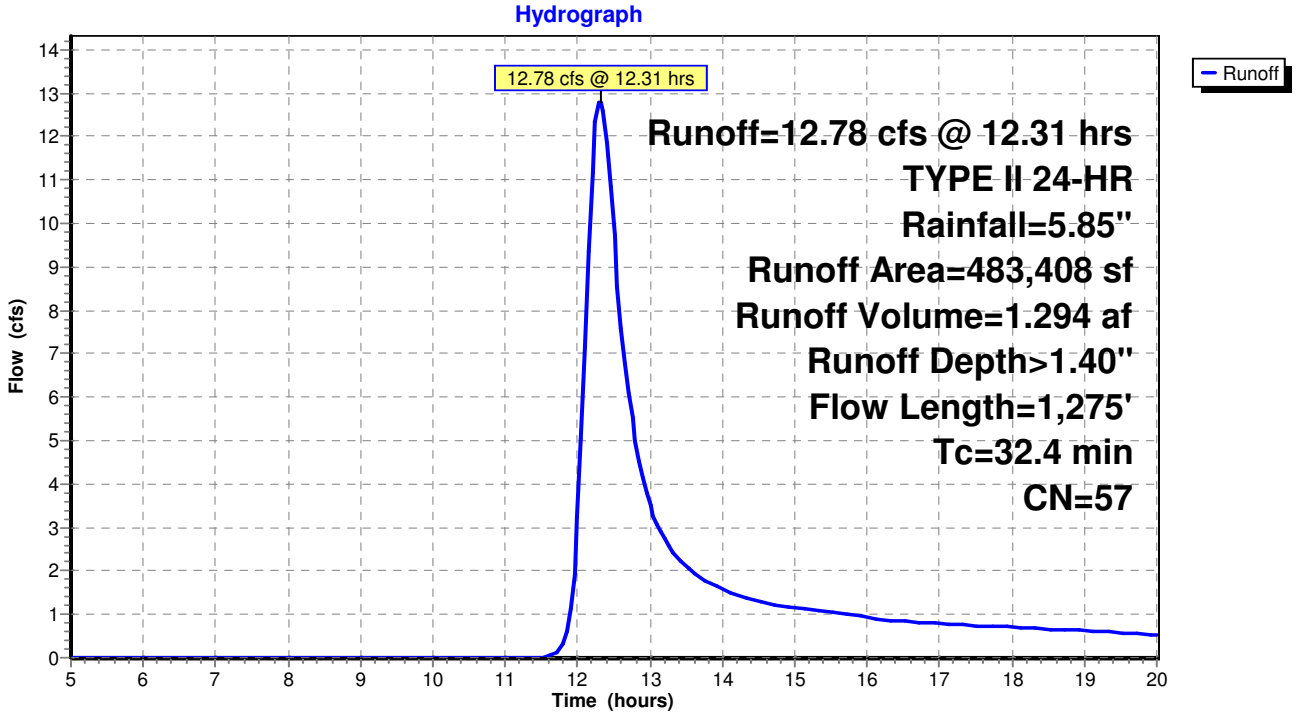
Runoff = 12.78 cfs @ 12.31 hrs, Volume= 1.294 af, Depth> 1.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=5.85"

Area (sf)	CN	Description
112,111	30	Brush, Good, HSG A
369,232	65	Brush, Good, HSG C
2,065	98	Paved parking & roofs
483,408	57	Weighted Average
481,343		99.57% Pervious Area
2,065		0.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.5	100	0.0100	0.08		**Sheet Flow, First 100' Flowpath** Grass: Dense n= 0.240 P2= 2.70"
11.9	1,175	0.0120	1.64		**Shallow Concentrated Flow, Balance of Flow to Channel** Grassed Waterway Kv= 15.0 fps
32.4	1,275	Total			

Subcatchment ESC 1: Existing Subcatchment 1



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Summary for Subcatchment ESC 2: Existing Subcatchment 2

Runoff = 40.52 cfs @ 12.21 hrs, Volume= 3.387 af, Depth> 1.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=5.85"

Area (sf)	CN	Description
141,720	30	Brush, Good, HSG A
55,371	48	Brush, Good, HSG B
889,202	65	Brush, Good, HSG C
1,505	98	Paved parking & roofs
1,087,798	60	Weighted Average
1,086,293		99.86% Pervious Area
1,505		0.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.4	100	0.0150	0.10		**Sheet Flow, First 100' Flowpath** Grass: Dense n= 0.240 P2= 2.70"
6.6	957	0.0260	2.42		**Shallow Concentrated Flow, Balance of Flow to Channel** Grassed Waterway Kv= 15.0 fps
1.6	600	0.0100	6.22	124.39	**Trap/Vee/Rect Channel Flow, Balance of Longest Flowpath** Bot.W=4.00' D=2.00' Z= 3.0 '/' Top.W=16.00' n= 0.027
25.6	1,657	Total			

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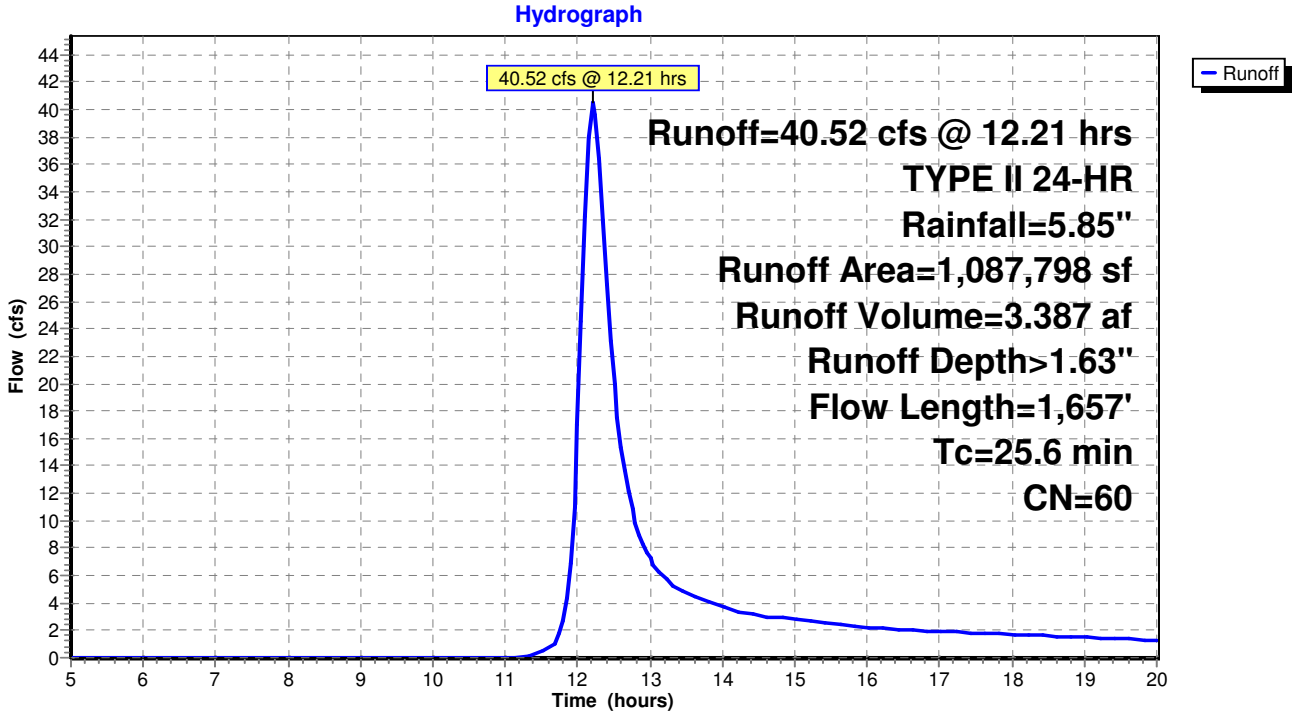
Subcatchment ESC 2: Existing Subcatchment 2



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Summary for Subcatchment UP 1: Upland Watershed 1

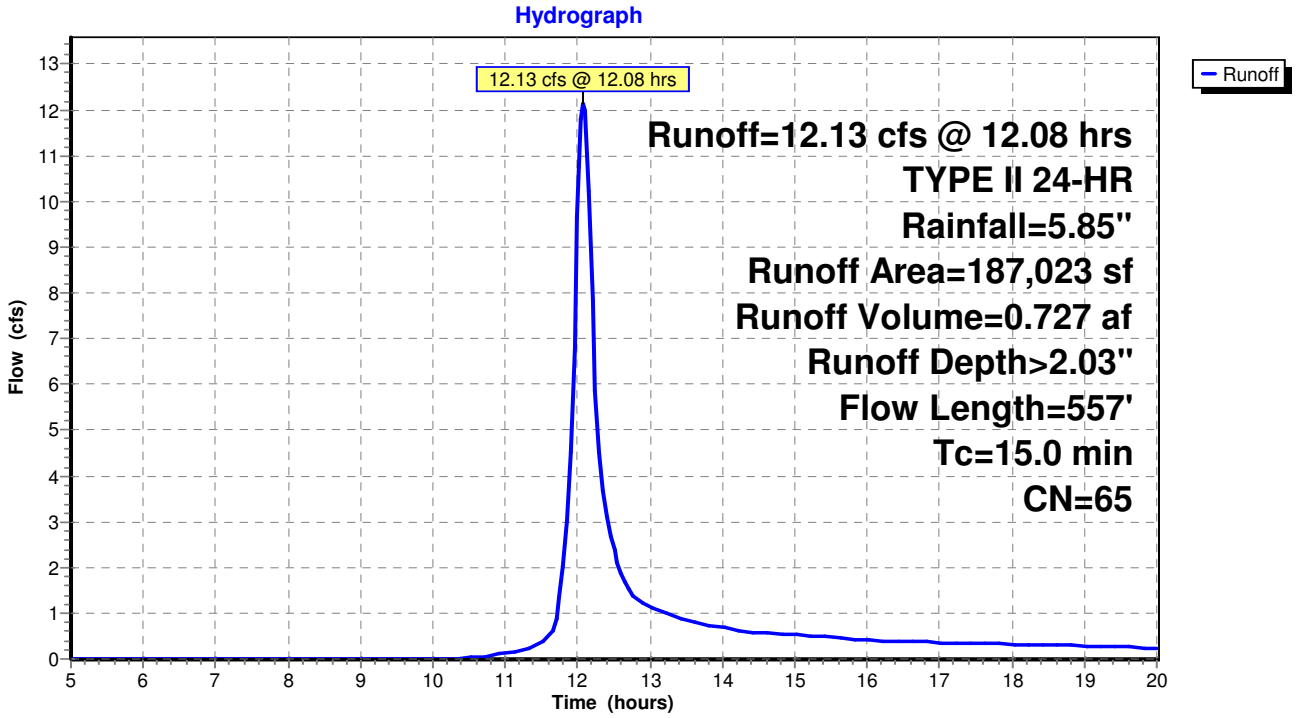
Runoff = 12.13 cfs @ 12.08 hrs, Volume= 0.727 af, Depth> 2.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=5.85"

Area (sf)	CN	Description
187,023	65	Brush, Good, HSG C
187,023		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	100	0.0360	0.14		**Sheet Flow, First 100' Flowpath** Grass: Dense n= 0.240 P2= 2.70"
2.7	457	0.0350	2.81		**Shallow Concentrated Flow, Balance of Longest Flowpath** Grassed Waterway Kv= 15.0 fps
15.0	557	Total			

Subcatchment UP 1: Upland Watershed 1



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Summary for Subcatchment UP 2: Upland Watershed 2

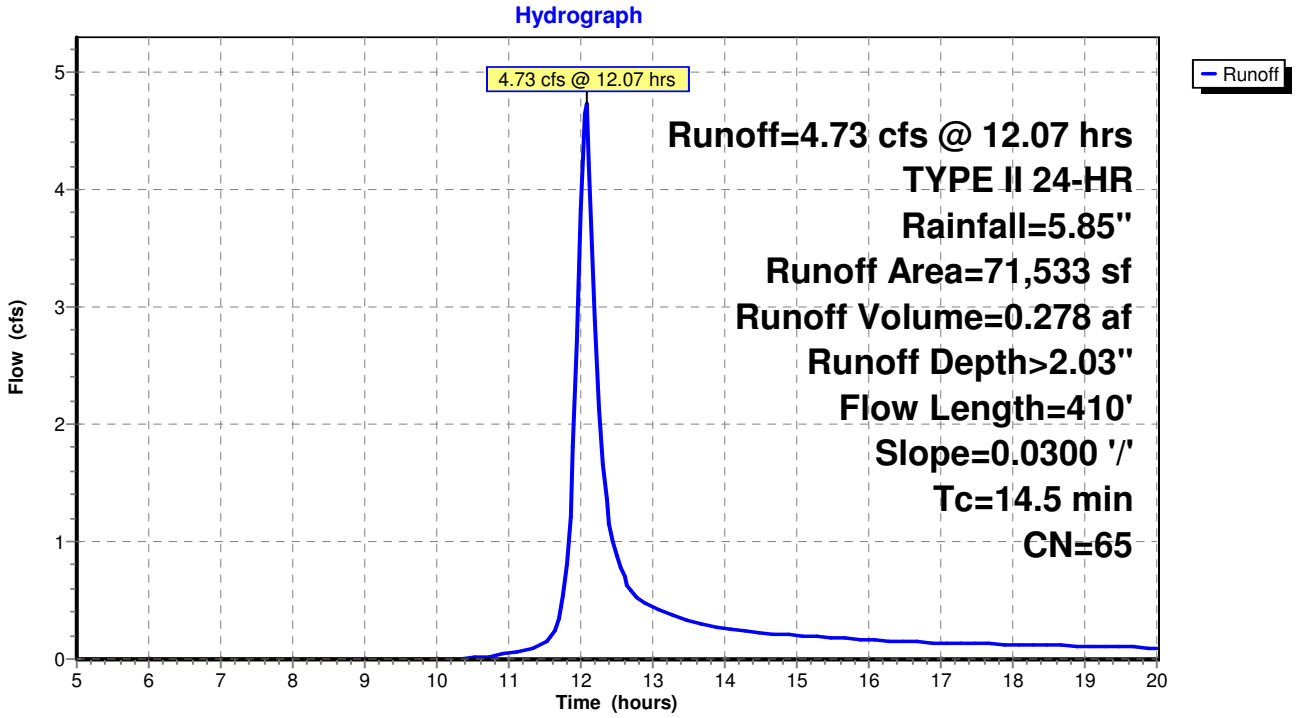
Runoff = 4.73 cfs @ 12.07 hrs, Volume= 0.278 af, Depth> 2.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=5.85"

Area (sf)	CN	Description
71,533	65	Brush, Good, HSG C
71,533		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.9	155	0.0300	0.20		**Sheet Flow, First 100' Flowpath** Grass: Short n= 0.150 P2= 2.70"
1.6	255	0.0300	2.60		**Shallow Concentrated Flow, Balance of Longest Flowpath** Grassed Waterway Kv= 15.0 fps
14.5	410	Total			

Subcatchment UP 2: Upland Watershed 2



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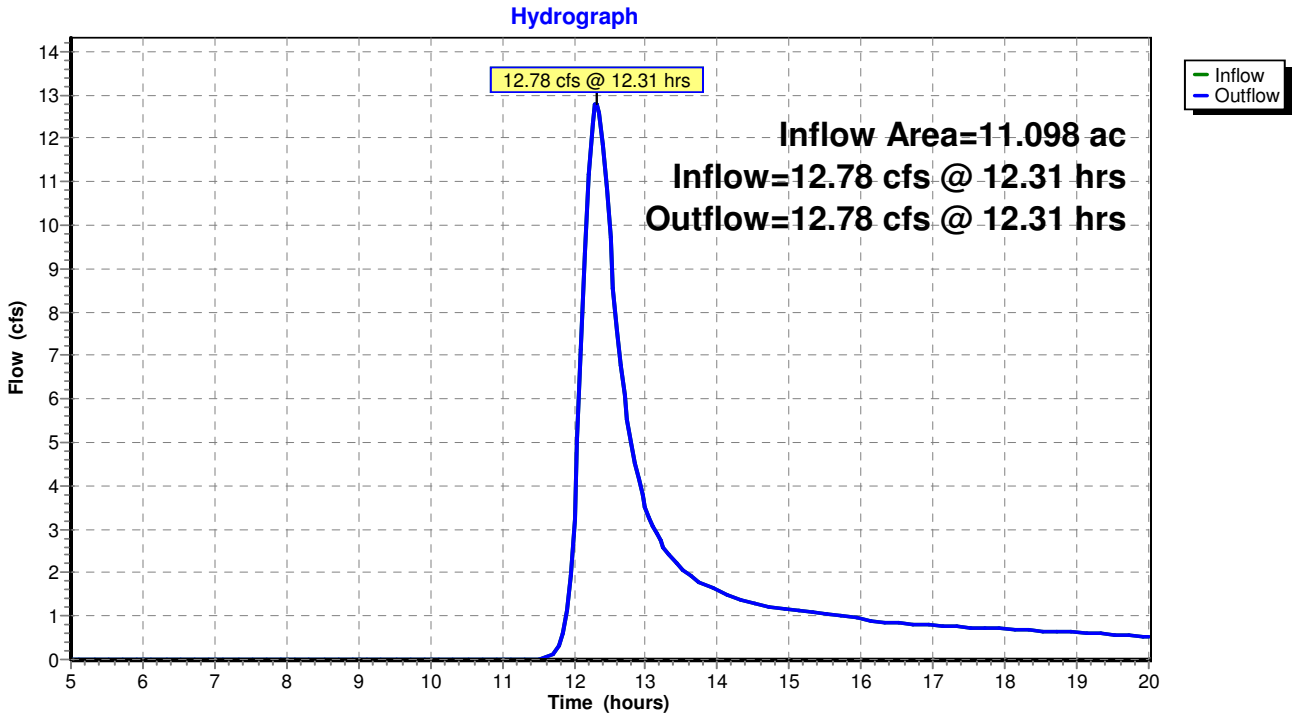
Summary for Reach DP 1: Design Point Summation 1

Inflow Area = 11.098 ac, 0.43% Impervious, Inflow Depth > 1.40"
Inflow = 12.78 cfs @ 12.31 hrs, Volume= 1.294 af
Outflow = 12.78 cfs @ 12.31 hrs, Volume= 1.294 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach DP 1: Design Point Summation 1



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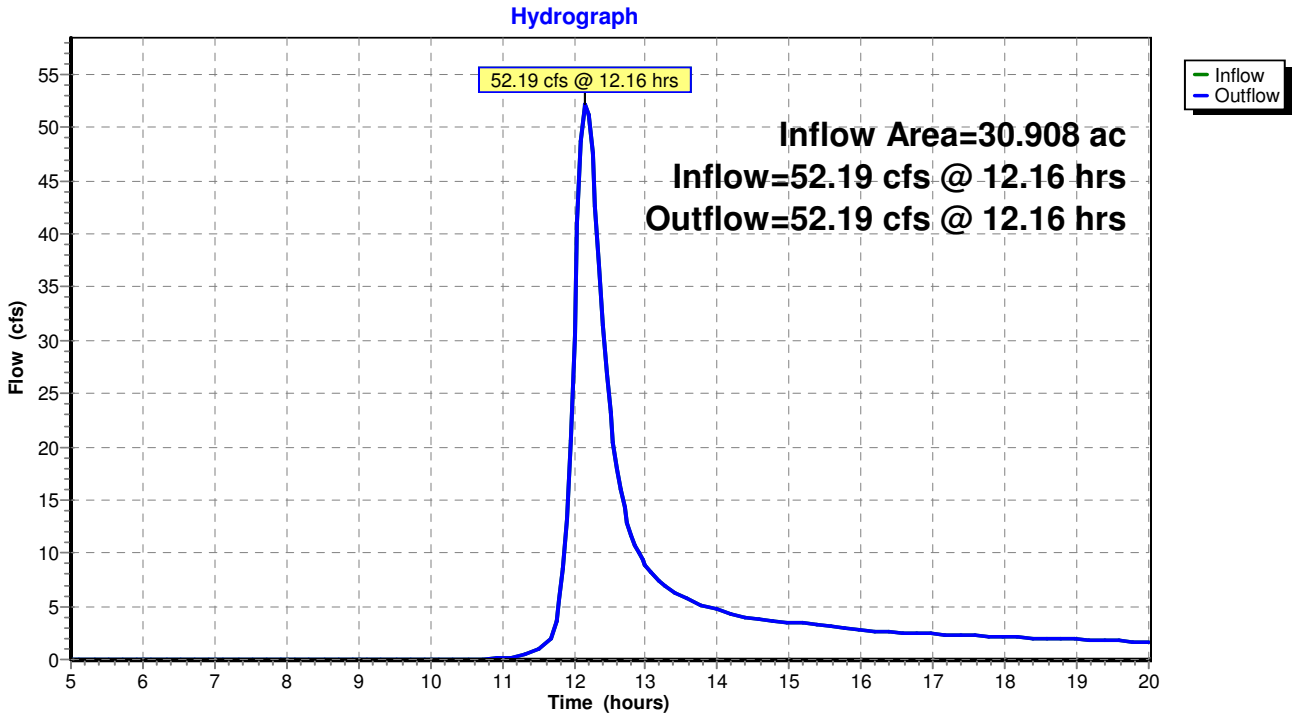
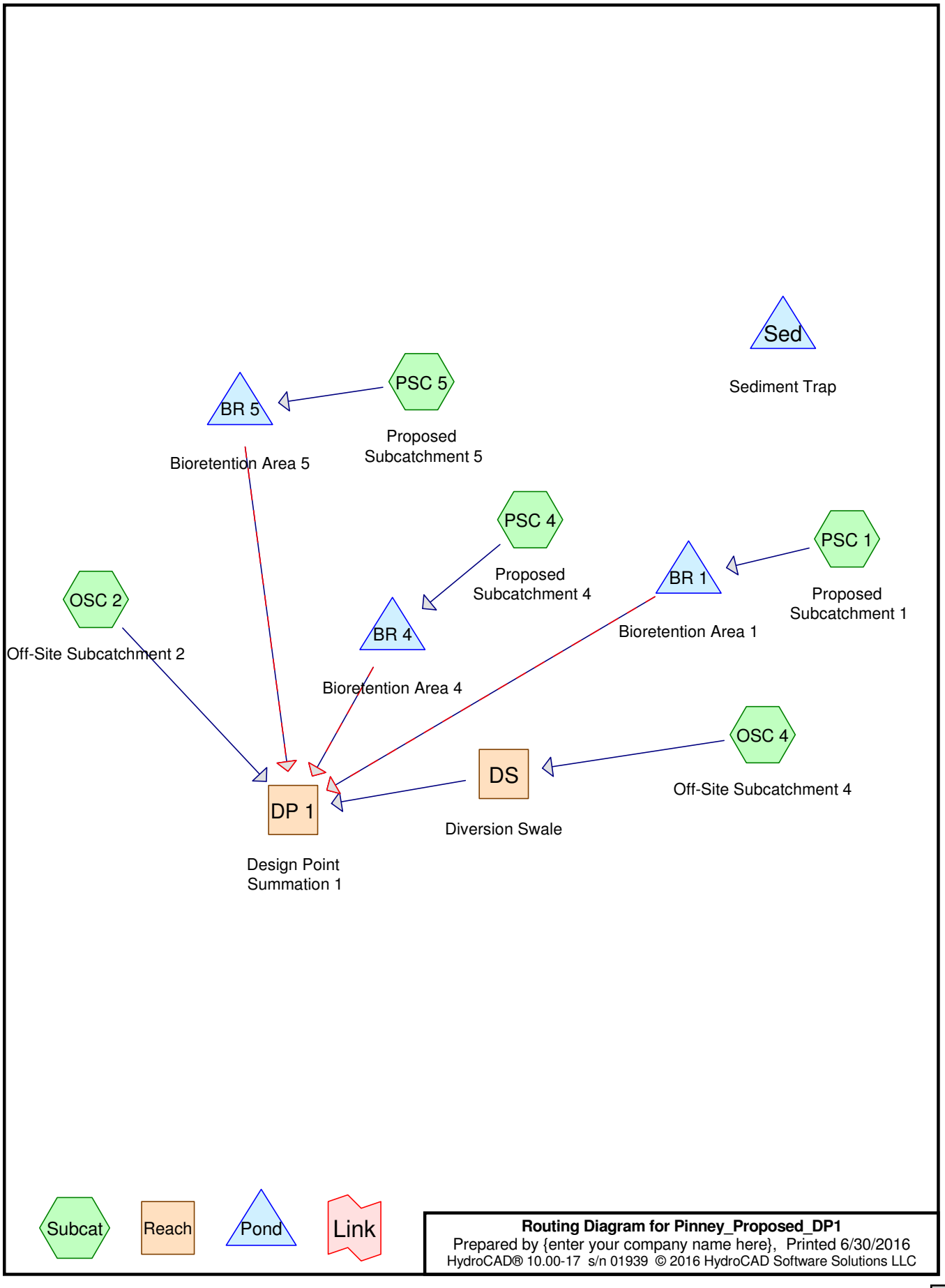
Summary for Reach DP 2: Design Point Summation 2

Inflow Area = 30.908 ac, 0.11% Impervious, Inflow Depth > 1.71"
Inflow = 52.19 cfs @ 12.16 hrs, Volume= 4.392 af
Outflow = 52.19 cfs @ 12.16 hrs, Volume= 4.392 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach DP 2: Design Point Summation 2





Routing Diagram for Pinney_Proposed_DP1
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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.856	74	>75% Grass cover, Good, HSG C (PSC 1, PSC 4, PSC 5)
2.633	30	Brush, Good, HSG A (OSC 4)
7.201	65	Brush, Good, HSG C (OSC 2, OSC 4, PSC 1)
0.364	98	Paved parking & roofs (PSC 1, PSC 4, PSC 5)
0.047	98	Unconnected roofs, HSG A (OSC 4)
11.101	**59**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
2.681	HSG A	OSC 4
0.000	HSG B	
8.056	HSG C	OSC 2, OSC 4, PSC 1, PSC 4, PSC 5
0.000	HSG D	
0.364	Other	PSC 1, PSC 4, PSC 5
11.101		**TOTAL AREA**

Pinney_Proposed_DP1

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.856	0.000	0.000	0.856	>75% Grass cover, Good	PSC 1, PSC 4, PSC 5
2.633	0.000	7.201	0.000	0.000	9.834	Brush, Good	OSC 2, OSC 4, PSC 1
0.000	0.000	0.000	0.000	0.364	0.364	Paved parking & roofs	PSC 1, PSC 4, PSC 5
0.047	0.000	0.000	0.000	0.000	0.047	Unconnected roofs	OSC 4
2.681	**0.000**	**8.056**	**0.000**	**0.364**	**11.101**	**TOTAL AREA**	

Pinney_Proposed_DP1

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	BR 1	1.00	0.50	197.0	0.0025	0.013	4.0	0.0	0.0
2	BR 4	2.75	2.50	157.0	0.0016	0.013	4.0	0.0	0.0
3	BR 5	1.00	0.50	219.0	0.0023	0.013	4.0	0.0	0.0

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment OSC 2: Off-Site Runoff Area=14,274 sf 0.00% Impervious Runoff Depth>0.11"
Flow Length=220' Tc=10.4 min CN=65 Runoff=0.02 cfs 0.003 af

Subcatchment OSC 4: Off-Site Runoff Area=403,901 sf 0.51% Impervious Runoff Depth>0.01"
Flow Length=1,275' Tc=32.4 min CN=55 Runoff=0.02 cfs 0.006 af

Subcatchment PSC 1: Proposed Runoff Area=37,170 sf 16.23% Impervious Runoff Depth>0.33"
Flow Length=327' Tc=10.3 min CN=75 Runoff=0.42 cfs 0.024 af

Subcatchment PSC 4: Proposed Runoff Area=17,938 sf 29.06% Impervious Runoff Depth>0.54"
Flow Length=327' Tc=10.3 min CN=81 Runoff=0.36 cfs 0.019 af

Subcatchment PSC 5: Proposed Runoff Area=10,292 sf 44.84% Impervious Runoff Depth>0.73"
Flow Length=83' Tc=2.8 min CN=85 Runoff=0.37 cfs 0.014 af

Reach DP 1: Design Point Summation 1 Inflow=0.07 cfs 0.031 af
Outflow=0.07 cfs 0.031 af

Reach DS: Diversion Swale Avg. Flow Depth=0.04' Max Vel=0.36 fps Inflow=0.02 cfs 0.006 af
n=0.030 L=318.0' S=0.0063 '/' Capacity=15.57 cfs Outflow=0.02 cfs 0.005 af

Pond BR 1: Bioretention Area 1 Peak Elev=1.21' Storage=494 cf Inflow=0.42 cfs 0.024 af
Primary=0.04 cfs 0.013 af Secondary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.013 af

Pond BR 4: Bioretention Area 4 Peak Elev=2.86' Storage=688 cf Inflow=0.36 cfs 0.019 af
Primary=0.01 cfs 0.003 af Secondary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.003 af

Pond BR 5: Bioretention Area 5 Peak Elev=1.17' Storage=348 cf Inflow=0.37 cfs 0.014 af
Primary=0.03 cfs 0.007 af Secondary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.007 af

Pond Sed: Sediment Trap Peak Elev=0.00' Storage=0 cf
Primary=0.00 cfs 0.000 af

Total Runoff Area = 11.101 ac Runoff Volume = 0.066 af Average Runoff Depth = 0.07"
96.29% Pervious = 10.690 ac 3.71% Impervious = 0.411 ac

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Summary for Subcatchment OSC 2: Off-Site Subcatchment 2

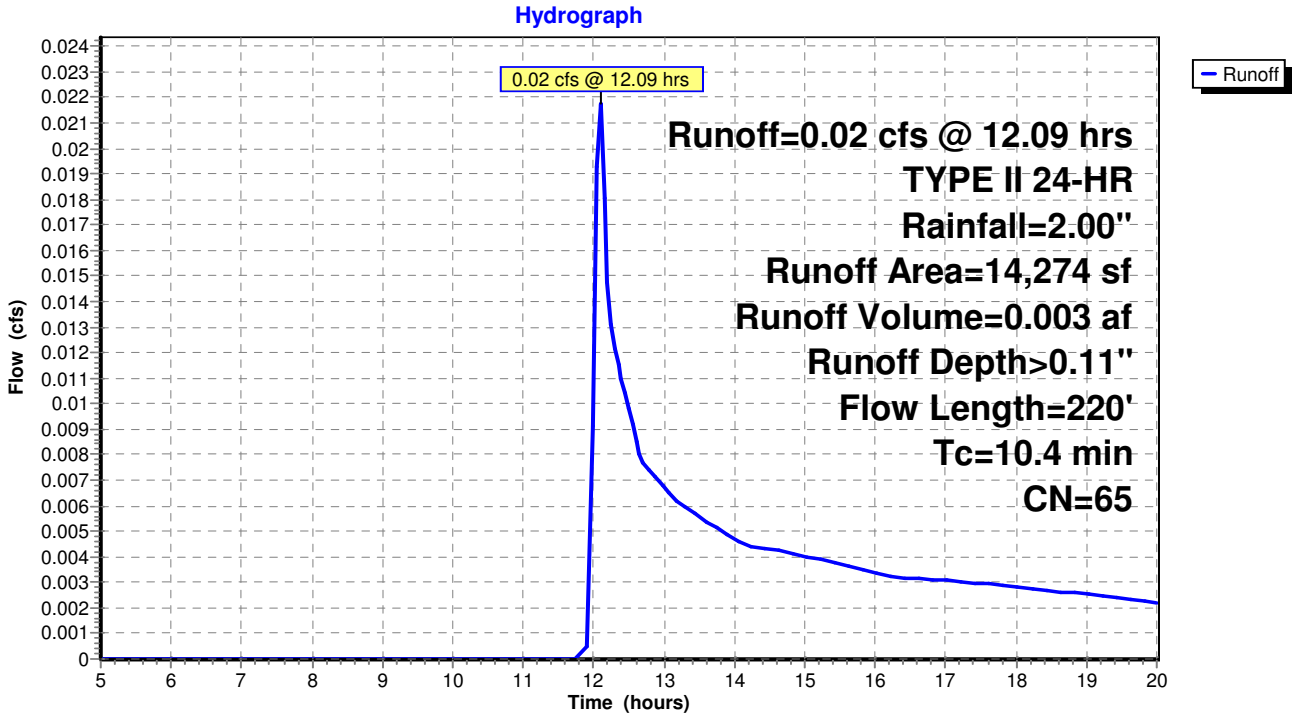
Runoff = 0.02 cfs @ 12.09 hrs, Volume= 0.003 af, Depth> 0.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=2.00"

Area (sf)	CN	Description
14,274	65	Brush, Good, HSG C
14,274		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	100	0.0350	0.20		**Sheet Flow, First 100' Flowpath** Grass: Short n= 0.150 P2= 2.70"
1.9	120	0.0050	1.06		**Shallow Concentrated Flow, Balance of Flow to Channel** Grassed Waterway Kv= 15.0 fps
10.4	220	Total			

Subcatchment OSC 2: Off-Site Subcatchment 2



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Summary for Subcatchment OSC 4: Off-Site Subcatchment 4

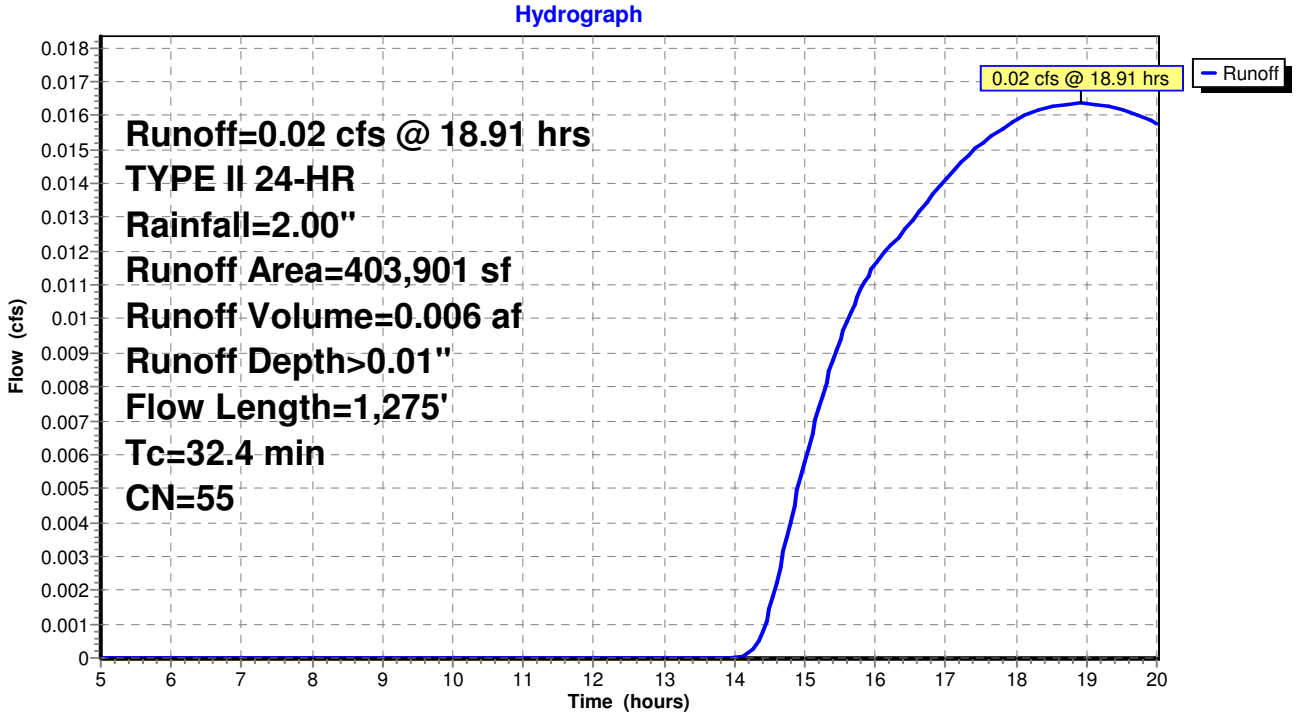
Runoff = 0.02 cfs @ 18.91 hrs, Volume= 0.006 af, Depth> 0.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=2.00"

Area (sf)	CN	Description
114,714	30	Brush, Good, HSG A
287,122	65	Brush, Good, HSG C
2,065	98	Unconnected roofs, HSG A
403,901	55	Weighted Average
401,836		99.49% Pervious Area
2,065		0.51% Impervious Area
2,065		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.5	100	0.0100	0.08		**Sheet Flow, First 100' Flowpath** Grass: Dense n= 0.240 P2= 2.70"
11.9	1,175	0.0120	1.64		**Shallow Concentrated Flow, Balance of Flow** Grassed Waterway Kv= 15.0 fps
32.4	1,275	Total			

Subcatchment OSC 4: Off-Site Subcatchment 4



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Summary for Subcatchment PSC 1: Proposed Subcatchment 1

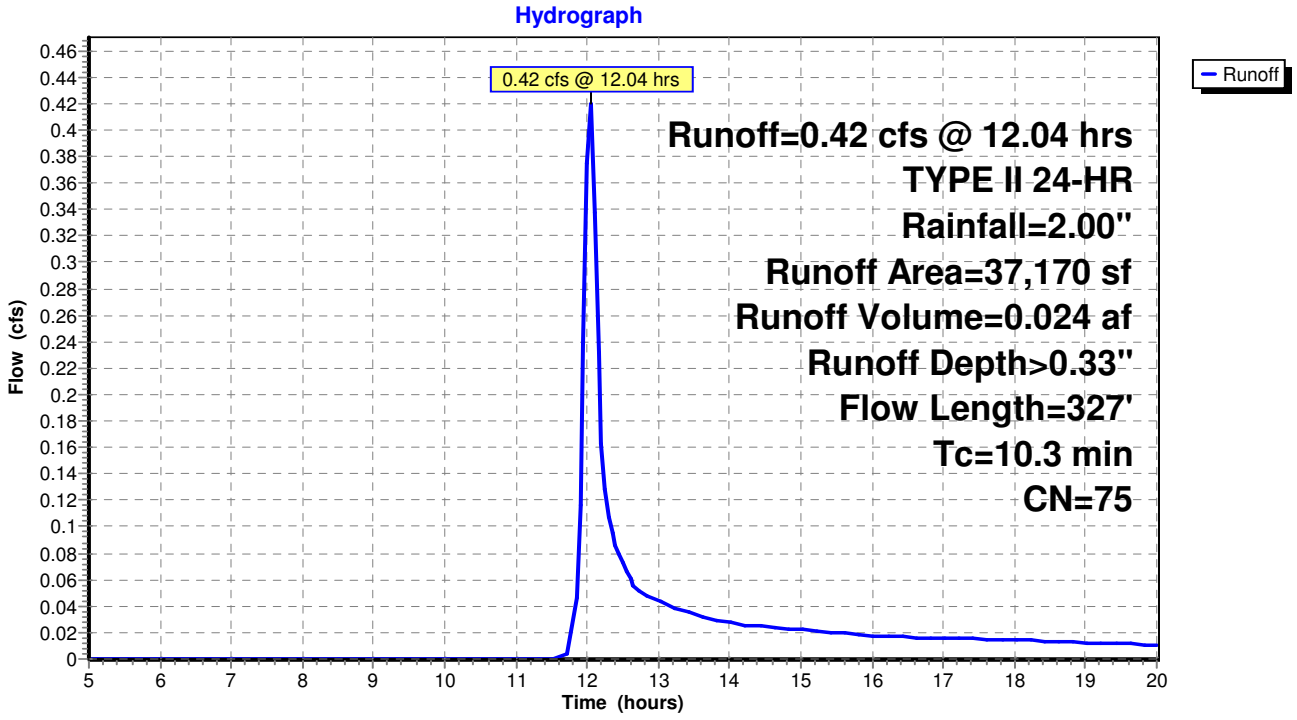
Runoff = 0.42 cfs @ 12.04 hrs, Volume= 0.024 af, Depth> 0.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=2.00"

Area (sf)	CN	Description
6,031	98	Paved parking & roofs
18,864	74	>75% Grass cover, Good, HSG C
12,275	65	Brush, Good, HSG C
37,170	75	Weighted Average
31,139		83.77% Pervious Area
6,031		16.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	100	0.0300	0.18		**Sheet Flow, First 100' Flowpath** Grass: Short n= 0.150 P2= 2.70"
0.7	70	0.0140	1.77		**Shallow Concentrated Flow, Balance of Flow to Channel** Grassed Waterway Kv= 15.0 fps
0.5	157	0.0190	5.40	27.00	**Trap/Vee/Rect Channel Flow, Balance of Longest Flowpath** Bot.W=2.00' D=1.00' Z= 3.0 '/' Top.W=8.00' n= 0.027
10.3	327	Total			

Subcatchment PSC 1: Proposed Subcatchment 1



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Summary for Subcatchment PSC 4: Proposed Subcatchment 4

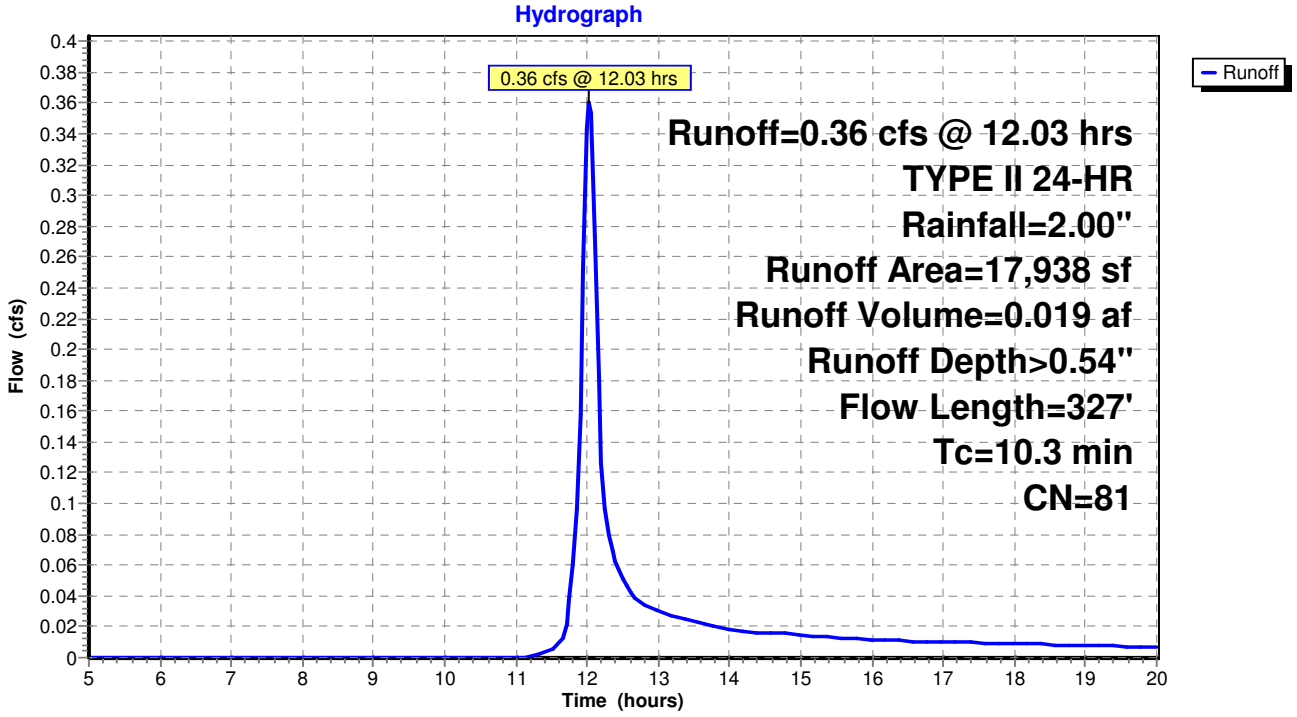
Runoff = 0.36 cfs @ 12.03 hrs, Volume= 0.019 af, Depth> 0.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=2.00"

Area (sf)	CN	Description
5,212	98	Paved parking & roofs
12,726	74	>75% Grass cover, Good, HSG C
17,938	81	Weighted Average
12,726		70.94% Pervious Area
5,212		29.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	100	0.0300	0.18		**Sheet Flow, First 100' Flowpath** Grass: Short n= 0.150 P2= 2.70"
0.7	70	0.0140	1.77		**Shallow Concentrated Flow, Balance of Flow to Channel** Grassed Waterway Kv= 15.0 fps
0.5	157	0.0190	5.40	27.00	**Trap/Vee/Rect Channel Flow, Balance of Longest Flowpath** Bot.W=2.00' D=1.00' Z= 3.0 '/' Top.W=8.00' n= 0.027
10.3	327	Total			

Subcatchment PSC 4: Proposed Subcatchment 4



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Summary for Subcatchment PSC 5: Proposed Subcatchment 5

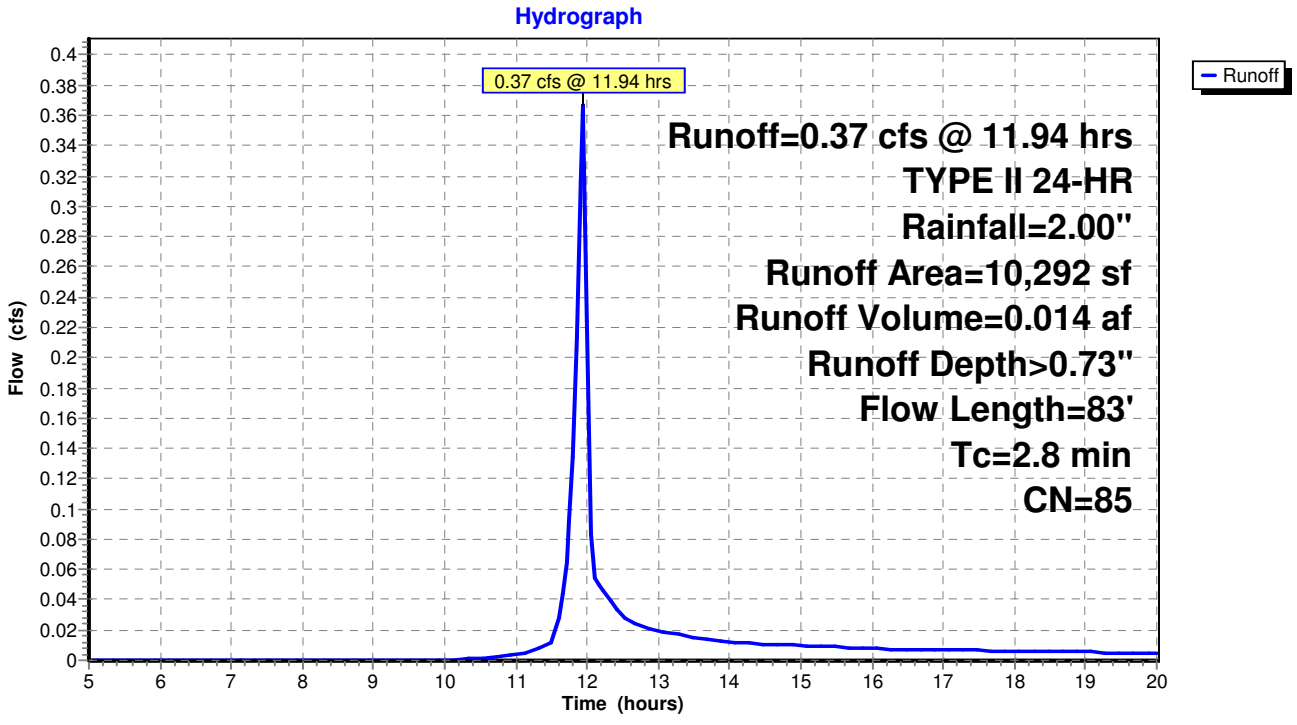
Runoff = 0.37 cfs @ 11.94 hrs, Volume= 0.014 af, Depth> 0.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=2.00"

Area (sf)	CN	Description
4,615	98	Paved parking & roofs
5,677	74	>75% Grass cover, Good, HSG C
10,292	85	Weighted Average
5,677		55.16% Pervious Area
4,615		44.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	23	0.0860	0.21		**Sheet Flow, First 100' Flowpath** Grass: Short n= 0.150 P2= 2.70"
1.0	60	0.0140	0.99		**Sheet Flow, First 100' Flowpath** Smooth surfaces n= 0.011 P2= 2.70"
2.8	83	Total			

Subcatchment PSC 5: Proposed Subcatchment 5



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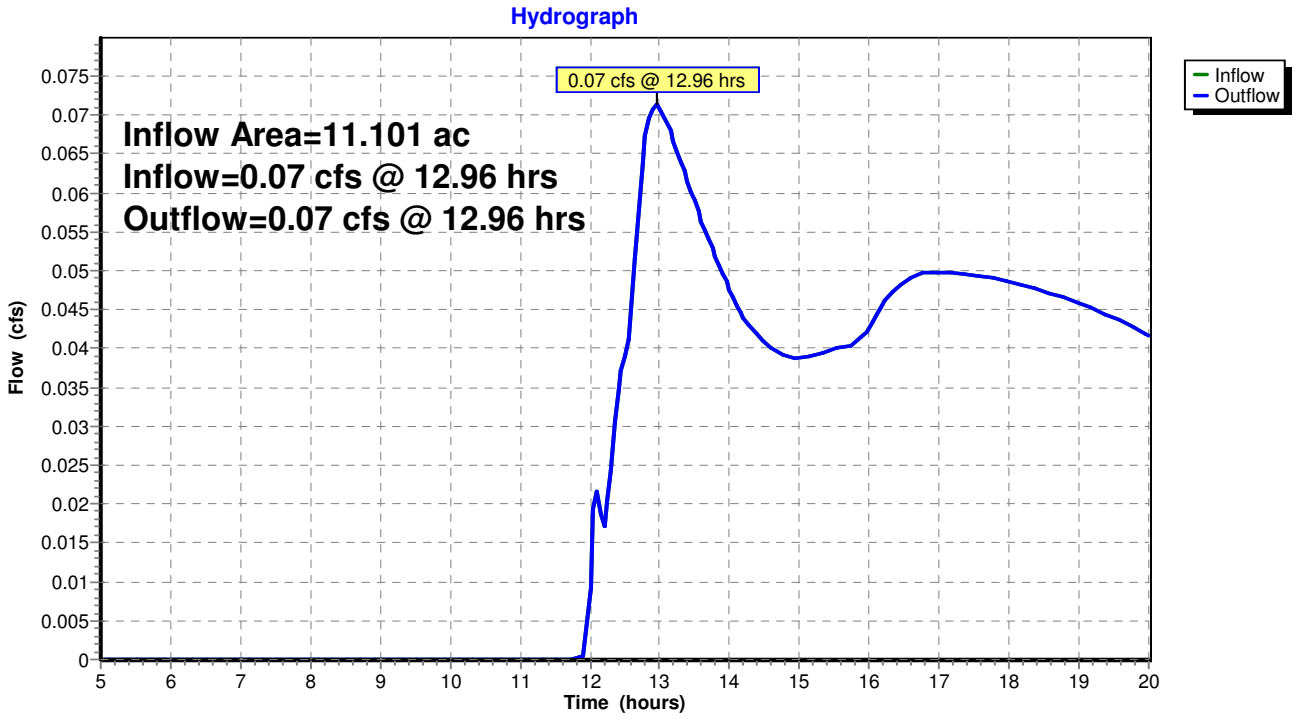
Summary for Reach DP 1: Design Point Summation 1

Inflow Area = 11.101 ac, 3.71% Impervious, Inflow Depth > 0.03"
Inflow = 0.07 cfs @ 12.96 hrs, Volume= 0.031 af
Outflow = 0.07 cfs @ 12.96 hrs, Volume= 0.031 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach DP 1: Design Point Summation 1



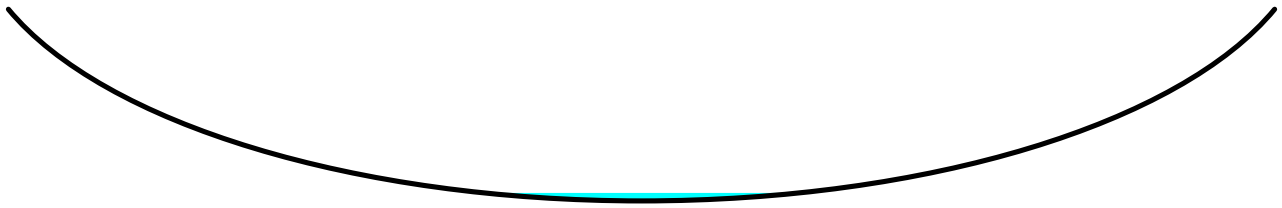
Summary for Reach DS: Diversion Swale

Inflow Area = 9.272 ac, 0.51% Impervious, Inflow Depth > 0.01"
Inflow = 0.02 cfs @ 18.91 hrs, Volume= 0.006 af
Outflow = 0.02 cfs @ 19.34 hrs, Volume= 0.005 af, Atten= 0%, Lag= 26.1 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.36 fps, Min. Travel Time= 14.7 min
Avg. Velocity = 0.31 fps, Avg. Travel Time= 16.9 min

Peak Storage= 14 cf @ 19.10 hrs
Average Depth at Peak Storage= 0.04'
Bank-Full Depth= 1.00' Flow Area= 5.3 sf, Capacity= 15.57 cfs

8.00' x 1.00' deep Parabolic Channel, n= 0.030
Length= 318.0' Slope= 0.0063 '/'
Inlet Invert= 0.00', Outlet Invert= -2.00'



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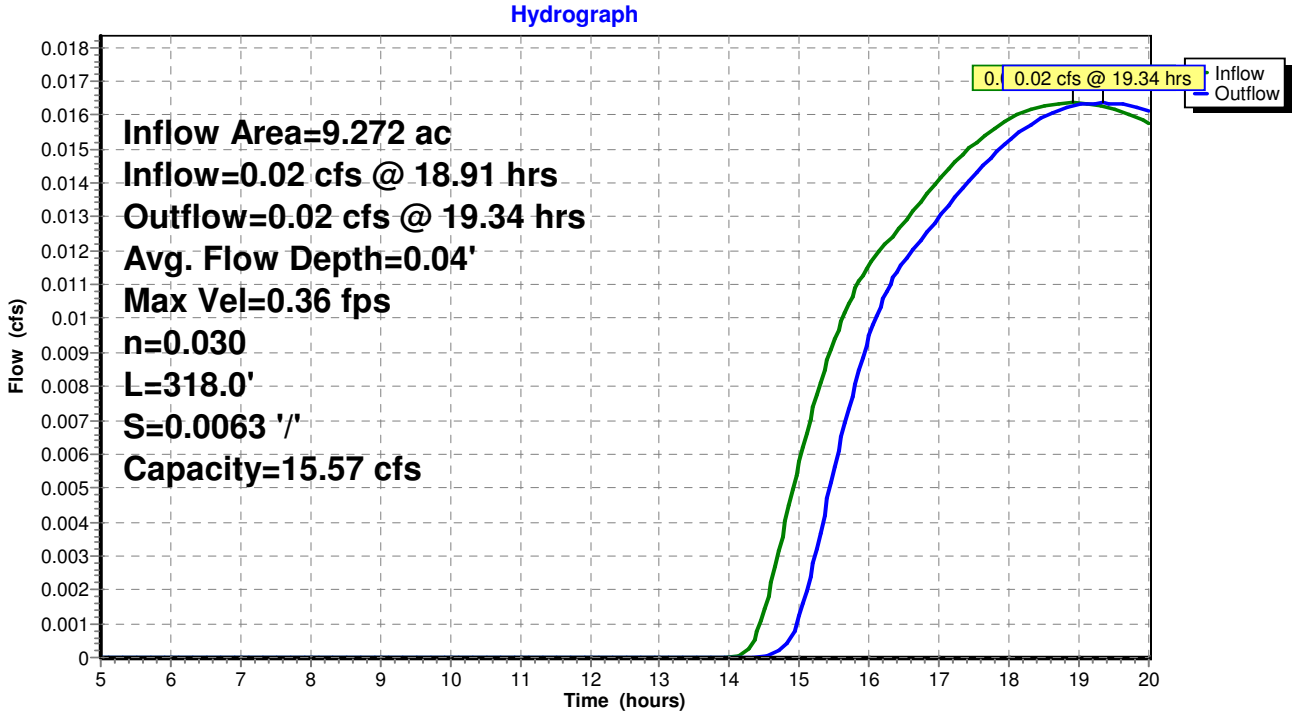
Reach DS: Diversion Swale



Summary for Pond BR 1: Bioretention Area 1

Inflow Area = 0.853 ac, 16.23% Impervious, Inflow Depth > 0.33"
Inflow = 0.42 cfs @ 12.04 hrs, Volume= 0.024 af
Outflow = 0.04 cfs @ 13.03 hrs, Volume= 0.013 af, Atten= 90%, Lag= 59.3 min
Primary = 0.04 cfs @ 13.03 hrs, Volume= 0.013 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1.21' @ 13.03 hrs Surf.Area= 219 sf Storage= 494 cf
Flood Elev= 5.00' Surf.Area= 0 sf Storage= 2,454 cf

Plug-Flow detention time= 195.8 min calculated for 0.013 af (54% of inflow)
Center-of-Mass det. time= 95.9 min (930.8 - 834.9)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	2,454 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	438	0	0
1.00	438	438	438
1.10	219	33	471
3.50	219	526	996
3.51	1,094	7	1,003
4.50	1,669	1,368	2,371
4.60	0	83	2,454

Device	Routing	Invert	Outlet Devices
#1	Secondary	4.00'	**6.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Primary	1.00'	**4.0" Round Culvert** L= 197.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1.00' / 0.50' S= 0.0025 '/' Cc= 0.900 n= 0.013, Flow Area= 0.09 sf

