

Planning Commission

Larry Fox, Chairperson Michael Mitchell, Vice-Chairperson Tom Murphy, Secretary Summer L. McMullen, Trustee Sue Grissim, Commissioner Jim Mayer, Commissioner Matthew Eckman, Commissioner

Planning Commission Meeting Agenda Hartland Township Hall Thursday, September 25, 2025 7:00 PM

- Call to Order
- 2. Pledge of Allegiance
- 3. Roll Call
- 4. Approval of the Agenda
- 5. Approval of Meeting Minutes
 - a. Planning Commission Meeting Minutes of August 28, 2025
- 6. Call to Public
- 7. Old and New Business
 - a. Site Plan Application #25-016
 Proposed Plaza at Cromaine Library at 3688 N. Hartland Road
- 8. Call to Public
- 9. Planner's Report
- 10. Committee Reports
- 11. Adjournment

HARTLAND TOWNSHIP PLANNING COMMISSION DRAFT MEETING MINUTES

AUGUST 28, 2025-7:00 PM

1. Call to Order: Chair Fox called the meeting to order at 7:00 p.m.

2. Pledge of Allegiance:

3. Roll Call and Recognition of Visitors:

Present – Commissioners Eckman, Fox, Grissim, Mayer, McMullen, and Murphy

Absent – Commissioner Mitchell

4. Approval of the Meeting Agenda:

A Motion to approve the August 28, 2025, Planning Commission Meeting Agenda was made by Commissioner Eckman and seconded by Commissioner Mayer. Motion carried unanimously.

5. Approval of Meeting Minutes:

a. Planning Commission Regular Meeting Minutes of July 24, 2025.

A Motion to approve the Planning Commission Regular Meeting Minutes of July 24, 2025, was made by Commissioner Grissim and seconded by Commissioner Murphy. Motion carried unanimously.

6. Call to the Public:

Michael Cain, Hartland Township; not opposed to the proposed projects but has concerns about traffic in the community, especially the intersection at Old US 23 and M-59.

7. Old and New Business

a. Site Plan/PD Application #25-015 Chick-fil-A Planned Development (PD) Concept Plan at 10587 Highland Road (former Big Boy)

Director Langer stated the following:

- Gave an overview of the location and scope of the project.
- East of US 23, north side of M-59.
- Proposing to tear down existing building, former Big Boy restaurant, and build a new Chickfil-A restaurant with a drive-through.
- Plan to utilize the existing parking lot and add the drive-through lanes.
- Requesting a Planned Development for this project.
- Approval of a Planned Development is a three-step process. A Concept Plan, Preliminary Plan, and Final Plan are all reviewed by the Planning Commission and the Township Board, with the Planning Commission making a recommendation and the Board having final approval at each step.
- Tonight is the Conceptual Review where the Applicant receives comments only. This proposal will proceed to the Township Board for their comments as well.

The Applicant, Leslie Accardo, Senior Project Manager of PEA Group, representing Chick-fil-A stated the following:

- Thinks this is a great location for Chick-fil-A.
- Intend to reuse as much of the exterior site as possible, including some of the curbing, and storm water if possible.
- Looking forward to making a needed visual improvement to that site.

Chair Fox referred to the staff memorandum dated August 21, 2025, and stated the following:

- 5000 square foot building
- 16 seats for outdoor seating, 70 interior seats
- 69 parking spaces
- 49 stacking spaces in the drive-through lanes
- Two flat-roofed canopy structures for employees in the drive-through lane area

Zoning Information

Director Langer stated the following:

- Property is currently zoned GC (General Commercial).
- Applicant could have applied for a Special Use Permit as is required in GC for a restaurant with a drive-through; however, the Applicant chose to use the Planned Development process for their approval.

Parcel Size – PD Requirements

Chair Fox stated the following:

- Minimum size is twenty (20) acres; this site is 1.65 acres.
- Township Board can approve a project with less than 20 acres with a recommendation from the Planning Commission as there are several in the Township.

Site Layout and Circulation

Chair Fox stated the following:

- Three (3) access points: M-59, Hartland Road and Rovey Drive. No changes are proposed to any of the driveways or access points.
- Two (2) canopy structures are proposed; one is for ordering and the other for payment and food pick up. Often Chick-fil-A employees are assisting customers outside facilitating the ordering process.

[Director Langer displayed an image of the canopies from a similar site.]

Commissioner Murphy asked where they anticipate most cars will exit the site. The Applicant stated she is unsure but assumes most will exit onto Hartland Road. Commissioner Murphy inquired about the northern exit island and the turning radius. The Applicant stated they have only viewed the site via GIS at this point. Chair Fox stated that information will come at the Preliminary review level, this is just the Conceptual review.

Chair Fox continued stating the parking is on the northern side of the building, retaining walls along M-59 and Hartland Road will remain with some freshening of the landscaping.

Parking

Chair Fox stated there are 69 spaces planned but he is still looking for them to be ten feet by twenty feet rather than nine feet by twenty feet; if the plan is to recycle the existing parking the original layout was for ten feet by twenty feet parking spaces.

Building Elevations

Director Langer shared the elevations submitted by the Applicant and stated the exterior is largely brick as was the earlier design but a slightly different shape than the previous proposal.

Setbacks

Director Langer stated the following:

- PD Planned Development process allows flexibility to grant some waivers.
- Big Boy did not conform to the setback from M-59, and the Applicant is proposing a building in the same location.
- Some canopies may encroach slightly.
- Generally, it complies.

Traffic Generation

Director Langer stated the following:

- In the ITE (Institute of Transportation Engineers) Manual, Big Boy would have been classified as a sit-down restaurant.
- Chick-fil-A is a fast-food restaurant with a drive-through which would generate more traffic than a sit-down restaurant.
- Both the Township and the Applicant have been in preliminary discussions with Michigan Department of Transportation (MDOT) as to whether any improvements would be required on M-59 or if any improvements would be required by Livingston County Road Commission (LCRC) for Hartland Road. There is no information at this time.
- Applicant will need to continue to work with those agencies.
- Intend to use existing curb cuts and driveways to M-59, Hartland Road, and Rovey Drive, which is a private road, and are not proposing any changes at this time.
- Will continue to work with those agencies and if modifications are needed for any of the access points, it will be discussed at the Preliminary Review.

Chair Fox quickly noted the other items listed in the staff memorandum.

Commissioner Mayer asked about the stacking; 49 spaces are proposed; the requirement is ten (10). He asked what the average number of stacking spaces is for Chick-fil-A. The Applicant stated the sweet spot is 35. Commissioner Mayer asked how many stacking spaces were proposed previously. [The Planning Commission briefly discussed their recollections of the number of spaces previously proposed, 50 spaces.] Commissioner Mayer asked about the store located in Shelby Township. The Applicant stated she recalls twenty-five (25) stacking spaces which was a problem initially. Commissioner Mayer stated it was a problem for three or four weeks but then dissipated. The Applicant confirmed.

Commissioner Mayer asked about traffic circulation stating he believes most people will be coming from US 23, leaving the drive-through, if they proceed north, they will have to choose right or left

but cannot turn left back onto Hartland at that location. He requested some directional signage to aid customers unfamiliar with the area in how to return to the expressway. The Applicant stated they can.

Planning Commission Comments

Commissioner Grissim stated the following:

Planning Commission is excited Chick-fil-a is looking at this site, it feels like it fits so much better. She is looking forward to seeing the Preliminary Plan.

Commissioner Mayer stated it is the perfect fit for the site.

Commissioner Murphy stated he agrees and is glad they want to come to Hartland. The old Burger King site did not work out for whatever reason and feels it is great to use this site.

Commissioner Eckman stated it is a great layout. He is glad there are three entrances and exits especially for local people getting around. Appreciates the number of jobs it will bring to Hartland. This site has five times the stacking typically required for a commercial drive-through use is fantastic as that is one of the concerns people have with stacking traffic spilling over.

Commissioner McMullen stated she has basically the same comments as the other Planning Commissioners.

Chair Fox stated if one wanted a Chick-fil-A in Hartland it is great, because it is here. If you did not want it at the previously proposed location, it is great, because it is here.

b. Site Plan Application #25-005 – Request to amend the approved Final Planned Development (PD) Site Plan for 10081 Highland Road and Amend Planned Development Agreement (Sheetz Fuel Station/Convenience Store)

Director Langer stated the following:

- Gave an overview of the location and scope of the project.
- North side of M-59, east of Old US 23.
- Two properties, the former Walgreens and Chase Bank, were previously approved as a Planned Development (PD) but only for those two uses.
- Two-part request: Site Plan approval for a new commercial structure, Sheetz; and a Planned Development Amendment for the fuel station convenience store use.
- Site Plan portion is under the jurisdiction of the Planning Commission.
- PD Amendment is ultimately decided by the Township Board with a recommendation from the Planning Commission.
- Applicant intends to use the existing driveway access points to M-59 and Old US 23.
- Existing building will be demolished, and the new building will be in a slightly different location on the site.
 - o Gas canopies will be east of the building.
 - o Parking throughout the site.
 - Connection to Chase Bank will remain.

The Applicant, Alex Siwicki representing Sheetz, Inc. introduced himself and stated the following:

- Located in several states, and now Michigan with two stores.
- Began in 1952 in Altoona, Pennsylvania, by Bob Sheetz. Originally a restaurant carry-out.
- Recently their 800th store opened in North Carolina.
- Still family owned and operated.

 [Displayed an interior image of a store similar to the proposed Hartland store.]
- Seating for thirty (30) with an MTO Made to Order kitchen.
- Wide variety of food offerings 24 hours a day, 7 days a week with a specialty coffee/beverage bar
- Convenience and grocery items are also available.
- Brick, stone and mental exterior, landscaped with irrigation, and well maintained.
- Have their own delivery for fuel, driven by Sheetz employees, do their own landscaping, and their own distribution centers for products they sell. They do their own Human Resources and Marketing. He is an employee of Sheetz. What that means for Hartland is, if there is ever an issue, one only needs to talk to the store manager, and Sheetz takes care of it. It is part of being family owned.
- Also known for being one of Fortune 500's top 100 best employers in the country for the last decade.
- People magazine published a list of top companies that care about their employees and the communities they are in. Sheets was number 10.
- Offer training, tuition reimbursement, 401(k), bonuses, PTO, top notch health insurance. He started as an electrician,
 - [Mr. Siwicki shared a couple of personal stories of how the company has supported his career advancement and the excellent health insurance Sheetz offers.]
- Proposed building is 6,132 square feet restaurant and convenience store on 2.92 acres with 6 fuel pumps (12 stations).

Chair Fox referred to the staff memorandum dated August 21, 2025

Automobile Fueling and Convenience Station Standards (Section 4.58)

Frontage

Chair Fox stated the subject site complies with this standard, having access from Highland Road, which is a hard surfaced thoroughfare, and having access from Old US-23 which is also a paved thoroughfare.

Minimum Lot Width

Chair Fox stated the parcel is approximately 350 feet in width along Old US-23 and approximately 215 feet along Highland Road and complies.

Minimum Setbacks

Chair Fox stated the requirement is forty (40) feet, the proposed pump islands are approximately 137 feet from the ROW line for Highland Road. Overhead canopies are required to be setback at least twenty (20) feet; the proposed fuel canopies are 130 feet from the ROW of Highland Road.

Ingress and Egress

Chair Fox stated the minimum is thirty (30) feet and the maximum is forty (40) feet in width; the access drives are existing; no modifications are planned. Director Langer clarified both MDOT and LCRC sent emails approving the use of the existing access drives, but the Applicant will need to work with those entities for any required modifications within the ROW. Chair Fox summarized driveway location is good, traffic is not approved.

Layout

Chair Fox stated the proposed gasoline pumps are in the middle of the site and comply.

Screening

Chair Fox stated the site is surrounded by commercial uses and no screening is required.

Outdoor Storage

Chair Fox stated outdoor storage is not permitted unless it is a defined area. Director Langer showed an area on the south side of the building with some screening walls and indicated the area where there may be some outdoor displays. The Applicant stated they intend to have one ice chest and one propane chest inside the defined area.

Traffic Impact

Director Langer stated the Applicant provided a Traffic Impact Study, to MDOT and LCRC. As part of that they are proposing some changes to the signal timing during peak hours, which indicates the sort of changes that may occur. The Applicant will need to continue to work with those agencies for those approvals.

Lighting

Chair Fox indicated this will be discussed later.

Groundwater Protection

Director Langer stated with every proposed project the Township requires a detailed Pollution Incidence Protection Plan (PIPP); a plan to ensure in the case of a spill, the groundwater and drainage areas are protected. Most of the time the Planning Commission does not review the information. The applicant will be required to provide the PIPP as part of the land use permit for the construction phase of the project. The PIPP will be reviewed by the Hartland Deerfield Fire Authority and the Township's Department of Public Works (DPW) in coordination with State and County agencies.

Commissioner Mayer asked the Applicant if they are familiar with the location of the community well. The Applicant stated they are and that information informed their site plan design. The tanks are as far away from the well site as possible. They have already received approval from the Bureau of Fire Services and LARA (State of Michigan Licensing and Regulatory Affairs) for the fuel tank location. Commissioner Mayer asked about the distance from the tanks to the well. The Applicant stated he did not have that information. Commissioner Mayer asked what is the minimum required distance. The Applicant stated 2,000 feet and he estimates they are in the 1,900 range. Commissioner Mayer asked what agency grants the approval to be closer than 2,000 feet. The Applicant stated LARA and they already have that approval. It was critical for the project at this location, so they made sure to gain that approval ahead of time.

SITE PLAN REVIEW – Applicable Site Standards

Impact Assessment

Director Langer stated it was probably not fair to the Applicant just to state "An impact assessment was not provided." An Impact Assessment is designed to address site issues for projects that may affect a wetland or wooded area. It also gets into traffic, site description and layout. They have provided much of that information through other means, and this site is a redevelopment project. Much of that information is not pertinent as it would be in an undeveloped site.

Traffic Generation

Director Langer stated the following:

- He is not a traffic engineer, but this topic is often thrust upon him.
- A Traffic Impact Study (TIS), dated December 9, 2024, was provided; only the Executive Summary was included.
- They rely heavily on the ITE (Institute of Transportation Engineers) Manual.
- Proposing some changes to the intersection of Old US 23 and M-59.
- Must have MDOT accept and approve those changes.

Dimensional Standards

Director Langer stated the following:

- Project will be located in the previously developed area of the site; the building will not be any closer to Old US 23 or M-59.
- Walgreens was approved as a PD (Planned Development.)
- Sheetz is using the same area; the building is shifting to the west, but it is within the existing developed area on the site.
- All of the building and parking setback distances are shown on page 8 of the staff report.

Building Height (Sec. 3.1.14)

Chair Fox stated the maximum is 35 feet, 20 feet is proposed. The Applicant offered a correction stating the height of the building at the top of the cupola is 29 feet.

Lot Coverage (Sec. 3.1.14)

Chair Fox stated the maximum is 75 percent, proposed is 4.8 percent for the structure.

Site Requirements

Outdoor Seating and Dining (Sec. 4.47)

Director Langer stated a small outdoor seating area is proposed on the north side of the building. Chair Fox mentioned a drive-through is not part of this project. The Applicant clarified that the umbrellas will be bronze and not green as shown on the rendering.

Dumpster Enclosure (Sec. 5.7)

Chair Fox stated the enclosure needs to match the building with the same materials. What is proposed seems to comply. Director Langer confirmed the location of the dumpster enclosure is on the northeast corner of the site.

Off-Street Parking (Sec. 5.8.4.H) – Automobile Fueling and Convenience Station; PLUS Restaurant w/carry out or delicatessen with less than 6 tables

Director Langer stated the bottom line is they comply. They have 48 parking spaces, 38 are required. Chair Fox mentioned this is not a truck stop so there will not be large trucks pulling in and having dinner. The Applicant concurred.

Barrier-Free Parking

Chair Fox stated they are required to have two (2) and they do.

Parking Lot / Driveway / Internal Roads Setbacks (Sec. 5.8.3.)

Director Langer stated they comply with the normal zoning district setbacks with the exception of the building in relationship to Old US 23, but it is consistent with the previously developed portion of the site.

Director Langer stated staff worked with the Applicant to tuck the fuel canopies on the east side of the building and dress up the "back" of the building, which is actually the front as it faces Old US 23, using some decorative window-like elements. Chair Fox stated it is obvious that it is a gas station, and he appreciates the gas canopies not being out front.

Loading (Sec. 5.9)

Chair Fox stated we have not seen one in a long time, but they actually have one.

Access Management and Non-Residential Driveway Standards (Sec. 5.10)

Chair Fox stated they are not moving the driveways.

Landscaping (Section 5.11 – Updated Landscape Ordinance version)

Commissioner Grissim stated the following:

- Appreciates the trees along M-59, currently there is nothing up to the parking lot.
- Foundation landscaping is TBD the requirement is 60 percent, but the important sides have been addressed.
- Appreciates the brick pavers instead of concrete which is a plus.
- Likes the narrow median between the parking lot and Chase Bank but is unclear of its purpose. The Applicant stated the tank system is near that location; the concrete is ten (10) inches thick and there are safety systems galore. If they can avoid having direct traffic over that area, they try so only their tanker can get to it and not ordinary traffic. Trying to direct incoming traffic from the Chase Bank access. Commissioner Grissim commented there is a great deal of concrete on the site and she is trying to understand their intent.
- Once the location for the ground equipment is determined, make sure it is screened.
- She appreciates when cars are pulling in, the plan leaves a little room for the car to overhang.

Commissioner Mayer stated the following:

- Likes the west side with the foundation plantings and trees to break up the straight line of the building.
- Asked if there will be lawn irrigation between the sidewalk and the curbs for both M-59 and Old US 23. The Applicant replied they cannot irrigate within the right-of-way but inside the property boundaries, yes, irrigation is planned.

• Landscape Plan shows eight (8) larger trees as existing that are not there. What is approved is what should be there. If they add tress they must be at least to the three (3) inch standard.

Chair Fox stated if the existing brick corner feature does not match the proposed building materials, it could be modified with brick that matches the building. The Applicant stated it actually very close to what they have planned, and they hope to retain it if it is in an acceptable condition. If not, it will be replaced.

Lighting

Director Langer stated the following:

- Average footcandle at the entrance is above the five (5) footcandle maximum so we will have to work with the Applicant during the Construction Plan phase to make sure it will comply.
- On the elevation drawing of the light pole, a height was not listed and will need to be added to the Construction Plan set. The Applicant stated it is 23 feet, but they will add that information.

Water Supply and Wastewater Disposal (Sec. 5.16)

Chair Fox stated the site will be served by municipal water and sanitary sewer.

Architecture / Building Materials (Sec. 5.24)

Chair Fox stated the Planning Commission could analyze every portion of the proposed structure, but he is more interested in if the Commission likes the way the building looks. According to the chart they exceed the requirements in almost everything in a good way.

Commissioner Eckman stated he likes the awning that give a three-dimensional look which is better than just siding and brick. He thinks it looks nice.

Commissioner McMullen commented on the lighting stating that some other fuel stations are darker and for single women getting off of the expressway brighter lighting makes it more visible for them, it is a safety concern. There is no residential area nearby to be concerned about. She would like to see it brighter as a safety concern for single drivers.

The Planning Commission briefly discussed other fuel station locations and the lighting.

The Planning Commission indicated they like the architecture as presented.

Fuel Island Canopy Design

[Director Langer displayed an image of the fueling station and canopy.]

Director Langer stated the canopy has brick columns with steel girders on the underside. The Applicant stated it is a flat deck canopy; most are pretty flat. They are proposing a bubble of translucent vinyl, a solid material on an angle, with decorative webbed trusses and brick all the way up to the trusses. It is a good-looking installation.

Commissioner Murphy asked how gray water is managed, and is it visible The Applicant stated it is not visible. The canopy is at an angle, so the gutter is integrated with the decking system on the low side. The system goes through the trusses and down through the brick columns into the storm water system.

Signage

Chair Fox stated staff handles signage. Wall signage is proposed.

Commissioner Murphy asked about the fuel pump configuration; the proposed distance between pumps is 21 feet. The Applicant confirmed it is 21 feet, the distance varies for some stores, but that distance seems to work. Commissioner Murphy expressed concern stating other stations have 20 feet in between pumps and it is too close. A more recent fuel station has 22 feet 10 inches which is ample. Twenty feet is too close.

Commissioner Mayer stated many Hartland residents are concerned about traffic, and this will bring additional traffic. Only 12 pump stations are proposed, which is smaller than other stores proposed in the metro area. The Applicant stated the first store in Romulus is a truck stop, which represents less than seven (7) percent of their business. Most of their businesses are smaller establishments like this. Commissioner Mayer stated he is hoping that having a fuel station option on the north side of M-59 for westbound traffic might help alleviate some of the congestion that occurs even with additional traffic.

Commissioner Eckman agreed there should be some alleviation of traffic turning into the fuel station across the street. A development is planned for the southwest corner of Old US 23 and M-59 so we still have more traffic issues that will come with additional improvements to the intersection. Traffic is always a problem, and he is glad it is a smaller station than it could be. He thinks the Planning Department and the Applicant did a great job on the layout which helps the cosmetics; we will have to wait and see what the outcome will be with the County and the State.

Commissioner McMullen asked how many employees are working per shift. The Applicant stated generally, there are about eight (8) per shift maximum, the store will employ between 30 and 35 employees, and they prefer full-time.

Commissioner Murphy stated traffic is always an issue for our residents, but another fuel station is not a bad idea, there has to be one somewhere. The traffic entering and exiting on the south side of M-59 is not always safe to navigate. It is a great-looking building. Employing 35 people is great for Livingston County a real positive for the area.

First Amendment to the Planned Development Agreement (Draft version)

Director Langer stated when creating a Planned Development, one is creating a new zoning ordinance and district for the properties included in that Planned Development. The one created for this property outlined the permitted uses but only permitted two uses. Sheetz was not one of those uses, so in order for this project to proceed, the PD must be amended to allow this new use. Currently, Walgreens and Chase Bank are the only permitted uses. The Applicant is requesting to amend the existing Planned Development to incorporate a Sheetz as a permitted use. The draft amendment has been reviewed by the Township Attorney who made some comments. Before you is the updated draft amendment incorporating those comments.

Chair Fox stated they are allowing a temporary sign while it is being built and permitting the use to be there. If any other use other than Walgreens or Chase Bank wanted to go there, the PD would have to be amended.

Commissioner Eckman offered the following Motion:

Move to approve Site Plan Application #25-005, a request to amend the previously approved Final Planned Development site plan, at 10081 Highland Road, as outlined in the staff memorandum dated August 21, 2025.

Approval is subject to the following conditions:

- 1. The applicant shall adequately address the outstanding items noted in the Planning Department's memorandum, dated August 21, 2025, on the Construction Plan Set, subject to an administrative review by Planning staff prior to the issuance of a land use permit.
- 2. Prior to the issuance of a land use permit for the project, the applicant shall secure all applicable permits and approvals from the Michigan Department of Transportation and the Livingston County Department of Transportation.
- 3. The First Amendment to the Planned Development Agreement shall be in a recordable format and shall comply with the requirements of the Township Attorney.
- 4. Applicant complies with any requirements of the Township Engineering Consultant, Department of Public Works Director, the Fire Code requirements, and all other government agencies, as applicable.
- 5. Applicant shall obtain all applicable approvals and permits from the Bureau of Fire Services and the Michigan Department of Environment, Great Lakes, and Energy (EGLE) regarding the proposed underground storage tanks.
- 6. Applicant shall obtain all applicable approvals and permits from the Livingston County Road Commission (LCRC) and the Michigan Department of Transportation (MDOT).

Seconded by Commissioner Grissim. Motion carried unanimously.

