GENOA CHARTER TOWNSHIP
PLANNING COMMISSION PUBLIC HEARING
SEPTEMBER 14, 2020
6:30 P.M.
AGENDA

CALL TO ORDER:

PLEDGE OF ALLEGIANCE:

APPROVAL OF AGENDA:

CALL TO THE PUBLIC: (*Note: The Board reserves the right to not begin new business after 10:00 p.m.)*

OPEN PUBLIC HEARING # 1…Review of a special use application, environmental impact assessment and site plan for a proposed 28,851 sq. ft. addition for a retreat center which will include overnight stays located at 1391 Kellogg, southwest corner of Kellogg and McClements Roads. The request is petitioned by the Chaldean Catholic Church of the U.S.A.

A. Recommendation of Special Use Application
B. Recommendation of Environmental Impact Assessment (7-31-2020)
C. Recommendation of Site Plan (8-26-2020)

OPEN PUBLIC HEARING #2… Review of a site plan and environmental impact assessment for re-approval of an expired project for a 4,661 sq. ft. addition for enclosed storage, located at 1275 Grand Oaks Drive, Brighton. The request is petitioned by Tadbad, LLC.

A. Recommendation of Environmental Impact Assessment (7-28-2020)
B. Disposition of Site Plan (7-27-2020)

OPEN PUBLIC HEARING #3… Review of a site plan and environmental impact assessment for proposed exterior building renovations and site improvements to the existing commercial building located at 2700 E. Grand River Avenue on the south side of Grand River, east of Chilson Road. The request is petitioned by Partlund Development, LLC.

A Recommendation of Environmental Impact Assessment (8-18-2020)
B. Disposition of Site Plan (8-18-2020)

ADMINISTRATIVE BUSINESS:

- *Staff Report*
- *Approval of August 10, 2020 Planning Commission meeting minutes*
- *Member discussion*
- *Adjournment*

GENOA CHARTER TOWNSHIP
Application for Site Plan Review

TO THE GENOA TOWNSHIP PLANNING COMMISSION AND TOWNSHIP BOARD:

APPLICANT NAME & ADDRESS: THE CHALDEAN CATHOLIC CHURCH OF THE U.S.A.; 25603 BERG RD., SOUTHFIELD, MI 48033

If applicant is not the owner, a letter of Authorization from Property Owner is needed.

OWNER'S NAME & ADDRESS: VINCENT JARBOW, FINANCE OFFICER; 25603 BERG RD., SOUTHFIELD, MI 48033

SITE ADDRESS: 1391 KELLOGG ROAD, BRIGHTON, MI 48114 PARCEL #(s): 11-12-100-002, 11-11-200-001

APPLICANT PHONE: 248-351-0440 OWNER PHONE: 248-351-0440

OWNER EMAIL: VINCENT@CHALDEANCHURCH.ORG

LOCATION AND BRIEF DESCRIPTION OF SITE: THE LOCATION IS "OUR LADY OF THE FIELDS CAMP" AT 1391 KELLOGG ROAD; WITH THE PROPOSED BUILDING SOUTHWEST OF EULER LAKE, AND ADJACENT TO THE EXISTING CHURCH. THE OVERALL PROPERTY CONSISTS OF 2 PARCELS THAT BORDER KELLOGG ROAD TO THE WEST, EULER ROAD TO THE EAST, MC CLEMENTS ROAD TO THE NORTH, AND FILICE DRIVE & KEMPER ROAD TO THE SOUTH.

BRIEF STATEMENT OF PROPOSED USE: THE PROPOSED BUILDING WILL BE USED AS A RETREAT CENTER. THE RETREAT CENTER WILL CONSIST OF A ONE-STORY SEGMENT WITH CONNECTING CORRIDOR TO THE EXISTING CHURCH, ALONG WITH A PARTIAL BASEMENT DUE TO THE TOPOGRAPHY. THIS CONTAINS ALL THE PUBLIC AREAS FOR THE RETREAT CENTER (I.E. DINING AND MEETING ROOMS, ETC.), WHILE THE REMAINDER OF THE BUILDING CONSISTS OF A TWO-STORY DORMITORY FOR OVERNIGHT RETREATS.

THE FOLLOWING BUILDINGS ARE PROPOSED: ONE (1) RETREAT CENTER BUILDING WITH ONE-STORY AND TWO-STORY SEGMENTS, ALONG WITH A PARTIAL BASMENT IS BEING PROPOSED.

I HEREBY CERTIFY THAT ALL INFORMATION AND DATA ATTACHED TO AND MADE PART OF THIS APPLICATION IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

BY: VINCENT JARBOW, FINANCE OFFICER

ADDRESS: 25603 BERG ROAD, SOUTHFIELD, MI 48033

Contact Information - Review Letters and Correspondence shall be forwarded to the following:

1.) VINCENT JARBOW, FINANCE OFFICER of THE CHALDEAN CATHOLIC CHURCH OF THE U.S.A. at VINCENT@CHALDEANCHURCH.ORG

Name | Business Affiliation | E-mail Address

FEE EXCEEDANCE AGREEMENT

As stated on the site plan review fee schedule, all site plans are allocated two (2) consultant reviews and one (1) Planning Commission meeting. If additional reviews or meetings are necessary, the applicant will be required to pay the actual incurred costs for the additional reviews. If applicable, additional review fee payment will be required concurrent with submittal to the Township Board. By signing below, applicant indicates agreement and full understanding of this policy.

SIGNATURE: _____ DATE: 7/29/20

PRINT NAME: VINCENT JARBOW, FINANCE OFFICER PHONE: 248-351-0440

ADDRESS: 25603 BERG ROAD, SOUTHFIELD, MI 48033

GENOA CHARTER TOWNSHIP
Special Land Use Application

This application **must** be accompanied by a site plan review application and the associated submittal requirements. (The Zoning Official may allow a less detailed sketch plan for a change in use.)

APPLICANT NAME & ADDRESS: THE CHALDEAN CATHOLIC CHURCH OF THE U.S.A.; 25603 BERG RD., SOUTHFIELD, MI 48033
Submit a letter of Authorization from Property Owner if application is signed by Acting Agent.

APPLICANT PHONE: (248) 351-0440 EMAIL: VINCENT@CHALDEANCHURCH.ORG

OWNER NAME & ADDRESS: THE CHALDEAN CATHOLIC CHURCH OF THE U.S.A.; 25603 BERG RD., SOUTHFIELD, MI 48033

SITE ADDRESS: 1391 KELLOGG ROAD, BRIGHTON, MI 48114 PARCEL #(s): 11-12-100-002, 11-11-200-001

OWNER PHONE: (248) 351-0440 EMAIL: VINCENT@CHALDEANCHURCH.ORG

Location and brief description of site and surroundings:
THE LOCATION IS "OUR LADY OF THE FIELDS CAMP" AT 1391 KELLOGG ROAD; WITH THE PROPOSED BUILDING SOUTHWEST OF EULER LAKE, AND ADJACENT TO THE EXISTING CHURCH. THE OVERALL PROPERTY CONSISTS OF 2 PARCELS THAT BORDER KELLOGG ROAD TO THE WEST, EULER ROAD TO THE EAST, MC CLEMENTS ROAD TO THE NORTH, AND FILICE DRIVE & KEMPER ROAD TO THE SOUTH.

Proposed Use:
THE PROPOSED BUILDING WILL BE USED AS A RETREAT CENTER. IT WILL CONSIST OF A ONE-STORY SEGMENT WITH CONNECTING CORRIDOR TO THE EXISTING CHURCH, ALONG WITH A PARTIAL BASEMENT DUE TO THE TOPOGRAPHY. THE REMAINDER OF THE BUILDING CONSISTS OF A TWO-STORY DORMITORY FOR OVERNIGHT RETREATS.

Describe how your request meets the Zoning Ordinance General Review Standards (section 19.03):

a. Describe how the use will be compatible and in accordance with the goals, objectives, and policies of the Genoa Township Comprehensive Plan and subarea plans, and will promote the Statement of Purpose of the zoning district in which the use is proposed.

THE ZONING IS PRF, AND THE USE WILL BE COMPATIBLE, AS IT IS SIMILAR TO OTHER EXISTING USES ON THE SITE. THE PROPERTY IS LARGE AND HEAVILY SCREENED BY TREES, AND THE PROPOSED BUILDING IS NOT IN DIRECT VIEW FROM THE PUBLIC WAY. IT IS NOT DETRIMENTAL TO THE ENVIRONMENT OR THE PUBLIC, AND WILL PROVIDE BETTER USE AND UNIFICATION OF A SITE THAT IS UNDERUTILIZED, WHILE PRESERVING THE VIEWS AND NATURAL FEATURES THAT MAKE THE PROPERTY SO DESIRABLE.

b. Describe how the use will be designed, constructed, operated, and maintained to be compatible with, and not significantly alter, the existing or intended character of the general vicinity.

THE PROPOSED BUILDING IS DESIGNED TO FIT IN WITH AND COMPLIMENT EXISTING USES (I.E. EXISTING CHURCH AND PARKING LOT). THE PROPERTY IS LARGE AND THE BUILDING WILL NOT BE IN VIEW FROM THE ROAD. THERE IS SIGNIFICANT TOPOGRAPHY IN THIS AREA, WHICH WE ARE WORKING WITH TO MAINTAIN SITE CHARACTERISTICS. MAINTAINING THE FACILITY WILL BE CONSISTANT WITH THE MAINTAINANCE OF THE OTHER FACILITIES ON THE PROPERTY OVER THE YEARS.

c. How will the use be served adequately by essential public facilities and services such as highways, streets, police and fire protection, drainage structures, water and sewage facilities, refuse disposal and schools?

THE SITE CAN BE EASILY ACCESSED BY ROADS FROM THE WEST, NORTH AND EAST. WE ARE PROVIDING AN ACCESS DRIVE AROUND THE PROPOSED BUILDING FOR EMERGENCY VEHICLE ACCESS AND WORKED CLOSELY WITH THE FIRE MARSHAL IN DOING SO. WATER AND SEWER ARE CURRENTLY PRIVATE / ON SITE AND WILL CONTINUE TO BE, WITH IMPROVEMENTS TO THE SEPTIC INFRASTRUCTURE. A NEW TRASH ENCLOSURE IS PROPOSED FOR THE NEW BUILDING.

d. Will the use involve any uses, activities, processes, or materials potentially detrimental to the natural environment, public health, safety, or welfare by reason of excessive production of traffic, noise, vibration, smoke, fumes, odors, glare, or other such nuisance? If so, how will the impacts be mitigated?

WE DO NOT ANTICIPATE ANY DETRIMENTAL ACTIVITIES OR ENVIRONMENTAL NUISANCES WITH THIS PROPOSED USE.

e. Does the use have specific criteria as listed in the Zoning Ordinance (sections 3.03.02, 7.02.02, & 8.02.02)? If so, describe how the criteria are met.

NO, THE PROPOSED USE IS NOT LISTED IN THE ZONING SECTIONS CITED ABOVE. AFTER DISCUSSION WITH THE ASSISTANT TOWNSHIP MANAGER/COMMUNITY DEVELOPMENT DIRECTOR, IT WAS DETERMINED THE PROPOSED USE SHOULD BE CLASSIFIED AS "EXISTING CAMPGROUND", PER HISTORIC RECORDS FOR THE PROPERTY.

I HEREBY CERTIFY THAT ALL INFORMATION AND DATA ATTACHED TO AND MADE PART OF THIS APPLICATION ARE TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF. I AGREE TO DESIGN, CONSTRUCT AND OPERATE, AND MAINTAIN THESE PREMISES AND THE BUILDINGS, STRUCTURES, AND FACILITIES WHICH ARE GOVERNED BY THIS PERMIT IN ACCORDANCE WITH THE STATED REQUIREMENTS OF THE GENOA TOWNSHIP ZONING ORDINANCE, AND SUCH ADDITIONAL LIMITS AND SAFEGUARDS AS MAY BE MADE A PART OF THIS PERMIT.

THE UNDERSIGNED VINCENT JARBOW STATES THAT THEY ARE THE FREE OWNER OF THE PROPERTY OF PROPERTIES DESCRIBED ABOVE AND MAKES APPLICATION FOR THIS SPECIAL LAND USE PERMIT.

BY: VINCENT JARBOW, FINANCE OFFICER

ADDRESS: 25603 BERG ROAD, SOUTHFIELD, MI 48033

Contact Information - Review Letters and Correspondence shall be forwarded to the following:

VINCENT JARBOW	of THE CHALDEAN CATHOLIC CHURCH OF THE U.S.A.	at VINCENT@CHALDEANCHURCH.ORG
Name	Business Affiliation	Email

FEE EXCEEDANCE AGREEMENT

As stated on the site plan review fee schedule, all site plans are allocated two (2) consultant reviews and one (1) Planning Commission meeting. If additional reviews or meetings are necessary, the applicant will be required to pay the actual incurred costs for the additional reviews. If applicable, additional review fee payment will be required concurrent with submittal to the Township Board. By signing below, applicant indicates agreement and full understanding of this policy.

SIGNATURE: DATE: 7/29/20

PRINT NAME: VINCENT JARBOW PHONE: 248-351-0440

Revised 08-15-13, kasp

SAFEbuilt studio

September 2, 2020

Planning Commission
Genoa Township
2911 Dorr Road
Brighton, Michigan 48116

Attention:	Kelly Van Marter, AICP Planning Director and Assistant Township Manager
Subject:	The Prophet Elijah Retreat Center – Special Land Use and Site Plan Review #2
Location:	1391 Kellogg Road – southwest corner of the Kellogg Road/McClements Road intersection
Zoning:	PRF Public and Recreational Facilities District

Dear Commissioners:

At the Township's request, we have reviewed the revised submittal from the Chaldean Catholic Church of the U.S.A. requesting special land use and site plan review/approval for a new retreat center at the existing Our Lady of the Fields Camp.

A. Summary

1. Provided comments from the Township Engineer and Brighton Area Fire Authority are addressed, we are of the opinion that the special land use standards of Section 19.03 are generally met.
2. If the project is approved, the Township may wish to evaluate the Future Land Use classification for the property during its next Master Plan review period.
3. If deemed necessary, the Commission may wish to request building material calculations.
4. The Commission may wish to consider whether the existing gravel parking should be improved as part of this project.
5. The Commission may wish to require landscaping around the proposed detention pond (7 trees and 70 shrubs).
6. The Planning Commission may allow the use of rough sawn cedar for the waste receptacle enclosure.
7. The Planning Commission may require submittal of a photometric plan per Section 12.03.07.
8. If approval is granted, the applicant must obtain a sign permit from the Township prior to installation.

B. Proposal/Process

The project entails a 28,851 square foot (gross) addition to house a retreat center, including space for overnight stay. The proposed building addition will connect to the existing church, which is southwest of Euler Lake, via a corridor.

Though churches are by right uses in the PRF District, the camp component of the property has historically been treated as a private campground, which is a special land use (Table 6.02).

Given its size, the project constitutes a major expansion of an existing special land use (Section 19.06). As such, a new special land use approval is necessary, along with site plan review/approval.

Procedurally, the Planning Commission is to review the special land use, site plan, and impact assessment, and provide a recommendation on each to the Township Board following a public hearing.

Aerial view of site and surroundings (looking north)

C. Special Land Use Review

Section 19.03 of the Zoning Ordinance identifies the review criteria for Special Land Use applications as follows:

1. **Master Plan.** The Township Master Plan identifies the subject site, as well as the adjacent properties to the east and west, as Large Lot Rural Residential.

   This category is intended for "single family residential on large lots." While the established use is not single family residential in nature, the property does possess the features described in this category. More specifically, the Plan states that "many of the areas have significant natural limitations such wetlands or severe soil limitations and are not planned for sanitary sewer."

   The existing and proposed use are more consistent with the Private Recreational category, which is compatible with PRF zoning.

   Given the history of the established use and the planned investment into the property, the Township may wish to evaluate the Future Land Use classification during its next Plan review period (provided favorable action on this request is taken).

2. **Compatibility.** The site includes a variety of related buildings and uses that are relatively unique, while the surrounding area is sparsely developed with residences on large lots and significant natural features.

   The project will result in the removal of several trees, though they are generally internal to the site and the mature vegetation around the perimeter of the property, as well as the submerged areas, will be protected and preserved.

   In our opinion, the substantial size of the property (160 acres) and the mature vegetation around the perimeter mitigate any potential issues of compatibility with the surrounding area.

3. **Public Facilities and Services.** Based on the submittal materials, the site is served by well and septic systems. We defer to the Township Engineer and Brighton Area Fire Authority for any technical comments under this criterion.

4. **Impacts.** Similar to comments above, we do not foresee any significant impacts on the surrounding area due to the nature of the existing use, the size of the property, and the significant natural features being protected and preserved.

5. **Mitigation.** If any additional concerns arise as part of the review process, the Township may require additional efforts/improvements to mitigate potential adverse impacts.

D. Site Plan Review

1. **Dimensional Requirements.** The proposed building greatly exceeds the minimum setback requirements for the PRF District – 75 feet is required, while the smallest setback provided is 359 feet to the south lot line.

   Parking setbacks – 20-foot front and 10-foot side/rear required – are also exceeded.

   The proposed building (27'-2") is also within the maximum height allowed (35').

2. **Building Materials and Design.** The primary building materials include 2 types of brick and fiber cement siding. Though material calculations are not provided, the proposed building elevations appear to easily comply with the requirements of Section 12.01. If deemed necessary, the Commission may wish to request building material calculations.

   The color renderings indicate the use of earth-toned colors, including brown, beige, and tan.

3. **Pedestrian Circulation.** Public sidewalks/pathways are not required by Section 12.05 for the subject site, nor are they called for in the Master Plan.

   The project does include internal pedestrian areas connecting parking to buildings.

4. **Vehicular Circulation.** Vehicular access is provided by an existing driveway to/from Kellogg Road.

   The project includes a new 26-foot wide asphalt drive that acts as a loop road around the existing church and proposed building addition. The purpose of the loop road is to provide a fire lane for emergency access/fire protection.

5. **Parking.** The existing site provides 102 parking spaces, while 7 new spaces are proposed: bringing the total to 109. This includes 7 barrier-free spaces, which exceeds the minimum number required.

   The proposed spaces are noted as drop-off/short term parking, and a small un/loading zone is provided.

   Based on our review of the church building (2009), 95 parking spaces were required. Given the fact that the church and retreat buildings will be used by the same group of people, the total amount of parking provided is expected to be sufficient.

   Our only additional comment is that most of the existing parking spaces (84) are surfaced with gravel. The Commission may wish to consider whether the gravel parking should be improved as part of this project.

As is often noted, the request for a new special land use on a developed site provides the Township with an opportunity to require upgrades and improvements to bring site into (or closer to) compliance with current standards.

6. **Landscaping.** As previously noted, the site contains a significant number of mature trees. Though some will be removed to accommodate the project, the vast majority will be preserved. The landscape plan depicts tree protection fencing within the project area to ensure protection of these trees.

   Additionally, the plan proposes 7 canopy trees and 38 shrubs around the new parking area.

   Our only additional comment is that the Commission may wish to require landscaping around the proposed detention pond. Per Section 12.02.05, we estimate that 7 trees (deciduous or evergreen) and 70 shrubs are required.

7. **Waste Receptacle.** The proposed waste receptacle has been reviewed for compliance with the standards of Section 12.04, as follows:

	Requirement	Proposed	Comments
Location	Rear yard or non-required side yard	Rear yard	Requirement met
Access	Clear access w/ out damaging buildings/vehicles	Sufficient maneuvering area for refuse removal vehicles	Requirement met
Base design	9' x 15' concrete pad	13' x 16' concrete pad	Requirement met
Enclosure	Must have lid 3-sided enclosure w/ gate Constructed of brick or decorative concrete; 6' height	Lid provided 3 sides w/ gate across 4th Treated rough sawn cedar 6' height	Requirement met Requirement met PC may allow Requirement met

8. **Exterior Lighting.** The site plan depicts 2 new light poles on either side of the proposed parking area. Details note the use of downward directed LED fixtures mounted at a height of 20 feet.

   The project also includes 2 LED landscape fixtures directed at the proposed sign south of the new parking area.

   Though a photometric plan is not included, based on the type, quantity, and location of proposed lighting, we do not foresee any issues in terms of compliance with the intensity standards of Section 12.03.

   With that being said, the Commission may require a photometric plan per Section 12.03.07.

9. **Signs.** The site plan identifies a new monument sign internal to the site (south of the proposed parking area). Details on Sheet A011 depict a masonry structure (brick and stone) with metal channel-cut lettering.

   The proposed sign height (3'-10") and area (31.8 SF) are well within that allowed by Table 16.01.

   If special land use and site plan approvals are granted, the applicant must obtain a sign permit from the Township prior to installation.

10. **Impact Assessment.** The submittal includes an Impact Assessment dated July 31, 2020.

    In summary, the Assessment states that the proposed project is not expected to have an adverse impact upon natural features, stormwater, surrounding land, public services/utilities, or traffic and pedestrians.

Should you have any questions concerning this matter, please do not hesitate to contact our office.

Respectfully,
SAFEBUILT STUDIO

Brian V. Borden, AICP
Planning Manager

TETRA TECH

September 10, 2020

Ms. Kelly Van Marter
Genoa Township
2911 Dorr Road
Brighton, MI 48116

Re: The Prophet Elijah Retreat Center
Site Plan Review No. 2

Dear Ms. Van Marter:

Tetra Tech has conducted a second review of the proposed The Prophet Elijah Retreat Center site plan last dated August 26, 2020. The plans and impact assessment were submitted by Vincent Jarbow on behalf of The Chaldean Catholic Church of the U.S.A. The site plan was prepared by Alpine Engineering, Inc. The site is on a 160-acre parcel located southeast of the Kellogg Road and McClements Road intersection. The petitioner is proposing a 29,000 square foot building addition attached to the existing church on the southwest quadrant of the property. The Petitioner is proposing parking lot, access drive, storm sewer, and septic system improvements.

After reviewing the site and impact assessment we offer the following:

GENERAL NOTES

1. The Petitioner will need approval from the Livingston County Health Department for the proposed well and septic updates. This should be obtained and provided to the Township for their records.

2. The proposed site and fire lane will need to be approved by the Brighton Area Fire Authority. This approval should be provided to the Township prior to site plan approval.

SITE PLAN

1. The Petitioner shows parking calculations on the plans. Currently the plans show seven new spaces, while the parking calculations show 74 spaces required for the proposed use. The Petitioner is proposing to share parking with church, which has 102 parking spaces currently. Due to the church and retreat center being used mostly by the same group of people we find this co use of parking to be reasonable.

2. The Genoa Township Zoning Ordinance requires that the parking lot be hard surface with concrete curb and gutter. However, an aggregate parking lot may be considered as a Low Impact Development alternative to the zoning requirements. The Petitioner should provide more information on the intended use of this parking lot. If the Petitioner is intending to use the lot during the winter and to clear snow, the parking lot should be paved with curb and gutter as the Zoning Ordinance describes. As the Petitioner is proposing a paved access drive through the existing gravel parking lot, the petitioner should at least consider paving the parking spaces adjacent to the drive.

Tetra Tech
401 South Washington Square, Suite 100, Lansing, MI 48933
Tel 517.316.3930 Fax 517.484.8140 www.tetratech.com

DRAINAGE AND GRADING

1. The tributary area shown on sheet 6 does not encompass all of the proposed site improvements, but it does collect some of the existing drive and church that was not previously captured by on site storm sewer. The development is proposed on a small portion of the entire site. The parcel contains ponds and basins that collect all the runoff from the developed portion of the property. Since the tributary area to the new basins is essentially the same size as the proposed impervious area addition we feel the proposed detention meets the intent of the stormwater management guidelines and is acceptable as presented.

We recommend the petitioner revise the site plan to address the above comments. Please call or email if you have any questions.

Sincerely,

Gary J. Markstrom, P.E.
Vice President

Shelby Scherdt
Project Engineer

BRIGHTON AREA FIRE AUTHORITY
615 W. Grand River Ave.
Brighton, MI 48116
o: 810-229-6640 f: 810-229-1619

August 31, 2020

Kelly VanMarter
Genoa Township
2911 Dorr Road
Brighton, MI 48116

RE: The Prophet Elijah Retreat Center
1391 Kellogg Rd.
Genoa Twp., MI

Dear Kelly:

The Brighton Area Fire Department has reviewed the above mentioned site plan. The plans were received for review on August 26, 2020 and the drawings are dated July 31, 2020 with latest revisions dated August 26, 2020. The project is based on a 159.6 acre camp known as Our Lady of the Fields Camp. The existing portion of the parcel includes an existing A-3 church. The plan calls for construction of a new single-story retreat center (B, A-3) and two-story dormitory (R-1). The overall square-footage of the project is proposed at 28,851 square feet. The plan review is based on the requirements of the International Fire Code (IFC) 2018 edition.

1. The additional fire hydrant has been added to the drawings in the requested location. The usage, operations and connection to the water supply will be coordinated with the fire suppression contractor, as well as BAFA to meet the fire protection goals.

2. The fire protection lead is indicated but without size. The lead shall be a 6" line similar to existing.

3. A written plan and description of the process to utilize the existing fire suppression tank and pump systems to supply fire protection to this structure will be provided including the location of all existing equipment related to the system. Provide details and cut sheets for all equipment.

4. The new building address will be located at the gated entrance to the site. It shall also be located on the building or on the new ground sign

5. The emergency access drive is compliant as provided on Civil Sheet 2 and Architectural Sheet A010. The modification to the arrangement, sizing, and signage was at the direction of BAFA.

Additional comments will be given during the building plan review process (specific to the building plans and occupancy). The applicant is reminded that the fire authority must review the fire protection systems submittals (sprinkler & alarm) prior to permit issuance by the Building Department and that the authority will also review the building plans for life safety requirements in conjunction with the Building Department. If you have any questions about the comments on this plan review please contact me at 810-229-6640.

Cordially,

Rick Boisvert, CFPS
Fire Marshal

cc:Amy Ruthig amy@genoa.org

SAROKI
ARCHITECTURE

July 31st, 2020
IMPACT ASSESSMENT

Re: The Prophet Elijah Retreat Center

a. **Name(s) and address(es) of person(s) responsible for preparation** of the impact assessment and a brief statement of their qualifications.

Eavan Yaldo (Project Architect)
Saroki Architecture
430 N. Old Woodward Avenue, Suite 300
Birmingham, MI 48009
I am a Senior Associate and Project Architect at Saroki Architecture.

b. **Map(s) and written description/analysis of the project site** including all existing structures, manmade facilities, and natural features. The analysis shall also included information for areas within 10 feet of the property. An aerial photograph or drawing may be used to delineate these areas.

The project site (Our Lady of the Fields Camp) is an existing campground comprised of approximately 160 acres of wooded area, clearings, and buildings, with approximately 1/3 of the area occupied by Euler Lake in the center of the site, splitting it into north and south regions. The north side of the camp mainly contains cabins and a dining hall, along with some outdoor amenities. The south side of the camp contains a couple of residential buildings (including the property manager's residence), the church built in 2011, and some outdoor amenities, including a small outdoor chapel. The site is bordered by roads to the north, east, and west, and properties zoned CE (Country Estates District) to the south. Please refer to the Civil drawings, sheets 1-7 for additional information.

c. **Impact on natural features:** A written description of the environmental characteristics of the site prior to development and following development, i.e., topography, soils, wildlife, woodlands, mature trees (eight-inch caliper or greater), wetlands, drainage, lakes, streams, creeks or ponds. Documentation by a qualified wetland specialist shall be required wherever the Township determines that there is a potential regulated wetland. Reduced copies of the Existing Conditions Map(s) or aerial photographs may accompany written material.

Most of the site is covered by natural features: woods, lake, and natural variations in topography. A detention basin has been proposed for storm water. There is an existing wetland northwest of the lake and southeast of the lake, which is approximately 500 feet away from the proposed building (see Civil sheet 4). We do not anticipate any impact to the wetlands. Should further information be required, we will comply.
Please refer to the Civil drawings, sheets 1-7 for information. A geotechnical report has also been included with this application.

430 N. OLD WOODWARD, BIRMINGHAM, MI 48009
P 248 258 5707 F 248 258 5515
SarokiArchitecture.com

d. **Impact on stormwater management:** Description of measures to control soil erosion and sedimentation during grading and construction operations and until a permanent ground cover is established. Recommendations for such measures may be obtained from the Livingston County Drain Commission at (517) 546-0040.

To control soil erosion and sedimentation, the "Grading and Soil Erosion & Sedimentation Control Plan" shows silt fence surrounding the anticipated disturbance area. Also, inlet filters are shown for the catch basins. Notes describing the soil erosion sequence of construction, maintenance requirements, and general soil erosion control notes will be provided on the plan set when the final engineering plan set is prepared.

e. **Impact on surrounding land used:** Description of the types of proposed uses and other man-made facilities, including any project phasing, and an indication of how the proposed use conforms or conflicts with existing and potential development patterns. A description shall be provided of any increases of light, noise or air pollution which could negatively impact adjacent properties.

The proposed Retreat Center and all existing camp buildings/amenities are well screened by mature vegetation and remote from other properties, thus having little to no impact. The site is currently underutilized, and even with the proposed Retreat Center, is not expected to be fully occupied. Any illumination from the proposed development would not likely be visible beyond the site.

f. **Impact on public facilities and services:** Describe the number of expected residents, employees, visitors, or patrons, and the anticipated impact on public schools, police protection and fire protection. Letters from the appropriate agencies may be provided, as appropriate.

Most days, the only people in the facility will be a few office administrators and maintenance personnel. When retreats occur (mostly weekends) there may be additional staff for housekeeping and food preparation. At maximum capacity, the Retreat Center can sleep 80. This is a rare and unlikely circumstance based on current projections from the owner, but the building was planned for potential growth in projections. Many of the public facilities/services are not applicable to this use, and likely only police & fire protection would be applicable.

g. **Impact on public utilities**: Describe the method to be used to service the development with water and sanitary sewer facilities, the method to be used to control drainage on the site and from the site, including runoff control during periods of construction. For sites serviced with sanitary sewer, calculations for pre- and post-development flows shall be provided in comparison with sewer line capacity. Expected sewage rates shall be provided in equivalents to a single-family home. Where septic systems are proposed, documentation or permits from the Livingston County Health Department shall be provided.

430 N. OLD WOODWARD, BIRMINGHAM, MI 48009
P 248 258 5707 F 248 258 5515
SarokiArchitecture.com

The site is proposed to be serviced with well and septic. To accommodate storm detention, bioswales and an infiltration basin have been sized to meet requirements of the Livingston County Drain Commissioner's Office. During construction, runoff will be controlled by the temporary soil erosion and sedimentation control methods described above under letter "d".
Septic systems will be submitted to the Livingston County Health Department for review and approval.

h. **Storage and handling of any hazardous materials:** A description of any hazardous substances expected to be used, stored or disposed of on the site. The information shall describe the type of materials, location within the site and method of containment. Documentation of compliance with federal and state requirements, and a Pollution Incident Prevention Plan (PIPP) shall be submitted, as appropriate.

No hazardous materials are expected to be used/stored outside of typical household cleaners, detergents, etc. in small amounts in relation to typical use in cleaning/disinfecting. These items would be stored in the laundry and storage rooms.

i. **Impact on Traffic and Pedestrians:** A description of the traffic volumes to be generated based on national reference documents, such as the most recent edition of the *Institute of Transportation Engineers Trip Generation Manual,* other published studies or actual counts of similar uses in Michigan. A detailed traffic impact study shall be submitted for any site over ten (10) acres in size which would be expected to generate 100 directional vehicle trips (i.e. 100 inbound or 100 outbound trips) during the peak hour of traffic of the generator or on the adjacent streets. The contents of the detailed study shall include:

- □ Description of existing daily and peak hour traffic on adjacent street(s) and a description of any sight distance limitations along the right-of-way frontage of the site.
- □ Forecasted trip generation of the proposed use for the a.m. and p.m. peak hour and average daily traffic generated.
- □ For any project with a completion date beyond one year at the time of site plan approval, the analysis shall also include a scenario analyzing forecasted traffic at date of completion along the adjacent street network using a forecast based either on historic annual percentage increases and/or on expected development in the area.
- □ Projected traffic generated shall be distributed (inbound v. outbound, left turn v. right turn) onto the existing street network to project turning movements at site driveways and nearby intersections. Rationale for the distribution shall be provided.
- □ Capacity analysis at the proposed driveway(s) using the procedures outlined in the most recent edition of the *Highway Capacity Manual* published by the Transportation Research Board. Capacity analyses shall be provided for all

street intersections where the excepted traffic will comprise at least five percent (5%) of the existing intersection capacity.

□ Accident data for the previous three (3) years for roadway sections and intersections experiencing congestion or a relatively high accident rate, as determined by the township or staff from the Livingston County Road Commission or Michigan Department of Transportation.

□ Analysis of any mitigation measures warranted by the anticipated traffic impacts. Where appropriate, documentation shall be provided from the appropriate road agency regarding time schedule for improvements and method of funding.

□ A map illustrating the location and design of proposed access, including any sight distance limitations, dimensions from adjacent driveways and intersections within 250 feet of the edge of the property frontage, and other data to demonstrate that the driveway(s) will provide safe and efficient traffic operation and be in accordance with Article 15.

This item is not applicable, as there will not be measurable impact on traffic and pedestrians. The Retreat Center is not expected to generate anywhere near the number of trips listed above or to impact existing traffic volume. For many retreats, people typically carpool, or busses bring people to the center, thus reducing the number of vehicles inbound and outbound.

j. **Special Provisions:** General description of any deed restrictions, protective covenants, master deed or association bylaws.

No special provisions are known to exist at this time.

k. **A list of all sources shall be provided.**

The following resources were used in documenting this Impact Assessment:

- *Architectural drawings prepared by Saroki Architecture*
- *Civil Engineering drawings prepared by Alpine Engineering*
- *Geotechnical Investigation prepared by G2 Consulting Group*

430 N. OLD WOODWARD, BIRMINGHAM, MI 48009
P 248 258 5707 F 248 258 5515
SarokiArchitecture.com

CONSULTING GROUP

Report of Geotechnical Investigation

The Prophet Elijah Retreat Center 1391 Kellogg Road Brighton, Michigan 48114

Latitude 42.580866° N
Longitude 83.817614° W

Prepared for:

The Prophet Elijah
1391 Kellogg Road
Brighton, Michigan 48114

G2 Project No. 200193
April 20, 2020

g2consultinggroup.com

Headquarters	1866 Woodslee St	Troy, MI 48083	P 248.680.0400	F 248.680.9745
Ann Arbor	1350 Eisenhower Pl	Ann Arbor, MI 48108	P 734.390.9330	F 734.390.9331
Chicagoland	1186 Heather Dr	Lake Zurich, IL 60047	P 847.353.8740	F 847.353.8742

CONSULTING GROUP

April 20, 2020

Mr. Vincent Jarbow
The Prophet Elijah
1391 Kellogg Road
Brighton, Michigan 48114

Re: Report of Geotechnical Investigation
The Prophet Elijah Retreat Center
1391 Kellogg Road
Brighton, Michigan 48114
G2 Project No. 200193

Dear Mr. Jarbow:

We have completed the geotechnical investigation for the proposed addition to be constructed at The Prophet Elijah Retreat Center in Brighton, Michigan. This report presents the results of our observations and analyses and our recommendations for earthwork operations, foundation design, and construction considerations as they relate to the geotechnical conditions on site.

As always, we appreciate the opportunity to be of service to The Prophet Elijah and look forward to discussing the recommendations presented. In the meantime, if you have any questions regarding our report or any other matter pertaining to the project, please contact us.

Sincerely,

G2 Consulting Group, LLC

Amy L. Schneider, P.E.
Project Manager

Noel J Hargrave-Thomas, P.E.
Principal

ALS/NJHT/ljv

Enclosures

EXECUTIVE SUMMARY

The project includes construction of an L-shaped additional south of the existing camp building. The north side of the structure will be single-story while the south portion will be two-stories with the entire building being of slab-on-grade construction. An enclosed corridor will connect the existing building to the new addition. The area of the addition is currently grass covered with scattered mature trees.

Approximately 1 to 5 inches of topsoil are present at the soil boring locations. Fill soils, consisting of medium sandy clay and loose silty sand and clayey sand with approximately 4-1/2 percent organic matter, underlie the topsoil at borings B-7 and B-8 and extend to approximate depths of 4-1/2 and 3-1/2 feet, respectively. Native very loose to loose clayey sand and silty sand are present below the topsoil at boring B-3 and fill at boring B-7 and extend to approximate depths of 6 and 6-1/2 feet respectively. Native stiff to very stiff sandy clay and silty clay generally underlie the topsoil at borings B-1, B-2, and B-4 through B-6, the native clayey sand and silty sand, and fill and extend to approximate depths ranging from 12 to 18-1/2 feet at borings B-1 and B-3 through B-6 and the explored depths of 15 and 20 feet at borings B-2, B-7, and B-8. However, a layer of medium sandy clay is present at boring B-4 from an approximate depth of 3 to 8 feet. Loose to medium compact granular soils, consisting of sand, silty sand, clayey sand, gravelly sand, and sandy gravel, underlie the cohesive soils and extend to the explored depths of 15 and 20 feet. Groundwater was encountered at approximate depths ranging from 3 to 17 feet during drilling operations at borings B-1 and B-3 through B-6, corresponding to elevations ranging from 983-1/2 to 969 feet. No measurable groundwater was observed during or upon completion of drilling operations at borings B-2, B-7, and B-8.

Up to 10 feet of engineered fill will be required to achieve finished grades within the proposed addition footprint. The native medium to stiff cohesive soil will experience consolidation under the load of the additional overburden pressure associated with the significant engineered fill. Therefore, we recommend the fill be placed as early as possible prior to construction of the building foundations to minimize the potential for settlement. Additionally, settlement plates should be installed and monitored for an extended period of time to assure all primary consolidation of the cohesive soil under the engineered fill load occurs prior to site development.

Based upon the existing subsurface conditions and anticipated loading conditions, we recommend the proposed addition be supported on conventional strip and spread footings extending through any existing fill and bearing on the underlying native loose clayey sand, stiff silty clay, and engineered fill overlying native soils. Foundations bearing on the native soils and engineered fill can be designed for a net allowable soil bearing capacity of 2,000 pounds per square foot (psf). To extend through the fill in the vicinity of borings B-7 and B-8, foundations will need to extend to depths of 4-1/2 to 6 feet below finished grade. Exterior foundations should bear at a minimum depth of 3-1/2 feet below finished grade for protection against frost heave. Interior foundations can bear at shallower depths provided suitable native bearing soils are present and foundations are protected from frost penetration during construction operations. A G2 Consulting Group, LLC (G2) geotechnical engineer or technician should be on site during construction to observe the excavations, measure the bearing depths, and verify the adequacy of the bearing soils. Foundations installed immediately adjacent to the existing building must bear at the same depth as the existing foundations. Under no circumstances shall excavations extend below adjacent foundations without proper underpinning.

Provided the potential for floor slab settlement can be tolerated, the existing fill soils present in the vicinity of borings B-7 and B-8 may be left in place for support of floor slabs and engineered fill to raise site grades following satisfactory completion of the proofroll / proof compaction operations as described within the SITE PREPARATION section of this report. If the potential for floor slab settlement cannot be tolerated, the existing fill must be completely removed to the underlying native soils and replaced with engineered fill for support of the building floor slab.

This summary is not to be considered separate from the entire text of this report with all the conclusions and qualifications mentioned herein. Details of our analysis and recommendations are discussed in the following sections and in the Appendix of this report.

PROJECT DESCRIPTION

The project includes construction of an L-shaped additional south of the existing camp building. The north side of the structure will be single-story while the south portion will be two-stories with the entire building being of slab-on-grade construction. An enclosed corridor will connect the existing building to the new addition. The area of the addition is currently grass covered with scattered mature trees.

The existing grades within the building footprint slope downward to the south, ranging from approximately 992 feet adjacent to the existing building to 980 feet at the southeast side of the proposed addition. The proposed finished floor at the building location had not be determined; however, based on preliminary information from Saroki Architecture and finished floor of the existing adjacent structure, the proposed finished floor is anticipated to be around 991 feet. Based on these grades, up to 10 feet of engineered fill will be required to achieve proposed finished grades in the addition footprint.

Actual loads for the buildings were not available at the time of this investigation. We anticipate building loads for the single story portion of the building will be light with strip footing loads ranging from 1 to 3 kips per foot and column loads ranging from 50 to 75 kips and the two-story portion of the building will be moderate with strip footing loads ranging from 2 to 4 kips per foot and column loads ranging from 100 to 150 kips. When final loading conditions and proposed finished floor have been established, G2 should be notified so that we may review our recommendations presented herein.

SCOPE OF SERVICES

The field operations, laboratory testing, and engineering report preparation were performed under the direction and supervision of a licensed professional engineer. Our services were performed according to generally accepted standards and procedures in the practice of geotechnical engineering. Our scope of services for this project is as follows:

1. We drilled eight soil borings within the footprint of the proposed building addition. Borings B-1 and B-5 each extended to a depth of 20 feet below existing grade. Borings B-6 through B-8 each extended to a depth of 15 feet each below existing grade.

2. We performed laboratory testing on representative samples obtained from the soil borings. Laboratory testing included visual engineering classification, natural moisture content, dry density, organic matter content (loss-on-ignition), and unconfined compressive strength determinations.

3. We prepared this engineering report. The report includes recommendations regarding foundation types suitable for the soil conditions encountered, allowable bearing capacities of the anticipated bearing soil layers, estimated settlement, and construction considerations related to site preparation and foundation construction.

FIELD OPERATIONS

Saroki Architects, in conjunction with G2, selected the number, depth, and location of the soil borings. The soil boring locations were determined in the field measuring from known surface features using conventional taping methods by a G2 engineer. The approximate soil boring locations are shown on the Soil Boring Location Plan, Plate No. 1 in the Appendix. Ground surface elevations at the boring locations were interpolated from the topographic lines presented on the Partial Topographic Survey prepared by Alpine Engineering, Inc., Sheet No. 1, dated January 22, 2020.

The soil borings were drilled using a truck mounted rotary drilling rig. Continuous flight, 2-1/4-inch inside diameter hollow-stem augers were used to advance the boreholes to the explored depths. Soil samples were obtained at intervals of 2-1/2 feet within the upper 10 feet and at intervals of 5 feet thereafter. These samples were obtained by the Standard Penetration Test method (ASTM D 1586),

which involves driving a 2-inch diameter split-spoon sampler into the soil with a 140-pound weight falling 30 inches. The sampler is generally driven three successive 6-inch increments with the number of blows for each increment recorded. The number of blows required to advance the sampler the last 12 inches is termed the Standard Penetration Resistance (N). Blow counts for each 6-inch increment and the resulting N-values are presented on the individual soil boring logs.

Soil samples were placed in sealed containers in the field and brought to our laboratory for testing and classification. During field operations, the drilling crew maintained logs of the encountered subsurface conditions, including changes in stratigraphy and observed groundwater levels. The final boring logs are based on the field logs supplemented by laboratory soil classification and test results. After completion of drilling operations, the boreholes were backfilled with auger cuttings.

LABORATORY TESTING

Representative soil samples were subjected to laboratory testing to determine soil parameters pertinent to foundation design and site preparation. An experienced geotechnical engineer classified the samples in general conformance with the Unified Soil Classification System.

Laboratory testing included natural moisture content, organic matter content, dry density, and unconfined compressive strength determinations. The organic matter content of representative samples was determined in accordance with ASTM Test Method D 2974, "Standard Test Methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils". The unconfined compressive strengths were determined by ASTM Test Method D 2166 and using a spring loaded hand penetrometer. Per ASTM Test Method D 2166, the unconfined compressive strength of cohesive soils is determined by axially loading a small cylindrical soil sample under a slow rate of strain. The unconfined compressive strength is defined as the maximum stress applied to the soil sample before shear failure. If shear failure does not occur prior to a total strain of fifteen percent, the unconfined compressive strength is defined as the stress at a strain of fifteen percent. The hand penetrometer estimates the unconfined compressive strength to a maximum of 4-1/2 tons per square foot (tsf) by measuring the resistance of the soil sample to the penetration of a calibrated spring loaded cylinder.

The results of the moisture content, dry density, organic matter content, and unconfined compressive strength laboratory tests are indicated on the soil boring logs at the depths the samples were obtained. Additionally, the unconfined compressive strengths determined in accordance with ASTM Test Method D 2166 are graphically presented on Figure Nos. 9 and 10 in the Appendix. We will hold the soil samples for 60 days from the date of this report. If you would like the samples, please let us know.

SITE CONDITIONS

The Prophet Elijah Retreat Center is located at 1391 Kellogg Road in Brighton, Michigan. Three existing buildings are currently located on the property, including St. George's Shrine at the center. The proposed addition will be constructed on the south side of St. George's Shrine.

Based on historical aerial photographs from Google Earth, the church was constructed in 2011. A paver driveway is present west and south of the church. To allow for construction of the church and surrounding drives, trees were demolished and earthwork was performed.

The proposed addition area is currently covered with clusters of mature trees and brush surrounded by manicured grass. The southern building is a small church structure which will be demolished to allow for construction of the addition. A concrete path extends from the access drive to the small church building. A large lake is present east of the buildings.

The proposed addition footprint slopes downward to the south and southeast with elevations ranging from approximately 992 feet adjacent to the south side of the existing church, to 987 feet near the small church structure, to 982 feet at the southeast corner of the addition.

SOIL CONDITIONS

Approximately 1 to 5 inches of topsoil are present at the soil boring locations. Fill soils, consisting of sandy clay, silty sand, and clayey sand, underlie the topsoil at borings B-7 and B-8 and extend to approximate depths of 4-1/2 and 3-1/2 feet, respectively. Native clayey sand and silty sand are present below the topsoil at boring B-3 and fill at boring B-7 and extend to approximate depths of 6 and 6-1/2 feet respectively. Native sandy clay and silty clay generally underlie the topsoil at borings B-1, B-2, and B-4 through B-6, the native clayey sand and silty sand at borings B-3 and B-7, and fill at boring B-8 and extend to approximate depths ranging from 12 to 18-1/2 feet at borings B-1 and B-3 through B-6 and the explored depths of 15 and 20 feet at borings B-2, B-7, and B-8. Granular soils, consisting of sand, silty sand, clayey sand, gravelly sand, and sandy gravel, underlie the cohesive soils and extend to the explored depths of 15 and 20 feet.

The granular fill soils are loose in compactness with Standard Penetration Test N-values of 6 and 7 blows per foot. The silty sand fill at boring B-7 has an organic content of 4.6 percent. The native clayey sand and silty sand present below the topsoil at boring B-3 and fill at boring B-7 are very loose to loose in compactness with N-values of 4 and 7 blows per foot. The native silty clay and sandy clay are generally stiff to very stiff in consistency with natural moisture contents ranging from 9 to 22 percent, dry densities ranging from 118 to 128 pounds per cubic foot (pcf), and unconfined compressive strengths of 2,000 to 6,500 psf. However, at boring B-4, medium sandy clay extends from an approximate depth of 3 to 8 feet with natural moisture contents of 13 and 19 percent, a dry density of 123 pcf, and unconfined compressive strengths of 1,490 and 1,610 psf. The lower granular soils are loose to medium compact with N-values ranging from 7 to 26 blows per foot.

The stratification depths shown on the soil boring logs represent the soil conditions at the boring locations. Variations may occur between borings. Additionally, the stratigraphic lines represent the approximate boundaries between soil types. The transition may be more gradual than what is shown. We have prepared the boring logs on the basis of laboratory classification and testing, as well as field logs of the soils encountered.

The Soil Boring Location Plan, Plate No. 1, Soil Boring Logs, Figure Nos. 1 through 8, and Unconfined Compressive Strength Test, Figure Nos. 9 and 10, are presented in the Appendix. The soil profiles described above are generalized descriptions of the conditions encountered at the boring locations. General Notes Terminology defining the nomenclature used on the boring logs and elsewhere in this report are presented on Figure No. 11.

GROUNDWATER CONDITIONS

Groundwater observations were performed during and upon completion of drilling operations. In general, groundwater was encountered during drilling operations at approximate depths ranging from 3 to 17 feet, corresponding to elevations ranging from 983-1/2 to 969 feet, at borings B-1 and B-3 through B-6. No measurable groundwater was observed during or upon completion of drilling operations at the remaining boring locations. Upon completion of drilling and following removal of the augers, caves of the boreholes were measured at approximate depths ranging from 10 to 15 feet below existing grade.

Fluctuations in perched and long term groundwater levels should be anticipated due to seasonal variations and following periods of prolonged precipitation. It should also be noted that groundwater observations made during drilling operations in predominantly cohesive soils are not necessarily indicative of the static groundwater level. This is due to the low permeability of such soils and the tendency of drilling operations to seal off the natural paths of groundwater flow.

SITE PREPARATION

We anticipate earthwork operations will consist of stripping the site of topsoil, vegetation, trees, and any existing utilities within the proposed addition footprint, demolition of the existing paver drive on the south side of the existing structure, demolition of the small church building at the southwest side of the proposed addition and associated concrete sidewalk, proof rolling the exposed subgrade, preparing subgrade for support of engineered fill and floor slabs, raising the site to proposed finished grades, and excavating for building foundations. We recommend all earthwork operations be performed in accordance with comprehensive specifications and be properly monitored in the field by qualified personnel under the direction of a licensed engineer.

At the start of earthwork operations, any topsoil, vegetation, trees and associated root structures, and pavement must be completely removed in their entirety from within the footprint of the proposed addition. The existing structure and any associated foundations within the building addition footprint and a minimum of 15 feet beyond must be completely removed and resulting excavations backfilled with engineered fill. Any existing utility lines that will be abandoned and lie outside the proposed building addition footprint should either be completely removed or backfilled with cement grout. Abandoned utilities in the footprint of the proposed building addition must be completely removed and excavations backfilled with engineered fill.

Up to 10 feet of engineered fill will be required to achieve proposed finished grades based on the preliminary finished floor elevation. Fences through the building footprint depicting the estimated finished floor elevation, existing ground surface elevations, and extent of fill required to achieve finished grades are presented in the Appendix, Plate Nos. 2 and 3.

The native medium to stiff sandy clay will experience consolidation under the load of the additional overburden pressure associated with the significant amount of engineered fill. Therefore, we recommend the fill be placed as early as possible prior to construction of the building foundations to minimize the potential for settlement. Additionally, settlement plates should be installed and monitored by G2 for an extended period of time to assure all primary consolidation due to the engineered fill placement over the lower medium cohesive soil occurs prior to site development. Depending on the type of fill placed, primary consolidation may occur within a few months after placement and should be monitored. It should be anticipated consolidation will occur at different rates across the site due to the variability of the amount of required fill to raise grades. Therefore, multiple settlement plates across the area should be used to evaluate site settlement. The first layer of granular soil must outlet to allow excess pore water pressure from the lower cohesive soils to drain as consolidation occurs.

Prior to placement of engineered fill, the exposed cohesive subgrade should be thoroughly proof rolled with a fully loaded dump truck and monitored by qualified personnel. Where granular soils are present, the exposed subgrade should be proof compacted with a smooth drum vibratory roller and visually inspected for any unstable areas. Any unstable or unsuitable areas noted should be improved by additional compaction or removed and replaced with specified engineered fill. Any soils that are disturbed during grading operations should be removed and replaced with engineered fill. Proof rolling should be completed within 2 days prior to placement of any fill material. If the exposed subgrade is left open for extended periods of time or if the subgrade is exposed to precipitation events, proof rolling should be repeated. We recommend construction operations be performed in dry, warm weather to minimize exposure of the cohesive soils to moisture. In addition, the cohesive soils should not be exposed to prolonged periods of precipitation to prevent the subgrade from becoming unstable.

We recommend construction operations be performed during the summer months to ensure dry, warm weather to limit subgrade instability. In consideration of the significant amount of fill and varying depths, we recommend granular engineered fill be utilized to raise side grades within the building footprint and a minimum of 10 feet beyond. Engineered fill should be free of organic matter, frozen soil, clods, or other harmful material.

Frozen material should not be used as fill, nor should fill be placed on a frozen subgrade. Engineered fill should be placed in uniform horizontal layers, not more than 9 inches in loose thickness. The engineered fill should be compacted to achieve a density of at least 95 percent of the maximum dry density as determined by the Modified Proctor compaction test (ASTM D 1557). Any granular engineered fill material should be placed and compacted at moisture contents within 2 percent above or below the optimum moisture content. Any cohesive engineered fill material should be placed and compacted at moisture contents within 3 percent above and 1 percent below the moisture content.

We recommend using an imported granular engineered fill within confined areas such as adjacent to foundation walls. Granular engineered fill is generally more easily compacted than cohesive soils within these confined areas. Additionally, the proper placement and compaction of backfill within these areas is imperative to provide adequate support for overlying floor slabs.

FOUNDATION RECOMMENDATIONS

Following completion of earthwork and site settlement monitoring as described in the SITE PREPARATION section of this report, we recommend the proposed addition be supported on conventional strip and spread footings extending through any existing fill and bearing on the underlying native loose clayey sand, stiff silty clay, and engineered fill overlying native soils. Foundations bearing on the native soils and engineered fill can be designed for a net allowable soil bearing capacity of 2,000 psf. To extend through the fill in the vicinity of borings B-7 and B-8, foundations will need to extend to depths of 4-1/2 to 6 feet below finished grade.

Exterior foundations should bear at a minimum depth of 3-1/2 feet below finished grade for protection against frost heave. Interior foundations can bear at shallower depths provided suitable native bearing soils are present and foundations are protected from frost penetration during construction operations. A G2 geotechnical engineer or technician should be on site during construction to observe the excavations, measure the bearing depths, and verify the adequacy of the bearing soils.

Foundations installed immediately adjacent to the existing building must bear at the same depth as the existing foundations. Under no circumstances shall excavations extend below adjacent foundations without proper underpinning. No as-built information regarding foundations for the existing structure was available for review at the time of this investigation. Therefore, prior to excavation operations adjacent to the existing structure, we recommend the depth of the existing foundations be determined to avoid potentially undermining the existing foundations during construction operations.

Continuous wall or strip footings should be at least 16 inches in width and isolated spread footings should be at least 30 inches in their least dimension. Adjacent spread footings at different levels should be designed and constructed so the least lateral distance between them is equivalent to or more than the difference in their bearing levels. To achieve a change in the level of a strip foundation, the foundation should be gradually stepped at a grade no steeper than two units horizontal to one unit vertical.

If the recommendations outlined in this report are adhered to, total and differential settlements for the completed structure should be within 1 inch and 1/2 inch, respectively. We expect settlements of these magnitudes are within tolerable limits for the type of structure proposed. The proposed building addition should be structurally separated from the existing structure to allow for independent movement.

FLOOR SLAB RECOMMENDATIONS

Provided the potential for floor slab settlement can be tolerated, the existing fill soils present in the vicinity of borings B-7 and B-8 may be left in place for support of floor slabs and engineered fill to raise site grades following satisfactory completion of the proofroll / proof compaction operations as described within the SITE PREPARATION section of this report. A subgrade modulus (k) of up to 90

pound per cubic inch (pci) may be used in the design of floor slabs supported on the existing fill soils within the north portion of the addition. If the potential for floor slab settlement cannot be tolerated, the existing fill must be completely removed to the underlying native soils and replaced with engineered fill for support of the building floor slab.

Within the remaining footprint of the building where native soils are present at the soil boring locations for support of engineered fill to raise site grades and if the existing fill is removed and replaced within the north portion of the building, a subgrade modulus (k) of up to 150 pci may be used in the design of floor slabs supported on the engineered fill overlying native soils. Regardless of whether the floor slab is supported on the existing fill or engineered fill overlying native soils, floor slabs should be structurally separated from the building addition to allow for independent movement.

We recommend at least 4 inches of clean coarse sand or pea gravel be placed between the subgrade and the bottom of the floor slab for use as a capillary break. If greater protection against vapor transmission is desired, a vapor barrier consisting of 10-mil plastic sheeting, or equivalent, may be placed on top of the granular subbase directly below the floor slab.

CONSTRUCTION CONSIDERATIONS

We do not anticipate groundwater accumulations will occur in the foundation excavations at the anticipated depths. We expect any surface run-off accumulations will be controllable with normal pumping from properly constructed sumps.

Caving and sloughing of the granular fill soils, native granular soils, and granular engineered fill may occur during foundation excavation operations. Therefore, the contractor should be prepared to over excavate and form foundations, as necessary. The sides of spread and/or strip footings should be constructed straight and vertical to reduce the risk of frozen soil adhering to the concrete and raising the foundations. All excavations should be backfilled with engineered fill when supporting overlying floor slabs.

If any excavations extend below a depth of 5 feet and are to be entered by a human, we recommend a maximum slope of two horizontal units to one vertical unit (2H:1V) within the granular soils. All excavations should be safely sheeted, shored, sloped, or braced in accordance with MI-OSHA requirements. If material is stored or equipment is operated near an excavation, stronger shoring must be used to resist the extra pressure due to the superimposed loads.

Care should always be exercised when excavating near existing utilities, pavements, and foundations to avoid undermining. In no case should excavations extend below the level of adjacent utilities, pavements, or structures unless underpinning is planned.

GENERAL COMMENTS

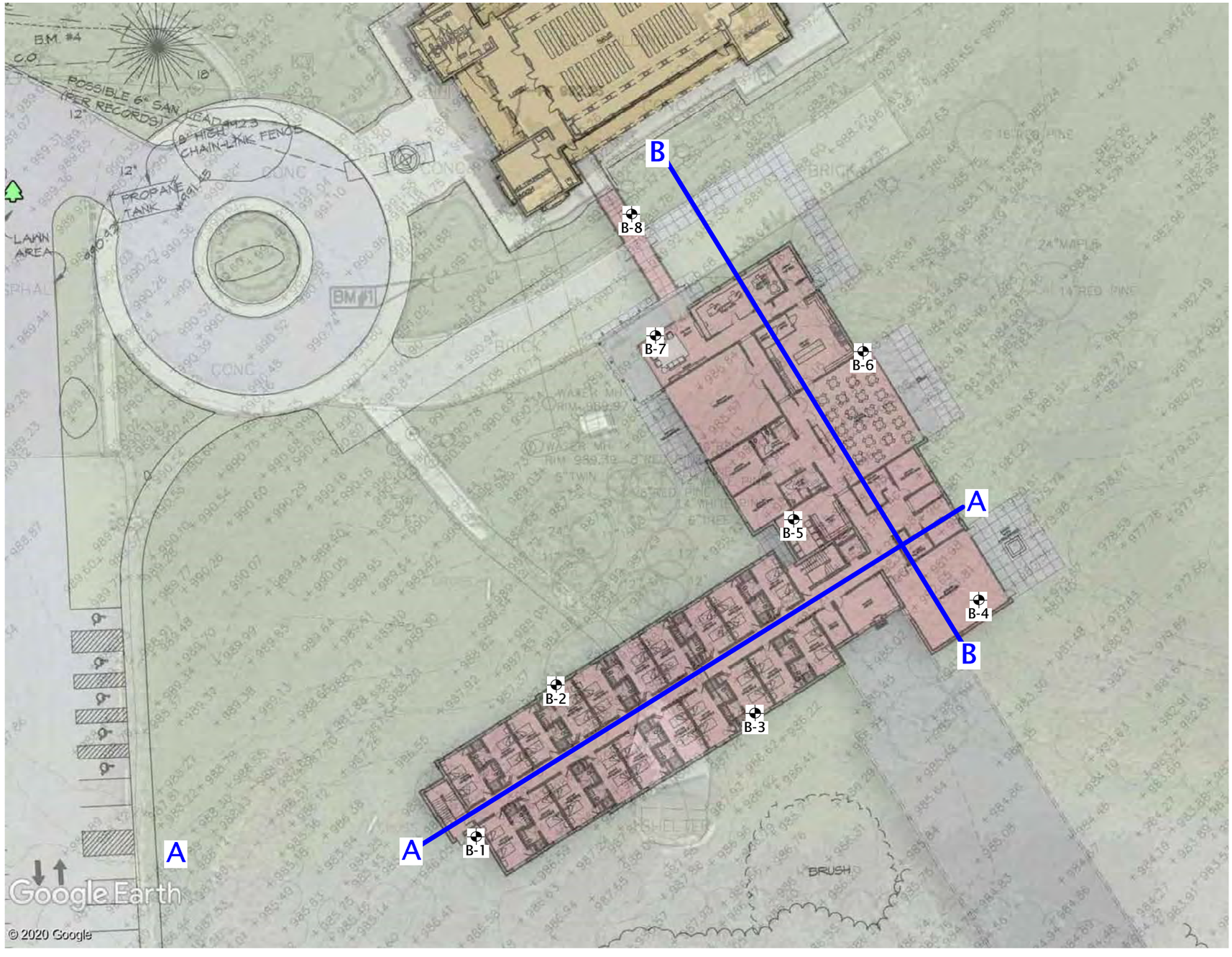
We have formulated the evaluations and recommendations presented in this report relative to site preparation and foundations on the basis of data provided to us relating to the project location, type of structures, and surface grade for the proposed site. Any significant change in this data should be brought to our attention for review and evaluation with respect to prevailing subsurface conditions. Furthermore, if changes occur in the design, location, or concept of the project, conclusions and recommendations contained in this report are not valid unless G2 Consulting Group, LLC reviews the changes. G2 Consulting Group, LLC will then confirm the recommendations presented herein or make changes in writing.

The scope of the present investigation was limited to evaluation of subsurface conditions for the support of proposed addition and other related aspects of the development. No chemical, environmental, or hydrogeological testing or analyses were included in the scope of this investigation.

We base the analyses and recommendations submitted in this report upon the data from the soil borings performed at the approximate locations shown on the Soil Boring Location Plan, Plate No. 1. This report does not reflect variations that may occur between the actual boring locations and the actual structure locations. The nature and extent of any such variations may not become clear until the time of construction. If significant variations then become evident, it may be necessary for us to re-evaluate our report recommendations.

We recommend G2 Consulting Group, LLC observe all geotechnical related work, including foundation construction, subgrade preparation, and engineered fill placement. G2 Consulting Group, LLC will perform the appropriate testing to confirm the geotechnical conditions given in the report are found during construction.

APPENDIX



N

LEGEND

Soil Borings Drilled by Triple R Drilling on April 1 and 10, 2020

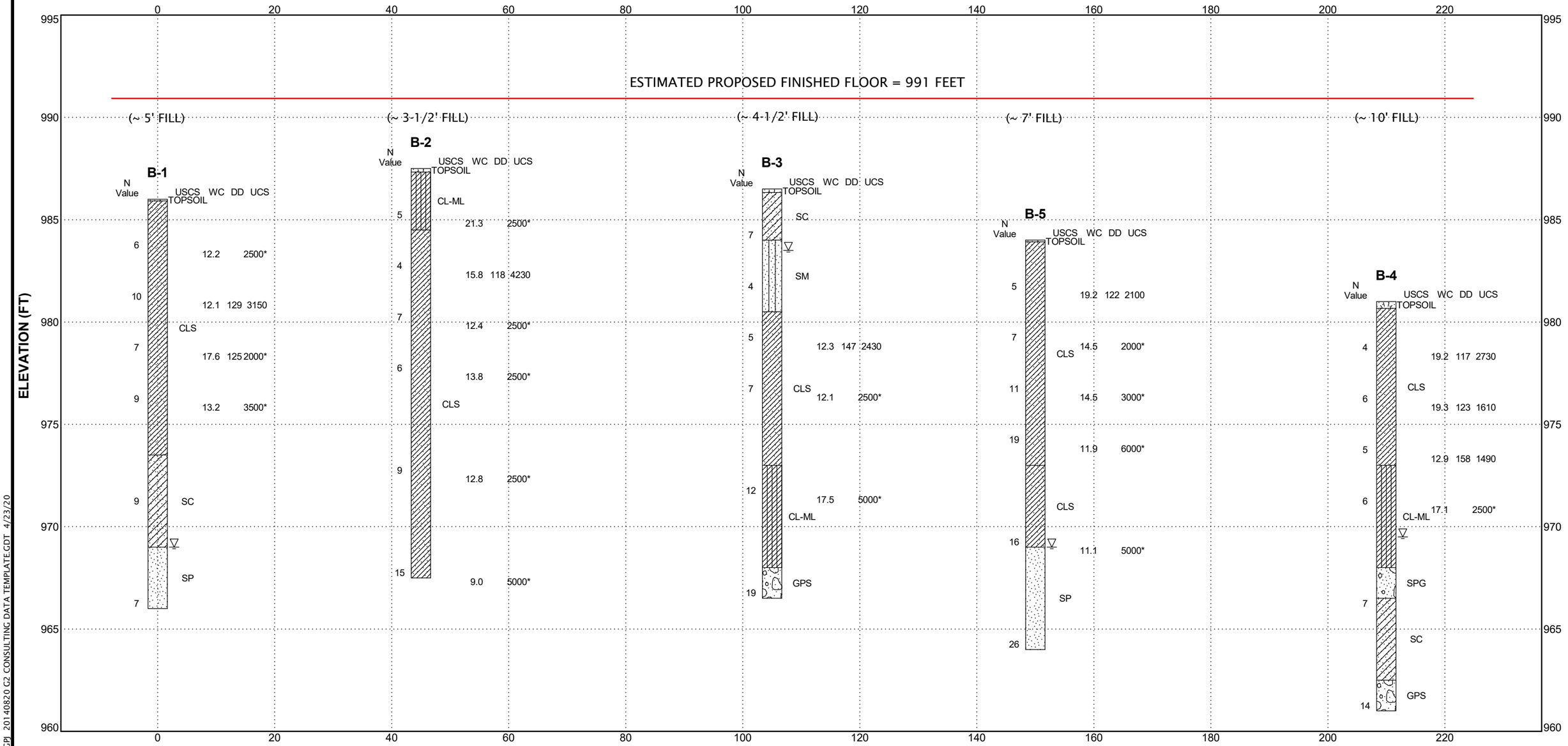
A Soil Boring Fence

Soil Boring Location Plan

The Phophet Elijah Retreat Center
1391 Kellogg Road
Brighton, Michigan 48114

2G CONSULTING GROUP

Project No. 200193	
Drawn by: ALS	
Date: 4/17/20	Plate No. 1
Scale: NTS	



Legend

- Encountered Groundwater Level
- Groundwater Level at Completion

CONSULTING GROUP

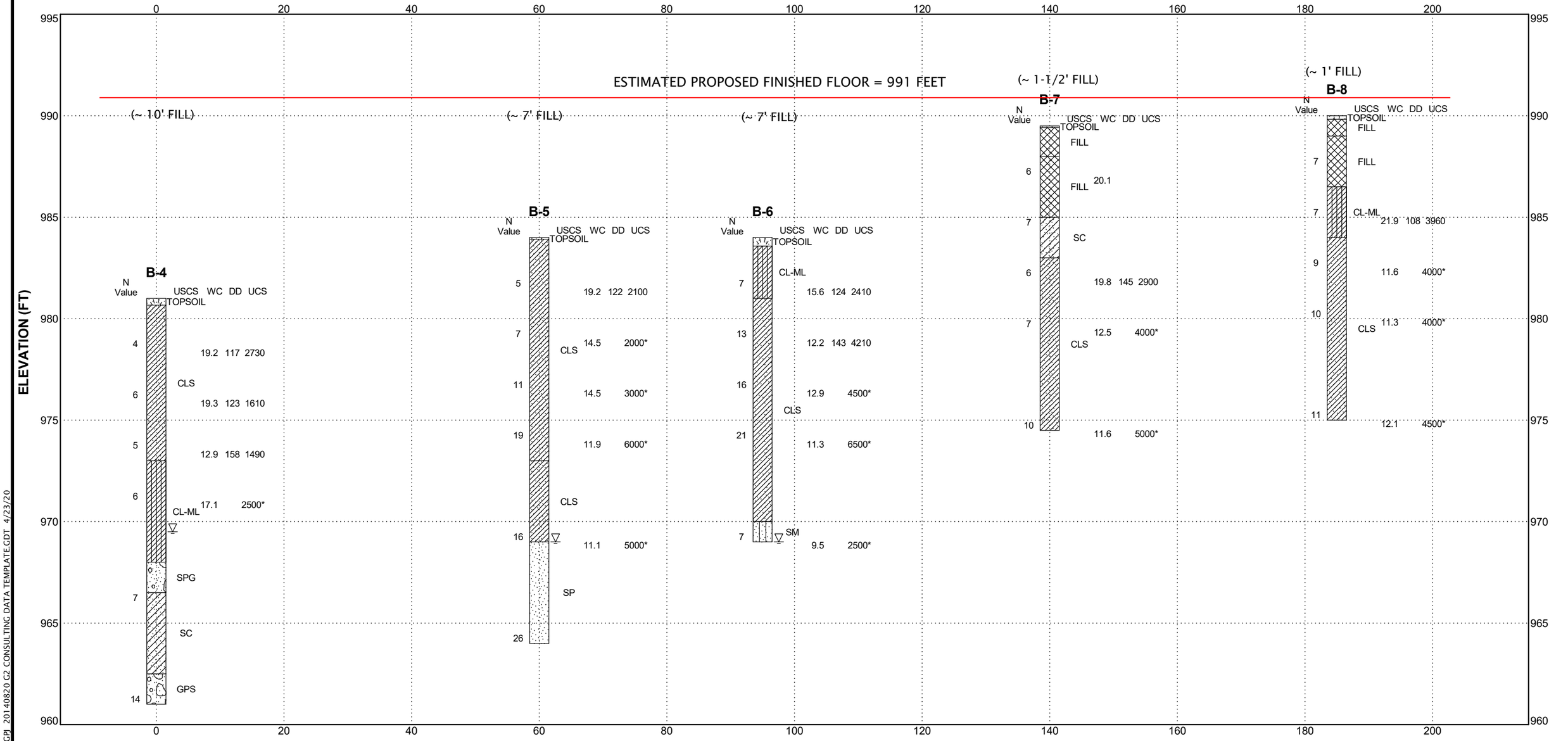
SOIL BORING PROFILE A

Project Name: Our Lady of the Fields Camp and Retreat Center
Project Location: 1391 Kellogg Road
Brighton, Michigan 48114

G2 Project No.: 200193

Plate No. 2

SOIL BORING PROFILE WITH WATER LEVELS 200193.GPJ 20140820.G2 CONSULTING DATA TEMPLATE.GDT 4/23/20



Legend

▽ Encountered Groundwater Level

▼ Groundwater Level at Completion

CONSULTING GROUP

SOIL BORING PROFILE B

Project Name: Our Lady of the Fields Camp and Retreat Center

Project Location: 1391 Kellogg Road
Brighton, Michigan 48114

G2 Project No.: 200193

Plate No. 3

SOIL BORING PROFILE WITH WATER LEVELS 200193.GPJ 20140820 G2 CONSULTING DATA TEMPLATE.GDT 4/23/20

Project Name: The Prophet Elijah Retreat Center

Project Location: 1391 Kellogg Road
Brighton, Michigan 48114

G2 Project No. 200193

Latitude: N/A Longitude: N/A

Soil Boring No. B-1

CONSULTING GROUP

SUBSURFACE PROFILE

SOIL SAMPLE DATA

ELEV. (ft)	PRO-FILE	GROUND SURFACE ELEVATION: 986.0 ft ±	DEPTH (ft)	SAMPLE TYPE-NO.	BLOWS/ 6-INCHES	STD. PEN. RESISTANCE (N)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	UNCONF. COMP. STR. (PSF)
		Topsoil: Dark Brown Sandy Clay (1 inch) 0.1							
				S-1	2 3 3	6	12.2		2500*
981.0			5	S-2	3 5 5	10	12.1	129	3150
		Stiff to Very Stiff Brown Sandy Clay with trace silt and gravel		S-3	2 3 4	7	17.6	125	2000*
976.0			10	S-4	3 4 5	9	13.2		3500*
		12.5							
971.0		Loose Brown Clayey Sand with trace silt and gravel	15	S-5	4 4 5	9			
		17.0							
966.0		Loose Brown Sand with trace silt and gravel 20.0	20	S-6	2 3 4	7			
		End of Boring @ 20 ft							
961.0			25						

Total Depth: 20 ft
Drilling Date: April 10, 2020
Inspector:
Contractor: Triple R Drilling
Driller: Ryan Rau

Drilling Method:
2-1/4 inch inside diameter hollow-stem augers

Water Level Observation:
17 feet during drilling; dry cave at 10 feet upon completion

Notes:
* Calibrated Hand Penetrometer

Excavation Backfilling Procedure:
Auger cuttings

Figure No. 1

SOIL / PAVEMENT BORING 200193.GPJ 20150116 G2 CONSULTING DATA TEMPLATE.GDT 4/28/20

Project Name: The Prophet Elijah Retreat Center

Project Location: 1391 Kellogg Road
Brighton, Michigan 48114

G2 Project No. 200193

Latitude: N/A Longitude: N/A

Soil Boring No. B-2

CONSULTING GROUP

SUBSURFACE PROFILE				SOIL SAMPLE DATA					
ELEV. (ft)	PRO-FILE	GROUND SURFACE ELEVATION: 987.5 ft ±	DEPTH (ft)	SAMPLE TYPE-NO.	BLOWS/ 6-INCHES	STD. PEN. RESISTANCE (N)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	UNCONF. COMP. STR. (PSF)
		Topsoil: Dark Brown Silty Clay (2 inches) 0.2							
		Stiff Brown Silty Clay with trace sand and gravel		S-1	2 2 3	5	21.3		2500*
		3.0							
982.5			5	S-2	1 2 2	4	15.8	118	4230
				S-3	2 3 4	7	12.4		2500*
977.5			10	S-4	2 3 3	6	13.8		2500*
		Stiff to Very Stiff Brown Sandy Clay with trace silt and gravel, occasional sand seams							
972.5			15	S-5	2 4 5	9	12.8		2500*
967.5		20.0	20	S-6	4 7 8	15	9.0		5000*
		End of Boring @ 20 ft							
962.5			25						

Total Depth: 20 ft
Drilling Date: April 1, 2020
Inspector:
Contractor: Triple R Drilling
Driller: Ryan Rau

Drilling Method:
2-1/4 inch inside diameter hollow-stem augers

Water Level Observation:
Dry during and upon completion of drilling operations

Notes:
* Calibrated Hand Penetrometer

Excavation Backfilling Procedure:
Auger cuttings

Figure No. 2

SOIL / PAVEMENT BORING 200193.GPJ 20150116 G2 CONSULTING DATA TEMPLATE.GDT 4/28/20

Project Name: The Prophet Elijah Retreat Center

Project Location: 1391 Kellogg Road
Brighton, Michigan 48114

G2 Project No. 200193

Latitude: N/A Longitude: N/A

Soil Boring No. B-3

CONSULTING GROUP

SUBSURFACE PROFILE

SOIL SAMPLE DATA

ELEV. (ft)	PRO-FILE	GROUND SURFACE ELEVATION: 986.5 ft ±	DEPTH (ft)	SAMPLE TYPE-NO.	BLOWS/ 6-INCHES	STD. PEN. RESISTANCE (N)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	UNCONF. COMP. STR. (PSF)
		Topsoil: Dark Brown Silty Sand (2 inches) 0.2							
		Loose Brown Clayey Sand with little silt and trace gravel		S-1	2 3 4	7			
		2.5							
981.5		Very Loose Brown Silty Sand with trace clay and gravel, occasional clay seams	5	S-2	2 2 2	4			
		6.0		S-3	2 2 3	5	12.3		2430
976.5		Stiff Brown Sandy Clay with trace silt and gravel, occasional sand seams	10	S-4	2 3 4	7	12.1		2500*
		13.5							
971.5		Very Stiff Gray Silty Clay with trace sand and gravel	15	S-5	3 4 8	12	17.5		5000*
		18.5							
966.5		Medium Compact Gray Sandy Gravel with trace silt 20.0	20	S-6	5 10 9	19			
		End of Boring @ 20 ft							
961.5			25						

Total Depth: 20 ft
Drilling Date: April 1, 2020
Inspector:
Contractor: Triple R Drilling
Driller: Ryan Rau

Drilling Method:
2-1/4 inch inside diameter hollow-stem augers

Water Level Observation:
3 feet during drilling; wet cave at 13 feet after auger removal

