GENOA CHARTER TOWNSHIP
PLANNING COMMISSION PUBLIC HEARING
OCTOBER 13, 2020 (TUESDAY)
6:30 P.M.
AGENDA

CALL TO ORDER:

PLEDGE OF ALLEGIANCE:

APPROVAL OF AGENDA:

DECLARATION OF CONFLICT OF INTEREST:

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 rezoning application and impact assessment to rezone approximately 4.34 acres from Office Service District (OSD) to High Density Residential (HDR) for parcel# 11-06-200-101. The parcel in question is located on an undeveloped 4.34 acre site on the north side of Grand River, west of Char Ann Drive. The request is petitioned by Kevin Irish.

A. Recommendation of Rezoning Application
B. Recommendation of Environmental Impact Assessment (8-31-2020)

OPEN PUBLIC HEARING # 2…Review of a site plan and environmental impact assessment for a proposed parking lot at 1183 Fendt Drive to be used in conjunction with the existing UPS Facility on the west of Fendt Drive. The request is petitioned by Hugo Ceron, SME.

A Recommendation of Environmental Impact Assessment (9-2-2020)
B. Disposition of Site Plan (9-23-2020)

ADMINISTRATIVE BUSINESS:

- *Staff Report*
- *Approval of September 14, 2020 Planning Commission meeting minutes*
- *Member discussion*
- *Adjournment*

GENOA CHARTER TOWNSHIP
Application for Re-Zoning

Received 9-1-2020

APPLICANT NAME: Kevin Irish ADDRESS: 4205 Faussett Rd. Howell, MI 48855

OWNER NAME: Kevin Irish ADDRESS: 4205 Faussett Rd. Howell, MI 48855

PARCEL #(s): 4711-06-200-101 PRIMARY PHONE: (517) 404-1252

EMAIL 1: 4klirish@gmail.com EMAIL 2: brentl@bosseng.com

We, the undersigned, do hereby respectfully make application to and petition the Township Board to amend the Township Zoning Ordinance and change the zoning map of the township of Genoa as hereinafter requested, and in support of this application, the following facts are shown:

A. REQUIRED SUBMITTAL INFORMATION

1. A legal description and street address of the subject property, together with a map identifying the subject property in relation to surrounding properties;
2. The name, signature and address of the owner of the subject property, a statement of the applicant's interest in the subject property if not the owner in fee simple title, and proof of consent from the property owner;
3. It is desired and requested that the foregoing property be rezoned from:

   Office Service District to High Density Residential.
4. A site plan illustrating existing conditions on the site and adjacent properties; such as woodlands, wetlands, soil conditions, steep slope, drainage patterns, views, existing buildings, sight distance limitations, relationship to other developed sites. and access points in the vicinity;
5. A conceptual plan demonstrating that the site could be developed with representative uses permitted in the requested zoning district meeting requirements for setbacks, wetland buffers access spacing, any requested service drives and other site design factors;
6. A written environmental impact assessment, a map of existing site features as described in Article 18 describing site features and anticipated impacts created by the host of uses permitted in the requested zoning district;
7. A written description of how the requested rezoning meets Sec. 22.04 “Criteria for Amendment of the Official Zoning Map.”
8. The property in question shall be staked prior to the Planning Commission Public Hearing.

B. DESCRIBE HOW YOUR REQUESTED RE-ZONING MEETS THE ZONING ORDINANCE CRITERIA FOR AMENDING THE OFFICIAL ZONING MAP:

1. How is the rezoning consistent with the goals, policies and future land use map of the Genoa Township Master Plan, including any subareas or corridor studies. If not consistent, describe how conditions have changed since the Master Plan was adopted?

The zoning districts of this and adjacent parcels in the Future Land Use Map have not changed.

2. Are the site's physical, geological, hydrological and other environmental features suitable for the host of uses permitted in the proposed zoning district?

Yes. Approximately half of the subject site is open meadow with a detention basin already located in the southeast corner of the site adjacent to Grand River. Higher grades on the north property line provide a buffer to the adjacent low density residential development to the north.

3. Do you have any evidence that a reasonable return on investment cannot be received by developing the property with one (1) of the uses permitted under the current zoning?

The property has been for sale under the current zoning district for 18 years. No viable project has come forward.

4. How would all the potential uses allowed in the proposed zoning district be compatible with surrounding uses and zoning in terms of views, noise, air quality, the environment, density, traffic impacts, drainage and potential influence on property values?

There are a mix of surrounding uses and zoning so potential uses for the HDR district would be compatible. The property has frontage on Grand River Ave and HDR is a less intense use of the site than the current zoning.

5. Are infrastructure capacity (streets, sanitary sewer, water, and drainage) and services (police and fire protection, etc.) sufficient to accommodate the uses permitted in the requested district?

Infrastructure capacity and services are sufficient - an existing 16" water main runs along the Grand River ROW on the south edge of the property and an existing 8" sanitary line runs along the length of the north property line.

6. Is there a demonstrated demand in Genoa Township or the surrounding area for the types of uses permitted in the requested zoning district? If yes, explain how this site is better suited for the zoning than others which may be planned or zoned to accommodate the demand.

Yes, housing is in demand in the Township. This site is better suited for the HDR district because of its convenient proximity to service and commercial districts in the area for potential users.

7. If you have a particular use in mind, is another zoning district more appropriate? Why should the Township re-zone the land rather than amend the list of uses allowed in another zoning district to accommodate your intended use?

The proposed use is for an apartment community. All uses in OSD are commercial/business related.

8. Describe any deed restrictions which could potentially affect the use of the property.

A 66' wide easement for ingress and egress exists on a portion of the east property line and a 30' wide sanitary sewer easement is located along the length of the north property line.

C. AFFIDAVIT

The undersigned says that they are the Owner (owner, lessee, or other specified interest) involved in this petition and that the foregoing answers and statements herein contained and the information herewith submitted are in all respects true and correct to the best of his/her knowledge and belief.

BY: Kevin Irish

ADDRESS: 4205 Faussett Road Howell, MI 48855

Kevin L Irish

SIGNATURE

The following contact should also receive review letters and correspondence:

Name: Jennifer M. Austin Email: jennifera@bosseng.com

Business Affiliation: Boss Engineering

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.

PROJECT NAME: Irish Grand River Parcel Re-Zoning

PROJECT LOCATON & DESCRIPTION: E. Grand River just west of CharAnn Drive on the north side of the road

SIGNATURE: Kevin L Irish DATE: 27, Aug '20

PRINT NAME: KEVIN L IRISH PHONE: 517.404.1252

COMPANY NAME & ADDRESS: 4205 FAUSSETT RD, HOWELL MI 48855

BOSS
BE
Engineering

3121 E. Grand River Howell, MI 48843
517.546.4836 fax 517.548.1670
www.bosseng.com

September 18, 2020

Genoa Township
Planning and Zoning Department
2911 Dorr Road
Brighton, MI 48116
Attn: Amy Ruthig, Zoning Official

RE: Irish Rezoning Submittal Review Response

Ms. Ruthig,

As there were no items to revise per Tetra Tech and SAFEbuilt studio review letters regarding the Irish Rezoning submittal for parcel # 4711-06-200-101, please accept the original submittal documents for use at the October 13, 2020 Genoa Township Planning Commission meeting. Brighton Area Fire Authority review comments are acknowledged.

Sincerely,

BOSS ENGINEERING COMPANY

Jennifer M. Austin
Project Landscape Architect

September 14, 2020

Planning Commission
Genoa Township
2911 Dorr Road
Brighton, Michigan 48116

Attention:	Kelly Van Marter, AICP Assistant Township Manager and Planning Director
Subject:	Proposed rezoning from OSD to HDR (Review #1)
Location:	Grand River Avenue – north side of Grand River, west of Char-Ann Drive
Zoning:	OSD Office Service District

Dear Commissioners:

At the Township's request, we have reviewed the application and submittal materials proposing rezoning of an undeveloped 4.34-acre site from OSD Office Service District to HDR High Density Residential. The stated intent of the proposed rezoning is for development of a 32-unit "apartment community."

This proposal has been reviewed in accordance with the applicable provisions of the Genoa Township Zoning Ordinance.

A. SUMMARY

1. The request is not consistent with the Township Master Plan Future Land Use classification of Office.
2. However, the Township may find that there has been a change in conditions since the Master Plan was adopted.
3. Provided the Township finds that there has been a change in conditions since the Master Plan was adopted, HDR zoning is generally consistent with the rezoning criteria of Section 22.04.
4. The request is anticipated to be compatible with the surrounding area.
5. The host of uses permitted in HDR are generally compatible with existing and planned uses in the surrounding area.
6. Consideration must be given to any technical comments provided by the Township Engineer, Utilities Director and/or Fire Authority with respect to infrastructure, utilities, and services.

B. PROCESS

As outlined in Article 22 of the Township Zoning Ordinance, the process to amend the Official Township Zoning Map is as follows:

1. The Township Planning Commission holds a public hearing on the rezoning and makes its recommendation to the Township Board;
2. The Livingston County Planning Commission reviews the request and makes its recommendation to the Township Board; and
3. The Township Board considers these recommendations and takes action to grant or reject the rezoning request.

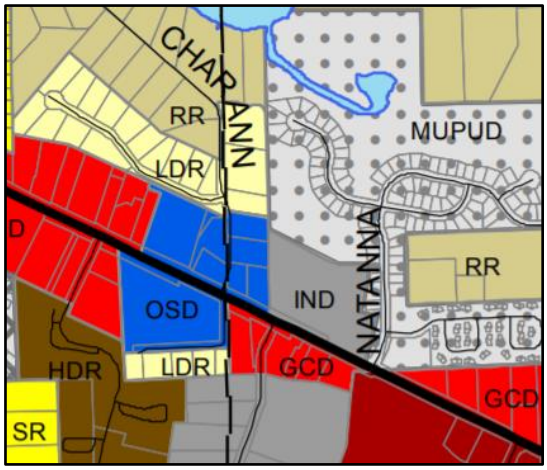
As a reminder for the Township's consideration, requests for conventional rezoning cannot include conditions and the applicant is not bound by their stated intent (if rezoning is granted).

C. AREA OVERVIEW

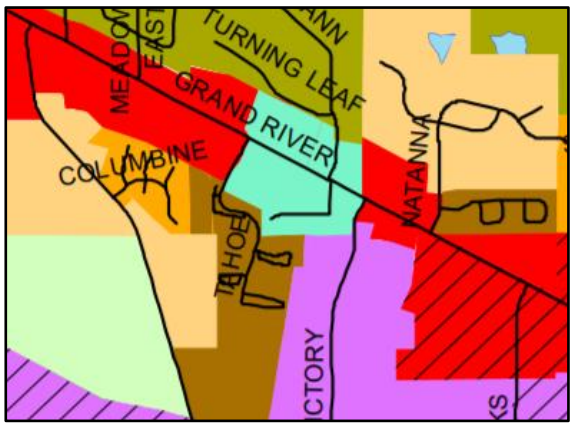
The site is located on the north side of Grand River Avenue, west of Char-Ann Drive. Current zoning, as well as existing and planned land uses in the area are as follows:

Existing Land Use	
Site	Undeveloped
North	Single family residential
East	Office/service
South	Office/financial
West	Office/service

Zoning	
Site	OSD
North	LDR
East	OSD
South	OSD
West	GCD



Master Plan	
Site	Office
North	Low Density Residential
East	Office
South	Office
West	General Commercial



D. REZONING REVIEW

1. Consistency with the goals, policies and future land use map of the Genoa Township Master Plan, including any subarea or corridor studies. If conditions have changed since the Master Plan was adopted, the consistency with recent development trends in the area.