Primary OutFlow Max=0.04 cfs @ 13.03 hrs HW=1.21' (Free Discharge)
└**2=Culvert** (Barrel Controls 0.04 cfs @ 1.08 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=0.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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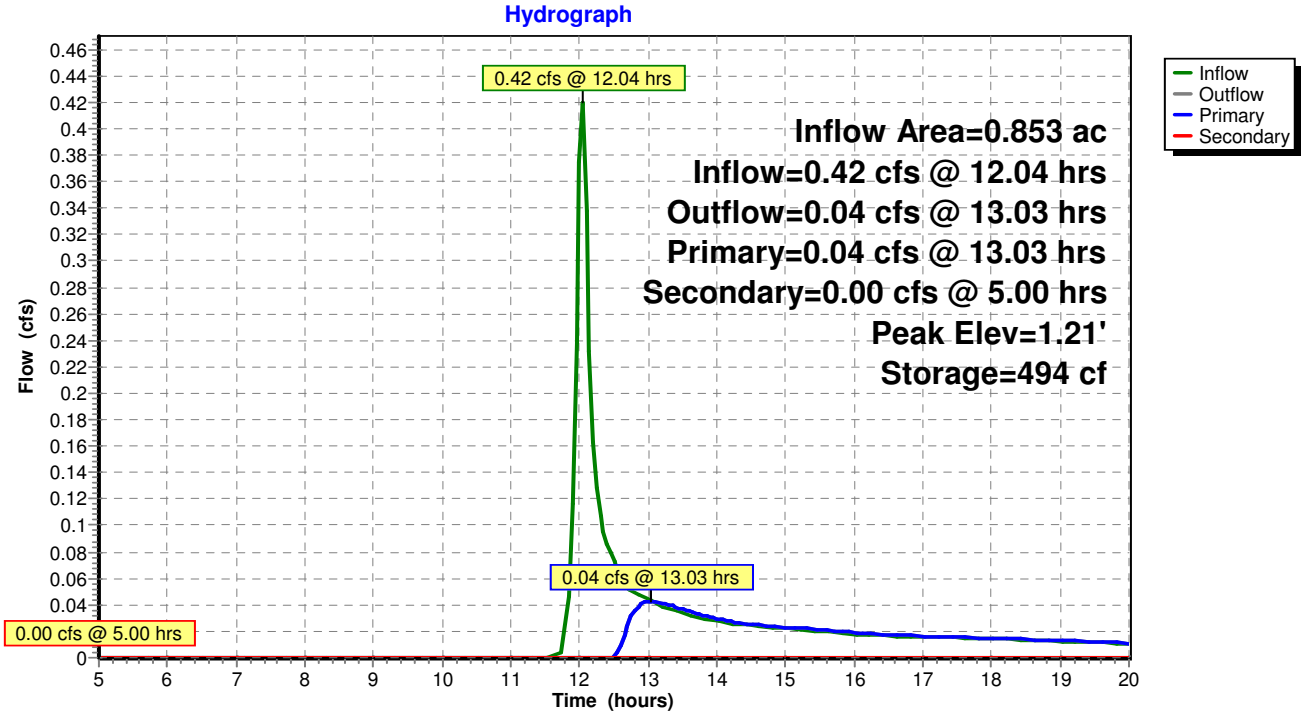
Pond BR 1: Bioretention Area 1



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Summary for Pond BR 4: Bioretention Area 4

Inflow Area = 0.412 ac, 29.06% Impervious, Inflow Depth > 0.54"
Inflow = 0.36 cfs @ 12.03 hrs, Volume= 0.019 af
Outflow = 0.01 cfs @ 17.02 hrs, Volume= 0.003 af, Atten= 97%, Lag= 299.1 min
Primary = 0.01 cfs @ 17.02 hrs, Volume= 0.003 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 2.86' @ 17.02 hrs Surf.Area= 176 sf Storage= 688 cf
Flood Elev= 5.00' Surf.Area= 0 sf Storage= 1,963 cf

Plug-Flow detention time= 366.5 min calculated for 0.003 af (16% of inflow)
Center-of-Mass det. time= 264.3 min (1,079.1 - 814.8)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	1,963 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	352	0	0
1.00	352	352	352
1.10	176	26	378
3.50	176	422	801
3.51	880	5	806
4.50	1,324	1,091	1,897
4.60	0	66	1,963

Device	Routing	Invert	Outlet Devices
#1	Secondary	4.00'	**6.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Primary	2.75'	**4.0" Round Culvert** L= 157.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 2.75' / 2.50' S= 0.0016 '/' Cc= 0.900 n= 0.013, Flow Area= 0.09 sf

Primary OutFlow Max=0.01 cfs @ 17.02 hrs HW=2.86' (Free Discharge)
└**2=Culvert** (Barrel Controls 0.01 cfs @ 0.62 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=0.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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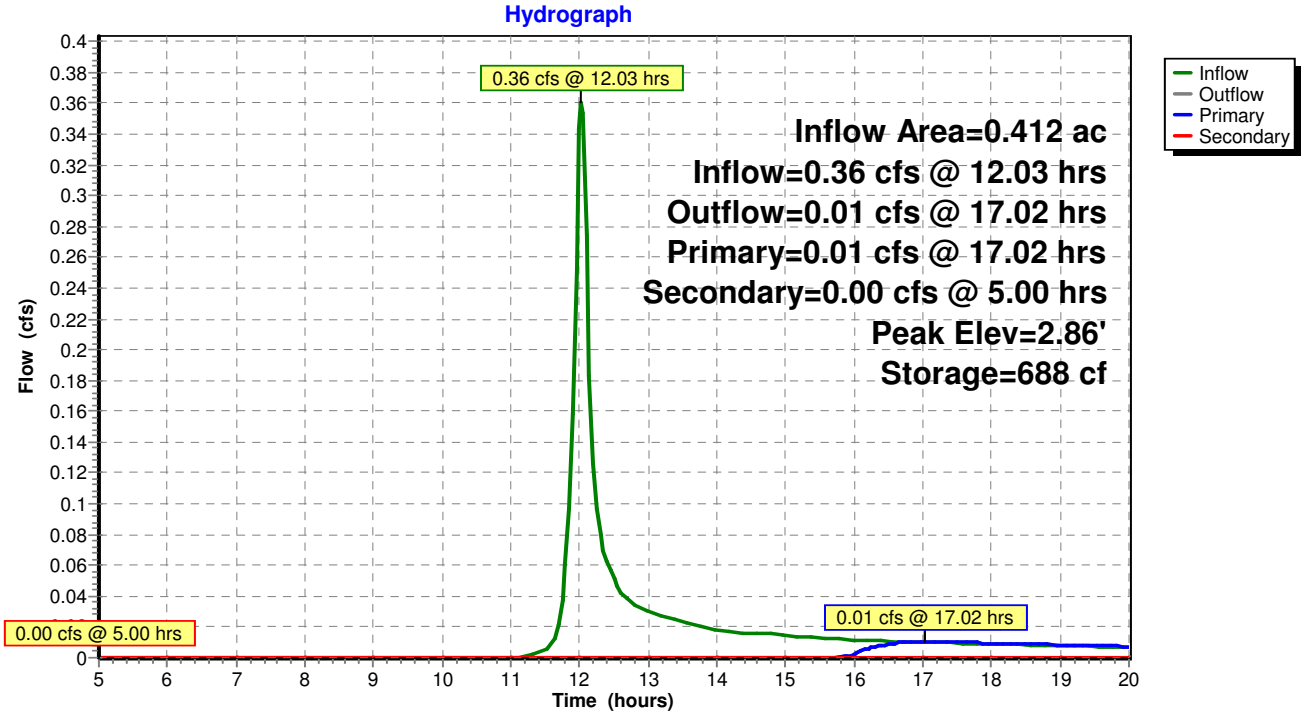
Pond BR 4: Bioretention Area 4



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Summary for Pond BR 5: Bioretention Area 5

Inflow Area = 0.236 ac, 44.84% Impervious, Inflow Depth > 0.73"
Inflow = 0.37 cfs @ 11.94 hrs, Volume= 0.014 af
Outflow = 0.03 cfs @ 12.52 hrs, Volume= 0.007 af, Atten= 92%, Lag= 35.0 min
Primary = 0.03 cfs @ 12.52 hrs, Volume= 0.007 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1.17' @ 12.52 hrs Surf.Area= 157 sf Storage= 348 cf
Flood Elev= 5.00' Surf.Area= 0 sf Storage= 1,807 cf

Plug-Flow detention time= 193.2 min calculated for 0.007 af (47% of inflow)
Center-of-Mass det. time= 106.3 min (903.3 - 797.0)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	1,807 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	314	0	0
1.00	314	314	314
1.10	157	24	338
3.50	157	377	714
3.51	786	5	719
4.50	1,282	1,024	1,743
4.60	0	64	1,807

Device	Routing	Invert	Outlet Devices
#1	Secondary	4.00'	**6.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Primary	1.00'	**4.0" Round Culvert** L= 219.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1.00' / 0.50' S= 0.0023 '/' Cc= 0.900 n= 0.013, Flow Area= 0.09 sf

Primary OutFlow Max=0.03 cfs @ 12.52 hrs HW=1.17' (Free Discharge)
└**2=Culvert** (Barrel Controls 0.03 cfs @ 0.92 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=0.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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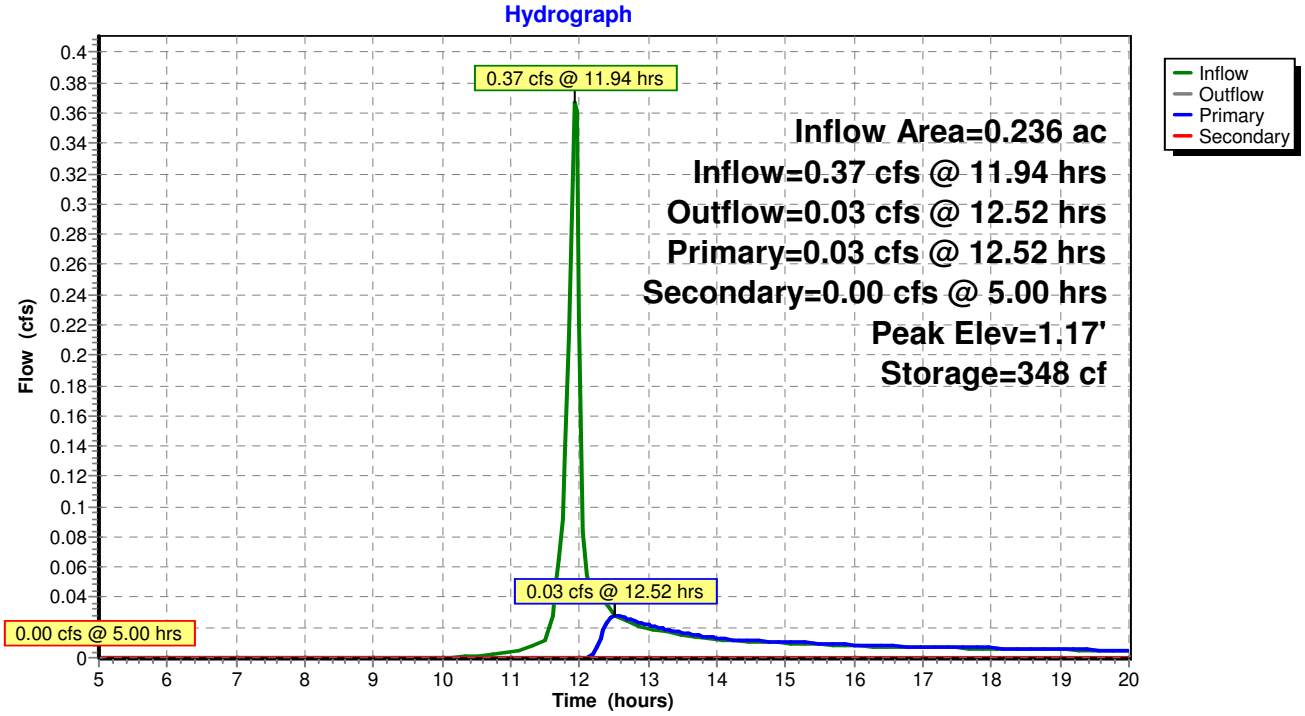
Pond BR 5: Bioretention Area 5



Summary for Pond Sed: Sediment Trap

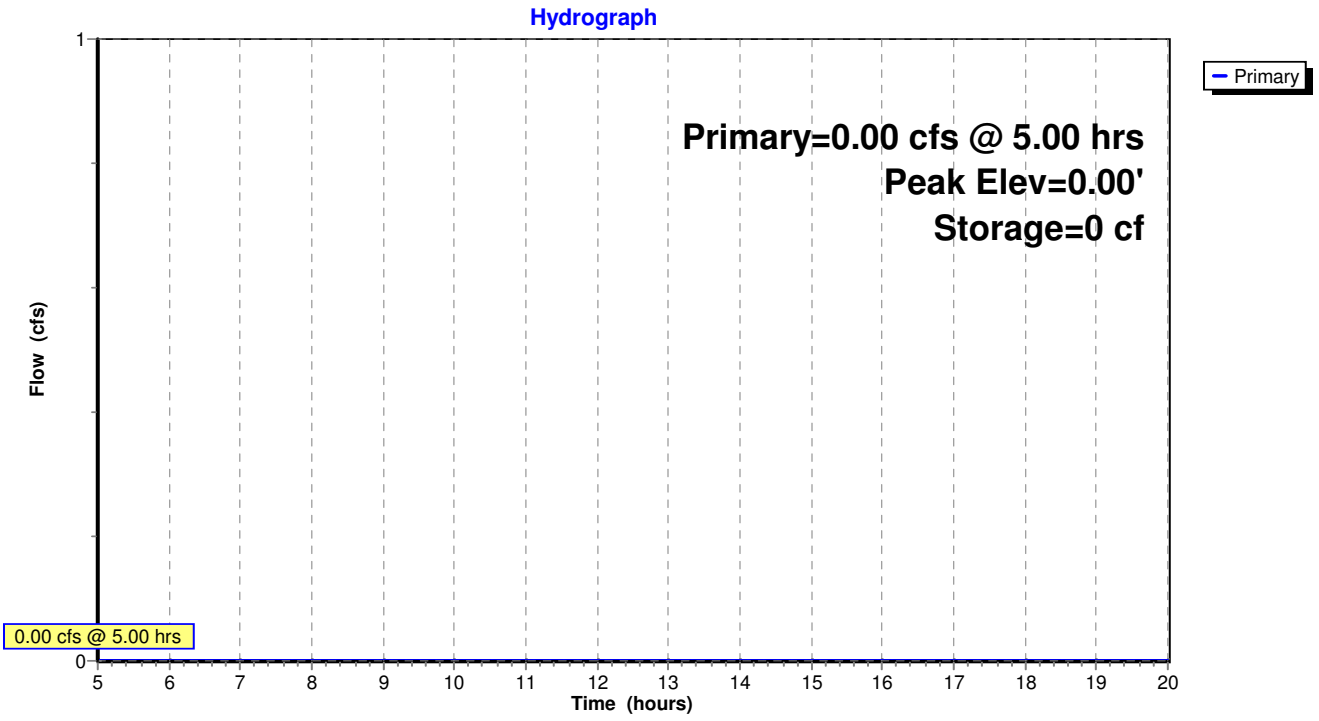
Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	22,831 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	3,425	0	0
1.00	5,874	4,650	4,650
2.00	8,774	7,324	11,974
3.00	11,765	10,270	22,243
3.10	0	588	22,831

Device	Routing	Invert	Outlet Devices
#1	Primary	2.00'	**6.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=0.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond Sed: Sediment Trap



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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.856	74	>75% Grass cover, Good, HSG C (PSC 1, PSC 4, PSC 5)
2.633	30	Brush, Good, HSG A (OSC 4)
7.201	65	Brush, Good, HSG C (OSC 2, OSC 4, PSC 1)
0.364	98	Paved parking & roofs (PSC 1, PSC 4, PSC 5)
0.047	98	Unconnected roofs, HSG A (OSC 4)
11.101	**59**	**TOTAL AREA**

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
2.681	HSG A	OSC 4
0.000	HSG B	
8.056	HSG C	OSC 2, OSC 4, PSC 1, PSC 4, PSC 5
0.000	HSG D	
0.364	Other	PSC 1, PSC 4, PSC 5
11.101		**TOTAL AREA**

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.856	0.000	0.000	0.856	>75% Grass cover, Good	PSC 1, PSC 4, PSC 5
2.633	0.000	7.201	0.000	0.000	9.834	Brush, Good	OSC 2, OSC 4, PSC 1
0.000	0.000	0.000	0.000	0.364	0.364	Paved parking & roofs	PSC 1, PSC 4, PSC 5
0.047	0.000	0.000	0.000	0.000	0.047	Unconnected roofs	OSC 4
2.681	**0.000**	**8.056**	**0.000**	**0.364**	**11.101**	**TOTAL AREA**	

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Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	BR 1	1.00	0.50	197.0	0.0025	0.013	4.0	0.0	0.0
2	BR 4	2.75	2.50	157.0	0.0016	0.013	4.0	0.0	0.0
3	BR 5	1.00	0.50	219.0	0.0023	0.013	4.0	0.0	0.0

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment OSC 2: Off-Site Runoff Area=14,274 sf 0.00% Impervious Runoff Depth>0.62"
Flow Length=220' Tc=10.4 min CN=65 Runoff=0.30 cfs 0.017 af

Subcatchment OSC 4: Off-Site Runoff Area=403,901 sf 0.51% Impervious Runoff Depth>0.26"
Flow Length=1,275' Tc=32.4 min CN=55 Runoff=1.09 cfs 0.197 af

Subcatchment PSC 1: Proposed Runoff Area=37,170 sf 16.23% Impervious Runoff Depth>1.11"
Flow Length=327' Tc=10.3 min CN=75 Runoff=1.55 cfs 0.079 af

Subcatchment PSC 4: Proposed Runoff Area=17,938 sf 29.06% Impervious Runoff Depth>1.49"
Flow Length=327' Tc=10.3 min CN=81 Runoff=1.00 cfs 0.051 af

Subcatchment PSC 5: Proposed Runoff Area=10,292 sf 44.84% Impervious Runoff Depth>1.79"
Flow Length=83' Tc=2.8 min CN=85 Runoff=0.87 cfs 0.035 af

Reach DP 1: Design Point Summation 1 Inflow=1.64 cfs 0.343 af
Outflow=1.64 cfs 0.343 af

Reach DS: Diversion Swale Avg. Flow Depth=0.29' Max Vel=1.30 fps Inflow=1.09 cfs 0.197 af
n=0.030 L=318.0' S=0.0063 '/' Capacity=15.57 cfs Outflow=1.06 cfs 0.195 af

Pond BR 1: Bioretention Area 1 Peak Elev=3.86' Storage=1,481 cf Inflow=1.55 cfs 0.079 af
Primary=0.23 cfs 0.068 af Secondary=0.00 cfs 0.000 af Outflow=0.23 cfs 0.068 af

Pond BR 4: Bioretention Area 4 Peak Elev=3.79' Storage=1,113 cf Inflow=1.00 cfs 0.051 af
Primary=0.14 cfs 0.035 af Secondary=0.00 cfs 0.000 af Outflow=0.14 cfs 0.035 af

Pond BR 5: Bioretention Area 5 Peak Elev=3.51' Storage=719 cf Inflow=0.87 cfs 0.035 af
Primary=0.20 cfs 0.027 af Secondary=0.00 cfs 0.000 af Outflow=0.20 cfs 0.027 af

Pond Sed: Sediment Trap Peak Elev=0.00' Storage=0 cf
Primary=0.00 cfs 0.000 af

Total Runoff Area = 11.101 ac Runoff Volume = 0.380 af Average Runoff Depth = 0.41"
96.29% Pervious = 10.690 ac 3.71% Impervious = 0.411 ac

Summary for Subcatchment OSC 2: Off-Site Subcatchment 2

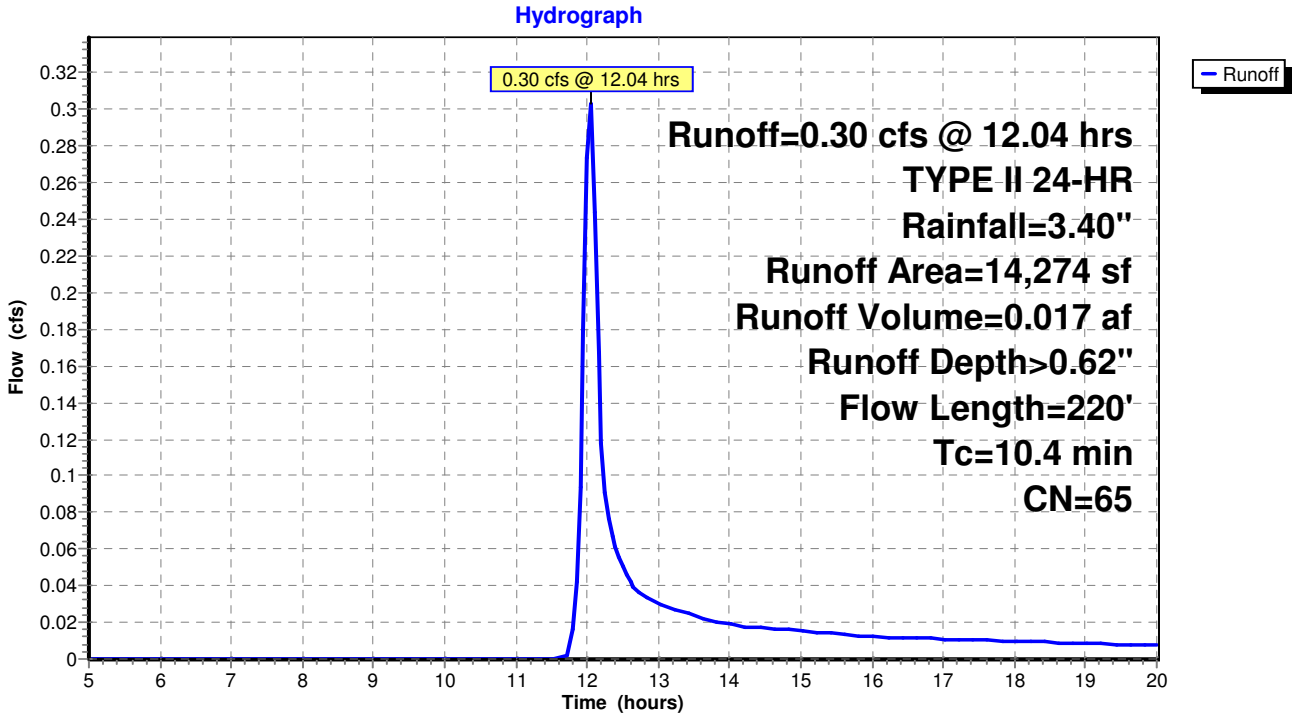
Runoff = 0.30 cfs @ 12.04 hrs, Volume= 0.017 af, Depth> 0.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=3.40"

Area (sf)	CN	Description
14,274	65	Brush, Good, HSG C
14,274		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	100	0.0350	0.20		**Sheet Flow, First 100' Flowpath** Grass: Short n= 0.150 P2= 2.70"
1.9	120	0.0050	1.06		**Shallow Concentrated Flow, Balance of Flow to Channel** Grassed Waterway Kv= 15.0 fps
10.4	220	Total			

Subcatchment OSC 2: Off-Site Subcatchment 2



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Summary for Subcatchment OSC 4: Off-Site Subcatchment 4

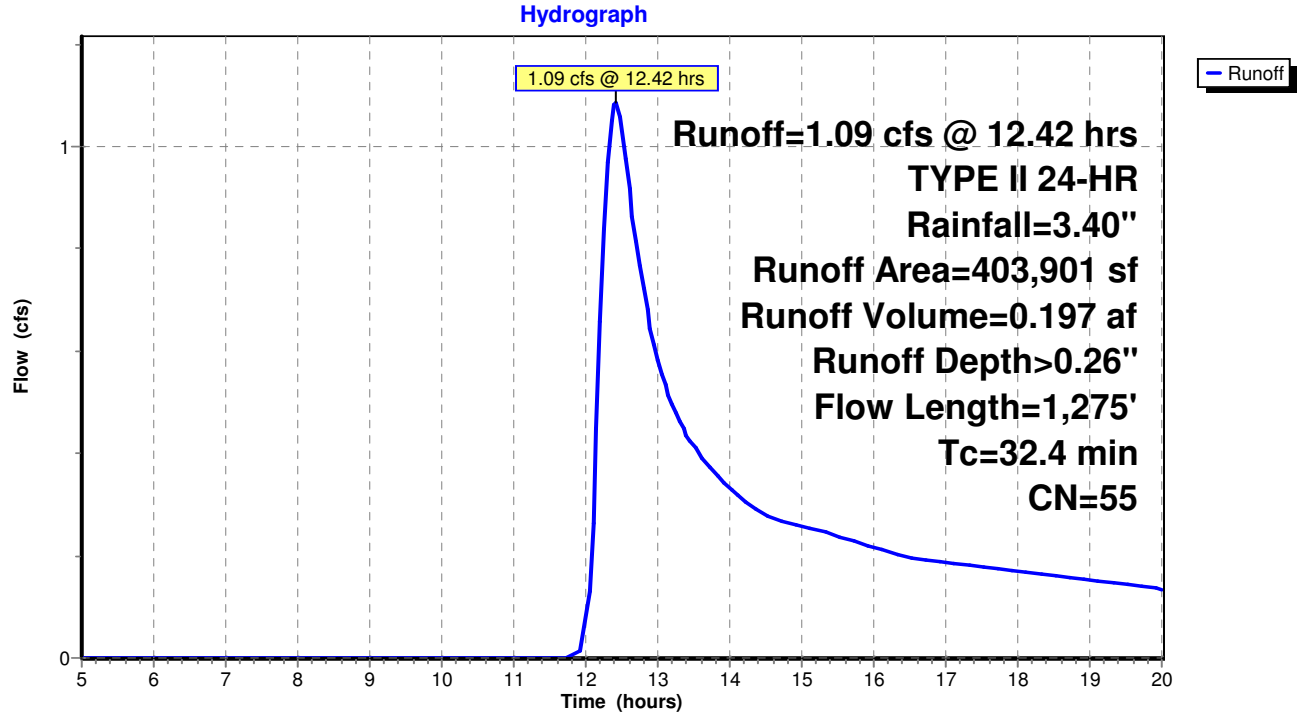
Runoff = 1.09 cfs @ 12.42 hrs, Volume= 0.197 af, Depth> 0.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=3.40"

Area (sf)	CN	Description
114,714	30	Brush, Good, HSG A
287,122	65	Brush, Good, HSG C
2,065	98	Unconnected roofs, HSG A
403,901	55	Weighted Average
401,836		99.49% Pervious Area
2,065		0.51% Impervious Area
2,065		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.5	100	0.0100	0.08		**Sheet Flow, First 100' Flowpath** Grass: Dense n= 0.240 P2= 2.70"
11.9	1,175	0.0120	1.64		**Shallow Concentrated Flow, Balance of Flow** Grassed Waterway Kv= 15.0 fps
32.4	1,275	Total			

Subcatchment OSC 4: Off-Site Subcatchment 4



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Summary for Subcatchment PSC 1: Proposed Subcatchment 1

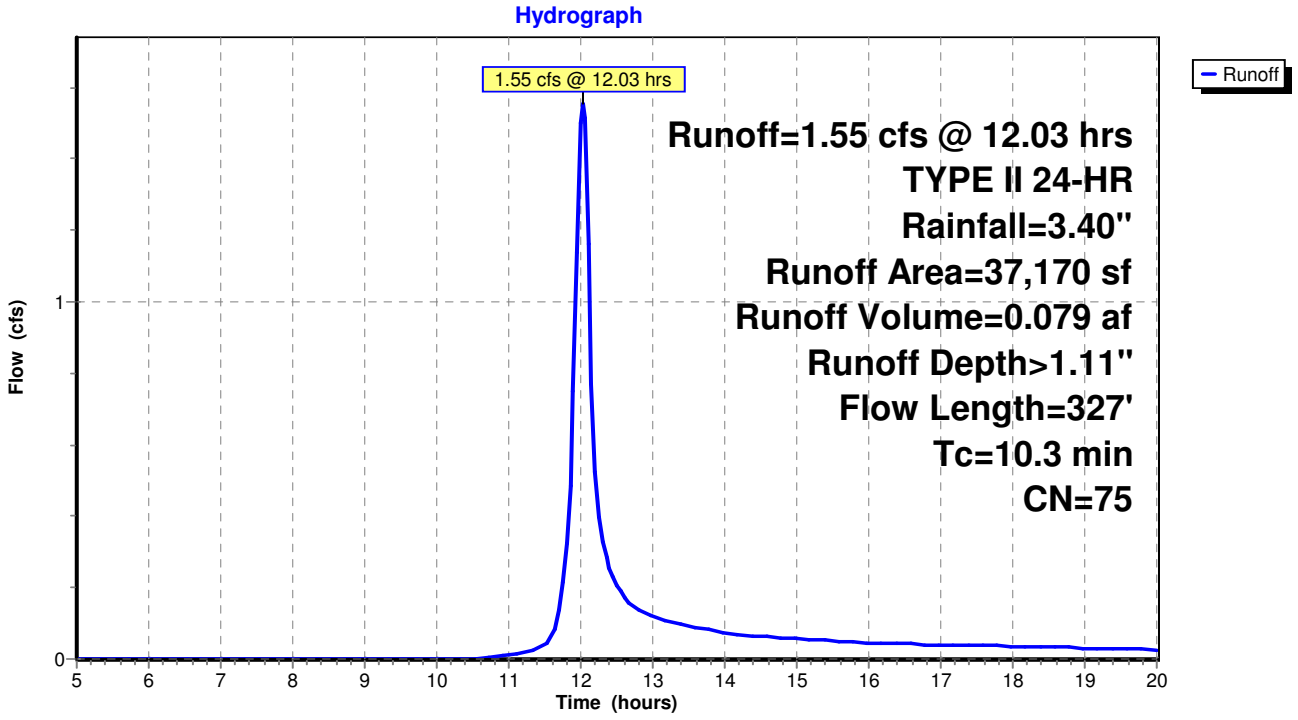
Runoff = 1.55 cfs @ 12.03 hrs, Volume= 0.079 af, Depth> 1.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=3.40"

Area (sf)	CN	Description
6,031	98	Paved parking & roofs
18,864	74	>75% Grass cover, Good, HSG C
12,275	65	Brush, Good, HSG C
37,170	75	Weighted Average
31,139		83.77% Pervious Area
6,031		16.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	100	0.0300	0.18		**Sheet Flow, First 100' Flowpath** Grass: Short n= 0.150 P2= 2.70"
0.7	70	0.0140	1.77		**Shallow Concentrated Flow, Balance of Flow to Channel** Grassed Waterway Kv= 15.0 fps
0.5	157	0.0190	5.40	27.00	**Trap/Vee/Rect Channel Flow, Balance of Longest Flowpath** Bot.W=2.00' D=1.00' Z= 3.0 '/' Top.W=8.00' n= 0.027
10.3	327	Total			

Subcatchment PSC 1: Proposed Subcatchment 1



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Summary for Subcatchment PSC 4: Proposed Subcatchment 4

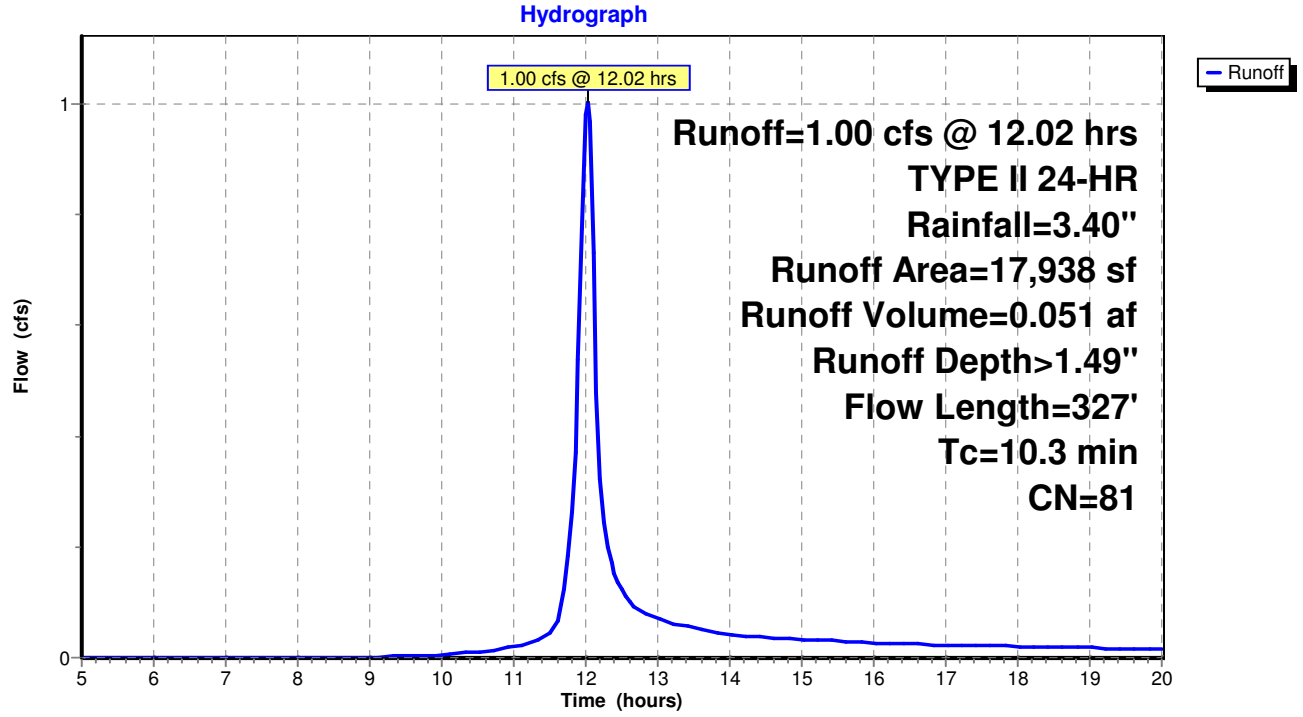
Runoff = 1.00 cfs @ 12.02 hrs, Volume= 0.051 af, Depth> 1.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=3.40"

Area (sf)	CN	Description
5,212	98	Paved parking & roofs
12,726	74	>75% Grass cover, Good, HSG C
17,938	81	Weighted Average
12,726		70.94% Pervious Area
5,212		29.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	100	0.0300	0.18		**Sheet Flow, First 100' Flowpath** Grass: Short n= 0.150 P2= 2.70"
0.7	70	0.0140	1.77		**Shallow Concentrated Flow, Balance of Flow to Channel** Grassed Waterway Kv= 15.0 fps
0.5	157	0.0190	5.40	27.00	**Trap/Vee/Rect Channel Flow, Balance of Longest Flowpath** Bot.W=2.00' D=1.00' Z= 3.0 '/' Top.W=8.00' n= 0.027
10.3	327	Total			

Subcatchment PSC 4: Proposed Subcatchment 4



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Summary for Subcatchment PSC 5: Proposed Subcatchment 5

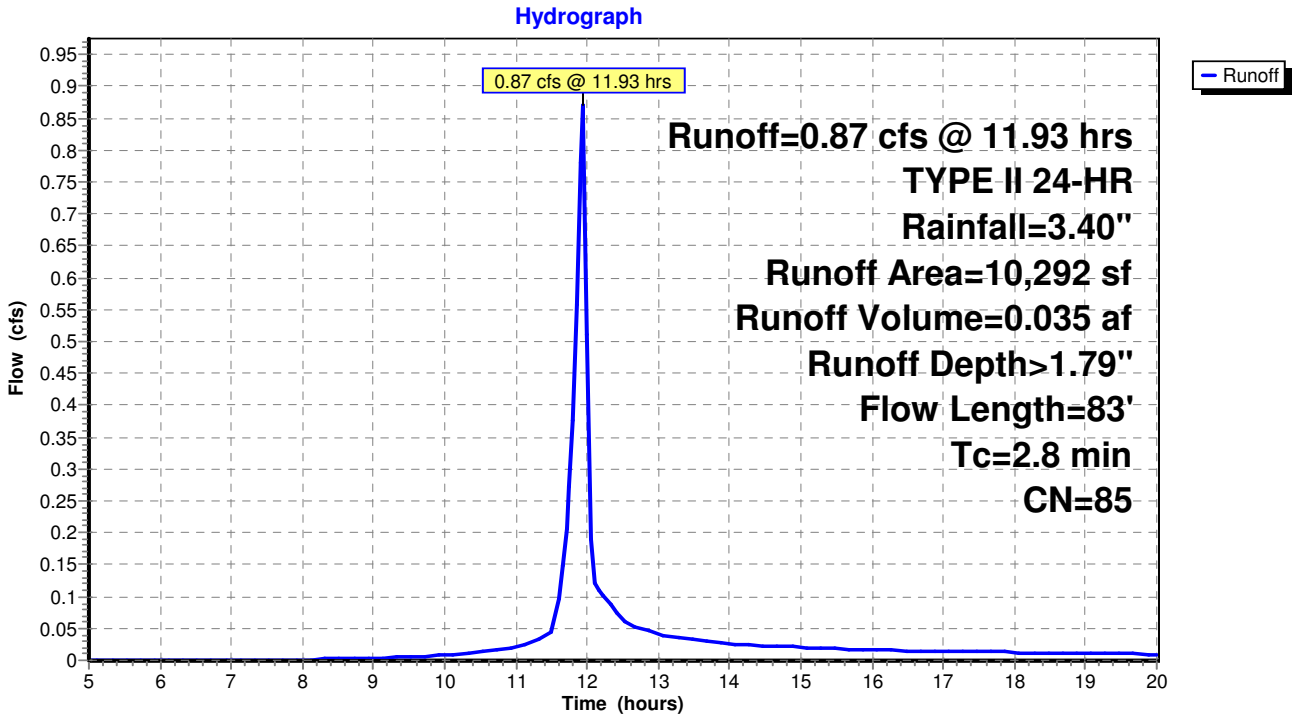
Runoff = 0.87 cfs @ 11.93 hrs, Volume= 0.035 af, Depth> 1.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=3.40"

Area (sf)	CN	Description
4,615	98	Paved parking & roofs
5,677	74	>75% Grass cover, Good, HSG C
10,292	85	Weighted Average
5,677		55.16% Pervious Area
4,615		44.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	23	0.0860	0.21		**Sheet Flow, First 100' Flowpath** Grass: Short n= 0.150 P2= 2.70"
1.0	60	0.0140	0.99		**Sheet Flow, First 100' Flowpath** Smooth surfaces n= 0.011 P2= 2.70"
2.8	83	Total			

Subcatchment PSC 5: Proposed Subcatchment 5

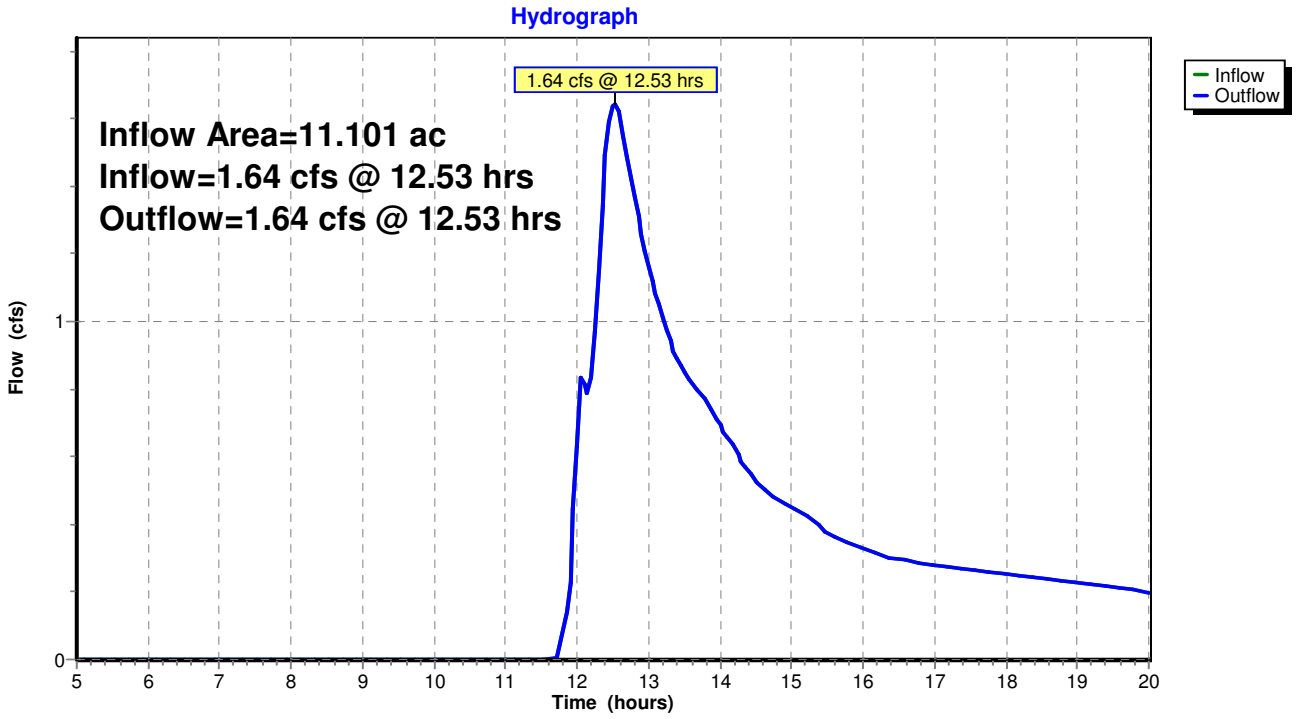


Summary for Reach DP 1: Design Point Summation 1

Inflow Area = 11.101 ac, 3.71% Impervious, Inflow Depth > 0.37"
Inflow = 1.64 cfs @ 12.53 hrs, Volume= 0.343 af
Outflow = 1.64 cfs @ 12.53 hrs, Volume= 0.343 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach DP 1: Design Point Summation 1



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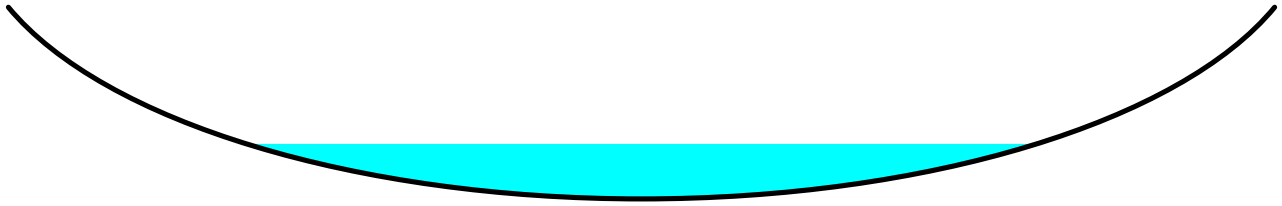
Summary for Reach DS: Diversion Swale

Inflow Area = 9.272 ac, 0.51% Impervious, Inflow Depth > 0.26"
Inflow = 1.09 cfs @ 12.42 hrs, Volume= 0.197 af
Outflow = 1.06 cfs @ 12.54 hrs, Volume= 0.195 af, Atten= 2%, Lag= 7.4 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.30 fps, Min. Travel Time= 4.1 min
Avg. Velocity = 0.83 fps, Avg. Travel Time= 6.4 min

Peak Storage= 262 cf @ 12.47 hrs
Average Depth at Peak Storage= 0.29'
Bank-Full Depth= 1.00' Flow Area= 5.3 sf, Capacity= 15.57 cfs

8.00' x 1.00' deep Parabolic Channel, n= 0.030
Length= 318.0' Slope= 0.0063 '/'
Inlet Invert= 0.00', Outlet Invert= -2.00'



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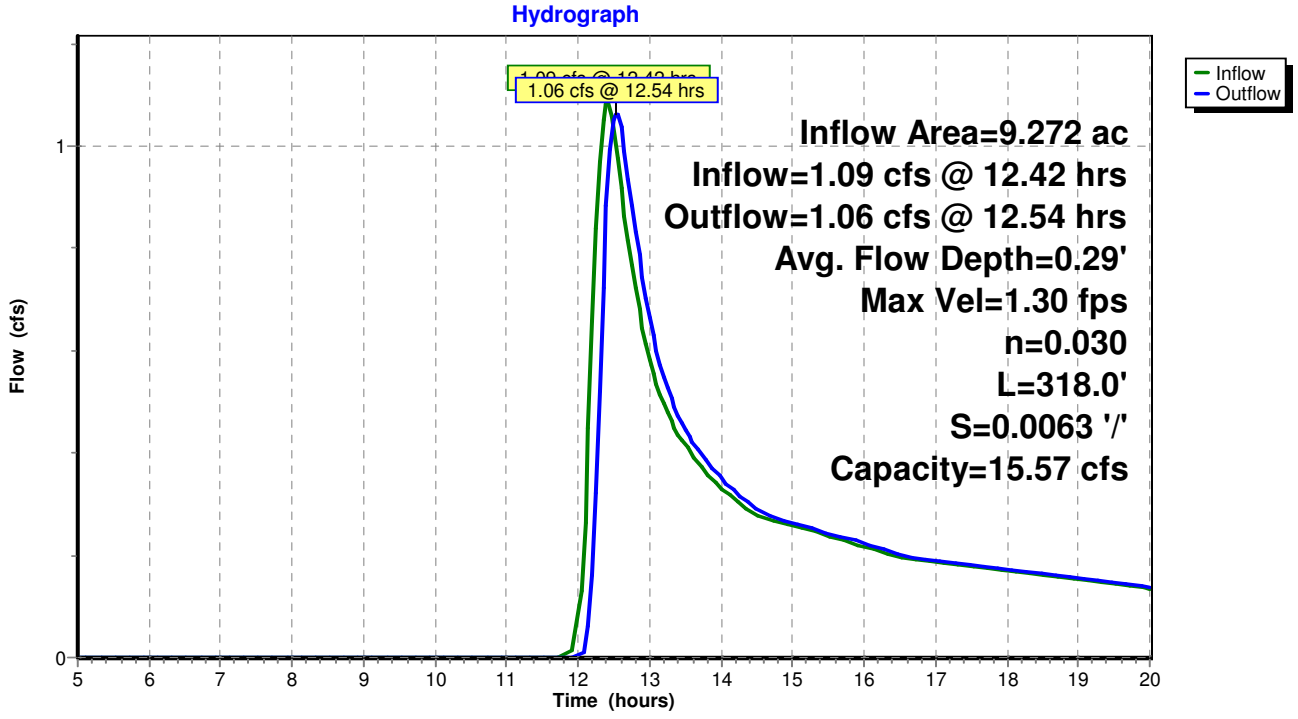
Reach DS: Diversion Swale



Summary for Pond BR 1: Bioretention Area 1

Inflow Area = 0.853 ac, 16.23% Impervious, Inflow Depth > 1.11"
Inflow = 1.55 cfs @ 12.03 hrs, Volume= 0.079 af
Outflow = 0.23 cfs @ 12.46 hrs, Volume= 0.068 af, Atten= 85%, Lag= 25.7 min
Primary = 0.23 cfs @ 12.46 hrs, Volume= 0.068 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 3.86' @ 12.46 hrs Surf.Area= 1,295 sf Storage= 1,481 cf
Flood Elev= 5.00' Surf.Area= 0 sf Storage= 2,454 cf

Plug-Flow detention time= 97.3 min calculated for 0.068 af (86% of inflow)
Center-of-Mass det. time= 53.7 min (860.7 - 807.0)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	2,454 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	438	0	0
1.00	438	438	438
1.10	219	33	471
3.50	219	526	996
3.51	1,094	7	1,003
4.50	1,669	1,368	2,371
4.60	0	83	2,454

Device	Routing	Invert	Outlet Devices
#1	Secondary	4.00'	**6.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Primary	1.00'	**4.0" Round Culvert** L= 197.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1.00' / 0.50' S= 0.0025 '/' Cc= 0.900 n= 0.013, Flow Area= 0.09 sf

Primary OutFlow Max=0.23 cfs @ 12.46 hrs HW=3.86' (Free Discharge)
└**2=Culvert** (Barrel Controls 0.23 cfs @ 2.61 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=0.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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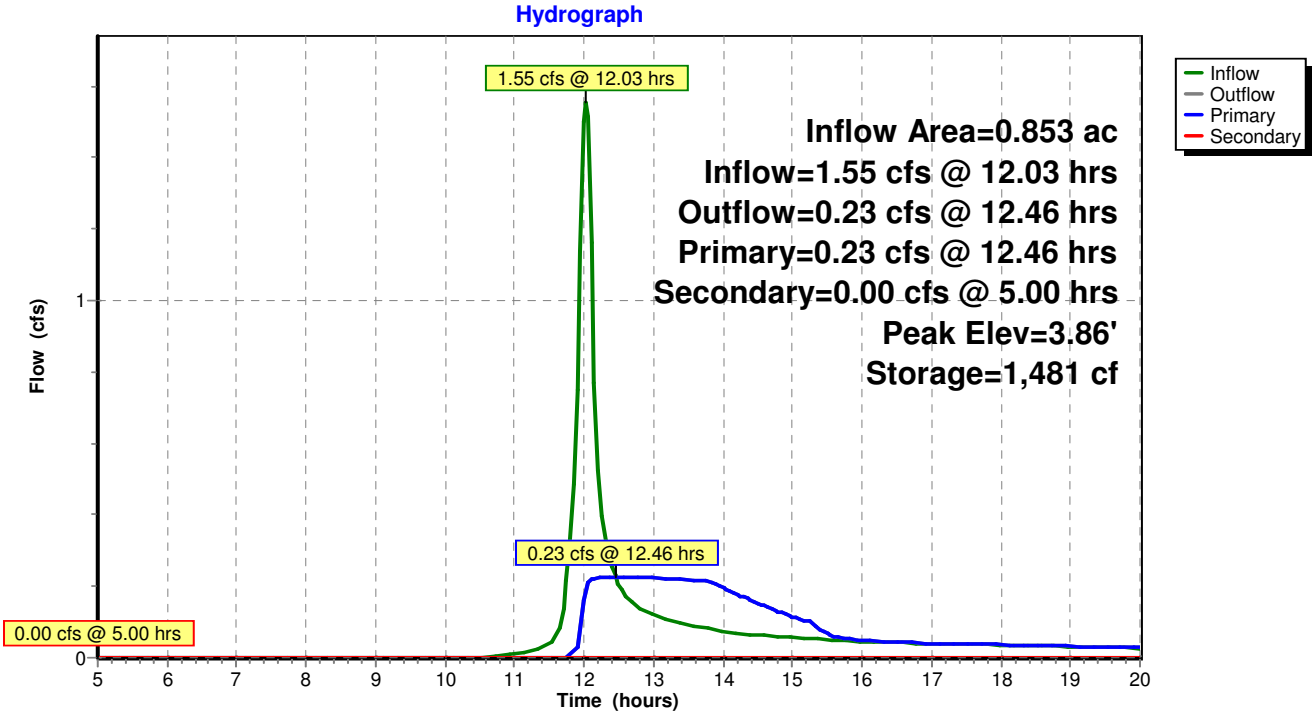
Pond BR 1: Bioretention Area 1



Summary for Pond BR 4: Bioretention Area 4

Inflow Area = 0.412 ac, 29.06% Impervious, Inflow Depth > 1.49"
Inflow = 1.00 cfs @ 12.02 hrs, Volume= 0.051 af
Outflow = 0.14 cfs @ 12.43 hrs, Volume= 0.035 af, Atten= 86%, Lag= 24.6 min
Primary = 0.14 cfs @ 12.43 hrs, Volume= 0.035 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 3.79' @ 12.43 hrs Surf.Area= 1,005 sf Storage= 1,113 cf
Flood Elev= 5.00' Surf.Area= 0 sf Storage= 1,963 cf

Plug-Flow detention time= 133.1 min calculated for 0.035 af (69% of inflow)
Center-of-Mass det. time= 63.8 min (857.4 - 793.6)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	1,963 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	352	0	0
1.00	352	352	352
1.10	176	26	378
3.50	176	422	801
3.51	880	5	806
4.50	1,324	1,091	1,897
4.60	0	66	1,963

Device	Routing	Invert	Outlet Devices
#1	Secondary	4.00'	**6.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Primary	2.75'	**4.0" Round Culvert** L= 157.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 2.75' / 2.50' S= 0.0016 '/' Cc= 0.900 n= 0.013, Flow Area= 0.09 sf

Primary OutFlow Max=0.14 cfs @ 12.43 hrs HW=3.79' (Free Discharge)
└**2=Culvert** (Barrel Controls 0.14 cfs @ 1.63 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=0.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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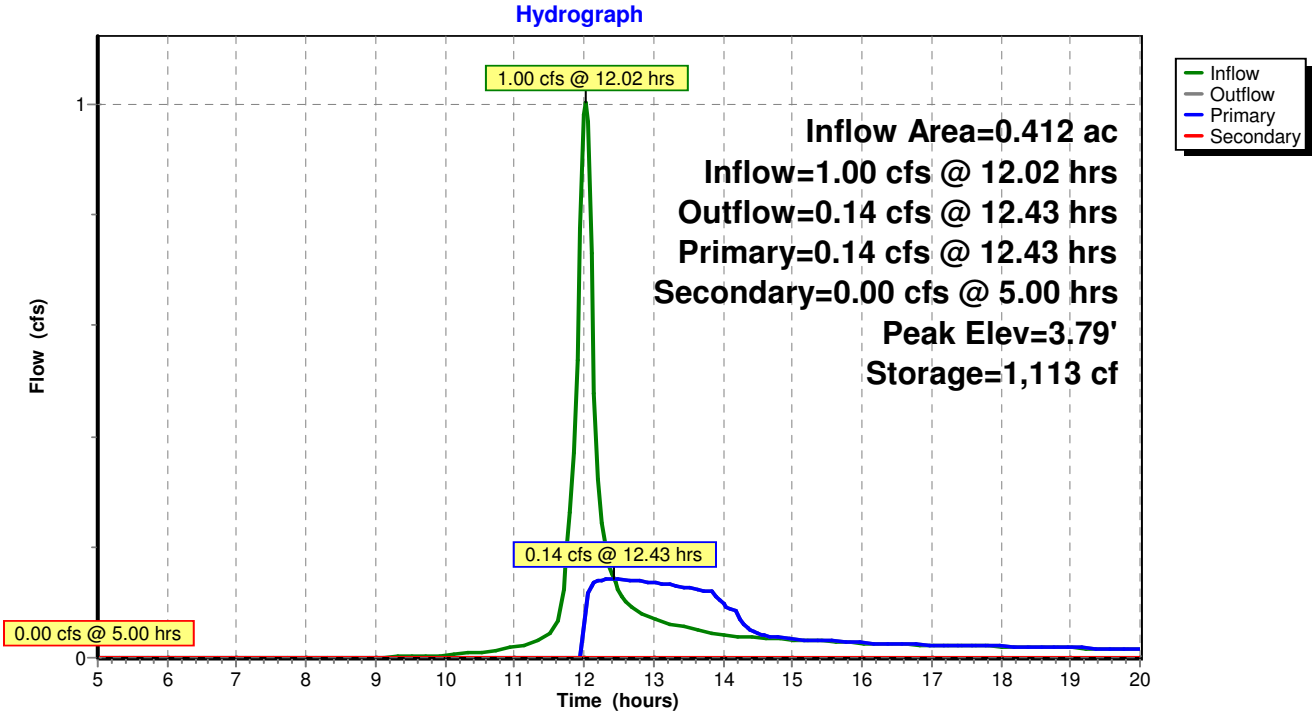
Pond BR 4: Bioretention Area 4



Summary for Pond BR 5: Bioretention Area 5

Inflow Area = 0.236 ac, 44.84% Impervious, Inflow Depth > 1.79"
Inflow = 0.87 cfs @ 11.93 hrs, Volume= 0.035 af
Outflow = 0.20 cfs @ 12.06 hrs, Volume= 0.027 af, Atten= 77%, Lag= 7.8 min
Primary = 0.20 cfs @ 12.06 hrs, Volume= 0.027 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 3.51' @ 12.06 hrs Surf.Area= 786 sf Storage= 719 cf
Flood Elev= 5.00' Surf.Area= 0 sf Storage= 1,807 cf

Plug-Flow detention time= 101.7 min calculated for 0.027 af (78% of inflow)
Center-of-Mass det. time= 44.1 min (821.9 - 777.8)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	1,807 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	314	0	0
1.00	314	314	314
1.10	157	24	338
3.50	157	377	714
3.51	786	5	719
4.50	1,282	1,024	1,743
4.60	0	64	1,807

Device	Routing	Invert	Outlet Devices
#1	Secondary	4.00'	**6.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Primary	1.00'	**4.0" Round Culvert** L= 219.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1.00' / 0.50' S= 0.0023 '/' Cc= 0.900 n= 0.013, Flow Area= 0.09 sf