Notes:
* Calibrated Hand Penetrometer

Excavation Backfilling Procedure:
Auger cuttings

Figure No. 3

SOIL / PAVEMENT BORING 200193.GPJ 20150116 G2 CONSULTING DATA TEMPLATE.GDT 4/28/20

Project Name: The Prophet Elijah Retreat Center

Project Location: 1391 Kellogg Road
Brighton, Michigan 48114

G2 Project No. 200193

Latitude: N/A Longitude: N/A

Soil Boring No. B-4

CONSULTING GROUP

SUBSURFACE PROFILE

SOIL SAMPLE DATA

ELEV. (ft)	PRO-FILE	GROUND SURFACE ELEVATION: 981.0 ft ±	DEPTH (ft)	SAMPLE TYPE-NO.	BLOWS/ 6-INCHES	STD. PEN. RESISTANCE (N)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	UNCONF. COMP. STR. (PSF)
		Topsoil: Dark Brown Silty Clay (4 inches) 0.3		S-1	2 2 2	4	19.2	117	2730
976.0		Medium to Stiff Brown Sandy Clay with trace silt and gravel, occasional sand seams	5	S-2	2 3 3	6	19.3	123	1610
				S-3	2 2 3	5	12.9		1490
		8.0							
971.0		Stiff Brown Silty Clay with trace sand and little gravel, occasional sand layers	10	S-4	2 3 3	6	17.1		2500*
		13.0							
		Loose Brown Gravelly Sand with trace silt							
966.0		14.5	15	S-5	3 3 4	7			
		Loose Brown Clayey Sand with little silt and trace gravel							
		18.5							
961.0		Medium Compact Brown Sandy Gravel with trace silt 20.0	20	S-6	4 6 8	14			
		End of Boring @ 20 ft							
956.0			25						

Total Depth: 20 ft
Drilling Date: April 1, 2020
Inspector:
Contractor: Triple R Drilling
Driller: Ryan Rau

Drilling Method:
2-1/4 inch inside diameter hollow-stem augers

Water Level Observation:
11-1/2 feet during and upon completion of drilling operations

Notes:
Borehole collapsed at 13 ft after auger removal
* Calibrated Hand Penetrometer

Excavation Backfilling Procedure:
Auger cuttings

Figure No. 4

SOIL / PAVEMENT BORING 200193.GPJ 20150116 G2 CONSULTING DATA TEMPLATE.GDT 4/28/20

Project Name: The Prophet Elijah Retreat Center

Project Location: 1391 Kellogg Road
Brighton, Michigan 48114

G2 Project No. 200193

Latitude: N/A Longitude: N/A

Soil Boring No. B-5

CONSULTING GROUP

SUBSURFACE PROFILE				SOIL SAMPLE DATA					
ELEV. (ft)	PRO-FILE	GROUND SURFACE ELEVATION: 984.0 ft ±	DEPTH (ft)	SAMPLE TYPE-NO.	BLOWS/ 6-INCHES	STD. PEN. RESISTANCE (N)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	UNCONF. COMP. STR. (PSF)
		Topsoil: Dark Brown Sandy Clay (1 inch) 0.1		S-1	1 2 3	5	19.2	122	2100
979.0		Stiff to Very Stiff Brown Sandy Clay with trace silt and gravel, occasional sand seams	5	S-2	2 3 4	7	14.5		2000*
				S-3	3 4 7	11	14.5		3000*
974.0			10	S-4	7 9 10	19	11.9		6000*
		11.0 Very Stiff Gray Sandy Clay with trace silt and gravel							
969.0		15.0	15	S-5	3 7 9	16	11.1		5000*
		Medium Compact Brown Sand with trace silt and gravel							
964.0		20.0	20	S-6	11 12 14	26			
		End of Boring @ 20 ft							
959.0			25						

Total Depth: 20 ft
Drilling Date: April 10, 2020
Inspector:
Contractor: Triple R Drilling
Driller: Ryan Rau

Drilling Method:
2-1/4 inch inside diameter hollow-stem augers

Water Level Observation:
15 feet during drilling; wet cave at 14 feet after auger removal

Notes:
* Calibrated Hand Penetrometer

Excavation Backfilling Procedure:
Auger cuttings

Figure No. 5

SOIL / PAVEMENT BORING 200193.GPJ 20150116 G2 CONSULTING DATA TEMPLATE.GDT 4/28/20

Project Name: The Prophet Elijah Retreat Center

Project Location: 1391 Kellogg Road
Brighton, Michigan 48114

G2 Project No. 200193

Latitude: N/A Longitude: N/A

Soil Boring No. B-6

CONSULTING GROUP

SUBSURFACE PROFILE				SOIL SAMPLE DATA					
ELEV. (ft)	PRO-FILE	GROUND SURFACE ELEVATION: 984.0 ft ±	DEPTH (ft)	SAMPLE TYPE-NO.	BLOWS/ 6-INCHES	STD. PEN. RESISTANCE (N)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	UNCONF. COMP. STR. (PSF)
		Topsoil: Dark Brown Sandy Clay (5 inches) 0.4							
		Stiff Rust Brown Silty Clay with little sand and trace gravel		S-1	2 3 4	7	15.6	124	2410
		3.0							
979.0			5	S-2	2 4 9	13	12.2		4210
				S-3	4 7 9	16	12.9		4500*
		Very Stiff Brown Sandy Clay with trace silt and gravel, occasional sand seams							
974.0			10	S-4	5 9 12	21	11.3		6500*
		14.0							
969.0		Loose Brown Silty Sand with trace clay and gravel 15.0	15	S-5	2 3 4	7	9.5		2500*
		End of Boring @ 15 ft							
964.0			20						
959.0			25						

Total Depth: 15 ft
Drilling Date: April 10, 2020
Inspector:
Contractor: Triple R Drilling
Driller: Ryan Rau

Drilling Method:
2-1/4 inch inside diameter hollow-stem augers

Water Level Observation:
15 feet during and upon completion of drilling operations

Notes:
* Calibrated Hand Penetrometer

Excavation Backfilling Procedure:
Auger cuttings

Figure No. 6

SOIL / PAVEMENT BORING 200193.GPJ 20150116 G2 CONSULTING DATA TEMPLATE.GDT 4/28/20

Project Name: The Prophet Elijah Retreat Center

Project Location: 1391 Kellogg Road
Brighton, Michigan 48114

G2 Project No. 200193

Latitude: N/A Longitude: N/A

Soil Boring No. B-7

CONSULTING GROUP

SUBSURFACE PROFILE

SOIL SAMPLE DATA

ELEV. (ft)	PRO-FILE	GROUND SURFACE ELEVATION: 989.5 ft ±	DEPTH (ft)	SAMPLE TYPE-NO.	BLOWS/ 6-INCHES	STD. PEN. RESISTANCE (N)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	UNCONF. COMP. STR. (PSF)
		Topsoil: Dark Brown Sandy Clay (1 inch) 0.1							
		Fill: Mottled Dark Brown and Brown Sandy Clay with trace silt and gravel 1.5		S-1	2 3 3	6	20.1		
		Fill: Loose Black Silty Sand with trace gravel and organic matter (Organic Matter Content = 4.6%)							
984.5		4.5	5	S-2	3 3 4	7			
		Loose Brown Clayey Sand with trace silt and gravel							
		6.5		S-3	2 3 3	6	19.8		2900
979.5			10	S-4	2 3 4	7	12.5		4000*
		Stiff to Very Stiff Brown Sandy Clay with trace silt and gravel, occasional sand seams							
974.5		15.0	15	S-5	3 4 6	10	11.6		5000*
		End of Boring @ 15 ft							
969.5			20						
964.5			25						

Total Depth: 15 ft
Drilling Date: April 1, 2020
Inspector:
Contractor: Triple R Drilling
Driller: Ryan Rau

Drilling Method:
2-1/4 inch inside diameter hollow-stem augers

Water Level Observation:
Dry during and upon completion of drilling operations

Notes:
* Calibrated Hand Penetrometer

Excavation Backfilling Procedure:
Auger cuttings

Figure No. 7

SOIL / PAVEMENT BORING 200193.GPJ 20150116 G2 CONSULTING DATA TEMPLATE.GDT 4/28/20

Project Name: The Prophet Elijah Retreat Center

Project Location: 1391 Kellogg Road
Brighton, Michigan 48114

G2 Project No. 200193

Latitude: N/A Longitude: N/A

Soil Boring No. B-8

CONSULTING GROUP

SUBSURFACE PROFILE				SOIL SAMPLE DATA					
ELEV. (ft)	PRO-FILE	GROUND SURFACE ELEVATION: 990.0 ft ±	DEPTH (ft)	SAMPLE TYPE-NO.	BLOWS/ 6-INCHES	STD. PEN. RESISTANCE (N)	MOISTURE CONTENT (%)	DRY DENSITY (PCF)	UNCONF. COMP. STR. (PSF)
		Topsoil: Dark Brown Silty Sand (2 inches) 0.2							
		FIll: Brown Sand with trace silt and gravel 1.0							
		Fill: Loose Brown Clayey Sand with trace silt and gravel		S-1	3 3 4	7			
		3.5							
985.0		Stiff Brown Silty Clay with trace sand and gravel	5	S-2	2 3 4	7	21.9	108	3960
		6.0		S-3	3 4 5	9	11.6		4000*
980.0		Stiff to Very Stiff Brown Sandy Clay with trace silt and gravel, occasional sand seams	10	S-4	3 4 6	10	11.3		4000*
975.0		15.0	15	S-5	4 5 6	11	12.1		4500*
		End of Boring @ 15 ft							
970.0			20						
965.0			25						

Total Depth: 15 ft
Drilling Date: April 1, 2020
Inspector:
Contractor: Triple R Drilling
Driller: Ryan Rau

Drilling Method:
2-1/4 inch inside diameter hollow-stem augers

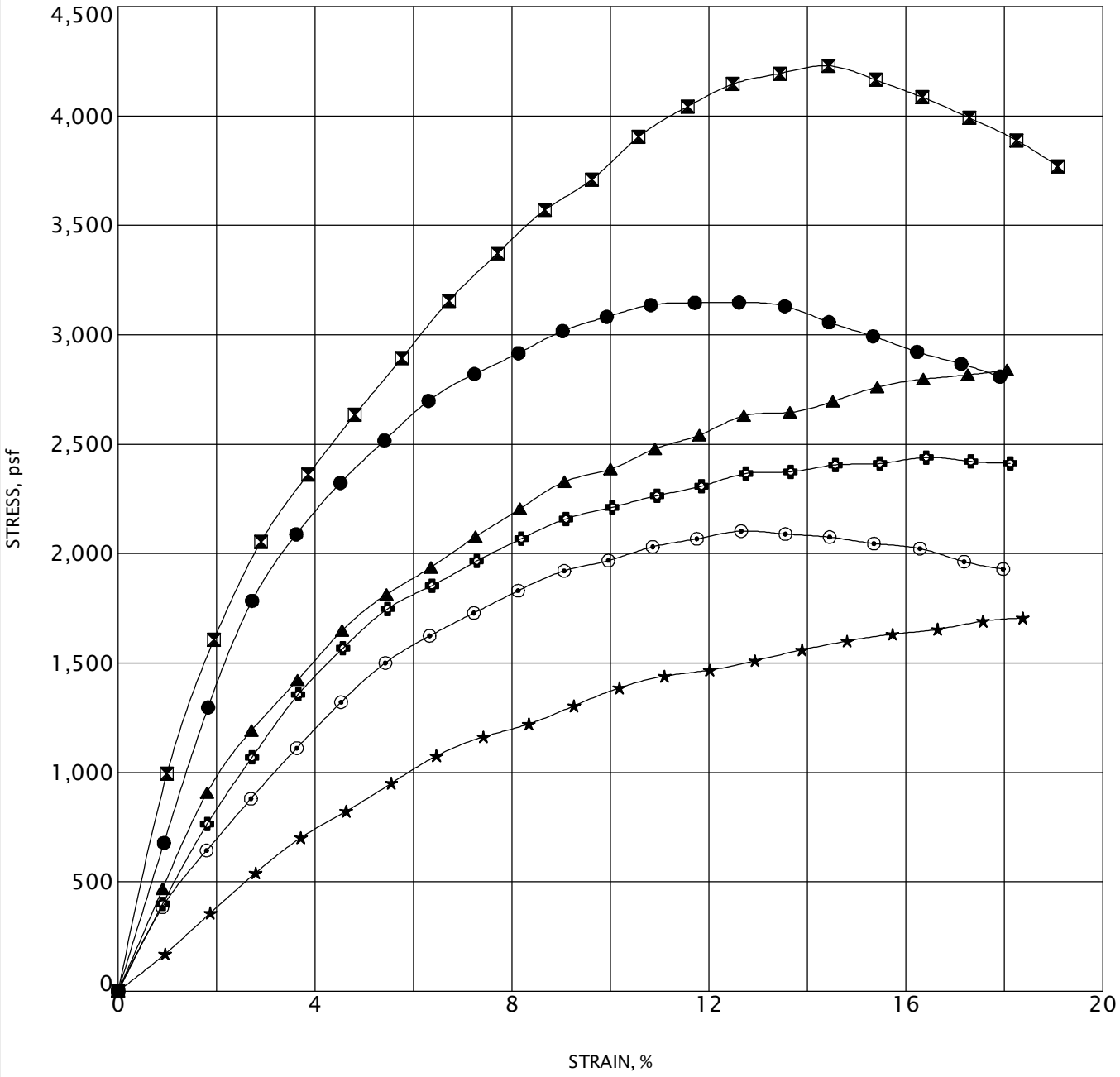
Water Level Observation:
Dry during and upon completion of drilling operations

Notes:
* Calibrated Hand Penetrometer

Excavation Backfilling Procedure:
Auger cuttings

Figure No. 8

SOIL / PAVEMENT BORING 200193.GPJ 20150116 G2 CONSULTING DATA TEMPLATE.GDT 4/28/20



Specimen			Classification	MC%	γ_d	UC
●	B-1	S-2	Brown Sandy Clay	12	129	3150
⊠	B-2	S-2	Brown Sandy Clay	16	118	4230
▲	B-4	S-1	Brown Sandy Clay	19	117	2730
★	B-4	S-2	Brown Sandy Clay	19	123	1610
⊙	B-5	S-1	Brown Sandy Clay	19	122	2100
✿	B-6	S-1	Brown Silty Clay	16	124	2410

G2 CONSULTING GROUP

UNCONFINED COMPRESSIVE STRENGTH TEST

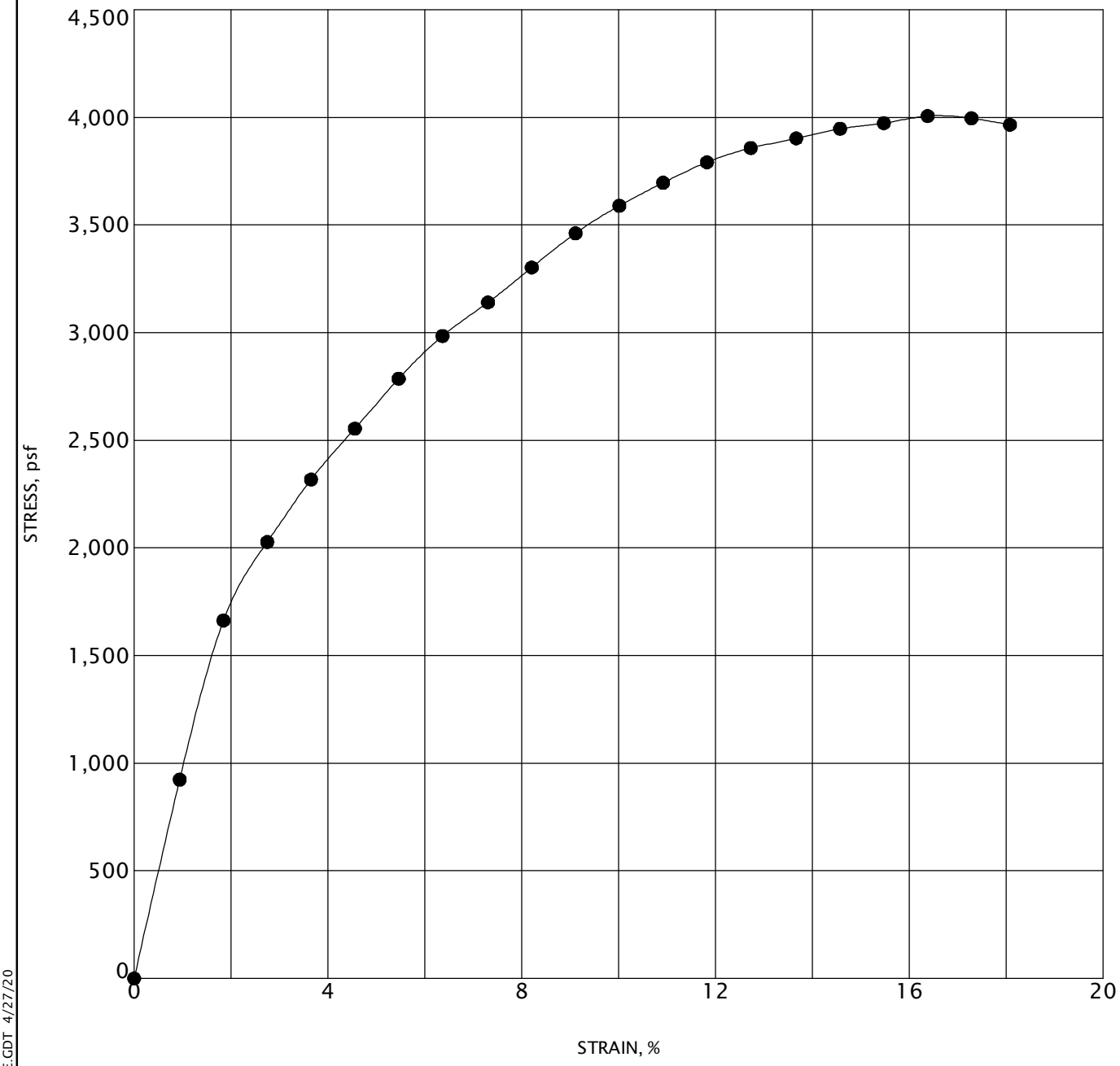
Project Name: The Prophet Elijah Retreat Center

Project Location: 1391 Kellogg Road
Brighton, Michigan 48114

G2 Project No.: 200193

Figure No. 9

US_UNCONFINED 200193.GPJ 20140820 G2 CONSULTING DATA TEMPLATE.GDT 4/27/20



	Specimen		Classification	MC%	γ_d	UC
●	B-8	S-2	Brown Silty Clay	22	108	3960

CONSULTING GROUP

UNCONFINED COMPRESSIVE STRENGTH TEST

Project Name: The Prophet Elijah Retreat Center

Project Location: 1391 Kellogg Road
Brighton, Michigan 48114

G2 Project No.: 200193

Figure No. 10

US_UNCONFINED 200193.GPJ 20140820 G2 CONSULTING DATA TEMPLATE.GDT 4/27/20

GENERAL NOTES TERMINOLOGY

Unless otherwise noted, all terms herein refer to the Standard Definitions presented in ASTM 653.

PARTICLE SIZE

Boulders		- greater than 12 inches
Cobbles		- 3 inches to 12 inches
Gravel	- Coarse	- 3/4 inches to 3 inches
	- Fine	- No. 4 to 3/4 inches
Sand	- Coarse	- No. 10 to No. 4
	- Medium	- No. 40 to No. 10
	- Fine	- No. 200 to No. 40
Silt		- 0.005mm to 0.074mm
Clay		- Less than 0.005mm

CLASSIFICATION

The major soil constituent is the principal noun, i.e. clay, silt, sand, gravel. The second major soil constituent and other minor constituents are reported as follows:

Second Major Constituent (percent by weight)	Minor Constituent (percent by weight)
Trace - 1 to 12%	Trace - 1 to 12%
Adjective - 12 to 35%	Little - 12 to 23%
And - over 35%	Some - 23 to 33%

COHESIVE SOILS

If clay content is sufficient so that clay dominates soil properties, clay becomes the principal noun with the other major soil constituent as modifier, i.e. sandy clay. Other minor soil constituents may be included in accordance with the classification breakdown for cohesionless soils, i.e. silty clay, trace sand, little gravel.

Consistency	Unconfined Compressive Strength (psf)	Approximate Range of (N)
Very Soft	Below 500	0 - 2
Soft	500 - 1,000	3 - 4
Medium	1,000 - 2,000	5 - 8
Stiff	2,000 - 4,000	9 - 15
Very Stiff	4,000 - 8,000	16 - 30
Hard	8,000 - 16,000	31 - 50
Very Hard	Over 16,000	Over 50

Consistency of cohesive soils is based upon an evaluation of the observed resistance to deformation under load and not upon the Standard Penetration Resistance (N).

COHESIONLESS SOILS

Density Classification	Relative Density %	Approximate Range of (N)
Very Loose	0 - 15	0 - 4
Loose	16 - 35	5 - 10
Medium Compact	36 - 65	11 - 30
Compact	66 - 85	31 - 50
Very Compact	86 - 100	Over 50

Relative Density of cohesionless soils is based upon the evaluation of the Standard Penetration Resistance (N), modified as required for depth effects, sampling effects, etc.

SAMPLE DESIGNATIONS

AS - Auger Sample – Cuttings directly from auger flight
BS - Bottle or Bag Samples
S - Split Spoon Sample - ASTM D 1586
LS - Liner Sample with liner insert 3 inches in length
ST - Shelby Tube sample - 3 inch diameter unless otherwise noted
PS - Piston Sample - 3 inch diameter unless otherwise noted
RC - Rock Core - NX core unless otherwise noted

STANDARD PENETRATION TEST (ASTM D 1586) - A 2.0 inch outside-diameter, 1-3/8 inch inside-diameter split barrel sampler is driven into undisturbed soil by means of a 140-pound weight falling freely through a vertical distance of 30 inches. The sampler is normally driven three successive 6-inch increments. The total number of blows required for the final 12 inches of penetration is the Standard Penetration Resistance (N).

Oak Landscape Lighting

CATALOG #			
PROJECT NAME		TYPE	

SPECIFICATION SHEET

PRODUCT # GR526-BK

Housing: Die-cast aluminum Knuckle with adjustable thumb screw. Easy adjustable for vertical tilt and horizontal rotation.

Lens: Heat resistant Convex Glass Lens is fully sealed with silicon sealant reduces water build-up and puddle on the lens. Flat Tempered Glass.

Socket: High Temperature ceramic socket with nickel contacts, Stainless Steel spring

Lamp: LED MR16 Lamp type, Max wattage 50W.

Gasket: High temperature silicone O-ring for water tight seal.

Wiring: 3' #18/2 Direct bury landscape lighting wire with UL listed, Pre-stripped hub-ready leads for quick installation.

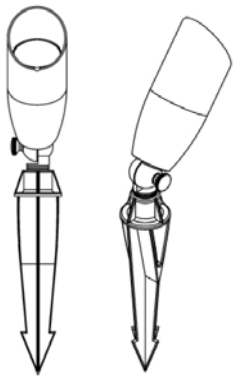
Mounting: In-ground ABS Stake or Surface/Tree Mounting.

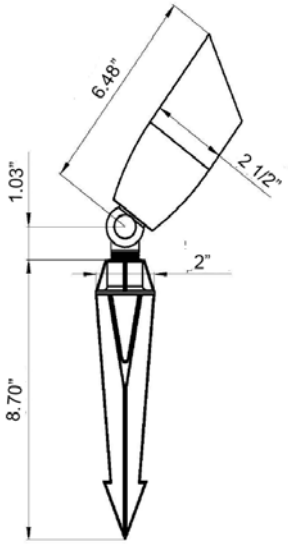
Electrical Notes: A remote 12V transformer required, may be ordered to Elram, Inc. separately. Voltage range for 12V halogen lamps are 11V-12.5V. Voltage range for LED lamps are 9V-17V.

Hardware: Hexagonal crew fix to part

Warranty: One (1) year warranty against housing and body defects.

GR526			
SERIES	FINISH	VOLTAGE	LAMP
GR526 - Bullet Fixture **TR526** - Surface / Tree	**BK** Black Aluminum	**12V DC**	**L** - LED LAMP





ACCESSORIES

In-Ground ABS Stake

Surface / Tree Mounting

Radean Arm Mount
LED Area Luminaire

Catalog Number

Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements.

Specifications

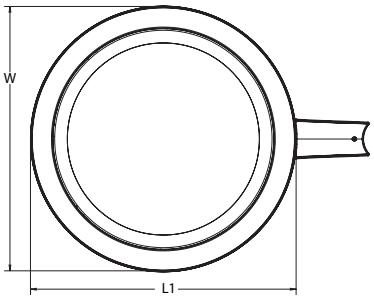
EPA: 0.75 ft² (0.05 m²)

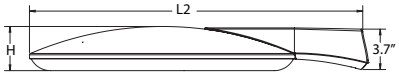
Length:
L1 24" (61cm)
L2 30" (60.96 cm)

Width: 24" (61cm)

Height: 4" (10.2cm)

Weight (max): 29lbs (13.15Kg)





Introduction

The RADEAN arm mount luminaire is the perfect choice for pedestrian applications where daytime aesthetics and visual comfort are needed. Adding architectural flair to any space, the RADEAN's low-profile shape and smooth curves blend in while adding a touch of elegance.

Perfect for campuses, parks, pedestrian malls, courtyards and pathways, the RADEAN arm mount is the Architect's choice to provide beautiful aesthetics both day and night.

MOUNTING HEIGHT = 20'

Ordering Information

EXAMPLE: RAD1 LED P3 30K SYM MVOLT RPA PE DNAXD

RAD1 LED					
Series	**Performance package**	**Color temperature**	**Distribution**	**Voltage**	**Mounting**
RAD1 LED	P1 3,000 Lumens P2 5,000 Lumens P3 7,000 Lumens P4 11,000 Lumens P5 16,000 Lumens	27K 2700K 30K 3000K 35K 3500K 40K 4000K 50K 5000K	SYM Symmetric type V ASY Asymmetric type IV PATH Pathway type III	MVOLT [1] 277 [1] 120 [1] 347 208 [1] 480 240 [1]	SPA Square pole mounting (includes adapter) RPA Round pole mounting WBA Wall bracket

Control options	Other options		Finish *(required)*	
Shipped installed	SF Single Fuse [1]	**Shipped separately**	DDBXD Dark bronze	DDBTXD Textured dark bronze
NLTAIR2 nLight AIR 2.0 enabled [2]	DF Double Fuse [1]	HS Houseside shield [8]	DBLXD Black	DBLBXD Textured black
PIR Bi-level motion sensor (100% to 30%) [2,3,4,5,6]	L90 Left rotated optics		DNAXD Natural aluminum	DNATXD Textured natural aluminum
PE Button photocell [2,5]	R90 Right rotated optics		DWHXD White	DWHGXD Textured white
FAO Field adjustable output [2,3,7]				

Ordering Information

Accessories

Ordered and shipped separately.

RADHS	Houseside shield (shield is white)
RADCS	Decorative clamshell base for 4" RSS pole (specify finish)
RADFBC	Full base cover for 4" RSS pole (specify finish)

For more control options, visit DTL and ROAM online.

NOTES

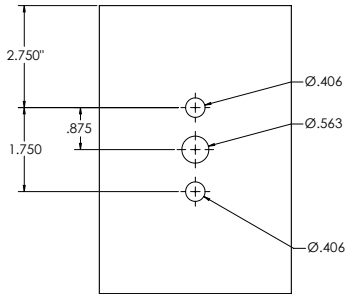
1. MVOLT driver operates on any line voltage from 120-277V (50/60 Hz). Single fuse (SF) requires 120, 277 or 347 voltage option. Double fuse (DF) requires 208, 240 or 480 voltage option.
2. NLTAIR2 not available with PIR, PE or FAO. Must link to external nLight Air network.
3. PIR will work with FAO, if adjustable dimming level is required.
4. PIR must specify 120V, 277V, 347V or 480V. Not available in MVOLT, 208V or 240V.
5. PE and PIR are available together.
6. PIR for use on mounting heights under 20'.
7. Field adjustable high-end trim.
8. Also available as a separate accessory; see Accessories information. Shield is field rotatable in 45° increments.

Mounting

Recommended Poles for use with RADEAN RAD1 LED Luminaires.			
Acuity Part Number	**Description**	**For luminaires:**	**Used with Mounting**
RSS 10 4B DM19RAD DDBXD	10' Round Straight Steel - Template #20 Drilling	RAD1 LED	RPA
RSS 12 4B DM19RAD DDBXD	12' Round Straight Steel - Template #20 Drilling	RAD1 LED	RPA
RSS 14 4B DM19RAD DDBXD	14' Round Straight Steel - Template #20 Drilling	RAD1 LED	RPA
RSS 16 4B DM19RAD DDBXD	16' Round Straight Steel - Template #20 Drilling	RAD1 LED	RPA
RSS 18 4B DM19RAD DDBXD	18' Round Straight Steel - Template #20 Drilling	RAD1 LED	RPA
RSS 20 4B DM19RAD DDBXD	20' Round Straight Steel - Template #20 Drilling	RAD1 LED	RPA
RSS 25 4B DM19RAD DDBXD	25' Round Straight Steel - Template #20 Drilling	RAD1 LED	RPA
SSS 10 4C DM19RAD DDBXD	10' Square Straight Steel -Template #20 Drilling	RAD1 LED	SPA
SSS 12 4C DM19RAD DDBXD	12' Square Straight Steel -Template #20 Drilling	RAD1 LED	SPA
SSS 14 4C DM19RAD DDBXD	14' Square Straight Steel -Template #20 Drilling	RAD1 LED	SPA
SSS 16 4C DM19RAD DDBXD	16' Square Straight Steel -Template #20 Drilling	RAD1 LED	SPA
SSS 18 4C DM19RAD DDBXD	18' Square Straight Steel -Template #20 Drilling	RAD1 LED	SPA
SSS 20 4C DM19RAD DDBXD	20' Square Straight Steel -Template #20 Drilling	RAD1 LED	SPA
SSS 25 4C DM19RAD DDBXD	25' Square Straight Steel -Template #20 Drilling	RAD1 LED	SPA

* Customer must verify pole loading per required design criteria and specified wind speed. Consult pole specification sheet for additional details.

Drilling Template #20



RAD1 has a unique drilling pattern. Specify this drilling pattern when specifying poles, per the table below.

DM19RAD	Single unit	**DM29RAD**	2 at 90° [1,2]
DM28RAD	2 at 180°	**DM39RAD**	3 at 90° *
DM49RAD	4 at 90° [1]	**DM32RAD**	3 at 120°

Example: SSA 20 4C **DM19RAD** DDBXD

Visit Lithonia Lighting's POLES CENTRAL to see our wide selection of poles, accessories and educational tools.

1. *Round pole top must be 4.25" O.D. minimum.*
2. *Square pole top must be 3.125" O.D. minimum.*

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown. Contact factory for performance data on any configurations not shown here.

Performance Package	Input Wattage	Distribution	2700K					3000K					3500K					4000K					5000K				
			Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
P1	25	ASY	3,103	1	0	1	122	3,207	1	0	1	126	3,285	1	0	1	129	3,362	1	0	1	132	3,362	1	0	1	132
		PATH	2,695	2	0	2	106	2,785	2	0	2	110	2,853	2	0	2	112	2,920	2	0	2	115	2,920	2	0	2	115
		SYM	3,271	2	0	1	129	3,380	2	0	1	133	3,461	2	0	1	136	3,543	2	0	1	139	3,543	2	0	1	139
P2	38	ASY	4,798	1	0	2	126	4,958	1	0	2	130	5,078	2	0	2	134	5,198	2	0	2	137	5,198	2	0	2	137
		PATH	4,167	2	0	2	110	4,306	3	0	3	113	4,410	3	0	3	116	4,514	3	0	3	119	4,514	3	0	3	119
		SYM	5,056	2	0	1	133	5,225	3	0	1	137	5,351	3	0	1	141	5,478	3	0	1	144	5,478	3	0	1	144
P3	54	ASY	6,779	2	0	2	126	7,005	2	0	2	131	7,174	2	0	2	134	7,344	2	0	2	137	7,344	2	0	2	137
		PATH	5,887	3	0	3	110	6,084	3	0	3	113	6,231	3	0	3	116	6,378	3	0	3	119	6,378	3	0	3	119
		SYM	7,144	3	0	2	133	7,382	3	0	2	138	7,561	3	0	2	141	7,739	3	0	2	144	7,739	3	0	2	144
P4	86	ASY	10,773	3	0	3	126	11,132	3	0	3	130	11,401	3	0	3	133	11,671	3	0	3	136	11,671	3	0	3	136
		PATH	9,356	3	0	3	109	9,668	3	0	3	113	9,902	3	0	3	116	10,136	3	0	3	118	10,136	3	0	3	118
		SYM	11,353	3	0	2	133	11,731	3	0	2	137	12,015	3	0	2	140	12,299	3	0	2	144	12,299	3	0	2	144
P5	122	ASY	15,001	3	0	3	123	15,501	3	0	3	127	15,876	3	0	3	130	16,251	3	0	3	133	16,251	3	0	3	133
		PATH	13,028	4	0	4	107	13,462	4	0	4	110	13,788	4	0	4	113	14,114	4	0	4	116	14,114	4	0	4	116
		SYM	15,808	4	0	3	130	16,335	4	0	3	134	16,731	4	0	3	137	17,126	4	0	3	140	17,126	4	0	3	140

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		LAT Factor
0°C	32°F	1.06
5°C	41°F	1.05
10°C	50°F	1.04
15°C	59°F	1.02
20°C	68°F	1.01
25°C	77°F	1.00
30°C	86°F	0.99
35°C	95°F	0.98
40°C	104°F	0.96

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the **RAD1 LED P5** platform in a **25°C ambient**, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Projected LED Lumen Maintenance				
	0	25,000	50,000	100,000
P1	1.00	0.96	0.91	0.82
P2	1.00	0.96	0.91	0.82
P3	1.00	0.96	0.91	0.82
P4	1.00	0.96	0.91	0.82
P5	1.00	0.95	0.89	0.78

Electrical Load

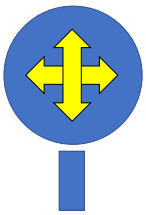
Lumen Package	LED Drive Current	Voltage	Wattage		Current (A)					
					120	208	240	277	347	480
P1	500	42.8	21.4	Input Current	0.22	0.13	0.11	0.1	0.08	0.06
				System Watts	26	26	26	27	25	26
P2	770	43	33.1	Input Current	0.33	0.19	0.16	0.14	0.11	0.08
				System Watts	39	39	39	39	38	38
P3	1100	43.2	47.5	Input Current	0.46	0.26	0.23	0.2	0.16	0.12
				System Watts	55	54	54	54	54	54
P4	900	87.3	78.6	Input Current	0.73	0.42	0.36	0.32	0.25	0.18
				System Watts	87	86	86	86	86	86
P5	1250	88.2	110.2	Input Current	1	0.58	0.5	0.44	0.35	0.25
				System Watts	120	119	119	119	120	120

Orientation Diagrams

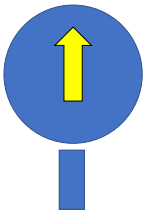
To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's RAD1 LED homepage.

Standard Optic

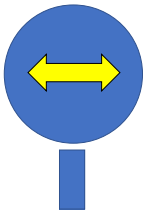
RAD1 SYM



RAD1 ASY Standard

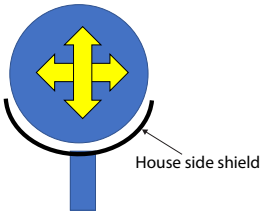


RAD1 PATH

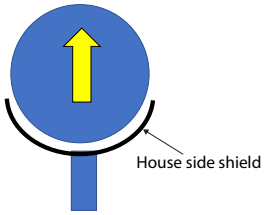


House side Shield

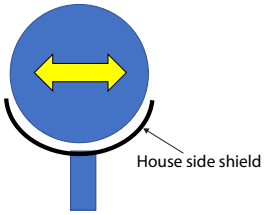
RAD1 SYM **HS**



RAD1 ASY **HS**

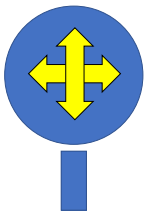


RAD1 PATH **HS**



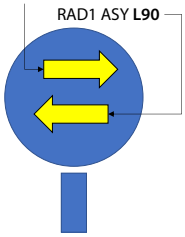
Rotated R90

RAD1 SYM **R90**

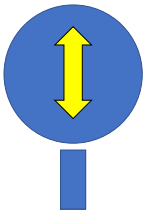


RAD1 ASY **R90**

RAD1 ASY **L90**



RAD1 PATH **R90**



FEATURES & SPECIFICATIONS

INTENDED USE
Pedestrian areas such as parks, campuses, pathways, courtyards and pedestrians malls.

CONSTRUCTION
Single-piece die-cast aluminum housing with nominal wall thickness of 0.125" on a 6mm thick acrylic waveguide is fully gasketd with a single piece tubular silicone gasket.

FINISH
Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Standard Super Durable colors include dark bronze, black, natural aluminum and white. Available in textured and non-textured finishes.

OPTICS
6MM thick acrylic waveguide with 360° flexible LED board. Available in 2700K, 3000K, 3500K, 4000K and 5000K (70CRI) CCT configurations.

ELECTRICAL
Light engine consists of 96 high-efficacy LEDs mounted to a flexible circuit board and aluminum heat sink, ensuring optimal thermal management and long life. Class 1 electronic driver has a power factor >90%, THD <20%, and has an expected life of 100,000 hours with <1% failure rate. Easily-serviceable 10kV surge protection device meets a minimum Category C Low for operation (per ANSI/IEEE C62.41.2).

INSTALLATION
Included luminaire and integral arm facilitate quick and easy installation. Stainless steel bolts fasten the mounting block securely to poles and walls.

LISTINGS
CSA certified to U.S. and Canadian standards. Luminaire is IP65 rated. Rated for -40°C minimum ambient.

DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified. International Dark-Sky Association (IDA) Fixture Seal of Approval (FSA) is available for all products on this page utilizing 3000K color or less.

WARRANTY
5-year limited warranty. Complete warranty terms located at:
www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx.

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

OUR LADY OF THE FIELDS CAMP

THE PROPHET ELIJAH RETREAT CENTER

1391 Kellogg Road
Brighton, Michigan 48114

Owner:
The Chaldean Catholic Church of the United States of America
25603 Berg Road
Southfield, Michigan 48033
T: 248.351.0440
Contact: Vincent Jarbow, Finance Officer & Owner's Agent

Construction Manager:
K4 Contractors
31333 Southfield Road, Suite 250
Beverly Hills, Michigan 48025
T: 877.386.8214
Contact: Jamal Kalabat

Architect:
Saroki Architecture
430 N. Old Woodward Avenue, Suite 300
Birmingham, Michigan 48009
T: 248.258.5707
Contact: Eavan Yaldo, LEED AP

Surveyor / Civil Engineer:
Alpine Engineering, Inc.
46892 West Road, Suite 109
Novi, Michigan 48377
T: 248.926.3701
Contact: Shiloh Dahlin, PE

Landscape Architect:
Allen Design
557 Carpenter
Northville, Michigan 48167
T: 248.467.4668
Contact: Jim Allen

Septic Engineer:
Boss Engineering
3121 E. Grand River
Howell, Michigan 48843
T: 517.546.4836
Contact: Sean Nalepka, RS

Scope of Work:
The following drawings refer to the construction of a retreat center at Our Lady of the Fields Camp. This will be adjacent to the existing church on the property. An enclosed walkway would be constructed to access the church from the retreat center for protection from inclement weather, and 24 hour access for retreatants. The retreat center would be just under 29,000 SF, consist of a 1 and 2 story building, along with a small basement. The common areas will be part of the 1-story portion of the building, while the sleeping areas will be in the 2-story portion of the building. All exterior finishes have been thoughtfully selected to compliment the adjacent church, while providing the differentiation and originality of a new design.

Zoning Information:

Zoning District:	PRF (Public and Recreational Facilities District)
Zoning of Adjacent Properties:	See Location Map
Site Area:	159.60 Acres (6,952,357 S.F.)

Proposed Building Setbacks:

Front Yard Setback (West):	425 Feet
Front Yard Setback (North):	2,064 Feet
Front Yard Setback (East):	1,928 Feet
Side Yard Setback (South):	359 Feet

	Maximum Allowed:	Proposed:
Building Height:	35'-0" Feet to Roof Midpoint (2 Stories)	27'-2" to Roof Midpoint (2 Stories)

Building Area:

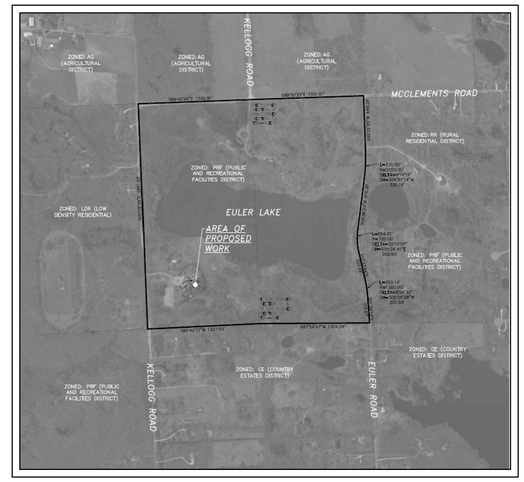
Lower Level:	3,950 G.S.F.
First Level:	16,095 G.S.F.
Second Level:	8,806 G.S.F.
Total Building Area:	28,851 G.S.F.

Parking (Prescriptive per Zoning Ordinance Section 14.04):

	Required:	Provided:
Existing Church:	1 per 3 seats (285 seats) = 95 Spaces	102 Spaces (Including 5 Barrier-Free)
Proposed Retreat Center: (motels/hotels with lounge, restaurant and conference)	1 Space per guest room plus 1 space per 100 SF of lounge, restaurant, conference, or banquet rooms or exhibit space 40 + 34 = 74 Spaces	7 Spaces (Including 2 Barrier-Free)
Total:	169 Spaces (Including 5 Barrier-Free)	109 Spaces (Including 7 Barrier-Free)

*It is proposed that the Church and Retreat Center will share parking. If this is approved by the Planning Commission, the required number of parking spaces may be reduced by up to 30% (Section 14.02.04)

Loading:	35 Feet x 24 Feet Loading Area Provided (Small Trucks & Vans)
Landscape:	Refer to Civil & Landscape Drawings



Location Map
Not to Scale

NORTH

SHEET INDEX:

● ISSUED / REVISED
○ ISSUED / NOT REVISED

		07-31-2020 SITE PLAN REVIEW	08-26-2020 SITE PLAN REVIEW RESUBMITTAL
GENERAL			
G000	COVER SHEET	●	●
CIVIL			
1	COVER SHEET	●	●
2	SITE PLAN	●	●
3	TOPOGRAPHIC SURVEY AND DEMOLITION PLAN	●	●
4	GRADING AND SOIL EROSION & SEDIMENTATION CONTROL PLAN	●	●
5	UTILITY PLAN	●	●
6	STORM WATER MANAGEMENT PLAN	●	●
7	SITE DETAILS	●	●
LANDSCAPE			
L-1	LANDSCAPE PLAN	●	●
L-2	LANDSCAPE DETAILS	●	●
ARCHITECTURAL			
A010	ARCHITECTURAL SITE PLAN	●	●
A011	SITE DETAILS	●	○
A012	TRASH ENCLOSURE	●	●
A100	LOWER LEVEL FLOOR PLAN	●	○
A110	FIRST LEVEL FLOOR PLAN	●	○
A120	SECOND LEVEL FLOOR PLAN	●	○
A130	ROOF PLAN	●	○
A200	EXTERIOR ELEVATIONS	●	○
A201	EXTERIOR ELEVATIONS	●	○

SAROKI ARCHITECTURE
430 N. OLD WOODWARD
BIRMINGHAM, MI 48009
P. 248.258.5707
F. 248.258.5515
SarokiArchitecture.com

Project:
The Prophet Elijah Retreat Center
1391 Kellogg Road
Brighton, Michigan 48114

Date: **Issued For:**

07-31-2020 SITE PLAN REVIEW
08-26-2020 SITE PLAN REVIEW RESUBMITTAL

Sheet No.:
G000
COVER SHEET

THE PROPHET ELIJAH RETREAT CENTER

1391 KELLOGG ROAD, GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN

SITE PLAN

LEGEND:

- EX. CATCH BASIN
- EX. MANHOLE
- EX. END SECTION
- EX. OVERFLOW STRUCTURE
- EX. DOWNSPOUT/ROOF DRAIN
- EX. CLEANOUT
- EX. WATER GATE VALVE
- EX. HYDRANT
- EX. WATER VALVE
- EX. WATER SHUTOFF
- EX. FIRE DEPT. CONNECTION
- EX. GAS SHUTOFF
- EX. GAS VENT
- EX. ELECTRIC/GAS METER
- EX. HANDHOLE
- EX. PEDESTAL
- EX. TRANSFORMER
- EX. LIGHTPOLE
- EX. UTILITY POLE
- EX. GUY ANCHOR
- EX. TREE
- EX. TREE TAG & NUMBER
- EX. TREE LINE
- EX. SANITARY SEWER
- EX. STORM SEWER
- EX. WATER MAIN
- EX. ELECTRIC CABLE
- EX. COMMUNICATION
- EX. GAS LINE
- EX. OVERHEAD LINE
- EX. SIGN
- EX. POST/BOLLARD
- EX. FLAGPOLE
- EX. WATER WELL
- EX. SATELLITE DISH
- EX. BOULDER
- EX. TREE STUMP
- EX. PARKING METER
- EX. UTILITY MARKER
- EX. SOIL BORING
- EX. MAILBOX
- EX. GENERATOR
- EX. MONITOR WELL
- EX. AIR CONDITIONER
- EX. PUMP
- EX. FENCE
- F.F. PROP. FINISH FLOOR ELEVATION
- PROP. CURB & GUTTER (PITCH OUT)
- PROP. STORM SEWER
- PROP. SANITARY SEWER
- PROP. WATER MAIN
- PROP. STRUCTURE
- PROP. END SECTION
- C.O. PROP. CLEAN-OUT
- PROP. HYDRANT
- PROP. GATE VALVE
- V.B. PROP. CURB BOX
- xGU 642.00 PROP. GUTTER ELEV.
- xTC 642.50 PROP. TOP OF CURB ELEV.
- xTW 642.50 PROP. TOP OF WALK ELEV.
- xTP 642.00 PROP. TOP OF PAVEMENT ELEV.
- x643.5 PROP. SPOT ELEV.
- PROP. DRAINAGE ARROW
- PROP. SILT FENCE
- PROP. TREE PROTECTION FENCE
- PROP. INLET FILTER
- PROP. ASPHALT
- PROP. CONCRETE
- PROP. LIGHT POLE

LOCATION MAP:
1" = ±400 FEET

APPLICANT/OWNER:
THE CHALDEAN CATHOLIC CHURCH OF THE USA
25603 BERG RD
SOUTHFIELD, MI 48034
PHONE: (248) 351-0440
FAX: (248) 351-0443

ARCHITECT:
SAROKI ARCHITECTURE
430 N. OLD WOODWARD
BIRMINGHAM, MI 48009
PHONE: (248) 258-5707
FAX: (248) 258-5515

SURVEYOR/ENGINEER:
ALPINE ENGINEERING, INC.
46892 WEST ROAD, SUITE 109
NOVI, MI 48377
PHONE: (248) 926-3701
FAX: (248) 926-3765

LANDSCAPE ARCHITECT:
ALLEN DESIGN
557 CARPENTER
NORTHVILLE, MI 48167
PHONE: (248) 467-4668

NOTICE:
CONSTRUCTION SITE SAFETY IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR NEITHER THE OWNER NOR THE ENGINEER SHALL BE EXPECTED TO ASSUME ANY RESPONSIBILITY FOR SAFETY OF THE WORK, OF PERSONS ENGAGED IN THE WORK, OF ANY NEARBY STRUCTURES, OR OF ANY OTHER PERSONS.

NOTE:
THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AS DISCLOSED BY AVAILABLE UTILITY COMPANY RECORDS AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE COMPANY. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES. THE CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER IMMEDIATELY IF A CONFLICT IS APPARENT.

LEGAL DESCRIPTION
(PROVIDED BY OTHERS)
(AS CONTAINED IN THE COMMITMENT NO.: 07082686, ISSUED BY TRANSWORLD TITLE COMPANY, LLC, DATED AUGUST 7, 2007 AT 08:00 AM) LAND SITUATED IN THE TOWNSHIP OF GENOA, COUNTY OF LIVINGSTON, STATE OF MICHIGAN, DESCRIBED AS: PARCEL I: (TAX ID: 4711-12-100-002) THE WEST 1/2 OF THE NORTHWEST 1/4 OF SECTION 12, TOWN 2 NORTH, RANGE 5 EAST. COMMONLY KNOWN AS: 6969 MCCLEMENTS PARCEL II: (TAX ID: 4711-11-200-001) THE EAST 1/2 OF THE NORTHEAST 1/4 OF SECTION 11, TOWN 2 NORTH, RANGE 5 EAST. COMMONLY KNOWN AS: 1441 KELLOGG ROAD

DESCRIPTION OF SURVEY
THE EAST 1/2 OF THE NORTHEAST 1/4 OF SECTION 11 AND THE WEST 1/2 OF THE NORTHWEST 1/4 OF SECTION 12, TOWN 2 NORTH, RANGE 5 EAST, GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN, DESCRIBED AS:
BEGINNING AT THE NORTHEAST CORNER OF SECTION 11, ALSO BEING THE NORTHWEST CORNER OF SECTION 12; THENCE S89°30'25"E 1331.61 FEET ALONG THE NORTH LINE OF SECTION 12 AND THE CENTERLINE OF MCCLEMENTS ROAD (66.00 FEET WIDE); THENCE THE FOLLOWING 7 COURSES ALONG THE CENTERLINE (AS OCCUPIED) OF EULER ROAD (66.00 FEET WIDE): S00°22'05"W 648.29 FEET ALONG THE EAST LINE OF THE WEST 1/2 OF THE NORTHWEST 1/4 OF SECTION 12; 330.55 FEET ALONG THE CURVE TO THE RIGHT, HAVING A RADIUS OF 2050.00 FEET, A CENTRAL ANGLE OF 09°14'19" AND A CHORD BEARING S04°59'14"W 330.19 FEET;
S09°36'23"W 615.30 FEET; 264.01 FEET ALONG THE CURVE TO THE LEFT, HAVING A RADIUS OF 750.00 FEET, A CENTRAL ANGLE OF 20°10'07" AND A CHORD BEARING S00°28'40"E 262.65 FEET; S10°33'44"E 322.66 FEET; 202.14 FEET ALONG THE CURVE TO THE RIGHT, HAVING A RADIUS OF 1300.00 FEET, A CENTRAL ANGLE OF 08°54'32" AND A CHORD BEARING S06°06'28"E 201.93 FEET; S01°39'12"E 319.67 FEET; THENCE N87°54'47"W 1304.24 FEET ALONG THE EAST-WEST 1/4 LINE OF SECTION 12 TO THE WEST 1/4 CORNER OF SECTION 12, ALSO BEING THE EAST 1/4 CORNER OF SECTION 11; THENCE S89°42'17"W 1327.65 FEET ALONG THE EAST-WEST 1/4 LINE OF SECTION 11; THENCE N00°09'08"E 2661.69 FEET ALONG THE WEST LINE OF THE EAST 1/2 OF THE NORTHEAST 1/4 OF SECTION 11 AND ALONG THE EAST LINE OF S. KELLOGG ROAD (66.00 FEET WIDE);
THENCE S89°42'24"E 1335.91 FEET ALONG THE NORTH LINE OF SECTION 11 AND THE CENTERLINE OF S. KELLOGG ROAD TO THE POINT OF BEGINNING. CONTAINING 159.60 ACRES (6,952,357 SQ.FT.), MORE OR LESS. PORTION IN SECTION 11 CONTAINS 81.16 ACRES; PORTION IN SECTION 12 CONTAINS 78.44 ACRES.

SHEET INDEX:

NOT FOR CONSTRUCTION

STATE OF MICHIGAN
SHILOH A. DAHLIN
ENGINEER
NO. 49888
LICENSED PROFESSIONAL ENGINEER

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SITE ENGINEERING
INDUSTRIAL & MULTI-UNIT LAND SURVEYING
CONSTRUCTION LAYOUT

SURVEYING AUTOCAD SERVICES
BOUNDARY SURVEYS
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CLIENT: THE CHALDEAN CATHOLIC CHURCH OF THE USA

COVER SHEET

THE PROPHET ELIJAH RETREAT CENTER
TOWNSHIP: 2N RANGE: 5E
SECTION: 11 & 12
GENOA TOWNSHIP
LIVINGSTON COUNTY
MICHIGAN

REVISED
08-26-2020 SITE PLAN REVIEW RESUBMITTAL
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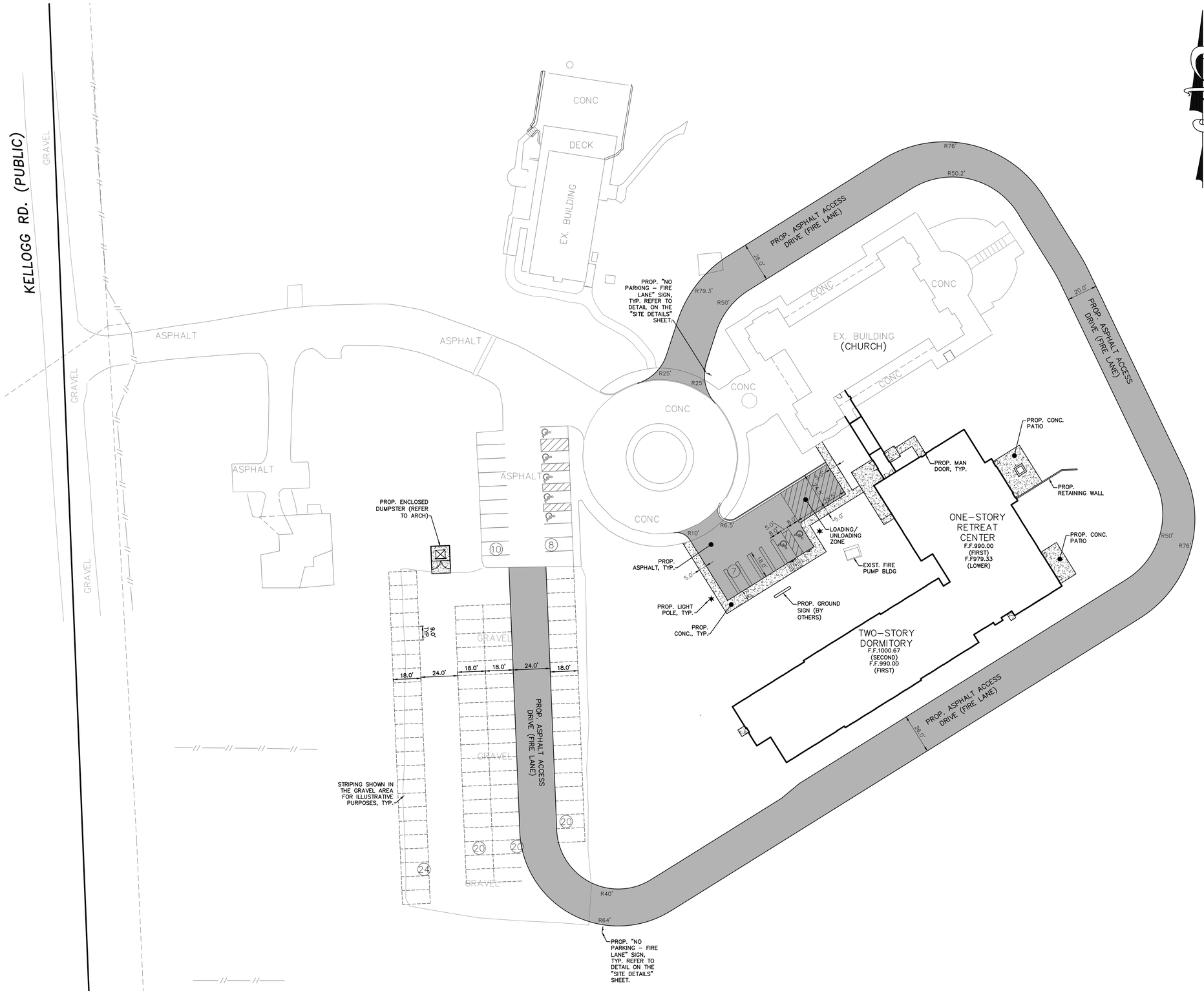

SITE DATA:

OVERALL DEVELOPMENT AREA: 159.60 ACRES (6,952,357 SQ.FT.)

PARKING REQUIRED:
EXISTING CHURCH: 1 PER 3 SEATS (285 SEATS) = 95 SPACES
PROPOSED RETREAT CENTER (MOTELS/HOTELS WITH LOUNGE, RESTAURANT AND CONFERENCE): 1 SPACE PER GUEST ROOM PLUS 1 SPACE PER 100 SF OF LOUNGE, RESTAURANT, CONFERENCE, OR BANQUET ROOMS OR EXHIBIT SPACE: 40 + 34 = 74 SPACES

TOTAL: 95 + 74 = 169 SPACES (INCLUDING 5 BARRIER FREE)

PARKING PROVIDED:

EXISTING:	102 SPACES (INCLUDING 5 ADA PARKING SPACES)
PROPOSED:	7 SPACES (INCLUDING 2 ADA PARKING SPACES)
TOTAL:	109 SPACES (INCLUDING 7 ADA PARKING SPACES)

IT IS PROPOSED THAT THE CHURCH AND THE RETREAT CENTER WILL SHARE PARKING SPACES. IF THIS IS APPROVED BY THE PLANNING COMMISSION, THE REQUIRED NUMBER OF PARKING SPACES MAY BY REDUCED BY UP TO 30% (SECTION 14.02.04)

PROPOSED BUILDING SETBACKS

	DESIGNED
FRONT (WEST)	425'
FRONT (NORTH)	2064'
FRONT (EAST)	1928'
SIDE (SOUTH)	359'

NOTES:

1. ALL WORK TO CONFORM TO CURRENT STANDARDS AND SPECIFICATIONS OF THE GENOA TOWNSHIP, LIVINGSTON COUNTY, AND/OR MDOT.
2. THE CONTRACTOR SHALL NOTIFY MISS DIG (800–482–1771) A MINIMUM OF 72 HOURS PRIOR TO START OF CONSTRUCTION.
3. THE CONTRACTOR SHALL NOTIFY THE TOWNSHIP/COUNTY/STATE AS REQUIRED PRIOR TO START OF CONSTRUCTION.
4. CONTRACTOR TO FIELD VERIFY LOCATION, DEPTH, CONDITION, AND SIZE OF ALL EXISTING UTILITIES PRIOR TO START OF CONSTRUCTION.
5. CONTRACTOR TO PLACE BOLLARDS PER ARCHITECTURAL DRAWINGS. CONTRACTOR TO VERIFY THAT ADA ACCESS IS NOT IMPACTED BY THE BOLLARDS.
6. REFER TO THE LANDSCAPING PLAN (PREPARED BY OTHERS).
7. ALL PERMANENT AND TEMPORARY PAVEMENT MARKINGS AND SIGNAGE SHALL COMPLY WITH THE 2011 MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MMUTCD). MARKINGS AND SIGNAGE INDICATING THE FIRE LANES TO BE INSTALLED PER THE REQUIREMENTS OF THE FIRE DEPARTMENT.
8. REFER TO THE ARCHITECTURAL PLANS FOR ADDITIONAL INFORMATION REGARDING THE DUMPSTER ENCLOSURE AND PAD.
9. ACCESS ROAD TO SITE SHALL BE PROVIDED AND MAINTAINED DURING CONSTRUCTION. ACCESS ROADS SHALL BE CONSTRUCTED TO BE CAPABLE OF SUPPORTING THE IMPOSED LOAD OF FIRE APPARATUS WEIGHTING AT LEAST 84,000 POUNDS.

LEGEND:

- EX. HYDRANT
- EX. PEDESTAL
- EX. TRANSFORMER
- EX. LIGHTPOLE
- EX. UTILITY POLE
- EX. GUY ANCHOR
- EX. COMM. MANHOLE
- EX. SIGN
- EX. POST/BOLLARD
- EX. FLAGPOLE
- EX. MONITOR WELL
- EX. AIR CONDITIONER
- EX. PUMP
- EX. FENCE
- F.F. PROP. FINISH FLOOR ELEV.
- PROP. CURB & GUTTER (PITCH OUT)
- PROP. ASPHALT
- PROP. CONCRETE
- PROP. LIGHT POLE

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NOTE:

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SITE PLAN

THE PROPHET ELIJAH RETREAT CENTER
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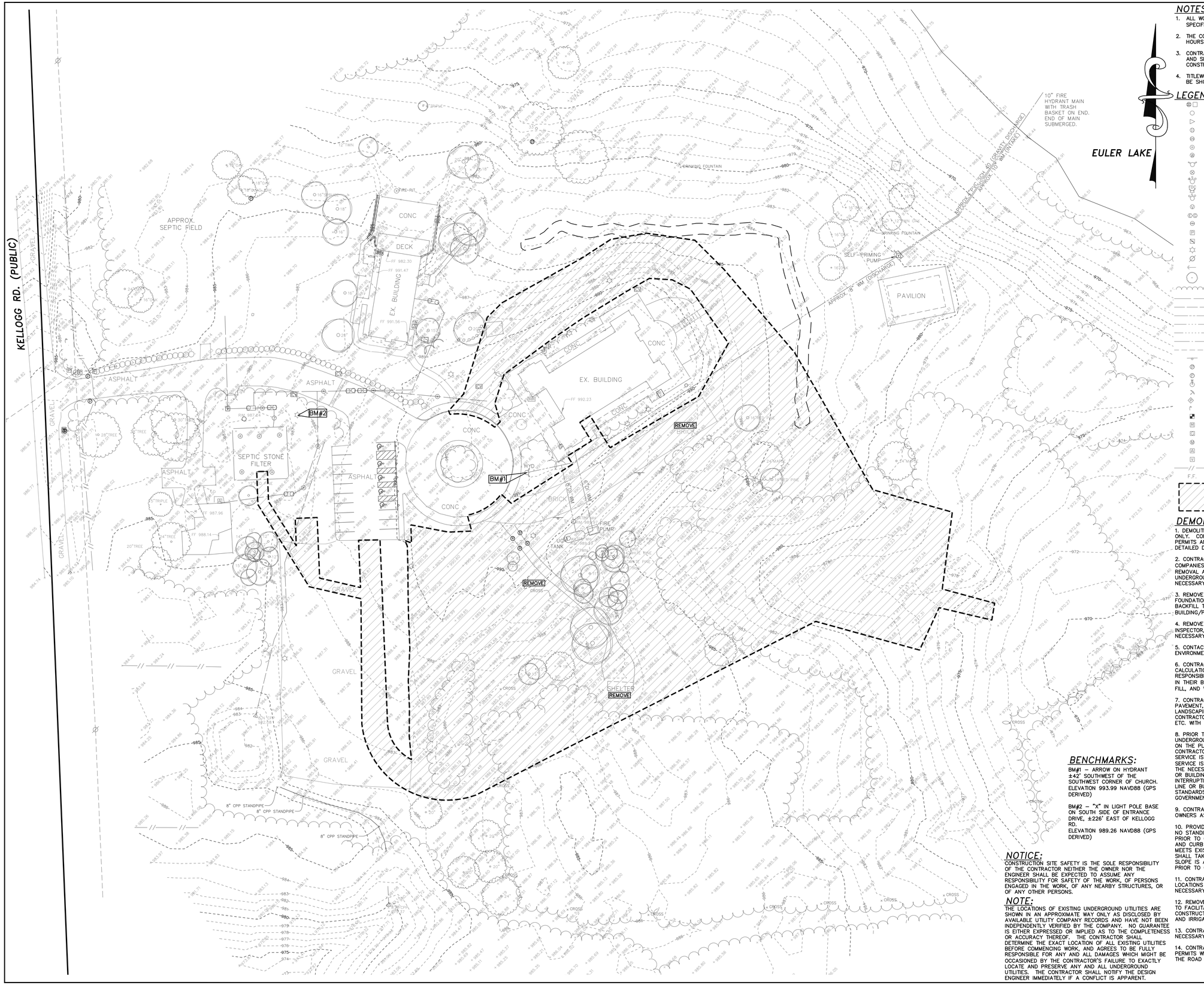

NOTES:

1. ALL WORK TO CONFORM TO CURRENT STANDARDS AND SPECIFICATIONS OF THE TOWNSHIP, COUNTY, AND/OR MDOT.
2. THE CONTRACTOR SHALL NOTIFY MISS DIG A MINIMUM OF 72 HOURS PRIOR TO BEGINNING OF CONSTRUCTION.
3. CONTRACTOR TO FIELD VERIFY LOCATION, DEPTH, CONDITION, AND SIZE OF ALL EXISTING UTILITIES PRIOR TO START OF CONSTRUCTION.
4. TITLEWORK WAS NOT PROVIDED. ALL EASEMENTS MAY NOT BE SHOWN.

LEGEND:

- EX. CATCH BASIN
- EX. MANHOLE
- EX. END SECTION
- EX. OVERFLOW STRUCTURE
- EX. DOWNSPOUT/ROOF DRAIN
- EX. CLEANOUT
- EX. WATER GATE VALVE
- EX. HYDRANT
- EX. WATER VALVE
- EX. WATER SHUTOFF
- EX. FIRE DEPT. CONNECTION
- EX. GAS SHUTOFF
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- EX. FLAGPOLE
- EX. WATER WELL
- EX. SATELLITE DISH
- EX. PARKING METER
- EX. UTILITY MARKER
- EX. SOIL BORING
- EX. MAILBOX
- EX. GENERATOR
- EX. MONITOR WELL
- EX. AIR CONDITIONER
- EX. PUMP
- EX. FENCE
- F.F. EX. FINISH FLOOR ELEVATION
- APPROXIMATE AREA OF DISTURBANCE (CONTRACTOR TO COORDINATE WITH THE OWNER FOR EXACT LIMITS OF DEMOLITION WORK)

DEMOLITION NOTES:

1. DEMOLITION PLAN IS FOR GENERAL INFORMATION PURPOSES ONLY. CONTRACTOR IS RESPONSIBLE FOR OBTAINING NECESSARY PERMITS AND COORDINATING WITH OWNER TO DETERMINE DETAILED DEMOLITION REQUIREMENTS.
2. CONTRACTOR TO COORDINATE WITH FRANCHISE UTILITY COMPANIES AND/OR CITY AND COUNTY DEPARTMENTS FOR REMOVAL AND/OR RELOCATION OF METER BOXES, UTILITY POLES, UNDERGROUND LINES, ABOVE GROUND LINES, ETC., AS NECESSARY.
3. REMOVE EXISTING BUILDING WALLS, FLOOR SLABS, AND FOUNDATION AS DIRECTED BY THE GEOTECHNICAL ENGINEER. BACKFILL THE OPENING WITH SUITABLE MATERIAL TO CARRY BUILDING/PARKING LOT LOADS.
4. REMOVE OR GROUT IN PLACE, AS DIRECTED BY THE FIELD INSPECTOR, EX. SEWERS AND/OR MAINS TO BE ABANDONED AS NECESSARY.
5. CONTACT OWNER FOR ENVIRONMENTAL REPORT FOR ANY ENVIRONMENTAL CONCERNS.
6. CONTRACTOR IS RESPONSIBLE FOR DOING AN EARTHWORK CALCULATION FOR CUT AND FILL REQUIREMENTS, AND IS RESPONSIBLE FOR INCLUDING IMPORT AND EXPORT OF MATERIALS IN THEIR BID. ALL EXCESS MATERIAL (INCLUDING TOPSOIL, CLEAN FILL, AND WASTE MATERIAL) SHALL BE REMOVED FROM THE SITE.
7. CONTRACTOR TO PROTECT EX. WALKS, POSTS, CONDUITS, PAVEMENT, CURBS, GUTTER, WALLS, BUILDINGS, FENCES, LANDSCAPING, TREES, ETC. TO REMAIN DURING CONSTRUCTION. CONTRACTOR TO COORDINATE REPLACEMENT OF LANDSCAPING, ETC. WITH THE OWNER
8. PRIOR TO THE REMOVAL OR ABANDONMENT OF ANY EX. UNDERGROUND UTILITY OR BUILDING SERVICE LINES CALLED FOR ON THE PLANS OR DISCOVERED DURING EXCAVATION, THE CONTRACTOR MUST DETERMINE IF THE UTILITY LINE OR BUILDING SERVICE IS STILL IN USE. IF THE UTILITY LINE OR BUILDING SERVICE IS IN USE/ACTIVE THE CONTRACTOR MUST TAKE ALL THE NECESSARY STEPS TO GUARANTEE THAT THE UTILITY LINE OR BUILDING SERVICE IS RECONNECTED WITHOUT AN INTERRUPTION IN SERVICE. THE RECONNECTION OF THE UTILITY LINE OR BUILDING SERVICE MUST BE IN ACCORDANCE WITH THE STANDARDS AND THE REQUIREMENTS OF THE APPROPRIATE GOVERNMENTAL AGENCY OR PRIVATE UTILITY COMPANY.
9. CONTRACTOR TO COORDINATE WITH THE ADJACENT LAND OWNERS AS REQUIRED.
10. PROVIDE POSITIVE DRAINAGE AT ALL LOCATIONS TO ENSURE NO STANDING WATER WITHIN PAVEMENT OR GREEN AREAS. PRIOR TO CONSTRUCTION, FIELD VERIFY EXISTING PAVEMENT AND CURB ELEVATIONS WHERE PROPOSED PAVEMENT AND CURB MEETS EXISTING PAVEMENT AND CURB. PAVING CONTRACTOR SHALL TAKE EXTRA CARE TO ENSURE 1% MINIMUM PAVEMENT SLOPE IS ACHIEVED AND SHALL CONTACT DESIGN ENGINEER PRIOR TO CONSTRUCTION IF A CONFLICT IS APPARENT.
11. CONTRACTOR TO FIELD VERIFY EXISTING IRRIGATION LOCATIONS AND REMOVE OR RELOCATE EXISTING IRRIGATION AS NECESSARY TO FACILITATE CONSTRUCTION.
12. REMOVE AND REPLACE ADDITIONAL PAVEMENT AS NECESSARY TO FACILITATE LIGHT POLE, SIGNAGE AND IRRIGATION CONSTRUCTION. COORDINATE REMOVALS WITH LIGHTING, SIGNAGE AND IRRIGATION PLANS.
13. CONTRACTOR TO ESTABLISH NEW BENCHMARKS, AS NECESSARY PRIOR TO DEMOLITION WORK.
14. CONTRACTOR TO COORDINATE OBTAINING RIGHT-OF-WAY PERMITS WITH THE COUNTY ROAD COMMISSION IF WORK WITHIN THE ROAD RIGHT-OF-WAYS IS NECESSARY.

BENCHMARKS:

BM#1 – ARROW ON HYDRANT ±42' SOUTHWEST OF THE SOUTHWEST CORNER OF CHURCH.
ELEVATION 993.99 NAVD88 (GPS DERIVED)

BM#2 – "X" IN LIGHT POLE BASE ON SOUTH SIDE OF ENTRANCE DRIVE, ±226' EAST OF KELLOGG RD.
ELEVATION 989.26 NAVD88 (GPS DERIVED)

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TOPOGRAPHIC SURVEY AND DEMOLITION PLAN

THE PROPHET ELIJAH RETREAT CENTER
SECTION: 11 & 12 TOWNSHIP 2N RANGE 5E
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REVISED
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3. THE CONTRACTOR SHALL NOTIFY THE TOWNSHIP/COUNTY/STATE AS REQUIRED PRIOR TO START OF CONSTRUCTION.
4. CONTRACTOR TO FIELD VERIFY LOCATION, DEPTH, CONDITION, AND SIZE OF ALL EXISTING UTILITIES PRIOR TO START OF CONSTRUCTION.
5. CONTRACTOR SHALL FIELD VERIFY EXACT LIMITS OF PAVEMENT IMPROVEMENTS. PAVING CONTRACTOR SHALL TAKE EXTRA CARE TO ENSURE 1% MINIMUM PAVEMENT SLOPE IS ACHIEVED. REMOVAL OF ADDITIONAL PAVEMENT MAY BE NECESSARY.
6. THE CONTRACTOR IS RESPONSIBLE FOR ALL DAMAGE TO EXISTING UTILITIES, CURBS, SIDEWALKS, LANDSCAPING, SIGNS, LIGHT POLES, ETC. TO REMAIN.
7. COMPACTED SAND BANKFILL SHALL BE PROVIDED FOR ALL UTILITIES WITHIN THE INFLUENCE OF PAVED AREAS.
8. STEPS AND HAND RAILING TO MEET CURRENT TOWNSHIP/STATE/FEDERAL REQUIREMENTS.
9. REFER TO THE GEOTECHINICAL ENGINEERING REPORT FOR ADDITIONAL INFORMATION REGARDING SITE PREPARATION, CONSTRUCTION METHODS, ETC.
10. SOIL EROSION AND SEDIMENTATION NOTES AND DETAILS WILL BE PROVIDED ON THE FINAL ENGINEERING PLANS.