Commissioner Grissim offered the following Motion:

Move to recommend approval of the proposed First Amendment to the Planned Development Agreement, a request to amend the Planned Development Agreement, as outlined in the staff memorandum dated August 21, 2025.

The recommendation for approval is based on the following findings:

1. The Planning Commission has determined the proposed First Amendment to the Planned Development Agreement, outlines the revisions as related to the proposed project, as in the allowance for the development and use of Parcel A for the Sheetz fuel station, fast-food restaurant, and convenience store, operating twenty-four (24) hours per day; minor revisions to temporary signage allowances; and reference to the current Planned

Development Ordinance provisions outlined in Section 3.1.18 of the Township's Zoning Ordinance 76 (as Exhibit 7).

2. The proposed Amendment document shall be revised to address comments provided by the Township Attorney, as applicable.

Seconded by Commissioner Murphy. Motion carried unanimously.

8. Call to the Public:

Brian Madden, Hartland Township; suggested Chick-fil-A use signage to direct traffic to Rovey Drive to Clark Road to M-59. Concerned about traffic turning left onto Old US 23 out of Sheetz.

Lloyd Rayburn, Hartland Township; concerned about traffic at the Old US 23 and M-59 intersection and at the Clark Road and M-59 intersection. Too many areas backup impeding traffic flow. Feels the overall traffic flow in Hartland should be addressed.

9. Planner Report:

None

10. Committee Reports:

Commissioner Murphy initiated a brief discussion by the Planning Commission about sidewalks in Hartland Township, requesting them earlier in the review process, closing gaps, exploring grants to fund additional construction.

11. Adjournment:

A Motion to adjourn was made by Commissioner Grissim and seconded by Commissioner Mayer. Motion carried unanimously. The meeting was adjourned at approximately 8:36 PM.

Hartland Township Planning Commission Meeting Agenda Memorandum

Submitted By: Troy Langer, Planning Director

Subject: Site Plan Application #25-016

Proposed Plaza at Cromaine Library at 3688 N. Hartland Road

Date: September 18, 2025

Recommended Action

Move to approve Site Plan Application #25-016, proposed landscape upgrades and construction of a community pavilion on the south lawn of Cromaine Library, 3688 N. Hartland Road, (Parcel ID #4708-16-101-117 & 4708-16-101-126), as outlined in the staff memorandum dated September 18, 2025.

Approval is subject to the following conditions:

- 1. The applicant shall adequately address the outstanding items noted in the Planning Department's memorandum dated September 18, 2025. Revised plans, if necessary, shall be subject to an administrative review by the Planning staff prior to the issuance of a land use permit.
- 2. A land use permit is required prior to construction.
- 3. Applicant complies with any requirements of the Township Engineering Consultant, Department of Public Works Director, Hartland Deerfield Fire Authority, Livingston County Road Commission, and all other government agencies, as applicable.
- 4. (Any other conditions the Planning Commission deems necessary)

Discussion

Applicant: Sarah Neidert

Site Description

Cromaine Library is located at 3688 N. Hartland Road in the Village of Hartland. Historically the library was situated on two (2) parcels; Parcel ID #4708-16-101-117 (library building) and #4708-16-101-126 (lawn area south of the building). These parcels are 1.210 and .891 acres respectively, for a total of 2.10 acres. Each parcel is zoned STR (Settlement Residential). A land division application was submitted to the Township in July 2025, as a request to combine the two (2) parcels into one (1) parcel (Land Division Application #25-006). Currently the application is under review by the Township. A new parcel number has not been issued at this time.

Parcels surrounding the library property, to the north, east, and west, are zoned STR (Settlement Residential). The adjacent property to the east is the Hartland Childcare Center (51 Building - Hartland Consolidated Schools). The properties to the south (south of School Road) are zoned LC (Limited Commercial) and STR (Settlement Residential).

Background Information

The Cromaine Library was originally founded in 1927 as a school district owned library. The Hartland Schools provided the land. The building was constructed in 1927 and opened to the public in 1928. In 1978, funding was secured for a 9,400 square foot expansion to the library and construction was completed in 1980. Following completion of the addition, the library equaled 14,250 square feet.

Site Plan Application #536

An approximate 3,820 square foot addition to the Cromaine Library was approved by the Planning Commission on January 14, 2016, under Site Plan Application #536.

Land Use Permit #9258

On August 16, 2016, Land Use Permit #9258 was issued by the Township for the approximate 3,820 square foot addition to the library building.

Proposed Use

The applicant is requesting to redesign the south lawn area of the library site with major landscape upgrades, construction of a pavilion for community events, and make improvements to the parking area on the east side of the site.

Request and Project Overview

The request is to improve the south lawn area of the library to enhance the space where Cromaine Library annually hosts numerous community events, programming, and concerts. The proposed improvements include upgrades to the landscaping, perimeter sidewalks with seating areas, decorative fencing, several paver patio areas, an open-sided pavilion, and site lighting.

Existing concrete pads and several sidewalks will be removed, as well as some wooden planters and an existing site identification sign.

The existing parking area in the southeast section of the site consists of a concrete pad with striped parking spaces and a gravel drive aisle around the pad. The existing parking area is considered non-conforming. The concrete pad and gravel will be removed and replaced with a defined, gravel parking area along the east side of the lawn area.

The proposed plan shows a central lawn area and sidewalks that border the lawn and connect to existing sidewalks within the library site. Several spurs are provided in the sidewalks on the east and west to accommodate tables, chairs, and umbrellas. A paver patio/seating area with planters is shown on the west side of the lawn area.

Canopy trees are placed along the east, west, and south sides of the site, adjacent to the sidewalks. Canopy trees also flank the east and west sides of the pavilion. Planting beds with shrubs are shown in the area between the lawn/pavilion and library building. Additional landscape areas are found on the west side of the site. Some planting areas are located within the road right-of-way of Hartland Road.

Three (3) foot high picket fencing with brick, masonry piers, is shown between the interior sidewalks and property lines on the west and south sides of the site

Irrigation is proposed for the landscaped areas. An underground storm water detention system is shown in the central portion of the lawn.

A double-roof, open-sided, vinyl pavilion is positioned on a paver patio at the north side of the site. The pavilion dimensions are twenty (20) feet by forty (40) feet. The dimensions of the paver patio are fifty (50) feet by sixty-six (66) feet.

The overall height of the pavilion is fourteen (14) feet. The products include white support posts (treated pine) with vinyl cladding and asphalt singles for the roof that will match the roof of the library building. Ceiling mounted pendant lights are proposed inside the pavilion.

Six (6) existing parallel parking spaces are shown on Hartland Road and are located within the road right-of-way. Proposed improvements on School Road include two (2) curbed landscape endcaps (lawn) and nine (9) angled parking spaces in between the endcaps, all within the road right-of-way. Hartland Road and School Road are under the jurisdiction of the Livingston County Road Commission (LCRC). The applicant shall secure all applicable approvals and permits from the Livingston County Road Commission for improvements within the road right-of-way, including plant material.

A new monument sign is proposed on the west side of the library building, adjacent to Hartland Road.

A note on the plan indicates an historical icon or sculpture may be installed at the southwest corner of the site, to be determined at a later date.

The applicant is pursuing adding play equipment to the subject site, however, the details have not been finalized yet.

Approval Procedure

The Cromaine Library is located in the STR zoning district (Section 3.1.4) which permits public buildings including libraries, as a Special Land Use. No changes to the Cromaine Library building are proposed.

The proposed request includes site work in the lawn area south of the library building. The scope of work includes upgrades to the landscaping and the construction of a pavilion for community events, programming, and concerts. Public parks and recreation areas are listed as a Permitted Principal Use in STR with references to Section 4.40 for additional standards. Section 4.40.2 provides specific requirements for Commercial Outdoor Recreation Facilities, which are applicable for the proposed project.

The plans will be reviewed using the development standards of the STR (Settlement Residential) zoning district (Section 3.1.4), Section 4.40.2 (Commercial Outdoor Recreation Facilities), and all applicable zoning standards in the Zoning Ordinance

The request requires a site plan application which will be reviewed by the Planning Commission who makes the final decision on the site plan.

The proposed project requires a land use permit from the Township and applicable approvals from other state and county agencies.

SITE PLAN REVIEW – Applicable Site Standards

The applicable site standards include those standards related to the zoning (STR) as outlined in Section 3.1.4., Section 4.40, and all applicable zoning standards in the Zoning Ordinance.

Dimensional Requirements (STR - Settlement Residential; Section 3.1.4)

Building Height (Sec. 3.1.4.E.) – Pavilion

- Required 15 feet or 1story, maximum height
- Proposed 14 feet at tallest point (at top of double pavilion roof)
- Meets Requirement? Yes
- Comment (none)

Sec. 4.40.2. (Commercial Outdoor Recreation Facilities)

Per this section the following regulations apply to outdoor recreation facilities, including music concert pavilions:

A. Setbacks. Principal and accessory buildings shall be set back at least seventy-five (75) feet from all property lines, unless otherwise specified herein. The following chart summarizes the pavilion setbacks.

Property Line	Required Setback	Proposed Setback	Meets Requirements? (Y/N)
East	75 feet	83 feet	Y
West	75 feet	56 feet	N*
North	75 feet	188 feet	Y
South	75 feet	302 feet	Y

^{*}Per Section 3.24.12. (Notes to District Standards), the Planning Commission may reduce the required front yard setback within any non-residential district, or when a permitted non-residential use is proposed in a residential district, when no parking will be located between an existing or proposed structure and the existing or proposed right of way.

- B. Access. Outdoor recreation uses shall have direct access onto a major thoroughfare unless accessed by a service drive, marginal access road, or shared commercial driveway. Access is provided from School Road to the gravel parking area on the east side of the lawn area. Access to the site can also be obtained via Hartland Road.
- C. Impact on Surrounding Properties. The location, layout, design, or operation of outdoor recreation facilities shall not impair the continued enjoyment, use, and future orderly development of adjacent and nearby properties. The Planning Commission may specify the hours of operation in order to assure compatibility with adjacent uses. Historically the lawn area has been used for outdoor events, and the proposed project is intended to enhance the outdoor space for such events. Specifics on proposed outdoor events were not provided.
- D. Nuisance Impacts. Outdoor recreation uses shall not generate excessive noise, odors, dust, or other impacts, such that the continued use and enjoyment of adjacent properties would be impaired. The site shall be periodically cleared of debris. *The applicant has been made aware of this requirement*.
- E. Parking. All parking for outdoor recreation uses shall be provided in off-street parking lots, designed in accordance with Section 5.8, Off-Street Parking Requirements and set back a minimum of forty (40 feet from any residential district. *Parking is available in the parking lot, north of the library building; in the gravel parking lot on the east; and on-street parking found on Hartland Road and School Road.*
- F. Screening. Outdoor recreation uses shall be screened from view from adjacent property zoned or used for residential purposes, in accordance with Sections 5.11, Landscaping and Screening and 5.20, Walls and Fences. A 3-foot high picket fence is shown on west and east boundaries of the subject site.
- G. Accessory Facilities. Accessory retail or commercial facilities, such as food and beverage facilities or equipment shops, shall be designed to serve only the patrons of the outdoor recreation facility, unless otherwise listed as a permitted use in the district in which the facility is located. *Accessory facilities are not proposed.*

Landscaping and Screening (Sec. 5.11 – Updated Landscape Ordinance version)

Applicable sections of Section 5.11 (Landscaping and Screening), updated version, will be applied to the landscape plan, as outlined below.

- A. Landscape plan requirements (Sec. 5.11.1.D.)
 - Required Landscape plans are to be prepared by a Registered Landscape Architect (plans with seal and signature).
 - Proposed Landscape plans are prepared by a Registered Landscape Architect.
 - Meets Requirement? Yes
 - Comment (none)
- B. Irrigation (Sec. 5.11.2.A.viii.)
 - Required All landscaped areas (including lawns) shall be provided with an automatic, underground or drip irrigation system.
 - Proposed Note saying all landscaped areas will be provided with an automated irrigation system (see Sheet L-1).
 - Meets Requirement? Yes
 - Comment An irrigation plan is required as part of the Construction Plan set.

Lighting (Sec. 5.13)

A. Intensity

- Required Light intensity to be measured at 5 ft. above ground level; max. 0.5 fc along property line adjacent to residential; or max.1.0 fc along property line adjacent to non-residential; average fc between 2.4 and 3.6 in main parking area and an average of 5.0 fc at main building entrance and at exit/entry drive; may not exceed 10 fc on site.
- Proposed Lighting intensity measured at 0'-0" ft. above the ground level; footcandle values are 0.0 fc at property lines; photometric plan does not list information on the average footcandles for the main parking area, main building entrance, or at exit/entry drive.
- Meets Requirement? The lighting intensity is not measured at 5 ft. above ground; however, this may be irrelevant due to the type of proposed light fixtures which are: 42" high illuminating bollards; ground mounted landscape accent lights; ground-mounted lights for the monument sign; and 2 ceiling mounted pendent lights inside the pavilion.
- Comment Planning Commission to determine if the photometric plan should be revised to measure the light intensity at 5 feet above ground.
- B. Fixture Height NA- light poles not proposed.
- C. Fixture Type
 - Required Details of all lighting fixtures needed including specifications for shielding, wattage and illumination.
 - Proposed Specifications for proposed light fixtures are shown on the photometric plans.
 - Meets Requirement? Yes
 - Comment The ground mounted light fixtures for the proposed monument sign and historical icon
 or sculpture (SW corner of site) shall be angled to focus on the sign/feature and shall not direct
 light upward.

Water Supply and Wastewater Disposal (Sec. 5.16)

The library is served by private well (water) and municipal sanitary sewer.

Walls and Fences (Sec. 5.20)

Fencing is shown on the west and south sides of the site. The site is a corner lot with frontage on Hartland Road (west) and School Road (south). The fencing is located in the front yard on the west and south. The fence regulations outlined in Section 5.20.2.B. apply to this site (Fences in the CA District).

Per Section 5.20.2.A.iv., fences on parcels that are greater than two (2) acres in area, and in the STR District, shall be subject to the requirements for the CA District, Section 5.20.2.B. The subject property is 2.10 acres in area. Per this section, fences may be located in the required front, side and rear yard subject to the following requirements:

- Maximum Height. 8 feet
- Fence Design. Fences over four (4) feet in height in the required front setback shall be non-obscuring in design.
- Proposed 3-foot-high, white vinyl picket fence with 3-foot-high masonry pillars, constructed with brick to match the library building, and have concrete or limestone base and cap.
- Meets Requirement? Yes
- Comment (none)

Other Fencing

Solid vinyl fencing and a gate are proposed on the east side of the library building to screen utilities (see Note #11 on Sheet L200). The fencing and gate are each six (6) feet in height.

Architecture Comments

The pavilion has a two-tiered roof and is supported by pillars wrapped in white vinyl. Asphalt shingles are proposed for the roof, which will match the library building roof. The drawings and Note #4 for the pavilion, on Sheet L300, should be revised to show/state that architectural asphalt shingles will be used for the roof, to match the library building, on the Construction Plan set. Also, any references to a metal roof should be removed, on the Construction Plan set.

Other Comments

Monument Sign (Sec. 5.26) - Identity Sign

The existing site sign at the southwest corner of the lawn will be removed. A new monument sign is shown, south of the library building and placed perpendicular to Hartland Road. The leading edge of the monument sign is zero (0) feet from the right-of-way line of Hartland Road. The required setback for a monument sign is ten (10) feet from the road right-of-way.

The sign base is comprised of brick with a concrete cap. The brick matches the brick on the library building. Above the base, is a double-sided sign panel that is framed by architectural elements. The architectural elements are comprised of white, painted aluminum. The dimensions of each sign panel are two (2) feet by four (4) feet. The sign panels are not internally illuminated. Ground-mounted lighting will illuminate each sign panel. The overall height of the monument sign is 6'-6" (as measured from ground to highest point). The maximum allowed sign height is seven (7) feet. The overall sign area (everything above the base) is approximately 37.58 square feet. Per Section 5.26.8.M.v., all non-residential uses permitted in single family, multiple family, and mobile home park districts are to comply with the sign requirements for the Office District. The maximum sign area permitted in the Office District is sixty-four (64) square feet and the proposed sign complies.

Other Requirements-Zoning Ordinance Standards

Nothing additional at this time.

Hartland Township DPW Review

A review letter is provided from the Hartland Township DPW Director, dated September 16, 2025.

Hartland Township Engineer's Review (SDA)

The Township Engineer (SDA) has reviewed the plans and recommends approval subject to items being addressed in the letter dated September 16, 2025.

Hartland Deerfield Fire Authority Review

The Hartland Deerfield Fire Authority has no concerns with the project, according to the email dated September 4, 2025.

Attachments

- 1. Township DPW review letter dated 09.16.2025 PDF version
- 2. Township Engineer (SDA) review letter dated 09.16.2025 PDF version
- 3. Hartland Deerfield Fire Authority email dated 09.04.2025 PDF version
- 4. Site Plans dated 08.27.2025

CC:

SDA, Twp Engineer (via email) Scott Hable, Twp DPW Director (via email) A. Carroll, Hartland FD Fire Chief (via email)

T:\PLANNING DEPARTMENT\PLANNING COMMISSION\2025 Planning Commission Activity\Site Plan Applications\SP #25-016 Cromaine Library Plaza\Staff reports\PC\SP #25-016 Cromaine Library staff report 09.18.2025.docx



DEPARTMENT OF PUBLIC WORKS

Scott Hable, Public Works Director 2655 Clark Road Hartland MI 48353 Phone: (810) 632-7498

TO: Planning Department

DATE: 9/16/2025

DEVELOPMENT NAME: Cromaine Library Landscape Improvements

PIN#: 3688 Hartland Rd.

APPLICATION #: SP#25-016
REVIEW TYPE: Site Plan

The Department of Public Works (DPW) has reviewed the site plans for the proposed landscaped event space adjacent to the Cromaine Library and has determined that there will be no additional REU requirements, as there is no water or sewer involved in this project.

	Sewer REUs	Water REUs
Owned	10.78	0
Required	0	0
# REUs Needed	0	0
Cost Each	\$9,439.20	\$5,816.01
Total Due Each	\$0	0
TOTAL REU COST	\$0)

REU numbers above are totals of the two parcels planning on being combined.

Public Works approves the above plans.

Please feel free to contact me with any further questions or comments regarding this matter and thank you for your time.

Scott Hable

Public Works Director

Engineering & Surveying Excellence since 1954

Site Plan Review

September 16, 2025

Troy Langer Planning Director Hartland Township, MI

Re: Cromaine Library – Site Plan Review

SDA Review No. HL25-102

Dear Troy:

We have received the preliminary site plan submittal for the above referenced project prepared by Zeimet Wozniak dated August 26, 2025, and received by our office on September 2, 2025. A concept review email was provided on April 24, 2025. The plans were reviewed in accordance with Hartland Township Engineering Standards and the following comments are our observations.

Recommendation

Approval of the Site Plan is recommended with the conditions listed below.

Project Summary

- Development of a landscape event space with an elevated platform, and parking space for the Cromaine District Library located at 3688 Hartland Road. Site access would be provided with public roads, N Hartland Road and School Road. It is noted that the site is 2.131 acres.
- Water service would be provided from the existing 3-inch water main served by well. Water main improvements are not proposed.
- Sanitary sewer service would be provided by an existing 6-inch sanitary service from the existing 8-inch sanitary sewer along School St.
- Storm water would be collected by a storm sewer collection system and sheet flow before entering the wetland. The proposed improvements (south portion of the library) will be conveyed via storm sewer and detained in the proposed underground detention system before being released into the wetland.

<u>General</u>

- 1. A land combination shall be completed for the proposed project. Two different parcels are being redeveloped.
- 2. All work within the County ROW will require a permit from Livingston County Road Commission.

Sanitary Sewer

1. The sanitary lead is connected to the existing 8-inch public sanitary sewer along the north side School St. The plans currently indicate that the sanitary sewer flows to an existing septic system. This will need to be revised in all the relevant sheets.



Engineering & Surveying Excellence since 1954

Storm Drainage & Site Grading

- 1. The site is occupied by an existing library and parking lot to the north, this portion of the project is to remain existing, and no stormwater improvements are proposed for this part of the site. Underground detention system and storm water improvements are proposed for the south part of the site where improvements are proposed including the landscape area with structures and footing, and parking lot off of School Road. Confirm with Livingston County Drain Commission that no additional detention capacity and stormwater pre-treatment will be required on site, and that the proposed storm sewer system can be connected to the existing 12-inch storm sewer. The proposed pre-treatment will need to be evaluated for adequacy.
- 2. A drainage plan will be required during engineering review.
- 3. The minimum size allowable for proposed storm sewer shall be 12 -inch diameter.

Permits and Agreements Required

Based on those improvements depicted on the plans, the following permits and agreements may be needed to be provided for review and approval:

- A draft copy of the Storm Drain Agreement.
- A Land Use Permit will be granted after the pre-construction meeting.
- Livingston County Drain Commissioner approval and permit.
- Livingston County Road Commission approval and permit.
- Soil Erosion and Sedimentation permit from Livingston County Drain Commissioner.

Please be aware that additional comments may arise with the submittal of the requested revisions and/or additional information.

The comments are not to be construed as approvals and are not necessarily conclusive. The final engineering plans for this development are to be prepared in accordance with the Hartland Township Engineering Design Standards and 2025 Hartland Township Standard Details. Sanitary sewer and water benefit fees may be applicable for this project.

If you have any questions regarding this letter, please contact Luisa Amici at (248) 844-5400 with any questions.

Sincerely,

SPALDING DEDECKER

Lusa Smu

Luisa Amici Engineer

cc:

Mark Collins, PE Project Manager

Martha Wyatt, Hartland Township Planning Planner - Landscape Architect (via email) Scott Hable, Hartland Township Public Works Director (via email)

Martha Wyatt

To: Martha Wyatt

Subject: Cromaine Library plaza project

From: Jon Dehanke

Sent: Thursday, September 4, 2025 11:40 AM
To: Martha Wyatt < MWyatt@hartlandtwp.com>
Subject: Re: Cromaine Library plaza project

Martha,

I believe this appears to be an open air pavilion? If that is the case, no issues.