Primary OutFlow Max=0.20 cfs @ 12.06 hrs HW=3.49' (Free Discharge)
└**2=Culvert** (Barrel Controls 0.20 cfs @ 2.32 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=0.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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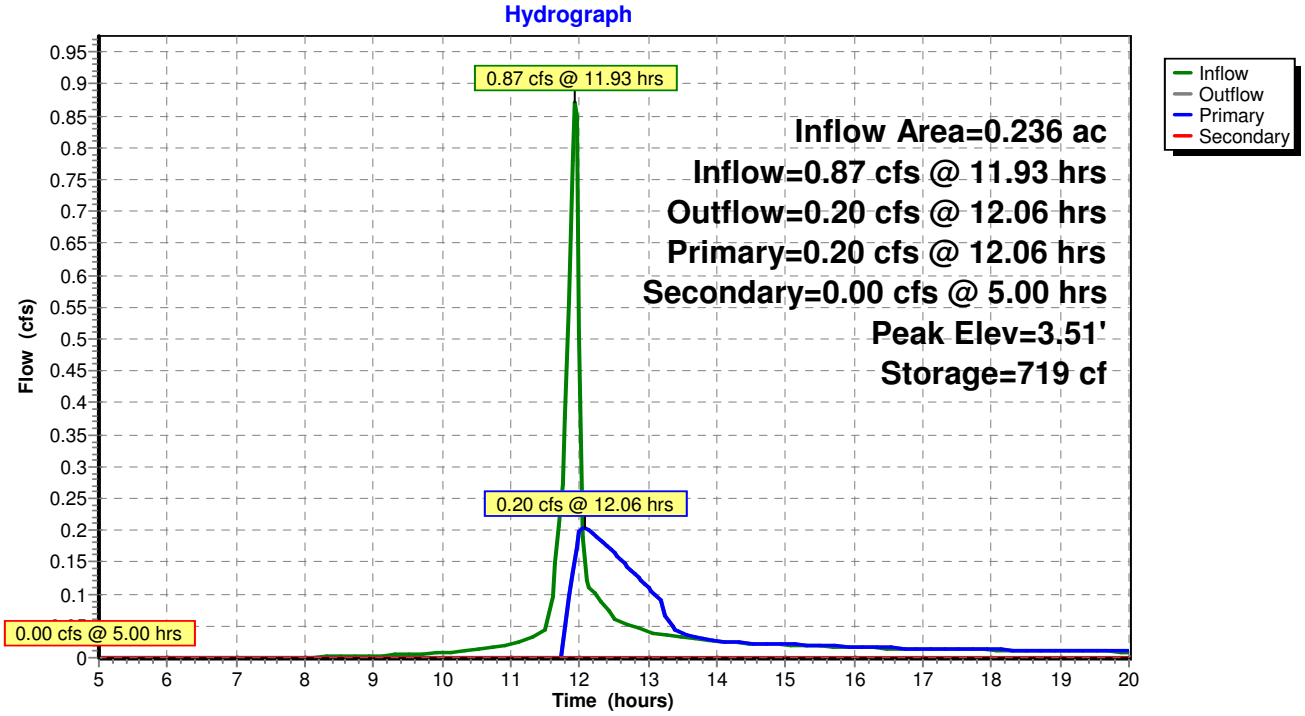
Pond BR 5: Bioretention Area 5



Summary for Pond Sed: Sediment Trap

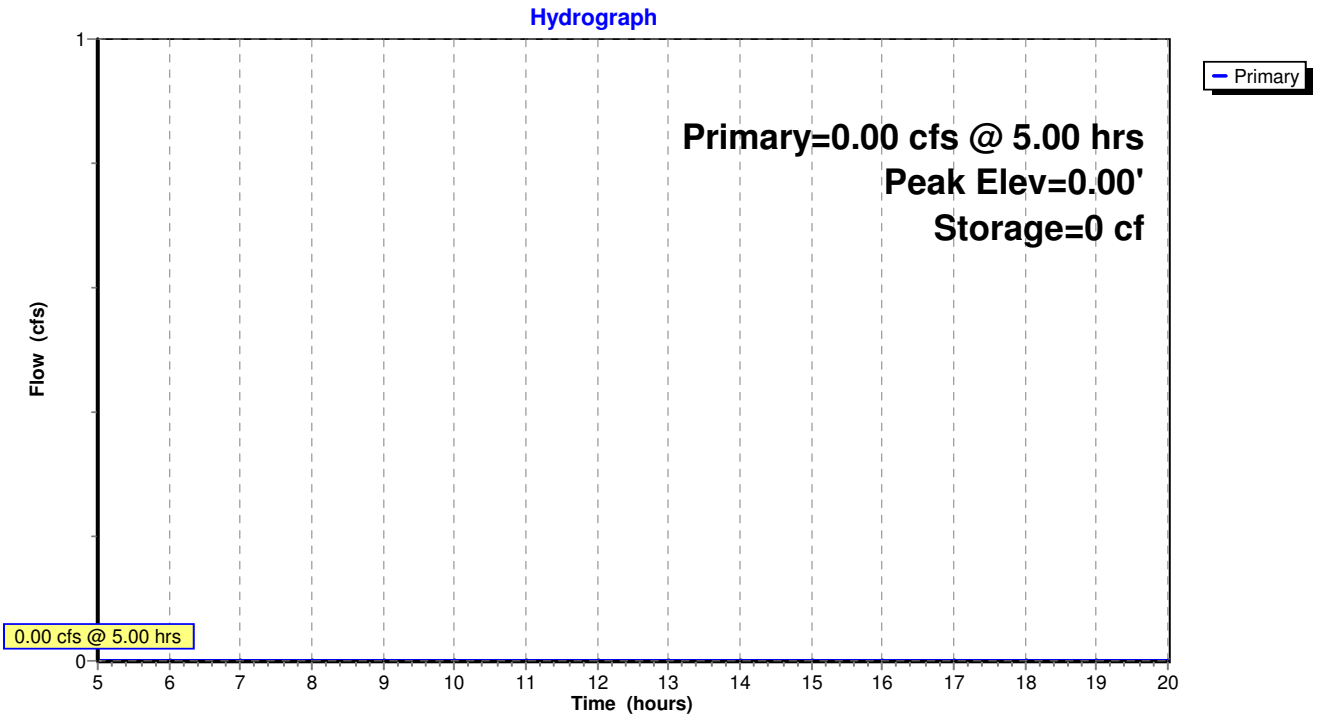
Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	22,831 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	3,425	0	0
1.00	5,874	4,650	4,650
2.00	8,774	7,324	11,974
3.00	11,765	10,270	22,243
3.10	0	588	22,831

Device	Routing	Invert	Outlet Devices
#1	Primary	2.00'	**6.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=0.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond Sed: Sediment Trap



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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.856	74	>75% Grass cover, Good, HSG C (PSC 1, PSC 4, PSC 5)
2.633	30	Brush, Good, HSG A (OSC 4)
7.201	65	Brush, Good, HSG C (OSC 2, OSC 4, PSC 1)
0.364	98	Paved parking & roofs (PSC 1, PSC 4, PSC 5)
0.047	98	Unconnected roofs, HSG A (OSC 4)
11.101	**59**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
2.681	HSG A	OSC 4
0.000	HSG B	
8.056	HSG C	OSC 2, OSC 4, PSC 1, PSC 4, PSC 5
0.000	HSG D	
0.364	Other	PSC 1, PSC 4, PSC 5
11.101		**TOTAL AREA**

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.856	0.000	0.000	0.856	>75% Grass cover, Good	PSC 1, PSC 4, PSC 5
2.633	0.000	7.201	0.000	0.000	9.834	Brush, Good	OSC 2, OSC 4, PSC 1
0.000	0.000	0.000	0.000	0.364	0.364	Paved parking & roofs	PSC 1, PSC 4, PSC 5
0.047	0.000	0.000	0.000	0.000	0.047	Unconnected roofs	OSC 4
2.681	**0.000**	**8.056**	**0.000**	**0.364**	**11.101**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	BR 1	1.00	0.50	197.0	0.0025	0.013	4.0	0.0	0.0
2	BR 4	2.75	2.50	157.0	0.0016	0.013	4.0	0.0	0.0
3	BR 5	1.00	0.50	219.0	0.0023	0.013	4.0	0.0	0.0

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment OSC 2: Off-Site Runoff Area=14,274 sf 0.00% Impervious Runoff Depth>2.04"
Flow Length=220' Tc=10.4 min CN=65 Runoff=1.09 cfs 0.056 af

Subcatchment OSC 4: Off-Site Runoff Area=403,901 sf 0.51% Impervious Runoff Depth>1.26"
Flow Length=1,275' Tc=32.4 min CN=55 Runoff=9.31 cfs 0.970 af

Subcatchment PSC 1: Proposed Runoff Area=37,170 sf 16.23% Impervious Runoff Depth>2.91"
Flow Length=327' Tc=10.3 min CN=75 Runoff=4.03 cfs 0.207 af

Subcatchment PSC 4: Proposed Runoff Area=17,938 sf 29.06% Impervious Runoff Depth>3.48"
Flow Length=327' Tc=10.3 min CN=81 Runoff=2.28 cfs 0.120 af

Subcatchment PSC 5: Proposed Runoff Area=10,292 sf 44.84% Impervious Runoff Depth>3.90"
Flow Length=83' Tc=2.8 min CN=85 Runoff=1.80 cfs 0.077 af

Reach DP 1: Design Point Summation 1 Inflow=10.79 cfs 1.389 af
Outflow=10.79 cfs 1.389 af

Reach DS: Diversion Swale Avg. Flow Depth=0.78' Max Vel=2.50 fps Inflow=9.31 cfs 0.970 af
n=0.030 L=318.0' S=0.0063 '/' Capacity=15.57 cfs Outflow=9.20 cfs 0.966 af

Pond BR 1: Bioretention Area 1 Peak Elev=4.38' Storage=2,203 cf Inflow=4.03 cfs 0.207 af
Primary=0.25 cfs 0.118 af Secondary=3.64 cfs 0.077 af Outflow=3.89 cfs 0.195 af

Pond BR 4: Bioretention Area 4 Peak Elev=4.26' Storage=1,631 cf Inflow=2.28 cfs 0.120 af
Primary=0.17 cfs 0.065 af Secondary=2.02 cfs 0.039 af Outflow=2.20 cfs 0.103 af

Pond BR 5: Bioretention Area 5 Peak Elev=4.16' Storage=1,390 cf Inflow=1.80 cfs 0.077 af
Primary=0.23 cfs 0.060 af Secondary=0.96 cfs 0.009 af Outflow=1.19 cfs 0.069 af

Pond Sed: Sediment Trap Peak Elev=0.00' Storage=0 cf
Primary=0.00 cfs 0.000 af

Total Runoff Area = 11.101 ac Runoff Volume = 1.429 af Average Runoff Depth = 1.54"
96.29% Pervious = 10.690 ac 3.71% Impervious = 0.411 ac

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Summary for Subcatchment OSC 2: Off-Site Subcatchment 2

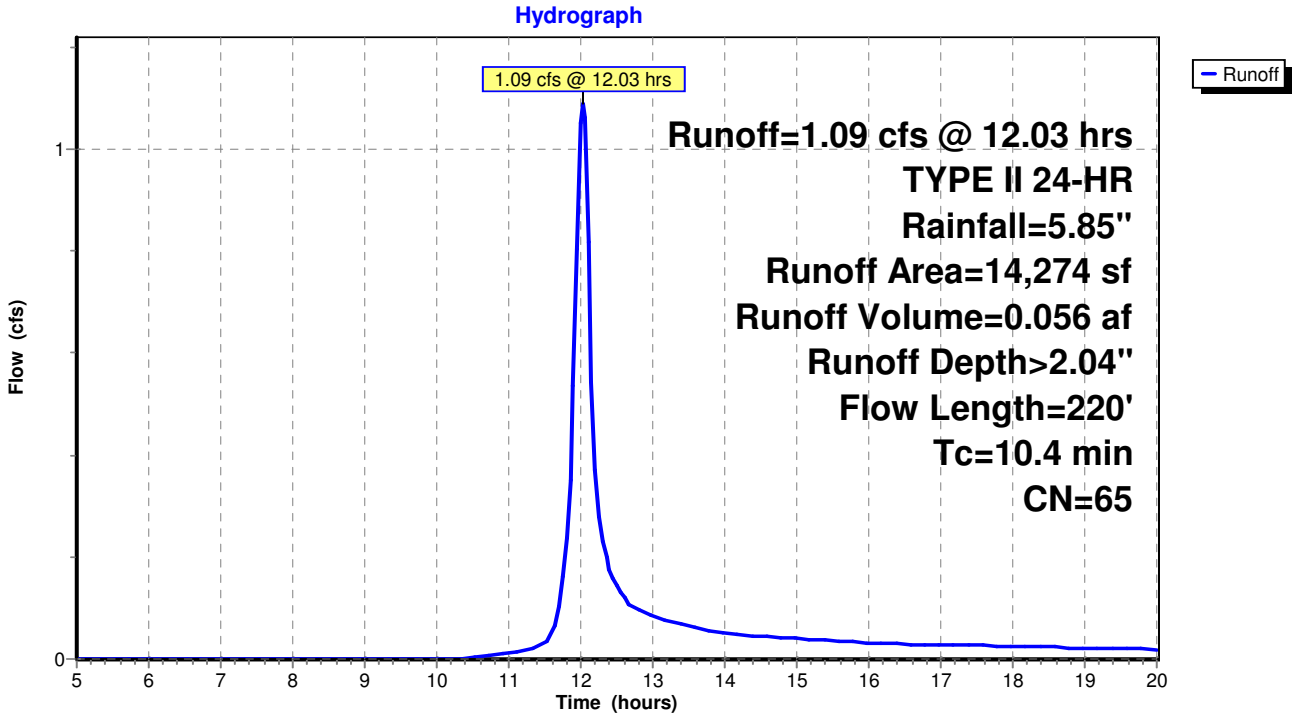
Runoff = 1.09 cfs @ 12.03 hrs, Volume= 0.056 af, Depth> 2.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=5.85"

Area (sf)	CN	Description
14,274	65	Brush, Good, HSG C
14,274		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.5	100	0.0350	0.20		**Sheet Flow, First 100' Flowpath** Grass: Short n= 0.150 P2= 2.70"
1.9	120	0.0050	1.06		**Shallow Concentrated Flow, Balance of Flow to Channel** Grassed Waterway Kv= 15.0 fps
10.4	220	Total			

Subcatchment OSC 2: Off-Site Subcatchment 2



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Summary for Subcatchment OSC 4: Off-Site Subcatchment 4

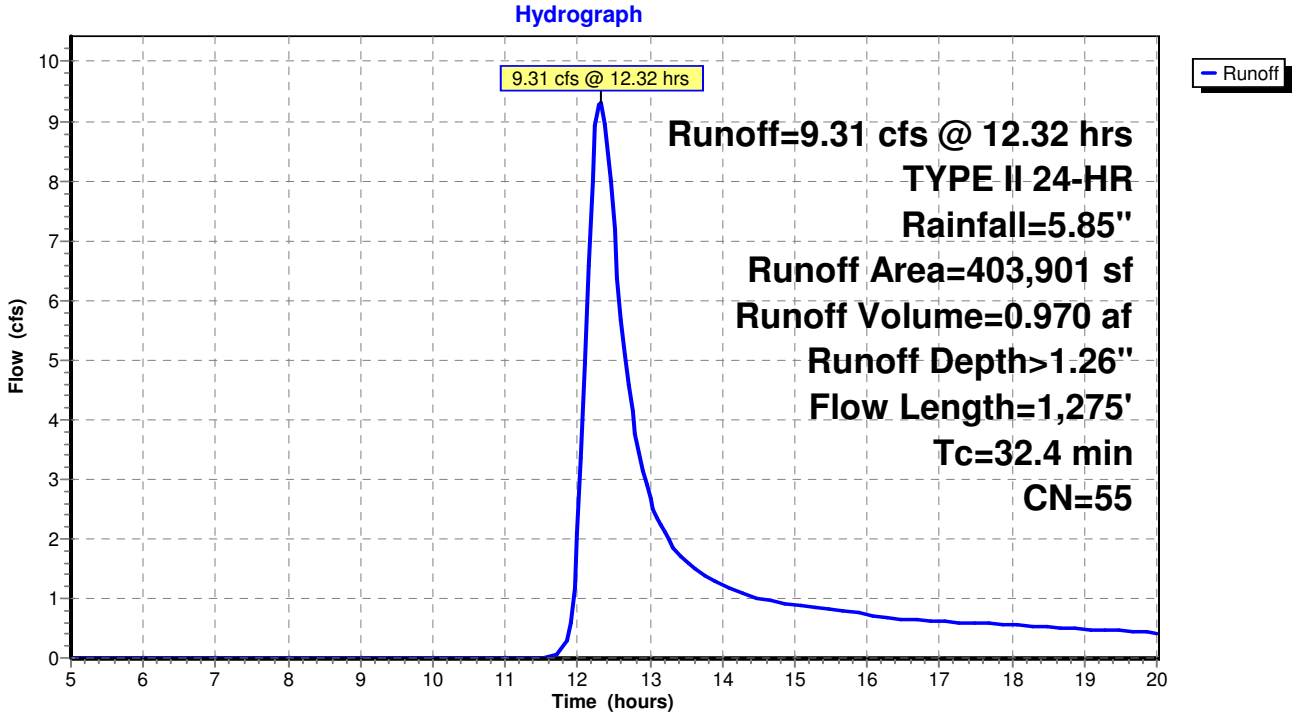
Runoff = 9.31 cfs @ 12.32 hrs, Volume= 0.970 af, Depth> 1.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=5.85"

Area (sf)	CN	Description
114,714	30	Brush, Good, HSG A
287,122	65	Brush, Good, HSG C
2,065	98	Unconnected roofs, HSG A
403,901	55	Weighted Average
401,836		99.49% Pervious Area
2,065		0.51% Impervious Area
2,065		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.5	100	0.0100	0.08		**Sheet Flow, First 100' Flowpath** Grass: Dense n= 0.240 P2= 2.70"
11.9	1,175	0.0120	1.64		**Shallow Concentrated Flow, Balance of Flow** Grassed Waterway Kv= 15.0 fps
32.4	1,275	Total			

Subcatchment OSC 4: Off-Site Subcatchment 4



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Summary for Subcatchment PSC 1: Proposed Subcatchment 1

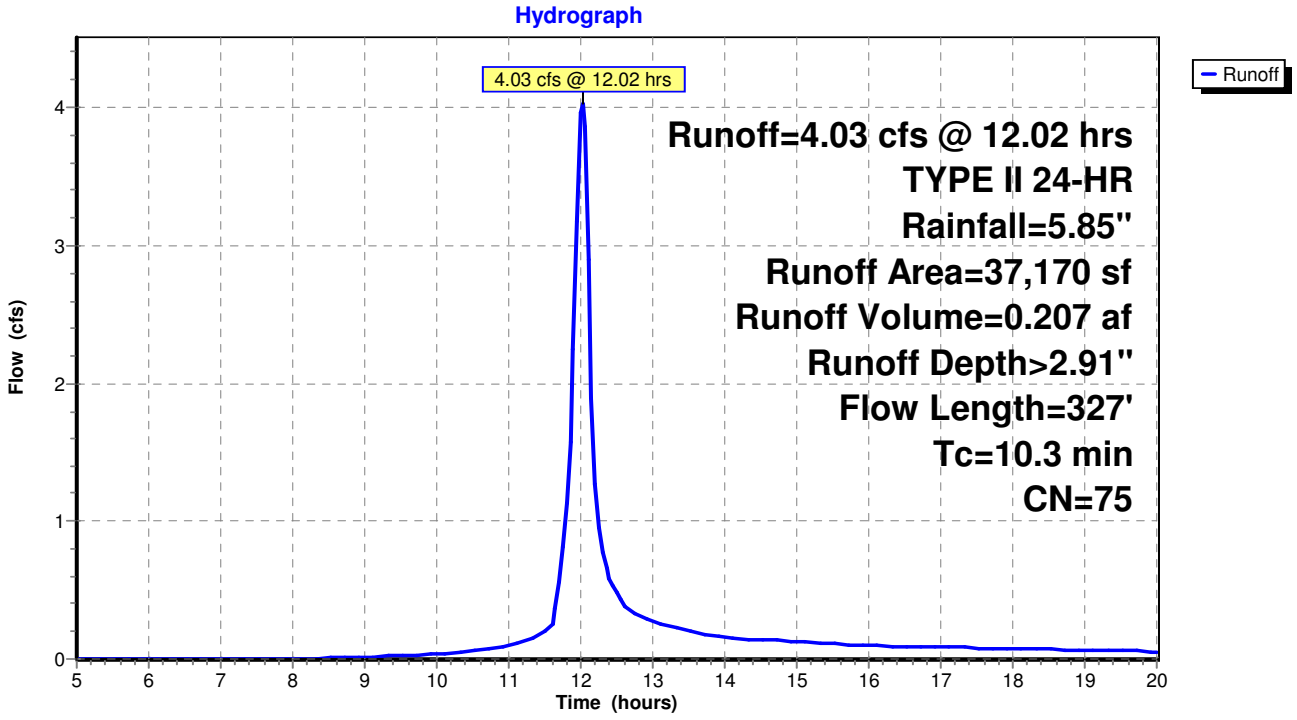
Runoff = 4.03 cfs @ 12.02 hrs, Volume= 0.207 af, Depth> 2.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=5.85"

Area (sf)	CN	Description
6,031	98	Paved parking & roofs
18,864	74	>75% Grass cover, Good, HSG C
12,275	65	Brush, Good, HSG C
37,170	75	Weighted Average
31,139		83.77% Pervious Area
6,031		16.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	100	0.0300	0.18		**Sheet Flow, First 100' Flowpath** Grass: Short n= 0.150 P2= 2.70"
0.7	70	0.0140	1.77		**Shallow Concentrated Flow, Balance of Flow to Channel** Grassed Waterway Kv= 15.0 fps
0.5	157	0.0190	5.40	27.00	**Trap/Vee/Rect Channel Flow, Balance of Longest Flowpath** Bot.W=2.00' D=1.00' Z= 3.0 '/' Top.W=8.00' n= 0.027
10.3	327	Total			

Subcatchment PSC 1: Proposed Subcatchment 1



Summary for Subcatchment PSC 4: Proposed Subcatchment 4

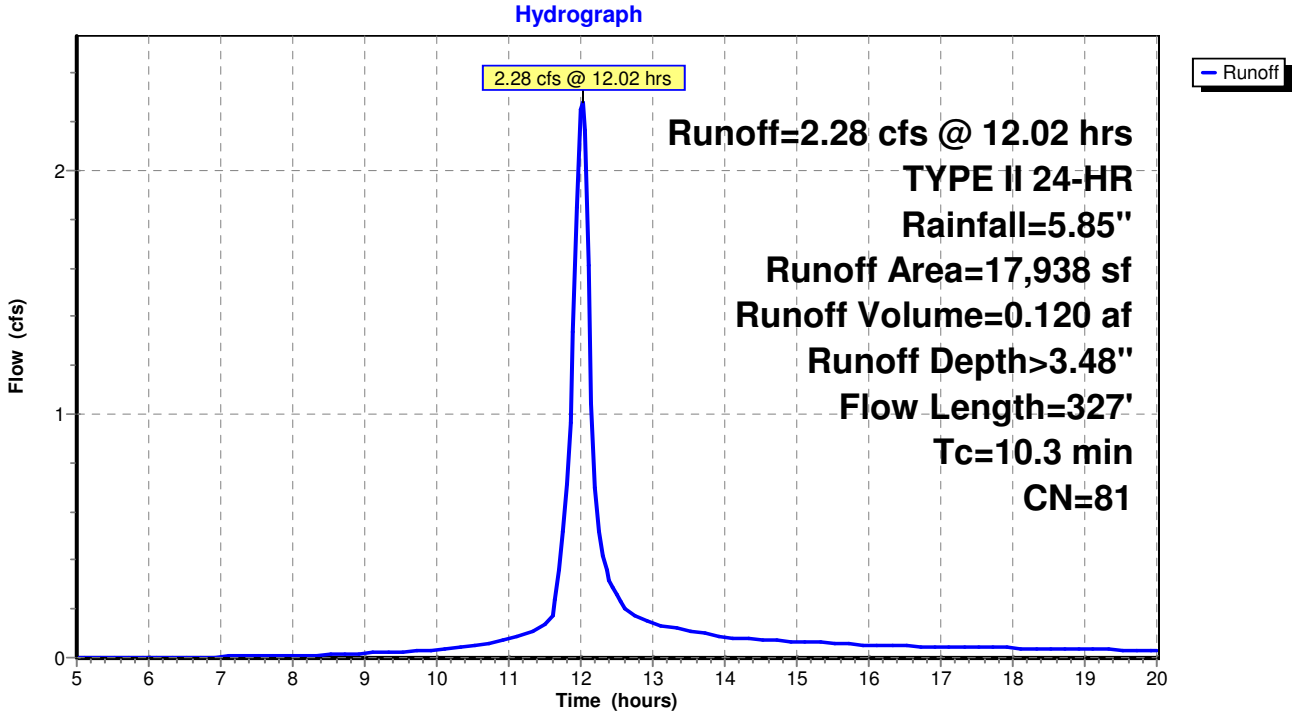
Runoff = 2.28 cfs @ 12.02 hrs, Volume= 0.120 af, Depth> 3.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=5.85"

Area (sf)	CN	Description
5,212	98	Paved parking & roofs
12,726	74	>75% Grass cover, Good, HSG C
17,938	81	Weighted Average
12,726		70.94% Pervious Area
5,212		29.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.1	100	0.0300	0.18		**Sheet Flow, First 100' Flowpath** Grass: Short n= 0.150 P2= 2.70"
0.7	70	0.0140	1.77		**Shallow Concentrated Flow, Balance of Flow to Channel** Grassed Waterway Kv= 15.0 fps
0.5	157	0.0190	5.40	27.00	**Trap/Vee/Rect Channel Flow, Balance of Longest Flowpath** Bot.W=2.00' D=1.00' Z= 3.0 '/' Top.W=8.00' n= 0.027
10.3	327	Total			

Subcatchment PSC 4: Proposed Subcatchment 4



Summary for Subcatchment PSC 5: Proposed Subcatchment 5

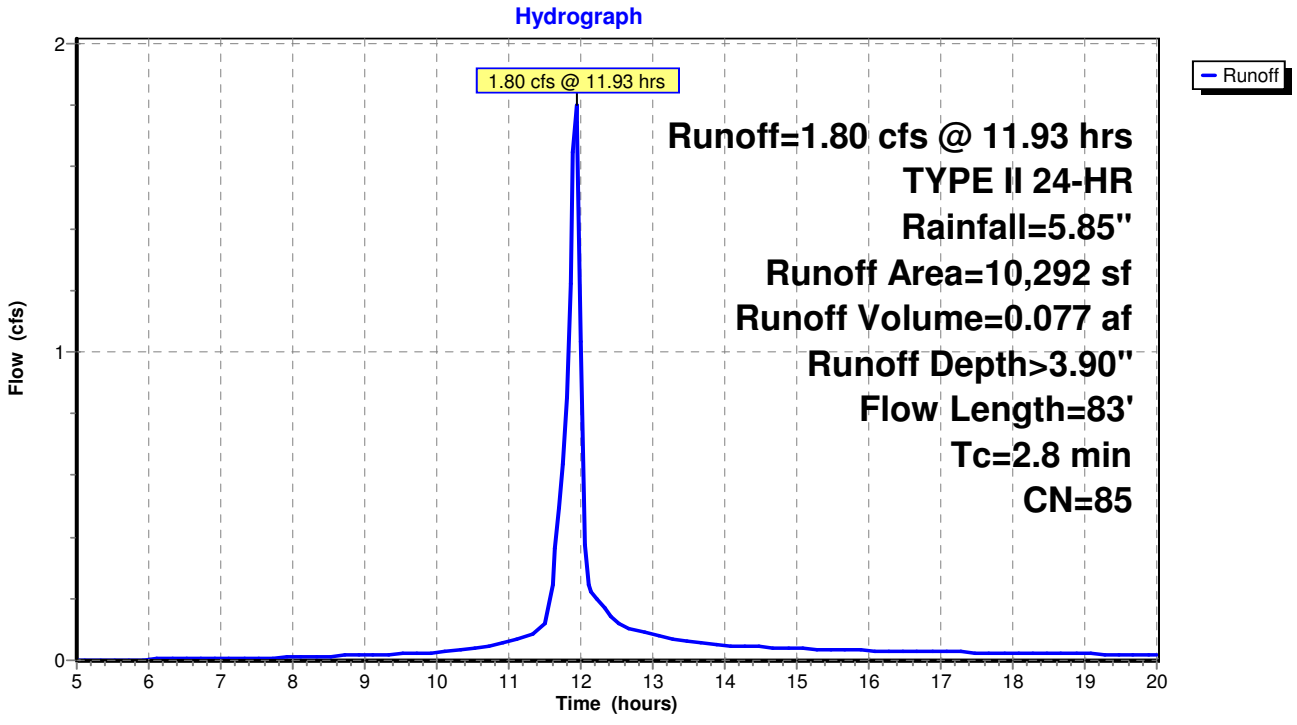
Runoff = 1.80 cfs @ 11.93 hrs, Volume= 0.077 af, Depth> 3.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=5.85"

Area (sf)	CN	Description
4,615	98	Paved parking & roofs
5,677	74	>75% Grass cover, Good, HSG C
10,292	85	Weighted Average
5,677		55.16% Pervious Area
4,615		44.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	23	0.0860	0.21		**Sheet Flow, First 100' Flowpath** Grass: Short n= 0.150 P2= 2.70"
1.0	60	0.0140	0.99		**Sheet Flow, First 100' Flowpath** Smooth surfaces n= 0.011 P2= 2.70"
2.8	83	Total			

Subcatchment PSC 5: Proposed Subcatchment 5



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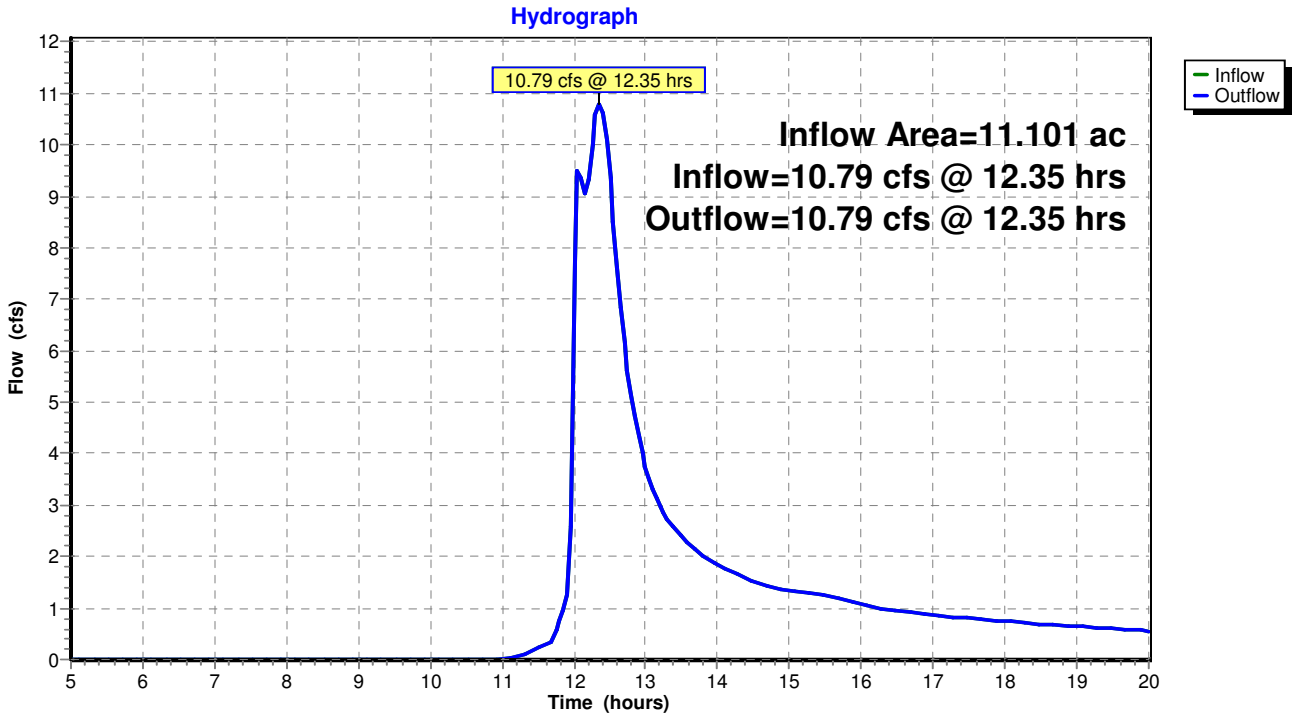
Summary for Reach DP 1: Design Point Summation 1

Inflow Area = 11.101 ac, 3.71% Impervious, Inflow Depth > 1.50"
Inflow = 10.79 cfs @ 12.35 hrs, Volume= 1.389 af
Outflow = 10.79 cfs @ 12.35 hrs, Volume= 1.389 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach DP 1: Design Point Summation 1



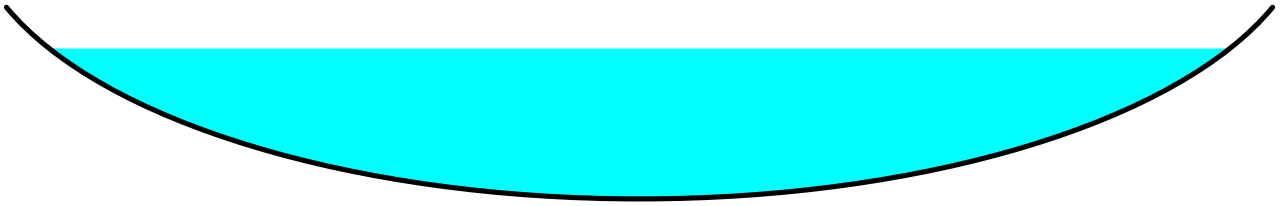
Summary for Reach DS: Diversion Swale

Inflow Area = 9.272 ac, 0.51% Impervious, Inflow Depth > 1.26"
Inflow = 9.31 cfs @ 12.32 hrs, Volume= 0.970 af
Outflow = 9.20 cfs @ 12.38 hrs, Volume= 0.966 af, Atten= 1%, Lag= 3.7 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.50 fps, Min. Travel Time= 2.1 min
Avg. Velocity = 1.25 fps, Avg. Travel Time= 4.2 min

Peak Storage= 1,178 cf @ 12.34 hrs
Average Depth at Peak Storage= 0.78'
Bank-Full Depth= 1.00' Flow Area= 5.3 sf, Capacity= 15.57 cfs

8.00' x 1.00' deep Parabolic Channel, n= 0.030
Length= 318.0' Slope= 0.0063 '/'
Inlet Invert= 0.00', Outlet Invert= -2.00'



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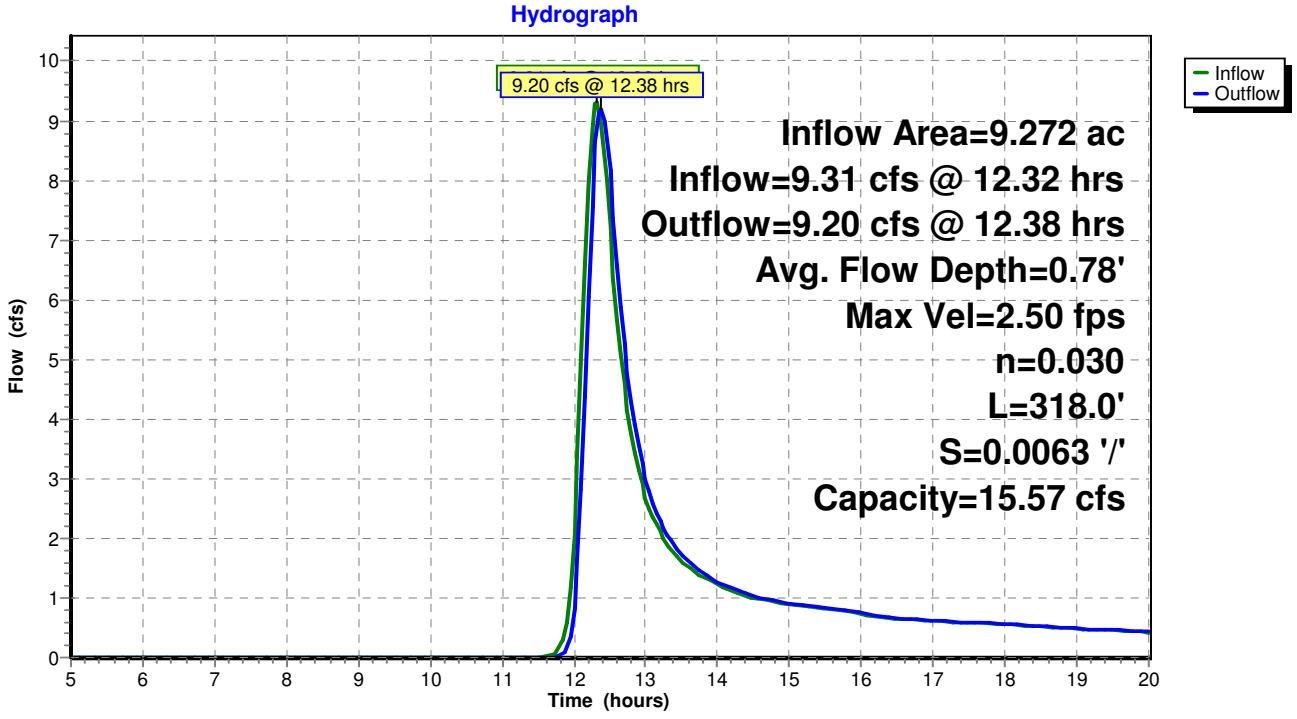
Reach DS: Diversion Swale



Summary for Pond BR 1: Bioretention Area 1

Inflow Area = 0.853 ac, 16.23% Impervious, Inflow Depth > 2.91"
Inflow = 4.03 cfs @ 12.02 hrs, Volume= 0.207 af
Outflow = 3.89 cfs @ 12.06 hrs, Volume= 0.195 af, Atten= 3%, Lag= 2.2 min
Primary = 0.25 cfs @ 12.06 hrs, Volume= 0.118 af
Secondary = 3.64 cfs @ 12.06 hrs, Volume= 0.077 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 4.38' @ 12.06 hrs Surf.Area= 1,598 sf Storage= 2,203 cf
Flood Elev= 5.00' Surf.Area= 0 sf Storage= 2,454 cf

Plug-Flow detention time= 61.9 min calculated for 0.195 af (94% of inflow)
Center-of-Mass det. time= 41.6 min (828.4 - 786.8)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	2,454 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	438	0	0
1.00	438	438	438
1.10	219	33	471
3.50	219	526	996
3.51	1,094	7	1,003
4.50	1,669	1,368	2,371
4.60	0	83	2,454

Device	Routing	Invert	Outlet Devices
#1	Secondary	4.00'	**6.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Primary	1.00'	**4.0" Round Culvert** L= 197.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1.00' / 0.50' S= 0.0025 '/' Cc= 0.900 n= 0.013, Flow Area= 0.09 sf

Primary OutFlow Max=0.25 cfs @ 12.06 hrs HW=4.37' (Free Discharge)
└**2=Culvert** (Barrel Controls 0.25 cfs @ 2.82 fps)

Secondary OutFlow Max=3.56 cfs @ 12.06 hrs HW=4.37' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 3.56 cfs @ 1.59 fps)

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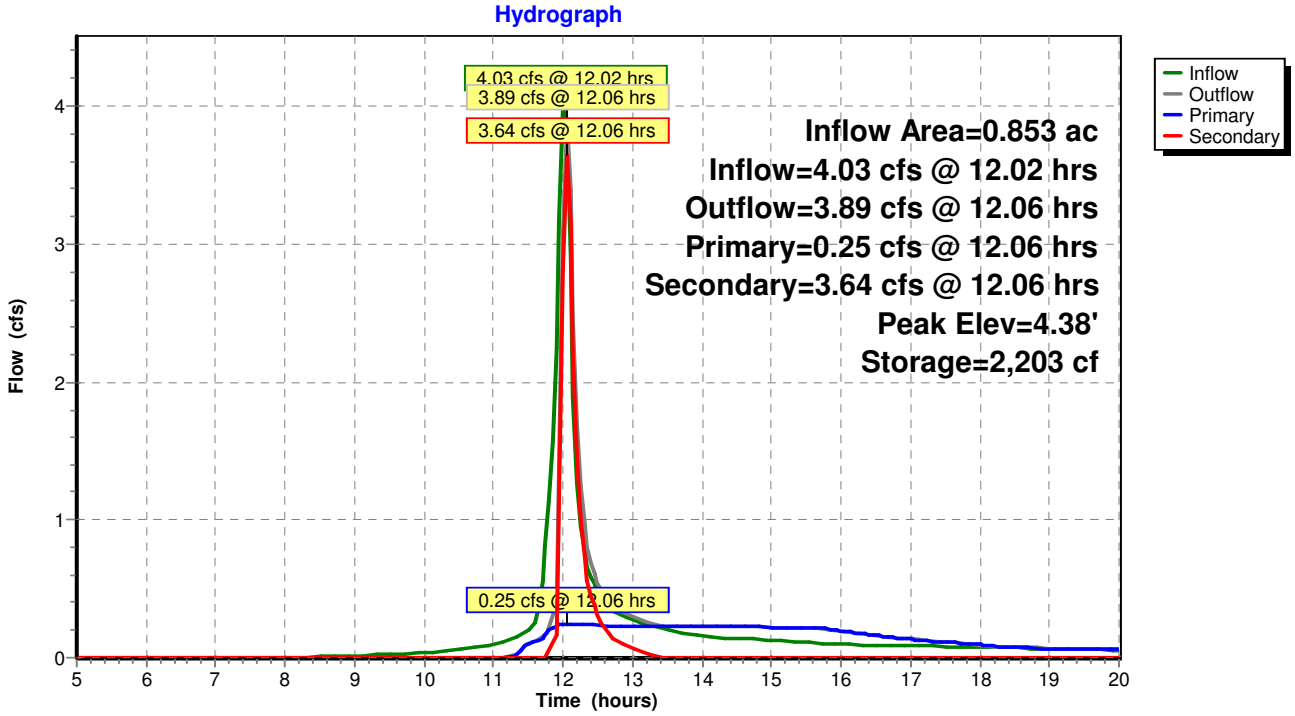
Pond BR 1: Bioretention Area 1



Summary for Pond BR 4: Bioretention Area 4

Inflow Area = 0.412 ac, 29.06% Impervious, Inflow Depth > 3.48"
Inflow = 2.28 cfs @ 12.02 hrs, Volume= 0.120 af
Outflow = 2.20 cfs @ 12.06 hrs, Volume= 0.103 af, Atten= 4%, Lag= 2.5 min
Primary = 0.17 cfs @ 12.06 hrs, Volume= 0.065 af
Secondary = 2.02 cfs @ 12.06 hrs, Volume= 0.039 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 4.26' @ 12.06 hrs Surf.Area= 1,216 sf Storage= 1,631 cf
Flood Elev= 5.00' Surf.Area= 0 sf Storage= 1,963 cf

Plug-Flow detention time= 88.3 min calculated for 0.103 af (86% of inflow)
Center-of-Mass det. time= 47.0 min (822.1 - 775.1)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	1,963 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	352	0	0
1.00	352	352	352
1.10	176	26	378
3.50	176	422	801
3.51	880	5	806
4.50	1,324	1,091	1,897
4.60	0	66	1,963

Device	Routing	Invert	Outlet Devices
#1	Secondary	4.00'	**6.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Primary	2.75'	**4.0" Round Culvert** L= 157.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 2.75' / 2.50' S= 0.0016 '/' Cc= 0.900 n= 0.013, Flow Area= 0.09 sf

Primary OutFlow Max=0.17 cfs @ 12.06 hrs HW=4.25' (Free Discharge)
└**2=Culvert** (Barrel Controls 0.17 cfs @ 1.98 fps)

Secondary OutFlow Max=1.97 cfs @ 12.06 hrs HW=4.25' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 1.97 cfs @ 1.29 fps)

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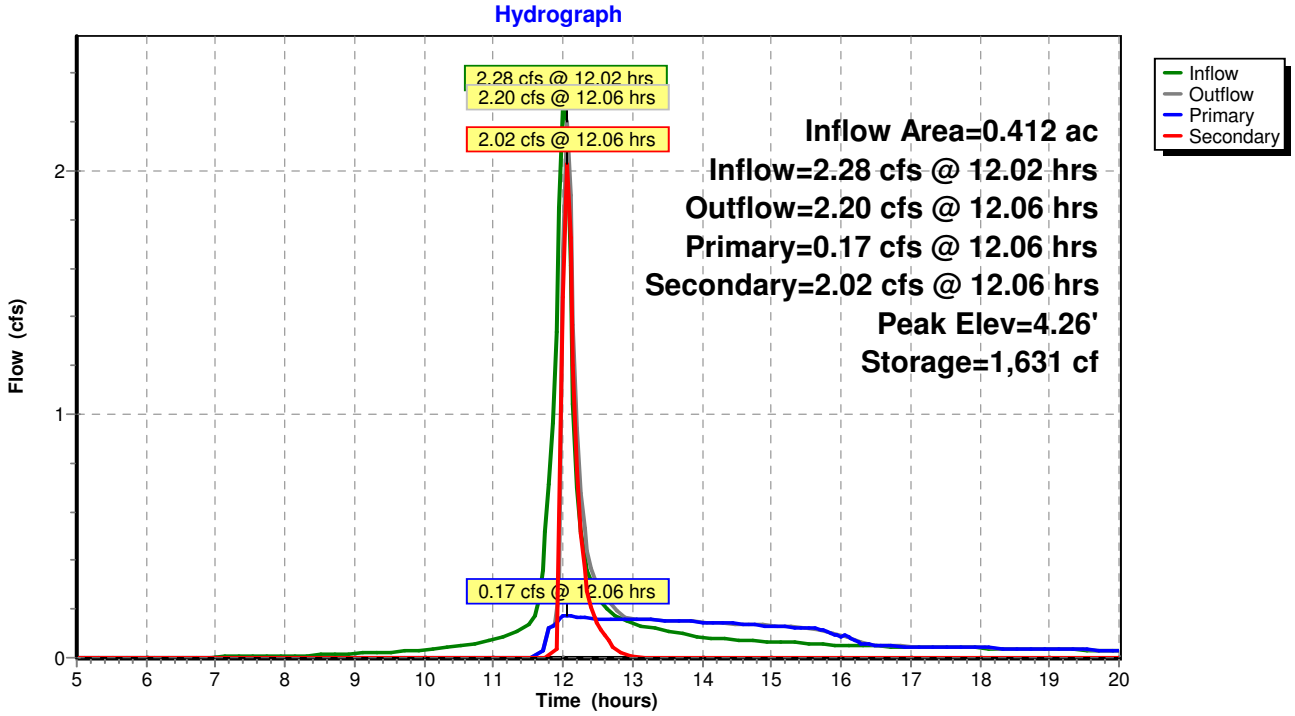
Pond BR 4: Bioretention Area 4



Summary for Pond BR 5: Bioretention Area 5

Inflow Area = 0.236 ac, 44.84% Impervious, Inflow Depth > 3.90"
Inflow = 1.80 cfs @ 11.93 hrs, Volume= 0.077 af
Outflow = 1.19 cfs @ 12.01 hrs, Volume= 0.069 af, Atten= 34%, Lag= 4.6 min
Primary = 0.23 cfs @ 12.01 hrs, Volume= 0.060 af
Secondary = 0.96 cfs @ 12.01 hrs, Volume= 0.009 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 4.16' @ 12.01 hrs Surf.Area= 1,111 sf Storage= 1,390 cf
Flood Elev= 5.00' Surf.Area= 0 sf Storage= 1,807 cf

Plug-Flow detention time= 85.2 min calculated for 0.069 af (90% of inflow)
Center-of-Mass det. time= 49.9 min (809.8 - 759.9)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	1,807 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	314	0	0
1.00	314	314	314
1.10	157	24	338
3.50	157	377	714
3.51	786	5	719
4.50	1,282	1,024	1,743
4.60	0	64	1,807

Device	Routing	Invert	Outlet Devices
#1	Secondary	4.00'	**6.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Primary	1.00'	**4.0" Round Culvert** L= 219.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 1.00' / 0.50' S= 0.0023 '/' Cc= 0.900 n= 0.013, Flow Area= 0.09 sf

Primary OutFlow Max=0.23 cfs @ 12.01 hrs HW=4.15' (Free Discharge)
└**2=Culvert** (Barrel Controls 0.23 cfs @ 2.60 fps)

Secondary OutFlow Max=0.88 cfs @ 12.01 hrs HW=4.15' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 0.88 cfs @ 0.98 fps)

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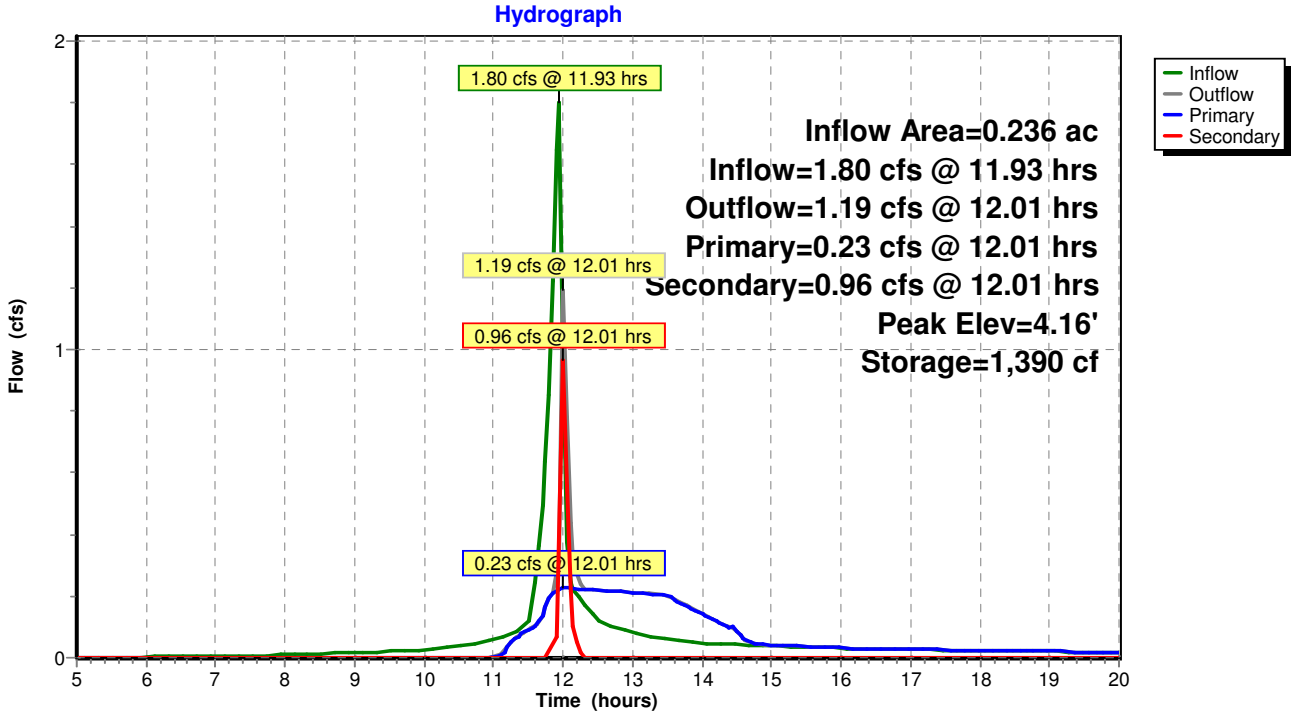
Pond BR 5: Bioretention Area 5



Summary for Pond Sed: Sediment Trap

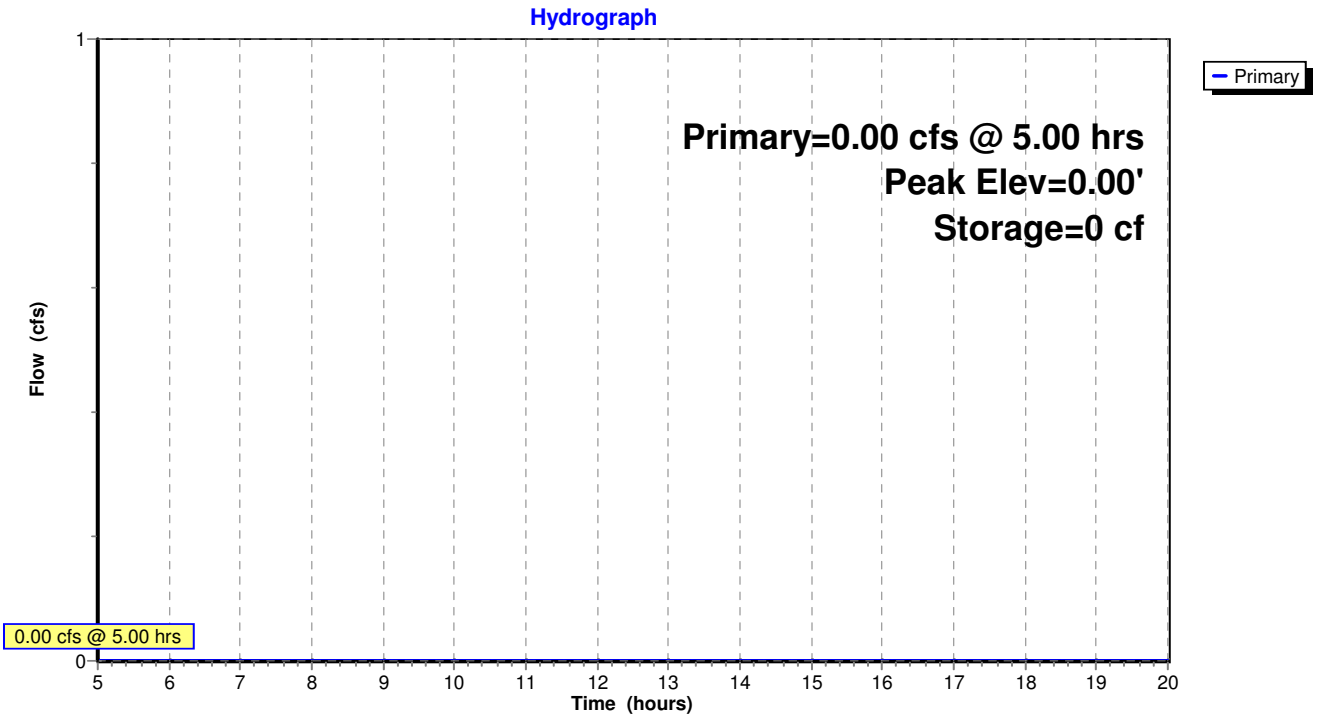
Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	22,831 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

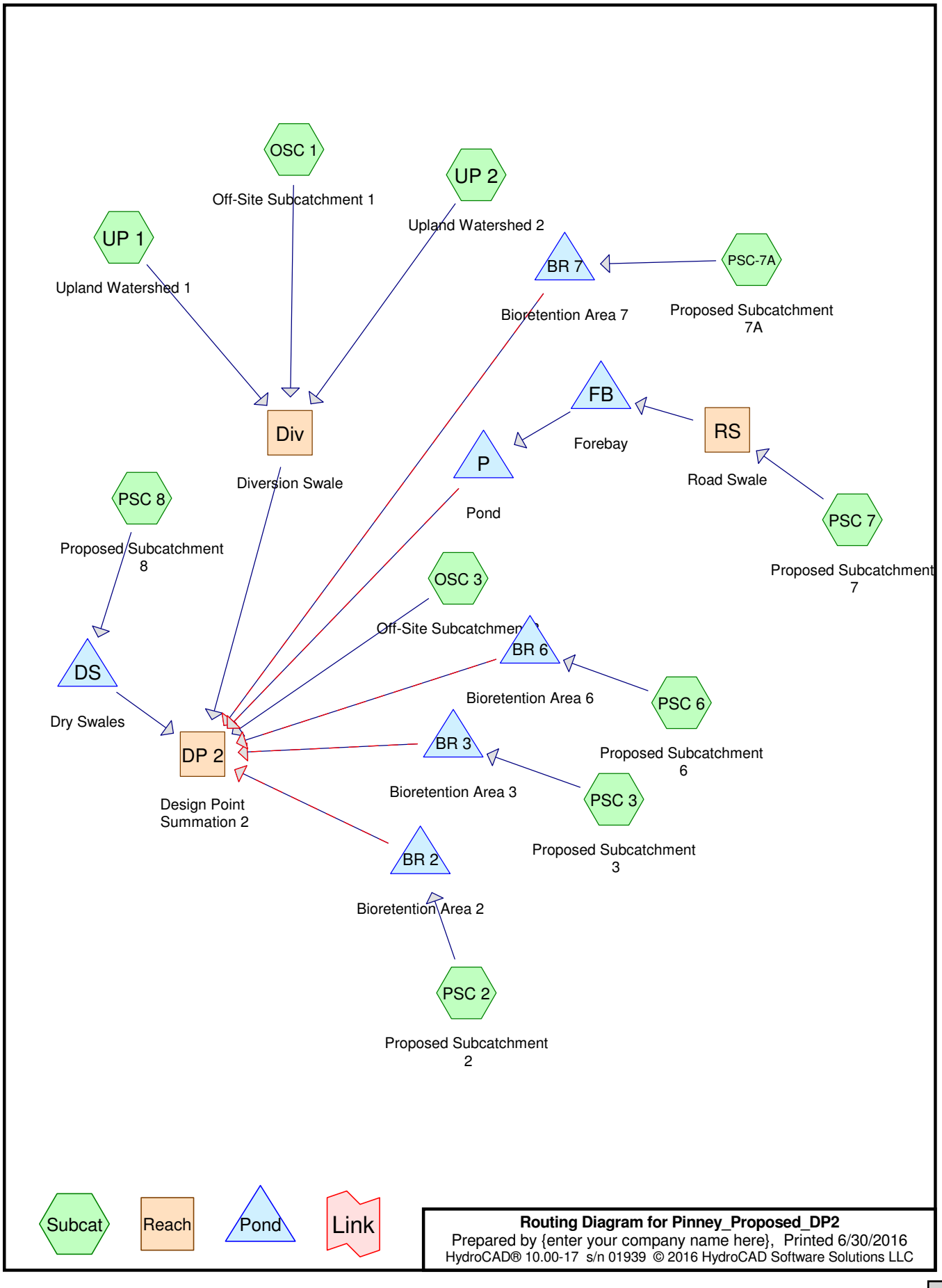
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	3,425	0	0
1.00	5,874	4,650	4,650
2.00	8,774	7,324	11,974
3.00	11,765	10,270	22,243
3.10	0	588	22,831