LEGEND:

EX. CATCH BASIN	EX. SOIL BORING
EX. MANHOLE	EX. MAILBOX
EX. END SECTION	EX. GENERATOR
EX. OVERFLOW STRUCTURE	EX. MONITOR WELL
EX. DOWNSPOUT/ROOF DRAIN	EX. AIR CONDITIONER
EX. CLEANOUT	EX. PUMP
EX. WATER GATE VALVE	EX. FENCE
EX. HYDRANT	F.F. PROP. FINISH FLOOR ELEVATION
EX. WATER VALVE	PROP. CURB & GUTTER (PITCH OUT)
EX. WATER SHUTOFF	PROP. STORM SEWER
EX. FIRE DEPT. CONNECTION	PROP. SANITARY SEWER
EX. GAS SHUTOFF	PROP. WATER MAIN
EX. GAS VENT	PROP. STRUCTURE
EX. ELECTRIC/GAS METER	PROP. END SECTION
EX. HANDHOLE	PROP. CLEAN-OUT
EX. PEDESTAL	PROP. HYDRANT
EX. TRANSFORMER	PROP. WATER WELL
EX. LIGHTPOLE	PROP. GATE VALVE
EX. UTILITY POLE	PROP. CURB BOX
EX. GUY ANCHOR	xGU 642.00 PROP. GUTTER ELEV.
EX. TREE	xTC 642.50 PROP. TOP OF CURB ELEV.
EX. TREE TAG & NUMBER	xTW 642.50 PROP. TOP OF WALK ELEV.
EX. TREE LINE	xTP 642.00 PROP. TOP OF PAVEMENT ELEV.
EX. SANITARY SEWER	x 643.5 PROP. SPOT ELEV.
EX. STORM SEWER	PROP. DRAINAGE ARROW
EX. WATER MAIN	PROP. SILT FENCE
EX. ELECTRIC CABLE	PROP. TREE PROTECTION FENCE
EX. COMMUNICATION	PROP. INLET FILTER
EX. GAS LINE	PROP. ASPHALT
EX. OVERHEAD LINE	PROP. CONCRETE
EX. SIGN	PROP. LIGHT POLE
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EX. FLAGPOLE	
EX. WATER WELL	
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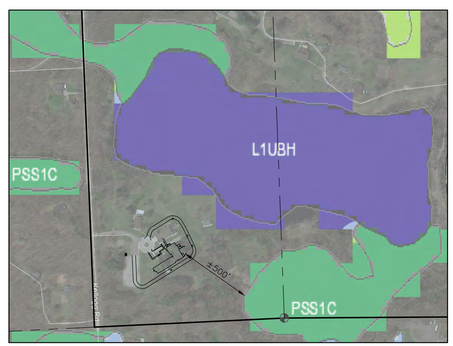
EX. BOULDER	
EX. TREE STUMP	



NOTE:

1. WETLAND BOUNDARIES AS INDICATED ON THE GOOGLE AERIAL WITH U.S. FISH & WILDLIFE SERVICE: NATIONAL WETLANDS INVENTORY WETLANDS-DATA.KML OVERLAY

APPROXIMATE WETLAND BOUNDARIES

SCALE: 1" = ±500 FEET

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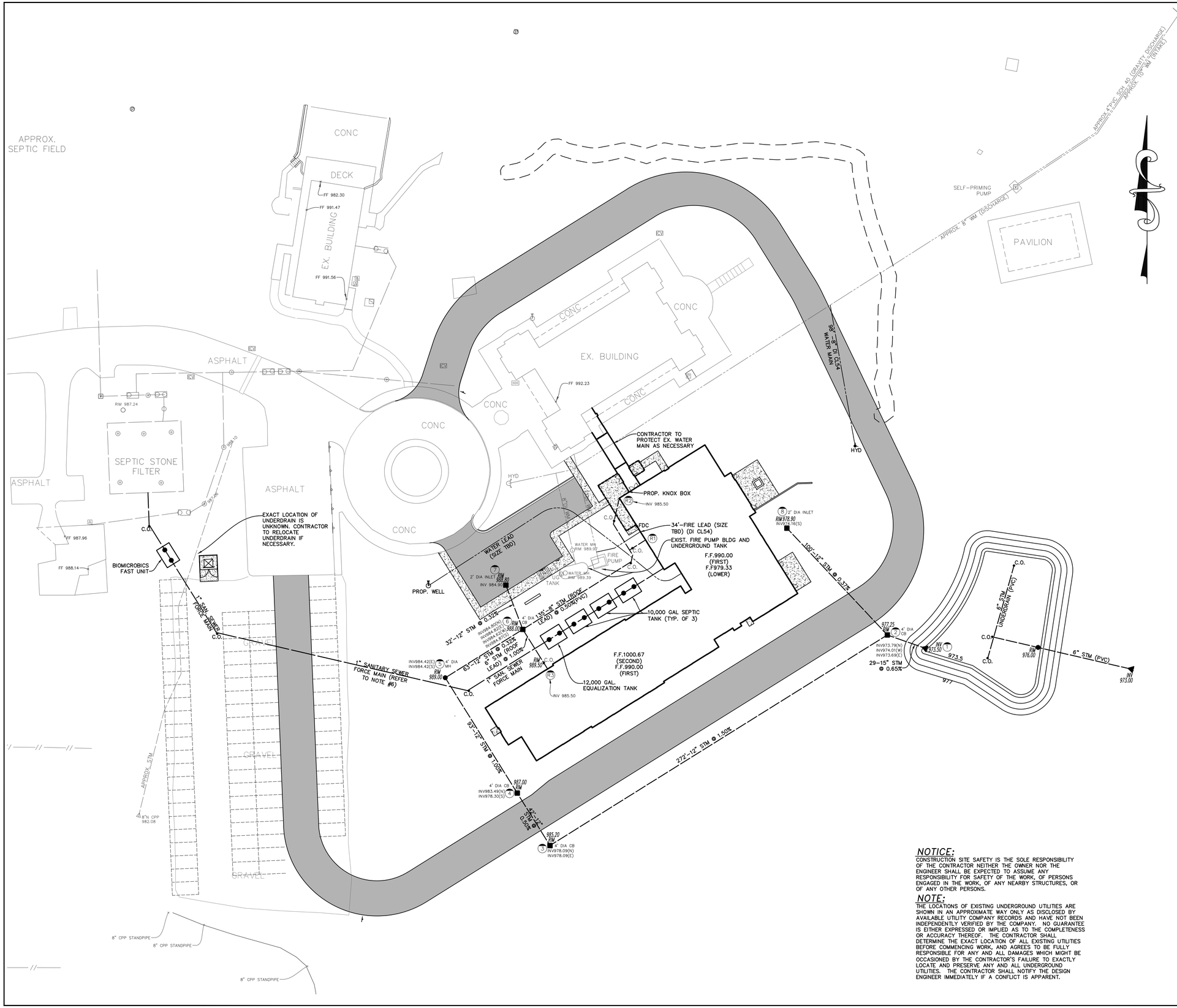

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5. COMPACTED SAND BANKFILL SHALL BE PROVIDED FOR ALL UTILITIES WITHIN THE INFLUENCE OF PAVED AREAS.
6. SANITARY SEWER SYSTEM DESIGN BY OTHERS.
7. ADDITIONAL DESIGN INFORMATION WILL BE PROVIDED ON THE FINAL ENGINEERING PLANS.
8. APPROVAL FROM THE LIVINGSTON COUNTY HEALTH DEPARTMENT FOR THE PROPOSED WELL AND SEPTIC IMPROVEMENTS WILL BE REQUIRED.
9. ALL STORM SEWER 12" AND LARGER TO BE C76 CLIV RCP UNLESS OTHERWISE NOTED.

LEGEND:

- EX. CATCH BASIN
- EX. MANHOLE
- EX. END SECTION
- EX. OVERFLOW STRUCTURE
- EX. DOWNSPOUT/ROOF DRAIN
- EX. CLEANOUT
- EX. WATER GATE VALVE
- EX. HYDRANT
- EX. WATER VALVE
- EX. WATER SHUTOFF
- EX. FIRE DEPT. CONNECTION
- EX. GAS SHUTOFF
- EX. GAS VENT
- EX. ELECTRIC/GAS METER
- EX. HANDHOLE
- EX. PEDESTAL
- EX. TRANSFORMER
- EX. LIGHTPOLE
- EX. UTILITY POLE
- EX. GUY ANCHOR
- EX. TREE
- EX. TREE TAG & NUMBER (e.g. #1023)
- EX. TREE LINE
- EX. SANITARY SEWER
- EX. STORM SEWER
- EX. WATER MAIN
- EX. ELECTRIC CABLE
- EX. COMMUNICATION
- EX. GAS LINE
- EX. OVERHEAD LINE
- EX. SIGN
- EX. POST/BOLLARD
- EX. FLAGPOLE
- EX. WATER WELL
- EX. SATELLITE DISH
- EX. BOULDER
- EX. TREE STUMP
- EX. PARKING METER
- EX. UTILITY MARKER
- EX. MAILBOX
- EX. GENERATOR
- EX. MONITOR WELL
- EX. AIR CONDITIONER
- EX. PUMP
- EX. FENCE
- F.F. PROP. FINISH FLOOR ELEVATION
- PROP. CURB & GUTTER (PITCH OUT)
- PROP. STORM SEWER
- PROP. SANITARY SEWER
- PROP. WATER MAIN
- PROP. STRUCTURE
- PROP. END SECTION
- C.O. PROP. CLEAN-OUT
- PROP. HYDRANT
- PROP. WATER WELL
- PROP. GATE VALVE
- V.B. PROP. CURB BOX
- PROP. ASPHALT
- PROP. CONCRETE
- PROP. LIGHT POLE

NOTICE:

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STATE OF MICHIGAN
SHILOH A. DAHLIN
ENGINEER
NO. 49888
LICENSED PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION

COMMERCIAL SITE PLANNING
SITE ENGINEERING
INDUSTRIAL & MULTI-UNIT
LAND SURVEYING
CONSTRUCTION LAYOUT

SURVEYING AS A SERVICE
BOUNDARY SURVEYS
TOPOGRAPHIC SURVEYS
PARCEL SPLITS

RESIDENTIAL SUBDIVISION
SITE CONDOMINIUM
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CLIENT: THE CHALDEAN CATHOLIC CHURCH OF THE USA

UTILITY PLAN

THE PROPHET ELIJAH RETREAT CENTER
TOWNSHIP: 2N RANGE: 5E
SECTION: 11 & 12
GENOA TOWNSHIP
LIVINGSTON COUNTY
MICHIGAN

REVISED

08-26-2020 SITE PLAN REVIEW RESUBMITTAL
07-31-2020 SITE PLAN REVIEW

DATE: 07-31-2020
DRAWN BY: SD
CHECKED BY: TG

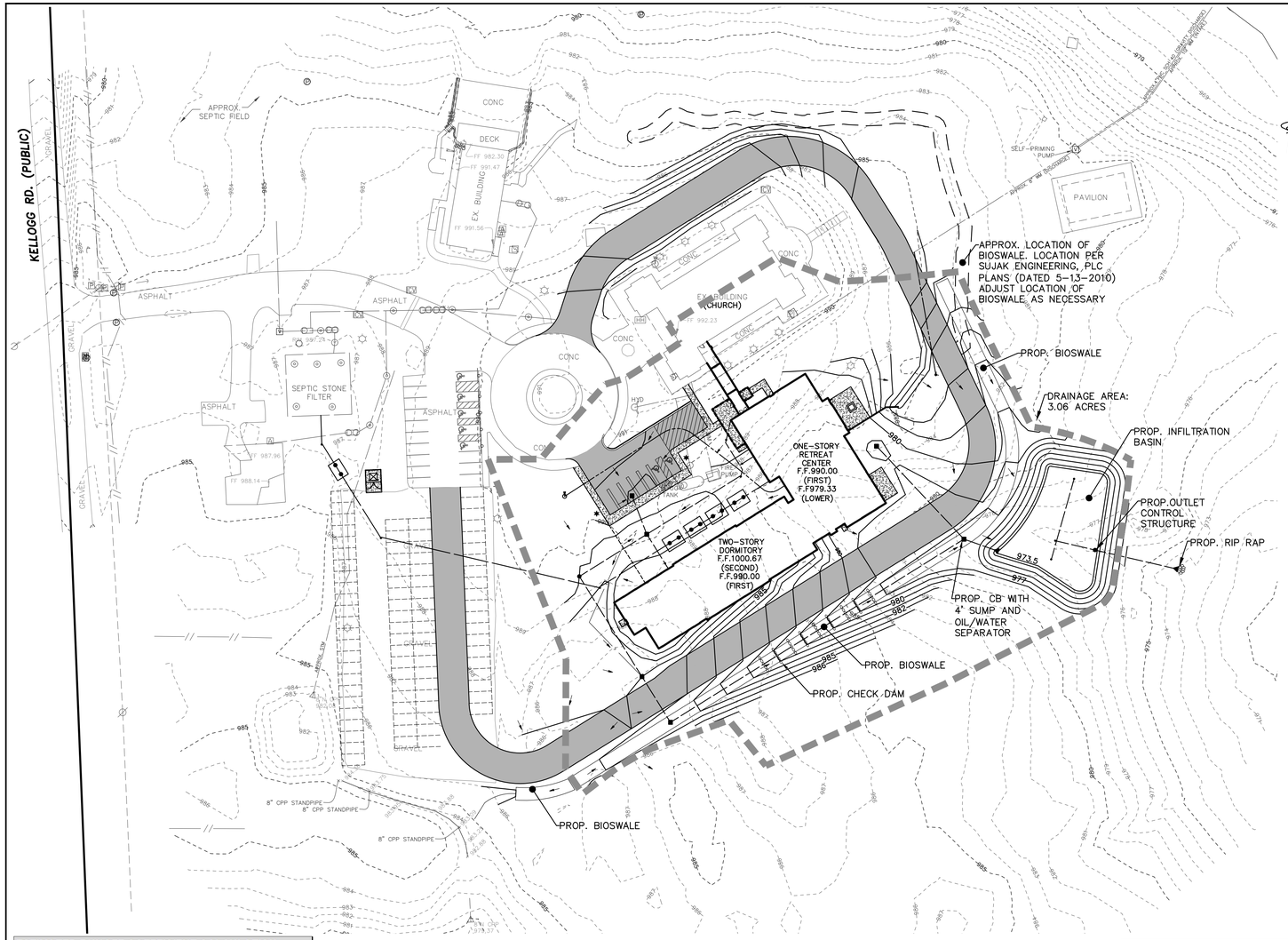
0 15 30

FBK:
CHF:

SCALE HOR 1"= 30 FT.
VER 1"= FT.

5

08-296.3



NOTES:

1. ALL WORK TO CONFORM TO CURRENT STANDARDS AND SPECIFICATIONS OF THE TOWNSHIP, COUNTY, AND/OR MDOT.
2. THE CONTRACTOR SHALL NOTIFY MISS DIG (800-482-1771) A MINIMUM OF 72 HOURS PRIOR TO START OF CONSTRUCTION.
3. THE CONTRACTOR SHALL NOTIFY THE TOWNSHIP/COUNTY/STATE AS REQUIRED PRIOR TO START OF CONSTRUCTION.
4. CONTRACTOR TO FIELD VERIFY LOCATION, DEPTH, CONDITION, AND SIZE OF ALL EXISTING UTILITIES PRIOR TO START OF CONSTRUCTION.
5. CONTRACTOR SHALL FIELD VERIFY EXACT LIMITS OF PAVEMENT IMPROVEMENTS. PAVING CONTRACTOR SHALL TAKE EXTRA CARE TO ENSURE 1% MINIMUM PAVEMENT SLOPE IS ACHIEVED. REMOVAL OF ADDITIONAL PAVEMENT MAY BE NECESSARY.
6. THE CONTRACTOR IS RESPONSIBLE FOR ALL DAMAGE TO EXISTING UTILITIES, CURBS, SIDEWALKS, LANDSCAPING, SIGNS, LIGHT POLES, ETC. TO REMAIN.
7. COMPACTED SAND BANKFILL SHALL BE PROVIDED FOR ALL UTILITIES WITHIN THE INFLUENCE OF PAVED AREAS.
8. STEPS AND HAND RAILING TO MEET CURRENT TOWNSHIP/STATE/FEDERAL REQUIREMENTS.
9. REFER TO THE GEOTECHINICAL ENGINEERING REPORT FOR ADDITIONAL INFORMATION REGARDING SITE PREPARATION, CONSTRUCTION METHODS, ETC.
10. ADDITIONAL DESIGN INFORMATION WILL BE PROVIDED ON THE FINAL ENGINEERING PLANS.

LEGEND:

⊕□	EX. CATCH BASIN	Ⓕ	EX. FLAGPOLE
○	EX. MANHOLE	Ⓦ	EX. WATER WELL
▷	EX. END SECTION	↱	EX. UTILITY MARKER
⊛	EX. DOWNSPOUT/ROOF DRAIN	▪	EX. SOIL BORING
⊙	EX. CLEANOUT	Ⓜ	EX. MAILBOX
Ⓦ	EX. WATER GATE VALVE	Ⓖ	EX. GENERATOR
⊕	EX. HYDRANT	Ⓜ	EX. MONITOR WELL
⊗	EX. WATER VALVE	Ⓐ	EX. AIR CONDITIONER
⊗	EX. WATER SHUTOFF	Ⓟ	EX. PUMP
⊕	EX. FIRE DEPT. CONNECTION	——//——	EX. FENCE
⊗	EX. GAS SHUTOFF	F.F.	PROP. FINISH FLOOR ELEVATION
Ⓖ	EX. GAS VENT	═══	PROP. CURB & GUTTER (PITCH OUT)
ⓔⓜ	EX. ELECTRIC/GAS METER	———	PROP. STORM SEWER
⊖	EX. HANDHOLE	———	PROP. SANITARY SEWER
Ⓟ	EX. PEDESTAL	———	PROP. WATER MAIN
▨	EX. TRANSFORMER	●■	PROP. STRUCTURE
☆	EX. LIGHTPOLE	▶	PROP. END SECTION
∅	EX. UTILITY POLE	●C.O.	PROP. CLEAN-OUT
⟵	EX. GUY ANCHOR	◀	PROP. HYDRANT
———	EX. SANITARY SEWER	◒	PROP. GATE VALVE
———	EX. STORM SEWER	■V.B.	PROP. CURB BOX
———	EX. WATER MAIN	xGU 642.00	PROP. GUTTER ELEV.
———	EX. ELECTRIC CABLE	xTC 642.50	PROP. TOP OF CURB ELEV.
———	EX. COMMUNICATION	xTW 642.50	PROP. TOP OF WALK ELEV.
———	EX. GAS LINE	xTP 642.00	PROP. TOP OF PAVEMENT ELEV.
———	EX. OVERHEAD LINE	x643.5	PROP. SPOT ELEV.
⟵	EX. SIGN	——➤	PROP. DRAINAGE ARROW
⊕	EX. POST/BOLLARD		

NOTE:

1. SOIL TYPE PER THE ONLINE SOIL SURVEY [HTTPS://WEBSOILSURVEY.SC.EGOV.USDA.GOV]
2. SOIL TYPES:
   - MoB (WAWASEE LOAM)
   - FoB (FOX SANDY LOAM)
   - Gd (GILFORD SANDY LOAM)
   - MoD (MIAMI LOAM)
   - Ho (HOUGHTON MUCK)
   - OmB (OWOSSO MIAMI SANDY LOAMS)

APPROXIMATE SOIL TYPE BOUNDARIES

SCALE: 1" = ±300 FEET

STORM WATER MANAGEMENT NARRATIVE:

CURRENTLY, THE DRAINAGE FROM THE PROPOSED IMPROVEMENT AREA FLOWS SOUTH/SOUTHEAST TO THE WETLAND AREA.

TO ACCOMMODATE THE PROPOSED IMPROVEMENT, BIOSWALES HAVE BEEN PROPOSED FOR PRE-TREATMENT FOR THE OVERLAND FLOW AND A CATCH BASIN WITH A FOUR (4)-FT SUMP AND OIL/WATER SEPARATOR HAS BEEN PROPOSED FOR PRE-TREATMENT OF THE ENCLOSED STORM SEWER PRIOR TO DISCHARGE TO THE BASIN.

AN INFILTRATION BASIN HAS BEEN PROPOSED TO ACCOMMODATE THE 100-YEAR STORM EVENT PER LIVINGSTON COUNTY DRAIN COMMISSIONER'S OFFICE REQUIREMENTS.

ESTIMATED RUNOFF COEFFICIENT CALCULATION

LAND USE	AREA (A) (acres)	RUNOFF COEFFICIENT (C)
Building / Pavement	0.98	0.90
Grass	2.08	0.30
TOTAL AREA	3.06	

CALCULATE THE WEIGHTED RUNOFF COEFFICIENT:

C=SUM (Ai x Ci) / A = (0.98 x 0.9) + (2.08 x 0.30) / 3.06

= 0.49

Tributary Area (A) = 3.06 Acres
Compound Run-off Coefficient C = 0.49
Design Constant K = A x C = 1.50
Allowable Outflow Rate (Qo) = 0.61 CFS
(Assume 0.2 CFS / Acre)

1 Duration (Minutes)	2 Duration (Seconds)	3 Intensity (100 yr Storm) (In/Hr)	4 Col. #2 x Col. #3 (Inches)	5 Inflow Volume = Col.4 x K (Cu. Ft)	6 Outflow Volume Col.2 x Qo (Cu. Ft)	7 Storage Volume Col.5 - Col.6 (Cu. Ft)
5	300	9.17	2,751	4,125	184	3,941
10	600	7.86	4,716	7,071	367	6,704
15	900	6.88	6,192	9,284	551	8,733
20	1,200	6.11	7,332	10,994	734	10,259
30	1,800	5.00	9,000	13,495	1,102	12,393
60	3,600	3.24	11,664	17,489	2,203	15,286
90	5,400	2.39	12,906	19,351	3,305	16,046
120	**7,200**	**1.90**	**13,680**	**20,512**	**4,406**	**16,105**
180	10,800	1.34	14,472	21,699	6,610	15,090
240	14,400	1.04	14,976	22,455	8,813	13,642
300	18,000	0.85	15,300	22,941	11,016	11,925
360	21,600	0.71	15,336	22,995	13,219	9,776
420	25,200	0.62	15,624	23,427	15,422	8,004
480	28,800	0.54	15,552	23,319	17,626	5,693
540	32,400	0.49	15,876	23,804	19,829	3,976
620	37,200	0.43	15,996	23,984	22,766	1,218

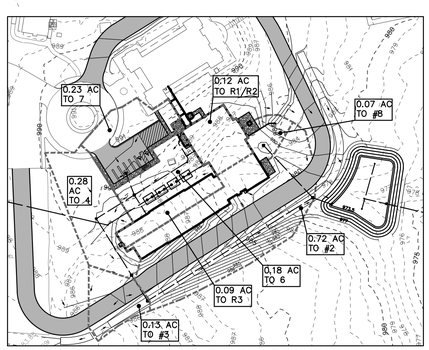
Therefore the required volume for a 100-year storm event is: 16,105 Cu. Ft.
NOTIFY THE DESIGN ENGINEER IMMEDIATELY IF A CONFLICT IS APPARENT.

PROVIDED VOLUME

Elevation	Basin Area	Average for Basin	Volume	Cumulative Volume
977.00	FREEBOARD			
976.00	8,421	7,895	7,895	17,830
975.00	7,368	6,870	6,870	9,936
974.00	6,371	6,133	3,066	3,066
973.50	5,894			

STORAGE ELEVATIONS

			$Z_{PERMANENT\ WATER}$ =	973.5
$V_{t\ 100}$ =	16,105	cf provided at	Z_{100} =	975.8
			$Z_{FREEBOARD}$=	977.0



DRAINAGE AREAS FOR STORM SEWER CALCULATIONS

SCALE: 1" = 100 FEET

STORM SEWER CALCULATIONS:

FROM MH INPUT	TO MH	INCREMENT ACRES (A)	C	EQUIV. AREA 100% ACRES CA	TOTAL AREA 100% ACRES SUM CA	T TIME (MIN.)	I (IN PER HOUR)	Q=CIA C.F.S. FLOW	CAPACITY OF SEWER (C.F.S.)	DIAM. OF PIPE (IN.)	LENGTH OF LINE (FT.)	SLOPE OF PIPE (%)	MIN HG BASED ON "Q" (%)	HG FOR 2.5 FPS GIVEN "D" (%)	ACTUAL HG (%)	VEL. FLOW FULL (FT./ SEC.)	TIME OF FLOW (MIN.)	H.G. ELEV. UPPER END	H.G. ELEV. LOWER END	GROUND ELEV. UPPER END	GROUND ELEV. LOWER END	INVERT ELEV. UPPER END	INVERT ELEV. LOWER END
R1 & R2	6	0.12	0.90	0.11	0.11	15.00	4.38	0.47	0.86	8	135	0.50	0.15	0.52	0.15	2.45	0.9	985.61	985.40	990.00	988.00	985.50	984.82
6	5	0.18	0.40	0.07	0.45	15.90	4.28	1.90	2.02	12	63	0.32	0.29	0.30	0.29	2.57	0.4	985.40	985.22	988.00	989.00	984.62	984.42
5	4	0.00	0.90	0.00	0.45	16.30	4.24	1.90	3.57	12	93	1.00	0.29	0.30	0.29	4.54	0.3	984.56	984.29	989.00	987.00	984.42	983.49
4	3	0.28	0.40	0.11	0.56	16.60	4.21	2.34	2.52	12	42	0.50	0.43	0.30	0.43	3.21	0.2	979.07	978.89	987.00	985.20	978.30	978.09
3	2	0.13	0.60	0.08	0.64	16.80	4.19	2.66	4.36	12	272	1.50	0.56	0.30	0.56	5.56	0.8	976.33	974.81	985.20	977.25	978.09	974.01
2	1	0.72	0.50	0.36	1.02	17.60	4.11	4.19	5.21	15	29	0.65	0.42	0.23	0.42	4.25	0.1	974.63	974.50	977.25	-	973.69	973.50
7	6	0.23	0.80	0.18	0.18	15.00	4.38	0.81	2.02	12	32	0.32	0.05	0.30	0.05	2.57	0.2	985.61	985.60	988.80	988.00	984.90	984.80
8	2	0.07	0.35	0.02	0.02	15.00	4.38	0.81	2.17	12	100	0.37	0.05	0.30	0.05	2.76	0.6	974.68	974.63	978.90	977.25	974.16	973.79
R3	6	0.09	0.90	0.08	0.08	15.00	4.38	0.35	0.56	6	63	1.00	0.40	0.77	0.40	2.86	0.4	985.65	985.40	990.00	988.00	985.50	984.87

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STORM WATER MANAGEMENT PLAN

THE PROPHET ELIJAH RETREAT CENTER
SECTION: 11 & 12 TOWNSHIP:2N RANGE:5E
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REVISED

08-26-2020 SITE PLAN REVIEW RESUBMITTAL
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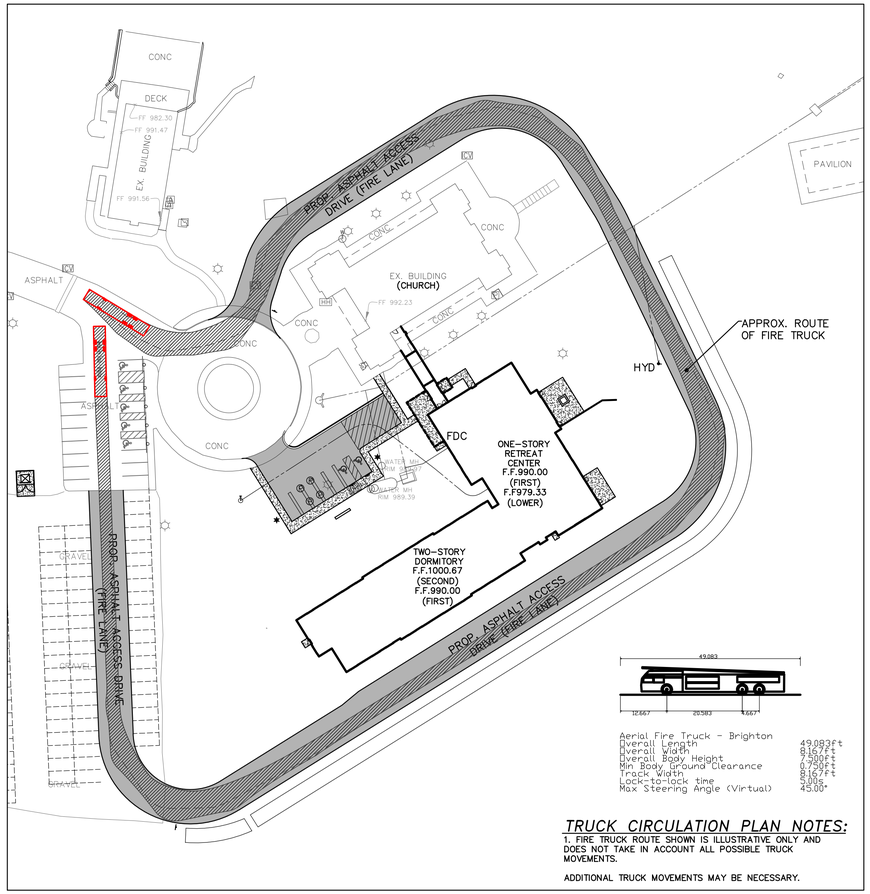


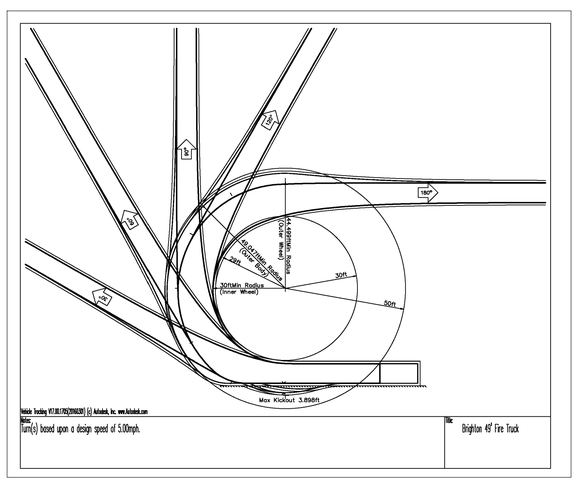
TRUCK CIRCULATION PLAN NOTES:

1. FIRE TRUCK ROUTE SHOWN IS ILLUSTRATIVE ONLY AND DOES NOT TAKE IN ACCOUNT ALL POSSIBLE TRUCK MOVEMENTS.

ADDITIONAL TRUCK MOVEMENTS MAY BE NECESSARY.

FIRE TRUCK CIRCULATION PLAN

SCALE: 1" = 50 FEET



FIRE TRUCK TURNING RADII

1" = ±30 FEET

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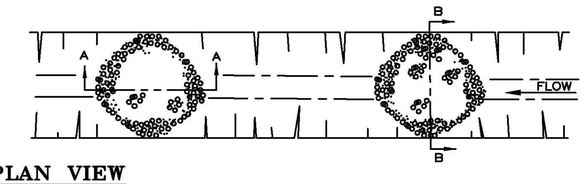
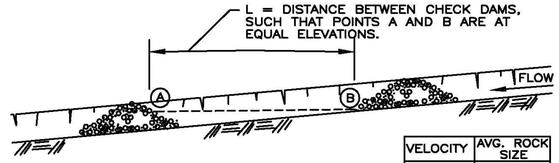
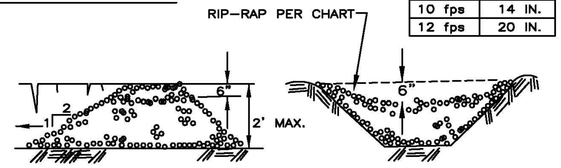


PLAN VIEW



CROSS-SECTION

VELOCITY	AVG. ROCK SIZE
6 fps	5 IN.
8 fps	10 IN.
10 fps	14 IN.
12 fps	20 IN.



SECTION A-A

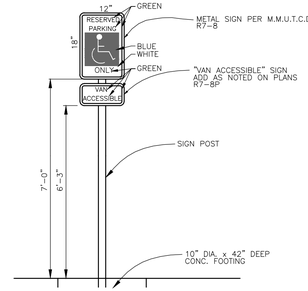
NOTE: CHECK DAMS GREATER THAN TWO FEET IN DEPTH MAY SERIOUSLY IMPACT THE FLOW CHARACTERISTICS OF THE DITCH.

SECTION B-B

DEPENDING ON THE VELOCITY, SLOPE AND SOILS, USE THE PROPER SIZED RIP-RAP TO HANDLE THE SHEER STRESS OF THE SLOPE/CHANNEL.

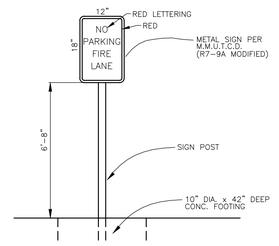
CHECK DAMS

NOT TO SCALE



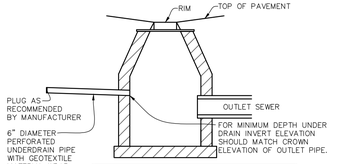
ADA BARRIER FREE SIGN

NOT TO SCALE

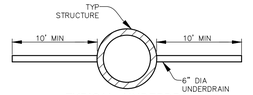


"NO PARKING FIRE LANE" SIGN

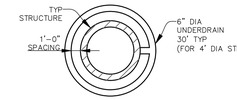
NOT TO SCALE



NOTES:
1. BACKFILL SHALL MEET M.D.O.T. REQUIREMENTS FOR 34R OR 34Q OPEN GRADED DRAINAGE COURSE AGGREGATES. THIS BACKFILL SHALL EXTEND 4" BELOW PIPE & FULL WIDTH OF TRENCH.
2. SLOPE PIPE @ MIN 1% SLOPE



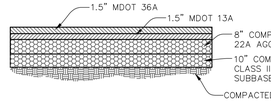
TYPICAL UNDERDRAIN PARALLEL W/CURB



TYPICAL UNDERDRAIN IN PARKING LOT

TYPICAL FINGER DRAIN DETAIL

NOT TO SCALE

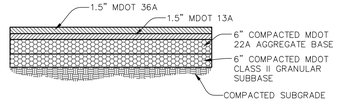


NOTE:
PAVEMENT CROSS-SECTION SHOWN IS THE MINIMUM BITUMINOUS PAVEMENT CROSS-SECTION FOR GENOA TOWNSHIP BITUMINOUS ROAD DETAIL PER TOWNSHIP REQUIREMENTS. CROSS-SECTION IS SUBJECT TO GEOTECHNICAL ENGINEER RECOMMENDATIONS/APPROVAL PRIOR TO FINAL SITE PLAN APPROVAL. CONTRACTOR TO VERIFY PAVEMENT CROSS-SECTION WITH GEOTECHNICAL ENGINEER AND OWNER.

BITUMINOUS PAVEMENT CROSS-SECTION

(FIRE LANE)

NOT TO SCALE



NOTE:
PAVEMENT CROSS-SECTION SHOWN IS THE MINIMUM BITUMINOUS PAVEMENT CROSS-SECTION PER TOWNSHIP REQUIREMENTS. CROSS-SECTION IS SUBJECT TO GEOTECHNICAL ENGINEER RECOMMENDATIONS/APPROVAL PRIOR TO FINAL SITE PLAN APPROVAL. CONTRACTOR TO VERIFY PAVEMENT CROSS-SECTION WITH GEOTECHNICAL ENGINEER AND OWNER.

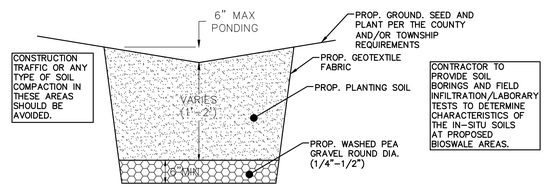
BITUMINOUS PAVEMENT CROSS-SECTION

(PARKING LOT)

NOT TO SCALE

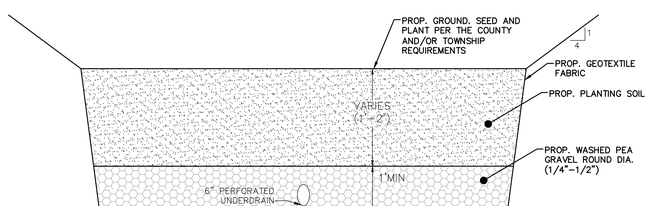
BIOSWALE/BASIN NOTES:

1. INSTALL TEMPORARY SEDIMENT CONTROL BMPS.
2. COMPLETE SITE GRADING, MINIMIZING COMPACTION AS MUCH AS POSSIBLE.
3. EXCAVATE THE BIOSWALES/BASIN TO THE PROP. DEPTHS AND SCARIFY THE EX. SOIL SURFACES. DO NOT COMPACT IN-SITU SOILS.
4. BACKFILL WITH THE AMENDED SOIL. LIGHT HAND TAMPING IS ACCEPTABLE IF NECESSARY.
5. PLANTING SOIL MUST BE A LOAM TOPSOIL CAPABLE OF SUPPORTING A HEALTHY VEGETATIVE COVER. SOILS MUST BE AMENDED WITH COMPOSTED ORGANIC MATERIAL. SOILS MUST BE FREE OF CONSTRUCTION DEBRIS AND SUBSOILS. SOILS MUST HAVE A CLAY CONTENT LESS THAN 10%, BE FREE OF TOXIC SUBSTANCES AND UNWANTED PLANT MATERIAL AND HAVE A 20-30% ORGANIC MATTER CONTENT. ADDITIONAL ORGANIC MATTER CAN BE ADDED TO THE SOIL TO INCREASE WATER HOLDING CAPACITY. TESTS SHOULD BE CONDUCTED BY A QUALIFIED GEOTECHNICAL ENGINEER TO VERIFY VOLUME STORAGE CAPACITY OF THE PLANTING SOIL.
6. PRESOAK THE PLANTING SOIL PRIOR TO PLANTING VEGETATION TO AID IN SETTLEMENT.
7. COMPLETE FINAL GRADING TO ACHIEVE PROPOSED DESIGN ELEVATIONS, LEAVING SPACE FOR UPPER LAYER OF COMPOST, MULCH OR TOPSOIL.



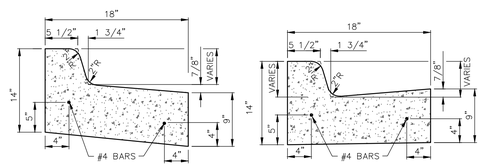
BIOSWALE CROSS-SECTION A-A

NOT TO SCALE



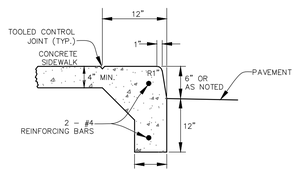
INFILTRATION BASIN CROSS-SECTION B-B

NOT TO SCALE



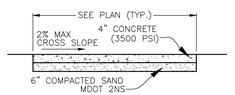
CONCRETE CURB & GUTTER - ON-SITE

NOT TO SCALE



INTEGRAL SIDEWALK AND CURB

NOT TO SCALE



CONCRETE SIDEWALK DETAIL

NOT TO SCALE

STATE OF MICHIGAN
SHILOH A. DAHLIN
ENGINEER
NO. 49888
LICENSED PROFESSIONAL ENGINEER

NOT FOR CONSTRUCTION

COMMERCIAL
CONSTRUCTION
SITE ENGINEERING
INDUSTRIAL & MULTI-UNIT
LAND SURVEYING
CONSTRUCTION LAYOUT

SURVEYING
AS-BUILTS
BOUNDARY SURVEYS
TOPOGRAPHIC SURVEYS
PARCEL SPLITS

RESIDENTIAL
SUBDIVISIONS
SITE CONDOMINIUM
MULTI-FAMILY
PLOT PLANS
CONSTRUCTION LAYOUT

ALPINE ENGINEERING, INC.
CIVIL ENGINEERS & LAND SURVEYORS

46892 WEST ROAD
SUITE 109
NOVI, MICHIGAN 48377

(248) 926-3701 (BUS)
(248) 926-3765 (FAX)
WWW.ALPINE-INC.NET

Know what's below Call before you dig.

CLIENT: THE CHALDEAN CATHOLIC CHURCH OF THE USA

SITE DETAILS

THE PROPHET ELIJAH RETREAT CENTER
TOWNSHIP: 2N RANGE: 5E
SECTION: 11 & 12
GENOA TOWNSHIP
LIVINGSTON COUNTY
MICHIGAN

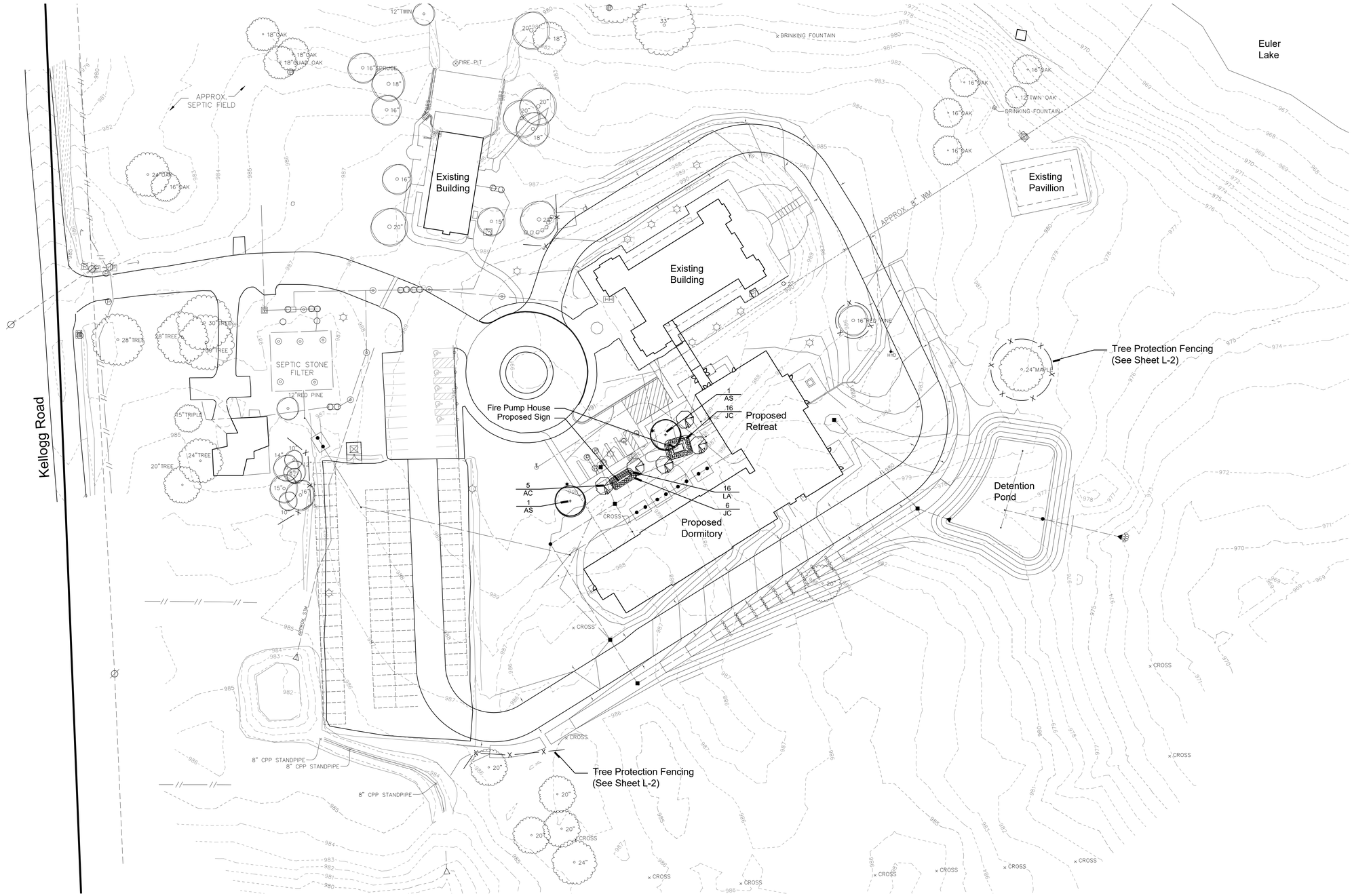
REVISED

08-26-2020 SITE PLAN REVIEW RESUBMITTAL
07-31-2020 SITE PLAN REVIEW

DATE: 07-31-2020
DRAWN BY: SD
CHECKED BY: TG
AS NOTED
FBK:
CHF:
SCALE HOR 1"= FT.
VER 1"= FT.

7

08-296.3



Plant List

sym.	qty.	botanical name	common name	caliper	spacing	root	height
AC	5	Amelanchier laevis	Shadblow	2.5"	as shown	B&B	
AS	2	Acer saccharum 'Green Mountain'	Sugar Maple	3.0"	as shown	B&B	
JC	22	Juniperus ch. "Keteleer"	Keteleer Juniper		as shown	B&B	6'
LA	16	Lavandula angustifolia 'Dwarf Blue'	Dwarf Blue Lavender		18" o.c.	cont.	#2

ALLEN DESIGN
LAND PLANNING / LANDSCAPE ARCHITECTURE
557 CARPENTER • NORTHVILLE, MI 48167
248.467.4668 • Fax 248.349.0559
Email: jca@wideopenwest.com

Seal:

STATE OF MICHIGAN
JAMES C. ALLEN
Landscape Architect
REGISTERED LANDSCAPE ARCHITECT

Title:

Landscape Plan

Project:

The Prophet Elijah Retreat Center
Genoa Township, Michigan

Prepared for:

Saroki Architecture
430 N. Old Woodward
Birmingham, Michigan 48009
248.258.5707

Revision:	Issued:
Site Plan Review	July 31, 2020
Site Plan Submission	August 26, 2020

Job Number:

20-043

Drawn By:	Checked By:
jca	jca

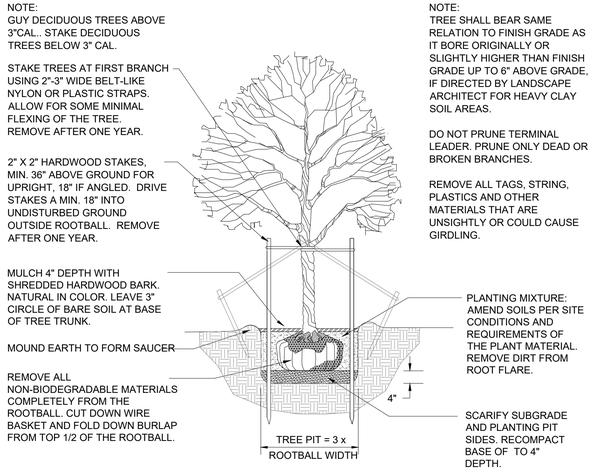
0' 10' 20' 40'

NORTH
1"=40'

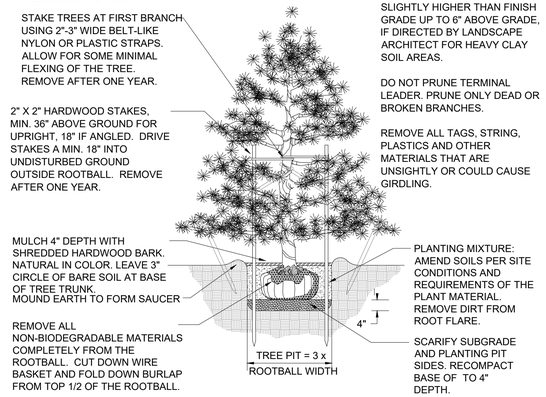
Sheet No.

L-1

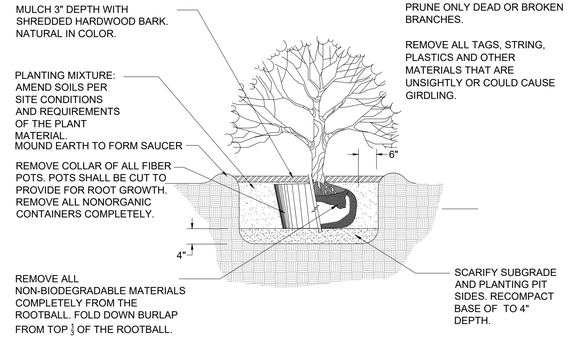
Know what's below. Call before you dig.



DECIDUOUS TREE PLANTING DETAIL

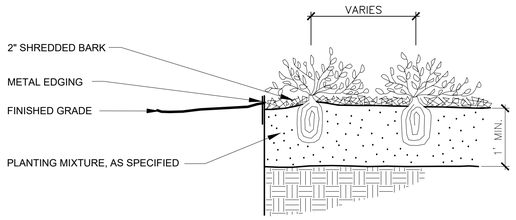


EVERGREEN TREE PLANTING DETAIL



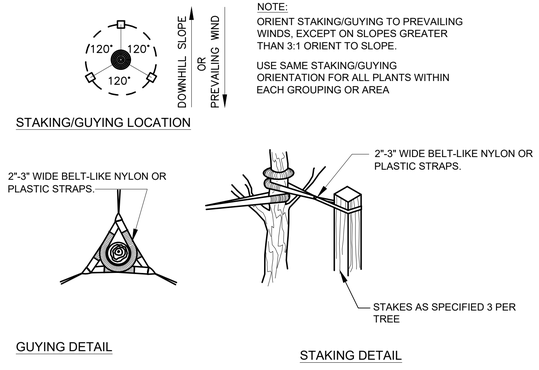
SHRUB PLANTING DETAIL

NOT TO SCALE



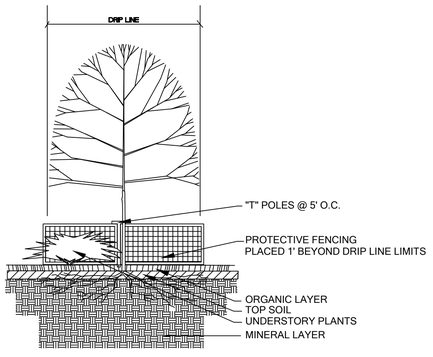
PERENNIAL PLANTING DETAIL

Not to scale



TREE STAKING DETAIL

Not to scale



1. Either Plastic or Wood Orange Snow Fencing Shall be Installed at or Beyond the Dripline, Unless More Substantial Fencing is Required.
2. Stakes Shall be Metal "T" Poles Spaced no Further than 5' on Center.
3. Fencing Shall not be Installed Closer to the Tree than the Dripline of Those Trees to be Saved. Special Circumstances Shall be Reviewed by the City.
4. Fencing Shall be Erected Prior to Construction. The City Shall be Notified Once the Fencing is Instaled for Inspection.
5. Under no Circumstances Shall the Portective Fencing be Removed Without Proper Approval from the City.
6. No Person Shall Conduct any Activity Within Areas Proposed to Remain. This Shall Include, but not Limited to:
   a. No Solvents or Chemicals Within Protected Areas.
   b. No Building Materials or Construction Equipment Within Protected Areas.
   c. No Grade Changes, Including Fill, Within Protected Areas.
   d. No Removal of Vegetation from the Ground Up Without Permission from the Proper Reviewing Authority, Including the Woodlands Review Board.
   e. Any Required Swale Needs to be Directed Around the Protected Areas. Instances Where Swales are Approved Through a Protected Area, the Swales Need to be HAND DUG. Machinery of Any Kind is Prohibited.
7. Regulated Woodland or Regulated Trees Adjacent to the Property are Also Required to be Protected Whether or not they are Shown on the Plan.

TREE PROTECTION DETAIL

NO SCALE

LANDSCAPE NOTES

1. All plants shall be north Midwest American region grown, No. 1 grade plant materials, and shall be true to name, free from physical damage and wind burn.
2. Plants shall be full, well-branched, and in healthy vigorous growing condition.
3. Plants shall be watered before and after planting is complete.
4. All trees must be staked, fertilized and mulched and shall be guaranteed to exhibit a normal growth cycle for at least two (2) full years following Township approval.
5. All material shall conform to the guidelines established in the most recent edition of the American Standard for Nursery Stock.
6. Provide clean backfill soil, using material stockpiled on site. Soil shall be screened and free of any debris, foreign material, and stone.
7. "Agriform" tabs or similar slow-release fertilizer shall be added to the planting pits before being backfilled.
8. Amended planting mix shall consist of 1/3 screened topsoil, 1/3 sand and 1/3 compost, mixed well and spread to the depth as indicated in planting details.
9. All plantings shall be mulched per planting details located on this sheet.
10. The Landscape Contractor shall be responsible for all work shown on the landscape drawings and specifications.
11. No substitutions or changes of location, or plant types shall be made without the approval of the Landscape Architect.
12. The Landscape Architect shall be notified in writing of any discrepancies between the plans and field conditions prior to installation.
13. The Landscape Contractor shall be responsible for maintaining all plant material in a vertical condition throughout the guaranteed period.
14. The Landscape Architect shall have the right, at any stage of the installation, to reject any work or material that does not meet the requirements of the plans and specifications, if requested by owner.
15. Contractor shall be responsible for checking plant quantities to ensure quantities on drawings and plant list are the same. In the event of a discrepancy, the quantities on the plans shall prevail.
16. The Landscape Contractor shall seed and mulch or sod (as indicated on plans) all areas disturbed during construction, throughout the contract limits.
17. A pre-emergent weed control agent, "Preen" or equal, shall be applied uniformly on top of all mulching in all planting beds.

ALLEN DESIGN
LAND PLANNING / LANDSCAPE ARCHITECTURE
557 CARPENTER • NORTHVILLE, MI 48167
248 467 4668 • Fax 248 349 0559
Email: jca@wideopenwest.com

Seal:

Title:

Landscape Details

Project:

The Prophet Elijah Retreat Center
Genoa Township, Michigan

Prepared for:

Saroki Architecture
430 N. Old Woodward
Birmingham, Michigan 48009
248.258.5707

Revision:	Issued:
Site Plan Review	July 31, 2020
Site Plan Submission	August 26, 2020

Job Number:

20-043

Drawn By:	Checked By:
jca	jca

Know what's below. Call before you dig.

Sheet No.

L-2

KELLOGG RD. (PUBLIC)

EULER LAKE

EXISTING ASPHALT DRIVE

EXISTING RESIDENCE

ADD NEW BUILDING ADDRESS ADJACENT TO EXISTING ADDRESS SIGNS, MINIMUM 6" HIGH NUMBERS

EXISTING ASPHALT PARKING LOT (18 CARS)

NEW TRASH ENCLOSURE

EXISTING GRAVEL PARKING LOT (±84 CARS)

NEW ASPHALT ACCESS DRIVE

EXISTING BUILDING

PATIO

DECK

EXISTING SHED

EXISTING CONCRETE DRIVE

ZONED: PRF

EXISTING CHURCH

NEW ASPHALT ACCESS DRIVE

RELOCATE EXISTING POLE LIGHT NORTH OF ACCESS DRIVE AS SHOWN

POST MOUNTED KNOX BOX

LOADING AREA: 35' x 24' (SMALL TRUCKS & VANS)

NEW ASPHALT DROP-OFF / SHORT TERM PARKING (7 CARS)

NEW CONCRETE WALK

NEW POLE MOUNTED LIGHTING (2 QTY.)

NEW GROUND SIGN WITH LANDSCAPE & LIGHTING

EXISTING WATER TANK (BELOW GRADE)

NEW LANDSCAPING TO SCREEN EXISTING FIRE PUMP BUILDING

PROPOSED SEPTIC TANKS

ONE-STORY RETREAT CENTER 8,421 SF

TWO-STORY DORMITORY 16,480 SF

EXISTING TRANSFORMER

EXISTING DECORATIVE POLE MOUNTED LIGHTS TO REMAIN

EXISTING 8" WATERMAIN

NEW 5' CONCRETE WALK

NEW 4'X4' SCORED CONCRETE PATIO

± 441'-2½" TO LAKE

EXISTING PAVILION

NEW FIRE HYDRANT

NEW LANDSCAPE RETAINING WALL AS REQUIRED

MODIFIED TREE-LINE

NEW ASPHALT ACCESS DRIVE

MODIFIED TREE-LINE

EXISTING OUTDOOR CHAPEL TO BE RELOCATED

PROPOSED LOCATION FOR EXISTING OUTDOOR CHAPEL

PROPOSED DETENTION BASIN

MODIFIED TREE-LINE

H6 / A010 Architectural Site Plan

SCALE: 1" = 30'-0"

SAROKI ARCHITECTURE

430 N. OLD WOODWARD
BIRMINGHAM, MI 48009

P. 248.258.5707
F. 248.258.5515

SarokiArchitecture.com

Project:

The Prophet Elijah Retreat Center

1391 Kellogg Road
Brighton, Michigan 48114

Date: **Issued For:**

03-30-2019	CLIENT MEETING
11-17-2019	CLIENT MEETING
12-13-2019	CLIENT REVIEW
01-21-2020	CLIENT REVIEW
02-06-2020	CLIENT REVIEW
05-14-2020	CLIENT REVIEW
05-27-2020	SCHEMES A,B,C
06-02-2020	CLIENT REVIEW
06-15-2020	MAR ADDAI SHRINE RELOCATION
07-31-2020	SITE PLAN REVIEW
08-26-2020	SITE PLAN REVIEW RESUBMITTAL

Sheet No.:

A010

ARCHITECTURAL SITE PLAN

Oak Landscape Lighting

CATALOG #			
PROJECT NAME		TYPE	

SPECIFICATION SHEET

PRODUCT # GR526-BK

Housing: Die-cast aluminum Knuckle with adjustable thumb screw. Easy adjustable for vertical tilt and horizontal rotation.

Lens: Heat resistant Convex Glass Lens is fully sealed with silicon sealant reduces water build-up and puddle on the lens. Flat Tempered Glass.

Socket: High Temperature ceramic socket with nickel contacts, Stainless Steel spring

Lamp: LED MR16 Lamp type, Max wattage 50W.

Gasket: High temperature silicone O-ring for water tight seal.

Wiring: 3' #18/2 Direct bury landscape lighting wire with UL listed, Pre-stripped hub-ready leads for quick installation.

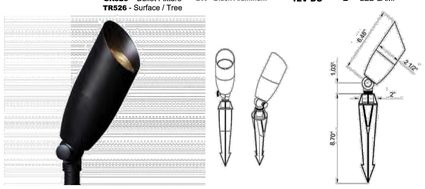
Mounting: In-ground ABS Stake or Surface/Tree Mounting.

Electrical Notes: A remote 12V transformer required, may be ordered to Elram, Inc. separately. Voltage range for 12V halogen lamps are 11V-12.5V. Voltage range for LED lamps are 9V-17V.

Hardware: Hexagonal crew fix to part

Warranty: One (1) year warranty against housing and body defects.

GR526			
SERIES	FINISH	VOLTAGE	LAMP
GR526 - Bullet Fixture **TR526** - Surface / Tree	**BK** Black Aluminum	**12V DC**	**L** - LED LAMP



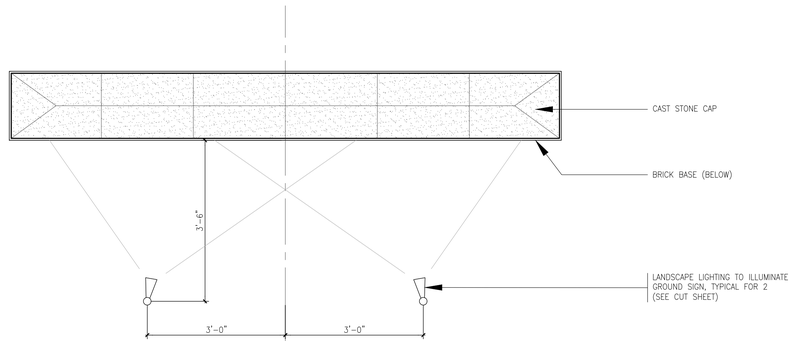
ACCESSORIES

In-Ground ABS Stake

Surface / Tree Mounting

ELRAM, INC · **TF: 855-415-5550 · T: 323-46-ELRAM** (35726) · **elraminc.com · info@elraminc.com**

D2 / A011 **Ground Sign Lighting**
SCALE: NONE



E6 / A011 **Ground Sign - Plan**
SCALE: 3/4" = 1'-0"

Radean Arm Mount
LED Area Luminaire

Catalog Number

Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements.

Specifications

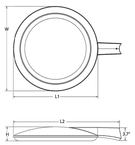
EPA: 0.75 ft² (0.05 m²)

Length:
L1 24" (61cm)
L2 30" (60.96 cm)

Width: 24" (61cm)

Height: 4" (10.2cm)

Weight (max): 29lbs (13.15Kg)



Introduction

The RADEAN arm mount luminaire is the perfect choice for pedestrian applications where daytime aesthetics and visual comfort are needed. Adding architectural flair to any space, the RADEAN's low-profile shape and smooth curves blend in while adding a touch of elegance.

Perfect for campuses, parks, pedestrian malls, courtyards and pathways, the RADEAN arm mount is the Architect's choice to provide beautiful aesthetics both day and night.

MOUNTING HEIGHT = 20'

Ordering Information **EXAMPLE:** RAD1 LED P3 30K SYM MVOLT RPA PE DNAXD

RAD1 LED

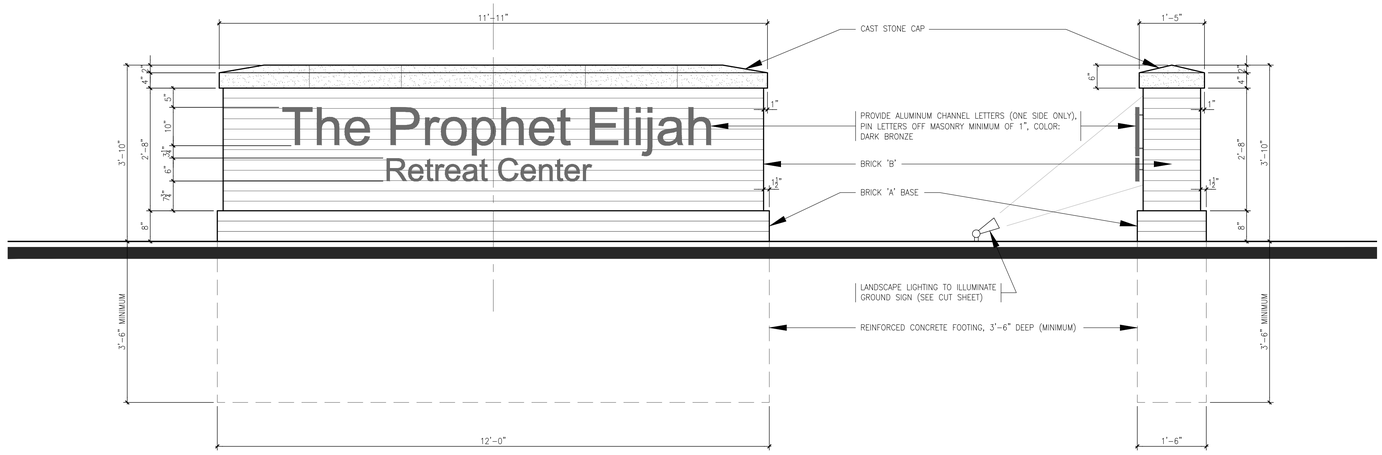
Series	Performance package	Color temperature	Distribution	Voltage	Mounting
RAD1 LED	P1 3,000 Lumens P2 5,000 Lumens P3 7,000 Lumens P4 11,000 Lumens P5 16,000 Lumens	27K 2700K 30K 3000K 35K 3500K 40K 4000K 50K 5000K	SYM Symmetric type V ASY Asymmetric type IV PATH Pathway type III	MVOLT[1] 277[1] 120[1] 347 208[1] 480 240[1]	SPA Square pole mounting (includes adapter) RPA Round pole mounting WBA Wall bracket

Control options	Orders options		Finish (required)	
Shipped installed NLTAIR2 nLight AIR 2.0 enabled[2] PIR Bi-level, motion sensor (100% to 30%) [2,4,5,6] PE Button photocell[2,7] FAO Field adjustable output [2,3]	SF Single Fuse [1] DF Double Fuse [1] L90 Left rotated optics R90 Right rotated optics	**Shipped separately** HS Houseside shield[8]	DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White	DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white

LITHONIA LIGHTING. COMMERCIAL OUTDOOR One Lithonia Way • Conyers, Georgia 30012 • Phone: 1-800-705-SERV (7378) • www.lithonia.com

RAD1 LED
Rev. 03/16/20

H2 / A011 **Pole Mounted Site Lighting**
SCALE: NONE



H6 / A011 **Ground Sign - Front Elevation**
SCALE: 3/4" = 1'-0"

H10 / A011 **Ground Sign - Side Elevation**
SCALE: 3/4" = 1'-0"

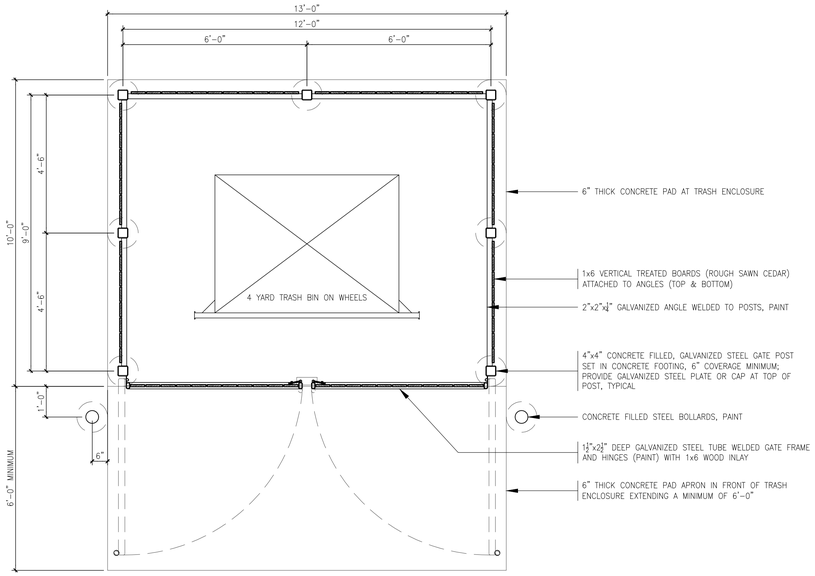
SAROKI ARCHITECTURE
430 N. OLD WOODWARD
BIRMINGHAM, MI 48009
P. 248.258.5707
F. 248.258.5515
SarokiArchitecture.com

Project:
The Prophet Elijah Retreat Center
1391 Kellogg Road
Brighton, Michigan 48114

Date: **Issued For:**

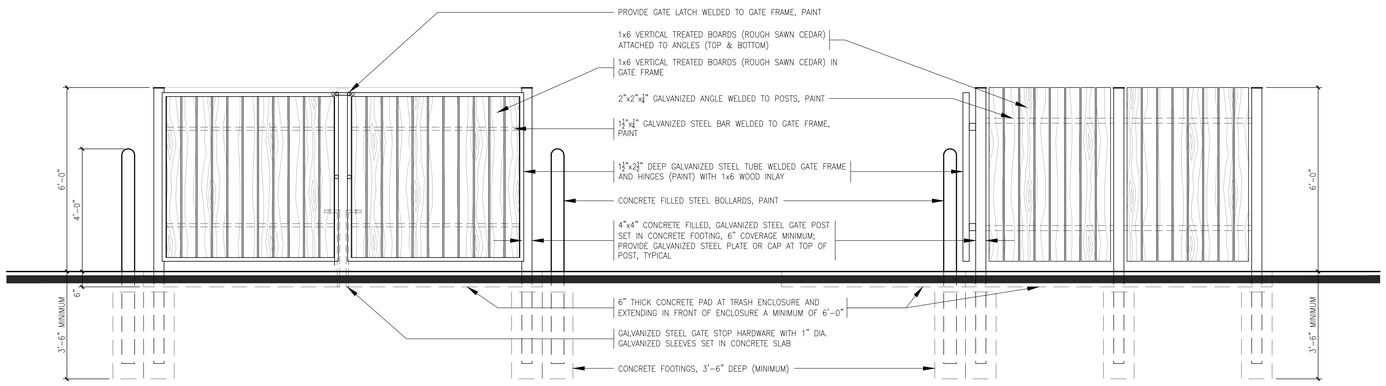
07-31-2020 SITE PLAN REVIEW

Sheet No.:
A011
SITE DETAILS



F5 / A012 **Trash Enclosure - Plan**
SCALE: 1/2" = 1'-0"

F9 / A012 **4 Yard Trash Dumpster with Lid**
SCALE: NONE



H5 / A012 **Trash Enclosure - Front Elevation**
SCALE: 1/2" = 1'-0"

H9 / A012 **Trash Enclosure - Side Elevation**
SCALE: 1/2" = 1'-0"

SAROKI ARCHITECTURE
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Project:
The Prophet Elijah Retreat Center
1391 Kellogg Road
Brighton, Michigan 48114

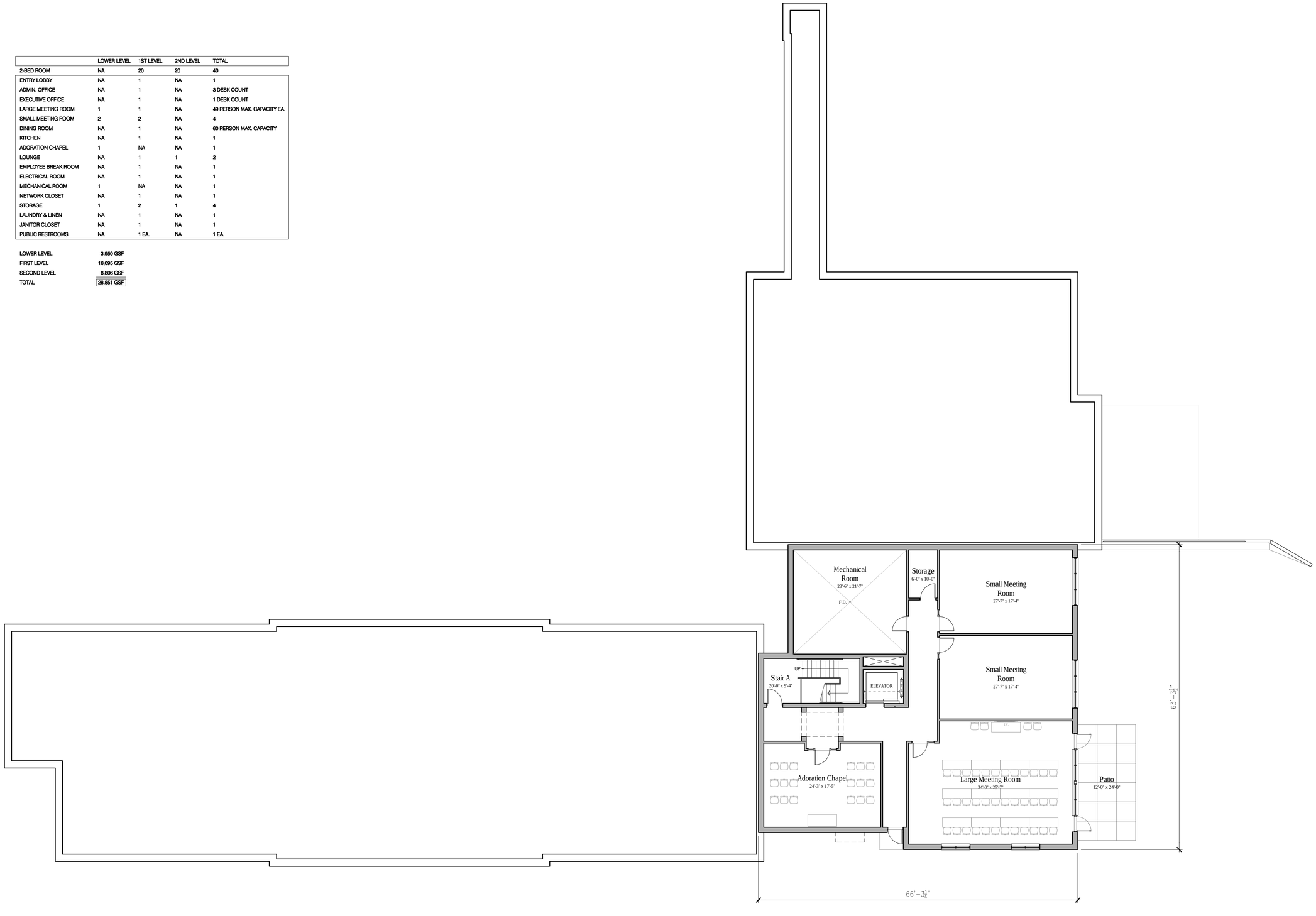
Date: **Issued For:**

07-31-2020 SITE PLAN REVIEW
08-26-2020 SITE PLAN REVIEW RESUBMITTAL

Sheet No.:
A012
TRASH ENCLOSURE

	LOWER LEVEL	1ST LEVEL	2ND LEVEL	TOTAL
2-BED ROOM	NA	20	20	40
ENTRY LOBBY	NA	1	NA	1
ADMIN. OFFICE	NA	1	NA	3 DESK COUNT
EXECUTIVE OFFICE	NA	1	NA	1 DESK COUNT
LARGE MEETING ROOM	1	1	NA	49 PERSON MAX. CAPACITY EA.
SMALL MEETING ROOM	2	2	NA	4
DINING ROOM	NA	1	NA	60 PERSON MAX. CAPACITY
KITCHEN	NA	1	NA	1
ADORATION CHAPEL	1	NA	NA	1
LOUNGE	NA	1	1	2
EMPLOYEE BREAK ROOM	NA	1	NA	1
ELECTRICAL ROOM	NA	1	NA	1
MECHANICAL ROOM	1	NA	NA	1
NETWORK CLOSET	NA	1	NA	1
STORAGE	1	2	1	4
LAUNDRY & LINEN	NA	1	NA	1
JANITOR CLOSET	NA	1	NA	1
PUBLIC RESTROOMS	NA	1 EA.	NA	1 EA.

LOWER LEVEL	3,950 GSF
FIRST LEVEL	16,095 GSF
SECOND LEVEL	8,806 GSF
TOTAL	28,851 GSF



H6 / A100 Lower Level Floor Plan
SCALE: 1/8" = 1'-0"

SAROKI ARCHITECTURE
430 N. OLD WOODWARD
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SarokiArchitecture.com

Project:
The Prophet Elijah Retreat Center
1391 Kellogg Road
Brighton, Michigan 48114

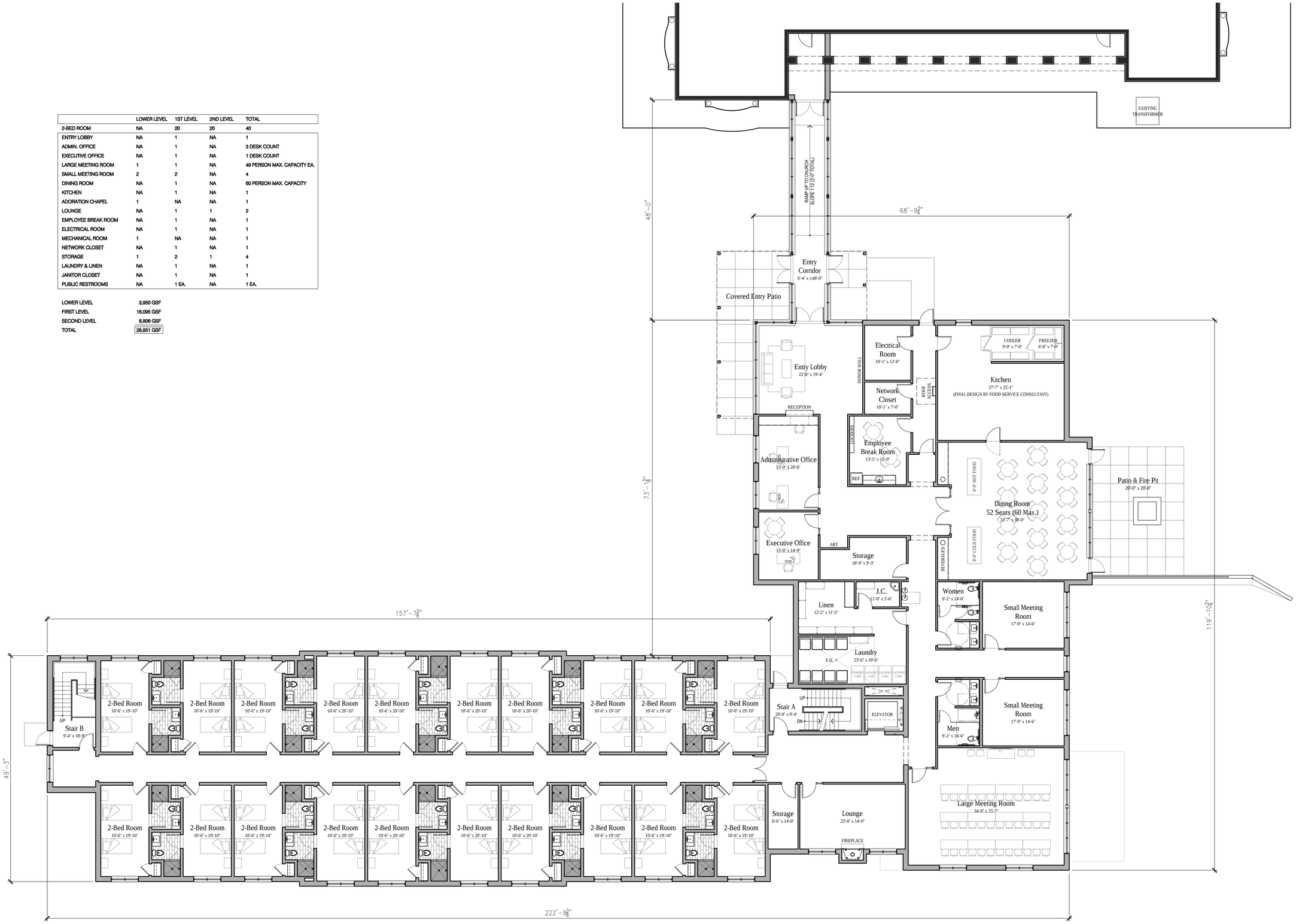
Date: **Issued For:**

05-27-2020 SCHEMES A,B,C
06-02-2020 CLIENT REVIEW
07-31-2020 SITE PLAN REVIEW

Sheet No.:
A100
LOWER LEVEL FLOOR PLAN

	LOWER LEVEL	1ST LEVEL	2ND LEVEL	TOTAL
2-BED ROOM	NA	20	20	40
ENTRY LOBBY	NA	1	NA	1
ADMIN. OFFICE	NA	1	NA	3 DESK COUNT
EXECUTIVE OFFICE	NA	1	NA	1 DESK COUNT
LARGE MEETING ROOM	1	1	NA	49 PERSON MAX. CAPACITY EA.
SMALL MEETING ROOM	2	2	NA	4
DINING ROOM	NA	1	NA	60 PERSON MAX. CAPACITY
KITCHEN	NA	1	NA	1
ADORATION CHAPEL	1	NA	NA	1
LOUNGE	NA	1	1	2
EMPLOYEE BREAK ROOM	NA	1	NA	1
ELECTRICAL ROOM	NA	1	NA	1
MECHANICAL ROOM	1	NA	NA	1
NETWORK CLOSET	NA	1	NA	1
STORAGE	1	2	1	4
LAUNDRY & LINEN	NA	1	NA	1
JANITOR CLOSET	NA	1	NA	1
PUBLIC RESTROOMS	NA	1 EA.	NA	1 EA.