Jon Dehanke, Fire Marshal Hartland Deerfield Fire Authority

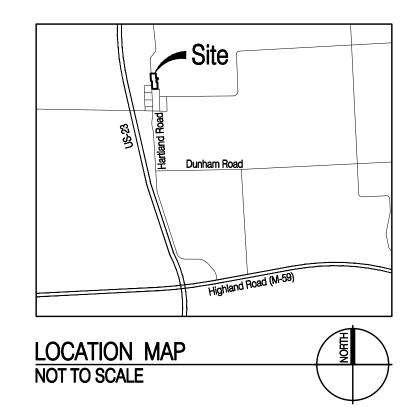
3205 Hartland Rd. Hartland, MI 48353

Phone: (810) 632-7676

Cronaine Library Hartland Township, Michigan

Issued for: Township Review

Date: 08/27/2025







• [Orawing Index Key: Orawing Issued Orawing Not Issued Orawing Issued for Reference Only	04/10/2025 Design Development	04/18/2025 Township Review	05/15/2025 Township Review	08/27/2025 Township Review		
	COVER SHEET	•	•	•	•		
L100	EXISTING CONDITIONS PLAN	•	•	•			
L101	DEMOLITION PLAN	•	•	•			
L200	PAVING AND LAYOUT PLAN	•	•	•			
L201	PROPOSED WORK IN ROAD R.O.W.		•	•			
L300	SITE DETAILS			•			
L400	GRADING PLAN	•	•	•			
L500	LANDSCAPE PLAN	•	•	•			
L600	LANDSCAPE DETAILS			•			
L700	LIGHTING PLAN			•			
L701	LIGHTING DETAILS			•			
1	PHOTOMETRIC PLAN						
2	PHOTOMETRIC PLAN AND						
	LIGHTING DETAILS						
S100	BOUNDARY SURVEY				•		
S101	TOPOGRAPHIC SURVEY	•	•	•	•		
S102	SOILS SURVEY				•		
C100	GRADING AND DRAINAGE PLAN				•		
C101	STORMWATER MANAGEMENT NOTES AND DETAILS						
C102	STORMWATER MANAGEMENT NOTES AND DETAILS				•		
C200	SOIL EROSION CONTROL PLAN				•		

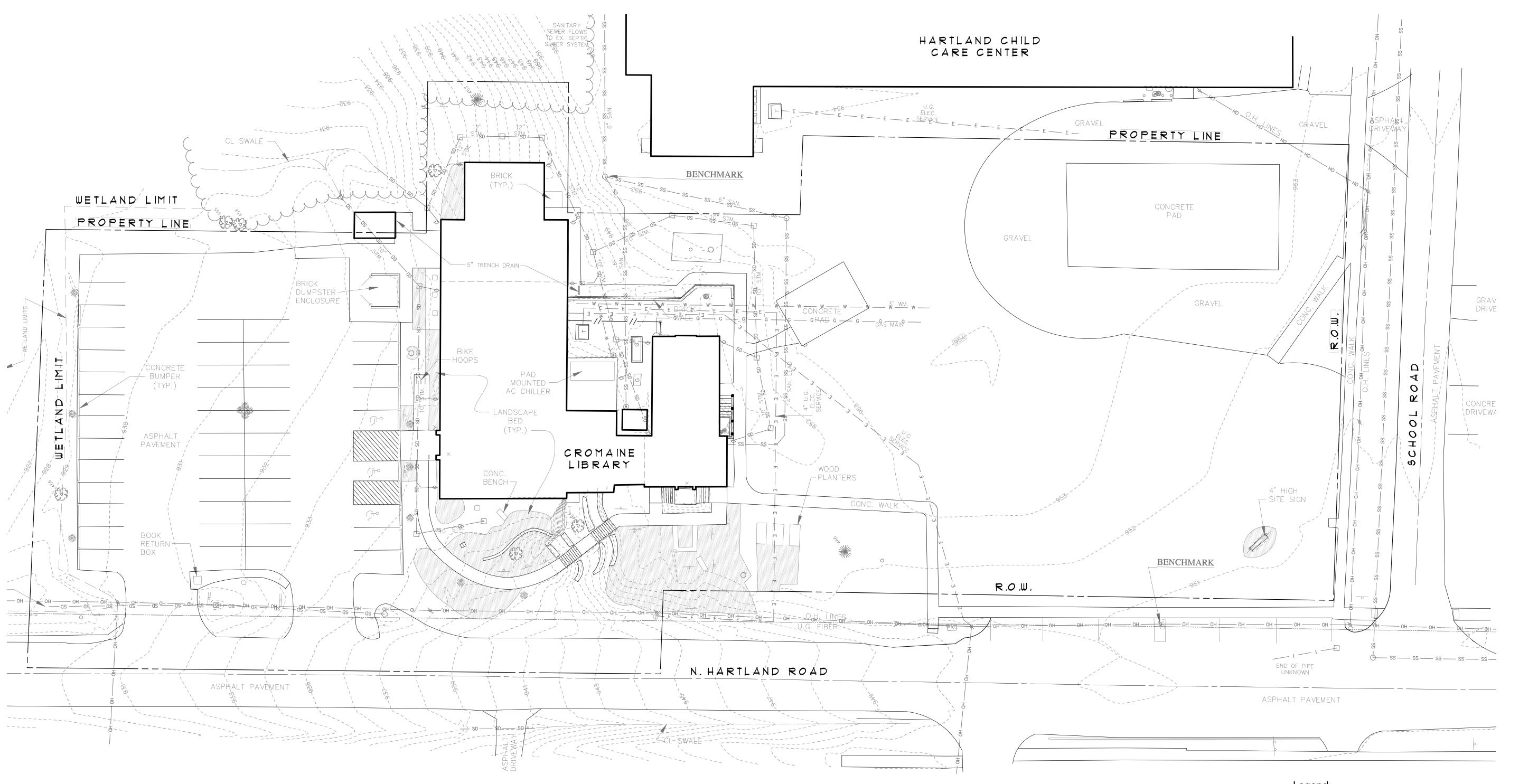
Contacts:

Landscape Architect: **Grissim Metz Andriese** 15000 Edward N. Hines Drive Plymouth, Michigan 48170 248-347-7010 - Office 248-869-2323 - Direct Sue Grissim, PLA

Civil Engineer / Surveyor: Zeimet Wozniak Associates 55800 Grand River Avenue, Suite 100 New Hudson, Michigan 48165 248-437-5099 - Office Julian Wargo, Jr., PE

Owner's Representative: Cromaine District Library 3688 N. Hartland Road Hartland, Michigan 48353 Sarah Neidert, Library Director

Cromaine Library Issued For: Township Review Date: 08/27/2025



Legend:

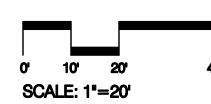
	PROPERTY LINE / RO.W.
—— G —— G ——	GAS LINE
——— W ——— W ———	WATER MAIN
—— SS —— SS ——	SANITARY SEWER
——— SD ——— SD ———	STORM DRAIN
— Е — Е —	ELECTRIC LINE
—— ОН ——— ОН ———	OVERHEAD UTILITY LINE
	EXISTING GRADE CONTOUR
業	EXISTING LIGHT POLE TO REMAIN, TYP.
	EXISTING SIGN TO REMAIN, TYP.
	EXISTING UTILITY CATCH BASIN OR MANHOLE, TYP.
	EXISTING DECIDUOUS TREE, TYP.

EXISTING EVERGREEN TREE, TYP.

Notes

 REFER TO TOPOGRAPHIC SURVEY, SHEET SIØI DATED Ø3-21-2025 FOR ADDITIONAL INFORMATION. SURVEY PROVIDED BY ZEIMET WOZNIAK & ASSOCIATES.







EIMET W& ZNIAK

Consulting Civil Engineers

55800 GRAND RIVER AVE., SUITE 100

NEW HUDSON, MICHIGAN 48165

P: (248) 437-5099 F: (248) 437-5222 www.zeimetwozniak.com

GRISSIM METZ ASSOCIATI ANDRIESE

Landscape Architecture 15000 Edward N. Hines Dr., Suite A Plymouth, MI 48170

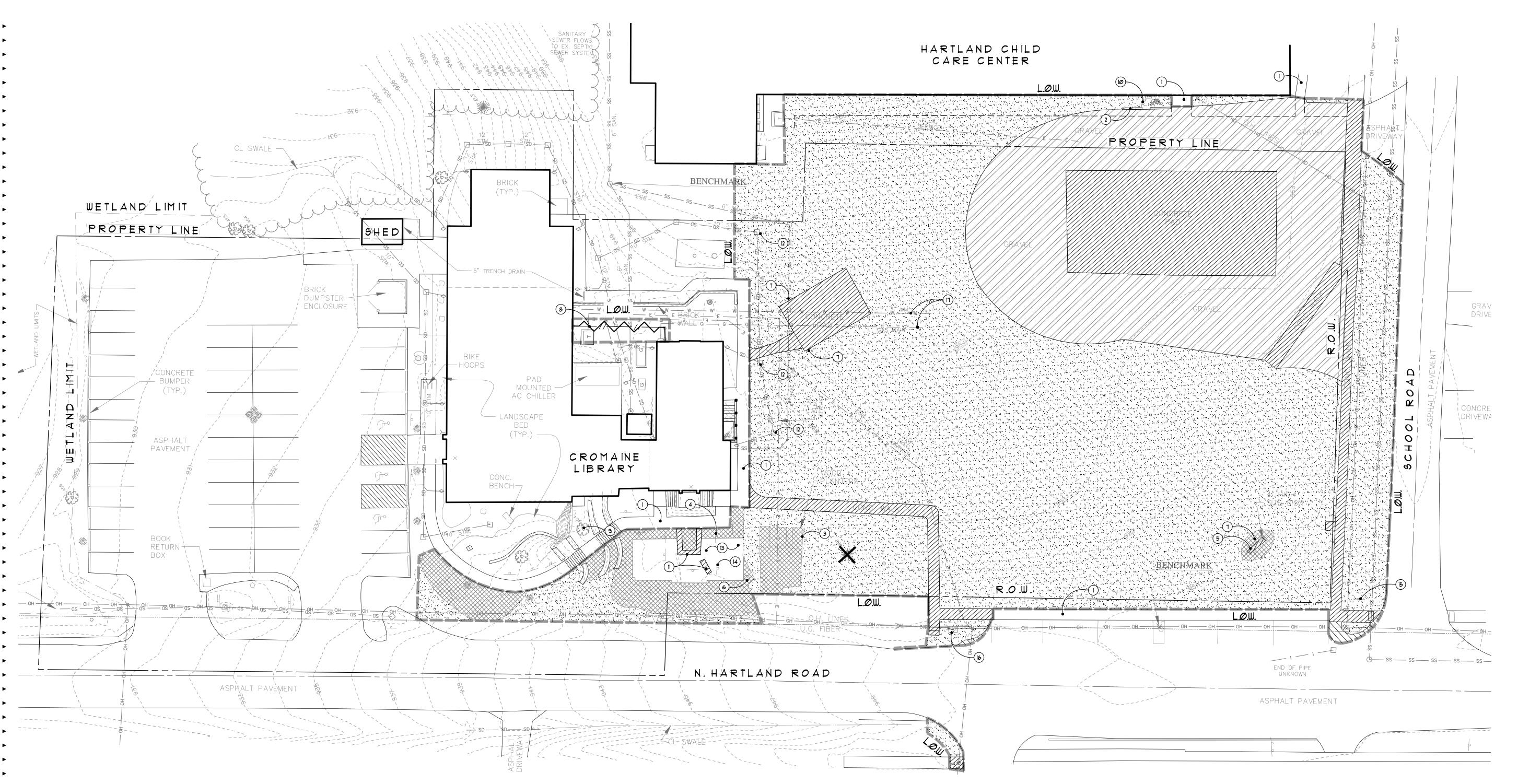
Ph: 248-347-7010

Cromaine	Library	
Hartland Townshi	p, Michigan	
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Job Number: Drawn:	C79-241 TFW	

04/10/2025	Design Development
04/18/2025	Township Review
05/15/2025	Township Review
08/27/2025	Township Review
	- -

Chart Number

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Tree Removals

Demolition Notes:

- ALL DEMOLITION WORK SHALL CONFORM TO LOCAL CODES, ORDINANCES, AND
- STANDARDS.

 2. STAGING / PHASING OF DEMOLITION AND CONSTRUCTION IS TO BE COORDINATED WITH THE OWNER AND CONSTRUCTION MANAGER AT THE PRE-CONSTRUCTION MEETING.
- 3. SPECIFIC DEMOLITION ITEMS HAVE BEEN INDICATED ON THE PLANS AS A GUIDE TO THE GENERAL SCOPE OF THE WORK. IT IS THE INTENT THAT THESE ITEMS SHALL BE COMPLETELY REMOVED BY THE CONTRACTOR ABOVE AND BELOW GROUND, UNLESS SPECIFICALLY NOTED OTHERWISE, AND THAT DEMOLITION WILL INCLUDE BUT NOT NECESSARILY BE LIMITED TO THESE ITEMS. CONTRACTOR SHALL VISIT SITE TO VERIFY EXISTING CONDITIONS AND EXTENTS OF THE DEMOLITION THAT WILL BE
- 4. REMOVE ALL STRUCTURES DESIGNATED FOR REMOVAL ACCORDING TO THE DEMOLITION PLAN. THIS INCLUDES FOUNDATIONS, FOOTINGS, FOUNDATION WALLS, UNDERGROUND UTILITIES, CONCRETE, ASPHALT, TREES ETC.
- 5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEAN UP, NOISE, DUST CONTROL, STREET SWEEPING AND HOURS OF OPERATION IN ACCORDANCE WITH LOCAL CODES AND STANDARDS.
- 6. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY BARRICADES, SIGNAGE,
 MARKINGS, LIGHTS AND OTHER TRAFFIC CONTROL DEVICES TO PROTECT THE WORK
 ZONE AND SAFELY MAINTAIN TRAFFIC PER LOCAL REQUIREMENTS AND MMUTCD.
 1. CONTRACTOR TO VERIFY WITH OWNER THE DEMOLITION AND SALVAGING OF ITEMS
- IDENTIFIED PRIOR TO BEGINNING DEMOLITION WORK.

 8. ALL UTILITY RIMS AND CASTINGS SHALL BE ADJUSTED TO PROPOSED SURROUNDING
- GRADES. REFER TO GRADING & DRAINAGE PLAN.

 9. NO CONSTRUCTION MACHINERY OR CONSTRUCTION MATERIAL SHALL ENTER INTO OR BE STORED IN EXISTING LANDSCAPE AREAS OR WITHIN EXISTING TREE DRIP LINES
- 10. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING CONSTRUCTION FENCE AND ALL SESC MEASURES PER LIVINGSTON COUNTY AND HARTLAND TOWNSHIP STANDARDS. REFER TO SESC PLAN.
- II. TREE CLEARING/TRIMMING ACTIVITIES SHALL BE PERFORMED BETWEEN OCTOBER 31ST AND MARCH 31ST.

Note Key:

- 1) PROTECT EXISTING CONCRETE WALKS, TYP.
- 2) REMOVE AND SALVAGE BUMPER BLOCKS, TYP.
- (3) REMOVE EXISTING WOODEN PLANTERS, TYP.
- 4) REMOVE AND SALVAGE EXISTING INTERPRETIVE SIGNS, TYP.
- (5) REMOVE EXISTING SIGN AND CONCRETE FOOTING
- © REMOVE AND SALVAGE POST WITH STORAGE SHELVES.
- 7 REMOVE ELECTRICAL OUTLET, TYP.
- 8 REMOVE EXISTING CHAINLINK FENCE, GATE, AND FOOTINGS
- 9 PRESERVE AND PROTECT EXISTING TREE MINIMIZE IMPACT WITHIN CRITICAL ROOT ZONE TO GREATEST EXTENT POSSIBLE
- (10) EXISTING BOLLARDS TO REMAIN AND BE PROTECTED, TYP.

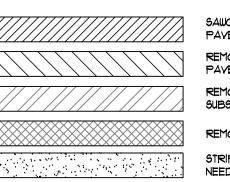
 (11) COORDINATE BRICK PAVER REMOVAL WITH OWNER'S
- REPRESENTATIVE

 (12) PROTECT EXISTING CATCH BASINS WITH SOIL EROSION CONTROL MEASURES AND ADJUST PER GRADING PLAN, TYP.
- (3) EXISTING LANDSCAPE BED BY OTHERS TO REMAIN AND BE PROTECTED
- PROTECT EXISTING INTERPRETIVE SIGNS WITHIN LANDSCAPE BED TO REMAIN, TYP.
- (B) RELOCATE EXISTING STOP SIGN PER LIVINGSTON COUNTY ROAD COMMISSION STANDARDS
- (6) EXISTING UTILITY BOX TO REMAIN AND BE PROTECTED DURING
- OWNER'S REPRESENTATIVE TO VERIFY GAS LINE AND WATER MAIN ARE NO LONGER IN SERVICE PRIOR TO BEGINNING WORK.

Demolition Legend:

Dellio	IIIIOH LGE	jena.	
L.Ø.W.			LIMIT OF WORK LINE
			PROPERTY LINE / RO.W.
— G —	— G —— G -	G	GAS LINE
—— W —	— W —— W -	— W ——	WATER MAIN
—— ss —	— SS —— SS -	ss	SANITARY SEWER
—— SD —	— SD —— SD -	SD	STORM DRAIN
— Е —	— Е —— Е -	— Е —	ELECTRIC LINE
—— он -	—— ОН ——	— OH ———	OVERHEAD UTILITY LINE
			EXISTING GRADE CONTOUR
	**		EXISTING LIGHT POLE TO REMAIN, TYP.
			EXISTING SIGN TO REMAIN, TYP.
			EXISTING UTILITY CATCH BASIN OR MANHOLE, TYP.
			EXISTING DECIDUOUS TREE TO REMAIN, TYP.
			EXISTING EVERGREEN TREE TO REMAIN, TYP.
			EXISTING TREE TO BE REMOVED - REFER TO NOTE KEY AND TOPOGRAPHIC SURVEY, TYP.
			SAUCUT AND REMOVE EXISTING CONCRETE WALK

REMOVE EXISTING LANDSCAPE AND SOIL AS REQUIRED FOR NEW IMPROVEMENTS.



COORDINATE REMOVALS WITH OWNERS REPRESENTATIVE.

SAUCUT AND REMOVE EXISTING CONCRETE WALK PAVEMENT AND BASE TO NEAREST JOINT, TYP.

REMOVE EXISTING ASPHALT ROADWAY PAVEMENT AND BASE, TYP.

REMOVE EXISTING GRAVEL PAVEMENT AND SUBSOIL AS NEEDED FOR NEW IMPROVEMENTS, TYP.

REMOVE EXISTING LANDSCAPING, TYP.

STRIP AND REMOVE EXISTING TURF AND SOIL AS NEEDED FOR NEW IMPROVEMENTS, TYP.

0' 10' 20' SCALE: 1"=20'

Know wnat s below die Call before you die





Landscape Architecture 15000 Edward N. Hines Dr., Suite A

Ph: 248-347-7010

Plymouth, MI 48170

Project: Cromaine	Lihrary		
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Date: Issued for:

04/10/2025 Design Development

04/18/2025 Township Review

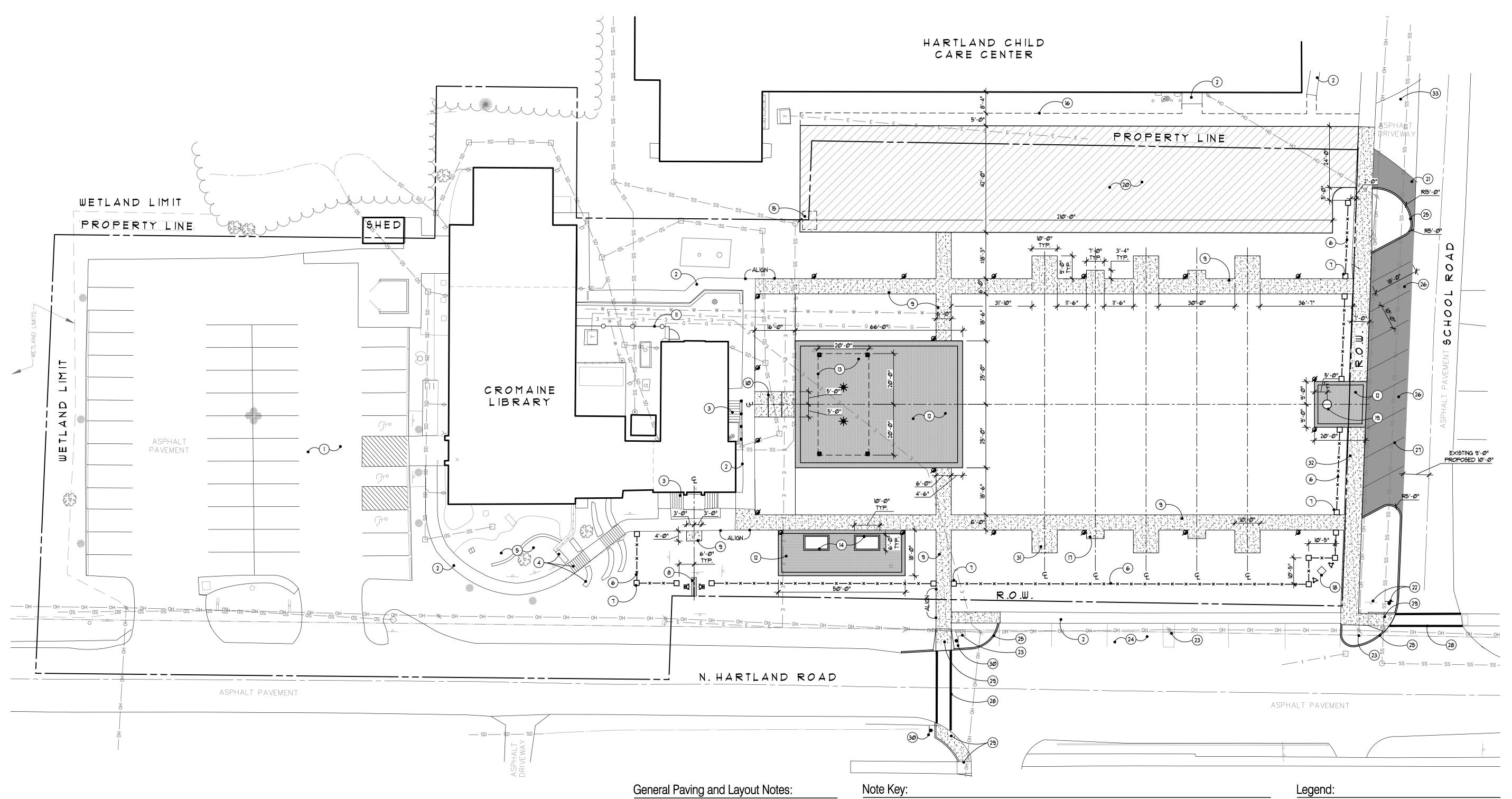
05/15/2025 Township Review

08/27/2025 Township Review

Sheet Number: L10

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- 1. ALL DIMENSIONS ARE APPROXIMATE AND MUST BE FIELD VERIFIED. NOTIFY OWNER'S REPRESENTATIVE OF ANY DISCREPANCIES BETWEEN GRAPHIC REPRESENTATION AND GIVEN DIMENSIONS.
- 2. ALL WORK TO BE COORDINATED WITH OWNER'S REPRESENTATIVE.
- LOCATE ALL EXISTING UNDERGROUND AND OVERHEAD UTILITIES PRIOR TO BEGINNING ANY EXCAVATION WORK AND NOTIFY THE OWNER'S REPRESENTATIVE OF ANY UTILITY CONFLICTS PRIOR TO
- 4. CONTRACTOR TO VERIFY SITE CONDITIONS (ABOVE AND BELOW GRADE) PRIOR TO CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE PRIOR TO PROCEEDING.
- 5. PROTECT ALL NEW AND EXISTING UTILITIES, LIGHTS, PAVEMENT, POLES, ETC. DURING CONSTRUCTION.
- 6. ALL SITE LAYOUT SHALL BE STAKED OR PAINTED IN THE FIELD AND REVIEWED BY THE OWNER'S REPRESENTATIVE FOR APPROVAL PRIOR
- 1. ELECTRONIC CAD FILES ARE AVAILABLE UPON REQUEST FOR LAYOUT
- 8. THE CONTRACTOR SHALL SECURE ALL NECESSARY PERMITS FROM THE APPLICABLE AGENCIES PRIOR TO THE ONSET OF CONSTRUCTION.

- - (2) EXISTING WALKWAY TO REMAIN, TYP.

 - (4) EXISTING LANDSCAPE WALLS AND STEPS TO REMAIN, TYP.
 - (5) EXISTING LANDSCAPE BED TO REMAIN
 - 1) MASONRY BRICK PIER, TYP. REFER TO DETAIL
 - (8) IDENTITY SIGN REFER TO DETAIL
 - (9) CONCRETE WALKWAY, TYP.
 - (11) SCREEN FENCE WITH GATE, REFER TO DETAIL
 - (12) CLAY BRICK PAVERS, TYP.

 - (14) 4" HT. CONCRETE CURB PLANTER, TYP.

 - (IT) CONCRETE BENCH PAD, TYP.

