



TOWN OF ASHLAND CITY
Planning Commission Meeting
September 07, 2023 5:30 PM
Agenda

Chairwoman: Nicole Binkley

Committee Members: Vivian Foston, Gerald Greer, JT Smith, Steven Stratton, Mike Stuart, Jerome Terrell

CALL TO ORDER

ROLL CALL

APPROVAL OF AGENDA

APPROVAL OF MINUTES

- [1.](#) August 07, 2023 PC Meeting Minutes

PUBLIC FORUM

OLD BUSINESS

- [2.](#) Grading Plan: 1840 Hwy 12 S

NEW BUSINESS

- [3.](#) ACE Mini Storage
4. Zoning Ordinance Definition Review

OTHER

5. Title VI

ADJOURNMENT

Those with disabilities who require certain accommodations in order to allow them to observe and/or participate in this meeting, or who have questions regarding the accessibility of the meeting, should contact the ADA Coordinator at 615-792-6455, M-F 8:00 AM – 4:00 PM. The town will make reasonable accommodations for those persons.



TOWN OF ASHLAND CITY
Planning Commission Meeting
August 07, 2023 5:30 PM
Minutes

CALL TO ORDER

Chairwoman Binkley called the meeting to order at 5:42 p.m.

ROLL CALL

PRESENT

Chairwoman Nicole Binkley
Committee Member Gerald Greer
Committee Member Steven Stratton
Committee Member Vivian Foston
Committee Member JT Smith
Committee Member Mike Stuart
Committee Member Jerome Terrell

APPROVAL OF AGENDA

Chairman Binkley removed agenda item 2 Walker Grading Plan and added the City Attorney Report before old business. A motion was made by Committee Member Greer, Seconded by Committee Member Stratton, to approve the agenda with changes as stated. All approved by voice vote.

APPROVAL OF MINUTES

1. June 05, 2023 Planning Commission Meeting Minutes

A motion was made by Committee Member Smith, Seconded by Committee Member Stratton, to approve the June 05, 2023 minutes as written. All approved by voice vote.

PUBLIC FORUM

None.

CITY ATTORNEY

2. Ms. Noe gave a report about the lawsuit.

OLD BUSINESS

None.

NEW BUSINESS

3. Site Plan Approval: Brookhollow Senior Living
Mr. Matt Suiter and Mr. Josh Hooper spoke on behalf of Brookhollow Senior Living. Mr. Gregory read his comments in his staff report and recommended approval. A motion was made by Committee Member Stuart, Seconded by Committee Member Smith, to approve the site plan. Voting Yea: Chairwoman Binkley, Committee Member Greer, Committee Member Stratton, Committee Member Foston, Committee Member Smith, Committee Member Stuart, Committee Member Terrell. Motion passes to approve.
4. Acreage Mentions/Conflicts in Zoning Ordinance
Mr. Gregory discussed acreage mentions and conflicts in the zoning ordinance.
5. Zoning Ordinance Changes/Corrections
Mr. Gregory discussed zoning ordinance changes.

OTHER

None.

ADJOURNMENT

A motion was made by Committee Member Stuart, Seconded by Committee Member Greer, to adjourn. All approved by voice vote and the meeting adjourned at 6:47 p.m.

CHAIRWOMAN NICOLE BINKLEY

SECRETARY



Town of Ashland City Building & Codes Department

233 Tennessee Waltz Parkway Suite 103
Ashland City TN 37015
(615) 792-6455

APPLICATION FOR GRADING PLAN APPROVAL

Grading Plan Review Fee: \$100.00

Date Received: 5/11/2023

Property Address: 1840 Hwy 12 South
Ashland City, TN 37015


Map # 062 Parcel # 041.01 Acreage: 13.68

Property Owner(s): Jason L Walker
PO Box 849 Ashland City, TN 37016

Phone: 615-364-6708

Description of project being reviewed: reshaping and excavation
down to a lower grade to allow for a single family home in the
future.

Having submitted plans for review by the Ashland City Planning Commission, I understand that I am responsible for all review fees incurred by the Town of Ashland City. I understand that the fee paid at the time of submittal is not applicable for the fees incurred through review. With my signature, I verify that I fully understand that I am responsible for said fees, and that I have received a copy of Ordinance #165.

 5/11/2023
Applicant Signature Date

Fw: Receipt #R00182432

Allen Nicholson <anicholson@ashlandcitytn.gov>

Mon 5/22/2023 4:10 PM

To: Alicia Martin <ayoung@ashlandcitytn.gov>

Allen Nicholson
Building & Codes Director
Town of Ashland City
233 TN Waltz Pkwy, Suite 103
Ashland City, TN 37015
(615)792-4211 ext: 5244



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From: No-Reply <No-Reply@ashlandcitytn.gov>
Sent: Thursday, May 11, 2023 9:11 AM
To: Allen Nicholson <anicholson@ashlandcitytn.gov>
Subject: Receipt #R00182432

The Town of Ashland City would like to thank you for your payment!

Town of Ashland City Water & Sewer
PO Box 36
Ashland City, TN 37015
(615)792-4211

DATE : 5/11/2023 9:09 AM
OPER : MJ
TKBY : Margie Jarrell
TERM : 2
REC# : R00182432
CODES 32610 CODES BUILDING PERMITS/INSPECTION
WALKER TRUCKING - SITE PLAN 100.00

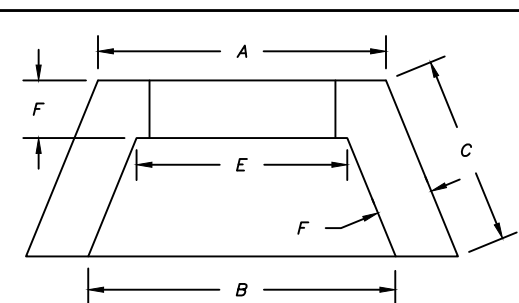
CC FEES - MISC TRANS CREDIT CARD FEES
Miscellaneous Receipt 2.50

Printed By: WALKER TRUCKING

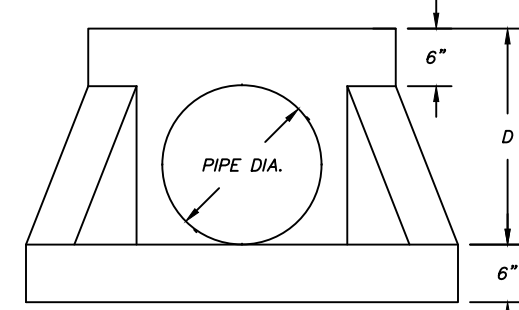
NOTES:

1) DETENTION BASIN ON SITE IS SIZED TO ADEQUATELY CONTROL RUNOFF FROM THE SITE WHETHER THE DEVELOPER CHOOSES TO MAINTAIN A LAYER OF TOPSOIL AND GRASS OVER THE DISTURBANCE FOOTPRINT OR EXCAVATE TO BEDROCK FOR AN EXTENDED TIME PERIOD. HOWEVER, ALL AREAS WITHIN STATE RIGHT OF WAY SHALL BE BACKFILLED WITH ENOUGH TOPSOIL TO PROVIDE A STABLE GRASS GROUND COVER IN ORDER TO KEEP FROM INCREASING POST-DEVELOPMENT RUNOFF ONTO THE RIGHT OF WAY VIA THE ADDITION OF AN IMPERVIOUS (BEDROCK) SURFACE.

CONCRETE TO HAVE MIN 4,500 PSI AT 28 DAYS
MINIMUM STEEL REINFORCING 4#4 W7 x W7



PIPE SIZE	A	B	C	D	E	F
15	32"	48"	30"	26"	24"	6"
18	32"	48"	30"	26"	24"	6"
24	48"	72"	44"	36"	36"	8"
30	80"	102"	54"	60"	64"	8"
36	80"	102"	54"	60"	64"	8"
42	80"	102"	54"	60"	64"	8"
48**	80"	102"	54"	60"	64"	8"
54	99"	120"	56"	66"	83"	8"
60	99"	120"	56"	66"	83"	8"



PRE-CAST CONCRETE HEADWALL

ANTHONY D. HOOTEN
PROPERTY
RB 246, PG 852

ANTHONY D. HOOTEN
PROPERTY
RB 570, PG 236

ROD E. WILKINS
PROPERTY
RB 548, PG 942

JASON WALKER
PROPERTY
RB 562, PG 1434

JAMES W. STINNETT, JR., ET UX
PROPERTY
RB 363, PG 134

RIP-RAP STABILIZATION SHALL BE INSTALLED ON ALL SLOPES THAT ARE NOT CUT TO BEDROCK AND ARE GREATER THAN 3:1 WITH A MAXIMUM LIMITATION OF 2:1

NATURAL BEDROCK WALL-FEATHER SLOPES TO GRADE AS NECESSARY

ANY AREAS WITHIN STATE RIGHT OF WAY THAT ARE EXCAVATED TO BEDROCK SHALL BE OVEREXCAVATED ENOUGH TO BE REFILLED WITH A MINIMUM 18" DEEP LAYER OF TOPSOIL TO ACHIEVE PROPOSED FINAL GRADES

REPLACE EXISTING GRAVEL ENTRANCE W/NEW CONCRETE DRIVE TO MEET TDOT ENTRANCE GRADE STANDARDS

TDOT D-SEW 1A SAFETY ENDWALL I.E. 460.5'

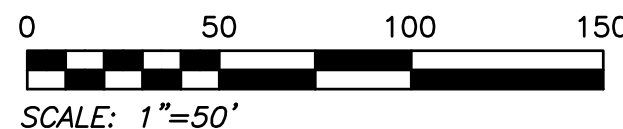
TIE TO EXISTING WHITE STRIPE

70LF-24" RCP @ 0.71%

TDOT D-SEW 1A SAFETY ENDWALL I.E. 461.0'

THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. UNDERGROUND UTILITIES SHOWN, WERE TAKEN FROM VISIBLE FEATURES AT THE SITE, PUBLIC RECORDS, AND/OR MAPS PREPARED BY OTHERS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. THEREFORE, RELIANCE UPON THE LOCATION OF UTILITIES SHOWN SHOULD BE DONE WITH THIS CIRCUMSTANCE CONSIDERED. DETAILED VERIFICATION OF EXISTENCE, LOCATION AND DEPTH SHOULD ALSO BE MADE PRIOR TO ANY DECISION RELATIVE THERETO. AVAILABILITY AND COST OF SERVICE SHOULD BE CONFIRMED WITH THE APPROPRIATE UTILITY COMPANY.

NORTH BASED ON MAD83 TENNESSEE COORDINATE SYSTEM

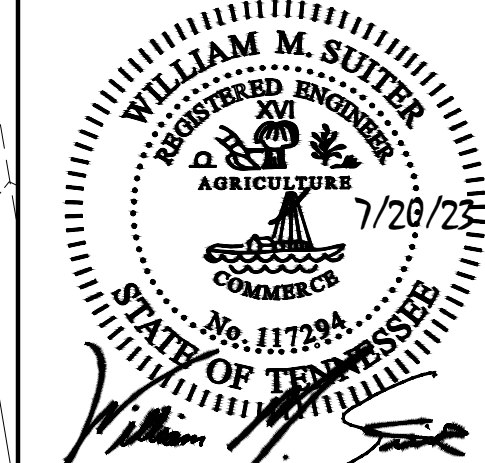


JERRY REED
PROPERTY
RB 242, PG 245

Sutler Surveying & Land Planning
CIVIL ENGINEERING & LAND SURVEYING
P.O. Box 30271
1805A Alpine Drive
Clarksville, TN, 37040
ph. # (931) 920-1750
Fax # (931) 920-8490

REV.#	DATE	REVISION
0	6/30/20	INITIAL SUBMITTAL
1	7/20/23	SITE REVISIONS

**WALKER TRUCKING FACILITY
HIGHWAY 12
GRADING PLAN
SCALE: 1"=50'**



C2.3

STORM WATER POLLUTION PREVENTION PLAN (SWPPP) NOTES:

This Storm Water Pollution Prevention Plan (SWPPP) is developed in accordance with the Tennessee General NPDES Permit (TNR 100000) for Storm Water Discharges Associated with Construction Activity (TNCGP), and is prepared using sound engineering and construction practices. Non-storm water discharges are prevented as a condition of this permit.

The goal of this SWPPP is to prevent any detrimental discharge from the property described to receiving waters of the State of Tennessee. The construction activity mentioned in this report shall be carried out in such a manner that will prevent any discharge that would cause a condition in which visible solids, bottom deposits, or turbidity impairs the usefulness of the waters on the property or downstream of the property for fish and aquatic life, livestock watering, recreation, irrigation, navigation, or industrial or domestic water supply.

This SWPPP is intended to be a supplement to TNR 100000 and not a substitute for it. The owner and contractor shall be familiar with the requirements of TNR 100000. A copy of TNR 100000 can be found at www.state.tn.us/environment/permits/conststrmru.pdf

A Notice of Intent (NOI) and application fee shall be submitted to the local Environmental Assistance Center (EAC) by the owner at least thirty days before construction begins. A fee schedule is included in Appendix A. The NOI and all correspondence during the duration of the project shall be sent to:

Tennessee Department of Environment & Conservation
Environmental Assistance Center (EAC)
Division of Water Pollution
711 RS Gass Boulevard
Nashville, TN 37206

The current contracting developer and site permittee is:

Jason Walker
PO Box 849
Ashland City, TN 37015

The contractor and/or person responsible for the EPSC measures described in this SWPPP is Jason Walker. This project will be bid for construction contingent upon the approval of local authorities. It will be the responsibility of the awarded contractor to notify TDEC of their inherited responsibilities as related to this SWPPP. No construction shall begin until TDEC has acknowledged acceptance and approval of the SWPPP responsibilities to the new contractor.

Each contractor and sub-contractor that is responsible for the installation, inspections, or maintenance of erosion or sediment control measures must understand and follow this document. The contractor shall sign the contractor's certification on the Notice of Intent and submit it to the local EAC. The contractor shall maintain records of grading activities and stabilization practices throughout the entire project. The contractor shall also maintain precipitation records for the site and keep a rain gauge on site. For this site, there is only one main operator/contractor that will be solely responsible for the implementation of this entire SWPPP.

Construction shall not begin until a Notice of Coverage (NOC) is received from the State. Current versions of the SWPPP, NOI, and NOC shall be kept at the project site for the duration of the project and shall be made available to all operators and site personnel. These documents shall be kept in a job trailer and/or project permit board if available. In cases where these locations are not available, a copy of each document shall be placed in hands of the on-site foreman in charge of construction. In either case the documents shall be kept on site at all times when work is being performed and shall be made available to all operators and site personnel involved with the project. The Project Engineer & Owner/Developer shall also keep a copy of each document at their respective offices.

This SWPPP shall be amended as necessary when defects or problems need to be corrected. All amendments to the plan shall be implemented within 48 hours after initiation. Anyone who finds defects or problems associated with the SWPPP shall notify the engineer immediately by phone or in writing. The Project Engineer will then make the necessary revisions to the SWPPP and distribute the revisions to the owner and all contractors.

Each contractor and sub-contractor that is responsible for the installation, inspections, or maintenance of erosion or sediment control measures shall file a Notice of Termination (NOT) when their respective duties are completed. The owner shall submit a final NOT after final stabilization is complete and established.

All construction procedures for installation of erosion prevention and sediment controls shall be performed in accordance with the "Tennessee Erosion and Sediment Control Handbook" published by the State of Tennessee. A copy of this handbook can be obtained at www.state.tn.us/environment/wpc/sed_ero_controlhandbook/.

If a release containing hazardous substance in an amount equal to or in excess of a reporting quantity established under either 40 CFR 117 or 40 CFR 302 occurs during a 24-hour period, the contractor shall immediately notify the permittee who shall then notify the National Response Center (NRC) (800-424-8802) and the Tennessee Emergency Management Agency (TEMA) (800-262-3300 for emergencies; 800-262-3400 for non-emergencies) and the Environmental Assistance Center. A report describing such spills, mitigation plans, and steps taken to prevent future spills shall be reported to the EAC within fourteen days of the spill.

Any hazardous waste such as paint cans, oil cans, used oil, filters, etc. shall be contained and disposed of by the contractor at an appropriate hazardous waste disposal center. All other trash shall be properly contained and disposed of at reasonable intervals.

Litter, construction debris, and construction chemicals exposed to storm water shall be picked up prior to anticipated storm events (e.g. forecasted by local weather reports), or otherwise prevented from becoming a pollutant source for storm water discharges (e.g. screening outfalls, daily pick-ups).

A site assessment will be performed at each outfall involving drainage totaling 10 or more acres, or 5 or more acres if draining to an impaired or exceptional quality waters, within a month of construction commencing at each portion of the site that drains the qualifying acreage of such portion of the site. The site assessment shall be performed by individuals holding the qualification of either licensed professional engineer or landscape architect, certified professional in erosion and sediment control (CPESC), or a person that successfully completed the "Level II Design Principles for Erosion Prevention and Sediment Control for Construction Sites" course.

The assessment will be performed to verify the installation, functionality and performance of the EPSC measures described in the SWPPP. The assessment will be performed with the site inspector and will include a review and update of the SWPPP if applicable. The site assessment findings shall be documented and the documentation kept with the SWPPP on-site. The documentation shall include information included in the inspection form provided in Appendix C of TDEC's Construction General Permit. The documentation must contain the printed name and signature of the individual performing the assessment and the following certification:

"I certify under penalty of law that this report and all attachments are, 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 – EXISTING SITE CONDITIONS:

The site in question is a 13.68 acre property near Ashland City, TN along Highway 12. The site area proposed for disturbance is approximately 7.7 acres. The property is vacant with no physical address, but is located approximately 0.3 miles southeast of the Williamsburg Road intersection. Currently, the site is mainly wooded with poor soil and rocky outcroppings. The pre-developed runoff number for the site using the SCS method is estimated to be 73.

The site appears to have one outfall direction to the north, with Marrowbone Creek being the closest body of surface water to the site. To the extent of our ability to search, the water body was not listed on Tennessee's list of exceptional waters.

The owner wishes to completely strip the site and cut the majority of it all the way down to bedrock, refilling it with a layer of topsoil where desired. The future use of the lot is reported to be residential. Grades on the plan may be altered to the owner's desire without changing drainage characteristics. In all areas where slopes are not cut to bedrock, the maximum grade for slopes will be limited to 2:1 with rip-rap stabilization measures and 3:1 with straw matting and seeding measures.

The erosion controls on site have been designed to withstand the 2-year/24-hour rain event. The detention basin on-site has been designed to adequately control runoff from the site for all of the 2, 5, 10, 25, 50 & 100-year/24 hour rain events during both the construction phase (bedrock) and final phase (potentially topsoil or a mixture of topsoil and bedrock).

SWPPP – CONSTRUCTION SEQUENCE:

Initial erosion and sediment controls such as construction exits, straw bale filters and silt fencing shall be installed according to construction documents. Only the clearing and grubbing necessary to install these controls shall be accomplished. Any buffer zones shown on the construction plans shall be marked by the contractor so as to prevent the disturbance of the buffer area. All erosion prevention and sediment control best management practices identified in this SWPPP or shown on the construction plans shall be installed as recommended in the Tennessee Erosion & Sediment Control Handbook.

Clearing and grubbing of the site will begin. Removal and disposal of organics such as tree lops, stumps, and brush shall be removed by the contractor. Burning will be allowed only when a permit is obtained by the contractor from the governing agencies. Burial of organics shall only be performed with consent of the project engineer. Removal and disposal of other items such as debris, building materials and other non-biodegradable materials shall be properly disposed of by the contractor at an off-site location. Ground cover shall not be removed more than twenty days before mass grading begins. Care shall be taken to prevent the cutting of trees within the buffer zone.

The contractor shall only clear and grub the areas shown or indicated on the construction plans. Areas that are not being developed shall be left in its natural state in order to prevent erosion.

Sediment basins shall be constructed as indicated on the construction plans. Detention basins as shown on the construction plans shall be constructed as sediment basins during construction of the site infrastructure. When final grading begins the basins shall be modified to bio-retention basins as shown on the construction plans. Diversion ditches or berms shall be constructed so that all water leaving the site must first enter into a sediment basin or other sediment control feature. Discharges from sediment basins and traps must be through a pipe or lines or well grassed channel.

Sediment deposits shall be cleaned out of sediment basins, silt fence and other controls by the contractor when the capacity is reduced to fifty percent. Sediment removed from basins shall be deposited at a designated area and immediately stabilized with grass seed and matting. Care should be taken during removal of sediment to prevent disturbance of lands downstream from sediment basin. Any repairs required to re-establish functionality of sediment basin shall be immediately performed after sediment loads are removed.

Mass grading of roadways and building pads shall be conducted according to current construction methods. The contractor shall notify the engineer of potential problem areas that could produce unfiltered runoff. When practical, the contractor shall attempt to prevent a mass grading of the entire site at once. The maximum disturbed area at any one time shall not exceed 50 acres.

Muddy water to be pumped from excavation and work areas must be held in settling basins or filtered prior to its discharge into surface waters. Water must be discharged through a pipe or lines or well grassed channel.

Any storage of off-site soils shall be temporary in nature and shall be protected with silt fence around the perimeter of stockpiles. Any stockpile that is dormant for fifteen days shall be stabilized with seed and mulch as noted below.

Construction of sewer, storm, water, gas, and other utility infrastructure shall be completed in a manner that will limit the amount of sediment that can be transported from the site. Once installed and functional, inlet protection shall be installed at inlets prone to sediment intrusion.

Final grading and paving of roadways shall be completed according to current construction procedures. Stabilization will be accomplished as soon as practicable after attainment of final grade and no later than seven days after attaining final grade. Where earth disturbing activities have temporarily ceased, temporary stabilization will be applied within seven days if the activity will not resume for fifteen days.

Stabilization may include seed and mulch, as shown below, or may include seed and erosion control blankets, as noted on the plans.

SWPPP – CONSTRUCTION SEQUENCE (CONT.):

Seeding mixtures are shown below:

Permanent Seeding Mixtures

Seeding Dates	Grass Seed	Percentage
February 1 – July 1	Kentucky 31 Fescue	80
	Korean Lespedeza	15
	English Rye	5
June 1 – August 15	Kentucky 31 Fescue	55
	Korean Lespedeza	20
	English Rye	15
April 15 – August 15	German Millet	10
	Bermusgrass (huled)	70
	Annual Lespedeza	30
August 1 – December 1	Kentucky 31 Fescue	70
	English Rye	20
	White Clover	10
February 1 – December 1	Kentucky 31 Fescue	70
	Crown Vetch	25
	English Rye	5

Temporary Seeding Mixtures

Seeding Dates	Grass Seed	Percentage
January 1 – May 1	Italian Rye	33
	Korean Lespedeza	33
	Summer Oats	34
May 1 – July 15	Sudan-Sorghum	100
	Starr Millet	100
May 1 – July 15	Starr Millet	100
	Starr Millet	100
July 15 – January 1	Balboa Rye	67
	Italian Rye	33

After the site is fully established, silt fence and trapped sediment shall be removed to prevent remains from becoming a pollutant source for storm water discharges.

The contractor's qualified personnel shall inspect each outfall and erosion control on site within 24 hours after each rainfall of 0.5" or more, before an anticipated storm event, and at least twice a week being at least 72 hours apart. Each inspection must be documented and submitted to the State of Tennessee's Environmental Assistance Center (EACH) by the 15th of each month after each quarter of the year. Copies of inspection documentation and forms shall be obtained from the EAC. The inspector shall look for and note the following:

- a. All disturbed areas on-site shall be inspected for pollutants that could contaminate downstream waters
- b. Erosion control shall be inspected for structural defects and general effectiveness of the control
- c. Outfall points shall be inspected for any signs of erosion

Again, all inspections must be documented and include the inspector's name, qualifications, date, and any notes taken. The inspector shall notify the engineer of any problems so that this SWPPP can be revised within 14 days of notification. All records shall be retained for a period of three years.

All erosion control structures shall be properly maintained. Any defect found during inspections shall be corrected within seven days after inspection. Notify the engineer of any such defects found at the time of inspection.

All records taken during construction shall be kept for a minimum of three years after the NOT is filed. TDEC may request that files be kept for periods longer than three years.

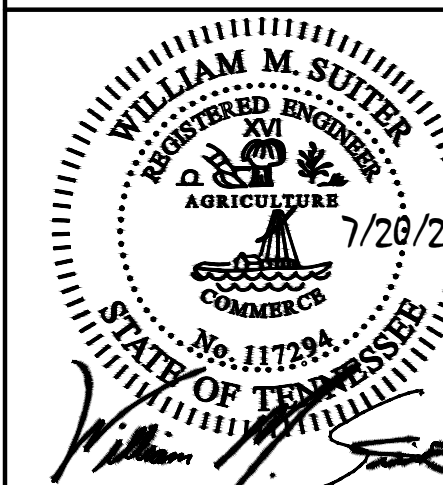
Any disturbed area on-site shall be stabilized within 15 days, or 7 days in areas with \geq 35% slopes, where construction activities have temporarily or permanently ceased.

Any vegetation or EPSC and other protective measure on-site that is deemed as inadequate, not functional, or in general need of a repair, replacement or update by the site inspector shall be repaired replaced or modified within 7 days.

P.O. Box 30271
 1805A Alpine Drive
 Clarksville, TN, 37040
 Ph. # (931) 920-1750
 Fax # (931) 920-8490
Suiter Surveying & Land Planning
 CIVIL ENGINEERING & LAND SURVEYING

REV.#	DATE	REVISION	
		INITIAL	SITE REVISIONS
0	6/30/20		
1	7/20/23		

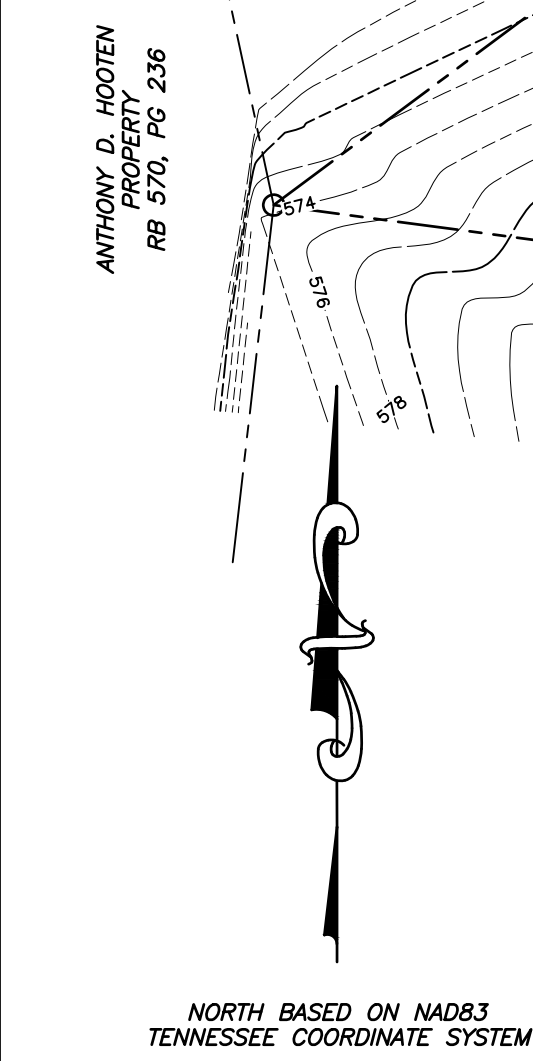
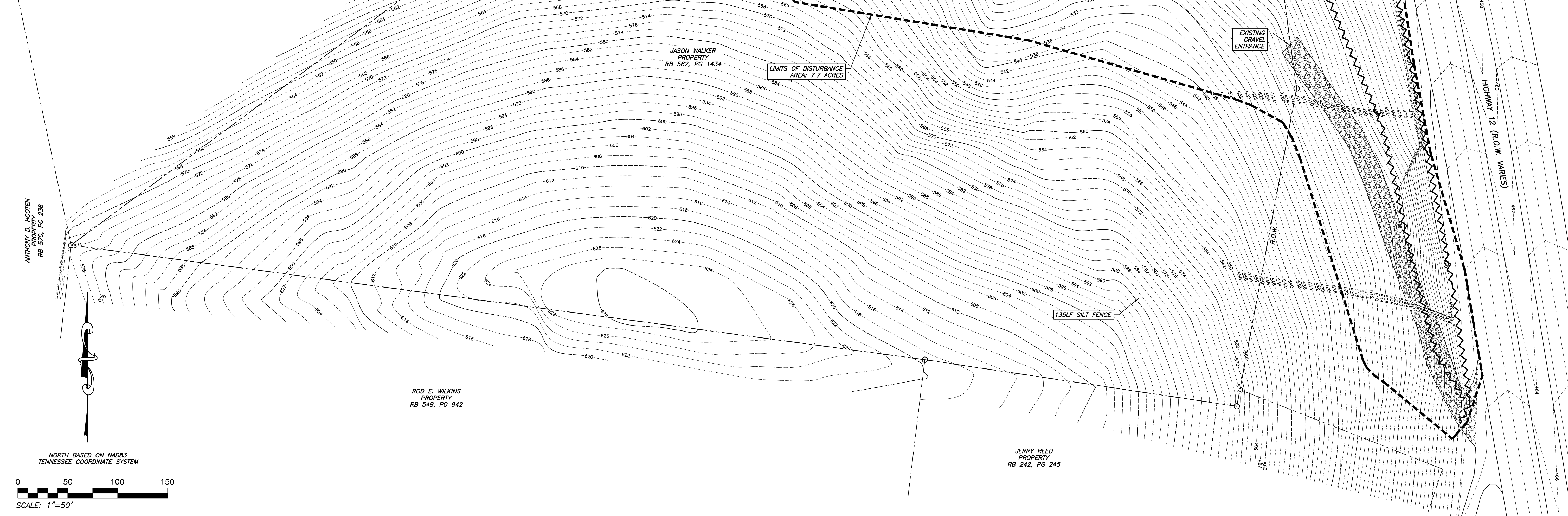
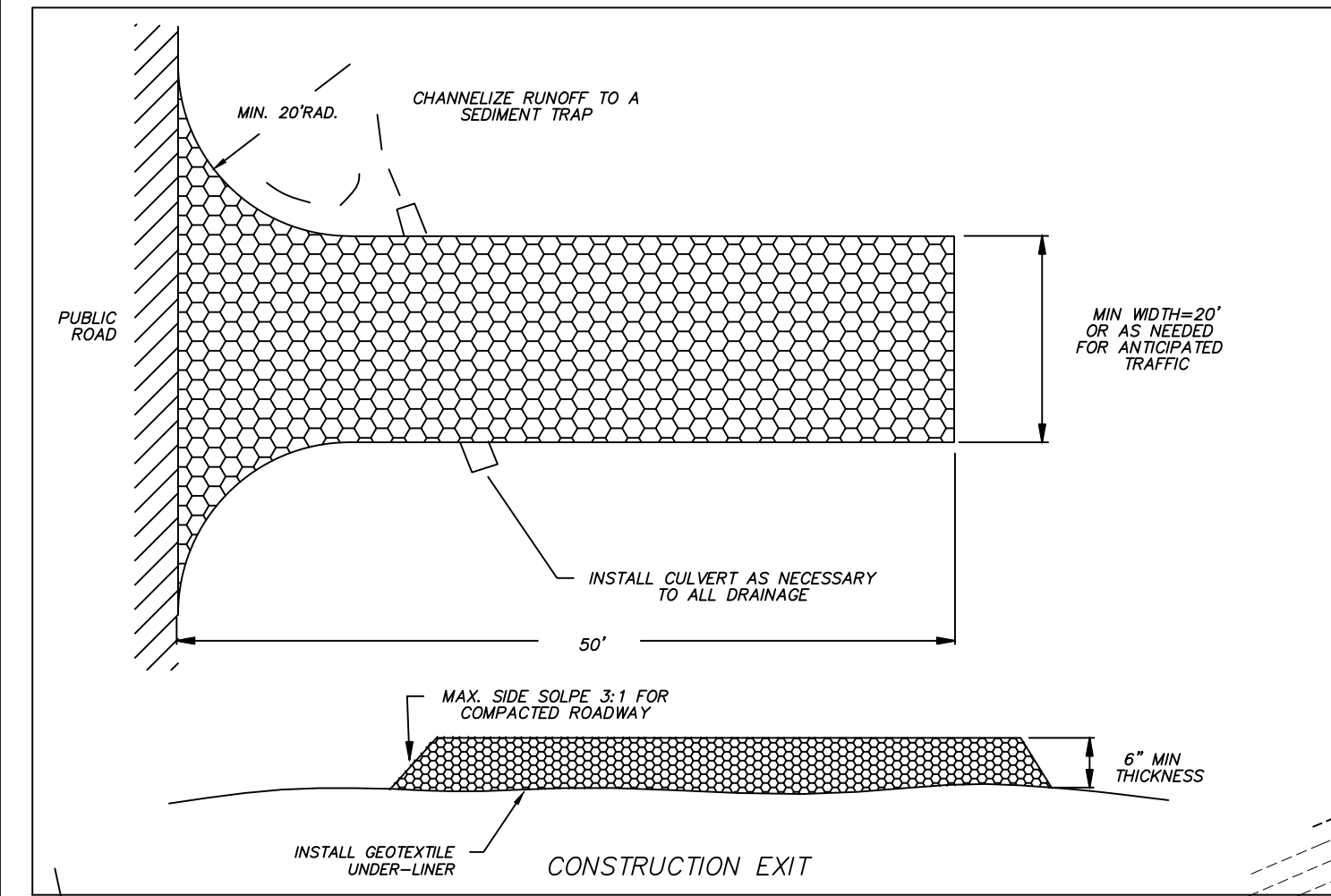
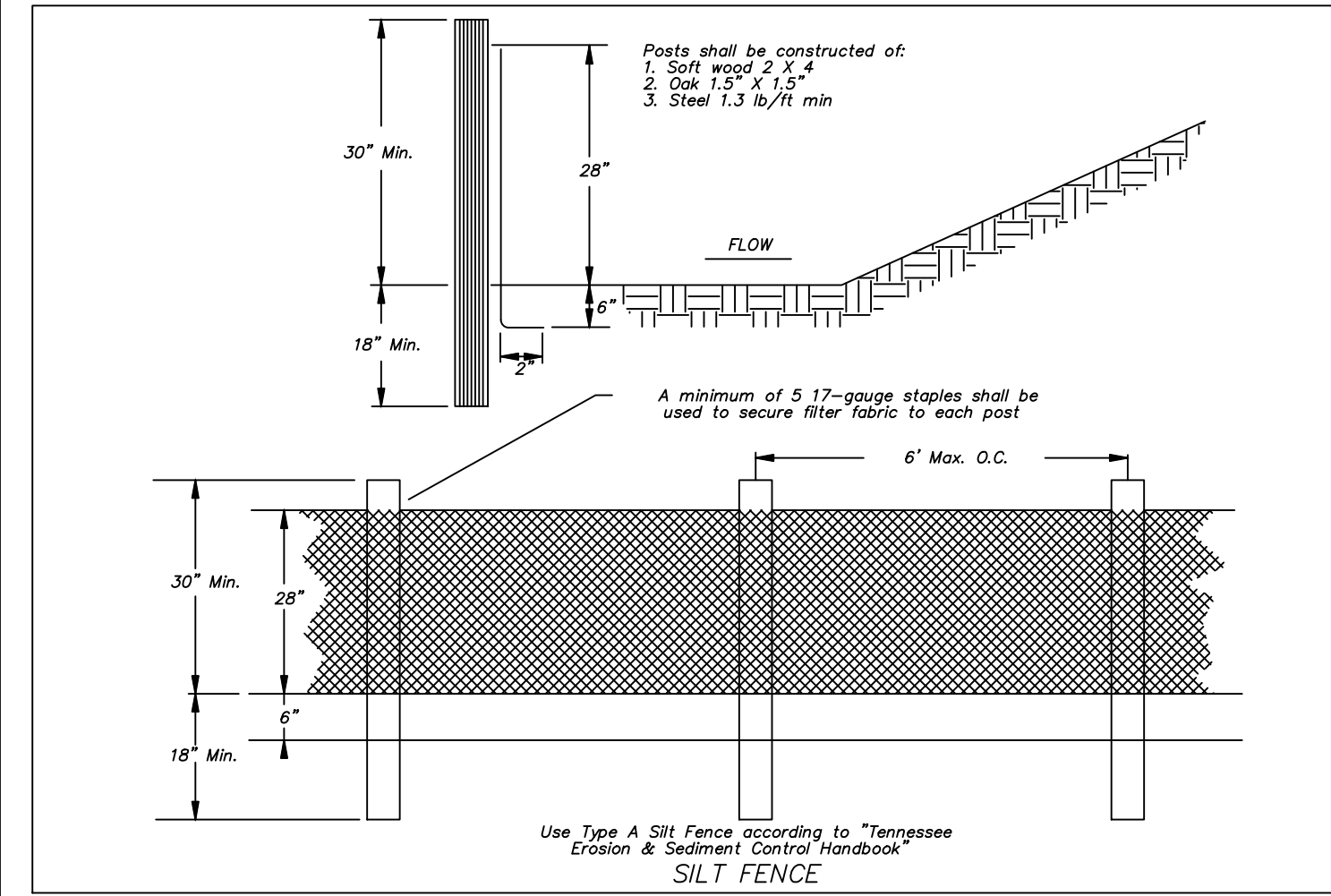
WALKER TRUCKING FACILITY
HIGHWAY 12
SWPPP
SCALE: NONE



C2.0

NOTES:

- 1) INSTALL CONSTRUCTION EXIT AS SHOWN.
- 2) INSTALL SILT FENCING AS SHOWN.