The Township Master Plan and Future Land Use Map identify the site and properties to the east and south as Office. This classification is intended for "various forms of office development including professional offices, medical offices and banks."

As such, the proposal for HDR zoning is not consistent with the Township Master Plan.

With that being said, the applicant does note that the site has been for sale as an office property for many years, with no viable projects coming forward under the current zoning.

Additionally, as part of the current update to the Township Master Plan, alternative types and locations for residential uses are being investigated, including the Grand River corridor.

In order to make a favorable finding under this criterion, the Township would need to determine that conditions have changed since the Master Plan was adopted.

2. Compatibility of the site's physical, geological, hydrological and other environmental features with the host of uses permitted in the proposed zoning district.

The site does not contain any hydrological features, but does include sloping topography (from NW to SE) and a wooded area along the northerly portion of the site.

These conditions are not expected to preclude development opportunities under the proposed zoning designation of HDR. It is also worth noting that the buffer zone requirements of Section 12.02.03 are the same between office and single-family, and multiple-family and single-family.

As such, a buffer zone B will be required along the northerly property line for development under either the current (OSD) or proposed (HDR) zoning.

3. The ability of the site to be reasonably developed with one (1) of the uses permitted under the current zoning.

As previously noted, the undeveloped site has been for sale for many years with no viable office development coming forward.

While the site could be developed with an OSD use, it has not yet occurred. As a result, the property owner has investigated alternative land uses and zoning designations, which have resulted in this request.

4. The compatibility of all the potential uses allowed in the proposed zoning district with surrounding uses and zoning in terms of land suitability, impacts on the environment, density, nature of use, traffic impacts, aesthetics, infrastructure and potential influence on property values.

The HDR district is generally intended for multiple-family residential, though other uses are allowed (residential care, institutional, and recreational). These uses are generally viewed as an appropriate transition between the (generally) commercial corridor of Grand River Avenue and the single-family residences to the north.

The stated intent of an "apartment community" would be a permitted use, though more intensive HDR land uses would require special land use review/approval to ultimately ensure compatibility with surrounding properties.

5. The capacity of Township infrastructure and services sufficient to accommodate the uses permitted in the requested district without compromising the "health, safety and welfare" of the Township.

Given the site's frontage on Grand River Avenue, it is likely that there is access to sufficient infrastructure, utilities, and services. However, we defer to the Township Engineer, Utilities Director, and/or Brighton Area Fire Authority for any technical comments under this criterion.

6. The apparent demand for the types of uses permitted in the requested zoning district in the Township in relation to the amount of land in the Township currently zoned to accommodate the demand.

There is a site to the south (along Tahoe Boulevard) that is planned, zoned, and developed as high density residential. There is no other land zoned HDR in this area of the Township.

Additionally, HDR accounts for one of the smallest land use categories in the Master Plan, despite the Township being predominantly residential in nature.

Similar to previous comments, the Township is currently evaluating alternative types and locations of residential development via a Master Plan update.

In our opinion, the combination of the above make HDR zoning viable for this site with respect to meeting a land use demand for the Township.

7. Where a rezoning is reasonable given the above criteria, a determination the requested zoning district is more appropriate than another district or amending the list of permitted or Special Land Uses within a district.

Per Table 7.02, the OSD currently allows upper floor residences with special land use approval.

Multiple-family residential could be added as an allowable land use to this table; however, this would open up all OSD property for this type of development, and a strictly residential development would not be consistent with the intent of the OSD (Section 7.01.01).

As such, rezoning the property to HDR would be more appropriate than amending the allowable uses in OSD (in our opinion).

8. The request has not previously been submitted within the past one (1) year, unless conditions have changed or new information has been provided.

Our office has not reviewed any rezoning requests for the subject site within the past year.

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 16, 2020

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

Re: Irish Rezoning
Plan Review No. 1

Dear Ms. Van Marter:

Tetra Tech conducted a review of the proposed rezoning plan last dated August 31, 2020. The rezoning plan and impact assessment were prepared by Boss Engineering on behalf of the property owner, Kevin Irish. The subject vacant site is 4.34 acres and is located on the north side of East Grand River Avenue, just east of Tahoe Boulevard. The petitioner is proposing to rezone the site to high density residential (HDR), from its current zoning of office service district (OSD). The proposed use of the site is an apartment community.

After reviewing the proposed rezoning, we offer the following:

GENERAL NOTES

1. The HDR zoning requires no more than 8 units per acre. The Petitioner is proposing 32 units on the 4.34-acre site which complies with this density requirement.
2. The parcel has access to the municipal water and sanitary sewer utilities. The utilities have capacity for the proposed development density of HDR.
3. If the rezoning is approved, the proposed apartment community will require its own site plan for review and site plan approval. At that time the proposed facilities for management of the stormwater and traffic will be reviewed.

The petitioner has presented a plan indicating how the proposed zoning would be interpreted on the parcel. From an engineering viewpoint we have no objections to the parcel being rezoned to HDR. Once more detailed site plans are submitted, we may have additional comments regarding the layout, road, drainage and utility plans.

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 11, 2020

Kelly VanMarter
Genoa Township
2911 Dorr Road
Brighton, MI 48116

Applicant: Kevin Irish
4205 Faussett Dr.
Howell, MI 48843

RE: Rezoning of 4.34-Acre Grand River Parcel

Dear Kelly:

The Brighton Area Fire Department has reviewed the above mentioned site plan. The plans were received for review on September 3, 2020 and the drawings are dated August 31, 2020. The project is based on a vacant 4.32-acre parcel proposed to undergo a rezoning from OSD (Office Service District) to HDR (High Density Residential). The project is proposed to include four two-story 8-unit buildings totaling 32-apartments. The plan review is based on the requirements of the International Fire Code (IFC) 2018 edition.

1. The water main location is not indicated on the submittal. Provide the location of the water main and the closest hydrant(s) to the site. A hydrant shall be located within 100' of the fire department connection for each building. Three hydrants shall be provided on site: one located on the landscape island between the first two buildings, at the northeast corner of the northern parking lot, and at the southwest corner of the east parking lot. Location of existing hydrants on Grand River could affect these locations.

   IFC 912.2
   IFC 507.5.1

2. The buildings shall be provided with an automatic sprinkler system in accordance with NFPA 13, *Standard for the Installation of Automatic Sprinkler Systems*. The buildings are required to be provided with sprinklers by code, however, due to the dead end length and lack of secondary access an increased level of protection (sprinklers) will be required to protect non-sprinklered portions of the buildings

   IFC 903

   A. The FDC shall be located on the front of the buildings.

   B. The location, size, gate valve, and connection of the fire protection lead shall be indicated on the utility plan.

3. The buildings shall include the address numbers, a **minimum of 6"** high of contrasting colors and be clearly visible from the street. Unit numbers shall be a **minimum of 4"** as well as exterior water or utility closets. The location and size shall be approved prior to installation.

   IFC 505.1

4. The access road into and through the site shall be a minimum of 26-feet wide, this includes through the parking areas as they are included in building access. With a width of 26-feet wide, the non-parking lined- building side of the roads shall be marked as a fire lane. Include the location of the proposed fire lane signage every 50-feet along the drives and include a detail of the fire lane sign in the submittal. Access roads 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 weighing at least 84,000 pounds.

   IFC D 103.6
   IFC D 103.1
   IFC D 102.1
   IFC D 103.3
   IFC 505.3

5. Access around the site shall provide emergency vehicles with a minimum turning radius of 50-feet outside and 30-feet inside. Provide an emergency vehicle circulation plan utilizing BAFA aerial apparatus template.

   IFC 503.2.4

6. A minimum vertical clearance of 13½ feet shall be maintained throughout the site, including large growth trees and plantings.

   IFC 503.2.1

7. The hammerhead turnaround is roughly 200-feet from the dead end of the east parking area. The hammerhead shall be placed at the end of the dead-end or relocated so as not to create a dead-end exceeding 150-feet. Recommend revising the orientation of the parking and hammerhead to accomplish this.

   IFC 503.2.5

8. The building setbacks need to be evaluated and revised to ensure emergency vehicle access to within 150-feet of all parts of each structure. Additionally, building heights need to be provided in feet to determine access setback requirements for aerial apparatus.

   IFC 503.1.1

9. The location of a Knox Box shall be indicated adjacent to the fire sprinkler access door of each structure.

   IFC 506.1

10. Future project submittals shall include the address and proposed street name of the project in the title block.

    IFC 105.4.2

11. 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, CFPS
Fire Marshal

cc:Amy Ruthig amy@genoa.org

RECEIVED 9-1-2020

BOSS Engineering
3121 E. Grand River Howell, MI 48843
517.546.4836 fax 517.548.1670
www.bosseng.com

IMPACT ASSESSMENT

For Rezoning of

Parcel # 4711-06-200-101

GENOA TOWNSHIP

LIVINGSTON COUNTY, MICHIGAN

Prepared for:

Owner & Applicant: Kevin Irish

4205 Faussett Rd.

Howell, Michigan 48855

Prepared by:

Brent LaVanway, P.E.
Boss Engineering
3121 E Grand River
Howell, Michigan 48843

August 31, 2020

DISCUSSION ITEMS

A. Name(s) and address(es) of person(s) responsible for preparation of the Impact Assessment and a brief statement of their qualifications.

Prepared by:
Brent LaVanway, P.E.
Boss Engineering
3121 E Grand River
Howell, Michigan 48843

Prepared for:
Applicant & Owner – Kevin Irish
4205 Faussett Rd.
Howell, MI 48855

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

The subject property is located in the East ½ of the NE ¼ of Section 6, Genoa Township, Livingston County, MI.
Tax ID 4711-06-200-101
The subject site is located on Grand River Avenue between Char-Ann Drive and Tahoe Blvd.
The subject site is bordered:

- North by Low Density Residential
- South by E. Grand River and vacant land zoned Office Service District (OSD)
- West by Single Family Residential use zoned General Commercial District (GCD)
- East by vacant land zoned OSD

Current zoning of the subject site is OSD. 16" Water Main runs north westerly along the Grand River Right-of-Way. A 30' wide sanitary sewer easement is located 15' off the subject site north property line and accessible by manhole.

Proposed zoning is HDR (High Density Residential, 8 units per acre).

The acreage of the total subject site is 4.34 acres and is vacant. Proposed use is for an apartment community.