- (1) EXISTING PARKING LOT TO REMAIN
- (3) EXISTING STAIRS TO REMAIN, TYP.
- (6) 36" HT. FENCE, TYP. REFER TO DETAIL

- (10) CONCRETE STEPS, TYP.
- (13) PAVILION 20' x 40' APPROXIMATE SIZE
- (15) POTENTIAL LOCATION FOR PORT-A-JOHN BY OTHERS
- (16) FUTURE CONCRETE WALKWAY BY OTHERS

(18) HISTORICAL ICON OR SCULPTURE - TO BE DETERMINED

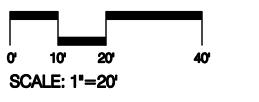
- (19) ART SCULPTURE DESIGN TO BE DETERMINED
 - (20) GRAVEL PARKING LOT
 - (21) ASPHALT ACCESS DRIVE TO PARKING LOT
 - (22) STOP SIGN TO BE RELOCATED PER LCRC
 - (23) UTILITY POLE AND/OR UTILITY BOX TO REMAIN UNDISTURBED (24) PARALLEL PARKING TO REMAIN
 - CONCRETE CURB, TYP. TAPER HEIGHT DOWN AT ENDS TO MEET FINISH GRADE REFER TO GRADING AND DRAINAGE PLAN

 - 26) ASPHALT PAVEMENT, TYP.
 - (27) PAVEMENT STRIPING FOR ANGLED PARKING, TYP. (28) ADA COMPLIANT CROSS WALK WITH PAINTED DESIGNATION PER LCRC
 - ADA COMPLIANT BARRIER FREE RAMPS WITH TRUNCATED DOME INSERTS
 - PEDESTRIAN CROSSING SIGN PER LCRC, TYP.
 - (31) CONCRETE TABLE PAD, TYP.
 - (32) CONCRETE WALK WITH INTEGRAL CURB ADJACENT TO PARKING LOT
 - 33 EXISTING ASPHALT DRIVEWAY TO BE RECONFIGURED IN FUTURE BY

egena:	
	PROPERTY LINE / ROW.
G G	GAS LINE
— w — w —	WATER MAIN

- ----- SS ----- SANITARY SEWER ----- SD ---- STORM DRAIN ---- E --- ELECTRIC LINE
- ---- OH ---- OYERHEAD UTILITY LINE EXISTING GRADE CONTOUR
 - EXISTING LIGHT POLE, TYP. EXISTING SIGN, TYP.
 - EXISTING UTILITY CATCH BASIN OR MANHOLE, TYP. EXISTING DECIDUOUS TREE, TYP.
 - EXISTING EVERGREEN TREE, TYP.
 - EXISTING UTILITY POLE, TYP. CEILING LIGHT - REFER TO LIGHTING PLAN
 - BOLLARD LIGHT, TYP. REFER TO LIGHTING PLAN LANDSCAPE UPLIGHT, TYP. - REFER TO LIGHTING PLAN





Landscape Architecture

15000 Edward N. Hines Dr., Suite A Plymouth, MI 48170

Ph: 248-347-7010

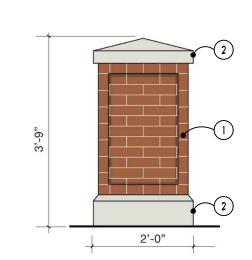
roject:
Cromaine Library
Hartland Township, Michigan
heet:
Paving and Layout Plan

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		•		

Job Number:	C79-241	
Drawn:	TFW	
Checked:	SLG	

Date: 04/10/2025	Issued for: Design Development	
04/18/2025	Township Review	
<u>05/15/2025</u>	Township Review	
08/27/2025	Township Review	

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BRICK TO MATCH LIBRARY BUILDING BRICK
 CONCRETE OR LIMESTONE CAP AND BASE

Masonry Brick Pier Detail
NOT TO SCALE



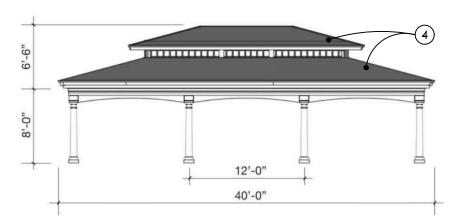
4 6' Ht. Vinyl Screen Fence with Gate Detail
NOT TO SCALE

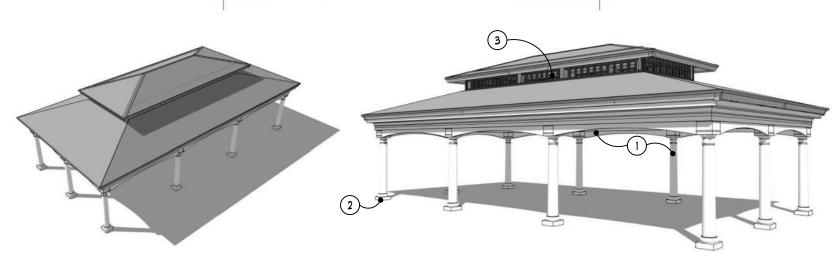


3 36" Ht. Vinyl Picket Fence Detail
NOT TO SCALE











Existing Library South Elevation

1) MASONRY BRICK BASE TO MATCH LIBRARY BUILDING

2 CONCRETE CAP

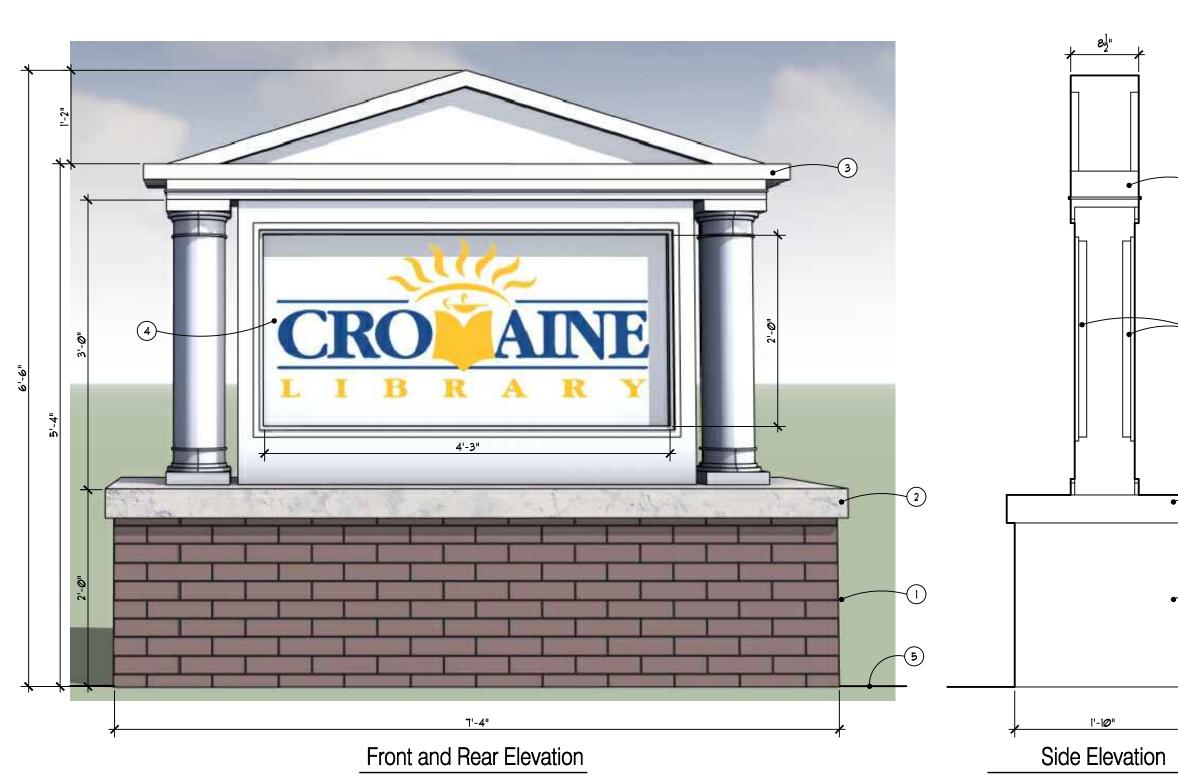
5 FINISH GRADE

3 PAINTED ALUMINUM SIGN STRUCTURE

4 2' x 4' DOUBLE SIDED SIGN

- 1) 20' x 40' DOUBLE ROOF VINYL PAVILION
- 2) STRUCTURE PROVIDED BY FIFTHROOM. PAVILION TO BE INSTALLED BY CONTRACTOR ON ENGINEERED CONCRETE FOOTINGS.
- (3) CEILING MOUNTED PENDANT LIGHTS, TO BE HIDDEN BY ROOFING.
- 4 ROOF TO BE RIBBED METAL ROOF OR ARCHITECTURAL SHINGLES, COLOR TO MATCH LIBRARY BUILDING ROOF.

Pavilion Detail
NOT TO SCALE



1 Identity Sign Detail
NOT TO SCALE

GRISSIM METZ ASSOCIATES ANDRIESE
 Landscano Architecturo

Landscape Architecture 15000 Edward N. Hines Dr., Suite A Plymouth, MI 48170

Ph: 248-347-7010

Cromaine Library	
Hartland Township, Michigan	

Job Number: C79-241

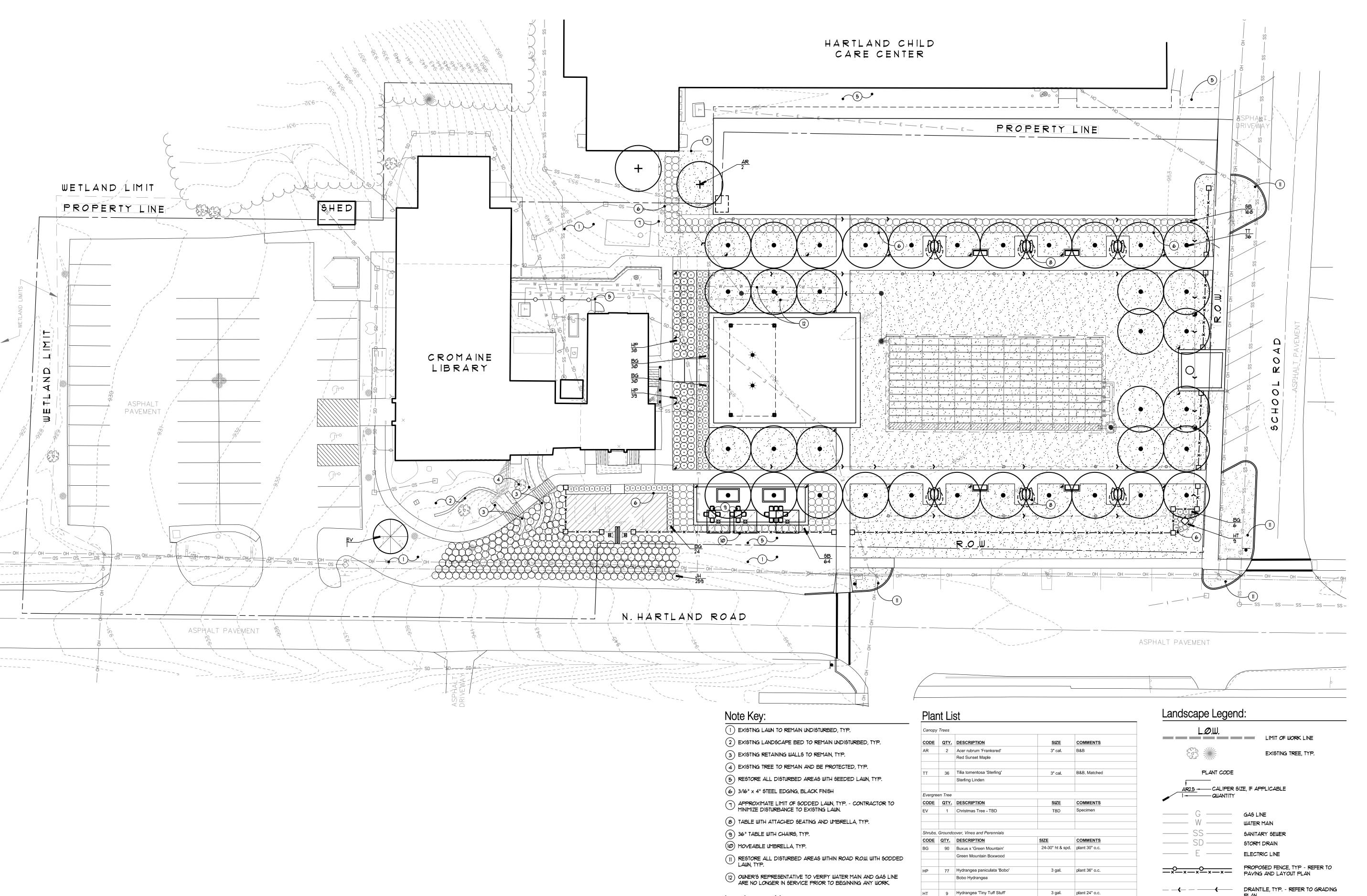
Drawn: TFW

Checked: SLG

Scale: 1" = 20'

Date:	Issued for:
05/15/2025	Township Review
08/27/2025	Township Review

Sheet Number: L300
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Landscape Notes:

I. ALL DISTURBED AREAS DUE TO CONSTRUCTION OPERATIONS SHALL

POLES, ETC. DURING CONSTRUCTION AS INDICATED ON THE PLANS.

3. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITION INFORMATION PRIOR TO CONSTRUCTION. NOTIFY THE CONSTRUCTION MANAGER OF

4. PROPOSED UTILITIES SHOWN FOR REFERENCE ONLY, CONTRACTOR IS

5. ALL NEW LANDSCAPE AREAS TO RECEIVE AUTOMATIC IRRIGATION.

CONSTRUCTION AND NOTIFYING THE CONSTRUCTION MANAGER OF ANY

BE RESTORED WITH SEEDED LAWN ON 3" OF TOPSOIL.

ANY CONCERNS PRIOR TO PROCEEDING.

CONCERNS PRIOR TO PROCEEDING.

2. PROTECT ALL NEW AND EXISTING UTILITIES, LIGHTS, PAVEMENT,

RESPONSIBLE FOR LOCATION ALL UTILITIES PRIOR TO

Tiny Tuff Stuff Mountain Hydrangea

24" spd. plant 36" o.c.

24" spd. plant 36" o.c.

259 Juniperus horizontalis 'Blue Chip'

232 Spiraea x bumalda 'Anthony Waterer'

Anthony Waterer Spirea

Blue Chip Juniper



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Cromaine	•	
Hartland Townshi	p, Michigan	
Sheet:		
Landscape	Plan	
	670.041	
Job Number:	C79-241	
	C79-241 TFW	
Job Number: Drawn: Checked:		

Date:	Issued for:
04/10/2025	Design Development
04/18/2025	Township Review
05/15/2025	Township Review
08/27/2025	Township Review
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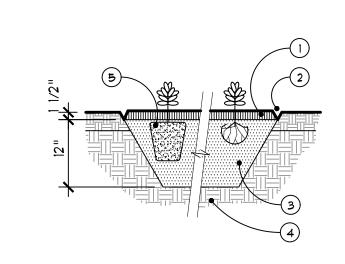


SCALE: 1"=20'

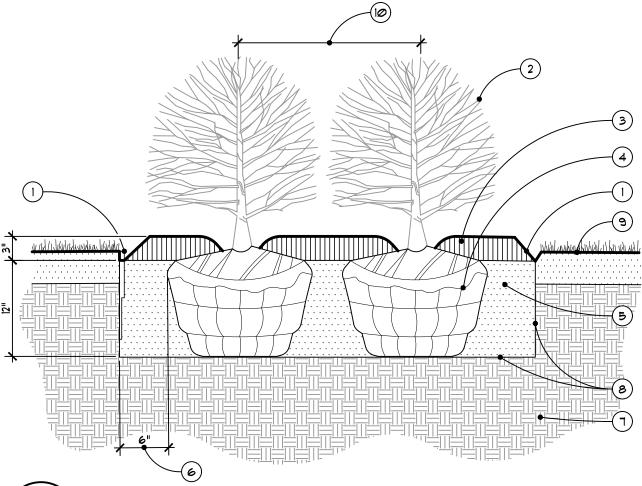
LAWN ON 4" DEPTH TOPSOIL, TYP.

PERENNIAL GARDEN BY OTHERS TO

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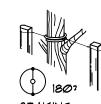


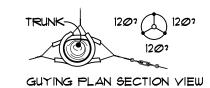
- 1 1-1/2" DEPTH DOUBLE PROCESSED SHREDDED BARK MULCH
- 2) SHOVEL CUT EDGE OR STEEL EDGING
- 3 EXCAVATE EXISTING SOIL 12" DEEP FILL WITH PLANT MIX AND FERTILIZER (SEE SPECS.) CUT PLANTING PIT SIDES @ 60° ANGLE
- (4) UNDISTURBED SUBGRADE
- 5) REMOVE CONTAINER
- GENERAL NOTES -1. IN MASS PLANTINGS, ENTIRE BED SHALL BE EXCAVATED.
- 2. CONTRACTOR TO VERIFY PERCOLATION OF PLANTING PIT PRIOR TO INSTALLATION.
- 3. REFER TO PLANS FOR SPACING.
- Typical Perennial / Groundcover / Ornamental Grass Planting Detail



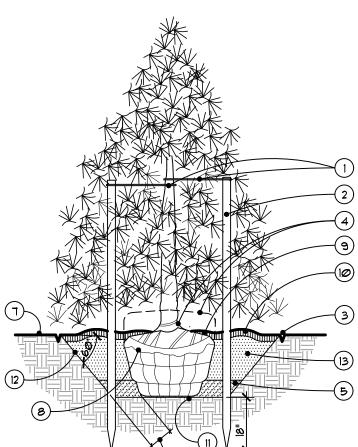
- 1) SHOVEL CUT EDGE OR METAL EDGING -REFER TO PLANS AND SPECS
- 2) SHRUB PLANTS
- 3 DOUBLE PROCESSED SHREDDED BARK MULCH 3" DEPTH TYPICAL, DO NOT PLACE MULCH AGAINST **ROOT FLARE**
- (4) REMOVE BURLAP & CUT TWINE FROM TOP 1/3 OF BALL 5 MASS EXCAVATE PLANT BED TO 12" DEPTH AND BACKFILL WITH APPROVED PLANT MIX AND
- (6) 6" MIN. BETWEEN ROOTBALL AND EDGE OF PLANT PIT (7) UNDISTURBED SUBGRADE
- (8) SCARIFY BOTTOM AND SIDES OF PLANT BED (9) 4" TOPSOIL AND LAWN - REFER TO PLANS AND SPECS
- (10) REFER TO PLANT LIST FOR SPACING
- GENERAL NOTE 1. CONTRACTOR TO VERIFY PERCOLATION OF PLANTING PIT PRIOR TO INSTALLATION AND PROVIDE RESULTS TO LANDSCAPE ARCHITECT FOR APPROVAL.

\ Typical Shrub Planting Detail





- GENERAL NOTES -I. STAKE TREES S' HEIGHT AND UNDER, 2 PER TREE.
- 2. GUY TREES OVER 8' HEIGHT, 3 PER TREE.
- 3. CONTRACTOR TO VERIFY PERCOLATION AND COMPACTION OF PLANTING PIT PRIOR TO INSTALLATION.
- 4. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION REGARDING PLANTING STANDARDS AND PROCEDURES.



REFER TO PLANS (4) ROOT FLARE (AREA OF RAPID TAPER), REMOVE ALL SOILS ABOVE THIS LINE AND SET BOTTOM OF ROOT FLARE FLUSH TO ADJACENT FINISH GRADE - ROOT FLARE SHOULD NOT HAVE

VERTICALLY PLUMB AND EVENLY SPACED, TYP.

3 SHOVEL CUT EDGE OR EDGING AROUND TREE, TYP. -

1) POLYPROPYLENE GUYING FABRIC, LOCATE ABOVE FIRST

(2) 2" x 2" X 72" LONG UNTREATED HARDWOOD STAKES, STAKES TO

EXTEND 18" BELOW TREE PIT IN UNDISTURBED SOIL, SET

BRANCH, TYP. - REFER TO SPECS

COMPLETION OF PLANTING, TYP.

- BACKFILL WITH PULVERIZED EXCAVATED NATIVE 60IL UNTIL 1/3
 OF THE TREE PIT IS FILLED, HAND COMPACT BY FOOT OR TAMPER TO STABILIZE AND PLUMB TREE - REFER TO SPECS
- (6) 12" MINIMUM BETWEEN ROOT BALL AND EDGE OF PLANT PIT, CUT PIT SIDES @ 60° ANGLE, TYP.

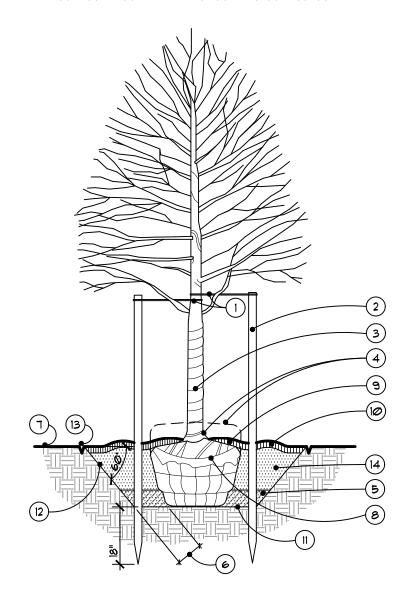
MULCH OVER TOP OF IT AND SHOULD REMAIN VISIBLE AT THE

- (7) ADJACENT FINISH GRADE, ENSURE BOTTOM OF ROOT FLARE IS SET FLUSH TO THIS ELEVATION, TYP.
- (2) CUT AND REMOVE BURLAP TO 6" BELOW GRADE OR 1/3 OF THE ROOT BALL WHICHEVER IS GREATER AND REMOVE TWINE FROM ROOT FLARE, IF PRESENT CUT WIRE BASKET AND REMOVE 6"-8" BELOW GRADE, DISPOSE OF LEGALLY NOT IN PIT, TYP.
- 3" DEPTH DOUBLE PROCESSED SHREDDED BARK MULCH, MULCH SHALL NOT COVER ROOT FLARE, PROVIDE I" DEPTH MULCH OVER THE ROOT BALL, WHEN PLANTED IN LAWN AREAS, EXTEND MULCH CIRCLE TO A 60" RADIUS AROUND THE TREE UNLESS NOTED OTHERWISE, TYP.
- PROVIDE 3"-4" HIGH SOIL SAUCER RING AROUND TREE PIT IF NO IRRIGATION IS PRESENT, HAND TAMP TO PREVENT EROSION, TYP.
- (11) COMPACT BOTTOM OF PLANTING PIT TO PREVENT SETTLING, TYP. DIG TREE PIT 2X BALL DIA, MIN., LIGHTLY SCARIFY THE SIDES OF
- THE TREE PIT TO ALLOW FOR ROOT GROWTH INTO ADJACENT
- BACKFILL TOP 2/3 OF TREE PIT WITH APPROVED TOPSOIL, WATER IN AND REMOVE AIR POCKETS, CONTINUE TO FILL WITH TOPSOIL IF SETTLEMENT HAS OCCURRED UNTIL CORRECT ELEVATIONS ARE ACHIEVED, DO NOT FILL ON ROOT FLARE -REFER TO SPECS

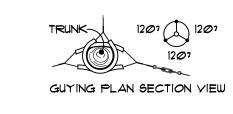
2 Typical Evergreen Tree Planting Detail NOT TO SCALE

<u>GENERAL NOTES</u> -1. STAKE TREES 4" CALIPER AND UNDER, 2 PER TREE.

- 2. GUY TREES OVER 4" CALIPER, 3 PER TREE.
- 3. CONTRACTOR TO VERIFY PERCOLATION AND COMPACTION OF PLANTING PIT PRIOR TO INSTALLATION.
- 4. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION REGARDING PLANTING STANDARDS AND PROCEDURES.