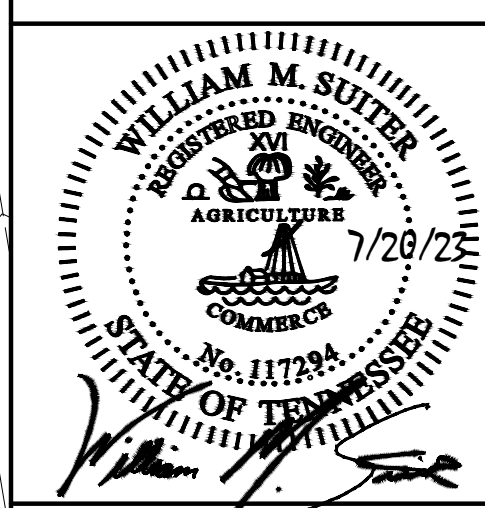


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REV.#	DATE	REVISION
0	6/30/20	INITIAL SUBMITTAL
1	7/20/23	SITE REVISIONS

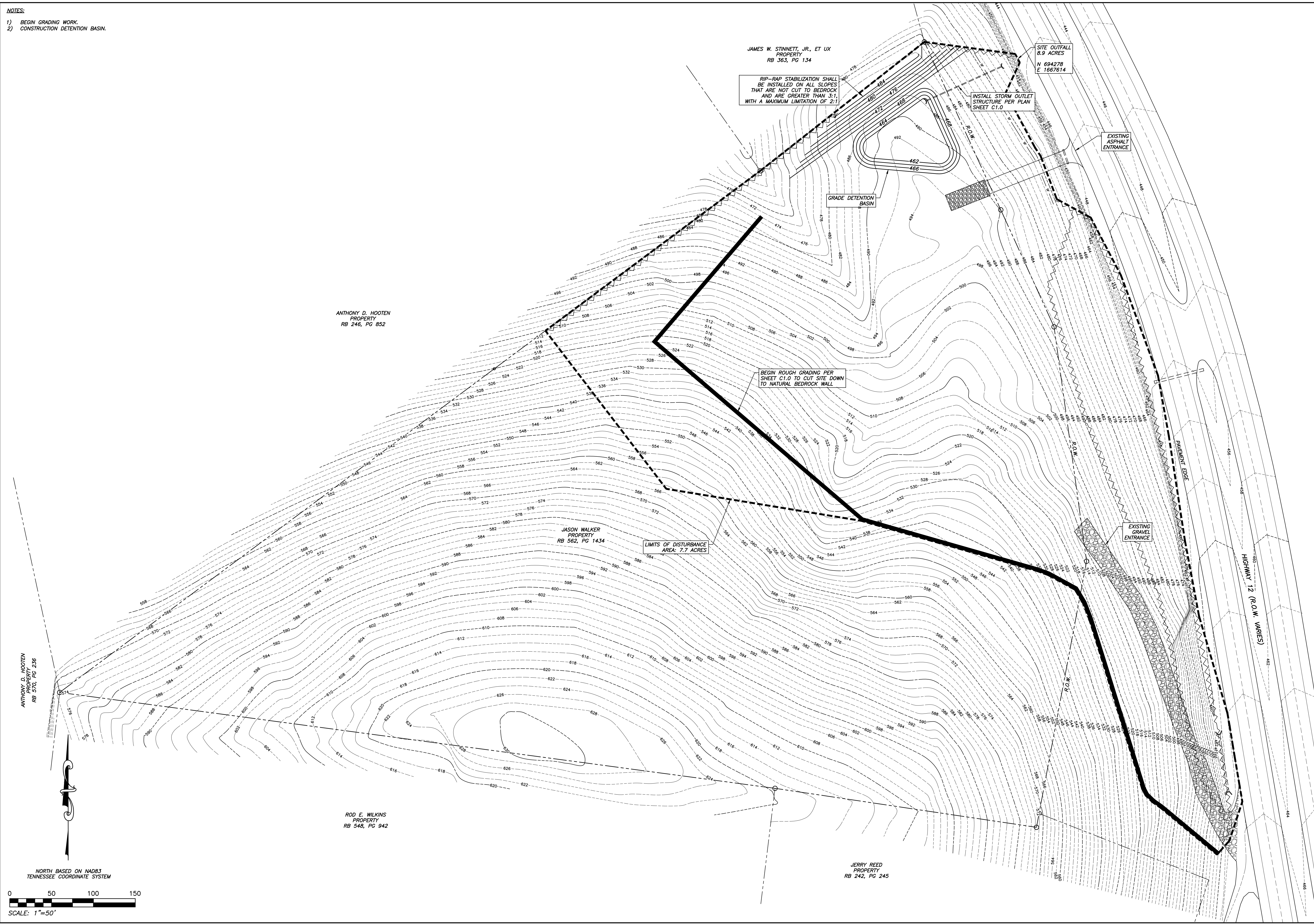
WALKER TRUCKING FACILITY
HIGHWAY 12
EPSC PHASE I
SCALE: 1"=50'



C2.1

NOTES:

- 1) BEGIN GRADING WORK.
- 2) CONSTRUCTION DETENTION BASIN.

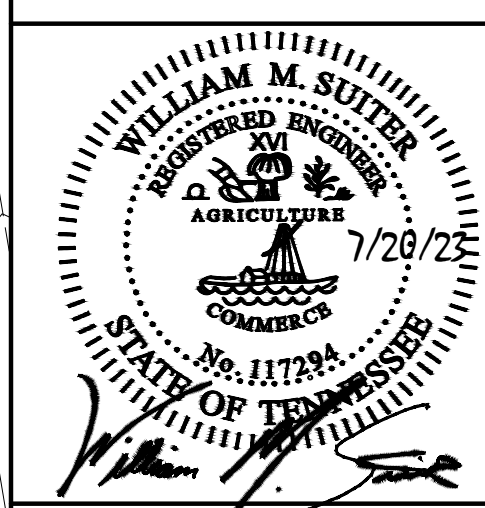


Sutler
Surveying
& Land Planning
CIVIL ENGINEERING & LAND SURVEYING

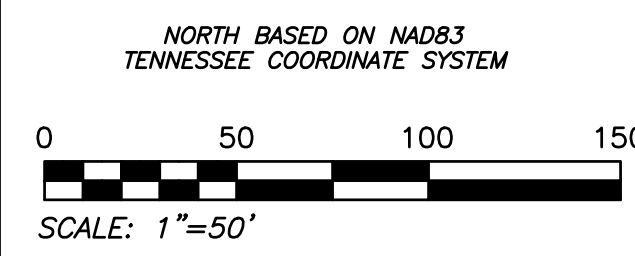
P.O. Box 30271
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 ph. # (931) 920-1750
 Fax # (931) 920-8490

REV.#	DATE	REVISION
0	6/30/20	INITIAL SUBMITTAL
1	7/20/23	SITE REVISIONS

WALKER TRUCKING FACILITY
HIGHWAY 12
EPSC PHASE II
SCALE: 1"=50'

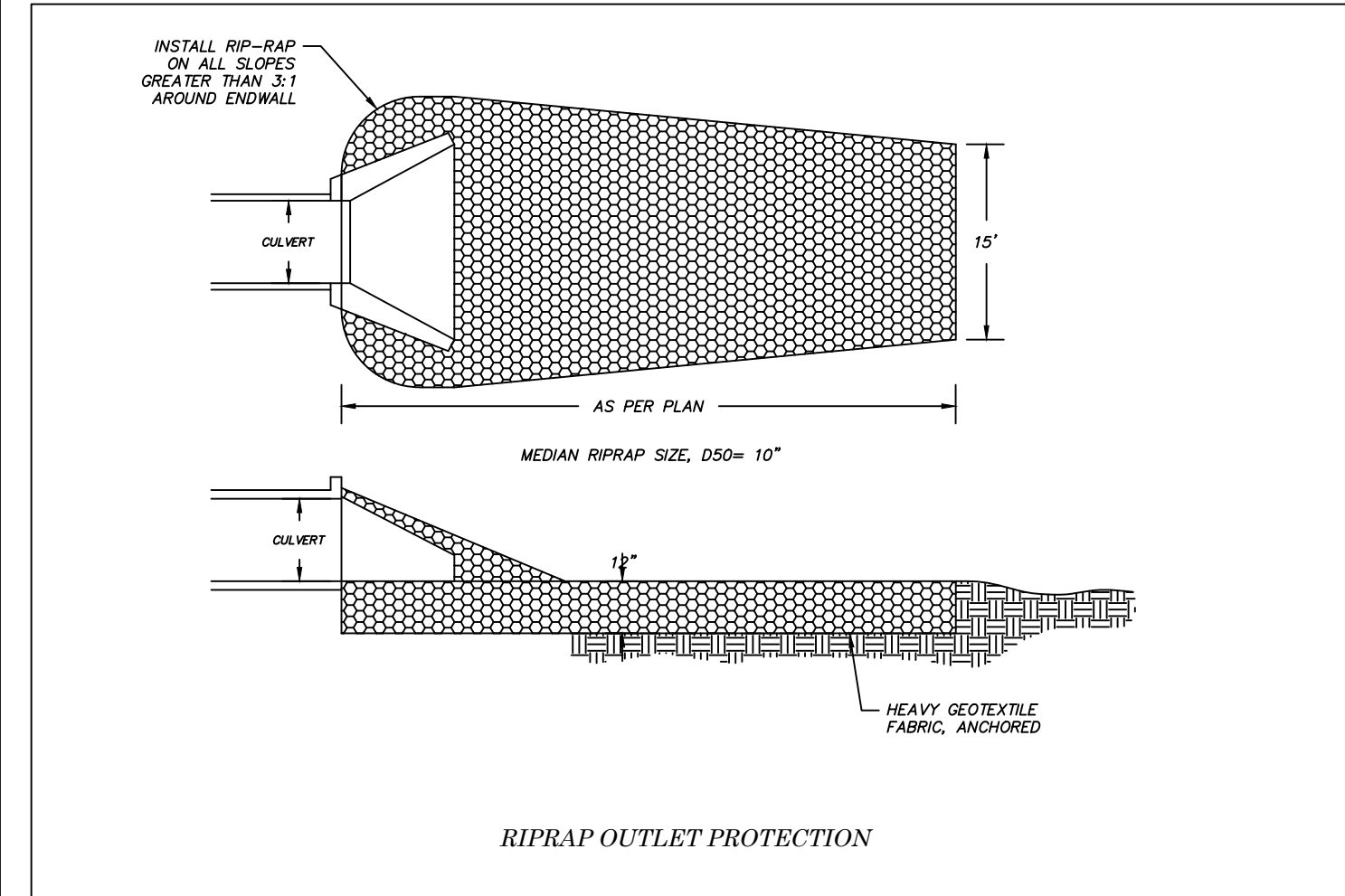


C2.2



NOTES:

- 1) COMPLETE GRADING AND SITE WORK.
- 2) STABILIZE ALL SLOPES PER PLAN.
- 3) SEED AND STRAW ALL DISTURBED AREAS IN TOPSOIL.
- 4) REMOVE SILT FENCE ONCE FINAL STABILIZATION IS ACHIEVED.
- 5) REMOVE DEPOSITED SILT FROM BASIN.



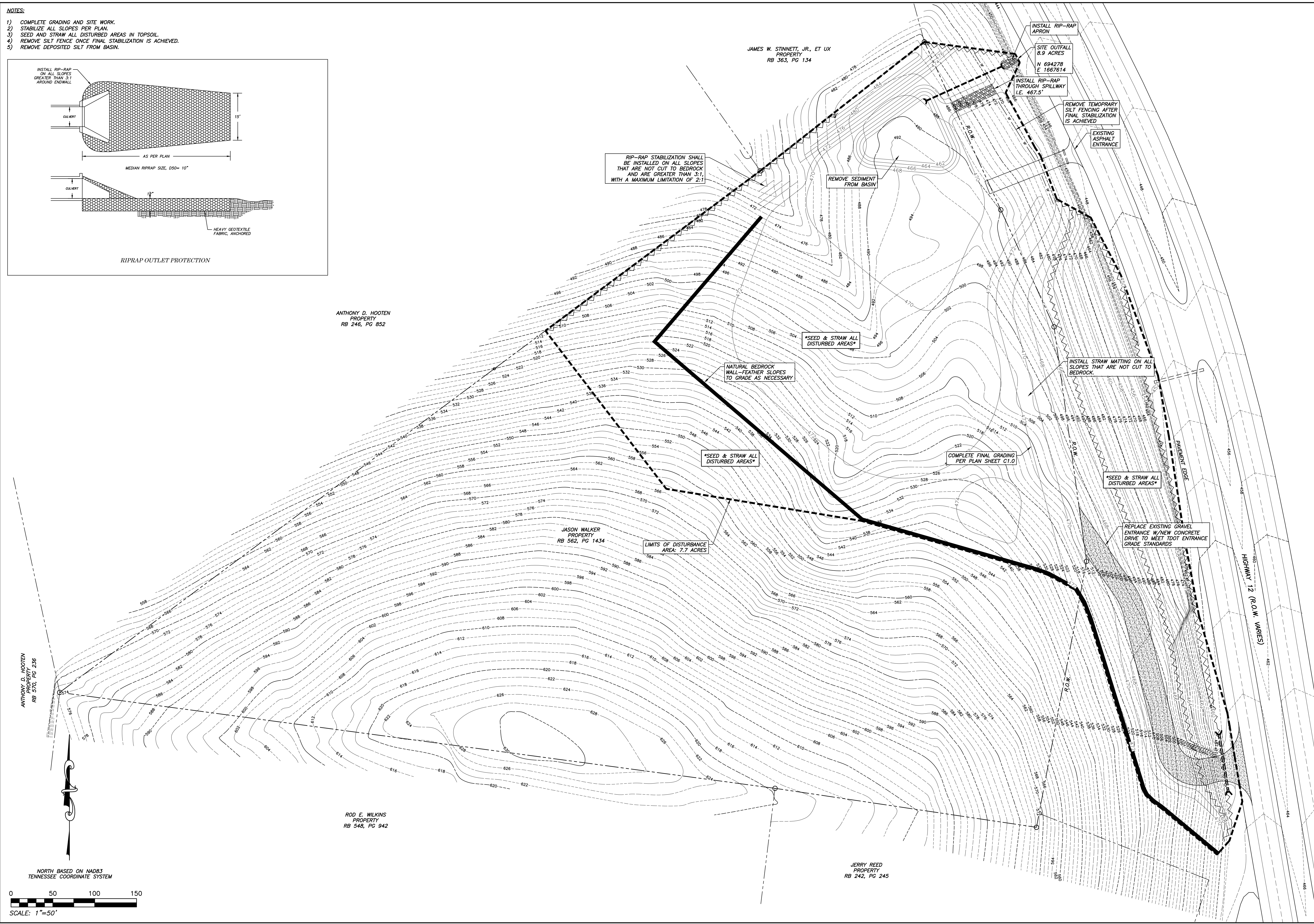
ANTHONY D. HOOTEN
PROPERTY
RB 246, PG 852

JASON WALKER
PROPERTY
RB 562, PG 1434

ROD E. WILKINS
PROPERTY
RB 548, PG 942

JAMES W. STINNETT, JR., ET UX
PROPERTY
RB 363, PG 134

JERRY REED
PROPERTY
RB 242, PG 245

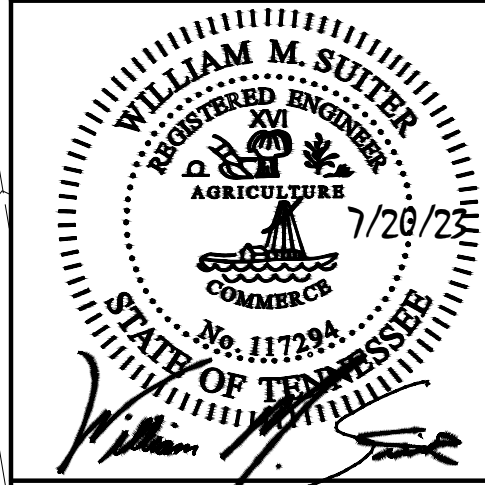


Sutler Surveying & Land Planning
CIVIL ENGINEERING & LAND SURVEYING

P.O. Box 30271
1805A Alpine Drive
Clarksville, TN, 37040
ph. # (931) 920-1750
Fax # (931) 920-8490

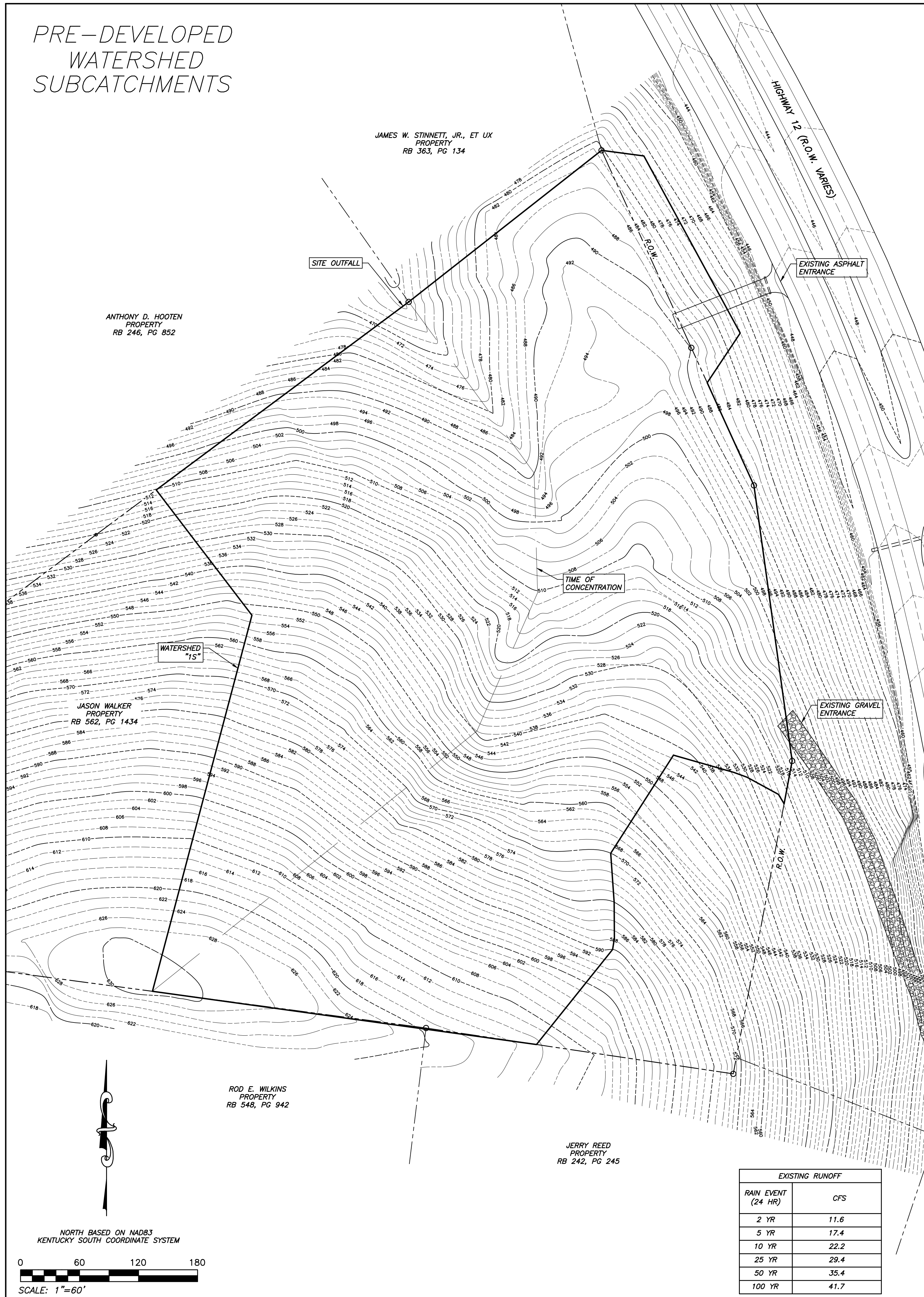
REV.#	DATE	REVISION
0	6/30/20	INITIAL SUBMITTAL
1	7/20/23	SITE REVISIONS

WALKER TRUCKING FACILITY
HIGHWAY 12
EPSC PHASE III
SCALE: 1" = 50'



C2.3

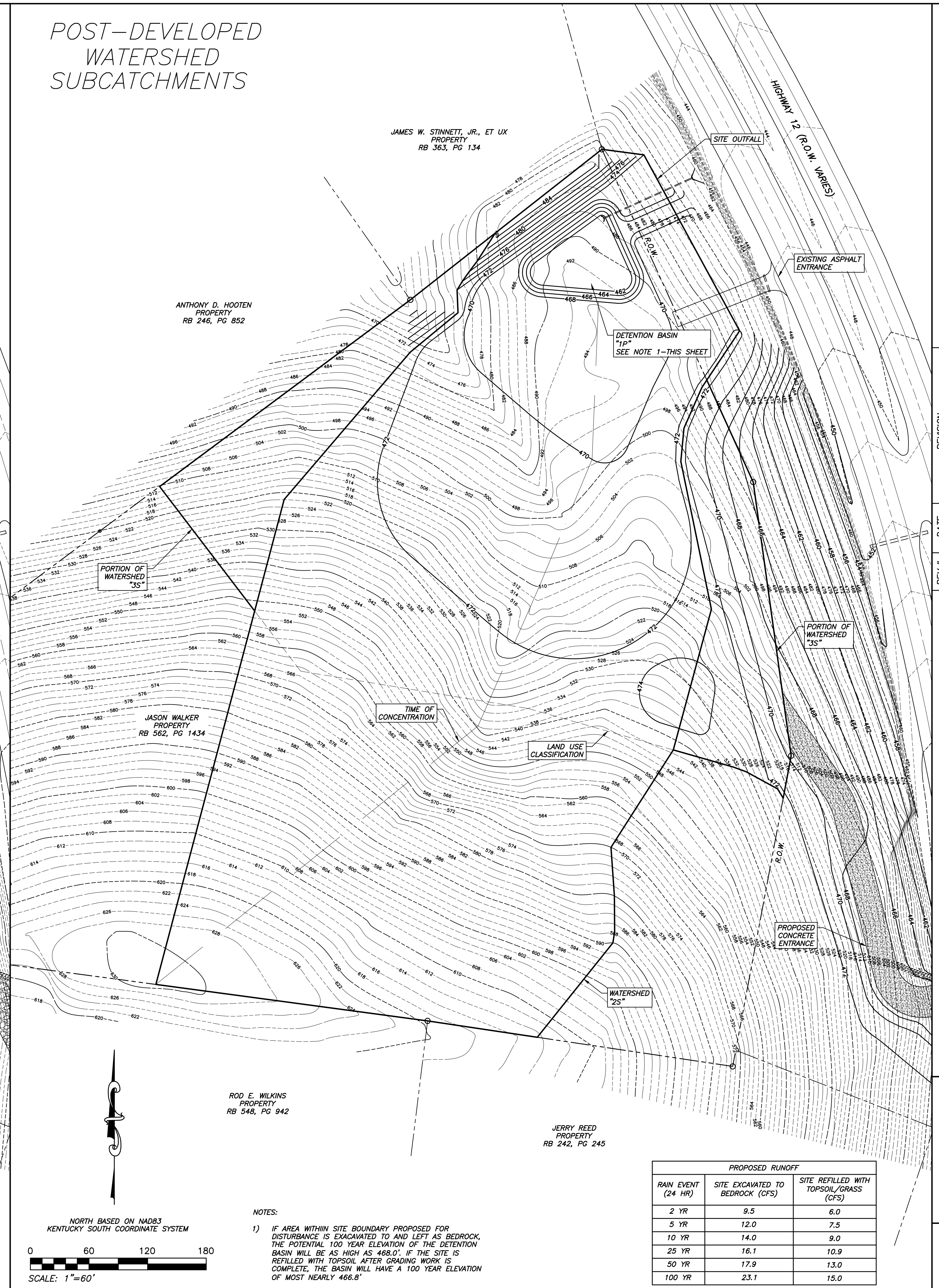
PRE-DEVELOPED
WATERSHED
SUBCATCHMENTS



EXISTING RUNOFF

RAIN EVENT (24 HR)	CFS
2 YR	11.6
5 YR	17.4
10 YR	22.2
25 YR	29.4
50 YR	35.4
100 YR	41.7

POST-DEVELOPED
WATERSHED
SUBCATCHMENTS



PROPOSED RUNOFF

RAIN EVENT (24 HR)	SITE EXCAVATED TO BEDROCK (CFS)	SITE REFILLED WITH TOPSOIL/GRASS (CFS)
2 YR	9.5	6.0
5 YR	12.0	7.5
10 YR	14.0	9.0
25 YR	16.1	10.9
50 YR	17.9	13.0
100 YR	23.1	15.0

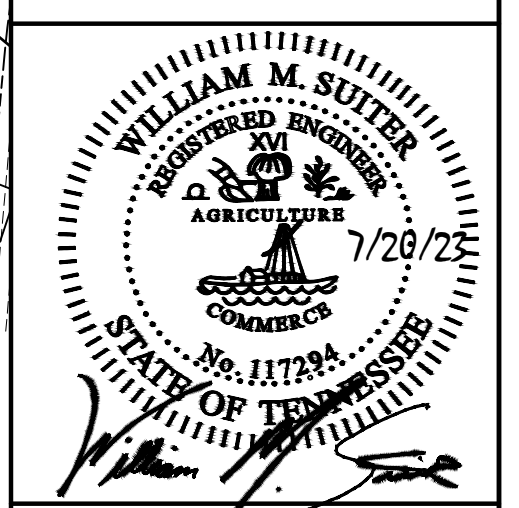
NOTES:
1) IF AREA WITHIN SITE BOUNDARY PROPOSED FOR DISTURBANCE IS EXCAVATED TO AND LEFT AS BEDROCK, THE POTENTIAL 100 YEAR ELEVATION OF THE DETENTION BASIN WILL BE AS HIGH AS 468.0'. IF THE SITE IS REFILLED WITH TOPSOIL AFTER GRADING WORK IS COMPLETE, THE BASIN WILL HAVE A 100 YEAR ELEVATION OF MOST NEARLY 466.8'

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Surveying
& Land Planning
CIVIL ENGINEERING & LAND SURVEYING

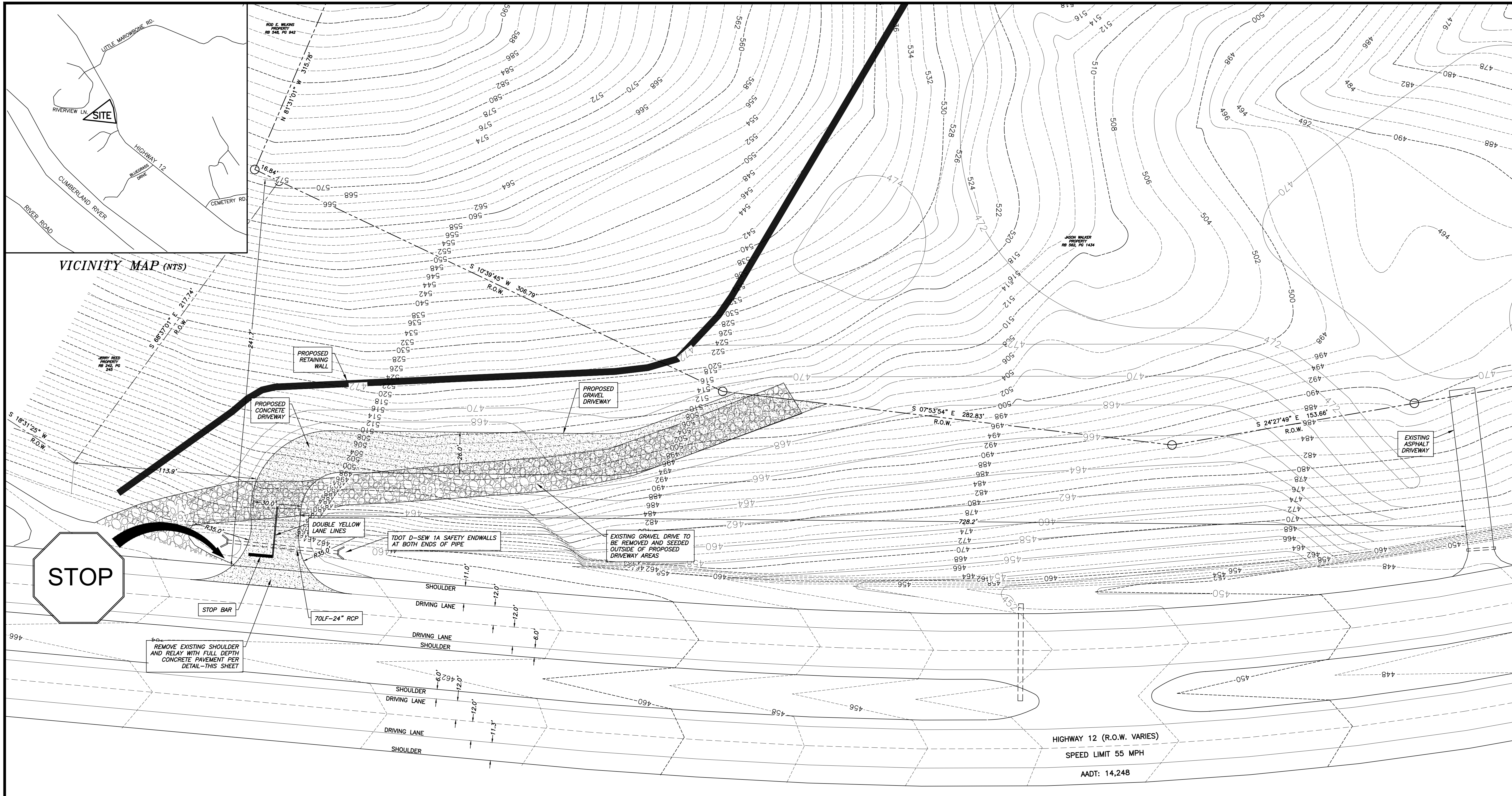
P.O. Box 30271
1805A Alpine Drive
Clarksville, TN, 37040
ph. # (931) 920-1750
Fax # (931) 920-8490

REV.#	DATE	REVISION
0	6/30/20	INITIAL SUBMITTAL
1	7/20/23	SITE REVISIONS

WALKER TRUCKING FACILITY
HIGHWAY 12
DRAINAGE AREAS
SCALE: 1" = 50'



C3.0

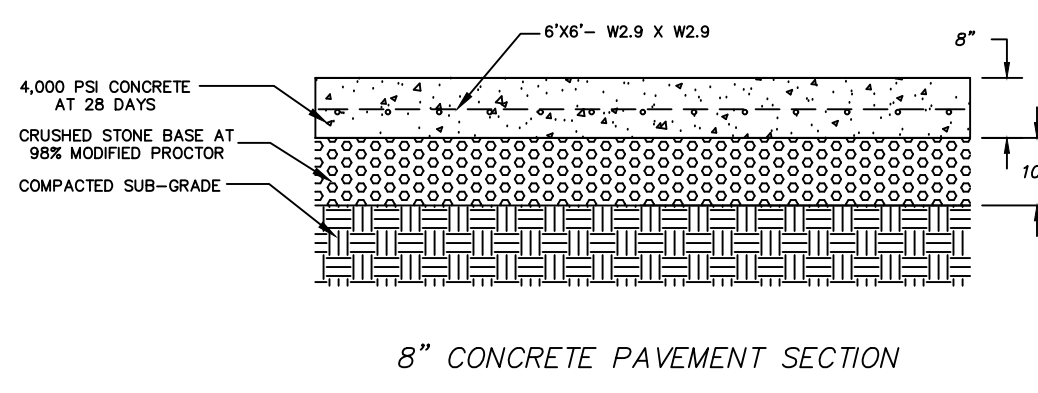


LEGEND

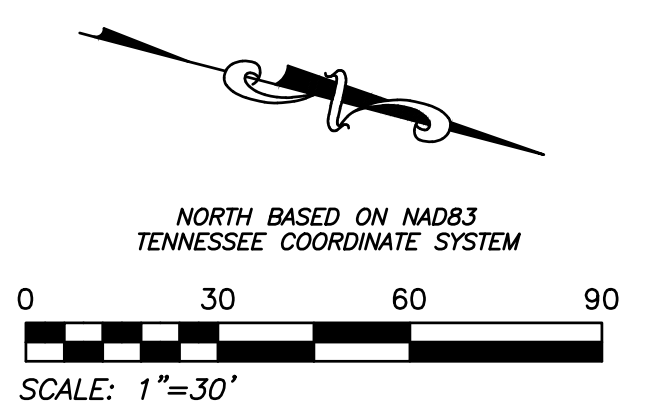
IP(O) = IRON PIN OLD FOUND
 IP(N) = 1/2" IRON PIN NEW SET CAP NO. 1837
 PP-POWEPOLE
 GA-GUY ANCHOR
 OUL-OVERHEAD UTILITY LINE
 LP-LIGHT POLE
 WV-WATER VALVE
 FH-FIRE HYDRANT
 MH-MANHOLE
 TE-TOP ELEVATION
 IE-INVERT ELEVATION
 CB-CATCH BASIN
 SPOT ELEVATION +96.17
 PP = POWER POLE
 WM = WATER METER
 GM = GAS METER
 AC = AIR CONDITIONER PAD
 FFE = FINISH FLOOR ELEVATION
 R.O.W. = RIGHT OF WAY
 M.B.S.L. = MINIMUM BUILDING SETBACK LINE
 P.U.D.E. = PUBLIC UTILITY AND DRAINAGE EASEMENT
 POINT OF CURVATURE: O
 CONCRETE MONUMENT: □
 EASEMENT LINE: - - - - -
 MINIMUM BUILDING SETBACK LINE: - - - - -
 CENTERLINE: - - - - -
 BOUNDARY LINE: - - - - -
 RIGHT-OF-WAY LINE: - - - - -

- NOTES:**
- 1) ALL DRIVEWAYS MEET TDOT INTERSECTION SIGHT DISTANCES STANDARDS.
 - 2) ALL STRIPING IN TDOT RIGHT OF WAY SHALL BE THERMOPLASTIC.
 - 3) 36" STOP SIGN TO BE PLACED AT THE DRIVEWAY CONNECTION TO THE STATE ROUTE.
 - 4) THERE WILL BE NO INCREASE IN THE QSO RUNOFF FROM THE DEVELOPMENT ONTO TDOT RIGHT OF WAY, BASED ON THE FACT THAT THE EXISTING SCS CURVE NUMBER FOR "FAIR WOODS" IN A C-TYPE SOIL LAYER IS MOST NEARLY 73, WHILE THE PROPOSED CURVE NUMBER FOR FINISHED GRASS COVER IN A C-TYPE SOIL WILL BE MOST NEARLY 74. MEASURABLE DIFFERENCES BETWEEN THE TWO SURFACES SHOULD PROVE TO BE NEGLIGIBLE.

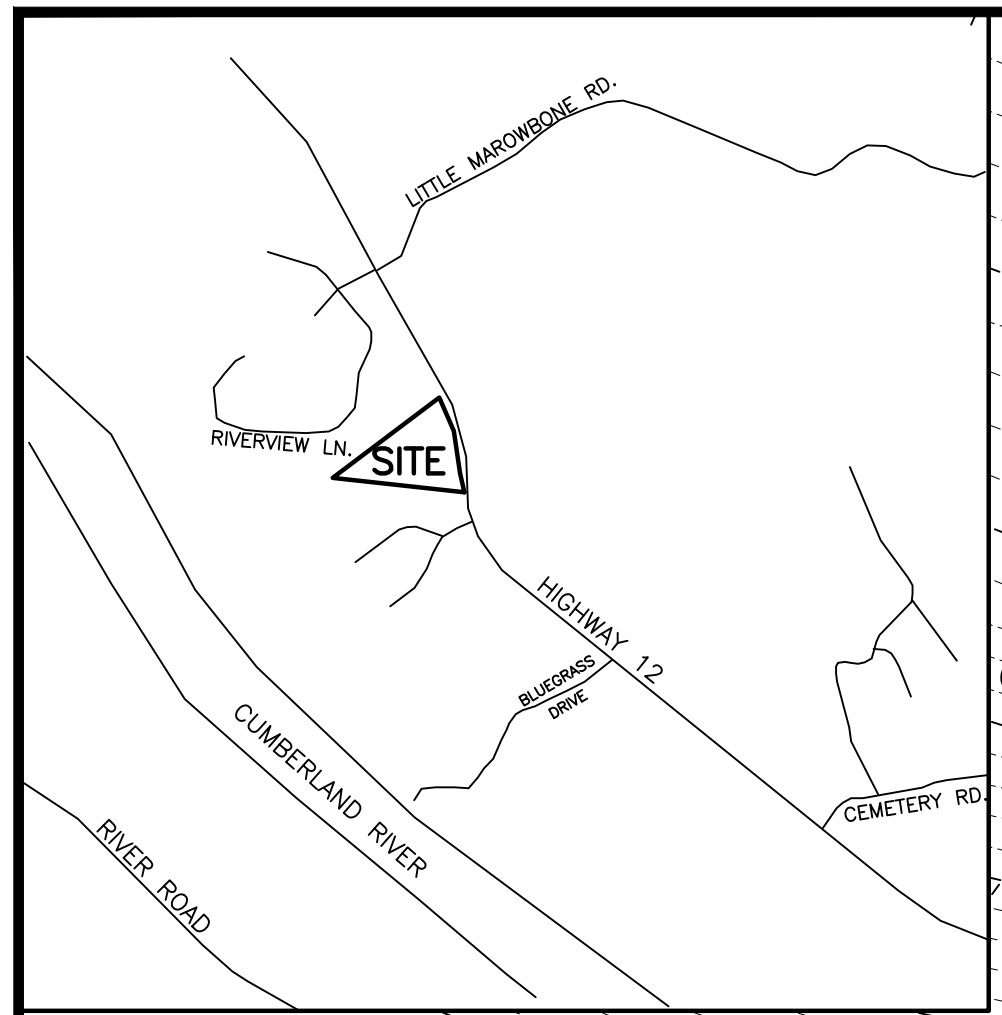
THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. UNDERGROUND UTILITIES SHOWN, WERE TAKEN FROM VISIBLE FEATURES AT THE SITE, PUBLIC RECORDS, AND/OR MAPS PREPARED BY OTHERS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED THEREFORE RELIANCE UPON THE LOCATION OF UTILITIES SHOWN SHOULD BE DONE SO WITH THIS CIRCUMSTANCE CONSIDERED. DETAILED VERIFICATION OF EXISTANCE, LOCATION AND DEPTH SHOULD ALSO BE MADE PRIOR TO ANY DECISION RELATIVE THERETO IS MADE AVAILABILITY AND COST OF SERVICE SHOULD BE CONFIRMED WITH THE APPROPRIATE UTILITY COMPANY.