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 of eight-inch caliper (8) 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.

Environmental characteristics of the site prior to development:

- Grades on the site move from higher at the northwest corner (at elevation 973) to the northeast corner of the site (at elevation 956) which is a slope of 18%. A 50% slope from the northwest corner transitions to a generally flat open meadow (1.66% slope) and detention basin in the southeast corner of the site.
- Soils follow a similar transition as the grades on the site from northwest to southeast: MoB Wawasee loam slopes of 2 to 6 percent, MoD Miami loam slopes of 12 to 18 percent, MoA Wawasee loam slopes of 0 to 2 percent. Carlisle muck (Cc) slopes of 0 to 2 percent is located along the lower portion of the site at E. Grand River.
- A woodland is located along length of the northern property line approximately 220' wide. Mature trees in this area include White Oak, Cottonwood, Black Walnut, Sugar Maple, Silver Maple, American Elm, Ash spp., Shagbark Hickory, Scotch Pine and Red Pine.
- No wetlands, lakes, streams, creeks or ponds are located on site.
- See Natural Features drawing sheet 2 in submittal package.

D. Impact on storm-water management: Description of measures to control soil erosion and sedimentation during grading and construction operations and until a permanent ground cover is established.

No construction is planned for this site during this property rezoning.

The proposed rezoning to HDR will allow a higher density and future development to this density is anticipated. The future development of this site will require a complete design and approval of a Soil Erosion Plan including a Storm Water Management Plan by the Livingston County Drain Commissioner.

E. Impact on surrounding land use: 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 use for this site is High Density Residential apartments. The development of this site will require a private drive from Grand River Avenue to a turnaround currently designed as a 120' hammerhead. There are a mix of surrounding land uses including Office Service, Single Family Residential and Low Density Residential. The surround zoning districts do not change in the Future Land Use Map. Future development of this site will have little, if any, increases of light, noise or air pollution to the surrounding properties.

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.

The preliminary plan for this development is for 32 units with anticipated 2-3 people per unit. This would result in 64-96 people, some of which would be school age children added to the Howell School District. Normal police and fire protection services should remain unchanged.

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.

Slight increase in demand on water main and sanitary sewer is expected. An existing 16" water main runs along the Grand River ROW on the south edge of the property and an existing 8" sanitary line runs along the length of the north property line.

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 on site are anticipated.

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. Detailed traffic impact study shall be submitted for any site over ten (10) acres in size which would be expected to generate one-hundred (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.

According to the Southeast Michigan Council of Governments (SEMCOG) website, the Average Annual Daily Traffic (AADT) for eastbound Grand River (BL-96) to Dorr is 10,150 and westbound Grand River (BL-96) to Dorr is 9,250 (2019). Using a 3% annual increase, the eastbound count is 10,454.50 and westbound count is 9,527.50 for 2020.

According to the Institute of Transportation Engineers 10th Edition there can be anticipated 7.32 trips per day for multi-family housing (low-rise). One trip is defined as a one-way traffic movement. The High-Density Residential Zoning will result in 234 total trips per day for the 32-unit development.

Daily trips generated per dwelling unit during the weekday peak hour between 7 and 9 a.m. is 0.46. Thus 32 units would generate 14.72 total daily trips in the a.m. peak hours. Daily trips generated per dwelling unit during the weekday peak hour between 4 and 6 p.m. is 0.56. Thus 32 units would generate 17.92 total daily trips in the p.m. peak hours. These trips would increase the AADT Grand River total daily eastbound/westbound trips by 0.16% (from 19,982 to 20,024.64).

Generally, we anticipate under the current Office Service District that traffic will have higher peak hour trips generated due to the open/close hours of business for employees.

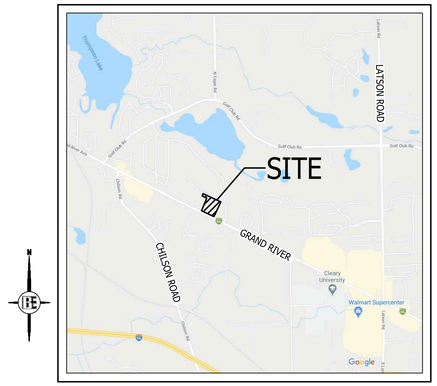
J. Special Provisions: General description of any deed restrictions, protective covenants, master deed, or association bylaws.

A 66' wide easement for ingress and egress exists on a portion of the east property line and a 30' wide sanitary sewer easement is located along the length of the north property line.

K. A list of all source material.

- Genoa Township Zoning Ordinance
- "Soil Survey of Livingston County Michigan" Soil Conservation Services, USDA
- Livingston County Road Commission/SEMCOG Traffic counts

Rezoning Plans
FOR
4.34 ACRE GRAND RIVER AVENUE PARCEL
PART OF THE EAST 1/2 OF THE NE QUARTER, SECTION 6
GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN

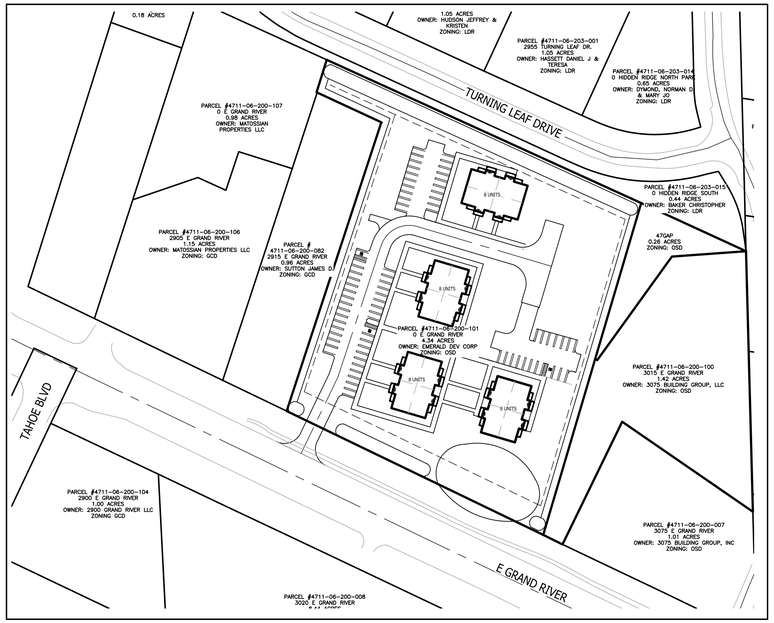


LOCATION MAP
NO SCALE

PROPERTY DESCRIPTION:

PROPERTY DESCRIPTION AS SUPPLIED:
LIVINGSTON COUNTY PROPERTY SEARCH
Tax Description 4711-06-200-101
SEC 6 T2N R5E COMM E 1/4 COR SEC TH N01*17'20"E 674.10 FT TH N61*41'16"W 330 FT FOR POB TH CONT N61*40'16"W 398.16 FT TH N21*00'11"E 424.64 FT TH N62*52'38"W 100.58 FT TH N20*45'29"E 50.12 FT TH S62*41'43"E 483.35 FT TH S19*15'30"W 483.42 FT TO POB CORR LEGAL 10/01 CONT. 4.37 AC M/L SPLIT FR 083 9/99

RECEIVED 9-1-2020



OVERALL SITE MAP
NO SCALE

SHEET INDEX

SHEET NO.	DESCRIPTION
1	COVER SHEET
2	NATURAL FEATURES PLAN
3	SITE LAYOUT

INDEMNIFICATION STATEMENT

THE CONTRACTOR SHALL HOLD HARMLESS THE DESIGN PROFESSIONAL, MUNICIPALITY, COUNTY, STATE AND ALL OF ITS SUB CONSULTANTS, PUBLIC AND PRIVATE UTILITY COMPANIES, AND LANDOWNERS FOR DAMAGES TO INDIVIDUALS AND PROPERTY, REAL OR OTHERWISE, DUE TO THE OPERATIONS OF THE CONTRACTOR AND/OR THEIR SUBCONTRACTORS.

PREPARED FOR:

KEVIN IRISH
4205 FAUSSETT RD.
HOWELL, MI 48855
517-404-1252

PREPARED BY:

BEBOSS Engineering
Engineers Surveyors Planners Landscape Architects
3121 E. GRAND RIVER AVE.
HOWELL, MI. 48843
517.546.4836 FAX 517.548.1670

NO	BY	CK	REVISION	DATE

1
ISSUE DATE: 08/31/20
JOB NO: 20-340

N

PARCEL: #4711-06-200-101
GENOA TOWNSHIP
LOT SIZE: 4.32 ACRES
ZONING: OSD OFFICE SERVICE DISTRICT
EXISTING USE: VACANT PROPOSED USE:

SOIL
CARLISLE MUCK (Cc), 0 TO 2 PERCENT SLOPES
WAWASEE LOAM (MoA), 0 TO 2 PERCENT SLOPES
WAWASEE LOA, (MoB), 2 TO 6 PERCENT SLOPES
MIAMI LOAM (MoD), 12 TO 18 PERCENT SLOPES

NATURAL FEATURES NARRATIVE:

SEVERAL NATURAL FEATURES WERE IDENTIFIED DURING AN ON-SITE VISIT TO THE PROPERTY ON AUGUST 25, 2020 THAT INCLUDE A DETENTION BASIN AND A WOODED AREA.

WOODLAND AREA PREDOMINANT SPECIES:
COTTONWOOD, BLACK WALNUT, PIN OAK, WHITE OAK, SUGAR MAPLE, SILVER MAPLE, AMERICAN ELM, SHAGBARK HICKORY, COMMON BUCKTHORN, AUTUMN OLIVE, ASH, SCOTS PINE AND RED PINE

DETENTION BASIN PREDOMINANT SPECIES:
CATTAILS, TREE OF HEAVEN, GOLDENROD, REED GRASS

OPEN MEADOW PREDOMINANT SPECIES:
STAGHORN SUMAC, PEAR SPP., FIELD JUNIPER, WILD TEASEL, GOLDENROD, QUEEN ANNE'S LACE, MILKWEED, VIRGINIA CREEPER, AND RIVERBANK GRAPE