- POLYPROPYLENE GUYING FABRIC, LOCATE ABOVE FIRST
- BRANCH, TYP. REFER TO SPECS 2) 2" x 2" X 12" LONG UNTREATED HARDWOOD STAKES, STAKES TO EXTEND 18" BELOW TREE PIT IN UNDISTURBED SOIL, SET VERTICALLY PLUMB AND EVENLY SPACED, TYP.
- 3) INSTALL TREE WRAP FOR THIN SKINNED TREES, REMOVE AFTER FIRST YEAR, TYP. - REFER TO SPECS
- 4 ROOT FLARE (AREA OF RAPID TAPER), REMOVE ALL SOILS ABOVE THIS LINE AND SET BOTTOM OF ROOT FLARE FLUSH TO ADJACENT FINISH GRADE ROOT FLARE SHOULD NOT HAVE MULCH OVER TOP OF IT AND SHOULD REMAIN VISIBLE AT THE COMPLETION OF PLANTING, TYP.
- 5 BACKFILL WITH PULVERIZED EXCAVATED NATIVE SOIL UNTIL 1/3 OF THE TREE PIT IS FILLED, HAND COMPACT BY FOOT OR TAMPER TO STABILIZE AND PLUMB TREE - REFER TO SPECS
- 6 12" MINIMUM BETWEEN ROOT BALL AND EDGE OF PLANT PIT, CUT PIT SIDES @ 60° ANGLE, TYP.
- ADJACENT FINISH GRADE ENSURE BOTTOM OF ROOT FLARE IS SET FLUSH TO THIS ELEVATION, TYP. (8) CUT AND REMOVE BURLAP TO 6" BELOW GRADE OR 1/3 OF THE ROOT BALL WHICHEVER IS GREATER AND REMOVE TWINE FROM
- ROOT FLARE, IF PRESENT CUT WIRE BASKET AND REMOVE 6"-8" BELOW GRADE, DISPOSE OF LEGALLY NOT IN PIT, TYP. (9) 3" DEPTH DOUBLE PROCESSED SHREDDED BARK MULCH, MULCH SHALL NOT COVER ROOT FLARE, PROVIDE I" DEPTH
- MULCH OVER THE ROOT BALL, WHEN PLANTED IN LAWN AREAS, EXTEND MULCH CIRCLE TO A 60" RADIUS AROUND THE TREE UNLESS NOTED OTHERWISE, TYP. PROVIDE 3"-4" HIGH SOIL SAUCER RING AROUND TREE PIT IF NO
- IRRIGATION IS PRESENT, HAND HAMP TO PREVENT EROSION, TYP. (II) COMPACT BOTTOM OF PLANTING PIT TO PREVENT SETTLING, TYP. 12 DIG TREE PIT 2X BALL DIA, MIN, LIGHTLY SCARIFY THE SIDES OF THE TREE PIT TO ALLOW FOR ROOT GROWTH INTO ADJACENT
- (13) SHOVEL CUT EDGE OR EDGING AROUND TREE, TYP. -REFER TO PLANS
- (14) BACKFILL TOP 2/3 OF TREE PIT WITH APPROVED TOPSOIL -WATER IN AND REMOVE AIR POCKETS, CONTINUE TO FILL WITH TOPSOIL IF SETTLEMENT HAS OCCURRED UNTIL CORRECT ELEVATIONS ARE ACHIEVED, DO NOT FILL ON ROOT FLARE -

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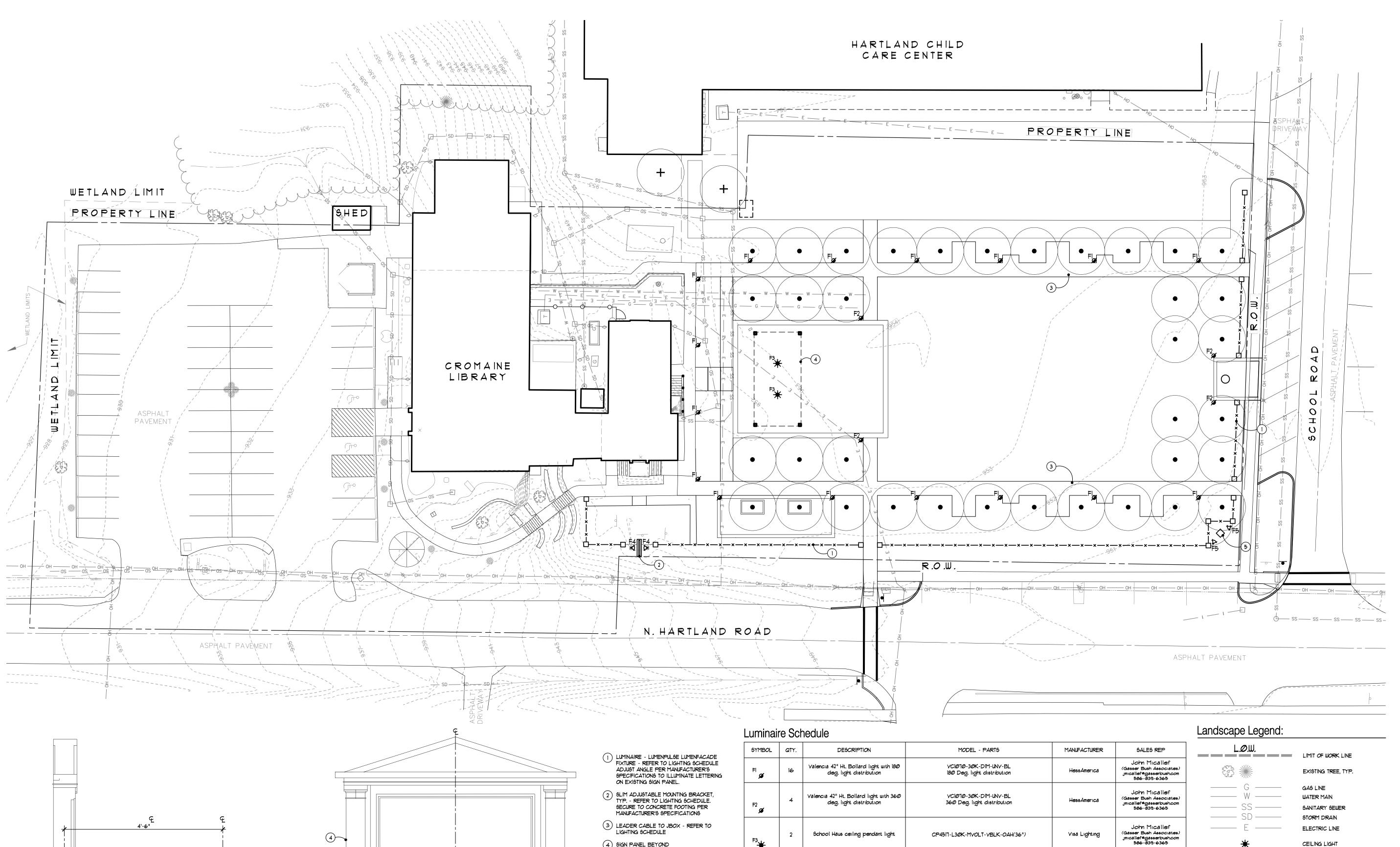
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Hartland Townsh	ip, Michigan	
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Landscape	Details	
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1" = 20'

05/15/2025 Township Review <u>08/27/2025</u> Township Review

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Typical Deciduous Tree Planting Detail



- (4) SIGN PANEL BEYOND
- (5) 48" L x 12" W x 21" HT. CONCRETE FOOTING, 3" ABOVE GRADE, LIGHT BROOM FINISH ON
- 6 SEALING END CAP

Sign Flood Light

- (1) JBOX COORDINATE WITH ELECTRICAL
- 8) FINISH GRADE

Lighting Notes:

- I. ALL WORK TO BE COORDINATED WITH OWNER'S REPRESENTATIVE.
- 2. ALL OVERHEAD AND UNDERGROUND UTILITIES ARE NOT FIELD VERIFIED AND ARE TO BE LOCATED PRIOR TO DIGGING OR EXCAVATION. IF UTILITIES OR OTHER OBSTRUCTIONS ARE DISCOVERED TO CONFLICT WITH PROPOSED DESIGN, THE OWNER'S REPRESENTATIVE SHALL BE NOTIFIED PRIOR TO PROCEEDING.
- 3. CONTRACTOR SHALL STAKE OR PAINT OUT ALL PROPOSED LIGHTS IN THE FIELD FOR REVIEW BY THE OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.
- 4. ALL DIMENSIONS SHALL BE VERIFIED IN THE FIELD PRIOR TO CONSTRUCTION. ANY DISCREPANCIES SHALL BE REPORTED TO THE OWNER'S REPRESENTATIVE PRIOR TO

jmicallef@gasserbush.co 586-839-6365 Lumenfacade Fixture - LFP CR UL 120/277 48 3.75W 30K 80 10x30 FR NF DIM NYR SM BK John Micallef (Gasser Bush Associates) jmicallef®gasserbush.com 586-839-6365 | Sign Flood Light with Dimmer Switch and | Leader Cable - LFLC CR UL 120/277 25FT Lumenpulse with nLight XC3P2D 180D BK (Dimmed to 10% output) dimmer and power pack Dimmer Switch - nPODMA-DX-BK Power Pack - nPP16-D-EFP Note Key: Shawn Stevenson (1) 36" HT. FENCE, TYP. (Clarus Lighting Group) sstevenson® 5011-30BBR WAC Lighting Transformer - 9075-TRN-66 (2) IDENTITY SIGN clarus-lighting.com 586-904-4700 (3) CONCRETE WALKWAY, TYP.

Landscape Uplight

- 5. LIGHT FIXTURES ARE TO BE ALIGNED PERPENDICULAR TO ADJACENT PAVEMENT, VERIFY IN THE FIELD PRIOR TO
- 6. ANY DAMAGE TO PAVEMENT, STRUCTURES, UTILITIES OR LANDSCAPE SHALL BE REPAIRED BY CONTRACTOR AT NO ADDITIONAL COST TO OWNER.
 - REPAIR ANY DAMAGE TO LAWN AREAS WITH 4" OF TOPSOIL AND SEEDED LAWN.
 - 8. CONTRACTOR TO PROVIDE ALL CONNECTION WIRE, MOUNTING ACCESSORIES, JUNCTION BOXES, DIMMABLE POWER SUPPLIES. SUBMIT PRODUCT INFORMATION WITH COMPLETE TO SCALE DRAWINGS TO OWNER FOR REVIEW AND APPROVAL PRIOR TO START OF WORK.

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Ph: 248-347-7010

BOLLARD LIGHT

(4) PAVILION - 20' x 40' APPROXIMATE SIZE

(5) HISTORICAL ICON OR SCULPTURE

LANDSCAPE UPLIGHT

Plymouth, MI 48170

Cromaine		
Hartland Townshi	p, Michigan	
Sheet:		
Lighting P	an	
Job Number:	C79-241	
Job Number: Drawn:	C79-241 TFW	

Date:	Issued for:
05/15/2025	Township Review
08/27/2025	Township Review

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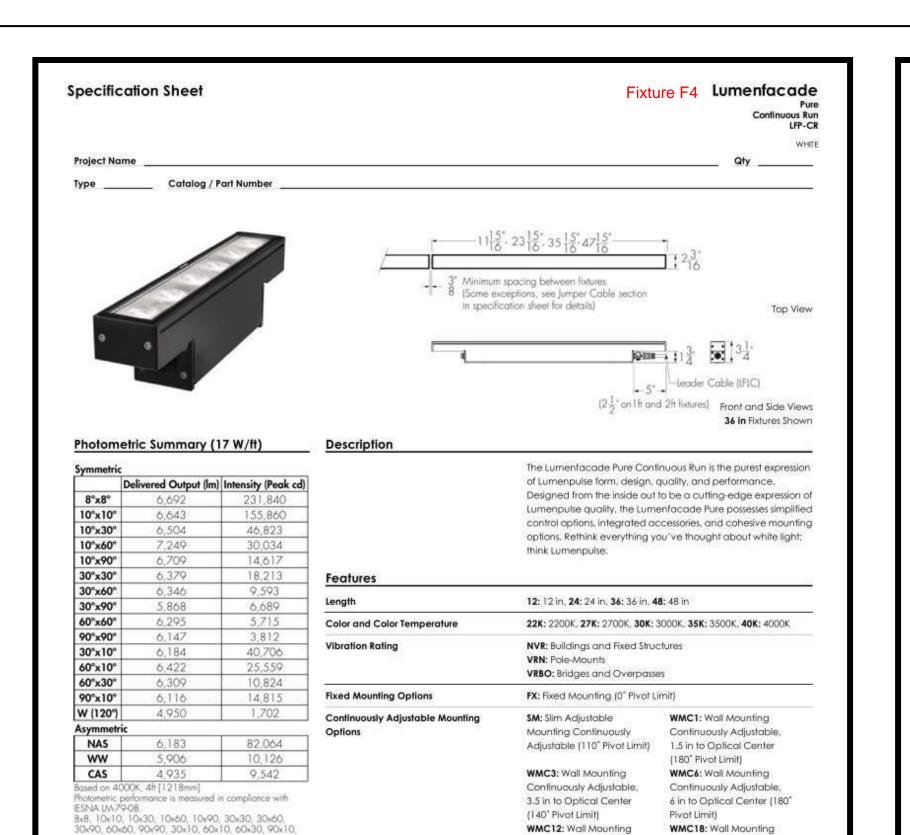


Designer

#25-43700-V5

1 of 2 33

JM/KB



W and CAS optics tested with CL lens. NAS and WW optics tested with HFR lens.

lumenpulse

WMC12: Wall Mounting

Continuously Adjustable,

12 in to Optical Center

WMC24: Wall Mounting Continuously Adjustable, 24 in to Optical Center (180' Pivot Limit)

(180' Pivot Limit)

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JC - R12

WMC18: Wall Mounting

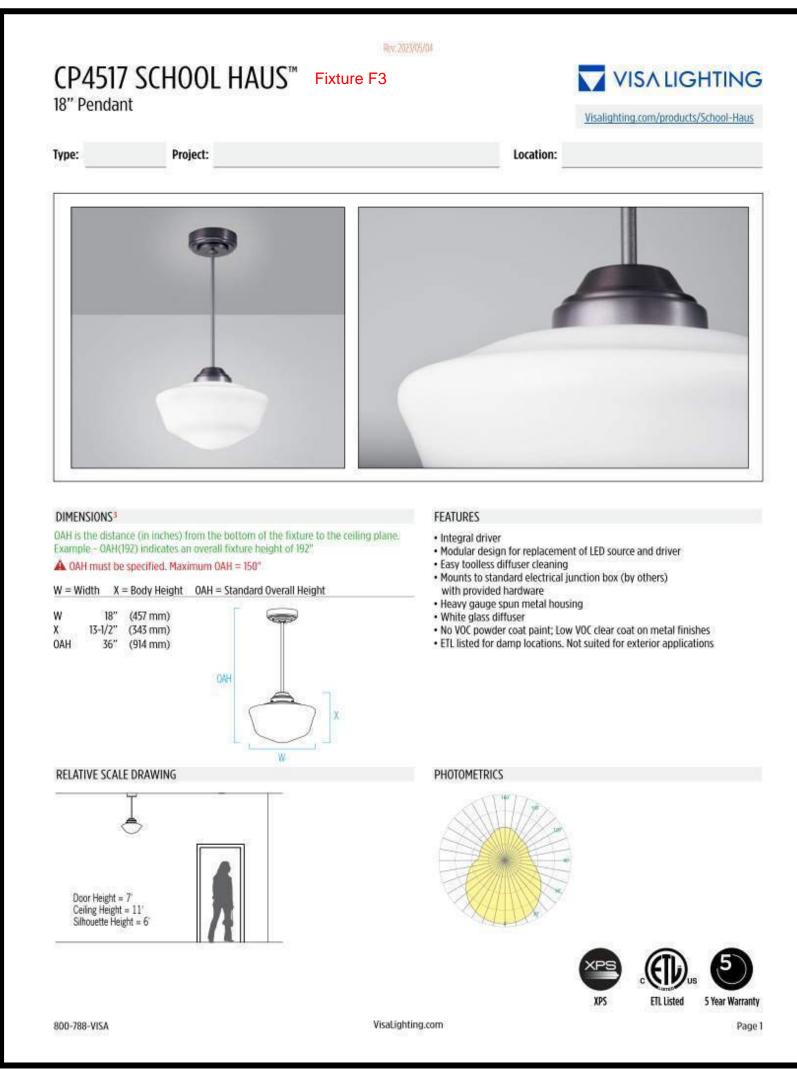
Continuously Adjustable,

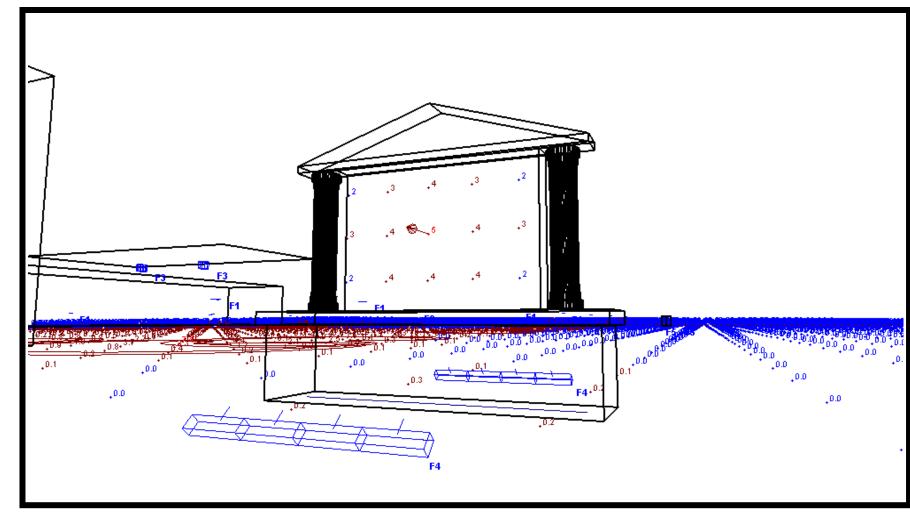
18 in to Optical Center

(180° Pivot Limit)

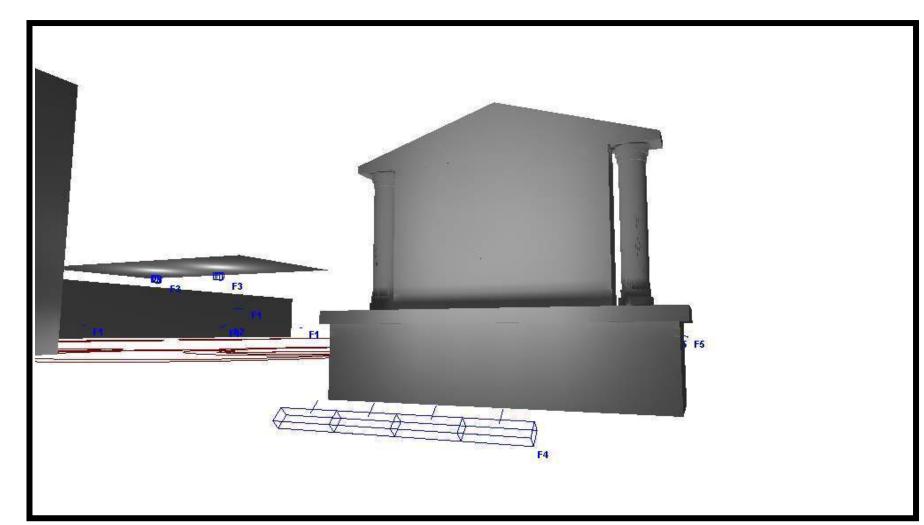








View #1



View #2

Statistics							
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min	Avg/Max
SIGN	+	3 fc	5 fc	2 fc	2.5:1	1.5:1	0.6:1
OVERALL	+	0.1 fc	7.4 fc	0.0 fc	N/A	N/A	0.0:1

Symbol	Label	QTY	Manufacturer	Catalog Number	Description	Lamp	Number Lamps	Lumens per Lamp	LLF	Wattage	Mounting Height
\bigcirc	F1	16	Hess America	VC1070-30K-DIM-UNV- BL (180 DEGREE DISTRIBUTION)	Valencia VC1070-LED- 3000K	LED	1	926	0.9	37	AT GRADE
\bigcirc	F2	4	Hess America	VC1070-30K-DIM-UNV- BL (360 DEGREE DISTRIBUTION)	Valencia VC1070-LED- 3000K	LED	1	1464	0.9	37	AT GRADE
0	F3	2	VISA LIGHTING	CP4517-L30K-MVOLT- VBLK-OAH(36")	SCHOOL HAUS GLOBE 18"	LED	1	2512	0.9	18.9	10'-0"
	F4	2	LUMENPULSE	LFP-120/277-48-3.75W- 30K-10x30-FR-NO (DIMMED TO 10% OF OUTPUT)	LUMENFACADE PURE	LED	1	339	0.1	15.84	0'-3" (SPACED 2'-0" O.C ON EACH SIDE OF SIGN
	F5	2	WAC Lighting	5011-30BBR	FLOOD	LED	1	895	0.9	18.7	0'-3"

Ordering Note

FOR INQUIRIES CONTACT GASSER BUSH AT QUOTES@GASSERBUSH.COM OR 734-266-6705.

Drawing Note

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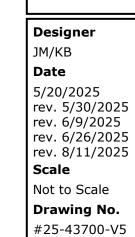
General Note

1. SEE SCHEDULE FOR LUMINAIRE MOUNTING HEIGHT. 2. SEE LUMINAIRE SCHEDULE FOR LIGHT LOSS FACTOR. 3. CALCULATIONS ARE SHOWN IN FOOTCANDLES AT: 0' - 0"

THE ENGINEER AND/OR ARCHITECT MUST DETERMINE APPLICABILITY OF THE LAYOUT TO EXISTING / FUTURE FIELD CONDITIONS. THIS LIGHTING LAYOUT REPRESENTS ILLUMINATION LEVELS CALCULATED FROM LABORATORY DATA TAKEN UNDER CONTROLLED CONDITIONS IN ACCORDANCE WITH ILLUMINATING ENGINEERING SOCIETY APPROVED METHODS. ACTUAL PERFORMANCE OF ANY MANUFACTURER'S LUMINAIRE MAY VARY DUE TO VARIATION IN ELECTRICAL VOLTAGE, TOLERANCE IN LAMPS, AND OTHER VARIABLE FIELD CONDITIONS. MOUNTING HEIGHTS INDICATED ARE FROM GRADE AND/OR FLOOR UP.

THESE LIGHTING CALCULATIONS ARE NOT A SUBSTITUTE FOR INDEPENDENT ENGINEERING ANALYSIS OF LIGHTING SYSTEM SUITABILITY AND SAFETY. THE ENGINEER AND/OR ARCHITECT IS RESPONSIBLE TO REVIEW FOR MICHIGAN ENERGY CODE AND LIGHTING QUALITY COMPLIANCE.

UNLESS EXEMPT, PROJECT MUST COMPLY WITH LIGHTING CONTROLS REQUIRMENTS DEFINED IN ASHRAE 90.1 2013. FOR SPECIFIC INFORMATION CONTACT GBA CONTROLS GROUP AT CONTROLS@GASSERBUSH.COM OR 734-266-6705.