Device	Routing	Invert	Outlet Devices
#1	Primary	2.00'	**6.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=0.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond Sed: Sediment Trap





Routing Diagram for Pinney_Proposed_DP2
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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.519	39	>75% Grass cover, Good, HSG A (PSC 7)
0.491	61	>75% Grass cover, Good, HSG B (PSC 7)
3.449	74	>75% Grass cover, Good, HSG C (PSC 2, PSC 3, PSC 6, PSC 7, PSC-7A)
2.435	30	Brush, Good, HSG A (OSC 3)
0.360	48	Brush, Good, HSG B (OSC 3)
21.522	65	Brush, Good, HSG C (OSC 1, OSC 3, PSC 7, PSC 8, UP 1, UP 2)
2.059	98	Paved parking & roofs (PSC 2, PSC 3, PSC 6, PSC 7, PSC 8)
0.046	98	Roofs, HSG C (PSC-7A)
0.035	98	Unconnected roofs, HSG A (OSC 3)
30.917	**65**	**TOTAL AREA**

Pinney_Proposed_DP2

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
2.989	HSG A	OSC 3, PSC 7
0.851	HSG B	OSC 3, PSC 7
25.018	HSG C	OSC 1, OSC 3, PSC 2, PSC 3, PSC 6, PSC 7, PSC 8, PSC-7A, UP 1, UP 2
0.000	HSG D	
2.059	Other	PSC 2, PSC 3, PSC 6, PSC 7, PSC 8
30.917		**TOTAL AREA**

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.519	0.491	3.449	0.000	0.000	4.460	>75% Grass cover, Good	PSC 2, PSC 3, PSC 6, PSC 7, PSC-7A
2.435	0.360	21.522	0.000	0.000	24.317	Brush, Good	OSC 1, OSC 3, PSC 7, PSC 8, UP 1, UP 2
0.000	0.000	0.000	0.000	2.059	2.059	Paved parking & roofs	PSC 2, PSC 3, PSC 6, PSC 7, PSC 8
0.000	0.000	0.046	0.000	0.000	0.046	Roofs	PSC-7A
0.035	0.000	0.000	0.000	0.000	0.035	Unconnected roofs	OSC 3
2.989	**0.851**	**25.018**	**0.000**	**2.059**	**30.917**	**TOTAL AREA**	

Pinney_Proposed_DP2

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	BR 2	2.00	1.50	177.0	0.0028	0.013	4.0	0.0	0.0
2	BR 3	2.00	1.50	57.0	0.0088	0.013	4.0	0.0	0.0
3	BR 6	2.50	2.00	132.0	0.0038	0.013	4.0	0.0	0.0
4	BR 7	2.00	1.50	57.0	0.0088	0.013	4.0	0.0	0.0
5	DS	0.00	-0.50	127.0	0.0039	0.013	4.0	0.0	0.0
6	P	0.00	-1.00	104.0	0.0096	0.013	12.0	0.0	0.0

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment OSC 1: Off-Site Runoff Area=143,197 sf 0.00% Impervious Runoff Depth>0.11"
Flow Length=2,079' Slope=0.0170 '/' Tc=4.6 min CN=65 Runoff=0.33 cfs 0.030 af

Subcatchment OSC 3: Off-Site Runoff Area=529,093 sf 0.28% Impervious Runoff Depth>0.03"
Flow Length=1,570' Tc=19.6 min CN=58 Runoff=0.05 cfs 0.026 af

Subcatchment PSC 2: Proposed Runoff Area=16,829 sf 34.86% Impervious Runoff Depth>0.58"
Flow Length=170' Tc=14.8 min CN=82 Runoff=0.31 cfs 0.019 af

Subcatchment PSC 3: Proposed Runoff Area=8,226 sf 24.51% Impervious Runoff Depth>0.50"
Flow Length=146' Tc=8.0 min CN=80 Runoff=0.17 cfs 0.008 af

Subcatchment PSC 6: Proposed Runoff Area=12,258 sf 31.15% Impervious Runoff Depth>0.54"
Flow Length=49' Tc=4.1 min CN=81 Runoff=0.31 cfs 0.013 af

Subcatchment PSC 7: Proposed Runoff Area=366,995 sf 20.46% Impervious Runoff Depth>0.27"
Flow Length=1,566' Tc=25.5 min CN=73 Runoff=1.83 cfs 0.193 af

Subcatchment PSC 8: Proposed Runoff Area=5,995 sf 48.99% Impervious Runoff Depth>0.54"
Flow Length=148' Slope=0.0500 '/' Tc=1.1 min CN=81 Runoff=0.16 cfs 0.006 af

Subcatchment PSC-7A: Proposed Runoff Area=5,604 sf 35.97% Impervious Runoff Depth>0.63"
Flow Length=35' Slope=0.0100 '/' Tc=0.8 min CN=83 Runoff=0.18 cfs 0.007 af

Subcatchment UP 1: Upland Watershed 1 Runoff Area=187,023 sf 0.00% Impervious Runoff Depth>0.11"
Flow Length=557' Tc=15.0 min CN=65 Runoff=0.23 cfs 0.039 af

Subcatchment UP 2: Upland Watershed 2 Runoff Area=71,533 sf 0.00% Impervious Runoff Depth>0.11"
Flow Length=410' Slope=0.0300 '/' Tc=14.5 min CN=65 Runoff=0.09 cfs 0.015 af

Reach Div: Diversion Swale Avg. Flow Depth=0.14' Max Vel=1.32 fps Inflow=0.44 cfs 0.084 af
n=0.030 L=2,079.0' S=0.0168 '/' Capacity=75.76 cfs Outflow=0.27 cfs 0.078 af

Reach DP 2: Design Point Summation 2 Inflow=0.32 cfs 0.136 af
Outflow=0.32 cfs 0.136 af

Reach RS: Road Swale Avg. Flow Depth=0.28' Max Vel=2.43 fps Inflow=1.83 cfs 0.193 af
n=0.027 L=1,232.0' S=0.0187 '/' Capacity=56.90 cfs Outflow=1.56 cfs 0.189 af

Pond BR 2: Bioretention Area 2 Peak Elev=2.09' Storage=688 cf Inflow=0.31 cfs 0.019 af
Primary=0.01 cfs 0.003 af Secondary=0.00 cfs 0.000 af Outflow=0.01 cfs 0.003 af

Pond BR 3: Bioretention Area 3 Peak Elev=2.04' Storage=306 cf Inflow=0.17 cfs 0.008 af
Primary=0.00 cfs 0.001 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.001 af

Pond BR 6: Bioretention Area 6 Peak Elev=2.62' Storage=330 cf Inflow=0.31 cfs 0.013 af
Primary=0.02 cfs 0.005 af Secondary=0.00 cfs 0.000 af Outflow=0.02 cfs 0.005 af

Pond BR 7: Bioretention Area 7 Peak Elev=1.92' Storage=294 cf Inflow=0.18 cfs 0.007 af
Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Pond DS: Dry Swales Peak Elev=0.35' Storage=49 cf Inflow=0.16 cfs 0.006 af
Outflow=0.12 cfs 0.006 af

Pond FB: Forebay Peak Elev=4.17' Storage=2,928 cf Inflow=1.56 cfs 0.189 af
Outflow=1.03 cfs 0.122 af

Pond P: Pond Peak Elev=4.47' Storage=10,418 cf Inflow=1.03 cfs 0.122 af
Primary=0.04 cfs 0.017 af Secondary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.017 af

Total Runoff Area = 30.917 ac Runoff Volume = 0.356 af Average Runoff Depth = 0.14"
93.08% Pervious = 28.777 ac 6.92% Impervious = 2.140 ac

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Summary for Subcatchment OSC 1: Off-Site Subcatchment 1

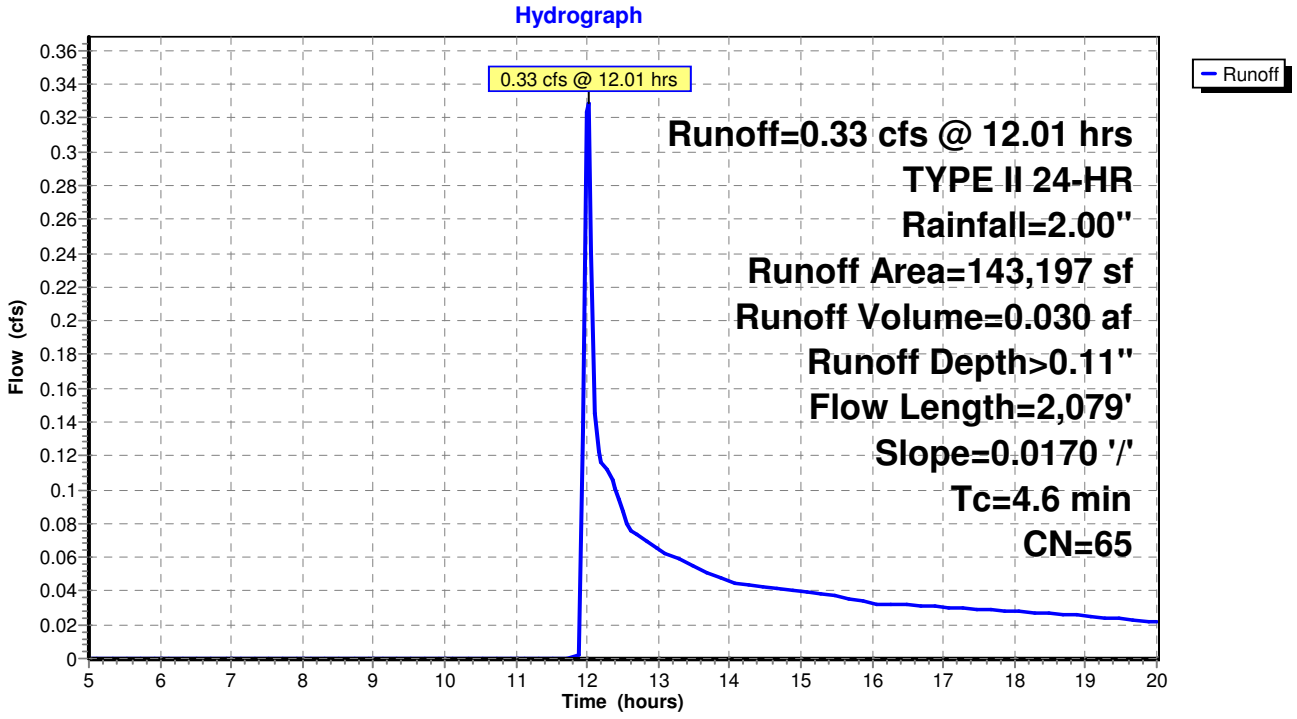
Runoff = 0.33 cfs @ 12.01 hrs, Volume= 0.030 af, Depth> 0.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=2.00"

Area (sf)	CN	Description
143,197	65	Brush, Good, HSG C
143,197		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	2,079	0.0170	7.61	121.77	**Trap/Vee/Rect Channel Flow, Balance of Longest Flowpath** Bot.W=2.00' D=2.00' Z= 3.0 '/' Top.W=14.00' n= 0.027

Subcatchment OSC 1: Off-Site Subcatchment 1



Summary for Subcatchment OSC 3: Off-Site Subcatchment 3

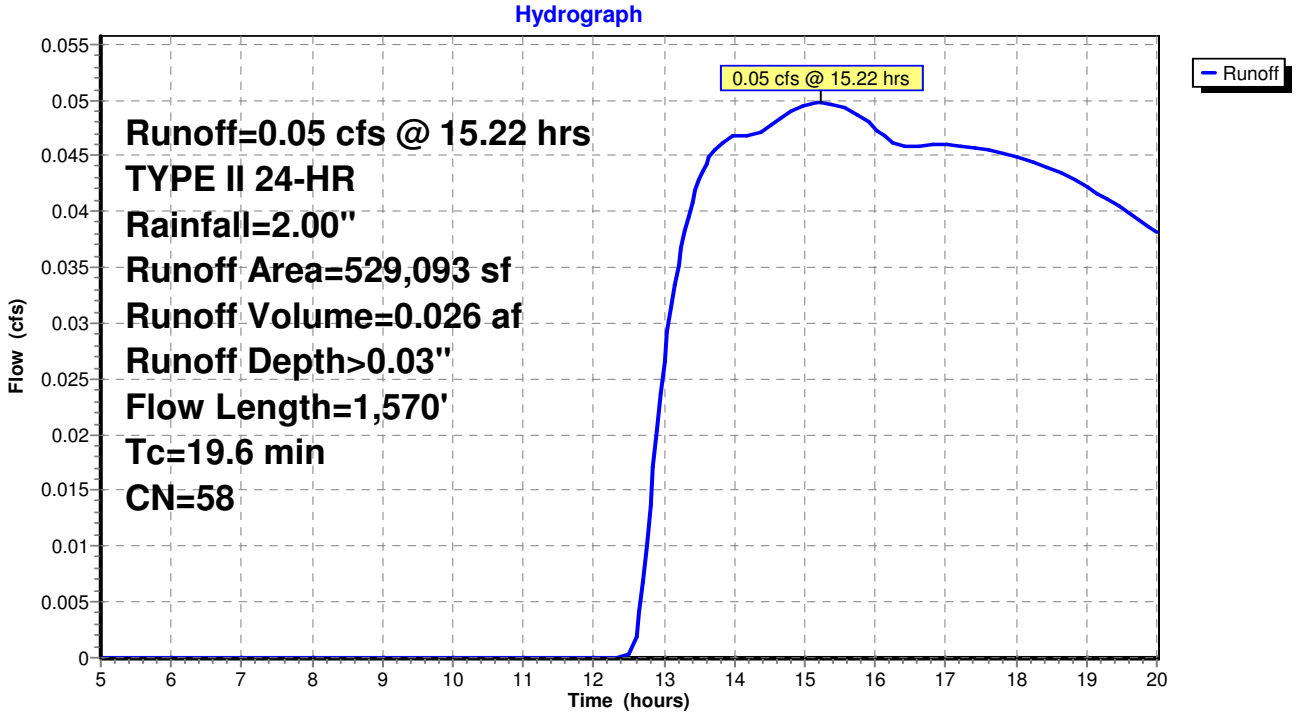
Runoff = 0.05 cfs @ 15.22 hrs, Volume= 0.026 af, Depth> 0.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=2.00"

Area (sf)	CN	Description
106,079	30	Brush, Good, HSG A
15,682	48	Brush, Good, HSG B
405,827	65	Brush, Good, HSG C
1,505	98	Unconnected roofs, HSG A
529,093	58	Weighted Average
527,588		99.72% Pervious Area
1,505		0.28% Impervious Area
1,505		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.8	100	0.0400	0.14		**Sheet Flow, First 100' Flowpath** Grass: Dense n= 0.240 P2= 2.70"
6.8	1,064	0.0300	2.60		**Shallow Concentrated Flow, Balance of Flow to Channel** Grassed Waterway Kv= 15.0 fps
1.0	406	0.0110	6.52	130.46	**Trap/Vee/Rect Channel Flow, Balance of Flowpath** Bot.W=4.00' D=2.00' Z= 3.0 '/' Top.W=16.00' n= 0.027
19.6	1,570	Total			

Subcatchment OSC 3: Off-Site Subcatchment 3



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Summary for Subcatchment PSC 2: Proposed Subcatchment 2

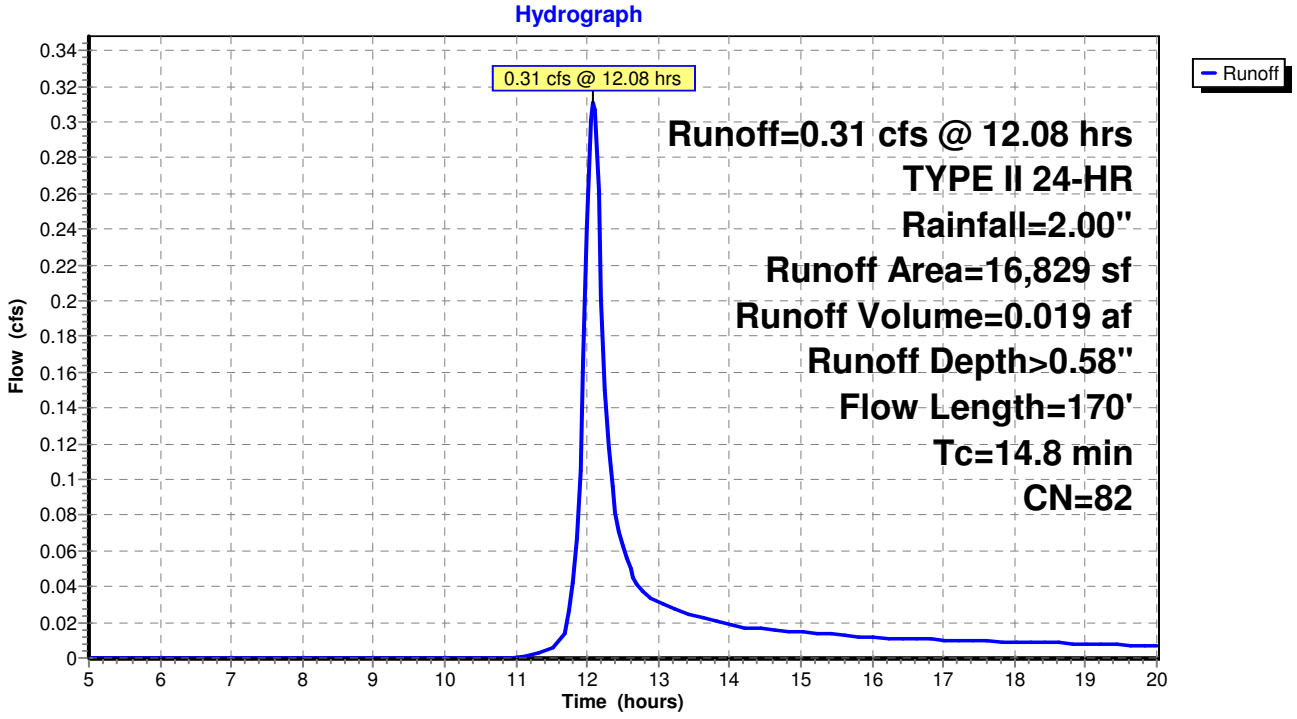
Runoff = 0.31 cfs @ 12.08 hrs, Volume= 0.019 af, Depth> 0.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=2.00"

Area (sf)	CN	Description
5,866	98	Paved parking & roofs
10,963	74	>75% Grass cover, Good, HSG C
16,829	82	Weighted Average
10,963		65.14% Pervious Area
5,866		34.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.1	100	0.0100	0.12		**Sheet Flow, First 100' Flowpath** Grass: Short n= 0.150 P2= 2.70"
0.6	65	0.0070	1.70		**Shallow Concentrated Flow, Balance of Flow to Channel** Paved Kv= 20.3 fps
0.1	5	0.0070	1.25		**Shallow Concentrated Flow, Balance of Longest Flowpath** Grassed Waterway Kv= 15.0 fps
14.8	170	Total			

Subcatchment PSC 2: Proposed Subcatchment 2



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Summary for Subcatchment PSC 3: Proposed Subcatchment 3

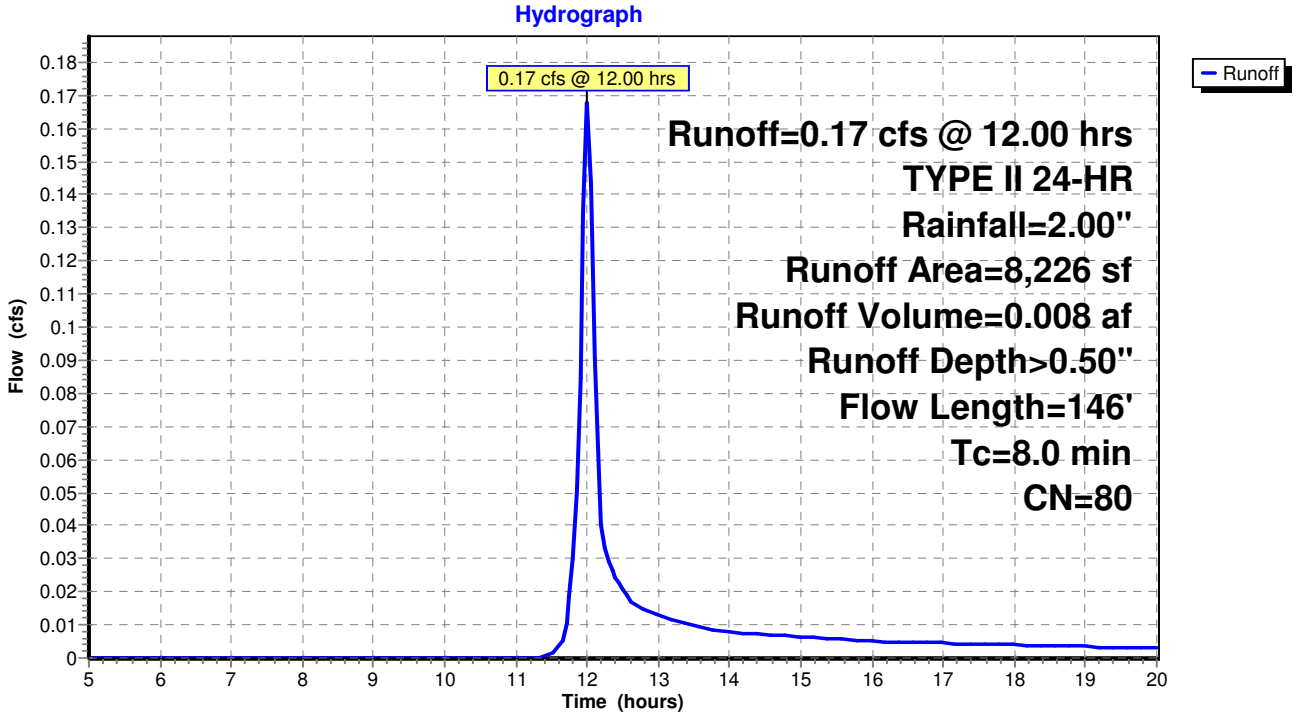
Runoff = 0.17 cfs @ 12.00 hrs, Volume= 0.008 af, Depth> 0.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=2.00"

Area (sf)	CN	Description
2,016	98	Paved parking & roofs
6,210	74	>75% Grass cover, Good, HSG C
8,226	80	Weighted Average
6,210		75.49% Pervious Area
2,016		24.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	76	0.0300	0.17		**Sheet Flow, First 100' Flowpath** Grass: Short n= 0.150 P2= 2.70"
0.6	65	0.0070	1.70		**Shallow Concentrated Flow, Balance of Flow to Channel** Paved Kv= 20.3 fps
0.1	5	0.0070	1.25		**Shallow Concentrated Flow, Balance of Longest Flowpath** Grassed Waterway Kv= 15.0 fps
8.0	146	Total			

Subcatchment PSC 3: Proposed Subcatchment 3



Summary for Subcatchment PSC 6: Proposed Subcatchment 6

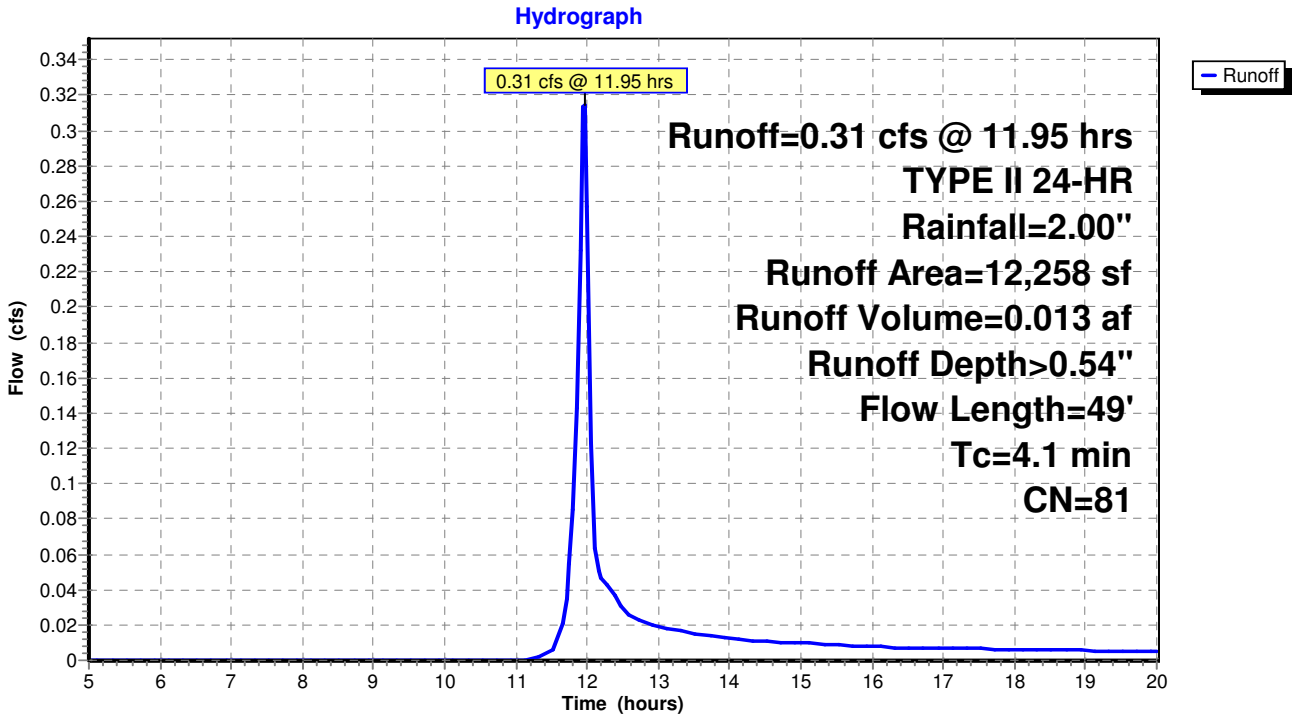
Runoff = 0.31 cfs @ 11.95 hrs, Volume= 0.013 af, Depth> 0.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=2.00"

Area (sf)	CN	Description
3,818	98	Paved parking & roofs
8,440	74	>75% Grass cover, Good, HSG C
12,258	81	Weighted Average
8,440		68.85% Pervious Area
3,818		31.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	23	0.0200	0.12		**Sheet Flow, First 100' Flowpath** Grass: Short n= 0.150 P2= 2.70"
0.8	26	0.0050	0.55		**Sheet Flow, Balance of Longest Flowpath** Smooth surfaces n= 0.011 P2= 2.70"
4.1	49	Total			

Subcatchment PSC 6: Proposed Subcatchment 6



Summary for Subcatchment PSC 7: Proposed Subcatchment 7

Runoff = 1.83 cfs @ 12.25 hrs, Volume= 0.193 af, Depth> 0.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=2.00"

Area (sf)	CN	Description
10,696	98	Paved parking & roofs
22,613	39	>75% Grass cover, Good, HSG A
14,492	98	Paved parking & roofs
21,401	61	>75% Grass cover, Good, HSG B
31,721	98	Paved parking & roofs
18,164	98	Paved parking & roofs
121,053	74	>75% Grass cover, Good, HSG C
126,855	65	Brush, Good, HSG C
366,995	73	Weighted Average
291,922		79.54% Pervious Area
75,073		20.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.5	100	0.0100	0.08		**Sheet Flow, First 100' Flowpath** Grass: Dense n= 0.240 P2= 2.70"
2.5	350	0.0240	2.32		**Shallow Concentrated Flow, Balance of Flow to Road** Grassed Waterway Kv= 15.0 fps
0.1	16	0.0100	2.03		**Shallow Concentrated Flow, Balance of Flow to Swale** Paved Kv= 20.3 fps
2.4	1,100	0.0170	7.61	121.77	**Trap/Vee/Rect Channel Flow, Balance of Longest Flowpath** Bot.W=2.00' D=2.00' Z= 3.0 '/' Top.W=14.00' n= 0.027
25.5	1,566	Total			

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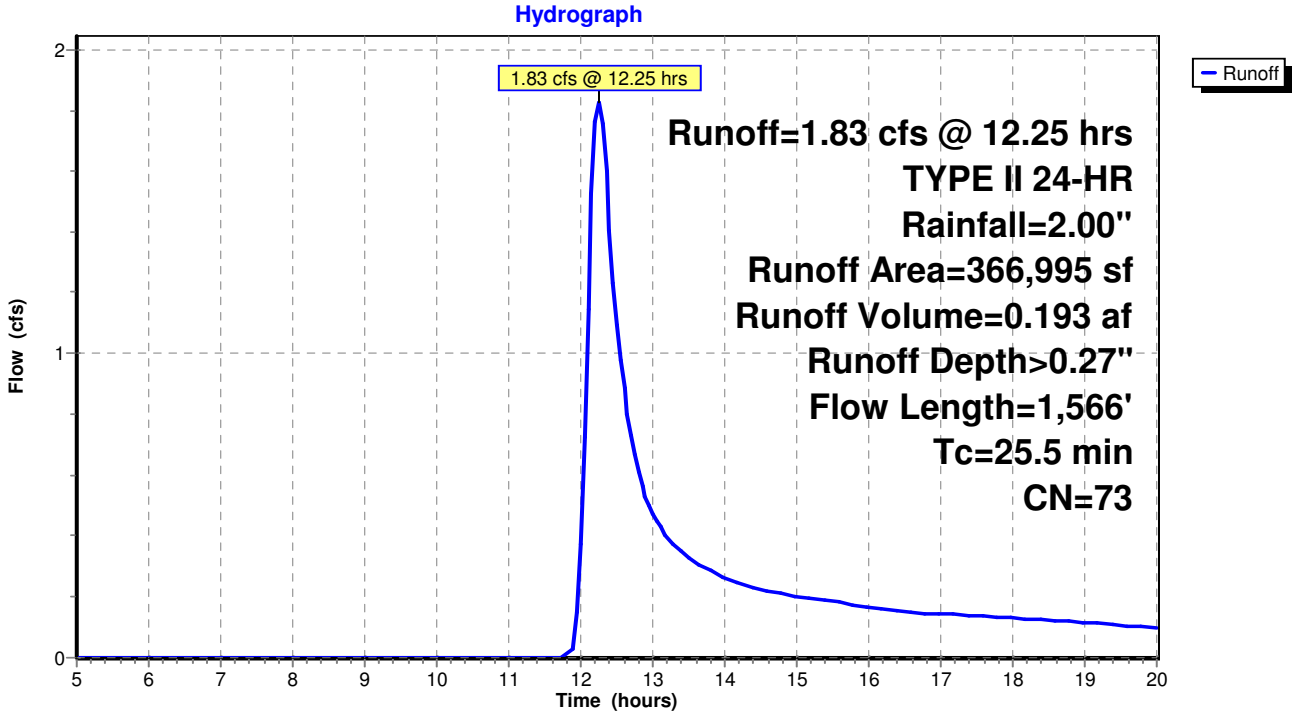
Subcatchment PSC 7: Proposed Subcatchment 7



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Summary for Subcatchment PSC 8: Proposed Subcatchment 8

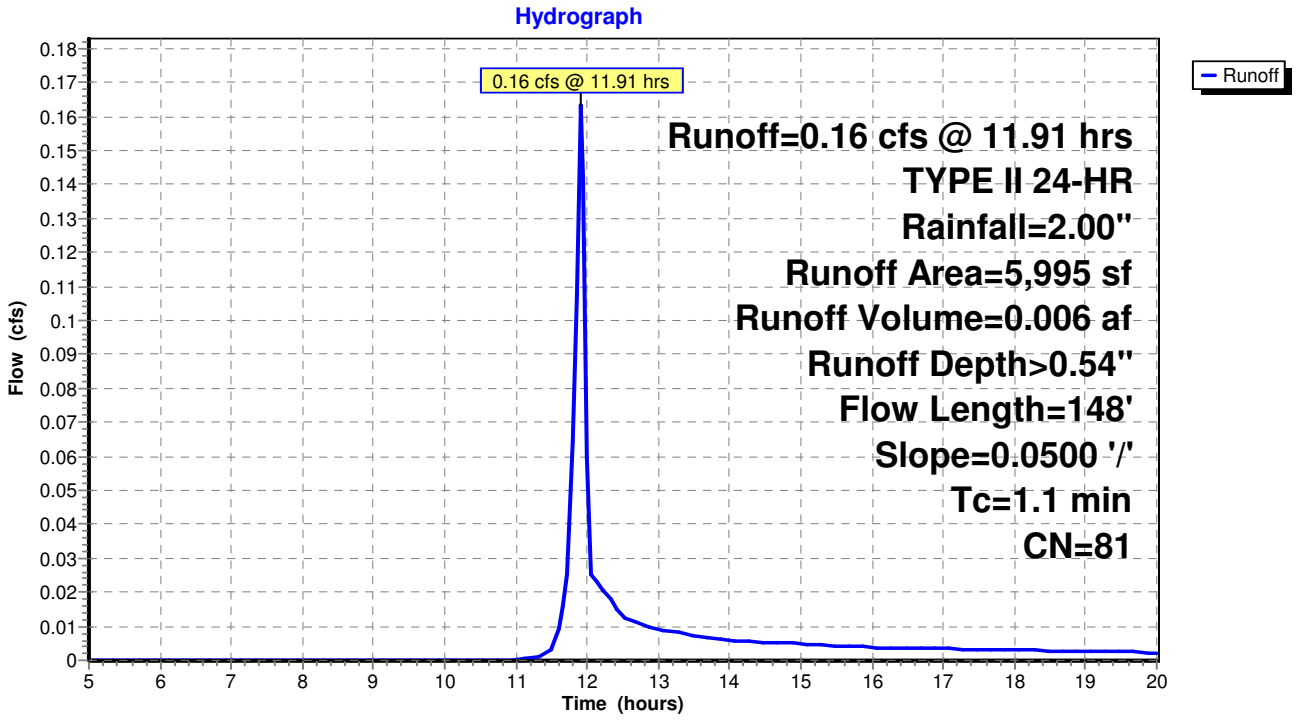
Runoff = 0.16 cfs @ 11.91 hrs, Volume= 0.006 af, Depth> 0.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=2.00"

Area (sf)	CN	Description
2,937	98	Paved parking & roofs
3,058	65	Brush, Good, HSG C
5,995	81	Weighted Average
3,058		51.01% Pervious Area
2,937		48.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	100	0.0500	1.82		**Sheet Flow, First 100' Flowpath** Smooth surfaces n= 0.011 P2= 2.70"
0.2	48	0.0500	4.54		**Shallow Concentrated Flow, Balance of Flow to Channel** Paved Kv= 20.3 fps
1.1	148	Total			

Subcatchment PSC 8: Proposed Subcatchment 8



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Summary for Subcatchment PSC-7A: Proposed Subcatchment 7A

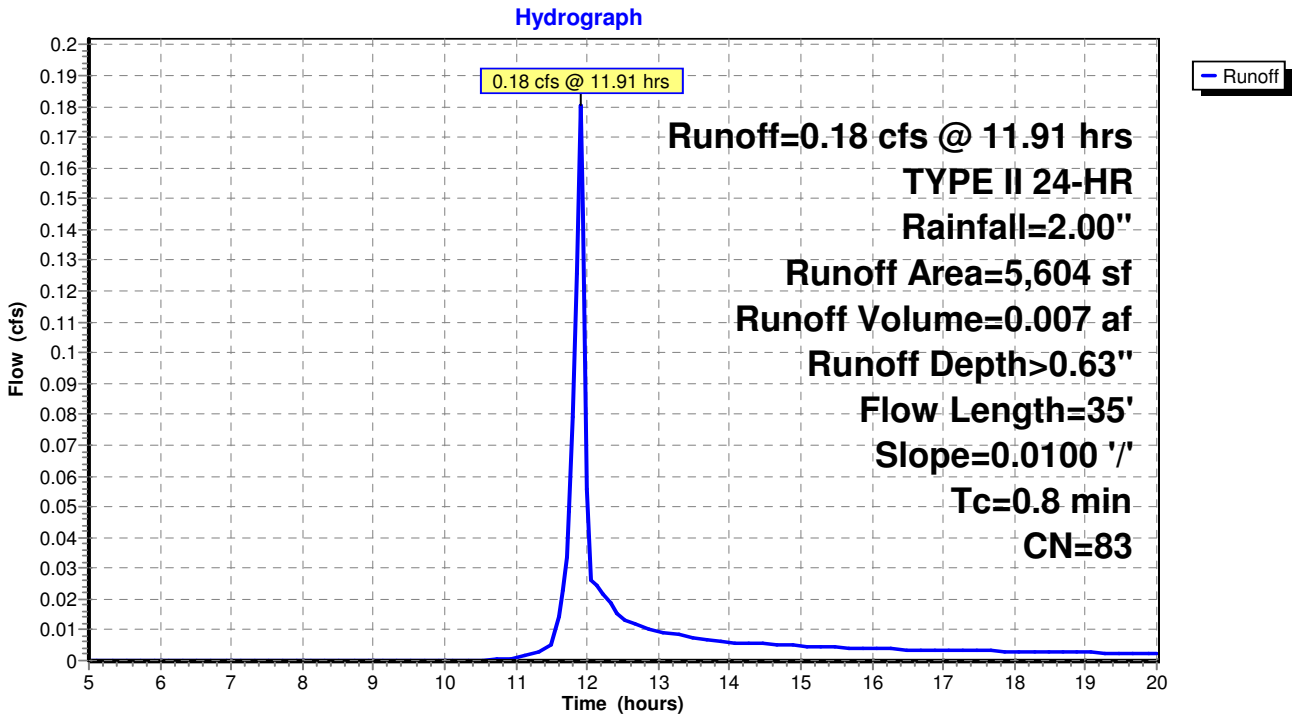
Runoff = 0.18 cfs @ 11.91 hrs, Volume= 0.007 af, Depth> 0.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=2.00"

Area (sf)	CN	Description
3,588	74	>75% Grass cover, Good, HSG C
2,016	98	Roofs, HSG C
5,604	83	Weighted Average
3,588		64.03% Pervious Area
2,016		35.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	35	0.0100	0.78		**Sheet Flow, Balance of Longest Flowpath** Smooth surfaces n= 0.011 P2= 2.70"

Subcatchment PSC-7A: Proposed Subcatchment 7A



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Summary for Subcatchment UP 1: Upland Watershed 1

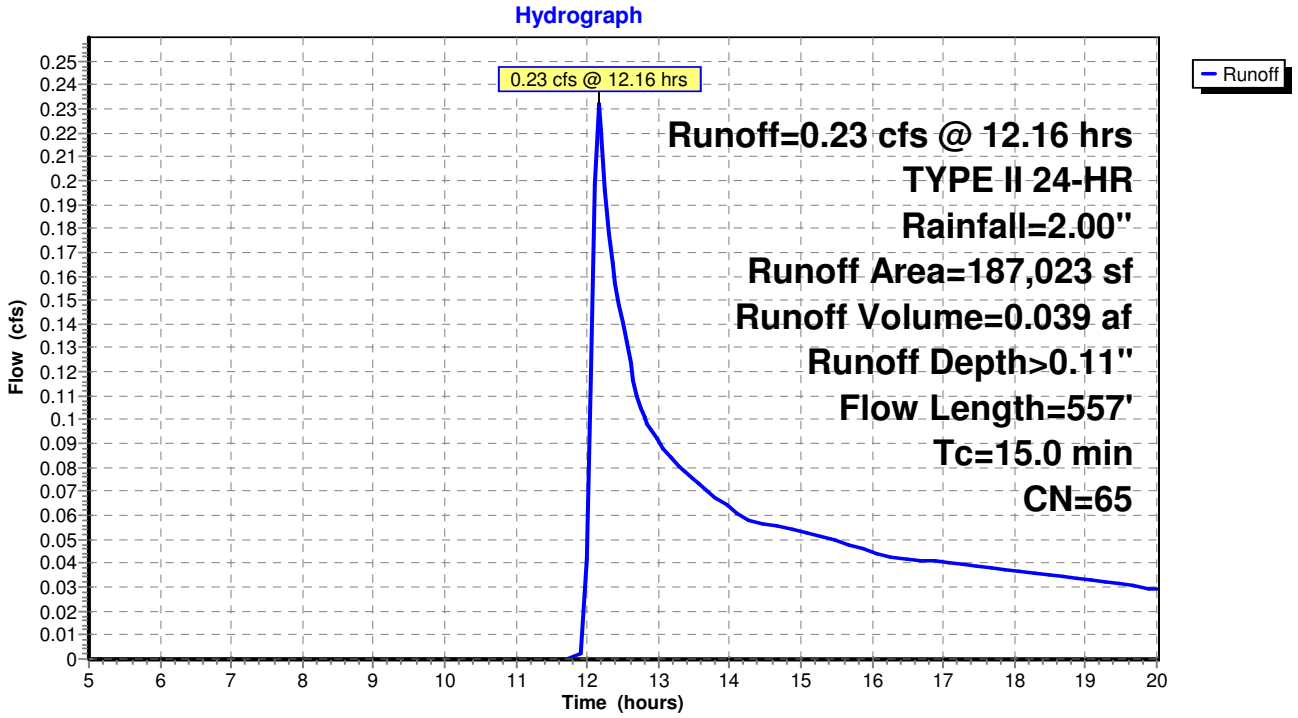
Runoff = 0.23 cfs @ 12.16 hrs, Volume= 0.039 af, Depth> 0.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=2.00"

Area (sf)	CN	Description
187,023	65	Brush, Good, HSG C
187,023		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	100	0.0360	0.14		**Sheet Flow, First 100' Flowpath** Grass: Dense n= 0.240 P2= 2.70"
2.7	457	0.0350	2.81		**Shallow Concentrated Flow, Balance of Longest Flowpath** Grassed Waterway Kv= 15.0 fps
15.0	557	Total			

Subcatchment UP 1: Upland Watershed 1



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Summary for Subcatchment UP 2: Upland Watershed 2

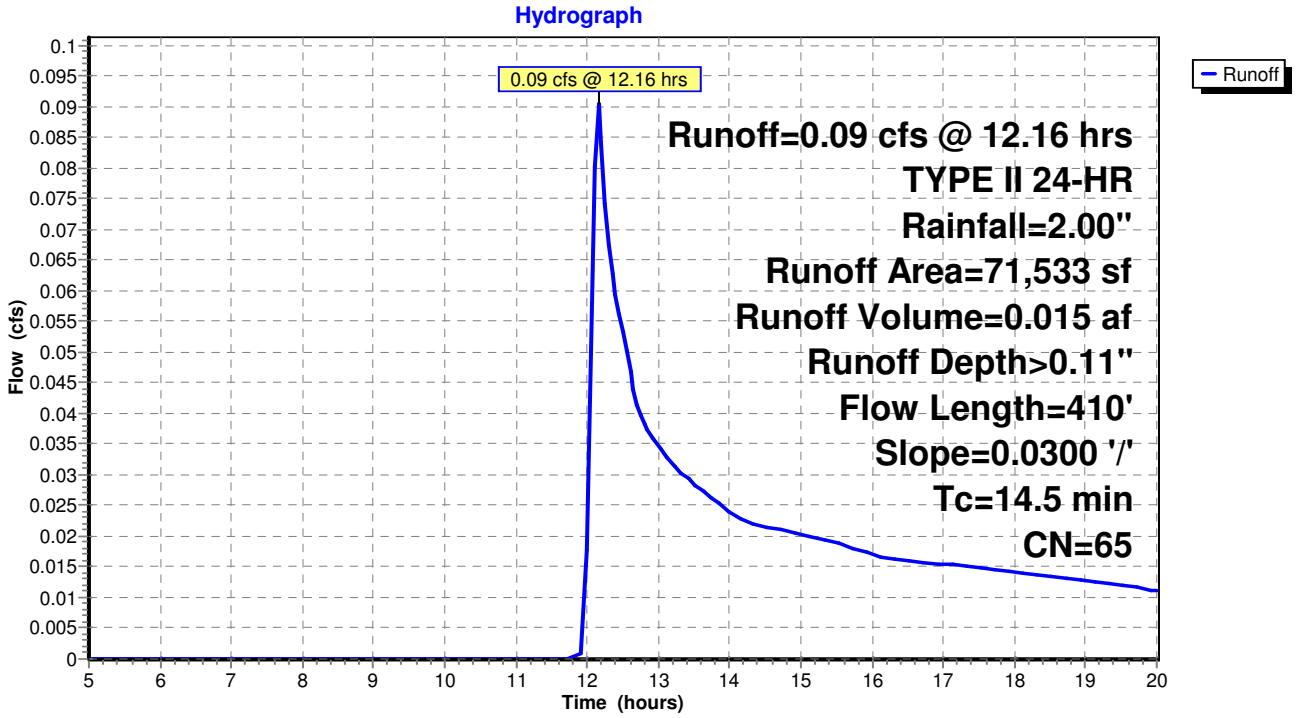
Runoff = 0.09 cfs @ 12.16 hrs, Volume= 0.015 af, Depth> 0.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=2.00"

Area (sf)	CN	Description
71,533	65	Brush, Good, HSG C
71,533		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.9	155	0.0300	0.20		**Sheet Flow, First 100' Flowpath** Grass: Short n= 0.150 P2= 2.70"
1.6	255	0.0300	2.60		**Shallow Concentrated Flow, Balance of Longest Flowpath** Grassed Waterway Kv= 15.0 fps
14.5	410	Total			

Subcatchment UP 2: Upland Watershed 2



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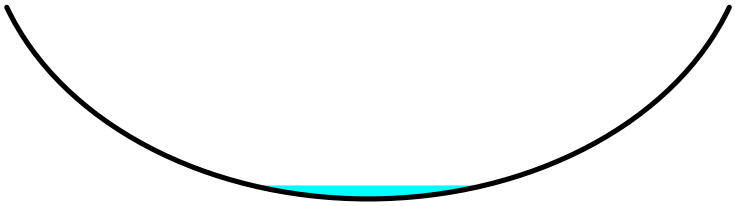
Summary for Reach Div: Diversion Swale

Inflow Area = 9.223 ac, 0.00% Impervious, Inflow Depth > 0.11"
Inflow = 0.44 cfs @ 12.15 hrs, Volume= 0.084 af
Outflow = 0.27 cfs @ 12.98 hrs, Volume= 0.078 af, Atten= 40%, Lag= 49.9 min

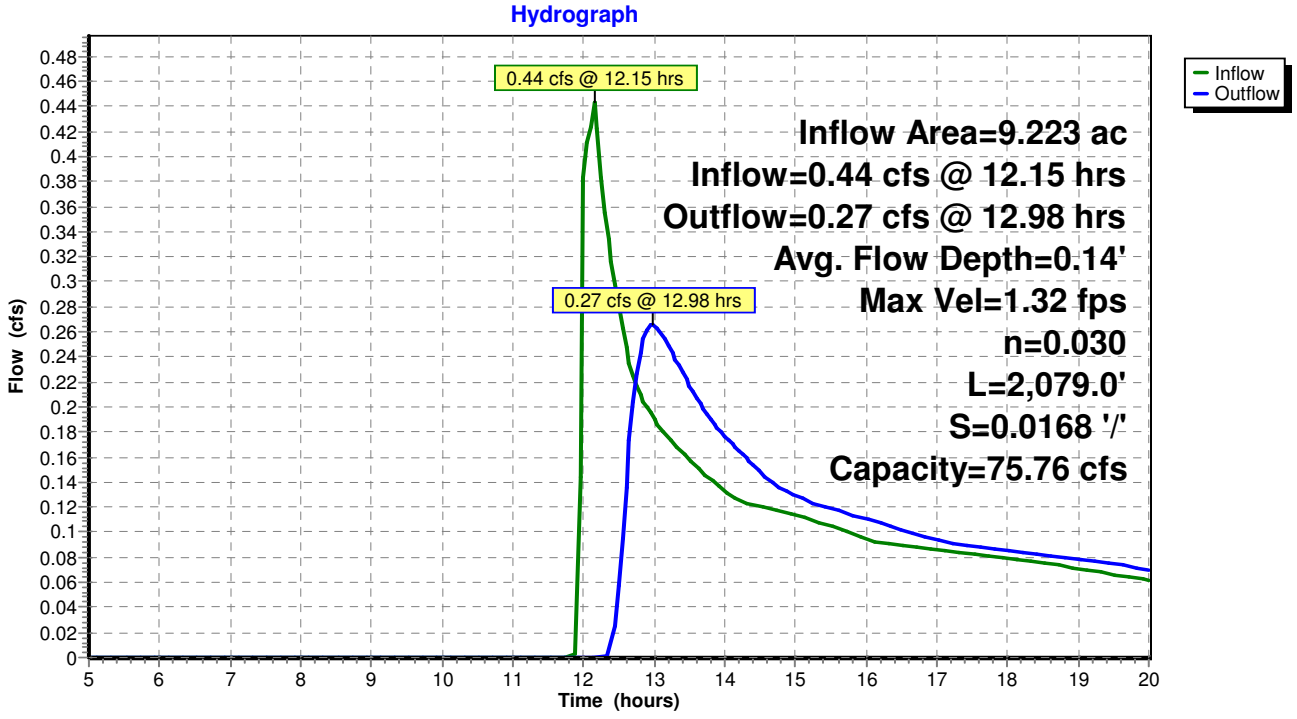
Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 1.32 fps, Min. Travel Time= 26.2 min
Avg. Velocity = 1.01 fps, Avg. Travel Time= 34.2 min

Peak Storage= 418 cf @ 12.54 hrs
Average Depth at Peak Storage= 0.14'
Bank-Full Depth= 2.00' Flow Area= 10.7 sf, Capacity= 75.76 cfs

8.00' x 2.00' deep Parabolic Channel, n= 0.030
Length= 2,079.0' Slope= 0.0168 '/'
Inlet Invert= 0.00', Outlet Invert= -35.00'



Reach Div: Diversion Swale

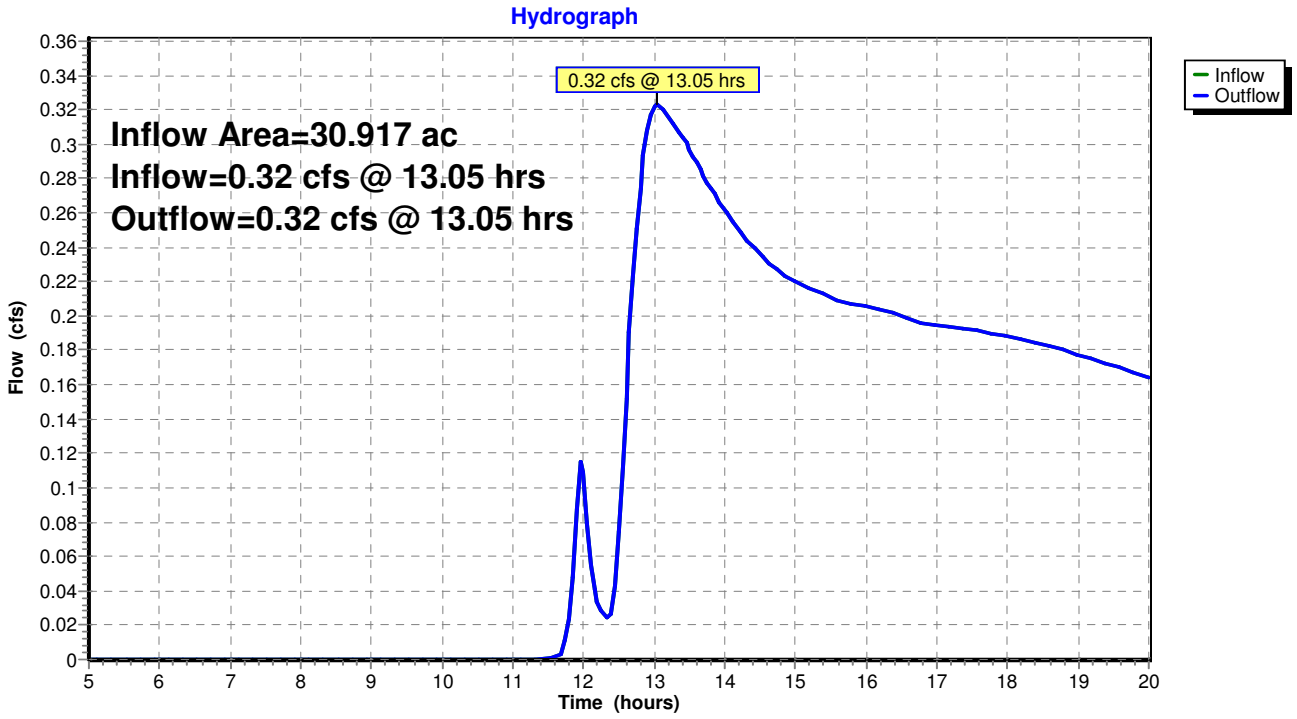


Summary for Reach DP 2: Design Point Summation 2

Inflow Area = 30.917 ac, 6.92% Impervious, Inflow Depth > 0.05"
Inflow = 0.32 cfs @ 13.05 hrs, Volume= 0.136 af
Outflow = 0.32 cfs @ 13.05 hrs, Volume= 0.136 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach DP 2: Design Point Summation 2



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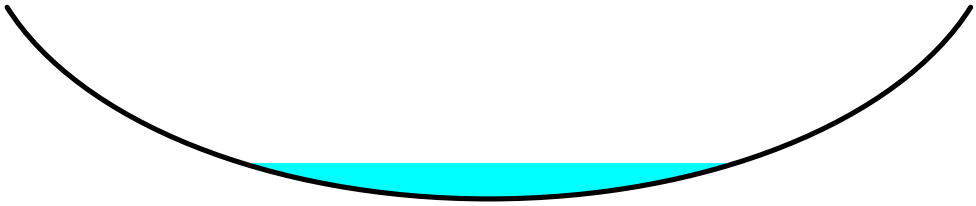
Summary for Reach RS: Road Swale

Inflow Area = 8.425 ac, 20.46% Impervious, Inflow Depth > 0.27"
Inflow = 1.83 cfs @ 12.25 hrs, Volume= 0.193 af
Outflow = 1.56 cfs @ 12.51 hrs, Volume= 0.189 af, Atten= 15%, Lag= 15.4 min

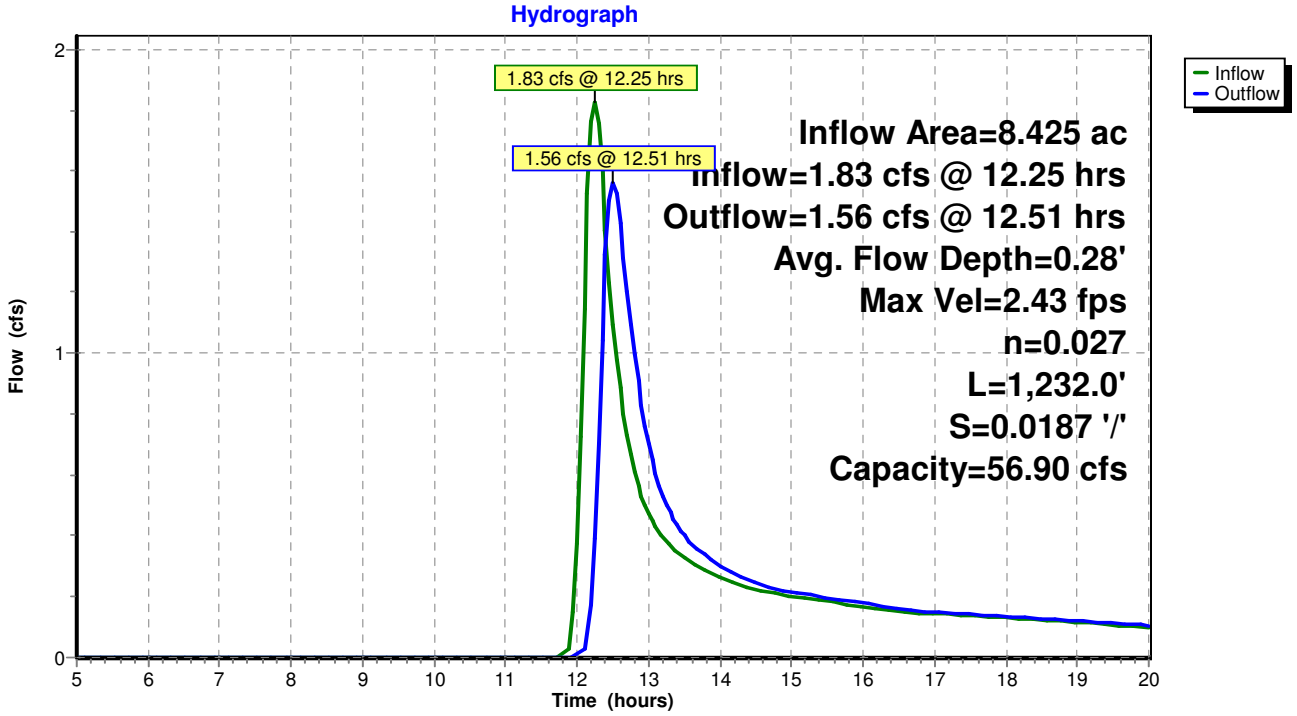
Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.43 fps, Min. Travel Time= 8.5 min
Avg. Velocity = 1.33 fps, Avg. Travel Time= 15.4 min