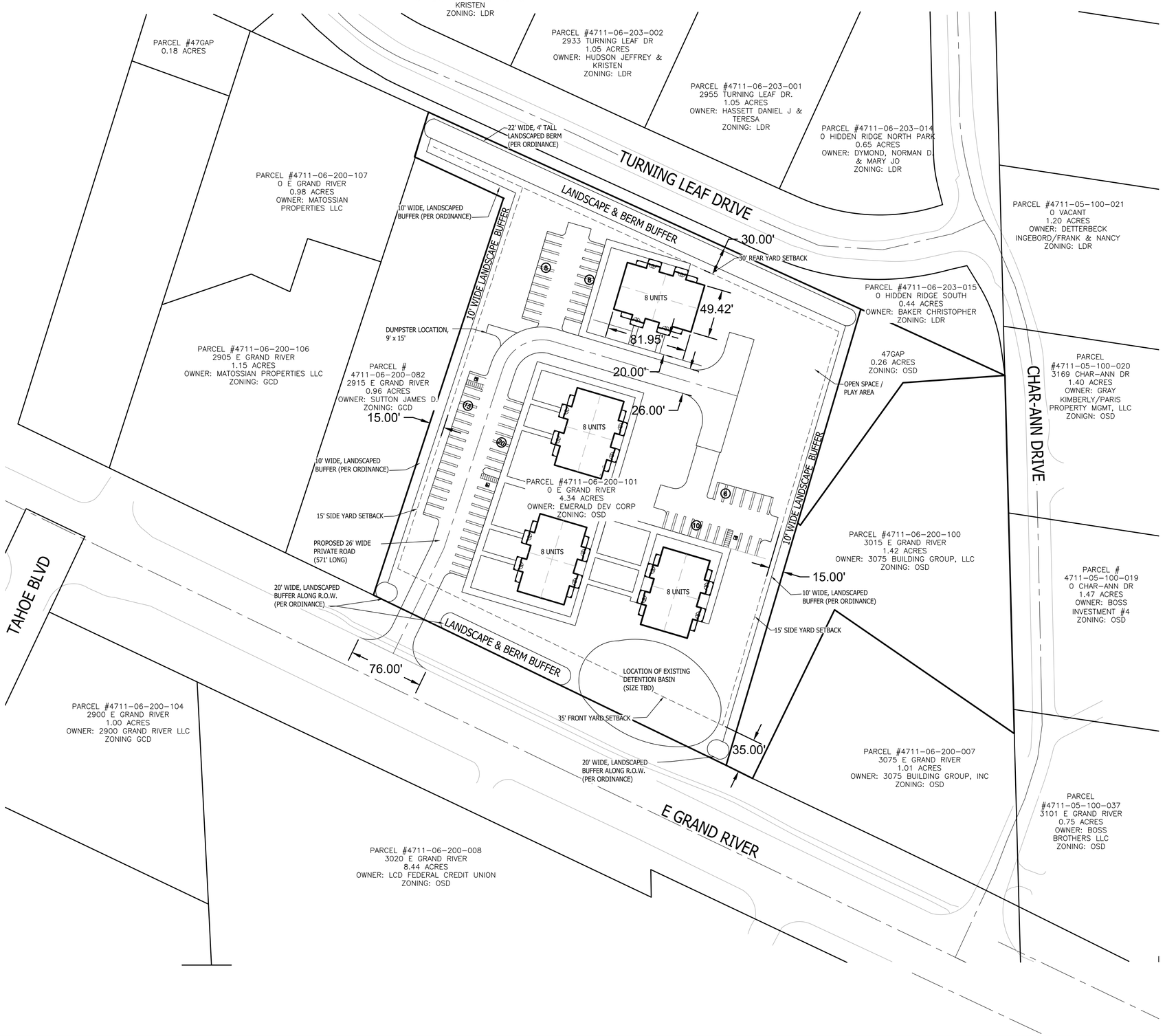
BOSS Engineering
Engineers Surveyors Planners Landscape Architects
3121 E. GRAND RIVER AVE.
HOWELL, MI. 48843
517.546.4836 FAX 517.548.1670

PROJECT: REZONING PLANS FOR 4.34 ACRE GRAND RIVER AVE. PARCEL
PREPARED FOR: KEVIN IRISH
4205 PASSETT ROAD
HOWELL, MI 48855
517-404-1252
TITLE: NATURAL FEATURES PLAN

NO	BY	REVISION PER	DATE
		-	-

DESIGNED BY: JA
DRAWN BY:
CHECKED BY:
SCALE: 1" = 50'
JOB NO: 20-340
DATE: 8/31/20
SHEET NO. 2

BOSS Engineering



SITE DATA

PARCEL: #4711-06-200-101
0 E GRAND RIVER
GENOA TOWNSHIP
LOT SIZE: 4.34 AC
ZONING: OSD (OFFICE SERVICE DISTRICT) TO BE REZONED TO HDR (HIGH DENSITY RESIDENTIAL)
EXISTING USE: VACANT
PROPOSED USE: APARTMENTS

8 UNITS PER ACRE *4.34 = 32 TOTAL ALLOWED UNITS

EXISTING DIMENSIONAL STANDARDS (OFFICE SERVICE DISTRICT)

	REQUIRED
MINIMUM LOT WIDTH:	100 FT
MAXIMUM BUILDING HEIGHT:	2.5 STORIES, 35 FEET
MINIMUM YARD SETBACK:	
FRONT	70 FT, 35 FT IF NO PARKING IN THE FRONT YARD
SIDE	20 FT EACH SIDE
REAR	40 FT

REQUIRED/PROPOSED DIMENSIONAL STANDARDS (HIGH DENSITY RESIDENTIAL DISTRICT)

MINIMUM LOT AREA PER DWELLING UNIT: DUPLEXES, ATTACHED TOWNHOUSES AND APARTMENTS UP TO 8 UNITS PER ACRE

8 UNITS PER ACRE ASSUMING ALL SETBACKS AND OTHER REQUIREMENTS CAN BE MET, MIN 21,780 SQ. FT. PER BUILDING, REQUIRES PUBLIC SEWER AND WATER
8 UNITS PER BUILDING, 5 BULDINGS = 40 TOTAL UNITS

		REQUIRED	PROPOSED
MINIMUM LOT WIDTH:		165 FT	
MAXIMUM BUILDING HEIGHT:		3 STORIES, 40 FEET	2 STORIES
MINIMUM YARD SETBACK:	FRONT	35 FT	35 FT
	SMALLER SIDE	15 FT	15 FT
	TOTAL 2 SIDES	30 FT	30 FT
	REAR	30 FT	30 FT

FOR BUILDINGS WITH MULTIPLE DWELLING UNITS, DUPLEXES AND ATTACHED RESIDENTIAL UNITS, A MINIMUM TWENTY (20) FOOT SETBACK FROM ALL INTERNAL ROADS, DRIVES AND PARKING AREAS SHALL BE PROVIDED. THIS SETBACK SHALL NOT APPLY TO INDIVIDUAL UNIT DRIVEWAYS. PROVIDED DRIVEWAYS SHALL PROVIDE A MINIMUM TWENTY (20) FOOT LONG AREA BETWEEN THE BUILDING AND A SIDEWALK FOR THE PARKING OF A VEHICLE. (AS AMENDED 12/31/06)

MAXIMUM LOT COVERAGE: 35% BLDG FOOTPRINT, MAX 50% IMPERVIOUS SURFACE (BLDG PLUS PAVED AREAS)

(PER UNIT) FLOOR AREA:
EFFICIENCY = 450 SQ. FT.
1 BEDROOM = 600 SQ. FT.
2 BEDROOM = 750 SQ. FT.
3 BEDROOM = 900 SQ. FT.
EACH ADDL = 150 SQ FT
GROUND FLOOR = 500 SQ FT/UNIT

PARKING SPACES REQUIRED FOR MFR: SPACES PER EACH UNIT WITH 2 OR MORE BEDROOMS = 32 UNITS X 2 SPACES = 64 TOTAL PARKING SPACES INCLUDING 3 BARRIER FREE AS REQUIRED

PARKING PROVIDED: 67 SPACES

THE LOCATION AND ELEVATION OF EXISTING UNDERGROUND UTILITIES AS SHOWN HEREON ARE APPROXIMATE AND NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL DETERMINE EXACT LOCATION AND ELEVATION OF EXISTING UTILITIES AND PROPOSED UTILITY CONNECTIONS PRIOR TO CONSTRUCTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT ALL UTILITY COMPANIES AND THE CONTRACTOR SHALL NOTIFY THE ENGINEER IF ANY CONFLICTS ARE FOUND TO EXIST BETWEEN THE PROPOSED IMPROVEMENTS AND THE FACILITIES SHOWN ON THE PLANS. IF THE LOCATION OR DEPTH DIFFERS SIGNIFICANTLY FROM THE PLANS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY.

3 WORKING DAYS BEFORE YOU DIG CALL MISS DIG 1-800-482-7171
IT'S THE LAW!! (P.A. 53 OF 1974, AS AMENDED)
MEMBERS OF MISS DIG SYSTEM, INC.

BOSS Engineering
Engineers Surveyors Planners Landscape Architects
3121 E. GRAND RIVER AVE.
HOWELL, MI. 48843
517.546.4836 FAX 517.548.1670

PROJECT: REZONING PLANS FOR 4.34 ACRE GRAND RIVER AVE. PARCEL
PREPARED FOR: KEVIN IRISH
4205 FAUSSET ROAD
HOWELL, MI 48855
517-404-1252
TITLE: SITE LAYOUT

NO	BY	REVISION PER	DATE
		-	-

DESIGNED BY: JA
DRAWN BY:
CHECKED BY:
SCALE: 1" = 50'
JOB NO: 20-340
DATE: 8/31/20
SHEET NO. 3

GENOA CHARTER TOWNSHIP
Application for Site Plan Review

TO THE GENOA TOWNSHIP PLANNING COMMISSION AND TOWNSHIP BOARD:

APPLICANT NAME & ADDRESS: Hugo Ceron 43980 Plymouth Oaks Blvd. Plymouth, MI 48170

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

OWNER'S NAME & ADDRESS: Adam Marchwinski 1400 E Witcomb Madison Heights, MI 48071

SITE ADDRESS: 1183 Fendt Drive PARCEL #(s): 4711-08-201-007

APPLICANT PHONE: (269) 312-2498 OWNER PHONE: (248) 226-0950

OWNER EMAIL: amarchwinski@ups.com

LOCATION AND BRIEF DESCRIPTION OF SITE:

Site is located to the southeast corner of the cul-de-sac of Fendt Drive. The property is currently a gravel parking lot with no building.

BRIEF STATEMENT OF PROPOSED USE:

Site is currently a gravel employee parking lot for the UPS facility across the street. Parking lot improvements include lot with an asphalt pavement section with curb and gutter, storm sewer, lighting and landscaping.

THE FOLLOWING BUILDINGS ARE PROPOSED: Not building is proposed as part of this project.

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: Hugo Ceron

ADDRESS: 43980 Plymouth Oaks Blvd. Plymouth MI 48170

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

1.) Hugo Ceron (Name) of SME (Business Affiliation) at hugo.ceron@sme-usa.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: _____ DATE: 08/05/2020

PRINT NAME: Hugo Ceron PHONE: (269)312-2498

ADDRESS: 43980 Plymouth Oaks Blvd. Plymouth MI 48170

October 6, 2020

Planning Commission
Genoa Township
2911 Dorr Road
Brighton, Michigan 48116

Attention:	Kelly Van Marter, AICP Planning Director and Assistant Township Manager
Subject:	UPS Howell – Site Plan Review #2
Location:	1183 Fendt Drive – east side of Fendt Drive, north of Grand Oaks Drive
Zoning:	IND Industrial District

Dear Commissioners:

At the Township's request, we have reviewed the revised submittal from UPS Howell requesting site plan review/approval of a new parking lot at 1183 Fendt Drive (plans dated 9/23/20). The proposed parking lot is to be used in conjunction with the existing UPS facility on the west side of Fendt Drive.