2 of 2 34

known as Avon St., 66 ft, wide public road right of way) and the Northwest corner of Lot 17 of said Subdivision; thence N. 00 deg 40 min 56 sec W. (N. 00 deg 49 min 20 sec W. recorded), along said right of way, 48.41 ft.; thence N. 89 deg 07 min 25 sec W. (N. 89 deg 15 min 49 sec W. recorded) 33.01 ft. to the centerline of said Hartland Rd.; thence N. 00 deg 40 min 56 sec W. (N. 00 deg 49 min 20 sec W. recorded), along said centerline, 249.74 ft.; thence S. 88 deg 46 min 55 sec E. (S. 88 deg 55 min 19 sec E. recorded) 173.10 ft.; thence S. 00 deg 40 min 56 sec E. (S. 00 deg 49 min 20 sec E. recorded) 150.00 ft.; thence N. 89 deg 19 min 04 sec E. (N. 89 deg 10 min 40 sec E. recorded) 60.00 ft.; thence S. 00 deg 40 min 56 sec E. (S. 00 deg 49 min 20 sec E. recorded) 55.55 ft.; thence S. 89 deg 07 min 33 sec W. (S. 88 deg 59 min 09 sec W. recorded) 51.42 ft.; thence S. 00 deg 52 min 27 sec E. 43.22 ft. (S. 01 deg 00 min 51 sec E. recorded) to the North line of Lot 13 of said Subdivision; thence S. 00 deg 40 min 56 sec E. 48.41 ft. to the POINT OF BEGINNING, containing 1.240 gross acres, 1.051 acres net of road right-of-way, subject to the rights of the public or any governmental unit in any part thereof taken, used or deeded for street, road or highway purposes, also subject to easements and restrictions of record, if any.

SCALE: 1"=60' DATE: 7-9-2025 BY: NDT JOB# 07-3600 SH. 1 of 7

hereby certify that I have surveyed the above described property and that the

all the requirements for 1970 PA 132, MCL 54.213 have been met.

elative positional precision of the corners identified for this survey and shown on the

map are within the limits accepted by the practice of professional surveying and that

Beach I Shongom

Registered Professional Engineer & Land Surveyor 1520 Gulley Road, Howell, Michigan 48843

Brad F. Thompson, P.S.#4001023828

Legal Description - Tax I.D. #08-16-101-126 (As Surveyed)

When recorded return to:

B.F. THOMPSON, P.C.

517/ 548-3142

Email: bfthompsonpc@outlook.com

B.F. Thompson, P.C.

Lots 15, 16, 17 and part of Lots 13, 14 and 18 of "North Eastern Addition to the Village of Hartland" Subdivision, as recorded in Liber 41D, Pg. 42, Livingston County Records, being a part of the Northwest 1/4 of Section 16, T.3N., R.6E., Hartland Township, Livingston County, Michigan, and more particularly described as Commencing at the North 1/4 corner of said Section 16; thence S. 01 deg 14 min 57 sec E., along the North-South 1/4 line of said section, 2676.56 ft. to the Center of Section 16; thence N. 01 deg 14 min 57 sec W, along said 1/4 line, 719.72 ft.; thence N. 89 deg 27 min 09 sec W. 917.98 ft.; thence N. 00 deg 57 min 40 sec W. 335.23 ft. (N. 00 deg 57 min 54 sec W. 335.38 ft. recorded) to the Northerly right of way of School Street (66 ft. wide public right of way); thence N. 89 deg 12 min 43 sec W., along said right of way, 150.05 ft. (N. 89 deg 15 min 58 sec W. 150.01 ft. recorded) to the POINT OF BEGINNING; thence N. 89 deg 15 min 58 sec W., along said right of way and the Southerly line of Lots 14 & 15 of said Subdivision, 180.00 ft. to the Easterly right of way line of Hartland Rd. (formerly known as Avon St., 66 ft. wide public road right of way) to the Southwest corner of Lot 15 of said Subdivision; thence N. 00 deg 18 min 58 sec W., along said right of way line and the Westerly lines of Lots 15-17 and a portion of Lot 18 of said Subdivision, 215.89 ft.; thence S. 89 deg 07 min 25 sec E. 180.00 ft.; thence S. 00 deg 18 min 58 sec E. 215.44 ft. to the POINT OF BEGINNING, containing 0.891 acres, subject to the rights of the public or any governmental unit in any part thereof taken, used or deeded for street, road or highway purposes, also subject to easements and restrictions of record, if any.

Legal Description - Tax I.D. #08-16-101-038 (As Surveyed)

Part of Lot 23 "Village of Hartland" Subdivision, as recorded in Liber 6 of Deeds, Page 448, Livingston County Records, being a part of the Northwest 1/4 of Section 16, T.3N., R.6E., Hartland Township, Livingston County, Michigan, and more particularly described as Commencing at the North 1/4 corner of said Section 16; thence S. 01 deg 14 min 57 sec E., along the North-South 1/4 line of said section, 2676.56 ft. to the Center of Section 16; thence N. 01 deg 14 min 57 sec W, along said ¼ line, 719.72 ft.; thence N. 89 deg 27 min 09 sec W. 917.98 ft.; thence N. 00 deg 57 min 40 sec W. 335.23 ft. (N. 00 deg 57 min 54 sec W. 335.38 ft. recorded) to the Northerly right of way of School Street (66 ft. wide public right of way); thence N. 89 deg 12 min 43 sec W., along said right of

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BRAD F.

THOMPSON

PROFESSIONAL SURVEYOR No.

4001023828

CERTIFIED EXCLUSIVELY TO: CROMAINE LIBRARY Closure error: 1/29,512 TAX I.D. #'S 08-16-101-LOCATION: N.W. 1/4, SEC. 16, T.3N., R.6E., HARTLAND TWP., LIVINGSTON CO. SCALE: 1"=60' DATE: 04-11-08 BY: BVB JOB# 07-3600 SH. 5 of 7 I hereby certify that this survey was prepared by me, or under my direct supervision, and that all of the requirements of P.A. 132, 1970 BRAD F. THOMPSON PROFESSIONAL SURVEYOR No. 23828 have been complied with.

When recorded return to: B.F. Thompson, P.C.

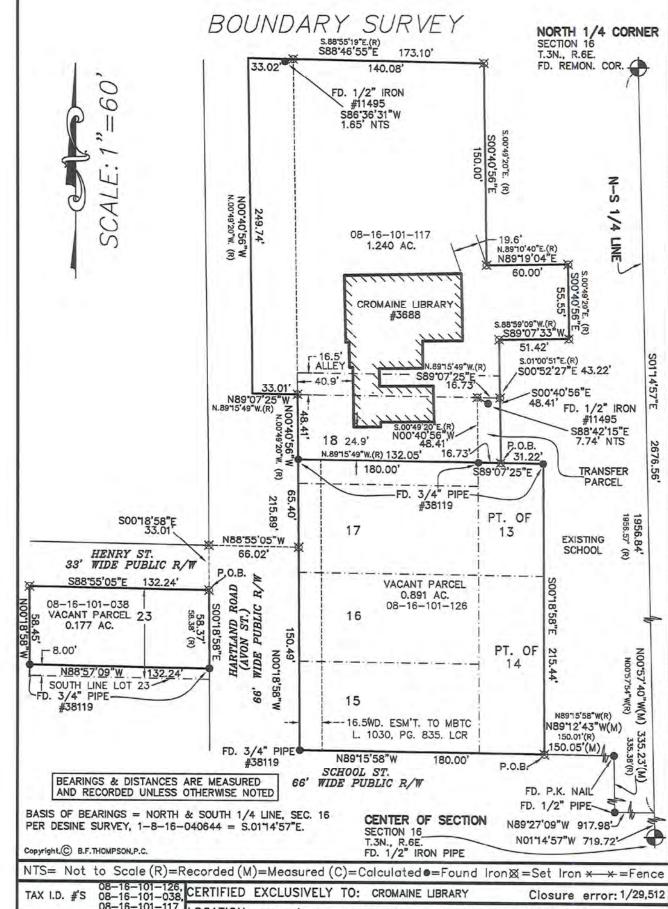
B.F. THOMPSON, P.C.

FAX 517/ 548-0049

517/ 548-3142

Beach I Thoryon Brad F. Thompson, P.E., P.S.#23828

Registered Professional Engineer & Land Surveyor 1520 Gulley Road, Howell, Michigan 48843



LOCATION: N.W. 1/4, SEC. 16, T.3N., R.6E., HARTLAND TWP., LIVINGSTON CO. SCALE: 1"=60' DATE: 04-11-08 BY: BVB JOB# 07-3600 SH. 2 of 7 I hereby certify that this survey was prepared by me, or under my direct supervision, and that all of the requirements of P.A. 132, 1970 BRAD F. THOMPSON PROFESSIONAL SURVEYOR No. have been complied with. When recorded return to: 23828 B.F. Thompson, P.C. B.F. THOMPSON, P.C. Registered Professional Engineer & Land Surveyor 1520 Gulley Road, Howell, Michigan 48843 517/ 548-3142 FAX 517/ 548-0049

way, 150.05 ft. (N. 89 deg 15 min 58 sec W. 150.01 ft. recorded); thence N. 89 deg 15 min 58 sec W., along said right of way and the Southerly line of Lots 14 & 15 of said Subdivision, 180.00 ft. to the Easterly right of way line of Hartland Rd. (formerly known as Avon St., 66 ft. wide public road right of way) to the Southwest corner of Lot 15 of said Subdivision; thence N. 00 deg 18 min 58 sec W., along said right of way line and the Westerly lines of Lots 15-17 of said Subdivision, 150.49 ft.; thence N. 88 deg 55 min 05 sec W. 66.02 ft. to the Westerly right of way line of said Hartland Rd. and the Northerly line of Henry St. (33 ft. wide public road right of way); thence S. 00 deg 18 min 58 sec E., along said Hartland Rd. right of way, 33.01 ft. to the Northeast corner of said Lot 23 and the POINT OF BEGINNING; thence continuing S. 00 deg 18 min 58 sec E., along said right of way, 58.37 ft. (58.38 ft. recorded); thence N. 88 deg 57 min 09 sec W. 132.24 ft.; thence N. 00 deg 18 min 58 sec W. 58.45 ft. to the Northwest corner of said Lot 23 and the Southerly right of way of said Henry St.; thence S. 88 deg 55 min 05 sec E., along said lot line and right of way line, 132.24 ft. to the POINT OF BEGINNING, containing 0.177 acres, subject to the rights of the public or any governmental unit in any part thereof taken, used or deeded for street, road or highway purposes, also subject to easements and restrictions of record, if any.

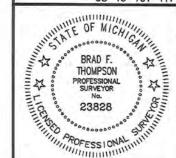
Overall Legal Description - Tax I.D. 08-16-101-117, 08-16-101-126 & Transfer Parcel Combined (As Surveyed)

A parcel of land and Lots 15, 16, 17 and part of Lots 13, 14 and 18 of "North Eastern Addition to the Village of Hartland" Subdivision, as recorded in Liber 41D. Pg. 42. Livingston County Records, all being a part of the Northwest 1/4 of Section 16, T.3N., R.6E., Hartland Township, Livingston County, Michigan, and more particularly described as Commencing at the North 1/4 corner of said Section 16; thence S. 01 deg 14 min 57 sec E., along the North-South 1/4 line of said section, 2676.56 ft. to the Center of Section 16; thence N. 01 deg 14 min 57 sec W, along said 1/4 line, 719.72 ft.; thence N. 89 deg 27 min 09 sec W. 917.98 ft.; thence N. 00 deg 57 min 40 sec W. 335.23 ft. (N. 00 deg 57 min 54 sec W. 335.38 ft. recorded) to the Northerly right of way of School Street (66 ft. wide public right of way); thence N. 89 deg 12 min 43 sec W., along said right of way, 150.05 ft. (N. 89 deg 15 min 58 sec W. 150.01 ft. recorded) to the POINT OF BEGINNING; thence N. 89 deg 15 min 58 sec W., along said right of way and the Southerly line of Lots 14 & 15 of said Subdivision, 180.00 ft. to the Easterly right of way line of Hartland Rd. (formerly known as Avon St., 66 ft. wide public road right of way) to the Southwest corner of Lot 15 of said Subdivision; thence N. 00 deg 18 min 58 sec W., along said right of way line and the Westerly lines of Lots 15-17 and a portion of Lot 18 of said Subdivision, 215.89 ft.; thence N. 00 deg 40 min 56 sec W. (N. 00 deg 49 min 20 sec W. recorded), along said right of way, 48.41 ft.; thence N. 89 deg 07 min 25 sec W. (N. 89 deg 15 min 49 sec W. recorded) 33.01 ft. to the centerline of said Hartland Rd.; thence N. 00 deg 40 min 56 sec W. (N. 00 deg 49 min 20 sec W. recorded), along said centerline, 249.74 ft.; thence S. 88 deg 46 min 55 sec E. (S. 88 deg 55 min 19 sec E. recorded) 173.10 ft.; thence S. 00 deg 40 min 56 sec E. (S. 00 deg 49 min 20 sec E. recorded) 150.00 ft.; thence N. 89 deg 19 min 04 sec E. (N. 89 deg 10 min 40 sec E. recorded) 60.00 ft.; thence S. 00 deg 40 min 56 sec E. (S. 00 deg 49 min 20 sec E. recorded) 55.55 ft.; thence S. 89 deg 07 min 33 sec W. (S. 88 deg 59 min 09 sec W. recorded) 51.42 ft.; thence S. 00 deg 52 min 27 sec E. (S. 01 deg 00 min 51 sec E. recorded) 43.22 ft. to the North line of Lot 13 of said Subdivision; thence S. 00 deg 40 min 56 sec E. 48.41 ft.; thence S. 89 deg 07 min 25 sec E. 31.22 ft.; thence S. 00 deg 18 min 58 sec E. 215.44 ft. to the POINT OF BEGINNING, containing 2.131 gross acres,

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FAX 517/ 548-0049



SCALE: 1"=60' DATE: 04-11-08 BY: BVB JOB# 07-3600 SH. 6 of 7 I hereby certify that this survey was prepared by me, or under my direct supervision, and that all of the requirements of P.A. 132, 1970 have been complied with.

rad F. Thompson, P.E. P.S.#23828 When recorded return to: B.F. Thompson, P.C. B.F. THOMPSON, P.C. Registered Professional Engineer & Land Surveyor 517/ 548-3142

1520 Gulley Road, Howell, Michigan 48843

Legal Description - Tax I.D. #08-16-101-117 (As Supplied)

Part of the Northwest ¼ of Section 16, T3N-R6E, Hartland Township, Livingston County, Michigan and part of Lot 18, NORTH EASTERN ADDITION OF HARTLAND VILLAGE, according to the recorded plat thereof as recorded in Liber 41, Page 42, Livingston County, Michigan Records, more particularly described as: Commencing at the Southwest corner of the Southeast 1/4 of the Northwest 1/4 of said Section 16; thence North 00 deg 49 min 20 sec West 1308.79 feet along the center line of Avon Street to the point of beginning; thence continuing North 00 deg 49 min 20 sec West 249.74 feet along said centerline; thence South 88 deg 55 min 19 sec East 173.10 feet; thence South 00 deg 49 min 20 sec East 150.00 feet; thence North 89 deg 10 min 40 sec East 60.00 feet; thence South 00 deg 49 min 20 sec East 55.55 feet; thence South 88 deg 59 min 09 West 51.42 feet; thence South 01 deg 00 min 51 sec East 43.22 feet to the North line of Lot 13 and of said NORTH EASTERN ADDITION OF HARTLAND VILLAGE; thence North 89 deg 15 min 49 sec West 16.73 feet along said North line to the East line of Lot 18 of said plat; thence South 00 deg 49 min 20 sec East 48.41 feet along said East line; thence North 89 deg 15 min 49 sec West 132.05 feet to the West line of Lot 18 of said plat; thence North 00 deg 49 min 20 sec West 48.41 feet along said West line to the Northwest corner of Lot 18 of said plat; thence North 89 deg 15 min 49 sec West 33.01 feet to the point of beginning. All the above being subject to the rights of the public in Avon Street. All of the above being subject to any easements, restrictions, and rights of ways of

Legal Description - Tax I.D. #08-16-101-126 (As Supplied)

Lots 15, 16, 17 and parts of Lots 13, 14 and 18, North Eastern Addition of Hartland Village, as recorded in Liber 41 of Deeds, Page 42, Livingston County Records, all of the above land being described as follows: Commencing at the North 1/4 corner of Section 16, Town 3 North, Range 6 East, Hartland Township, Livingston County, Michigan; thence South 01 deg 14 min 57 sec East 1956.57 feet along the North and South 1/4 line of said Section 16; thence North 89 deg 27 min 09 seconds West 917.98 feet along the South line of Lot 22 (and its Easterly extension) of said North Eastern Addition of Hartland Village; thence North 00 deg 57 min 54 sec West 335.38 feet along the East line of Washington Street, 66 foot wide Right-of-Way; thence North 89 deg 15 min 58 sec West 150.01 feet along the North line of School Street, 66 foot wide Right-of-Way, to the PLACE OF BEGINNING; thence continuing North 89 deg 15 min 58 sec West 180.00 feet along said North line of School Street; thence North 00 deg 18 min 58 sec West 215.89 feet along the East line of Avon Street, 66 foot wide Right-of-Way; thence South 89 deg 07 min 25 sec East 180.00 feet; thence South 00 deg 18 min 58 sec East 215.44 feet to the Place of Beginning. Being a part of the Northwest ¼ of Section 16, Town 3 North, Range 6 East, Hartland Township, Livingston County, Michigan. Subject to and together with all easements and restrictions affecting title to the described above premises.

Legal Description - Tax I.D. #08-16-101-038 (As Supplied)

Lot 23, except the South 8.00 feet thereof, "Village of Hartland" as recorded in Liber 6 of Deeds, Page 448, Livingston County Records, said parcel being more particularly described as follows: Commencing at the North 1/4 corner of Section 16, Town 3 North. Range 6 East, Hartland Township, Livingston County, Michigan; thence South 01 deg 14 min 57 sec East 1624.13 feet along the North and South 1/4 line of said Section 16; thence North 89 deg 15 min 58 sec West 1246.42 feet along the North line (and its Easterly

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SCALE: 1"=60' DATE: 04-11-08 BY: BVB JOB# 07-3600 SH. 3 of 7 I hereby certify that this survey was prepared by me, or under my direct supervision, and that all of the requirements of P.A. 132, 1970 have been complied with.

When recorded return to: B.F. Thompson, P.C.

B.F. THOMPSON, P.C. 517/ 548-3142

FAX 517/ 548-0049

Registered Professional Engineer & Land Surveyor 1520 Gulley Road, Howell, Michigan 48843

Level I Thomsom

Thompson, P.E., P.S.#23828

1.942 acres net of road right-of-way, subject to the rights of the public or any governmental unit in any part thereof taken, used or deeded for street, road or highway

North ¼ Cor., Section 16, T.3N., R.6E., Hartland Twp., Livingston Co., MI.

purposes, also subject to easements and restrictions of record, if any.

- Fnd. Remon. Corner N. 45 deg E. 6.70 ft. to fnd. nail w/L.C. Survey tag, W. side 36" Oak. N. 60 deg E. 14.43 ft. to fnd. nail w/L.C. Survey tag, E. side 40" Cherry. Due East 16.44 ft. to fnd. nail w/L.C. Survey tag, N. side 8" Cherry. Due East 22.23 ft. to fnd. nail w/L.C. Survey tag, S. side 6" Hickory.

Center of Section 16, T.3N., R.6E., Hartland Twp., Livingston Co., MI.

- Fnd. ½ iron pipe Due North 58.35 ft. to fnd. nail w/"Boss" tag, W. side 14" Maple. N. 20 deg W. 135.83 ft. to set nail w/"BFT" tag, W. side 14" Oak. N. 30 deg E. 36.40 ft. to fnd. nail w/"Boss" tag, S. side of 8" twin Maple.

. Quit Claim Deed, L. 2256, Pg. 609, L.C.R.

S. 50 deg W. 141.39 ft. to corner of school building

2. Warranty Deed, Liber 4747, Pg. 692, L.C.R.

3. Survey from Desine, Inc. for Hartland Schools, Job No. 1-8-16-040644, Drawing No. 040644-132A, Dated 1/31/05

4. Survey from Desine, Inc. for Hartland Schools, Job No. 1-8-16-040644, Drawing No. 040644-132B, Dated 2/7/05.

5. Plat of "North Eastern Addition to the Village of Hartland", L. 41D, Pg. 42,

6. Plat of "Village of Hartland", Liber 6D, Pg. 448, L.C.R. 7. Miscellaneous L.C. Remonumentation Data and tax records.

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LOCATION: N.W. 1/4, SEC. 16, T.3N., R.6E., HARTLAND TWP., LIVINGSTON CO. SCALE: 1"=60' DATE: 04-11-08 BY: BVB JOB# 07-3600 SH. 7 of 7 I hereby certify that this survey was prepared by me, or under my direct supervision, and that all of the requirements of P.A. 132, 1970 have been complied with.

Registered Professional Engineer & Land Surveyor 517/ 548-3142

When recorded return to:

B.F. Thompson, P.C.

1520 Gulley Road, Howell, Michigan 48843

Thompson, P.E., P.S.#23828

extension) of School Street, 66 foot wide Right-of-Way; thence North 00 deg 18 min 58 sec West 150.49 feet along the East line of Avon Street, 66 foot wide Right-of-Way; thence North 88 deg 55 min 05 seconds West 66.02 feet along the North line of said "Village of Hartland"; thence South 00 deg 18 min 58 sec East 33.01 feet along the West line of said Avon Street to the Northeast corner of said Lot 23 and the PLACE OF BEGINNING; thence continuing South 00 deg 18 min 58 sec East 58.38 feet along said West line of Avon Street; thence North 88 deg 57 min 09 sec West 132.24 feet; thence North 00 deg 18 min 58 sec West 58.45 feet; thence South 88 deg 55 min 05 sec East 132.24 feet to the Place of Beginning. Being a part of the Northwest ¼ of Section 16, Town 3 North, Range 6 East, Hartland Township, Livingston County, Michigan. Subject to and together with all easements and restrictions affecting title to the described above

Legal Description - Transfer Parcel (As Supplied)

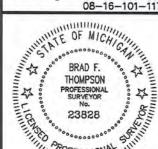
A part of Lot 13, North Eastern Addition of Hartland Village, as recorded in Liber 41 of Deeds, Page 42, Livingston County Records, said property being described as follows: Commencing at the North ¼ corner of Section 16, Town 3 North, Range 6 East, Hartland Township, Livingston County, Michigan; thence S 01 deg 14 min 57 sec E 1956.57 feet along the North and South 1/4 line of said Section 16; thence N. 89 deg 27 min 09 sec W. 917.98 feet along the South line of Lot 22 (and its Easterly extension) of said North Eastern Addition of Hartland Village; thence N. 00 deg 57 min 54 sec W. 335.38 feet along the East line of Washington Street, 66 foot wide Right-of-way; thence N. 89 deg 15 min 58 sec W. 150.01 feet along the North line of School Street, 66 foot wide Right-ofway; thence N. 00 deg 18 min 58 sec W. 215.44 feet; thence N. 89 deg 07 min 25 sec W. 30.91 feet to the PLACE OF BEGINNING; thence continuing N. 89 deg 07 min 25 sec W. 16.73 feet; thence N. 00 deg 40 min 56 sec W. 48.41 feet along the line common to Lots 13 & 18 of said North Eastern Addition of Hartland Village; thence S. 89 deg 07 min 25 sec E. 16.73 feet along the North line of said Lot 13, North Eastern Addition of Hartland Village; thence S. 00 deg 40 min 56 sec E. 48.41 feet to the Place of Beginning. Being a part of the Northwest 1/4 of Section 16, Town 3 North, Range 6 East, Hartland Township, Livingston County, Michigan. Containing 810 square feet of land, more or less. Subject to and together with all easements and restrictions affecting title to the above described premises.