Peak Storage= 795 cf @ 12.36 hrs
Average Depth at Peak Storage= 0.28'
Bank-Full Depth= 1.50' Flow Area= 8.0 sf, Capacity= 56.90 cfs

8.00' x 1.50' deep Parabolic Channel, n= 0.027
Length= 1,232.0' Slope= 0.0187 '/'
Inlet Invert= 0.00', Outlet Invert= -23.00'



Reach RS: Road Swale



Summary for Pond BR 2: Bioretention Area 2

Inflow Area = 0.386 ac, 34.86% Impervious, Inflow Depth > 0.58"
Inflow = 0.31 cfs @ 12.08 hrs, Volume= 0.019 af
Outflow = 0.01 cfs @ 16.95 hrs, Volume= 0.003 af, Atten= 97%, Lag= 292.4 min
Primary = 0.01 cfs @ 16.95 hrs, Volume= 0.003 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 2.09' @ 16.95 hrs Surf.Area= 219 sf Storage= 688 cf
Flood Elev= 5.00' Surf.Area= 0 sf Storage= 2,454 cf

Plug-Flow detention time= 357.9 min calculated for 0.003 af (16% of inflow)
Center-of-Mass det. time= 257.6 min (1,072.8 - 815.2)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	2,454 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	438	0	0
1.00	438	438	438
1.10	219	33	471
3.50	219	526	996
3.51	1,094	7	1,003
4.50	1,669	1,368	2,371
4.60	0	83	2,454

Device	Routing	Invert	Outlet Devices
#1	Secondary	4.00'	**6.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Primary	2.00'	**4.0" Round Culvert** L= 177.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 2.00' / 1.50' S= 0.0028 '/' Cc= 0.900 n= 0.013, Flow Area= 0.09 sf

Primary OutFlow Max=0.01 cfs @ 16.95 hrs HW=2.09' (Free Discharge)
↑**2=Culvert** (Barrel Controls 0.01 cfs @ 0.74 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=0.00' (Free Discharge)
↑**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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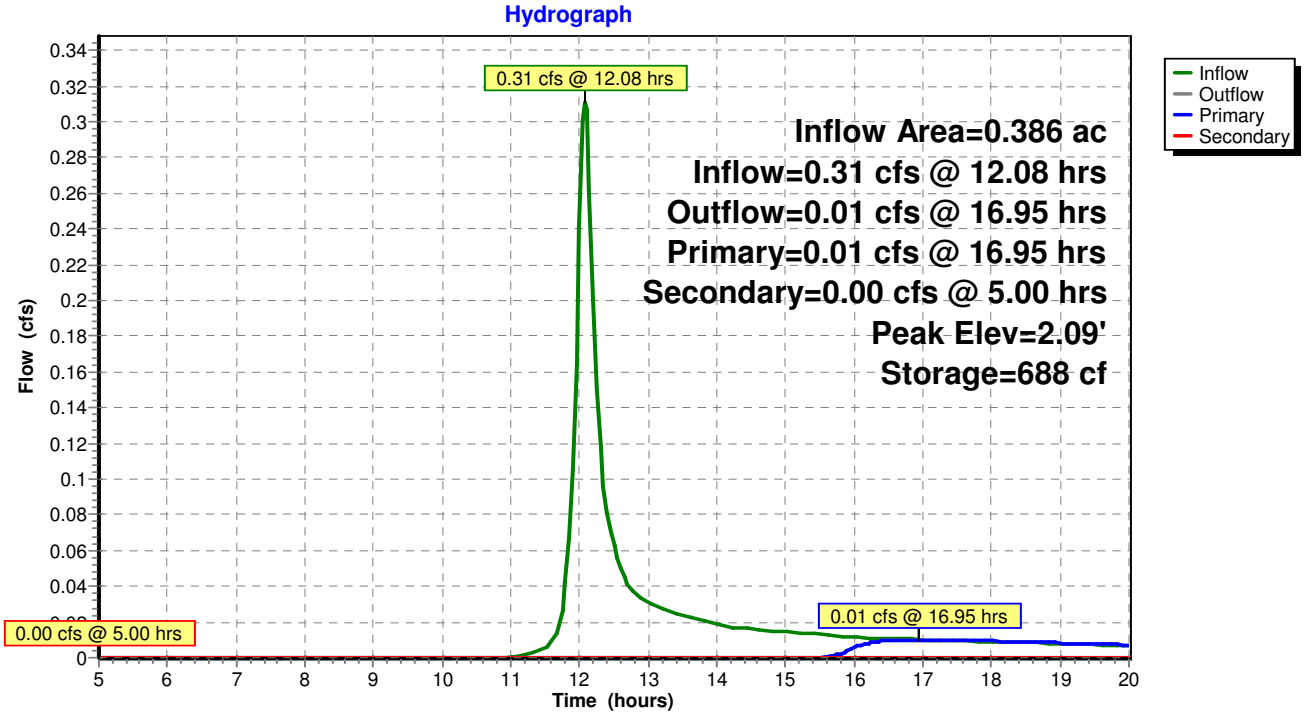
Pond BR 2: Bioretention Area 2



Summary for Pond BR 3: Bioretention Area 3

Inflow Area = 0.189 ac, 24.51% Impervious, Inflow Depth > 0.50"
Inflow = 0.17 cfs @ 12.00 hrs, Volume= 0.008 af
Outflow = 0.00 cfs @ 17.88 hrs, Volume= 0.001 af, Atten= 98%, Lag= 352.8 min
Primary = 0.00 cfs @ 17.88 hrs, Volume= 0.001 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 2.04' @ 17.88 hrs Surf.Area= 99 sf Storage= 306 cf
Flood Elev= 5.00' Surf.Area= 0 sf Storage= 1,189 cf

Plug-Flow detention time= 398.0 min calculated for 0.001 af (12% of inflow)
Center-of-Mass det. time= 292.8 min (1,109.0 - 816.2)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	1,189 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	198	0	0
1.00	198	198	198
1.10	99	15	213
3.50	99	238	450
3.51	495	3	453
4.50	901	691	1,144
4.60	0	45	1,189

Device	Routing	Invert	Outlet Devices
#1	Secondary	4.00'	**6.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Primary	2.00'	**4.0" Round Culvert** L= 57.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 2.00' / 1.50' S= 0.0088 '/' Cc= 0.900 n= 0.013, Flow Area= 0.09 sf

Primary OutFlow Max=0.00 cfs @ 17.88 hrs HW=2.04' (Free Discharge)
└**2=Culvert** (Barrel Controls 0.00 cfs @ 0.80 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=0.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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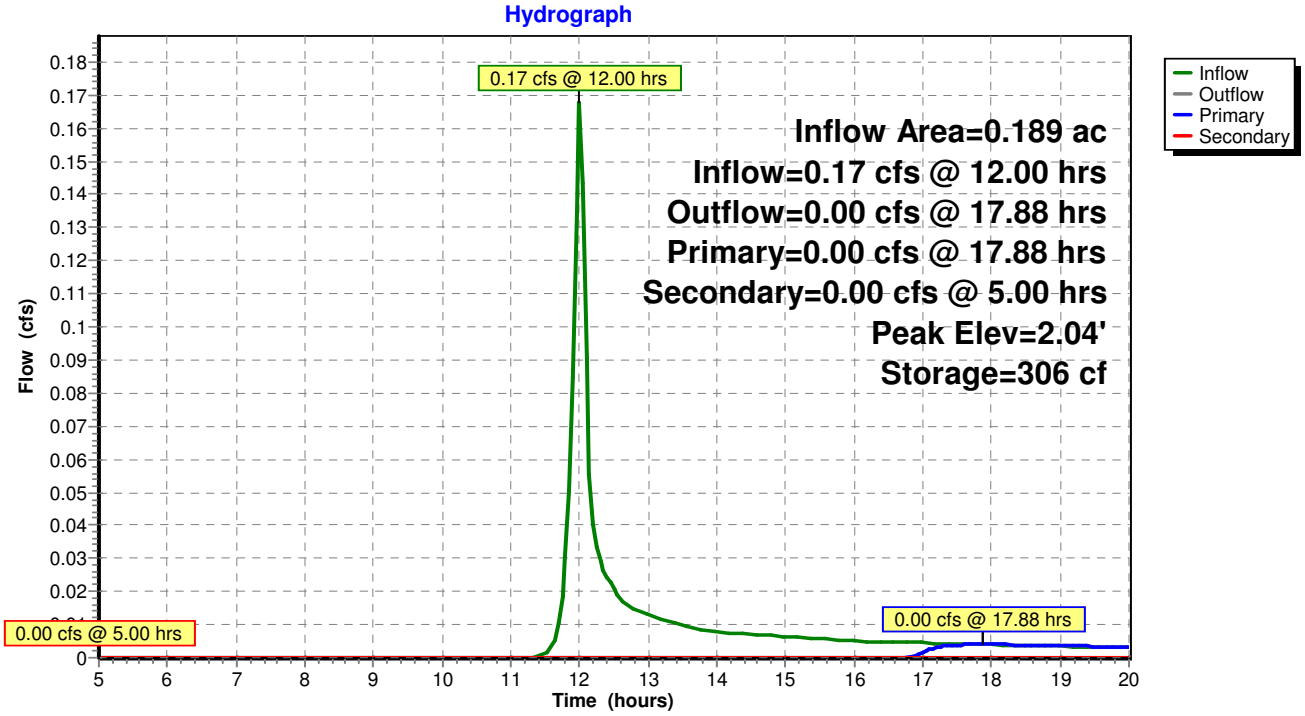
Pond BR 3: Bioretention Area 3



Summary for Pond BR 6: Bioretention Area 6

Inflow Area = 0.281 ac, 31.15% Impervious, Inflow Depth > 0.54"
Inflow = 0.31 cfs @ 11.95 hrs, Volume= 0.013 af
Outflow = 0.02 cfs @ 13.05 hrs, Volume= 0.005 af, Atten= 94%, Lag= 66.0 min
Primary = 0.02 cfs @ 13.05 hrs, Volume= 0.005 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 2.62' @ 13.05 hrs Surf.Area= 90 sf Storage= 330 cf
Flood Elev= 5.00' Surf.Area= 0 sf Storage= 1,348 cf

Plug-Flow detention time= 222.2 min calculated for 0.005 af (41% of inflow)
Center-of-Mass det. time= 127.3 min (937.5 - 810.2)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	1,348 cf	**Custom Stage Data (Prismatic)** Listed below

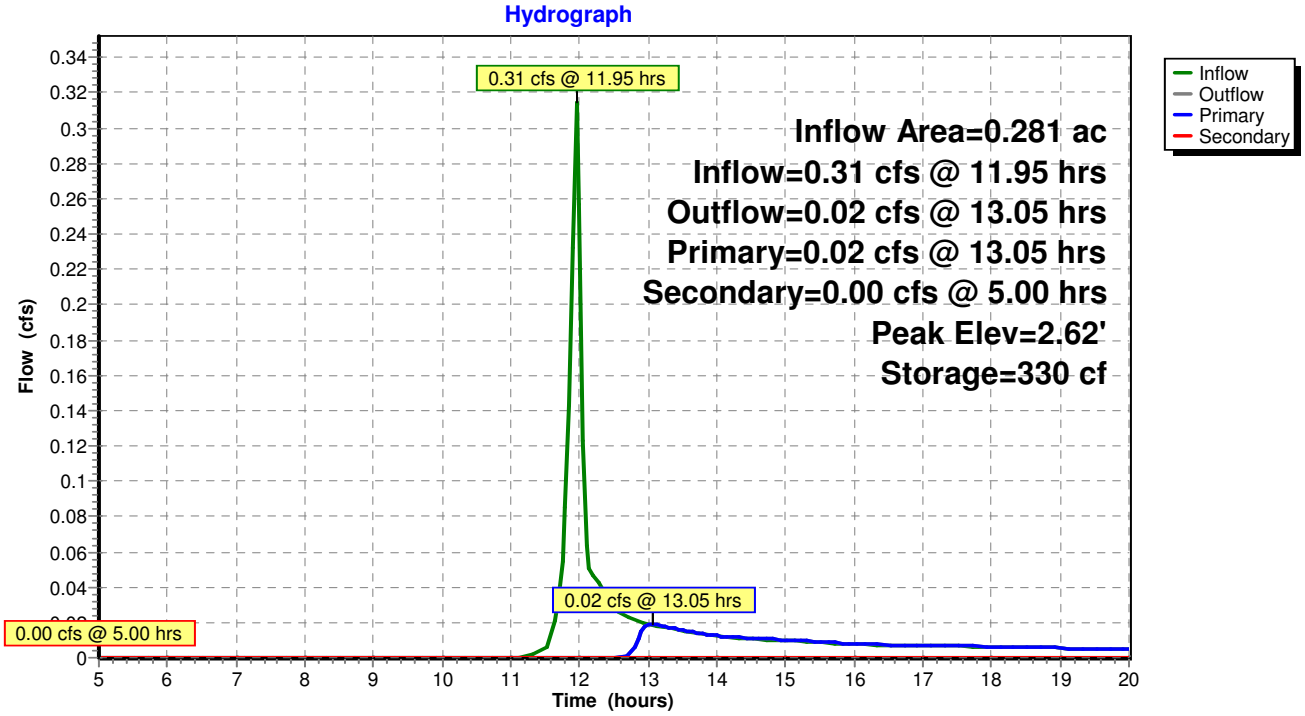
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	180	0	0
1.00	180	180	180
1.10	90	14	194
3.50	90	216	410
3.51	451	3	412
4.50	1,307	870	1,282
4.60	0	65	1,348

Device	Routing	Invert	Outlet Devices
#1	Secondary	4.00'	**6.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Primary	2.50'	**4.0" Round Culvert** L= 132.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 2.50' / 2.00' S= 0.0038 '/' Cc= 0.900 n= 0.013, Flow Area= 0.09 sf

Primary OutFlow Max=0.02 cfs @ 13.05 hrs HW=2.62' (Free Discharge)
└**2=Culvert** (Barrel Controls 0.02 cfs @ 0.97 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=0.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond BR 6: Bioretention Area 6



Summary for Pond BR 7: Bioretention Area 7

Inflow Area = 0.129 ac, 35.97% Impervious, Inflow Depth > 0.63"
Inflow = 0.18 cfs @ 11.91 hrs, Volume= 0.007 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1.92' @ 20.00 hrs Surf.Area= 99 sf Storage= 294 cf
Flood Elev= 5.00' Surf.Area= 0 sf Storage= 1,189 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	1,189 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	198	0	0
1.00	198	198	198
1.10	99	15	213
3.50	99	238	450
3.51	495	3	453
4.50	901	691	1,144
4.60	0	45	1,189

Device	Routing	Invert	Outlet Devices
#1	Secondary	4.00'	**6.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Primary	2.00'	**4.0" Round Culvert** L= 57.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 2.00' / 1.50' S= 0.0088 '/' Cc= 0.900 n= 0.013, Flow Area= 0.09 sf

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=0.00' (Free Discharge)
└**2=Culvert** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=0.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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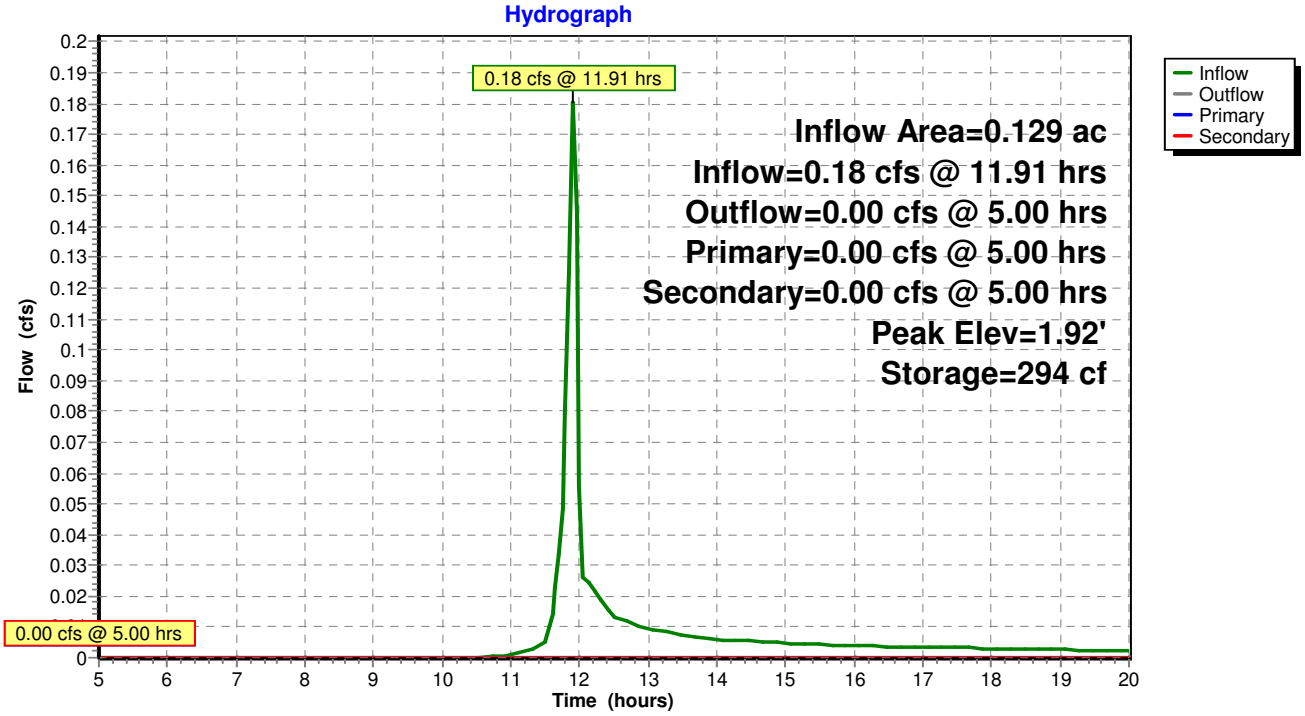
Pond BR 7: Bioretention Area 7



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Summary for Pond DS: Dry Swales

Inflow Area = 0.138 ac, 48.99% Impervious, Inflow Depth > 0.54"
Inflow = 0.16 cfs @ 11.91 hrs, Volume= 0.006 af
Outflow = 0.12 cfs @ 11.97 hrs, Volume= 0.006 af, Atten= 28%, Lag= 3.3 min
Primary = 0.12 cfs @ 11.97 hrs, Volume= 0.006 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 0.35' @ 11.97 hrs Surf.Area= 350 sf Storage= 49 cf
Flood Elev= 5.00' Surf.Area= 0 sf Storage= 1,146 cf

Plug-Flow detention time= 18.0 min calculated for 0.006 af (98% of inflow)
Center-of-Mass det. time= 10.5 min (818.5 - 808.0)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	573 cf	**Custom Stage Data (Prismatic)** Listed below
		573 cf	x 2.00 = 1,146 cf Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	175	0.0	0	0
1.00	175	40.0	70	70
1.10	175	20.0	4	74
3.50	175	20.0	84	158
3.51	175	100.0	2	159
4.50	600	100.0	384	543
4.60	0	100.0	30	573

Device	Routing	Invert	Outlet Devices
#1	Primary	4.00'	**6.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Primary	0.00'	**4.0" Round Culvert** L= 127.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.00' / -0.50' S= 0.0039 '/' Cc= 0.900 n= 0.013, Flow Area= 0.09 sf

Primary OutFlow Max=0.11 cfs @ 11.97 hrs HW=0.34' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**2=Culvert** (Barrel Controls 0.11 cfs @ 1.57 fps)

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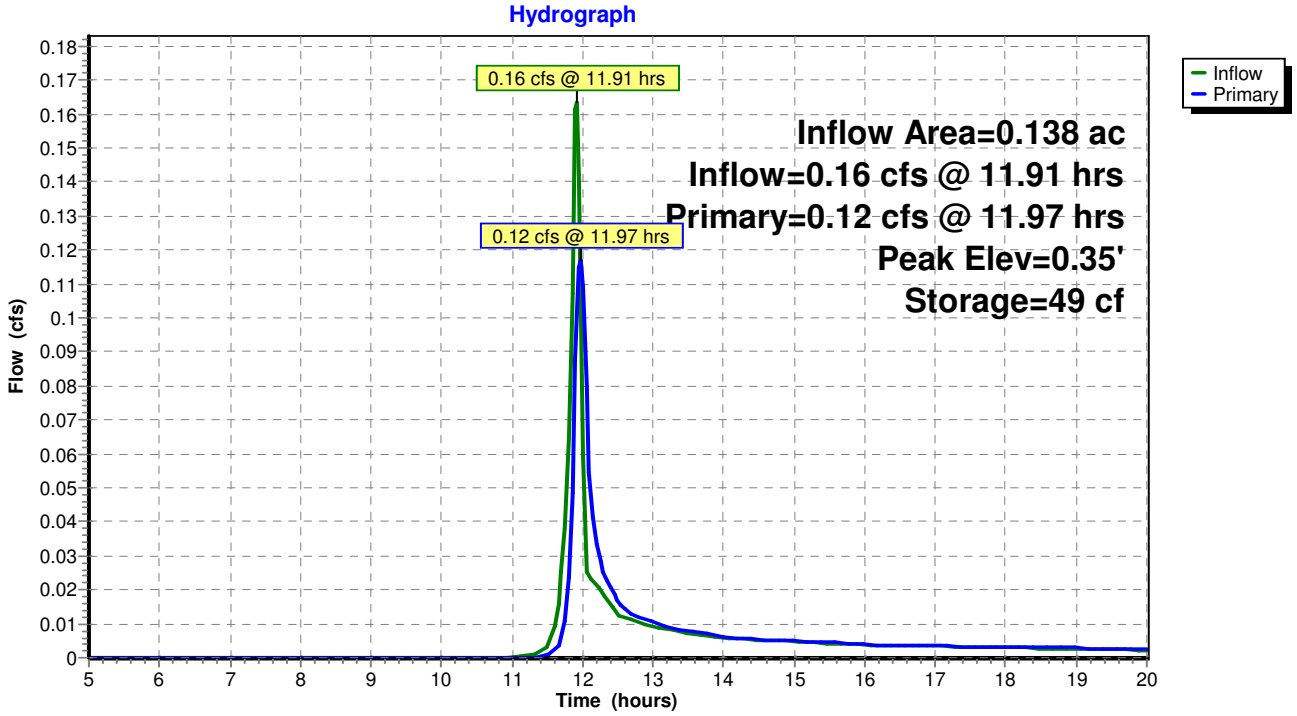
Pond DS: Dry Swales



Summary for Pond FB: Forebay

Inflow Area = 8.425 ac, 20.46% Impervious, Inflow Depth > 0.27"
Inflow = 1.56 cfs @ 12.51 hrs, Volume= 0.189 af
Outflow = 1.03 cfs @ 13.00 hrs, Volume= 0.122 af, Atten= 34%, Lag= 29.6 min
Primary = 1.03 cfs @ 13.00 hrs, Volume= 0.122 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 4.17' @ 13.00 hrs Surf.Area= 0 sf Storage= 2,928 cf
Flood Elev= 4.00' Surf.Area= 1,536 sf Storage= 2,852 cf

Plug-Flow detention time= 146.8 min calculated for 0.122 af (65% of inflow)
Center-of-Mass det. time= 62.8 min (930.8 - 868.0)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	2,928 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	113	0	0
1.00	345	229	229
2.00	633	489	718
3.00	1,049	841	1,559
4.00	1,536	1,293	2,852
4.10	0	77	2,928

Device	Routing	Invert	Outlet Devices
#1	Primary	4.00'	**6.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=1.02 cfs @ 13.00 hrs HW=4.17' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 1.02 cfs @ 0.99 fps)

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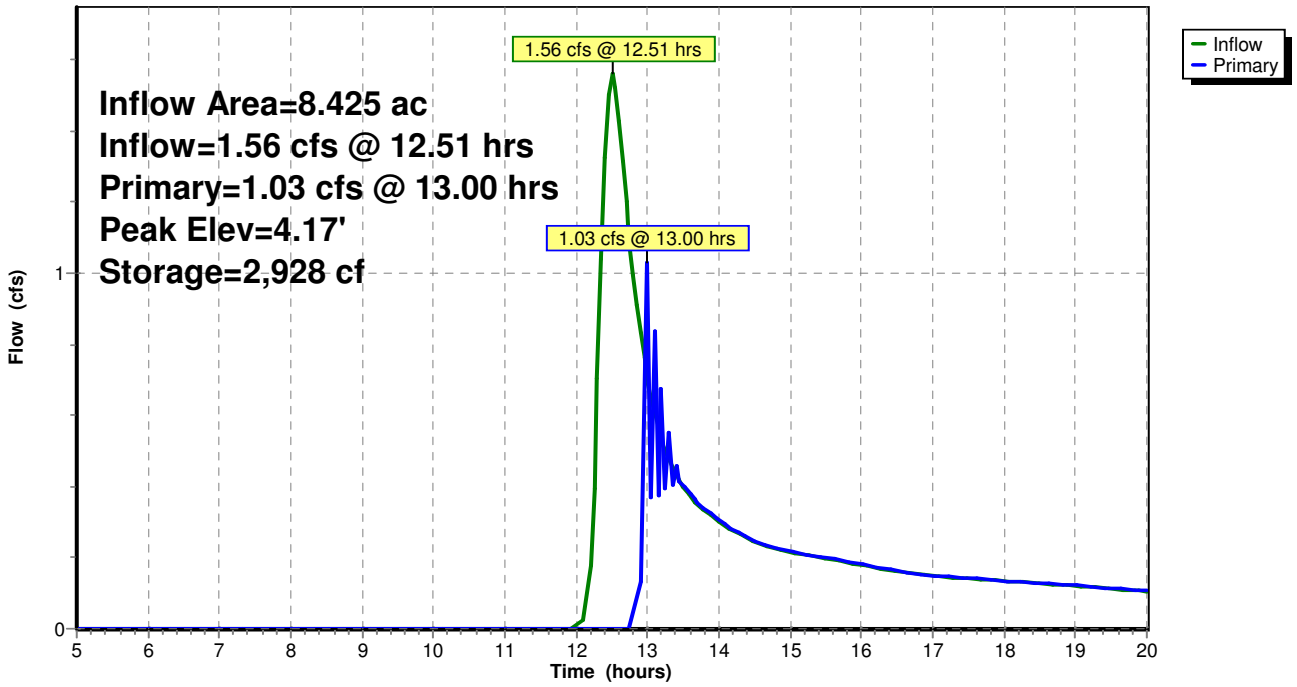
Pond FB: Forebay

Hydrograph



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Summary for Pond P: Pond

Inflow Area = 8.425 ac, 20.46% Impervious, Inflow Depth > 0.17"
Inflow = 1.03 cfs @ 13.00 hrs, Volume= 0.122 af
Outflow = 0.04 cfs @ 20.00 hrs, Volume= 0.017 af, Atten= 96%, Lag= 420.0 min
Primary = 0.04 cfs @ 20.00 hrs, Volume= 0.017 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Starting Elev= 4.00' Surf.Area= 7,635 sf Storage= 5,821 cf
Peak Elev= 4.47' @ 20.00 hrs Surf.Area= 9,601 sf Storage= 10,418 cf (4,597 cf above start)
Flood Elev= 7.50' Surf.Area= 0 sf Storage= 46,941 cf (41,120 cf above start)

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= 92.9 min (1,023.8 - 930.8)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	46,941 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	113	0	0
1.00	314	214	214
2.00	616	465	679
3.00	1,017	817	1,495
4.00	7,635	4,326	5,821
5.00	11,788	9,712	15,533
6.00	13,709	12,749	28,281
7.00	15,740	14,725	43,006
7.50	0	3,935	46,941

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	**12.0" Round Culvert** L= 104.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.00' / -1.00' S= 0.0096 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	4.00'	**1.5" Vert. Orifice/Grate** C= 0.600
#3	Device 1	5.25'	**12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	6.50'	**25.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

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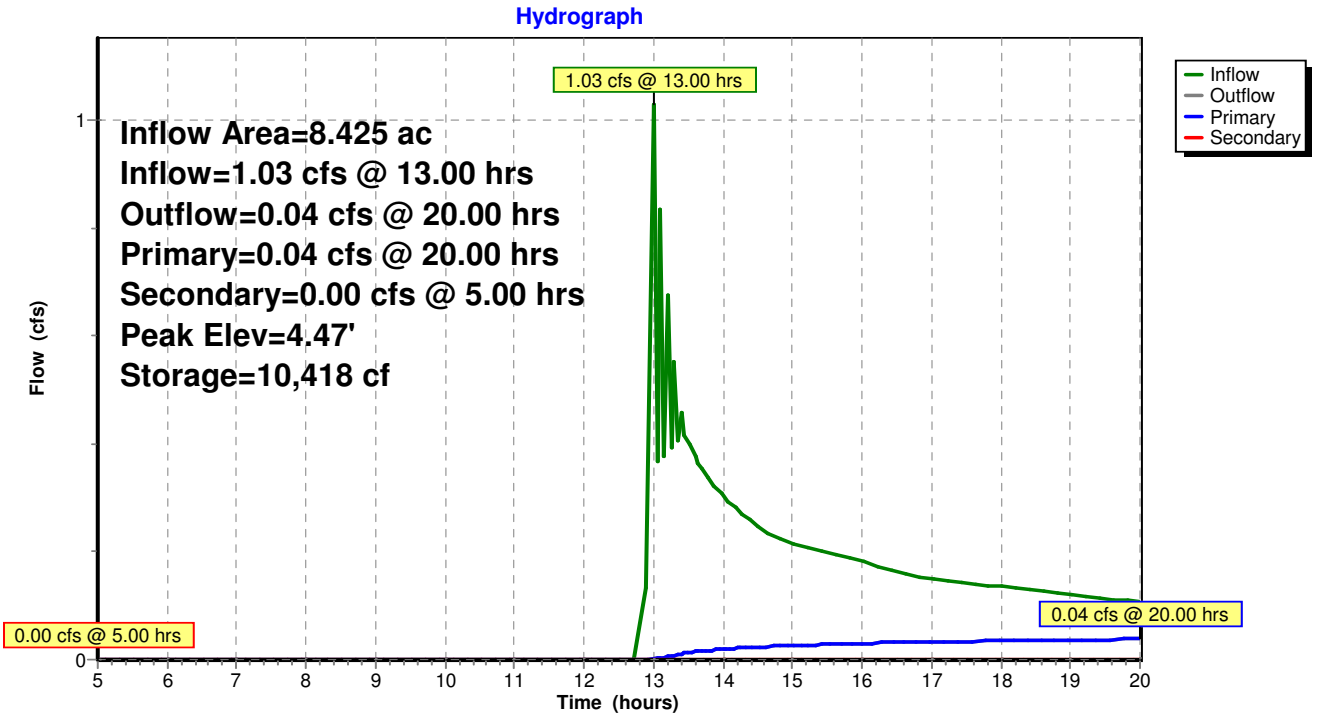
Primary OutFlow Max=0.04 cfs @ 20.00 hrs HW=4.47' (Free Discharge)
└**1=Culvert** (Passes 0.04 cfs of 5.87 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.04 cfs @ 3.09 fps)
  └**3=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=4.00' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond P: Pond



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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.519	39	>75% Grass cover, Good, HSG A (PSC 7)
0.491	61	>75% Grass cover, Good, HSG B (PSC 7)
3.449	74	>75% Grass cover, Good, HSG C (PSC 2, PSC 3, PSC 6, PSC 7, PSC-7A)
2.435	30	Brush, Good, HSG A (OSC 3)
0.360	48	Brush, Good, HSG B (OSC 3)
21.522	65	Brush, Good, HSG C (OSC 1, OSC 3, PSC 7, PSC 8, UP 1, UP 2)
2.059	98	Paved parking & roofs (PSC 2, PSC 3, PSC 6, PSC 7, PSC 8)
0.046	98	Roofs, HSG C (PSC-7A)
0.035	98	Unconnected roofs, HSG A (OSC 3)
30.917	**65**	**TOTAL AREA**

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
2.989	HSG A	OSC 3, PSC 7
0.851	HSG B	OSC 3, PSC 7
25.018	HSG C	OSC 1, OSC 3, PSC 2, PSC 3, PSC 6, PSC 7, PSC 8, PSC-7A, UP 1, UP 2
0.000	HSG D	
2.059	Other	PSC 2, PSC 3, PSC 6, PSC 7, PSC 8
30.917		**TOTAL AREA**

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.519	0.491	3.449	0.000	0.000	4.460	>75% Grass cover, Good	PSC 2, PSC 3, PSC 6, PSC 7, PSC-7A
2.435	0.360	21.522	0.000	0.000	24.317	Brush, Good	OSC 1, OSC 3, PSC 7, PSC 8, UP 1, UP 2
0.000	0.000	0.000	0.000	2.059	2.059	Paved parking & roofs	PSC 2, PSC 3, PSC 6, PSC 7, PSC 8
0.000	0.000	0.046	0.000	0.000	0.046	Roofs	PSC-7A
0.035	0.000	0.000	0.000	0.000	0.035	Unconnected roofs	OSC 3
2.989	**0.851**	**25.018**	**0.000**	**2.059**	**30.917**	**TOTAL AREA**	

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Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	BR 2	2.00	1.50	177.0	0.0028	0.013	4.0	0.0	0.0
2	BR 3	2.00	1.50	57.0	0.0088	0.013	4.0	0.0	0.0
3	BR 6	2.50	2.00	132.0	0.0038	0.013	4.0	0.0	0.0
4	BR 7	2.00	1.50	57.0	0.0088	0.013	4.0	0.0	0.0
5	DS	0.00	-0.50	127.0	0.0039	0.013	4.0	0.0	0.0
6	P	0.00	-1.00	104.0	0.0096	0.013	12.0	0.0	0.0

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment OSC 1: Off-Site Runoff Area=143,197 sf 0.00% Impervious Runoff Depth>0.62"
Flow Length=2,079' Slope=0.0170 '/' Tc=4.6 min CN=65 Runoff=3.87 cfs 0.169 af

Subcatchment OSC 3: Off-Site Runoff Area=529,093 sf 0.28% Impervious Runoff Depth>0.35"
Flow Length=1,570' Tc=19.6 min CN=58 Runoff=3.37 cfs 0.354 af

Subcatchment PSC 2: Proposed Runoff Area=16,829 sf 34.86% Impervious Runoff Depth>1.56"
Flow Length=170' Tc=14.8 min CN=82 Runoff=0.85 cfs 0.050 af

Subcatchment PSC 3: Proposed Runoff Area=8,226 sf 24.51% Impervious Runoff Depth>1.43"
Flow Length=146' Tc=8.0 min CN=80 Runoff=0.48 cfs 0.022 af

Subcatchment PSC 6: Proposed Runoff Area=12,258 sf 31.15% Impervious Runoff Depth>1.50"
Flow Length=49' Tc=4.1 min CN=81 Runoff=0.86 cfs 0.035 af

Subcatchment PSC 7: Proposed Runoff Area=366,995 sf 20.46% Impervious Runoff Depth>1.00"
Flow Length=1,566' Tc=25.5 min CN=73 Runoff=8.45 cfs 0.699 af

Subcatchment PSC 8: Proposed Runoff Area=5,995 sf 48.99% Impervious Runoff Depth>1.50"
Flow Length=148' Slope=0.0500 '/' Tc=1.1 min CN=81 Runoff=0.45 cfs 0.017 af

Subcatchment PSC-7A: Proposed Runoff Area=5,604 sf 35.97% Impervious Runoff Depth>1.64"
Flow Length=35' Slope=0.0100 '/' Tc=0.8 min CN=83 Runoff=0.46 cfs 0.018 af

Subcatchment UP 1: Upland Watershed 1 Runoff Area=187,023 sf 0.00% Impervious Runoff Depth>0.61"
Flow Length=557' Tc=15.0 min CN=65 Runoff=3.29 cfs 0.220 af

Subcatchment UP 2: Upland Watershed 2 Runoff Area=71,533 sf 0.00% Impervious Runoff Depth>0.61"
Flow Length=410' Slope=0.0300 '/' Tc=14.5 min CN=65 Runoff=1.28 cfs 0.084 af

Reach Div: Diversion Swale Avg. Flow Depth=0.53' Max Vel=3.14 fps Inflow=6.63 cfs 0.473 af
n=0.030 L=2,079.0' S=0.0168 '/' Capacity=75.76 cfs Outflow=4.59 cfs 0.461 af

Reach DP 2: Design Point Summation 2 Inflow=7.79 cfs 1.225 af
Outflow=7.79 cfs 1.225 af

Reach RS: Road Swale Avg. Flow Depth=0.60' Max Vel=3.96 fps Inflow=8.45 cfs 0.699 af
n=0.027 L=1,232.0' S=0.0187 '/' Capacity=56.90 cfs Outflow=7.91 cfs 0.692 af

Pond BR 2: Bioretention Area 2 Peak Elev=3.54' Storage=1,050 cf Inflow=0.85 cfs 0.050 af
Primary=0.18 cfs 0.034 af Secondary=0.00 cfs 0.000 af Outflow=0.18 cfs 0.034 af

Pond BR 3: Bioretention Area 3 Peak Elev=2.90' Storage=391 cf Inflow=0.48 cfs 0.022 af
Primary=0.23 cfs 0.015 af Secondary=0.00 cfs 0.000 af Outflow=0.23 cfs 0.015 af

Pond BR 6: Bioretention Area 6 Peak Elev=3.79' Storage=659 cf Inflow=0.86 cfs 0.035 af
Primary=0.19 cfs 0.028 af Secondary=0.00 cfs 0.000 af Outflow=0.19 cfs 0.028 af

Pond BR 7: Bioretention Area 7 Peak Elev=2.52' Storage=354 cf Inflow=0.46 cfs 0.018 af
Primary=0.19 cfs 0.011 af Secondary=0.00 cfs 0.000 af Outflow=0.19 cfs 0.011 af

Pond DS: Dry Swales Peak Elev=1.46' Storage=172 cf Inflow=0.45 cfs 0.017 af
Outflow=0.20 cfs 0.017 af

Pond FB: Forebay Peak Elev=4.80' Storage=2,928 cf Inflow=7.91 cfs 0.692 af
Outflow=11.55 cfs 0.625 af

Pond P: Pond Peak Elev=5.43' Storage=20,998 cf Inflow=11.55 cfs 0.625 af
Primary=0.86 cfs 0.305 af Secondary=0.00 cfs 0.000 af Outflow=0.86 cfs 0.305 af

Total Runoff Area = 30.917 ac Runoff Volume = 1.668 af Average Runoff Depth = 0.65"
93.08% Pervious = 28.777 ac 6.92% Impervious = 2.140 ac

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Summary for Subcatchment OSC 1: Off-Site Subcatchment 1

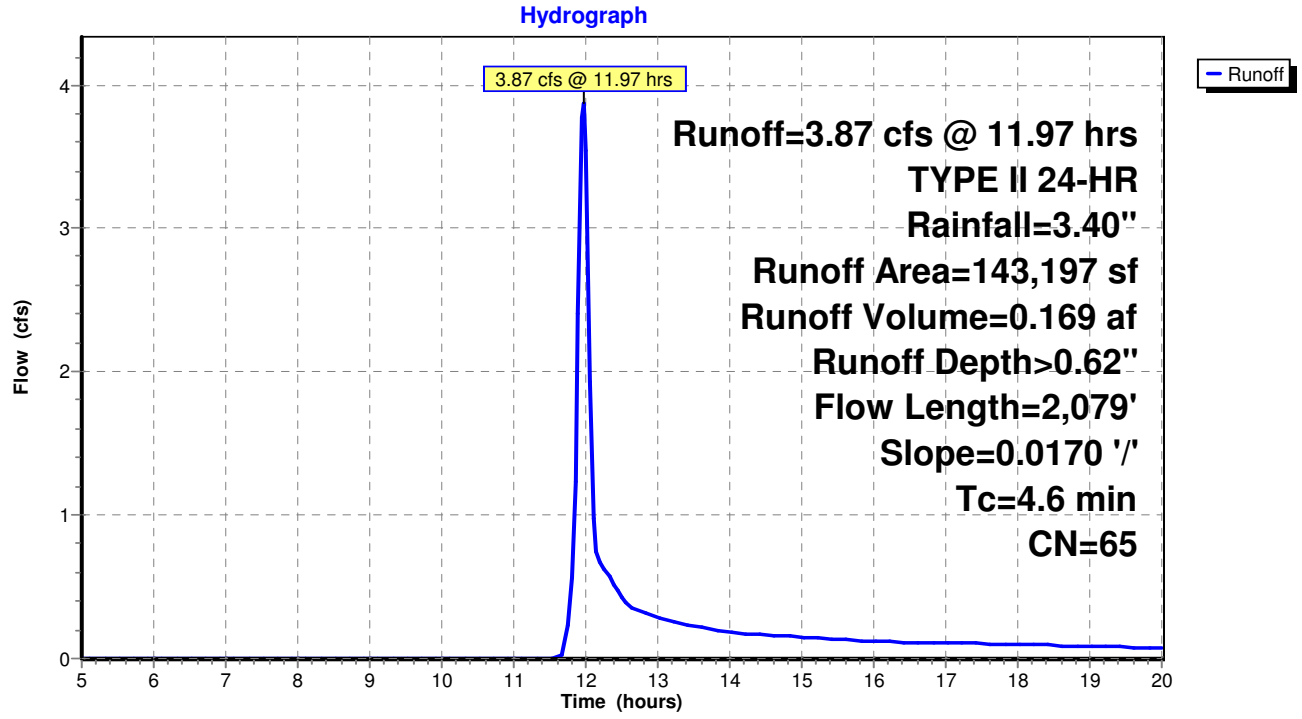
Runoff = 3.87 cfs @ 11.97 hrs, Volume= 0.169 af, Depth> 0.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=3.40"

Area (sf)	CN	Description
143,197	65	Brush, Good, HSG C
143,197		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	2,079	0.0170	7.61	121.77	**Trap/Vee/Rect Channel Flow, Balance of Longest Flowpath** Bot.W=2.00' D=2.00' Z= 3.0 '/' Top.W=14.00' n= 0.027

Subcatchment OSC 1: Off-Site Subcatchment 1



Summary for Subcatchment OSC 3: Off-Site Subcatchment 3

Runoff = 3.37 cfs @ 12.18 hrs, Volume= 0.354 af, Depth> 0.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=3.40"

Area (sf)	CN	Description
106,079	30	Brush, Good, HSG A
15,682	48	Brush, Good, HSG B
405,827	65	Brush, Good, HSG C
1,505	98	Unconnected roofs, HSG A
529,093	58	Weighted Average
527,588		99.72% Pervious Area
1,505		0.28% Impervious Area
1,505		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.8	100	0.0400	0.14		**Sheet Flow, First 100' Flowpath** Grass: Dense n= 0.240 P2= 2.70"
6.8	1,064	0.0300	2.60		**Shallow Concentrated Flow, Balance of Flow to Channel** Grassed Waterway Kv= 15.0 fps
1.0	406	0.0110	6.52	130.46	**Trap/Vee/Rect Channel Flow, Balance of Flowpath** Bot.W=4.00' D=2.00' Z= 3.0 '/' Top.W=16.00' n= 0.027
19.6	1,570	Total			

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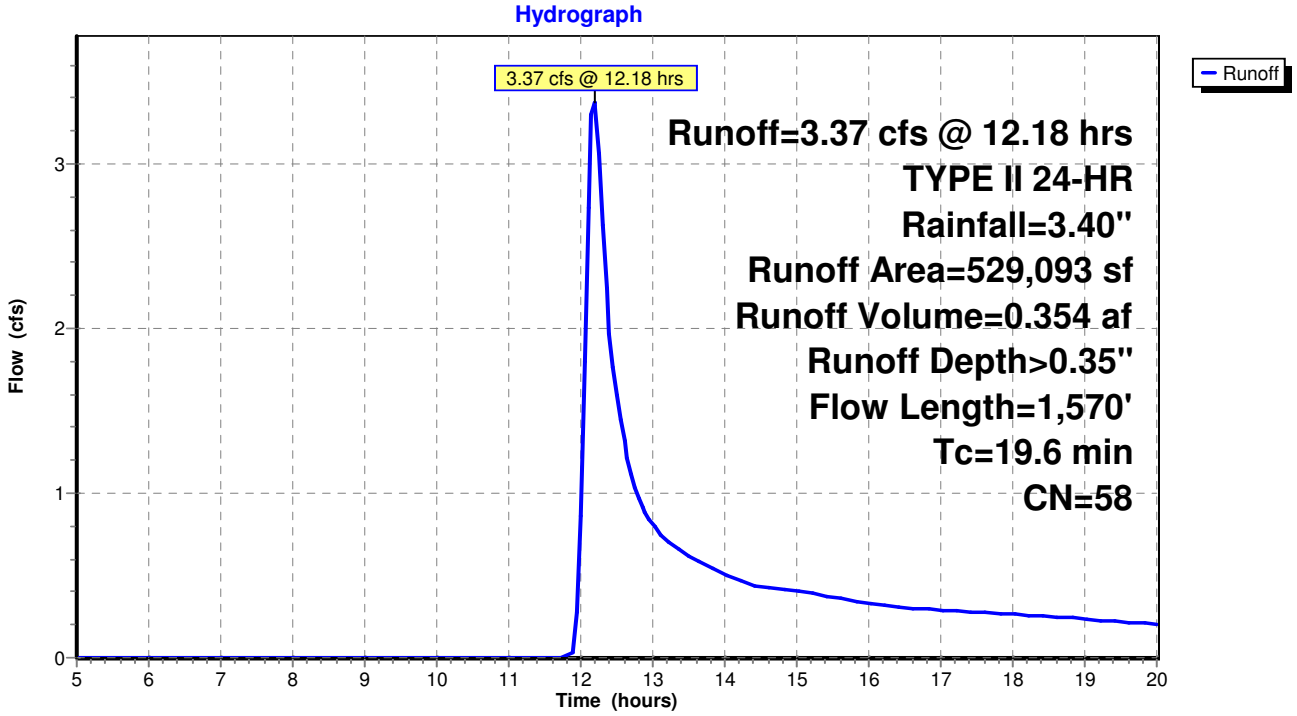
Subcatchment OSC 3: Off-Site Subcatchment 3



Summary for Subcatchment PSC 2: Proposed Subcatchment 2

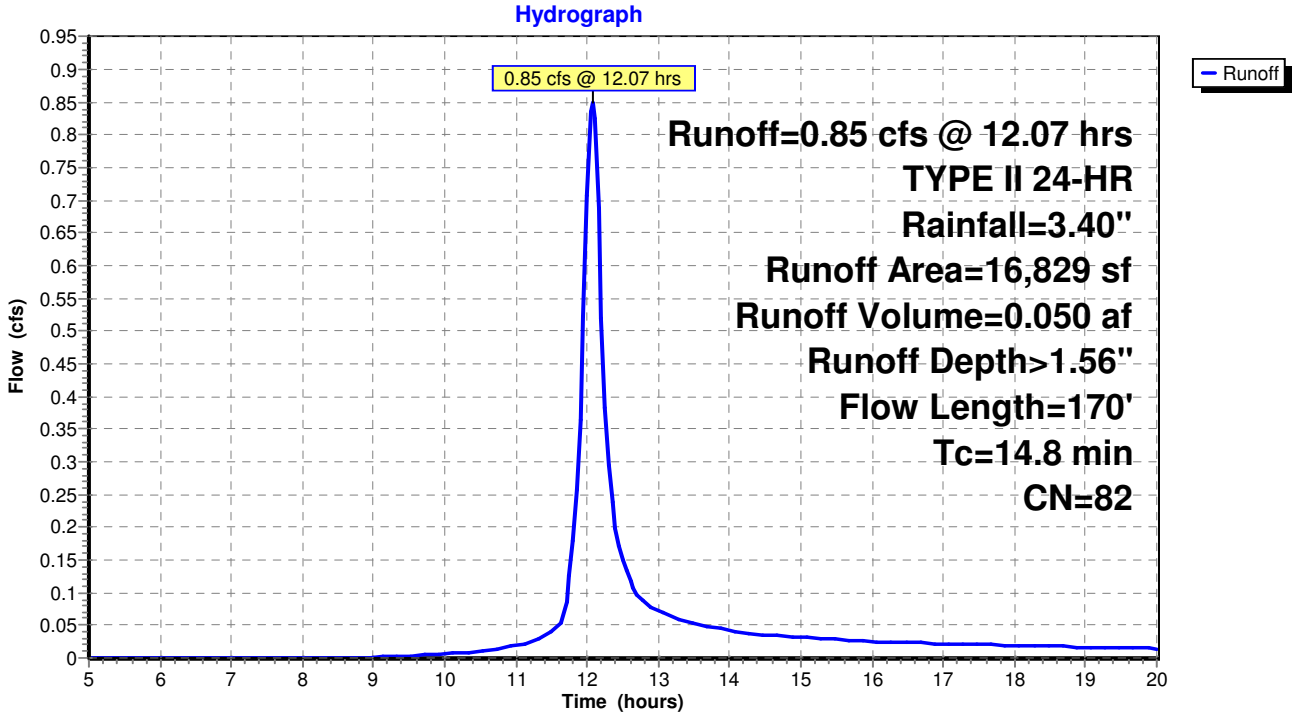
Runoff = 0.85 cfs @ 12.07 hrs, Volume= 0.050 af, Depth> 1.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=3.40"

Area (sf)	CN	Description
5,866	98	Paved parking & roofs
10,963	74	>75% Grass cover, Good, HSG C
16,829	82	Weighted Average
10,963		65.14% Pervious Area
5,866		34.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.1	100	0.0100	0.12		**Sheet Flow, First 100' Flowpath** Grass: Short n= 0.150 P2= 2.70"
0.6	65	0.0070	1.70		**Shallow Concentrated Flow, Balance of Flow to Channel** Paved Kv= 20.3 fps
0.1	5	0.0070	1.25		**Shallow Concentrated Flow, Balance of Longest Flowpath** Grassed Waterway Kv= 15.0 fps
14.8	170	Total			

Subcatchment PSC 2: Proposed Subcatchment 2



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Summary for Subcatchment PSC 3: Proposed Subcatchment 3

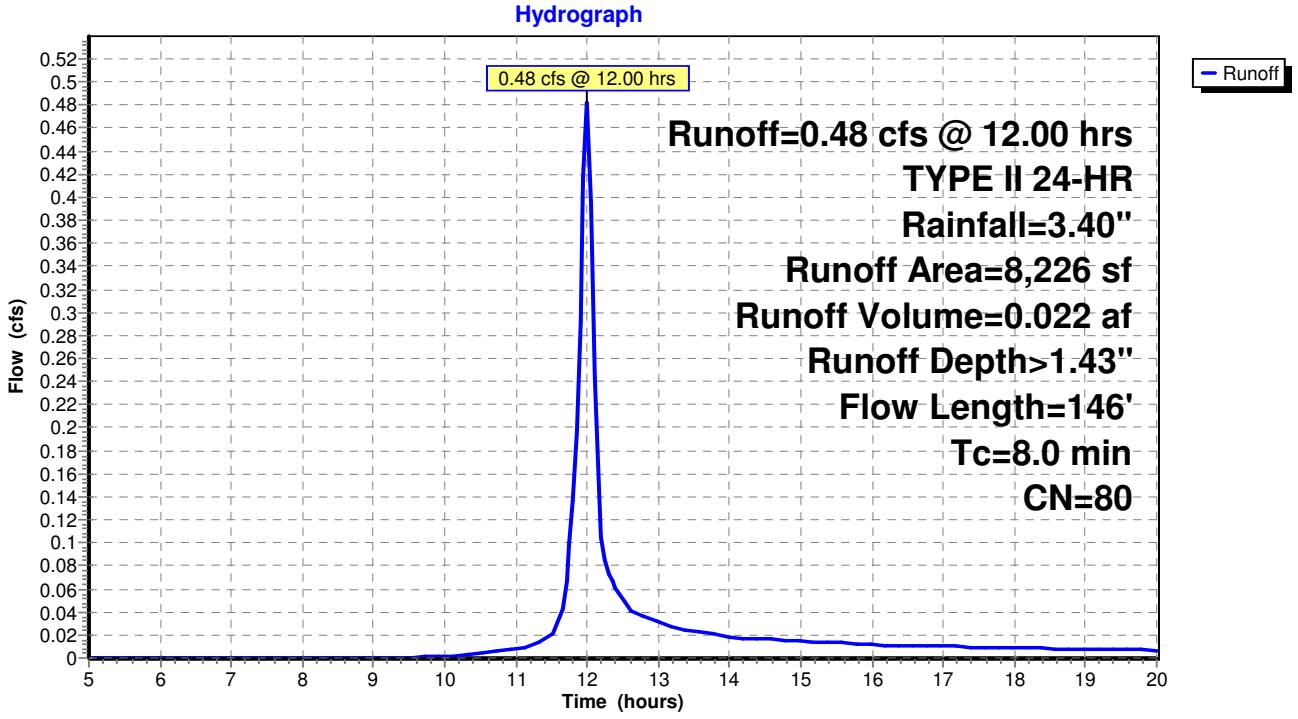
Runoff = 0.48 cfs @ 12.00 hrs, Volume= 0.022 af, Depth> 1.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=3.40"

Area (sf)	CN	Description
2,016	98	Paved parking & roofs
6,210	74	>75% Grass cover, Good, HSG C
8,226	80	Weighted Average
6,210		75.49% Pervious Area
2,016		24.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	76	0.0300	0.17		**Sheet Flow, First 100' Flowpath** Grass: Short n= 0.150 P2= 2.70"
0.6	65	0.0070	1.70		**Shallow Concentrated Flow, Balance of Flow to Channel** Paved Kv= 20.3 fps
0.1	5	0.0070	1.25		**Shallow Concentrated Flow, Balance of Longest Flowpath** Grassed Waterway Kv= 15.0 fps
8.0	146	Total			

Subcatchment PSC 3: Proposed Subcatchment 3



Summary for Subcatchment PSC 6: Proposed Subcatchment 6

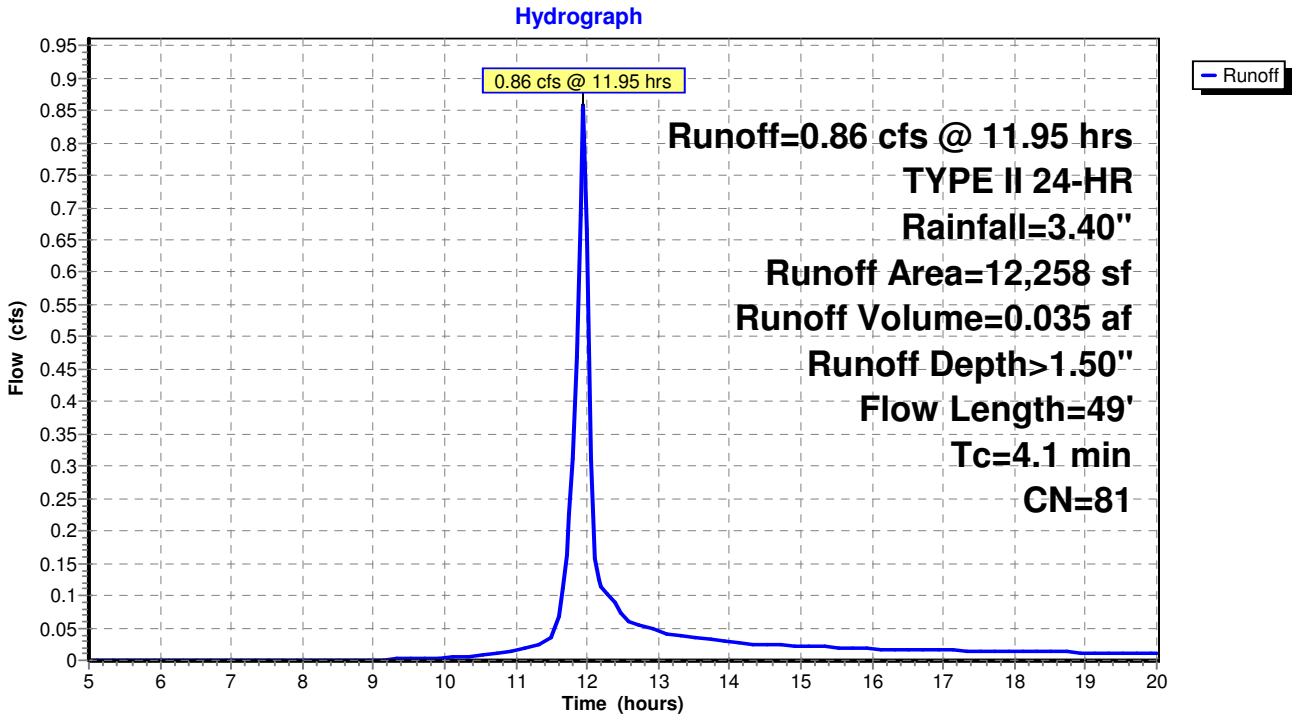
Runoff = 0.86 cfs @ 11.95 hrs, Volume= 0.035 af, Depth> 1.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=3.40"

Area (sf)	CN	Description
3,818	98	Paved parking & roofs
8,440	74	>75% Grass cover, Good, HSG C
12,258	81	Weighted Average
8,440		68.85% Pervious Area
3,818		31.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	23	0.0200	0.12		**Sheet Flow, First 100' Flowpath** Grass: Short n= 0.150 P2= 2.70"
0.8	26	0.0050	0.55		**Sheet Flow, Balance of Longest Flowpath** Smooth surfaces n= 0.011 P2= 2.70"
4.1	49	Total			