A. Summary

1. We recommend the Commission require the applicant to provide and record an agreement stating that the two properties are tied together, and that a shared parking easement must be provided and recorded should either property be sold separately.
2. The applicant will need to obtain a variance from the ZBA to exceed the 300-foot spacing between the nearest parking space and public building entrance (Section 14.02.03).
3. The landscape plan is deficient in parking lot landscaping. The applicant requests that PC waive these requirements, per Section 12.02.13.
4. If signage if proposed in the future, a sign permit must be obtained from the Township prior to installation.

B. Proposal/Process

The project entails a new parking lot, including landscaping, lighting, and site engineering, for use in conjunction with the existing building/facility across the street.

It is our understanding that UPS has used the subject site as an unimproved parking lot for some time, and site improvements have been required by the Township.

Per Table 18.2, construction of a new parking lot requires site plan review/approval by the Planning Commission.

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.

C. Site Plan Review

1. Use. In this instance, the proposed parking lot is to be used in conjunction with the facility across the street. Section 14.02.03 allows parking on lots under the same ownership, or where a shared parking easement is provided, and the nearest parking space is not more than 300 feet from the nearest public entrance.

Aerial view of site and surroundings (looking east)

Since the lots are under common ownership, an easement is not required at this time. However, one will be necessary if either lot is sold separately in the future.

In order to ensure adherence to this requirement, we recommend the Commission require that the applicant provide an agreement in recordable format allowing accessory parking dedicated to the use of the property across the street. Furthermore, said agreement should state that a shared parking easement must be provided and recorded upon the sale of either parcel separately.

Additionally, the 300-foot standard of Section 14.02.03 is not met. Based on Sheet C-600, the distance is approximately 310 feet. The applicant will need to obtain a variance from the ZBA to exceed this standard.

Lastly, use of the parking lot for outdoor storage is prohibited. By definition, "outdoor storage" occurs when goods, materials, or vehicles are kept in the same place for more than 24 hours. A note has been added Sheet C-600 acknowledging this standard.

2. **Dimensional Requirements.** As shown in the table below, the project complies with the applicable dimensional requirements of the IND:

	Min. Lot Req.		**Minimum Parking Setbacks (feet)**			**Max. Lot Coverage**
	Area (acres)	**Width (feet)**	**Front Yard**	**Side Yard**	**Rear Yard**	
IND	1	150	20	10	10	85% impervious
Proposed	2.03	272.2	20	14 (N) 12 (S)	46	68.5%

2. **Vehicular Circulation.** Vehicular access to/from Fendt Drive will be provided via 2 new driveways. The parking lot will utilize a two-way circulation pattern with 24-foot wide drive aisles, and a 26-foot wide fire lane looping around the lot.

3. **Pedestrian Circulation.** Sidewalks are not typically required in the IND District; however, given the nature of the request, the applicant proposes sidewalks and crosswalks connecting the proposed parking lot to the developed site across the street.

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

	Required	Proposed	Comments
Parking Spaces Warehousing (greater of 1 space/1,500 SF gross floor area or 1.2 spaces/employee in peak shift; plus 1 per corporate vehicle)	220	47 at facility 184 new lot 231 total	In compliance - based on 183 employees noted in EIA
Barrier Free Spaces	8	8	In compliance
Dimensions Spaces (75 to 90-degree) Drive aisle width (two-way)	9' x 18' 24'	9' x 18' 24' and 26'	In compliance

5. Landscaping. The landscape plan 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 7 canopy trees	20' width 7 canopy trees	In compliance
Parking lot	16 canopy trees 1,550 SF landscaped area	0 canopy trees 0 SF landscaped area	Applicant requests that PC waive requirements

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

6. Exterior Lighting. The lighting plan includes 4 poles with 2 fixtures each. Details include the use of downward directed LED fixtures, per Ordinance standards. Additionally, the photometric plan demonstrates compliance with maximum lighting intensities (both on-site and along property lines).

A note has been added to Sheet E-004 indicating the use of 30-foot tall light poles, which also complied with Ordinance standards.

7. Signs. The revised submittal notes that no new signage is proposed as part of this project. If signage if proposed in the future, a sign permit must be obtained from the Township prior to installation.

8. Impact Assessment. The submittal includes an Impact Assessment (dated September 2, 2020), which notes that the project is not anticipated 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.

Respectfully,
SAFEBUILT STUDIO

Brian V. Borden, AICP
Planning Manager

TETRA TECH

October 5, 2020

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

Re: UPS Parking Lot
Site Plan Review No. 2

Dear Ms. Van Marter:

Tetra Tech conducted a second review of the proposed UPS Parking Lot site plan last dated September 23, 2020. The plans and impact assessment were submitted by SME. The site is on a 2-acre parcel located on the east side of Fendt Drive. The petitioner is proposing a 60,300 square foot asphalt parking lot to replace the existing 40,500 square foot gravel parking yard that is currently used as overflow parking for the UPS facility across the street. The Petitioner is proposing parking lot, storm sewer, and underground stormwater detention system.

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

DRAINAGE AND GRADING

1. The Petitioner is proposing a closed pipe type underground detention basin comprised of four 48-inch diameter pipes to provide 5,329 cubic feet of storage. A Stormwater Management System Maintenance Plan is included and details the cost and responsibility of maintaining the proposed storm system. The provided maintenance schedules include maintenance and inspection of the detention basin inlet, but not the outlet and emergency outlets. These components should be included in the schedules to make sure they remain clear of debris.

2. The proposed underground detention basin is designed to capture additional flow that will be generated from the parking lot being improved from gravel to asphalt, not to capture all onsite drainage. The Petitioner provided an email from Mitch Dempsey of the Livingston County Drain Commission permitting this basis of design.

3. The Petitioner reduced their outlet pipe size to 6 inches to create a restricted outflow. The 6-inch pipe will restrict outflow to 0.561 cfs, which meets the 0.2 cfs per acre maximum.

4. The Petitioner added an overflow outlet to the underground detention basin at catch basin 2. The emergency outlet is currently proposed as a 6-inch pipe. This appears to be undersized when reviewing the calculations for the pipes tributary to the detention system. The petitioner should size the outlet so that the combination of the outlet pipe (6 inch) and overflow pipe will accommodate the same amount of flow that is being calculated for the pipe between catch basins 3 and 2. This will limit the potential for the collection system to back up and overflow over the curb and thereby cause erosion of the parking lot embankment.

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

5. The plans include 10-foot-deep soil borings. The Genoa Township Engineering Standards require that soil borings shall be provided to a depth of 20 feet below the bottom of the proposed detention basin and the documented high level of the groundwater should be provided.

WATER MAIN

1. The Petitioner is proposing to relocate the existing fire hydrant at the end of Fendt Drive to accommodate one of the two proposed access drives to the parking lot. More detail needs to be provided on how this hydrant will be relocated. The relocation of the hydrant should be achieved by shutting off the existing hydrant isolation valve, removing the existing hydrant, installing any necessary fittings to get to the proposed location, and then installing a new isolation valve and the hydrant. The existing isolation valve can then be opened and buried with the operator removed. This method will not require the water main on Fendt Drive to be shut down. If the hydrant is relocated as it is currently shown, the water main will need to be shut down and the hydrant will need to reinstalled using MHOG's terminal hydrant detail (https://www.mhog.org/newdevelpement/designstandards).

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

October 7, 2020

Kelly VanMarter
Genoa Township
2911 Dorr Road
Brighton, MI 48116

RE: UPS Employee Parking Lot
1183 Fendt 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 September 30, 2020 and the drawings are dated September 2, 2020. The project is based on the reconfiguration of an existing 2.03-acre vacant parcel used as a gravel parking lot for employees of the nearby UPS distribution facility. There is no proposed structure in the application. The plan review is based on the requirements of the International Fire Code (IFC) 2018 edition.

All fire authorities requirements related to access have been substantially complied with.

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

IMPACT ASSESMENT

UNITED PARCEL SERVICE FACILITY
GENOA TOWNSHIP, MICHIGAN

SME Project Number: 084617.00
September 2, 2020

SME

The Kramer Building
43980 Plymouth Oaks Blvd.
Plymouth, MI 48170-2584

T (734) 454-9900

www.sme-usa.com

September 2, 2020

Mr. Adam Marchwinski
UPS Buildings & Systems Engineering
1400 E. Whitcomb
Madison Heights, Michigan 48071

Via E-mail: amarchwinski@ups.com *(PDF file)*

Re: Impact Assessment
UPS Genoa Township Facility
1212 Fendt Drive, Genoa Township, Michigan 48843
SME Project No. 084617.00

Dear Mr. Marchwinski:

We have completed our impact assessment for the proposed parking lot development at the UPS facility located in Genoa Township, Michigan. This letter summarizes the anticipated impacts for the project per Genoa Township site plan application submittal requirements.

Sincerely,

SME

Assessment Prepared by:
Kyle J, Wilson, EIT
Senior Staff Engineer

Assessment Reviewed by:
Hugo J. Ceron, PE
Project Engineer

TABLE OF CONTENTS

1.0 CONTACT INFORMATION

Prepared by:

SME
43980 Plymouth Oaks Blvd.
Plymouth, MI 48170

Prepared for:

UPS
1400 E. Whitcomb
Madison Heights, Michigan 48071

2.0 DESCRIPTION OF PROJECT SITE

The site is located at 1183 Fendt Drive near the northwest intersection of I-96 and South Latson Road in Genoa Township, Michigan. The site is located on Lot 7 of the Gen Tech Industrial Park on the east side of Fendt Drive and is zoned as Industrial. The parcel is approximately 2 acres in area. The site features an existing 4,500 square yard gravel parking lot that serves as overflow parking for employees at the UPS facility located on the west side of Fendt Drive. The project site is bound by industrial facilities to the North and South, Fendt drive to the West, and an existing drainage ditch and service drive between the existing Walmart and Lowe's to the East.

Proposed site improvements include an approximately 6,700 square yard asphalt pavement parking lot with concrete curb and gutter, site lighting, underground storm sewer pipe, and an underground storm water detention system. The parking lot will serve as parking UPS employees and will serve passenger vehicles. The proposed parking lot includes 186 parking stalls.

3.0 IMPACT ON NATURAL FEATURES

The existing site topography varies, with elevations generally ranging between 1005 and 1023. The site generally slopes from west to east, and from south to north, with the steepest slopes along the eastern third of the parcel toward an existing drainage ditch. The site also features an existing drainage ditch on the west side of the parcel along Fendt Drive. The site is generally free of trees and vegetation except for one deciduous tree on the parcel and grass in the existing greenbelt areas. The existing gravel lot has slopes up to approximately 3 percent. The site is located in FEMA floodplain Zone X, area of minimal flood hazard per FEMA flood insurance map 26093C0309D effective date September 17, 2008. The proposed development will have relatively low impact on natural features, with some of the existing greenbelt areas becoming paved parking lot, and other areas on site being re-graded.