HIGHWAY 12 (R.O.W. VARIES)
 SPEED LIMIT 55 MPH
 AADT: 14,248



VICINITY MAP (NTS)

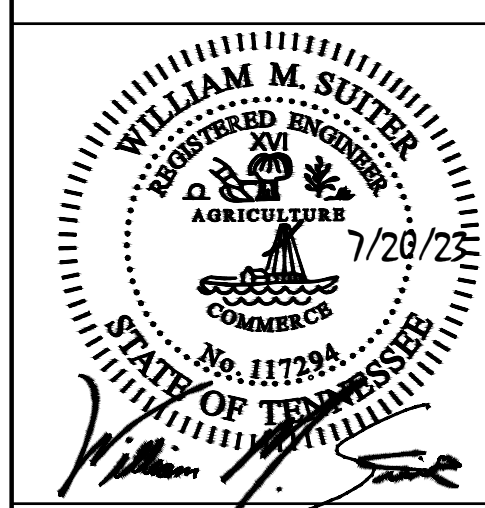


Suiter
Surveying
 & Land Planning
 CIVIL ENGINEERING & LAND SURVEYING

P.O. Box 30271
 1805A Alpine Drive
 Clarksville, TN, 37040
 ph. # (931) 920-1750
 fax # (931) 920-8490

REV.#	DATE	REVISION
0	6/30/20	INITIAL SUBMITTAL
1	7/20/23	SITE REVISIONS

WALKER TRUCKING FACILITY
HIGHWAY 12
TDOT ENTRANCE
SCALE: 1"=30'



C4.0

Suiter Surveying & Land Planning, Inc.

JASON WALKER – HIGHWAY 12

Hydrology Report

For: Jason Walker
July 20, 2023

Record Book 562, Page 1434
Site Area: 13.68 Ac. +/-

By: William M. Suiter, PE
1805A Alpine Drive
Clarksville, TN 37040
(931) 920-1750
TN Lic. 117294



The following data is a hydrologic model of the pre- vs. post-development conditions for a proposed residential-site grading plan on Highway 12 near Ashland City, TN. The site in its entirety consists of 13.68 acres (+/-) with only 7.7 acres being proposed for disturbance.

The amount of cut proposed for the site assumes that the developer will eventually hit bedrock. In order to bring the site to proposed finished grades and eventually re-establish vegetative cover (where desired), the contractor will most likely have to over-excavate the bedrock and refill with topsoil.

A detention basin has been proposed for the site that limits runoff rates to less-than pre-developed conditions for both the construction phase (bedrock, impervious) and topsoil/grass, or a mixture of the two.

A chart denoting expected runoff rates for either end of the spectrum is shown below and compared to pre-developed runoff rates for the site:

Rain Event (24 Hr)	Existing Runoff (CFS)	Proposed Runoff	
		Site Excavated to Bedrock (CFS)	Site Refilled with Topsoil/Grass (CFS)
2 yr	11.6	9.5	6.0
5 yr	17.4	12.0	7.5
10 yr	22.2	14.0	9.0
25 yr	29.4	16.1	10.9
50 yr	35.4	17.9	13.0
100 yr	41.7	23.1	15.0

Soils in this area generally fall into the "C" type hydrologic group, and this classification was assumed throughout the model to follow. Although the model itself analyses all 6 of the return events listed above, only the 2 year and 100-year events were attached (especially noting that there are two proposed cases of final conditions). However, additional detail is certainly available if requested.

Jason Walker - Highway 12 (Existing Condition)

Pre-Developed



Pre-Developed
Watershed



Routing Diagram for Jason Walker - Highway 12 (Construction Phase)
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Jason Walker - Highway 12 (Construction Phase)

Prepared by {enter your company name here}
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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
8.888	73	Woods, Fair, HSG C (1S)
8.888	73	TOTAL AREA

Jason Walker - Highway 12 (Construction Phase)

Prepared by {enter your company name here}

Printed 7/20/2023

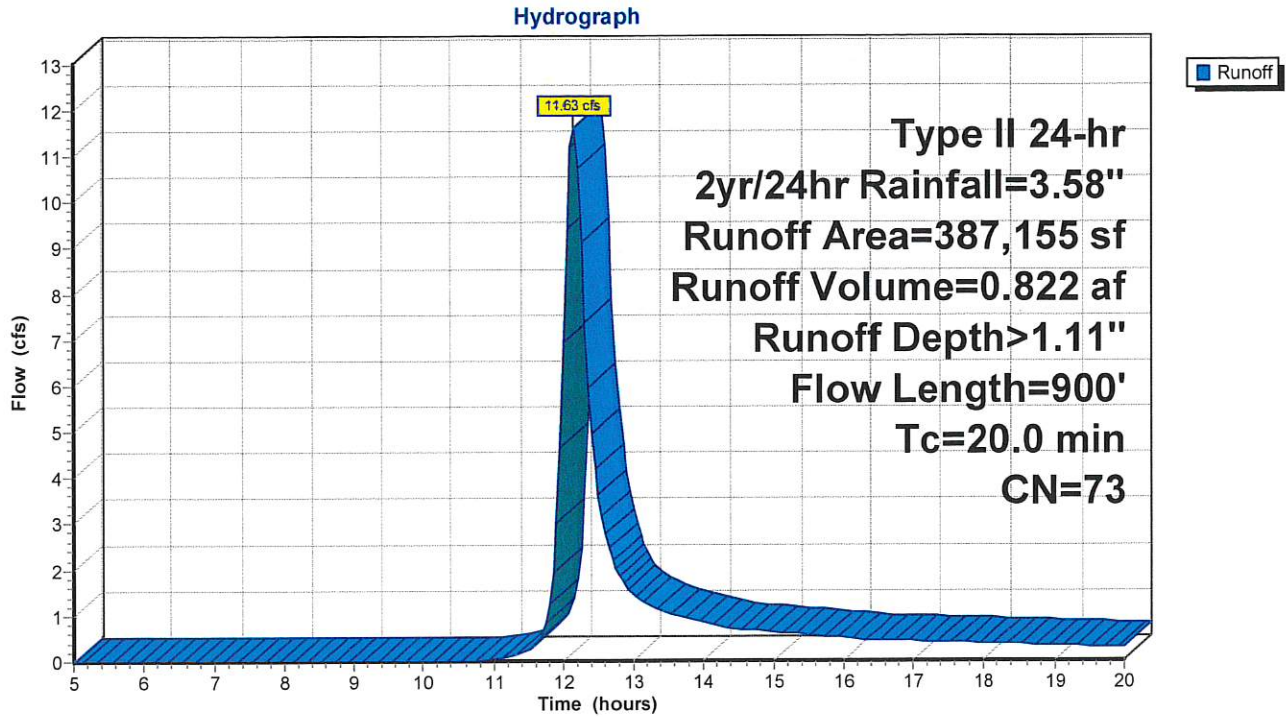
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Page 3

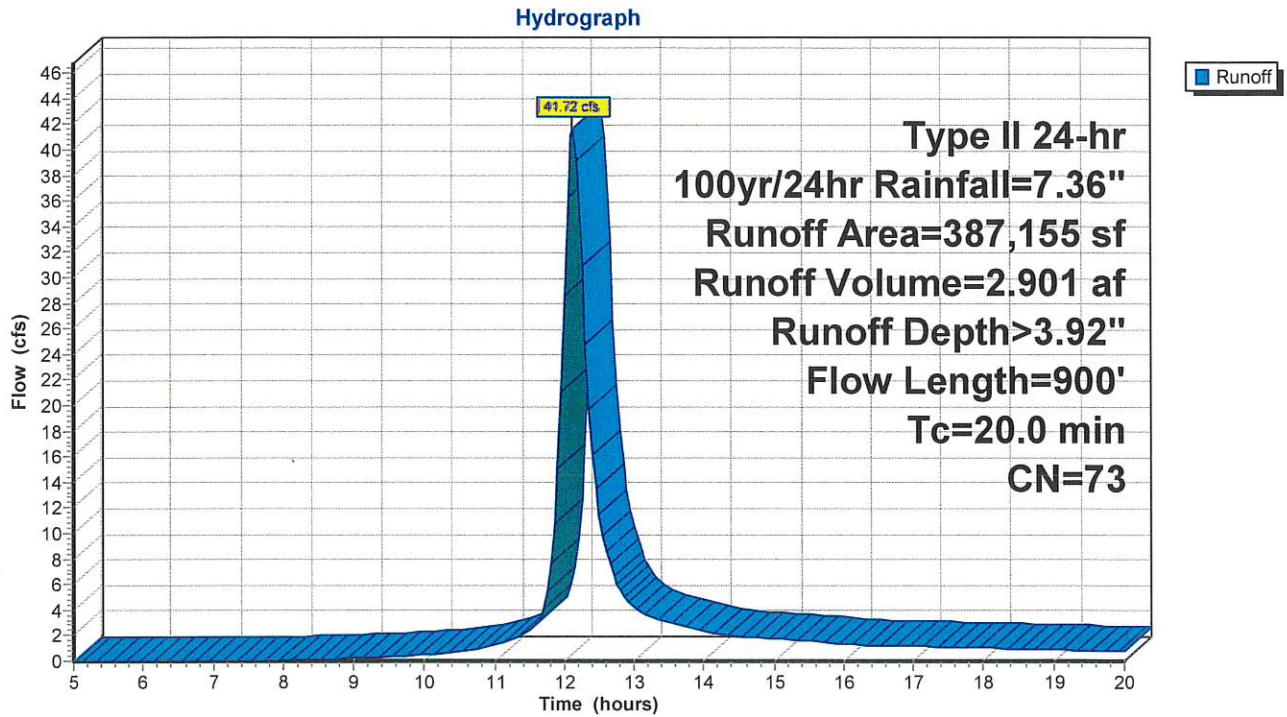
Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
8.888	HSG C	1S
0.000	HSG D	
0.000	Other	
8.888		TOTAL AREA

Subcatchment 1S: Pre-Developed Watershed

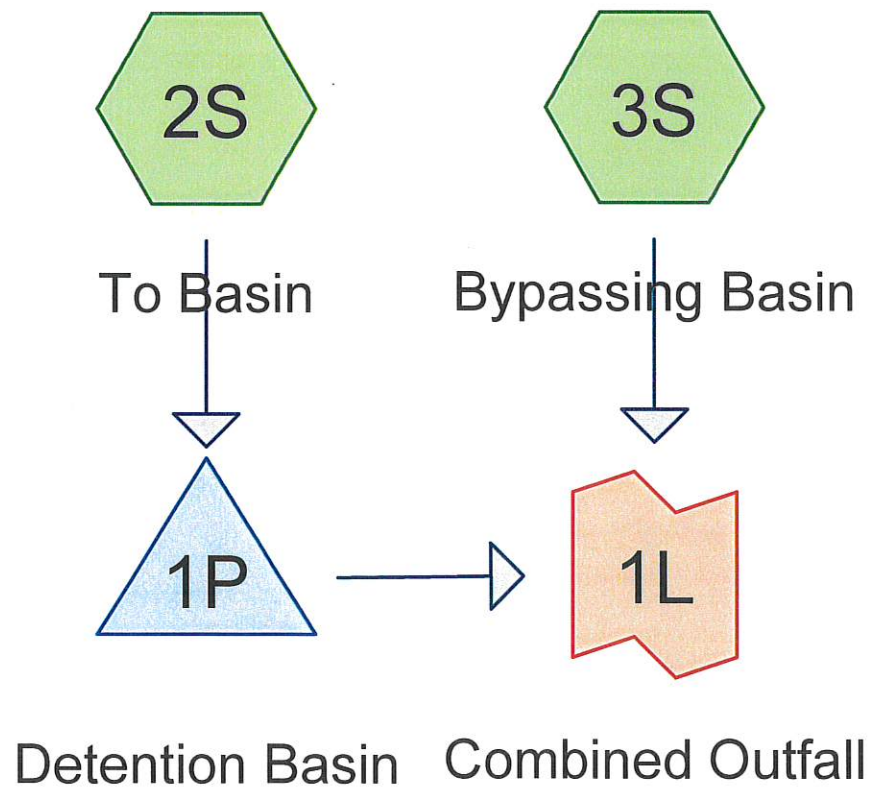


Subcatchment 1S: Pre-Developed Watershed



Jason Walker - Highway 12 (Bedrock)

Construction Phase



Routing Diagram for Jason Walker - Highway 12 (Construction Phase)

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Jason Walker - Highway 12 (Construction Phase)

Prepared by {enter your company name here}

Printed 7/20/2023

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Page 2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
5.579	98	Bedrock (2S, 3S)
3.303	73	Woods, Fair, HSG C (2S)
8.882	89	TOTAL AREA

Jason Walker - Highway 12 (Construction Phase)

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Page 3

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
3.303	HSG C	2S
0.000	HSG D	
5.579	Other	2S, 3S
8.882		TOTAL AREA

Jason Walker - Highway 12 (Construction Phase)

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Printed 7/20/2023

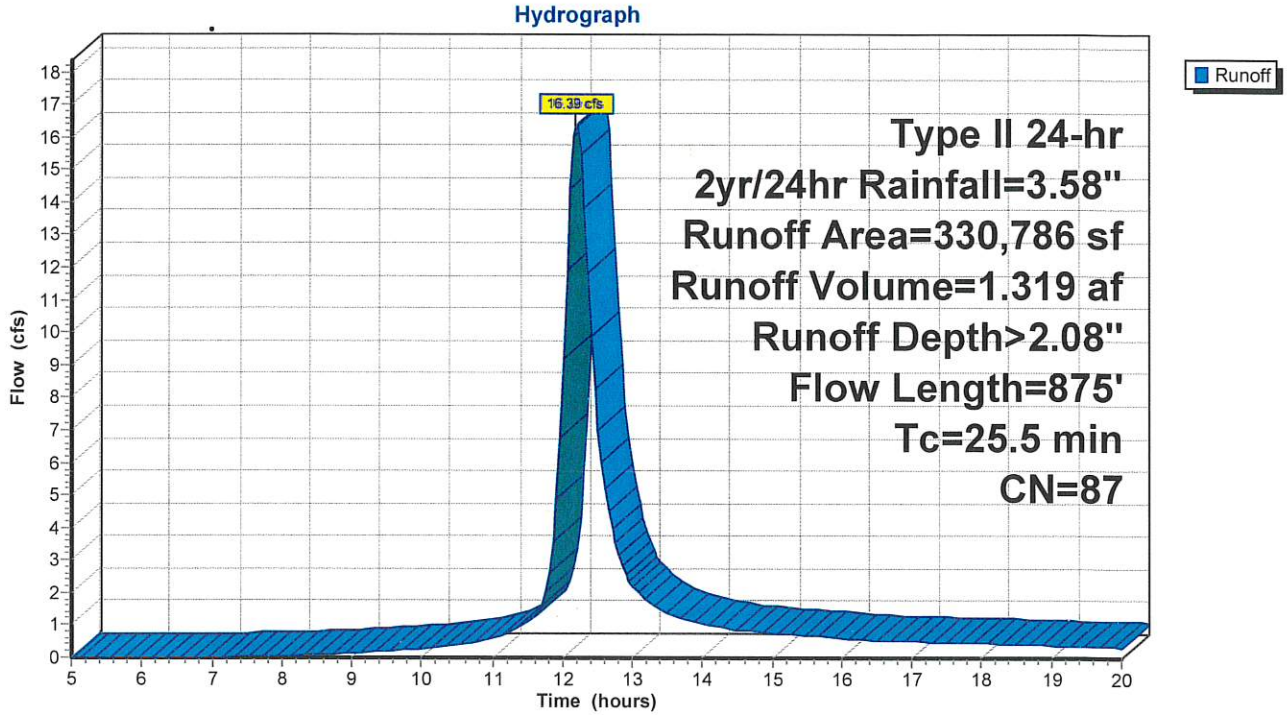
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Page 4

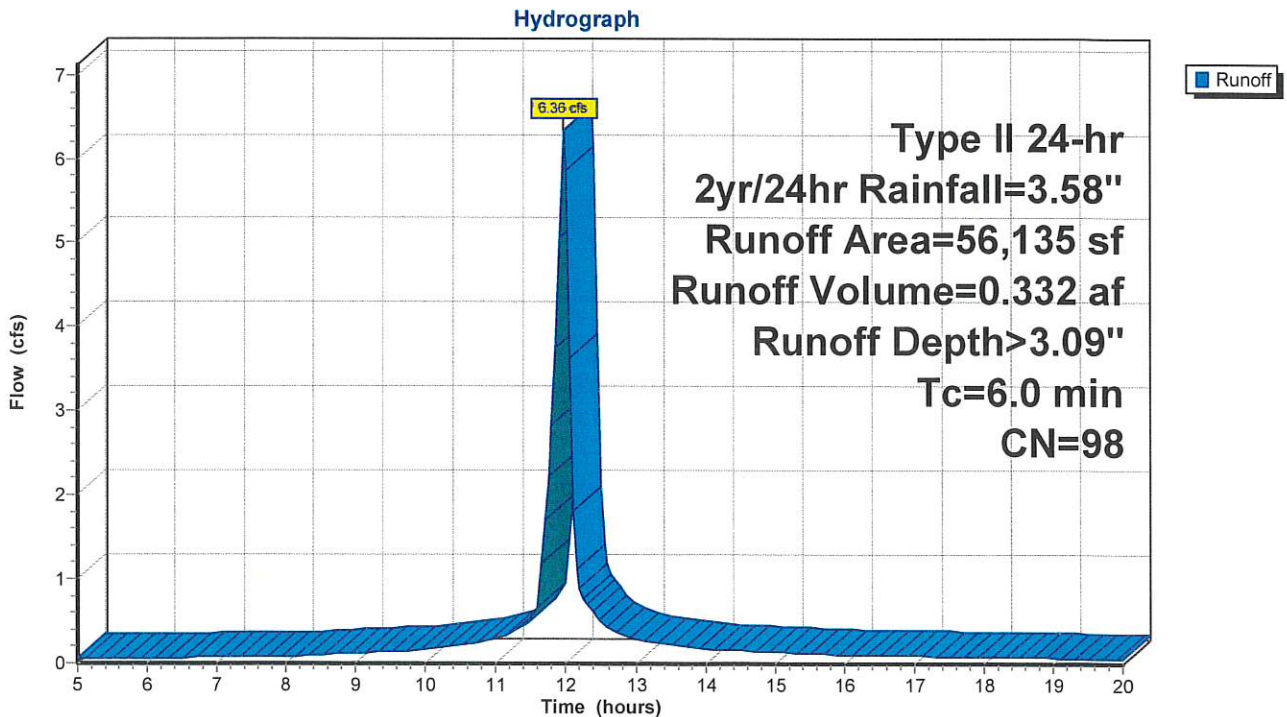
Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	1P	461.00	460.50	100.0	0.0050	0.021	18.0	0.0	0.0