Subcatchment PSC 6: Proposed Subcatchment 6



Summary for Subcatchment PSC 7: Proposed Subcatchment 7

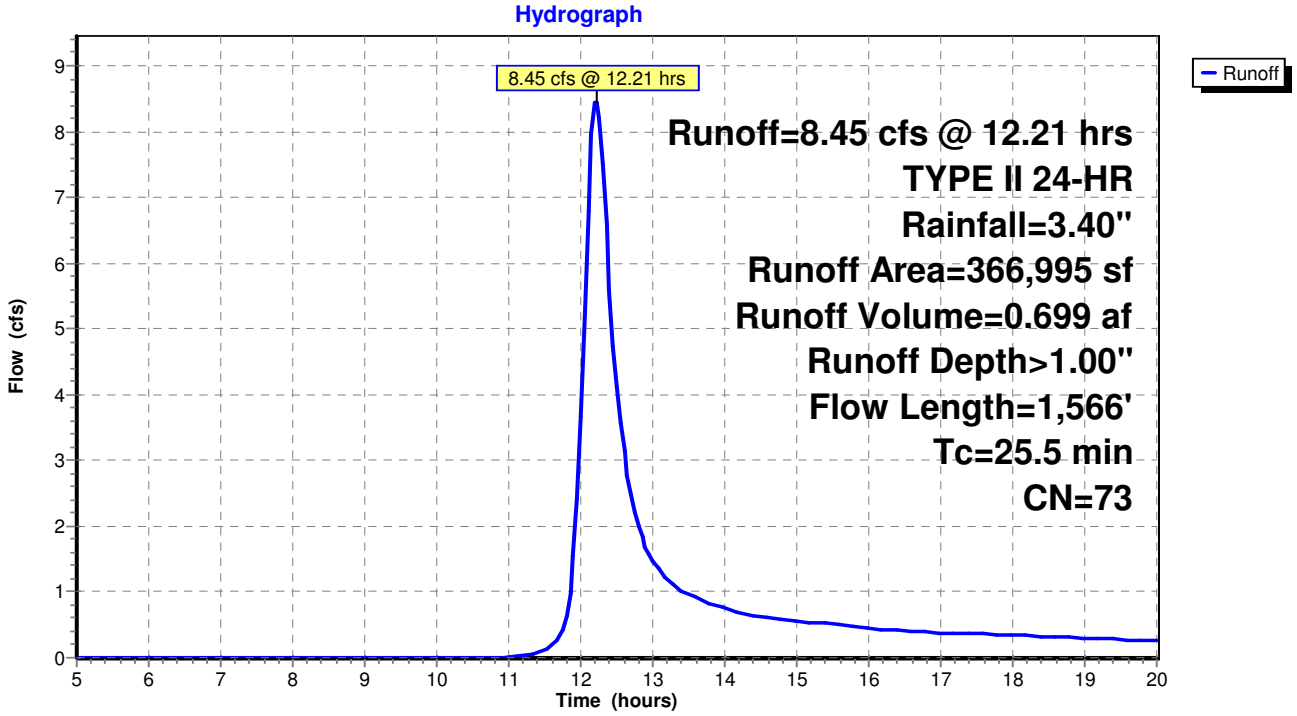
Runoff = 8.45 cfs @ 12.21 hrs, Volume= 0.699 af, Depth> 1.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=3.40"

Area (sf)	CN	Description
10,696	98	Paved parking & roofs
22,613	39	>75% Grass cover, Good, HSG A
14,492	98	Paved parking & roofs
21,401	61	>75% Grass cover, Good, HSG B
31,721	98	Paved parking & roofs
18,164	98	Paved parking & roofs
121,053	74	>75% Grass cover, Good, HSG C
126,855	65	Brush, Good, HSG C
366,995	73	Weighted Average
291,922		79.54% Pervious Area
75,073		20.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.5	100	0.0100	0.08		**Sheet Flow, First 100' Flowpath** Grass: Dense n= 0.240 P2= 2.70"
2.5	350	0.0240	2.32		**Shallow Concentrated Flow, Balance of Flow to Road** Grassed Waterway Kv= 15.0 fps
0.1	16	0.0100	2.03		**Shallow Concentrated Flow, Balance of Flow to Swale** Paved Kv= 20.3 fps
2.4	1,100	0.0170	7.61	121.77	**Trap/Vee/Rect Channel Flow, Balance of Longest Flowpath** Bot.W=2.00' D=2.00' Z= 3.0 '/' Top.W=14.00' n= 0.027
25.5	1,566	Total			

Subcatchment PSC 7: Proposed Subcatchment 7



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Summary for Subcatchment PSC 8: Proposed Subcatchment 8

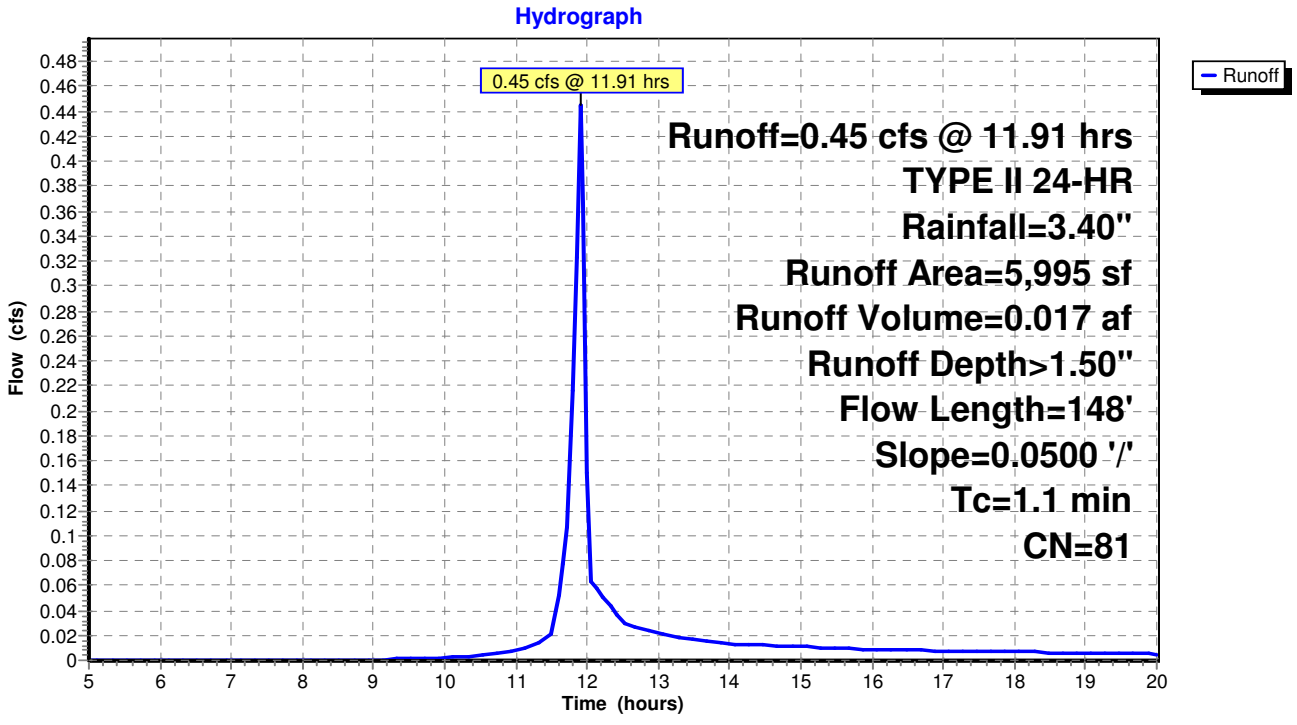
Runoff = 0.45 cfs @ 11.91 hrs, Volume= 0.017 af, Depth> 1.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=3.40"

Area (sf)	CN	Description
2,937	98	Paved parking & roofs
3,058	65	Brush, Good, HSG C
5,995	81	Weighted Average
3,058		51.01% Pervious Area
2,937		48.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	100	0.0500	1.82		**Sheet Flow, First 100' Flowpath** Smooth surfaces n= 0.011 P2= 2.70"
0.2	48	0.0500	4.54		**Shallow Concentrated Flow, Balance of Flow to Channel** Paved Kv= 20.3 fps
1.1	148	Total			

Subcatchment PSC 8: Proposed Subcatchment 8



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Summary for Subcatchment PSC-7A: Proposed Subcatchment 7A

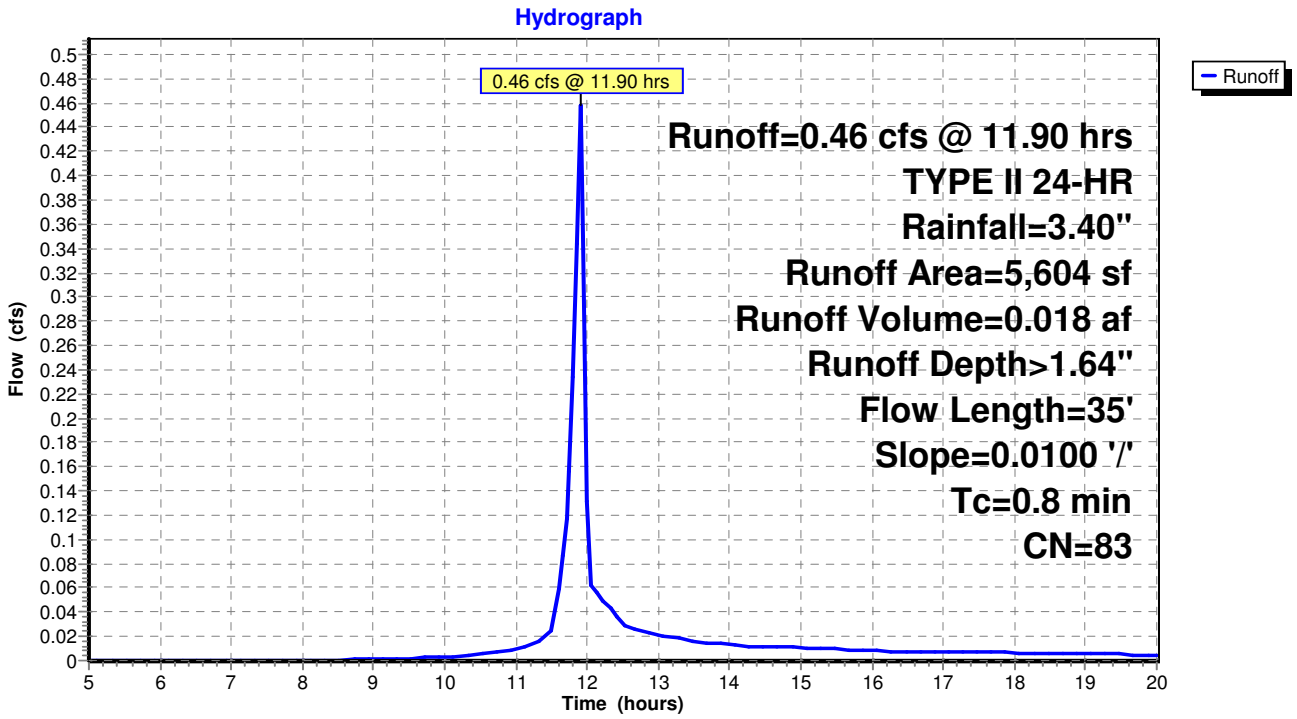
Runoff = 0.46 cfs @ 11.90 hrs, Volume= 0.018 af, Depth> 1.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=3.40"

Area (sf)	CN	Description
3,588	74	>75% Grass cover, Good, HSG C
2,016	98	Roofs, HSG C
5,604	83	Weighted Average
3,588		64.03% Pervious Area
2,016		35.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	35	0.0100	0.78		**Sheet Flow, Balance of Longest Flowpath** Smooth surfaces n= 0.011 P2= 2.70"

Subcatchment PSC-7A: Proposed Subcatchment 7A



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Summary for Subcatchment UP 1: Upland Watershed 1

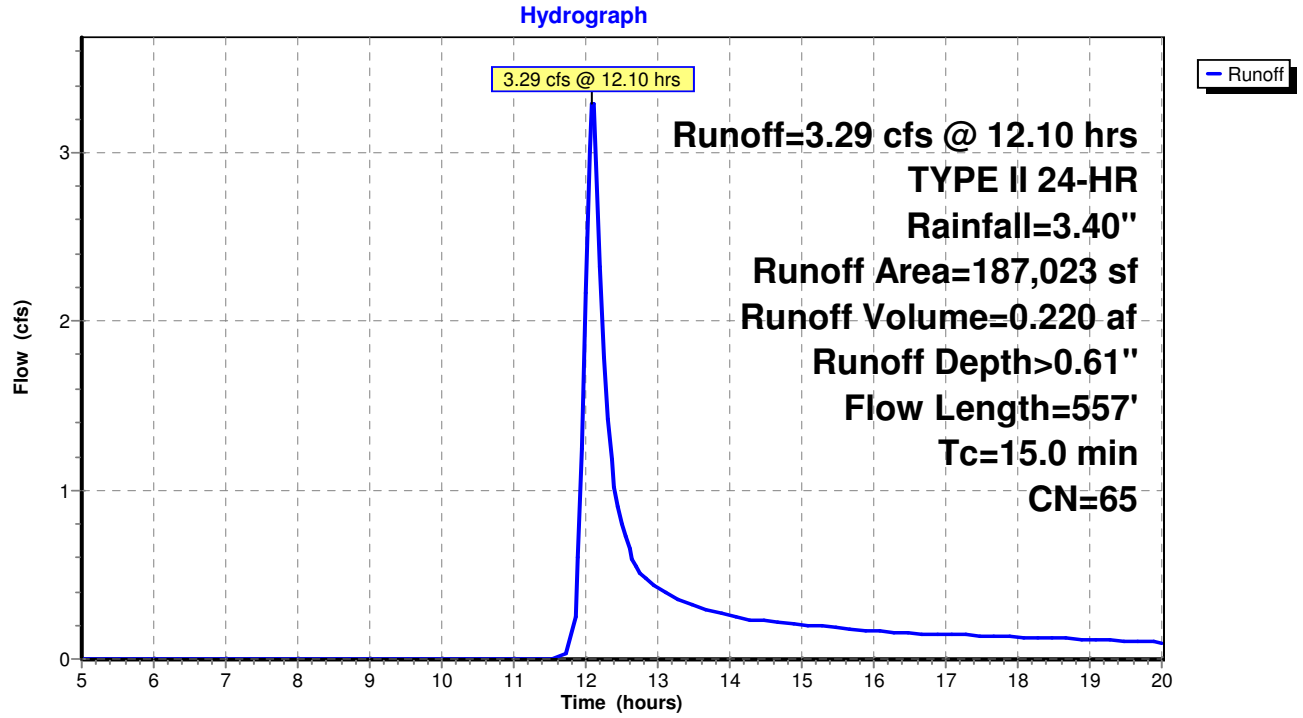
Runoff = 3.29 cfs @ 12.10 hrs, Volume= 0.220 af, Depth> 0.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=3.40"

Area (sf)	CN	Description
187,023	65	Brush, Good, HSG C
187,023		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	100	0.0360	0.14		**Sheet Flow, First 100' Flowpath** Grass: Dense n= 0.240 P2= 2.70"
2.7	457	0.0350	2.81		**Shallow Concentrated Flow, Balance of Longest Flowpath** Grassed Waterway Kv= 15.0 fps
15.0	557	Total			

Subcatchment UP 1: Upland Watershed 1



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Summary for Subcatchment UP 2: Upland Watershed 2

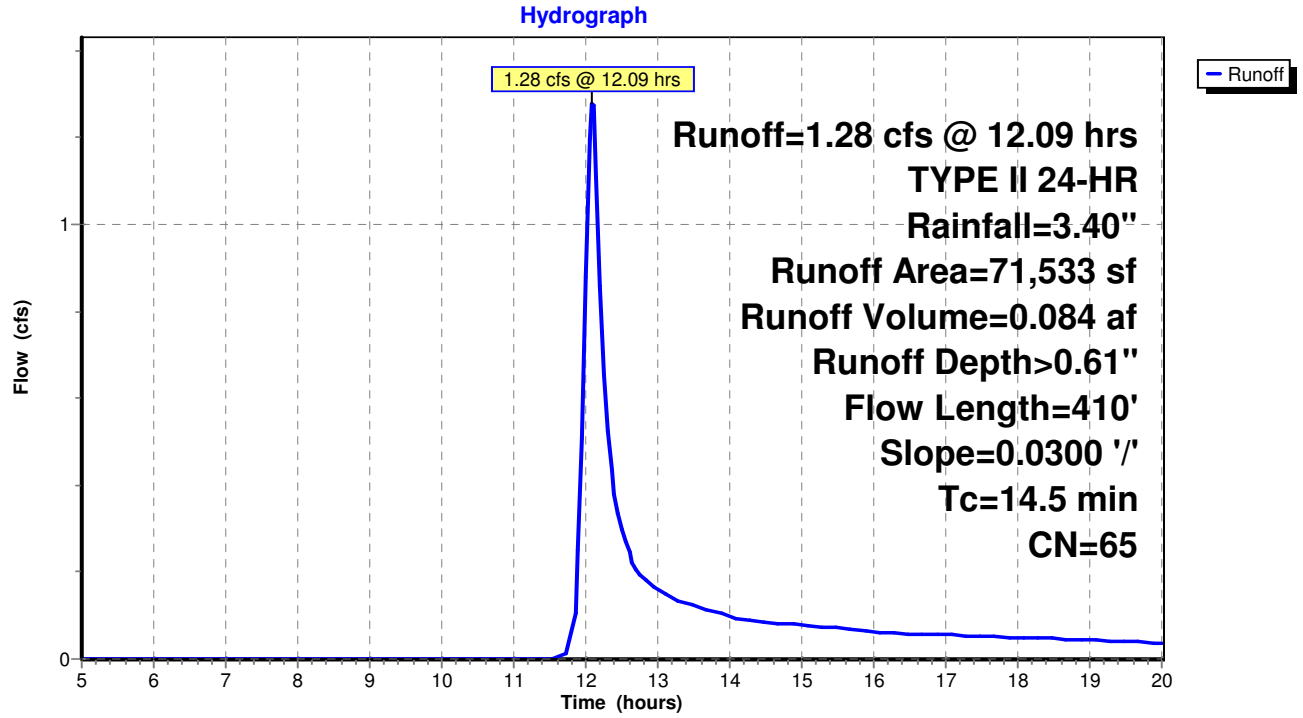
Runoff = 1.28 cfs @ 12.09 hrs, Volume= 0.084 af, Depth> 0.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=3.40"

Area (sf)	CN	Description
71,533	65	Brush, Good, HSG C
71,533		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.9	155	0.0300	0.20		**Sheet Flow, First 100' Flowpath** Grass: Short n= 0.150 P2= 2.70"
1.6	255	0.0300	2.60		**Shallow Concentrated Flow, Balance of Longest Flowpath** Grassed Waterway Kv= 15.0 fps
14.5	410	Total			

Subcatchment UP 2: Upland Watershed 2



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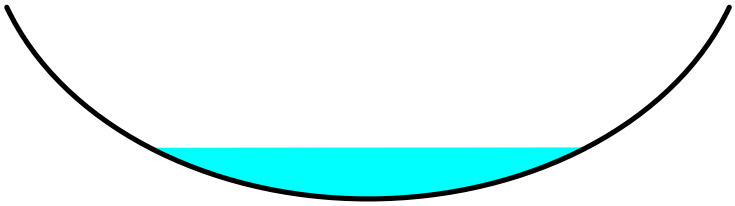
Summary for Reach Div: Diversion Swale

Inflow Area = 9.223 ac, 0.00% Impervious, Inflow Depth > 0.62"
Inflow = 6.63 cfs @ 12.01 hrs, Volume= 0.473 af
Outflow = 4.59 cfs @ 12.35 hrs, Volume= 0.461 af, Atten= 31%, Lag= 20.3 min

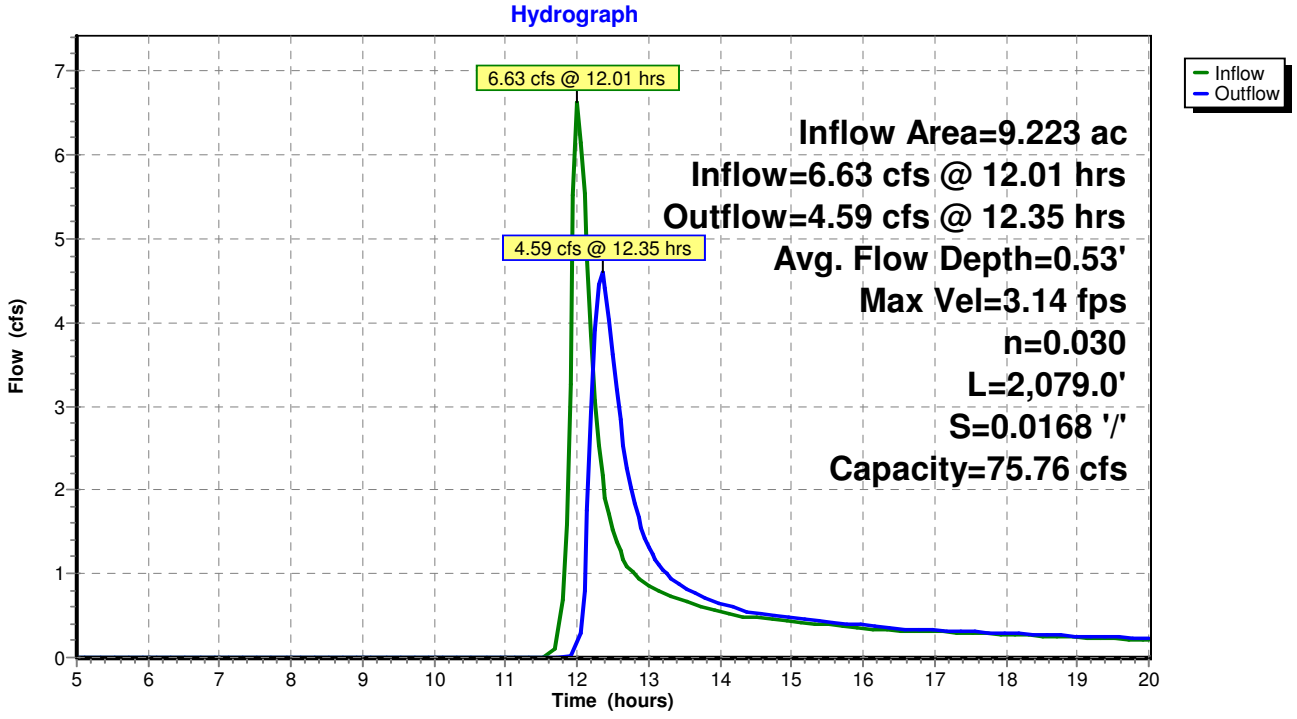
Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.14 fps, Min. Travel Time= 11.0 min
Avg. Velocity = 1.60 fps, Avg. Travel Time= 21.6 min

Peak Storage= 3,066 cf @ 12.16 hrs
Average Depth at Peak Storage= 0.53'
Bank-Full Depth= 2.00' Flow Area= 10.7 sf, Capacity= 75.76 cfs

8.00' x 2.00' deep Parabolic Channel, n= 0.030
Length= 2,079.0' Slope= 0.0168 '/'
Inlet Invert= 0.00', Outlet Invert= -35.00'



Reach Div: Diversion Swale

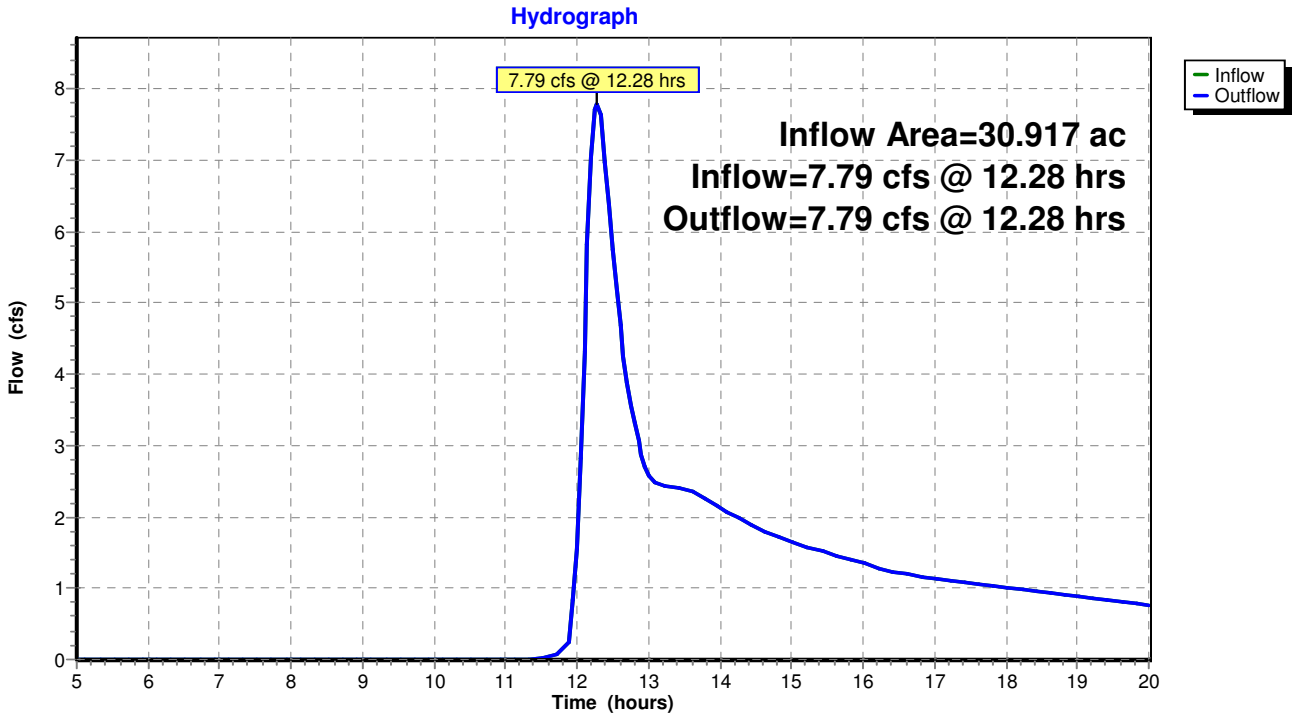


Summary for Reach DP 2: Design Point Summation 2

Inflow Area = 30.917 ac, 6.92% Impervious, Inflow Depth > 0.48"
Inflow = 7.79 cfs @ 12.28 hrs, Volume= 1.225 af
Outflow = 7.79 cfs @ 12.28 hrs, Volume= 1.225 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach DP 2: Design Point Summation 2



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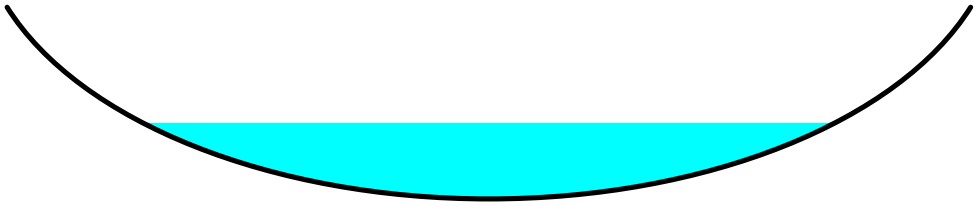
Summary for Reach RS: Road Swale

Inflow Area = 8.425 ac, 20.46% Impervious, Inflow Depth > 1.00"
Inflow = 8.45 cfs @ 12.21 hrs, Volume= 0.699 af
Outflow = 7.91 cfs @ 12.36 hrs, Volume= 0.692 af, Atten= 6%, Lag= 9.3 min

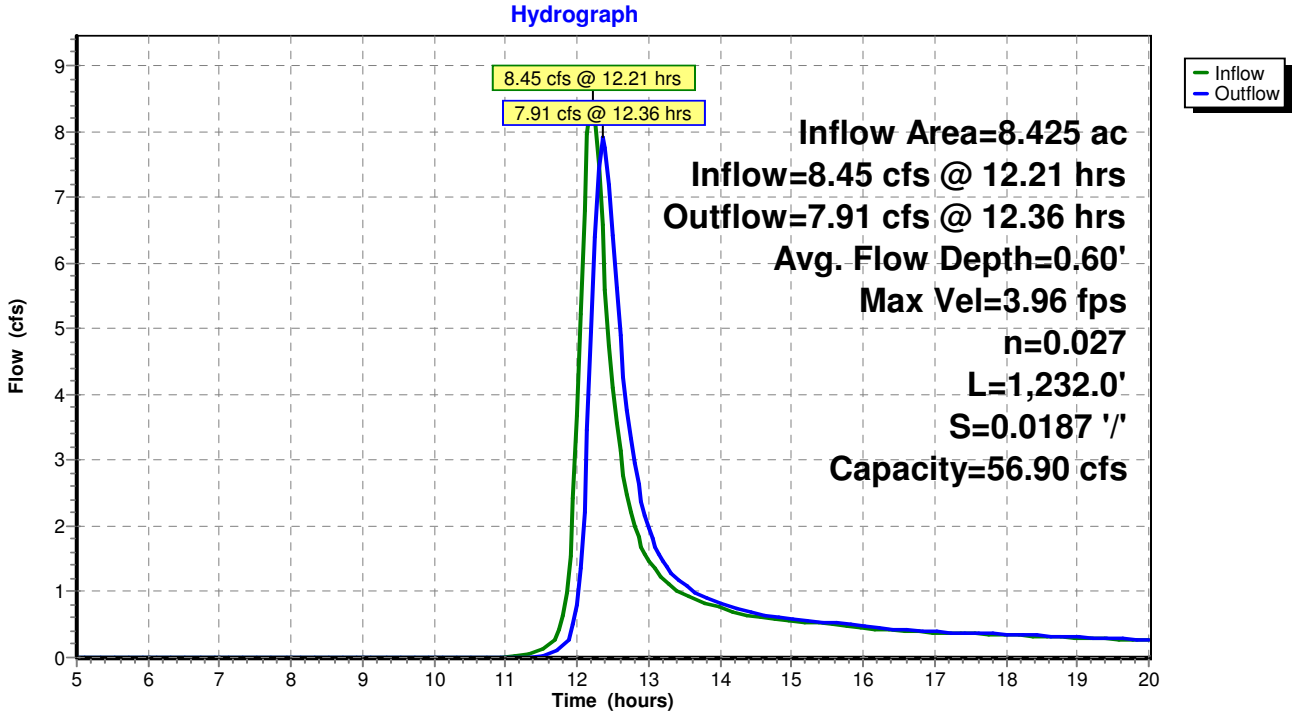
Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 3.96 fps, Min. Travel Time= 5.2 min
Avg. Velocity = 1.78 fps, Avg. Travel Time= 11.5 min

Peak Storage= 2,470 cf @ 12.27 hrs
Average Depth at Peak Storage= 0.60'
Bank-Full Depth= 1.50' Flow Area= 8.0 sf, Capacity= 56.90 cfs

8.00' x 1.50' deep Parabolic Channel, n= 0.027
Length= 1,232.0' Slope= 0.0187 '/'
Inlet Invert= 0.00', Outlet Invert= -23.00'



Reach RS: Road Swale



Summary for Pond BR 2: Bioretention Area 2

Inflow Area = 0.386 ac, 34.86% Impervious, Inflow Depth > 1.56"
Inflow = 0.85 cfs @ 12.07 hrs, Volume= 0.050 af
Outflow = 0.18 cfs @ 12.43 hrs, Volume= 0.034 af, Atten= 79%, Lag= 21.9 min
Primary = 0.18 cfs @ 12.43 hrs, Volume= 0.034 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 3.54' @ 12.43 hrs Surf.Area= 1,114 sf Storage= 1,050 cf
Flood Elev= 5.00' Surf.Area= 0 sf Storage= 2,454 cf

Plug-Flow detention time= 127.1 min calculated for 0.034 af (68% of inflow)
Center-of-Mass det. time= 57.5 min (852.2 - 794.7)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	2,454 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	438	0	0
1.00	438	438	438
1.10	219	33	471
3.50	219	526	996
3.51	1,094	7	1,003
4.50	1,669	1,368	2,371
4.60	0	83	2,454

Device	Routing	Invert	Outlet Devices
#1	Secondary	4.00'	**6.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Primary	2.00'	**4.0" Round Culvert** L= 177.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 2.00' / 1.50' S= 0.0028 '/' Cc= 0.900 n= 0.013, Flow Area= 0.09 sf

Primary OutFlow Max=0.18 cfs @ 12.43 hrs HW=3.54' (Free Discharge)
└**2=Culvert** (Barrel Controls 0.18 cfs @ 2.06 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=0.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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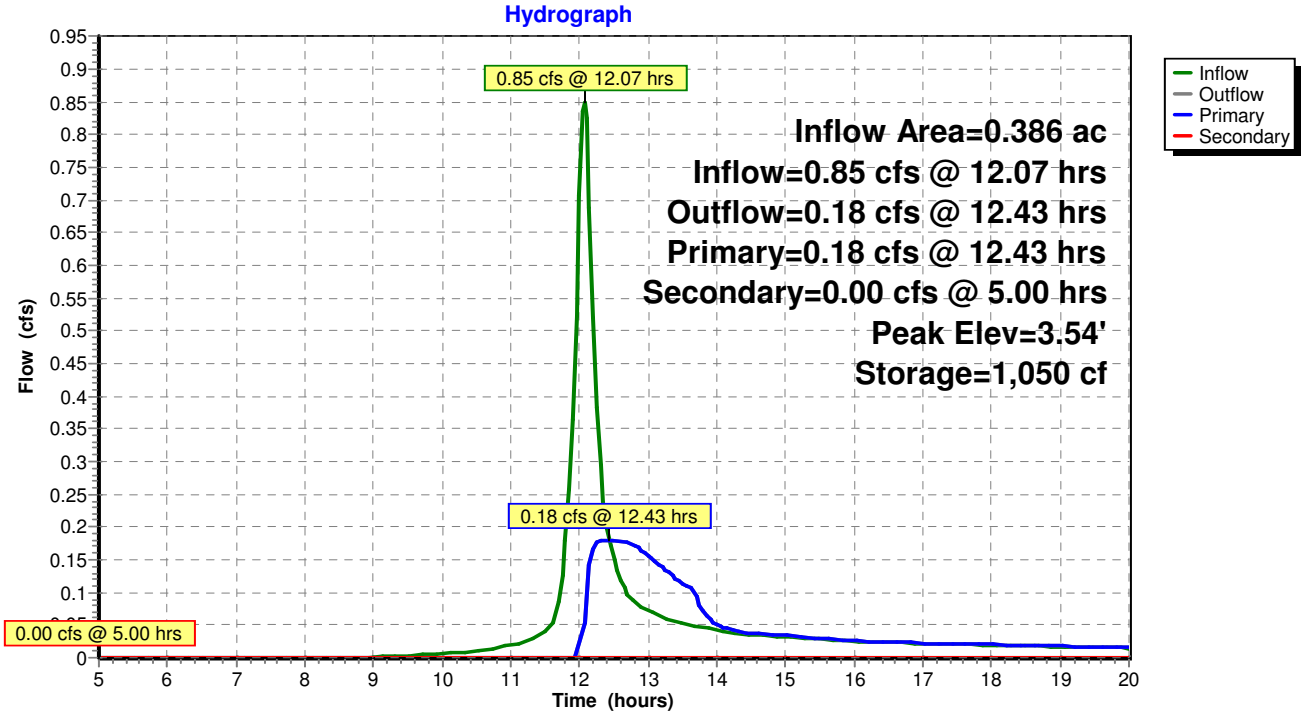
Pond BR 2: Bioretention Area 2



Summary for Pond BR 3: Bioretention Area 3

Inflow Area = 0.189 ac, 24.51% Impervious, Inflow Depth > 1.43"
Inflow = 0.48 cfs @ 12.00 hrs, Volume= 0.022 af
Outflow = 0.23 cfs @ 12.11 hrs, Volume= 0.015 af, Atten= 52%, Lag= 7.0 min
Primary = 0.23 cfs @ 12.11 hrs, Volume= 0.015 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 2.90' @ 12.11 hrs Surf.Area= 99 sf Storage= 391 cf
Flood Elev= 5.00' Surf.Area= 0 sf Storage= 1,189 cf

Plug-Flow detention time= 116.1 min calculated for 0.015 af (69% of inflow)
Center-of-Mass det. time= 44.6 min (838.7 - 794.1)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	1,189 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	198	0	0
1.00	198	198	198
1.10	99	15	213
3.50	99	238	450
3.51	495	3	453
4.50	901	691	1,144
4.60	0	45	1,189

Device	Routing	Invert	Outlet Devices
#1	Secondary	4.00'	**6.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Primary	2.00'	**4.0" Round Culvert** L= 57.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 2.00' / 1.50' S= 0.0088 '/' Cc= 0.900 n= 0.013, Flow Area= 0.09 sf

Primary OutFlow Max=0.23 cfs @ 12.11 hrs HW=2.87' (Free Discharge)
└**2=Culvert** (Barrel Controls 0.23 cfs @ 2.64 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=0.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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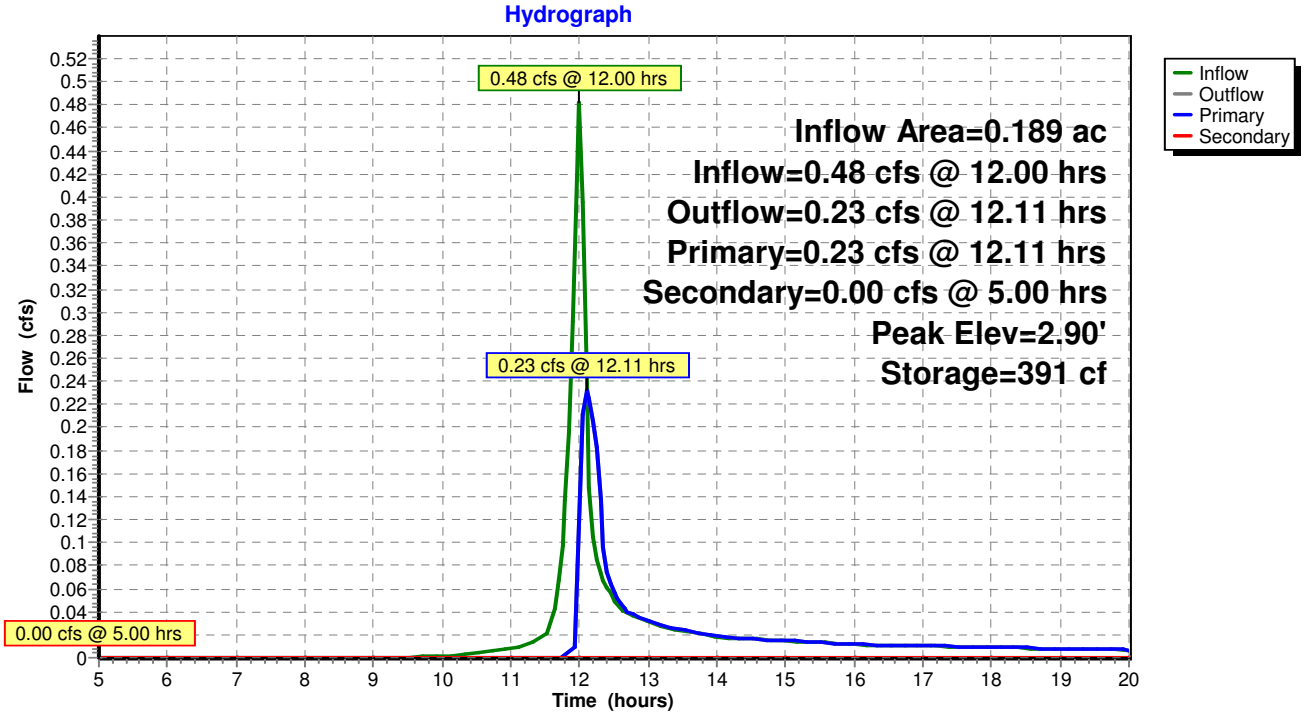
Pond BR 3: Bioretention Area 3



Summary for Pond BR 6: Bioretention Area 6

Inflow Area = 0.281 ac, 31.15% Impervious, Inflow Depth > 1.50"
Inflow = 0.86 cfs @ 11.95 hrs, Volume= 0.035 af
Outflow = 0.19 cfs @ 12.10 hrs, Volume= 0.028 af, Atten= 78%, Lag= 9.0 min
Primary = 0.19 cfs @ 12.10 hrs, Volume= 0.028 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 3.79' @ 12.10 hrs Surf.Area= 693 sf Storage= 659 cf
Flood Elev= 5.00' Surf.Area= 0 sf Storage= 1,348 cf

Plug-Flow detention time= 95.8 min calculated for 0.027 af (78% of inflow)
Center-of-Mass det. time= 37.9 min (826.7 - 788.7)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	1,348 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	180	0	0
1.00	180	180	180
1.10	90	14	194
3.50	90	216	410
3.51	451	3	412
4.50	1,307	870	1,282
4.60	0	65	1,348

Device	Routing	Invert	Outlet Devices
#1	Secondary	4.00'	**6.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Primary	2.50'	**4.0" Round Culvert** L= 132.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 2.50' / 2.00' S= 0.0038 '/' Cc= 0.900 n= 0.013, Flow Area= 0.09 sf

Primary OutFlow Max=0.19 cfs @ 12.10 hrs HW=3.79' (Free Discharge)
└**2=Culvert** (Barrel Controls 0.19 cfs @ 2.18 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=0.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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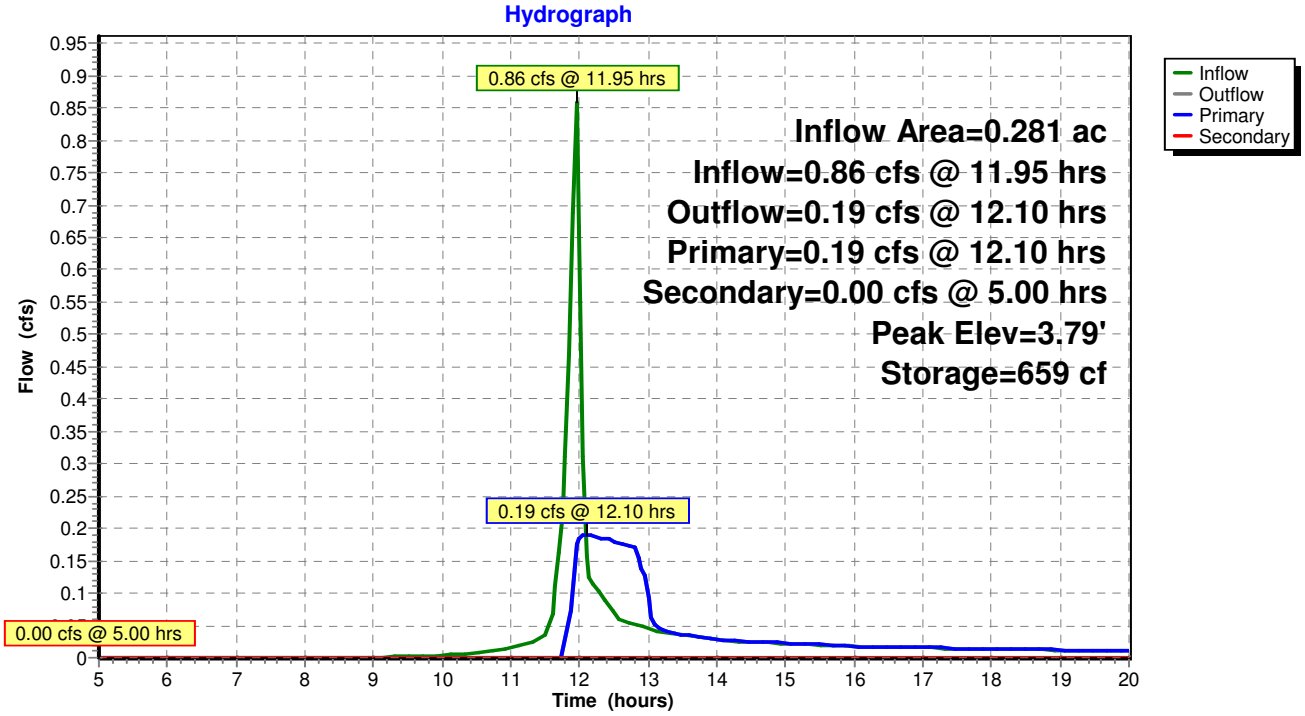
Pond BR 6: Bioretention Area 6



Summary for Pond BR 7: Bioretention Area 7

Inflow Area = 0.129 ac, 35.97% Impervious, Inflow Depth > 1.64"
Inflow = 0.46 cfs @ 11.90 hrs, Volume= 0.018 af
Outflow = 0.19 cfs @ 12.00 hrs, Volume= 0.011 af, Atten= 59%, Lag= 5.8 min
Primary = 0.19 cfs @ 12.00 hrs, Volume= 0.011 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 2.52' @ 12.00 hrs Surf.Area= 99 sf Storage= 354 cf
Flood Elev= 5.00' Surf.Area= 0 sf Storage= 1,189 cf

Plug-Flow detention time= 136.6 min calculated for 0.011 af (60% of inflow)
Center-of-Mass det. time= 60.1 min (841.5 - 781.3)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	1,189 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	198	0	0
1.00	198	198	198
1.10	99	15	213
3.50	99	238	450
3.51	495	3	453
4.50	901	691	1,144
4.60	0	45	1,189

Device	Routing	Invert	Outlet Devices
#1	Secondary	4.00'	**6.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Primary	2.00'	**4.0" Round Culvert** L= 57.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 2.00' / 1.50' S= 0.0088 '/' Cc= 0.900 n= 0.013, Flow Area= 0.09 sf

Primary OutFlow Max=0.19 cfs @ 12.00 hrs HW=2.52' (Free Discharge)
└**2=Culvert** (Barrel Controls 0.19 cfs @ 2.14 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=0.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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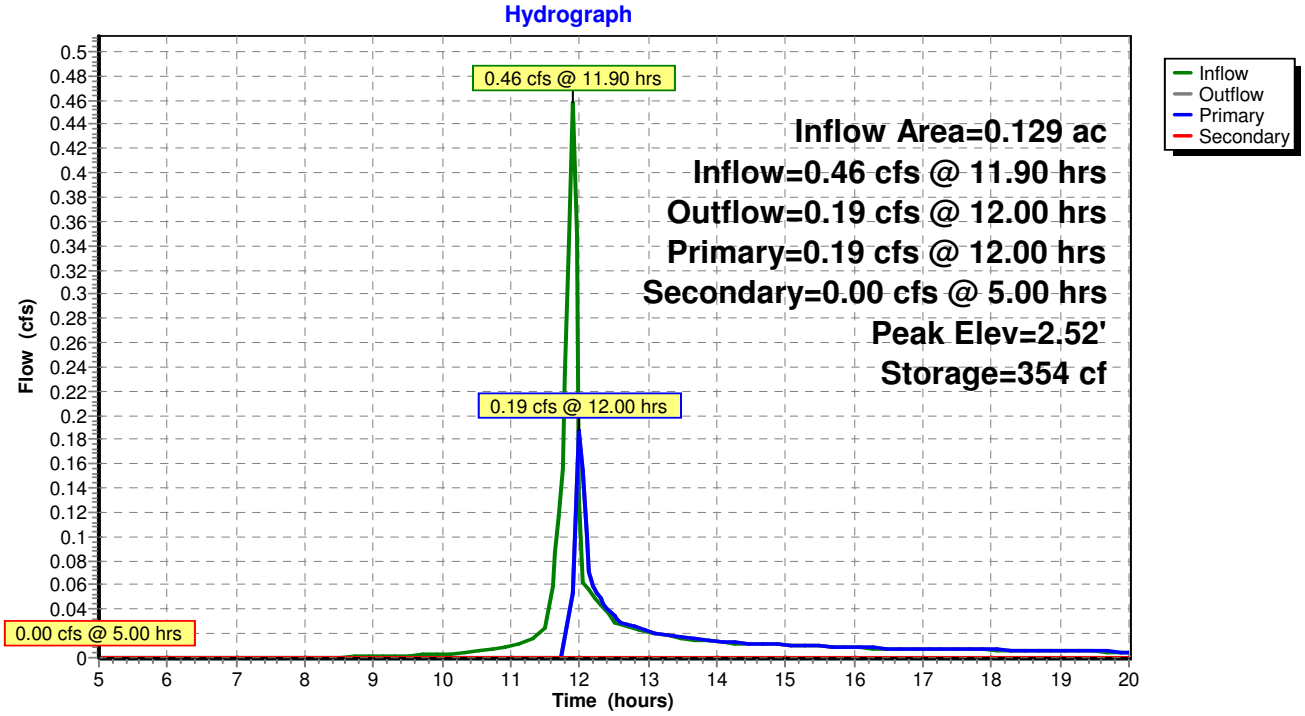
Pond BR 7: Bioretention Area 7



Summary for Pond DS: Dry Swales

Inflow Area = 0.138 ac, 48.99% Impervious, Inflow Depth > 1.50"
Inflow = 0.45 cfs @ 11.91 hrs, Volume= 0.017 af
Outflow = 0.20 cfs @ 11.99 hrs, Volume= 0.017 af, Atten= 54%, Lag= 5.3 min
Primary = 0.20 cfs @ 11.99 hrs, Volume= 0.017 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1.46' @ 11.99 hrs Surf.Area= 350 sf Storage= 172 cf
Flood Elev= 5.00' Surf.Area= 0 sf Storage= 1,146 cf

Plug-Flow detention time= 14.2 min calculated for 0.017 af (99% of inflow)
Center-of-Mass det. time= 9.8 min (796.2 - 786.4)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	573 cf	**Custom Stage Data (Prismatic)** Listed below
		573 cf	x 2.00 = 1,146 cf Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	175	0.0	0	0
1.00	175	40.0	70	70
1.10	175	20.0	4	74
3.50	175	20.0	84	158
3.51	175	100.0	2	159
4.50	600	100.0	384	543
4.60	0	100.0	30	573

Device	Routing	Invert	Outlet Devices
#1	Primary	4.00'	**6.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Primary	0.00'	**4.0" Round Culvert** L= 127.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.00' / -0.50' S= 0.0039 '/' Cc= 0.900 n= 0.013, Flow Area= 0.09 sf

Primary OutFlow Max=0.20 cfs @ 11.99 hrs HW=1.44' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**2=Culvert** (Barrel Controls 0.20 cfs @ 2.33 fps)

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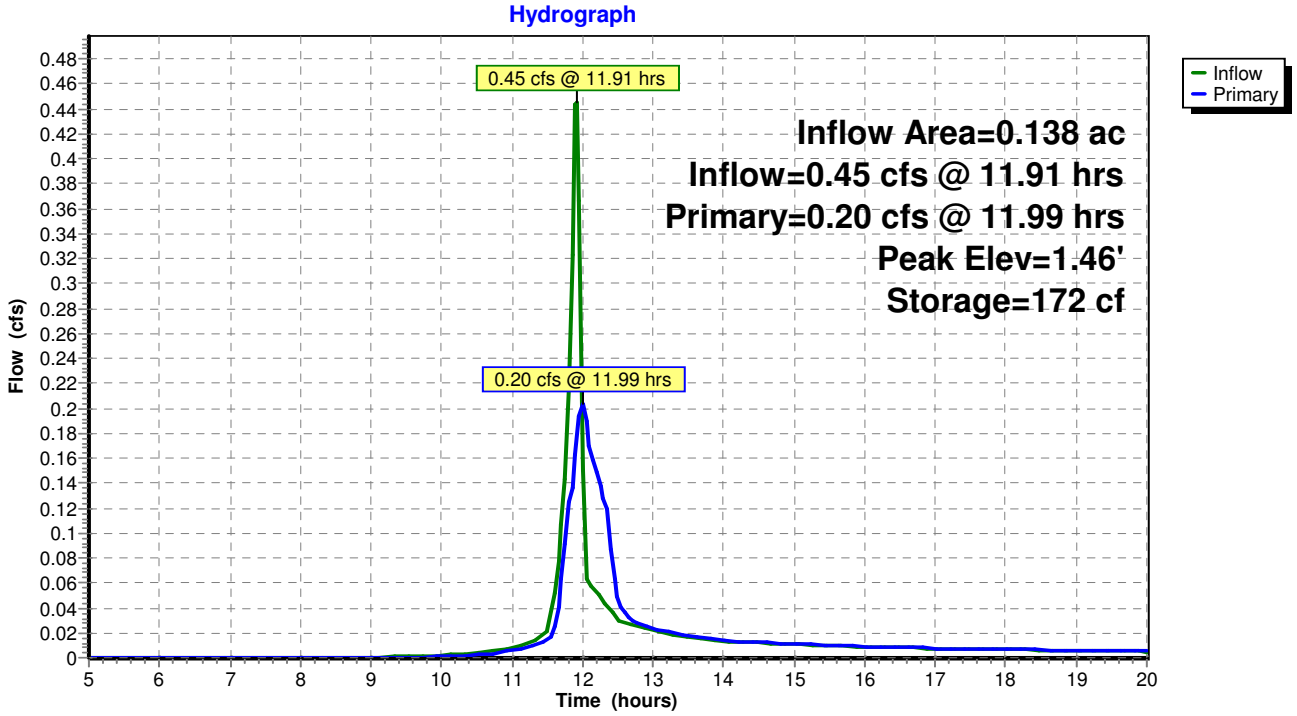
Pond DS: Dry Swales



Summary for Pond FB: Forebay

Inflow Area = 8.425 ac, 20.46% Impervious, Inflow Depth > 0.99"
Inflow = 7.91 cfs @ 12.36 hrs, Volume= 0.692 af
Outflow = 11.55 cfs @ 12.40 hrs, Volume= 0.625 af, Atten= 0%, Lag= 2.1 min
Primary = 11.55 cfs @ 12.40 hrs, Volume= 0.625 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 4.80' @ 12.40 hrs Surf.Area= 0 sf Storage= 2,928 cf
Flood Elev= 4.00' Surf.Area= 1,536 sf Storage= 2,852 cf

Plug-Flow detention time= 42.4 min calculated for 0.625 af (90% of inflow)
Center-of-Mass det. time= 11.4 min (844.0 - 832.6)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	2,928 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	113	0	0
1.00	345	229	229
2.00	633	489	718
3.00	1,049	841	1,559
4.00	1,536	1,293	2,852
4.10	0	77	2,928

Device	Routing	Invert	Outlet Devices
#1	Primary	4.00'	**6.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=11.37 cfs @ 12.40 hrs HW=4.79' (Free Discharge)
↑—1=Broad-Crested Rectangular Weir (Weir Controls 11.37 cfs @ 2.39 fps)

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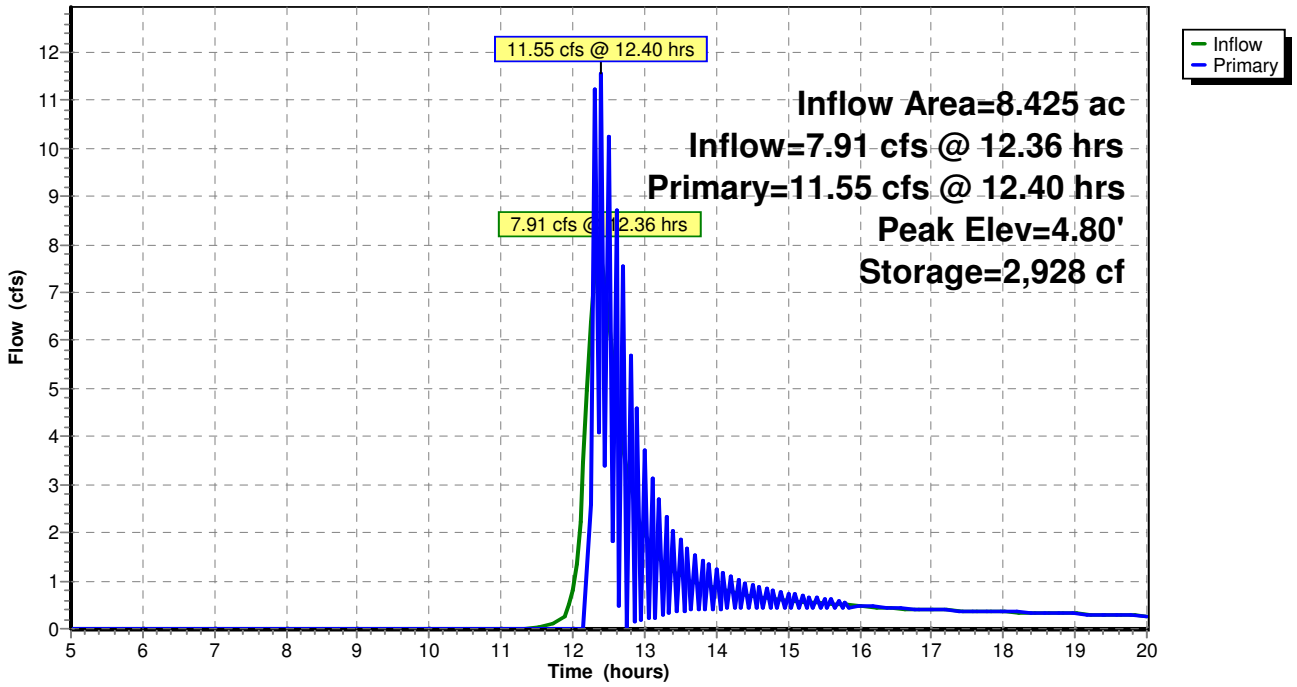
Pond FB: Forebay