Legal Description - Tax I.D. #08-16-101-117 & Transfer Parcel Combined (As

A parcel of land and a portion of "North Eastern Addition to the Village of Hartland" Subdivision, as recorded in Liber 41D, Pg. 42, Livingston County Records, being a part of the Northwest ¼ of Section 16, T.3N., R.6E., Hartland Township, Livingston County, Michigan, and more particularly described as Commencing at the North 1/4 corner of said Section 16; thence S. 01 deg 14 min 57 sec E., along the North-South 1/4 line of said section, 2676.56 ft. to the Center of Section 16; thence N. 01 deg 14 min 57 sec W, along said 1/4 line, 719.72 ft.; thence N. 89 deg 27 min 09 sec W. 917.98 ft.; thence N. 00 deg 57 min 40 sec W. 335.23 ft. (N. 00 deg 57 min 54 sec W. 335.38 ft. recorded) to the Northerly right of way of School Street (66 ft. wide public right of way); thence N .89 deg 12 min 43 sec W., along said right of way, 150.05 ft. (N. 89 deg 15 min 58 sec W. 150.01 ft. recorded); thence N. 00 deg 18 min 58 sec W. 215.44 ft.; thence N. 89 deg 07 min 25 sec W. 31.22 ft. to the POINT OF BEGINNING; thence continuing N. 89 deg 07 min 25 sec W. 148.78 ft. to the Easterly right of way line of Hartland Rd. (formerly

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SCALE: 1"=60' DATE: 04-11-08 BY: BVB JOB# 07-3600 SH. 4 of 7 I hereby certify that this survey was prepared by me, or under my direct supervision, and that all of the requirements of P.A. 132, 1970 have been complied with.

LOCATION: N.W. 1/4, SEC. 16, T.3N., R.6E., HARTLAND TWP., LIVINGSTON CO.

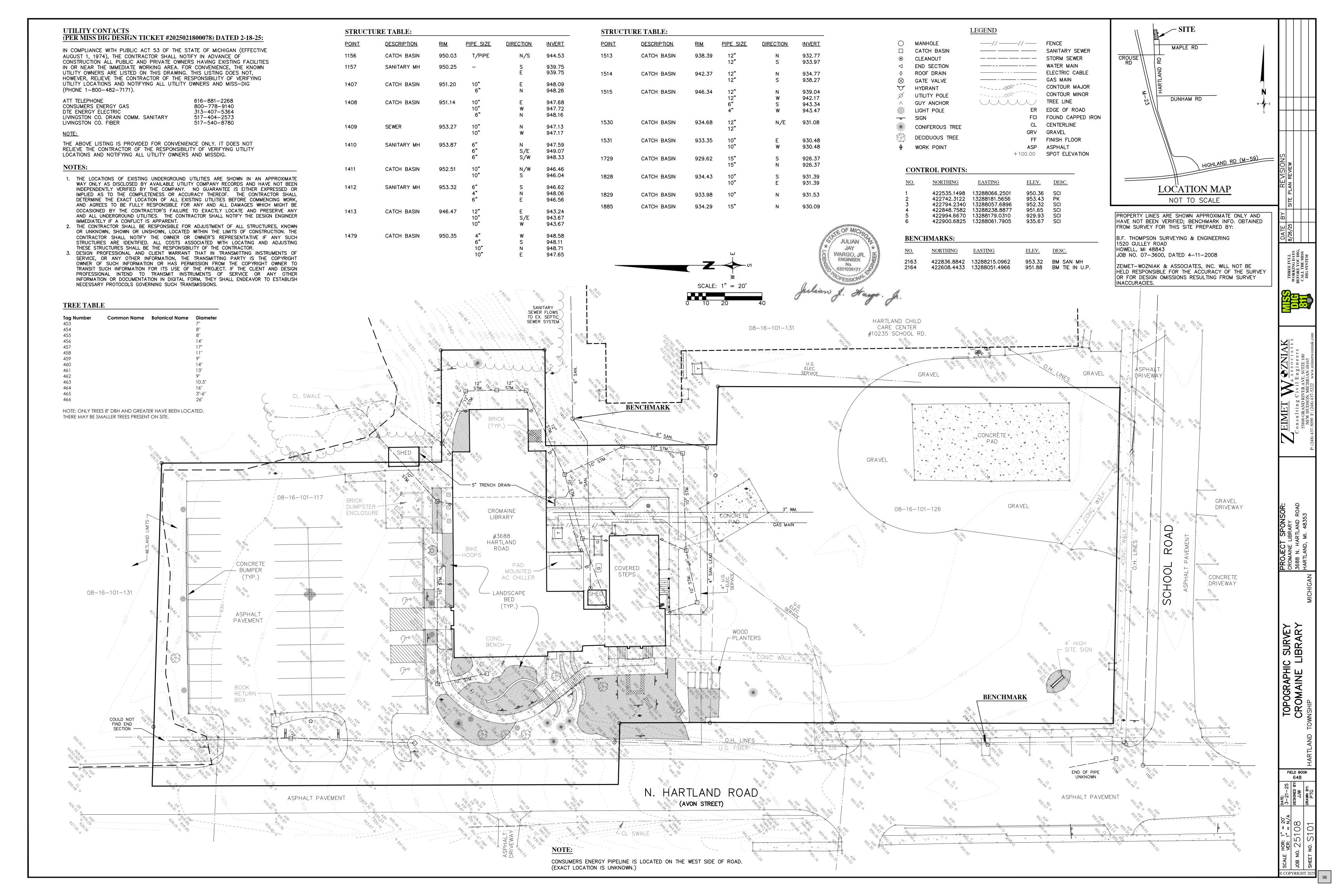
Beach I Thomsom When recorded return to: B.F. Thompson, P.C.

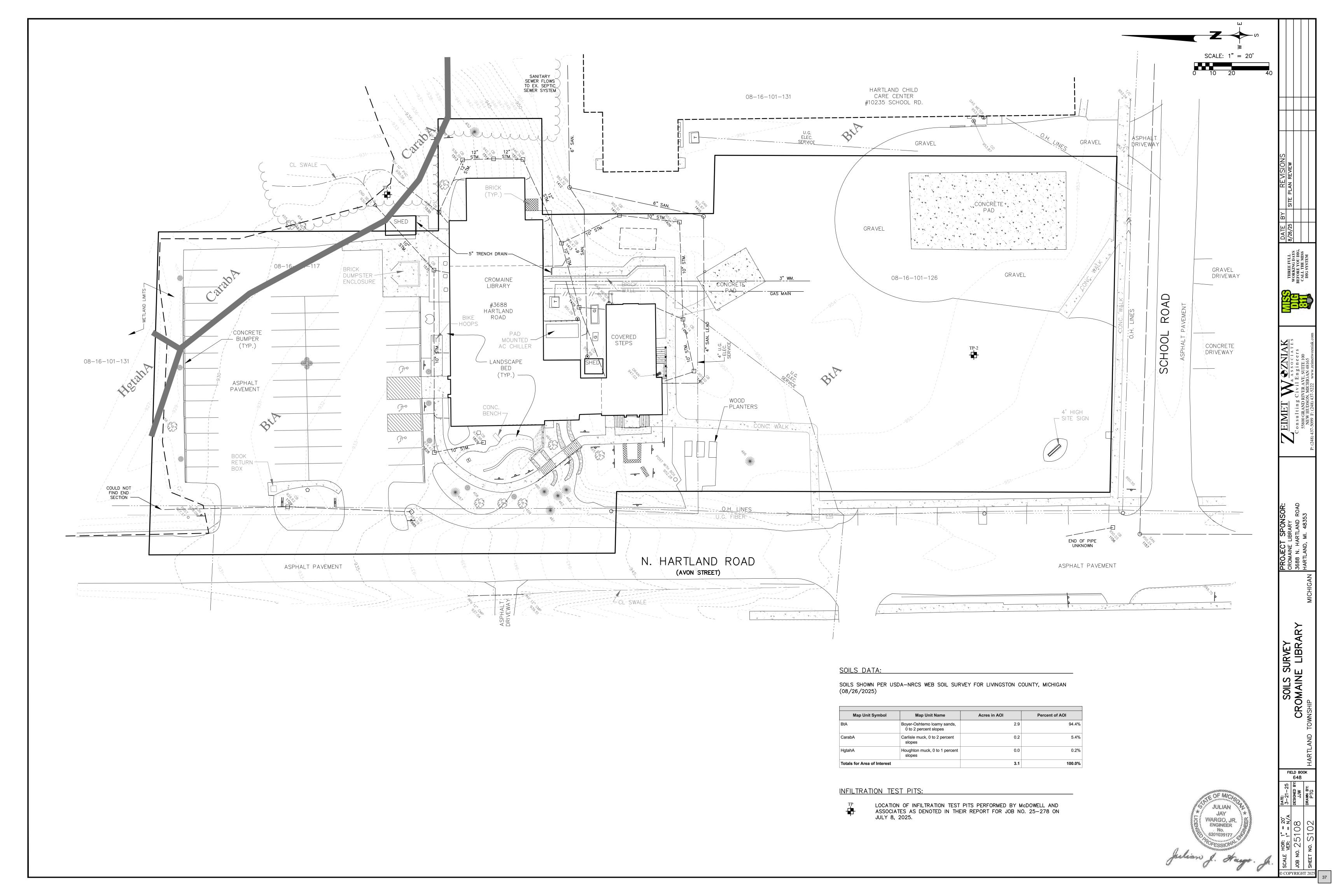
517/ 548-3142

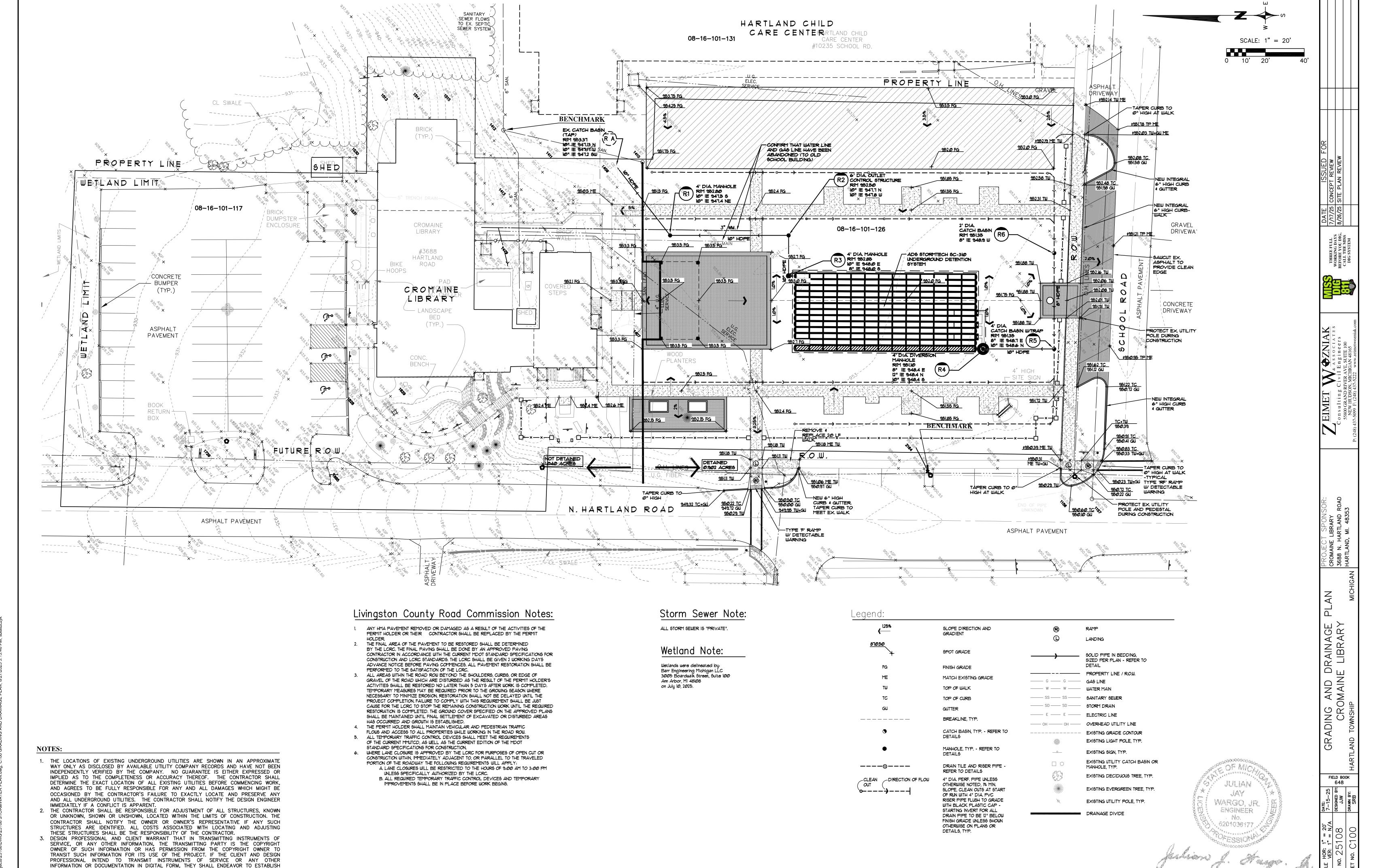
Brad F. Thompson, P.L., P.S.#23828 B.F. THOMPSON, P.C. Registered Professional Engineer & Land Surveyor

1520 Gulley Road, Howell, Michigan 48843

SURVEY LIBRARY BOUNDARY CROMAINE







NECESSARY PROTOCOLS GOVERNING SUCH TRANSMISSIONS.

Land Use Summary

must be included on the O&M Plan Sheet for all site plans

	Characteristic	Existing Conditions	Proposed Conditions
	Total Development Area (ac)	0.902	0.902
	Impervious Area (ac)	0.287	0.370
ro O	Total Pervious Area (ac)	0.615	0.532
Land Use Data	Pervious Area Breakdown by Cover Type		
ıd Us			
Lan	Meadow/fallow/natural areas (non-cultivated)	0.00 acres	0.00 acres
	Predominant NRCS Soil Type (A, B, C, or D)	В	В
	Improved areas (turf grass, landscape, row crops)	0.615 acres	0.532 acres
Area	Predominant NRCS Soil Type (A, B, C, or D)	В	В
Pervious Area			
Perv	Wooded Areas	0.00 acres	0.00 acres
	Predominant NRCS Soil Type (A, B, C, or D)	В	В
	CPVC Volume <i>Cald</i>	culated (cubic feet)	2,639
	CPVC Volume Pr	ovided (cubic feet)	10,268
	CPRC Volume Calc CPRC Volume Pr	culated (cubic feet) ovided (cubic feet)	3,857 3,929

The Professional Engineer who signs and seals this site plan certifies that the values in this table reflect the WRC stormwater calculations required for this development and that geotechnical investigations were performed that provide conclusive documentation that demonstrates whether infiltration (i.e., CPVC Volume Control) is practicable.

CROMAINE LIBRARY OUTDOOR IMPROVEMENTS, HARTLAND TWP

STORMWATER MANAGEMENT NARRATIVE

A. EXISTING CONDITIONS

CROMAINE DISTRICT LIBRARY IS LOCATED AT #3688 HARTLAND ROAD IN HARTLAND TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN, THE SUBURBAN PROPERTY CONTAINS 2.131 GROSS ACRES, 1.942 NET ACRES. THE SITE IS OCCUPIED BY THE LIBRARY BUILDING AND PARKING LOT TO THE NORTH. THE SOUTH PORTION IS OPEN FIELD, HAVING PREVIOUSLY BEEN OCCUPIED BY A SCHOOL BUILDING, SINCE DEMOLISHED IN 2006, THE TERRAIN GENERALLY FALLS NORTH AND SOUTH FROM A HIGHPOINT IN THE SOUTH FLATLAND AT ELEV. 954 TO ELEV. 929 TO THE NORTH AND ELEV. 951 TO THE SOUTH (ALONG SCHOOL ROAD).

THE SITE ABUTS AN EXISTING TAMARACK WETLAND TO THE NORTH. THE WETLAND FLOWS NORTH TO THE HARTLAND 16-2 DRAIN, A "PRIVATE" DRAIN.

THE SITE'S DRAINAGE IS DIRECTED TO THE WETLAND IN THREE WAYS:

- THE PARKING LOT SHEET FLOWS OVERLAND TO IT.
- THE NORTH PORTION OF THE LIBRARY BUILDING'S ROOF IS PIPED TO IT VIA A 10" STORM SEWER.
- THE SOUTH PORTION OF THE LIBRARY BUILDING'S ROOF AND MECHANICAL COURTYARD IS PIPED TO IT VIA A 12" STORM SEWER.

THE PREDOMINANT SOIL IS B&A (BOYER-OSHTEMO LOAMY SANDS, 0-2% SLOPES), HSG = B.

B. PROPOSED SITE PLAN

THE LIBRARY IS PROPOSING TO DEVELOP THE SOUTH FLATLAND AS A LANDSCAPED EVENT SPACE WITH AN ELEVATED PLATFORM, A FORMALIZED LAWN, AND A PARKING LOT OFF OF SCHOOL ROAD (FOR USE BY THE NEIGHBORING HARTLAND CHILD CARE.) CENTER).

C. STORMWATER MANAGEMENT SYSTEM

IN CONJUNCTION WITH THE DEVELOPMENT OF THE OUTDOOR EVENT SPACE, STORMWATER MANAGEMENT IMPROVEMENTS ARE EXPECTED TO COMPLY WITH THE CURRENT REGULATIONS OF THE LIVINGSTON COUNTY DRAIN COMMISSIONER, THIS IS EXPECTED TO INCLUDE COLLECTION, INFILTRATION, TREATMENT, AND DETENTION OF IMPROVED RUNOFF BEFORE IT IS RELEASED TO THE EXISTING WETLAND.

D. <u>Inflitration</u>

AN INFILTRATION STUDY WAS PERFORMED BY MCDOWELL AND ASSOCIATES. THE LOCATIONS OF (2) TEST PITS WERE SUGGESTED AFTER CONSULTATION WITH KEN DECKER OF THE LCDC OFFICE - PER THE STUDY (MCDOWELL JOB NO. 25-278 DATED JULY 8, 2025):

THE SUBSURFACE CONDITIONS IN THE AREA OF TP-1 (ADJACENT TO THE WETLAND) ARE NOT CONSIDERED SUITABLE FOR INFILTRATION DUE TO THE PRESENCE OF FILL AND SHALLOW GROUNDWATER ENCOUNTERED. THE APPARENT NATIVE SAND-TYPE SOILS ABOVE THE GROUNDWATER TABLE IN THE AREA OF TP-2 (IN THE SOUTH FLATLAND) GENERALLY APPEAR TO BE SUITABLE FOR INFILTRATION. UNFACTORED INFILTRATION RATES FROM TP-2 VARIED FROM 5.2 IN/HR TO 14.3 IN/HR. FOR DESIGN PURPOSES, A COMBINED AVERAGE RATE FOR THE TEST PIT AS WELL AS A FACTOR OF SAFETY OF TWO WERE CONSIDERED. A SUITABLE DESIGN INFILTRATION RATE FOR TP-2 IS 4.9 IN/HR AT A DEPTH OF EIGHT FEET (8') BELOW EXISTING GROUND SURFACE.

E. CONVEYANCE AND STORAGE

IT DOES NOT APPEAR TO BE PRACTICAL OR FEASIBLE TO RE-DIRECT RUNOFF FROM THE PARKING LOT OR TO COLLECT RUNOFF FROM THE TWO EXISTING STORM SEWER SYSTEMS INTO A DETENTION BASIN, THE SHALLOW GROUNDWATER AND CLOSE PROXIMITY TO THE WETLAND RESTRICT THE ABILITY TO EXCAVATE AND GRADE A DETENTION BASIN TO SERVE THE NORTH PORTION OF THE PROPERTY.

WITH REGARD TO THE SOUTH PORTION OF THE PROPERTY – WHERE THE OUTDOOR SPACE IS TO BE DEVELOPED ON APPROXIMATELY 0.90 ACRES - THE RESULTS OF THE INFILTRATION STUDY OFFER OPPORTUNITIES FOR STORMWATER BEST MANAGEMENT PRACTICES, RUNOFF WILL BE COLLECTED AND CONVEYED VIA A STORM SEWER TO A SUBSURFACE STORMWATER DETENTION SYSTEM. THE SUBSURFACE DETENTION SYSTEM SHALL BE CONSTRUCTED OF STORMTECH CHAMBERS WHICH OFFER SEVERAL advantages:

- THE CHAMBERED SYSTEM WILL TEMPORARILY HOLD WATER WHILE IT IS RELEASED AT A DEFINED RATE THROUGH THE OUTLET.
- THE NATURE OF THE OPEN BOTTOM OF THE CHAMBERS ALLOWS FOR INFILTRATION. THE WASHED ANGULAR STONE BACKFILL BELOW, BETWEEN, AND ABOVE THE CHAMBERS NOT ONLY SERVES AS A STRUCTURAL COMPONENT BUT ALLOWS FOR CONVEYANCE AND STORAGE OF STORMWATER.
- PRETREATMENT OF RUNOFF BEFORE IT ENTERS THE STORMWATER STORAGE SYSTEM WILL BE PROVIDED IN AN UPSTREAM CATCH BASIN, THE CATCH BASIN WILL BE FURNISHED WITH A DEEP SUMP (3') AND A 90° BEND ON ITS OUTLET TO TRAP COURSE SILTS AND SEDIMENTS.
- IN ADDITION, THE CHAMBERED SYSTEM WILL FEATURE AN "ISOLATOR RUN" WHICH WILL ENHANCE REMOVAL OF TOTAL SUSPENDED SOLIDS

F. STORMWATER OUTLET

THE PROPOSED OUTLET FOR THE SUBSURFACE DETENTION SYSTEM IS THE EXISTING ONSITE 12" STORM SEWER THAT SERVES THE SOUTH PORTION OF THE LIBRARY AND MECHANICAL COURTYARD, THIS OUTLET IS CONSIDERED TO BE ADEQUATE FOR THE

- THE OUTLET IS THE ONLY VIABLE OUTLET FOR THE SUBSURFACE STORAGE SYSTEM.
- THE OUTLET IS IN THE SAME LOCATION AS THE EXISTING OUTLET.
- THE OUTLET APPEARS TO BE FUNCTIONING PROPERLY AND THERE IS NO EVIDENCE OF DOWNSTREAM FLOODING ISSUES. • THE DISCHARGE RATE AND TOTAL VOLUME WILL BE REDUCED WITH THE PROPOSED CONDITIONS, WHICH SHOULD NOT IMPAIR THE CONVEYANCE CAPACITY TO THE DOWNSTREAM RECEIVING WEILAND.