Subcatchment 2S: To Basin

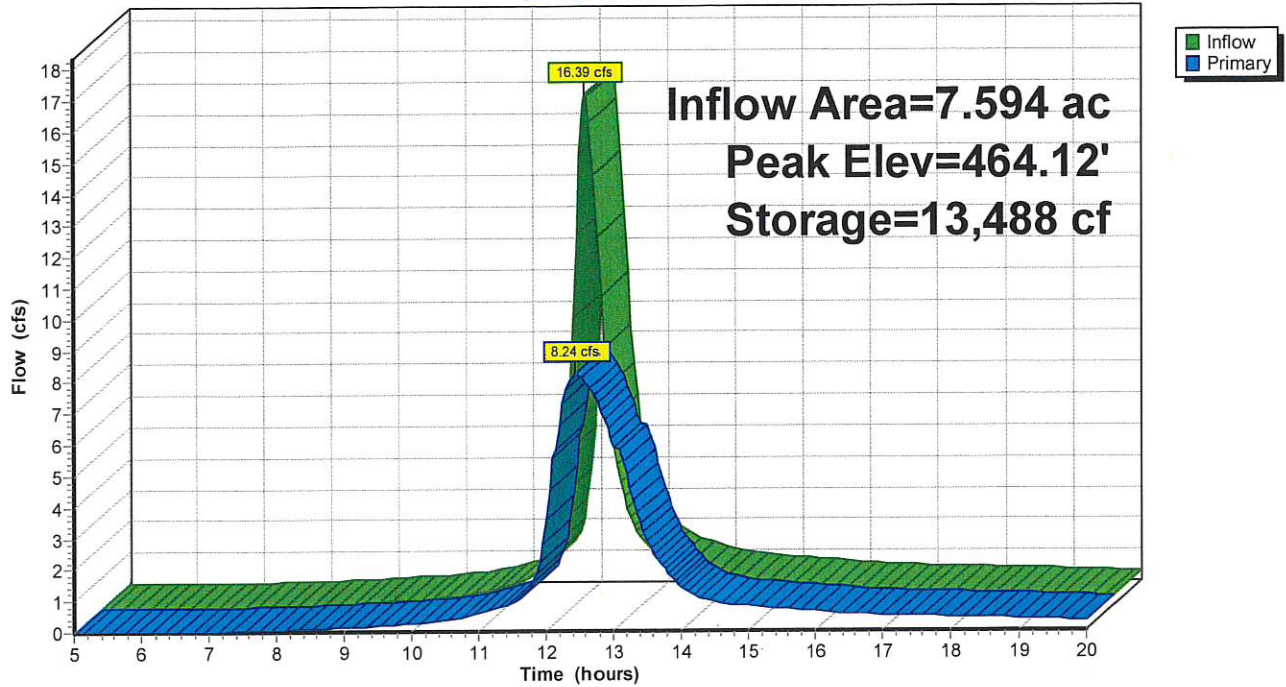


Subcatchment 3S: Bypassing Basin



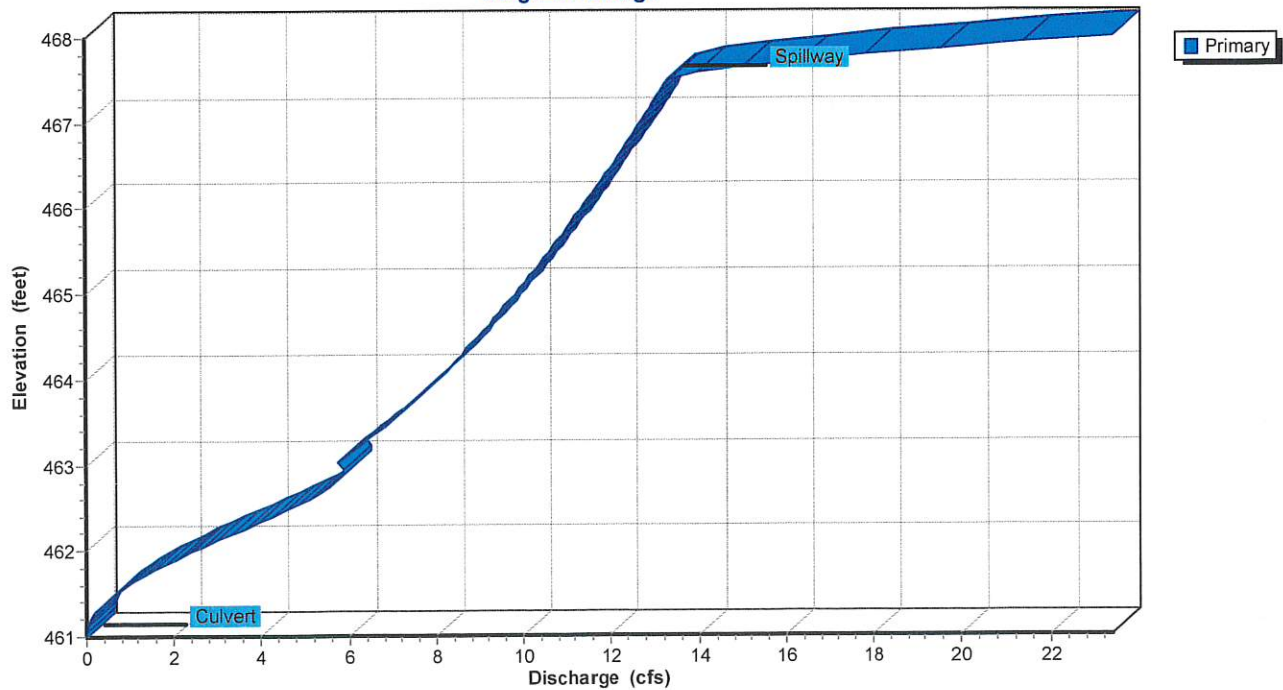
Pond 1P: Detention Basin

Hydrograph



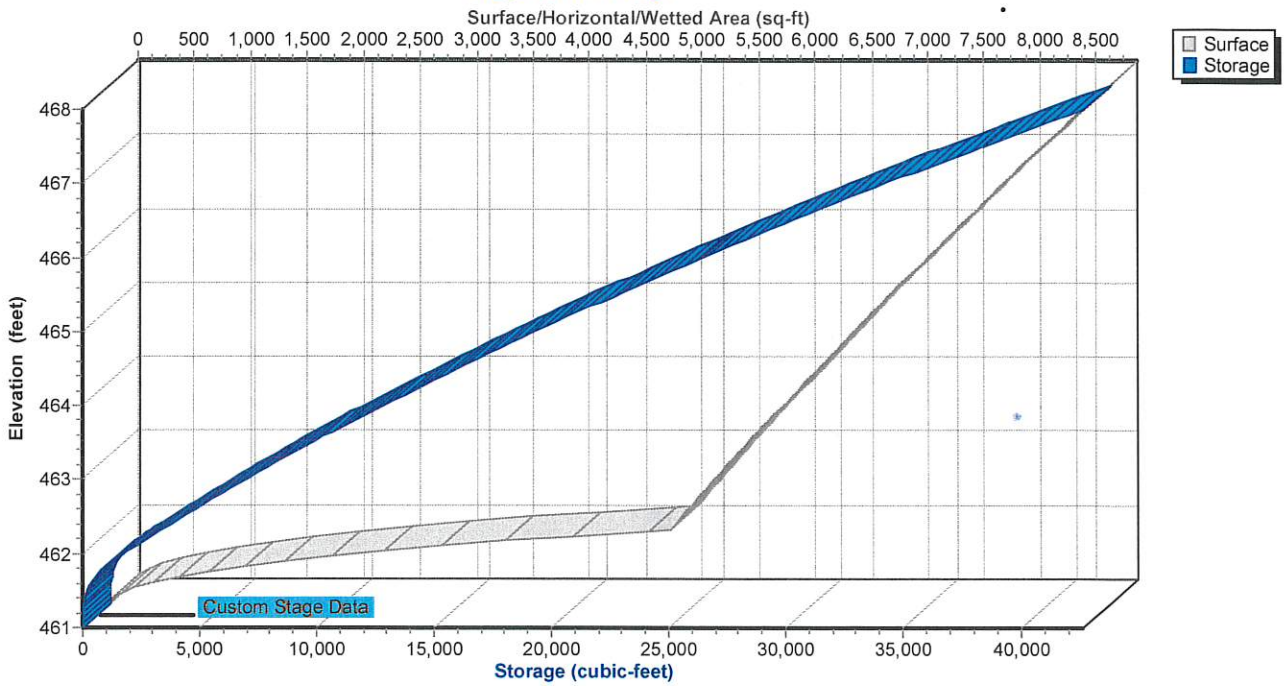
Pond 1P: Detention Basin

Stage-Discharge



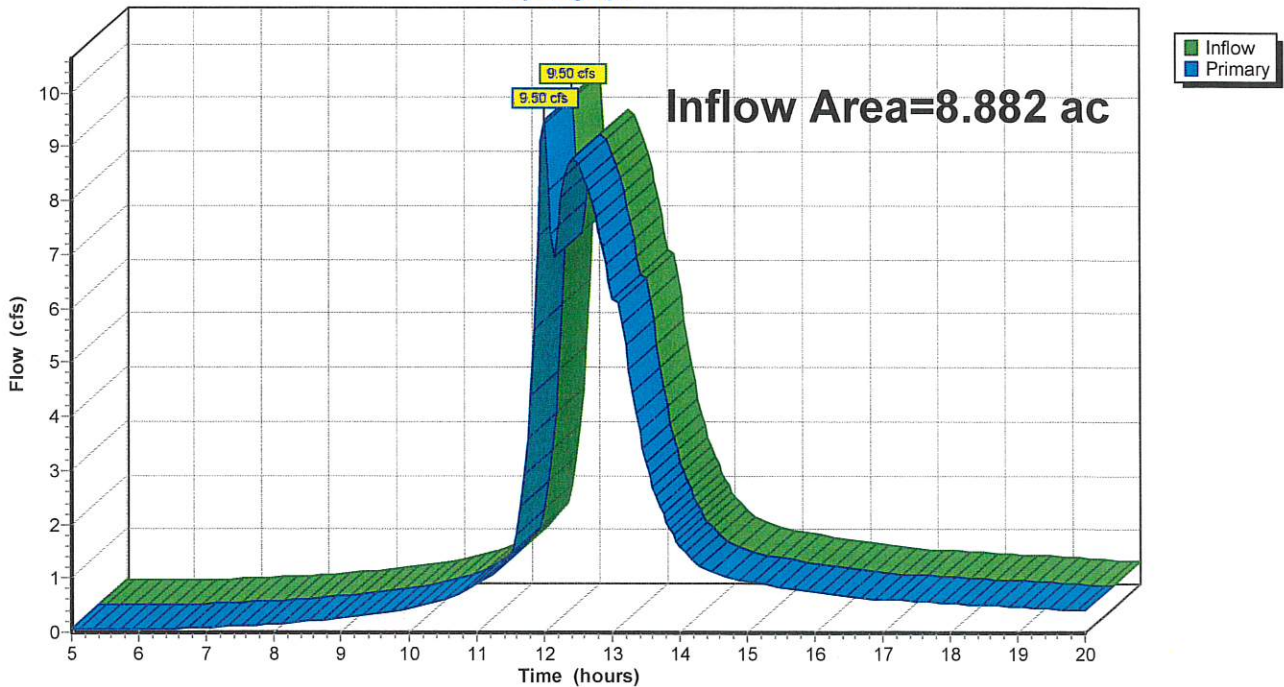
Pond 1P: Detention Basin

Stage-Area-Storage



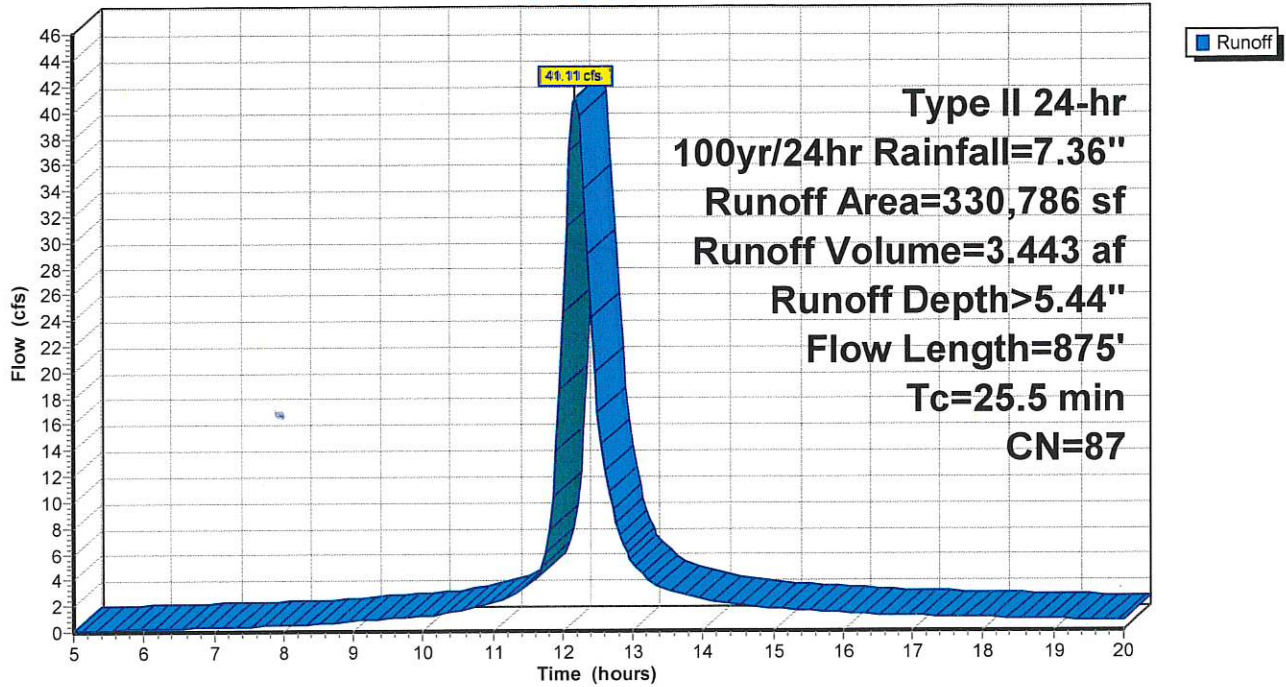
Link 1L: Combined Outfall

Hydrograph



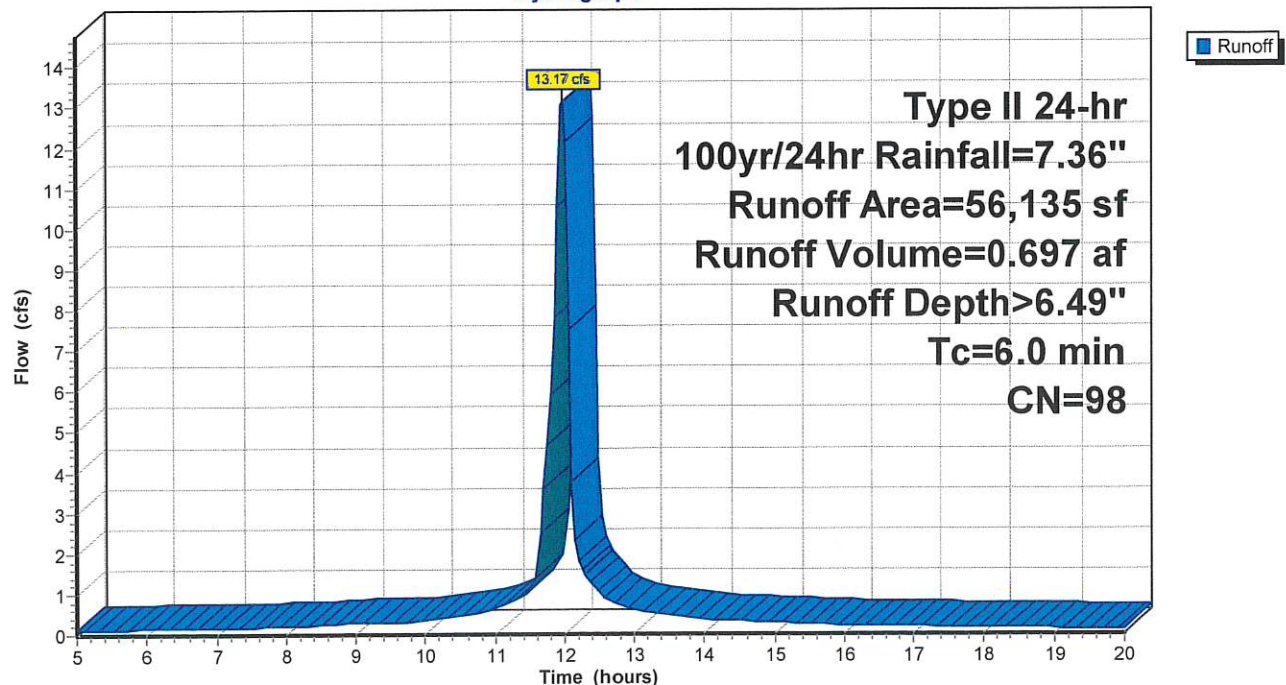
Subcatchment 2S: To Basin

Hydrograph



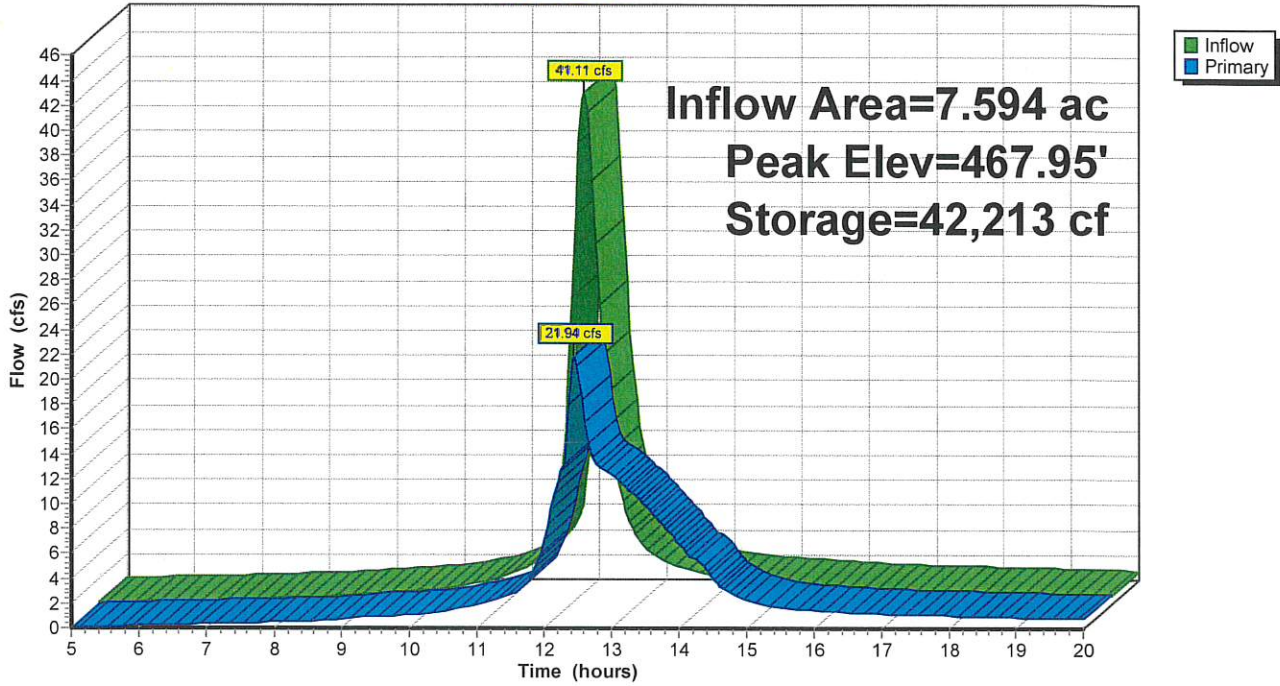
Subcatchment 3S: Bypassing Basin

Hydrograph



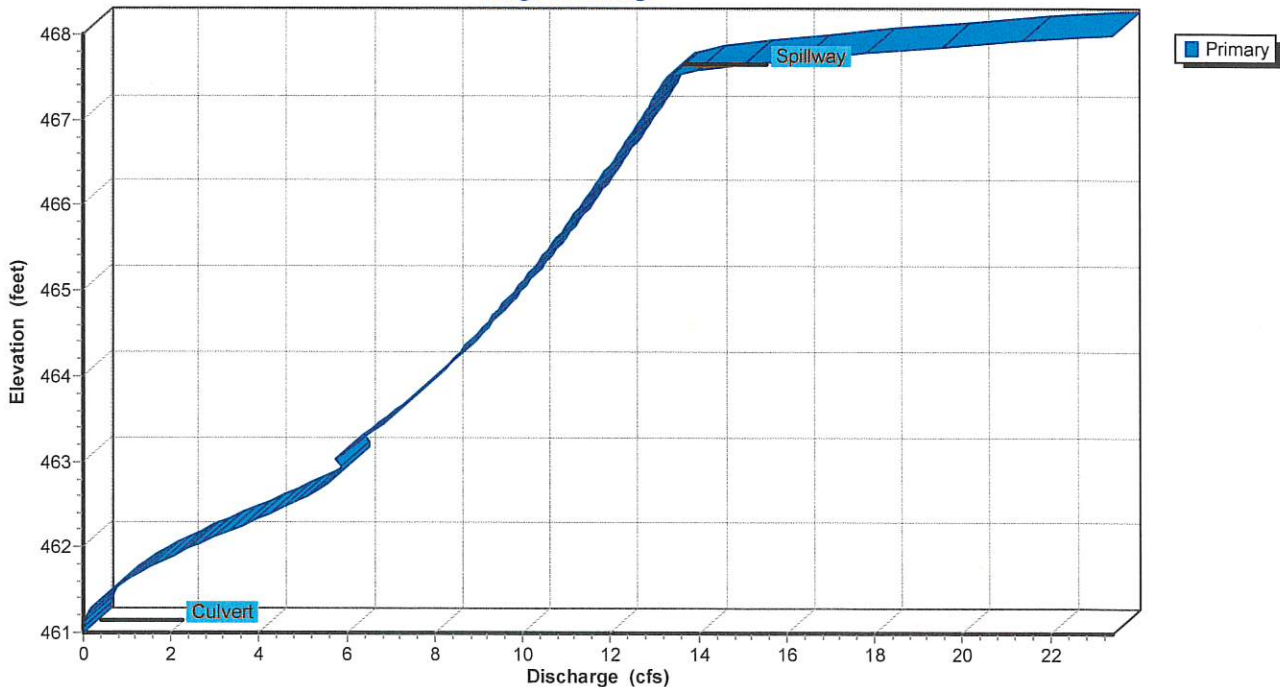
Pond 1P: Detention Basin

Hydrograph



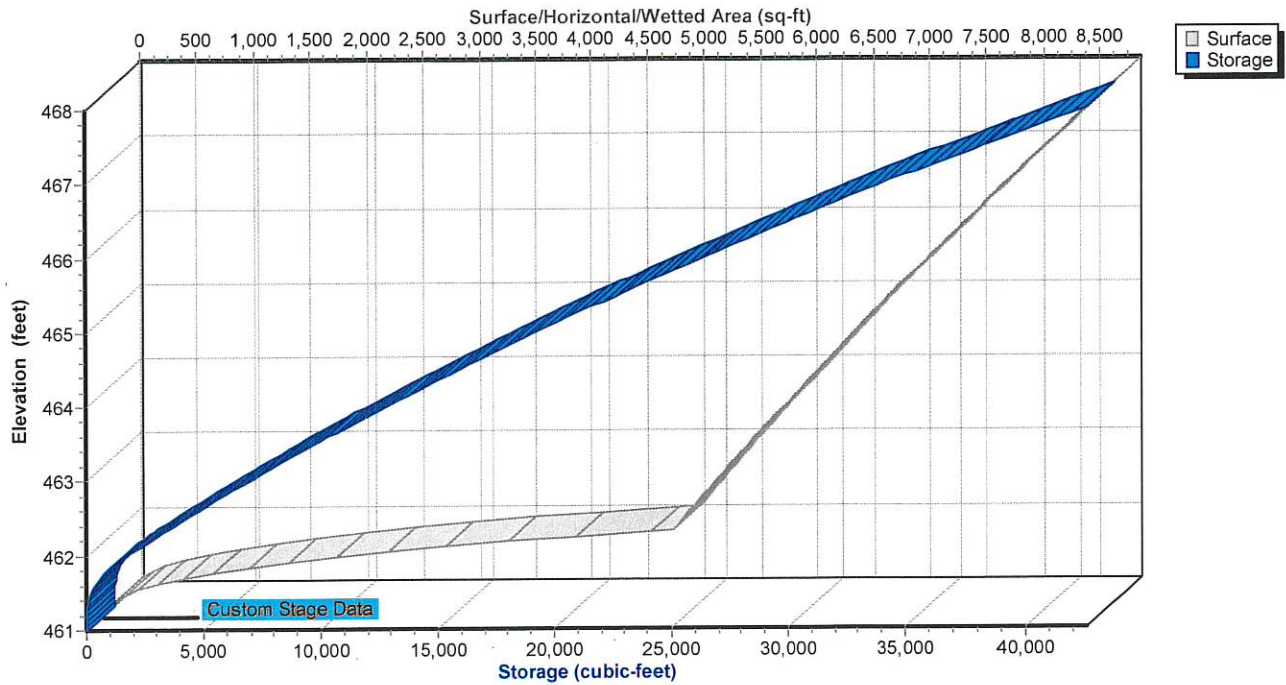
Pond 1P: Detention Basin

Stage-Discharge



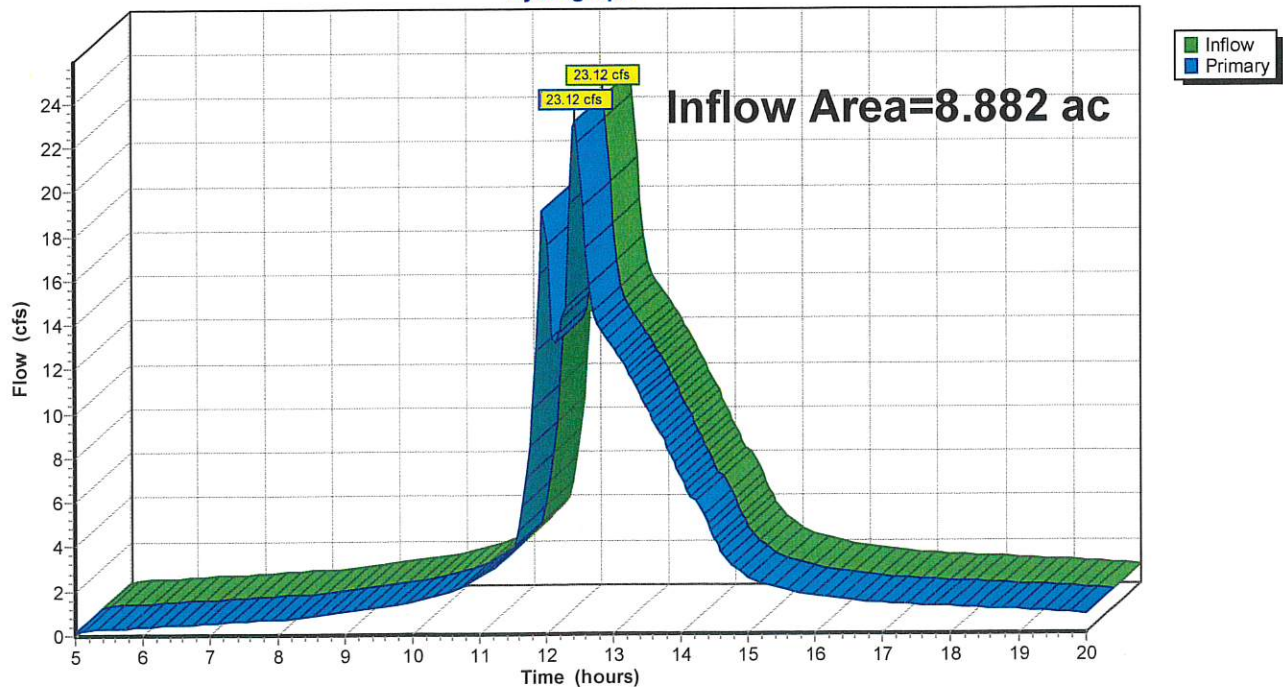
Pond 1P: Detention Basin

Stage-Area-Storage



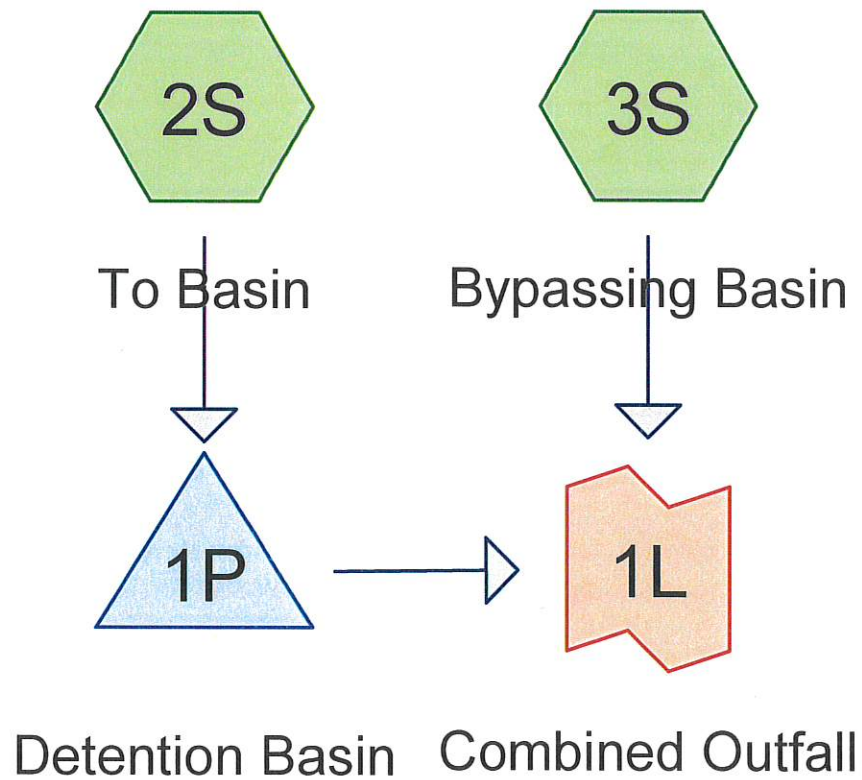
Link 1L: Combined Outfall

Hydrograph



Jason Walker - Highway 12 (Topsoil/Grass Refill)

Post-Developed



Routing Diagram for Jason Walker - Highway 12
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Jason Walker - Highway 12

Prepared by {enter your company name here}

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Page 2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
5.579	74	>75% Grass cover, Good, HSG C (2S, 3S)
3.303	73	Woods, Fair, HSG C (2S)
8.882	74	TOTAL AREA

Jason Walker - Highway 12

Prepared by {enter your company name here}

Printed 7/20/2023

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Page 3

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
8.882	HSG C	2S, 3S
0.000	HSG D	
0.000	Other	
8.882		TOTAL AREA

Jason Walker - Highway 12

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Page 4

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	1P	461.00	460.50	100.0	0.0050	0.021	18.0	0.0	0.0

Jason Walker - Highway 12

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Walker - Highway 12

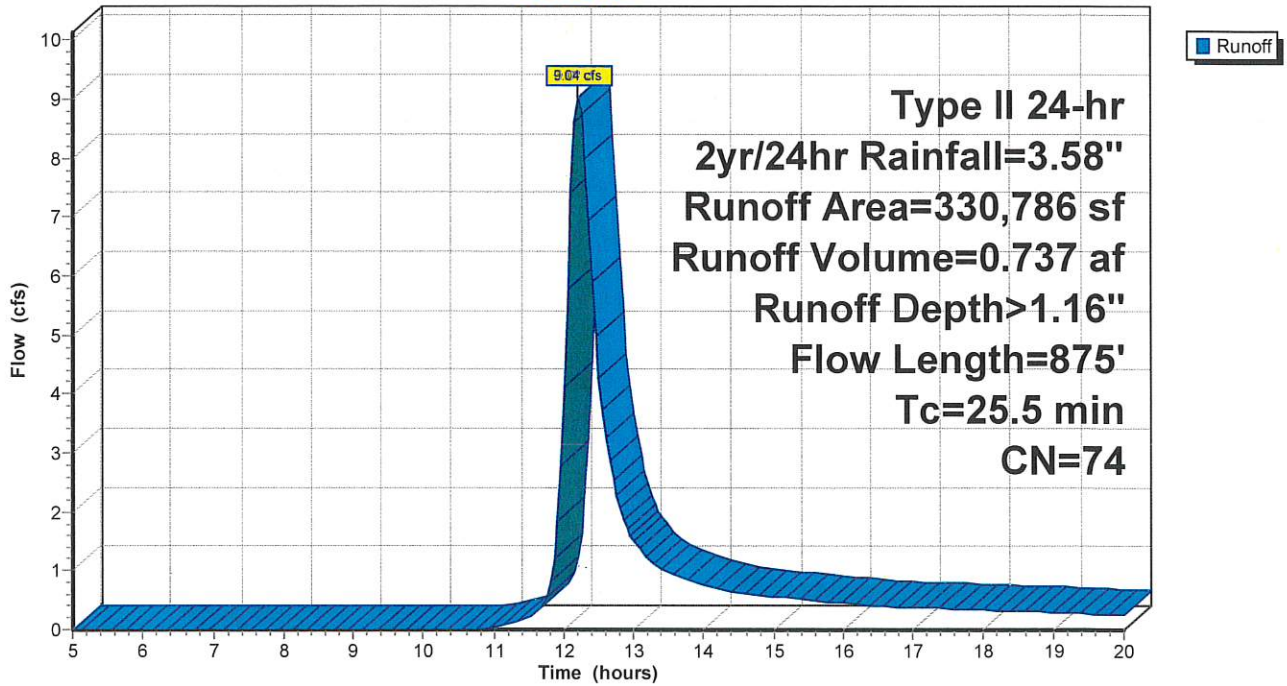
Type II 24-hr 2yr/24hr Rainfall=3.58"

Printed 7/20/2023

Page 5

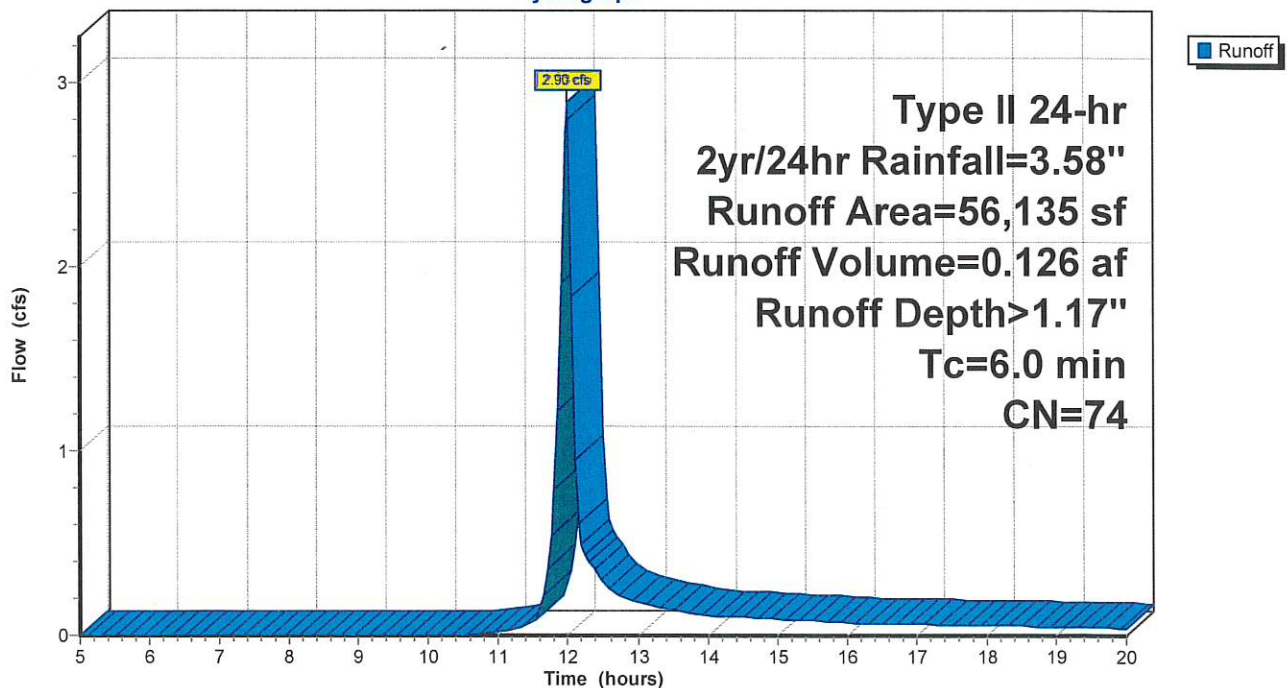
Subcatchment 2S: To Basin

Hydrograph



Subcatchment 3S: Bypassing Basin

Hydrograph



Jason Walker - Highway 12

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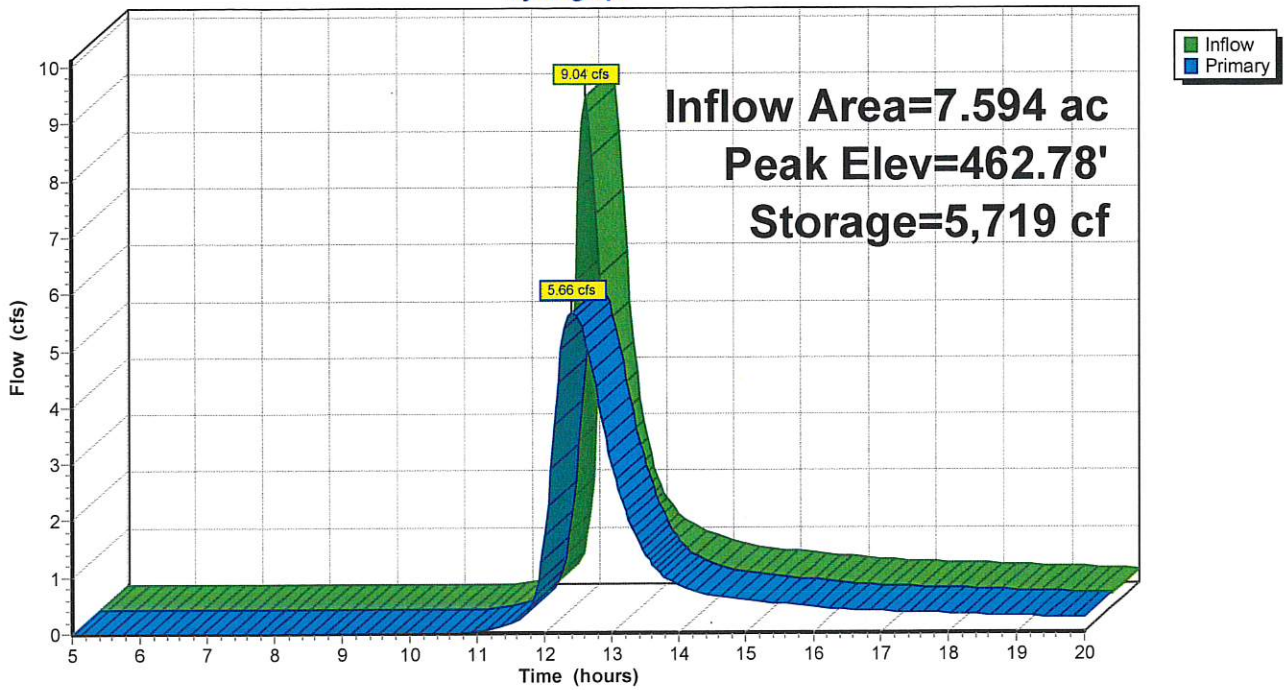
Walker - Highway 12
Type II 24-hr 2yr/24hr Rainfall=3.58"

Printed 7/20/2023

Page 6

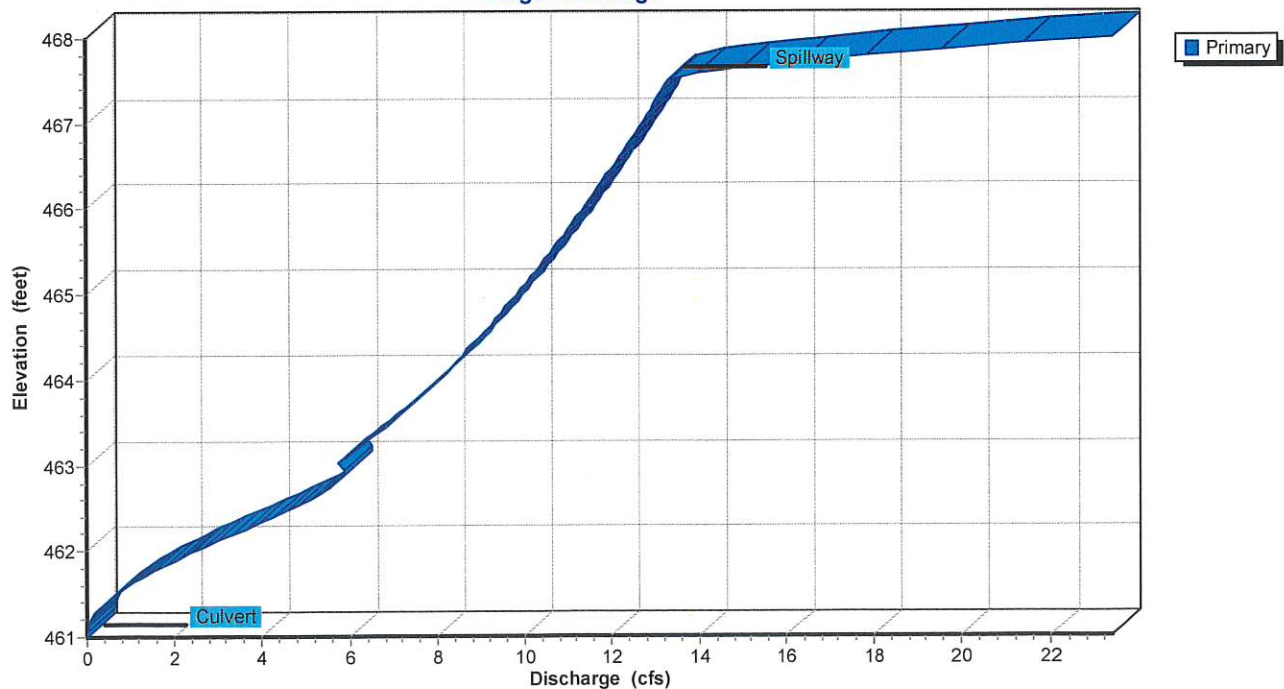
Pond 1P: Detention Basin

Hydrograph



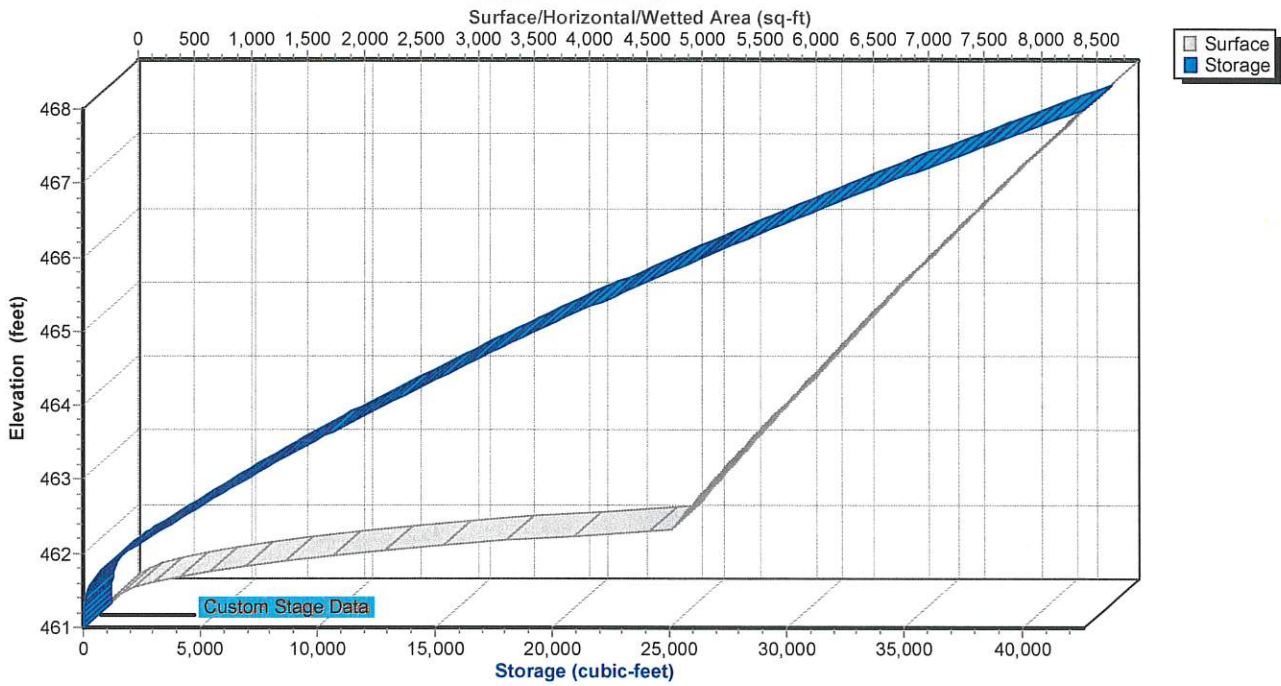
Pond 1P: Detention Basin

Stage-Discharge



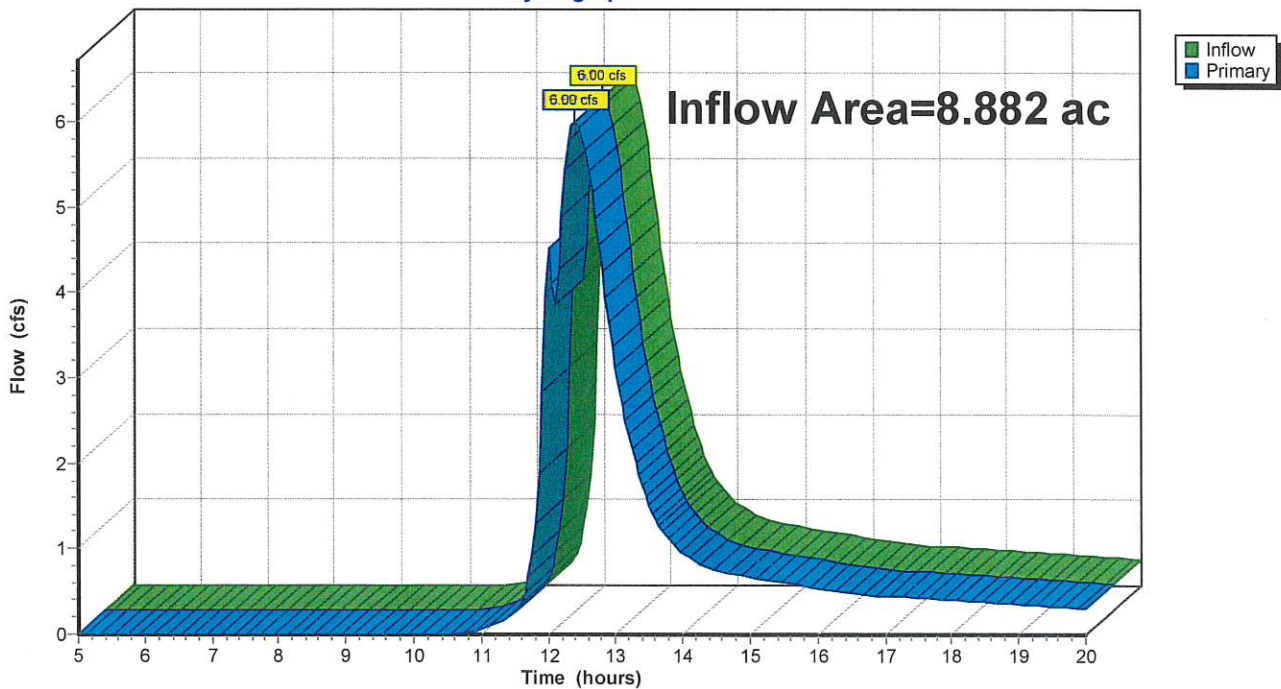
Pond 1P: Detention Basin

Stage-Area-Storage



Link 1L: Combined Outfall

Hydrograph



Jason Walker - Highway 12

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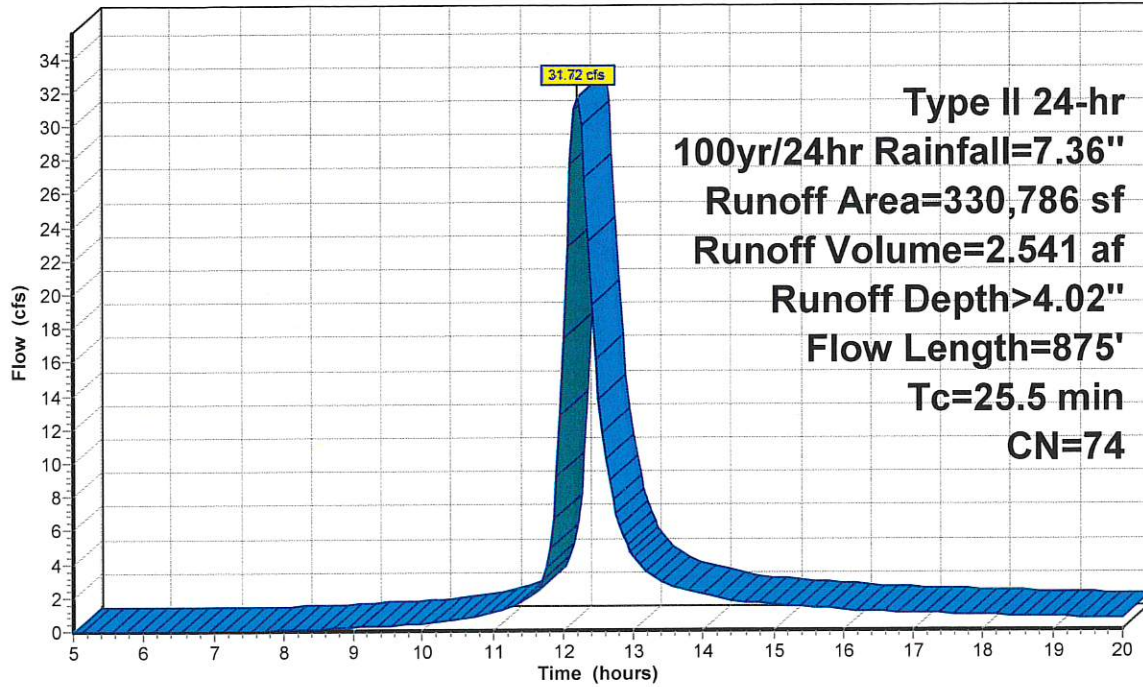
Walker - Highway 12
Type II 24-hr 100yr/24hr Rainfall=7.36"