Hydrograph



Summary for Pond P: Pond

Inflow Area = 8.425 ac, 20.46% Impervious, Inflow Depth > 0.89"
Inflow = 11.55 cfs @ 12.40 hrs, Volume= 0.625 af
Outflow = 0.86 cfs @ 13.94 hrs, Volume= 0.305 af, Atten= 93%, Lag= 92.7 min
Primary = 0.86 cfs @ 13.94 hrs, Volume= 0.305 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Starting Elev= 4.00' Surf.Area= 7,635 sf Storage= 5,821 cf
Peak Elev= 5.43' @ 13.94 hrs Surf.Area= 12,612 sf Storage= 20,998 cf (15,177 cf above start)
Flood Elev= 7.50' Surf.Area= 0 sf Storage= 46,941 cf (41,120 cf above start)

Plug-Flow detention time= 296.5 min calculated for 0.171 af (27% of inflow)
Center-of-Mass det. time= 111.7 min (955.8 - 844.0)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	46,941 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	113	0	0
1.00	314	214	214
2.00	616	465	679
3.00	1,017	817	1,495
4.00	7,635	4,326	5,821
5.00	11,788	9,712	15,533
6.00	13,709	12,749	28,281
7.00	15,740	14,725	43,006
7.50	0	3,935	46,941

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	**12.0" Round Culvert** L= 104.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.00' / -1.00' S= 0.0096 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	4.00'	**1.5" Vert. Orifice/Grate** C= 0.600
#3	Device 1	5.25'	**12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	6.50'	**25.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

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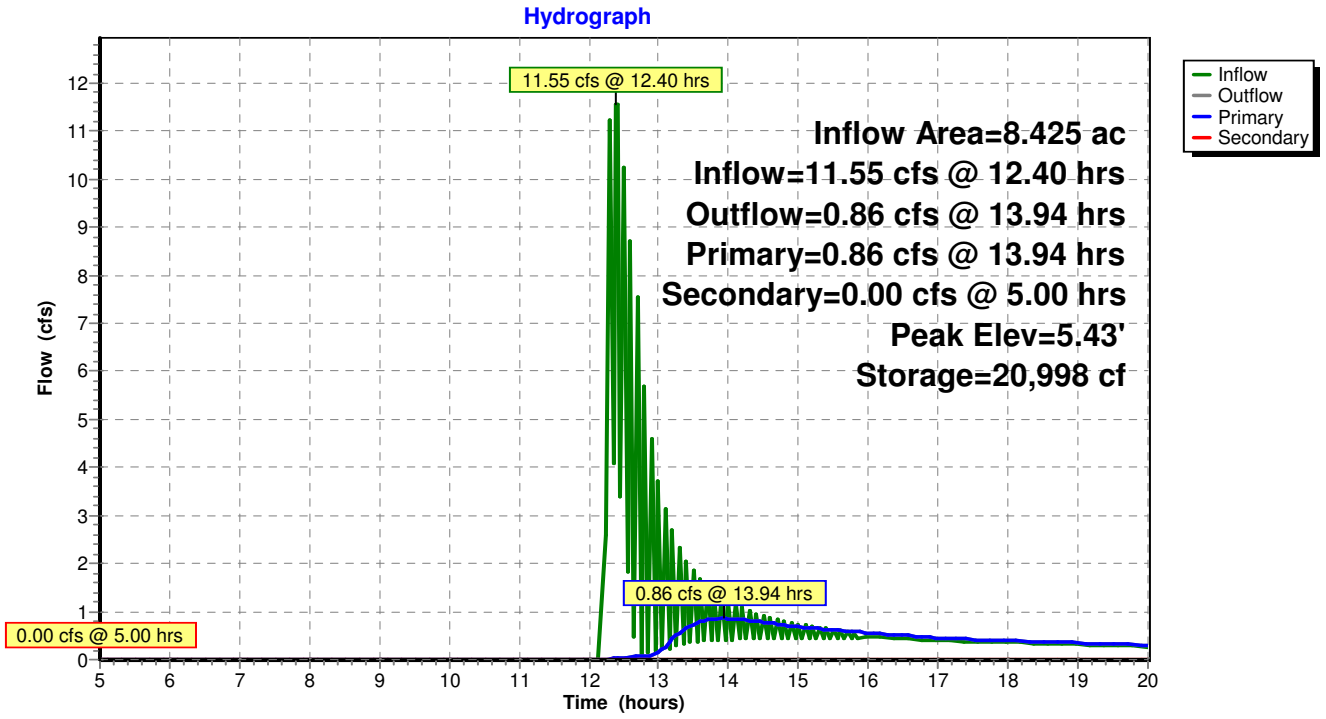
Primary OutFlow Max=0.85 cfs @ 13.94 hrs HW=5.43' (Free Discharge)
└─**1=Culvert** (Passes 0.85 cfs of 6.46 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.07 cfs @ 5.63 fps)
  └─**3=Orifice/Grate** (Weir Controls 0.78 cfs @ 1.38 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=4.00' (Free Discharge)
└─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond P: Pond



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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.519	39	>75% Grass cover, Good, HSG A (PSC 7)
0.491	61	>75% Grass cover, Good, HSG B (PSC 7)
3.449	74	>75% Grass cover, Good, HSG C (PSC 2, PSC 3, PSC 6, PSC 7, PSC-7A)
2.435	30	Brush, Good, HSG A (OSC 3)
0.360	48	Brush, Good, HSG B (OSC 3)
21.522	65	Brush, Good, HSG C (OSC 1, OSC 3, PSC 7, PSC 8, UP 1, UP 2)
2.059	98	Paved parking & roofs (PSC 2, PSC 3, PSC 6, PSC 7, PSC 8)
0.046	98	Roofs, HSG C (PSC-7A)
0.035	98	Unconnected roofs, HSG A (OSC 3)
30.917	**65**	**TOTAL AREA**

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
2.989	HSG A	OSC 3, PSC 7
0.851	HSG B	OSC 3, PSC 7
25.018	HSG C	OSC 1, OSC 3, PSC 2, PSC 3, PSC 6, PSC 7, PSC 8, PSC-7A, UP 1, UP 2
0.000	HSG D	
2.059	Other	PSC 2, PSC 3, PSC 6, PSC 7, PSC 8
30.917		**TOTAL AREA**

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.519	0.491	3.449	0.000	0.000	4.460	>75% Grass cover, Good	PSC 2, PSC 3, PSC 6, PSC 7, PSC-7A
2.435	0.360	21.522	0.000	0.000	24.317	Brush, Good	OSC 1, OSC 3, PSC 7, PSC 8, UP 1, UP 2
0.000	0.000	0.000	0.000	2.059	2.059	Paved parking & roofs	PSC 2, PSC 3, PSC 6, PSC 7, PSC 8
0.000	0.000	0.046	0.000	0.000	0.046	Roofs	PSC-7A
0.035	0.000	0.000	0.000	0.000	0.035	Unconnected roofs	OSC 3
2.989	**0.851**	**25.018**	**0.000**	**2.059**	**30.917**	**TOTAL AREA**	

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Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	BR 2	2.00	1.50	177.0	0.0028	0.013	4.0	0.0	0.0
2	BR 3	2.00	1.50	57.0	0.0088	0.013	4.0	0.0	0.0
3	BR 6	2.50	2.00	132.0	0.0038	0.013	4.0	0.0	0.0
4	BR 7	2.00	1.50	57.0	0.0088	0.013	4.0	0.0	0.0
5	DS	0.00	-0.50	127.0	0.0039	0.013	4.0	0.0	0.0
6	P	0.00	-1.00	104.0	0.0096	0.013	12.0	0.0	0.0

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment OSC 1: Off-Site Runoff Area=143,197 sf 0.00% Impervious Runoff Depth>2.04"
Flow Length=2,079' Slope=0.0170 '/' Tc=4.6 min CN=65 Runoff=13.52 cfs 0.559 af

Subcatchment OSC 3: Off-Site Runoff Area=529,093 sf 0.28% Impervious Runoff Depth>1.48"
Flow Length=1,570' Tc=19.6 min CN=58 Runoff=20.84 cfs 1.500 af

Subcatchment PSC 2: Proposed Runoff Area=16,829 sf 34.86% Impervious Runoff Depth>3.58"
Flow Length=170' Tc=14.8 min CN=82 Runoff=1.90 cfs 0.115 af

Subcatchment PSC 3: Proposed Runoff Area=8,226 sf 24.51% Impervious Runoff Depth>3.39"
Flow Length=146' Tc=8.0 min CN=80 Runoff=1.11 cfs 0.053 af

Subcatchment PSC 6: Proposed Runoff Area=12,258 sf 31.15% Impervious Runoff Depth>3.49"
Flow Length=49' Tc=4.1 min CN=81 Runoff=1.92 cfs 0.082 af

Subcatchment PSC 7: Proposed Runoff Area=366,995 sf 20.46% Impervious Runoff Depth>2.71"
Flow Length=1,566' Tc=25.5 min CN=73 Runoff=23.85 cfs 1.903 af

Subcatchment PSC 8: Proposed Runoff Area=5,995 sf 48.99% Impervious Runoff Depth>3.49"
Flow Length=148' Slope=0.0500 '/' Tc=1.1 min CN=81 Runoff=1.00 cfs 0.040 af

Subcatchment PSC-7A: Proposed Runoff Area=5,604 sf 35.97% Impervious Runoff Depth>3.69"
Flow Length=35' Slope=0.0100 '/' Tc=0.8 min CN=83 Runoff=0.98 cfs 0.040 af

Subcatchment UP 1: Upland Watershed 1 Runoff Area=187,023 sf 0.00% Impervious Runoff Depth>2.03"
Flow Length=557' Tc=15.0 min CN=65 Runoff=12.13 cfs 0.727 af

Subcatchment UP 2: Upland Watershed 2 Runoff Area=71,533 sf 0.00% Impervious Runoff Depth>2.03"
Flow Length=410' Slope=0.0300 '/' Tc=14.5 min CN=65 Runoff=4.73 cfs 0.278 af

Reach Div: Diversion Swale Avg. Flow Depth=1.08' Max Vel=4.89 fps Inflow=25.04 cfs 1.564 af
n=0.030 L=2,079.0' S=0.0168 '/' Capacity=75.76 cfs Outflow=20.53 cfs 1.543 af

Reach DP 2: Design Point Summation 2 Inflow=43.42 cfs 4.821 af
Outflow=43.42 cfs 4.821 af

Reach RS: Road Swale Avg. Flow Depth=0.98' Max Vel=5.46 fps Inflow=23.85 cfs 1.903 af
n=0.027 L=1,232.0' S=0.0187 '/' Capacity=56.90 cfs Outflow=22.96 cfs 1.891 af

Pond BR 2: Bioretention Area 2 Peak Elev=4.19' Storage=1,945 cf Inflow=1.90 cfs 0.115 af
Primary=0.21 cfs 0.074 af Secondary=1.28 cfs 0.025 af Outflow=1.49 cfs 0.099 af

Pond BR 3: Bioretention Area 3 Peak Elev=4.07' Storage=845 cf Inflow=1.11 cfs 0.053 af
Primary=0.34 cfs 0.044 af Secondary=0.30 cfs 0.002 af Outflow=0.64 cfs 0.046 af

Pond BR 6: Bioretention Area 6 Peak Elev=4.22' Storage=1,034 cf Inflow=1.92 cfs 0.082 af
Primary=0.22 cfs 0.055 af Secondary=1.54 cfs 0.020 af Outflow=1.76 cfs 0.074 af

Pond BR 7: Bioretention Area 7 Peak Elev=3.87' Storage=708 cf Inflow=0.98 cfs 0.040 af
Primary=0.32 cfs 0.033 af Secondary=0.00 cfs 0.000 af Outflow=0.32 cfs 0.033 af

Pond DS: Dry Swales Peak Elev=3.73' Storage=491 cf Inflow=1.00 cfs 0.040 af
Outflow=0.32 cfs 0.040 af

Pond FB: Forebay Peak Elev=5.28' Storage=2,928 cf Inflow=22.96 cfs 1.891 af
Outflow=23.15 cfs 1.824 af

Pond P: Pond Peak Elev=6.70' Storage=38,587 cf Inflow=23.15 cfs 1.824 af
Primary=4.65 cfs 1.325 af Secondary=5.39 cfs 0.160 af Outflow=10.04 cfs 1.486 af

Total Runoff Area = 30.917 ac Runoff Volume = 5.297 af Average Runoff Depth = 2.06"
93.08% Pervious = 28.777 ac 6.92% Impervious = 2.140 ac

Summary for Subcatchment OSC 1: Off-Site Subcatchment 1

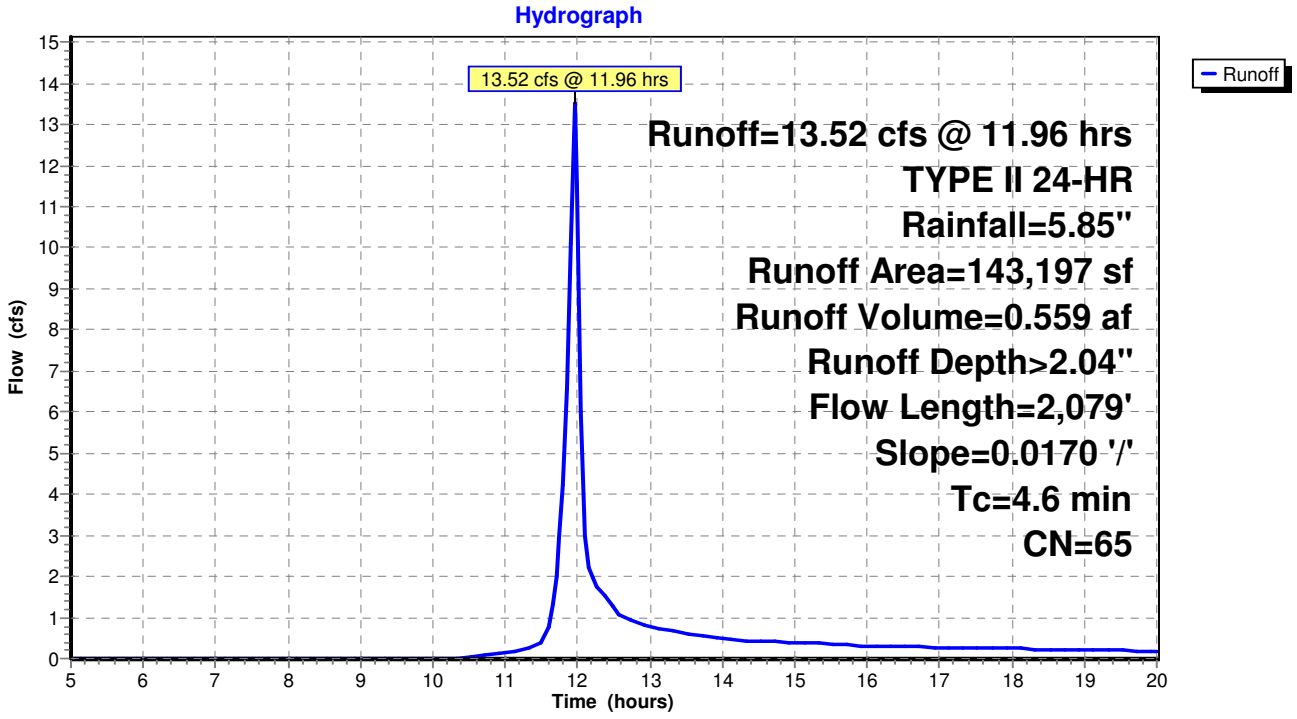
Runoff = 13.52 cfs @ 11.96 hrs, Volume= 0.559 af, Depth> 2.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=5.85"

Area (sf)	CN	Description
143,197	65	Brush, Good, HSG C
143,197		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	2,079	0.0170	7.61	121.77	**Trap/Vee/Rect Channel Flow, Balance of Longest Flowpath** Bot.W=2.00' D=2.00' Z= 3.0 '/' Top.W=14.00' n= 0.027

Subcatchment OSC 1: Off-Site Subcatchment 1



Summary for Subcatchment OSC 3: Off-Site Subcatchment 3

Runoff = 20.84 cfs @ 12.14 hrs, Volume= 1.500 af, Depth> 1.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=5.85"

Area (sf)	CN	Description
106,079	30	Brush, Good, HSG A
15,682	48	Brush, Good, HSG B
405,827	65	Brush, Good, HSG C
1,505	98	Unconnected roofs, HSG A
529,093	58	Weighted Average
527,588		99.72% Pervious Area
1,505		0.28% Impervious Area
1,505		100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.8	100	0.0400	0.14		**Sheet Flow, First 100' Flowpath** Grass: Dense n= 0.240 P2= 2.70"
6.8	1,064	0.0300	2.60		**Shallow Concentrated Flow, Balance of Flow to Channel** Grassed Waterway Kv= 15.0 fps
1.0	406	0.0110	6.52	130.46	**Trap/Vee/Rect Channel Flow, Balance of Flowpath** Bot.W=4.00' D=2.00' Z= 3.0 '/' Top.W=16.00' n= 0.027
19.6	1,570	Total			

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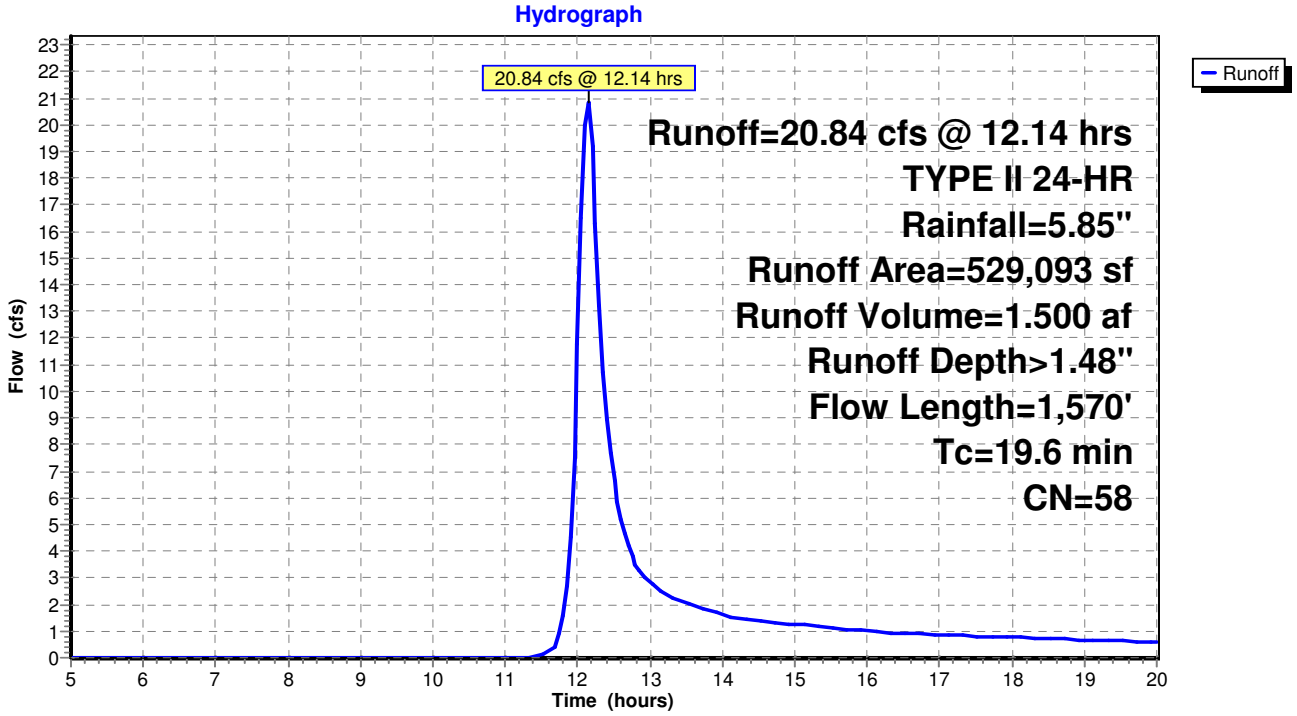
Subcatchment OSC 3: Off-Site Subcatchment 3



Summary for Subcatchment PSC 2: Proposed Subcatchment 2

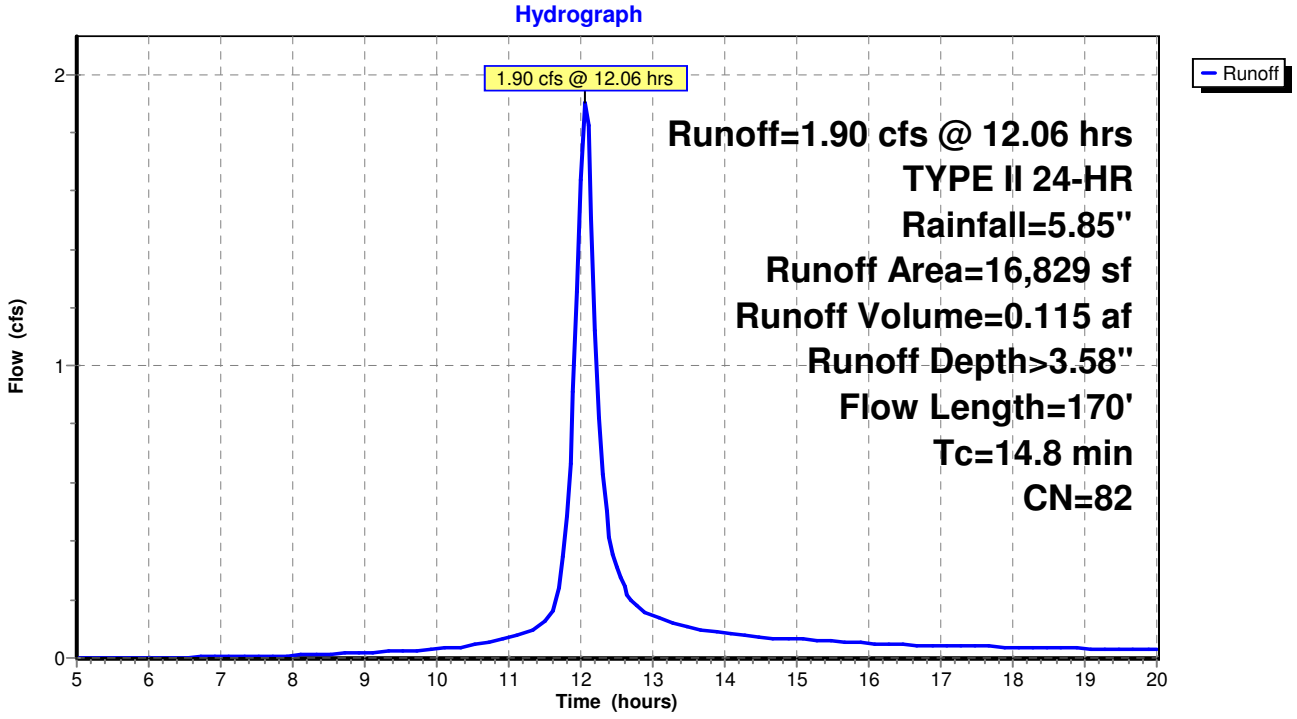
Runoff = 1.90 cfs @ 12.06 hrs, Volume= 0.115 af, Depth> 3.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=5.85"

Area (sf)	CN	Description
5,866	98	Paved parking & roofs
10,963	74	>75% Grass cover, Good, HSG C
16,829	82	Weighted Average
10,963		65.14% Pervious Area
5,866		34.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.1	100	0.0100	0.12		**Sheet Flow, First 100' Flowpath** Grass: Short n= 0.150 P2= 2.70"
0.6	65	0.0070	1.70		**Shallow Concentrated Flow, Balance of Flow to Channel** Paved Kv= 20.3 fps
0.1	5	0.0070	1.25		**Shallow Concentrated Flow, Balance of Longest Flowpath** Grassed Waterway Kv= 15.0 fps
14.8	170	Total			

Subcatchment PSC 2: Proposed Subcatchment 2



Summary for Subcatchment PSC 3: Proposed Subcatchment 3

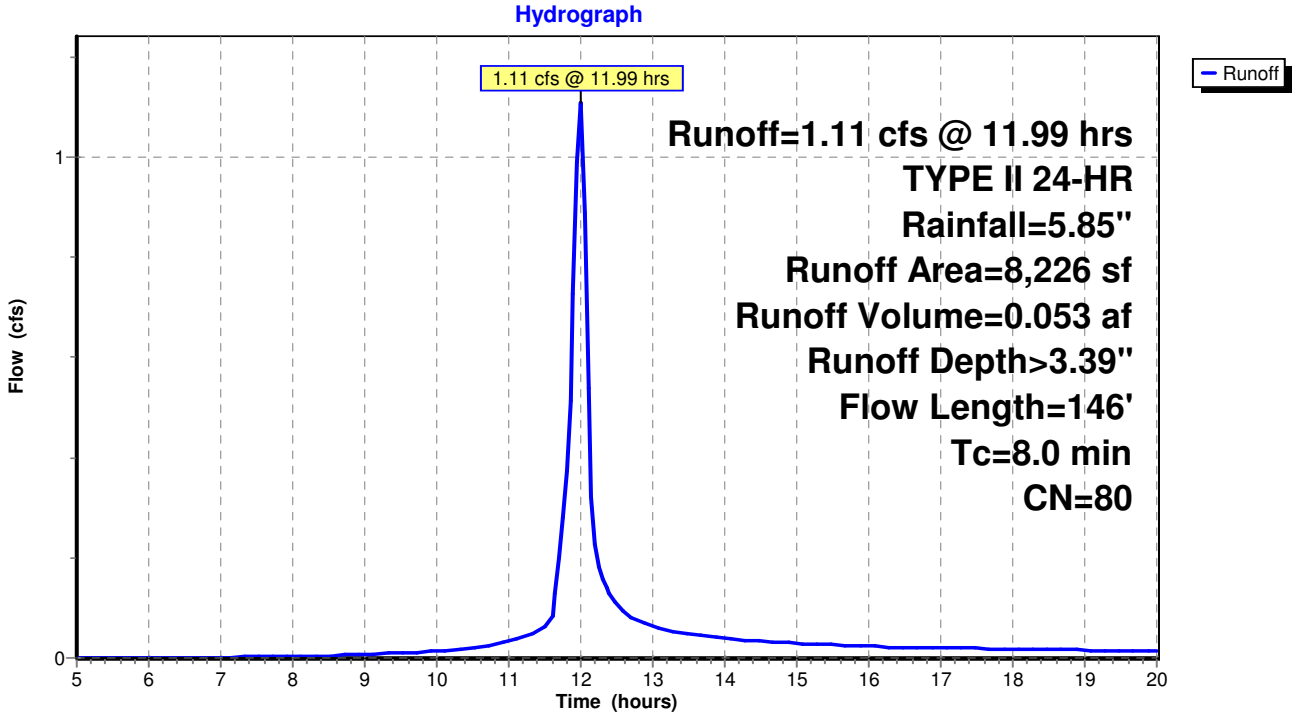
Runoff = 1.11 cfs @ 11.99 hrs, Volume= 0.053 af, Depth> 3.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=5.85"

Area (sf)	CN	Description
2,016	98	Paved parking & roofs
6,210	74	>75% Grass cover, Good, HSG C
8,226	80	Weighted Average
6,210		75.49% Pervious Area
2,016		24.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	76	0.0300	0.17		**Sheet Flow, First 100' Flowpath** Grass: Short n= 0.150 P2= 2.70"
0.6	65	0.0070	1.70		**Shallow Concentrated Flow, Balance of Flow to Channel** Paved Kv= 20.3 fps
0.1	5	0.0070	1.25		**Shallow Concentrated Flow, Balance of Longest Flowpath** Grassed Waterway Kv= 15.0 fps
8.0	146	Total			

Subcatchment PSC 3: Proposed Subcatchment 3



Summary for Subcatchment PSC 6: Proposed Subcatchment 6

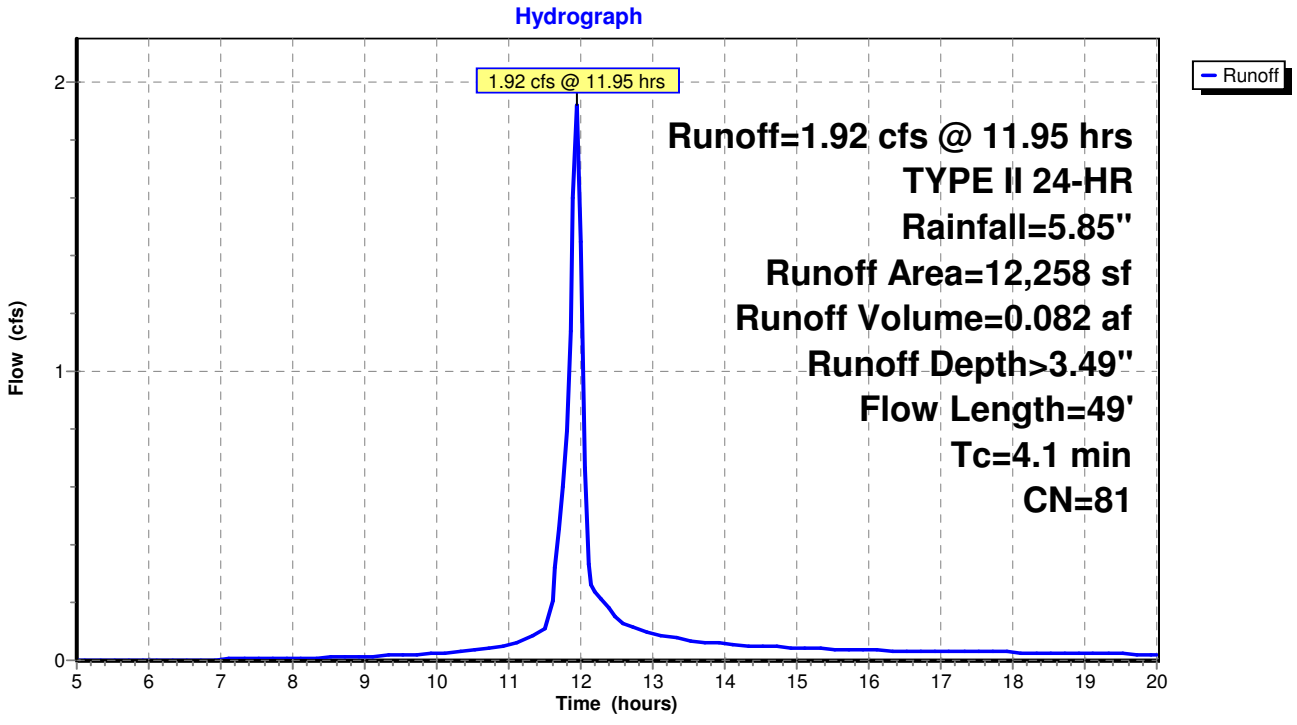
Runoff = 1.92 cfs @ 11.95 hrs, Volume= 0.082 af, Depth> 3.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=5.85"

Area (sf)	CN	Description
3,818	98	Paved parking & roofs
8,440	74	>75% Grass cover, Good, HSG C
12,258	81	Weighted Average
8,440		68.85% Pervious Area
3,818		31.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	23	0.0200	0.12		**Sheet Flow, First 100' Flowpath** Grass: Short n= 0.150 P2= 2.70"
0.8	26	0.0050	0.55		**Sheet Flow, Balance of Longest Flowpath** Smooth surfaces n= 0.011 P2= 2.70"
4.1	49	Total			

Subcatchment PSC 6: Proposed Subcatchment 6



Summary for Subcatchment PSC 7: Proposed Subcatchment 7

Runoff = 23.85 cfs @ 12.19 hrs, Volume= 1.903 af, Depth> 2.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=5.85"

Area (sf)	CN	Description
10,696	98	Paved parking & roofs
22,613	39	>75% Grass cover, Good, HSG A
14,492	98	Paved parking & roofs
21,401	61	>75% Grass cover, Good, HSG B
31,721	98	Paved parking & roofs
18,164	98	Paved parking & roofs
121,053	74	>75% Grass cover, Good, HSG C
126,855	65	Brush, Good, HSG C
366,995	73	Weighted Average
291,922		79.54% Pervious Area
75,073		20.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.5	100	0.0100	0.08		**Sheet Flow, First 100' Flowpath** Grass: Dense n= 0.240 P2= 2.70"
2.5	350	0.0240	2.32		**Shallow Concentrated Flow, Balance of Flow to Road** Grassed Waterway Kv= 15.0 fps
0.1	16	0.0100	2.03		**Shallow Concentrated Flow, Balance of Flow to Swale** Paved Kv= 20.3 fps
2.4	1,100	0.0170	7.61	121.77	**Trap/Vee/Rect Channel Flow, Balance of Longest Flowpath** Bot.W=2.00' D=2.00' Z= 3.0 '/' Top.W=14.00' n= 0.027
25.5	1,566	Total			

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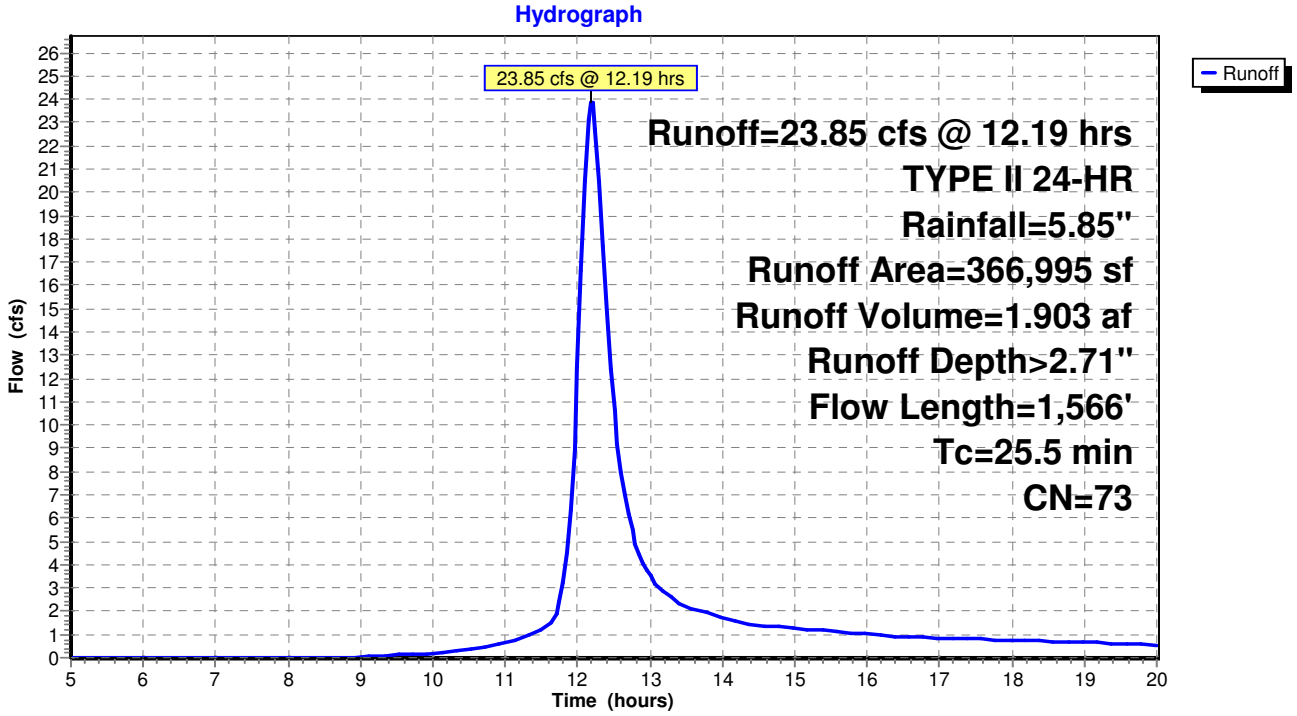
Subcatchment PSC 7: Proposed Subcatchment 7



Summary for Subcatchment PSC 8: Proposed Subcatchment 8

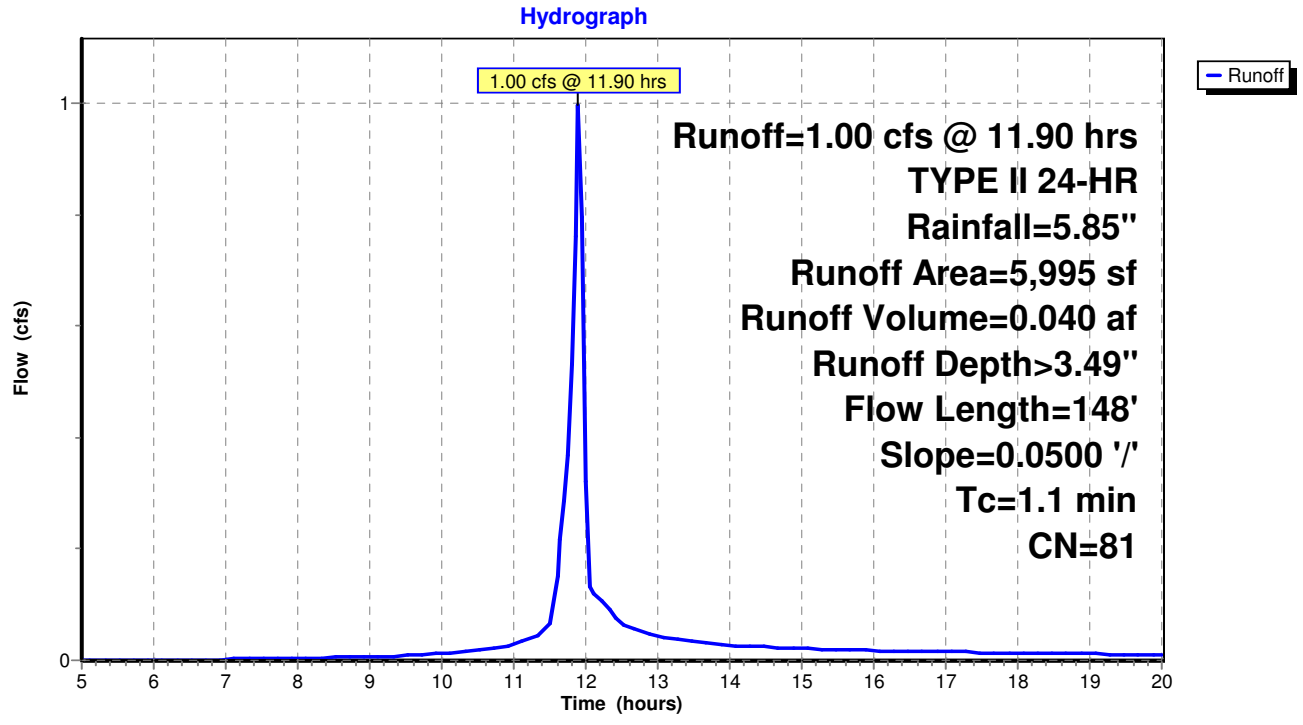
Runoff = 1.00 cfs @ 11.90 hrs, Volume= 0.040 af, Depth> 3.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=5.85"

Area (sf)	CN	Description
2,937	98	Paved parking & roofs
3,058	65	Brush, Good, HSG C
5,995	81	Weighted Average
3,058		51.01% Pervious Area
2,937		48.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	100	0.0500	1.82		**Sheet Flow, First 100' Flowpath** Smooth surfaces n= 0.011 P2= 2.70"
0.2	48	0.0500	4.54		**Shallow Concentrated Flow, Balance of Flow to Channel** Paved Kv= 20.3 fps
1.1	148	Total			

Subcatchment PSC 8: Proposed Subcatchment 8



Summary for Subcatchment PSC-7A: Proposed Subcatchment 7A

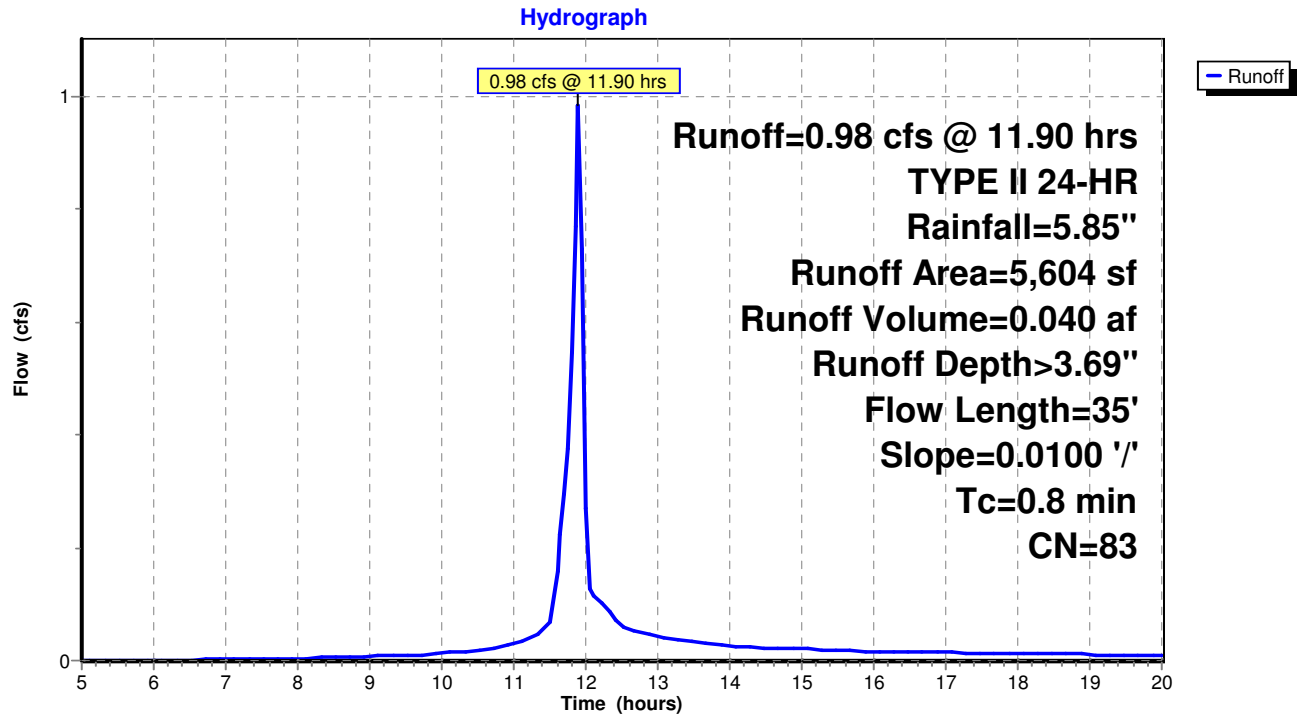
Runoff = 0.98 cfs @ 11.90 hrs, Volume= 0.040 af, Depth> 3.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=5.85"

Area (sf)	CN	Description
3,588	74	>75% Grass cover, Good, HSG C
2,016	98	Roofs, HSG C
5,604	83	Weighted Average
3,588		64.03% Pervious Area
2,016		35.97% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	35	0.0100	0.78		**Sheet Flow, Balance of Longest Flowpath** Smooth surfaces n= 0.011 P2= 2.70"

Subcatchment PSC-7A: Proposed Subcatchment 7A



Summary for Subcatchment UP 1: Upland Watershed 1

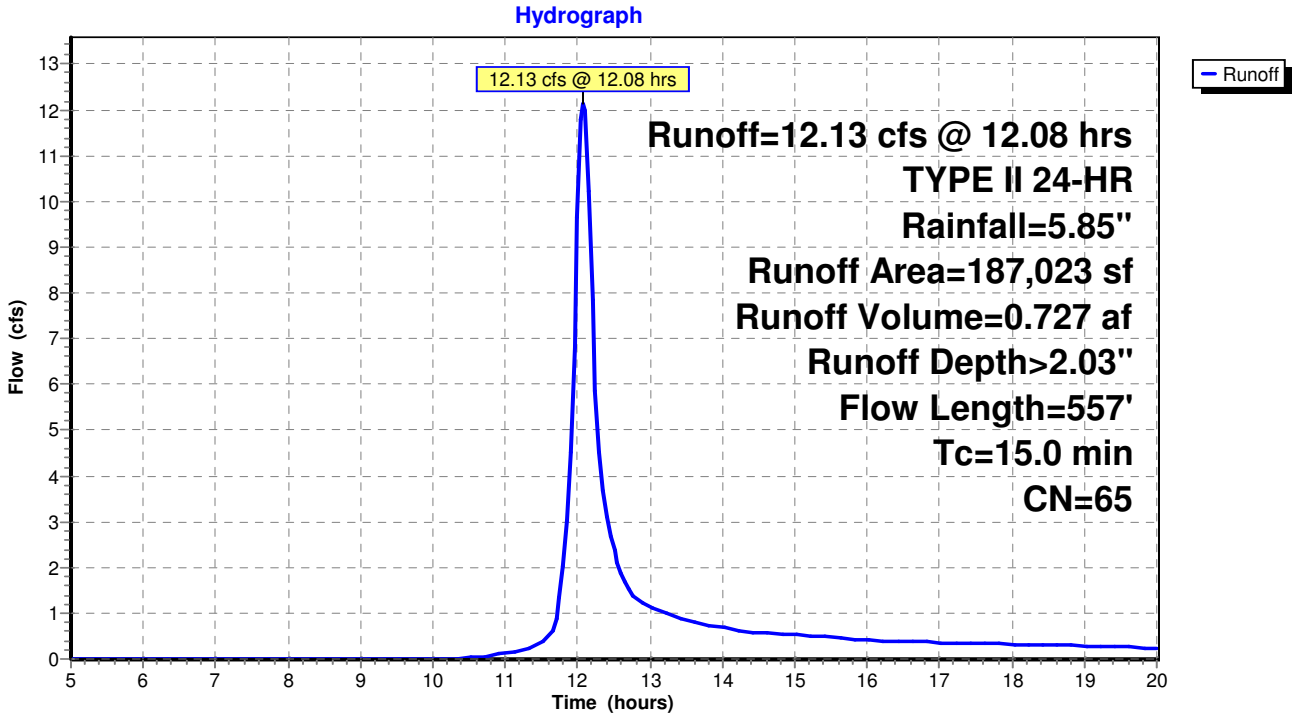
Runoff = 12.13 cfs @ 12.08 hrs, Volume= 0.727 af, Depth> 2.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=5.85"

Area (sf)	CN	Description
187,023	65	Brush, Good, HSG C
187,023		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.3	100	0.0360	0.14		**Sheet Flow, First 100' Flowpath** Grass: Dense n= 0.240 P2= 2.70"
2.7	457	0.0350	2.81		**Shallow Concentrated Flow, Balance of Longest Flowpath** Grassed Waterway Kv= 15.0 fps
15.0	557	Total			

Subcatchment UP 1: Upland Watershed 1



Summary for Subcatchment UP 2: Upland Watershed 2

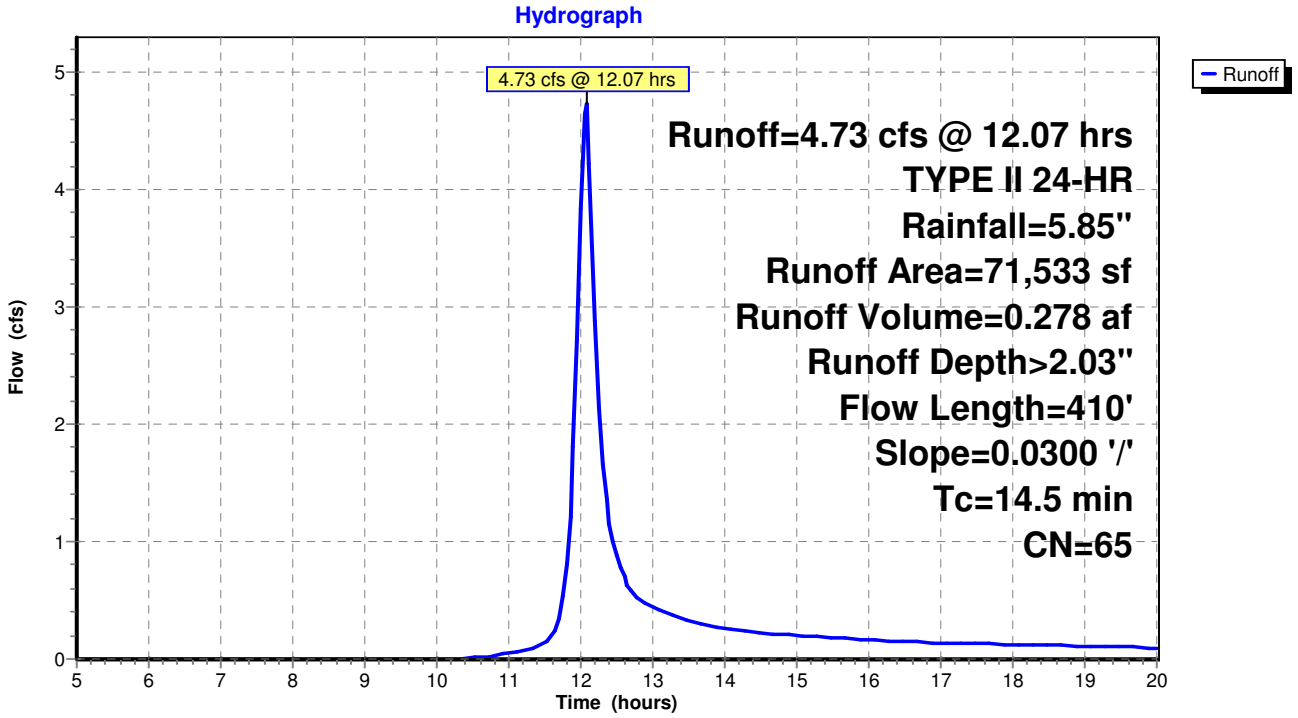
Runoff = 4.73 cfs @ 12.07 hrs, Volume= 0.278 af, Depth> 2.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
TYPE II 24-HR Rainfall=5.85"

Area (sf)	CN	Description
71,533	65	Brush, Good, HSG C
71,533		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.9	155	0.0300	0.20		**Sheet Flow, First 100' Flowpath** Grass: Short n= 0.150 P2= 2.70"
1.6	255	0.0300	2.60		**Shallow Concentrated Flow, Balance of Longest Flowpath** Grassed Waterway Kv= 15.0 fps
14.5	410	Total			

Subcatchment UP 2: Upland Watershed 2



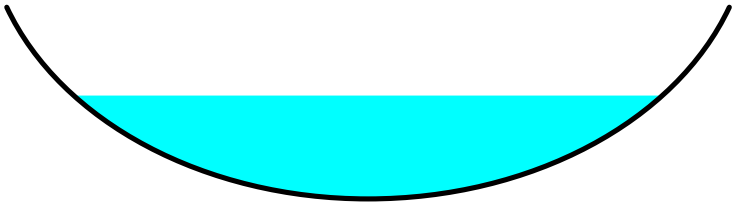
Summary for Reach Div: Diversion Swale

Inflow Area = 9.223 ac, 0.00% Impervious, Inflow Depth > 2.04"
Inflow = 25.04 cfs @ 12.00 hrs, Volume= 1.564 af
Outflow = 20.53 cfs @ 12.21 hrs, Volume= 1.543 af, Atten= 18%, Lag= 12.6 min

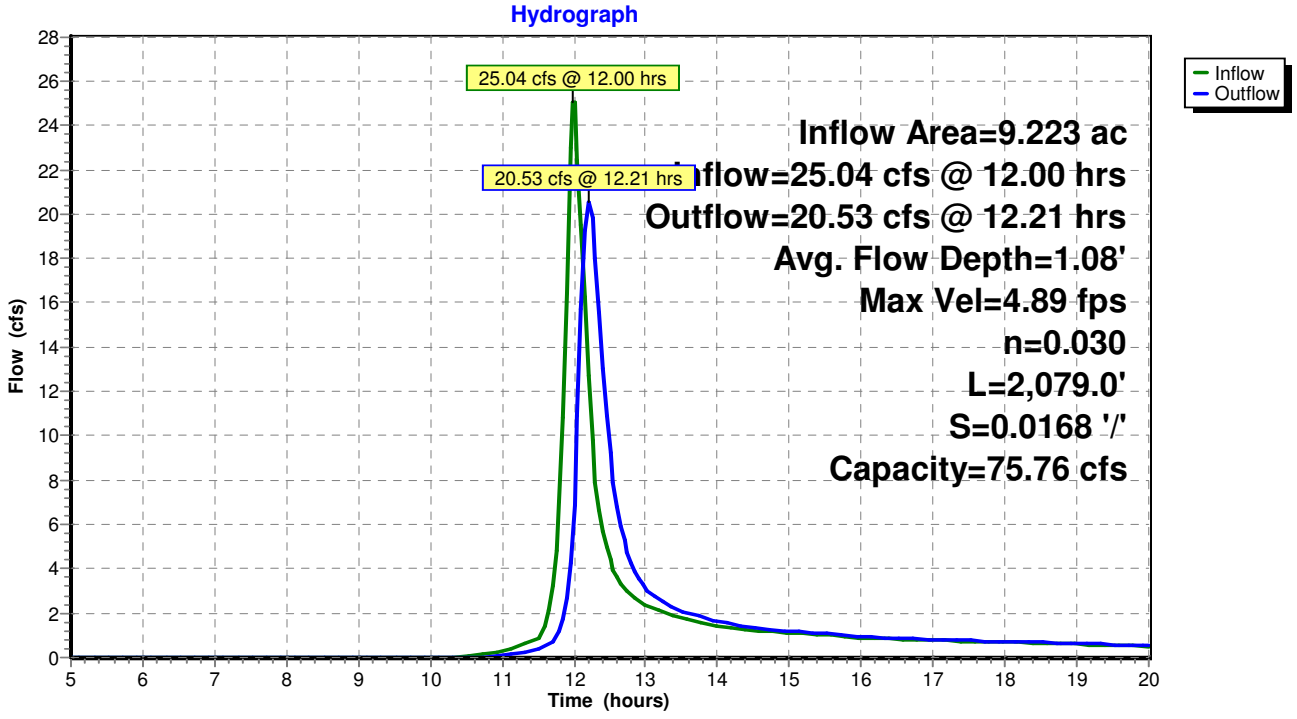
Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.89 fps, Min. Travel Time= 7.1 min
Avg. Velocity = 2.03 fps, Avg. Travel Time= 17.1 min

Peak Storage= 8,794 cf @ 12.09 hrs
Average Depth at Peak Storage= 1.08'
Bank-Full Depth= 2.00' Flow Area= 10.7 sf, Capacity= 75.76 cfs

8.00' x 2.00' deep Parabolic Channel, n= 0.030
Length= 2,079.0' Slope= 0.0168 '/'
Inlet Invert= 0.00', Outlet Invert= -35.00'



Reach Div: Diversion Swale

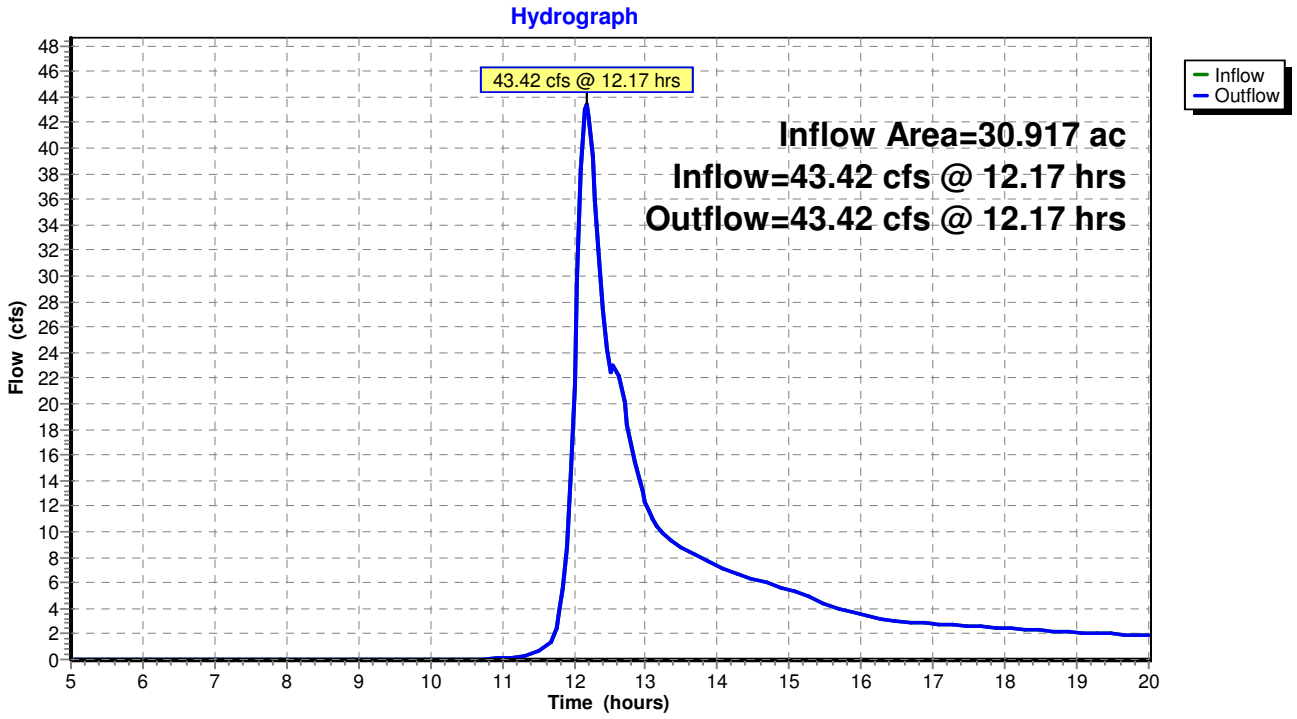


Summary for Reach DP 2: Design Point Summation 2

Inflow Area = 30.917 ac, 6.92% Impervious, Inflow Depth > 1.87"
Inflow = 43.42 cfs @ 12.17 hrs, Volume= 4.821 af
Outflow = 43.42 cfs @ 12.17 hrs, Volume= 4.821 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach DP 2: Design Point Summation 2