4.0 IMPACT ON STORMWATER MANAGEMENT

Soil erosion and sediment control measures will be implemented at the start of the project and remain in place until final ground cover is restored. Silt fence will be utilized the control sediment runoff at the disturbance limits, inlet protection filters will be install on new storm structures during construction, and gravel tracking pads will be used for site access. Disturbed greenbelt areas will be restored following construction with topsoil and grass seed. The SESC and Site Preparation Plan will be submitted to the Livingston County Drain Commissioner for review and a soil erosion permit will be obtained for the project.

5.0 IMPACT ON SURROUNDING LAND USED

The parcel is zoned as Industrial (IND) based on the Genoa Township Official Zoning Map with revision date February, 17, 2015 with the site use permitted in the Industrial district under warehousing establishments. The parcel is bordered by industrial zones to the North, West, and South and by a Non-Residential Planned Unit Development (NRPUD) zone to the east. The parcel conforms the dimensional and bulk requirements in Section 8.03 of the Genoa Township Zoning ordinance (as amended 12/31/06).

The lot area is approximately 2.0 acres and the lot width is approximately 265 feet. The proposed development will consist of a new employee parking lot for passenger vehicles of UPS employees. The proposed lot conforms to the parking setback requirements of 20 feet for the front yard 10 feet for the side and rear yards. The parking lot will feature exterior lighting that comply with Section 12.03 of the Genoa Township Zoning Ordinance. The proposed parking lot development will not have significant impact on noise and air pollution as the lot will be used for employee parking.

6.0 IMPACT ON PUBLIC FACILITIES AND SERVICES

The UPS Howell facility typically employs approximately 183 employees during normal operations, generally between the hours of 4:00AM and 9:30PM. Work at the facility generally occurs in 3 shifts, with 53 pre-loading employees working between the hours of 4:00AM and 10:00PM, 91 delivery drivers working between the hours of 8:30AM and 6:30PM, and 39 re-load employees working between the hours of 5:00PM and 9:30 PM.

The facility experiences an approximate employee increase of 35% during peak season, generally from November through January. The hours of operation generally span between the hours of 12:00AM and 11:00PM during these periods.

In general, the proposed development will have little impact on public facilities and services, as the project is located on a private road that serves industrial facilities and is not open to the public.

7.0 IMPACT ON PUBLIC UTILITIES

Gas, water, and sanitary sewer services are not included in the proposed parking lot development as no buildings are proposed for the site. Existing gas, water, and sanitary sewer lines are present along the private Fendt Drive right of way but will not need to be tapped for proposed development. The project will include relocation of an existing fire hydrant to accommodate the proposed northwest entrance driveway. The proposed hydrant location will be approximately 28’ to the northwest of the existing location.

Catch basin structures and underground storm sewer pipes will be utilized to convey stormwater to existing drainage ditches. An underground detention system will be utilized to detain stormwater at the site. The detention system will be sized to accommodate the difference in pre-development and post-development runoff for a 100 year storm event per Livingston County’s preliminary review of the proposed development. The stormwater will be treated using a mechanical forebay prior to outlet. The final stormwater outlet will be into existing the drainage ditch along the east side of the site. Plans and stormwater calculations will be submitted to Livingston County Drain Commissioner for review and a soil erosion permit will be obtained for the project.

8.0 STORAGE AND HANDLING OF HAZARDOUS MATERIALS

The proposed parking lot will serve passenger vehicles as an employee parking for UPS. As such, hazardous materials will not be handled or stored at the site.

9.0 IMPACT ON TRAFFIC AND PEDESTRIANS

The UPS facility has approximately 183 employees during normal operations, and 248 employees during the months of November through January. The proposed parking lot will serve employee passenger vehicles only, as such no vehicle trips for delivery trucks or tractor trailers will be generated from the proposed development. The maximum vehicle trips per day from the proposed lot is estimated at 621 trips, and includes arrival and departure of all employees during peak season, as well as lunch departure and arrival for non-delivery driver staff.

The peak hour for vehicle trips generally occurs between the hours of 8:00AM and 9:00AM. Approximately 50 percent of the employees are delivery driver staff that begin work by approximately 8:30AM. The peak flow rate is estimated at approximately 94 trips per hour and makes up approximately 15 percent of the estimated maximum vehicle trips per day. Little traffic impact is anticipated from the proposed parking lot development, as the existing gravel lot is being utilized for the same purpose, and the proposed parking lot will not generate additional trips beyond the existing conditions.

10.0 SPECIAL PROVISIONS

Special provisions are not applicable to the proposed development.

Passionate People Building
and Revitalizing our World

SME

UNITED PARCEL SERVICE, INC.

STORMWATER MANAGEMENT SYSTEM MAINTENANCE PLAN

1. RESPONSIBILITY FOR MAINTENANCE OF NEW INFRASTRUCTURE

a) During construction, it is the Contractor's responsibility to perform the maintenance of the new infrastructure.
b) Following construction, it will be the responsibility of United Parcel Service Inc. (UPS) to perform the maintenance of the new infrastructure as described on Table 2.
c) Following construction, routine maintenance of the new infrastructure must be completed within 14 days of receipt of written notification that action is required, unless other acceptable arrangements are made with the Genoa Township, Livingston County Drain Commissioner or successors. Emergency maintenance of the new infrastructure (i.e. when there is endangerment to public health, safety or welfare) shall be performed immediately upon receipt of written notice. Should UPS fail to act within these time frames, the Township of Genoa, Livingston County or successors may perform the needed maintenance and assess the costs against UPS.

2. SOURCE OF FINANCING

UPS is required to pay for the maintenance activities relating to the new infrastructure as described on Table 2 on a continuing basis.

3. MAINTENANCE TASKS AND SCHEDULE

a) See the charts on the next three pages: The first describes maintenance tasks during construction to be performed by the Contractor, the second describes maintenance tasks by UPS with an approximate budget.
b) An Additional inspection and maintenance guide for the water quality unit and underground detention system from the manufacturer is included.
c) Immediately following construction, the Contractor will have the stormwater management system inspected by an engineer to verify grades of the filtration areas and make recommendations for any necessary sediment.

Table 1

MAINTENACE TASKS AND SCHEDULE DURING CONSTRUCTION				
	COMPONENTS			
Tasks	**Storm Sewer System**	**Catch Basin Inlet Castings**	**Ditches and Swales**	**Schedule**
Inspect for sediment accumulation	X		X	Weekly
Removal of sediment accumulation	X		X	As needed* & prior to turnover
Inspect for floatables and debris		X	X	Quarterly
Cleaning of floatables and debris		X	X	Quarterly & at turnover
Inspection for erosion			X	Weekly
Re-establish permanent vegetation on eroded slopes			X	As needed & at turnover
Mowing			X	0 to 2 times per year
Inspect Stormwater system components during wet weather and compare to as-built plans (by professional engineer reporting to UPS)			X	Annually and at turnover
Make adjustments or replacement as determined by annual wet weather inspection	X	X	X	As needed

*as needed means when sediment has accumulated to a maximum of one foot depth

Table 2

PERMANENT MAINTENANCE TASKS AND SCHEDULE				
	COMPONENTS			
Tasks	**Catch Basins, Inlets, Castings**	**Ditches and Swales**	**Schedule**	**Budget**
Inspect for sediment accumulation	X	X	Annually	$ 100.00
Removal of sediment accumulation	X	X	Every 2 years as needed	$ 500.00
Inspect for floatables and debris	X	X	Annually	$ 100.00
Cleaning of floatables and debris	X	X	Annually	$ 150.00
Inspection for erosion		X	Annually	$ 100.00
Re-establish permanent vegetation on eroded slopes		X	As needed	$ 350.00
Mowing		X	0 to 2 times per year	$ 400.00
Inspect Stormwater system components during wet weather and compare to as-built plans (by professional engineer reporting to UPS)	X	X	Annually	$ 150.00
Make adjustments or replacement as determined by annual wet weather inspection	X	X	As needed	$ 400.00
Keep records of replacements as determined by annual wet weather inspection	X	X	Annually	$ 200.00
Keep records of all costs for inspections, maintenance and repairs. Report to UPS	X	X	Annually	$ -
			Total Annual Budget	**$ 2,450.00**

*as needed means when sediment has accumulated to a maximum of one foot depth

CONTECH®
ENGINEERED SOLUTIONS

CDS Guide
Operation, Design, Performance and Maintenance

CDS®

Using patented continuous deflective separation technology, the CDS system screens, separates and traps debris, sediment, and oil and grease from stormwater runoff. The indirect screening capability of the system allows for 100% removal of floatables and neutrally buoyant material without blinding. Flow and screening controls physically separate captured solids, and minimize the re-suspension and release of previously trapped pollutants. Inline units can treat up to 6 cfs, and internally bypass flows in excess of 50 cfs (1416 L/s). Available precast or cast-in-place, offline units can treat flows from 1 to 300 cfs (28.3 to 8495 L/s). The pollutant removal capacity of the CDS system has been proven in lab and field testing.

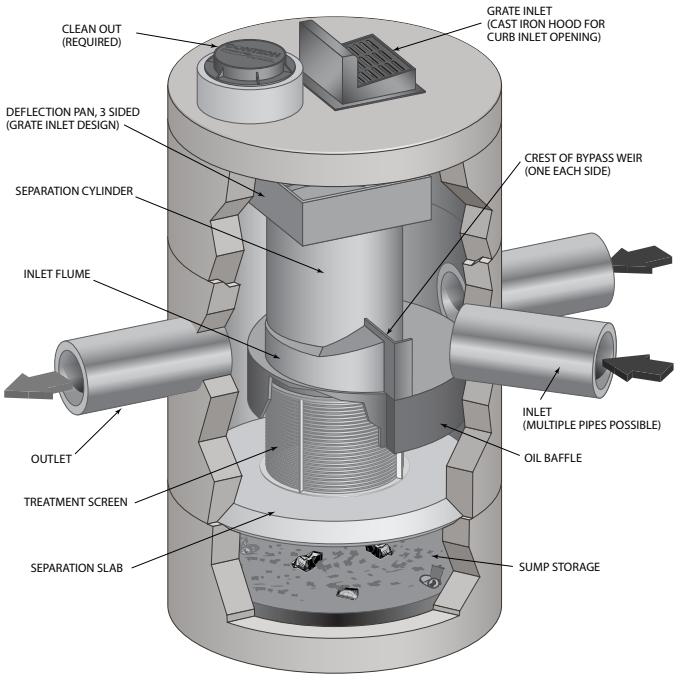
Operation Overview

Stormwater enters the diversion chamber where the diversion weir guides the flow into the unit's separation chamber and pollutants are removed from the flow. All flows up to the system's treatment design capacity enter the separation chamber and are treated.

Swirl concentration and screen deflection force floatables and solids to the center of the separation chamber where 100% of floatables and neutrally buoyant debris larger than the screen apertures are trapped.