Printed 7/20/2023

Page 8

Subcatchment 2S: To Basin

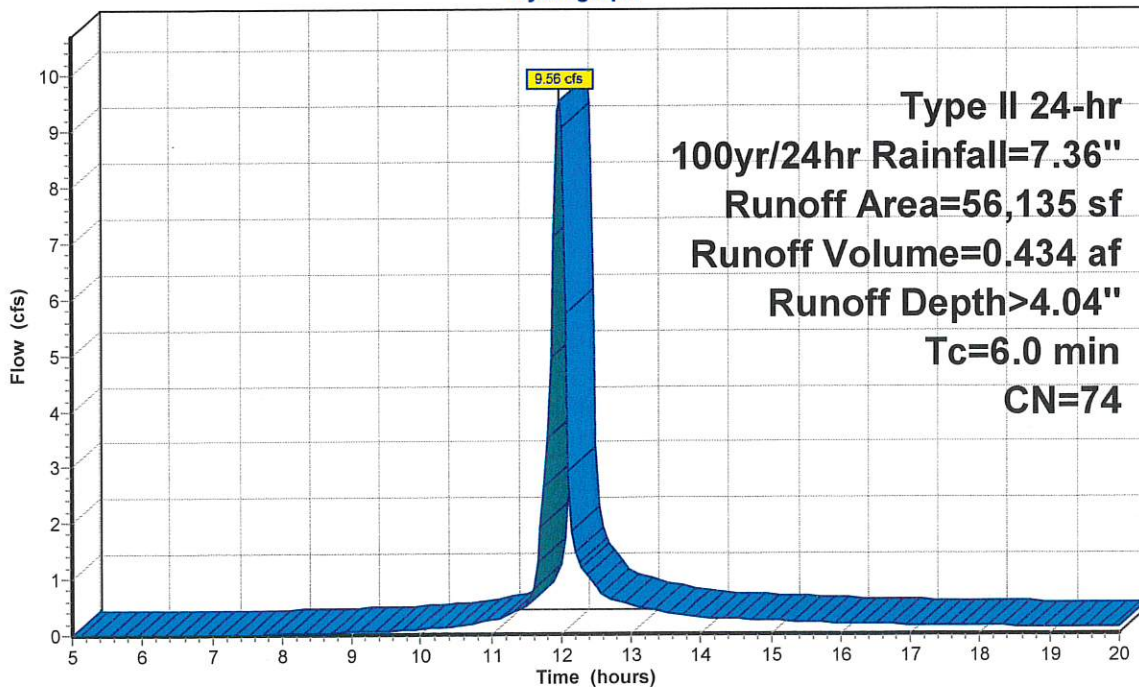
Hydrograph



Runoff

Subcatchment 3S: Bypassing Basin

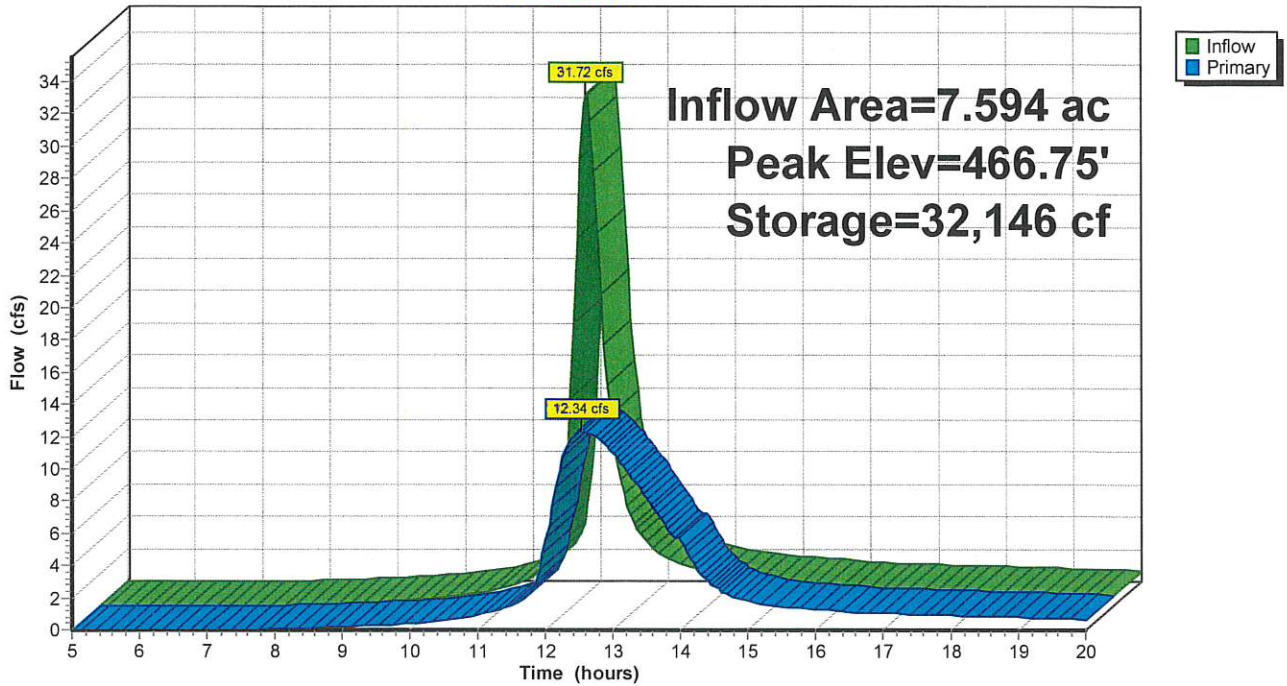
Hydrograph



Runoff

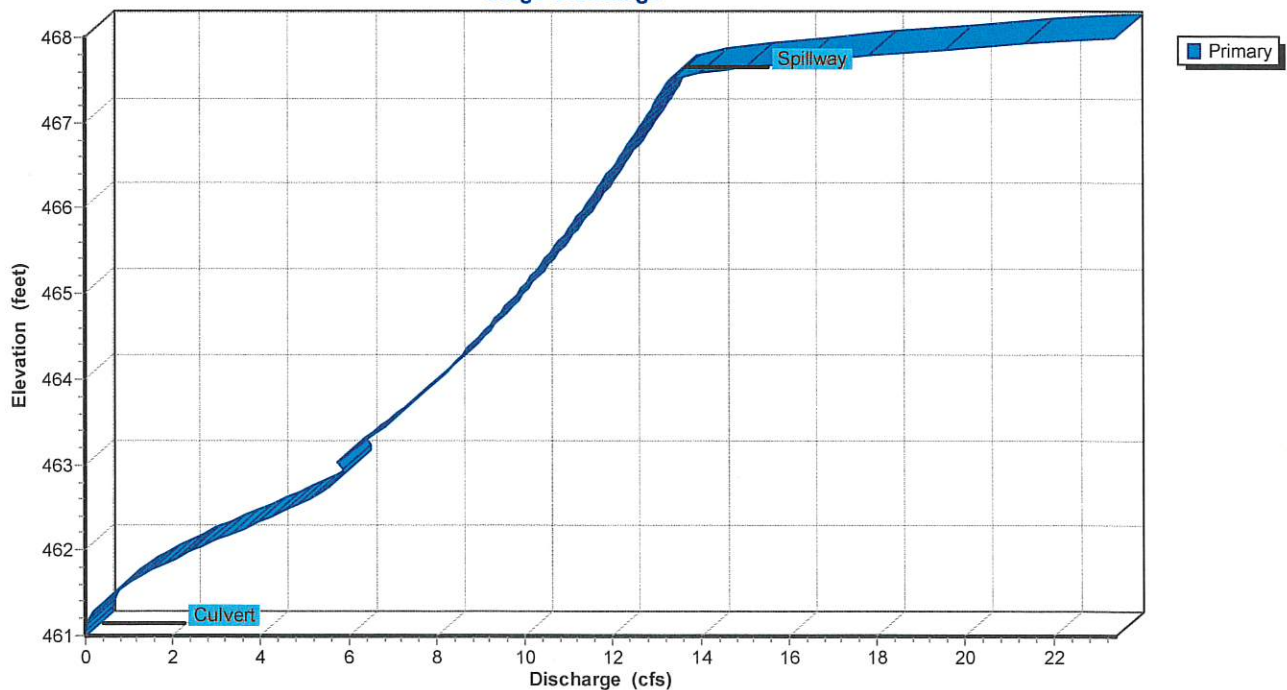
Pond 1P: Detention Basin

Hydrograph

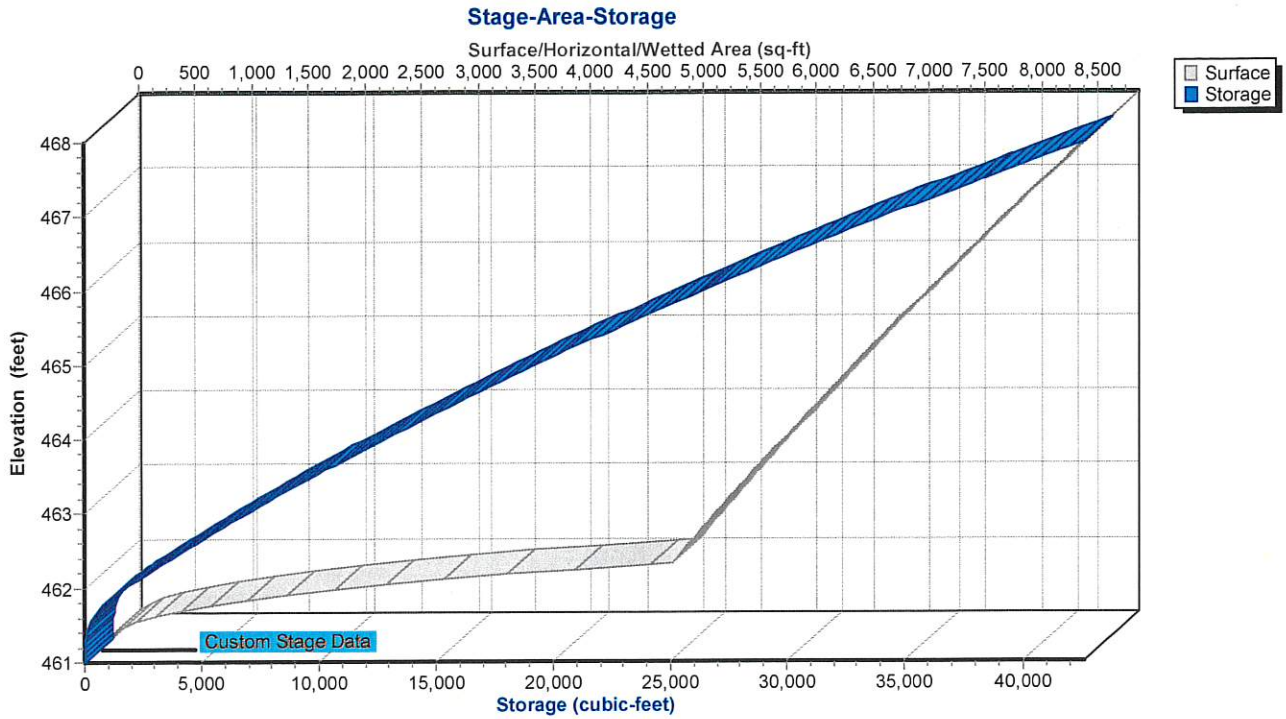


Pond 1P: Detention Basin

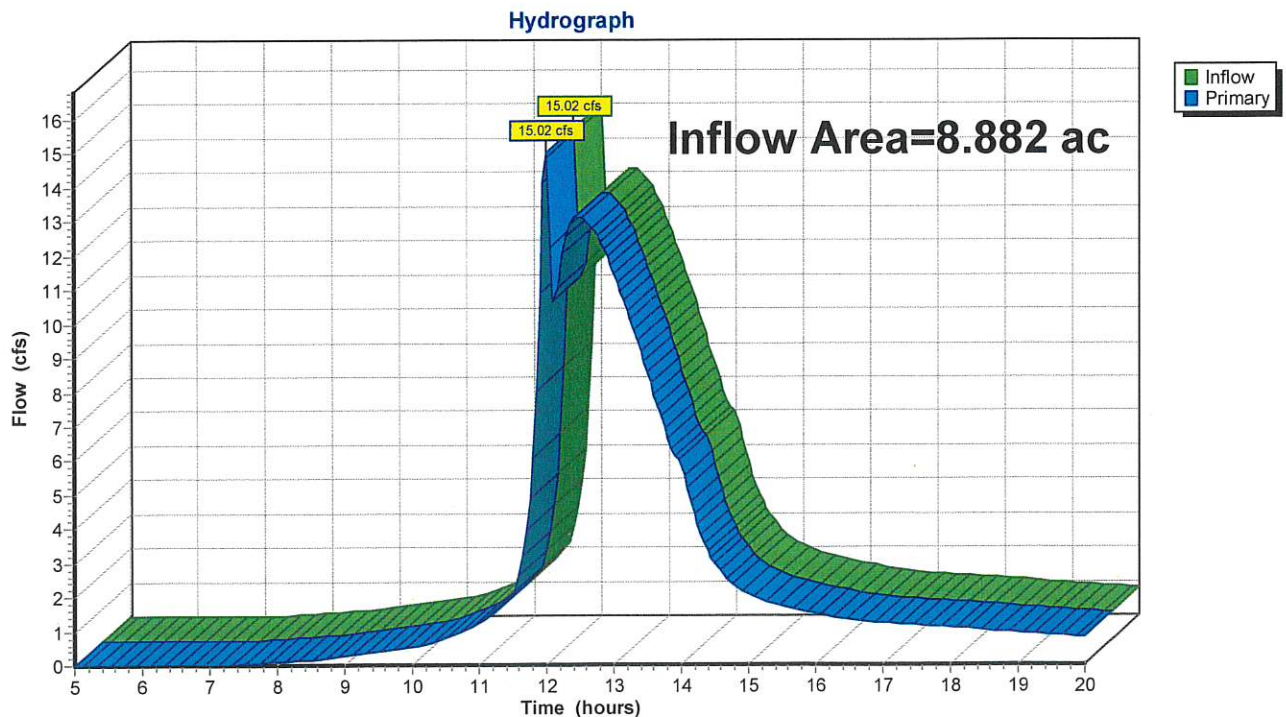
Stage-Discharge



Pond 1P: Detention Basin



Link 1L: Combined Outfall



Ordinance # 474

An ordinance by the City Mayor and Council of the Town of Ashland City, Tennessee to amend Title 16 Chapter 5 of the Municipal Code regulating driveway regulations.

WHEREAS the City Mayor and Council of the Town of Ashland City, Tennessee find that driveway regulations need to be more detailed;

BE IT THEREFORE ORDAINED by the Mayor and Council of the Town of Ashland City that Title 16 Chapter 5 should be amended to and replaced and added as follows:

16-501.01 Purpose and Intent

1. Provide emergency services vehicles reasonable and safe access for all land uses in the Town, including those driveways constructed on steep slopes;
2. Control the design, location and construction of driveways that connect to roads so the driveway mitigates safety hazards and nuisances;
3. Minimize the amount of grade changing and vegetative removal on hillside areas for driveway construction;
4. Control the design, location and construction of driveways so they do not disrupt drainage systems or culverts; damage the surface of right-of-ways, or cause erosion or siltation of traveled ways or surface waters; and
5. Avoid unreasonable public expenditures.

16-501.02 General Provisions

1. Prior to the construction or change in use and/or intensity of any driveway entrance, exit, or approach to any private, town or state road, and prior to obtaining any applicable building permits for the property, the landowner or authorized agent shall apply for a driveway permit (Appendix A) and secure approval of such proposed application in accordance with these regulations.
2. An approval by the Town to construct a driveway does not eliminate the need for the property owner to secure any necessary permits from state agencies, such as the TN Department of Transportation (TDOT), the TN Department of Environment & Conservation (TDEC) or other applicable agencies.
3. The design documents or the driveway shall be designed by a TN licensed Professional Engineer. This may be waived by the Director of Public Utilities/Public Works upon consideration of site specific conditions.
4. The term Non-Residential as used herein is intended to include uses and structures as listed in the Town's Zoning Ordinance to include Agricultural, Community Facilities, Commercial and Industrial.
5. The applicant is advised that the Town has other Ordinances, Codes and Regulations that may require or affect access to and/or improvements to public and private streets, roads or rights-of-way that may be required by the applicant's project.

16-501.04 Driveway Standards

The following standards shall apply to all driveways unless otherwise specifically stated herein.

1) Driveway Access Management to Public Street.

- (a) All drive accesses shall be located as shown on approved plans or as directed by the Town.

(b) Minimum Corner Clearance represents the distance between the corner of the intersection of two public roads and the first driveway located nearest to said corner. It is important to provide enough distance between the corner and the first driveway to effectively separate conflict points and allow drivers enough time to make safe maneuvers. When the first driveway is not adequately separated from the corners, crash rates and delays increase.

(c) The minimum corner clearances shall be:

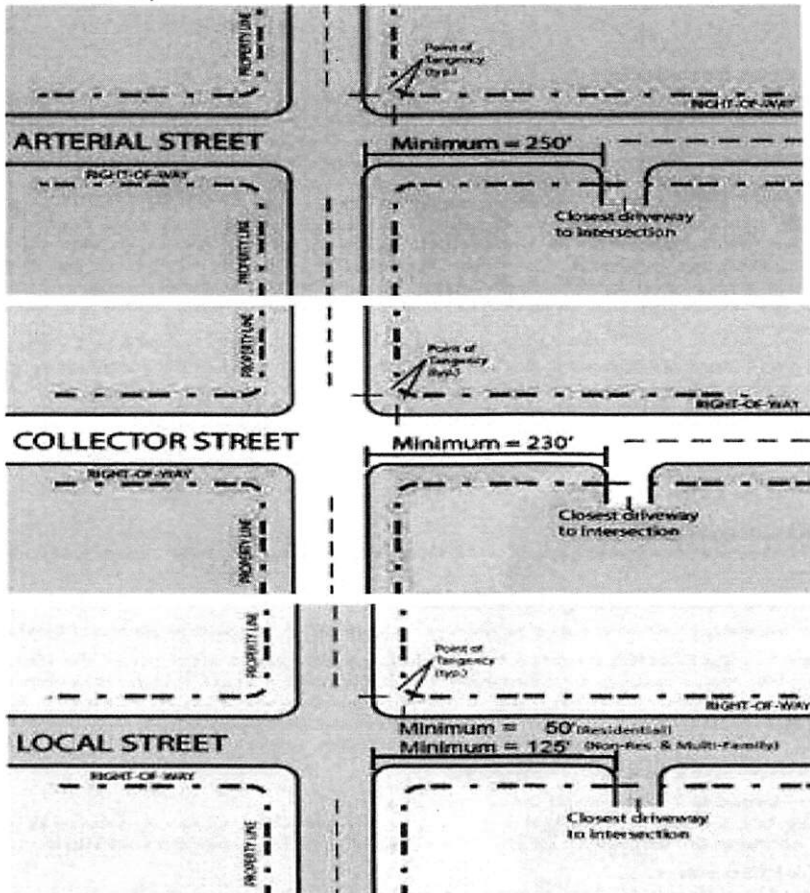
Non-Residential & Multi-Family driveways:

Along Local Roads 125 feet; along Collector Roads 230 feet; along Arterial Roads 250 feet or more as determined by the Town based upon site specific conditions.

Residential Driveways:

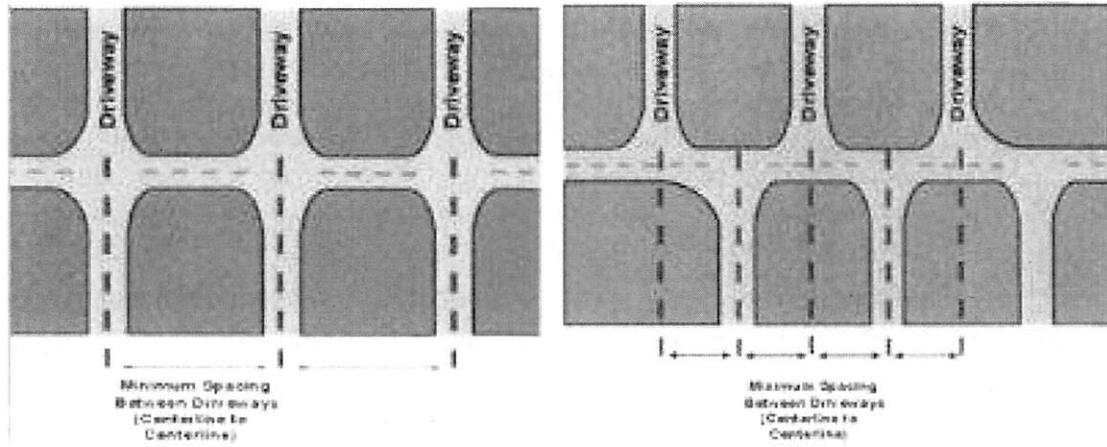
Along Local Roads 50 feet; along Collector Roads 230 feet; along Arterial Roads 250 feet or more as determined by the Town.

In order to ensure adequate storage space for vehicles stopped at a signalized intersection or to provide for adequate separation for higher order street classifications, the Town may require additional corner clearance. The corner clearance is measured from the nearest point of curvature at the radius return of the intersecting streets to the nearest point of return radius of the driveway.

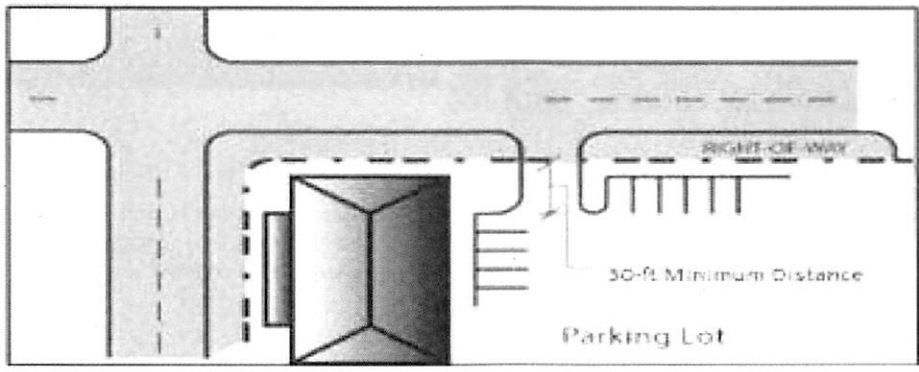


(d) The minimum separation distance between driveways on separate lots shall be: Local Roads 22-feet; Collector Roads 150 feet; Arterial 250 feet. The separation along Collector, Arterial or higher order road classifications may be increased by the Town based upon the proposed project, use or improvements. This shall also apply to offset driveways located on the

opposite side of a road. The driveway separation is measured to the centerline of each driveway.



(e) Driveways for Non-Residential & Multi-Family uses must extend a minimum of 30 feet into the property, measured from the ROW/property line abutting the road, before the edge of the driveway may be intersected by a parking lot space, aisle, driveway or drive aisle. This distance may be increased by the Town based upon a project that presents a higher use or higher traffic volume, for example schools, larger shopping centers or commercial developments.



2. *Paving/Hard Surface.*

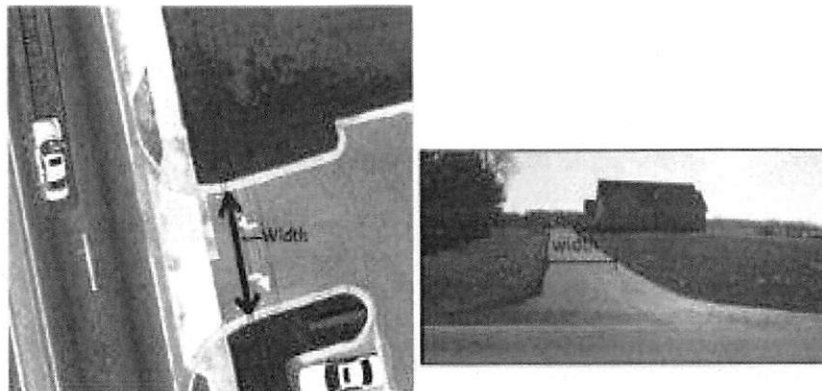
In order to protect the physical integrity of roads, the road-side edge of all driveways that intersect with a paved road must be paved with asphalt or concrete according to the requirements below:

(a) Non-Residential use and Multi-Family residential driveways shall have a paved width a minimum of 24- feet wide, commencing at the edge of pavement of the intersecting road. The pavement edge is interpreted to be the edge of the full pavement width in areas where the pavement edge has deteriorated. The driveway pavement shall consist of a thickness that will support the vehicle loads accessing the property and constructed on a compacted subgrade (95% Standard Proctor). Also for driveway construction, meet the specifications for street construction listed in the appendices of the Subdivision Regulations. The pavement thickness shall be justified by the applicant's engineer and shall be as approved by the Town.

Driveway widths shall comply with the following:

- (1) One- Way Traffic: 15-foot minimum, 20-foot maximum;
 - (2) Two- Way Traffic: 24-foot minimum, 36-foot maximum.
- (b) Residential use driveways (excluding multi-family) shall have a paved width that is a minimum of 12- feet wide for at least the first 15- feet, commencing at the edge of pavement of the intersecting road. The pavement edge is interpreted to be the edge of the full pavement width in areas where the pavement edge has deteriorated. This pavement shall consist of a minimum of 6-inches of pug mix, 2-inches of surface course constructed on a compacted subgrade (95% Standard Proctor). Also for driveway construction, meet the specifications for street construction listed in the appendices of the Subdivision Regulations.
- (c) The Town may determine what the pavement thickness shall be in order to support the vehicle loads accessing the property.

Example:



3. Travel Width for Non-Residential & Multi-Family

Driveways shall be designed, constructed, and maintained so the travel width and the area adjacent to it has enough width and horizontal clearance to accommodate drainage, parking areas, clearance for emergency vehicles, emergency vehicle turnaround area, etc.

4. Vertical Clearance (Non-Residential and Multi-Family)

Driveways shall be designed, constructed, and maintained so as to have at least 14.0 feet of vertical clearance. This is to include, but not be limited to, vegetation, trees, shrubs, utility poles, and utility lines.

5. Gated

- (a) Gate openings shall be at least 15-foot wide at the narrowest point. The Town may require the width to be greater dependent upon both the curvature and width of the adjoining road, and also the driveway geometry and curvature in the vicinity of the gated area.
- (b) Gates must not open into the public right-of-way.
- (c) All gated areas shall have a stacking area for vehicles entering the gated areas. For residential uses the minimum stacking distance of 20 feet shall be provided between the street right-of-way line and the gate. For non-residential and multi-family uses, the minimum length shall be determined by the Town after review of the proposed development plans or Building Permit application.

6. Site Distance

Site distance shall be in accordance with the list provided below. The Town may require greater distances based on site specific and project specific considerations. The Town will consider sight distances as justified by a TN licensed Professional Engineer based upon ASSHTO, ITE, or TDOT methods.

Posted Speed	Minimum Required Sight Distance (Measured from centerline of the driveway in each direction)
25 mph or less	175 feet
35 mph	390 feet
40 mph	445 feet
45 mph	500 feet
50 mph	555 feet
55 mph	610 feet
Greater than 55 mph	TBD

7. Curves & Turning Radii

(a) Driveway Curves for Non-Residential & Multi-Family driveways shall have an inside radius of no less than 25- feet and an outside radius of no less than 45- feet as required for vehicles up to 45-feet in total length. The Town may require the width of the driveway be increased in the curve areas.

(b) The Radius Return or End Flares for driveways connecting the edge of the through traffic lane and the edge of the driveway shall be as listed below:

Non-Residential & Multi-Family:

- (1) For Local Roads: 10-foot radius minimum; 25-foot radius maximum
- (2) For Collector Roads: 25-foot radius minimum; 30-foot radius maximum
- (3) For Arterial Roads: 25-foot radius minimum; 40-foot radius maximum.

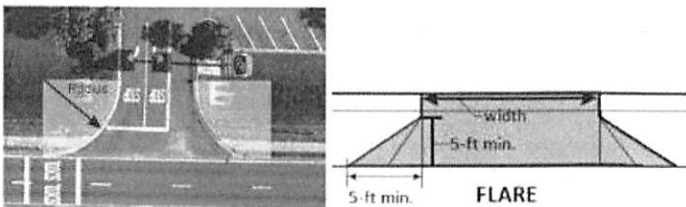
The Town will evaluate the radii based upon radii that permit turns by the largest vehicle to be expected to access the driveway. Driveway flares are not permitted for Non-Residential & Multi-Family.

Residential:

(1) For Local Roads: 5-foot radius minimum; 15-foot radius maximum. A driveway flare may be used instead of a radius return. The minimum flare dimensions are 5-ft by 5-ft. The Town may require greater flare dimensions.

2) For Collector or Arterial Roads: The Town will determine if residential access is permitted and the required radii.

Example:

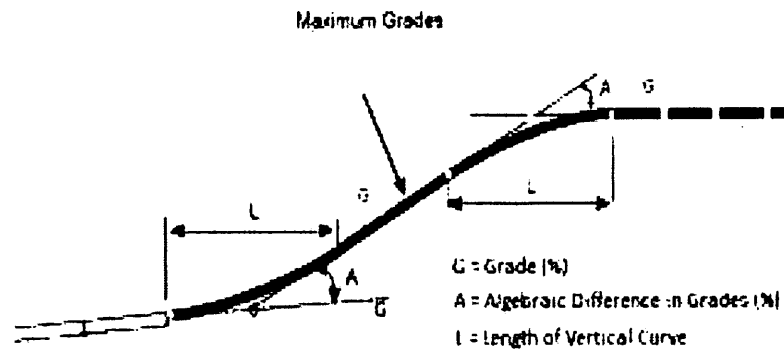


8. Slopes & Vertical Curves

(a) Residential Driveways (excluding multi-family): Where driveways intersect with a road or other driveway, whether public or not, the slope shall not exceed 8-percent within 30-feet of the edge of pavement. The maximum algebraic difference in grade before a vertical curve is required is 6% for a crest curve and 6% for a sag curve. The minimum vertical curve length shall be based on the following K-values: Crest K=1, Sag K=2. $K = L$ (length of vertical curve) / A (algebraic difference of grade). Slope of greater than 20-percent will not be permitted.

(b) Non-Residential Driveways and Multi-Family: Where driveways intersect with a road or other driveway, whether public or not, the slope shall not exceed 5-percent within 30-feet of the edge of pavement. The maximum algebraic difference in grade before a vertical curve is required will be determined by the Town after the applicant submits their proposal and defines the types of vehicles that will access the property. The minimum vertical curve length shall be 50-ft. Slopes shall normally not exceed 5-percent; Slopes greater than 8-percent will not be permitted for any portion of the driveway. (c) These regulations apply to both downward and upward slopes.

Calculation Example:



9. Bridges and Box Culverts

(a) All bridges and box culverts must be designed, installed, and maintained in accordance with the designs of a Tennessee Professional Engineer and must be able to support the heaviest vehicle likely to operate on the driveway.

(b) All bridges must be designed, installed, and maintained so as to convey at least a 100-year storm event and must be reviewed by the Town Engineer at the applicant's expense. The cost of the Town of Ashland City's engineering review will be a pass-through fee to the applicant. The designs shall also include methods for minimizing the restriction of flow due to the accumulation of debris. All permits shall be the owner's responsibility to obtain from TDEC (Tennessee Department of Conservation) and TDOT (Tennessee Department of Transportation) should the bridge or box culvert impact a stream governed by the state of Tennessee or a road governed by the state of Tennessee.

10. Culverts

(a) All culverts shall be a minimum of 12-inches in diameter (or equivalent cross-sectional area) Class III Reinforced Concrete Pipe (RCP) under road ways and nonresidential driveways and HDPE under residential driveways and must be designed, installed, and maintained so as to support the heaviest vehicle likely to operate on the driveway. Elliptical, arch-pipe, pre-cast box culverts and poured in place box culverts will be acceptable when justified in the design documents. Headwalls shall be constructed on all culverts on both the inlet and outlet ends.

(b) All culverts must be designed so as to convey the full flow of water of existing drainage swales as well as any additional water that may be transmitted by the driveway. The culvert design shall consider impacts to water flow based upon inlet restrictions due to collection of debris or other materials that may constrict the inlet.

(c) Culverts shall be placed such that the slope of the storm water conveyance/ditch cross-section is not steeper than 3-horizontal to 1-vertical (3H:1V). The slope shall be measured from the street shoulder or from a point as defined by the Town

11. Drainage & Erosion Control.

(a) Driveways that slope down from a road must be designed so as to avoid the conveyance of storm water runoff from the road in a way that can cause flooding, erosion, or provide other hazard to the driveway itself or any structures on the property. The stability and maintenance of slopes are to be addressed in the design of the driveway. The design slopes shall be 3H:1V, unless otherwise approved by the Town. The design is to show how soil will be stabilized such that it is retained on the applicant's property.

(b) Storm water drainage discharged toward a public road must be tied into roadside drainage in a manner satisfactory to the Town and/or TDOT.

(c) During and after construction, the driveway construction activities must not cause erosion or sedimentation of drainage systems or surface waters or other infrastructure serving the Town. Erosion Prevention and Sediment Control (EPSC) measures shall be implemented and maintained before other construction activities are commenced.

(d) The issuance of a driveway permit shall require construction plans and drainage calculations for the driveway design and drainage. The Town can waive this requirement if site specific conditions warrant a waiver. The plans and calculations shall be prepared by a TN licensed Professional Engineer. The documents shall address erosion, the integrity of the driveway, integrity of the road and siltation of drainage systems, surface waters and public rights-of-way.

12. If the use of the parcel with an existing access to the right-of-way changes, or there is a change in the use of the property, the change in access use must be approved by the Town through the Town's review process. Change in access or property use may include, but is not limited to, change in the amount or type of traffic, structural modifications, remodeling, change in type of business, expansion in existing business, change in zoning, change in property division creating new parcels, etc.

13. Driveways shall be located a minimum of 5-feet between any edge of the driveway and the property line, except at corner lots the distance shall be 15-feet. No driveway shall extend beyond a straight line projection of any side or rear lot line.

14. Activities related to the construction of the driveway, to include any storm water facilities and grading, shall not encroach onto adjacent properties without written approval from the adjacent property owner. Written approval shall be recorded with the Cheatham County Register of Deeds office.

15. Any driveway crossing a body of water, wetlands, or wetland buffer shall have all permits required by TDEC and other agencies prior to the driveway approval.

16. There shall be no more than one primary access to a single parcel of land unless a need for multiple accesses are approved by the Town.

17. Driveways are to intersect roadways at an angle of 75 to 90-degrees. Any other angle must be approved by the Town based upon justification from the applicant.

18. No structures (including buildings), permanent or portable signs, lights, displays, fences, walls, etc. shall be permitted on, over, or under the Town road right-of-way without specific approval by the Town.

19. Driveways providing access to multi-unit residential, commercial, or industrial uses shall be designed to conform to good engineering practices and must be approved by the Town.

20. Circular driveways, where permitted, shall comply with these regulations.

16-501.05 Temporary Driveway Permits

Permission for temporary driveways for such activities as home construction and utility maintenance and construction is required from the Town prior to commencing any construction activity. Temporary permits shall have a stipulated time limit not to exceed one year without review by the Building Commissioner for any extensions.

16-501.06 Modifications and Waivers

The standards of these regulations may be modified or waived when circumstances surrounding a proposal, or a condition of the land, indicate that strict adherence to the standards would create a hardship for the landowner, and such modification will not be in conflict with the purpose and intent of these regulations. The hardship shall not be a self-created hardship or be based upon the cost to comply with these requirements.

16-501.07 Application Procedures

1. Prior to commencing work, the applicant will file an application with the Town's Director of Public Utilities/Public Works or its designated agent, on a form provided by that office (Appendix A)

2. Before the Building Commissioner acts on any application, there will be an inspection of the site.
3. After the Town approves the application, there shall be a 48-hour notice to the Town Building Commissioner before starting construction of the driveway.
4. For any paved driveways or entrances, there shall be an inspection following the installation of Headwalls and Culvert, installation of the gravel base, and prior to the final paving or concrete.
5. A final inspection by the Town will be made to determine that all work has been satisfactorily completed in conformance with these regulations prior to the issuance of a Certificate of Completion.

16-501.08 Additional Construction Phase Tasks

1. The tasks listed here are in addition to other requirements
2. The owner will submit drawings based upon a field survey that will include a profile/elevation view and plan view of the driveway. This information shall be provided at subgrade phase and the Town's approval is required prior to paving. The survey shall be prepared by a TN Registered Land Surveyor.
3. The owner will have all permanent erosion control measures and permanent revegetation applied at the completion of the driveway. This is a condition of receiving a Certificate of Completion.

16-501.09 Administration and Enforcement


1. These regulations shall be administered by the Town. The Town may utilize its staff and consultants.
2. In reviewing an application to construct a driveway, the Town will apply accepted engineering principles. In addition, the Town may, in the exercise of sound discretion, consider the factors including but not limited to, the quantity and quality of traffic, sight distance, adjacent land use, development of access away from arterial streets and onto other streets, anticipated development in the area, the Towns' Land Use & development Plan and speed limits on the street being accessed. After such review and recommendation from the Town's Agent, the Town Building Commissioner may issue a building permit.
3. Driveways constructed in violation of these regulations shall be corrected immediately upon notification by the Town, or the costs of removing or remedial construction shall be fully borne by the property owner.

This Ordinance shall take effect twenty days after its passage.

1st reading 10-10-17

Public hearing 11-14-17

2nd reading 11-14-17


 Rick Johnson, Mayor


 Kellie Reed, City Recorder

CHAPTER 7

ASHLAND CITY GRADING ORDINANCE

SECTION

- 14-701. Establishment and purpose.
- 14-702. Definitions.
- 14-703. Scope.
- 14-704. Application.
- 14-705. Duration of permit.
- 14-706. Denial of permit.
- 14-707. Inspection of work.
- 14-708. Surety for permitted work in public rights-of way, etc.
- 14-709. Permit fees.
- 14-710. Maintenance.
- 14-711. Violations and penalties.

14-701. Establishment and purpose. There are established for the City of Ashland City, Tennessee, the following regulations and requirements for permitting of grading operations:

(1) This chapter shall be known and may be cited as "the Ashland City Grading Ordinance."

(2) The purpose of this chapter is to provide minimum standards to safeguard persons, to protect property, and to promote the public welfare by regulating and controlling the design, construction, quality of materials, use, location, and maintenance of grading, excavation, and fill without infringing on the rights of property owners to accomplish minor "yard improvement" measures. (as added by Ord. #315, March 2006)

14-702. Definitions. Wherever used in this chapter, the following words shall have the meaning indicated:

(1) "Building permit" shall mean a permit issued by the building official pursuant to the provisions of the zoning ordinance of Ashland City, Tennessee, for the construction, correction, or alteration of a structure or building.

(2) "Excavation" shall mean any act by which topsoil, earth, and gravel, rock, or any similar material is cut into, dug, marred, uncovered, removed, displaced, relocated, or bulldozed and shall include the conditions resulting from such considerations.

(3) "Fill" shall mean any act by which topsoil, earth, sand, gravel, rock, or any other material is deposited, placed, pushed, dumped, pulled, transported, or moved to a new location and shall include the conditions resulting from such considerations.

(4) "Existing grade" shall mean the elevation of the existing ground surface at the location of any proposed excavation or fill.

(5) "Grading" shall mean excavation or fill or any combination thereof and shall include the conditions resulting from any excavation or fill.

(6) "Grading permit" shall mean any permit required under this chapter.

(7) "Person" shall mean an individual but can also include a partnership, corporation, or any other legally recognized entity.

(8) "Site" shall mean a lot, tract, or parcel of land, or a series of lots, tracts, or parcels of land, joined together, where grading work is continuous and performed at the same or different times.

(9) "Topsoil" is that upper portion or layer of naturally occurring terrain (2"-10") that is composed of mostly organic matter and has the ability to support vegetation.

(10) "Stripping" shall mean the removal, by mechanical means, of the topsoil layer of a proposed excavation. (as added by Ord. #315, March 2006)

14-703. Scope. New grading, excavations, and fills, or changes, additions, repairs, or alterations made to existing excavations and fills shall conform to the provisions of this chapter, except that this chapter shall not apply to:

(1) Commercial operations involved in mining, quarrying, excavating, processing, or stockpiling of rock, sand, aggregate, or clay unless such work affects the support of adjacent or contiguous property or structures; and provided such operations are duly permitted by the proper state agencies having jurisdiction over such matters.

(2) Residential landscaping, top dressing and cosmetic works by private individuals or firms contracted by private individuals.

(3) Construction which is the implementation of plans for development(s) duly reviewed and approved by the Ashland City Planning Commission.

(4) Grading or excavation pursuant to a permit for excavation in public streets for which inspection is provided by the city.

(5) Grading in connection with a public improvement or public work for which inspection is provided by the city.

(6) Grading or excavation by a public utility company in private easements or public rights-of-way for which inspection is provided by the city.

(7) An excavation below finished grade for basements and footings of a building, swimming pool, or underground structure authorized by a valid building permit where the cost of such excavation is included in the building permit valuations. This exception shall not affect the applicability of this chapter to, nor the requirement of a grading permit for, any fill made with the material from such excavation.

(8) Farming or other accepted agricultural uses, as identified in the Tennessee Right to Farm Act (Tennessee Code Annotated, § 43-26-103).

(9) The construction of a single residence or addition to an existing single family residence.

Permits will be required for any other grading operation not noted above and covered in one or more of the following situations:

(1) Topsoil stripping or sod removal having a single or combined area coverage on one site of two thousand five hundred (2,500) square feet (equivalent fifty (50') square).

(2) Excavation or placement of fill material having a volume of one hundred (100) cubic yards or more on one site.

(3) Areas of excavation or fill having a coverage of one thousand (1,000) square feet and a maximum cut or fill depth, at any point, of three (3) feet or more on one site.