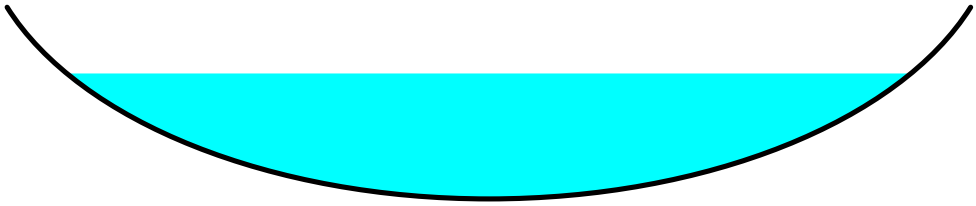
Summary for Reach RS: Road Swale

Inflow Area = 8.425 ac, 20.46% Impervious, Inflow Depth > 2.71"
Inflow = 23.85 cfs @ 12.19 hrs, Volume= 1.903 af
Outflow = 22.96 cfs @ 12.31 hrs, Volume= 1.891 af, Atten= 4%, Lag= 6.7 min

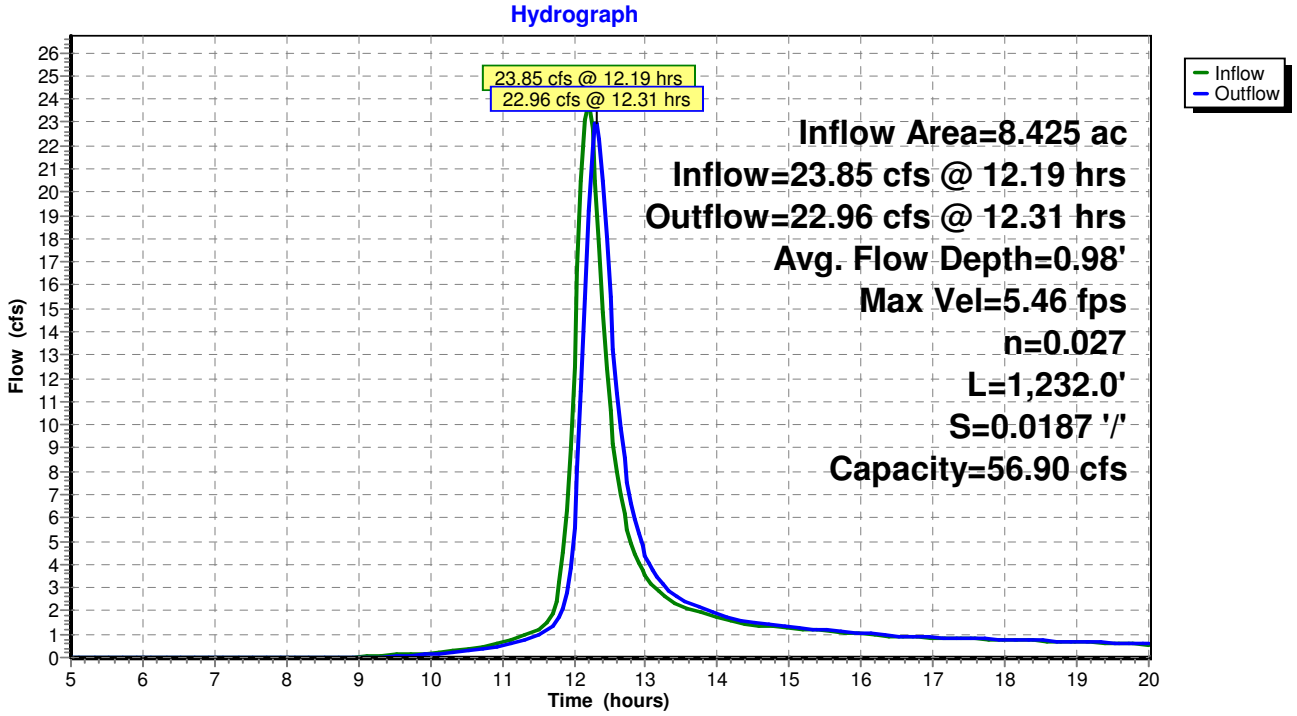
Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.46 fps, Min. Travel Time= 3.8 min
Avg. Velocity = 2.13 fps, Avg. Travel Time= 9.6 min

Peak Storage= 5,217 cf @ 12.24 hrs
Average Depth at Peak Storage= 0.98'
Bank-Full Depth= 1.50' Flow Area= 8.0 sf, Capacity= 56.90 cfs

8.00' x 1.50' deep Parabolic Channel, n= 0.027
Length= 1,232.0' Slope= 0.0187 '/'
Inlet Invert= 0.00', Outlet Invert= -23.00'



Reach RS: Road Swale



Summary for Pond BR 2: Bioretention Area 2

Inflow Area = 0.386 ac, 34.86% Impervious, Inflow Depth > 3.58"
Inflow = 1.90 cfs @ 12.06 hrs, Volume= 0.115 af
Outflow = 1.49 cfs @ 12.17 hrs, Volume= 0.099 af, Atten= 21%, Lag= 6.2 min
Primary = 0.21 cfs @ 12.17 hrs, Volume= 0.074 af
Secondary = 1.28 cfs @ 12.17 hrs, Volume= 0.025 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 4.19' @ 12.17 hrs Surf.Area= 1,490 sf Storage= 1,945 cf
Flood Elev= 5.00' Surf.Area= 0 sf Storage= 2,454 cf

Plug-Flow detention time= 98.8 min calculated for 0.099 af (86% of inflow)
Center-of-Mass det. time= 56.7 min (833.1 - 776.5)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	2,454 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	438	0	0
1.00	438	438	438
1.10	219	33	471
3.50	219	526	996
3.51	1,094	7	1,003
4.50	1,669	1,368	2,371
4.60	0	83	2,454

Device	Routing	Invert	Outlet Devices
#1	Secondary	4.00'	**6.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Primary	2.00'	**4.0" Round Culvert** L= 177.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 2.00' / 1.50' S= 0.0028 '/' Cc= 0.900 n= 0.013, Flow Area= 0.09 sf

Primary OutFlow Max=0.21 cfs @ 12.17 hrs HW=4.18' (Free Discharge)
└**2=Culvert** (Barrel Controls 0.21 cfs @ 2.42 fps)

Secondary OutFlow Max=1.19 cfs @ 12.17 hrs HW=4.18' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 1.19 cfs @ 1.09 fps)

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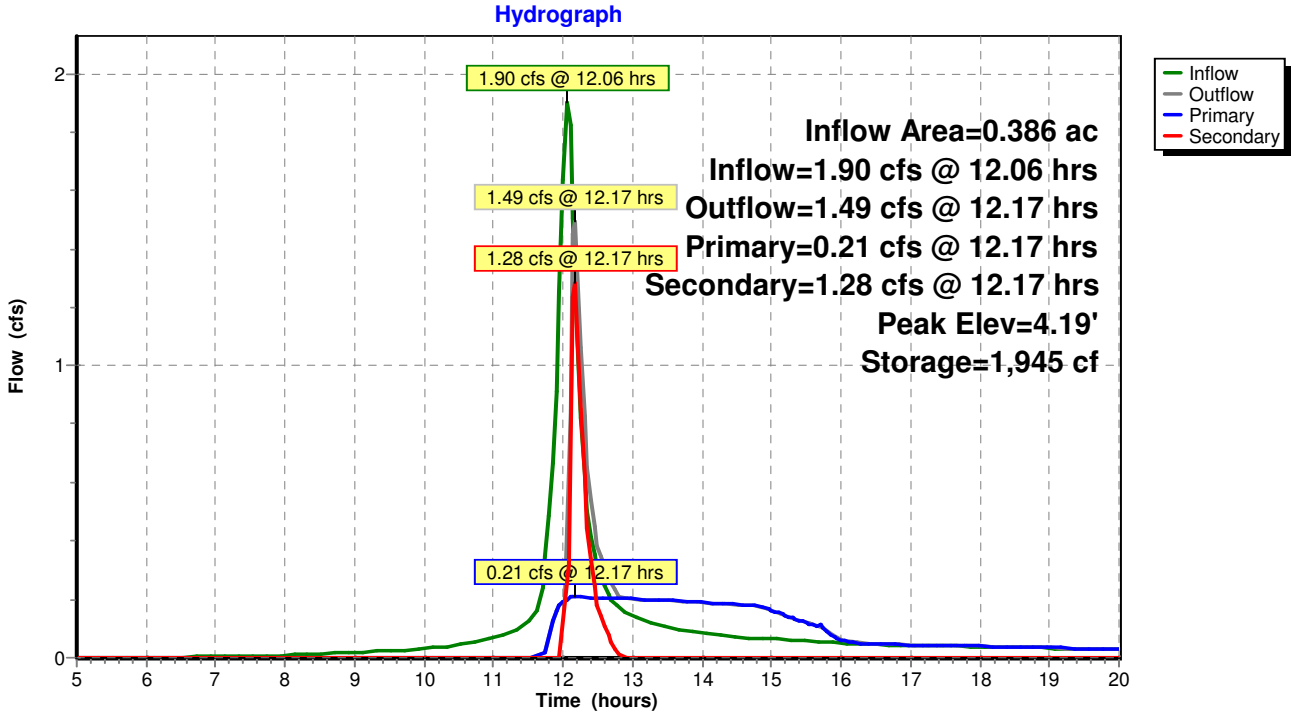
Pond BR 2: Bioretention Area 2



Summary for Pond BR 3: Bioretention Area 3

Inflow Area = 0.189 ac, 24.51% Impervious, Inflow Depth > 3.39"
Inflow = 1.11 cfs @ 11.99 hrs, Volume= 0.053 af
Outflow = 0.64 cfs @ 12.10 hrs, Volume= 0.046 af, Atten= 42%, Lag= 6.7 min
Primary = 0.34 cfs @ 12.11 hrs, Volume= 0.044 af
Secondary = 0.30 cfs @ 12.10 hrs, Volume= 0.002 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 4.07' @ 12.11 hrs Surf.Area= 725 sf Storage= 845 cf
Flood Elev= 5.00' Surf.Area= 0 sf Storage= 1,189 cf

Plug-Flow detention time= 72.4 min calculated for 0.046 af (87% of inflow)
Center-of-Mass det. time= 30.6 min (805.9 - 775.3)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	1,189 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	198	0	0
1.00	198	198	198
1.10	99	15	213
3.50	99	238	450
3.51	495	3	453
4.50	901	691	1,144
4.60	0	45	1,189

Device	Routing	Invert	Outlet Devices
#1	Secondary	4.00'	**6.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Primary	2.00'	**4.0" Round Culvert** L= 57.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 2.00' / 1.50' S= 0.0088 '/' Cc= 0.900 n= 0.013, Flow Area= 0.09 sf

Primary OutFlow Max=0.34 cfs @ 12.11 hrs HW=4.07' (Free Discharge)
↑**2=Culvert** (Barrel Controls 0.34 cfs @ 3.86 fps)

Secondary OutFlow Max=0.27 cfs @ 12.10 hrs HW=4.07' (Free Discharge)
↑**1=Broad-Crested Rectangular Weir** (Weir Controls 0.27 cfs @ 0.66 fps)

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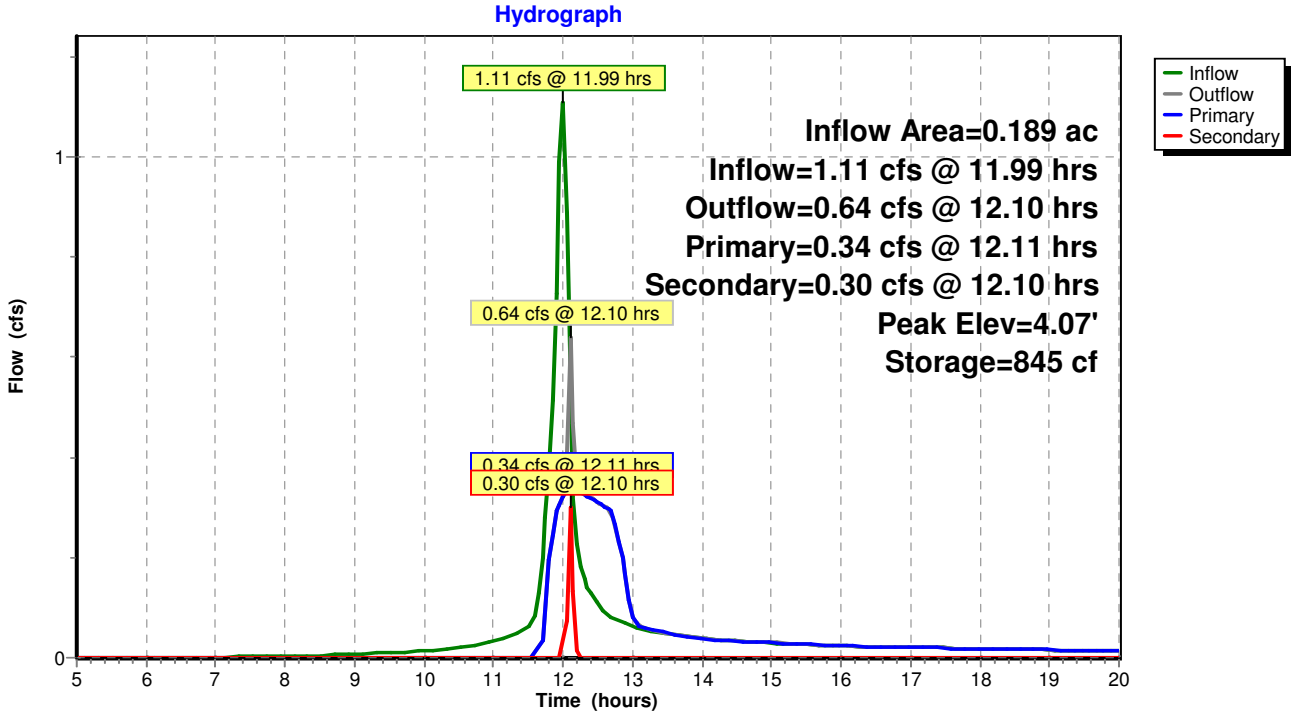
Pond BR 3: Bioretention Area 3



Summary for Pond BR 6: Bioretention Area 6

Inflow Area = 0.281 ac, 31.15% Impervious, Inflow Depth > 3.49"
Inflow = 1.92 cfs @ 11.95 hrs, Volume= 0.082 af
Outflow = 1.76 cfs @ 11.98 hrs, Volume= 0.074 af, Atten= 9%, Lag= 1.9 min
Primary = 0.22 cfs @ 11.98 hrs, Volume= 0.055 af
Secondary = 1.54 cfs @ 11.98 hrs, Volume= 0.020 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 4.22' @ 11.98 hrs Surf.Area= 1,062 sf Storage= 1,034 cf
Flood Elev= 5.00' Surf.Area= 0 sf Storage= 1,348 cf

Plug-Flow detention time= 63.2 min calculated for 0.074 af (91% of inflow)
Center-of-Mass det. time= 31.3 min (801.5 - 770.1)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	1,348 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	180	0	0
1.00	180	180	180
1.10	90	14	194
3.50	90	216	410
3.51	451	3	412
4.50	1,307	870	1,282
4.60	0	65	1,348

Device	Routing	Invert	Outlet Devices
#1	Secondary	4.00'	**6.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Primary	2.50'	**4.0" Round Culvert** L= 132.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 2.50' / 2.00' S= 0.0038 '/' Cc= 0.900 n= 0.013, Flow Area= 0.09 sf

Primary OutFlow Max=0.22 cfs @ 11.98 hrs HW=4.21' (Free Discharge)
└**2=Culvert** (Barrel Controls 0.22 cfs @ 2.47 fps)

Secondary OutFlow Max=1.45 cfs @ 11.98 hrs HW=4.21' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 1.45 cfs @ 1.16 fps)

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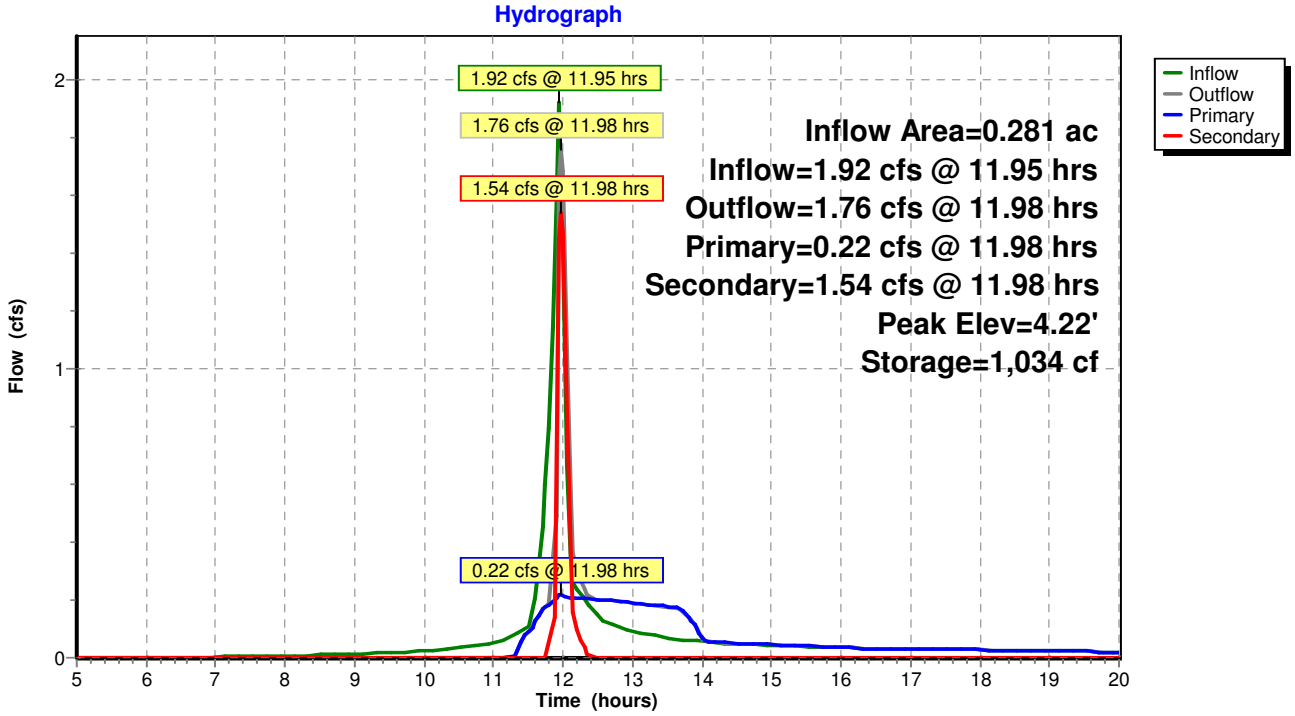
Pond BR 6: Bioretention Area 6



Summary for Pond BR 7: Bioretention Area 7

Inflow Area = 0.129 ac, 35.97% Impervious, Inflow Depth > 3.69"
Inflow = 0.98 cfs @ 11.90 hrs, Volume= 0.040 af
Outflow = 0.32 cfs @ 12.00 hrs, Volume= 0.033 af, Atten= 67%, Lag= 6.4 min
Primary = 0.32 cfs @ 12.00 hrs, Volume= 0.033 af
Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 3.87' @ 12.00 hrs Surf.Area= 645 sf Storage= 708 cf
Flood Elev= 5.00' Surf.Area= 0 sf Storage= 1,189 cf

Plug-Flow detention time= 86.5 min calculated for 0.032 af (82% of inflow)
Center-of-Mass det. time= 36.1 min (799.2 - 763.1)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	1,189 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	198	0	0
1.00	198	198	198
1.10	99	15	213
3.50	99	238	450
3.51	495	3	453
4.50	901	691	1,144
4.60	0	45	1,189

Device	Routing	Invert	Outlet Devices
#1	Secondary	4.00'	**6.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Primary	2.00'	**4.0" Round Culvert** L= 57.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 2.00' / 1.50' S= 0.0088 '/' Cc= 0.900 n= 0.013, Flow Area= 0.09 sf

Primary OutFlow Max=0.32 cfs @ 12.00 hrs HW=3.87' (Free Discharge)
└**2=Culvert** (Barrel Controls 0.32 cfs @ 3.69 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=0.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

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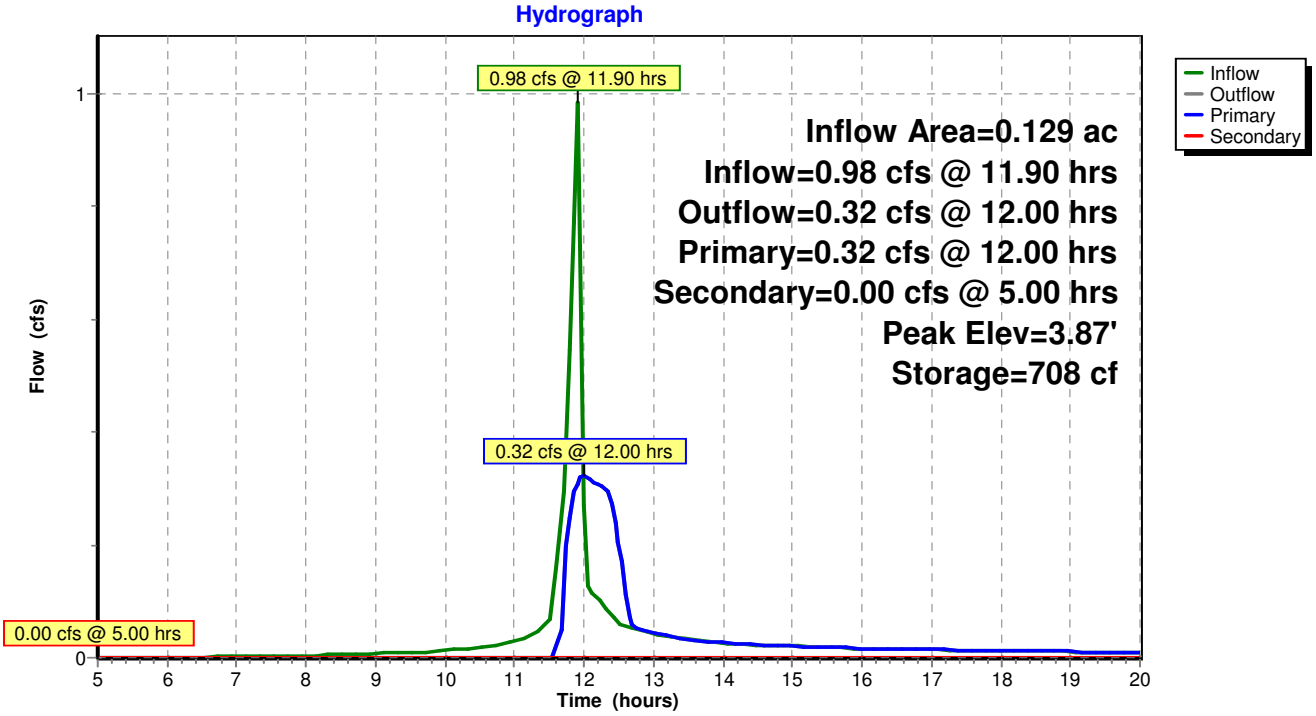
Pond BR 7: Bioretention Area 7



Summary for Pond DS: Dry Swales

Inflow Area = 0.138 ac, 48.99% Impervious, Inflow Depth > 3.49"
Inflow = 1.00 cfs @ 11.90 hrs, Volume= 0.040 af
Outflow = 0.32 cfs @ 12.01 hrs, Volume= 0.040 af, Atten= 68%, Lag= 6.6 min
Primary = 0.32 cfs @ 12.01 hrs, Volume= 0.040 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 3.73' @ 12.01 hrs Surf.Area= 542 sf Storage= 491 cf
Flood Elev= 5.00' Surf.Area= 0 sf Storage= 1,146 cf

Plug-Flow detention time= 15.8 min calculated for 0.040 af (99% of inflow)
Center-of-Mass det. time= 13.0 min (780.7 - 767.7)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	573 cf	**Custom Stage Data (Prismatic)** Listed below
		573 cf	x 2.00 = 1,146 cf Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	175	0.0	0	0
1.00	175	40.0	70	70
1.10	175	20.0	4	74
3.50	175	20.0	84	158
3.51	175	100.0	2	159
4.50	600	100.0	384	543
4.60	0	100.0	30	573

Device	Routing	Invert	Outlet Devices
#1	Primary	4.00'	**6.0' long x 2.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Primary	0.00'	**4.0" Round Culvert** L= 127.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.00' / -0.50' S= 0.0039 '/' Cc= 0.900 n= 0.013, Flow Area= 0.09 sf

Primary OutFlow Max=0.32 cfs @ 12.01 hrs HW=3.73' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└**2=Culvert** (Barrel Controls 0.32 cfs @ 3.62 fps)

Pinney_Proposed_DP2
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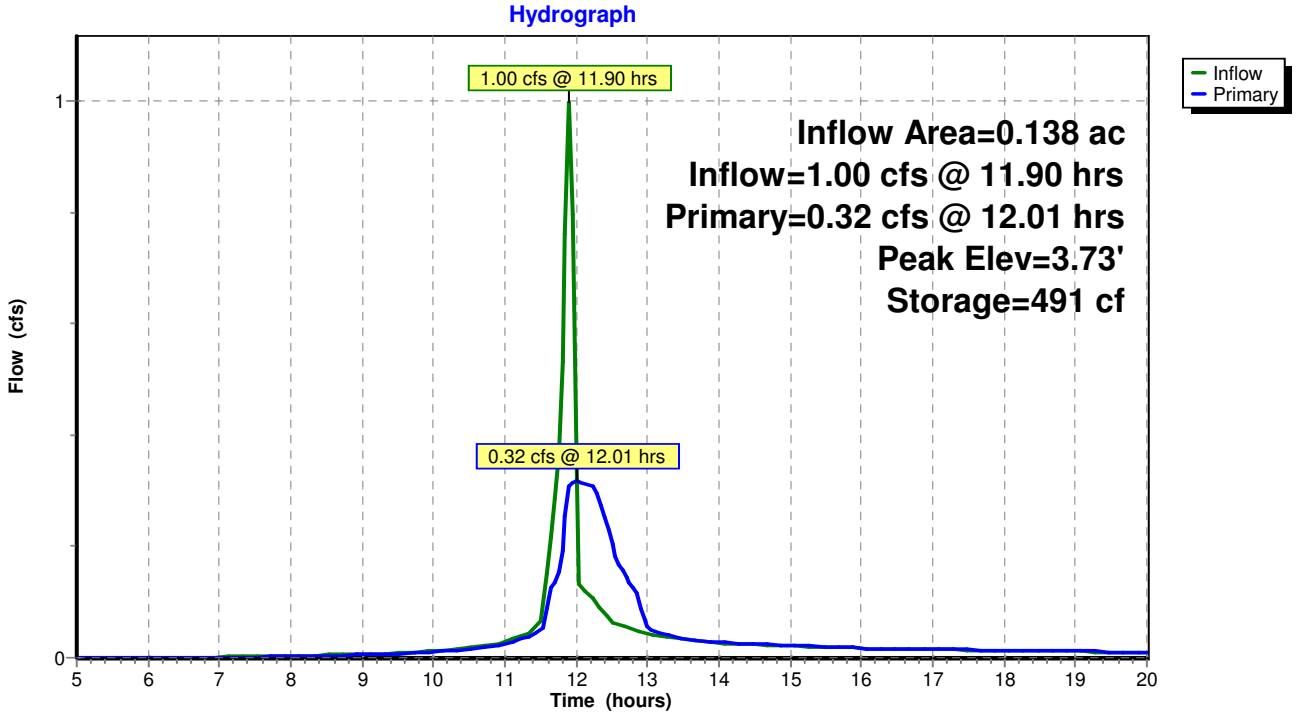
Pond DS: Dry Swales



Summary for Pond FB: Forebay

Inflow Area = 8.425 ac, 20.46% Impervious, Inflow Depth > 2.69"
Inflow = 22.96 cfs @ 12.31 hrs, Volume= 1.891 af
Outflow = 23.15 cfs @ 12.33 hrs, Volume= 1.824 af, Atten= 0%, Lag= 1.7 min
Primary = 23.15 cfs @ 12.33 hrs, Volume= 1.824 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 5.28' @ 12.33 hrs Surf.Area= 0 sf Storage= 2,928 cf
Flood Elev= 4.00' Surf.Area= 1,536 sf Storage= 2,852 cf

Plug-Flow detention time= 18.2 min calculated for 1.818 af (96% of inflow)
Center-of-Mass det. time= 5.6 min (815.5 - 809.9)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	2,928 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	113	0	0
1.00	345	229	229
2.00	633	489	718
3.00	1,049	841	1,559
4.00	1,536	1,293	2,852
4.10	0	77	2,928

Device	Routing	Invert	Outlet Devices
#1	Primary	4.00'	**6.0' long x 4.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.38 2.54 2.69 2.68 2.67 2.67 2.65 2.66 2.66 2.68 2.72 2.73 2.76 2.79 2.88 3.07 3.32

Primary OutFlow Max=22.73 cfs @ 12.33 hrs HW=5.26' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 22.73 cfs @ 3.00 fps)

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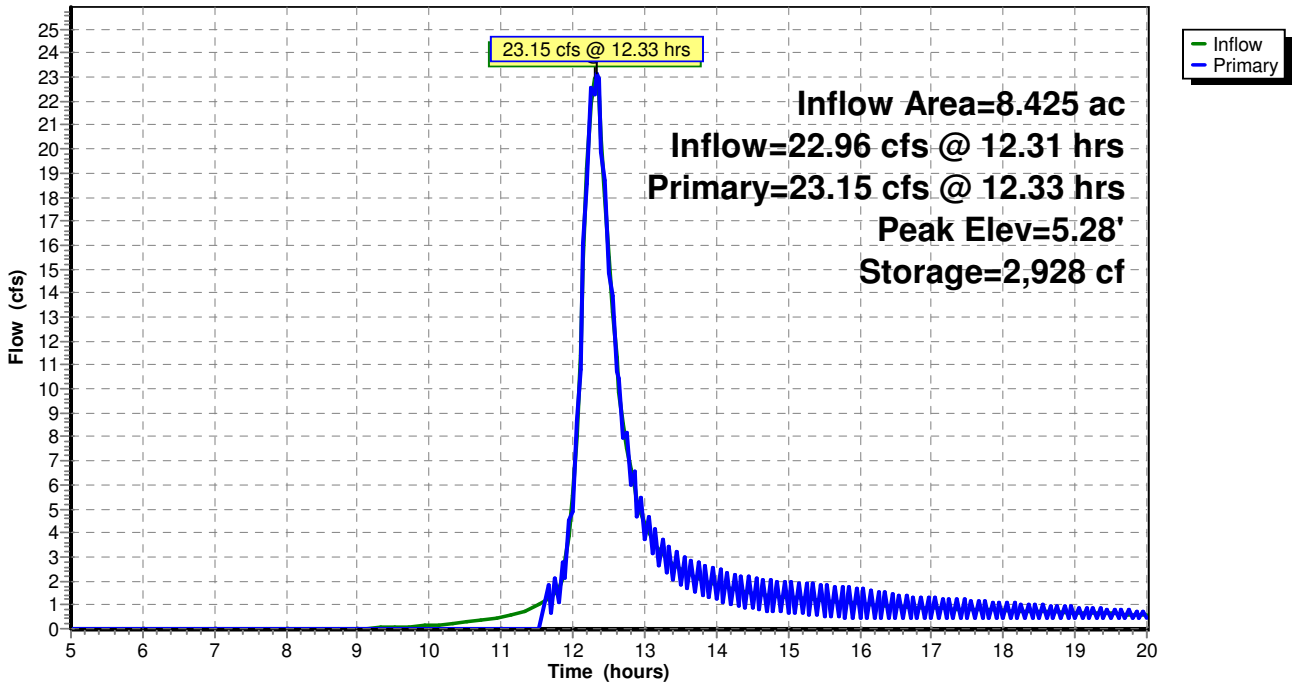
Pond FB: Forebay

Hydrograph



Summary for Pond P: Pond

Inflow Area = 8.425 ac, 20.46% Impervious, Inflow Depth > 2.60"
Inflow = 23.15 cfs @ 12.33 hrs, Volume= 1.824 af
Outflow = 10.04 cfs @ 12.65 hrs, Volume= 1.486 af, Atten= 57%, Lag= 19.1 min
Primary = 4.65 cfs @ 12.65 hrs, Volume= 1.325 af
Secondary = 5.39 cfs @ 12.65 hrs, Volume= 0.160 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Starting Elev= 4.00' Surf.Area= 7,635 sf Storage= 5,821 cf
Peak Elev= 6.70' @ 12.65 hrs Surf.Area= 15,131 sf Storage= 38,587 cf (32,766 cf above start)
Flood Elev= 7.50' Surf.Area= 0 sf Storage= 46,941 cf (41,120 cf above start)

Plug-Flow detention time= 127.6 min calculated for 1.348 af (74% of inflow)
Center-of-Mass det. time= 54.0 min (869.6 - 815.5)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	46,941 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
0.00	113	0	0
1.00	314	214	214
2.00	616	465	679
3.00	1,017	817	1,495
4.00	7,635	4,326	5,821
5.00	11,788	9,712	15,533
6.00	13,709	12,749	28,281
7.00	15,740	14,725	43,006
7.50	0	3,935	46,941

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	**12.0" Round Culvert** L= 104.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 0.00' / -1.00' S= 0.0096 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	4.00'	**1.5" Vert. Orifice/Grate** C= 0.600
#3	Device 1	5.25'	**12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	6.50'	**25.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

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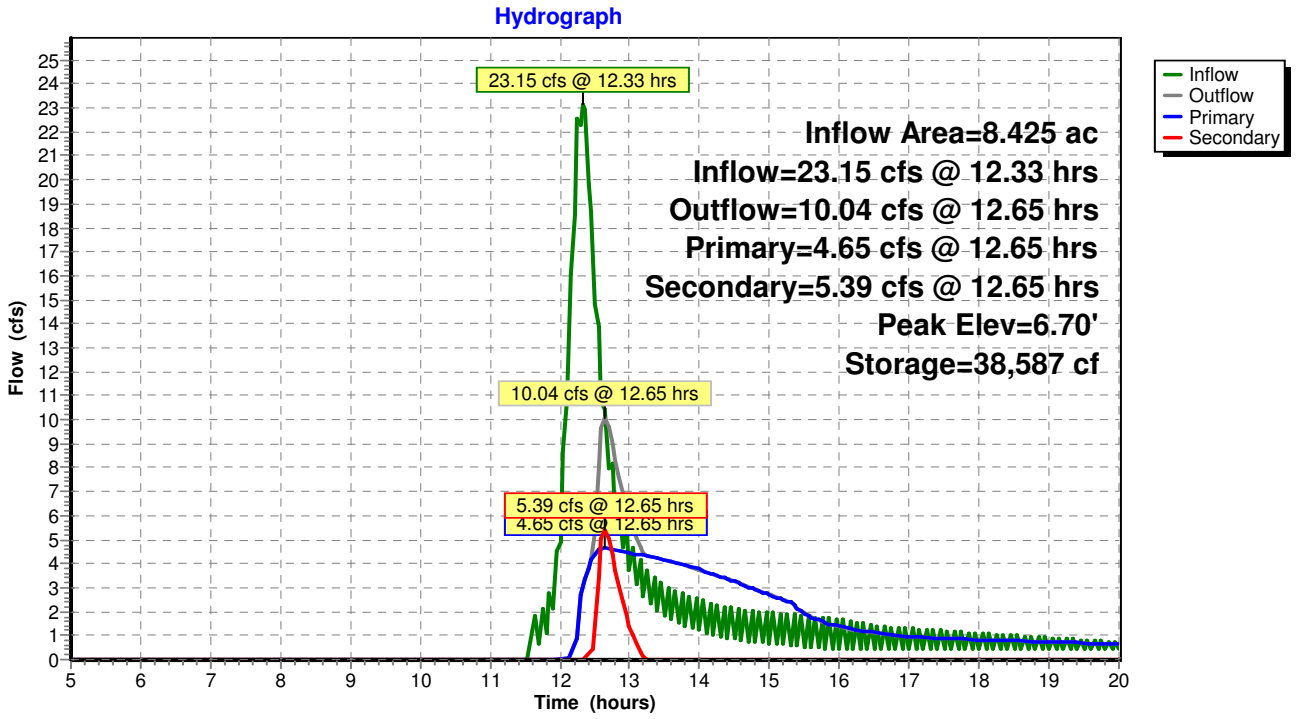
Primary OutFlow Max=4.65 cfs @ 12.65 hrs HW=6.70' (Free Discharge)
└**1=Culvert** (Passes 4.65 cfs of 7.18 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.10 cfs @ 7.82 fps)
  └**3=Orifice/Grate** (Orifice Controls 4.55 cfs @ 5.80 fps)

Secondary OutFlow Max=5.29 cfs @ 12.65 hrs HW=6.70' (Free Discharge)
└**4=Broad-Crested Rectangular Weir** (Weir Controls 5.29 cfs @ 1.06 fps)

Pond P: Pond



APPENDIX 3

SOILS DATA

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Tompkins County, New York

Pinney Duplex Apartments

May 11,

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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CfB—Conesus gravelly silt loam, 3 to 8 percent slopes.....14
KnA—Kendaia and Lyons soils, 0 to 3 percent slopes.....16
Ly—Lyons soils, 0 to 3 percent slopes.....19
PaC—Palmyra gravelly loam, 5 to 15 percent simple slopes.....21
PhB—Phelps gravelly silt loam, 3 to 8 percent slopes.....22
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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

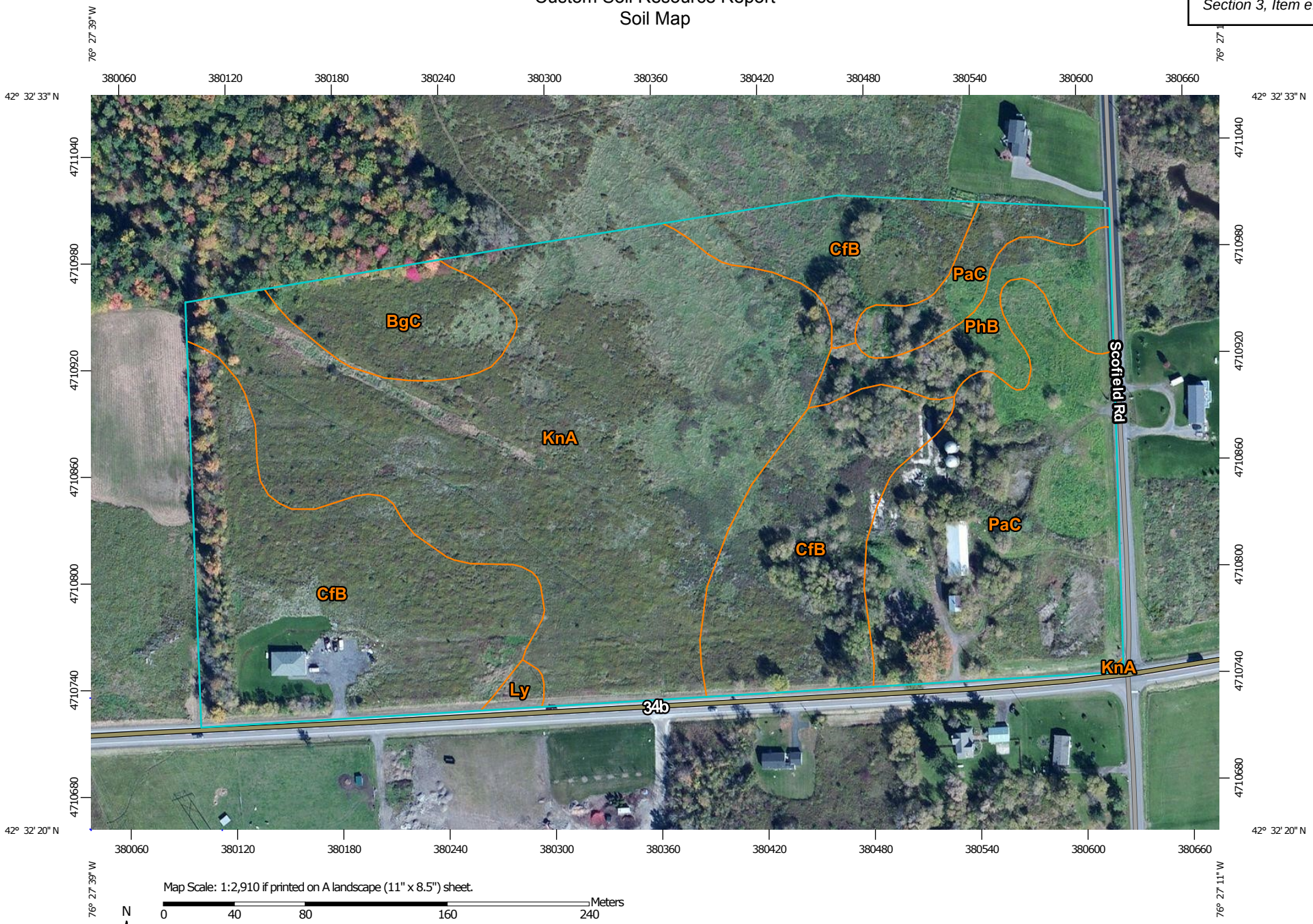
Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:2,910 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 40 80 160 240

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Tompkins County, New York
Survey Area Data: Version 10, Sep 24, 2015

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 2, 2010—Oct 8, 2010

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Tompkins County, New York (NY109)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
BgC	Bath and Valois soils, 5 to 15 percent slopes	1.6	4.8%
CfB	Conesus gravelly silt loam, 3 to 8 percent slopes	11.2	33.0%
KnA	Kendaia and Lyons soils, 0 to 3 percent slopes	12.6	37.2%
Ly	Lyons soils, 0 to 3 percent slopes	0.1	0.4%
PaC	Palmyra gravelly loam, 5 to 15 percent simple slopes	6.8	20.0%
PhB	Phelps gravelly silt loam, 3 to 8 percent slopes	1.6	4.6%
Totals for Area of Interest		**33.9**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially

where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Tompkins County, New York

BgC—Bath and Valois soils, 5 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2v32c
Elevation: 330 to 2,460 feet
Mean annual precipitation: 31 to 70 inches
Mean annual air temperature: 39 to 52 degrees F
Frost-free period: 105 to 180 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Bath and similar soils: 40 percent
Valois and similar soils: 35 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bath

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Backslope, shoulder, summit
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loamy till derived mainly from gray and brown siltstone, sandstone, and shale

Typical profile

Ap - 0 to 9 inches: channery silt loam
Bw1 - 9 to 15 inches: channery silt loam
Bw2 - 15 to 25 inches: channery loam
E - 25 to 29 inches: channery loam
Bx - 29 to 52 inches: very channery silt loam
C - 52 to 72 inches: very channery silt loam

Properties and qualities

Slope: 5 to 15 percent
Percent of area covered with surface fragments: 0.0 percent
Depth to restrictive feature: 26 to 38 inches to fragipan
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 24 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 15 percent
Available water storage in profile: Low (about 4.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C

Description of Valois

Setting

Landform: End moraines, lateral moraines, valley sides
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy till derived mainly from sandstone, siltstone, and shale

Typical profile

H1 - 0 to 2 inches: gravelly silt loam
H2 - 2 to 32 inches: gravelly silt loam
H3 - 32 to 49 inches: gravelly silt loam
H4 - 49 to 60 inches: gravelly silt loam

Properties and qualities

Slope: 5 to 15 percent
Depth to restrictive feature: 24 to 36 inches to fragipan
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 24 to 35 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C

Minor Components

Lordstown

Percent of map unit: 5 percent
Landform: Benches, ridges, hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex

Langford

Percent of map unit: 5 percent
Landform: Hills, till plains, drumlinoid ridges
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex

Volusia

Percent of map unit: 5 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, summit
Landform position (three-dimensional): Base slope, interfluve, side slope
Down-slope shape: Concave
Across-slope shape: Linear

Mardin

Percent of map unit: 5 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Convex

Erie

Percent of map unit: 5 percent
Landform: Hills, till plains, drumlinoid ridges
Landform position (two-dimensional): Footslope, summit
Landform position (three-dimensional): Base slope, side slope
Down-slope shape: Concave
Across-slope shape: Linear

CfB—Conesus gravelly silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2w3j3
Elevation: 820 to 1,800 feet
Mean annual precipitation: 31 to 57 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 100 to 190 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Conesus and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Conesus

Setting

Landform: Drumlins, hills, till plains
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Crest
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Calcareous loamy lodgment till derived from limestone, sandstone, and shale

Typical profile

Ap - 0 to 9 inches: gravelly silt loam
E/B - 9 to 14 inches: gravelly silt loam
Bt/E - 14 to 19 inches: gravelly silt loam
Bt1 - 19 to 25 inches: gravelly silt loam
Bt2 - 25 to 36 inches: gravelly silt loam
C - 36 to 79 inches: gravelly loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.01 to 1.42 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 40 percent
Available water storage in profile: Moderate (about 7.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: B/D

Minor Components

Lansing

Percent of map unit: 7 percent
Landform: Drumlins, hills, till plains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Crest, side slope
Down-slope shape: Convex
Across-slope shape: Convex

Kendaia

Percent of map unit: 3 percent
Landform: Drumlins, till plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear

Nunda

Percent of map unit: 2 percent
Landform: Hills, drumlinoid ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Concave
Across-slope shape: Convex

Appleton

Percent of map unit: 2 percent
Landform: Drumlins, till plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear

Lyons

Percent of map unit: 1 percent
Landform: Depressions, drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope

Down-slope shape: Concave
Across-slope shape: Concave

KnA—Kendaia and Lyons soils, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2trwv
Elevation: 430 to 1,510 feet
Mean annual precipitation: 31 to 57 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 100 to 190 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Kendaia and similar soils: 50 percent
Lyons and similar soils: 25 percent
Lyons, frequently ponded, and similar soils: 15 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kendaia

Setting

Landform: Drumlins, ridges, till plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Calcareous loamy lodgment till derived from limestone, sandstone, and shale

Typical profile

Ap - 0 to 8 inches: silt loam
Bw - 8 to 15 inches: silt loam
Bg - 15 to 20 inches: gravelly silt loam
BCg - 20 to 24 inches: gravelly loam
C - 24 to 79 inches: gravelly loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)
Depth to water table: About 6 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 40 percent
Available water storage in profile: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: B/D

Description of Lyons

Setting

Landform: Depressions, drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Calcareous loamy lodgment till derived from limestone and shale

Typical profile

Ap - 0 to 10 inches: silt loam
Bg1 - 10 to 19 inches: silt loam
Bg2 - 19 to 25 inches: silty clay loam
BCg - 25 to 34 inches: gravelly silt loam
C - 34 to 79 inches: gravelly loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 40 percent
Available water storage in profile: Moderate (about 8.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: C/D

Description of Lyons, Frequently Ponded

Setting

Landform: Depressions, drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Calcareous loamy lodgment till derived from limestone and shale

Typical profile

Ap - 0 to 10 inches: mucky silt loam
Bg1 - 10 to 19 inches: silt loam
Bg2 - 19 to 25 inches: silty clay loam
BCg - 25 to 34 inches: gravelly silt loam
C - 34 to 79 inches: gravelly loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum in profile: 40 percent
Available water storage in profile: High (about 9.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: C/D

Minor Components

Conesus

Percent of map unit: 3 percent
Landform: Hills, till plains, drumlinoid ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Concave
Across-slope shape: Convex

Lima

Percent of map unit: 3 percent
Landform: Drumlins, till plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Concave
Across-slope shape: Convex

Palms

Percent of map unit: 2 percent
Landform: Marshes, swamps
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Concave

Ilion

Percent of map unit: 2 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave

Ly—Lyons soils, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2spjy
Elevation: 250 to 1,900 feet
Mean annual precipitation: 31 to 57 inches
Mean annual air temperature: 41 to 50 degrees F
Frost-free period: 100 to 190 days
Farmland classification: Not prime farmland

Map Unit Composition

Lyons and similar soils: 75 percent
Lyons, frequently ponded, and similar soils: 15 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lyons

Setting

Landform: Depressions, drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Calcareous loamy lodgment till derived from limestone and shale

Typical profile

Ap - 0 to 10 inches: silt loam
Bg1 - 10 to 19 inches: silt loam
Bg2 - 19 to 25 inches: silty clay loam
BCg - 25 to 34 inches: gravelly silt loam
C - 34 to 79 inches: gravelly loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 40 percent
Available water storage in profile: Moderate (about 8.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: C/D

Description of Lyons, Frequently Ponded

Setting

Landform: Depressions, drainageways
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Calcareous loamy lodgment till derived from limestone and shale

Typical profile

Ap - 0 to 10 inches: mucky silt loam
Bg1 - 10 to 19 inches: silt loam
Bg2 - 19 to 25 inches: silty clay loam
BCg - 25 to 34 inches: gravelly silt loam
C - 34 to 79 inches: gravelly loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 1.42 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum in profile: 40 percent
Available water storage in profile: High (about 9.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: C/D

Minor Components

Canandaigua

Percent of map unit: 3 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave

Appleton

Percent of map unit: 3 percent
Landform: Drumlins, till plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear

Kendaia

Percent of map unit: 2 percent
Landform: Drumlins, till plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear

Ilion

Percent of map unit: 1 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave

Palms

Percent of map unit: 1 percent
Landform: Marshes, swamps
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Concave

PaC—Palmyra gravelly loam, 5 to 15 percent simple slopes

Map Unit Setting

National map unit symbol: 9xnt
Mean annual precipitation: 32 to 42 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 120 to 160 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Palmyra and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Palmyra

Setting

Landform: Deltas, outwash plains, terraces
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy over sandy and gravelly glaciofluvial deposits, derived mainly from limestone and other sedimentary rocks

Typical profile

H1 - 0 to 12 inches: gravelly loam
H2 - 12 to 21 inches: gravelly clay loam
H3 - 21 to 60 inches: stratified extremely gravelly sand

Properties and qualities

Slope: 5 to 15 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Available water storage in profile: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: A

Minor Components

Fredon

Percent of map unit: 5 percent

Phelps

Percent of map unit: 5 percent

Genesee (hamlin)

Percent of map unit: 5 percent

Howard

Percent of map unit: 5 percent

Honeoye

Percent of map unit: 5 percent

PhB—Phelps gravelly silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9xny
Mean annual precipitation: 32 to 42 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 120 to 160 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Phelps and similar soils: 75 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Phelps

Setting

Landform: Terraces, valley trains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Convex
Parent material: Loamy glaciofluvial deposits over sandy and gravelly glaciofluvial deposits, containing significant amounts of limestone

Typical profile

H1 - 0 to 9 inches: gravelly silt loam
H2 - 9 to 15 inches: gravelly loam
H3 - 15 to 25 inches: silt loam
H4 - 25 to 60 inches: stratified gravelly loam to silt

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 15 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 10 percent
Available water storage in profile: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B/D

Minor Components

Howard

Percent of map unit: 5 percent

Palmyra

Percent of map unit: 5 percent

Fredon

Percent of map unit: 5 percent

Arkport

Percent of map unit: 5 percent

Braceville

Percent of map unit: 5 percent

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APPENDIX 4

PRECIPITATION DATA

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Smoothing	Yes
State	New York
Location	
Longitude	76.457 degrees West
Latitude	42.541 degrees North
Elevation	Unknown/Unavailable
Date/Time	Mon, 05 Oct 2015 10:10:17 -0400

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.43	0.53	0.70	0.87	1.07	**1yr**	0.75	0.95	1.21	1.44	1.70	2.00	2.26	**1yr**	1.77	2.17	2.57	3.10	3.57	**1yr**
2yr	0.32	0.49	0.62	0.81	1.02	1.26	**2yr**	0.88	1.12	1.42	1.70	2.00	2.34	2.61	**2yr**	2.07	2.51	2.95	3.50	4.01	**2yr**
5yr	0.38	0.59	0.74	0.99	1.26	1.56	**5yr**	1.09	1.39	1.77	2.12	2.49	2.90	3.23	**5yr**	2.56	3.11	3.62	4.21	4.81	**5yr**
10yr	0.42	0.66	0.84	1.14	1.48	1.85	**10yr**	1.28	1.63	2.10	2.51	2.94	3.41	3.80	**10yr**	3.01	3.66	4.23	4.84	5.53	**10yr**
25yr	0.50	0.79	1.00	1.38	1.83	2.30	**25yr**	1.58	2.02	2.63	3.13	3.67	4.22	4.72	**25yr**	3.74	4.53	5.21	5.83	6.66	**25yr**
50yr	0.56	0.90	1.15	1.60	2.15	2.72	**50yr**	1.86	2.38	3.11	3.71	4.33	4.97	5.55	**50yr**	4.40	5.34	6.10	6.72	7.66	**50yr**
100yr	0.63	1.01	1.31	1.86	2.53	3.23	**100yr**	2.19	2.80	3.69	4.40	5.12	5.85	6.54	**100yr**	5.18	6.29	7.14	7.74	8.81	**100yr**
200yr	0.72	1.17	1.51	2.16	2.98	3.81	**200yr**	2.58	3.30	4.37	5.20	6.04	6.89	7.70	**200yr**	6.10	7.41	8.36	8.91	10.15	**200yr**
500yr	0.85	1.39	1.82	2.64	3.71	4.76	**500yr**	3.20	4.10	5.46	6.50	7.53	8.56	9.57	**500yr**	7.57	9.20	10.31	10.75	12.22	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.25	0.39	0.47	0.64	0.78	0.82	**1yr**	0.68	0.80	0.94	1.06	1.49	1.86	2.10	**1yr**	1.65	2.02	2.43	2.96	3.33	**1yr**
2yr	0.32	0.49	0.60	0.82	1.01	1.11	**2yr**	0.87	1.09	1.23	1.52	1.85	2.28	2.55	**2yr**	2.02	2.45	2.87	3.42	3.93	**2yr**
5yr	0.36	0.55	0.69	0.94	1.20	1.32	**5yr**	1.03	1.29	1.44	1.78	2.17	2.71	3.03	**5yr**	2.40	2.92	3.41	3.98	4.58	**5yr**
10yr	0.40	0.61	0.76	1.06	1.36	1.50	**10yr**	1.18	1.47	1.63	1.98	2.45	3.09	3.44	**10yr**	2.74	3.31	3.87	4.47	5.14	**10yr**
25yr	0.45	0.69	0.86	1.23	1.61	1.78	**25yr**	1.39	1.74	1.92	2.29	2.85	3.66	4.05	**25yr**	3.24	3.90	4.57	5.20	6.00	**25yr**
50yr	0.50	0.76	0.95	1.36	1.83	2.03	**50yr**	1.58	1.99	2.17	2.56	3.21	4.17	4.59	**50yr**	3.69	4.41	5.18	5.82	6.75	**50yr**
100yr	0.55	0.83	1.04	1.51	2.07	2.33	**100yr**	1.78	2.28	2.46	2.85	3.60	4.74	5.19	**100yr**	4.19	4.99	5.87	6.54	7.59	**100yr**
200yr	0.61	0.92	1.17	1.69	2.36	2.66	**200yr**	2.03	2.60	2.80	3.18	4.05	5.39	5.88	**200yr**	4.77	5.66	6.65	7.32	8.54	**200yr**
500yr	0.72	1.06	1.37	1.99	2.83	3.20	**500yr**	2.44	3.13	3.32	3.67	4.72	6.38	6.92	**500yr**	5.65	6.65	7.85	8.50	9.98	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.30	0.47	0.57	0.77	0.94	1.03	**1yr**	0.81	1.01	1.16	1.44	1.77	2.12	2.38	**1yr**	1.88	2.29	2.72	3.25	3.74	**1yr**
2yr	0.34	0.52	0.64	0.87	1.07	1.18	**2yr**	0.92	1.15	1.31	1.62	1.98	2.41	2.71	**2yr**	2.13	2.60	3.03	3.59	4.11	**2yr**
5yr	0.40	0.62	0.76	1.05	1.33	1.52	**5yr**	1.15	1.49	1.68	2.06	2.53	3.09	3.43	**5yr**	2.73	3.30	3.85	4.44	5.08	**5yr**
10yr	0.46	0.71	0.88	1.23	1.59	1.86	**10yr**	1.37	1.81	2.04	2.48	3.06	3.73	4.14	**10yr**	3.31	3.98	4.62	5.23	5.97	**10yr**
25yr	0.57	0.86	1.07	1.53	2.01	2.41	**25yr**	1.74	2.36	2.63	3.17	3.95	4.81	5.30	**25yr**	4.25	5.10	5.89	6.49	7.42	**25yr**
50yr	0.66	1.00	1.25	1.80	2.42	2.93	**50yr**	2.09	2.87	3.19	3.83	4.79	5.82	6.40	**50yr**	5.15	6.15	7.10	7.65	8.74	**50yr**
100yr	0.77	1.16	1.46	2.11	2.89	3.57	**100yr**	2.49	3.49	3.86	4.64	5.80	7.06	7.72	**100yr**	6.25	7.43	8.56	9.03	10.29	**100yr**
200yr	0.90	1.35	1.71	2.48	3.46	4.35	**200yr**	2.98	4.25	4.69	5.60	7.04	8.56	9.34	**200yr**	7.58	8.98	10.31	10.65	12.13	**200yr**
500yr	1.11	1.65	2.13	3.09	4.40	5.63	**500yr**	3.79	5.51	6.05	7.18	9.12	11.07	12.00	**500yr**	9.79	11.54	13.21	13.25	15.07	**500yr**

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