Stormwater then moves through the separation screen, under the oil baffle and exits the system. The separation screen remains clog free due to continuous deflection.

During the flow events exceeding the treatment design capacity, the diversion weir bypasses excessive flows around the separation chamber, so captured pollutants are retained in the separation cylinder.



Design Basics

There are three primary methods of sizing a CDS system. The Water Quality Flow Rate Method determines which model size provides the desired removal efficiency at a given flow rate for a defined particle size. The Rational Rainfall Method™ or the and Probabilistic Method is used when a specific removal efficiency of the net annual sediment load is required.

Typically in the Unites States, CDS systems are designed to achieve an 80% annual solids load reduction based on lab generated performance curves for a gradation with an average particle size (d50) of 125 microns (μm). For some regulatory environments, CDS systems can also be designed to achieve an 80% annual solids load reduction based on an average particle size (d50) of 75 microns (μm) or 50 microns (μm).

Water Quality Flow Rate Method

In some cases, regulations require that a specific treatment rate, often referred to as the water quality design flow (WQQ), be treated. This WQQ represents the peak flow rate from either an event with a specific recurrence interval, e.g. the six-month storm, or a water quality depth, e.g. 1/2-inch (13 mm) of rainfall.

The CDS is designed to treat all flows up to the WQQ. At influent rates higher than the WQQ, the diversion weir will direct most flow exceeding the WQQ around the separation chamber. This allows removal efficiency to remain relatively constant in the separation chamber and eliminates the risk of washout during bypass flows regardless of influent flow rates.

Treatment flow rates are defined as the rate at which the CDS will remove a specific gradation of sediment at a specific removal efficiency. Therefore the treatment flow rate is variable, based on the gradation and removal efficiency specified by the design engineer.

Rational Rainfall Method™

Differences in local climate, topography and scale make every site hydraulically unique. It is important to take these factors into consideration when estimating the long-term performance of any stormwater treatment system. The Rational Rainfall Method combines site-specific information with laboratory generated performance data, and local historical precipitation records to estimate removal efficiencies as accurately as possible.

Short duration rain gauge records from across the United States and Canada were analyzed to determine the percent of the total annual rainfall that fell at a range of intensities. US stations' depths were totaled every 15 minutes, or hourly, and recorded in 0.01-inch increments. Depths were recorded hourly with 1-mm resolution at Canadian stations. One trend was consistent at all sites; the vast majority of precipitation fell at low intensities and high intensity storms contributed relatively little to the total annual depth.

These intensities, along with the total drainage area and runoff coefficient for each specific site, are translated into flow rates using the Rational Rainfall Method. Since most sites are relatively small and highly impervious, the Rational Rainfall Method is appropriate. Based on the runoff flow rates calculated for each intensity, operating rates within a proposed CDS system are

determined. Performance efficiency curve determined from full scale laboratory tests on defined sediment PSDs is applied to calculate solids removal efficiency. The relative removal efficiency at each operating rate is added to produce a net annual pollutant removal efficiency estimate.

Probabilistic Rational Method

The Probabilistic Rational Method is a sizing program Contech developed to estimate a net annual sediment load reduction for a particular CDS model based on site size, site runoff coefficient, regional rainfall intensity distribution, and anticipated pollutant characteristics.

The Probabilistic Method is an extension of the Rational Method used to estimate peak discharge rates generated by storm events of varying statistical return frequencies (e.g. 2-year storm event). Under the Rational Method, an adjustment factor is used to adjust the runoff coefficient estimated for the 10-year event, correlating a known hydrologic parameter with the target storm event. The rainfall intensities vary depending on the return frequency of the storm event under consideration. In general, these two frequency dependent parameters (rainfall intensity and runoff coefficient) increase as the return frequency increases while the drainage area remains constant.

These intensities, along with the total drainage area and runoff coefficient for each specific site, are translated into flow rates using the Rational Method. Since most sites are relatively small and highly impervious, the Rational Method is appropriate. Based on the runoff flow rates calculated for each intensity, operating rates within a proposed CDS are determined. Performance efficiency curve on defined sediment PSDs is applied to calculate solids removal efficiency. The relative removal efficiency at each operating rate is added to produce a net annual pollutant removal efficiency estimate.

Treatment Flow Rate

The inlet throat area is sized to ensure that the WQQ passes through the separation chamber at a water surface elevation equal to the crest of the diversion weir. The diversion weir bypasses excessive flows around the separation chamber, thus preventing re-suspension or re-entrainment of previously captured particles.

Hydraulic Capacity

The hydraulic capacity of a CDS system is determined by the length and height of the diversion weir and by the maximum allowable head in the system. Typical configurations allow hydraulic capacities of up to ten times the treatment flow rate. The crest of the diversion weir may be lowered and the inlet throat may be widened to increase the capacity of the system at a given water surface elevation. The unit is designed to meet project specific hydraulic requirements.

Performance

Full-Scale Laboratory Test Results

A full-scale CDS system (Model CDS2020-5B) was tested at the facility of University of Florida, Gainesville, FL. This CDS unit was evaluated under controlled laboratory conditions of influent flow rate and addition of sediment.

Two different gradations of silica sand material (UF Sediment & OK-110) were used in the CDS performance evaluation. The particle size distributions (PSDs) of the test materials were analyzed using standard method "Gradation ASTM D-422 "Standard Test Method for Particle-Size Analysis of Soils" by a certified laboratory.

UF Sediment is a mixture of three different products produced by the U.S. Silica Company: "Sil-Co-Sil 106", "#1 DRY" and "20/40 Oil Frac". Particle size distribution analysis shows that the UF Sediment has a very fine gradation (d50 = 20 to 30 μm) covering a wide size range (Coefficient of Uniformity, C averaged at 10.6). In comparison with the hypothetical TSS gradation specified in the NJDEP (New Jersey Department of Environmental Protection) and NJCAT (New Jersey Corporation for Advanced Technology) protocol for lab testing, the UF Sediment covers a similar range of particle size but with a finer d50 (d50 for NJDEP is approximately 50 μm) (NJDEP, 2003).

The OK-110 silica sand is a commercial product of U.S. Silica Sand. The particle size distribution analysis of this material, also included in Figure 1, shows that 99.9% of the OK-110 sand is finer than 250 microns, with a mean particle size (d50) of 106 microns. The PSDs for the test material are shown in Figure 1.

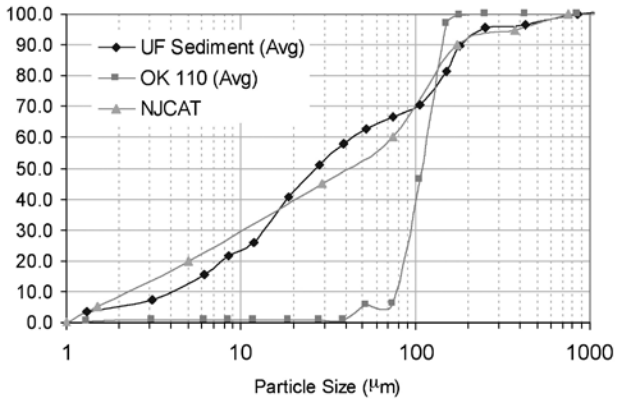


Figure 1. Particle size distributions

Tests were conducted to quantify the performance of a specific CDS unit (1.1 cfs (31.3-L/s) design capacity) at various flow rates, ranging from 1% up to 125% of the treatment design capacity of the unit, using the 2400 micron screen. All tests were conducted with controlled influent concentrations of approximately 200 mg/L. Effluent samples were taken at equal time intervals across the entire duration of each test run. These samples were then processed with a Dekaport Cone sample splitter to obtain representative sub-samples for Suspended Sediment Concentration (SSC) testing using ASTM D3977-97 "Standard Test Methods for Determining Sediment Concentration in Water Samples", and particle size distribution analysis.

Results and Modeling

Based on the data from the University of Florida, a performance model was developed for the CDS system. A regression analysis was used to develop a fitting curve representative of the scattered data points at various design flow rates. This model, which demonstrated good agreement with the laboratory data, can then be used to predict CDS system performance with respect

to SSC removal for any particle size gradation, assuming the particles are inorganic sandy-silt. Figure 2 shows CDS predictive performance for two typical particle size gradations (NJCAT gradation and OK-110 sand) as a function of operating rate.

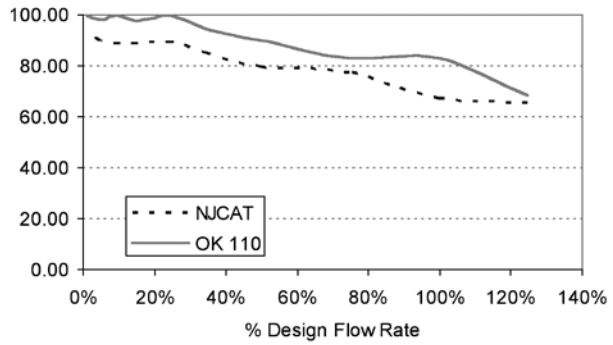


Figure 2. CDS stormwater treatment predictive performance for various particle gradations as a function of operating rate.

Many regulatory jurisdictions set a performance standard for hydrodynamic devices by stating that the devices shall be capable of achieving an 80% removal efficiency for particles having a mean particle size (d50) of 125 microns (e.g. Washington State Department of Ecology — WASDOE - 2008). The model can be used to calculate the expected performance of such a PSD (shown in Figure 3). The model indicates (Figure 4) that the CDS system with 2400 micron screen achieves approximately 80% removal at the design (100%) flow rate, for this particle size distribution (d50 = 125 μm).

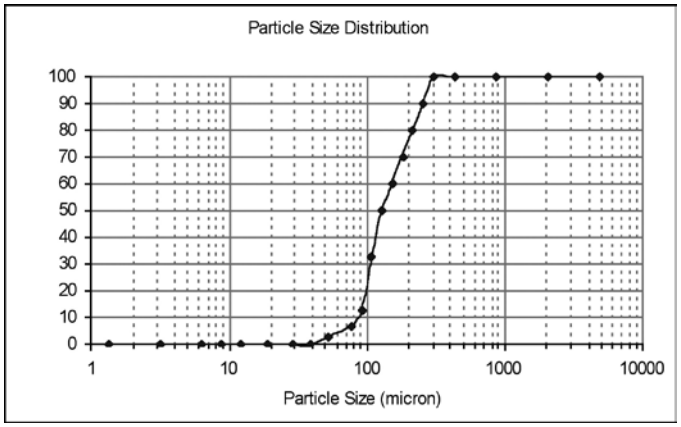


Figure 3. WASDOE PSD

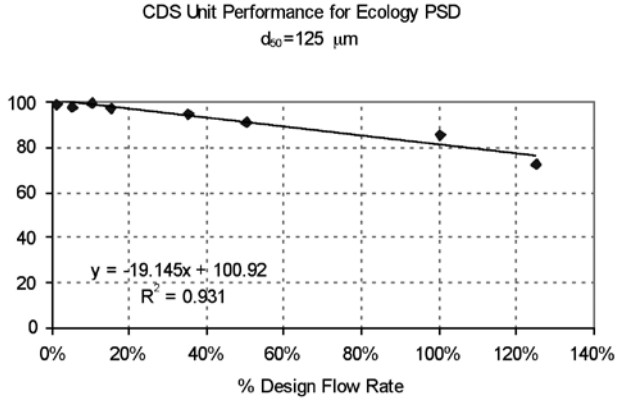


Figure 4. Modeled performance for WASDOE PSD.