(4) An excavation from existing grade three (3) feet or more below a two (horizontal) to one (vertical) descending slope from any property line, or a fill on existing grade three feet or more above a two (horizontal) to one (vertical) ascending slope from any property line.

(5) A grading operation in preparation for a paving project that will be used for any other purpose than a residential driveway and/or parking area.

(6) An excavation or fill within a public sewer, water main, storm drain, or power line easement.

(7) An excavation or fill which will encroach on or alter a natural drainage channel or water course.

No person shall construct, reconstruct, alter, repair or install any structure in any natural water course without a permit from the building official.

A separate permit shall be required for each separate non-contiguous site. One (1) permit may cover both an excavation and a fill on the same site made with excavated materials. (as added by Ord. #315, March 2006)

14-704. Application. The permit application shall include but not necessarily be limited to the following:

(1) Basic information:

(a) The purpose of the work and a statement as to whether the purpose of the grading is for private or commercial reasons;

(b) The nature and amount of material proposed to be excavated and the amount of fill in cubic yards;

(c) The street address at the point of access to the property where the work is to be performed;

(d) The name and address of the owner of the property on which the work is to be performed;

(e) A description of the equipment and methods to be used in performing the work;

(f) The name of the firm that will haul excavated material to or from the property where the work is to be performed;

- (g) The name, address and phone number of the person to have effective control of the work;
 - (h) The estimated dates for starting and completing the work to be done;
 - (i) Report of a soils engineer if required by the building official;
 - (j) Such further applicable information as the building official may require in order to carry out the purposes of this chapter;
- (2) Detailed information:
- (a) A sketch by the applicant or his agent showing existing conditions and the proposed work if required by the building official;
 - (b) Such further engineering or soils data as may be required by the building official to fully assess the scope and consequences of the proposed work;
- (3) Drainage considerations:
- (a) Adequate provisions shall be made to prevent any surface waters from damaging the cut face of an excavation or the sloping surface of a fill;
 - (b) All drainage provisions shall be of such design as to carry surface waters to the nearest practical street, storm drain or natural water course approved by the building official as a safe place to deposit and receive such waters;
 - (c) The building official may require such drainage structures or pipes to be constructed or installed which in his opinion are necessary to prevent erosion damage and to satisfactorily carry off surface waters; and
 - (d) Will comply with all state agencies and there requirements.
- (as added by Ord. #315, March 2006)

14-705. Duration of permit. As stated in § 14-704(1)(i), the estimated time frame for this work will be submitted with the permit application. The building official will, at the time the permit is issued, set a completion date, but, due to circumstances beyond the control of the applicant, the work takes longer than originally scheduled, an extension of time may be granted. In no case shall the schedule exceed one (1) year after initial date of the issuance of a permit. If however, the work is not completed on time as called for in the permit due to lack of pursuit of the work, the permit will expire and the application process for a new permit must be initiated. (as added by Ord. #315, March 2006)

14-706. Denial of permit. An application for work under the provisions of this chapter may be denied for any of the following reasons:

- (1) Insufficient or inadequate information submitted to determine scope of project; and

(2) Proposed work will endanger or be detrimental to adjacent properties or existing features such as streets, utilities, buildings, etc. (as added by Ord. #315, March 2006)

14-707. Inspection of work. Monitoring of the work will be accomplished by the building official or his representative as follows:

- (1) Before project is commenced;
- (2) Upon completion of the project; and
- (3) At any other time(s) the building official may deem necessary. (as added by Ord. #315, March 2006)

14-708. Surety for permitted work in public rights-of-way. Public performance bonds will be posted by the applicant at the time the permit is granted for any and all works and incidental activities to be done within or on public rights-of-way or private property easements. The form and amount of bond will be set by the building official at the time of the permit application and will cover the amount deemed necessary to complete the proposed work and/or potential damages to existing public facilities. Bond will be held until satisfactory restoration or replacement of all damaged or impaired public facilities are completed. This includes but is not limited to roadways, drainage improvements, sanitary sewer lines and water lines. Bonds will be released upon final inspection and approval of the completed work. (as added by Ord. #315, March 2006)

14-709. Permit fees. Permit fees will be charged based upon the nature and magnitude of the work. Work to be performed will be categorized as to nature and magnitude at the time of permit application and a fee charged on the following schedule:

- (1) Area coverage of less than two thousand five hundred (2,500) square feet or less than one hundred (100) cubic yards of material: \$ 50.00
 - (2) Area coverage of more than two thousand five hundred (2,500) square feet and more than one hundred (100) cubic yards of material: \$100.00
- (as added by Ord. #315, March 2006)

14-710. Maintenance. The project site(s) is to be maintained in an orderly and safe condition at all times as noted by the following:

- (1) The project site will at all times during construction, be kept in a condition that is safe to the general public and adjacent properties;
- (2) The project will have sedimentation control incorporated in its work plan and a provision for natural storm water removal so as to pose no threat of danger to life or property;
- (3) Upon completion, the project must be left in and maintained as conceived, and posing no liability whatsoever in regard to slope stabilization, drainage, improved structures, etc.; and

(4) Prevent transport of construction debris and/or sediment onto surfaces of adjacent properties or public rights-of-way. (as added by Ord. #315, March 2006)

14-711. Violations and penalties. No person shall construct, enlarge, alter, repair or maintain any grading, excavation, fill or cause the same to be done contrary to or in violation of any provision of this chapter. When written notice of a violation of any of the provisions of this chapter has been served by the building official on any person, such violation shall be discontinued immediately. It shall be construed to be a violation of this chapter to solicit public or "at large" dumping of materials on any site by placement of "dump dirt and rock only," "dump here" or any other similar signs. No signs of any nature requesting removal from or placement of material on a site will be allowed unless it meets the requirements of this chapter. (as added by Ord. #315, March 2006)

Change 8, January 9, 2007

14-6

CHAPTER 6

STEEP SLOPE ORDINANCE¹

SECTION

- 14-601. Purpose.
- 14-602. Applicability.
- 14-603. Requirements.
- 14-604. Site plan requirements.
- 14-605. Performance standards.
- 14-606. Exemptions.
- 14-607. Review guidelines and approval procedures.
- 14-608. Compatibility with other permit and ordinance requirements.

14-601. Purpose. The purpose of this ordinance is to regulate the intensity of use in areas of steeply sloping terrain in order to limit soil loss, erosion, excessive stormwater runoff, the degradation of surface water and to maintain the natural topography and drainage patterns of land. (as added by Ord. #283, March 2004)

14-602. Applicability. This ordinance shall be applicable to any major subdivision or site plan application as defined in the municipal land use law or any project as defined by the Stormwater Pollution Prevention Act located within the municipality. The provisions of this ordinance shall also apply to any land disturbance. Land disturbance for the purpose of this ordinance shall mean any activity involving the clearing, cutting, blasting, excavation, grading, filling, storing, transporting of land or any other activity which causes land to be exposed to the danger of erosion. (as added by Ord. #283, March 2004)

14-603. Requirements. (1) Site design and grading on slopes of ten percent (10%) or greater shall meet all requirements as outlined in § 14-604 of this ordinance. If special consideration is needed, the requirements of § 14-607 of this ordinance will apply in approving the proposed plans.

(2) Site design and grading on all slopes greater than ten percent (10%) shall provide the minimum disruption of view corridors and scenic vistas and shall preserve significant natural topographic features to the greatest extent possible. (as added by Ord. #283, March 2004)

14-604. Site plan requirements. (1) For all earth moving activities on all slopes of ten percent (10%) or greater, the applicant shall submit a site plan prepared by a professional engineer which includes at a minimum the following:

¹Municipal code reference:

Standard codes adopted: Title 12, chapter 1.

(a) Slopes in classes of 0-10%, 10-25% and greater than 25% based on two foot (2') contours analyzed at ten foot (10') intervals.

(b) Location of all water bodies including but not limited to streams, lakes and wetlands.

(c) Existing natural and topographic features.

(d) Location of all proposed and existing buildings and streets.

(e) Location of all existing vegetation including meadow, forest, and scrub lands broken down by those areas of vegetation which will be removed as well as vegetation to be preserved; specifications for re-vegetation shall also be included.

(f) Specific methods which will be utilized to control soil erosion and sedimentation, soil loss and excessive stormwater runoff both during and after construction.

(g) A statement and description of the stability of the soils on-site and the appropriateness of the construction method proposed.

(h) Hydrology, drainage and flooding analysis to include a statement on the affect of the proposed development upon water bodies or wetlands in the vicinity of the project

(i) A statement describing the underlying geology attesting to the stability of the site.

(j) Calculations of the area of proposed disturbance of each slope class on each proposed lot as well as within any proposed road right-of-way.

(k) Grading plan for the construction site and all access routes.

(2) The site plan submitted shall be reviewed by the municipal engineer. The municipal engineer shall accept or reject the plan as submitted or may require that specific conditions be complied with in order for the plan to meet approval.

(3) No grading permit shall be issued and no grading or site clearing shall occur until a site plan including all of the above items has been reviewed and approved by the municipality. (as added by Ord. #283, March 2004)

14-605. Performance standards. All development proposals which propose development on steep slopes shall conform to the following performance standards:

(1) Plans for construction on all slopes of ten percent (10%) or greater must be approved by the planning commission before a grading permit is issued and shall demonstrate slope stability and erosion control before any occupancy permits are issued by the municipality.

(2) Should the applicant wish to preserve land with steep slopes, the applicant may offer the land for dedication to the municipality or may form a private land trust or a non-profit agency in order to preserve and maintain the these areas in their natural state.

(3) The use of conservation easements on steep slopes may also be offered to reserve these areas in perpetuity. (as added by Ord. #283, March 2004)

14-606. Exemptions. Land development plans which were approved prior to the adoption, date of this ordinance shall be exempt from these requirements. (as added by Ord. #283, March 2004)

16-607. Review guidelines and approval procedures. (1) The planning commission may approve development within steep slope areas if the planning commission finds that:

(a) The proposed construction is appropriate for the requested location.

(b) The proposed construction will have no significant impact on the steep slope area.

(c) The proposed construction is of relatively low value, except for items related to vehicular bridges.

(2) The board of zoning appeals may consider variations from the requirements of this section. In considering such variations, the following guidelines shall be considered:

(a) Construction in the steep slope area is accompanied by adequate toe of slope improvements.

(b) Approval could be recommended if slope improvements effectively increase the stable slope angle.

(c) The entire slope shows no indication of instability.

(3) Variation from any restriction could be recommended if the requested construction is less nonconforming than the existing condition and the slope does not show any sign of instability; or if the applicant submits evidence based on current geotechnical engineering practices such as the simplified bishop method of stability analysis whereby variables of soil shear strength, ground water level, unit weight of soil and slope angles are considered which result in the determination that the particular slope is stable at an angle greater than twenty five (25) degrees. (as added by Ord. #283, March 2004)

14-608. Compatibility with other permit and ordinance requirements. Development approvals issued pursuant to this ordinance are to be considered an integral part of development approvals under the subdivision and site plan review process and do not relieve the applicant of the responsibility to secure required permits or approvals for activities regulated by other applicable codes, rules, acts or ordinances. In their interpretation and application the provisions of this ordinance shall be held to be the minimum requirements for the promotion of the public health, safety, general welfare and the protection of water quality. (as added by Ord. #283, March 2004)

ORDINANCE NO. 352

AN ORDINANCE AMENDING ORDINANCE NUMBER 179,
KNOWN AS THE ZONING ORDINANCE OF THE TOWN OF ASHLAND CITY,
TENNESSEE BY ADDING ARTICLE IV, SECTION 260

WHEREAS, the ASHLAND CITY Municipal-Regional Planning Commission has recommended that the Zoning Ordinance of ASHLAND CITY be amended as herein provided, and

WHEREAS, the Mayor and Council has given due consideration to said recommendation and has conducted a Public Hearing as required by law, now,

BE IT ORDAINED BY THE BOARD OF MAYOR AND COUNCIL OF ASHLAND CITY, TENNESSEE THAT ORDINANCE NUMBER 179 BE AND THE SAME IS HEREBY AMENDED AS FOLLOWS:

ARTICLE IV

SUPPLEMENTARY PROVISIONS APPLYING TO SPECIFIC DISTRICTS

4.260 Minimum Standards for Land Disturbing Activities

4.260.1 Purpose

The purpose of this article is to establish procedures and standards to evaluate and regulate the effect a proposed development will have on fill, stormwater runoff, soil erosion, and channel erosion from such developments and surrounding areas, and to require, if necessary, that certain proposed developments be provided with adequate preparation, stormwater retention and detention.

The land disturbing, stormwater retention and detention rules of this article shall apply to any proposed development of land where a building permit is required.

The regulations of this article are supplemental to any other law that pertains to the development of land including buildings, structures, parking lots and other similar improvements. If there is a conflict between this article and any other law, the more stringent requirement shall apply.

Definitions

- A. BEST MANAGEMENT PRACTICES:** Practices and control measures intended to minimize pollutants from property or facility stormwater runoff and the provision for long term responsibility for management control and of the same.

- B. DETENTION:** The holding of stormwater onsite until the existing drainage system can accommodate the runoff.
- C. DREDGING:** The removal or displacement by any means of soil, sand, gravel, shell or other like material from coastal wetlands, submerged lands, marshlands, or water bottoms.
- D. EXCAVATE:** Dig out, scoop out, hollow out or otherwise make a hole or cavity by removing soil, sand, gravel or other material from any property so as to change the grade of such property.
- E. FILL:** 1. (v) The placing upon or the building up of property with earth, sand, gravel, rock, or other material; 2. (n) The earth, sand, gravel, rock, or other material used for such purpose (as the context may indicate).
- F. RETENTION:** The slowing of stormwater runoff from leaving a site so that flow into the existing drainage system can be maintained at a reasonable level.

4.260.2 Sediment and Erosion Control

Installation of improvements must be done in such a manner as to provide for the most effective control of erosion and sediment. Developers shall follow the standards and best management practices as outlined in the Tennessee Department of Environment and Conservation (TEDAC) Soil and Erosion Handbok. Practical combinations of the following technical principles must be used.

- A. The smallest practical area of land must be exposed at any one time during development.
- B. All fill material must be compacted to prevent the occurrence of sink holes, erosion and sediment loss from the developed property, and cannot be comprised of construction or demolition materials regulated by TEDAC for disposal in a landfill.
- C. When land is exposed during development, the exposure is to be kept to the shortest practical period of time.
- D. Temporary vegetation and/or mulching must be used to protect critical area exposed during development.
- E. Sediment basins (debris basins, desilting basins, or silt-traps) must be installed and maintained to remove sediment from waters from land undergoing development.
- F. Provisions must be made to effectively accommodate runoff caused by changed soil conditions during and after development.
- G. Permanent final vegetation and structures must be installed as soon as practical in the development.
- H. The development plan must be fitted to the topography and soils so as to create the least possible erosions.
- I. Wherever feasible, natural vegetation must be retained and protected.

4.260.3 Application Review

The Building Official and/or other designated official shall review every application for a land disturbing permit to which this article applies and evaluate the proposed development to determine whether it will increase stormwater runoff. This determination will be based on the following factors:

- A. Location and size of the development
- B. Slope and soil conditions
- C. Use of fill materials
- D. Existing drainage systems and facilities
- E. Any other considerations which may pertain to the discharge of stormwater from the development site.

4.260.4 Stormwater Runoff

- A. No owner of any parcel of land, whether with or without a structure thereupon, shall permit the erosion or escape of soil, sand, gravel or similar material from said parcel onto any public street or into any drainage channel that receives stormwater runoff from said parcel as to harm said public street or drainage channel.
- B. In the development of any site, including single-family houses and duplexes, the developer shall not construct the development so as to cause the discharge of stormwater runoff into either a newly constructed or existing drainage channel receiving runoff from the site in such a manner as to cause erosion of such channel.

4.260.5 Inspection of Development

The Building Official and/or other designated official shall inspect each development once the site plan is approved and a building permit issued. A failure to construct the development in accordance with the approved site plan, or in violation of any of this article, shall result in a revocation of the building permit and the refusal to issue a certificate of occupancy.

4.260.6 Permit

- A. It shall be unlawful for any person to fill or excavate a parcel of land if the grade or elevation of such parcel will be changed enough to result in an increase or decrease in the volume or rate of surface water flow from or onto the land of another unless such person shall have first obtained a permit issued in accordance with this article.
- B. It shall be unlawful for any person to alter or relocate any ditch, canal, drain or watercourse which drains or affects the drainage of land other than that of said person without having first obtained a permit issued under this article.
- C. Filling or excavating in the minimum amount required for the preparation of the foundation for a building or structure shall not require a permit under this article; nevertheless, any other permit or permits required by this ordinance or other laws of the City shall be obtained before beginning foundation preparation.
- D. Fill material shall not consist of construction/demolition debris as defined in 7 (d) 1 or customarily disposed in landfills regulated by the Tennessee Department of Environment and Conservation as defined in 7 (d) 2, including:
- E. "Construction/demolition wastes" means wastes, other than special wastes, resulting from construction, remodeling, repair and demolition of structures and from road building. Such wastes include but are not limited to bricks, concrete

and other masonry materials, soil, rock and lumber, road spoils, rebar, paving material.

F. TEDAC Classification of Disposal Facilities SOLID WASTE PROCESSING AND DISPOSAL CHAPTER 1200-1-7 (Rule 1200-1-7-.01, August, 2006 (Revised))

1. Class I Disposal Facility refers to a sanitary landfill which serves a municipal, institutional, and/or rural population and is used or to be used for disposal of domestic wastes, commercial wastes, institutional wastes, municipal solid wastes, bulky wastes, landscaping and land clearing wastes, industrial wastes, construction/demolition wastes, farming wastes, shredded automotive tires, dead animals, and special wastes.
2. Class II Disposal Facility refers to a landfill which receives waste which is generated by one or more industrial or manufacturing plants and is used or to be used for the disposal of solid waste generated by such plants, which may include industrial wastes, commercial wastes, institutional wastes, farming wastes, bulky wastes, landscaping and land clearing wastes, construction/demolition wastes, and shredded automotive tires. Additionally a Class II disposal facility may also serve as a mono fill for ash disposal from the incineration of municipal solid waste.
3. Class III Disposal Facility refers to a landfill which is used or to be used for the disposal of farming wastes, landscaping and land clearing wastes, demolition/construction waste, shredded automotive tires, and/or certain wastes having similar characteristics and approved in writing by the Department.
4. Class IV Disposal Facility refers to a landfill which is used or to be used for the disposal of demolition/construction wastes, shredded automotive tires, and certain wastes having similar characteristics and approved in writing by the Department.

4.260.7 Application Required

- A. A person seeking a permit required by this article shall file a written application and site plan thereof with the Building Official and/or other designated official.
- B. Required Information: The application shall contain:
 1. Name and address of the applicant.
 2. A legal description of the parcel of land to be filled or excavated or upon which the ditch, canal, drain or watercourse to be altered or relocated is situated.
 3. If required by the Building Official and/or other designated official, a topographical map of the land to be filled or excavated or of the ditch, canal, drain or watercourse to be altered or relocated and the surrounding area for such distance as the Building Official and/or other designated official may direct.
 4. A description of the work to be done.

5. A description of the fill material, if any, to be used.
6. The estimated time needed for completion of the work.
7. Any other relevant information as may be reasonably required by the Building Official and/or other designated official.
8. Construction Site Runoff Controls Checklist (if applicable to permit request).

4.260.8 Maintenance of Facilities and Grant of Easements

A. Maintenance of Facilities

1. All improvements, including post construction best management practices and landscaping, shall be maintained in perpetuity and cannot be developed for any other use which would limit or cause to limit the use of the improvements. Responsibility and maintenance of these improvements shall follow the Ownership of the property.
2. Each property owner shall be liable, within the contents of his deed, for the maintenance of the improvements. A special note to this effect shall appear on any final plat of subdivision.
3. When problems arise due to inadequate maintenance, the City Inspector may inspect the improvements and compel the correction of the problem by written notice. If it is impracticable for the property owner to make the correction, the property owner may contract with the City for the correction of the problem if such service is available, provided the City is adequately reimbursed.

B. Grant of Easement

As a condition of issuing the permit, if required for the protection of the public or other landowners, the Board may require the applicant to:

1. Grant the City a drainage easement or easements across the land involved in the permit application and any adjacent land owned by the applicant; and,
2. Construct and maintain such drainage ditch or ditches as may be necessary. A Certificate of Post Construction Best Management Practice Perpetual Responsibility and Maintenance must be provided in order to obtain a Certificate of Occupancy.

EXHIBIT A

TOWN OF ASHLAND CITY PLANNING DEPARTMENT
CONSTRUCTION SITE RUNOFF CONTROLS CHECKLIST

This checklist is to be filled out before construction begins for all developments which anticipate land disturbance during construction. The checklist shall accompany the Building Permit Application. The purpose of the checklist is to monitor compliance with the Town of Ashland City Zoning Ordinance, Stormwater Regulations of the Environmental Protection Agency and the Stormwater Regulations of the TENNESSEE Department of Environment and Conservation.

1. What is the land area disturbed by the construction of this project? _____ acres
2. Is the land area greater than one (1) acre? _____ yes _____ no
3. If the land area is greater than one (1) acre, has compliance with the requirements of the Tennessee Department of Environment and Conservation (TEDAC) and/or the United States Environmental Protection Agency been attained?
_____ yes _____ no
4. Provide a complete site plan meeting the regulations for Ashland City.

SECTION II. LEGAL STATUS PROVISIONS

Section A. Conflict with Other Ordinances

In case of conflict between this Ordinance or any part thereof, and the whole or part of any existing or future Ordinance of ASHLAND CITY, Tennessee, the most restrictive shall in all cases apply.

Section B. Validity

If any section, clause, provision, or portion of this Ordinance shall be held to be invalid or unconstitutional by any court of competent jurisdiction, such holding shall not affect any other section, clause, provision, or portion of this Ordinance which is not of itself invalid or unconstitutional.

Section C. Effective Date

This Ordinance shall become effective 20 days on or after its final passage, in accordance with the Charter of ASHLAND CITY, Tennessee, the public welfare demanding it.

Approved and adopted by the Mayor and Council of Ashland City, TN, this _____ day of _____, 2008.



Gary Norwood, Mayor of ASHLAND CITY, Tennessee

Attest:



Phyllis Schaeffer, City Recorder ASHLAND CITY, Tennessee

1st Reading 10-14-08
Public Hearing 11-10-08
2nd Reading 11-10-08

August 4, 2023

Allen Nicholson
Town of Ashland City
233 TN Waltz Pkwy.
Ashland City, TN 37015

REFERENCE: **Walker Trucking Grading Permit (Plans Review)**

Dear Mr. Nicholson:

In assisting the city staff with plans review on this project, I recently provided comments related to the plans and calculations submitted by the Walker Trucking representatives. Those representatives returned a revised submittal along with their responses to the comments. Since the development did not tie their responses directly to my comments, this letter is intended to put the comments and responses together, summarize my review and how they attempted to meet the city requirements. My comments are shown first (*italicized*) and the development's response to those comments is inserted exactly as submitted in **bold, underline** text.

Here are my comments for the Walker property grading permit. You are welcome to forward these as written or I can provide a more formal letter if you prefer. The owner/engineer should consider these comments as part of a sufficiency review of the plans submittal. A second, more technical review can be provided upon revision to the plans and completion of the sufficiency comments listed following. In summary, all these comments are related to requirements in the City's Grading Permit Ordinance under Section 3-204. Review provided on 7 sheets dated 5-6-23 by W. Suiter.

- (b) The nature and amount of material proposed to be excavated and the amount of fill in cubic yards---- (show on the plans the amount of cut, amount fill separately and the net quantity) **The existing site is steep and wooded with soils that we have assumed are most nearly of hydrologic soil group "C," as noted in the attached hydrologic report. The design engineer is not concerned with details of the nature of materials being excavated from the site. Additionally, we do not quantify cut/fill volumes on plan sheets as it is unnecessary and only increases liability. We have shown existing grades and proposed grades, which is sufficient enough for anyone interested to calculate their own material quantity take-offs using external methods if desired.***
- (c) The street address at the point of access to the property where the work is to be performed --- -there are two locations shown and no specific address on either location **The site is a combination of two tracts, but the dividing boundary line between the two is not shown as it is irrelevant to the civil design of the project since the same developer owns each tract. The existing entrance to the north serviced the smaller of the two tracts and has a recorded***

address of 1840 Highway 12 South. The larger tract to the south has never had a residence to our knowledge and has therefore never received a recorded address.

- (e) *A description of the equipment and methods to be used in performing the work ---- I believe this is the regulation/requirement that folks call the “scope of work” – this should be added to the plan sheet for clarity and ease of inspections and not submitted separately – further, incorporation of the other requirements of this permit should be utilized in the description of site processes, equipment and completion of the work* **The design engineer has no concern about means and methods for construction and will not comment on such. Methods for completing grading work are fairly standard and limited in choice. Any requirements for means and methods should be worked out between the reviewing authority and the developer/developer’s contractor.**
- (f) *The name of the firm that will haul excavated material to or from the property where the work is to be performed --- we understand this will Walker Trucking for the most part....any clarification of subcontractors with a major role would suffice for this requirement* **This is another item that is irrelevant to the design engineer. It is generally assumed that a civil plan would be reviewed and approved before a contractor would be selected to bid on a project (in most cases). The state NOI requires contractors to attach their names to the permit only after initial approval of the plans, and we would expect that allowance from the city in this case as well.**
- (h) *The estimated dates for starting and completing the work --- these dates should align with the cut/fill volumes and definition of the means and methods required above* **From our perspective, the estimated dates for starting and completing the work will be the day following a grading plan approval from the reviewing authority unless the developer decides otherwise. The validity of the grading plan is exclusive of any construction time frame.**
- (i) *provide any soils reports that are available....provide these if they have been required by the Building Official....the various materials from the report should also be used within Item (b) for “natureof material”* **We have not completed any official soil reports and have no reason to believe that any would be warranted or beneficial to us as the design engineer. If soil reports are required by the reviewing authority, this will be need to be completed by a third party (most likely a geotechnical) firm. Whatever the results of such report, it’s findings would most likely have no influence on the nature of the grading plan proposed.**
- *Separate from the specific items listed under the grading permit ordinance here are other plans related comments*
 - *The existing contours on the site plans to not match the current conditions on the property --- revise and resubmit (the cut/fill quantities required above should also match the current vs proposed conditions once these existing conditions are revised)* **The existing contours on the plans are equal to the existing site conditions when the plan for this site was initially submitted in 2020. We will not be re-surveying the site to update the existing contours layer upon each site revision. Additionally, our existing site contours (as shown) would prove to be the most conservative means of ensuring the final condition of stormwater runoff was actually better than the existing**

condition. The existing contours shown are the most appropriate ones to use for this particular grading design.

- *Reveal a site benchmark and what the reference system is for horizontal and vertical positions* **A benchmark has been provided on the grading plan, as requested.**
- *Ensure the proposed building is revealed on the plan sheets (there has been confusion on the building size, shape and orientation on this site with many separate submittalsthe plan sheets reviewed here have no building shown at all....at least show a tentative type of structure, dimensions and permanent driveway/access plan and not just the construction version currently shown for grading only)* **Based on recent communication, no specific building is currently proposed for the site. The developer has noted that a single-family residence will be constructed in the future, but it's footprint or time frame for construction is irrelevant to the validity of the proposed grading plan. It has not been our experience that a grading plan's sole purpose be to facilitate a known or expressly defined structure. None of the subdivision plans we do are for any particularly defined home or structure.**
- *The drainage calcs will need more definition in order to be properly reviewed. Major items are listed below so that review can occur with revised submittal.*
 - *Provide a drainage map that aligns with all site hydrology (subbasins should be revealed in the existing and proposed conditions with all basic parameters revealed ---size, surface assumptions, Tc, etc)* **A drainage map has been provided as requested. Time of Concentrations, site outfall, sub-watersheds, basins, and land use boundaries are shown on the plan. Details of the ground covers, etc. for each sub-basin may be referenced in the hydrologic summary. A pre- vs. post-development runoff table has been provided on both the plan sheet and the hydrologic summary for simplicity of review.**
 - *Provide a written summary of the drainage design to aid in review of existing and proposed site calculations* **A written summary has been provided, as requested.**
 - *Ensure all hydraulic routing conditions are revealed with all ditches, structures and pipe calculations shown (all routing parameters in calcs should be readily visible on the plans sheets for comparison)* **All information relative to the stormwater design of the site is visible on the plan sheet and/or the hydrologic model summary.**
 - *Add a table to the calcs that reveals the comparison of the pre vs post conditions* **The table has been provided, as requested.**

As you can see from above, some of the questions were addressed appropriately. Other items seem questionable, and the city can make the final decision on how to proceed with this permit request.

Respectfully,



Jason Lee Reynolds, P.E.
Project Manager

RE: Grading Plan

msuiter suitersurveying.com <msuiter@suitersurveying.com>

Fri 8/25/2023 12:22 PM

To: Allen Nicholson <anicholson@ashlandcitytn.gov>; t.brasher@comcast.net <t.brasher@comcast.net>

Cc: Billy Ray Suiter <brsuiter@suitersurveying.com>; Alicia Martin <ayoung@ashlandcitytn.gov>; rickogregory@yahoo.com <rickogregory@yahoo.com>; Gary Carpenter <gcarpenter@ashlandcitytn.gov>; Jennifer Noe <jnoe@bpnlawfirm.com>; JT Smith <jtsmith@ashlandcitytn.gov>; Jason Reynolds <jason.reynolds@csrengineers.com>; Jason Walker <walkertrucking@att.net>

Hey Mr. Nicholson,

I reviewed the letter that you attached and it looks to be a summary of the initial revision requests and our responses to them. The reviewing engineer correctly noted that not all of the items were addressed as requested, and that it would be up to the city to make the final decision on how to proceed with the permit request.

In short, we didn't see any new comments to address from you. Additionally, we have done all we plan to do in attempting to address the previous requests. Noting the recent directive from your office to revoke all permits and remove equipment from site, I considered this project to be dead and do not plan to devote any further resources towards it.

Thanks
Matt Suiter

From: Allen Nicholson <anicholson@ashlandcitytn.gov>

Sent: Friday, August 25, 2023 10:59 AM

To: t.brasher@comcast.net

Cc: msuiter suitersurveying.com <msuiter@suitersurveying.com>; Billy Ray Suiter <brsuiter@suitersurveying.com>; Alicia Martin <ayoung@ashlandcitytn.gov>; rickogregory@yahoo.com; Gary Carpenter <gcarpenter@ashlandcitytn.gov>; Jennifer Noe <jnoe@bpnlawfirm.com>; JT Smith <jtsmith@ashlandcitytn.gov>; Jason Reynolds <jason.reynolds@csrengineers.com>; Jason Walker <walkertrucking@att.net>

Subject: RE: Grading Plan

Tim-

Hope all is well with you.

Wanted to follow-up on the comments being addressed for the upcoming Planning Commission meeting for the grading plan.

We are scheduling the meeting for Thursday, Sept. 7th. This is due to our normally scheduled meeting being on Labor Day.

I am working with Mr. Suiter on another project and aware they are at a funeral which I am so sorry to hear.

We will need these requested comments and items by the latest on Monday, so our city planner and engineer has time to review prior to the meeting.

Allen Nicholson
Building & Codes Director
Town of Ashland City
233 TN Waltz Pkwy, Suite 103
Ashland City, TN 37015
(615)792-4211 ext: 5244



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From: Allen Nicholson
Sent: Friday, August 11, 2023 9:43 AM
To: t.brasher@comcast.net
Cc: msuiter suitersurveying.com <msuiter@suitersurveying.com>; brsuiter@suitersurveying.com; Alicia Martin <ayoung@ashlandcitytn.gov>; rickogregory@yahoo.com; Gary Carpenter <gcarpenter@ashlandcitytn.gov>; Jennifer Noe <jnoe@bpnlawfirm.com>; JT Smith <jtsmith@ashlandcitytn.gov>; Jason Reynolds <jason.reynolds@csrengineers.com>; Jason Walker <walkertrucking@att.net>
Subject: RE: Grading Plan

Tim-

It is great to hear from you.

We had our meeting to go over Jason Reynolds comments last Friday.

To meet the needs of the planning commission, the remaining items need to be addressed that are in the attached letter from Jason Reynolds.

Also, the below items need to be addressed to move forward with the planning commission approval:

- That the federal mining registration/ID issued from MSHA (mine identification number 4003544 “Walker Quarry”) be closed and this needs to be verified by town.
- That the Tennessee Division of Water Resources NPDES permit for mining activities (permit number TN0070663) be closed and this needs to be verified by town.
- That equipment related to mining activities be removed from the site and this needs to be verified.

The reason for the federal and state mining permits needing be closed is due to the property being zoned residential also due to the rezone being denied.

Once all these items and Jason’s comments are addressed you all will be added to the planning commission agenda which will be held on Monday, September 11th.

Once approval is received from the planning commission, we will then have other items that will need to be completed prior to the permit being issued.

As of right now we do not know what those items will be because it will all depend on the scope of work that is provided.

Thanks for working with us through this process.

Allen Nicholson
Building & Codes Director
Town of Ashland City
233 TN Waltz Pkwy, Suite 103
Ashland City, TN 37015
(615)792-4211 ext: 5244



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From: t.brasher@comcast.net <t.brasher@comcast.net>
Sent: Monday, August 7, 2023 3:06 PM
To: Allen Nicholson <anicholson@ashlandcitytn.gov>
Subject: RE: Grading Plan

Allen,

How did the meeting go on Friday? Is the Engineer getting all the info you need?

Thanks,

Tim Brasher
Walker Trucking & Excavating
(931) 627-7058
t.brasher@comcast.net

From: Allen Nicholson <anicholson@ashlandcitytn.gov>
Sent: Monday, August 7, 2023 2:50 PM
To: msuiter suitersurveying.com <msuiter@suitersurveying.com>; brsuiter@suitersurveying.com
Cc: Alicia Martin <ayoung@ashlandcitytn.gov>; rickogregory@yahoo.com; Gary Carpenter <gcarpenter@ashlandcitytn.gov>; Jennifer Noe <jnoe@bpnlawfirm.com>; JT Smith <jtsmith@ashlandcitytn.gov>; Jason Walker <walkertrucking@att.net>; t.brasher@comcast.net; Jason Reynolds <jason.reynolds@csrengineers.com>
Subject: RE: Grading Plan

Good afternoon-

I just got off the phone with Jason Walker.

He requested me to remove his item from the agenda tonight in order to get all comments addressed by both engineers.

We will move this to the September 11th meeting.

Thank you all.

Allen Nicholson
Building & Codes Director
Town of Ashland City
233 TN Waltz Pkwy, Suite 103
Ashland City, TN 37015
(615)792-4211 ext: 5244



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From: Allen Nicholson <anicholson@ashlandcitytn.gov>
Sent: Monday, July 31, 2023 7:01 PM
To: msuiter suitersurveying.com <msuiter@suitersurveying.com>
Cc: Alicia Martin <ayoung@ashlandcitytn.gov>; rickogregory@yahoo.com; Gary Carpenter <gcarpenter@ashlandcitytn.gov>; Jennifer Noe <jnoe@bpnlawfirm.com>; JT Smith <jtsmith@ashlandcitytn.gov>; Jason Walker <walkertrucking@att.net>; t.brasher@comcast.net; Jason Reynolds <jason.reynolds@csrengineers.com>
Subject: Re: Grading Plan

Matt-

I just wanted to reach out to you concerning your responses to our engineer comments.

After speaking with our engineer, it seems many of the comments our engineer had asked to be addressed are not addressed.

Please remember everything that Mr Reynolds has commented/requested is within our rules and regulations.

With that being said, we have a meeting with our city attorney, city engineer and city planner scheduled for Friday to discuss this matter more in detail.

Once I get further direction from our city attorney, I will let you know how we need to proceed.

Thank you all as we work together this this process.

Allen Nicholson

Building & Codes Director
Town of Ashland City
233 TN Waltz Pkwy, Suite 103
Ashland City, TN 37015
(615)792-4211 x 5244

 Image

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From: Allen Nicholson
Sent: Thursday, July 20, 2023 2:46:09 PM
To: Jason Reynolds <jason.reynolds@csrengineers.com>; msuiter suitersurveying.com <msuiter@suitersurveying.com>
Cc: Alicia Martin <ayoung@ashlandcitytn.gov>; rickogregory@yahoo.com <rickogregory@yahoo.com>; Gary Carpenter <gcarpenter@ashlandcitytn.gov>; Jennifer Noe <jnoe@bpnlawfirm.com>; JT Smith <jtsmith@ashlandcitytn.gov>; Jason Walker <walkertrucking@att.net>; t.brasher@comcast.net <t.brasher@comcast.net>
Subject: FW: Grading Plan

Mr. Billy Ray-

Thank you for the resubmittal and responses.

I have included Mr. Jason Reynolds on the email so he can review the comments and resubmittal.

Thanks for working with us.

Allen Nicholson
Building & Codes Director
Town of Ashland City
233 TN Waltz Pkwy, Suite 103
Ashland City, TN 37015
(615)792-4211 ext: 5244



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From: msuiter suitersurveying.com <msuiter@suitersurveying.com>

Sent: Thursday, July 20, 2023 2:36 PM

To: Allen Nicholson <anicholson@ashlandcitytn.gov>

Cc: Gary Carpenter <gcarpenter@ashlandcitytn.gov>; Alicia Martin <ayoung@ashlandcitytn.gov>; Billy Ray Suiter <brsuiter@suitersurveying.com>

Subject: RE: Grading Plan

Hey Mr. Nicholson!

Attached is a revised grading plan, along with its accompanying hydrologic summary for the Jason Walker project on Highway 12. Please let me know if you would like hard copies (and if so how many) and we can either mail them or deliver them.