DETENTION DESIGN ANALYSIS

1. PRE-DEVELOPMENT RUNOFF FOR SITE

~ (~ x	~ 1 -y-y	. ~	-	0.00			
GRAVEL	0.177	AC	©	0.80	=	. 0.142	
ROOF	0.206	АC	@	0.95	=	0.196	
PAV'T	0.583	АC	@	0.95	=	0.554	
LAWN	0.976	_AC	@	0.25		0.244	
	1.942	AC I	(NET)			1.136	

PRE C = 1.136 / 1.942 = 0.58

2. <u>POST-DEVELOPMENT RUNOFF FOR SITE</u>

					• •	
ROOF	0.206 AC	@	0.95	<u></u>	0.196	
PAV'T	0.825 AC	@	0.95	=	0.784	
LAWN	0.911 AC	@	0.25	=	0,228	

POST C = 1.208 / 1.942 = 0.62

3. REQUIRED WATER QUALITY CONTROL

1.942 AC (NET)

 V_{WQ} = 3630 X 0.902 X 0.62 = 2030 CF \rightarrow THIS IS THE FOREBAY VOLUME

4. REQUIRED CHANNEL PROTECTION VOLUME CONTROL (CPVC)

CPVC = 4719 X 0.902 X 0.62 = 2639 CF \rightarrow THIS IS THE VOLUME TO BE INFILTRATED

5. REQUIRED CHANNEL PROTECTION RATE CONTROL (CPRC)

CPRC = 6897 X 0.902 X 0.62 = 3857 CF→ THIS IS THE EXTENDED DETENTION VOLUME TO BE DISCHARGED OVER 48 HOURS

6. EXTENDED DISCHARGE RATE

Qf0 = 3857 / 172,800 = 0.02 Cf\$

7. REQUIRED DETENTION AND FLOOD CONTRL VOLUME

 $Q_{VRR} = 1.1055 - 0.206 LN (0.902) = 1.13 CFS/AC$ $Q_{100P} = 1.13 \times 0.902 = 1.02 CFS$ $Q_{ALL} = 0.20 \text{ CFS/ AC X 0.902 AC} = 0.18 \text{ CFS} \rightarrow \text{CHOOSE THE LOWER VALUE}$ $V_{100R} = 18,985 \times 0.902 \times 0.62 = 10,617 CF$ $T_{c} = 10.0 \text{ MINUTES (FOR SITES THAT ARE 2 ACRES AND SMALLER)}$ $I_{100} = 83.3 / (10.0 + 9.17) \land 0.81 = 7.62 IN/HR$ $Q_{1009N} = 0.62 \times 7.62 \times 0.902 = 4.26 \text{ CFS}$ R = 0.206 - 0.15 LN (0.18 / 4.26) = 0.68 $V_{1000} = (10,617 \times 0.68) - 2639 = 4581 \text{ CF}$

8. PROVIDED DETENTION AND FLOOD CONTROL VOLUME

V_{100D} > V_{ED}, WE MUST STORE FOR 4581 CF.

A SUBSURFACE STORAGE SYSTEM COMPRISED OF ADS STORMTECH SC-310 CHAMBERS SHALL BE USED TO PROVIDE THE REQUIRED STORAGE VOLUME. PER THE MANUFACTURER'S SPREAD SHEET:

 V 100 PROVIDED = 4647 CF AT ELEV. 950.23 V ED PROVIDED = 3915 CF AT ELEV. 949.65

9. PROVIDED INFILTRATION

SINCE THE SOILS ARE VERY PERMEABLE, THE MOST ECONOMICAL WAY TO MEET THE INFILTRATION REQUIREMENT (CPCV) WILL BE PROVIDING STORAGE UNDER THE BOTTOM OF THE SUBSURFACE STORAGE SYSTEM.

AREA OF SYSTEM = 127 X 33 = 4191 SF DESIGN INFILTRATION RATE = 4.9"/HR V INTE = 4191 SF X 4.9" /HR X 6 HR X 1 F7/12" = 10.268 SF NOTE THAT THIS EXCEEDS THE REQUIRED VOLUME OF 2639 CF.

10. OUTLET CONTROL

FOR Q ED:

 $Q_{ED} = 0.02 CFS$ TOP OF STORAGE = ELEV. 949.65 OUTLET INVERT = 947.80 H = 949.65 - 947.80 = 1.85 FT $A = 0.02 / [0.62 \times (64.4 \times 1.85) \land 0.50] = 0.0029 \text{ SF}$ THIS WORKS OUT TO .73" DIA HOLE, THE SUGGESTED MINIMUM IS 1" FOR MAINTENANCE PURPOSES. USE (1) 1" DIA. HOLE AT ELEV. 947.80. Q ACTUAL = 0.62 X (1 X 0.0055) X (64.4 X 1.85) \(^0.50 = 0.04 \) CFS

FOR Q 100: TOP OF STORAGE = ELEV. 950.23 H = 950.23 - 947.80 = 2.43 FT

Q = 0.62 (1 X 0.0055) X (64.4 X 2.43) \(^{0.50} = 0.04 \) CFS ADDITONAL HOLES AT ELEV. 949.65 ARE NEEDED. Q = 0.18 - 0.04 = 0.14 CFSH = 950.23 - 949.65 = 0.58 FT $A = 0.14 / [0.62 \times (64.4 \times 0.58) \land 0.50] = 0.0369 \text{ SF}$ NO. OF 1" DIA. HOLES = 0.0369 / 0.0055 = 6.7 USE (6) 1" DIA. HOLES AT ELEV. 949.65

Q ACTUAL = $0.04 + [0.62 \times (6 \times 0.0055) \times (64.4 \times 0.58) \land 0.50] = 0.17 CFS$ 11. <u>DISCHARGE TIM</u>ES

T ED = 3929 CF X 1/0.04 CFS X 1 HR/3600 SEC = 27.3 HRS T₁₀₀ = 4667 CF X 1/0.17 CFS X 1 HR/3600 SEC = 7.6 HRS

DE

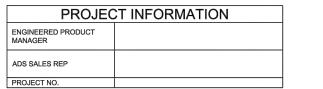
MANAGEN ROMAINE STORMWATE

FIELD BOOK 648

WARGO, JR.

ENGINEER

No.







REDUCED CROMAINE DISTRICT LIBRARY

HARTLAND TOWNSHIP, MI, USA

SC-310 STORMTECH CHAMBER SPECIFICATIONS

- CHAMBERS SHALL BE STORMTECH SC-310.
- CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE OR POLYETHYLENE COPOLYMERS.
- CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2922 (POLETHYLENE) OR ASTM F2418 (POLYPROPYLENE), "STANDARD SPECIFICATION FOR CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
- CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE
- THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
- CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2)
- MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK. REQUIREMENTS FOR HANDLING AND INSTALLATION:
- TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.

 TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS
- TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 325 LBS/FT/%. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED. FROM REFLECTIVE GOLD OR YELLOW COLORS.
- ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:

 THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.

 THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LED BRIDGE DESIGN SECTIONS FOR THERMODIA STILL PIDE
- LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE. HE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2922 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN
- EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN. 9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.
- 10. MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECH NOTE #6.32 FOR MANIFOLD SIZING GUIDANCE. DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD. 11. ADS DOES NOT DESIGN OR PROVIDE MEMBRANE LINER SYSTEMS. TO MINIMIZE THE LEAKAGE POTENTIAL OF LINER SYSTEMS. THE MEMBRANE SYSTEM SHOULD BE DESIGNED BY A KNOWLEDGEABLE GEOTEXTILE PROFESSIONAL AND INSTALLED BY A QUALIFIED CONTRACTOR

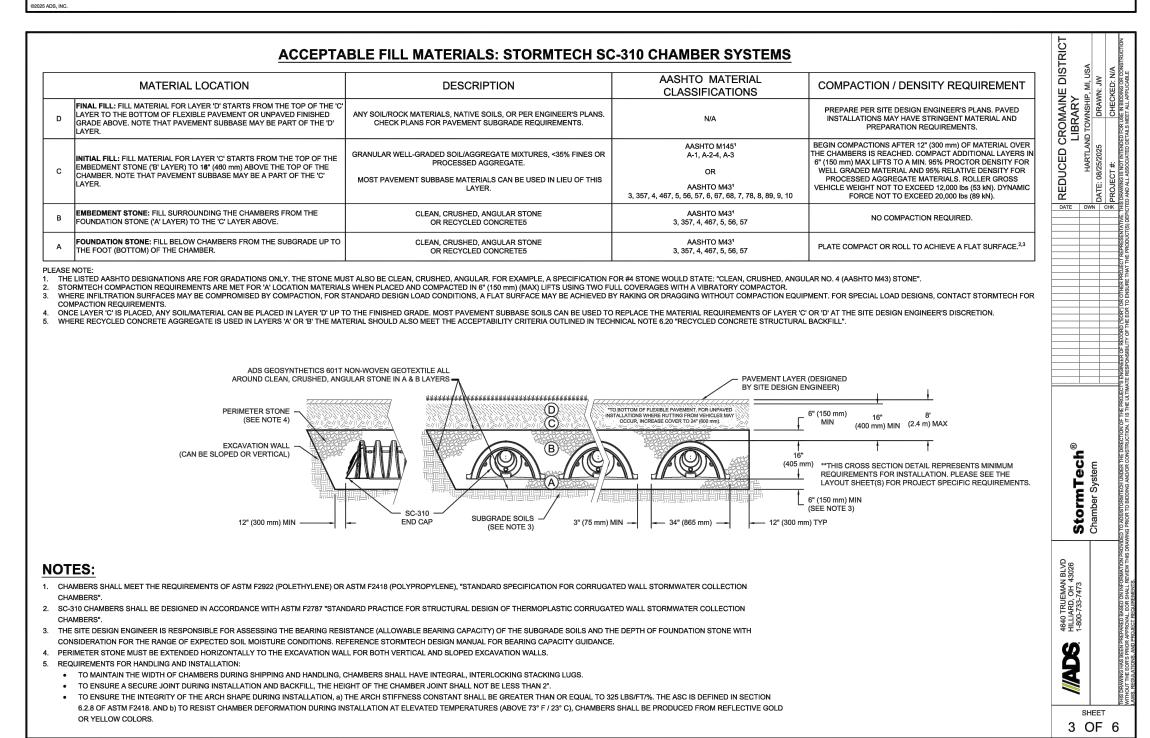
- IMPORTANT NOTES FOR THE BIDDING AND INSTALLATION OF THE SC-310 SYSTEM
 - 1. STORMTECH SC-310 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
- 2. STORMTECH SC-310 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE". 3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS
- HAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBER TORMITECH RECOMMENDS 3 BACKFILL METHODS:
 STONESHOOTER LOCATED OFF THE CHAMBER BED.
 BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
 BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
- 4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
- 5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE. 6. MAINTAIN MINIMUM - 3" (80 mm) SPACING BETWEEN THE CHAMBER ROWS.
- EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE; AASHTO M43 #3, 357, 4,
- 8. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

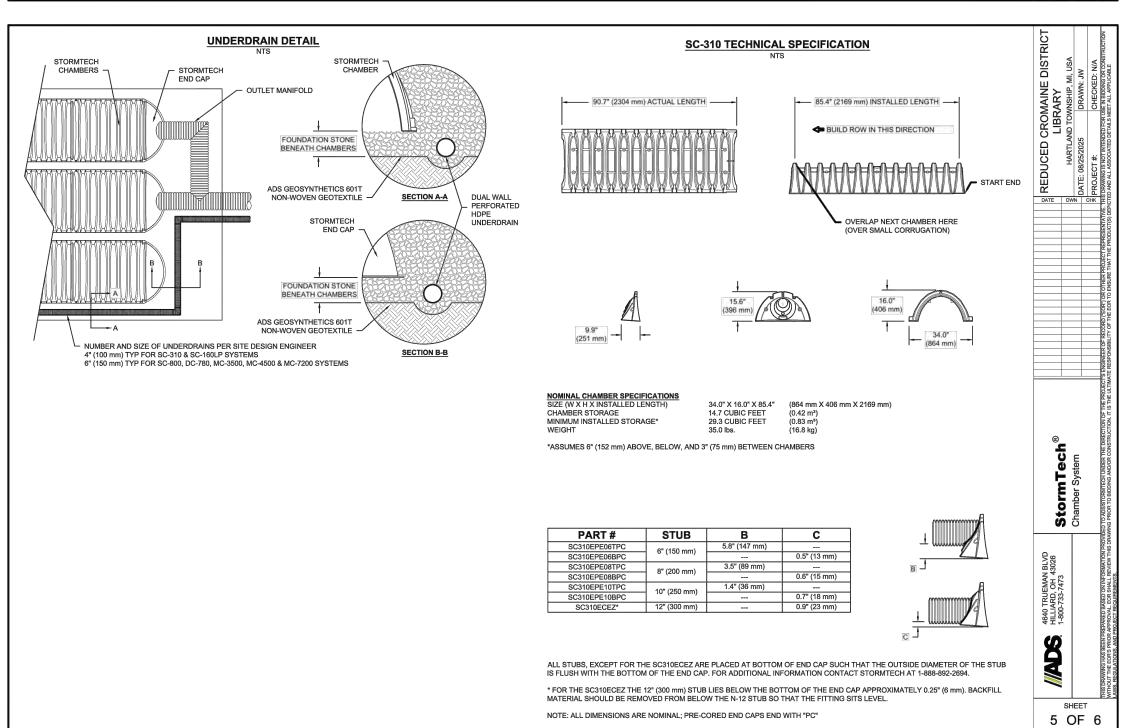
NOTES FOR CONSTRUCTION EQUIPMENT

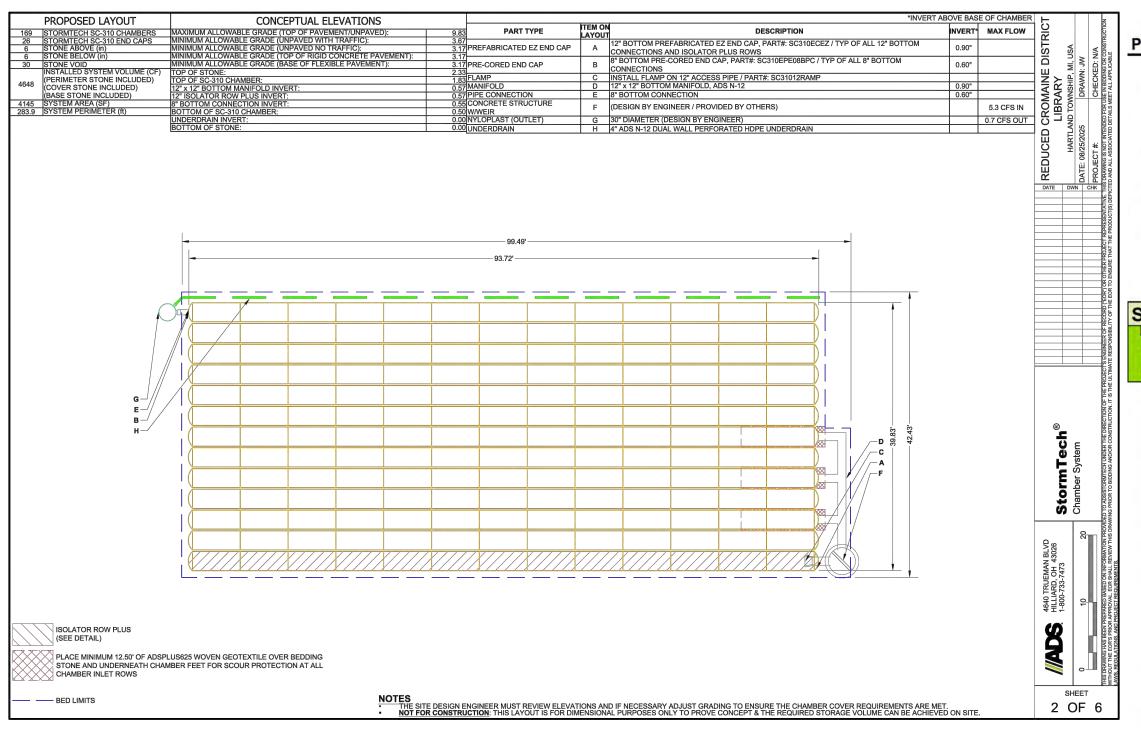
- 1. STORMTECH SC-310 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE". 2. THE USE OF CONSTRUCTION EQUIPMENT OVER SC-310 & SC-740 CHAMBERS IS LIMITED:
- NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
 NO RUBBER TIRED LOADERS, DUMP TRUCKS, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE".

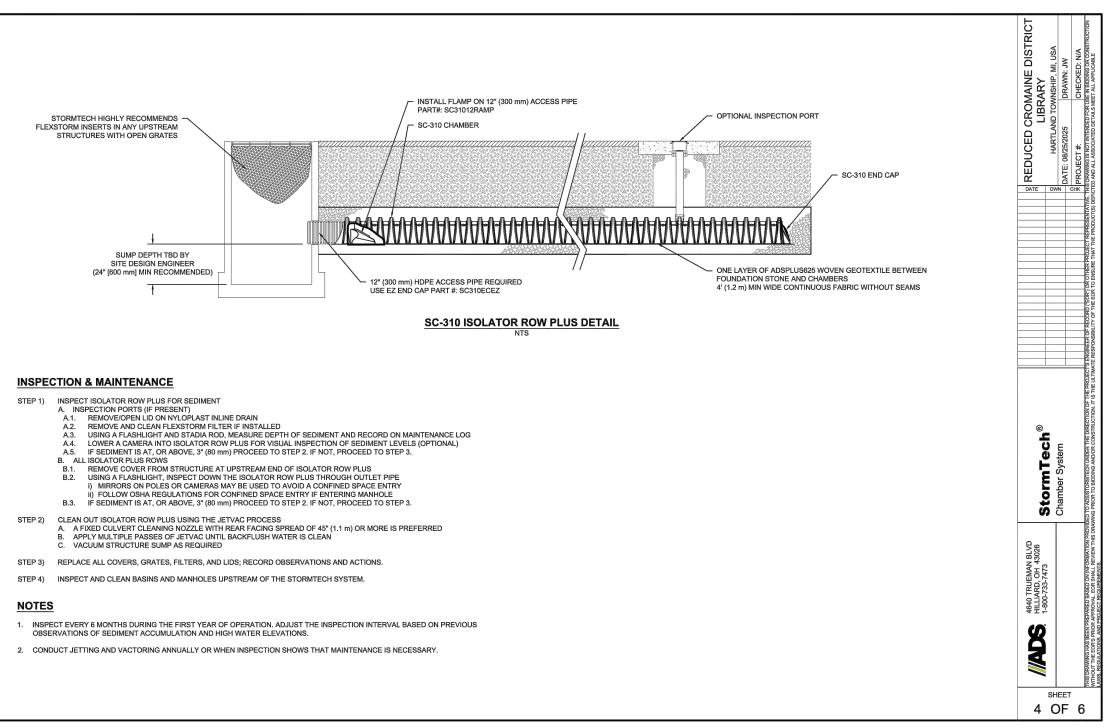
 WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH SC-310/SC-740/DC-780 CONSTRUCTION GUIDE". 3. FULL 36" (900 mm) OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.
- USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO THE CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH

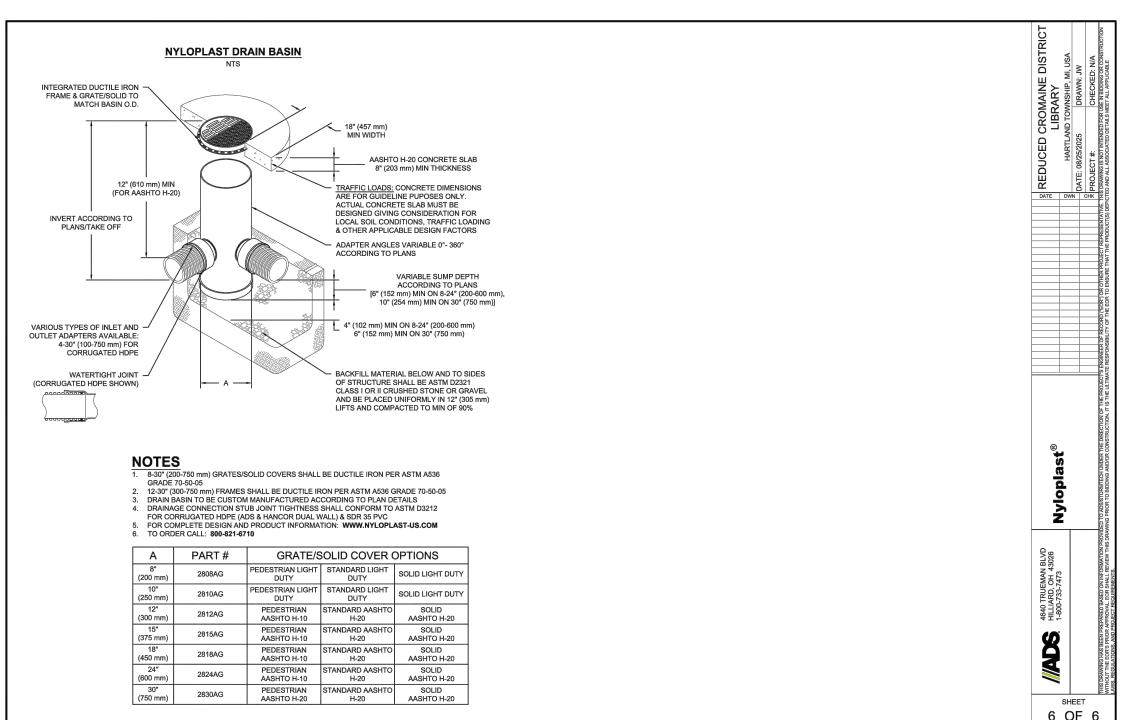
CONTACT STORM FECH AT 1-800-821-6710 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMEN











Project: \EDUCED CROMAINE DISTRICT LIBRAR

Chamber Model -Units -Number of Chambers -Voids in the stone (porosity) -

Base of Stone Elevation -

Area of system -

Amount of Stone Above Chambers -

Amount of Stone Below Chambers -

0.00

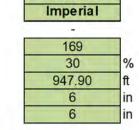
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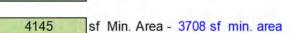
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0.00

0.00

0.00





Height of	Incremental	Incremental	Incremental	Incremental	Cumulative	
System	Single Chamber	Total Chamber	Stone	Ch & St	Chamber	Elevation
(inches)	(cubic feet)	(cubic feet)	(cubic feet)	(cubic feet)	(cubic feet)	(feet)
28	0.00	0.00	103.64	103.64	4647.95	950.23 ← V _{100D} @ ELEV 950.23
27	0.00	0.00	103.64	103.64	4544.32	950.15
26	0.00	0.00	103.64	103.64	4440.68	950.07
25	0.00	0.00	103.64	103.64	4337.04	949.98
24	0.00	0.00	103.64	103.64	4233.40	949.90
23	0.00	0.00	103.64	103.64	4129.77	949.82
22	0.06	9.94	100.66	110.59	4026.13	949.73
21	0.15	26.15	95.79	121.94	3915.54	949.65 ← V _{ED} @ ELEV 949.65
20	0.27	44.93	90.16	135.09	3793.60	949.57
19	0.54	92.07	76.02	168.09	3658.51	949.48
18	0.70	118.98	67.94	186.93	3490.42	949.40
17	0.82	139.35	61.83	201.18	3303.50	949.32
16	0.92	156.25	56.76	213.01	3102.32	949.23
15	1.01	171.53	52.18	223.71	2889.31	949.15
14	1.09	184.98	48.14	233.12	2665.60	949.07
13	1.15	195.07	45.11	240.19	2432.48	948.98
12	1.21	205.32	42.04	247.36	2192.29	948.90
11	1.27	215.45	39.00	254.46	1944.92	948.82
10	1.32	223.85	36.48	260.33	1690.47	948.73
9	1.36	230.68	34.43	265.11	1430.14	948.65
8	1.40	237.44	32.40	269.85	1165.02	948.57
7	1.43	242.45	30.90	273.35	895.17	948.48
6	0.00	0.00	103.64	103.64	621.82	948.40
5	0.00	0.00	103.64	103.64	518.18	948.32
4	0.00	0.00	103.64	103.64	414.55	948.23
		3023				

103.64

103.64

103.64

103.64

103.64

103.64

310.91

207.27

103.64

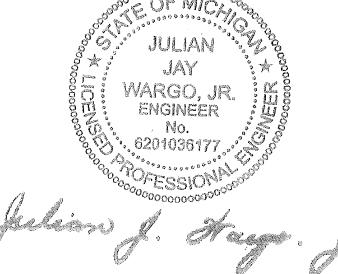
948.15

948.07

947.98

947.90 ← BOTTOM OF STONE

@ ELEV 948.00



STORMWATER FIELD BOOK 648

DET

MANAGEMENT NOTE ROMAINE LIBRAR