LOWER LEVEL	3,950 GSF
FIRST LEVEL	16,095 GSF
SECOND LEVEL	8,806 GSF
TOTAL	28,851 GSF



H6 / A110 First Level Floor Plan
SCALE: 1/8" = 1'-0"

SAROKI ARCHITECTURE
430 N. OLD WOODWARD
BIRMINGHAM, MI 48009
P. 248.258.5707
F. 248.258.5515
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Project:
The Prophet Elijah Retreat Center
1391 Kellogg Road
Brighton, Michigan 48114

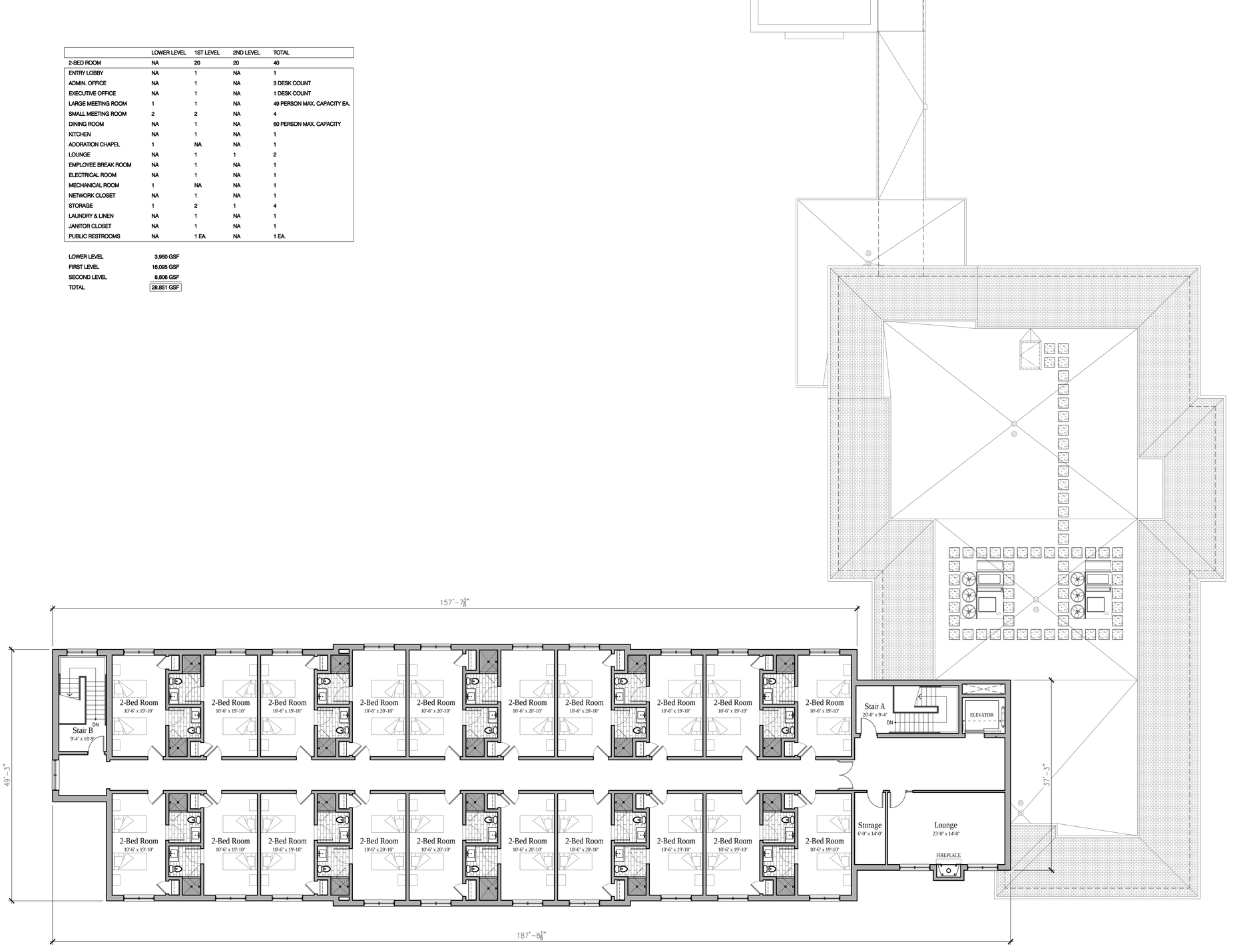
Date: Issued For:

03-30-2019 CLIENT MEETING
11-17-2019 CLIENT MEETING
12-13-2019 CLIENT REVIEW
01-21-2020 CLIENT REVIEW
02-06-2020 CLIENT REVIEW
05-14-2020 CLIENT REVIEW
05-27-2020 SCHEMES A,B,C
06-02-2020 CLIENT REVIEW
07-31-2020 SITE PLAN REVIEW

Sheet No.:
A110
FIRST LEVEL FLOOR PLAN

	LOWER LEVEL	1ST LEVEL	2ND LEVEL	TOTAL
2-BED ROOM	NA	20	20	40
ENTRY LOBBY	NA	1	NA	1
ADMIN. OFFICE	NA	1	NA	3 DESK COUNT
EXECUTIVE OFFICE	NA	1	NA	1 DESK COUNT
LARGE MEETING ROOM	1	1	NA	49 PERSON MAX. CAPACITY EA.
SMALL MEETING ROOM	2	2	NA	4
DINING ROOM	NA	1	NA	60 PERSON MAX. CAPACITY
KITCHEN	NA	1	NA	1
ADORATION CHAPEL	1	NA	NA	1
LOUNGE	NA	1	1	2
EMPLOYEE BREAK ROOM	NA	1	NA	1
ELECTRICAL ROOM	NA	1	NA	1
MECHANICAL ROOM	1	NA	NA	1
NETWORK CLOSET	NA	1	NA	1
STORAGE	1	2	1	4
LAUNDRY & LINEN	NA	1	NA	1
JANITOR CLOSET	NA	1	NA	1
PUBLIC RESTROOMS	NA	1 EA.	NA	1 EA.

LOWER LEVEL	3,950 GSF
FIRST LEVEL	16,095 GSF
SECOND LEVEL	8,806 GSF
TOTAL	28,851 GSF



H6 / A120 Second Level Floor Plan

SCALE: 1/8" = 1'-0"

SAROKI ARCHITECTURE

430 N. OLD WOODWARD
BIRMINGHAM, MI 48009

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Project:

The Prophet Elijah Retreat Center

1391 Kellogg Road
Brighton, Michigan 48114

Date: **Issued For:**

03-30-2019 CLIENT MEETING
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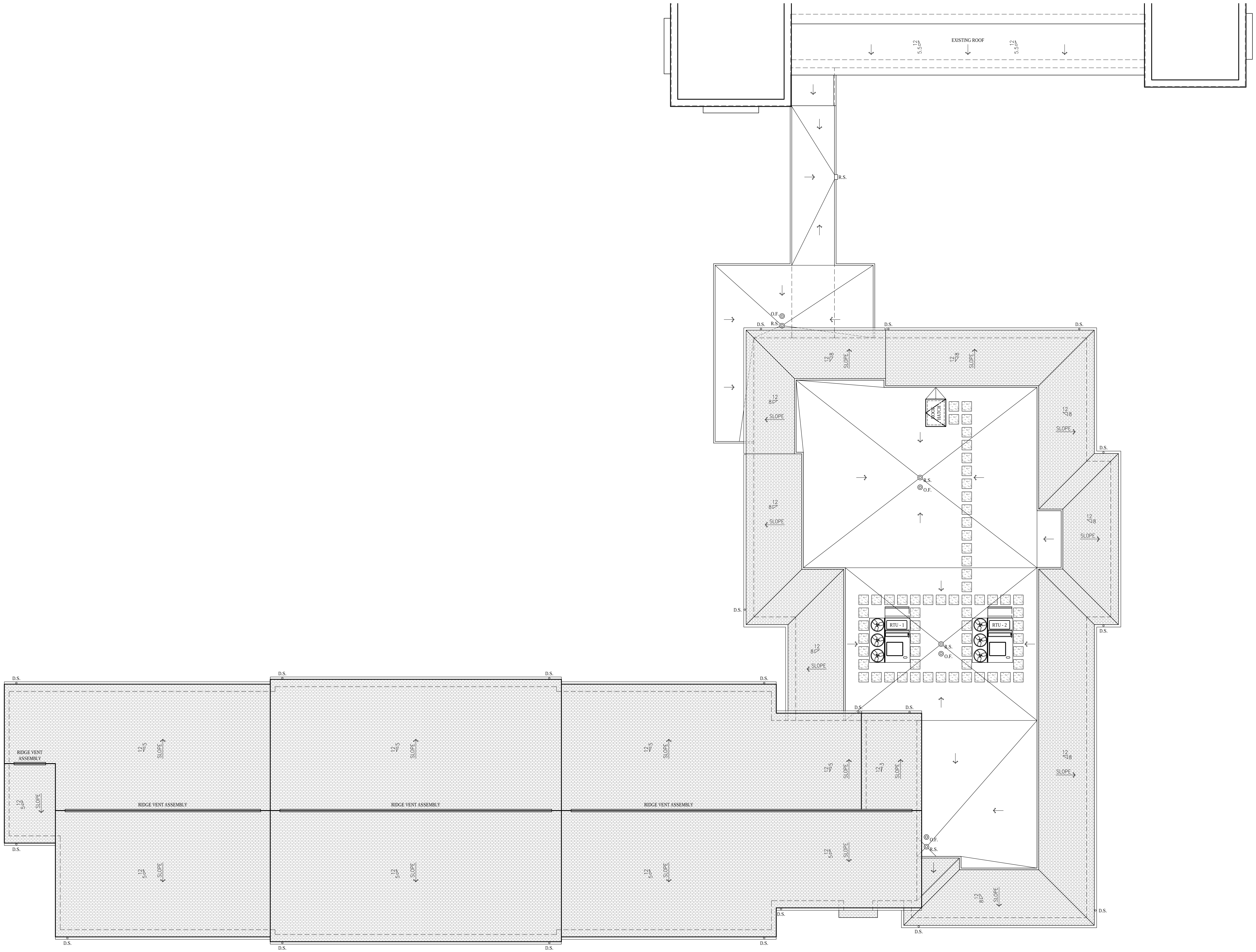
06-02-2020 CLIENT REVIEW
07-31-2020 SITE PLAN REVIEW

Sheet No.:

A120

SECOND LEVEL FLOOR PLAN



H6
A130
Roof Plan
SCALE: 1/8" = 1'-0"

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Date: **Issued For:**

07-31-2020 SITE PLAN REVIEW

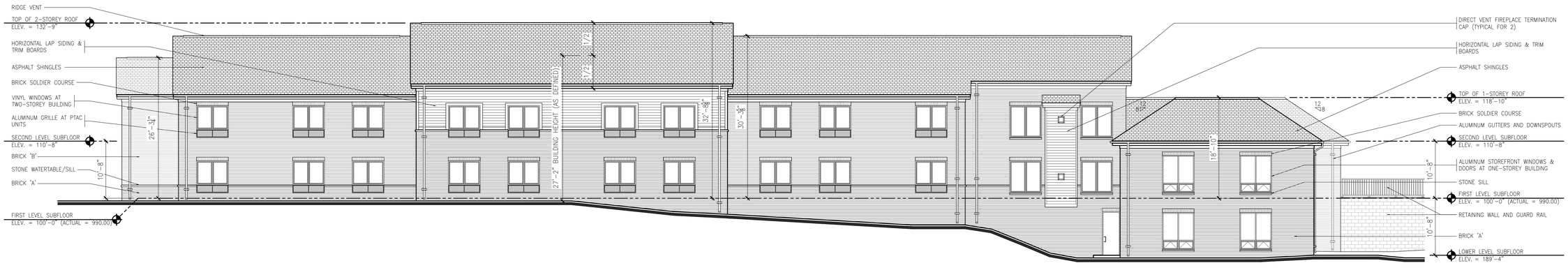
Sheet No.:

A130

ROOF PLAN

EXTERIOR MATERIALS & FINISHES			
BRICK 'A'		**STONE SILLS & WATERTABLES**	
MANUFACTURER:	SIOUX CITY BRICK / GLEN-GERY	MANUFACTURER:	SHOULDICE DESIGNER STONE
COLOR:	FINE ARTS	TYPE:	CHARINGTON SUPER SILL
FINISH:	VELOUR	PROFILE:	424 WATERTABLE
SIZE:	MODULAR	COLOR:	PEARL WHITE
MORTAR:	GREY	FINISH:	TAPESTRY
BRICK 'B'		SIZE:	4" HIGH
MANUFACTURER:	BOWERSTON SHALE COMPANY	**ASPHALT SHINGLES**	
COLOR:	8515	MANUFACTURER:	GAF
FINISH:	VELOUR	TYPE:	TIMBERLINE HD ARCHITECTURAL SHINGLES
SIZE:	MODULAR	COLOR:	WEATHERED WOOD
MORTAR:	GREY	**ALUMINUM STOREFRONT WINDOWS & DOORS**	
LAP SIDING		MANUFACTURER:	TO BE DETERMINED
MANUFACTURER:	JAMES HARDIE	COLOR:	DARK BRONZE
TYPE:	HARDIE PLANK	**VINYL WINDOWS**	
COLOR:	KHAKI BROWN	MANUFACTURER:	TO BE DETERMINED
FINISH:	SELECT CEDARMILL	COLOR:	DARK BRONZE
SIZE:	8 1/4" WIDE (7" EXPOSED)	**PTAC ARCHITECTURAL GRILLES**	
TRIM		MANUFACTURER:	TO BE DETERMINED
MANUFACTURER:	JAMES HARDIE	COLOR:	DARK BRONZE
TYPE:	HARDIE TRIM	**EXTERIOR PAINT FOR CANOPIES, GUTTERS, ETC.**	
COLOR:	ARCTIC WHITE	MANUFACTURER:	SHERWIN WILLIAMS
FINISH:	SMOOTH	COLOR:	SW 9605 CLOVE
SIZE:	3/4" THICK (WIDTHS: 5 1/2" WIDE, 7 1/4" WIDE)	FINISH:	SEMI-GLOSS

E6 / A200 **North Elevation**
SCALE: 1/8" = 1'-0"



H6 / A200 **South Elevation**
SCALE: 1/8" = 1'-0"

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The Prophet Elijah Retreat Center
1391 Kellogg Road
Brighton, Michigan 48114

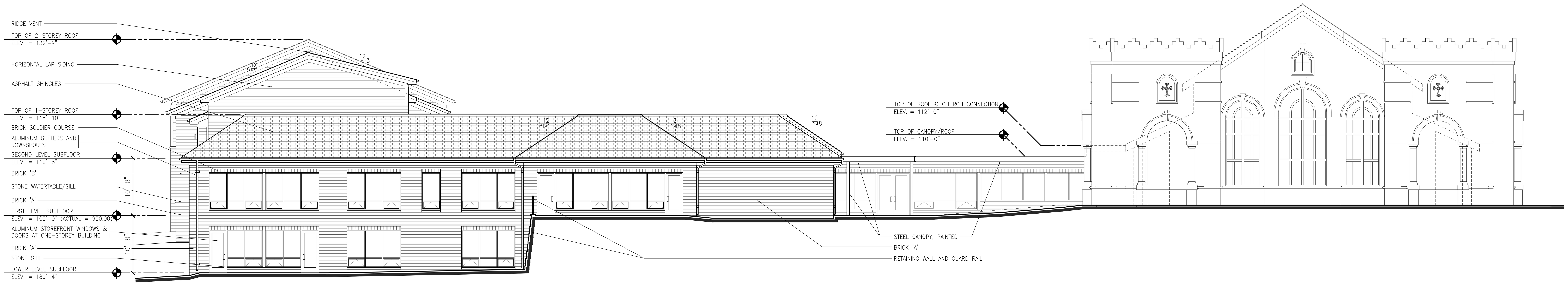
Date: **Issued For:**

07-31-2020 SITE PLAN REVIEW

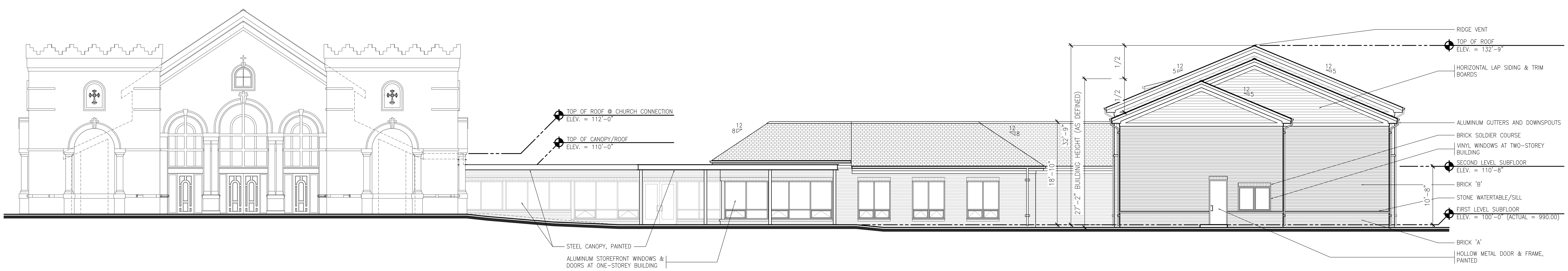
Sheet No.:
A200

EXTERIOR ELEVATIONS

EXTERIOR MATERIALS & FINISHES			
BRICK 'A'		**STONE SILLS & WATERTABLES**	
MANUFACTURER:	SIOUX CITY BRICK / GLEN-GERY	MANUFACTURER:	SHOULDICE DESIGNER STONE
COLOR:	FINE ARTS	TYPE:	CHARINGTON SUPER SILL
FINISH:	VELOUR	PROFILE:	424 WATERTABLE
SIZE:	MODULAR	COLOR:	PEARL WHITE
MORTAR:	GREY	FINISH:	TAPESTRY
BRICK 'B'		SIZE:	4" HIGH
MANUFACTURER:	BOWERSTON SHALE COMPANY	**ASPHALT SHINGLES**	
COLOR:	8515	MANUFACTURER:	GAF
FINISH:	VELOUR	TYPE:	TIMBERLINE HD ARCHITECTURAL SHINGLES
SIZE:	MODULAR	COLOR:	WEATHERED WOOD
MORTAR:	GREY	**ALUMINUM STOREFRONT WINDOWS & DOORS**	
LAP SIDING		MANUFACTURER:	TO BE DETERMINED
MANUFACTURER:	JAMES HARDIE	COLOR:	DARK BRONZE
TYPE:	HARDIE PLANK	**VINYL WINDOWS**	
COLOR:	KHAKI BROWN	MANUFACTURER:	TO BE DETERMINED
FINISH:	SELECT CEDARMILL	COLOR:	DARK BRONZE
SIZE:	8 1/4" WIDE (7" EXPOSED)	**PTAC ARCHITECTURAL GRILLES**	
TRIM		MANUFACTURER:	TO BE DETERMINED
MANUFACTURER:	JAMES HARDIE	COLOR:	DARK BRONZE
TYPE:	HARDIE TRIM	**EXTERIOR PAINT FOR CANOPIES, GUTTERS, ETC.**	
COLOR:	ARCTIC WHITE	MANUFACTURER:	SHERWIN WILLIAMS
FINISH:	SMOOTH	COLOR:	SW 9605 CLOVE
SIZE:	3/4" THICK (WIDTHS: 5 1/2" WIDE, 7 1/4" WIDE)	FINISH:	SEMI-GLOSS



E6
A201
East Elevation
SCALE: 1/8" = 1'-0"



H6
A201
West Elevation
SCALE: 1/8" = 1'-0"

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Date:	Issued For:
07-31-2020	SITE PLAN REVIEW

Sheet No.:
A201
EXTERIOR ELEVATIONS

EXTERIOR MATERIALS & FINISHES			
BRICK 'A'		**STONE SILLS & WATERTABLES**	
MANUFACTURER:	SIOUX CITY BRICK / GLEN-GERY	MANUFACTURER:	SHOULDICE DESIGNER STONE
COLOR:	FINE ARTS	TYPE:	CHARINGTON SUPER SILL
FINISH:	VELOUR	PROFILE:	424 WATERTABLE
SIZE:	MODULAR	COLOR:	PEARL WHITE
MORTAR:	GREY	FINISH:	TAPESTRY
BRICK 'B'		SIZE:	4" HIGH
MANUFACTURER:	BOWERSTON SHALE COMPANY	**ASPHALT SHINGLES**	
COLOR:	8515	MANUFACTURER:	GAF
FINISH:	VELOUR	TYPE:	TIMBERLINE HD ARCHITECTURAL SHINGLES
SIZE:	MODULAR	COLOR:	WEATHERED WOOD
MORTAR:	GREY	**ALUMINUM STOREFRONT WINDOWS & DOORS**	
LAP SIDING		MANUFACTURER:	TO BE DETERMINED
MANUFACTURER:	JAMES HARDIE	COLOR:	DARK BRONZE
TYPE:	HARDIE PLANK	**VINYL WINDOWS**	
COLOR:	KHAKI BROWN	MANUFACTURER:	TO BE DETERMINED
FINISH:	SELECT CEDARMILL	COLOR:	DARK BRONZE
SIZE:	8 1/4" WIDE (7" EXPOSED)	**PTAC ARCHITECTURAL GRILLES**	
TRIM		MANUFACTURER:	TO BE DETERMINED
MANUFACTURER:	JAMES HARDIE	COLOR:	DARK BRONZE
TYPE:	HARDIE TRIM	**EXTERIOR PAINT FOR CANOPIES, GUTTERS, ETC.**	
COLOR:	ARCTIC WHITE	MANUFACTURER:	SHERWIN WILLIAMS
FINISH:	SMOOTH	COLOR:	SW 9605 CLOVE
SIZE:	3/4" THICK (WIDTHS: 5 1/2" WIDE, 7 1/4" WIDE)	FINISH:	SEMI-GLOSS

E6 / A200 **North Elevation**
SCALE: 1/8" = 1'-0"

H6 / A200 **South Elevation**
SCALE: 1/8" = 1'-0"

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EXTERIOR ELEVATIONS

EXTERIOR MATERIALS & FINISHES			
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MANUFACTURER:	SIOUX CITY BRICK / GLEN-GERY	MANUFACTURER:	SHOULDICE DESIGNER STONE
COLOR:	FINE ARTS	TYPE:	CHARINGTON SUPER SILL
FINISH:	VELOUR	PROFILE:	424 WATERTABLE
SIZE:	MODULAR	COLOR:	PEARL WHITE
MORTAR:	GREY	FINISH:	TAPESTRY
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COLOR:	8515	MANUFACTURER:	GAF
FINISH:	VELOUR	TYPE:	TIMBERLINE HD ARCHITECTURAL SHINGLES
SIZE:	MODULAR	COLOR:	WEATHERED WOOD
MORTAR:	GREY	**ALUMINUM STOREFRONT WINDOWS & DOORS**	
LAP SIDING		MANUFACTURER:	TO BE DETERMINED
MANUFACTURER:	JAMES HARDIE	COLOR:	DARK BRONZE
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COLOR:	KHAKI BROWN	MANUFACTURER:	TO BE DETERMINED
FINISH:	SELECT CEDARMILL	COLOR:	DARK BRONZE
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E6 A201 **East Elevation**
SCALE: 1/8" = 1'-0"

H6 A201 **West Elevation**
SCALE: 1/8" = 1'-0"

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07-31-2020 SITE PLAN REVIEW

Sheet No.:
A201

EXTERIOR ELEVATIONS

GENOA CHARTER TOWNSHIP
Application for Site Plan Review

TO THE GENOA TOWNSHIP PLANNING COMMISSION AND TOWNSHIP BOARD:

APPLICANT NAME & ADDRESS: Tad Bad LLC
If applicant is not the owner, a letter of Authorization from Property Owner is needed.

OWNER'S NAME & ADDRESS: 11672 Hyne Rd. Brighton MI 48114

SITE ADDRESS: 1275 Grand Oaks Drive PARCEL #(s):

APPLICANT PHONE: (313) 580-1574 OWNER PHONE: (313) 580-1574

OWNER EMAIL: tomdewitt40@gmail.com

LOCATION AND BRIEF DESCRIPTION OF SITE: 1275 Grand Oaks Drive - ½ mile south of Grand River, ½ mile west of Latson

BRIEF STATEMENT OF PROPOSED USE: Addition to existing DeWitt's Radiator - 4661 S.F. - one story for enclosed storage

THE FOLLOWING BUILDINGS ARE PROPOSED: addition to existing DeWitt's Radiator

I HEREBY CERTIFY THAT ALL INFORMATION AND DATA ATTACHED TO AND MADE PART OF THIS APPLICATION IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

BY: John Stewart, Architect

ADDRESS: 1645 N. Milford Rd. Milford, Michigan 48381
(248) 390-5260

see below

Contact Information - Review Letters and Correspondence shall be forwarded to the following:

1.) John Stewart (Name) of John Stewart Associates (Business Affiliation) at stewartcontractors@gmail.com (E-mail Address)

send letters to → tomdewitt40@gmail.com

FEE EXCEEDANCE AGREEMENT

As stated on the site plan review fee schedule, all site plans are allocated two (2) consultant reviews and one (1) Planning Commission meeting. If additional reviews or meetings are necessary, the applicant will be required to pay the actual incurred costs for the additional reviews. If applicable, additional review fee payment will be required concurrent with submittal to the Township Board. By signing below, applicant indicates agreement and full understanding of this policy.

SIGNATURE: _____ DATE: 8/21/20

PRINT NAME: Thomas DeWitt PHONE: 3133801574

ADDRESS: 1275 Grand Oaks Howell 48843

GENOA CHARTER TOWNSHIP BOARD
Regular Meeting
Feb. 16, 2015

MINUTES

Supervisor McCririe called the regular meeting of the Genoa Charter Township Board to order at 6:30 p.m. The Pledge of Allegiance was then said. The following members were present constituting a quorum for the transaction of business: Gary McCririe, Paulette Skolarus, Robin Hunt, Linda Rowell, Jim Mortensen, Todd Smith and Jean Ledford. Also present were: Township Manager Michael Archinal and two persons in the audience.

A Call to the Public was made with no response.

Approval of Consent Agenda:
Moved by Smith and supported by Ledford to approve all items under the Consent Agenda as requested. The motion carried unanimously.

1. Payment of Bills.

2. Request to Approve Minutes: Feb. 4, 2015

Approval of Regular Agenda:
Moved by Ledford and supported by smith to approve for action all items listed under the Regular Agenda with the deletion of Item 3 at the petitioner's request. The motion carried unanimously.

3. Consideration of a request to the local governing body of a resolution for a charitable gaming license as requested by the Lucas Foundation to be located at 3555 E. Grand River.

Deleted at the petitioner's request.

4. Second review of budget for the General Fund 101 for the Fiscal Year ending March 31, 2016.

Reviewed by the Board with a recommendation for a 2.5% increase for all employees and a 2.1% increase for the Supervisor, Clerk and Treasurer with final approval of the General Fund Budget at the public hearing scheduled for March 16, 2015.

5. Review of environmental impact assessment (2/10/15) for a proposed 4,661 sq. ft. storage addition located at 1275 Grand Oaks Drive, Howell, Michigan 48843 (parcel # 4711-08-101-015). The request is petitioned by DeWitt Radiator.

Moved by Ledford and supported by Skolarus to approve the impact assessment as presented. The motion carried unanimously.

6. Adoption of an amendment to the Official Zoning Map of Genoa Charter Township as ordered by the Court of Appeals. The property in question involves parcels 4711-33-400-003 and 4711-34-300-005 and is located at 5885 Chilson Road, Howell, Michigan 48843. The property is owned by Chestnut Development, LLC. The map amendment will change the zoning from Residential Planned Unit Development (RPUD) to Agricultural (AG).

A call to the public was made with no response. Moved by Rowell and supported by Hunt to approve the amendment to the Zoning Map as requested by VanMarter. The motion carried by roll call vote as follows: Ayes – Ledford, Smith, Hunt, Rowell, Mortensen, Skolarus and McCririe. Nays – None. Absent – None.

The regular meeting and public hearing of the board was adjourned at 7:15 p.m.

Paulette A. Skolarus, Clerk
Genoa Charter Township Board

property owners might be contacted in the near future regarding that project as the project is being discussed. Ms. VanMarter indicated a meeting occurred about a month ago with the Livingston County Road Commission and there is work being done to bring costs down and to move forward. The property owners will be contacted as soon as the project details are known. Mr. DeWitt indicated that the Grand Oaks community became aware of the possibility of a special assessment some time ago and the delay might cause a negative response from property owners. Ms. VanMarter indicated that she would be happy to talk further with Mr. DeWitt as the Planning Commission does not oversee this function.

No one further was present to address the Commission and the call to the public was closed.

OPEN PUBLIC HEARING #1… Review of site plan and environmental impact assessment for a proposed 4,661 sq. ft. addition for enclosed storage, located at 1275 Grand Oaks Drive, Brighton, Michigan 48116, parcel # 4711-08-101-015. The request is petitioned by DeWitt Radiator.

Mr. John Stewart, project architect from 1645 Milford Rd, Milford, Michigan addressed the Planning Commission on behalf of the petitioner. The petitioner is interested in adding storage with some assembly taking place in the space. An additional barrier-free parking space is being added and an exact match of the current exterior materials is being used. Dumpsters are out of view. No new signage is anticipated. No additional landscape is anticipated at this time. The project is at the rear of the building, not impacting visuals of the property. Mr. Stewart stated that Deputy Chief Mike Evans walked through the building and asked for an additional access drive in the back and that was agreed to along with all other fire related requests.

Mr. Brown indicated that Planner Mr. Borden indicated in his review that additional plantings might benefit the property, along the frontage. Mr. Stewart indicated that trees are already present along the south. Because of the scope of the project, a small addition in the back, updating the entire site with landscaping did not seem to be a necessity. Mr. Brown indicated that the zoning ordinance calls for plantings and that the commission has to be careful about what they approve because they need to be in keeping with the ordinance. Mr. Stewart asked how a small project in the back of the property affects the entire site? Mr. Brown indicated that the ordinance has grown and the interest in a quality community has grown and we are trying to make improvements in that direction for the sake of everyone in the township.

Mr. Brown asked why the project was categorized as site plan review and not sketch plan. Ms. VanMarter indicated that the project falls under the classification of a site plan because the project affects more than 10% of the property. Had the request been for outdoor storage, a special land use permit would have been required. Mr. Mortensen stated that the scope of the project only calls for squaring off an L-shaped building. Mr. McManus indicated that squaring off the building is an improvement of the property. Mr. Stewart indicated the current area is a concrete slab and was used by a previous owner as outdoor storage.

Mr. Mortensen indicated that the request is such a minor change to the property, it seems unnecessary to impose the landscaping requirement. Mr. Rauch indicated that no aesthetic opportunity is being proposed as part of the project. Mr. Stewart indicated that the parking lot is adequately striped. Mr. Mortensen asked about dumpsters. Where is it? Is it enclosed? Mr. Stewart indicated that the dumpster is enclosed on three sides and that it is below the surface of the ground. The dumpster is difficult to see from the north because of a change in elevation and grade.

A call to the public was made with no response.

Planning Commission disposition of petition

A. Recommendation of Environmental Impact Assessment. (01-09-15)
B. Disposition of Site Plan. (11-19-14)

Ms. Figurski moved to recommend approval of the environmental impact assessment dated January 9, 2015, saying that a notation about the barrier free parking spot should be added to the impact assessment. Seconded by Mr. McManus. **Motion carried unanimously.**

Mr. Mortensen moved to approve the site plan dated November 19, 2014 for a proposed 4,661 sq. ft. addition for enclosed storage, located at 1275 Grand Oaks Drive, Brighton, Michigan, subject to the following:

1. The building materials of the expansion will match the existing building.
2. One additional barrier free parking space will be provided.
3. The existing dumpster will continue to be in the truck loading dock which is below grade.
4. The requirements of the township engineer as specified in his letter dated January 30, 2015 and the requirements of the fire department in their letter dated February 5, 2015 will be complied with.
5. The landscaping as presently existing will continue, although non-conforming this Commission finds that the changes to the site are minor enough and at the rear of the building thus not requiring a revision to the landscaping.

Supported by Ms. Figurski. **Motion carried unanimously.**

OPEN PUBLIC HEARING #2… Request to table site plan, environmental impact, and PUD amendment for a proposed redevelopment of an existing outparcel to demolish the existing Bennigan's Restaurant and construct a new 12,000 sq. ft. multi-tenant building, located at 3950 E. Grand River Avenue, Howell, Michigan 48443, parcel # 4711-05-400-047. The request is petitioned by RG Properties, Inc.

Planning Commission disposition of petition

A. Table request to March 9, 2015 meeting.

Mr. McManus moved to table open public hearing item #2 at the request of the petitioner. Supported by Lowe. **Motion carried unanimously.**

Non-Residential Land Use Permit
Genoa Township • 2911 Dorr Rd. • Brighton, MI 48116
Phone (810) 227-5225 • Fax (810) 227-3420 • www.genoa.org

PERMIT NO. 15-020

revised 10/09/14

1. PROJECT INFORMATION

Name of Business: DeWitt Radiator	Site Address: 1275 Grand Oaks Drive
Name of retail center/business park (if applicable):	

2. OWNER/CONTRACTOR INFORMATION

Owner Name: DeWitt Radiator		Owner Phone No: (517) 548-0600 ☐	
Owner Address: 1275 Grand Oaks Dr.	City: Brighton	State: MI	Zip: 48116
Contractor Name:		Contractor Phone No: ☐	
Contractor Address:	City:	State:	Zip:

3. TYPE OF IMPROVEMENT

☐ New Building ☒ Addition to Existing Building ☐ Tenant Buildout ☐ Grading/Site Work

Describe in detail proposed use of the building. If use of existing building is being changed, describe prior use of building. If plans have change since site plan approval, please include an explanation of those changes.
Additional 4661 square feet of warehouse space

Will the project or facility store or use hazardous substances, oil, salt, pesticides or fertilizers? ☐ Yes ☐ No If yes, please explain:

4. SETBACK AND DIMENSIONAL INFORMATION

A. Building Setbacks (in feet)

Front (from front property line, right-of-way line or private road easement, whichever is less): 70 ft.

Rear: 52ft	Least Side: 40ft (S)	Side: 170ft. (N)	Water/Wetland: NONE

B. Parking Lot Setbacks (in feet)

Front: 70 ft	Least Side: 8ft	Side: 100 ft	Rear:	Water/Wetland: NONE

C. Building Dimensions Addition

Size of Building or Tenant Space: 4661 square feet

Height (measured from grade at the center of the front of the building to the beam height level between eaves and ridge for gable, hip and gambrel roofs): 21 feet

5. SIGNATURE OF APPLICANT

I hereby certify that all information attached to this application is true and accurate to the best of my knowledge. I certify that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as the authorized agent. The owner and applicant agree to conform to all applicable ordinances of Genoa Township. Any modification to location, size or dimensions must be approved by Genoa Township. A Land Use Permit is valid for a period of 12 months from the date of issue. In signing this application, I am permitting an official representative of Genoa Charter Township to do on-site inspections. I acknowledge that private covenants and restrictions are potentially enforceable by private parties.

Applicant is: ☐ Owner ☐ Contractor ☐ Lessee ☒ Architect/Engineer ☐ Other:

Signature of Applicant:	Printed Applicant name: John Stewart Architect	Date: 2/23/15

OFFICE USE ONLY

A. TOWNSHIP APPROVALS

	Approved	Date
Planning Commission/Township Board	☒ Yes ☐ No ☐ N/A	PC 2/9/15 BOARD 2/16/15
Zoning Board of Appeals	☐ Yes ☐ No ☒ N/A	
Construction Plan Review	☐ Yes ☐ No ☒ N/A	

1. ASSESSING APPROVAL

☐ Approved ☐ Disapproved	Approved by:	Date:
2. ZONING APPROVAL:	Parcel I.D. No.: 11-08-101-015	Zoning: IND
☒ Approved ☐ Disapproved	Approved by:	Date: 2/27/15

Comments/Conditions All conditions of approval shall be met. Current water and sewer usage is 0.02 REU when 12 REU's are assessed. NO ADDITIONAL TAP FEES REQUIRED.

Date picked up:

3. FEES

Land Use:	$ 150.00	Water/Sewer:	$ /	Meter:	$
Sewer Clean Out	$	MHOG Water New User	$	Total Due:	$ 150.00

GENOA TOWNSHIP ASSESSING DEPARTMENT PERMIT NO. 15-020
REQUIRED LAND USE INFORMATION FORM

2911 Dorr Road ❖ Brighton, Michigan 48116
Phone: (810) 227-5225 ❖ Fax: (810) 227-3420 ❖ www.genoa.org

1. PROJECT INFORMATION

Site Address:	Parcel I.D. No.:	Zoning:
1275 Grand Oaks Drive	4711-08-101-015	IND

2. OWNER/APPLICANT INFORMATION

Owner Name: DeWitt Radiator	Phone No.: (517) 548-0600		
Owner Address: 1275 Grand Oaks Drive	City: Brighton	State: MI	Zip: 48116
Applicant is: ☐ Contractor ☐ Lessee ☒ Architect/Engineer ☐ Owner ☐ Other:			
Applicant Name: John Stewart Associates	Phone No.: (248) 685-0978		
Applicant Address: 1645 N. Milford Rd.	City: Milford	State: MI	Zip: 48381
Tenant Name:	Phone No.:		
Tenant Address:	City:	State:	Zip:

3. TYPE OF IMPROVEMENT

A. Principal Structure
☐ New Building ☐ Commercial ☐ Industrial ☐ Apartments
☐ Tenant Buildout ☒ Addition to Existing Building

B. Accessory Structure
☐ Fence ☐ Detached Accessory Building ☐ Dumpster enclosure

4. SELECTED CHARACTERISTICS OF IMPROVEMENT

Building	Height: 31 ft.	Building value: $ 100,000.00		
Frame	☒ Masonry, Wall Bearing	☐ Wood Frame	☐ Structural Steel	☐ Reinforced Concrete
Exterior	☒ ~~Brick~~ Block	☐ Stone	☐ Siding	☐ Wood
Foundation	☐ Basement	☐ Crawl	☒ Slab	
Area	New Building Square Footage: ~~4661~~	Addition Square Footage: 4661		
Bathrooms	No. of Toilets: 0	No. of Sinks: 0		
Basement	Walkout: ☐ Yes ☐ No	Finished: ☐ Yes ☐ No	Finished Square Footage: 0	
Central Air	☐ Yes ☒ No	**Fire Suppression**	☐ Yes ☒ No	

5. APPLICANT SIGNATURE

I hereby certify that all information attached to this application is true and accurate to the best of my knowledge. I certify that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as the authorized agent and agree to conform to all applicable ordinances of Genoa Township. I acknowledge that private covenants and restrictions are potentially enforceable by private parties.

Signature of Applicant:	**Date:** 2-23-15

September 9, 2020

Planning Commission
Genoa Township
2911 Dorr Road
Brighton, Michigan 48116

Attention:	Kelly Van Marter, AICP Planning Director and Assistant Township Manager
Subject:	Dewitt Radiator – Site Plan Review
Location:	1275 Grand Oaks Drive – east side of Grand Oaks, south of Grand River Avenue
Zoning:	IND Industrial District

Dear Commissioners:

At the Township's request, we have reviewed the submittal from Dewitt Radiator requesting site plan review/approval (plans dated 7/27/20).

The applicant seeks to construct a 4,661-square foot addition to the existing industrial building at 1275 Grand Oaks Drive.

The addition is at the rear of the site and will essentially square off the building in the southeast corner. Building materials and colors will match the existing masonry block building.

The proposed addition also complies with the dimensional standards of the IND District.

The plan was approved by the Township in 2015, and the applicant pulled permits for construction. However, the project was never initiated, and the site plan approval has expired (per Section 18.09).

There have not been any changes to the Township Zoning Ordinance that impact the proposal, and the applicant merely seeks a new approval for the same project.

Aerial view of site and surroundings (looking east)

Should you have any questions concerning this matter, please do not hesitate to contact our office.

Respectfully,
SAFEBUILT STUDIO

Brian V. Borden, AICP
Planning Manager

This letter is from the original approval in 2015

LSL Planning
A SAFEbuilt. Company

February 4, 2015

Planning Commission
Genoa Township
2911 Dorr Road
Brighton, Michigan 48116

Attention:	Kelly Van Marter, AICP Assistant Township Manager and Planning Director
Subject:	DeWitt Radiator Addition – Site Plan Review #1
Location:	1275 Grand Oaks Drive – east side of Grand Oaks, south of Grand River Avenue
Zoning:	IND Industrial District

Dear Commissioners:

At the Township's request, we have reviewed the site plan (cover sheet dated 11/19/14) proposing construction of a 4,661 square foot addition to an existing one-story industrial building. We have reviewed the proposal in accordance with the applicable provisions of the Genoa Township Zoning Ordinance.

A. Summary

1. The Planning Commission has approval authority over the building elevations.
2. The applicant must confirm that proposed materials and colors will match the existing building.
3. The existing parking lot is nonconforming for multiple reasons (deficient side setback, deficient drive aisle widths, deficient number of barrier free spaces and an excessive amount of parking). The Commission may wish to require improvements as part of this project. At a minimum, we recommend the applicant provide the 1 additional barrier free space needed for compliance.
4. We recommend the applicant provide front yard landscaping, particularly the required greenbelt trees and a hedgerow along the front of the parking lot.
5. If one does not already exist, we recommend the applicant be required to provide a waste receptacle and enclosure in accordance with Section 12.04.
6. Any new signage proposed must be in accordance with the requirements and procedures of Article 16 (including the need for a permit prior to installation).

B. Proposal/Process

The applicant requests site plan review and approval for construction of a 4,661 square foot addition to an existing 23,348 square foot industrial building on a 3-acre site.

Because this is a permitted use, Planning Commission has review and approval authority over the site plan; however, the Environmental Impact Assessment will be subject to review and approval by the Township Board (following a recommendation by the Planning Commission).

Aerial view of site and surroundings (looking east)

C. Site Plan Review

1. **Dimensional Requirements.** The site and project have been reviewed for compliance with the dimensional standards of the IND as follows:

District	Lot Size		Minimum Setbacks (feet)				Max. Height	Max. Coverage
	Lot Area (acres)	Width (feet)	Front Yard	Side Yard	Rear Yard	Parking		
IND	1	150	50	25	40	20 front 10 side/rear	30’	40% building 85% impervious
Proposal	3	330	70	170 (N) 40 (S)	52	70 front 8 side (N) 100 side (S)	21.4’	24.4% building 48.9% impervious

The only dimensional issue is a deficient north side parking lot setback; however, this is an existing nonconformity and does not have any impact on the proposed project.

2. **Building Materials and Design.** Proposed elevations, including colors and materials, are subject to review and approval by the Planning Commission.

The submittal includes elevation views of the addition, which identify the use of 12” masonry block. There is no indication of existing materials and colors; however, we are under the impression that the intent will be to match existing. The applicant must confirm whether or not this is the case.

3. **Parking.** In accordance with Section 14.04, light industrial and manufacturing requires 1.5 parking spaces for each 1,000 square feet of gross floor area plus 1 space per corporate vehicle and warehousing requires 1 parking space per 1,500 square feet of gross floor area plus 1 space per corporate vehicle. Based upon the size of the existing building and proposed addition, 39 spaces are required, while the site provides 61 existing spaces.

Section 14.02.06 requires Planning Commission approval for excessive parking (more than 20% above the minimum requirement); however, the amount of parking provided is an existing condition and the proposed addition will bring the ratio closer to compliance.

The parking spaces meet or exceed the dimensional requirements of Article 14; however, the drive aisles near the front of the property are narrower than required.

Lastly, given the amount of parking provided, 3 barrier free spaces are required, but only 2 are provided.

The Commission may wish to require improvements to these nonconforming conditions as part of this site plan review. At a minimum, we recommend the required number of barrier free parking spaces be provided.

4. **Pedestrian Circulation.** Sidewalks are not proposed nor required along Grand Oaks Drive. The plan does identify an existing sidewalk between the parking lot and front building entrance.

5. **Vehicular Circulation.** No changes are proposed to the existing driveway along Grand Oaks or to internal circulation.

6. **Loading.** Given the size of the proposed addition and existing building, Section 14.08.08 requires 1 loading space. Such spaces are to contain 500 square feet of area and be located in a rear or side yard not directly visible to a public street. There is an existing loading/unloading area that meets requirements in the rear yard.

7. **Landscaping**. Sheet A.3 identifies existing landscaping, but does not propose any new plantings. Based on our review, the site is deficient in terms of plantings for the front yard greenbelt, parking lot and detention ponds.

   In our opinion, the site and area would benefit greatly from additional plantings in the front yard. Greenbelt requirements call for 9 canopy trees, while there is only 1 existing tree shown on the plan. Additionally, a hedgerow along the front parking spaces would diminish views of parking cars and keep headlights from shining into the building across Grand Oaks.

8. **Waste Receptacle and Enclosure.** The site plan does not identify an existing or proposed waste receptacle/enclosure. Review of aerial photos show a stand-alone dumpster that is not contained within an enclosure. If this condition is still present, we recommend the applicant be required to install a waste receptacle/enclosure in accordance with the provisions of Section 12.04.

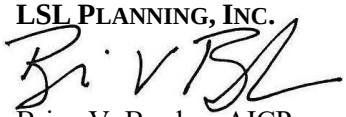
9. **Exterior Lighting.** Sheet A.3 identifies 3 new wall mounted fixtures on the proposed building addition. Details show shielded/downward directed fixtures with compliant light intensities.

10. **Signs.** The submittal identifies an existing monument sign in the front yard. If any new signage is proposed, the applicant must comply with the standards and procedures outlined in Article 16, which includes the need to obtain a sign permit from the Township.

11. **Impact Assessment.** The submittal includes an Impact Assessment (dated 1/9/15), which notes that the proposed project is not expected to adversely impact natural features, public services/utilities, surrounding land uses or traffic.

Should you have any questions concerning this matter, please do not hesitate to contact our office. We can be reached by phone at (248) 586-0505, or via e-mail at borden@lslplanning.com and foster@lslplanning.com.

Sincerely,
LSL PLANNING, INC.



Brian V. Borden, AICP
Principal Planner

Michelle Foster
Project Planner

TETRA TECH

September 9, 2020

Ms. Kelly Van Marter
Genoa Township
2911 Dorr Road
Brighton, MI 48116

Re: Dewitt Radiator Remodeling
Site Plan Review No. 1

Dear Ms. Van Marter:

Tetra Tech conducted a review of the proposed Dewitt Radiator Remodeling site plan last dated July 27, 2020. Tetra Tech previously reviewed the plans in January of 2015. The plans and impact assessment were submitted by John Stewart Architects. The site is a 3-acre parcel located on the east side of Grand Oaks Drive, just south of the Toddem intersection. The petitioner is proposing a 4,661 square foot building addition to the existing 23,348 square foot building. The Petitioner is proposing no site work other than a gravel access path around the new building addition.

It is our understanding that the petitioner is requesting an extension of their previous site plan approval. After reviewing the site and impact assessment we offer the following comments for the planning commission's consideration in your action on the extension request:

GENERAL NOTES

1. The proposed site plan and gravel access drive will need to be approved by the Brighton Area Fire Authority. This approval should be provided to the Township prior to site plan approval.

DRAINAGE AND GRADING

1. The proposed addition will increase the net impervious area on the site, but the existing on-site detention basins are shown to have adequate capacity. Additional spot elevations near the corner of the building, indicating positive drainage towards the existing detention basin, should be added to the construction plans. This comment was on the January 2015 review letter also.

We recommend the petitioner address the above comments prior to approval. Please call or email if you have any questions.

Sincerely,

Gary J. Markstrom, P.E.
Vice President

Shelby Scherdt
Project Engineer

Tetra Tech
401 South Washington Square, Suite 100, Lansing, MI 48933
Tel 517.316.3930 Fax 517.484.8140 www.tetratech.com

BRIGHTON AREA FIRE AUTHORITY
615 W. Grand River Ave.
Brighton, MI 48116
o: 810-229-6640 f: 810-229-1619

September 8, 2020

Kelly VanMarter
Genoa Township
2911 Dorr Road
Brighton, MI 48116

RE: Dewitt Radiator Addition Renewal
1275 Grand Oaks Drive.
Genoa Twp., MI

Dear Kelly:

The Brighton Area Fire Department has reviewed the above mentioned site plan. The plans were received for review on August 25, 2020 and the drawings are dated July 27 2020. The project is based on an existing Type IIB constructed 23,348 square foot square foot factory/storage building. The plan proposes an addition of 4,661 square feet to be used for storage. The plan review is based on the requirements of the International Fire Code (IFC) 2018 edition.

1. The water main location is indicated on the submittal, however, the nearest hydrant(s) to the building are not provided. A fire hydrant shall be located within 400-feet of all parts of the building (hose lay) or a fire hydrant shall be provided on site located at the corner of the parking areas, approximately 65-feet North of the office.

2. The address will be verified at inspection. Numbers shall be provided on the street side of the structure at a **minimum of 6"** high and of contrasting colors. Address shall be clearly visible from the street.

   IFC 505.1

3. The access drive into the site is an existing non-conforming to fire code. With the provided width, both sides of the drive shall be marked as a fire lane. Include the location of the proposed fire lane signage and include a detail of the fire lane sign in the submittal. Signage shall be provided every 50-feet along the drive and building (in non-parking areas). The East side proposed access drive shall be maintained as an all weather surface constructed to be capable of supporting the imposed load of fire apparatus weighing at least 75,000 pounds, I do not recommend gravel. The access to the building shall be provided and maintained during construction, including the proposed East access drive.

   IFC D 103.6
   IFC D 103.1
   IFC D 102.1
   IFC 503.2.3

4. Access around the building shall provide emergency vehicles with a turning radius of 50-feet outside and 30-feet inside.

   IFC 503.2.4

5. A minimum vertical clearance of 13½-feet shall be maintained throughout the access drive.

   IFC 503.2.1

6. The secondary access drive is required to achieve fire emergency vehicle access to within 150-feet of all parts of the structure. The access drive coupled with the existing dead-end of 180-feet creates a dead-end access in excess of 300-feet. The access drive shall be provided with an approved means of emergency vehicle turn around. A hammerhead compliant with Appendix D of the fie code would best suit the site conditions.

   IFC 503.1.1

7. Provide names, addresses, phone numbers, emails of owner or owner's agent, contractor, architect, on-site project supervisor.

Additional comments will be given during the building plan review process (specific to the building plans and occupancy). The applicant is reminded that the fire authority must review the fire protection systems submittals (sprinkler & alarm) prior to permit issuance by the Building Department and that the authority will also review the building plans for life safety requirements in conjunction with the Building Department. If you have any questions about the comments on this plan review please contact me at 810-229-6640.

Cordially,

Rick Boisvert, FM, CFPS
Fire Marshal

cc: Amy Ruthig amy@genoa.org

john stewart
ARCHITECTS

1645 N. MILFORD RD.
MILFORD, MICH. 48381
PH. (248) 685-0978
email stewartcontractors@gmail.com

July 28,2020

Genoa Township Planning Commission

IMPACT ASSESSMENT STUDY

A. Person Responsible for Study:

John Stewart, Architect
1645 North Milford Road
Milford, Michigan 48381

B. Maps and Written description/analysis of project site

Existing One Story Industrial Building, 23,348 SF
Proposed Addition to match existing and fill in the
Southeast corner, 4661 SF
Existing asphalt parking lot to remain unchanged, 61 Cars
Required parking for site is 39 cars
Aerial Map attached
Removal of an existing concrete within the proposed building pad

C. Impact on Natural Features

Entire site and topography to remain as is
No additional site disturbance anticipated
Existing trees, brush and landscaped beds to remain unchanged
No trees to be removed
No wetlands are to be disturbed or impacted

D. Stormwater Management Requirements

Soil Erosion Plan will be submitted to Livingston County Drain Comm.
Soil Erosion Fencing will be installed surrounding new addition per
LCDC Requirements. Parking Lot catch basins will have erosion control
silt fabric placed at Manhole Covers.

Stormwater discharge increase due to increase in size of addition vs. existing hard surface imperviousness is within the existing stormwater collection basins capacity.
Existing drainage swale along south side between building and property line will be extended to collect rain water from new addition downspouts.

E. Impact on Surrounding Land Uses

New addition will have no effect on surrounding land uses.
Addition is for inside (enclosed) storage of materials used to make aftermarket radiators. Product is aluminum and steel sheets, including storage racks for completed products.
No additional sound or air pollution

F. Impact on Public Facilities and Services

New Addition will have no effect or impact on public facilities or services. Number of employees will not change due to addition.

G. Impact on Public Utilities

New Addition will have no impact on Public Utilities.
Additional Stormwater is within the existing storm water designed storm waters system collection and flow parameters.
During construction, all erosion control measures will be implemented.
No additional sewer or water requirements.

H. Storage and Handling of Hazardous Materials

No hazardous substances will be stored in the new addition.

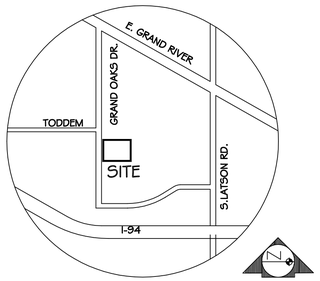
I. Impact on Traffic and Pedestrians

New addition will not impact traffic or pedestrians

J. Special Provisions

New addition has no special provisions or requirements


DEWITT
Legend
Feature 1
Feature 2
Google Earth
© 2020 Google
300 ft
N



LOCATION MAP
NO SCALE

ZONING INFORMATION

"IND" INDUSTRIAL ZONING

GENOA TOWNSHIP LIVINGSTON COUNTY

	SQ.FOOTAGE	DESIGN REQUIREMENTS	PARKING REQUIRED
EX.BUILDING	23,348 SF	23,348 SF/1000 = 23.35 23.35 X 1.5 = 35	35 CARS
PROPOSED WAREHOUSE ADDITION	4,661 SF	4524 SF/ 1500 SF	3.11 CARS
			39 CARS
EXISTING PARKING SHOWN ON PLAN			61 CARS
PROPOSED STORAGE BUILDING HEIGHT 21'-4"			
SETBACKS	REQ'D	EXISTING	
FRONT	50 FT	70 FT	
SIDE	25 FT	40 FT LEAST	
REAR	40 FT	52 FT	
LOT SIZE	1 ACRE	3 ACRE	

EX. RETENTION BASIN

EX.ASPHALT PAVING

PARKING AREA 40 CARS

EX.DRIVEWAY

EX.CONC.PAVEMENT

PARKING AREA 8 CARS

EXISTING LIQUID/GAS STORAGE TANKS ON CONC.PAD

CHAIN LINK FENCE

EX.BOULDER WALL

EX.LOADING/UNLOADING AREA

HOURS OF OPERATION: 8 A.M. - 10 P.M.
EXISTING EXTERIOR LIGHTS SHALL BE CONTROLLED BY A TIME CLOCK. PARKING LOT LIGHTS SHALL BE TURNED OFF 1/2 HOUR AFTER CLOSING. AND RE-LIGHT 1/2 HOUR PRIOR TO OPENING

NEW FIREMANS KNOX BOX

GRAND OAKS DRIVE 100' WIDE

EX.8" SANITARY

EX.WATER MAIN

EX. RETENTION BASIN

PARKING AREA 5 CARS

PARKING AREA 8 CARS

HC

HC

LOADING DOCK

SERVICE ACCESS

OFFICE AREA 1115 SF

180.0'

39.0'

52'

DEWITT RADIATOR

PRODUCTION 7152 SF

60.0'

20'

EX.BOULDER WALL

EX.DE OVERHEAD LINES

PROP.LINE 330.0'

SHARED RECEIVING 1350 SF

STORAGE 860 SF

19.0'

8.0'

16.0'

40.0'

EXISTING 2 HR.RATED WALL

STORAGE 715 SF

79.0'

KUSTOM MACHINE

OFFICE AREA 1500 SF

PRODUCTION 5287 SF

PRODUCTION 3619 SF

EXISTING 2 HR.RATED WALL

PROPOSED ONE STORY STORAGE ADDITION 4661 SF

39.0'

59'

NEW 20' WIDE ACCESS PATH

FIREMANS ACCESS PATH 6" THICK 21AA GRAVEL DRIVE

TOILET 222 SF

EX. 6" SEWER

60.0'

EX.WATER SERVICE

200.0'

EX. 6" SEWER

79'

30'

45'-6"

70'

EX.TREE TO REMAIN

EX.TREE TO REMAIN

EX.WATER SERVICE

EX.TREE TO REMAIN

D.E. TRANSF.

40'

D.E.TRANSFORMER

U.G. ELEC.SERVICE

58'

EX.TREE TO REMAIN

DE POLE

EX.TREE TO REMAIN

PROP.LINE 400.77'

OWNER: TADBAD LLC
C/O MR. TOM DEWITT
11672 HYNE ROAD
BRIGHTON, MICHIGAN 48114
(313) 580-1574

SURVEYOR: ANC ENGINEERING INC.
5111 PONTIAC TRAIL
WIXOM, MICHIGAN 48393

NOTES:
1. STORE MATERIALS ARE COMPLETED AUTO RADIATORS IN BOX READY FOR SHIPMENT AND RAW METAL FOR FABRICATION
2. STORE MATERIALS ARE STORED ON RACKS TO 12'-0" HIGH

CODE REVIEW

CODE REQUIREMENTS

MICHIGAN BUILDING CODE	2015
MICHIGAN PLUMBING CODE	2015
NATIONAL ELECTRICAL CODE	2017
MICHIGAN MECHANICAL CODE	2015

CONSTRUCTION INFORMATION

2015 MICHIGAN BUILDING CODE NO BUILDING SPRINKLERS

BUILDING CLASSIFICATION	F-1	FIRE RESISTANCE RATING REQUIREMENT FOR 2-B	
CONSTRUCTION TYPE	2-B	BEARING WALLS (INTERIOR/EXTERIOR)	0 HR
ALLOWABLE HEIGHT	2 - STORY 55 FT	NON BEARING WALLS	0 HR
PROPOSED HEIGHT	1 - STORY 21 FT	ROOF CONSTRUCTION	0 HR
ALLOWABLE AREA	15,500 SF		
PROPOSED ADDITION AREA	4,661 SF		

SITE PLAN

SCALE 1/16" = 1'-0"

72 HOURS BEFORE YOU DIG CALL MISS DIG 800-482-7171 (TOLL FREE)

DATE
11-19-14
2-1-15
7-27-20

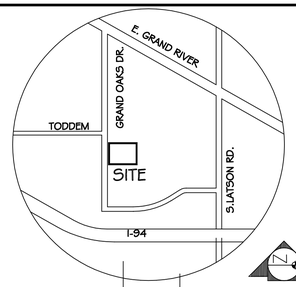
ISSUE/REVISIONS
FM REVISE 01-20-15
SITE PLAN UPDATE

DEWITT RADIATOR REMODELING
1275 GRAND OAKS DRIVE
HOWELL, MICHIGAN 48843

John stewart ARCHITECTS
1645 N. MILFORD RD., MILFORD MICH. 48381
248-685-0978

JOB NO.

SHEET A-1



LOCATION MAP
NO SCALE

STORM WATER DESIGN

SITE AREA	132,254 SF	3.04 ACRES
BUILDING	23,348 SF	
HARD SURFACE - PAVING	35,600 SF	
EXISTING HARD SURFACED TO BE REMOVED (EXISTING SLAB AND DRIVE)	3,266 SF	
TOTAL BUILDING AND PAVING	62,214 SF	1.43 ACRES
PROPOSED ADDITION	4,661 SF	
EXISTING HARD SURFACED TO BE REMOVED (EXISTING SLAB AND DRIVE)	3,266 SF	
INCREASED IMPERVIOUSNESS	1,395 SF	
TOTAL IMPERVIOUSNESS	63,610 SF	1.46 ACRES
GRASS (Pervious)	68,644 S.F.	1.58 ACRES

"C" (bldg&paving) 1.46 A X .9 = 1.31
"C" (grass) 1.58 A X .25 = 0.40
3.04 ACRES 1.71

"C_p" = (COEFFIENT FOR THE DEVELOPED AREA) $\frac{1.71}{3.04} = .56$

Qa = .15 C.F.S. ALLOWABLE RUNOFF / ACRE
OR
3.04 ACRES X .15 CFS (ALLOWABLE) = .46 CFS FOR THE DEVELOPED SITE

"Q_a" = (RUNOFF FOR THE DEVELOPED AREA) $\frac{Q_a}{A \times C_p} = \frac{.46 \text{ CFS}}{3.04 \text{ A X } .56} = .27$

NET INCREASE IN IMPERVIOUNESS = 1395 SF

$T = -25 + \sqrt{\frac{6562.5}{.27}} = 130.9$ MIN

$Vs = \frac{10,500\ (130.9)}{25 + 130.9} - 40\ (.27)\ (130.9) = 7402.51$ CF

$Vt = Vs \times A \times C_p$

TOTAL V = 7402.51 (3.04) (.56) = 12,602 CF

EXISTING ON SITE DETENTION = 15,381 CF OR 2,779 CF SURPLUS

NO ADDITIONAL DETENTION REQUIRED.
NO ADDITIONAL STORM WATER PROVISIONS ARE REQUIRED

EX. DETENTION BASIN
10941 CF

EX. DETENTION BASIN
3440 CF

EXISTING IN 4 SLOPE

EX.ASPHALT PAVING

EX.CONC.PAVEMENT

EX.DRIVEWAY

PARKING AREA 40 CARS

PARKING AREA 8 CARS

PARKING AREA 5 CARS

PARKING AREA 8 CARS

HC

HC

LOADING DOCK

SHARED RECEIVING 1350 SF

SERVICE ACCESS

OFFICE AREA 1115 SF

NEW FIREMANS KNOX BOX

DEWITT RADIATOR
FIN.FLOOR = 994.86

PRODUCTION 7152 SF

STORAGE 860 SF

KUSTOM MACHINE

OFFICE AREA 1500 SF

PRODUCTION 5287 SF

PRODUCTION 3619 SF

STORAGE 715 SF

TOILET 222 SF

EXISTING 2 HR.RATED WALL

EXISTING 2 HR.RATED WALL

PROPOSED ONE STORY STORAGE ADDITION 4661 SF

EX.DRIVE TO BE REMOVED

EXISTING CONCRETE PAD TO BE REMOVED

EX.LOADING/UNLOADING AREA

EX.BOULDER WALL

NEW 20' WIDE ACCESS PATH

EX.BOULDER WALL

6" THICK 21AA GRAVEL DRIVE

EXISTING ACCESS PATH

NEW DOWNSPOUT

NEW ROOF DOWNSPOUT

EX.DE OVERHEAD LINES

PROP.LINE 330.0'

EX.GRAND OAKS DRIVE 100' WIDE

EX.8" SANITARY

EX.WATER MAIN

EX. 6" SEWER

EX.WATER SERVICE

EX. 6" SEWER

EX.WATER SERVICE

U.G. ELEC.SERVICE

D.E. TRANSF.

D.E.POLE

EX.13'CULVERT

EX.ROAD SWALE

EX.ROAD SWALE

EX.MH

EX.CB

EX.CB
RIM = 994.25
INV = 992.45

DISCHARGE

EX.STORM PIPE

EX.STORM PIPE

EX.STORM PIPE

DRAINAGE

PROP.LINE 400.77'

SITE UTILITIES PLAN
SCALE 1/16" = 1'-0"

72 HOURS BEFORE YOU DIG "CALL MISS DIG" 800-482-7171 (TOLL FREE)

SURVEYOR: ANC ENGINEERING INC.
5111 PONTIAC TRAIL
WIXOM, MICHIGAN 48393

OWNER: TADBAD LLC
C/O MR. TOM DEWITT
11672 HYNE ROAD
BRIGHTON, MICHIGAN 48114
(313) 580-1574

DATE
12-11-14
2-1-15
7-27-20

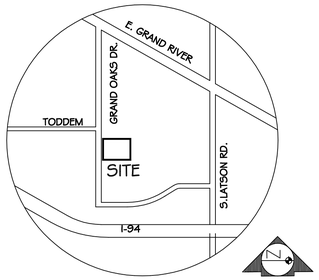
ISSUE/REVISIONS
FM REVISE 01-20-15
SITE PLAN UPDATE

DEWITT RADIATOR REMODELING
1275 GRAND OAKS DRIVE
HOWELL, MICHIGAN 48843

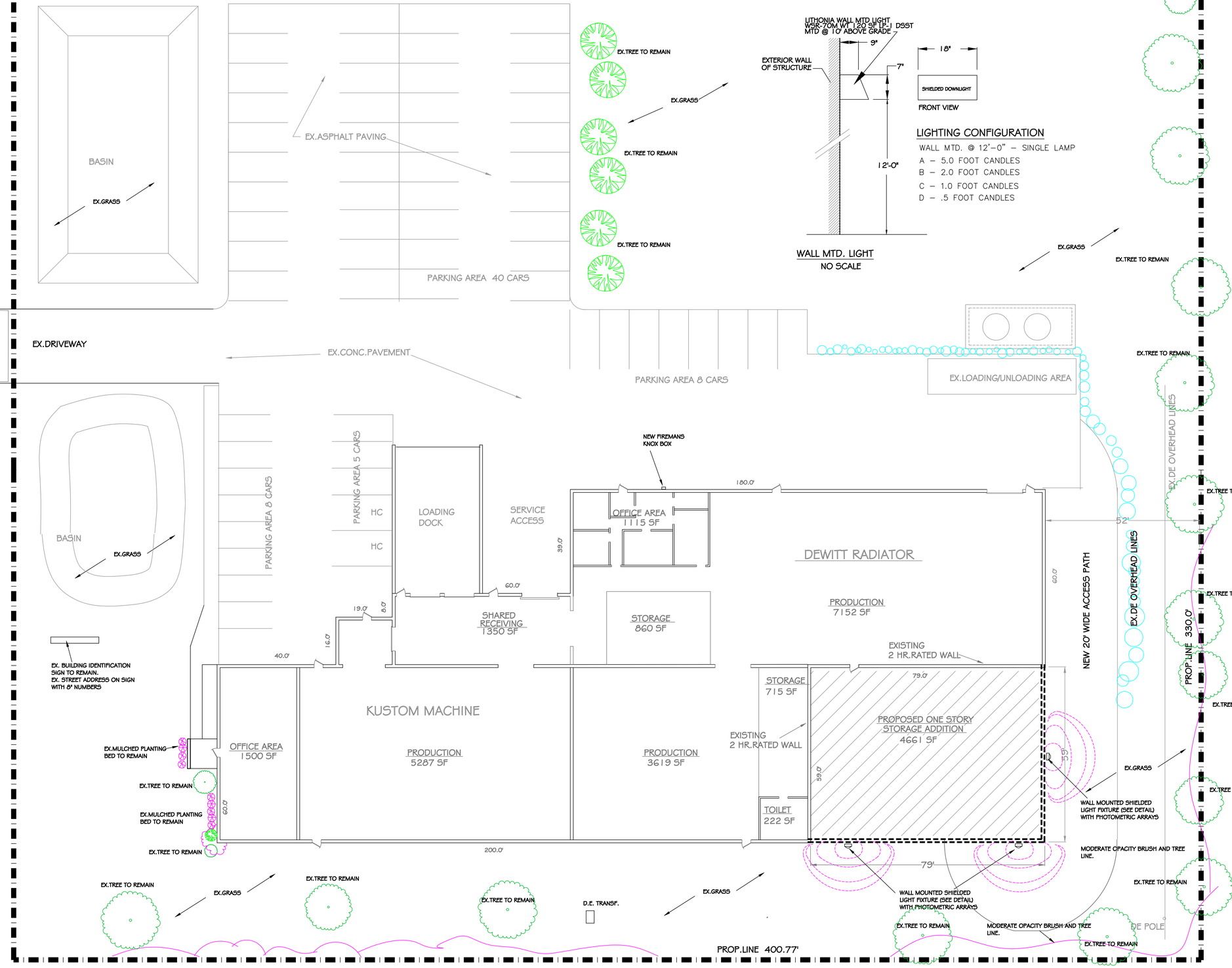
john stewart ARCHITECTS
1645 N. MILFORD RD , MILFORD MICH. 48381
248- 685-0978

JOB NO.

SHEET A-2



LOCATION MAP
NO SCALE



LITHONIA WALL MTD LIGHT
WSX-70W WT I 20 SF LP-I DSST
MTD @ 10' ABOVE GRADE

WALL MTD. LIGHT
NO SCALE

LIGHTING CONFIGURATION

WALL MTD. @ 12'–0" – SINGLE LAMP
A – 5.0 FOOT CANDLES
B – 2.0 FOOT CANDLES
C – 1.0 FOOT CANDLES
D – .5 FOOT CANDLES

OWNER: TADBAD LLC
C/O MR. TOM DEWITT
11672 HYNE ROAD
BRIGHTON, MICHIGAN 48114
(313) 580-1574

SURVEYOR: ANC ENGINEERING INC.
5111 PONTIAC TRAIL
WIXOM, MICHIGAN 48393

LANDSCAPE/LIGHTING PLAN
SCALE 1/16" = 1'-0"

72 HOURS
BEFORE YOU DIG
CALL MISS DIG
800-482-7171
(TOLL FREE)

DATE
12-23-14
2-1-15
7-27-20

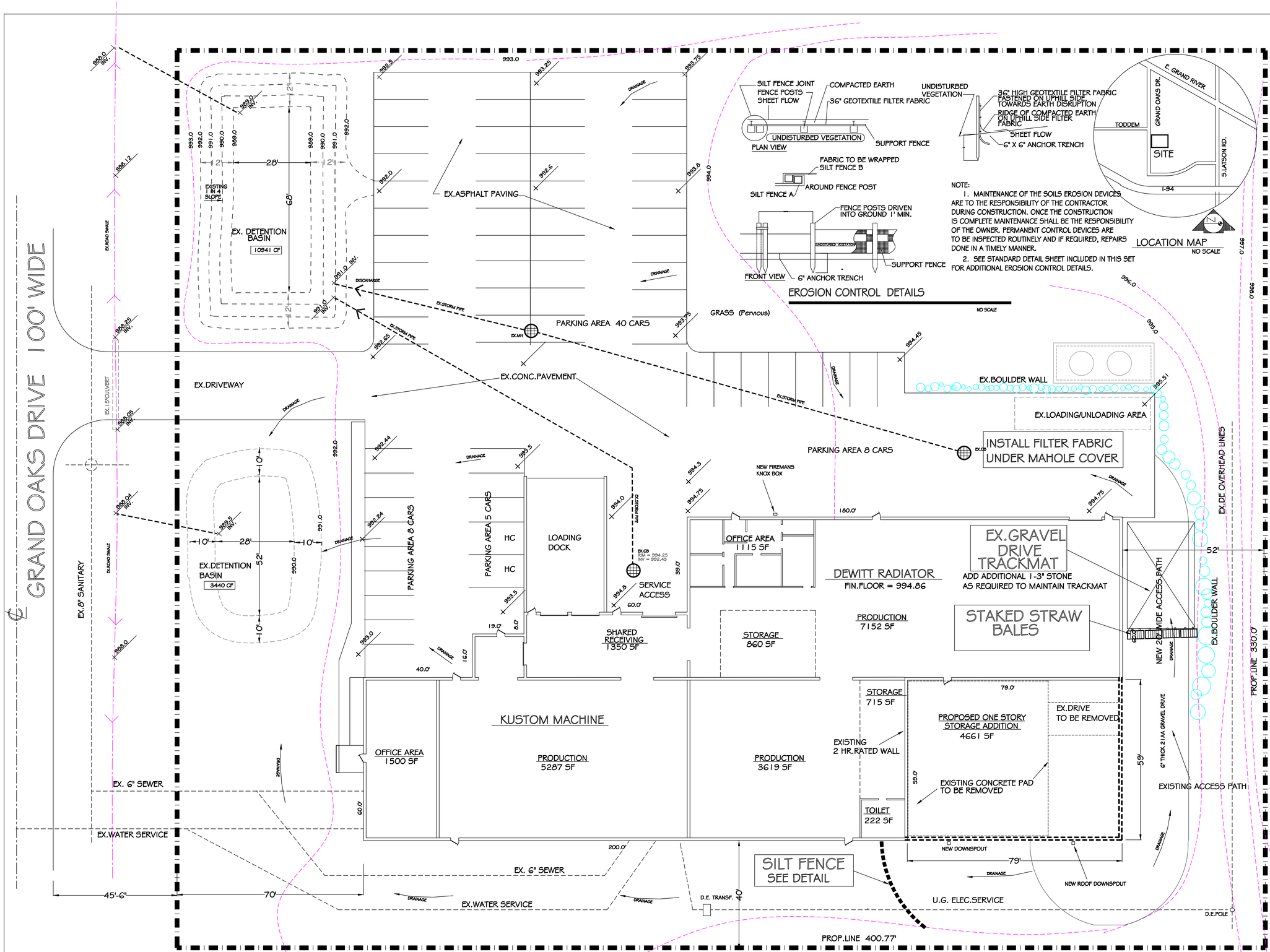
ISSUE/REVISIONS
FM REVISE 01-20-15
SITE PLAN UPDATE

DEWITT RADIATOR REMODELING
1275 GRAND OAKS DRIVE
HOWELL, MICHIGAN 48843

john stewart
ARCHITECTS
1645 N. MILFORD RD , MILFORD MICH. 48381
248- 685-0978

JOB NO.

SHEET A-3



NOTE:

1. MAINTENANCE OF THE SOILS EROSION DEVICES ARE TO THE RESPONSIBILITY OF THE CONTRACTOR DURING CONSTRUCTION. ONCE THE CONSTRUCTION IS COMPLETE MAINTENANCE SHALL BE THE RESPONSIBILITY OF THE OWNER. PERMANENT CONTROL DEVICES ARE TO BE INSPECTED ROUTINELY AND IF REQUIRED, REPAIRS DONE IN A TIMELY MANNER.
2. SEE STANDARD DETAIL SHEET INCLUDED IN THIS SET FOR ADDITIONAL EROSION CONTROL DETAILS.

LOCATION MAP
NO SCALE

SURVEYOR:

ANC ENGINEERING INC.
5111 PONTIAC TRAIL
WIXOM, MICHIGAN 48393

OWNER:

TADBAD LLC
C/O MR. TOM DEWITT
11672 HYNE ROAD
BRIGHTON, MICHIGAN 48114
(313) 580-1574

EROSION CONTROL PLAN

72 HOURS BEFORE YOU DIG CALL MISS DIG 800-482-7171 (TOLL FREE)

EROSION CONTROL SEQUENCE

1. INSTALL EROSION CONTROL PROTECTIVE SCREEN.
2. EXCAVATION AND LANDBALANCING.
3. INSTALL FOOTINGS.
4. CONSTRUCT BUILDING.
5. FINISH GRADE AND LANDSCAPE.
6. REMOVE EROSION CONTROL.