Below is a bullet-by-bullet response the reviewing engineer's letter that was forwarded to me through you and Billy Ray:

1. The existing site is steep and wooded with soils that we have assumed are most nearly of hydrologic soil group "C," as noted in the attached hydrologic report. The design engineer is not concerned with details of the nature of materials being excavated from the site. Additionally, we do not quantify cut/fill volumes on plan sheets as it is unnecessary and only increases liability. We have shown existing grades and proposed grades, which is sufficient enough for anyone interested to calculate their own material quantity take-offs using external methods if desired.
2. The site is a combination of two tracts, but the dividing boundary line between the two is not shown as it is irrelevant to the civil design of the project since the same developer owns each tract. The existing entrance to the north serviced the smaller of the two tracts and has a recorded address of 1840 Highway 12 South. The larger tract to the south has never had a residence to our knowledge and has therefore never received a recorded address.
3. The design engineer has no concern about means and methods for construction and will not comment on such. Methods for completing grading work are fairly standard and limited in choice. Any requirements for means and methods should be worked out between the reviewing authority and the developer/developer's contractor.
4. This is another item that is irrelevant to the design engineer. It is generally assumed that a civil plan would be reviewed and approved before a contractor would be selected to bid on a project (in most cases). The state NOI requires contractors to attach their names to the permit only *after* initial approval of the plans, and we would expect that allowance from the city in this case as well.
5. From our perspective, the estimated dates for starting and completing the work will be the day following a grading plan approval from the reviewing authority unless the developer decides otherwise. The validity of the grading plan is exclusive of any construction time frame.
6. We have not completed any official soil reports and have no reason to believe that any would be warranted or beneficial to us as the design engineer. If soil reports are required by the reviewing authority, this will be need to be completed by a third party (most likely a geotechnical) firm. Whatever the results of such report, it's findings would most likely have no influence on the nature of the grading plan proposed.
7. The existing contours on the plans are equal to the existing site conditions when the plan for this site was initially submitted in 2020. We will not be re-surveying the site to update the existing contours layer upon each site revision. Additionally, our existing site contours (as shown) would prove to be the most conservative means of ensuring the final condition of stormwater runoff was actually better than the existing condition. The existing contours shown are the most appropriate ones to use for this particular grading design.
8. A benchmark has been provided on the grading plan, as requested.
9. Based on recent communication, no specific building is currently proposed for the site. The developer has noted that a single-family residence will be constructed in the future, but it's footprint or time frame for construction is irrelevant to the validity of the proposed grading plan. It has not been our experience that a

grading plan's sole purpose be to facilitate a known or expressly defined structure. None of the subdivision plans we do are for any particularly defined home or structure.

10. A drainage map has been provided as requested. Time of Concentrations, site outfall, sub-watersheds, basins, and land use boundaries are shown on the plan. Details of the ground covers, etc. for each sub-basin may be referenced in the hydrologic summary. A pre- vs. post-development runoff table has been provided on both the plan sheet and the hydrologic summary for simplicity of review.
11. A written summary has been provided, as requested.
12. All information relative to the stormwater design of the site is visible on the plan sheet and/or the hydrologic model summary.
13. The table has been provided, as requested.

Let me know what else you need from me, Mr. Nicholson.

Thank you!
Matt Suiter
Suiter Surveying & Land Planning

From: Allen Nicholson <anicholson@ashlandcitytn.gov>
Sent: Monday, June 12, 2023 11:58 AM
To: msuiter suitersurveying.com <msuiter@suitersurveying.com>
Cc: Gary Carpenter <gcarpenter@ashlandcitytn.gov>; Alicia Martin <ayoung@ashlandcitytn.gov>; Billy Ray Suiter <brsuiter@suitersurveying.com>
Subject: Re: Grading Plan

Hello Matt-

I do apologize.

I received the links but failed to download and the link had expired.

If you could please send them back one more time and I will be sure to download.

Just a lot happening and thanks in advance.

Allen Nicholson

Building & Codes Director

Town of Ashland City

233 TN Waltz Pkwy, Suite 103

Ashland City, TN 37015

(615)792-4211 x 5244

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the material from your computer. Do not deliver, distribute, or copy this message and do not disclose its contents or take any action in reliance on the information it contains.

From: msuiter suitersurveying.com <msuiter@suitersurveying.com>
Sent: Monday, June 12, 2023 11:54:20 AM
To: Allen Nicholson <anicholson@ashlandcitytn.gov>
Cc: Gary Carpenter <gcarpenter@ashlandcitytn.gov>; Alicia Martin <ayoung@ashlandcitytn.gov>; Billy Ray Suiter <brsuiter@suitersurveying.com>
Subject: RE: Grading Plan

Hey Mr. Nicholson,

I had sent the link twice, along with the Brookhollow Plans. Have you not received Brookhollow either? It should appear as an email from Dropbox in your mailbox.

-Matt

From: Allen Nicholson <anicholson@ashlandcitytn.gov>
Sent: Friday, June 9, 2023 9:24 AM
To: Billy Ray Suiter <brsuiter@suitersurveying.com>
Cc: Gary Carpenter <gcarpenter@ashlandcitytn.gov>; Alicia Martin <ayoung@ashlandcitytn.gov>; msuiter suitersurveying.com <msuiter@suitersurveying.com>
Subject: Re: Grading Plan

Mr. Billy Ray-

Just checking in to see if you had an opportunity to get with Matt to resend me the link for the grading plan.

Thanks for everything.

Allen Nicholson
Building & Codes Director
Town of Ashland City
233 TN Waltz Pkwy, Suite 103
Ashland City, TN 37015
(615)792-4211 ext: 5244



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From: Billy Ray Suiter <brsuiter@suitersurveying.com>
Sent: Tuesday, June 6, 2023 1:27 PM
en Nicholson <anicholson@ashlandcitytn.gov>

Cc: Gary Carpenter <gcarpenter@ashlandcitytn.gov>; Alicia Martin <ayoung@ashlandcitytn.gov>; msuiter
suitersurveying.com <msuiter@suitersurveying.com>

Subject: RE: Grading Plan

I will get Matt to send it back to you

From: Allen Nicholson <anicholson@ashlandcitytn.gov>

Sent: Tuesday, June 6, 2023 1:17 PM

To: Billy Ray Suiter <brsuiter@suitersurveying.com>

Cc: Gary Carpenter <gcarpenter@ashlandcitytn.gov>; Alicia Martin <ayoung@ashlandcitytn.gov>

Subject: Grading Plan

Mr. Billy Ray-

Can you please send me the link again to the grading plan for Jason Walker.

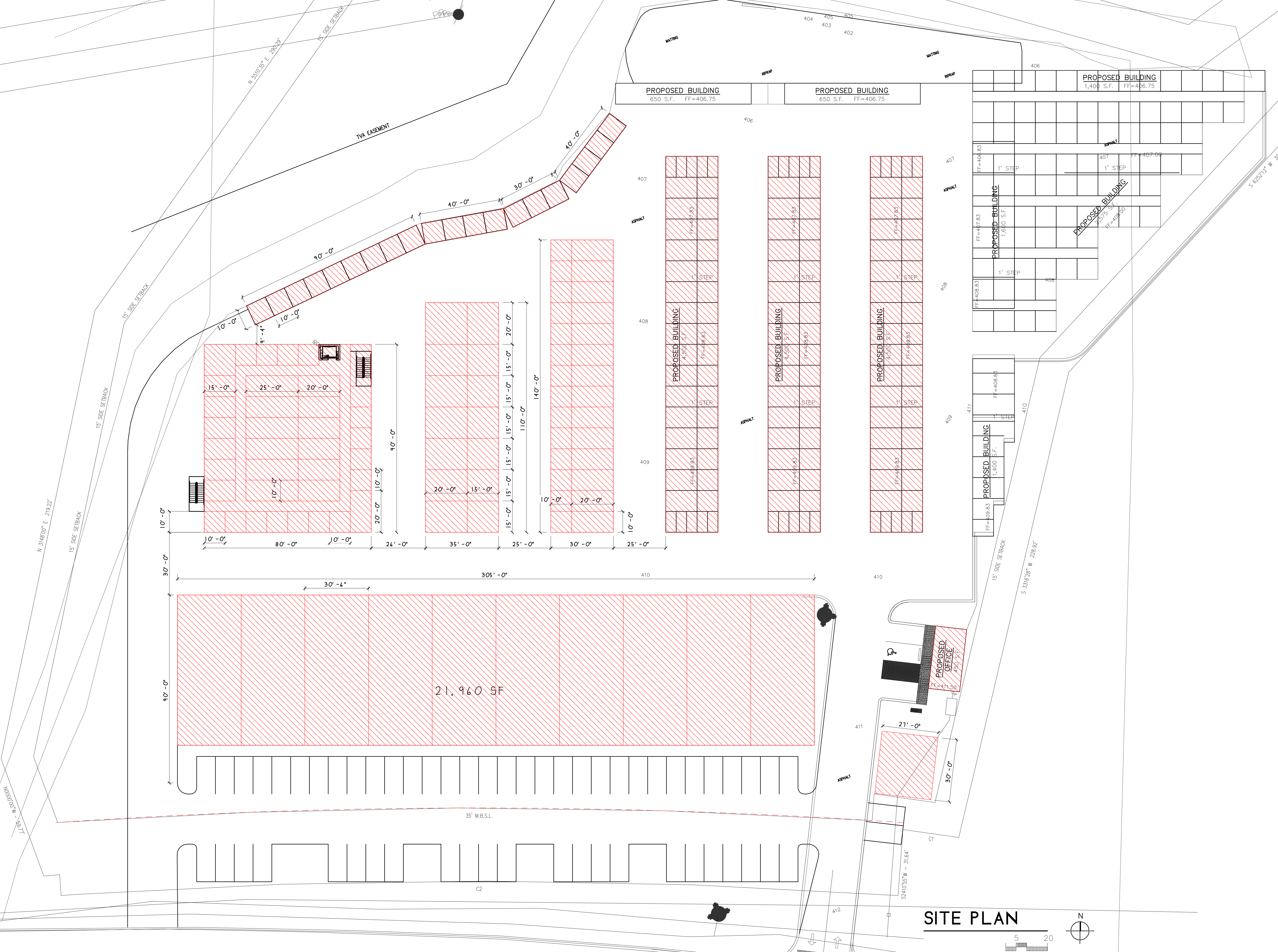
My link has expired, and I did not fully download them.

Thanks in advance.

Allen Nicholson
Building & Codes Director
Town of Ashland City
233 TN Waltz Pkwy, Suite 103
Ashland City, TN 37015
(615)792-4211 ext: 5244



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SITE PLAN

0 5 10 20

N

U.S. HIGHWAY 12 SOUTH
(RIGHT OF WAY VARIES)

STORMWATER DESIGN CALCULATIONS

FOR

Ace Mini Storage
Hwy 12
Ashland City, TN

August 25, 2023



Prepared By

KLOBER ENGINEERING SERVICES
3556 Tom Austin Hwy, Suite 1
Springfield, Tennessee 37172
(615) 382-2000



STORM WATER CALCULATIONS

NOTE: Storm water runoff is calculated using the TR-55 Method. All flow calculations are based on methods established in the Nashville / Davidson County Stormwater Management Manual.

The following pages contain calculations for the storm water drainage system.

The following table illustrates storm water runoff data for pre and post developed conditions for the above referenced property.

Storm Event	Total Pre-Developed Runoff (1R)	Post-Developed to Pond (3S)	Post-Developed Pond Bypass (4S)	Total Post Developed Discharge (2R)	Pond Elevation: TOB: 405.50
2 yr.	13.38	15.58	1.11	12.64	403.11
5 yr.	16.98	19.40	1.53	15.58	403.40
10 yr.	19.82	22.43	1.87	17.91	403.61
25 yr.	23.81	26.73	2.37	21.14	403.92
50 yr.	27.00	30.21	2.78	23.68	404.17
100yr.	30.24	33.77	3.19	26.20	404.43

Water Quantity:

The existing detention pond on this site has been sized to handle the additional stormwater runoff generated by the site development and to reduce the peak discharge at or below predeveloped conditions. The pond and outlet structure had been designed for the complete build out of the site for all phases. Storm events are controlled by a weir structure built into the pond wall.

PRE-DEVELOPED

PRESENT OWNER:
MARK & TONYA YARBROUGH
400 WARIO TO WAY #708
ASHLAND CITY, TN 37105

DEED REFERENCE:
MAP 55, PARCEL 36
LEE BAXSON COMMERCIAL LOTS - LOT 1

PROPERTY INFORMATION:
AREA: 226,164 S.F. = 5.19 ACRES

ZONING:
COMMERCIAL C-2

SITE USE:
EXISTING USE: MINI STORAGE
PROPOSED USE: MINI STORAGE

SIGN NOTE:
ALL SIGNS SHALL COMPLY WITH THE MOST CURRENT EDITION OF THE ASHLAND CITY ZONING ORDINANCE. SEPARATE PERMIT REQUIRED.

SECURITY GATE:
SECURITY GATES OR BARRIERS SHALL BE EQUIPPED WITH A RADIO OPERATED RECEIVER/CONTROLLER CAPABLE OF RECEIVING SIGNALS FROM A POLICE DEPARTMENT, SHERIFF'S DEPARTMENT (IF THE GATED FACILITY OR COMMUNITY IS IN THE COUNTY), FIRE DEPARTMENT, UTILITY AND EMERGENCY MEDICAL SERVICES' RADIO TRANSMITTERS SERVING THE GATED FACILITY OR COMMUNITY WHICH ALLOW EMERGENCY RESPONDERS AND OTHER NECESSARY ON-DUTY EMPLOYEES TO OPEN THE SECURITY GATE OR BARRIER BY USE OF SUCH EQUIPMENT. ALL SECURITY GATES OR BARRIERS MUST MEET POLICES DEEMED NECESSARY BY THE AUTHORITY HAVING JURISDICTION OVER THE GATED FACILITY OR COMMUNITY FOR RAPID, RELIABLE, AND MUTUAL AID ACCESS. SUCH EQUIPMENT SHALL BE FURNISHED, INSTALLED AND MAINTAINED BY THE GATED FACILITY OR COMMUNITY THAT IS SERVED BY SUCH EQUIPMENT.

LOT COVERAGE:
EXISTING BUILDING AREA = 22,225 S.F.
NEW BUILDING AREA = 24,090 S.F.
BUILDING COVERAGE = 20.5%
MAX BUILDING HEIGHT: 40'-07"
EXISTING CONCRETE SURFACE: ±350 S.F.
EXISTING ASPHALT SURFACE: ±41,782 S.F.
EXISTING IMPERVIOUS AREA: ±64,357 S.F. = 28.46%
PROPOSED ASPHALT SURFACE: ±18,144 S.F.
PROPOSED IMPERVIOUS AREA: ±106,591 S.F. = 47.13%

PARKING INFORMATION:
REQUIRED PARKING:
EXISTING: 3 SPACES, INCLUDING 1 HANDICAP SPACES
PROVIDED: 2 SPACES

TOTAL PARKING: 5 SPACES, INCLUDING 1 HANDICAP SPACES

UTILITY NOTE:
COORDINATE ALL UTILITY INSTALLATIONS WITH GOVERNING ENTITIES.

GENERAL NOTES:

- PRIOR TO BEGINNING CONSTRUCTION ON THIS SITE THE LOCATION OF UTILITIES MUST BE IDENTIFIED BY CALLING THE TOLL-FREE TENNESSEE ONE CALL REFERENCE NUMBER 1-800-351-1111.
- ALL CONSTRUCTION ON THIS SITE SHALL COMPLY WITH APPLICABLE REGULATIONS AS SPECIFIED BY THE CITY OF MILLERSVILLE AND THE STATE OF TENNESSEE.
- TOPSOIL SHALL BE PLACED ON EXCAVATED AREAS WHICH REQUIRE NEW VEGETATION. GROUND COVER SHALL BE REESTABLISHED WITH KENTUCKY 31 FESCUE SEEDING AT A MINIMUM OF 250 LBS. PER ACRE. SLOPES 3:1 OR GREATER SHALL BE LINED WITH NORTH AMERICAN GREEN 5150 GRASS MATTING OR EQUAL.
- SILT FENCE SHALL BE INSTALLED IN ALL EROSION AREAS WHICH COULD ALLOW UNTREATED STORMWATER RUNOFF TO BE DISCHARGED FROM THE PROPERTY. ALL EROSION CONTROL MEASURES SHALL BE CONSISTENT WITH THE PROVISIONS DESCRIBED IN THE MOST CURRENT EDITION OF THE TENNESSEE EROSION & SEDIMENT CONTROL HANDBOOK.
- THE STORMWATER RUNOFF CALCULATIONS ON THIS SITE HAVE BEEN PERFORMED USING THE U.S. SOIL CONSERVATION SERVICE TR-55 METHOD. STORMWATER POND HAS BEEN SIZED TO HANDLE A 25 AND 100 YEAR STORM EVENT.
- THE TOPOGRAPHIC SURVEY SHOWN HEREON WAS TAKEN FROM A SURVEY BY STEVEN E. ARTZ SURVEYING OF SPRINGFIELD, TN.
- CONSTRUCTION WILL BEGIN FOLLOWING PLAN APPROVAL BY THE CITY OF ASHLAND CITY. THE BUILDING SHOULD FRONT TED DORRIS ROAD, AND BE SERVICED BY UNDERGROUND UTILITY LINES.
- ANY DUMPSTER SHALL BE FULLY ENCLOSED, MATCHING THE FACADE OF THE BUILDING, AND A WOODEN PRIVACY FENCE GATE THAT IS 8 FEET HIGH ON ALL SIDES AND ALL SERVICE BOXES AND MECHANICALS TO BE IN THE REAR OF THE BUILDING.
- ALL ADDITIONS IN THE FUTURE MUST BE BUILT TO THESE STANDARDS.
- THIS PROPERTY IS LOCATED IN ZONE "A" AND ZONE "X" (AREAS OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN AS SHOWN ON NFP FIRM MAP ACCORDING TO THE FEMA MAP PANEL NUMBER 47021C01700, DATED 9/10/2010).


NPDES PERMIT NOTE:
THE MAXIMUM DISTURBED AREA FOR THIS PROJECT IS OVER 1 ACRE. THIS SITE IS CURRENTLY COVERED UNDER PERMIT NUMBER TNR245326.

Joshua M. Lyon
JOSHUA M. LYON, P.E.
PROJECT MANAGER

EP&SC NOTES:

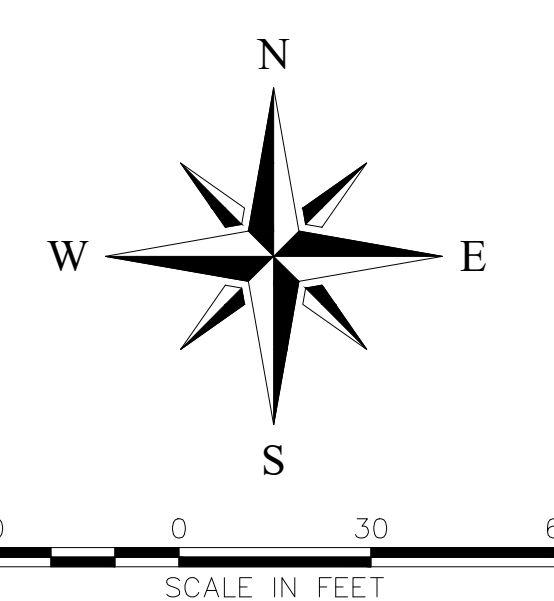
- AN EROSION PREVENTION SILTATION CONTROL PLAN (EP&SC) AND LAND DISTURBANCE PERMIT (IF REQUIRED) SHALL BE IN PLACE PRIOR TO ANY GRADING, CLEARING AND/OR ANY OTHER CONSTRUCTION ACTIVITY. EROSION CONTROL DEVICES SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD, GENERALLY CONSIDERED TO BE THROUGHOUT THE COMPLETION OF RESTORATION. IF REQUIRED, THE EP&SC PLAN ALONG WITH AN INSPECTION CHECKLIST AND STORMWATER PERMIT MUST BE AT THE PROJECT SITE AT ALL TIMES. THE INSPECTION CHECKLIST SHALL HAVE A RECORD OF DATES EP&SC DEVICES ARE INSPECTED AND ANY CORRECTION ACTION TAKEN OR MAJOR OBSERVATIONS. BMP'S MUST BE INSPECTED BY A QUALIFIED PERSON WHO HAS TAKEN AN APPROVED EROSION AND SEDIMENTATION COURSE.
- ALL EP&SC DEVICES ARE TO REMAIN IN PLACE UNTIL THE SITE HAS BEEN STABILIZED AND A GOOD STAND OF GRASS HAS BEEN ESTABLISHED.
- EROSION PREVENTION AND SEDIMENT CONTROLS MUST BE INSPECTED AT LEAST TWICE EVERY CALENDAR WEEK AT LEAST 72 HOURS APART. INSPECTIONS ARE TO BE DOCUMENTED AND KEPT WITH THE SWPPP (IF REQUIRED).
- SILT FENCE, OR OTHER SEDIMENT BARRIERS ARE TO BE INSTALLED PROPERLY ALONG TOPOGRAPHICAL CONTOURS DOWN SLOPE OF THE AREA TO BE DISTURBED PRIOR TO ANY GRADING, CLEARING AND/OR ANY OTHER CONSTRUCTION ACTIVITY.
- EXCAVATED TOPSOIL TO BE REUSED MUST BE STOCKPILED AND ENCLOSED WITH SILT FENCING.
- THIS SITE SHALL CONTAIN A TEMPORARY STONE CONSTRUCTION ENTRANCE THAT CONFORMS TO REQUIRED SPECIFICATIONS PRIOR TO GRADING COMMENCEMENT. THE STONE SHALL BE 2 TO 3 INCH IN DIAMETER AND SHALL BE KEPT CLEAN BY ADDING STONE AS NEEDED. IT SHALL BE AT LEAST 8 INCHES DEEP UNDERLAIN WITH FILTER FABRIC AND 20 FEET WIDE.
- APPROVED ALIET PROTECTIONS FOR NEARBY STORM SEWER CURBS AND DROP INLETS MUST BE INSTALLED WITHIN 24 HOURS OF GRADING COMMENCEMENT.
- VEGETATIVE BUFFERS OR OTHER PROTECTION MUST BE PROVIDED ALONG STREAMS, RIVERS, AND PONDS TO AVOID EROSION OF BANKS.
- STABILIZATION MEASURES MUST BE PERFORMED WITHIN SEVEN (7) DAYS IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, AND WITHIN FIFTEEN (15) DAYS AFTER FINAL GRADING.
- ALL TREES DESIGNATED TO REMAIN MUST BE PROTECTED. HEAVY EQUIPMENT SHOULD NOT BE OPERATED OR STORED, NOR MATERIALS HANDLED OR STORED, WITHIN THE DRIP LINES OF TREES.
- SEDIMENT MUST BE REMOVED FROM SEDIMENT BARRIERS, PONDS, AND OTHER SEDIMENT CONTROLS WHEN DESIGN CAPACITY HAS BEEN REDUCED BY 50%.
- SEDIMENT THAT HAS ESCAPED THE CONSTRUCTION SITE AND HAS COLLECTED IN THE STREET OR DRAINAGE STRUCTURES MUST IMMEDIATELY BE PHYSICALLY REMOVED. BUILDING AND WASTE MATERIALS, AND NON STORM WATER DISCHARGES, SUCH AS CONCRETE, PAINT WASH WATER, OR MACHINERY LEAKAGE, OR SPILLAGE MUST BE MANAGED TO PREVENT THEM FROM ENTERING THE STORM WATER SYSTEM, GROUND WATER, OR NEARBY WATER BODY.
- THE PROJECT IS SUBJECT TO INSPECTION BY THE CITY AT ANY TIME AND ITEMS FOUND DEFICIENT SHALL BE IMMEDIATELY CORRECTED. THE CITY MAY STOP CONSTRUCTION OR PROPERTIES, OR ADMINISTER OTHER ENFORCEMENT ACTIONS AS DEFINED BY THE CITY.

CALL BEFORE YOU DIG



CALL 811 NATIONWIDE
Know what's below. Call before you dig.

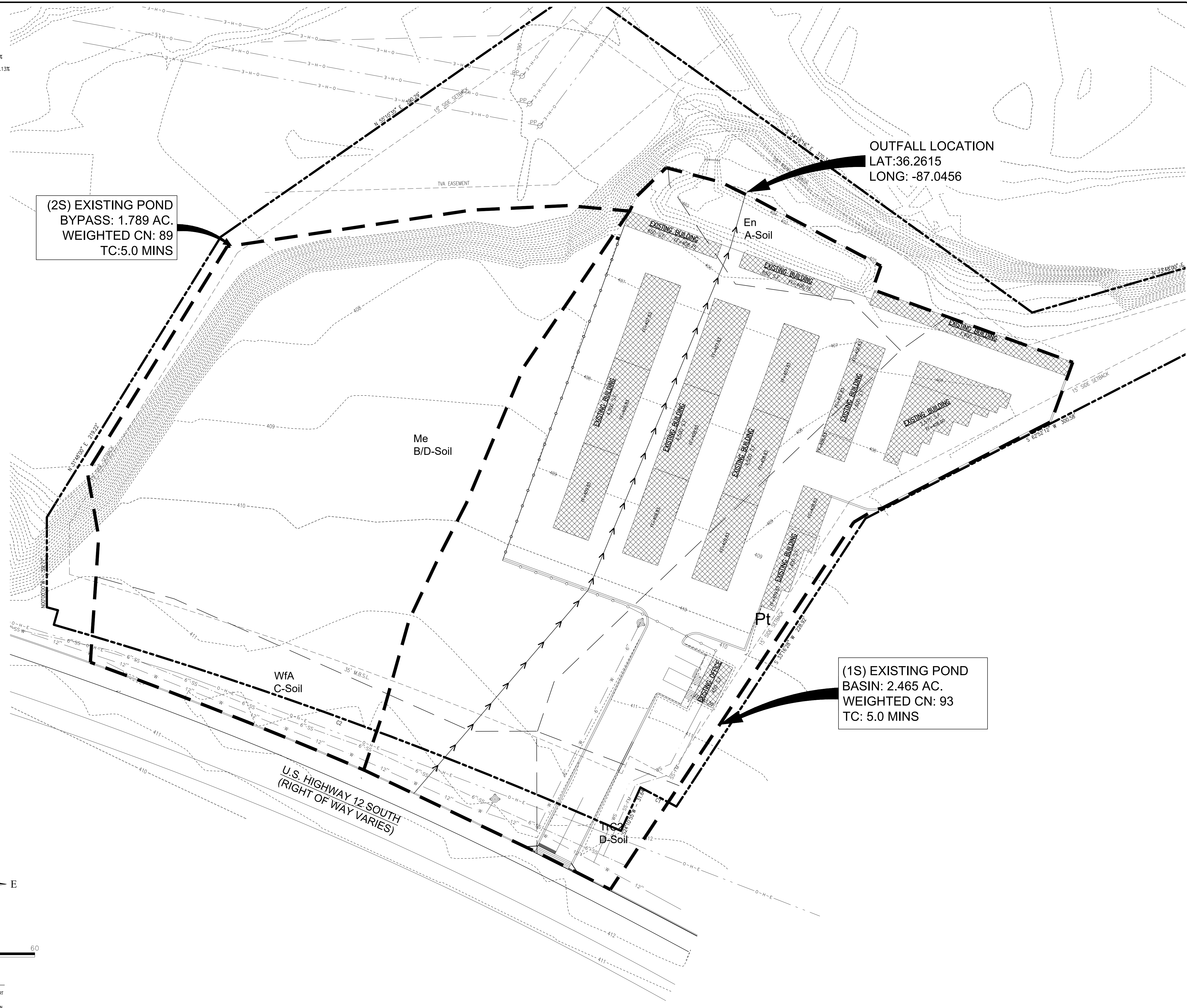
IT IS THE CONTRACTORS RESPONSIBILITY TO CONTACT UTILITY COMPANIES PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE AND POSSIBLY INCOMPLETE. THEREFORE OPERATIONS TO THE LOCATION OF ALL UNDERGROUND UTILITIES IS Warranted.



SCALE IN FEET

LEGEND:


— W — 8" SS — 6"	PROPERTY LINE	○	MANHOLE	— 25.42 —	PPE INVERT
— W — 8" SS — 6"	EXISTING WATER LINE	○	C/O	○	CLEAN OUT
— W — 8" SS — 6"	EXISTING SEWER LINE	○	P/P	○	POWER POLE
— W — 8" SS — 6"	EXISTING ELECTRIC LINE	○	○	○	WATER METER
— W — 8" SS — 6"	FENCE	○	○	○	FIRE HYDRANT
— W — 8" SS — 6"	NEW CURB	○	○	○	IRON ROD OLD
— W — 8" SS — 6"	SILT FENCE	○	○	○	IRON ROD NEW
— W — 8" SS — 6"	NEW 1" CONTOUR	○	○	○	
— W — 8" SS — 6"	EXISTING 1" CONTOUR	○	○	○	
— W — 8" SS — 6"	DEM LINE	○	○	○	



KLOBER ENGINEERING SERVICES

SEVING CLIENTS WITH CIVIL ENGINEERING & LAND DEVELOPMENT SERVICES
3556 TOLSON ROAD, SUITE 100, ASHLAND, TN 37015
PHONE: (615) 385-2000 FAX: (615) 374-0488
www.klobereing.com

NO.	BY	DATE	DESCRIPTION



JOSHUA M. LYON, P.E. TN#112331

ACE MINI STORAGE

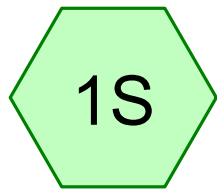
ASHLAND CITY, TN
CHEATHAM COUNTY

DRAWN BY: CJN
CHECKED BY: JML
DATE: 8/31/23
PROJECT NO.: C05823

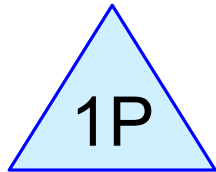
PRE DEVELOPED DRAINAGE
SHEET NUMBER
DM-1

ITEM # 3

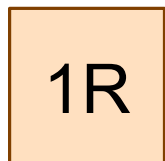
NOT FOR CONSTRUCTION



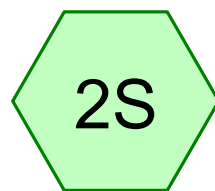
Existing Pond Basin



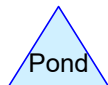
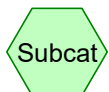
Existing Detention Pond



Total Pre



Existing Pond Bypass



Routing Diagram for Drainage
Prepared by Klobner Engineering, Printed 8/25/2023
HydroCAD® 10.20-2g s/n 09895 © 2022 HydroCAD Software Solutions LLC

Drainage

Prepared by Klober Engineering

HydroCAD® 10.20-2g s/n 09895 © 2022 HydroCAD Software Solutions LLC

NOAA 24-hr B 2-Year Rainfall=3.60"

Printed 8/25/2023

Page 2

Summary for Subcatchment 1S: Existing Pond Basin

Runoff = 9.75 cfs @ 12.11 hrs, Volume= 0.552 af, Depth> 2.69"
 Routed to Pond 1P : Existing Detention Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 NOAA 24-hr B 2-Year Rainfall=3.60"

Area (ac)	CN	Description
0.219	79	50-75% Grass cover, Fair, HSG C
0.124	49	50-75% Grass cover, Fair, HSG A
0.113	98	Paved parking, HSG C
1.491	96	Gravel surface, HSG C
* 0.510	98	Roofs, HSG C
0.008	98	Unconnected pavement, HSG C
2.465	93	Weighted Average
1.834		74.40% Pervious Area
0.631		25.60% Impervious Area
0.008		1.27% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 2S: Existing Pond Bypass

Runoff = 6.34 cfs @ 12.11 hrs, Volume= 0.345 af, Depth> 2.31"
 Routed to Reach 1R : Total Pre

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 NOAA 24-hr B 2-Year Rainfall=3.60"

Area (ac)	CN	Description
0.215	79	50-75% Grass cover, Fair, HSG C
0.303	69	50-75% Grass cover, Fair, HSG B
1.271	96	Gravel surface, HSG C
1.789	89	Weighted Average
1.789		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Reach 1R: Total Pre

Inflow Area = 4.254 ac, 14.83% Impervious, Inflow Depth > 2.53" for 2-Year event
 Inflow = 13.38 cfs @ 12.14 hrs, Volume= 0.896 af
 Outflow = 13.38 cfs @ 12.14 hrs, Volume= 0.896 af, Atten= 0%, Lag= 0.0 min

Drainage

Prepared by Klober Engineering

HydroCAD® 10.20-2g s/n 09895 © 2022 HydroCAD Software Solutions LLC

NOAA 24-hr B 2-Year Rainfall=3.60"

Printed 8/25/2023

Page 3

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 1P: Existing Detention Pond

Inflow Area = 2.465 ac, 25.60% Impervious, Inflow Depth > 2.69" for 2-Year event
 Inflow = 9.75 cfs @ 12.11 hrs, Volume= 0.552 af
 Outflow = 7.59 cfs @ 12.17 hrs, Volume= 0.551 af, Atten= 22%, Lag= 3.4 min
 Primary = 7.59 cfs @ 12.17 hrs, Volume= 0.551 af
 Routed to Reach 1R : Total Pre

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 402.65' @ 12.17 hrs Surf.Area= 2,933 sf Storage= 2,453 cf

Plug-Flow detention time= 4.9 min calculated for 0.551 af (100% of inflow)
 Center-of-Mass det. time= 4.1 min (760.2 - 756.1)

Volume	Invert	Avail.Storage	Storage Description
#1	401.25'	11,230 cf	DETENTION POND (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
401.25	16	16.0	0	0	16
402.00	2,505	355.0	680	680	10,025
403.00	3,174	346.0	2,833	3,513	10,638
404.00	3,860	357.0	3,511	7,025	11,346
405.00	4,561	368.0	4,206	11,230	12,077

Device	Routing	Invert	Outlet Devices
#1	Primary	401.45'	2.0' long x 3.50' rise Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=7.42 cfs @ 12.17 hrs HW=402.63' (Free Discharge)
 ↑1=Sharp-Crested Rectangular Weir (Weir Controls 7.42 cfs @ 3.56 fps)

Drainage

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NOAA 24-hr B 5-Year Rainfall=4.39"

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Summary for Subcatchment 1S: Existing Pond Basin

Runoff = 12.21 cfs @ 12.11 hrs, Volume= 0.702 af, Depth> 3.42"
 Routed to Pond 1P : Existing Detention Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 NOAA 24-hr B 5-Year Rainfall=4.39"

Area (ac)	CN	Description
0.219	79	50-75% Grass cover, Fair, HSG C
0.124	49	50-75% Grass cover, Fair, HSG A
0.113	98	Paved parking, HSG C
1.491	96	Gravel surface, HSG C
* 0.510	98	Roofs, HSG C
0.008	98	Unconnected pavement, HSG C
2.465	93	Weighted Average
1.834		74.40% Pervious Area
0.631		25.60% Impervious Area
0.008		1.27% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 2S: Existing Pond Bypass

Runoff = 8.15 cfs @ 12.11 hrs, Volume= 0.451 af, Depth> 3.02"
 Routed to Reach 1R : Total Pre

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 NOAA 24-hr B 5-Year Rainfall=4.39"

Area (ac)	CN	Description
0.215	79	50-75% Grass cover, Fair, HSG C
0.303	69	50-75% Grass cover, Fair, HSG B
1.271	96	Gravel surface, HSG C
1.789	89	Weighted Average
1.789		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Reach 1R: Total Pre

Inflow Area = 4.254 ac, 14.83% Impervious, Inflow Depth > 3.25" for 5-Year event
 Inflow = 16.98 cfs @ 12.14 hrs, Volume= 1.152 af
 Outflow = 16.98 cfs @ 12.14 hrs, Volume= 1.152 af, Atten= 0%, Lag= 0.0 min

Drainage

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NOAA 24-hr B 5-Year Rainfall=4.39"

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Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 1P: Existing Detention Pond

Inflow Area = 2.465 ac, 25.60% Impervious, Inflow Depth > 3.42" for 5-Year event
 Inflow = 12.21 cfs @ 12.11 hrs, Volume= 0.702 af
 Outflow = 9.52 cfs @ 12.17 hrs, Volume= 0.701 af, Atten= 22%, Lag= 3.4 min
 Primary = 9.52 cfs @ 12.17 hrs, Volume= 0.701 af
 Routed to Reach 1R : Total Pre

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 402.87' @ 12.17 hrs Surf.Area= 3,085 sf Storage= 3,117 cf

Plug-Flow detention time= 4.9 min calculated for 0.701 af (100% of inflow)
 Center-of-Mass det. time= 4.1 min (755.8 - 751.7)

Volume	Invert	Avail.Storage	Storage Description
#1	401.25'	11,230 cf	DETENTION POND (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
401.25	16	16.0	0	0	16
402.00	2,505	355.0	680	680	10,025
403.00	3,174	346.0	2,833	3,513	10,638
404.00	3,860	357.0	3,511	7,025	11,346
405.00	4,561	368.0	4,206	11,230	12,077

Device	Routing	Invert	Outlet Devices
#1	Primary	401.45'	2.0' long x 3.50' rise Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=9.32 cfs @ 12.17 hrs HW=402.85' (Free Discharge)
 ↑1=Sharp-Crested Rectangular Weir (Weir Controls 9.32 cfs @ 3.87 fps)

Drainage

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NOAA 24-hr B 10-Year Rainfall=5.02"

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Summary for Subcatchment 1S: Existing Pond Basin

Runoff = 14.15 cfs @ 12.11 hrs, Volume= 0.823 af, Depth> 4.00"
Routed to Pond 1P : Existing Detention Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 10-Year Rainfall=5.02"

Area (ac)	CN	Description
0.219	79	50-75% Grass cover, Fair, HSG C
0.124	49	50-75% Grass cover, Fair, HSG A
0.113	98	Paved parking, HSG C
1.491	96	Gravel surface, HSG C
* 0.510	98	Roofs, HSG C
0.008	98	Unconnected pavement, HSG C
2.465	93	Weighted Average
1.834		74.40% Pervious Area
0.631		25.60% Impervious Area
0.008		1.27% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 2S: Existing Pond Bypass

Runoff = 9.59 cfs @ 12.11 hrs, Volume= 0.536 af, Depth> 3.60"
Routed to Reach 1R : Total Pre

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 10-Year Rainfall=5.02"

Area (ac)	CN	Description
0.215	79	50-75% Grass cover, Fair, HSG C
0.303	69	50-75% Grass cover, Fair, HSG B
1.271	96	Gravel surface, HSG C
1.789	89	Weighted Average
1.789		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Reach 1R: Total Pre

Inflow Area = 4.254 ac, 14.83% Impervious, Inflow Depth > 3.83" for 10-Year event
Inflow = 19.82 cfs @ 12.14 hrs, Volume= 1.357 af
Outflow = 19.82 cfs @ 12.14 hrs, Volume= 1.357 af, Atten= 0%, Lag= 0.0 min

Drainage

NOAA 24-hr B 10-Year Rainfall=5.02"

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Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 1P: Existing Detention Pond

Inflow Area = 2.465 ac, 25.60% Impervious, Inflow Depth > 4.00" for 10-Year event
 Inflow = 14.15 cfs @ 12.11 hrs, Volume= 0.823 af
 Outflow = 11.04 cfs @ 12.17 hrs, Volume= 0.821 af, Atten= 22%, Lag= 3.4 min
 Primary = 11.04 cfs @ 12.17 hrs, Volume= 0.821 af
 Routed to Reach 1R : Total Pre

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 403.04' @ 12.17 hrs Surf.Area= 3,201 sf Storage= 3,645 cf

Plug-Flow detention time= 4.9 min calculated for 0.819 af (100% of inflow)
 Center-of-Mass det. time= 4.1 min (753.2 - 749.1)

Volume	Invert	Avail.Storage	Storage Description
#1	401.25'	11,230 cf	DETENTION POND (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
401.25	16	16.0	0	0	16
402.00	2,505	355.0	680	680	10,025
403.00	3,174	346.0	2,833	3,513	10,638
404.00	3,860	357.0	3,511	7,025	11,346
405.00	4,561	368.0	4,206	11,230	12,077

Device	Routing	Invert	Outlet Devices
#1	Primary	401.45'	2.0' long x 3.50' rise Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=10.81 cfs @ 12.17 hrs HW=403.02' (Free Discharge)
 ↑1=Sharp-Crested Rectangular Weir (Weir Controls 10.81 cfs @ 4.09 fps)

Drainage

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NOAA 24-hr B 25-Year Rainfall=5.92"

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Summary for Subcatchment 1S: Existing Pond Basin

Runoff = 16.92 cfs @ 12.11 hrs, Volume= 0.994 af, Depth> 4.84"
 Routed to Pond 1P : Existing Detention Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 NOAA 24-hr B 25-Year Rainfall=5.92"

Area (ac)	CN	Description
0.219	79	50-75% Grass cover, Fair, HSG C
0.124	49	50-75% Grass cover, Fair, HSG A
0.113	98	Paved parking, HSG C
1.491	96	Gravel surface, HSG C
* 0.510	98	Roofs, HSG C
0.008	98	Unconnected pavement, HSG C
2.465	93	Weighted Average
1.834		74.40% Pervious Area
0.631		25.60% Impervious Area
0.008		1.27% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 2S: Existing Pond Bypass

Runoff = 11.64 cfs @ 12.11 hrs, Volume= 0.659 af, Depth> 4.42"
 Routed to Reach 1R : Total Pre

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 NOAA 24-hr B 25-Year Rainfall=5.92"

Area (ac)	CN	Description
0.215	79	50-75% Grass cover, Fair, HSG C
0.303	69	50-75% Grass cover, Fair, HSG B
1.271	96	Gravel surface, HSG C
1.789	89	Weighted Average
1.789		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Reach 1R: Total Pre

Inflow Area = 4.254 ac, 14.83% Impervious, Inflow Depth > 4.66" for 25-Year event
 Inflow = 23.81 cfs @ 12.13 hrs, Volume= 1.652 af
 Outflow = 23.81 cfs @ 12.13 hrs, Volume= 1.652 af, Atten= 0%, Lag= 0.0 min

Drainage

NOAA 24-hr B 25-Year Rainfall=5.92"

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Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 1P: Existing Detention Pond

Inflow Area = 2.465 ac, 25.60% Impervious, Inflow Depth > 4.84" for 25-Year event
 Inflow = 16.92 cfs @ 12.11 hrs, Volume= 0.994 af
 Outflow = 13.16 cfs @ 12.17 hrs, Volume= 0.993 af, Atten= 22%, Lag= 3.4 min
 Primary = 13.16 cfs @ 12.17 hrs, Volume= 0.993 af
 Routed to Reach 1R : Total Pre

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 403.27' @ 12.17 hrs Surf.Area= 3,355 sf Storage= 4,404 cf

Plug-Flow detention time= 4.9 min calculated for 0.990 af (100% of inflow)
 Center-of-Mass det. time= 4.2 min (750.3 - 746.1)

Volume	Invert	Avail.Storage	Storage Description
#1	401.25'	11,230 cf	DETENTION POND (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
401.25	16	16.0	0	0	16
402.00	2,505	355.0	680	680	10,025
403.00	3,174	346.0	2,833	3,513	10,638
404.00	3,860	357.0	3,511	7,025	11,346
405.00	4,561	368.0	4,206	11,230	12,077

Device	Routing	Invert	Outlet Devices
#1	Primary	401.45'	2.0' long x 3.50' rise Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=12.89 cfs @ 12.17 hrs HW=403.24' (Free Discharge)
 ↑1=Sharp-Crested Rectangular Weir (Weir Controls 12.89 cfs @ 4.38 fps)

Drainage

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NOAA 24-hr B 50-Year Rainfall=6.65"

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Summary for Subcatchment 1S: Existing Pond Basin

Runoff = 19.16 cfs @ 12.11 hrs, Volume= 1.134 af, Depth> 5.52"
Routed to Pond 1P : Existing Detention Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 50-Year Rainfall=6.65"

Area (ac)	CN	Description
0.219	79	50-75% Grass cover, Fair, HSG C
0.124	49	50-75% Grass cover, Fair, HSG A
0.113	98	Paved parking, HSG C
1.491	96	Gravel surface, HSG C
* 0.510	98	Roofs, HSG C
0.008	98	Unconnected pavement, HSG C
2.465	93	Weighted Average
1.834		74.40% Pervious Area
0.631		25.60% Impervious Area
0.008		1.27% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 2S: Existing Pond Bypass

Runoff = 13.29 cfs @ 12.11 hrs, Volume= 0.760 af, Depth> 5.10"
Routed to Reach 1R : Total Pre

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 50-Year Rainfall=6.65"

Area (ac)	CN	Description
0.215	79	50-75% Grass cover, Fair, HSG C
0.303	69	50-75% Grass cover, Fair, HSG B
1.271	96	Gravel surface, HSG C
1.789	89	Weighted Average
1.789		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Reach 1R: Total Pre

Inflow Area = 4.254 ac, 14.83% Impervious, Inflow Depth > 5.34" for 50-Year event
Inflow = 27.00 cfs @ 12.13 hrs, Volume= 1.892 af
Outflow = 27.00 cfs @ 12.13 hrs, Volume= 1.892 af, Atten= 0%, Lag= 0.0 min

Drainage

NOAA 24-hr B 50-Year Rainfall=6.65"

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Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 1P: Existing Detention Pond

Inflow Area = 2.465 ac, 25.60% Impervious, Inflow Depth > 5.52" for 50-Year event
 Inflow = 19.16 cfs @ 12.11 hrs, Volume= 1.134 af
 Outflow = 14.84 cfs @ 12.17 hrs, Volume= 1.132 af, Atten= 23%, Lag= 3.4 min
 Primary = 14.84 cfs @ 12.17 hrs, Volume= 1.132 af
 Routed to Reach 1R : Total Pre

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 403.45' @ 12.17 hrs Surf.Area= 3,478 sf Storage= 5,026 cf

Plug-Flow detention time= 4.9 min calculated for 1.129 af (100% of inflow)
 Center-of-Mass det. time= 4.2 min (748.5 - 744.2)

Volume	Invert	Avail.Storage	Storage Description
#1	401.25'	11,230 cf	DETENTION POND (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
401.25	16	16.0	0	0	16
402.00	2,505	355.0	680	680	10,025
403.00	3,174	346.0	2,833	3,513	10,638
404.00	3,860	357.0	3,511	7,025	11,346
405.00	4,561	368.0	4,206	11,230	12,077

Device	Routing	Invert	Outlet Devices
#1	Primary	401.45'	2.0' long x 3.50' rise Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=14.54 cfs @ 12.17 hrs HW=403.42' (Free Discharge)
 ↳ **1=Sharp-Crested Rectangular Weir** (Weir Controls 14.54 cfs @ 4.59 fps)

Drainage

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NOAA 24-hr B 100-Year Rainfall=7.40"

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Summary for Subcatchment 1S: Existing Pond Basin

Runoff = 21.45 cfs @ 12.11 hrs, Volume= 1.277 af, Depth> 6.22"

Routed to Pond 1P : Existing Detention Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 100-Year Rainfall=7.40"

Area (ac)	CN	Description
0.219	79	50-75% Grass cover, Fair, HSG C
0.124	49	50-75% Grass cover, Fair, HSG A
0.113	98	Paved parking, HSG C
1.491	96	Gravel surface, HSG C
* 0.510	98	Roofs, HSG C
0.008	98	Unconnected pavement, HSG C
2.465	93	Weighted Average
1.834		74.40% Pervious Area
0.631		25.60% Impervious Area
0.008		1.27% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 2S: Existing Pond Bypass

Runoff = 14.98 cfs @ 12.11 hrs, Volume= 0.864 af, Depth> 5.79"

Routed to Reach 1R : Total Pre

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 100-Year Rainfall=7.40"

Area (ac)	CN	Description
0.215	79	50-75% Grass cover, Fair, HSG C
0.303	69	50-75% Grass cover, Fair, HSG B
1.271	96	Gravel surface, HSG C
1.789	89	Weighted Average
1.789		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Reach 1R: Total Pre

Inflow Area = 4.254 ac, 14.83% Impervious, Inflow Depth > 6.03" for 100-Year event

Inflow = 30.24 cfs @ 12.13 hrs, Volume= 2.139 af

Outflow = 30.24 cfs @ 12.13 hrs, Volume= 2.139 af, Atten= 0%, Lag= 0.0 min

Drainage

NOAA 24-hr B 100-Year Rainfall=7.40"

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Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 1P: Existing Detention Pond

Inflow Area = 2.465 ac, 25.60% Impervious, Inflow Depth > 6.22" for 100-Year event
 Inflow = 21.45 cfs @ 12.11 hrs, Volume= 1.277 af
 Outflow = 16.53 cfs @ 12.17 hrs, Volume= 1.276 af, Atten= 23%, Lag= 3.4 min
 Primary = 16.53 cfs @ 12.17 hrs, Volume= 1.276 af
 Routed to Reach 1R : Total Pre

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 403.64' @ 12.17 hrs Surf.Area= 3,604 sf Storage= 5,673 cf

Plug-Flow detention time= 4.9 min calculated for 1.271 af (100% of inflow)
 Center-of-Mass det. time= 4.3 min (746.9 - 742.7)

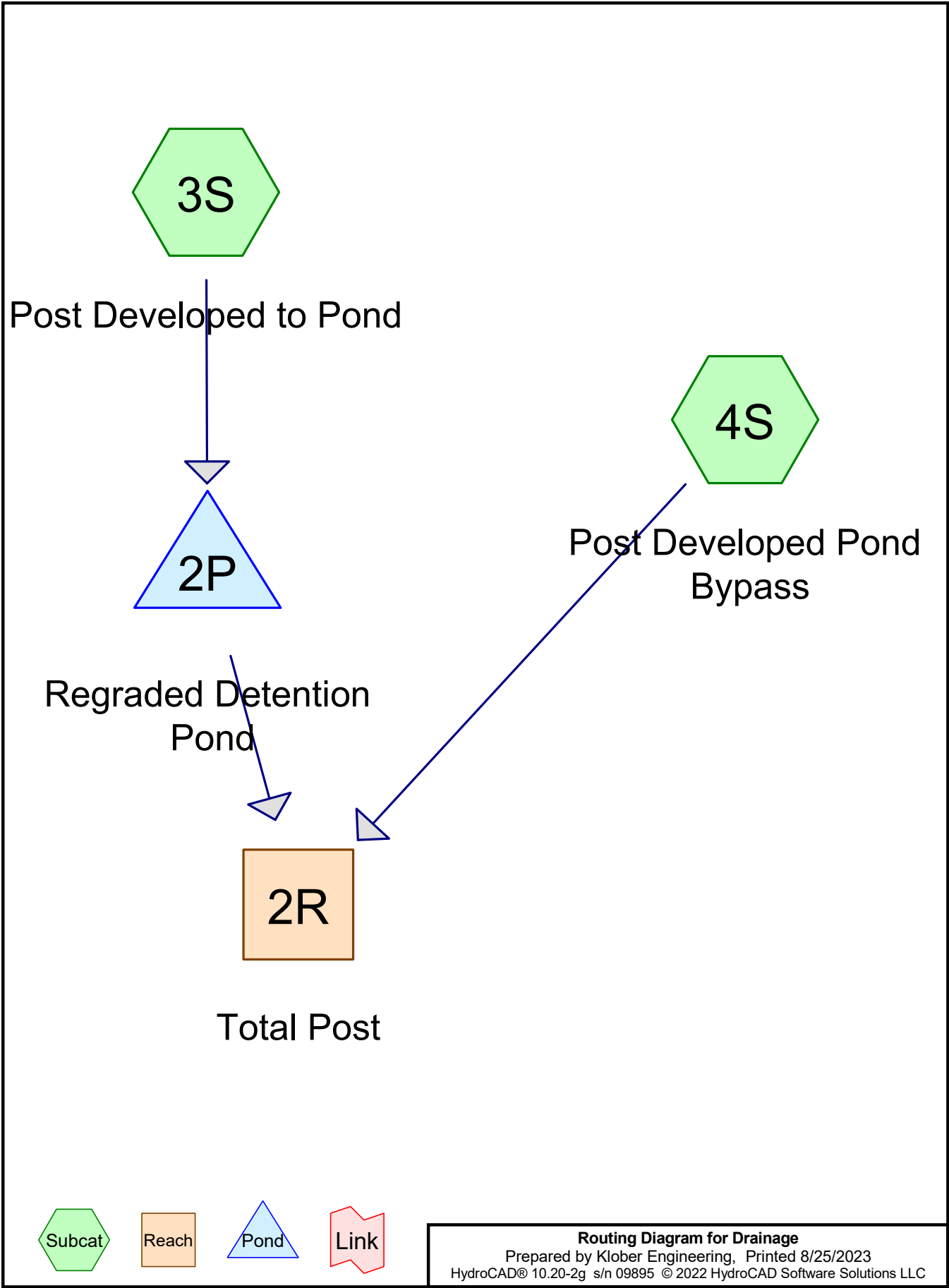
Volume	Invert	Avail.Storage	Storage Description
#1	401.25'	11,230 cf	DETENTION POND (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
401.25	16	16.0	0	0	16
402.00	2,505	355.0	680	680	10,025
403.00	3,174	346.0	2,833	3,513	10,638
404.00	3,860	357.0	3,511	7,025	11,346
405.00	4,561	368.0	4,206	11,230	12,077

Device	Routing	Invert	Outlet Devices
#1	Primary	401.45'	2.0' long x 3.50' rise Sharp-Crested Rectangular Weir 2 End Contraction(s)

Primary OutFlow Max=16.21 cfs @ 12.17 hrs HW=403.60' (Free Discharge)
 ↑1=Sharp-Crested Rectangular Weir (Weir Controls 16.21 cfs @ 4.80 fps)

POST-DEVELOPED



Drainage

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NOAA 24-hr B 2-Year Rainfall=3.60"

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Summary for Subcatchment 3S: Post Developed to Pond

Runoff = 15.58 cfs @ 12.11 hrs, Volume= 0.895 af, Depth> 2.79"

Routed to Pond 2P : Regraded Detention Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 2-Year Rainfall=3.60"

Area (ac)	CN	Description
0.369	79	50-75% Grass cover, Fair, HSG C
0.124	49	50-75% Grass cover, Fair, HSG A
0.636	98	Paved parking, HSG C
1.804	96	Gravel surface, HSG C
* 0.911	98	Roofs, HSG C
0.009	98	Unconnected pavement, HSG C
3.853	94	Weighted Average
2.297		59.62% Pervious Area
1.556		40.38% Impervious Area
0.009		0.58% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4S: Post Developed Pond Bypass

Runoff = 1.11 cfs @ 12.12 hrs, Volume= 0.058 af, Depth> 1.60"

Routed to Reach 2R : Total Post

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 2-Year Rainfall=3.60"

Area (ac)	CN	Description
0.263	69	50-75% Grass cover, Fair, HSG B
0.173	96	Gravel surface, HSG C
0.436	80	Weighted Average
0.436		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Reach 2R: Total Post

Inflow Area = 4.289 ac, 36.28% Impervious, Inflow Depth > 2.67" for 2-Year event

Inflow = 12.64 cfs @ 12.16 hrs, Volume= 0.953 af

Outflow = 12.64 cfs @ 12.16 hrs, Volume= 0.953 af, Atten= 0%, Lag= 0.0 min

Drainage

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NOAA 24-hr B 2-Year Rainfall=3.60"

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Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 2P: Regraded Detention Pond

Inflow Area = 3.853 ac, 40.38% Impervious, Inflow Depth > 2.79" for 2-Year event
 Inflow = 15.58 cfs @ 12.11 hrs, Volume= 0.895 af
 Outflow = 11.70 cfs @ 12.17 hrs, Volume= 0.894 af, Atten= 25%, Lag= 3.6 min
 Primary = 11.70 cfs @ 12.17 hrs, Volume= 0.894 af
 Routed to Reach 2R : Total Post

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 403.11' @ 12.17 hrs Surf.Area= 4,097 sf Storage= 3,662 cf

Plug-Flow detention time= 2.6 min calculated for 0.894 af (100% of inflow)
 Center-of-Mass det. time= 2.6 min (755.0 - 752.4)

Volume	Invert	Avail.Storage	Storage Description
#1	401.45'	12,821 cf	DETENTION POND (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
401.45	16	16.0	0	0	16
402.00	1,807	216.0	365	365	3,709
403.00	4,007	353.0	2,835	3,200	9,919
404.00	4,834	361.0	4,414	7,614	10,497
405.00	5,589	331.0	5,207	12,821	12,185

Device	Routing	Invert	Outlet Devices
#1	Primary	401.45'	2.0' long x 3.50' rise Sharp-Crested Rectangular Weir 2 End Contraction(s)
#2	Primary	404.95'	10.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=11.48 cfs @ 12.17 hrs HW=403.09' (Free Discharge)
 1=Sharp-Crested Rectangular Weir (Weir Controls 11.48 cfs @ 4.19 fps)
 2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Drainage

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NOAA 24-hr B 5-Year Rainfall=4.39"

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Summary for Subcatchment 3S: Post Developed to Pond

Runoff = 19.40 cfs @ 12.11 hrs, Volume= 1.130 af, Depth> 3.52"

Routed to Pond 2P : Regraded Detention Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 5-Year Rainfall=4.39"

Area (ac)	CN	Description
0.369	79	50-75% Grass cover, Fair, HSG C
0.124	49	50-75% Grass cover, Fair, HSG A
0.636	98	Paved parking, HSG C
1.804	96	Gravel surface, HSG C
* 0.911	98	Roofs, HSG C
0.009	98	Unconnected pavement, HSG C
3.853	94	Weighted Average
2.297		59.62% Pervious Area
1.556		40.38% Impervious Area
0.009		0.58% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4S: Post Developed Pond Bypass

Runoff = 1.53 cfs @ 12.12 hrs, Volume= 0.081 af, Depth> 2.22"

Routed to Reach 2R : Total Post

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 5-Year Rainfall=4.39"

Area (ac)	CN	Description
0.263	69	50-75% Grass cover, Fair, HSG B
0.173	96	Gravel surface, HSG C
0.436	80	Weighted Average
0.436		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Reach 2R: Total Post

Inflow Area = 4.289 ac, 36.28% Impervious, Inflow Depth > 3.39" for 5-Year event

Inflow = 15.58 cfs @ 12.16 hrs, Volume= 1.210 af

Outflow = 15.58 cfs @ 12.16 hrs, Volume= 1.210 af, Atten= 0%, Lag= 0.0 min

Drainage

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NOAA 24-hr B 5-Year Rainfall=4.39"

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Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 2P: Regraded Detention Pond

Inflow Area = 3.853 ac, 40.38% Impervious, Inflow Depth > 3.52" for 5-Year event
 Inflow = 19.40 cfs @ 12.11 hrs, Volume= 1.130 af
 Outflow = 14.32 cfs @ 12.17 hrs, Volume= 1.130 af, Atten= 26%, Lag= 3.7 min
 Primary = 14.32 cfs @ 12.17 hrs, Volume= 1.130 af
 Routed to Reach 2R : Total Post

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 403.40' @ 12.17 hrs Surf.Area= 4,327 sf Storage= 4,858 cf

Plug-Flow detention time= 2.9 min calculated for 1.130 af (100% of inflow)
 Center-of-Mass det. time= 2.8 min (751.3 - 748.5)

Volume	Invert	Avail.Storage	Storage Description
#1	401.45'	12,821 cf	DETENTION POND (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
401.45	16	16.0	0	0	16
402.00	1,807	216.0	365	365	3,709
403.00	4,007	353.0	2,835	3,200	9,919
404.00	4,834	361.0	4,414	7,614	10,497
405.00	5,589	331.0	5,207	12,821	12,185

Device	Routing	Invert	Outlet Devices
#1	Primary	401.45'	2.0' long x 3.50' rise Sharp-Crested Rectangular Weir 2 End Contraction(s)
#2	Primary	404.95'	10.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=14.05 cfs @ 12.17 hrs HW=403.37' (Free Discharge)
 1=Sharp-Crested Rectangular Weir (Weir Controls 14.05 cfs @ 4.53 fps)
 2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Drainage

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NOAA 24-hr B 10-Year Rainfall=5.02"

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Summary for Subcatchment 3S: Post Developed to Pond

Runoff = 22.43 cfs @ 12.11 hrs, Volume= 1.318 af, Depth> 4.10"

Routed to Pond 2P : Regraded Detention Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 10-Year Rainfall=5.02"

Area (ac)	CN	Description
0.369	79	50-75% Grass cover, Fair, HSG C
0.124	49	50-75% Grass cover, Fair, HSG A
0.636	98	Paved parking, HSG C
1.804	96	Gravel surface, HSG C
* 0.911	98	Roofs, HSG C
0.009	98	Unconnected pavement, HSG C
3.853	94	Weighted Average
2.297		59.62% Pervious Area
1.556		40.38% Impervious Area
0.009		0.58% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4S: Post Developed Pond Bypass

Runoff = 1.87 cfs @ 12.12 hrs, Volume= 0.099 af, Depth> 2.73"

Routed to Reach 2R : Total Post

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 10-Year Rainfall=5.02"

Area (ac)	CN	Description
0.263	69	50-75% Grass cover, Fair, HSG B
0.173	96	Gravel surface, HSG C
0.436	80	Weighted Average
0.436		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Reach 2R: Total Post

Inflow Area = 4.289 ac, 36.28% Impervious, Inflow Depth > 3.96" for 10-Year event

Inflow = 17.91 cfs @ 12.16 hrs, Volume= 1.417 af

Outflow = 17.91 cfs @ 12.16 hrs, Volume= 1.417 af, Atten= 0%, Lag= 0.0 min

Drainage

NOAA 24-hr B 10-Year Rainfall=5.02"

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Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 2P: Regraded Detention Pond

Inflow Area = 3.853 ac, 40.38% Impervious, Inflow Depth > 4.10" for 10-Year event
 Inflow = 22.43 cfs @ 12.11 hrs, Volume= 1.318 af
 Outflow = 16.30 cfs @ 12.18 hrs, Volume= 1.318 af, Atten= 27%, Lag= 3.8 min
 Primary = 16.30 cfs @ 12.18 hrs, Volume= 1.318 af
 Routed to Reach 2R : Total Post

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 403.61' @ 12.18 hrs Surf.Area= 4,505 sf Storage= 5,807 cf

Plug-Flow detention time= 3.1 min calculated for 1.318 af (100% of inflow)
 Center-of-Mass det. time= 3.0 min (749.1 - 746.1)

Volume	Invert	Avail.Storage	Storage Description
#1	401.45'	12,821 cf	DETENTION POND (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
401.45	16	16.0	0	0	16
402.00	1,807	216.0	365	365	3,709
403.00	4,007	353.0	2,835	3,200	9,919
404.00	4,834	361.0	4,414	7,614	10,497
405.00	5,589	331.0	5,207	12,821	12,185

Device	Routing	Invert	Outlet Devices
#1	Primary	401.45'	2.0' long x 3.50' rise Sharp-Crested Rectangular Weir 2 End Contraction(s)
#2	Primary	404.95'	10.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=16.07 cfs @ 12.18 hrs HW=403.59' (Free Discharge)
 1=Sharp-Crested Rectangular Weir (Weir Controls 16.07 cfs @ 4.78 fps)
 2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Drainage

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NOAA 24-hr B 25-Year Rainfall=5.92"

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Summary for Subcatchment 3S: Post Developed to Pond

Runoff = 26.73 cfs @ 12.11 hrs, Volume= 1.587 af, Depth> 4.94"
Routed to Pond 2P : Regraded Detention Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 25-Year Rainfall=5.92"

Area (ac)	CN	Description
0.369	79	50-75% Grass cover, Fair, HSG C
0.124	49	50-75% Grass cover, Fair, HSG A
0.636	98	Paved parking, HSG C
1.804	96	Gravel surface, HSG C
* 0.911	98	Roofs, HSG C
0.009	98	Unconnected pavement, HSG C
3.853	94	Weighted Average
2.297		59.62% Pervious Area
1.556		40.38% Impervious Area
0.009		0.58% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4S: Post Developed Pond Bypass

Runoff = 2.37 cfs @ 12.12 hrs, Volume= 0.127 af, Depth> 3.49"
Routed to Reach 2R : Total Post

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 25-Year Rainfall=5.92"

Area (ac)	CN	Description
0.263	69	50-75% Grass cover, Fair, HSG B
0.173	96	Gravel surface, HSG C
0.436	80	Weighted Average
0.436		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Reach 2R: Total Post

Inflow Area = 4.289 ac, 36.28% Impervious, Inflow Depth > 4.79" for 25-Year event
Inflow = 21.14 cfs @ 12.16 hrs, Volume= 1.713 af
Outflow = 21.14 cfs @ 12.16 hrs, Volume= 1.713 af, Atten= 0%, Lag= 0.0 min

Drainage

NOAA 24-hr B 25-Year Rainfall=5.92"

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Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 2P: Regraded Detention Pond

Inflow Area = 3.853 ac, 40.38% Impervious, Inflow Depth > 4.94" for 25-Year event
 Inflow = 26.73 cfs @ 12.11 hrs, Volume= 1.587 af
 Outflow = 19.15 cfs @ 12.18 hrs, Volume= 1.586 af, Atten= 28%, Lag= 4.0 min
 Primary = 19.15 cfs @ 12.18 hrs, Volume= 1.586 af
 Routed to Reach 2R : Total Post

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 403.92' @ 12.18 hrs Surf.Area= 4,768 sf Storage= 7,248 cf

Plug-Flow detention time= 3.4 min calculated for 1.581 af (100% of inflow)
 Center-of-Mass det. time= 3.3 min (746.8 - 743.5)

Volume	Invert	Avail.Storage	Storage Description
#1	401.45'	12,821 cf	DETENTION POND (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
401.45	16	16.0	0	0	16
402.00	1,807	216.0	365	365	3,709
403.00	4,007	353.0	2,835	3,200	9,919
404.00	4,834	361.0	4,414	7,614	10,497
405.00	5,589	331.0	5,207	12,821	12,185

Device	Routing	Invert	Outlet Devices
#1	Primary	401.45'	2.0' long x 3.50' rise Sharp-Crested Rectangular Weir 2 End Contraction(s)
#2	Primary	404.95'	10.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=18.89 cfs @ 12.18 hrs HW=403.90' (Free Discharge)
 1=Sharp-Crested Rectangular Weir (Weir Controls 18.89 cfs @ 5.11 fps)
 2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Drainage

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NOAA 24-hr B 50-Year Rainfall=6.65"

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Summary for Subcatchment 3S: Post Developed to Pond

Runoff = 30.21 cfs @ 12.11 hrs, Volume= 1.804 af, Depth> 5.62"

Routed to Pond 2P : Regraded Detention Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 50-Year Rainfall=6.65"

Area (ac)	CN	Description
0.369	79	50-75% Grass cover, Fair, HSG C
0.124	49	50-75% Grass cover, Fair, HSG A
0.636	98	Paved parking, HSG C
1.804	96	Gravel surface, HSG C
* 0.911	98	Roofs, HSG C
0.009	98	Unconnected pavement, HSG C
3.853	94	Weighted Average
2.297		59.62% Pervious Area
1.556		40.38% Impervious Area
0.009		0.58% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4S: Post Developed Pond Bypass

Runoff = 2.78 cfs @ 12.11 hrs, Volume= 0.150 af, Depth> 4.13"

Routed to Reach 2R : Total Post

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 50-Year Rainfall=6.65"

Area (ac)	CN	Description
0.263	69	50-75% Grass cover, Fair, HSG B
0.173	96	Gravel surface, HSG C
0.436	80	Weighted Average
0.436		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Reach 2R: Total Post

Inflow Area = 4.289 ac, 36.28% Impervious, Inflow Depth > 5.47" for 50-Year event

Inflow = 23.68 cfs @ 12.16 hrs, Volume= 1.954 af

Outflow = 23.68 cfs @ 12.16 hrs, Volume= 1.954 af, Atten= 0%, Lag= 0.0 min

Drainage

NOAA 24-hr B 50-Year Rainfall=6.65"

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Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 2P: Regraded Detention Pond

Inflow Area = 3.853 ac, 40.38% Impervious, Inflow Depth > 5.62" for 50-Year event
 Inflow = 30.21 cfs @ 12.11 hrs, Volume= 1.804 af
 Outflow = 21.38 cfs @ 12.18 hrs, Volume= 1.804 af, Atten= 29%, Lag= 4.1 min
 Primary = 21.38 cfs @ 12.18 hrs, Volume= 1.804 af
 Routed to Reach 2R : Total Post

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 404.17' @ 12.18 hrs Surf.Area= 4,960 sf Storage= 8,457 cf

Plug-Flow detention time= 3.5 min calculated for 1.798 af (100% of inflow)
 Center-of-Mass det. time= 3.4 min (745.3 - 741.9)

Volume	Invert	Avail.Storage	Storage Description
#1	401.45'	12,821 cf	DETENTION POND (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
401.45	16	16.0	0	0	16
402.00	1,807	216.0	365	365	3,709
403.00	4,007	353.0	2,835	3,200	9,919
404.00	4,834	361.0	4,414	7,614	10,497
405.00	5,589	331.0	5,207	12,821	12,185

Device	Routing	Invert	Outlet Devices
#1	Primary	401.45'	2.0' long x 3.50' rise Sharp-Crested Rectangular Weir 2 End Contraction(s)
#2	Primary	404.95'	10.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=21.11 cfs @ 12.18 hrs HW=404.14' (Free Discharge)
 1=Sharp-Crested Rectangular Weir (Weir Controls 21.11 cfs @ 5.36 fps)
 2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Drainage

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NOAA 24-hr B 100-Year Rainfall=7.40"

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Summary for Subcatchment 3S: Post Developed to Pond

Runoff = 33.77 cfs @ 12.11 hrs, Volume= 2.028 af, Depth> 6.32"

Routed to Pond 2P : Regraded Detention Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 100-Year Rainfall=7.40"

Area (ac)	CN	Description
0.369	79	50-75% Grass cover, Fair, HSG C
0.124	49	50-75% Grass cover, Fair, HSG A
0.636	98	Paved parking, HSG C
1.804	96	Gravel surface, HSG C
* 0.911	98	Roofs, HSG C
0.009	98	Unconnected pavement, HSG C
3.853	94	Weighted Average
2.297		59.62% Pervious Area
1.556		40.38% Impervious Area
0.009		0.58% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment 4S: Post Developed Pond Bypass

Runoff = 3.19 cfs @ 12.11 hrs, Volume= 0.174 af, Depth> 4.79"

Routed to Reach 2R : Total Post

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NOAA 24-hr B 100-Year Rainfall=7.40"

Area (ac)	CN	Description
0.263	69	50-75% Grass cover, Fair, HSG B
0.173	96	Gravel surface, HSG C
0.436	80	Weighted Average
0.436		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Reach 2R: Total Post

Inflow Area = 4.289 ac, 36.28% Impervious, Inflow Depth > 6.16" for 100-Year event

Inflow = 26.20 cfs @ 12.16 hrs, Volume= 2.202 af

Outflow = 26.20 cfs @ 12.16 hrs, Volume= 2.202 af, Atten= 0%, Lag= 0.0 min

Drainage

NOAA 24-hr B 100-Year Rainfall=7.40"

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Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond 2P: Regraded Detention Pond

Inflow Area = 3.853 ac, 40.38% Impervious, Inflow Depth > 6.32" for 100-Year event
 Inflow = 33.77 cfs @ 12.11 hrs, Volume= 2.028 af
 Outflow = 23.59 cfs @ 12.18 hrs, Volume= 2.028 af, Atten= 30%, Lag= 4.2 min
 Primary = 23.59 cfs @ 12.18 hrs, Volume= 2.028 af
 Routed to Reach 2R : Total Post

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 404.43' @ 12.18 hrs Surf.Area= 5,149 sf Storage= 9,739 cf

Plug-Flow detention time= 3.7 min calculated for 2.021 af (100% of inflow)
 Center-of-Mass det. time= 3.6 min (744.1 - 740.5)

Volume	Invert	Avail.Storage	Storage Description
#1	401.45'	12,821 cf	DETENTION POND (Irregular) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
401.45	16	16.0	0	0	16
402.00	1,807	216.0	365	365	3,709
403.00	4,007	353.0	2,835	3,200	9,919
404.00	4,834	361.0	4,414	7,614	10,497
405.00	5,589	331.0	5,207	12,821	12,185

Device	Routing	Invert	Outlet Devices
#1	Primary	401.45'	2.0' long x 3.50' rise Sharp-Crested Rectangular Weir 2 End Contraction(s)
#2	Primary	404.95'	10.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=23.30 cfs @ 12.18 hrs HW=404.39' (Free Discharge)
 1=Sharp-Crested Rectangular Weir (Weir Controls 23.30 cfs @ 5.61 fps)
 2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Hydrologic Soil Group—Cheatham County, Tennessee
(Soil Map)



Soil Map may not be valid at this scale.

Map Scale: 1:1,800 if printed on A landscape (11" x 8.5") sheet.




Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84



MAP LEGEND

Area of Interest (AOI)









 Area of Interest (AOI)

Soils

Soil Rating Polygons





-  A
-  A/D
-  B
-  B/D
-  C
-  C/D
-  D
-  Not rated or not available

Soil Rating Lines


-  A
-  A/D
-  B
-  B/D
-  C
-  C/D
-  D
-  Not rated or not available

Soil Rating Points






-  A
-  A/D
-  B
-  B/D

-  C
-  C/D
-  D
-  Not rated or not available

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 1:24,000.

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: Cheatham County, Tennessee
Survey Area Data: Version 14, May 29, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 21, 2019—Apr 10, 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.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
En	Ennis gravelly silt loam, occasionally flooded	A	0.4	5.6%
Me	Melvin silt loam, frequently flooded	B/D	3.6	48.9%
Ne	Newark silt loam, frequently flooded	B/D	0.5	7.1%
Pt	Pits, quarry		1.4	19.3%
TrC2	Tarklin gravelly silt loam, 5 to 12 percent slopes, eroded	D	0.5	6.4%
WfA	Wolftever silty clay loam, 0 to 2 percent slopes, occasionally flooded	C	1.0	12.8%
Totals for Area of Interest			7.4	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

SITE PLAN FOR

ACE STORAGE

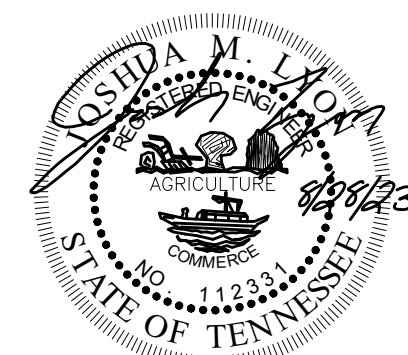
HIGHWAY 12
ASHLAND CITY, TN

SHEET INDEX:

- C1.01 ————— INITIAL EPSC AND DEMOLITION PLAN
- C1.02 ————— SITE LAYOUT
- C1.03 ————— SITE GRADING AND DRAINAGE PLAN
- C1.04 ————— FINAL STABILIZATION PLAN
- C2.01 ————— CONSTRUCTION DETAILS
- C2.02 ————— WATERLINE DETAILS



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Vicinity Map
Not to Scale

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ACE STORAGE

DATE: 8/28/23