DATE
12-11-14
2-1-15
4-1-15
7-27-20

ISSUE/REVISIONS
FM REVISE 01-20-15

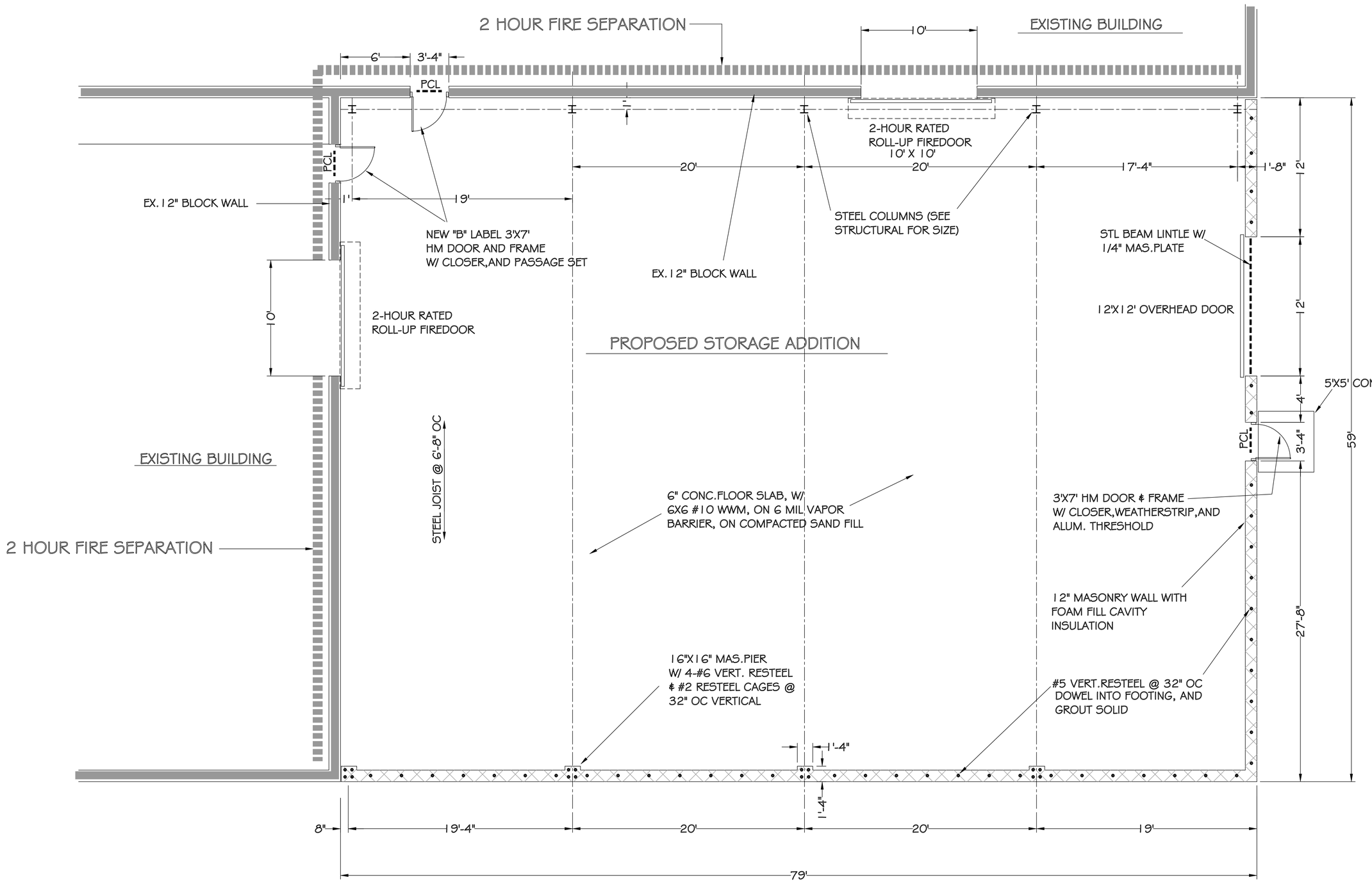
LCDC REVIEW
SITE PLAN UPDATE

DEWITT RADIATOR REMODELING
1275 GRAND OAKS DRIVE
HOWELL, MICHIGAN 48843

John stewart
ARCHITECTS
1645 N. MILFORD RD., MILFORD MICH. 48381
248-685-0978

JOB NO.

SHEET A-4



CONSTRUCTION INFORMATION

2012 MICHIGAN BUILDING CODE

BUILDING CLASSIFICATION	F-1
CONSTRUCTION TYPE	2-B
ALLOWABLE HEIGHT	2 - STORY 55 FT
PROPOSED HEIGHT	1 - STORY 21 FT
ALLOWABLE AREA	15,500 SF
PROPOSED ADDITION AREA	4,661 SF

FIRE RESISTANCE RATING REQUIREMENT FOR 2-B

BEARING WALLS (INTERIOR/EXTERIOR)	0 HR
NON BEARING WALLS	0 HR
ROOF CONSTRUCTION	0 HR

FLOOR PLAN

SCALE 1/4" = 1'-0"

DATE
11-19-14
7-27-20

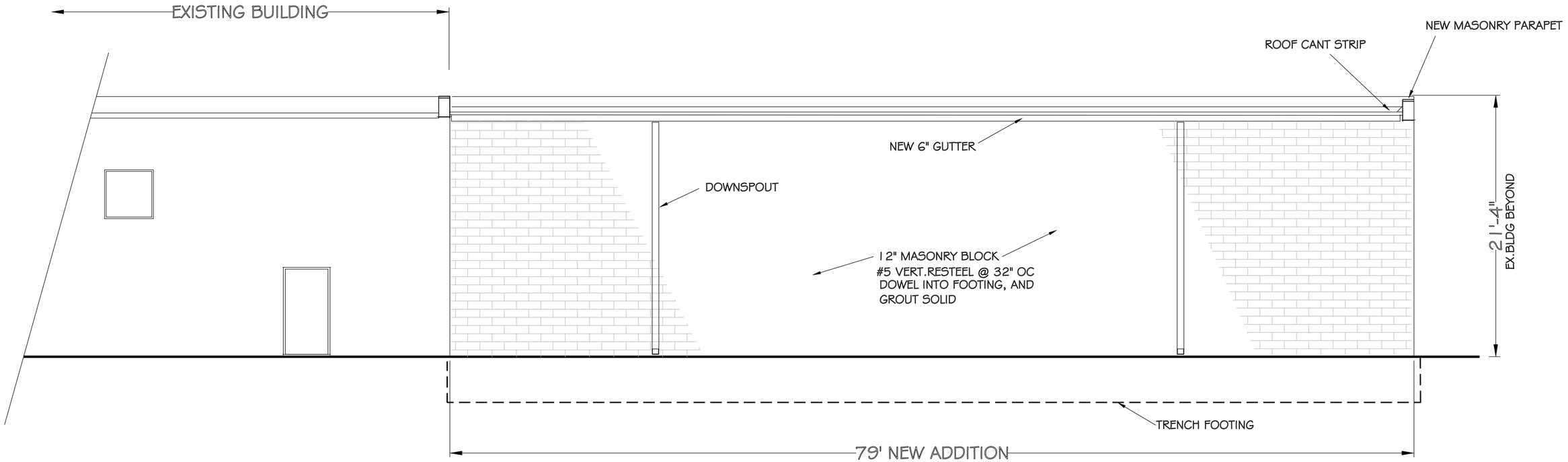
ISSUE/REVISIONS
DRAWING UPDATED

DEWITT RADIATOR REMODELING
1275 GRAND OAKS DRIVE
HOWELL, MICHIGAN 48843

john stewart ARCHITECTS
1645 N. MILFORD RD , MILFORD MICH. 48381
248- 685-0978

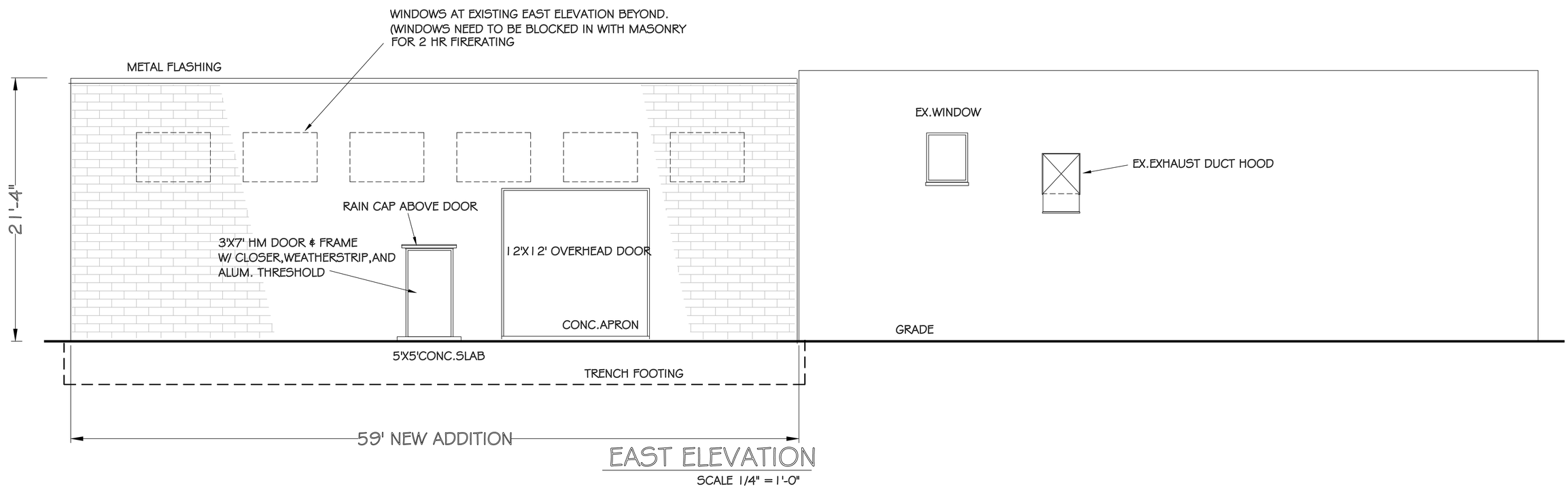
JOB NO.

SHEET A-5



SOUTH ELEVATION

SCALE 1/4" = 1'-0"



EAST ELEVATION

SCALE 1/4" = 1'-0"

DATE
11-19-14
7-27-20

ISSUE/REVISIONS
DRAWING UPDATED

DEWITT RADIATOR REMODELING
1275 GRAND OAKS DRIVE
HOWELL, MICHIGAN 48843

John stewart
ARCHITECTS
1645 N. MILFORD RD., MILFORD MICH. 48381
248- 685-0978

JOB NO.

SHEET A-6

GENOA CHARTER TOWNSHIP
Application for Site Plan Review

TO THE GENOA TOWNSHIP PLANNING COMMISSION AND TOWNSHIP BOARD:

APPLICANT NAME & ADDRESS: Partlund Development LLC.
If applicant is not the owner, a letter of Authorization from Property Owner is needed.

OWNER'S NAME & ADDRESS: Partlund Deevelopment llc: 29205 Ryan Rd. Warren, MI 48092

SITE ADDRESS: 2700 E. Grand River Ave, Howell, MI 48843 PARCEL #(s): 11-06-200-102

APPLICANT PHONE: (248)318-7875 OWNER PHONE: (517)212-7976

OWNER EMAIL: matt@partykapc.com

LOCATION AND BRIEF DESCRIPTION OF SITE: On Grand River East of Chilson at the former Tenpenny Furniture retail store. Existing building has painted CMU on the rear in obsolete condition. The parking for public was limited to the front, with employee parking in the rear and space available for loading. HVAC equipment was at ground level around the building.

BRIEF STATEMENT OF PROPOSED USE: Building has a permit for the facade to accommodate multiple tenants. Site work will be done to increase public parking and landscaping on the sides and rear of the building. Rear access will be added to reduce foot travel to the business use space.

THE FOLLOWING BUILDINGS ARE PROPOSED: No new buildings proposed. Request is for the exterior renovation of the rear of the building to include a balcony that extend to all suites and accessible from East, West, and South Parking lot.

I HEREBY CERTIFY THAT ALL INFORMATION AND DATA ATTACHED TO AND MADE PART OF THIS APPLICATION IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE AND BELIEF.

BY: Matt Partyka

ADDRESS: 29205 Ryan Rd., Warren, MI 48092

Contact Information - Review Letters and Correspondence shall be forwarded to the following:

1.) Shaun Toole (Name) of Project Manager (Business Affiliation) at stoole@naplerskiconstruction.com (E-mail Address)

FEE EXCEEDANCE AGREEMENT

As stated on the site plan review fee schedule, all site plans are allocated two (2) consultant reviews and one (1) Planning Commission meeting. If additional reviews or meetings are necessary, the applicant will be required to pay the actual incurred costs for the additional reviews. If applicable, additional review fee payment will be required concurrent with submittal to the Township Board. By signing below, applicant indicates agreement and full understanding of this policy.

SIGNATURE: Matthew Partyka DATE: 7-14-2020

PRINT NAME: Matthew Partyka PHONE: 586-751-7100

ADDRESS: 29205 Ryan Road Warren MI 48092

September 2, 2020

Planning Commission
Genoa Township
2911 Dorr Road
Brighton, Michigan 48116

Attention:	Kelly Van Marter, AICP Planning Director and Assistant Township Manager
Subject:	Partlund Development, LLC – Site Plan Review #2
Location:	2700 East Grand River Avenue – south side of Grand River, east of Chilson Road
Zoning:	GCD General Commercial District

Dear Commissioners:

At the Township's request, we have reviewed the revised submittal from Partlund Development, LLC requesting site plan review/approval for exterior building renovations and site improvements to the existing commercial building at 2700 East Grand River Road (plans dated August 18, 2020).

A. Summary

1. If the Commission considers favorable action on the site plan, it should be conditioned upon execution of the proposed land transfer between the subject site and the adjacent property to the east.
2. The Commission may reduce side and rear parking setbacks given the use of shared drives and connected parking lots.
3. The applicant must provide lot coverage calculations (both building and impervious surfaces).
4. We request the applicant present building material and color samples (or a color rendering) to the Commission.
5. The landscape plan is deficient in greenbelt, parking lot, and buffer zone plantings.
6. Light fixture and pole details must be provided as part of a lighting plan.
7. Maximum lighting intensities are exceeded along the east side and rear property lines.
8. The applicant must obtain a sign permit from the Township prior to installation of any new signage.

B. Proposal/Process

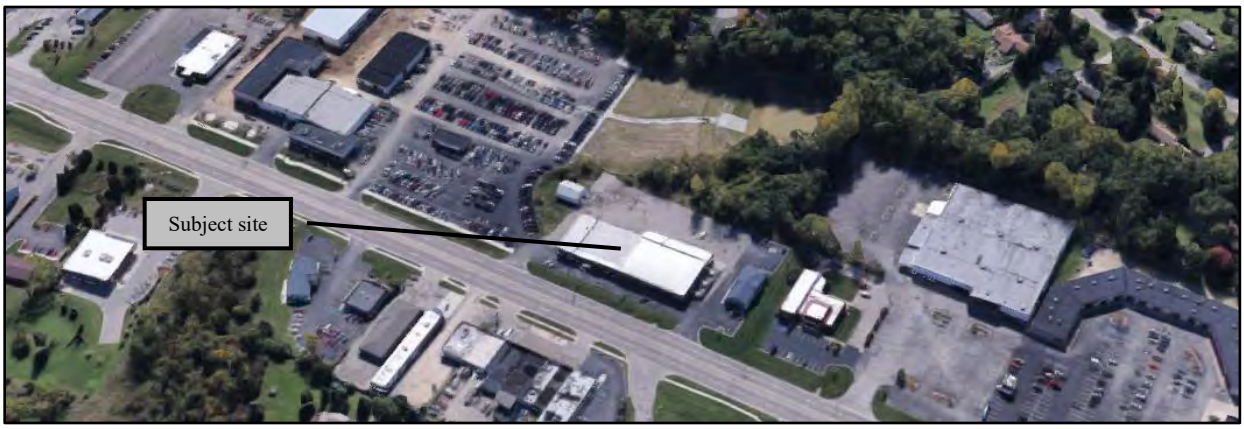
The project entails an exterior renovation of the existing building, including a new deck area along the rear of the building.

Site improvements to the existing parking lot, landscaping, lighting, and waste receptacle/enclosure are also proposed.

Internally, the building be divided up for use by multiple office and/or commercial tenants. Since specific uses are not identified at this time, we encourage the applicant to review host of allowable uses in the GCD (Table 7.02 of the Township Zoning Ordinance).

If a future use is identified as a special land use, the applicant must go through the review process outlined in Article 19 of the Township Zoning Ordinance.

Procedurally, the Planning Commission has review and approval authority over the site plan, though the Township Board has the final approval authority over the Impact Assessment.



Aerial view of site and surroundings (looking south)

C. Site Plan Review

1. **Dimensional Requirements.** The project has been reviewed for compliance with the dimensional requirements of the GCD, as follows:

	Min. Lot Req.		Minimum Yard Setbacks (feet)				Max. Lot Coverage (%)	Max. Height (feet)
	Area (acres)	Width (feet)	Front Yard	Side Yard	Rear Yard	Parking Lot		
GCD	1	150	70	15	50	20 front 10 side/rear	35% building 75% impervious	35
Proposed	2.19	321	17	49 (E) 40 (W)	82	0 front 2 side (E) 16 (W) 5 rear	Not provided	23.3

The front yard building and parking lot setbacks are existing nonconforming conditions that are not being altered.

The east side and rear parking lot setbacks are newly created conditions; however, the Planning Commission may reduce or waive side and/or rear parking lot setbacks where a shared access driveway or connected parking lots are provided (Section 14.06.11).

Additionally, the applicant must provide lot coverage calculations to ensure strict compliance.

2. **Building Materials and Design.** The proposed building elevations include the use of brick, block, glass, and EIFS.

Material calculations are not provided; however, it is apparent that the majority of the building is faced with brick and there is only a limited amount of EIFS along the cornice/parapet line.

The overall design incorporates both vertical and horizontal elements, as well as numerous windows, to help break up the length of each façade.

In our opinion, the proposed façade renovations reflect a vast improvement from the previous combination of design and materials, though the Commission has final approval authority over the proposal.

We request the applicant present material and color samples (or a color rendering) to the Commission for their consideration.

3. **Pedestrian Circulation.** As required by Section 12.05, the plan proposes an 8-foot wide concrete pathway within the Grand River Avenue right-of-way. The design includes barrier-free ramps at both driveways, as well as a pedestrian connection to the front of the building (with ramps and a crosswalk).

   Sidewalks are also provided around the building, with those sections adjacent to the parking lot providing a 7-foot width to accommodate vehicle overhang.

4. **Vehicular Circulation.** The proposal will utilize 2 existing shared driveway connections providing access to/from Grand River Avenue.

   Internal circulation includes both one-way and two-way drive aisles. The front parking lot utilizes a one-way pattern (from west to east), while the remainder of the site provides for two-way circulation.

5. **Parking.** The proposed parking has been reviewed for compliance with the standards of Article 14, as follows:

	Required	Proposed	Comments
Parking Spaces General retail (1 space/250 SF gross floor area)	90	90	In compliance
Barrier Free Spaces	4	4	In compliance
Dimensions			
Spaces (75 to 90-degree)	9' x 18'	9' x 16'	Depth is compliant given 2' overhang provided
Drive aisle width (one-way)	15'	16'	In compliance
Drive aisle width (two-way)	24'	26'	In compliance

   The project also includes a large loading/unloading area at the rear of the site.

6. **Landscaping.** The landscape plan (Sheet LA) has been reviewed for compliance with the standards of Section 12.02, as noted in the following table:

Standard	Required	Proposed	Notes
Front yard greenbelt	20' width 8 canopy trees	0' width 0 canopy trees	Width is an existing condition. Tree plantings would be in the r-o-w
Parking lot	9 canopy trees 900 SF landscaped area	2 canopy trees 1 evergreen tree 4 ornamental trees More than 900 SF	We suggest additional trees be provided in the SE portion of the site
Buffer zone "C" (south)	10' width 12 trees or 48 shrubs (or combination thereof)	5' width 1 existing tree	Due to limited space, we suggest required shrubs be provided
Buffer zone "C" (west)	10' width 10 trees or 40 shrubs (or combination thereof)	0' width 0 plantings	All but the south 15' contains a shared driveway
Buffer zone "C" (east)	10' width 10 trees or 40 shrubs (or combination thereof)	2' to 8' width 4 proposed trees	We suggest additional required trees or shrubs be provided

   In accordance with Section 12.02.13, the Planning Commission may waive or modify landscaping requirements.

7. **Waste Receptacle.** The proposed waste receptacle has been reviewed for compliance with the standards of Section 12.04, as follows:

	Requirement	Proposed	Comments
Location	Rear yard or non-required side yard	Rear yard	Requirement met
Access	Clear access w/ out damaging buildings/vehicles	Sufficient maneuvering area for refuse removal vehicles	Requirement met
Base design	9' x 15' concrete pad	15' x 18' concrete pad	Requirement met
Enclosure	Must have lid 3-sided enclosure w/ gate Masonry walls 6' height	Lid must be provided 3 sides w/ gate across 4th Brick to match building 6' height	Requirements met

8. **Exterior Lighting.** The submittal includes the required photometric plan; however, fixture and pole details still are not provided.

   The plan complies with the maximum on-site intensity allowed by Ordinance; however, there are still several readings along the east side and rear property lines that exceed the 1.0 footcandle limit.

9. **Signs.** The submittal does not include details of proposed signage, though the nonconforming sign int eh front yard will be removed as part of the project.

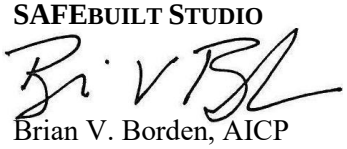
   For the applicant's reference, the Township's sign regulations are contained in Article 16 of the Zoning Ordinance. The applicant should also be aware that a sign permit must be obtained prior to installation of any new signage.

10. **Impact Assessment.** The submittal includes a revised Impact Assessment dated August 18, 2020.

    In summary, the Assessment notes that the project is not anticipated to adversely impact natural features, public services/utilities, or surrounding land uses.

Should you have any questions concerning this matter, please do not hesitate to contact our office.

Respectfully,
SAFEBUILT STUDIO



Brian V. Borden, AICP
Planning Manager

TETRA TECH

September 9, 2020

Ms. Kelly Van Marter
Genoa Township
2911 Dorr Road
Brighton, MI 48116

Re: Partlund Development
Conceptual Site Plan Review No. 2

Dear Ms. Van Marter:

Tetra Tech conducted a second review of the proposed Partlund Development site plan last dated August 18, 2020. The plans and impact assessment were submitted by Desine Inc. on behalf of Partlund Development LLC. The site is a 2.19-acre parcel located at 2700 E. Grand River Avenue with an existing 20,000 square foot building. The petitioner is proposing to remove a portion of the existing building, remodel the building and install a new on-site storm sewer and parking lot.

After reviewing the site and impact assessment we offer the following:

SITE PLAN

1. The drive aisle to the west looks to be under a shared use with the parcel to the west. A shared use agreement between the two parcels should be provided to the Township for their records or a separation should be provided between the two drives.

DRAINAGE AND GRADING

1. The Petitioner is proposing to discharge the onsite drainage to an existing retention pond on the parcel to the south. The petitioner has provided calculations to show that the proposed site improvements lower the amount of impervious surface on the site. A drainage easement should be obtained and provided to the Township as part of the site plan approval. The Petitioner should also obtain approval from the Livingston County Drain Commissioner. Currently the Drain Commissioner is withholding approval until comments in their letter dated August 28, 2020 have been addressed.

WATER SERVICE

1. The revised site plan no longer proposes a fire suppression lead. The petitioner should verify this is correct.

2. The proposed 8-inch water main will be public and should be shown in a 25-foot-wide water main easement. Once the site plan is approved, construction plans must be submitted to MHOG for review and permitting through EGLE.

Tetra Tech
401 South Washington Square, Suite 100, Lansing, MI 48933
Tel 517.316.3930 Fax 517.484.8140 www.tetratech.com

We recommend the petitioner revise the site plan to address the above comments prior to approval. Please call or email if you have any questions.

Sincerely,

Gary J. Markstrom, P.E.
Vice President

Shelby Scherdt
Project Engineer

BRIGHTON AREA FIRE AUTHORITY
615 W. Grand River Ave.
Brighton, MI 48116
o: 810-229-6640 f: 810-229-1619

August 28, 2020

Kelly VanMarter
Genoa Township
2911 Dorr Road
Brighton, MI 48116

RE: Partlund Development
2700 E. Grand River
Genoa Twp., MI

Dear Kelly:
The Brighton Area Fire Authority has reviewed the above-mentioned site plan. The plans were received for review on August 19, 2020, and the drawings are dated August 18, 2020. The project is an existing 22,363 square foot mixed-use that is undergoing significant renovation and change of use to subdivide the building into a multi-tenant occupancy. The plan review is based on the requirements of the International Fire Code (IFC) 2018 edition.

1. The building is proposed to be provided with an automatic sprinkler system in accordance with NFPA 13, *Standard for the Installation of Automatic Sprinkler Systems*. The following details are missing from the drawings

IFC 903

   A. The FDC is not shown, shall be located on the front of the building (Grand River) at the northeast corner of the building.

   B. The location, size, gate valves, and connection of the fire suppression lead shall be indicated on the utility site plan. The lead is shown on the architectural drawings (Sheet A4 & A5), however, it is shown as a 4-inch line. The size shall be increased to a 6-inch to comply with the township minimum standards and NFPA 13.

   C. The suppression lead is shown to be located approximately 32-feet inside the exterior wall of the building. The underground fire suppression lead is shown extending under the building in excess of the permitted 10-feet. The lead shall be relocated along the exterior wall and not extend beyond 10-feet into the structure. The location shall provide adequate access and room for system assembly.

NFPA 24 10.6.3

2. All utilities (gas meter, water meter/shutoffs, and electric service disconnects) shall be permanently labeled indicating the address and suite number serviced. Labeling shall be fade resistant and legible

IFC 509.1.1

3. The rear fire access drive shall be located between no less than 15-feet and 30-feet from the rear face of the building. With a minimum width of 26-feet wide, the building-side of the drive is marked as a fire lane. Additional sign locations may be required during inspections.

IFC 503.1
IFC D 103.6
IFC D 105.1

4. The location of the key boxes (Knox Box) shall be indicated on future submittals. A Knox Box shall

be provided for each tenant space, adjacent to the front door of each space. This includes the central corridor. The Knox box will be located adjacent to the front door of the structure and installed on the latch side between 60-66" AFF.

IFC 506.1

Additional comments will be given during the building plan review process (specific to the building plans and occupancy). The applicant is reminded that the fire authority must review the fire protection systems submittals (sprinkler & alarm) prior to permit issuance by the Building Department and that the authority will also review the building plans for life safety requirements in conjunction with the Building Department. If you have any questions about the comments on this plan review please contact me at 810-229-6640.

Cordially,

Rick Boisvert, FM, CFPS
Fire Marshal

cc: Amy Ruthig amy@genoa.org

Brian Jonckheere

Livingston County Drain Commissioner
2300 E. Grand River Ave., Ste. 105
Howell, MI 48843-7581
Phone: 517-546-0040 FAX: 517-545-9658
Website: www.livgov.com/drain Email: drain@livgov.com

August 28, 2020

Mr. Shaun Toole
Napierski Construction
274 S Hacker Rd
Brighton, MI 48114

Re: Partlund Development, LLC
Construction Plans
Northeast 1/4 of Section 8
Genoa Township

Dear Mr. Toole:

I received Construction Plans for the above referenced project on July 31, 2020. I note that this is the same site as was reviewed by in 2018 for the Volunteer's of America project. The submitted information has been reviewed for conformance with the L.C.D.C. "Procedures and Design Criteria for Stormwater Management Systems." Our comments on the proposed drainage design are as follows:

1.) Overall Drainage Concept - The 1.85 acre project site, located on the south side of Grand River Avenue approximately 1200 feet east of Chilson Road, was previously occupied by the Tenpenny Furniture Store. The currently proposed site improvements include the repaving of the existing parking lots around the building perimeter, the installation of an 8 foot wide concrete walk along the Grand River Avenue frontage, the installation of new parking lot islands on the south side of the building and the installation of concrete curbs around the parking lot perimeter. The site runoff

currently either sheet flows to the north into the Grand River Avenue Right-of-Way or to the south across the vacant portion of the adjacent Bob Maxey Ford site to an existing retention basin partially located within an easement on the Bob Maxey property. The runoff from proposed site improvements is to be collected by a proposed storm sewer system and routed to the offsite retention basin.

2.) Existing Conditions Plan – The property lines on Sheet EX should be labelled with their bearings and distances coinciding with those found in the Legal Description. It appears there is a typographical error within the Legal Description found on both the Cover Sheet and Sheet EX in the bearing for the 105.14 foot portion of the easterly property line. The following additional survey related items should also be addressed on the plans:

a.) The section corner ties for the parcel should be shown on Sheet EX, and the referenced section corner properly identified.
b.) Bench marks for the topographic survey information shown should be included on Sheet EX.
c.) The property line bearings shown on Sheet SP do not coincide with those found in the Legal Description on Sheet EX.
d.) The property area in acres, and/or square feet, should be noted on Sheet EX and Sheet SP.

3.) Stormwater Detention – No onsite stormwater detention currently exists or is being proposed as part of the site improvements. Previous discussions concerning proposed improvements on the adjacent Bob Maxey property revealed that the existing basin has experienced breaches and overflow along the west side of the basin. This may be in part due to the basin having insufficient volume capacity to meet the L.C.D.C. retention requirements based on its 20.60 acre tributary area. A petition under Chapter 3 of the Michigan Drain Code has since been filed to establish a viable outlet for the retention basin and that a Chapter 4 petition will be submitted in the next week.

During previous discussions, the owner of Bob Maxey Ford indicated some concern with the sheet flow coming off the site's existing parking areas. Given that the site runoff is now to be piped to the basin by the proposed storm sewers, I have no objection to allowing this site to continue to utilize the existing basin, provided that the following items are addressed:

- The petitioner reaches an agreement with Bob Maxey Ford regarding the stormwater discharge; and
- Basin storage volume will be improved as part of the petitioned drain project such as to minimize future overflows to the southwest; and
- The Partlund Development, LLC property will be part of the assessment district paying for the drainage & stormwater storage mprovements.

4.) Storm Sewers – The proposed storm sewers have been designed to accommodate the runoff from a 10 year frequency storm. However, storm sewer profiles should be provided in the Construction Plans. These profiles should include complete drainage structure information, type of pipe, slope and backfill information, as well as all utility crossing information. Both the storm sewer plan and profile should show and identify a rip-rap apron at the discharge point into the existing retention basin.

5.) Site Grading – Offsite grading or a retaining wall will be required along the south property line, opposite the southeast building corner, where a fill of nearly four feet is proposed. Proposed contours should be shown around the parking lot perimeter to define the proposed grading limits. Any slopes steeper than 1V on 4H should be restored with topsoil, seed and staked mulch blankets (or sod) and so noted on the plans.

6.) Offsite Drainage Easement – A 20 foot minimum width easement should be provided for the proposed offsite storm sewer outlet. A stormwater retention/detention easement agreement should also be shown on the plans for the shared use of the existing retention basin.

I am withholding approval of the Construction Plans for the Partlund Development, LLC project until the above mentioned items have been addressed.

Very truly yours,

Kenneth E. Recker, II, P.E.
Chief Deputy Drain Commissioner

cc: Paul Lewsley, Environmental Engineers
Kelly VanMarter, Genoa Township
Gary Markstrom, TetraTech

FYI - Copy of Permit which was issued to allow initial renovations to the building.

Genoa Township

2911 Dorr Road, Brighton, Michigan 48116
Phone: 810-227-5225 Fax: 810.227.3420 www.genoa.

Planning & Zoning

Non-Residential Land Use

Remodel/Renovation

P19-079

Issued: 06/26/2019
Expires: 06/25/2020

LOCATION	OWNER	APPLICANT
2700 E GRAND RIVER 4711-06-200-102 **Zoning: GCD**	TENPENNY FAMILY REV LIVING TRUST 2700 E GRAND RIVER HOWELL MI 48843 **Phone:** **E-Mail**	Ostlund A Service Company LLC 105 E. Main Street Pinckney MI 48169 **Phone:** (734) 878 6500 **E-mail**

Work Description: Renovating existing building including reduction in size and facade improvements. Proposed use is multi-tenant with tenants to be determined. Designed for business, retail or restaurant.

PROJECT INFORMATION:

Construction Value: $1.00 **Total Square Feet:** 17,668

Planning Commission Approval: n/a **ZBA Approval:** n/a **Board Approval:**

Comments/ Conditions: **Applicant is proposing a major remodel/renovation of the existing building. Building size is being reduced by approx. 3,252 square feet. This permit does not grant any site changes and this project may be subject to a site plan approval process depending on the scope of site work proposed. The exterior renovations and reduced building size are considered upgrades to the building facade which allows zoning administrator approval with a land use permit pursuant to Table 18.2.**
Each tenant and all signage shall be required to obtain land use permits prior to occupancy or construction. Changes in use may be subject to additional water and sewer REU capacity fees prior to land use permits. Applicant should consider the installation of individual water meters for each tenant space. Lastly, adequate parking shall be provided onsite and a parking reveiw shall be included in permit review for each tenant build out.

Permit Item	Permit Fee	Fee Basis	Item Total
Commercial/Industrial - Non-Residential	Permit Fee	1.00	150.00

Fee Total:	$150.00
Amount Paid:	$150.00
Balance Due:	$0.00

Issuance of this permit confirms the applicants certification that all information and data attached to and made part of this permit are true and accurate and to the best of the applicants knowledge and belief. The applicant has certified that the proposed work has been authorized by the owner of record and that the applicant has been authorized by the owner to obtain this permit as the authorized agent. The applicant has agreed to conform to all applicable laws, codes and ordinances of the State of Michigan, Livingston County and Genoa Township. The applicant acknowledges that private covenants and restrictions are potentially enforceable by private parties. This permit authorizes on-site inspections by an official representative of Genoa Charter Township. This permit is valid for a period of 12 months from the date of issue and the applicant agrees that any modifications must be approved by Genoa Township.

RECEIVED
By Amy Ruthig at 11:23 am, Aug 19, 2020

PARTLUND DEVELOPMENT
Genoa Township, Michigan
Site Plan Application

IMPACT ASSESSMENT

Owner:
Partlund Development, L.L.C.
29205 Ryan Road
Warren, Michigan 48092

Prepared by:
DESINE INC.
2183 Pless Drive
Brighton, Michigan 48114

A. INTRODUCTION

This impact assessment has been prepared pursuant to Article 18 – SITE PLAN REVIEW of the Zoning Ordinance for the Township of Genoa, Livingston County, Michigan. This assessment addresses the impact of the proposed building additions and parking expansion on the surrounding community and the economic condition and social environment of the Township.

This Impact Assessment has been prepared under the direction of Wayne Perry, P.E., DESINE INC., 2183 Pless Drive, Brighton, Michigan 48114. Mr. Perry is a licensed Civil Engineer, providing professional engineering services in Livingston County since 1988 with experience in private and municipal development including projects within Genoa Township and Livingston County.

B. SITE LOCATION / DESCRIPTION

The site is comprised of a single parcel, containing 2.19 acres of property, bordered on the North by Grand River Avenue, Bob Maxey Ford on the East and South, and Eye Care One to the West, as shown on Figure 1. The parcel and all neighboring parcels are zoned General Commercial (GCD) district.

Adjacent uses include the retail optometrist, Eye Care One, immediately to the West and a new car dealership, Bob Maxey Ford to the East and South. The Bob Maxey Ford parcel bordering the subject parcel on the East is occupied by vehicle storage and along the South subject boundary the Bob Maxey Ford parcel is open space used for storm water drainage. Properties on the North Side of Grand River Avenue are retail and commercial usage.

The property currently contains an existing retail building, an existing out building, parking lot, and related improvements. The existing retail building was previously a furniture store with main sales floor, a basement, and high bay garage. The existing out building is a brick garage at the rear of the building. The existing out building will be demolished during the construction process. The existing parking lot is continuous with the parking lot for the neighboring Eye Care One to the West and shares an access drive with Bob Maxey Ford to the East. The Existing Conditions Plan provides a detailed overview of the existing site features.

The proposed development plan depicts site improvements to be constructed on the parcel. Improvements consist of remodeling the existing retail building with a new façade, interior, and rear deck. The existing floor space will also be divided up into multiple tenant spaces suitable for a wide variety of office and commercial uses. The site plan for the Partlund Development also includes a redesign of the parking area to provide a more organized parking area with more spaces than the existing parking area and better traffic flow at the front and rear of the structure. Included in the parking lot redesign is the installation of a new storm water collection and conveyance system, pole and building mounted exterior lighting, and new landscaping in green space areas surrounding the building and parking area.

Access to the property from is from Grand River Avenue via two shared approaches on the Easterly and Westerly property boundaries. The Westerly approach is shared with Eye Care One and the Easterly approach is shared with Bob Maxey Ford.

C. IMPACT ON NATURAL FEATURES

Natural features on the subject parcel are limited to grass along the Easterly property boundary and overhanging trees at the Southerly boundary. Existing topography of the parcel slopes from the Northwesterly property corner to the Southwesterly property boundary. The elevation of the property varies from an elevation of 973 at the front of the existing retail structure, to approximately 961 at the Southwesterly property boundary. Surface water drainage on the property generally flows to the Southwesterly.

Existing soils on the property are primarily Miami loam. These soils are generally moderately drained, moderately permeable loams. Soil classifications are prepared by the United States Department of Agriculture, Soil Conservation Service, and "Soil Survey of Livingston County". The Soils Map, shown in Figure 3, shows the locations of specific soil types as classified.

The proposed construction and improvements will require filling and grading in the Southerly portion of the property to raise the proposed parking lot area to provide pavement slopes compliant with Township standards. Excavation will be required to construct the proposed storm water conveyance system along both sides and rear of the existing retail structure. Minimal excavation will be required to remove and replace the existing parking area on site.

The limits of disturbance for the project are the property boundaries and the right of way boundary with Grand River Avenue. Grading for this project will maintain the general character of the existing site. Development of this project will require earthwork to modify site grades with useable materials from the site, requiring the exporting of excess soil and importing of additional structural fill material. The proposed elevations and grading of the site mesh with the existing grades at the property lines.

Landscaping is proposed for the developed portion of the site to reduce the visual impact of the proposed project. All proposed landscaping areas are designed to bring the site more into compliance with Township standards within the constraints of available space on the subject parcel and have been designed to improve the aesthetics of the property. Within the developed portion of the site, areas not otherwise covered, shall have lawn or other vegetative surface cover established.

Surface drainage characteristics on the property will be affected by the renovation of the existing retail building and redesigned parking lot. Construction of the proposed improvements will reduce the impermeable area of the property resulting in a decrease in the surface water runoff generated. A storm water conveyance system has been designed to collect and control the surface water runoff from the parking area and building. The

ultimate outlet of stormwater has not been changed in this transition from sheet flow to concentrated flow.

The proposed changes and modifications to the surface drainage conditions will not significantly impact local aquifer characteristics or groundwater recharge capacity. All surface water runoff from the site will be directed into the open wooded area to the Southwest of the project area, keeping with the existing drainage path for runoff from the site. On site infiltration will be improved via the reduction of impermeable area on site and increased vegetation levels. The proposed storm water conveyance system will concentrate flow, but will not add any additional flow and will maintain the same outlet point. No significant impact to adjacent properties is anticipated from storm water runoff from the site.

Upland wildlife habitats on the property are minimal and consist of primarily field grass and overhanging tree branches along the Southwesterly property boundary. Wildlife supported in this area is generally smaller field animals and birds. Previous development and the existing use of the property, the adjoining developments and the proximity of Grand River, limits the existing upland habitat.

The project site does not currently support any significant wildlife habitat and the proposed construction will not have a significant impact on overall habitat quality. No significant adverse impact to natural features is anticipated due to the proposed re-development of this property.

D. IMPACT ON STORM WATER MANAGEMENT

Excavation and grading will be undertaken to construct the proposed stormwater conveyance system. The proposed parking lot is sloped to direct storm water flow into the storm water conveyance system. This system will discharge surface water runoff generated by development of the property to the open and wooded areas adjacent to the Southwesterly property boundary. Site grading will mesh with existing grades on adjoining properties. No adverse impact to adjoining properties is anticipated due to the construction and grading of the property.

Surface water runoff generated from all improved areas of the site will be collected by catch basins, conveyed through a storm sewer system, and discharged to the existing wooded and open areas to the Southwest of the subject parcel. Storm water will calmed by the installation of rip rap at the outlet of the enclosed conveyance system.

Soil erosion and sedimentation are controlled by the Soil Erosion Control Act No. 347 of the Public Acts of 1972, as amended and is administered by the Livingston County Drain Commissioner. Silt fencing will be installed around a majority of the site during construction. The Contractor shall comply with all regulations including control during and after construction.

Impact on adjoining properties due to the construction of this site will be minimized by

implementing soil erosion control methods. No adverse impact to adjacent properties due to surface water runoff will be created as a result of the proposed improvements.

E. IMPACT ON SURROUNDING LAND USES

All neighboring parcels are zoned General Commercial (GCD) district. Directly East a car dealership is operating and directly West an eye care center is operating. Land along the North side of Grand River Avenue, zoned General Commercial (GCD), contains a mix of commercial and retail users, including a dentist office, a pet supplies store, and a gutter installation company.

The Genoa Township Future Land Use Plan designates this property for General Commercial uses. The surrounding property is also designated for General Commercial use

The proposed uses depicted on the development plan are consistent with existing development in the area and are generally consistent with the long-term planning within the Township.

The landscaping and architecture proposed will allow this site to be developed to compliment the surrounding properties. The impact of the improvements to the surrounding area has been minimized.

Ambient noise levels on and around the property are largely generated by Grand River vehicle traffic. Daily activities within the proposed building are not anticipated to create an increase in the sound level in the area.

All site lighting shall meet the requirements of the Genoa Township Zoning Ordinance. Proposed building mounted fixtures and pole mounted site lighting will be shielded and down directed on the site. General site lighting for other uses, excluding safety and emergency lighting, shall be energized between the times from dusk to 12:01 a.m. and from 5:00 a.m. to dawn.

The building façade along the building front (Northeast side) is the most visible portion of the structure from Grand River. The building front is designed to be the primary entry point for the majority of customers and employees to most tenants. The Southeast side of the building will be facade and not designed to function as an entrance or exit and has limited window space. The Northwest side of the building has a man door as well as an overhead door to a small interior garage bay for delivery purposes. The rear of the building (Southwest side) has additional entry points for employees and customers. The first floor of the building is accessible via exterior decking and the basement is accessible via exterior ground level sidewalk. Excluding the addition of the rear first floor decking, the entry and exit points remain consistent with the building prior to renovation.

The proposed use of the property does not create any significant emissions of smoke, airborne solids, odors, gases, vibrations, noise or glare discernable and substantially

annoying or injurious to person and/or property beyond the lot lines. No significant change in air pollution is anticipated.

The Contractor shall be responsible for initiating and maintaining adequate dust control measures during and after construction until the project site is fully stabilized and a vegetative cover established. Dust control measures used during construction may consist of site watering, mulching of completed areas, installation of windbreak fencing, and application of chemical dust control materials. The site will comply with the performance standards contained in Section 13.05 of the Township Zoning Ordinance.

F. IMPACT ON PUBLIC FACILITIES AND SERVICES

The Livingston County Sheriff and Michigan State Police will provide Police protection. Public safety services required to accommodate the proposed use are anticipated to be minor.

The Brighton Area Fire Department as a part of an existing governmental agreement will provide fire protection service. A fire hydrant currently exists at the Northeasterly property corner in the Grand River Avenue Right-of-way to provide adequate fire protection capabilities. A new fire hydrant is provided on site to serve the rear of the building. Six Knox Boxes will be located on the building; five at the Grand River Avenue frontage and one at the rear of the building. No significant increase in fire protection services are anticipated as a result of the proposed use.

The property is accessed from Grand River via two shared access drives providing adequate access for emergency vehicles. The drive aisle at the rear of the building will provide a complete access loop around the building.

The proposed uses will not create any direct adverse impact on the public schools.

G. IMPACT ON PUBLIC UTILITIES

The property is presently within municipal sewer and water districts and existing buildings are connected to the municipal utilities.

Water service to the building will be supplied via a new water lead connecting directly to the water main running adjacent to the Southerly side of Grand River Avenue. A fire suppression line is also provided from this main. Capacity is available within the existing water system to provide adequate service to this site.

Sanitary sewer is located along the Northwesterly property boundary, via an existing lead at the rear of the existing building. Capacity is available within the existing sanitary sewer system to provide adequate service for the site.

The site is currently serviced by electric, gas, phone and cable systems located along Grand River Avenue.

All solid wastes will be properly disposed of through a licensed disposal firm on a regular basis. A dumpster enclosure with screen walls is located at the Westerly corner of the subject parcel, at the rear of the building. The new dumpster pad and screening will replace the existing damaged and worn pad and screening at approximately the same location on the site. The enclosures will be constructed decorative CMU material, matching material used on the site and complimenting the adjacent architecture of the building.

Delivery services are generally limited to parcel trucks, such as UPS, and similar single axle vehicles. These delivery service providers use available parking and drop off areas during their deliveries. Large vehicles accessing the site will be capable of maneuvering on the proposed access drives around the building and will be able utilize overhead door and high bay garage as needed for deliveries.

H. STORAGE AND HANDLING OF ANY HAZARDOUS MATERIALS

The proposed uses within the building will not use, store, generate and/or discharge potentially polluting materials. Small quantities of material such as cleaning products and chemicals may be stored on-site.

I. TRAFFIC IMPACT STUDY

A traffic impact study for the development has not been performed for the site. The site will not generate a sufficient amount of trips to warrant a traffic study and will not significantly impact traffic flow around the site.

Pedestrian access to the property is provided by an existing sidewalk along Grand River. Sidewalks around the building will provide access to all entrances and exits to the building and all parking areas.

No adverse impact on pedestrian traffic in the area is anticipated as a result of developing the proposed project.

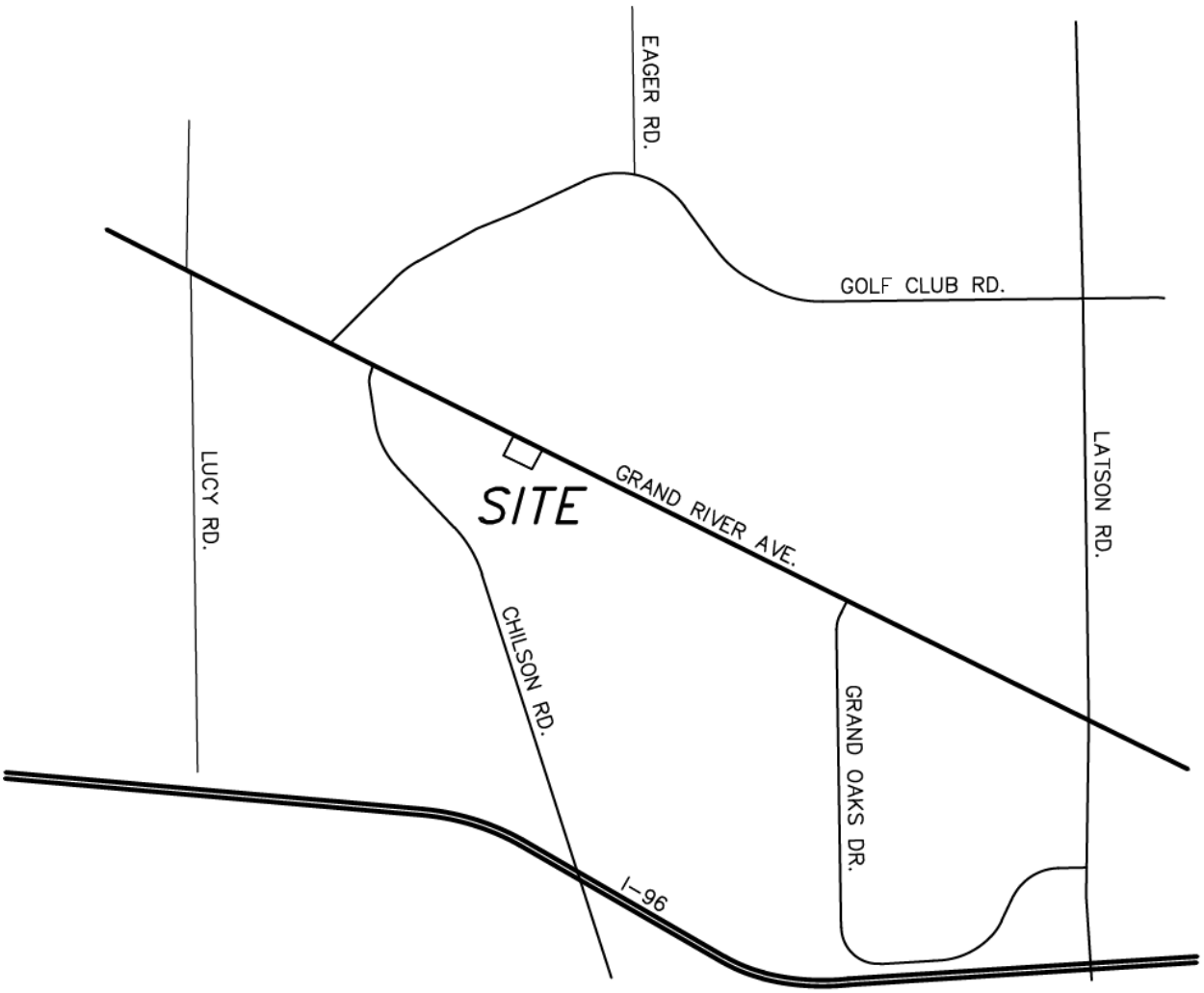
J. HISTORIC AND CULTURAL RESOURCES

The existing buildings on the property do not have any major historic significance on a local, regional or state level.

K. SPECIAL PROVISIONS

No special provisions or requirements are currently proposed for this facility.

FIGURE 1



LOCATION MAP

FIGURE 2

PHOTO DEPICTING SITE IMPROVEMENTS
NOT TO SCALE

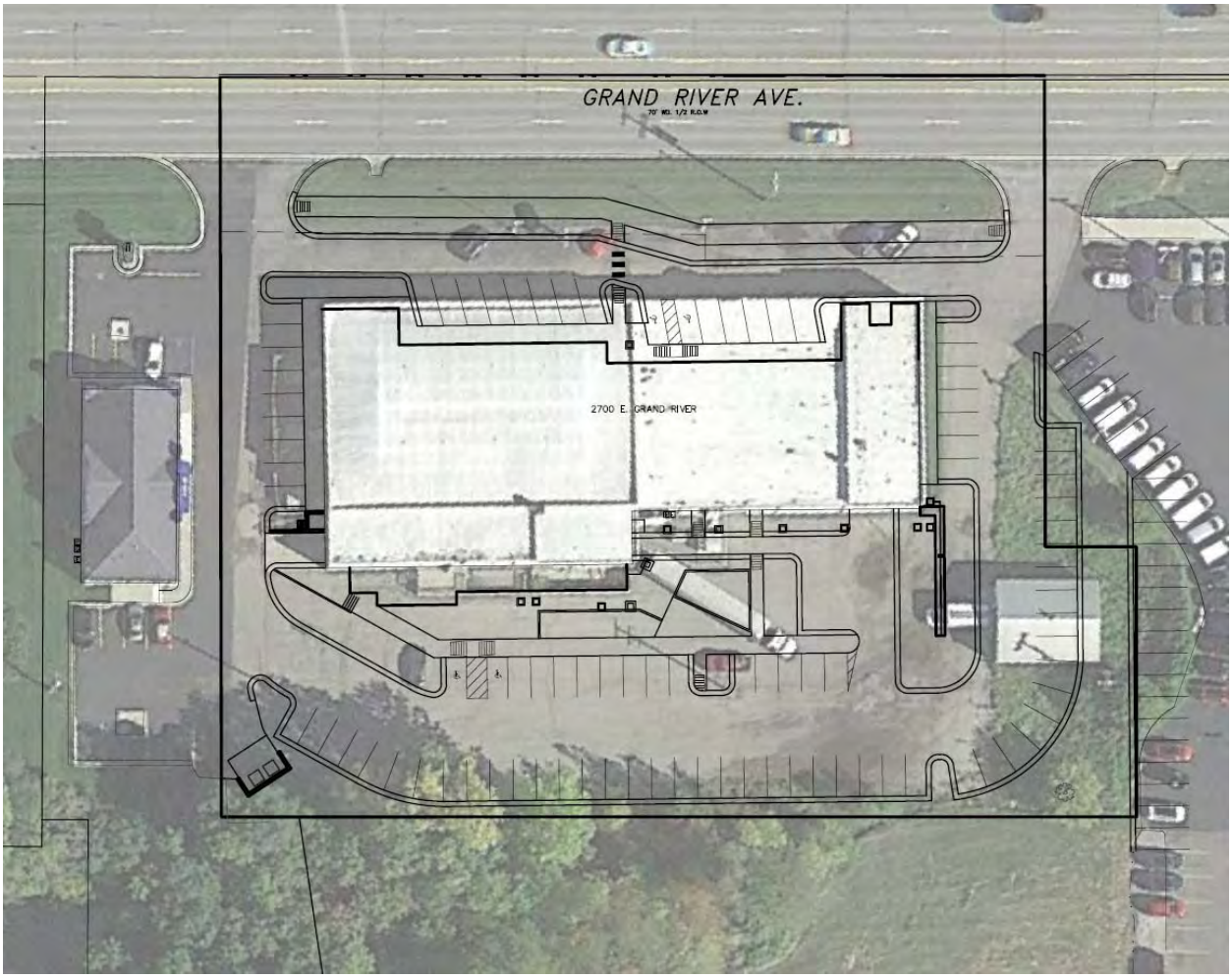
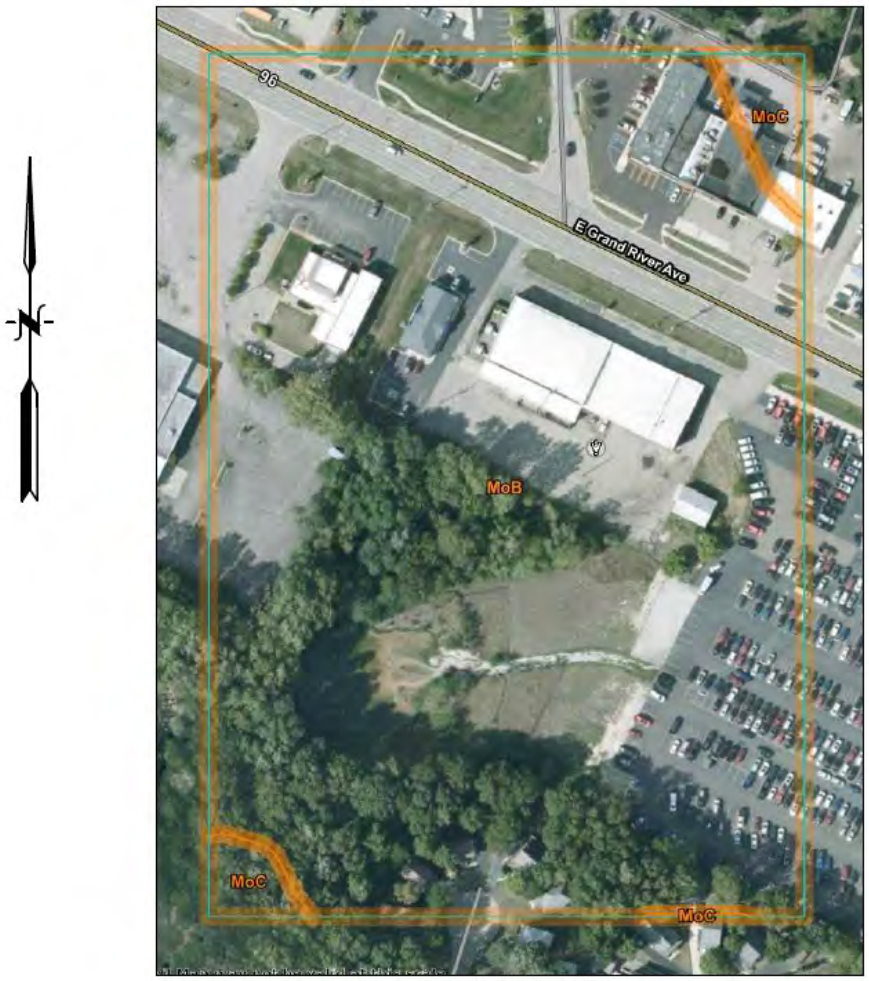


FIGURE 3

SOILS MAP
(NOT TO SCALE)



SOILS MAP

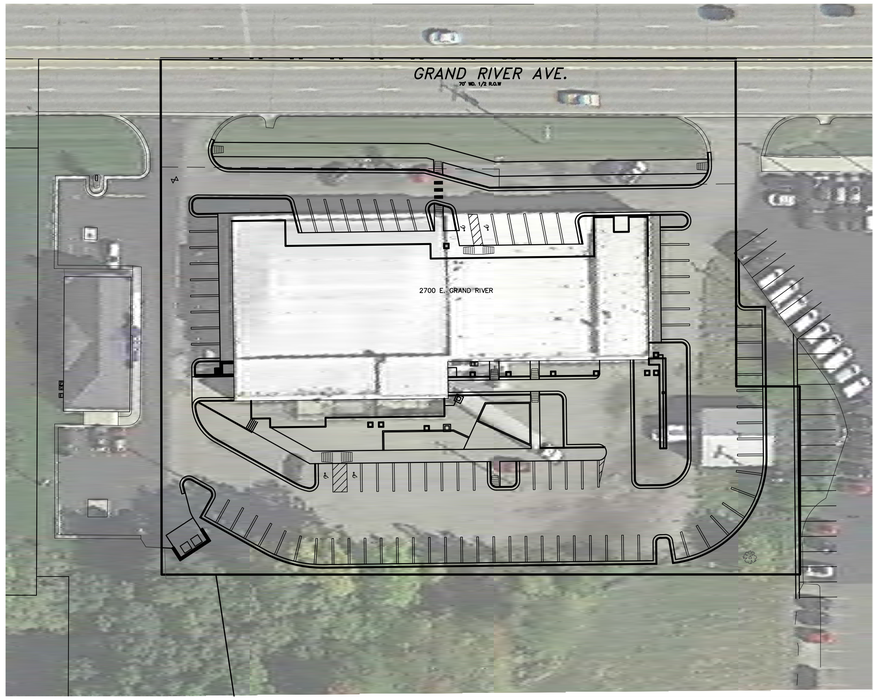
Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
MoB	Miami loam, 2 to 6 percent slopes	14.2	96.9%
MoC	Miami loam, 6 to 12 percent slopes	0.5	3.1%
Totals for Area of Interest		**14.7**	**100.0%**

RECEIVED
By Amy Ruthig at 11:24 am, Aug 19, 2020

SITE PLAN
FOR
PARTLUND DEVELOPMENT
BEING PART OF THE NE 1/4, SECTION 6, T2N,R5E, GENOA TOWNSHIP, LIVINGSTON COUNTY
2700 E. GRAND RIVER, HOWELL, MICHIGAN

LOCATION MAP
SCALE: 1in. = 2000ft.



AERIAL PHOTOGRAPH
NOT TO SCALE

SHEET INDEX

LEGAL DESCRIPTION

Reference: Quit Claim Deed as recorded in
Document No. 2017R-027713, Livingston County Records

Situated in the Township of Genoa, County of Livingston and State of Michigan, and described as follows:

Part of the Northeast 1/4 of Section 6, Town 2 North, Range 5 East, Genoa Township, Livingston County, Michigan, described as follows:
Commencing at the East 1/4 Corner of said Section 6; thence N87°24'40"W 1616.81 feet along the East-West 1/4 line to a found iron rod; thence N01°33'53"E 796.77 feet to a found concrete monument; thence N60°06'45"W 531.00 feet to a found concrete monument; thence N29°52'49"E 570.00 feet (recorded N29°53'15"E 570.00 feet); thence N60°01'58"W 141.66 feet (recorded as N60°06'45"W) to the POINT OF BEGINNING of the land to be described; running thence S29°52'49"W 183.46 feet (said line passing through the centerline of a curb cut) to a set 1/2" iron rod; thence S60°01'58"E 35.46 feet to a set 1/2 iron rod; thence S79°52'49"W 105.14 feet to a set 1/2" iron rod; thence N60°01'58"W 356.85 feet (recorded as N60°06'45"W); thence N29°52'49"E 288.62 feet to the centerline of Grand River Ave.; thence S60°01'58"E 321.39 feet along the centerline of Grand River Av. (recorded as S60°06'45"E) to the Point of Beginning. Subject to the rights of the public over that portion thereof occupied by Grand River Avenue, also subject to and together with all easements and restrictions affecting title to the above described premises.

Tax ID No.: 4711-06-200-102
Also known as: 2700 E. Grand Rive Avenue, Howell, Mi

NOTE: Legal description of record provided by client. Surveyor was not supplied with a Title Search at this time. Refer to the current policy for title insurance for proof of ownership and all encumbrances affecting title to the surveyed parcel.

OWNER / APPLICANT
PARTLUND DEVELOPMENT, LLC
29205 RYAN ROAD
WARREN, MICHIGAN 48092

ENGINEER / SURVEYOR
DESINE, INC.
2183 PLESS DRIVE
BRIGHTON, MICHIGAN 48114
810-227-9533

Know what's below. Call before you dig.
3 WORKING DAYS BEFORE YOU DIG
CALL 811 OR 1-800-482-7171 (TOLL FREE)
OR VISIT CALL811.COM

DESINE INC
(810) 227-9533
CIVIL ENGINEERS
LAND SURVEYORS
2183 PLESS DRIVE
BRIGHTON, MICHIGAN 48114

REVISED	SCALE: AS NOTED
JUNE 16, 2020	PROJECT No.: 183585
	DWG NAME: 3585 COV
	PRINT: AUG. 18, 2020

DEMOLITION NOTES:

1. The demolition specifications of the Local Municipality are a part of this work. Refer to the General Notes on the project plans for additional requirements.

2. Contractor shall contact the 811 Underground Public Utility Locating System or other appropriate local underground utility locating Agency, a minimum of three (3) working days prior to performing demolition work. Existing utility information on the project plans may be from information disclosed to this firm by the Utility Companies, Local, County or State Agencies, and/or various other sources. No guarantee is given as to the completeness or accuracy thereof. Prior to construction, locations and depths of all existing utilities (in possible conflict with the proposed improvements) shall be verified in the field.

3. Contractor shall contact the appropriate Agencies to coordinate disconnect of the electric, gas, phone, cable and other public utilities as necessary prior to performing demolition work.

4. Contractor shall contact the appropriate Agencies to coordinate removal and/or relocation of any underground and/or overhead public utility lines as necessary prior to performing demolition work.

5. Contractor shall recycle and/or dispose of all demolition material and debris in accordance with the appropriate Local, County, State and Federal regulations.

6. All bituminous and concrete pavement to be removed shall be saw cut at the limits of removal to provide for a clean straight edge for future abutment.

7. All existing irrigation lines to be removed shall be terminated at the limits of demolition or as necessary to allow for construction of the proposed site improvements. Ends of pipe shall be capped and the location of marked for future connection.

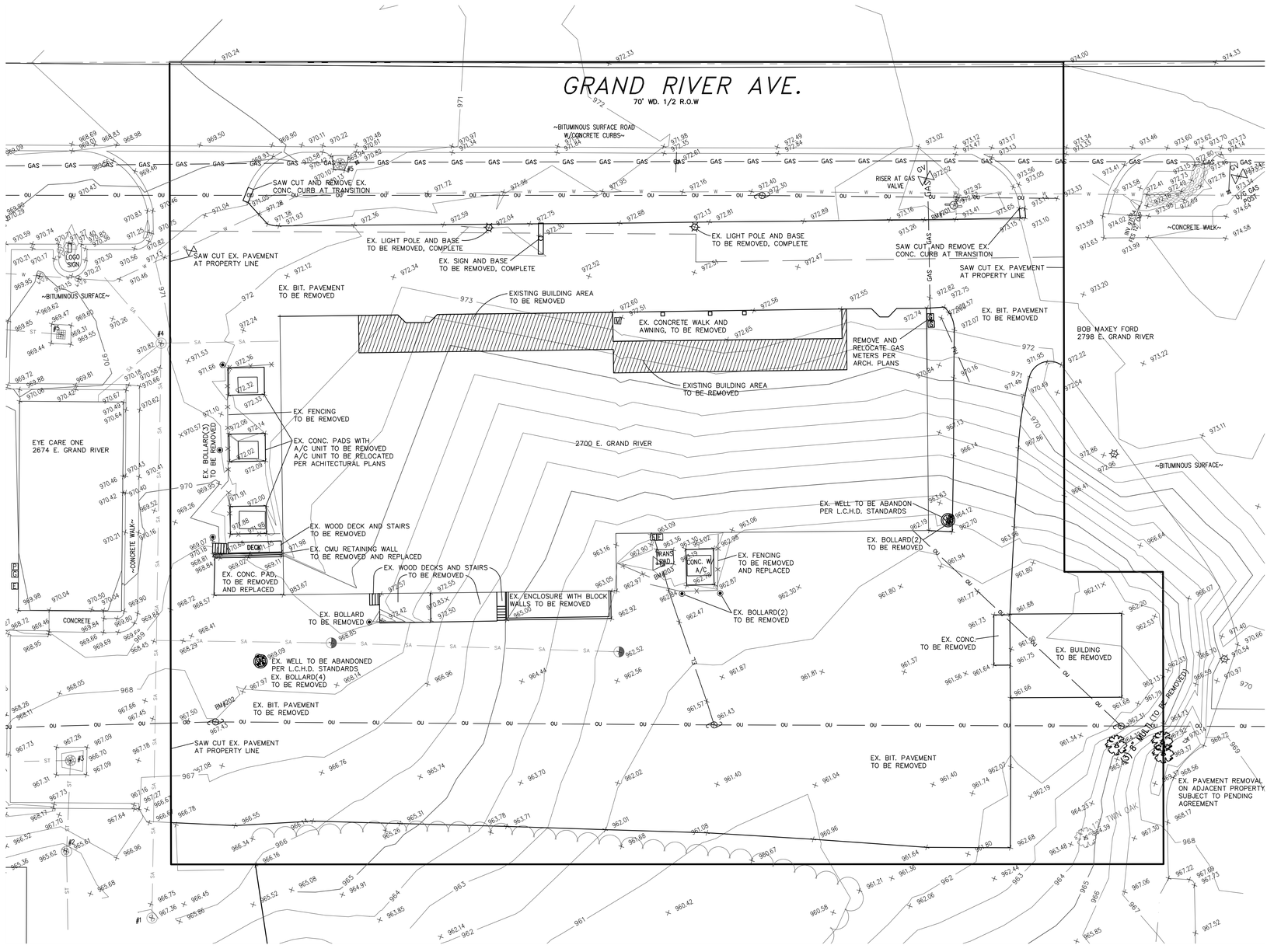
8. All existing water main and sanitary sewer to be removed shall be terminated at the limits of demolition or as indicated on the project plans. Temporary plugs shall be installed in the ends of pipe in accordance with the appropriate Agency and the locations of marked for future connection. Permanent plugs shall be installed in the ends of pipe in accordance with the appropriate Agency. The Contractor shall record the location of all permanent plugs and provide the location information to the appropriate Agency.

9. All existing storm sewer to be removed shall be terminated at the limits of demolition or as indicated on the project plans. Temporary plugs shall be installed in the ends of pipe in accordance with the appropriate Agency and the locations of marked for future connection. Permanent bulkheads shall be installed in the ends of pipe and/or openings in terminating structures in accordance with the appropriate Agency. The Contractor shall record the location of all permanent bulkheads and provide the location information to the appropriate Agency.

10. All existing light sources to be removed shall have their power cables removed up to the power source or properly terminated for future connection at the limits of demolition or as necessary to allow for construction of the proposed site improvements. Removal and termination of power cables shall be performed in accordance with local electric codes.

11. All existing utility meters to be removed shall be properly removed to allow for reuse. Any existing utility meters that are not to be reused as a part of this project shall be returned to the appropriate Agency.

12. All trenches and/or excavations resulting from the demolition of underground utilities, building foundations, etc., that are located within the 1 on 1 influence zone of proposed structures, paved areas and/or other areas subject to vehicular traffic shall be backfilled with MDOT Class III granular material (or better) to the proposed subgrade elevation. Backfill shall be shall be placed using the controlled density method (12" maximum lifts, compacted to 95% maximum unit weight, Modified Proctor).



GRAPHIC SCALE

20 0 10 20 40

(IN FEET)

1 INCH = 20 FEET

LEGEND

- = WELL / MONITOR WELL
- = BOLLARD
- = SIGN
- = LIGHT FIXTURE / DECORATIVE LIGHT
- = LIGHT BASE
- = UTILITY METERS & BOXES (ELECTRIC METER, GAS METER, WATER METER, PHONE BOX, CATV BOX, MAIL BOX, UTIL. BOX)
- = AIR CONDITIONER UNIT
- = UTILITY POLE W/GUY WIRE
- = OVERHEAD UTILITY LINES (ELECTRIC/PHONE/CABLE)
- = U/G UTILITY LINES (PHONE/FIBER OPTIC/ELECTIC/CABLE TV/MISC UTILITIES)
- = EDGE OF WOODS / TREE DRIP LINE
- = DECIDUOUS TREE W/IDENTIFIER
- = CONIFEROUS TREE W/IDENTIFIER
- = FENCE (CHAIN LINK UNLESS OTHERWISE STATED)
- = GUARD RAIL
- = EDGE OF GRAVEL
- = CONCRETE CURB (UNLESS OTHERWISE STATED)
- = SANITARY SEWER MANHOLE W/IDENTIFIER
- = SANITARY SEWER PIPE
- = CLEAN OUT
- = STORM WATER MANHOLE W/IDENTIFIER
- = CATCH BASIN W/IDENTIFIER
- = STORM WATER DRAINAGE PIPE
- = HYDRANT
- = WATER SHUT OFF
- = WATER VALVE BOX
- = WATER MAIN
- = GAS MANHOLE
- = GAS SHUT OFF
- = U/G GAS
- = 1' CONTOUR
- = 5' CONTOUR

EX. STRUCTURE INVENTORY

SANITARY SEWER MANHOLE #1
NORTHWESTERLY RIM 967.33
NORTH 10" PVC 957.48

STORM SEWER MANHOLE #2
NORTHWESTERLY RIM 965.62
NORTH 48" CPP (TUNNEL) 959.17
SOUTH 12" RCP (TOP) 951.57
NORTH NO ACCESS

CATCH BATCH BASIN #3 (ROUND)
WESTERLY RIM 966.71
WEST-SOUTH 48" CPP 959.81
INVERT WAS FROM BOTTOM OF TUNNEL

SANITARY SEWER MANHOLE #4
SOUTHWESTERLY RIM 970.84
SOUTH 10" PVC 956.09
NORTHWEST 10" PVC 956.04
SW-NE 6" PVC 956.61

CATCH BASIN (ROUND) #5
WESTERLY RIM 969.33
EAST-WEST 48" CPP
INVERT WAS FROM BOTTOM OF TUNNEL

YARD BASIN #6
SOUTHEASTERLY RIM 969.66
WEST 12" CMP 968.21
EAST 12" CMP 968.16

LEGAL DESCRIPTION

Reference: Quit Claim Deed as recorded in
Document No. 20171-027713, Livingston County Records

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Tax ID No.: 4711-06-200-102
Also known as: 2700 E. Grand Rive Avenue, Howell, MI

DESINE INC
(810) 227-9533
CIVIL ENGINEERS
LAND SURVEYORS
2183 PLESS DRIVE
BRIGHTON, MICHIGAN 48114

REVISION #	DATE	REVISION-DESCRIPTION
1	8-18-20	REVISED PER REVIEW COMMENTS

REVISION #	DATE	REVISION-DESCRIPTION

DESIGN: JHG
DRAFT: JHG
CHECK: JMB

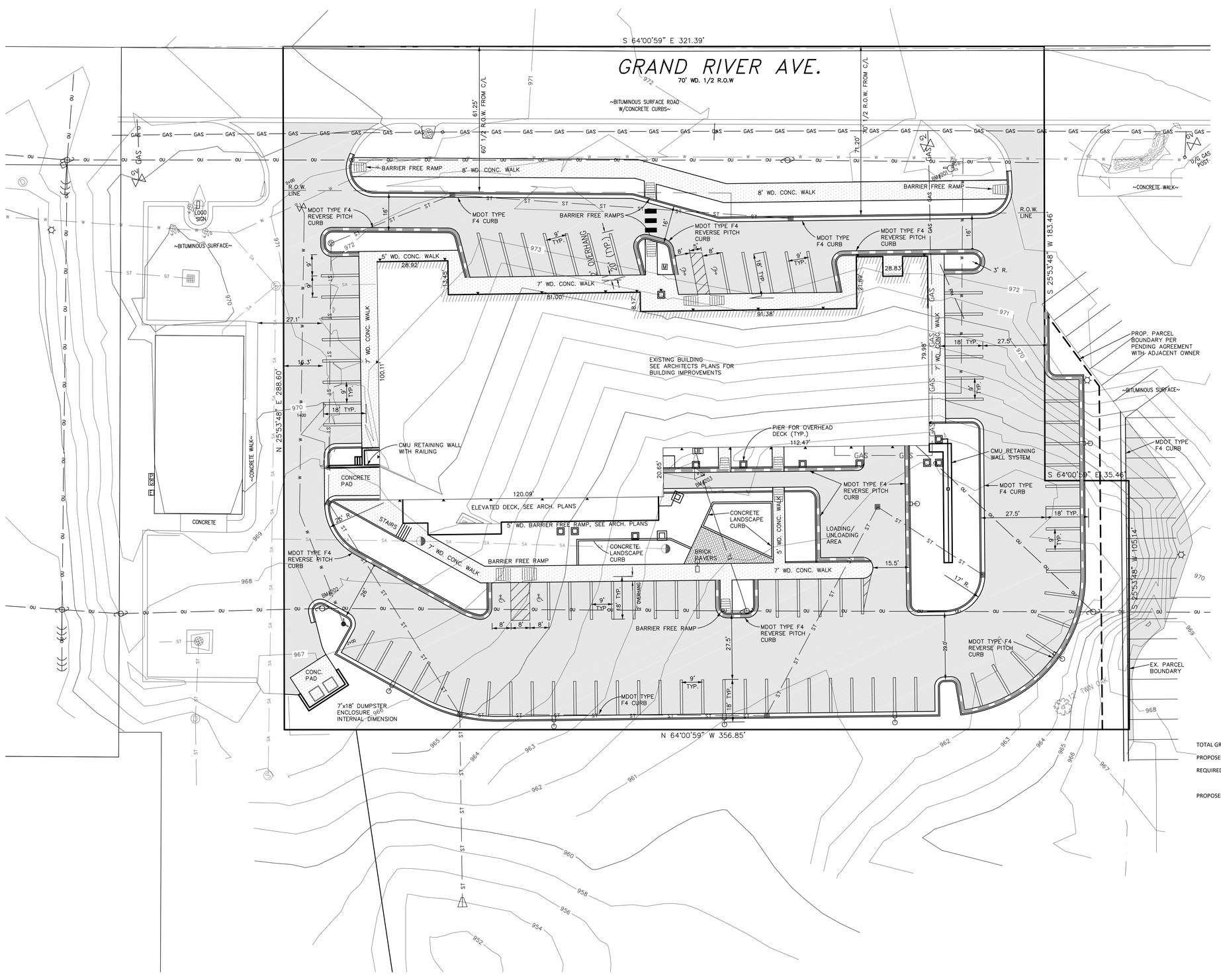
PARTLUND DEVELOPMENT
2700 E. GRAND RIVER

EXISTING CONDITIONS & DEMOLITION PLAN

CLIENT:
OSTLUND
A SERVICE COMPANY LLC
2731 E. GRAND RIVER
HOWELL, MICHIGAN 48843

SCALE: 1in. = 20ft.
PROJECT No.: 3585
DWG NAME: 3585 EX
ISSUED: AUG. 18, 2020

EX



GRAPHIC SCALE

20 0 10 20 40

(IN FEET)
1 INCH = 20 FEET

LEGEND

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- = WATER MAIN
- = GAS MANHOLE
- = GAS SHUT OFF
- = U/G GAS
- = 1' CONTOUR
- = 5' CONTOUR
- = PROP. CONCRETE
- = PROP. BRICK PAVERS
- = PROP. BITUMINOUS PAVEMENT

TOTAL GROSS FLOOR AREA: 22,363 S.F.

PROPOSED USAGE: GENERAL RETAIL

REQUIRED PARKING PER ARTICLE 14.04: ONE SPACE PER 250 S.F.
22,363 S.F. / 250 S.F. = 89.5 (90 SPACES)

PROPOSED PARKING SPACES: 90 SPACES

NOTE:
OWNER SHALL PROVIDE PROOF OF EASEMENT FOR GRADING AND PAVEMENT ON ADJACENT PARCEL PRIOR TO BEGINNING WORK

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LAND SURVEYORS
2183 PLESS DRIVE
BRIGHTON, MICHIGAN 48114

DESIGN: JHG
DRAFT: JHG
CHECK: JMB

REVISION #	DATE	REVISION-DESCRIPTION
1	8-18-20	REVISED PER REVIEW COMMENTS

REVISION #	DATE	REVISION-DESCRIPTION

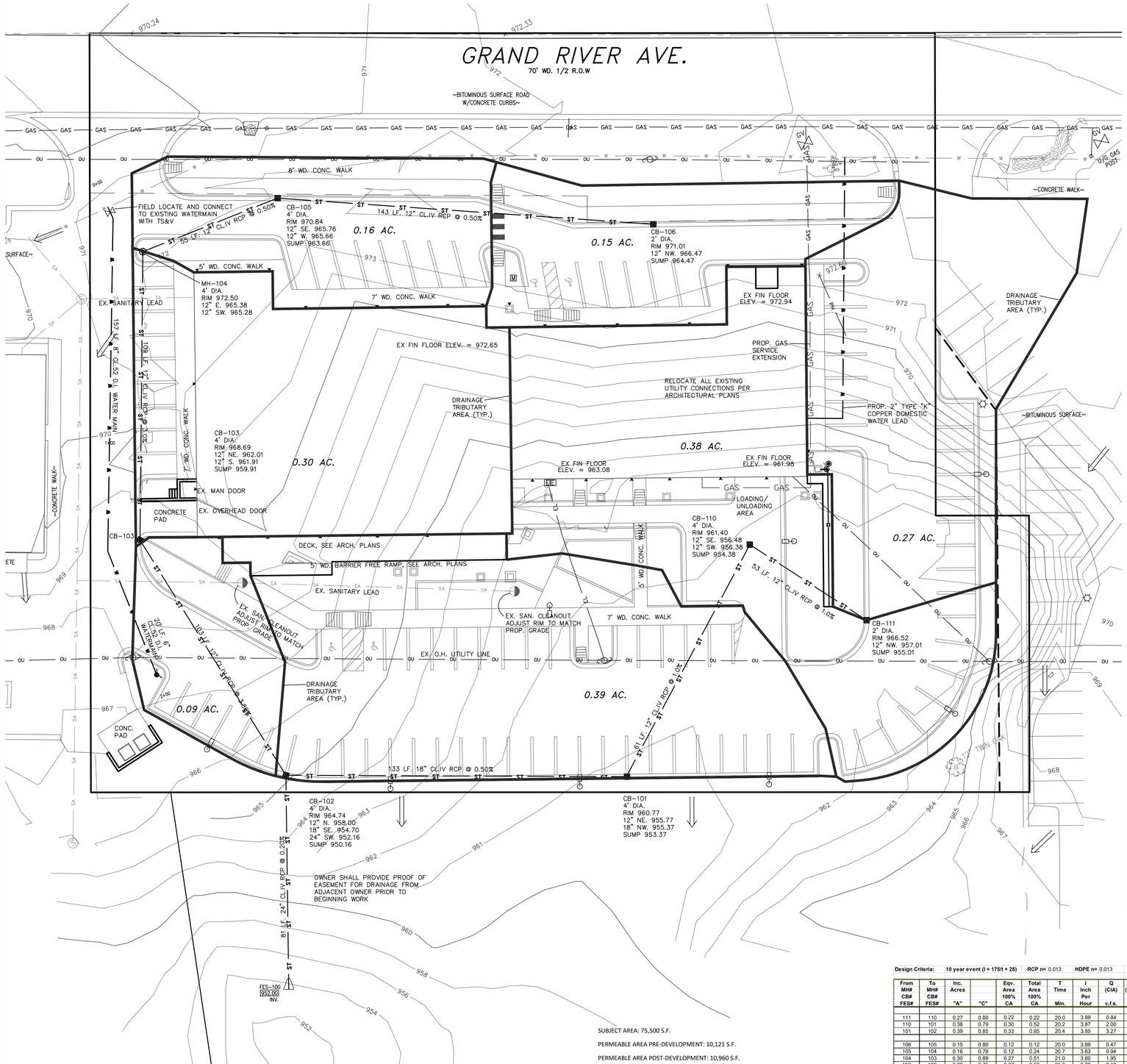
PARTLUND DEVELOPMENT
2700 E. GRAND RIVER

SITE PLAN

CLIENT:
PARTLUND DEVELOPMENT, LLC
29205 RYAN ROAD
WARREN, MICHIGAN 48092

SCALE: 1in. = 20ft.
PROJECT No.: 183585
DWG NAME: 3585 SP
ISSUED: AUG. 18, 2020

SP



SUBJECT AREA: 75,500 S.F.

PERMEABLE AREA PRE-DEVELOPMENT: 10,121 S.F.

PERMEABLE AREA POST-DEVELOPMENT: 10,960 S.F.

AN INCREASE IN PERMEABLE AREA OF 839 S.F. IS PROVIDED ON PROPOSED DEVELOPMENT AND REPRESENTS A REDUCTION IN TOTAL STORM WATER RUNOFF FROM THE SITE.

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- = GAS MANHOLE
- = GAS SHUT OFF
- = U/G GAS
- = 1' CONTOUR
- = 5' CONTOUR

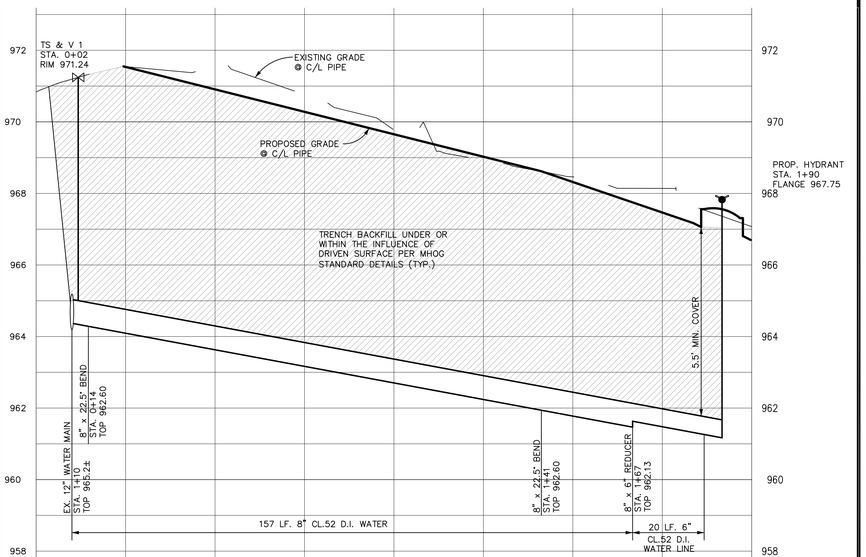
GRAPHIC SCALE

20 0 10 20 40

(IN FEET)
1 INCH = 20 FEET

WATER MAIN QUANTITIES

12"x8" TAPPING SLEEVE AND VALVE (TS&V)	1
8" CL.52 PIPE	157 LF.
8" x 22.5° BEND	2
8"x6" REDUCER	1
6" CL.52 PIPE	20 LF.
HYDRANT ASSEMBLY	1



HYDRANT LEAD PROFILE

SCALE: HORIZ. 1in. = 20ft.
VERT. 1in. = 2ft.

Design Criteria: 10 year event (I = 175/t + 25) RCP n= 0.013 HDPE n= 0.013

From MH# CB# FES#	To MH# CB# FES#	Inc. Acres "A"	"C"	Eqv. Area 100% CA	Total Area 100% CA	T Time Min.	I Inch Per Hour	Q (CIA) c.f.s.	Qa (Additional flow) c.f.s.	Qt (Total flow) c.f.s.	Dia. of pipe inch	Slope pipe %	Slope H.G. %	Length of line ft.	Vel. Flow full ft./sec.	Time of flow min.	Cap of pipe c.f.s.	H.G. Elev. upper end	Ground Elev. Upper end	Ground Elev. Lower end	Invert Elev. Upper end	Invert Elev. Lower end
111	110	0.27	0.80	0.22	0.22	20.0	3.89	0.84		0.84	12	1.00	0.06	53	4.54	0.2	3.56	957.50	966.52	961.40	957.01	956.48
110	101	0.38	0.79	0.30	0.52	20.2	3.87	2.00		2.00	12	1.00	0.31	61	4.54	0.2	3.56	956.96	961.40	960.77	956.38	955.77
101	102	0.39	0.85	0.33	0.85	20.4	3.85	3.27		3.27	18	0.50	0.10	133	4.20	0.5	7.43	956.33	960.77	964.74	955.37	954.70
106	105	0.15	0.80	0.12	0.12	20.0	3.89	0.47		0.47	12	0.50	0.02	143	3.21	0.7	2.52	966.78	971.01	970.84	966.47	965.76
105	104	0.16	0.78	0.12	0.24	20.7	3.83	0.94		0.94	12	0.50	0.07	55	3.21	0.3	2.52	966.42	970.84	972.50	965.66	965.38
104	103	0.30	0.89	0.27	0.51	21.0	3.80	1.95		1.95	12	3.00	0.30	109	7.86	0.2	6.17	965.28	972.50	968.69	965.28	962.01
103	102	0.09	0.75	0.07	0.58	21.3	3.78	2.19		2.19	12	3.80	0.38	103	8.84	0.2	6.94	961.91	968.69	964.74	961.91	958.00
102	100	0.00	0.00	0.00	1.43	21.3	3.78	5.40		5.40	24	0.20	0.06	81	3.22	0.4	10.12	954.05	964.74	952.00	952.16	952.00
																		954.00	Downstream HWL			

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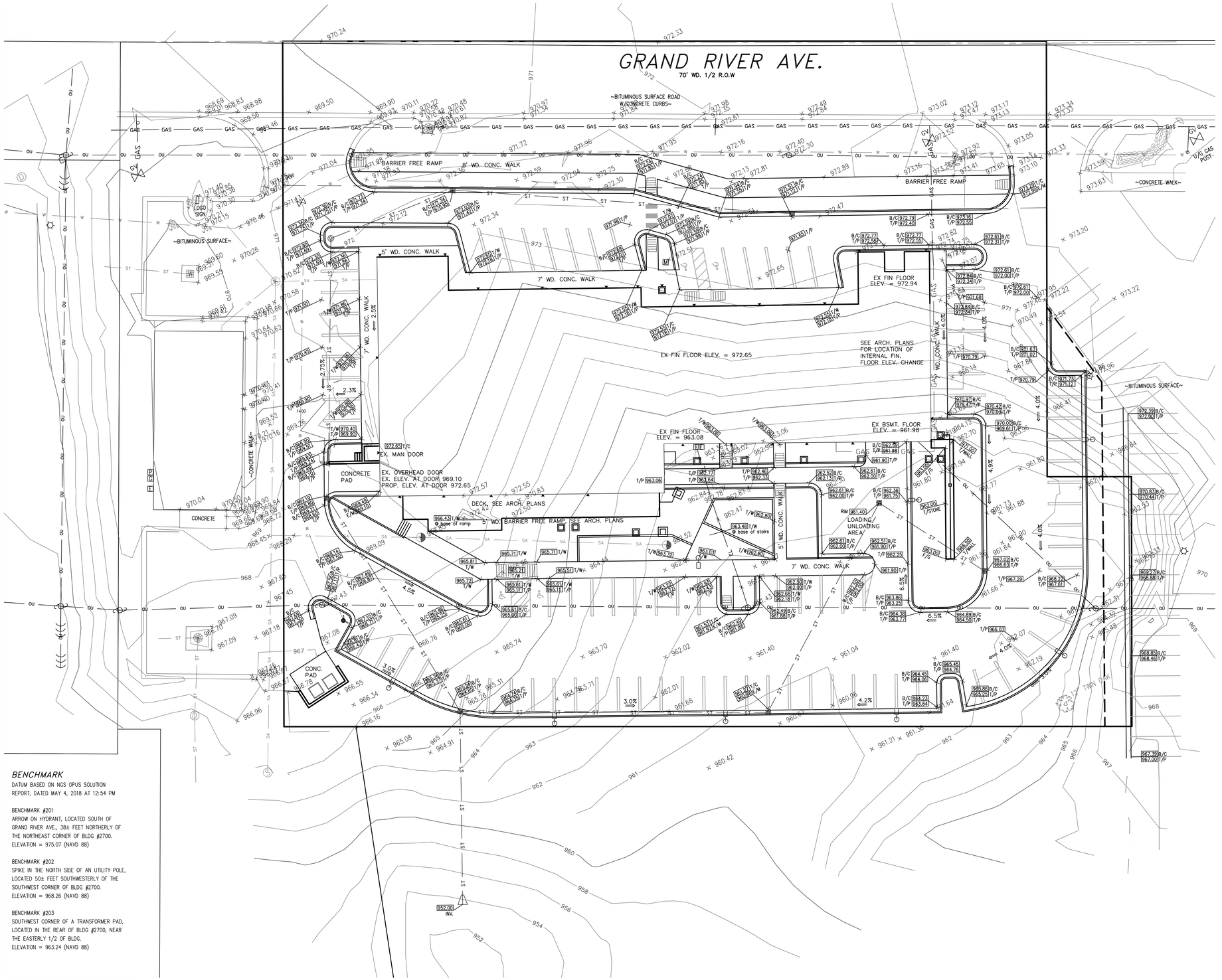
PARTLUND DEVELOPMENT
2700 E. GRAND RIVER

UTILITY PLAN

CLIENT:
PARTLUND DEVELOPMENT, LLC
29205 RYAN ROAD
WARREN, MICHIGAN 48092

SCALE: 1in. = 20ft.
PROJECT No.: 183585
DWG NAME: 3585 UT
ISSUED: AUG. 18, 2020

UT



BENCHMARK

DATUM BASED ON NGS OPUS SOLUTION REPORT, DATED MAY 4, 2018 AT 12:54 PM

BENCHMARK #201
ARROW ON HYDRANT, LOCATED SOUTH OF GRAND RIVER AVE., 38± FEET NORTHERLY OF THE NORTHEAST CORNER OF BLDG #2700.
ELEVATION = 975.07 (NAVD 88)

BENCHMARK #202
SPIKE IN THE NORTH SIDE OF AN UTILITY POLE, LOCATED 50± FEET SOUTHWESTERLY OF THE SOUTHWEST CORNER OF BLDG #2700.
ELEVATION = 968.26 (NAVD 88)

BENCHMARK #203
SOUTHWEST CORNER OF A TRANSFORMER PAD, LOCATED IN THE REAR OF BLDG #2700, NEAR THE EASTERLY 1/2 OF BLDG.
ELEVATION = 963.24 (NAVD 88)

GRAPHIC SCALE
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(IN FEET)
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- = 1' CONTOUR
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NOTE:
OWNER SHALL PROVIDE PROOF OF EASEMENT FOR DRAINAGE AND GRADING FROM ADJACENT OWNER PRIOR TO BEGINNING WORK.

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PARTLUND DEVELOPMENT
2700 E. GRAND RIVER

GRADING PLAN

CLIENT:
PARTLUND DEVELOPMENT, LLC
29205 RYAN ROAD
WARREN, MICHIGAN 48092

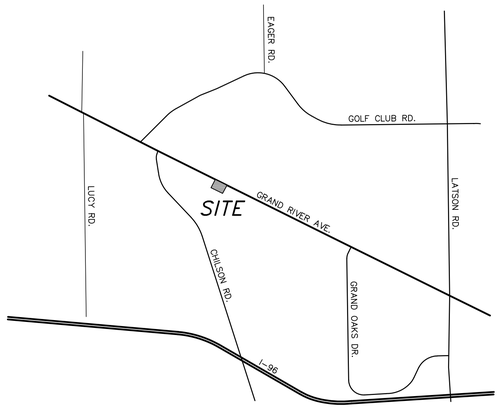
SCALE: 1in. = 20ft.
PROJECT No.: 183585
DWG NAME: 3585 GR
ISSUED: AUG. 18, 2020

GR

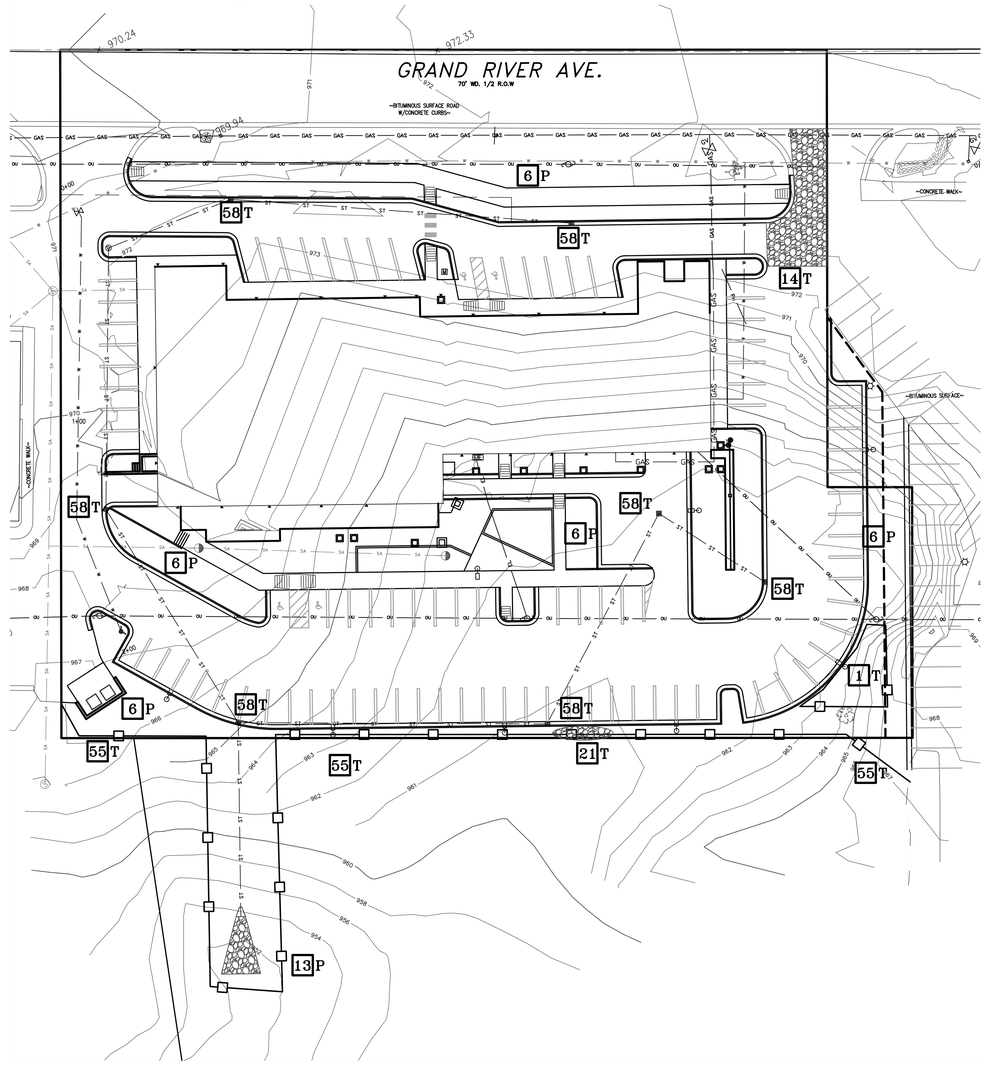
SOILS MAP

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
MaB	Wasepi loam, 2 to 6 percent slopes	14.2	96.9%
MaC	Wasepi loam, 6 to 12 percent slopes	0.5	3.1%
Totals for Area of Interest		14.7	100.0%



LOCATION MAP
SCALE: 1in. = 2000ft.



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- = GAS SHUT OFF
- = U/G GAS
- = 1' CONTOUR
- = 5' CONTOUR
- = STONE RIP RAP

TIME LINE of Construction Sequence

Item No. (see Above) / Month in Construction Season

	A	B	C	D	E	F	G	H	I
1.									
2.									
3.									
4.									
5.									
6.									
7.									
8.									

Explanation of Time line: The first month when work commences is designated 'A' above, the second month is 'B', etc. It is assumed that work will halt due to weather at least three months a year, which may occur in between any of the months A through I. Thus the above Sequence represents an entire year.

AREA OF DISTURBANCE = 2.2 AC

SOIL EROSION CONTROL LEGEND

1	STRIPPING & STOCKPILING TOPSOIL	TOPSOIL MAY BE STOCKPILED ABOVE BORROW AREAS TO ACT AS A DIVERSION STOCKPILE SHOULD BE TEMPORARILY SEEDED
6	SEEDING WITH MULCH AND/OR MATTING	FACILITATES ESTABLISHMENT OF VEGETATIVE COVER EFFECTIVE FOR DRAINAGEWAYS WITH LOW VELOCITY EASILY PLACED IN SMALL QUANTITIES BY INEXPERIENCED PERSONNEL SHOULD INCLUDE PREPARED TOPSOIL BED
13	RIPRAP, RUBBLE, GABIONS	USED WHERE VEGETATION IS NOT EASILY ESTABLISHED EFFECTIVE FOR HIGH VELOCITIES OR HIGH CONCENTRATION PERMITS RUNOFF TO INFILTRATE SOIL DISSIPATES ENERGY FLOW AT SYSTEM OUTLETS
14	AGGREGATE COVER	STABILIZES SOIL SURFACE, THUS MINIMIZING EROSION PERMITS CONSTRUCTION TRAFFIC IN ADVERSE WEATHER MAY BE USED AS PART OF PERMANENT BASE CONSTRUCTION OF PAVED AREAS
21	FILTER BERM	CONSTRUCTION OF GRAVEL OR STONE INTERCEPTS AND DIVERTS RUNOFF TO STABILIZED AREAS OR PREPARED DRAINAGE SYSTEM SLOWS RUNOFF AND COLLECTS SEDIMENT
55	GEOTEXTILE SILT FENCE	USES GEOTEXTILE AND POSTS OR POLES MAY BE CONSTRUCTED OR PREPACKAGED EASY TO CONSTRUCT AND LOCATE AS NECESSARY
58	INLET SEDIMENT FILTER	USES PREPACKAGED GEOTEXTILE SACKS FILTERS SEDIMENT FROM RUNOFF AT CATCH BASIN INLET EASY TO INSTALL AND MAINTAIN

LEGAL DESCRIPTION

Reference: Quit Claim Deed as recorded in
Document No. 2017R-027713, Livingston County Records

Situated in the Township of Genoa, County of Livingston and State of Michigan, and described as follows:

Part of the Northeast 1/4 of Section 6, Town 2 North, Range 5 East, Genoa Township, Livingston County, Michigan, described as follows:
Commencing at the East 1/4 Corner of said Section 6; thence N87°24'40"W 1616.81 feet along the East-West 1/4 line to a found iron rod; thence N01°33'53"E 796.77 feet to a found concrete monument; thence N60°06'45"W 531.00 feet to a found concrete monument; thence N29°52'49"E 570.00 feet (recorded N29°53'15"E 570.00 feet); thence N60°01'58"W 141.66 feet (recorded as N60°06'45"W) to the POINT OF BEGINNING of the land to be described; running thence S29°52'49"W 183.46 feet (said line passing through the centerline of a curb cut) to a set 1/2" iron rod; thence S60°01'58"E 35.46 feet to a set 1/2 iron rod; thence S79°52'49"W 105.14 feet to a set 1/2" iron rod; thence N60°01'58"W 356.85 feet (recorded as N60°06'45"W); thence N29°52'49"E 288.62 feet to the centerline of Grand River Ave.; thence S60°01'58"E 321.39 feet along the centerline of Grand River Av. (recorded as S60°06'45"E) to the Point of Beginning. Subject to the rights of the public over that portion thereof occupied by Grand River Avenue, also subject to and together with all easements and restrictions affecting title to the above described premises.

Tax ID No.: 4711-06-200-102
Also known as: 2700 E. Grand River Avenue, Howell, MI

NOTE: Legal description of record provided by client. Surveyor was not supplied with a Title Search at this time. Refer to the current policy for title insurance for proof of ownership and all encumbrances affecting title to the surveyed parcel.

BENCHMARK

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REPORT, DATED MAY 4, 2018 AT 12:54 PM

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PARTLUND DEVELOPMENT
2700 E. GRAND RIVER

SOIL EROSION CONTROL PLAN

CLIENT:
PARTLUND DEVELOPMENT, LLC
29205 RYAN ROAD
WARREN, MICHIGAN 48092

SCALE: 1in. = 30ft.
PROJECT No.: 183585
DWG NAME: 3585 SE
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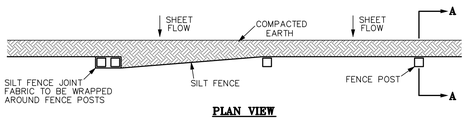
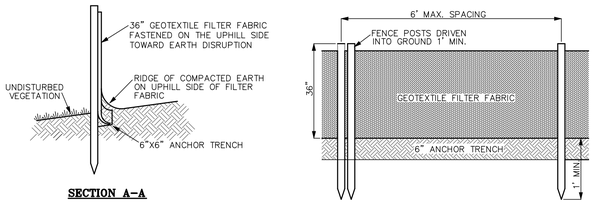
SE1



PLAN VIEW



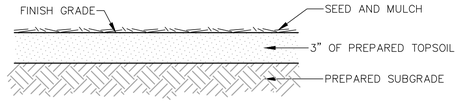
SECTION A–A

FRONT VIEW

55 SILT FENCE

NOT TO SCALE

NOTES:
1. REPAIR AND REPLACE SILT FENCE AS NEEDED, INCIDENTAL.
2. FIELD LOCATE SILT FENCE TO FOLLOW CONSTANT CONTOUR ELEVATIONS.
3. OVERLAP FENCES AT JOINTS.
4. INSTALL FILTER BERM AT LOW POINTS WHERE INDICATED ON PLANS.



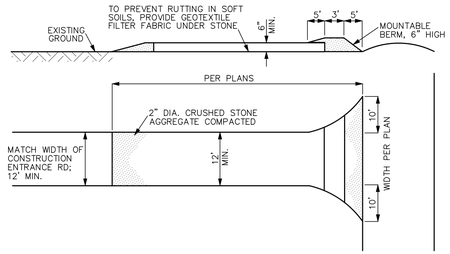
SEEDING DETAIL

NOT TO SCALE

1. Seed mixture shall consist of 10% - Kentucky Blue Grass
   20% - Perennial Ryegrass
   30% - Hard Fescue
   40% - Creeping Red Fescue
   Seed shall be uniformly applied at a rate of 210 pounds per acre.
2. Topsoil shall be a dark, organic, natural surface soil free of clay lumps, peat or muck, subsoil, noxious weeds or other foreign matter such as roots, sticks, rocks over 1/2" in diameter and not frozen or muddy. Material shall meet with approval of the Engineer.
3. Straw mulching shall be a minimum depth of 3" applied at a rate of 1.5 to 2 tons per acre. All mulching must have a tie down, such as tackifier, net binding, etc.
4. Fertilizer shall be evenly applied at a rate which will provide 150 pounds per acre of chemical fertilizer nutrients, in equal portions, (10-10-10), of Nitrogen, Phosphoric Acid and Potash.
5. Hydroseeding is not acceptable for slopes exceeding 1%. In such cases, stabilization shall be done with seed and straw mulch with a tackifier.
6. The earthen areas to receive topsoil shall be at the required grade and properly trimmed. Topsoil shall be spread on the prepared areas to a depth of 3 inches. After spreading, any large clods and lumps of topsoil shall be broken up and pulverized. Stones and rocks over 1/2" in diameter, roots, litter, and all foreign matter shall be raked up and disposed of by the the contractor. Place topsoil only when it can be followed within a reasonable time by seeding operations.

SOIL EROSION CONTROL AND CONSTRUCTION SEQUENCE:

1. Obtain all necessary Soil Erosion and Sedimentation Control related permits from the appropriate Local, County and/or State Agencies. Refer to the General Notes on the project plans for additional requirements.
2. Prior to commencement of any earth disruption install Silt Fence and Mud Tracking Control Device(s) in accordance with the Soil Erosion and Sedimentation Control Plan.
3. Strip and stockpile topsoil. Perform mass grading and land balancing. Install appropriate Soil Erosion Control Measures in accordance with the Soil Erosion and Sedimentation Control Plan.
4. Install proposed underground utilities. (i.e.; storm and sanitary sewer, water main, etc.) Install appropriate Soil Erosion Control Measures in accordance with the Soil Erosion and Sedimentation Control Plan.
5. Construct building(s) if required on the project plans. Install appropriate Soil Erosion Control Measures in accordance with the Soil Erosion and Sedimentation Control Plan.
6. Construct roadways and/or parking areas. Install appropriate Soil Erosion Control Measures in accordance with the Soil Erosion and Sedimentation Control Plan.
7. Finish grade all disturbed areas outside of pavement. Perform final restoration, including placement of topsoil and establishment of vegetative growth outside of pavement.
8. Following establishment of sufficient vegetative ground cover and receipt of approval from the Permitting Agency, remove all *temporary* Soil Erosion Control Measures, clean all storm sewer structures and repair all permanent Soil Erosion Control Measures.



14 MUD TRACKING CONTROL DEVICE

NOT TO SCALE

NOTE:
WHEN ACCEPTABLE TO ENGINEER, CONTRACTOR MAY INSTALL STONE BELOW THE SUBGRADE ELEVATION; THUS STONE MAY BE LEFT IN PLACE BELOW PAVEMENT.

SOIL EROSION AND SEDIMENTATION CONTROL NOTES:

1. The Soil Erosion and Sedimentation Control Specifications of the appropriate Local, County and/or State Agencies are a part of this work. Refer to the General Notes on the Project Plans for additional requirements.
2. The Soil Erosion and Sedimentation Control (SESC) Permit Holder shall be responsible for compliance with the SESC Permit requirements for the duration of the project and until receipt of final approval from the Permitting Agency. For any site with an earth disturbance area of 1 acre or greater, the SESC Permit Holder shall retain a Certified Storm Water Operator in accordance with the SESC Permit requirements. The Certified Storm Water Operator shall perform routine inspections of the site and the SESC measures and file inspection reports in accordance with the SESC permit requirements. For any site with an earth disturbance area of 5 acres or greater, the SESC Permit Holder shall file a National Pollutant Discharge Elimination System (NPDES) Notice of Coverage Form with the State DEQ prior to any earth disruption.
3. The Contractor shall install the appropriate Soil Erosion Control Measures in accordance with the Project Plans prior to massive earth disruption, including but not limited to; silt fence, mud tracking control mats and sediment filters on existing storm sewer structures. Demolition work may be necessary prior to installation of some soil erosion control measures. In such cases, postpone installation of affected soil erosion control measures until immediately following demolition work. Refer to the Project Plans and the Soil Erosion Control and Construction Sequence for additional requirements.
4. The Contractor shall schedule work so as to minimize the period of time that an area is exposed and disturbed. The Contractor shall observe the grading limits and limits of disturbance in accordance with the Project Plans. The Contractor shall maintain an undisturbed vegetative buffer around the work when shown on the Project Plans.
5. The Contractor shall install and maintain Soil Erosion Control Measures in accordance with the Project Plans during the appropriate phases of construction. The Project Plans show the minimum requirements for Soil Erosion Control Measures. The Contractor shall install additional Soil Erosion Control Measures as necessary due to site conditions and as directed by the Permitting Agency and/or Engineer. The Contractor shall perform routine inspection and maintenance of all Soil Erosion Control Measures to ensure compliance with the permit requirements and proper operation of the Soil Erosion Control Measures.
6. The Contractor shall strip and stockpile topsoil from all areas of proposed disturbance. Topsoil stockpiles shall be located in accordance with the Project Plans. Topsoil stockpiles shall be stabilized with vegetative growth (or matted with straw during the non-growing season) to prevent wind and water erosion. A temporary diversion berm and/or silt fence shall encompass all earthen material stockpiles, including but not limited to topsoil, sand and gravel.
7. The Contractor shall install Soil Erosion Control Measures associated with the proposed storm sewer system during storm sewer construction. Inlet structure filters shall be installed immediately following completion of each storm inlet structure. Riprap shall be installed immediately following the installation of each flared end section with the following exception: Storm drain outlets that do NOT empty into a Retention, Detention or Sedimentation Basin shall have a temporary 5' wide x 10' long x 3' deep sump installed at the termination of the storm sewer. Upon completion of the stabilization work, the sump area shall be filled and riprap shall be installed in accordance with the Project Plans.
8. The Contractor shall install filter stone around the storm basin control structure(s) in accordance with the Project Plans immediately following installation of the control structure(s). The filter stone shall be monitored for sediment build up. The filter stone may need to be cleaned and/or replaced as site conditions require and as directed by the Permitting Agency and/or the Engineer.
9. All disturbed areas outside of paved areas shall be restored within 15 days of finish grading. Proposed vegetative areas shall be restored with a minimum of 3-inches of topsoil, then seeded and mulched, unless noted otherwise on the Project Plans. During the non-growing season, temporary stabilization shall be provided using straw matting or as directed by the Permitting Agency and/or the Engineer.

Seeding, Fertilizer and Mulch Bare Ground Ratio:
This information is provided as minimum guidance for acceptable application rates. Actual amounts depending on soil conditions and site topography shall be detailed on the construction plans.
- **Top-Soil** 3 inches in depth.
- **Grass Seed** 210 lbs. per acre.
- **Fertilizer** 150 lbs. per acre.
- **Straw Mulch** 3" in depth 1.5 to 2 tons per acre
  (All mulch must have a tie down, such as tackifier, net binding, etc.)
- **Hydro-Seeding:** Hydro-seeding is not acceptable for slopes exceeding 1%, in such cases; stabilization shall be done with seed and straw mulch with a tackifier.

10. Following complete site restoration and stabilization; sediment shall be removed from all storm sewer structures, paved areas and storm basins. The SESC Permit Holder shall contact the Permitting Agency to request closure of the SESC Permit. For any site with an earth disturbance area of 5 acres or greater, the SESC Permit Holder shall file a NPDES Notice of Termination Form with the State DEQ.

MAINTENANCE NOTES FOR SOIL EROSION CONTROL MEASURES:

The Construction Site and all Soil Erosion Control Measures shall be inspected periodically in accordance with the appropriate local municipality/authority and the MDEQ NPDES rules and regulations. At a MINIMUM, inspections shall be performed once a week and within 24 hours following a storm event resulting in 1" of rainfall or greater. Inspections shall be performed throughout the duration of the construction process and until the site is completely stabilized. Following construction, the owner (or its assignee) shall periodically inspect all permanent soil erosion control measures to ensure proper operation.

CATCH BASINS: Catch basins shall be inspected for accumulation of solids and sediment. Solids and sediment shall be removed from the catch basins by vacuum or adductor cleaning. Cleaning should be performed before the catch basin sumps are half full.

MUD TRACKING CONTROL DEVICE / CONSTRUCTION ACCESS: Mud tracking control devices shall be inspected for significant mud accumulation and to ensure the access is not eroding into public rights of way or drainage features. Add additional layers of stone or remove and replace stone each time the stone becomes covered with mud. All sediment dropped or eroded onto public rights of way shall be removed immediately. Sweeping of the public rights or way and/or paved access route shall be performed as necessary to maintain the access route free of sediment and debris.

RIPRAP: Inspect riprap immediately following the first rainfall event following installation of the riprap. Continue to perform inspections of the riprap at each periodic site inspection. Riprap shall be inspected to ensure erosion is not occurring within and/or around the riprap. The discharge point shall be inspected to ensure that concentrated flows are not causing erosion downstream. Displaced riprap shall be removed from downstream locations and the riprap beds shall be repaired or replaced. Significant sediment buildup shall be removed from riprap beds. Repair or replace failing or displaced riprap immediately. Address vegetation and/or erosion concerns as soon as weather permits.

SEEDING: Newly seeded areas shall be inspected until substantial vegetative growth is obtained. Seeded areas shall be inspected to ensure erosion is not occurring in the seeded area and vegetative growth is promoted. Eroded areas shall be finish graded as necessary to removal erosion channels or gulleys and new seed placed as soon as weather permits.

SILT FENCE: Silt fencing shall be inspected for soil accumulation/clogging, undercutting, overtopping and sagging. Soil accumulation shall be removed from the face of the silt fence each time it reaches half the height of the fence. Removed sediment shall be disposed of in a stable upland site or added to a spoils stockpile. When undercutting occurs, grade out areas of concentrated flow upstream of the silt fence to remove channels and/or gulleys and repair or replace silt fence ensuring proper trenching techniques are utilized. Silt fencing, which sags, falls over or is not staked in shall be repaired or replaced immediately. Silt fencing fabric, which decomposes or becomes ineffective, shall be removed and replaced with new fabric immediately. Silt fencing shall be removed once vegetation is well established and the up-slope area is fully stabilized.

SOD: Newly sodded areas shall be inspected to ensure sod is maturing. Sod shall be inspected for failure, erosion or damage. Slipping or eroding sod on steep slopes shall be immediately repaired or replaced and staked in place. Damaged or failed sod shall be immediately replaced.

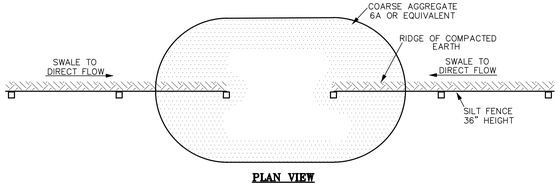
SPILLWAYS: Spillways shall be inspected to ensure that erosion is not occurring within and/or around the spillway. The discharge point shall be inspected to ensure that concentrated flows are not causing erosion downstream. Inspect the spillway for cracked concrete, uneven and/or excessive settling and proper function. Repair or replace failing spillways immediately. Address vegetation and/or erosion concerns as soon as weather permits.

STOCKPILES: Temporary and permanent topsoil and spoils stockpiles shall be seeded to promote vegetative growth. Stockpiles shall be inspected to ensure excessive erosion has not occurred. When runoff or wind erosion is evident, reduce the side slopes of the stockpile or stabilize the stockpile with pieces of staked sod laid perpendicular to the slope. When filter fencing is used around a stockpile, the fencing shall be inspected to ensure piping has not occurred under the fencing and to ensure the fencing has not collapsed due to soil slippage or access by construction equipment. Repair or replace damaged fencing immediately. Berms at the base of stockpiles, which become damaged, shall be replaced.

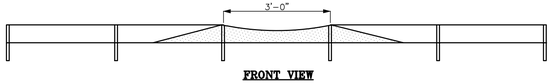
STORM STRUCTURE INLET FILTER: Inlet filters shall be inspected for sediment accumulation, clogging and damage. When stone is used in conjunction with inlet filter fabric, replace the stone each time it becomes clogged with sediment. Clean or replace the inlet filter fabric each time it becomes clogged with sediment. Reinstall or replace fallen filter fabrics immediately. Replace damaged filter fabrics immediately.

58 INLET SEDIMENT FILTER

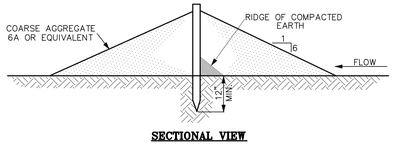
NOT TO SCALE



PLAN VIEW



FRONT VIEW

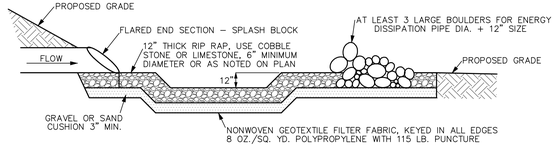


SECTIONAL VIEW

21 SILT FENCE WITH FILTER BERM DETAIL

NOT TO SCALE

WITH SEDIMENT TRAP



13 RIP RAP CROSS SECTION

NOT TO SCALE

NOTES:
1. GROUT RIP RAP WITH A 6" THICK CEMENT SLURRY FOR SLOPES STEEPER THAN 20%; 5 ON 1.
2. PROVIDE ANIMAL GUARDS ON ALL STORM SEWER 15" DIA. OR GREATER, INCIDENTAL TO FES PIPE.

SOIL EROSION CONTROL LEGEND

1	STRIPPING & STOCKPILING TOPSOIL	TOPSOIL MAY BE STOCKPILED ABOVE BORROW AREAS TO ACT AS A DIVERSION STOCKPILE SHOULD BE TEMPORARILY SEEDED
6	SEEDING WITH MULCH AND/OR MATTING	FACILITATES ESTABLISHMENT OF VEGETATIVE COVER EFFECTIVE FOR DRAINAGEWAYS WITH LOW VELOCITY EASILY PLACED IN SMALL QUANTITIES BY INEXPERIENCED PERSONNEL SHOULD INCLUDE PREPARED TOPSOIL BED
13	RIPRAP, RUBBLE, GABIONS	USED WHERE VEGETATION IS NOT EASILY ESTABLISHED EFFECTIVE FOR HIGH VELOCITIOS OR HIGH CONCENTRATION PERMITS RUNOFF TO INFILTRATE SOIL DISSIPATES ENERGY FLOW AT SYSTEM OUTLETS
14	AGGREGATE COVER	STABILIZES SOIL SURFACE, THUS MINIMIZING EROSION PERMITS CONSTRUCTION TRAFFIC IN ADVERSE WEATHER MAY BE USED AS PART OF PERMANENT BASE CONSTRUCTION OF PAVED AREAS
21	FILTER BERM	CONSTRUCTION OF GRAVEL OR STONE INTERCEPTS AND DIVERTS RUNOFF TO STABILIZED AREAS OR PREPARED DRAINAGE SYSTEM SLOWS RUNOFF AND COLLECTS SEDIMENT
55	GEOTEXTILE SILT FENCE	USES GEOTEXTILE AND POSTS OR POLES MAY BE CONSTRUCTED OR PREPACKAGED EASY TO CONSTRUCT AND LOCATE AS NECESSARY
58	INLET SEDIMENT FILTER	USES PREPACKAGED GEOTEXTILE SACKS FILTERS SEDIMENT FROM RUNOFF AT CATCH BASIN INLET EASY TO INSTALL AND MAINTAIN

DESINE INC
(810) 227-9533
CIVIL ENGINEERS
LAND SURVEYORS
2183 PLESS DRIVE
BRIGHTON, MICHIGAN 48114

DESIGN: JHG
DRAFT: JHG
CHECK: JMB

REVISION #	DATE	REVISION-DESCRIPTION
1	8–18–20	REVISED PER REVIEW COMMENTS

REVISION #	DATE	REVISION-DESCRIPTION

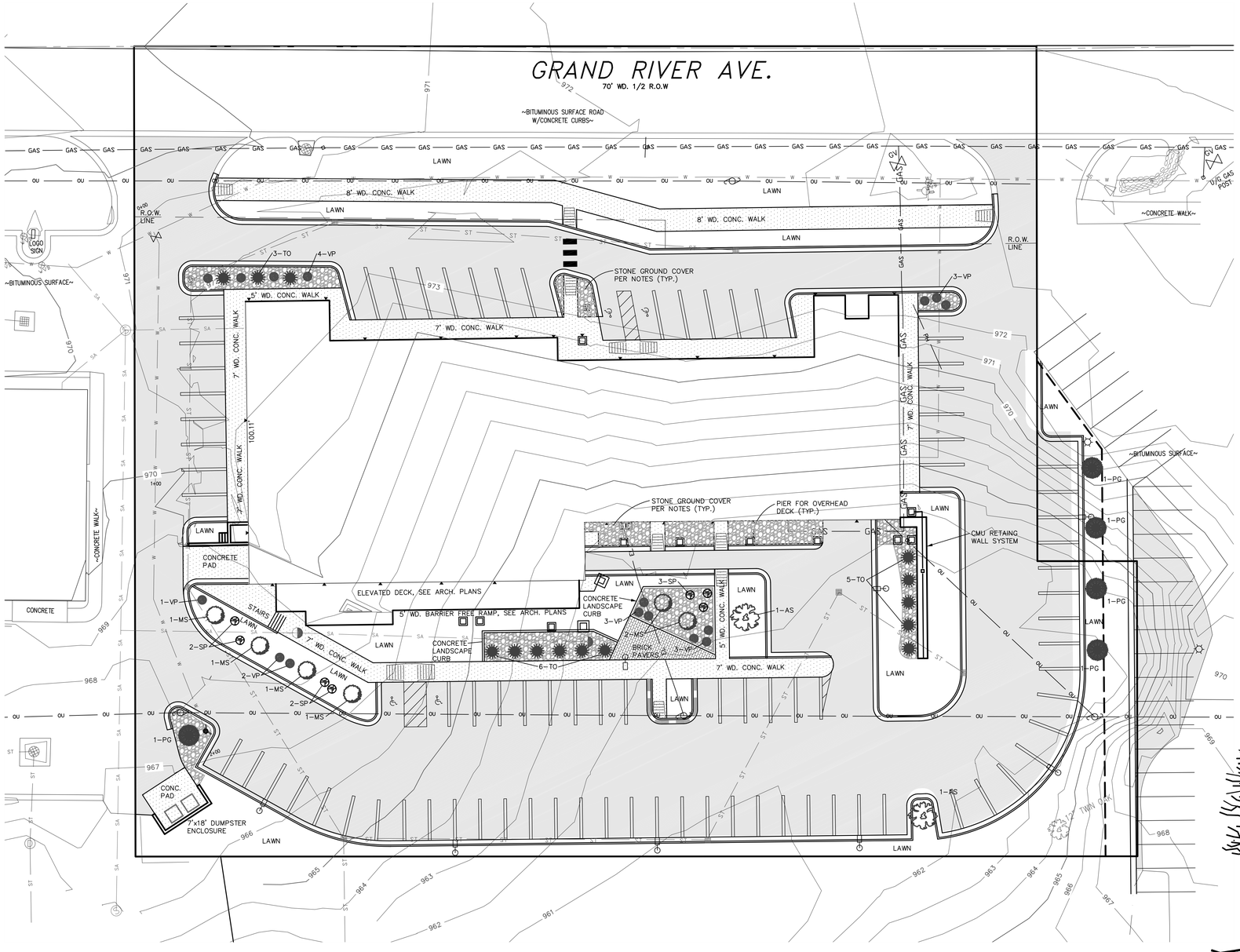
PARTLUND DEVELOPMENT
2700 E. GRAND RIVER

SOIL EROSION CONTROL NOTES & DETAILS

CLIENT:
PARTLUND DEVELOPMENT, LLC
29205 RYAN ROAD
WARREN, MICHIGAN 48092

SCALE: AS NOTED
PROJECT No.: 183585
DWG NAME: 3585 SE
ISSUED: AUG. 18, 2020

SE2



LANDSCAPING NOTES:

1. All minimum planting sizes specified on the Project Plans shall be at the time of planting.

2. All landscape materials shall be as specified on the Project Plans or approved equal. Substitutions shall not be made without prior written approval from the Project Engineer and receipt of the Owner's Authorization.

3. All plant material shall be free of disease and insects and shall conform to the American Standard of Nursery Stock of the American Association of Nurserymen.

4. All landscape plantings shall be planted and maintained in a healthy condition and shall be guaranteed by the Landscape Contractor and/or Supplier for a minimum period of 1 year from the time of planting. Any plantings that die or become diseased during the guarantee period shall be removed and replaced by the Landscape Contractor and/or Supplier at no cost to the Owner.

5. Excavations for container or balled plantings shall be no deeper than the root ball or container and shall be at least twice the diameter of the root ball or container.

6. Excavations for bare root plantings shall be no deeper than the longest roots and shall be at least twice the diameter of the root spread.

7. The sides of planting excavations in heavy and/or wet soils shall be scarified with a fork, pick or shovel to eliminate glazing.

8. Landscape planting backfill shall consist of a prepared mixture of peat moss, composted manure and topsoil or suitable excavated native soil material mixed with the appropriate soil conditioners that are compatible with the native soil and plant species. The type and mixture ratio of soil conditioners shall be in accordance with the Landscape Supplier's recommendations.

9. The Landscape Contractor shall stake and reinforce all trees to prevent wind damage. The Landscape Contractor shall remove all tree reinforcement and stakes upon expiration of the guarantee period.

10. Perennials shall be planted on a 3" minimum bed of prepared peat moss, composted manure and topsoil mixture.

11. Ground cover within landscape beds shall be decorative stone. Decorative stone shall be 2" to 4" diameter washed river rock placed 4" deep.

12. Ground cover within landscape beds shall be placed over a landscape fabric weed barrier. Landscape fabric shall be non-woven, 4 oz. per sq. yd. minimum weight, with UV protection. Landscape fabric shall be installed in strict accordance with the Manufacturer's specifications and recommendations. Landscape fabric shall not be installed over or within 12 inches of perennial plantings.

13. Lawn areas shall be established with 3" minimum depth of prepared topsoil and hydroseed. The Landscape Contractor shall guarantee all lawn areas for a minimum period of 1 year from time of seeding. All lawn areas that do not take root or die during the guarantee period shall be re-hydroseeded as appropriate by the Landscape Contractor at no cost to the Owner. All lawn areas that become diseased during the guarantee period shall be removed and re-hydroseeded as appropriate by the Landscape Contractor at no cost to the Owner.

14. Topsoil shall be a dark, organic, natural surface soil free of clay lumps, peat, muck, subsoil, noxious weeds and other foreign material such as roots, sticks and rocks over ½" diameter. Topsoil shall not be frozen or muddy. All earthen areas to receive topsoil shall be finish graded and properly trimmed. Topsoil shall be spread on the prepared areas to a depth of 3 inches. After spreading, any large clods and lumps of topsoil shall be broken up and pulverized. Stones and rocks over ½" in diameter, roots, litter and all foreign matter shall be raked up and disposed of by the Landscape Contractor. Seed and mulch shall be placed within 5 days of topsoil placement.

15. Seed mixture for lawn areas shall consist of 10% Kentucky Blue Grass, 20% Perennial Rye Grass, 30% Hard Fescue and 40% Creeping Red Fescue. Hydroseed shall be placed within 5 days of topsoil placement and shall be placed to provide complete and uniform coverage. Fertilizer shall be placed at 80 pounds per acre, hydro mulch at 1,200 pounds per acre and water at 500 gallons per acre unless otherwise specified by the Seed Distributor/Manufacturer. All over spray areas shall be properly cleaned and restored at no expense to the contract.

16. Seed and mulch may be substituted for hydroseed when authorized by the Owner. Seed mixtures shall meet the requirements for lawn areas as outlined above. Seed shall be uniformly applied at a rate of 220 lbs per acre unless otherwise recommended by the seed Distributor/Manufacturer. Seed mixture shall be fertilized. Fertilizer shall be uniformly applied at of 240 pounds per acre of chemical fertilizer nutrients in equal portions (10-10-10) of Nitrogen, Phosphoric Acid and Potash.

17. All seeded areas with a slope less than 1:4 shall be stabilized with straw mulch placed at 2 tons per acre unless otherwise recommended by the seed Distributor/Manufacturer. Erosion control blankets shall be substituted for straw mulch in roadway greenbelts, lawn areas adjacent to heavy traffic, lawn areas subject to high winds, slopes of 1:4 or greater and within ditches, swales and other areas exposed to concentrated overland storm water flow. Erosion control blankets shall consist of 100% straw fiber matrix with photodegradable polypropylene netting and have a 12-month minimum longevity rating. Erosion control blankets shall be pinned with biodegradable pins and shall be installed in accordance with the Manufacturer's recommendations.

18. The Landscape Contractor shall be responsible for watering non-irrigated plantings and sod during dry weather conditions throughout the guarantee period as necessary to promote growth and establishment.

GRAPHIC SCALE

20 0 10 20 40

(IN FEET)

1 INCH = 20 FEET

LEGEND

- = WELL / MONITOR WELL
- = SIGN
- = LIGHT FIXTURE / DECORATIVE LIGHT
- = LIGHT BASE
- = UTILITY METERS & BOXES (ELECTRIC METER, GAS METER, WATER METER, PHONE BOX, CATV BOX, MAIL BOX, UTIL. BOX)
- = AIR CONDITIONER UNIT
- = UTILITY POLE W/GUY WIRE
- = OVERHEAD UTILITY LINES (ELECTRIC/PHONE/CABLE)
- = U/G UTILITY LINES (PHONE/FIBER OPTIC/ELECTIC/CABLE TV/MISC UTILITIES)
- = DECIDUOUS TREE W/IDENTIFIER
- = CONIFEROUS TREE W/IDENTIFIER
- = FENCE (CHAIN LINK UNLESS OTHERWISE STATED)
- = GUARD RAIL
- = EDGE OF GRAVEL
- = CONCRETE CURB (UNLESS OTHERWISE STATED)
- = SANITARY SEWER MANHOLE W/IDENTIFIER
- = SANITARY SEWER PIPE
- = CLEAN OUT
- = STORM WATER MANHOLE W/IDENTIFIER
- = CATCH BASIN W/IDENTIFIER
- = STORM WATER DRAINAGE PIPE
- = HYDRANT
- = WATER SHUT OFF
- = WATER VALVE BOX
- = WATER MAIN
- = GAS MANHOLE
- = GAS SHUT OFF
- = U/G GAS
- = 1' CONTOUR
- = 5' CONTOUR

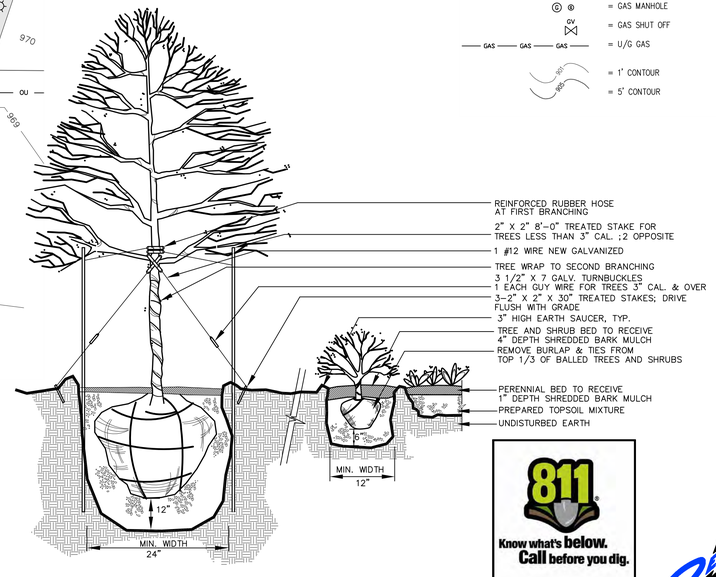
PLANTING SCHEDULE

TREES

QTY	SYM	BOTANICAL NAME	COMMON NAME	SIZE
2	AS	ACER s. 'GREEN MOUNTAIN'	GREEN MOUNTAIN SUGAR MAPLE	2.5" CAL.
5	PG	PICEA GLAUCA	WHITE SPRUCE	6'-7" HT.
6	MS	MALUS 'SPRING SNOW'	SPRING SNOW CRABAPPLE	6'-7" HT.

SHRUBS

QTY	SYM	BOTANICAL NAME	COMMON NAME	SIZE
7	SP	SYRINGA p. 'MISS KIM'	MISS KIM DWARF KOREAN LILAC	30" HT.
16	VP	VIBURNUM p.t. 'NEWPORT'	NEWPORT AMERICAN SNOWBALL BUSH	30" HT.
14	TO	THUJA OCCIDENTALIS 'NIGRA'	DARK GREEN ARBORVITEA	6' HT.



TYPICAL TREE/SHRUB/PERENNIAL PLANTING

NOT TO SCALE

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2183 PLESS DRIVE
BRIGHTON, MICHIGAN 48114

REVISION #	DATE	REVISION-DESCRIPTION
1	8-18-20	REVISED PER REVIEW COMMENTS

DESIGN: JHG
DRAFT: JHG
CHECK: JMB

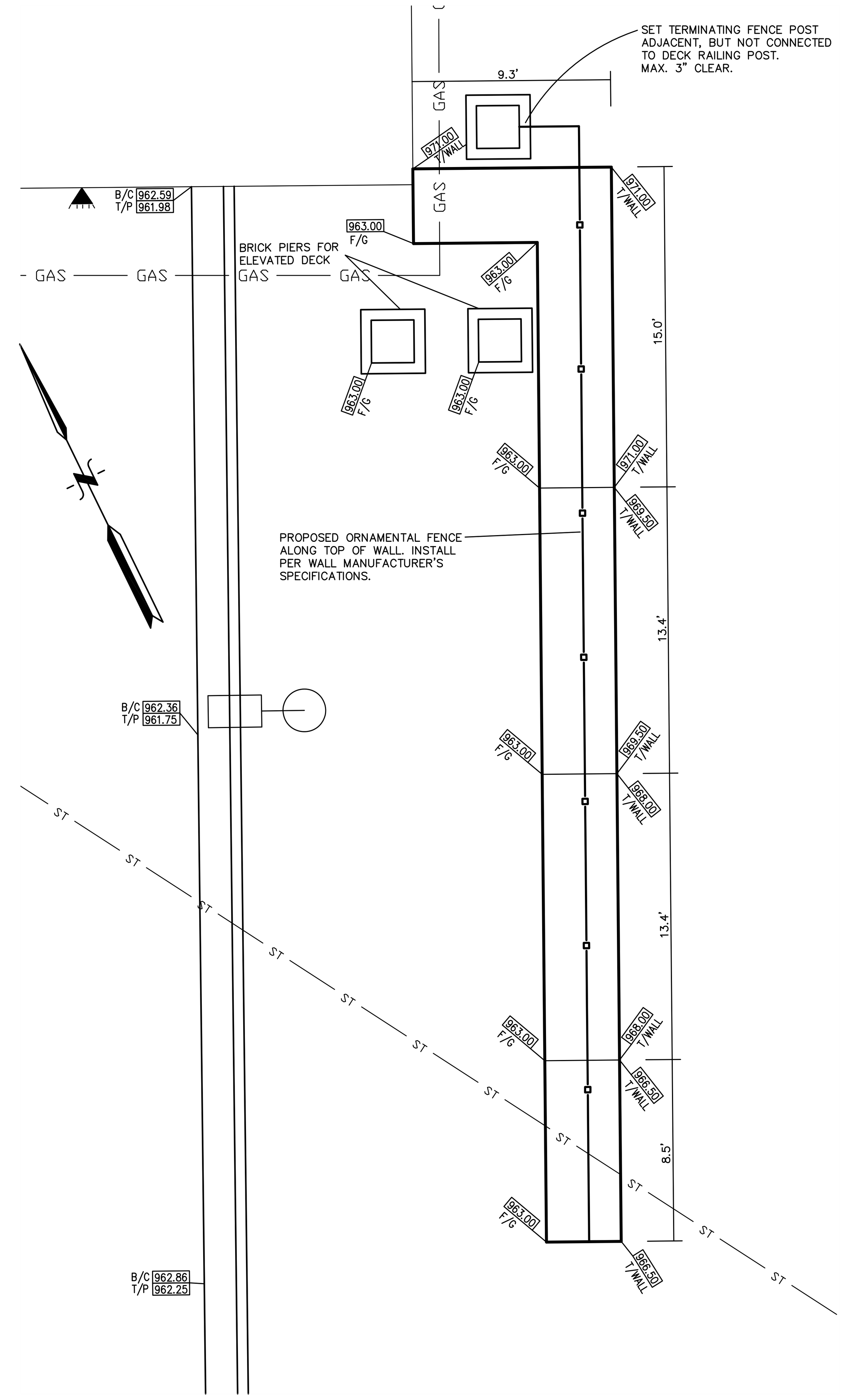
PARTLUND DEVELOPMENT
2700 E. GRAND RIVER

LANDSCAPE PLAN

CLIENT:
PARTLUND DEVELOPMENT, LLC
29205 RYAN ROAD
WARREN, MICHIGAN 48092

SCALE: 1in. = 20ft.
PROJECT No.: 183585
DWG NAME: 3585 LA
ISSUED: AUG. 18, 2020

LA



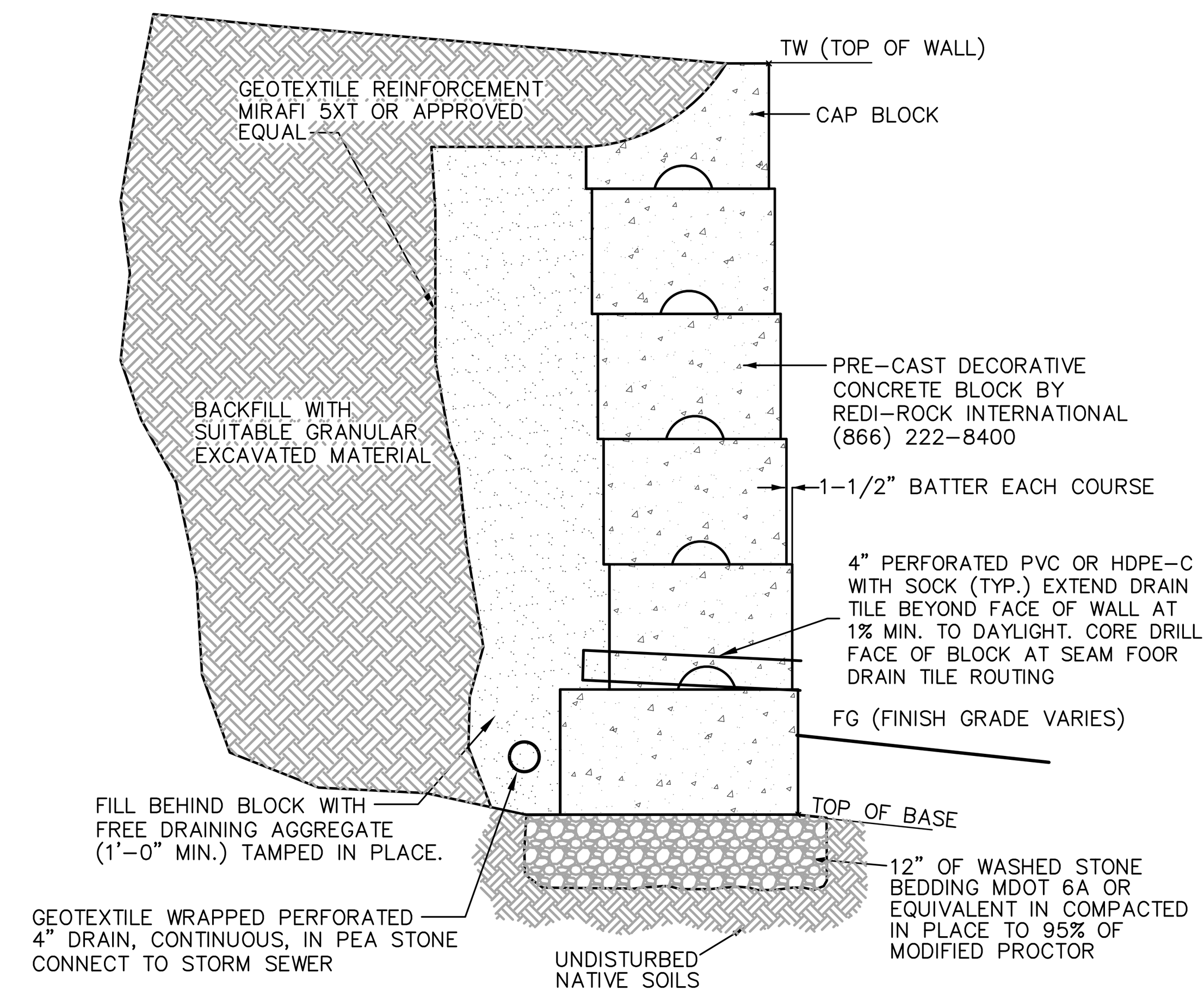
BENCHMARK

DATUM BASED ON NGS OPUS SOLUTION
REPORT, DATED MAY 4, 2018 AT 12:54 PM

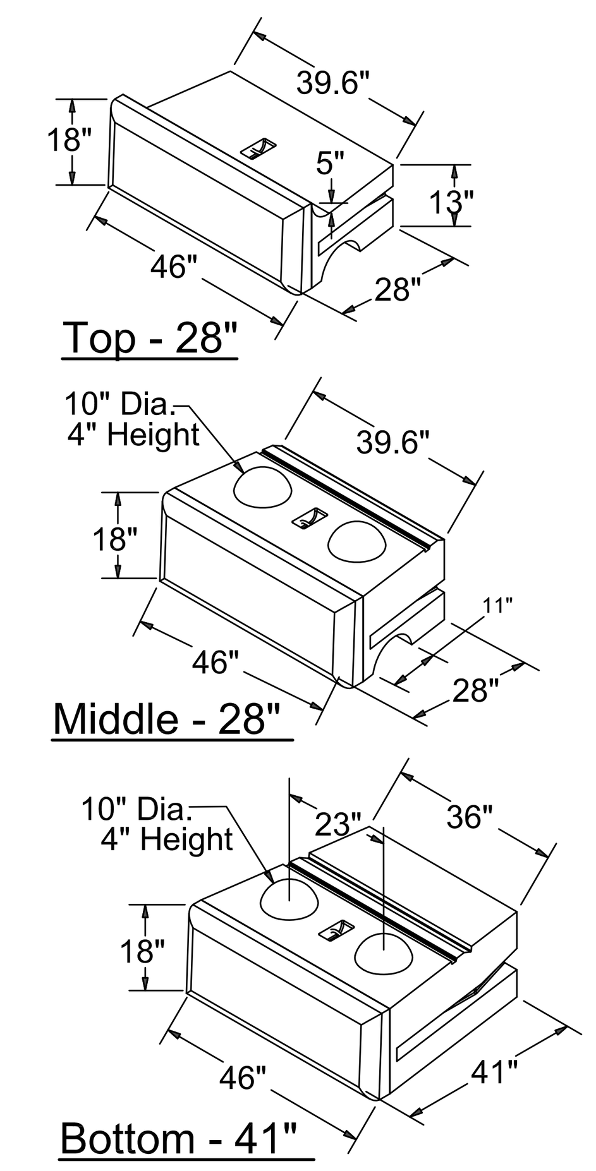
BENCHMARK #201
ARROW ON HYDRANT, LOCATED SOUTH OF GRAND RIVER AVE., 38± FEET NORTHERLY OF THE NORTHEAST CORNER OF BLDG #2700.
ELEVATION = 975.07 (NAVD 88)

BENCHMARK #202
SPIKE IN THE NORTH SIDE OF AN UTILITY POLE, LOCATED 50± FEET SOUTHWESTERLY OF THE SOUTHWEST CORNER OF BLDG #2700.
ELEVATION = 968.26 (NAVD 88)

BENCHMARK #203
SOUTHWEST CORNER OF A TRANSFORMER PAD, LOCATED IN THE REAR OF BLDG #2700, NEAR THE EASTERLY 1/2 OF BLDG.
ELEVATION = 963.24 (NAVD 88)



RETAINING WALL CROSS-SECTION
NOT TO SCALE



REDI-ROCK
WALL DETAILS
NOT TO SCALE

SEGMENTAL RETAINING WALL NOTES

1. Wall Units
a. Wall units shall be Redi-Rockä as produced by a licensed manufacturer.
b. Wall units shall meet or exceed Redi-Rockä minimum specifications. All material used in the wall units, steps, and pavers must meet applicable ASTM and local requirements for exterior concrete. (ASTM Standard Specifications for Segmental Retaining Wall Units, concrete specifications ASTM C-94 & ACI 301-99 latest additions apply)
c. Exterior block dimensions shall be uniform and consistent. Maximum dimensional deviations shall be 0.50 inch or 2%, whichever is less, not including textured face.
d. Exposed face shall be finished as specified. Other surfaces to be smooth form type. Dime-size bug holes on the block face may be patched and/or shake-on color stain can be used to blend into the remainder of the block face.

2. Delivery, Storage and Handling
a. Contractor shall check the materials upon delivery to assure proper material has been received.
b. Contractor shall prevent excessive mud, wet cement and like materials form coming in contact with the SRW units.
c. Contractor shall protect the materials from damage. Damaged material shall not be incorporated in the project.

3. Leveling Pad and Free Draining Backfill
a. Leveling Pad shall be washed stone or compacted gravel. See construction drawings for specifications.
b. Free Draining Backfill material shall be granular, well draining sand or stone and shall be placed to a minimum of 1-foot of depth behind the back of the wall and shall extend vertically from the Leveling Pad to an elevation 4-inches below the top of the wall. See construction drawings for specifications.
c. Backfill material shall be in accordance with the construction drawings. Site excavated spoils may be used if approved unless otherwise specified on the construction drawings. Unsuitable soils with a P1>6, organic soils and frost susceptible soils shall not be used within a 1 to 1 influence area.
d. Non-woven geotextile cloth shall be placed between the Free Draining Backfill and retained soil when noted on the construction drawings.
e. Where additional fill is needed, Contractor shall submit sample and specifications to the Engineer for approval.

4. Drainage
a. Internal and external drainage shall be provided in accordance with the construction drawings.

5. Geogrid
a. Geogrid connection bar to be epoxy coated rebar, ½-inch in diameter cut 3-foot 4-inches long.
b. Geogrid fabric to be Mirafi Miragrid or equivalent. See construction drawings for specifications.
c. Geogrid fabric shall be installed in accordance with the construction drawings and the SRW unit manufacturer's specifications.

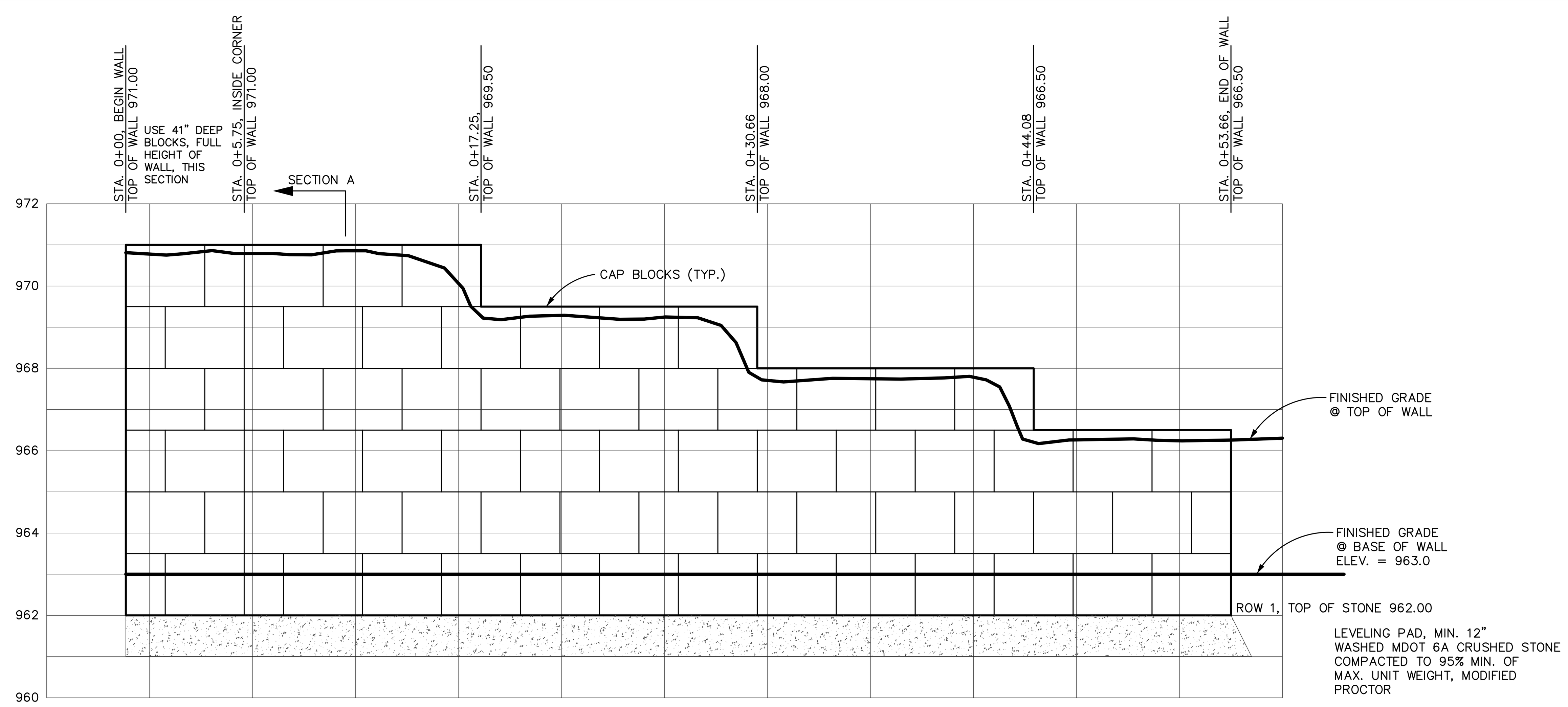
6. Excavation
a. Contractor shall excavate to the lines and grades shown on the construction drawings.

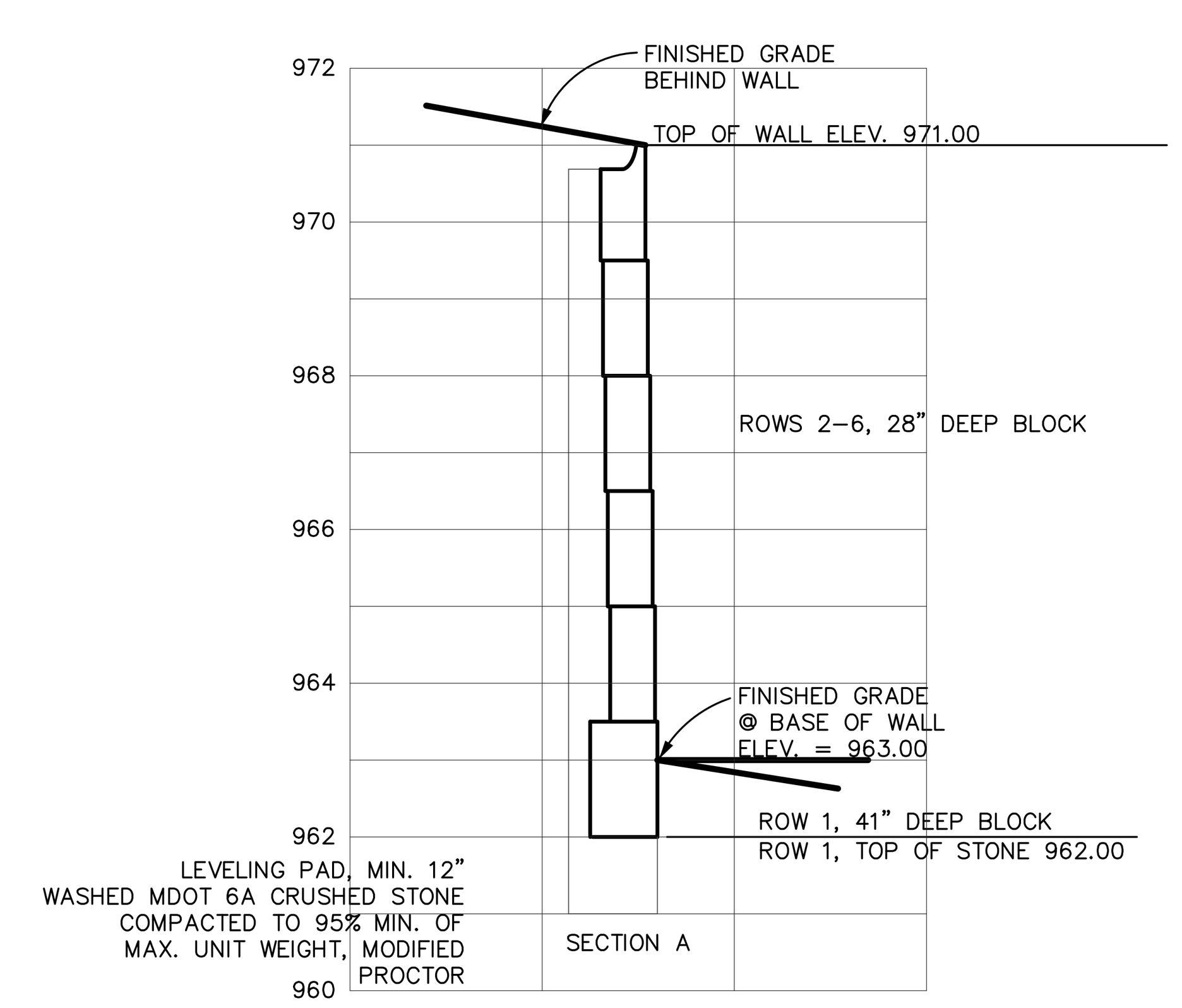
7. Foundation Soil Preparation
a. Native foundation soil shall be compacted to 95% of standard proctor or 90% of modified proctor prior to placement of the Leveling Pad material.
b. In-situ foundation soil shall be examined by the Testing Engineer to ensure that the actual foundation soil strength meets or exceeds assumed design strength. Soil not meeting required strength shall be removed and replaced as directed by the Testing Engineer.

8. Leveling Pad Placement
a. Leveling Pad shall be placed as shown on the construction drawings.
b. Leveling Pad shall be placed on undisturbed native soils or suitable replacement fill material as acceptable to the Engineer.
c. Leveling Pad shall be compacted to 95% of standard proctor or 90% of modified proctor to ensure a level, hard surface on which to place the first course of blocks. Pad shall be constructed to the proper elevation to ensure the final elevation shown on the plans. Well-graded sand may be used to smooth the top ½-inch on the Leveling Pad (when using gravel pad only).
d. Leveling Pad shall have a 6-inch minimum depth for walls under 8-feet in height and a 12-inch minimum depth for walls over 8-feet. See construction drawings for additional specifications. Pad dimensions shall extend beyond the blocks in all directions to a distance at least equal to the depth of the pad unless otherwise specified on the construction drawings.
e. For steps and pavers, a minimum of 1-inch to 1 ½-inches of free draining sand shall be screeded smooth to act as a placement bed for the steps or pavers.

9. Unit Installation
a. The first course of wall units shall be placed on the prepared Leveling Pad with aesthetic surface facing out and the front edged tight together. All units shall be checked for level and alignment as they are placed.
b. Ensure that units are in full contact with Leveling Pad. Proper care shall be taken to develop straight lines and smooth curves on base course as per wall layout.
c. The backfill in front and back of entire base row shall be placed and compacted to firmly lock them in place. Check all units again for level and alignment. All excess material shall be swept from top of units.
d. Install next course of wall units on top of base row. Position blocks to be offset from seams of blocks below. Blocks shall be placed fully forward so knob and groove are engaged. Check each block for proper alignment and level. Backfill to 12-inch depth behind block with Free Draining Backfill Spread backfill in uniform lifts not exceeding 8-inches. Employ methods using lightweight compaction equipment that will not disrupt the stability or batter of the wall. Hand-operated plate compaction equipment shall be used around the block and within 3-feet of the wall to achieve consolidation. Compact backfill to 95% of standard proctor (ASTM D 698, AASHTO T-99) density within 2% of its optimum moisture content.
e. Install each subsequent course in like manner. Repeat procedure to the extent of wall height.
f. Allowable construction tolerance is 2-degrees vertically and 1-inch in 10-feet horizontally.
g. All walls shall be installed in accordance with local building codes and requirements.

For local dealer contact:
Redi-Rock International
05481 South US-31
Charlevoix, MI 49720
1-866-222-8400 www.redi-rock.com <http://www.redi-rock.com>
info@redi-rock.com





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CHECK: JMB

REVISION #	DATE	REVISION-DESCRIPTION	REVISION #	DATE	REVISION-DESCRIPTION

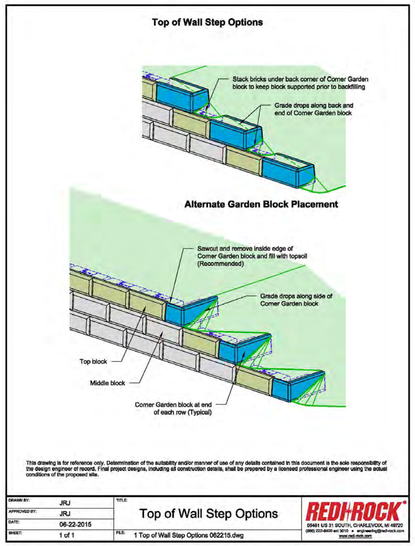
PARTLUND DEVELOPMENT
2700 E. GRAND RIVER

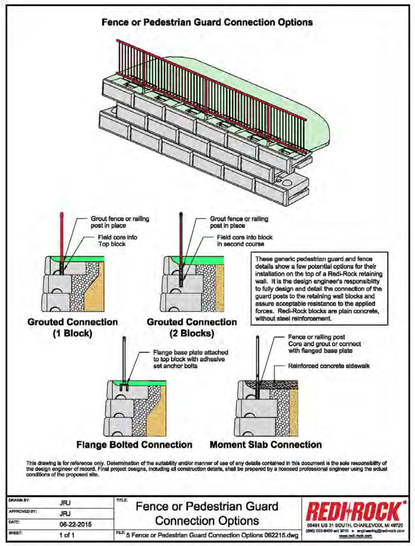
RETAINING WALL
PROFILE & SECTIONS

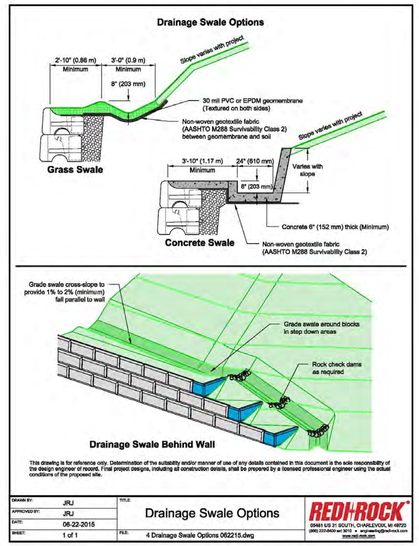
CLIENT:
PARTLUND DEVELOPMENT, LLC
29205 RYAN ROAD
WARREN, MICHIGAN 48092

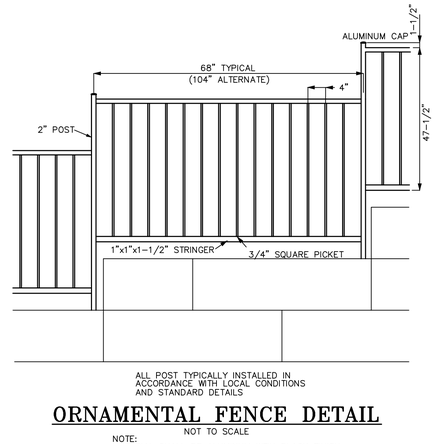
SCALE: AS NOTED
PROJECT No.: 183585
DWG NAME: 3585 WALL
ISSUED: AUG. 18, 2020

RW1









ORNAMENTAL FENCE DETAIL

NOT TO SCALE

NOTE:
MATERIAL SHALL BE ALUMINUM WTIH BLACK FINISH.

Analysis of Redi Rock wall

Input data

Project

Date : 5/18/2020

Settings

USA - Safety factor

Wall analysis

Active earth pressure calculation :	Coulomb
Passive earth pressure calculation :	Mazindrani (Rankine)
Earthquake analysis :	Mononobe-Okabe
Shape of earth wedge :	Calculate as skew
Allowable eccentricity :	0.333
Internal stability :	Standard - straight slip surface
Reduction coeff. of contact first block - base :	1.00
Verification methodology :	Safety factors (ASD)

Safety factors		
Permanent design situation		
Safety factor for overturning :	SF_o =	1.50 [--]
Safety factor for sliding resistance :	SF_s =	1.50 [--]
Safety factor for bearing capacity :	SF_b =	2.00 [--]
Safety factor for sliding along geo-reinforcement :	SF_{sr} =	1.50 [--]
Safety factor for geo-reinforcement strength :	SF_{st} =	1.50 [--]
Safety factor for pull out resistance of geo-reinf. :	SF_{po} =	1.50 [--]
Safety factor for connection strength :	SF_{con} =	1.50 [--]

Geometry

No. group	Description	Count	Setbacks [in]
1	Block 41	1	1.62
2	Block 28	4	1.62
3	Top block 28	1	-

Base

Geometry

Upper setback a_1 = 0.00 ft
Lower setback a_2 = 1.00 ft
Height h = 1.00 ft
Width b = 5.25 ft

Material

Soil creating foundation - Well graded gravel (GW), medium dense

Soil parameters

Well graded gravel (GW), medium dense

Unit weight : γ = 100.0 pcf
Stress-state : effective
Angle of internal friction : φ_{ef} = 38.50 °
Cohesion of soil : c_{ef} = 0.0 psf
Angle of friction struc.-soil : δ = 36.00 °
Saturated unit weight : γ_{sat} = 133.0 pcf

Clayey sand (SC)

Unit weight : γ = 100.0 pcf
Stress-state : effective
Angle of internal friction : φ_{ef} = 38.50 °
Cohesion of soil : c_{ef} = 0.0 psf
Angle of friction struc.-soil : δ = 30.00 °
Saturated unit weight : γ_{sat} = 133.0 pcf

Poorly graded sand (SP), medium dense

Unit weight : γ = 118.0 pcf
Stress-state : effective
Angle of internal friction : φ_{ef} = 33.50 °
Cohesion of soil : c_{ef} = 0.0 psf
Angle of friction struc.-soil : δ = 30.00 °
Saturated unit weight : γ_{sat} = 118.0 pcf

Silty sand (SM)

Unit weight : γ = 115.0 pcf
Stress-state : effective
Angle of internal friction : φ_{ef} = 29.00 °
Cohesion of soil : c_{ef} = 100.0 psf
Angle of friction struc.-soil : δ = 10.00 °
Saturated unit weight : γ_{sat} = 115.0 pcf

Sand with trace of fines (S-F), medium dense

Unit weight : γ = 112.0 pcf
Stress-state : effective
Angle of internal friction : φ_{ef} = 29.50 °
Cohesion of soil : c_{ef} = 0.0 psf
Angle of friction struc.-soil : δ = 25.00 °
Saturated unit weight : γ_{sat} = 112.0 pcf

Geological profile and assigned soils

No.	Layer [ft]	Assigned soil	Pattern
1	10.00	Poorly graded sand (SP), medium dense	
2	-	Silty sand (SM)	

Input concentrated surcharges

No.	Surcharge new	Surcharge change	Action	Magnitude [lbf]	Ord.x x [ft]	Length l [ft]	Width b[ft]	Depth z [ft]
1	Yes		variable	4000.00	6.00	1.00	1.00	on terrain

No.	Name
1	Construction Equipment

Verification No. 1

Forces acting on construction

Name	F_{hor} [lbf/ft]	App.Pt. z [ft]	F_{vert} [lbf/ft]	App.Pt. x [ft]	Design coefficient
Weight - wall	0.0	-4.33	3140.6	2.60	1.000
FF resistance	-104.5	-0.67	0.2	0.50	1.000
Weight - earth wedge	0.0	-2.30	173.0	4.24	1.000
Weight - earth wedge	0.0	-9.79	88.7	3.00	1.000
Active pressure	1458.0	-3.15	1798.2	4.47	1.000
Construction Equipment	87.9	-5.56	47.9	3.78	1.000

Verification of complete wall

Check for overturning stability

Resisting moment M_{res} = 17368.5 lbf/ft
Overturning moment M_{ovr} = 5019.5 lbf/ft

Safety factor = 3.46 > 1.50
Wall for overturning is SATISFACTORY

Check for slip

Resisting horizontal force H_{res} = 3473.97 lbf/ft
Active horizontal force H_{act} = 1441.46 lbf/ft

Safety factor = 2.41 > 1.50
Wall for slip is SATISFACTORY

Overall check - WALL is SATISFACTORY

Dimensioning No. 1

Forces acting on construction

Name	F_{hor} [lbf/ft]	App.Pt. z [ft]	F_{vert} [lbf/ft]	App.Pt. x [ft]	Design coefficient
Weight - wall	0.0	-4.10	2615.6	1.59	1.000
Weight - earth wedge	0.0	-1.98	77.2	2.81	1.000
Weight - earth wedge	0.0	-8.79	88.7	2.00	1.000
Active pressure	1109.4	-2.88	1023.3	3.03	1.000
Construction Equipment	88.4	-4.56	46.8	2.77	1.000

Verification of block No. 1

Check for overturning stability

Resisting moment M_{res} = 7779.5 lbfft/ft
Overturning moment M_{ovr} = 3586.7 lbfft/ft

Safety factor = 2.17 > 1.50
Joint for overturning stability is SATISFACTORY

Check for slip

Resisting horizontal force H_{res} = 3063.80 lbf/ft
Active horizontal force H_{act} = 1194.80 lbf/ft

Safety factor = 2.56 > 1.50
Joint for verification is SATISFACTORY

Bearing capacity of foundation soil

Design load acting at the center of footing bottom

No.	Moment [lbfft/ft]	Norm. force [lbf/ft]	Shear Force [lbf/ft]	Eccentricity [--]	Stress [psf]
1	1428.5	5248.60	1441.46	0.052	1115.4

Service load acting at the center of footing bottom

No.	Moment [lbfft/ft]	Norm. force [lbf/ft]	Shear Force [lbf/ft]
1	1428.5	5248.60	1441.46

Verification of foundation soil

Stress in the footing bottom : rectangle

Eccentricity verification

Max. eccentricity of normal force e = 0.052
Maximum allowable eccentricity e_{allw} = 0.333

Eccentricity of the normal force is SATISFACTORY

Verification of bearing capacity

Max. stress at footing bottom σ = 1115.4 psf
Bearing capacity of foundation soil R_d = 2400.0 psf

Safety factor = 2.15 > 2.00
Bearing capacity of foundation soil is SATISFACTORY

Overall verification - bearing capacity of found. soil is SATISFACTORY

Slope stability analysis

Input data

Results (Stage of construction 1)

Analysis 1

Slope stability verification (Bishop)

Sum of active forces : F_a = 4160.3 lbf/ft
Sum of passive forces : F_p = 6782.6 lbf/ft

Sliding moment : M_a = 41769.8 lbfft/ft
Resisting moment : M_p = 68096.9 lbfft/ft
Factor of safety = 1.63 > 1.50
Slope stability ACCEPTABLE

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REVISION #	DATE	REVISION-DESCRIPTION

REVISION #	DATE	REVISION-DESCRIPTION

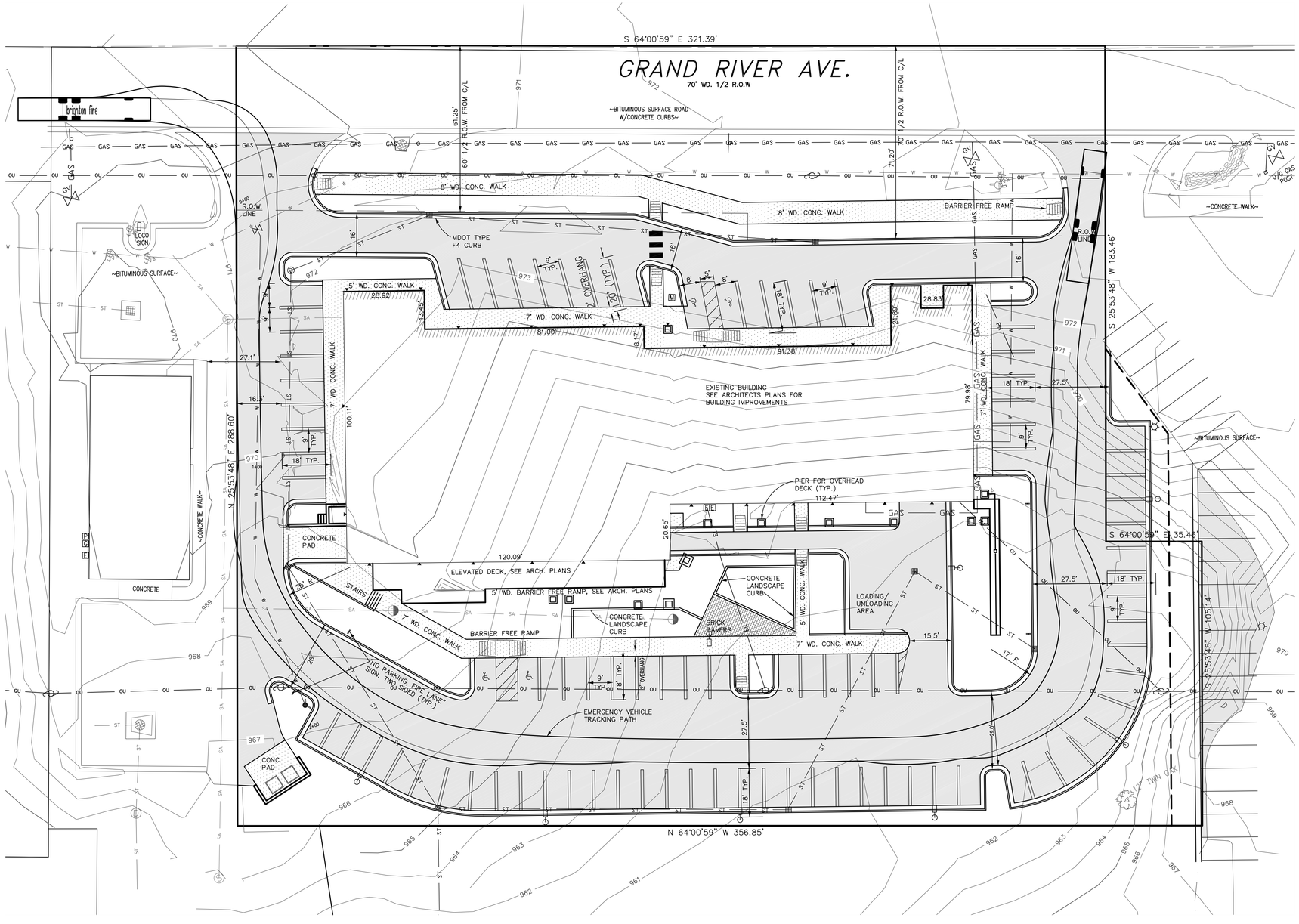
PARTLUND DEVELOPMENT
2700 E. GRAND RIVER

RETAINING WALL
NOTES & DETAILS

CLIENT:
PARTLUND DEVELOPMENT, LLC
29205 RYAN ROAD
WARREN, MICHIGAN 48092

SCALE: NONE
PROJECT No.: 183585
DWG NAME: 3585 WALL
ISSUED: AUG. 18, 2020

RW2



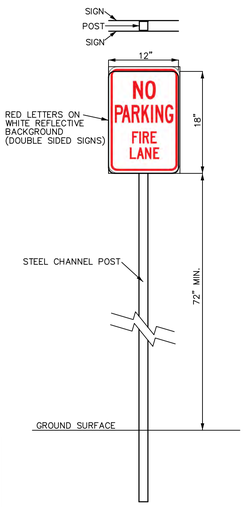
LEGEND

- = WELL / MONITOR WELL
- = SIGN
- = LIGHT FIXTURE / DECORATIVE LIGHT
- = LIGHT BASE
- = UTILITY METERS & BOXES (ELECTRIC METER, GAS METER, WATER METER, PHONE BOX, CATV BOX, MAIL BOX, UTIL. BOX)
- = AIR CONDITIONER UNIT
- = UTILITY POLE W/GUY WIRE
- = OVERHEAD UTILITY LINES (ELECTRIC/PHONE/CABLE)
- = U/G UTILITY LINES (PHONE/FIBER OPTIC/ELECTIC/CABLE TV/MISC UTILITIES)
- = DECIDUOUS TREE W/IDENTIFIER
- = CONIFEROUS TREE W/IDENTIFIER
- = FENCE (CHAIN LINK UNLESS OTHERWISE STATED)
- = GUARD RAIL
- = EDGE OF GRAVEL
- = CONCRETE CURB (UNLESS OTHERWISE STATED)
- = SANITARY SEWER MANHOLE W/IDENTIFIER
- = SANITARY SEWER PIPE
- = CLEAN OUT
- = STORM WATER MANHOLE W/IDENTIFIER
- = CATCH BASIN W/IDENTIFIER
- = STORM WATER DRAINAGE PIPE
- = HYDRANT
- = WATER SHUT OFF
- = WATER VALVE BOX
- = WATER MAIN
- = GAS MANHOLE
- = GAS SHUT OFF
- = U/G GAS
- = 1' CONTOUR
- = 5' CONTOUR
- = PROP. CONCRETE
- = PROP. BRICK PAVERS
- = PROP. BITUMINOUS PAVEMENT

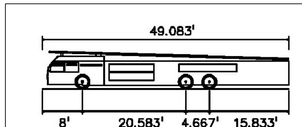
GRAPHIC SCALE

20 0 10 20 40

(IN FEET)
1 INCH = 20 FEET



FIRE LANE SIGN POST DETAIL
NOT TO SCALE



Brighton 49' Fire Truck	
Overall Length	49.083ft
Overall Width	8.167ft
Overall Body Height	7.500ft
Min Body Ground Clearance	0.750ft
Track Width	8.167ft
Lock-to-lock time	5.00s
Max Steering Angle (Virtual)	45.00°

FIRE TRUCK DETAIL
NOT TO SCALE

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REVISION #	DATE	REVISION-DESCRIPTION

REVISION #	DATE	REVISION-DESCRIPTION

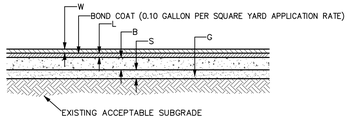
PARTLUND DEVELOPMENT
2700 E. GRAND RIVER

EMERGENCY VEHICLE ROUTE

CLIENT:
PARTLUND DEVELOPMENT, LLC
29205 RYAN ROAD
WARREN, MICHIGAN 48092

SCALE: 1in. = 20ft.
PROJECT No.: 183585
DWG NAME: 3585 FD
ISSUED: AUG. 18, 2020

FD



BITUMINOUS PAVEMENT CROSS SECTION

NOT TO SCALE

MINIMUM TOWNSHIP CROSS SECTION

KEY	DESCRIPTION	MATERIAL SPECIFICATION	MINIMUM COMPACTED THICKNESS
W	WEARING COURSE	MDOT 36A	1.5"
L	LEVELING COURSE	MDOT 13A	1.5"
B	AGGREGATE BASE	MDOT 22A	6"
S	GRANULAR SUBBASE	MDOT CLASS II	6"
G	GEOGRID	N/A	N/A

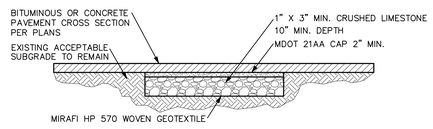
BITUMINOUS PAVEMENT NOTES:

1. The construction specifications of the appropriate Local Municipality are a part of this work. Refer to the General Notes, Road and/or Driveway and Parking Lot Construction Notes and Typical Road and/or Pavement Cross Section details on the project plans for additional requirements.

2. Unsuitable soils found within the 1 on 1 influence zone of the roadway, such as muck, peat, topsoil, marl, silt or other unstable materials shall be excavated and replaced up to the proposed subgrade elevation with MDOT Class III granular material compacted to 95% maximum unit weight, modified proctor.

3. Contractor shall proof roll prepared subgrade as directed by Engineer. Unacceptable areas of subgrade shall be undercut and replaced as directed by Engineer.

4. Owner/Developer may delay placement of the bituminous wearing course outside of the public road right of way. Repair of the bituminous leveling course may be necessary due to any delay in placement of the bituminous wearing course. Substantial repair to the bituminous leveling course may be necessary if placement of the bituminous wearing course is delayed for more than 12 months after placement of the bituminous leveling course. The bituminous leveling course shall be repaired as directed by Engineer prior to placement of the bituminous wearing course.



SUBGRADE UNDERCUT AND REPLACEMENT CROSS-SECTION

NOT TO SCALE

PAVEMENT SUBGRADE UNDERCUT NOTES:

1. Areas of pavement subgrade that do not pass a proof roll inspection shall be undercut when directed by the Material Testing Engineer and/or Project Engineer. All undercut work shall be witnessed and field measured by the Material Testing Engineer and/or Project Engineer.

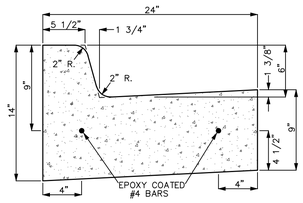
2. Undercut areas shall be excavated to a depth of 12" below the proposed subgrade elevation using an Excavator or Backhoe with a Smooth Edged Ditching Bucket so as not to scarify the underlying soils. Undercut areas shall remain free of all construction traffic and equipment to avoid rutting and/or tracking of the underlying soils.

3. Mirafi HP 570 Woven Geotextile Fabric (or approved equal) shall be placed over all undercut areas per the Manufacturer's specifications. Overlap all seams a minimum of 12" unless specified otherwise by the Manufacturer.

4. Backfill the undercut areas with 1" x 3" minimum size crushed angular limestone up to the proposed subgrade elevation. Crushed concrete material shall NOT be substituted for crushed limestone material. The backfill material shall be spread with a Wide Track Dozer to minimize loading on the underlying soils. Static roll the backfill material with a large smooth drum roller.

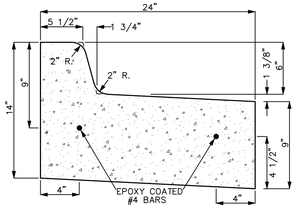
5. Construct the appropriate Bituminous or Concrete Pavement Cross Section over the undercut areas per the Project Plans.

6. The General Contractor and/or Earthwork Subcontractor shall provide ALDI Inc with unit pricing to perform subgrade undercut work per square yard (SY) of undercut area. Undercut Unit Pricing SHALL include excavation, loading, hauling and offsite disposal of excess spoils, placement of geotextile fabric and backfill including all labor, equipment and materials necessary to complete pavement subgrade undercut work as specified on the Project Plans.



MDOT TYPE F4 CURB

NOT TO SCALE



MDOT TYPE F4 CURB REVERSE PITCH

NOT TO SCALE

CONCRETE CURB NOTES:

1. Refer to the project plans for the proposed locations of the specific curb types.

2. The construction specifications of the appropriate Local Municipality are a part of this work. Refer to the General Notes and Curb Cross Section Details on the project plans for additional requirements.

3. Extend the base and/or subbase material of the appropriate adjacent pavement cross-section horizontally to 1 foot behind the back of curb. Concrete curb shall be constructed on no less than 6" of combined depth of compacted base/subbase material.

4. Concrete material shall meet or exceed the specification requirements of the appropriate Local Municipality. Unless specified otherwise by the Local Municipality, concrete material shall be air-entrained and shall have a minimum 28-day class design strength of 3500 psi. Contractor shall submit concrete mix design and aggregate mechanical analysis report to the Local Municipality and Engineer for review and approval prior to use.

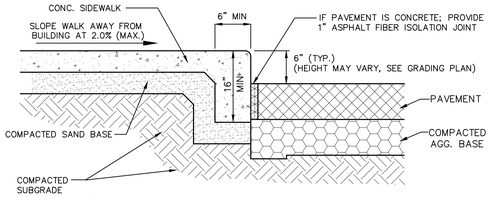
5. Install transverse contraction control joints in concrete curb with 1" minimum depth at 10' on center. Tool joints in fresh concrete or saw cut within 8 hours.

6. Install transverse expansion control joints in concrete curb as follows: 400' maximum on center, at spring points of intersecting streets and within 10' on each side of catch basins. Transverse expansion control joints shall be 1" thick asphalt fiber joint filler matching entire curb cross section.

7. Provide 0.5" asphalt fiber control joint between back of curb and all other concrete structures, such as concrete sidewalks and concrete driveways.

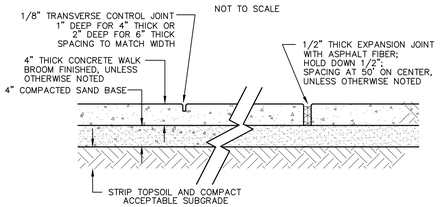
8. Curb Contractor shall provide final adjustment of catch basin castings in curb line. Castings shall be tuck pointed to structure water tight with concrete or mortar inside and outside of casting.

9. Install curb cuts for all existing and proposed sidewalks and pedestrian ramps in accordance with the American Disabilities Act and the Barrier Free Design requirements of the appropriate Local, County and/or State Agency. Refer to MDOT Standard Plan R-28, latest revision. Install curb cuts for all existing and proposed vehicular ramps and drives as noted on the project plans.



SIDEWALK WITH INTERGAL CURB & ISOLATION JOINT DETAIL

NOT TO SCALE



SIDEWALK CROSS SECTION

NOT TO SCALE

SIDEWALK CROSS SECTION NOTES:

1. The construction specifications of the Local Municipality are a part of this work. Refer to the General Notes and the Sidewalk Cross Section Details on the Project Plans for additional requirements.

2. Sidewalk widths may vary. See the Project Plans for the proposed sidewalk width at each location. Increase sidewalks to 6" minimum thickness at driveways and other areas exposed to vehicular traffic.

3. The existing subgrade soils shall be prepared prior to placement of the granular subbase. Unsuitable soils found within the 1 on 1 influence zone of the proposed sidewalk areas, such as muck, peat, topsoil, marl, silt or other unstable materials shall be excavated and replaced with structural fill. Structural fill shall be MDOT Class II granular material placed in accordance with the General Notes on the Project Plans.

4. The sidewalk compacted subbase material shall be MDOT CL II sand. No subbase material substitutions shall be permitted without prior written approval of the Project Engineer and receipt of the Owner's Authorization. The subbase shall be compacted to a minimum of 95% of the maximum unit weight, modified proctor.

5. Concrete material shall meet or exceed the specification requirements of the appropriate Local Municipality. Unless specified otherwise by the Local Municipality, concrete material shall be air-entrained and shall have a minimum 28-day class design strength of 3500 psi. Contractor shall submit concrete mix design and aggregate mechanical analysis report to the Local Municipality and Engineer for review and approval prior to use.

6. Install transverse contraction control joints in accordance with the Sidewalk Cross Section Detail. Space contraction control joints to match sidewalk width, but no greater than 10' on center. Tool joints in fresh concrete or saw cut within 8 hours.

7. Install transverse expansion control joints in accordance with the Sidewalk Cross Section Detail. Space expansion control joints at 50 feet on center maximum. Transverse expansion control joints shall be 1/2" thick asphalt fiber joint filler matching entire sidewalk cross section.

8. Provide 0.5" asphalt fiber control joint between concrete sidewalks and all other concrete structures, such as concrete building foundations, concrete curb and concrete driveways.

9. Construct all Barrier Free Sidewalk Ramps in accordance with the American Disabilities Act and the Barrier Free Design Requirements of the appropriate Local, County or State Agency with jurisdiction over the project. Refer to MDOT Standard Plan R-28, latest revision.

10. The Concrete Pavement shall not be exposed to vehicular traffic until the concrete has reached at least 75% of the design flexural strength.

GENERAL NOTES:

1. Contractor shall perform the work in accordance with the requirements of the appropriate Local, County and State Agencies and all other Government and Regulatory Agencies with jurisdiction over the project. Contractor shall notify the appropriate Agencies in advance of each stage of work in accordance with each Agency's requirements.

2. Contractor shall comply with all permit, insurance, licensing and inspection requirements associated with the work. Prior to construction, Contractor and Owner/Developer shall determine who is responsible for obtaining each required permit. Contractor shall verify that the each required permit has been obtained prior to commencement of the stage of work associated with the required permit(s).

3. Contractor shall furnish liability insurance and property damage insurance to save harmless the Owner, Developer, Architect, Engineer, Surveyor and Government Agencies for any accident occurring during the construction period. Refer to the appropriate Local, County and State Agencies for additional requirements. Copies of insurance certifications shall be made available to the Owner/Developer.

4. Contractor shall conduct and perform work in a safe and competent manner. Contractor shall perform all necessary measures to provide for traffic and pedestrian safety from the start of work and through substantial completion. Contractor shall determine procedures and provide safety equipment such as traffic controls, warning devices, temporary pavement markings and signs as needed. Contractor shall comply with the safety standards of the State Department of Labor, the occupational health standards of the State Department of Health and safety regulations of the appropriate Local, County, State and Federal Agencies. Refer to the safety specifications of the appropriate Regulatory Agencies. The Contractor shall designate a qualified employee with complete job site authority over the work and safety precautions; said designated employee shall be on site at all times during the work.

5. Contractor shall coordinate scheduling of all work in the proper sequence, including work by Subcontractors. Additional costs due to improper planning by Contractor or work done out of sequence as determined by standard acceptable construction practices, shall be Contractor's responsibility.

6. Contractor shall contact the 811 Public Underground Utility Locating System or other appropriate local underground utility locating Agency, a minimum of three (3) working days prior to construction. Existing utility information on the project plans may be from information disclosed to this firm by the Utility Companies, Local, County or State Agencies, and/or various other sources. No guarantee is given as to the completeness or accuracy thereof. Prior to construction, locations and depths of all existing utilities (in possible conflict with the proposed improvements) shall be verified in the field.

7. Contractor shall coordinate scheduling a Pre-Construction Meeting with Engineer prior to commencement of work.

8. The Local Municipality, County and/or State in which the project is located may require an Engineer's Certification of construction of the proposed site improvements. Contractor shall verify the certification requirements with Engineer prior to commencement of work. Contractor shall coordinate construction staking, testing, documentation submittal and observation with the appropriate Agency, Surveyor and/or Engineer as required for Engineer's Certification and Government Agency Acceptance. All materials used and work done shall meet or exceed the requirements of certification and acceptance, the contract documents and the material specifications noted on the project plans. Any materials used or work done that does not meet said requirements, contract documents and/or specifications shall be replaced and/or redone at Contractor's expense. The Owner/Developer may wait for test results, certifications and/or Agency reviews prior to accepting work.

9. Engineer may provide subsurface soil evaluation results, if available, to Contractor upon request. Subsurface soil evaluation results, soils maps and/or any other documentation does NOT guarantee existing soil conditions or that sufficient, acceptable on-site granular material is available for use as structural fill, pipe bedding, pipe backfill, road subbase or use as any other granular material specified on the project plans. On-site granular material that meets or exceeds the material specifications noted on the project plans may be used as structural fill, pipe bedding, pipe backfill and/or road subbase material. On-site granular material shall be stockpiled and tested as acceptable to the appropriate Agency and/or Engineer prior to use.

10. During the performance of their work, Contractor shall be solely responsible for determining soil conditions and appropriate construction methods based on the actual field conditions. Contractor shall furnish, install and maintain sheeting, shoring, bracing and/or other tools and equipment and/or construction techniques as needed for the safety and protection of the workers, pedestrians and vehicular traffic and for protection of adjacent structures and site improvements.

11. Contractor shall install temporary and permanent soil erosion and sedimentation control devices at the appropriate stages of construction in accordance with the appropriate regulatory Agencies.

12. Structural fill shall be placed as specified on the project plans and within the 1 on 1 influence zone of all structures, paved areas and other areas subject to vehicular traffic. Structural fill shall be placed using the controlled density method (12" maximum lifts, compacted to 95% maximum unit weight, modified proctor). Fill material shall meet or exceed the specifications noted on the project plans or as directed by Engineer when not specified on the project plans.

13. All existing monuments, property corners, ground control and benchmarks shall be protected and preserved; and if disturbed by Contractor, shall be restored at Contractor's expense. Contractor shall notify Surveyor of any conflicts between existing monuments, property corners, ground control and/or benchmarks and the proposed site improvements.

14. Contractor shall notify Owner/Developer and Engineer immediately upon encountering any field conditions, which are inconsistent with the project plans and/or specifications.

15. When noted on the project plans for demolition and/or removal, Contractor shall remove existing structures, building and debris and recycle and/or dispose of in accordance with Local, County, State and Federal regulations.

16. Contractor shall remove excess construction materials and debris from site and perform restoration in accordance with the project plans and specifications. Disposing of excess materials and debris shall be performed in accordance with Local, County, State and Federal regulations.

17. Construction access to the site shall be located as acceptable to the Owner/Developer and to the appropriate Local, County and/or State Agency with jurisdiction over the road(s) providing access to the site. Construction access shall be maintained and cleaned in accordance with the appropriate Local, County and/or State Agencies and as directed by Owner/Developer and/or Engineer.

18. Contractor shall take necessary precautions to protect all site improvements from heavy equipment and construction procedures. Damage resulting from Contractor actions shall be repaired at Contractor's expense.

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DESINE INC
(810) 227-9533
CIVIL ENGINEERS
LAND SURVEYORS
2183 PLESS DRIVE
BRIGHTON, MICHIGAN 48114

DESIGN: SVB
DRAFT: JHG
CHECK: JMB

REVISION #	DATE	REVISION-DESCRIPTION

REVISION #	DATE	REVISION-DESCRIPTION

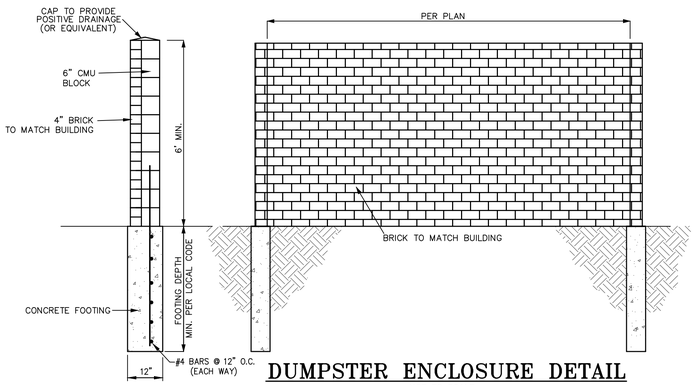
PARTLUND DEVELOPMENT
2700 E. GRAND RIVER

SITE & PAVEMENT DETAILS

CLIENT:
PARTLUND DEVELOPMENT LLC
29205 RYAN ROAD
WARREN, MICHIGAN 48092

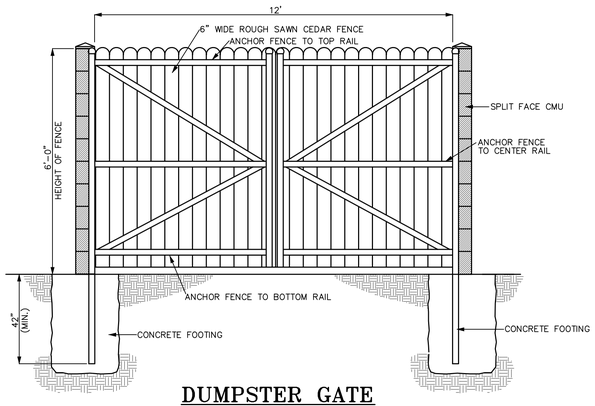
SCALE: NO SCALE
PROJECT No.: 183585
DWG NAME: 3585 DT
ISSUED: AUG. 18, 2020

DT1



DUMPSTER ENCLOSURE DETAIL

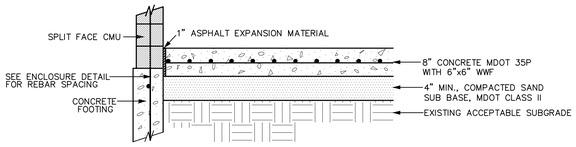
NOT TO SCALE



DUMPSTER GATE

NOT TO SCALE

NOTE:
ALL POLES, RAILS AND HARDWARE SHALL BE GALVANIZED STEEL.

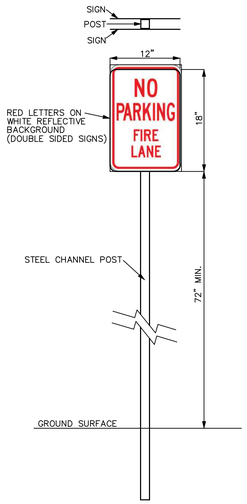


DUMPSTER PAD SLAB CROSS-SECTION

NOT TO SCALE

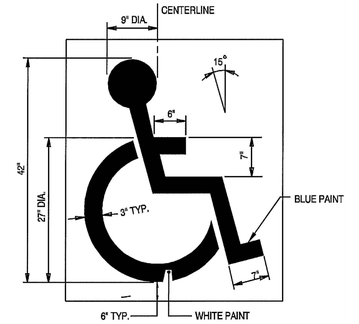
PAVEMENT NOTES:

1. UNSUITABLE SOILS, SUCH AS MUCK, PEAT, TOPSOIL, MARL, SILT OR OTHER UNSTABLE MATERIALS, SHALL BE UNDERCUT AND REPLACED WITH COMPACTED SAND SUBGRADE FILL. WHERE INCIDENTAL TO ROUGH GRADING.
2. AREAS OF SUBGRADE FILL SHALL BE CONSTRUCTED USING 12" THICK LIFTS OF COMPACTED SAND, MDOT CLASS III OR EQUIVALENT ON-SITE MATERIAL; WHEN INSIDE ROAD INFLUENCE ZONE.



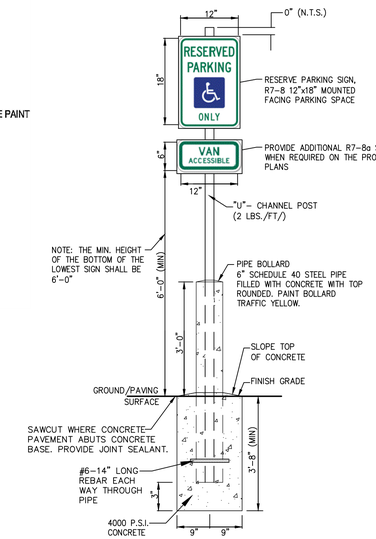
FIRE LANE SIGN POST DETAIL

NOT TO SCALE



HANDICAP PARKING STRIPING DETAIL

N.T.S.



BARRIER FREE PARKING SIGN DETAIL

NOT TO SCALE

SIGN SCHEDULE

SIGN	KEY	SIZE (W x H)	TYPE OR MOUNT	MOUNTING HEIGHT	QUANTITY
RESERVED PARKING ONLY	R7-8	12" x 18"	POST MOUNTED	7'-6"	5
			BUILDING MOUNTED	7'-6"	0
VAN ACCESSIBLE	R7-8a	12" x 6"	POST MOUNTED	7'-0"	4
NO PARKING FIRE LANE	FIRE LANE	12" x 18"	POST MOUNTED	6'-0"	8

SIGNAGE AND PAVEMENT MARKING NOTES:

1. Pavement markings shall be in accordance with the type, color, size and locations shown on the plans. If the information on the plans is not complete and the authority having jurisdiction does not have specific requirements, then use the following: Paint shall be supplied in accordance with AASHTO: M 248 latest addition. Colors shall be as follows: (YELLOW- parking stalls, loading zones, parking islands, no parking zones and fire lanes) (WHITE - stop bars, pedestrian crossings, lane demarcations, directional arrows and lettering) (BLUE - handicap parking stalls and symbols). Stripe widths shall be as follows: (4" - parking spaces, driveway lanes, barrier free loading zones and no parking zones) (12" - crosswalks) (24" - stop bars).

2. The pavement shall be clean and free of dirt, dust, moisture, oils and other foreign materials at time of marking application. Any old pavement markings shall be removed unless paints are compatible and overlay identically. The surface of the pavement prior to application shall be a minimum of 45 degrees F and rising unless the Manufacturer's recommendations are greater.

3. The signage shall be in accordance with the type, color, size and locations shown on the plans in accordance with AASHTO M268. The signage shall be provided in accordance with the Local Municipality and the Michigan Manual of Uniform Traffic Devices latest edition.

4. Posts, brackets and frames shall be steel per ASTM A-36, A-242, A-441, A-572, A588, Grade 50 and hot dip galvanized in accordance with ASTM A123. All cutting, drilling and/or other pole modifications shall be painted with galvanizing paint. All mounting hardware shall be stainless steel.

5. Sign post footings shall be a minimum of 3'-6" deep and 8" in diameter unless poor soils or frost conditions require greater depth and/or diameter. Sign posts shall be kept plumb, 6 inches off the bottom of footing excavation and centered as 3000-psi concrete is placed under and around the sign post. The overall sign and post system should be able to withstand 33 pounds per square foot. All signs located in paved areas or with less than 3 feet of clearance between the centerline of sign post and the back of curb and/or edge of pavement shall be installed in a pipe bollard. Pipe bollards shall be 6" diameter schedule 40 steel pipe. Pipe bollards shall be filled with concrete that is rounded at the top of the bollard. Bollards shall be painted traffic yellow. Increase the sign post footing diameter to 14" minimum for pipe bollards and embed the bollard into the concrete footing a minimum of 3 feet below proposed finish grade.

6. Signs shall not be mounted on posts until after concrete has cured for a minimum of seven days or ¾ strength is achieved.

7. All barrier free striping and signage shall meet the Americans with Disabilities Act (ADA) requirements.

8. All Fire Lane signs shall have a Red Border and Red Letters on White Background. All Fire Lane signs shall be Reflective. Fire lane striping and signage shall meet the requirements of the Local Building Inspector and Fire Department.

9. "Mounting Height" shall be the minimum height of the bottom of the sign above finish grade. When signs are located downhill from the roadway, driveway and/or parking area, then the "Mounting Height" shall be the height of the bottom of the sign above the top of pavement finish grade at the nearest edge of pavement adjacent to the sign.

10. All Traffic Control and Fire Lane signs shall be installed at 3 feet behind the back of curb (and/or edge of pavement) to the centerline of the sign post unless noted otherwise on the project plans.

11. The Contractor(s) and/or Subcontractor(s) responsible for installation of the sign posts shall contact the 811 Public Underground Utility Locating System a minimum of three (3) working days prior to installation of the signposts. Install the sign posts in the locations specified on the project plans. When underground utilities conflict with the proposed sign post locations, field adjust the sign locations the minimum amount necessary to safely clear the underground utilities. Maintain a minimum of 2 feet of clearance between the edge of sign and the back of curb and/or edge of sidewalk.

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DESINE INC
(810) 227-9533
CIVIL ENGINEERS
LAND SURVEYORS
2183 PLESS DRIVE
BRIGHTON, MICHIGAN 48114

DESIGN: SVB
DRAFT: JHG
CHECK: JMB

REVISION #	DATE	REVISION-DESCRIPTION

REVISION #	DATE	REVISION-DESCRIPTION

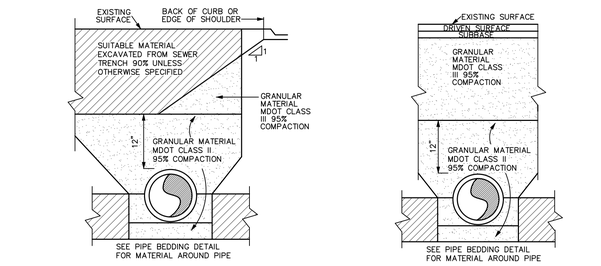
PARTLUND DEVELOPMENT
2700 E. GRAND RIVER

SIGNAGE DETAILS

CLIENT:
PARTLUND DEVELOPMENT LLC
29205 RYAN ROAD
WARREN, MICHIGAN 48092

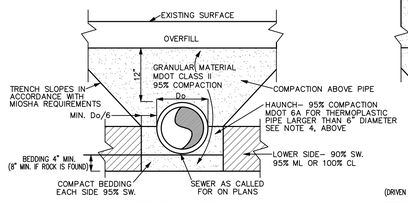
SCALE: AS NOTED
PROJECT No.: 9183450
DWG NAME: 3450 DT
ISSUED: AUG. 18, 2020

DT2

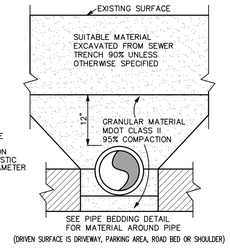


TRENCH A – PIPE UNDER OR WITHIN INFLUENCE OF DRIVEN SURFACE
NOT TO SCALE

NOTES:
1. COMPACTION PRESENTED AS STANDARD PROCTOR VALUES.
2. SOIL TYPES — AASHTO DESIG.
   GRAVEL SANDY (SW) — A1, A3
   SANDY SILTY (ML) — A2, A4
   SILTY CLAY (CL) — A5, A6, A7
3. SOIL IN HAUNCH AND LOWER SIDE ZONES OUTSIDE OF Do/6 FROM SPRING LINE SHALL BE COMPACTED TO AT LEAST THE SAME COMPACTION AS THE SOIL IN THE OVERFILL ZONE.
4. MATERIALS AROUND THERMO. PLASTIC PIPE WITH DIAMETER 6 INCHES SHALL PASS 0.5 INCH SIEVE. MATERIALS AROUND OTHER PIPES SHALL PASS 1.5 INCH SIEVE.

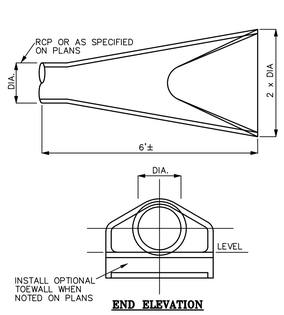


PIPE BEDDING DETAIL
NOT TO SCALE



TRENCH B – PIPE NOT UNDER DRIVEN SURFACES
NOT TO SCALE

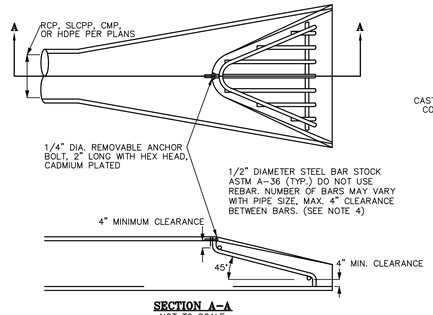
TRENCH DETAILS
NOT TO SCALE



END ELEVATION

FLARED END SECTION
NOT TO SCALE

NOTES:
1. RCP FLARED END SECTION SHOWN, PROVIDE SIMILAR FLARED END SECTION FOR CMP, SLCPP OR HDPE PIPE.
2. PROVIDE RIP–RAP PER RIP–RAP DETAILS FOR ALL OUTLET FLARED END SECTIONS.
3. INSTALL FLARED END SECTION WITH INVERT ELEVATION ELEVATION LEVEL AS VIEWED FROM END.

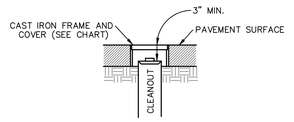


SECTION A–A
NOT TO SCALE

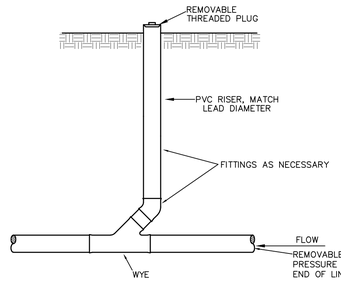
ANIMAL GUARD
NOT TO SCALE

NOTES:
1. ANIMAL GUARD REQUIRED ON ALL FLARED END SECTIONS OF 15" DIAMETER PIPE OR GREATER.
2. CONTRACTOR MAY SUBSTITUTE ALTERNATE GRATING LAYOUT AS APPROVED BY OWNER/ENGINEER/AGENCY PRIOR TO INSTALLATION.
3. DETAIL SHOWN FOR RCP FLARED END SECTION. PROVIDE SIMILIAR ANIMAL GUARD FOR FLARED END SECTIONS ON CMP, HDPE, AND SLCPP.
4. WELD ALL CONNECTIONS FULL STRENGTH PER AMERICAN WELDING SOCIETY STANDARDS.

CLEANOUT DIA.	FRAME AND COVER
4"–8"	EJIW 1578Z–A
10"–18"	EJIW 1040Z–A–STORM



CLEANOUT IN PAVED AREA
NOT TO SCALE



STANDARD CLEANOUT FOR ROOF DRAIN
NOT TO SCALE

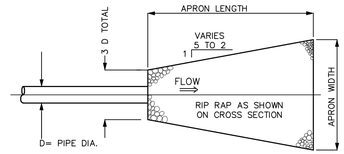
MIN. RIP RAP DIMENSIONS

PIPE DIAMETER (inch)	APRON LENGTH (feet)	(1) APRON WIDTH (feet)	(2) ALTERNATE APRON WIDTH (feet)
12	12	8	16
15	15	10	20
18	18	12	24
21	21	14	28
24	24	16	32
30	30	20	40
36	36	24	48
42	42	28	56

UNLESS SHOWN OTHERWISE ON PLANS. May be varied to match natural features; ie when meeting ex. ditch, apron width to match channel bottom extending up sides to a depth of 1/2 pipe dia.

(1) APRON WIDTH FOR USE IN DITCHES AND SWALES

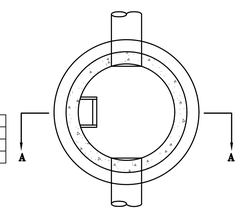
(2) APRON WIDTH FOR USE IN FLAT AREAS WHERE SHEET FLOW DESIRED



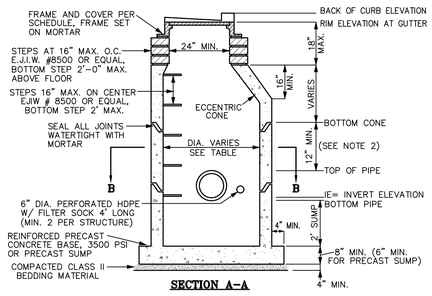
RIP RAP PLAN
NOT TO SCALE

PIPE SIZE	MIN. CATCH BASIN DIA.
12"–24"	4'–0" MIN.
24"–36"	5'–0" MIN.
42"–48"	6'–0" MIN.

(SEE NOTE 1)



SECTION B–B



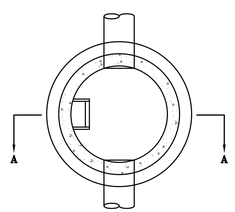
SECTION A–A

STORM STRUCTURE "A" STANDARD CATCH BASIN
NOT TO SCALE

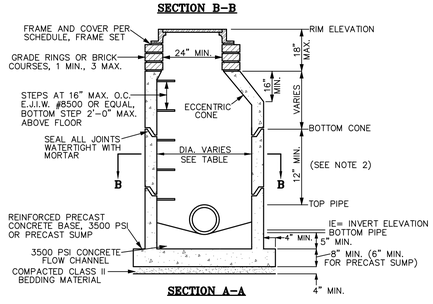
NOTES:
1. FURNISH LARGER STRUCTURE DIAMETER AS NEEDED TO MAINTAIN 6" MIN CLEAR BETWEEN PIPE OPENINGS.
2. FURNISH LOW PROFILE STRUCTURE ONLY WHEN NECESSARY TO MAINTAIN PROPER CLEARANCE ABOVE PIPES.

PIPE SIZE	MIN. MANHOLE DIA.
12"–24"	4'–0" MIN.
24"–36"	5'–0" MIN.
42"–48"	6'–0" MIN.

(SEE NOTE 1)



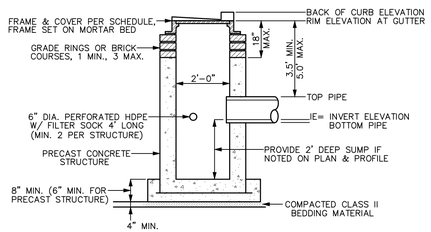
SECTION B–B



SECTION A–A

STORM STRUCTURE "B" STANDARD MANHOLE
NOT TO SCALE

NOTES:
1. FURNISH LARGER STRUCTURE DIAMETER AS NEEDED TO MAINTAIN 6" MIN CLEAR BETWEEN PIPE OPENINGS.
2. FURNISH LOW PROFILE STRUCTURE ONLY WHEN NECESSARY TO MAINTAIN PROPER CLEARANCE ABOVE PIPES.



STORM STRUCTURE "C" 2' DIAMETER CATCH BASIN
NOT TO SCALE

STORM SEWER NOTES:

1. The storm sewer and stormwater management specifications of the Local Municipality are a part of this work. Refer to the General Notes on the project plans for additional information and requirements.

2. Storm sewer work shall include clearing of vegetation and tree stumps, stripping and stockpiling of topsoil for reuse, excavation of pipe trench, placement of pipe bedding, placement of pipe and structures including castings, connection to existing structures, tuck pointing of structures, backfill of pipe trench, compaction of backfill, finish grading to provide positive drainage to structures, adjustment of castings to match finish grade, topsoil placement, seed & mulch, site cleanup and restoration, and other storm sewer related work as shown on the project plans and specifications.

3. Existing and proposed grades shown in profile view, when provided on the project plans, may be in relation to the centerline of road or item other than the centerline of pipe. The pipe lengths and grades shown in profile view on the project plans may not be to scale.

4. RCP when shown on the project plans shall be reinforced concrete pipe and shall conform to the specifications for reinforced concrete pipe per ASTM C76. RCP pipe joints shall be bell-and-spigot with rubber gaskets conforming to ASTM C433. Non-gasketed joints shall only be utilized when authorized by the Owner, Engineer AND Municipality. Non-gasketed joints of pipe having a diameter of 30 inches or greater shall be tuck-pointed on the inside with cement mortar after the backfill process is complete. Install reinforced concrete end sections incidental to work. Saw cut pipes to length as needed. When pipe class is not shown on the project plans, provide the following:
Pipe cover to proposed grade: 0 to 4 feet Class V
4.1 to 10 feet Class III*
10.1 to 18 feet Class IV
18.1 feet and greater Class V
* Use Class IV under paved surfaces

5. CMP when shown on the project plans shall be corrugated metal pipe and shall conform to the specifications for corrugated metal pipe per AASHTO Designation M36. CMP shall be 16-guage steel minimum for 24 inch diameter or smaller and 14-guage steel minimum for 30 inch diameter or greater. Install galvanized steel end sections and connection bands, incidental to work. Connection bands for CMP pipe joints located under paved surfaces shall be gasketed couplers. Saw cut pipes to length as needed.

6. HDPE - Type S when shown on the project plans shall be high density polyethylene pipe with a smooth interior and shall conform to the specifications for high density polyethylene pipe per AASHTO Designation M252 Type S for pipes of 3" to 10" diameter and per AASHTO Designation M294 Type S for pipes of 12" to 60" diameter. HDPE - Type S pipe joints shall be bell-and-spigot type conforming to ASTM D3212 with rubber gaskets conforming to ASTM F477. Tamp backfill at spring line of HDPE - Type S pipe. Install high density polyethylene end sections incidental to work. Saw cut pipes to length as needed.

7. HDPE - Type C when shown on the project plans shall be high density polyethylene pipe with a corrugated interior and shall conform to the specifications for high density polyethylene pipe per AASHTO Designation M252 for pipes of 3" to 10" diameter and per AASHTO Designation M294 for pipes of 12" to 60" diameter. HDPE - Type C pipe joints shall be bell-and-spigot type conforming to ASTM D3212 with rubber gaskets conforming to ASTM F477. Tamp backfill at spring line of HDPE - Type C pipe. Install high density polyethylene end sections incidental to work. Saw cut pipes to length as needed.

8. CPVC when shown on the project plans shall be corrugated polyvinyl chloride pipe and shall conform to the specifications for corrugated polyvinyl chloride pipe per ASTM F794 and F949. CPVC pipe joints shall be bell-and-spigot type conforming to ASTM D3212 with rubber gaskets conforming to ASTM F477. Tamp backfill at spring line of CPVC pipe. Install high density polyethylene end sections incidental to work. Saw cut pipes to length as needed.

9. PVC when shown on the project plans shall be polyvinyl chloride pipe and shall conform to the specifications for polyvinyl chloride pipe per ASTM D2751, maximum SDR of 26. PVC pipe joints shall be bell-and-spigot type conforming to ASTM D3212 with rubber gaskets conforming to ASTM F477 or solvent welded type conforming to ASTM D2564. Tamp backfill at spring line of PVC pipe. Saw cut pipes to length as needed.

10. Concrete storm structures shall be pre-cast and shall conform to the specification of pre-cast concrete structures per ASTM C478. Joints of concrete storm structure sections shall be bell-and-spigot with rubber gaskets conforming to ASTM C433. Brick, concrete block or cast in place storm structures may be substituted for pre-cast storm structures ONLY when authorized by the Owner, Engineer AND Municipality; refer to MDOT standard plan R-1, latest revision. All pipe openings in pre-cast structures shall be factory installed and shall include a rubber boot resilient pipe to manhole connector conforming to ASTM C1478-07. All clamps, bands and hardware shall be stainless steel or other non-corrosive material. Provide the appropriate adapter(s) as necessary for corrugated pipe. Pipe to storm structure connections shall be performed in accordance with the rubber boot connector manufacturer's recommendations. All temporary openings and seams in storm structures shall be tuck-pointed watertight with cement mortar. Refer to MDOT standard plan R-2, latest revision, for alternate on-line storm structure details when pipe exceeds 42 inch diameter.

11. Tap existing structures as acceptable to the Engineer and Municipality, incidental to work. All temporary openings in storm structures shall be tuck-pointed watertight with cement mortar.

12. Backfill all storm sewer in accordance with the Pipe Trench details provided on the project plans. Provide pipe bedding that meets or exceeds both the specifications of the Pipe Trench details on the project plans and the recommendation of the pipe manufacturer, incidental to work.

13. When edge drains and/or under drains are shown on the project plans, connection to storm structures is incidental to work. During storm sewer construction, install first 10 linear feet of edge drain and/or under drain from the storm structures in each specified direction and install temporary cap at end. Complete installation of edge drain following preparation of the subgrade when under paved surface or following finish grade when not under paved surface.

14. Install removable plugs in storm sewer stubs as acceptable to Engineer and Municipality, incidental to work. Mark the end of all storm sewer stubs with a 2" x 4" wooden stake extending a minimum of 12" above finish grade, incidental to work.

15. Storm structure castings shall be coated with water based asphaltic paint by the manufacturer. Seams and temporary openings between storm structures and castings shall be tuck-pointed water tight with cement mortar. Coordinate correct curb box / hood / "T" back as needed to match curb profile. See casting schedule on project plans for additional requirements.

16. Provide 3.5' minimum cover from the top of pipe of all roof drain pipes to the proposed finish grade when site conditions allow. When pipe cover is less than 3.5', install 2" thick by 24" wide Styrofoam insulation centered over the top of pipe at 12" above top of pipe or as required by the Local Municipality.

DESINE INC
(810) 227-9533
CIVIL ENGINEERS
LAND SURVEYORS
2183 PLESS DRIVE
BRIGHTON, MICHIGAN 48114

DESIGN: SVB
DRAFT: JHG
CHECK: JMB

REVISION #	DATE	REVISION-DESCRIPTION

REVISION #	DATE	REVISION-DESCRIPTION

PARTLUND DEVELOPMENT
2700 E. GRAD RIVER

STORM SEWER DETAILS

CLIENT:
PARTLUND DEVELOPMENT LLC
29205 RYAN ROAD
WARREN, MICHIGAN 48092

SCALE: NO SCALE
PROJECT No.: 183585
DWG NAME: 3585 DT
ISSUED: AUG. 18, 2020

DT3

Luminaire Schedule							
Symbol	Qty	Label	Arrangement	LMF	Lum. Lumens	Lum. Watts	Part Number
	12	X-4M-2L	SINGLE	0.960	2490	19	XSPW-B-WM-4ME-2L-40K-__-__-P
	8	X-3M-2L	SINGLE	0.960	2490	19	XSPW-B-WM-3ME-2L-40K-__-__-P
	7	K4	SINGLE	1.010	16959	130	OSQ-A-NM-4ME-K-40K-__-__ -R + OSQ-DA__
	1	K2	SINGLE	1.010	16959	130	OSQ-A-NM-2ME-K-40K-__-__- R + OSQ-DA__
	8	C-WM	SINGLE	1.000	N.A.	22	C-WM-A-WLCY-6L-40K-__
	3	C-CP-B	SINGLE	1.000	N.A.	27	C-CP-B-SQ-3L-40K-__

Calculation Summary (Footcandles calculated using predicted lumen values @ 50K hrs of operation)						
Label	Units	Avg	Max	Min	Avg/Min	Max/Min
CalcPts_1	Fc	1.44	9.6	0.0	N.A.	N.A.
Paved Area	Fc	2.51	9.6	0.0	N.A.	N.A.

Pole Schedule
(8) SSS-4-11-17-CW-BS-1D-C-__ (17' X 4" X 11ga STEEL SQUARE POLE)

Proposed poles meet 140MPH sustained winds.

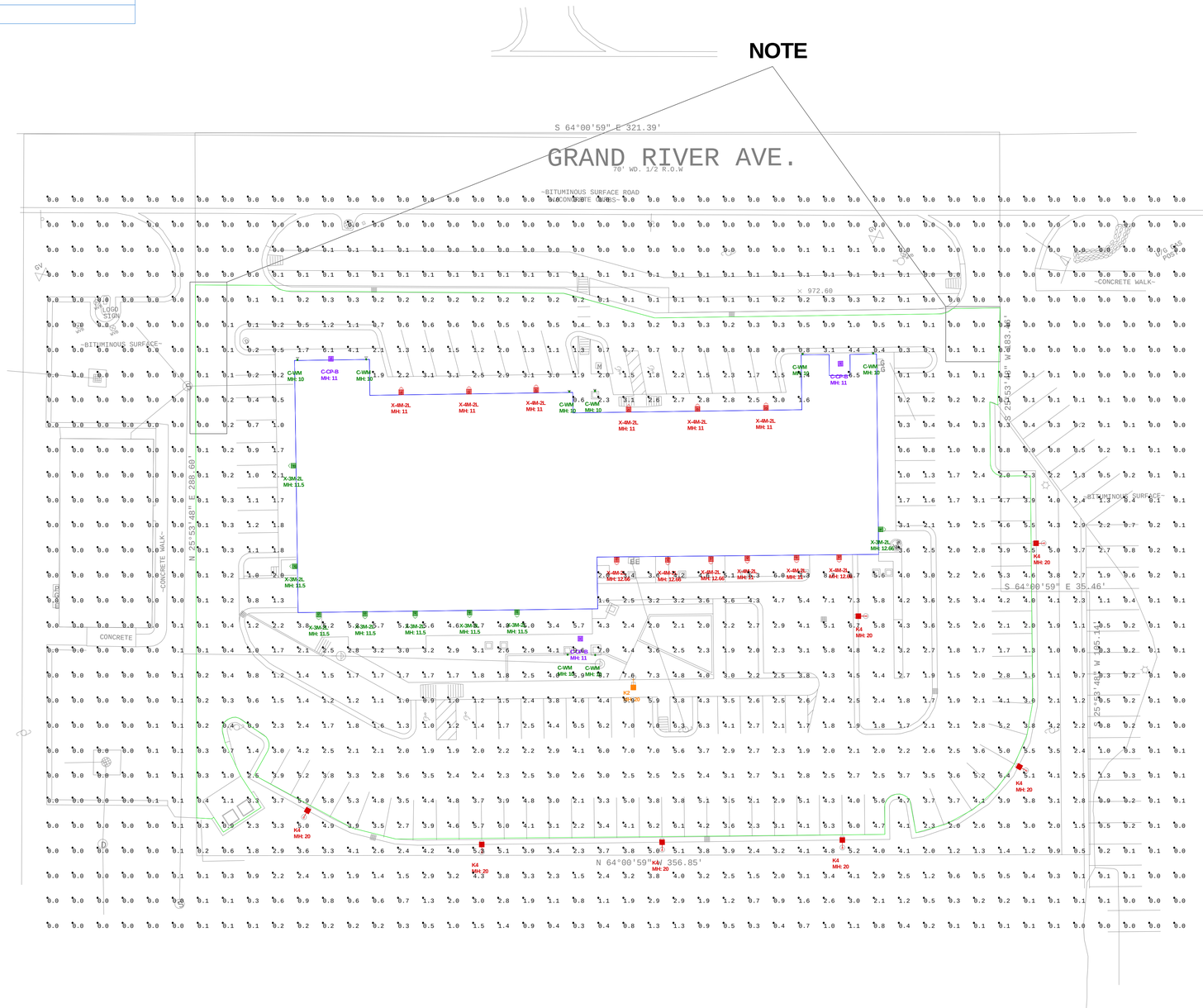
Additional Equipment:
(8) OSQ-DA__ Direct Arm Mount

*** CUSTOMER TO VERIFY ORDERING INFORMATION AND CATALOGUE NUMBER PRIOR TO PLACING ORDER ***

Paved Area

Illuminance (Fc)
Average = 2.51
Maximum = 9.6
Minimum = 0.0
Avg/Min Ratio = N.A.
Max/Min Ratio = N.A.

NOTE



CREE LIGHTING
A COMPANY OF IDEAL INDUSTRIES, INC.
9201 Washington Ave, Racine, WI 53406 https://creelighting.com - (800) 236-6800

Illumination results shown on this lighting design are based on project parameters provided to Cree Lighting used inconjunction with luminaire test procedures conducted under laboratory conditions. Actual project conditions differing from these design parameters may affect field results. The customer is responsible for verifying dimensional accuracy along with compliance with any applicable electrical, lighting,or energy code.

Project Name: Partlund Development-2700 E. GRAND RIVER GENOA TOWNSHIP, MI

SR-42011 | Footcandles calculated at grade | Filename: 200519DI1ALC.AGI

Layout By:
Angel Cortez

Date:5/20/2020

Scale 1" = 25'
0 50 100

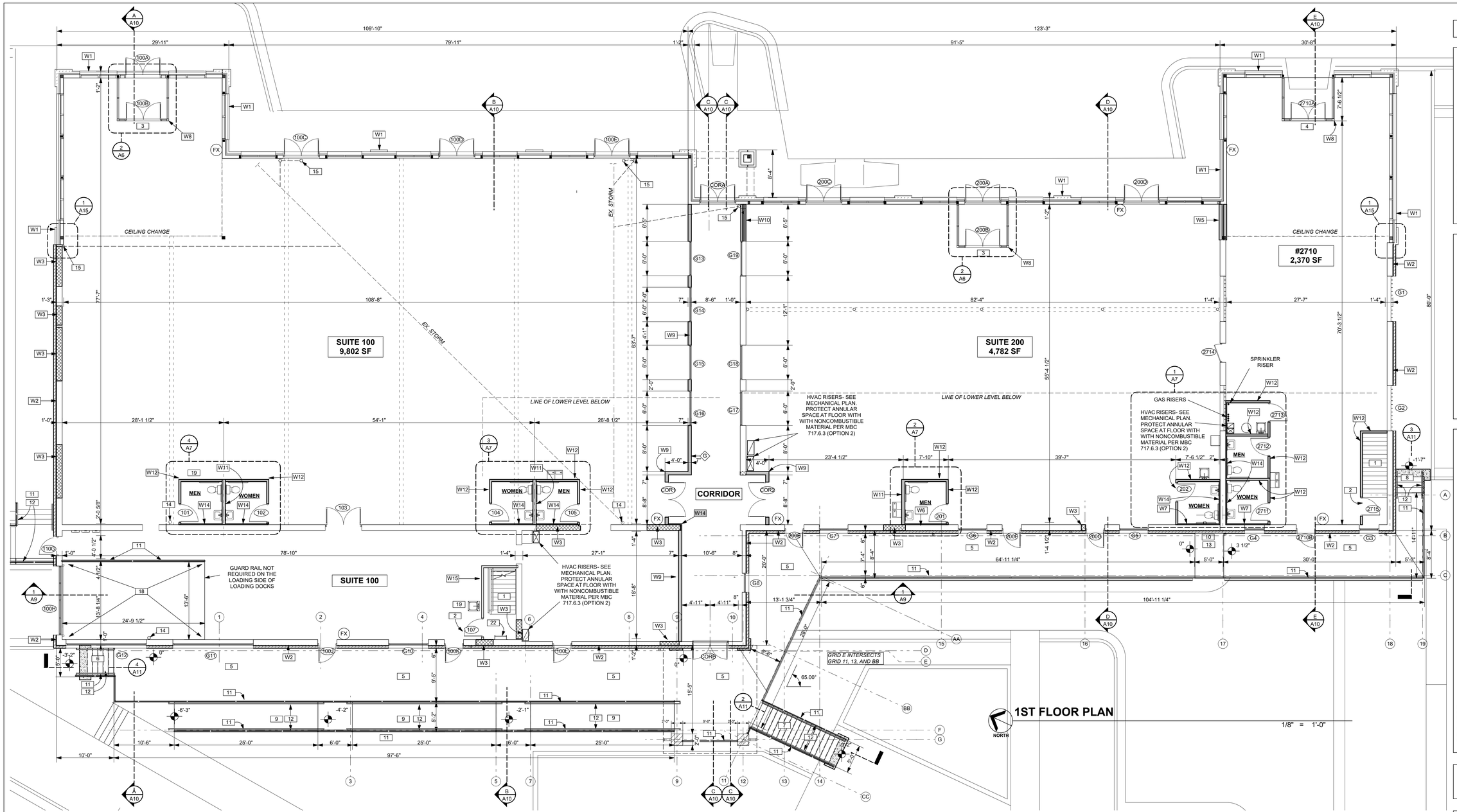
GAS METERS	18 AUG 2020
BUILDING PERMIT	22 JUN 2020
REVIEW & BIDS	21 MAY 2020
REVIEW & BIDS	5 MAY 2020
90% CONST DOCS	4 MAR 2020
DOORS & WINDOWS	16 FEB 2020
STEEL	30 JAN 2020
REVIEW	7 JAN 2020

focus / design
Todd Ballou, Registered Architect
(734) 276-2110
www.focusdesign.us
focusdesign@comcast.net
3300 Berry Rd, Ypsilanti, MI 48198

PROJECT:
PARTLUND DEVELOPMENT
2700 E. GRAND RIVER
GENOA TOWNSHIP, MI

TITLE: **1ST FLOOR PLAN**

JOB NO:
1835



WALL TYPES:

- W1 **EXISTING FRONT WALL** 4" MASONRY VENEER WITH MASONRY TIES @ 16" o.c. WITH 2" AIR GAP OVER 1½" CONTINUOUS RIGID INSULATION (R-7.5) OVER AIR INFILTRATION WRAP ON 5/8" GYPSUM SHEATHING ON 6" METAL STUDS WITH 5 1/2" FIBERGLASS INSULATION (R-19) AND 1/2" GYPSUM BOARD INTERIOR (RECENTLY BUILT UNDER A SEPARATE PERMIT)
- W2 **BRICK VENEER ADDED TO CMU WALL** BRICK VENEER WITH 1" AIR GAP OVER 1" RIGID INSULATION OVER LIQUID WEATHER BARRIER ON EX. CMU WALL
- W3 **CONCRETE BLOCK INFILL** OF EX. CONCRETE BLOCK WALL OPENING. MATCH THICKNESS OF EXISTING WALL
- W4 **NEW SPLIT-FACED CMU WALL** WITH #5 VERT REBAR AT 32" o.c. AND HORIZONTAL JOINT REINFORCING @ 16" o.c.VERTICALLY. USE PLAIN BLOCK AT AREAS NOT VISIBLE FROM THE EXTERIOR (LOWER LEVEL)

WALL TYPES:

- W5 **NEW SPLIT-FACED CMU PIER** WITH #4 VERT @ 32" o.c. AND HORIZONTAL COLUMN TIES AT 16" o.c. (LOWER LEVEL)
- W6 **EXISTING EXTERIOR FURRING.** NEW 5/8" GYPSUM BOARD ON EXISTING FURRING CHANNELS @ 16" o.c. WITH 1 1/2" RIGID INSULATION. (R-7.5)
- W7 **NEW EXTERIOR FURRING**- 5/8" GYPSUM BOARD ON 1 1/2" METAL FURRING CHANNELS @ 16" o.c. WITH 1 1/2" RIGID INSULATION. (R-7.5)
- W8 **VESTIBULE WALL**- 4 1/2" ALUMINUM STOREFRONT SYSTEM.
- W9 **1-HR FIRE RATED CORRIDOR WALL :** EXTENDS FROM FLOOR SLAB TO UNDERSIDE OF EXISTING ROOF DECK. ONE LAYER 5/8" TYPE X GYPSUM WALLBOARD APPLIED PARALLEL OR AT RIGHT ANGLES TO EACH SIDE OF 3 5/8" STEEL STUDS @ 24" o.c. WITH 1" TYPE S DRYWALL SCREWS 8" o.c. AT VERTICAL JOINTS AND 12" o.c. AT FLOOR AND CEILING RUNNERS AND INTERMEDIATE STUDS. JOINTS STAGGERED 24" ON OPPOSITE SIDES. ULC DESIGN W415

WALL TYPES:

- W10 **1-HR FIRE RATED INFILL :** CONSTRUCTION EQUIVALENT TO W9, USING TWO STUD WALLS MATCHING THICKNESS OF EXISTING WALL. 5/8" TYPE 'X' GYPSUM ON EXTERIOR FACES ONLY
- W11 **NEW FULL HEIGHT PARTITION WALL-** 5/8" TYPE 'X' GYPSUM BOARD ON EACH SIDE OF 6" METAL STUDS @ 16" O.C.. EXTEND TO UNDERSIDE OF ROOF DECK. PROVIDE BLOCKING AS NEEDED FOR GRAB BARS AND OTHER FIXTURES. INTENDED AS POTENTIAL 1-HR RATED TENANT SEPARATION WALL FOR FUTURE TENANTS
- W12 **NEW 8'-0" PARTITION WALL-** 5/8" GYPSUM BOARD ON EACH SIDE OF 3 5/8" METAL STUDS @ 16" O.C. TO 8 FT HIGH. PROVIDE BLOCKING AS NEEDED FOR GRAB BARS AND OTHER FIXTURES
- W13 **INTERIOR STUD WALL INFILL (NOT USED)-** CONSTRUCTION SIMILAR TO W9, USING TWO ROWS OF STUDS AND 1/2" GYPSUM BOARD ON EXTERIOR FACES ONLY

WALL TYPES:

- W14 **NEW FURRING ON INTERIOR CONCRETE BLOCK WALLS** 5/8" GYPSUM BOARD ON 1 1/2" METAL FURRING TO CEILING AT 8'-0"
- W15 **NEW DRYWALL ON EXISTING STUDS-** 5/8" GYPSUM BOARD ON BOTH SIDES OF EXISTING STUDS

FLOORING:

SEALED CONCRETE FLOOR IN ALL AREAS.
4" VINYL BASE TYPICAL

- FX MINIMUM 2A PORTABLE FIRE EXTINGUISHER (MBC 906.1) MIN. TWO LOCATED IN EACH SUITE ON MAIN LEVEL. ONE LOCATED IN EACH SPACE ON LOWER LEVEL. (11 LOCATIONS PROPOSED)

FLOOR PLAN NOTES:

1. EXISTING STAIR NOT REQUIRED FOR EGRESS
2. "NOT AN EXIT" SIGN ON EXTERIOR SIDE OF EXISTING DOOR
3. PROPOSED VESTIBULE LOCATED AT MAIN ENTRANCES OF SPACES OVER 3,000SF. CEILING AT 8'-0"- ALUMINUM STOREFRONT CONSTRUCTION, SEE DETAIL SHEET A6
4. EXISTING ALUMINUM STOREFRONT EXTERIOR WALL IS NOT A VESTIBULE. DOOR IS INSET TO ACCOMMODATE CURB LOCATED CLOSE TO BUILDING
5. WALKABLE VINYL MEMBRANE BY DURADEK ON CONCRETE DECK OVER STEEL STRUCTURE
6. **WEST EXTERIOR STAIR** PRE-FABRICATED STEEL STAIR APPROX.. 3'-2" RISE, 6R@ 6.33", 11" TREADS

STAIR & RAMP NOTES:

7. **MAIN EXTERIOR STAIR** PRE-FABRICATED STEEL STAIR APPROX.. 9'-2" RISE, 16R@ 6.78", 11" TREADS
8. **EAST EXTERIOR STAIR** PRE-FABRICATED STEEL STAIR APPROX.. 1'-10" RISE, 4R@ 5.63", 11" TREADS
9. **EXTERIOR RAMP**. APPROX. RISE OF 75" DIVIDED INTO (3) 25FT RUNS @ MAX SLOPE 1:12
10. **DECK RAMP** TO #2710, APPROX. RISE OF 3 1/2" @ MAX SLOPE 1:12
11. 42" HIGH GUARDRAIL REQUIRED
12. 36" HIGH HANDRAIL ON BOTH SIDES OF STAIR OR RAMP
13. HANDRAILS ARE NOT REQUIRED AT RAMPS LESS THAN 6" RISE

FLOOR PLAN NOTES:

14. EX. ROOF DRAIN
15. PROPOSED ROOF DRAIN- TO STORM SYSTEM
16. EXISTING ELECTRICAL TRANSFORMER ON CONC. PAD. FIELD VERIFY LOCATION
17. NEW GAS METER LOCATION (LOWER LEVEL, SOUTH WALL BETWEEN GRIDS 16 & 17). ONE GAS METER INSTALLED INITIALLY, WITH SPACE FOR FUTURE TENANTS
18. EX. LOADING DOCK LEVEL 3'-8" BELOW MAIN FLOOR
19. NEW SERVICE SINK AT EX SINK LOCATION
20. 1'-4" TALL x 2'-0" WIDE CRAWL SPACE VENT WITH LOUVERED COVER (2 LOCATIONS)
21. CRAWL SPACE ACCESS DOOR MIN 18" x 24" WITH COVER PANEL OR DOOR
22. 18" WIDE, 10 FT TALL FIXED LADDER TO ROOF HATCH, MODEL WLFS0111 BY TRI-ARC OR EQUIVALENT. SEE SHEET E1 FOR ROOF HATCH
23. NEW ELECTRICAL METER BANK
24. NEW ELECTRICAL TRANSFORMER LOCATION

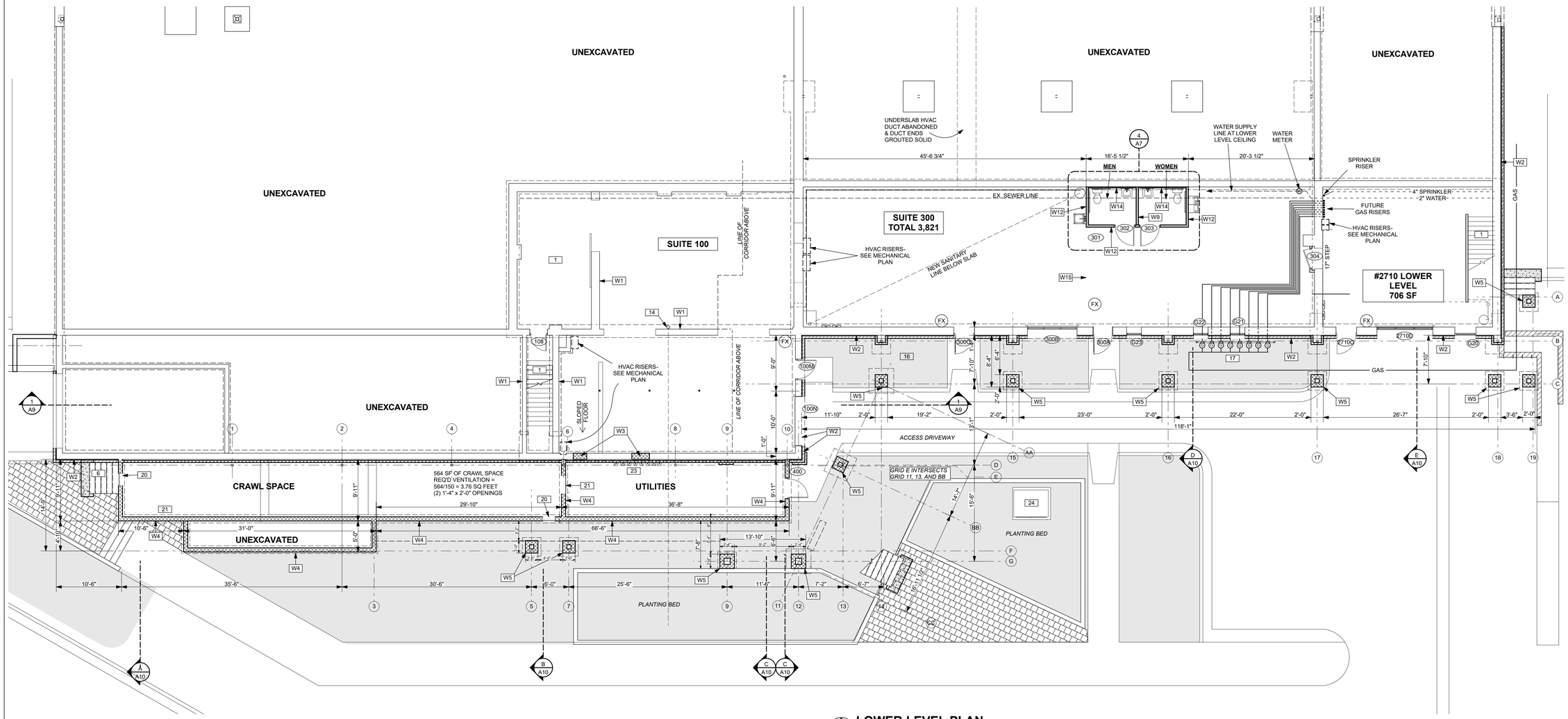
AREAS & OCCUPANT LOADS

	GROSS (A)	USE GROUP B 100 GROSS PER OCCUPANT
SUITE 100	9,802 SF	98
SUITE 100 LOWER LEVEL	1,823 SF	18
CORRIDOR	880 SF	9
SUITE 200	4,782 SF	48
#2710	2,370 SF	24
#2710 LOWER LEVEL	706 SF	7
SUITE 300	1,998 SF	20
TOTAL GROSS AREA	**22,363 SF**	224

(22,725 SF INCLUDING FRONT & REAR OVERHANGING ROOFS)

STATE OF MICHIGAN
TODD R. BALLOU
ARCHITECT
No. 1301048808
LICENSED

SHEET NO.
A4



LOWER LEVEL PLAN

1/8" = 1'-0"

WALL TYPES:

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WALL TYPES:

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90% CONST DOCS	4 MAR 2020
DOORS & WINDOWS	16 FEB 2020
STEEL	30 JAN 2020
REVIEW	7 JAN 2020

focus / design
Todd Ballou, Registered Architect
(734) 276-2110
www.focusdesign.us
focusdesign@comcast.net
3300 Berry Rd, Ypsilanti, MI 48198

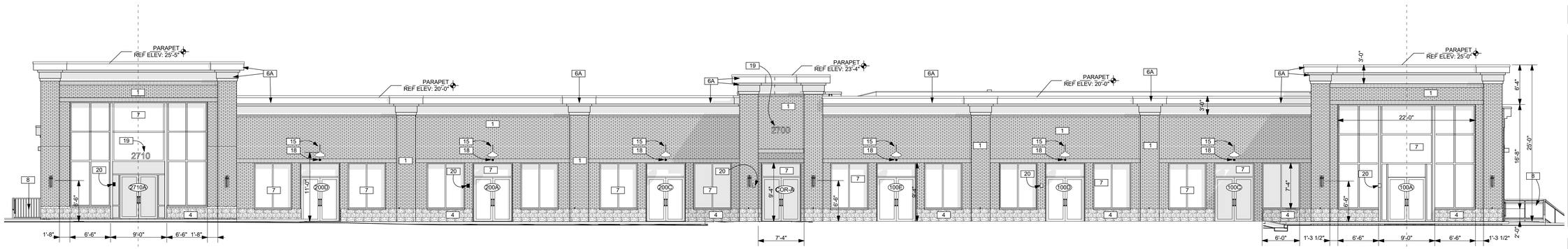
PROJECT:
PARTLUND DEVELOPMENT
2700 E. GRAND RIVER
GENOA TOWNSHIP, MI

TITLE:
LOWER LEVEL PLAN

JOB NO:
1835

STATE OF MICHIGAN
TODD R. BALLOU
ARCHITECT
No.
1301048808
LICENSED

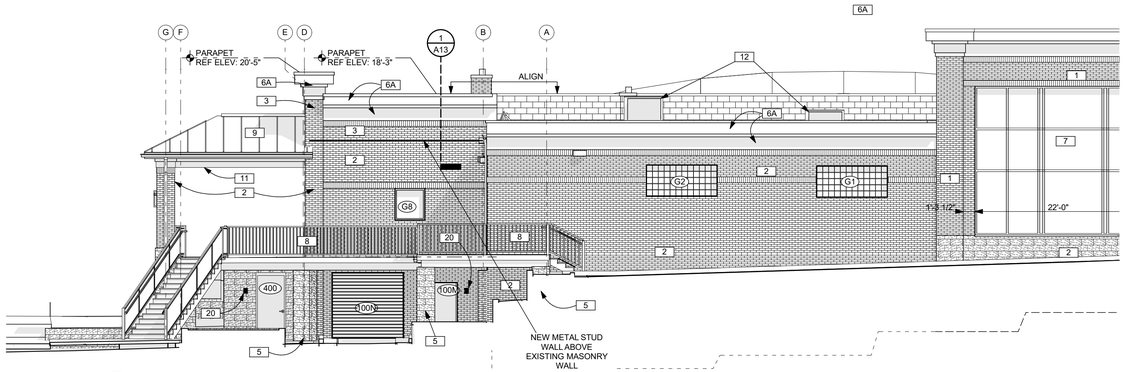
SHEET NO.
A5



6 / A8 FRONT ELEVATION

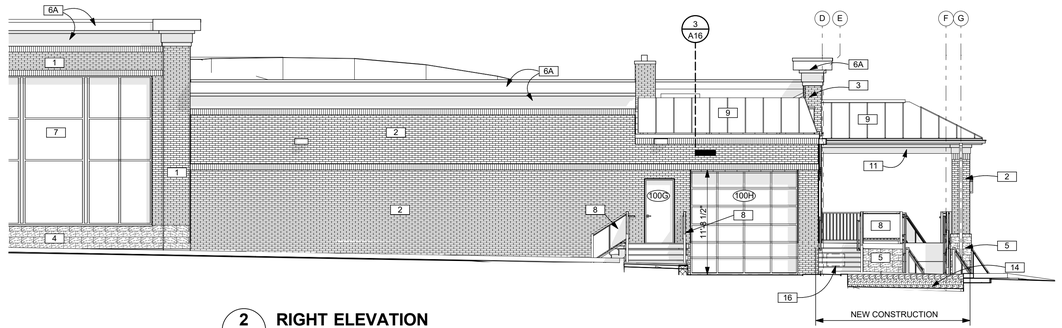
1/8" = 1'-0"

CONSTRUCTION OF THE FRONT FACADE WAS RECENTLY COMPLETED AS "PHASE 1". DOCUMENTED UNDER SEPARATE CONSTRUCTION DOCUMENTS AND SEPARATE BUILDING PERMIT



1 / A8 LEFT ELEVATION

1/8" = 1'-0"



2 / A8 RIGHT ELEVATION

1/8" = 1'-0"

ELEVATION NOTES:

1. 4" BRICK VENEER (RECENT CONSTRUCTION)
2. 4" BRICK VENEER OVER EX. MASONRY WALL
3. 4" BRICK VENEER OVER METAL STUD WALL
4. 4" SPLIT FACED BLOCK VENEER (RECENT CONSTRUCTION)
5. 8" SPLIT FACED BLOCK WALL OR PIER
6A. EXTERIOR INSULATION FINISH SYSTEM (EIFS) INSTALLED ON METAL FRAMING
6B. EXTERIOR INSULATION FINISH SYSTEM (EIFS) INSTALLED OVER BRICK VENEER (ABOVE DOORS)

ELEVATION NOTES:

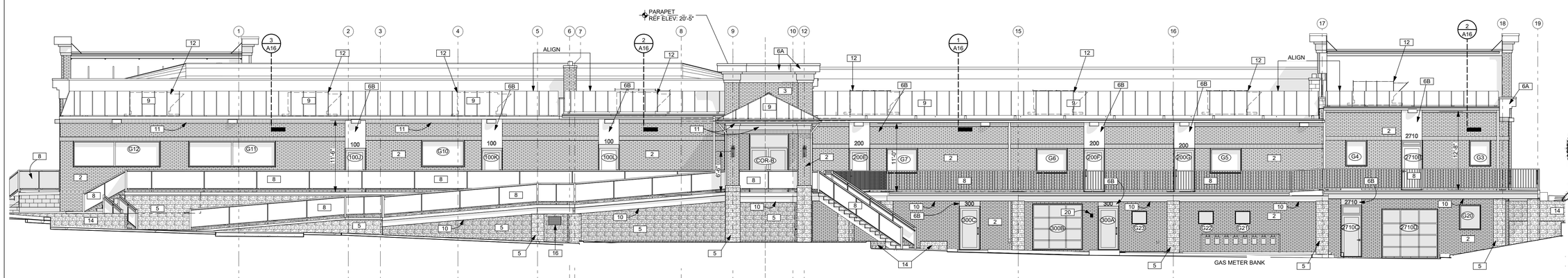
7. ALUMINUM STORE FRONT WINDOWS-CLEAR GLASS
8. GLASS RAILING SYSTEM
9. STANDING SEAM METAL ROOFING
10. STEEL STRUCTURE, PAINTED
11. METAL TRIM
12. ROOFTOP HVAC UNIT BEHIND SCREEN

ELEVATION NOTES:

13. EXISTING GLASS BLOCK
14. RETAINING WALL SYSTEM
15. GOOSENECK LIGHT MOUNTED 11'-0" ABOVE FLOOR, JUST ABOVE SOLIDER BRICK COURSE
16. WALL SCONCE MOUNTED
17. WALL PACK FIXTURE
18. EXTERIOR EMERGENCY LIGHTING REMOTE HEAD

ELEVATION NOTES:

19. ADDRESS OF EACH TENANT SPACE TO BE LOCATED ON GRAND RIVER SIDE, WITH MIN 6" LETTERS. 12" LETTERS SHOWN ON PLAN
20. KNOX BOX TO LOCATED AT THE MAIN ENTRANCE OF EACH TENANT SPACE, AND EACH LOCKED COMMON AREA SPACE, 5'-6" ABOVE THE THRESHOLD. 8 LOCATIONS PROPOSED @ DOORS 100A, 100D, COR-A, 200A, 2710A, 300A, 100M, AND 400



3 / A8 REAR ELEVATION

1/8" = 1'-0"

GAS METERS	18 AUG 2020
BUILDING PERMIT	22 JUN 2020
REVIEW & BIDS	21 MAY 2020
REVIEW & BIDS	5 MAY 2020
90% CONST DOCS	4 MAR 2020
DOORS & WINDOWS	16 FEB 2020
STEEL	30 JAN 2020
REVIEW	7 JAN 2020

focus / design
Todd Ballou, Registered Architect
(734) 276-2110
www.focusdesign.us
focusdesign@comcast.net
3300 Berry Rd, Ypsilanti, MI 48198

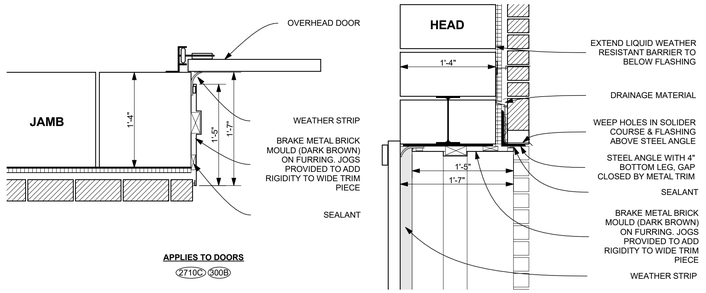
PROJECT:
PARTLUND DEVELOPMENT
2700 E. GRAND RIVER
GENOA TOWNSHIP, MI

TITLE:
ELEVATIONS

JOB NO:
1835

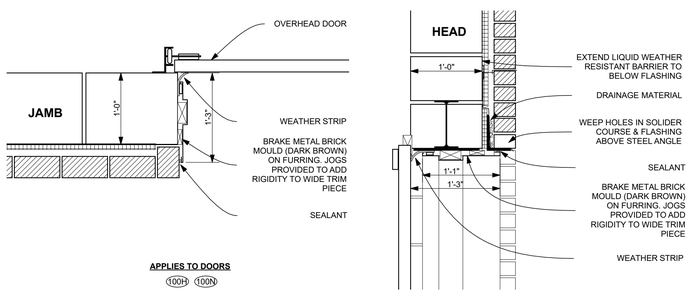
STATE OF MICHIGAN
TODD R. BALLOU
ARCHITECT
No. 1301048808
LICENSED

SHEET NO.
A8



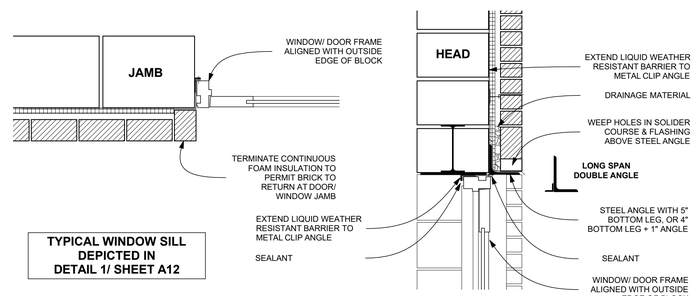
4 A9 OVERHEAD DOOR HEAD & JAMB- 16" WALL

Scale 1" = 1' - 0"



3 A9 OVERHEAD DOOR HEAD & JAMB- 12" WALL

Scale 1" = 1' - 0"



2 A9 TYPICAL DOOR HEAD & JAMB

Scale 1" = 1' - 0"

GAS METERS	18 AUG 2020
BUILDING PERMIT	22 JUN 2020
REVIEW & BIDS	21 MAY 2020
REVIEW & BIDS	5 MAY 2020
90% CONST DOCS	4 MAR 2020
DOORS & WINDOWS	16 FEB 2020
STEEL	30 JAN 2020
REVIEW	7 JAN 2020

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focusdesign@comcast.net
3300 Berry Rd, Ypsilanti, MI 48198

COMcheck Software Version 4.1.1.0

Envelope Compliance Certificate

Project Information

Energy Code:	2015 IECC
Project Title:	Partlund Development
Location:	Howell, Michigan
Climate Zone:	5a
Project Type:	Alteration
Vertical Glazing / Wall Area:	19%

Construction Site:
2700 & 2710 E Grand River
Genoa Township, MI

Owner/Agent:

Designer/Contractor:
Todd Ballou
focus/ design
3300 Berry Rd
Ypsilantti, MI 48198
(734) 276-2110

Building Area	Floor Area
1-Office : Nonresidential	22725

Envelope Assemblies

Post-Alteration Assembly	R-Value Cavity	R-Value Cont.	Proposed U-Factor	Proposed SHGC	Max. Allowed U-Factor	Max. Allowed SHGC
NORTH						
Existing North Walls: Steel-Framed, 16" o.c., [Bldg. Use 1 - Office], Exemption: Framing cavity not exposed.	---	---	---	---	---	---
Storefront Windows: Metal Frame:Fixed, Other, Fixed, Fixed, [Bldg. Use 1 - Office]	---	---	0.380	0.530	0.380	0.531
Storefront Doors: Glass (> 50% glazing):Metal Frame, Entrance Door, Entrance Door, Entrance Door, [Bldg. Use 1 - Office]	---	---	0.770	0.530	0.770	0.531
EAST						
Existing East Wall: Concrete Block:12", Partially Grouted, Cells Empty,Normal Density , Furring: Metal, [Bldg. Use 1 - Office], Exemption: Framing cavity filled with insulation.	---	---	---	---	---	---
Storefront Window: Metal Frame:Fixed, Other, Fixed, Fixed, [Bldg. Use 1 - Office]	---	---	0.380	0.400	0.380	0.400
Solid Door 100M, 400: Insulated Metal, Swinging, [Bldg. Use 1 - Office]	---	---	0.370	---	0.370	---
Solid Garage Door 100N: Insulated Metal, Swinging, [Bldg. Use 1 - Office]	---	---	0.370	---	0.370	---
SOUTH						
Existing South Walls: Concrete Block:12", Partially Grouted, Cells Empty,Normal Density , Furring: Metal, [Bldg. Use 1 - Office], Exemption: Framing cavity filled with insulation.	---	---	---	---	---	---
Storefront Windows 1ST FLOOR: Wood Frame:Fixed, Other, Fixed, Fixed, [Bldg. Use 1 - Office]	---	---	0.380	0.400	0.380	0.400
Storefront Window G20: Metal Frame:Fixed, Other, Fixed, Fixed, [Bldg. Use 1 - Office]	---	---	0.380	0.400	0.380	0.644

NO NEW EXTERIOR WALLS ARE PROPOSED. ENERGY CODE COMPLIANCE IS PROVIDED TO SUPPLY WINDOW & DOOR REQUIREMENTS

NEW BRICK VENEER AND 1" OF CONTINUOUS INSULATION IS PROPOSED ON THE EXISTING CMU WALL. THE INTENTION IS TO FILL THE CAVITY WITH INSULATION WHILE PROVIDING THE REQUIRED AIR SPACE. EXEMPTING THE AMOUNT OF CONTINUOUS INSULATION. AMOUNT OF NEW INSULATION IS LIMITED BY SIZE OF THE EXISTING BRICK VENEER FOOTING, AND CONTINUOUS INSULATION CAN BE INCREASED OR ELIMINATED BASED ON AVAILABLE FOOTING SIZE. IF 1" INSULATION IS PROVIDED, WALL CAN MEET ENERGY CODE COMPLIANCE WITH ADDITION OF MINIMAL INTERIOR INSULATION OF R-3.75 OR BETTER BY FUTURE TENANT(S)

Post-Alteration Assembly	R-Value Cavity	R-Value Cont.	Proposed U-Factor	Proposed SHGC	Max. Allowed U-Factor	Max. Allowed SHGC
Storefront Doors 1ST FLOOR: Glass (> 50% glazing):Metal Frame, Entrance Door, Entrance Door, Entrance Door, [Bldg. Use 1 - Office]	---	---	0.770	0.400	0.770	0.400
Storefront Doors LOWER LEVEL: Glass (> 50% glazing):Metal Frame, Entrance Door, Entrance Door, Entrance Door, [Bldg. Use 1 - Office]	---	---	0.770	0.400	0.770	0.644
Glass Garage Doors LOWER LEVEL: Glass (> 50% glazing):Metal Frame, Non-Entrance Door, Non-Entrance Door, Non-Entrance Door, [Bldg. Use 1 - Office]	---	---	0.770	0.640	0.770	0.644
New South Wall at East Tower: Steel-Framed, 16" o.c., [Bldg. Use 1 - Office], Exemption: Framing cavity not exposed.	---	---	---	---	---	---
Optional Aluminum Storefront: Metal Frame:Fixed, Other, Fixed, Fixed, [Bldg. Use 1 - Office]	---	---	0.380	0.400	0.380	0.400
WEST						
Existing West Wall: Concrete Block:12", Partially Grouted, Cells Empty,Normal Density , Furring: Metal, [Bldg. Use 1 - Office], Exemption: Framing cavity filled with insulation.	---	---	---	---	---	---
Glass Garage Door 100H: Glass (> 50% glazing):Metal Frame, Non-Entrance Door, Non-Entrance Door, Non-Entrance Door, [Bldg. Use 1 - Office]	---	---	0.770	0.400	0.770	0.400

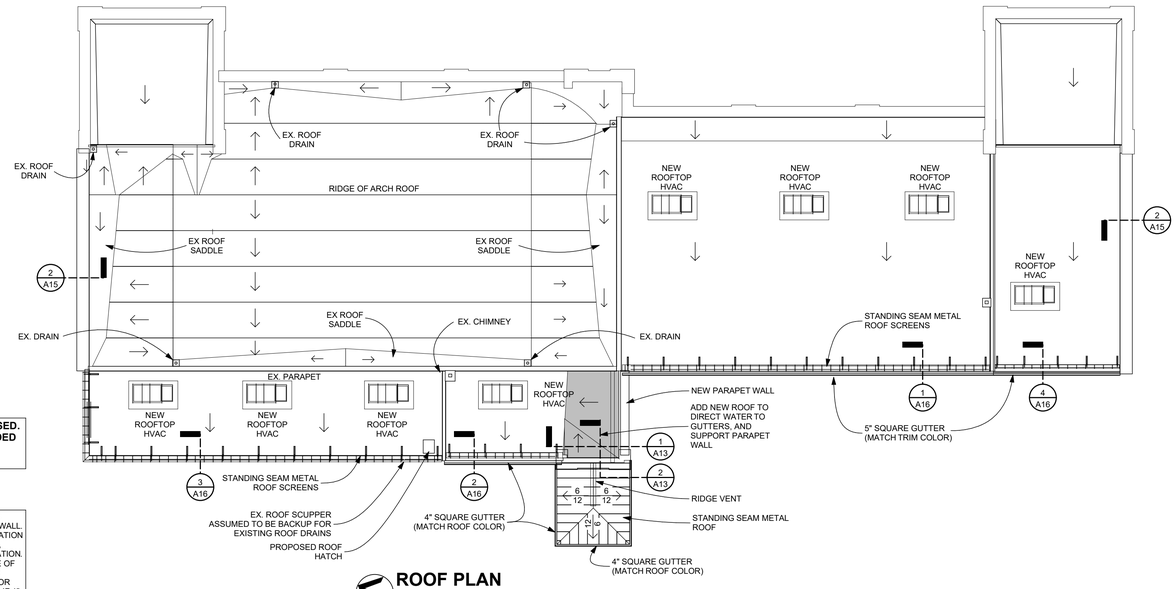
(a) Fenestration product performance must be certified in accordance with NFRC and requires supporting documentation.

Envelope PASSES

Envelope Compliance Statement

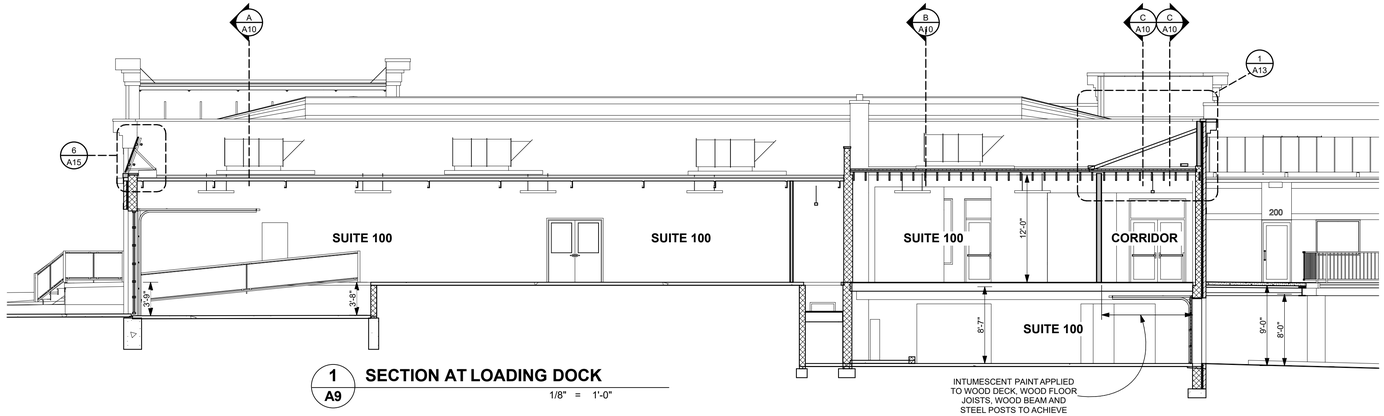
Compliance Statement: The proposed envelope alteration project represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed envelope systems have been designed to meet the 2015 IECC requirements in *COMcheck* Version 4.1.1.0 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Todd Ballou, Architect — Name - Title
Todd R Ballou — Signature
5/5/2020 — Date



ROOF PLAN

1/16" = 1'-0"



1 A9 SECTION AT LOADING DOCK

1/8" = 1'-0"

INTUMESCENT PAINT APPLIED TO WOOD DECK, WOOD FLOOR JOISTS, WOOD BEAM AND STEEL POSTS TO ACHIEVE 1-HR FIRE RATING

PROJECT:
PARTLUND DEVELOPMENT
2700 E. GRAND RIVER
GENOA TOWNSHIP, MI

TITLE:
ELEVATIONS ROOF PLAN

JOB NO: 1835

STATE OF MICHIGAN
TODD R. BALLOU
ARCHITECT
No. 1301048808

SHEET NO.
A9

PIPE RESTRAINT SCHEDULE

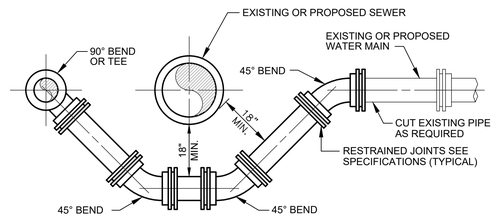
GROUND BURIED PRESSURE PIPE - POLYETHYLENE ENCASED DUCTILE IRON PIPE

PIPE DIAMETER	TEES, 90° BENDS	45° BENDS	22-1/2° BENDS	11-1/4° BENDS	DEAD ENDS	REDUCERS (ONE SIZE REDUCTION)*	REDUCERS (TWO SIZE REDUCTIION)*
4	13	5	3	1	40	--	--
6	19	8	4	2	58	31	--
8	24	10	5	2	75	30	70
12	34	14	7	3	107	57	116
16	43	18	9	4	139	59	137
20	52	22	10	5	169	59	134
24	61	25	12	6	199	60	132
30	73	30	15	7	242	85	168
36	84	35	17	8	281	84	168

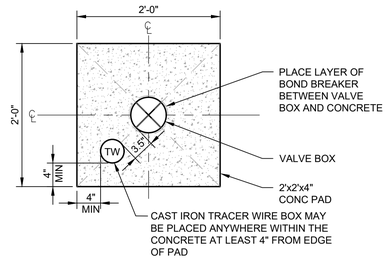
1. LENGTHS OF PIPE RESTRAINT ARE GIVEN IN FEET.
2. IF REQUIRED PIPE DIAMETER IS NOT LISTED IN THIS TABLE, THE NEXT LARGEST PIPE DIAMETER SHALL BE USED.
3. THIS TABLE IS BASED ON A TEST PRESSURE OF 180 PSI (OPERATING PRESSURE PLUS WATER HAMMER. FOR OTHER TEST PRESSURES, ALL VALUES TO BE INCREASED OR DECREASED PROPORTIONALLY.
4. THE VALUES PROVIDED OF RESTRAINT LENGTH ARE IN EACH DIRECTION FROM THE POINT OF DEFLECTION OR TERMINATION EXCEPT FOR TEES, AT WHICH ONLY THE BRANCH IN THE DIRECTION OF THE STEM.
5. IF TIE RODS ARE USED, USE FOUR RODS MINIMUM AND ADD 1/8-INCH TO BAR DIAMETER AS CORROSION ALLOWANCE.

* SIZE REDUCTION IS BASED UPON THE PIPE DIAMETER SHOWN IN THIS TABLE.

BASED UPON:
INTERNAL PRESSURE: 180
PIPE DEPTH: 5
BEDDING CLASS: TYPE 4
SOIL TYPE: GOOD SAND
SAFETY FACTOR: 2

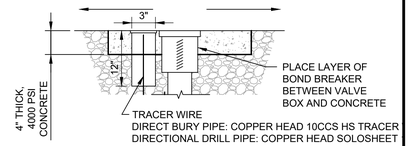


WATER MAIN UTILITY OFFSET



NOTE: ALL BOXES & ADJOINING TW BOXES SHALL BE ENCASED IN A CONC. PAD UNLESS OTHERWISE DETERMINED BY MHOG.

PLAN

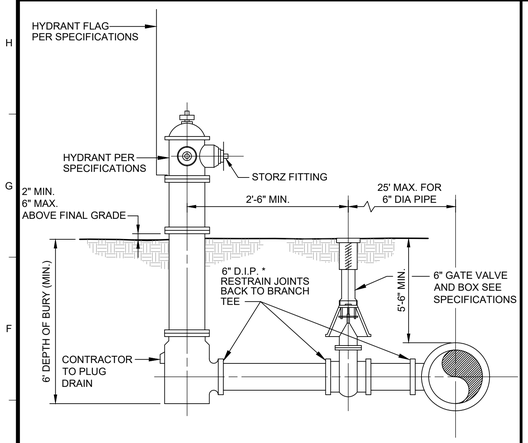


NOTE:
1. TRACER WIRE BOXES LOCATED WITHOUT A VALVE BOX ONLY REQUIRE AN 18" X 18" CONCRETE PAD.
2. TRACER WIRE BOX SHALL HAVE A LOCKING LID W/STANDARD AWWA PENTAGON KEY.
3. TRACER WIRE BOX SHALL BE COPPERHEAD RB14*TP IN ASPHALT INSTALLATIONS AND CD14*TP FOR ALL OTHER INSTALLATIONS.

SECTION

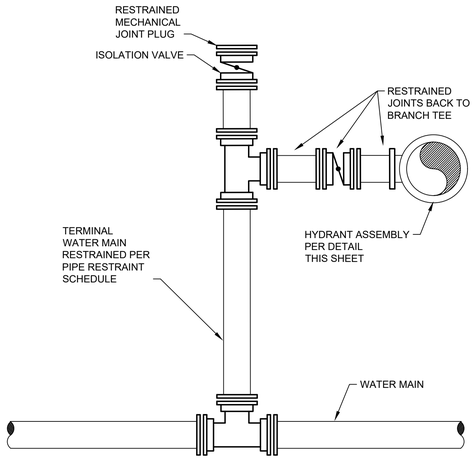
VALVE/TRACER WIRE BOX IN CONCRETE DETAIL

NO SCALE

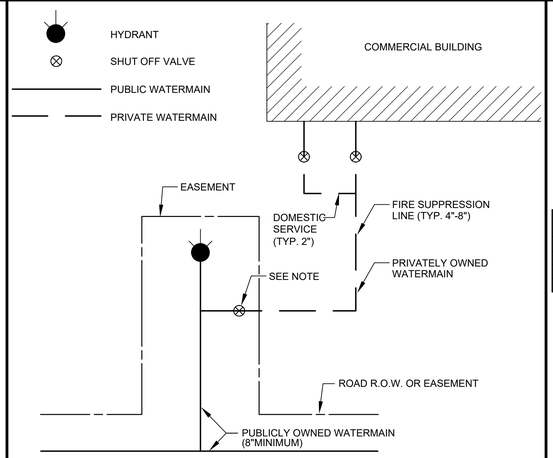


* THE LENGTH OF 6" PIPE FROM THE MAIN TO THE HYDRANT ASSEMBLY CANNOT EXCEED 25'. ANY PIPE OVER 25 FEET SHALL BE 8" DIAMETER MINIMUM AND DESIGNED PER MHOG SPECIFICATIONS.

FIRE HYDRANT ASSEMBLY

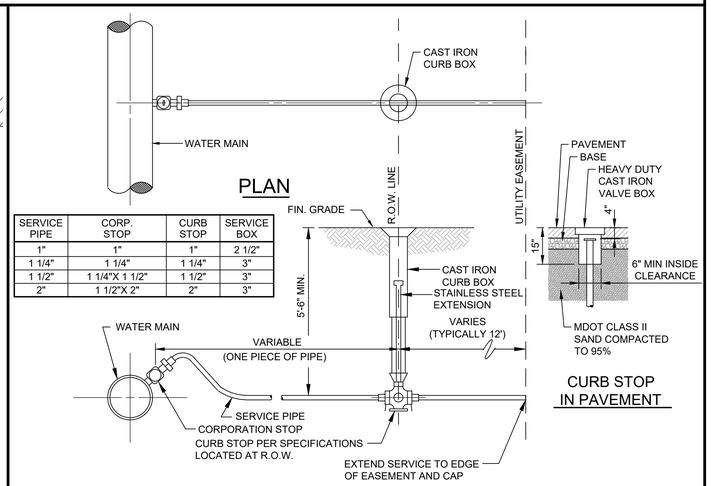


TERMINAL HYDRANT DETAIL



NOTE: PUBLICLY OWNED SHUT OFF VALVE TO BE LOCATED IN EASEMENT.

COMMERCIAL BUILDING WATER SERVICE LAYOUT

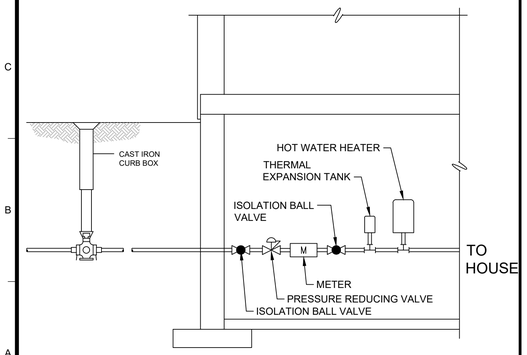


SERVICE PIPE	CORP. STOP	CURB STOP	SERVICE BOX
1"	1"	1"	2 1/2"
1 1/4"	1 1/4"	1 1/4"	3"
1 1/2"	1 1/4"X 1 1/2"	1 1/2"	3"
2"	1 1/2"X 2"	2"	3"

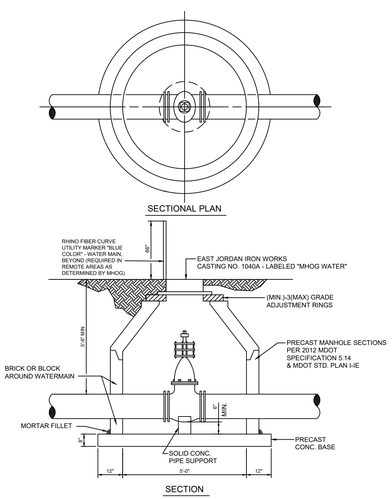
SECTION

WATER SERVICE LATERAL

CURB STOP IN PAVEMENT

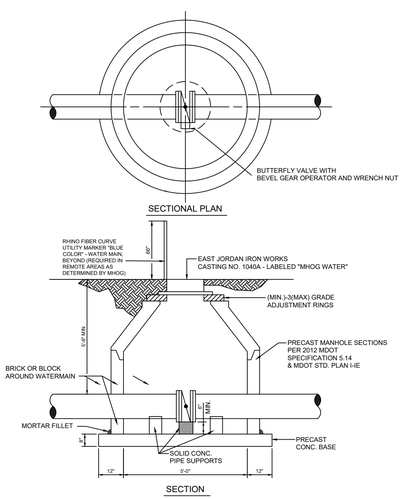


PRIVATE RESIDENCE PRESSURE REDUCING VALVE (PRV)



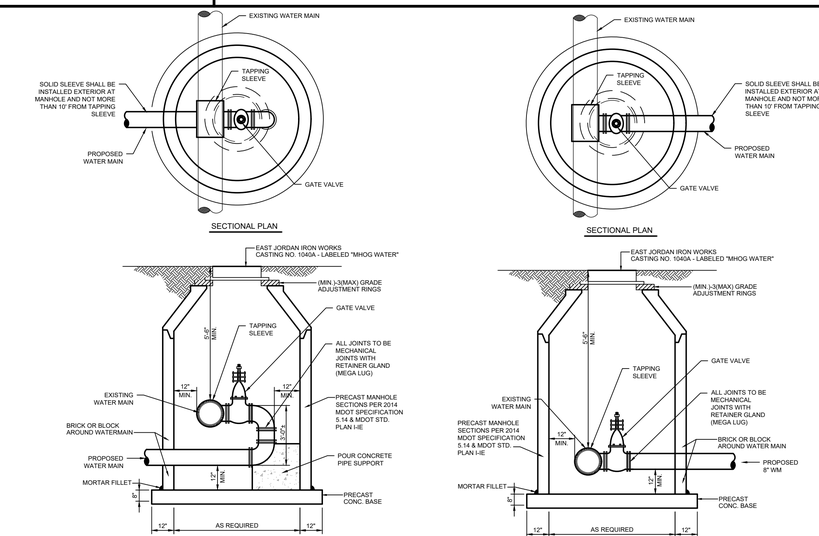
NOTES:
1. ALL LIFT HOLES AND JOINTS SHALL BE MORTARED BOTH INSIDE AND OUTSIDE.
2. BLOCK MANHOLES TO BE USED ONLY WITH ENGINEERS PERMISSION.
3. NO STEPS PERMITTED.

VALVE AND GATE WELL



NOTES:
1. ALL LIFT HOLES AND JOINTS SHALL BE MORTARED BOTH INSIDE AND OUTSIDE.
2. BLOCK MANHOLES TO BE USED ONLY WITH ENGINEERS PERMISSION.
3. NO STEPS PERMITTED.

BUTTERFLY VALVE AND WELL



NOTES:
1. ALL LIFT HOLES AND JOINTS SHALL BE MORTARED BOTH INSIDE AND OUTSIDE.
2. BLOCK MANHOLES TO BE USED ONLY WITH ENGINEERS PERMISSION.
3. NO STEPS PERMITTED.

REVERSE TAP GATE WELL

NOTES:
1. ALL LIFT HOLES AND JOINTS SHALL BE MORTARED BOTH INSIDE AND OUTSIDE.
2. BLOCK MANHOLES TO BE USED ONLY WITH ENGINEERS PERMISSION.
3. NO STEPS PERMITTED.

REGULAR TAP GATE WELL

MARION HOWELL OCEOLA GENOA
Sewer and Water Authority

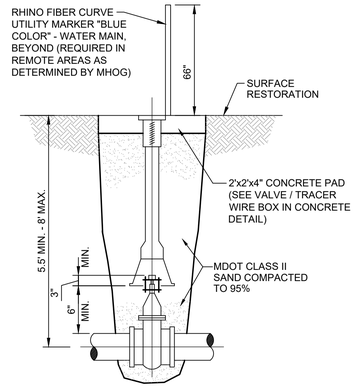
STANDARD DETAILS

Scale: NONE

Issued Date JANUARY - 2014

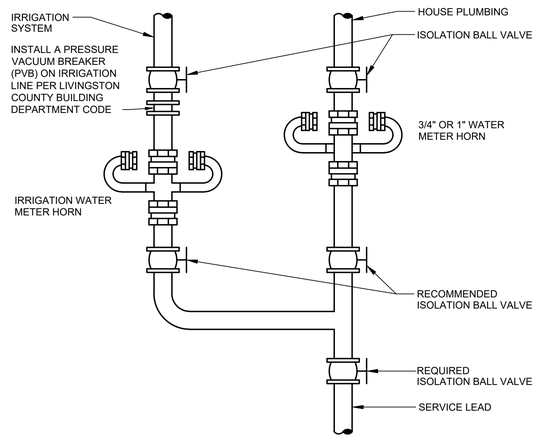
UPDATED: MAY 2015
UPDATED: FEBRUARY 2016
UPDATED: APRIL 2016
UPDATED: OCTOBER 2017
UPDATED: FEBRUARY 2019

Tuesday, February 26, 2019 4:02:14 PM DRAWING: P:\IER\12719\200-12719-00-000\CAD\SheetFiles\Mhog-std.DWG



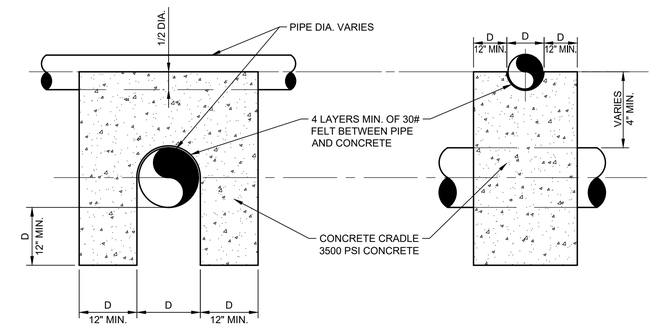
NOTES:
1. VALVE BOX SHALL NOT REST ON VALVE OR MAIN LINE PIPE.
2. A VALVE STEM EXTENSION WITH CENTERING RING IS REQUIRED FOR VALVES BURIED DEEPER THAN 6'.

GATE VALVE AND BOX



NOTES:
1. ALL METERS ARE TO BE INSTALLED HORIZONTALLY IN A DRY, CLEAN, SANITARY LOCATION THAT IS READILY ACCESSIBLE. THIS DRAWING IS NOT TO SCALE & IS ONLY A REPRESENTATION OF HOW THE METERS SHOULD BE INSTALLED. THE SECOND METER IS OPTIONAL FOR IRRIGATION USAGE. METERS SHOULD NOT BE INSTALLED IN LINE (ONE RIGHT AFTER THE OTHER).
2. PROPERTIES DESIGNATED "HIGH HAZARD" PER THE MHOG CROSS CONNECTION RULES MANUAL WILL REQUIRE THE INSTALLATION OF A REDUCED PRESSURE ZONE (RPZ) BACK FLOW PREVENTION DEVICE.

TYPICAL METER HORN INSTALLATION



CONCRETE CRADLE DETAIL

SCALE: NONE

MHOG CASTING DETAIL

NO SCALE

MARION HOWELL OCEOLA GENOA
Sewer and Water Authority

STANDARD DETAILS

Scale: NONE

Issued Date JANUARY - 2014

UPDATED: MAY 2015
UPDATED: FEBRUARY 2016
UPDATED: APRIL 2016
UPDATED: OCTOBER 2017
UPDATED: FEBRUARY 2019

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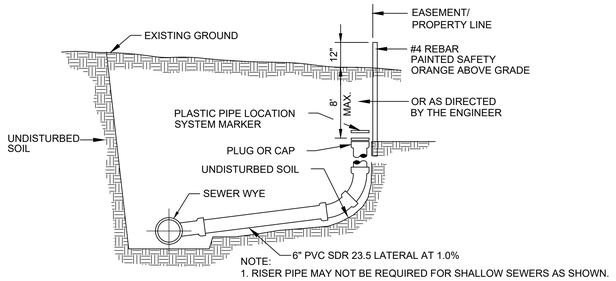
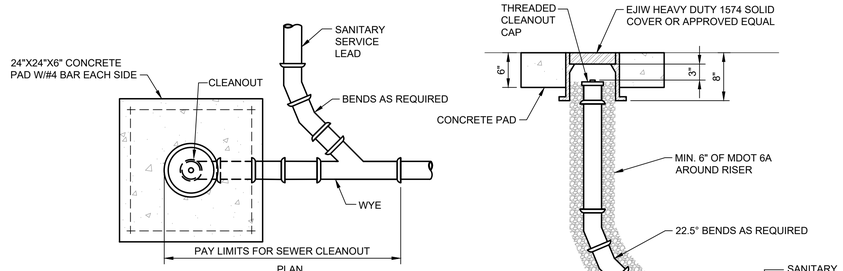


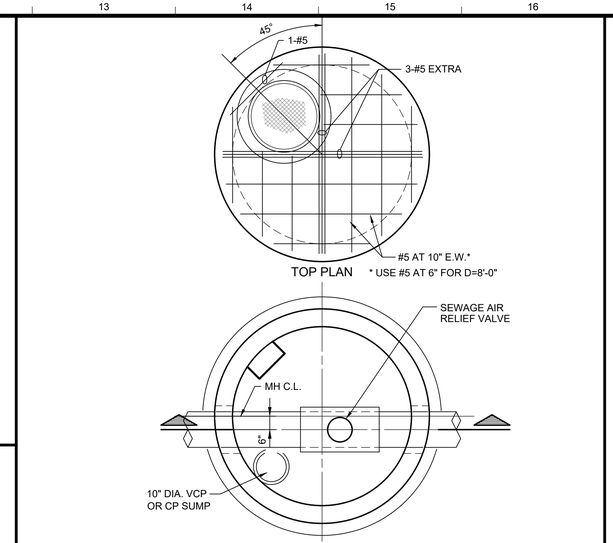
NOTE:
1. RISER PIPE MAY NOT BE REQUIRED FOR SHALLOW SEWERS AS SHOWN.
2. WHEN CONNECTING TO AN EXISTING SEWER THE AUTHORITY MAY REQUIRE CORING OF THE EXISTING PIPE AND INSTALLATION OF A SEWER SADDLE. SADDLE SHALL BE ROMAC "CB" SEWER SADDLE OR APPROVED EQUAL.

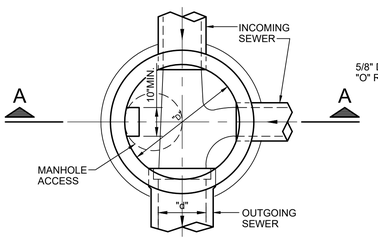
SANITARY SEWER LATERAL

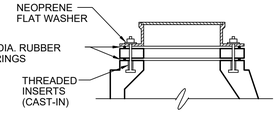


NOTES:
1. ALL CONNECTION SHALL BE BELL AND SPIGOT TYPE.
2. CLEANOUT IS TO BE SAME DIAMETER AS SERVICE LEAD.
3. CONCRETE PAD REQUIRED UNLESS OTHERWISE DETERMINED BY MHOG.
4. THERE MUST BE A 3" GAP FROM THE BOTTOM OF THE CLEAN OUT LID TO THE TOP OF THE THREADED CAP.

SEWER CLEANOUT DETAIL

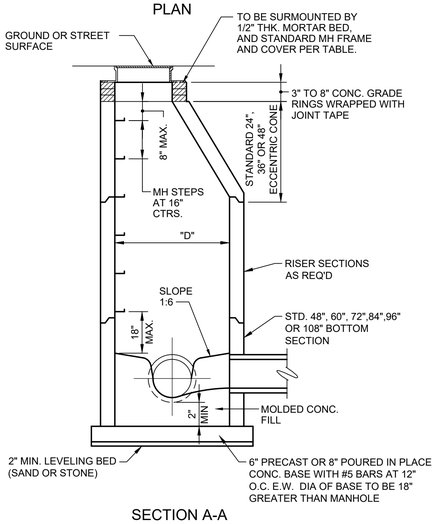






WATERTIGHT COVER ANCHORAGE

MANHOLE SCHEDULE	
PIPE SIZE (" d")	D
8"-24"	48"
27"-36"	60"
42"-48"	72"
54"	84"

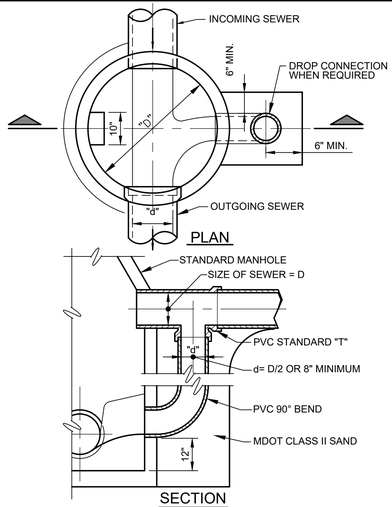


SECTION A-A

NOTES:
1. ALL SANITARY MANHOLES TO BE PRECAST REINFORCED CONCRETE WITH PREMIUM JOINTS. SEE SPECIFICATIONS FOR BASE SLAB AND PIPE OPENINGS AND CONNECTIONS.
2. MANHOLE CONES SHALL BE THE ECCENTRIC TYPE.
3. PROVIDE 6" OF COMPACTED GRANULAR MATERIAL UNDER ALL PRECAST CONCRETE BASE SLPVC.
4. FORCE MAINS CONNECT DIRECTLY TO A MANHOLE SHALL BE INSTALLED SO THAT THE ELEVATION OF THE PIPE CROWNS MATCH. THE FORCE MAIN SHALL BE DIRECTED DOWNWARD INTO THE FLOW CHANNEL.
5. FOR SANITARY SEWERS ALL PIPES SHALL ENTER MANHOLE THROUGH RUBBER BOOTED CONNECTION.

FRAME & COVER FOR SANITARY SEWER MANHOLES			
		MANUFACTURER OR EQUAL	
TYPE	TYPE OF COVER	EAST JORDAN	NEENAH
MH	SANITARY - SOLID SELF-SEALING	1040.0000	R-1642
MH	SANITARY - SOLID WATERTIGHT	1040-APT	R-1916-F
CO	SOLID	1574A	R-1973-A

STANDARD MANHOLE



REQUIRED WHEN AN INLET PIPE IS 24" OR MORE ABOVE THE OUTLET PIPE IN A MANHOLE

DROP CONNECTION

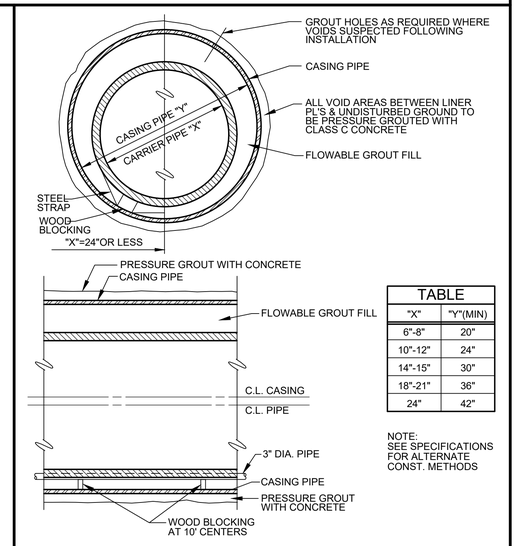
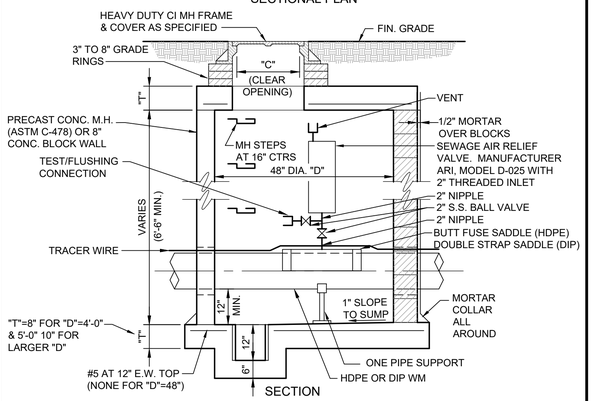


TABLE	
"X"	"Y"(MIN)
6"-8"	20"
10"-12"	24"
14"-15"	30"
18"-21"	36"
24"	42"

NOTE:
SEE SPECIFICATIONS FOR ALTERNATE CONST. METHODS

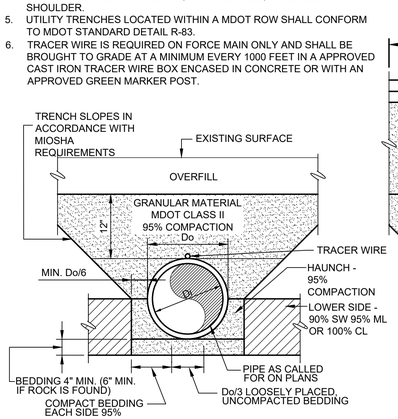
CASING PIPE



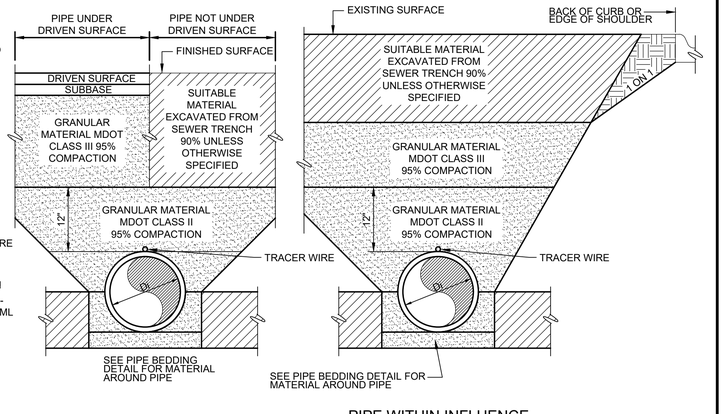
NOTE: ALL PLUMBING MATERIALS TO BE NON-CORROSIVE, ALL FITTINGS SHALL BE STAINLESS STEEL.

AIR RELIEF STRUCTURE

NOTES:
1. COMPACTION PRESENTED AS MINIMUM STANDARD PROCTOR VALUES.
2. MATERIALS AROUND THERMOPLASTIC PIPE WITH DIAMETER < 6 INCHES SHALL PASS 0.5 INCH SIEVE, MATERIALS AROUND OTHER PIPES SHALL PASS 1.5 INCH SIEVE.
3. MATERIALS AROUND HDPE PIPE TO BE MDOT 6A OR 21AA.
4. DRIVEN SURFACE IS DRIVEWAY, PARKING AREA, ROAD BED OR SHOULDER.
5. UTILITY TRENCHES LOCATED WITHIN A MDOT ROW SHALL CONFORM TO MDOT STANDARD DETAIL R-83.
6. TRACER WIRE IS REQUIRED ON FORCE MAIN ONLY AND SHALL BE BROUGHT TO GRADE AT A MINIMUM EVERY 1000 FEET IN A APPROVED CAST IRON TRACER WIRE BOX ENCASED IN CONCRETE OR WITH AN APPROVED GREEN MARKER POST.



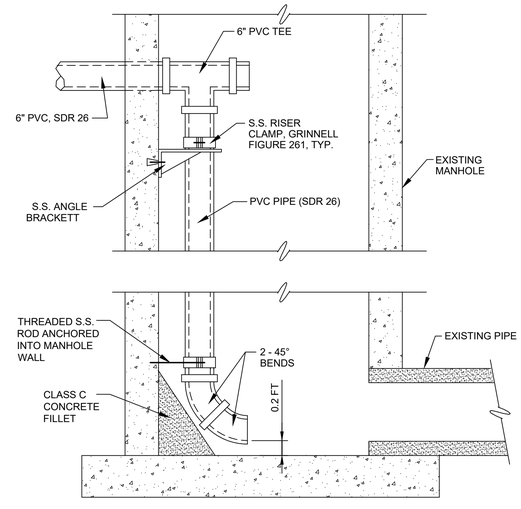
PIPE BEDDING



PIPE WITHIN INFLUENCE OF DRIVEN SURFACE

PIPE UNDER/NOT UNDER DRIVEN SURFACE

TRENCH EXCAVATION & PIPE BEDDING



INTERIOR SEWER LATERAL DROP CONNECTION

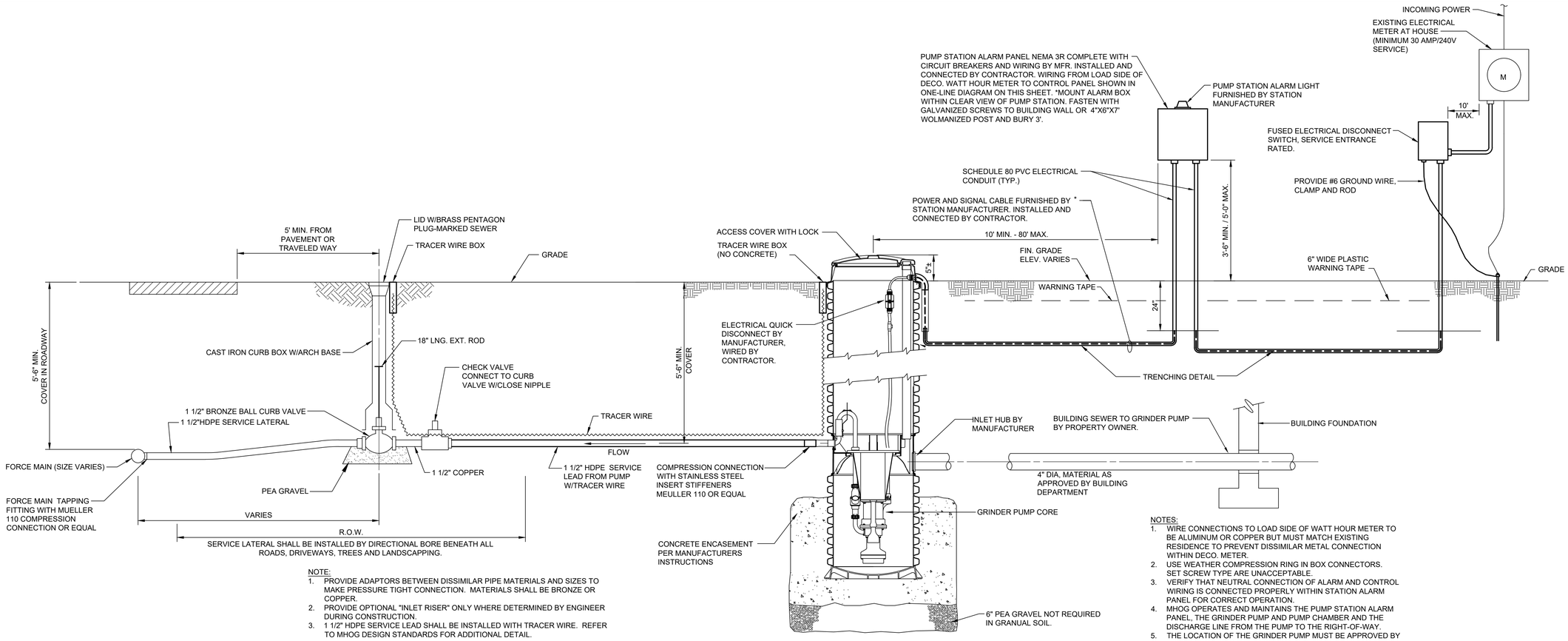
MARION HOWELL OCEOLA GENOA
Sewer and Water Authority

STANDARD DETAILS

Scale: NONE
Issued Date JANUARY - 2014

UPDATED: MAY 2015
UPDATED: FEBRUARY 2016
UPDATED: APRIL 2016
UPDATED: OCTOBER 2017
UPDATED: FEBRUARY 2019

Friday, February 8, 2019 9:07:00 AM DRAWING: P:\IER\12719\200-12719-00-000\CAD\SheetFiles\Mhog-std.DWG

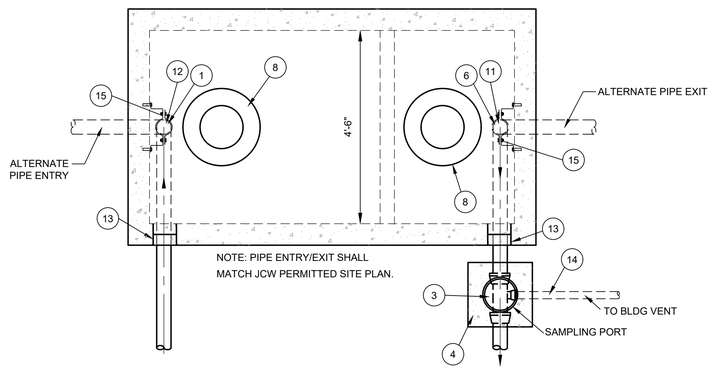


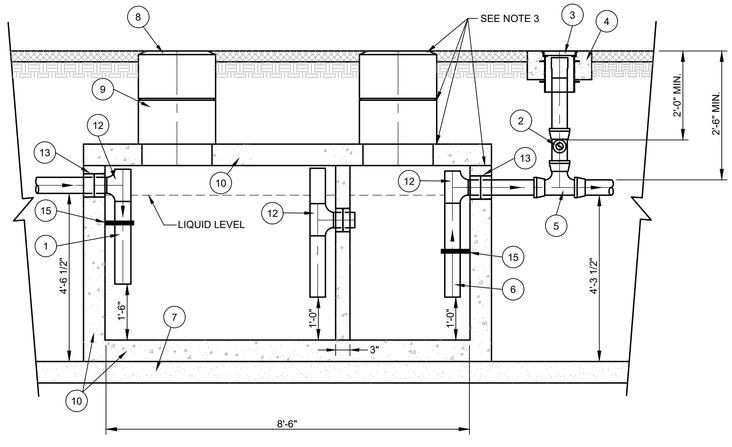
NOTE:
1. PROVIDE ADAPTORS BETWEEN DISSIMILAR PIPE MATERIALS AND SIZES TO MAKE PRESSURE TIGHT CONNECTION. MATERIALS SHALL BE BRONZE OR COPPER.
2. PROVIDE OPTIONAL "INLET RISER" ONLY WHERE DETERMINED BY ENGINEER DURING CONSTRUCTION.
3. 1 1/2" HDPE SERVICE LEAD SHALL BE INSTALLED WITH TRACER WIRE. REFER TO MHOG DESIGN STANDARDS FOR ADDITIONAL DETAIL.

NOTES:
1. WIRE CONNECTIONS TO LOAD SIDE OF WATT HOUR METER TO BE ALUMINUM OR COPPER BUT MUST MATCH EXISTING RESIDENCE TO PREVENT DISSIMILAR METAL CONNECTION WITHIN DECO. METER.
2. USE WEATHER COMPRESSION RING IN BOX CONNECTORS. SET SCREW TYPE ARE UNACCEPTABLE.
3. VERIFY THAT NEUTRAL CONNECTION OF ALARM AND CONTROL WIRING IS CONNECTED PROPERLY WITHIN STATION ALARM PANEL FOR CORRECT OPERATION.
4. MHOG OPERATES AND MAINTAINS THE PUMP STATION ALARM PANEL, THE GRINDER PUMP AND PUMP CHAMBER AND THE DISCHARGE LINE FROM THE PUMP TO THE RIGHT-OF-WAY.
5. THE LOCATION OF THE GRINDER PUMP MUST BE APPROVED BY MHOG PRIOR TO INSTALLATION. THE GRINDER PUMP MUST BE SERVICEABLE (ACCESSIBLE BY TRUCK) AND FREE FROM OBSTRUCTION.
6. MHOG MUST BE ONSITE FOR STARTUP OF ALL NEW GRINDER PUMPS.

SIMPLEX/DUPLEX GRINDER PUMPING STATION

NO SCALE





ITEM	DESCRIPTION
1	4" PVC INLET PIPE*
2	4"x4"x2" TEE WITH 2" PIPE TO BUILDING VENT*
3	THREADED C/O CAP JOSAM 58860 OR APP EQUAL**
4	CONCRETE PAD
5	4"x4"x4" TWO-WAY CLEANOUT TEE*
6	4" PVC OUTLET*
7	4" - 6" GRAVEL BEDDING
8	HEAVY-DUTY CAST IRON FRAME AND COVER ***
9	CONCRETE ADJUSTMENT RINGS
10	REINFORCE AS REQUIRED FOR SERVICE CONDITIONS
11	4" PVC 90° ELBOW*
12	4" PVC TEE*
13	A-LOK OR PRESS SEAL PSX PIPE/WALL CONNECTOR
14	2" VENT PIPE (IDENTIFY PIPE TYPE, CLASS & JOINT AS REQUIRED FOR PROJECT)
15	STAINLESS STEEL PIPE SUPPORT CLAMP ****

* 6" PIPE MAY BE SUBSTITUDED TO MATCH UPSTREAM PIPE DIAMETER.
** REFER TO CLEAN OUT DETAIL(S) ON STANDARD DETAIL SHEET.
*** CLAY & BAILEY 2008 BV OR EQUAL (FROST PROOF COVERS OPTIONAL)
****FM STAINLESS FASTNERS #63 OR EQUAL. 1/2"X2-1/2" SS BRACKET W/ 1/2"x1-1/2" FULLY THREADED SS HEX BOLT WITH 1/2" SS WASHER AND 1/2"X1-3/4" SS ANCHORS. CLAMP TO BE FACTORY INSTALLED.

NOTES:
1. THREE COVERS AND RISERS SHOWN. TWO COVERS AND RISERS CENTERED OVER UPPER TWO BAFFLES ARE OPTIONAL.
2. INTERCEPTOR SIZE - 1000 GAL MINIMUM (REVISE THE SIZE DIMENSIONS, AS NEEDED, FOR LARGER CAPACITY INTERCEPTORS).
3. ALL JOINTS AT THE FRAME & COVER*, CONCRETE ADJUSTMENT RINGS AND THE LID OF THE INTERCEPTOR SHALL BE SEALED WITH A MINIMUM OF TWO (2) ROWS OF 3/4 TO 1 INCH PREFORMED BUTYL JOINT SEALER AND A 6" BUTYL JOINT WRAP AROUND SLEEVE (EZ WRAP). THE ENDS OF THE 6" EZ WRAP SHALL OVERLAP BY 12".
4. PIPING ON THE INTERIOR OF THE INTERCEPTOR SHALL BE PVC WITH SOLVENT-CEMENTED JOINTS.
5. GREASE INTERCEPTOR INCLUDING ADJUSTMENT RINGS AND CASTINGS SHALL BE WATER TESTED FOR WATER TIGHTNESS AFTER THE BACKFILL OPERATIONS HAVE BEEN COMPLETED. WATER TESTING SHALL CONSIST OF THE FOLLOWING: 1. SEAL THE TANK, 2. FILL WITH WATER, 3. LET STAND FOR 24 HOURS, 4. REFILL TANK, 5. TANK IS APPROVED IS WATER LEVEL IS HELD FOR 1 HOUR.
6. ONLY KITCHEN WASTE SHALL BE DIVERTED TO THE GREASE TRAP.

GREASE INTERCEPTOR 1000 GALLON

NO SCALE

MARION HOWELL OCEOLA GENOA
Sewer and Water Authority

STANDARD DETAILS

Scale: NONE

Issued Date JANUARY - 2014

UPDATED: MAY 2015
UPDATED: FEBRUARY 2016
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GENOA CHARTER TOWNSHIP
PLANNING COMMISSION
PUBLIC HEARING
AUGUST 10, 2020
6:30 P.M.
MINUTES

CALL TO ORDER: Chairman Grajek called the meeting of the Genoa Charter Township Planning Commission to order at 6:30 p.m. Present were Marianne McCreary, Chris Grajek, Eric Rauch, Jim Mortensen, and Jill Rickard. Absent were Glynis McBain and Jeff Dhaenens. Also present was Kelly VanMarter, Community Development Director/Assistant Township Manager, and Brian Borden of Safebuilt Studio. There were 2 audience members present.

PLEDGE OF ALLEGIANCE: The pledge of allegiance was recited.

APPROVAL OF AGENDA:

Moved by Commissioner McCreary, seconded by Commissioner Mortensen, to approve the agenda as presented. **The motion carried unanimously.**

CALL TO THE PUBLIC: The call to the public was made at 6:31 pm with no response.

OPEN PUBLIC HEARING # 1… Consideration of Zoning Ordinance Text amendments to Article 16 of the Zoning Ordinance, entitled "Sign Standards".

A. Recommendation of Text Amendments.

Ms. VanMarter advised that the Board requested to have the sign standard updates reviewed by the Planning Commission. The primary purpose of the changes is to ensure that the ordinance is compliant with the Supreme Court Case Law regarding political signs as well as other ordinance changes that staff is hoping to make. The Planning Commission, Mr. Borden, and Ms. VanMater reviewed and discussed the proposed changes, additions, and deletions, which include:

- Statement of Purpose
- Off Premise signs
- Changes and additions to sign definitions
    - Temporary signs - This definition and section (16.07.10) are new to the sign ordinance
    - Incidental signs - This definition is new to the sign ordinance
- Sign standards - Which signs require permits and which do not
- Prohibited signs
- Electronic Message Signs - There was a discussion regarding allowing businesses to be able to change their message more often than four times an hour. It was determined

that since the Township has not received requests from any businesses to increase the number of messages in one hour, four times per hour is sufficient.
- Municipal and non-profit organization signs
- Businesses that have one side of their building obstructed can be allowed more square footage of signage than is allowed by ordinance, with Planning Commission approval.

Commissioner Rauch requested to have the motor vehicle signage section be reviewed and amended further as it is quite vague and would like to have motor vehicles that contain company and product names to be allowed to be parked for 72 instead of 48 hours. Staff will revise this section and provide different options for the Commission to review.

There was a discussion regarding the signs allowed on canopies. Ms. VanMarter will revise this section so that it is more detailed as to what types of signage is allowed on canopies.

The definition of "window area" was discussed as it relates to allowing signage in 25 percent of each window. Staff will review this section and define the "window area" more clearly.

The call to the public was made at 7:53 pm with no response.

Staff will make the changes discussed this evening and return to the Planning Commission for further review.

Moved by Commissioner Mortensen, seconded by Commissioner Rickard, to recommend to the Township Board approval of the ordinance changes to Article 16 - "Sign Standards" subject to minor revisions that will be handled by Township Staff prior to submission to the Township Board. **The motion carried unanimously.**

ADMINISTRATIVE BUSINESS

Staff Report

Ms. VanMarter stated there will be a Planning Commission meeting in September.

Approval of the June 3, 2020 Planning Commission meeting minutes

Moved by Commissioner McCreary, seconded by Commissioner Rauch, to approve the minutes of the June 3, 2020 Planning Commission Meeting as presented. **The motion carried unanimously.**

Approval of the June 11, 2020 Planning Commission meeting minutes
Moved by Commissioner McCreary, seconded by Commissioner Mortensen, to approve the minutes of the June 11, 2020 Planning Commission Meeting as presented. **The motion carried unanimously.**

Member Discussion

There were no items to discuss this evening.

Adjournment

Moved by Commissioner McCreary, seconded by Commissioner Rauch, to adjourn the meeting at 8:01 pm. **The motion carried unanimously.**

Respectfully Submitted,

Patty Thomas, Recording Secretary