Maintenance

The CDS system should be inspected at regular intervals and maintained when necessary to ensure optimum performance. The rate at which the system collects pollutants will depend more heavily on site activities than the size of the unit. For example, unstable soils or heavy winter sanding will cause the grit chamber to fill more quickly but regular sweeping of paved surfaces will slow accumulation.

Inspection

Inspection is the key to effective maintenance and is easily performed. Pollutant transport and deposition may vary from year to year and regular inspections will help ensure that the system is cleaned out at the appropriate time. At a minimum, inspections should be performed twice per year (e.g. spring and fall) however more frequent inspections may be necessary in climates where winter sanding operations may lead to rapid accumulations, or in equipment washdown areas. Installations should also be inspected more frequently where excessive amounts of trash are expected.

The visual inspection should ascertain that the system components are in working order and that there are no blockages or obstructions in the inlet and separation screen. The inspection should also quantify the accumulation of hydrocarbons, trash, and sediment in the system. Measuring pollutant accumulation can be done with a calibrated dipstick, tape measure or other measuring instrument. If absorbent material is used for enhanced removal of hydrocarbons, the level of discoloration of the sorbent material should also be identified

during inspection. It is useful and often required as part of an operating permit to keep a record of each inspection. A simple form for doing so is provided.

Access to the CDS unit is typically achieved through two manhole access covers. One opening allows for inspection and cleanout of the separation chamber (cylinder and screen) and isolated sump. The other allows for inspection and cleanout of sediment captured and retained outside the screen. For deep units, a single manhole access point would allows both sump cleanout and access outside the screen.

The CDS system should be cleaned when the level of sediment has reached 75% of capacity in the isolated sump or when an appreciable level of hydrocarbons and trash has accumulated. If absorbent material is used, it should be replaced when significant discoloration has occurred. Performance will not be impacted until 100% of the sump capacity is exceeded however it is recommended that the system be cleaned prior to that for easier removal of sediment. The level of sediment is easily determined by measuring from finished grade down to the top of the sediment pile. To avoid underestimating the level of sediment in the chamber, the measuring device must be lowered to the top of the sediment pile carefully. Particles at the top of the pile typically offer less resistance to the end of the rod than consolidated particles toward the bottom of the pile. Once this measurement is recorded, it should be compared to the as-built drawing for the unit to determine weather the height of the sediment pile off the bottom of the sump floor exceeds 75% of the total height of isolated sump.

Cleaning

Cleaning of a CDS systems should be done during dry weather conditions when no flow is entering the system. The use of a vacuum truck is generally the most effective and convenient method of removing pollutants from the system. Simply remove the manhole covers and insert the vacuum hose into the sump. The system should be completely drained down and the sump fully evacuated of sediment. The area outside the screen should also be cleaned out if pollutant build-up exists in this area.

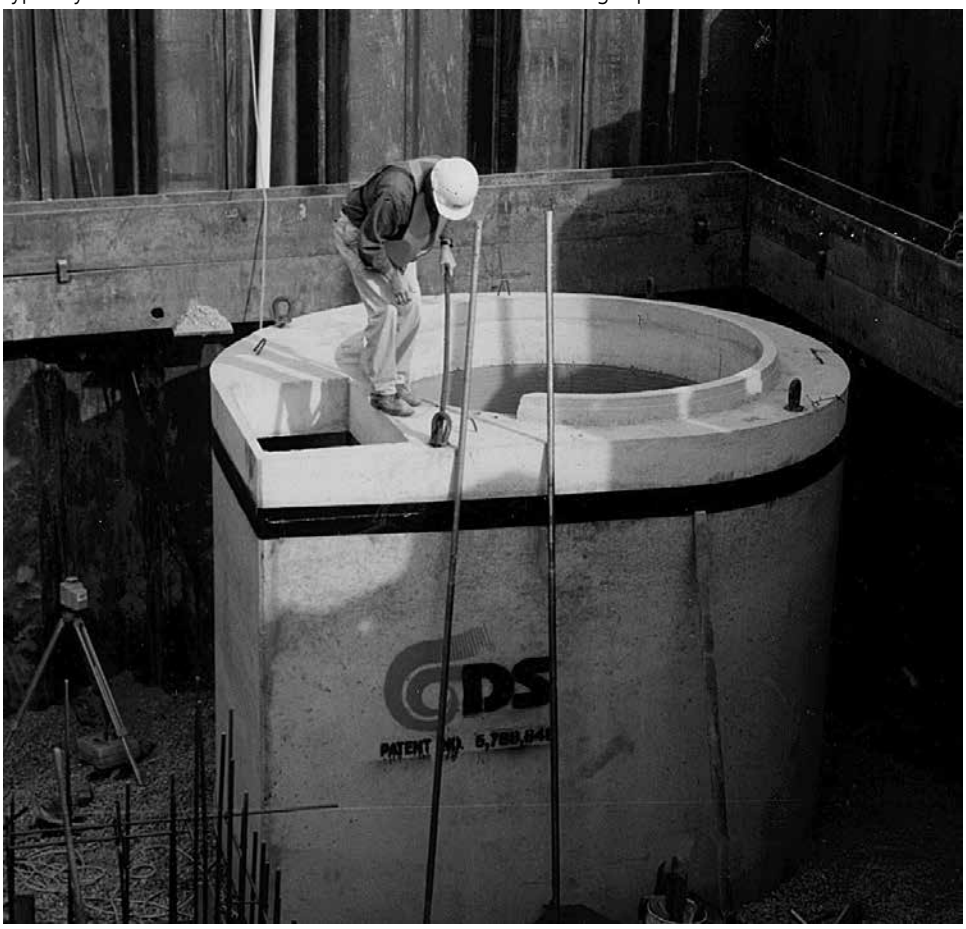
In installations where the risk of petroleum spills is small, liquid contaminants may not accumulate as quickly as sediment. However, the system should be cleaned out immediately in the event of an oil or gasoline spill. Motor oil and other hydrocarbons that accumulate on a more routine basis should be removed when an appreciable layer has been captured. To remove these pollutants, it may be preferable to use absorbent pads since they are usually less expensive to dispose than the oil/water emulsion that may be created by vacuuming the oily layer. Trash and debris can be netted out to separate it from the other pollutants. The screen should be cleaned to ensure it is free of trash and debris.

Manhole covers should be securely seated following cleaning activities to prevent leakage of runoff into the system from above and also to ensure that proper safety precautions have been followed. Confined space entry procedures need to be followed if physical access is required. Disposal of all material removed from the CDS system should be done in accordance with local regulations. In many jurisdictions, disposal of the sediments may be handled in the same manner as the disposal of sediments removed from catch basins or deep sump manholes. Check your local regulations for specific requirements on disposal.

CDS Model	Diameter		Distance from Water Surface to Top of Sediment Pile		Sediment Storage Capacity	
	ft	m	ft	m	y^3	m^3
CDS1515	3	0.9	3.0	0.9	0.5	0.4
CDS2015	4	1.2	3.0	0.9	0.9	0.7
CDS2015	5	1.5	3.0	0.9	1.3	1.0
CDS2020	5	1.5	3.5	1.1	1.3	1.0
CDS2025	5	1.5	4.0	1.2	1.3	1.0
CDS3020	6	1.8	4.0	1.2	2.1	1.6
CDS3025	6	1.8	4.0	1.2	2.1	1.6
CDS3030	6	1.8	4.6	1.4	2.1	1.6
CDS3035	6	1.8	5.0	1.5	2.1	1.6
CDS4030	8	2.4	4.6	1.4	5.6	4.3
CDS4040	8	2.4	5.7	1.7	5.6	4.3
CDS4045	8	2.4	6.2	1.9	5.6	4.3
CDS5640	10	3.0	6.3	1.9	8.7	6.7
CDS5653	10	3.0	7.7	2.3	8.7	6.7
CDS5668	10	3.0	9.3	2.8	8.7	6.7
CDS5678	10	3.0	10.3	3.1	8.7	6.7

Table 1: CDS Maintenance Indicators and Sediment Storage Capacities

Note: To avoid underestimating the volume of sediment in the chamber, carefully lower the measuring device to the top of the sediment pile. Finer silty particles at the top of the pile may be more difficult to feel with a measuring stick. These finer particles typically offer less resistance to the end of the rod than larger particles toward the bottom of the pile.



CDS Inspection & Maintenance Log

CDS Model: _____ Location: _____

Date	Water depth to sediment[1]	Floatable Layer Thickness[2]	Describe Maintenance Performed	Maintenance Personnel	Comments

1. The water depth to sediment is determined by taking two measurements with a stadia rod: one measurement from the manhole opening to the top of the sediment pile and the other from the manhole opening to the water surface. If the difference between these measurements is less than the values listed in table 1 the system should be cleaned out. **Note: to avoid underestimating the volume of sediment in the chamber, the measuring device must be carefully lowered to the top of the sediment pile**.

2. For optimum performance, the system should be cleaned out when the floating hydrocarbon layer accumulates to an appreciable thickness. In the event of an oil spill, the system should be cleaned immediately.

SUPPORT

- Drawings and specifications are available at www.ContechES.com.
- Site-specific design support is available from our engineers.

CONTECH®
ENGINEERED SOLUTIONS
800-338-1122
www.ContechES.com

Contech Engineered Solutions provides site solutions for the civil engineering industry. Contech's portfolio includes bridges, drainage, sanitary sewer, earth stabilization and stormwater treatment products. For information on other Contech division offerings, visit www.ContechES.com or call 800.338.1122

The product(s) described may be protected by one or more of the following US patents: 5,322,629; 5,624,576; 5,707,527; 5,759,415; 5,788,848; 5,985,157; 6,027,639; 6,350,374; 6,406,218; 6,641,720; 6,511,595; 6,649,048; 6,991,114; 6,998,038; 7,186,058; 7,296,692; 7,297,266; related foreign patents or other patents pending.

Contech® CMP Detention Inspection and Maintenance Guide

Underground stormwater detention and infiltration systems must be inspected and maintained at regular intervals for purposes of performance and longevity.

Inspection

Inspection is the key to effective maintenance of CMP detention systems and is easily performed. Contech recommends ongoing, annual inspections. Sites with high trash load or small outlet control orifices may need more frequent inspections. The rate at which the system collects pollutants will depend more on-site specific activities rather than the size or configuration of the system.

Inspections should be performed more often in equipment washdown areas, in climates where sanding and/or salting operations take place, and in other various instances in which one would expect higher accumulations of sediment or abrasive/corrosive conditions. A record of each inspection is to be maintained for the life of the system.

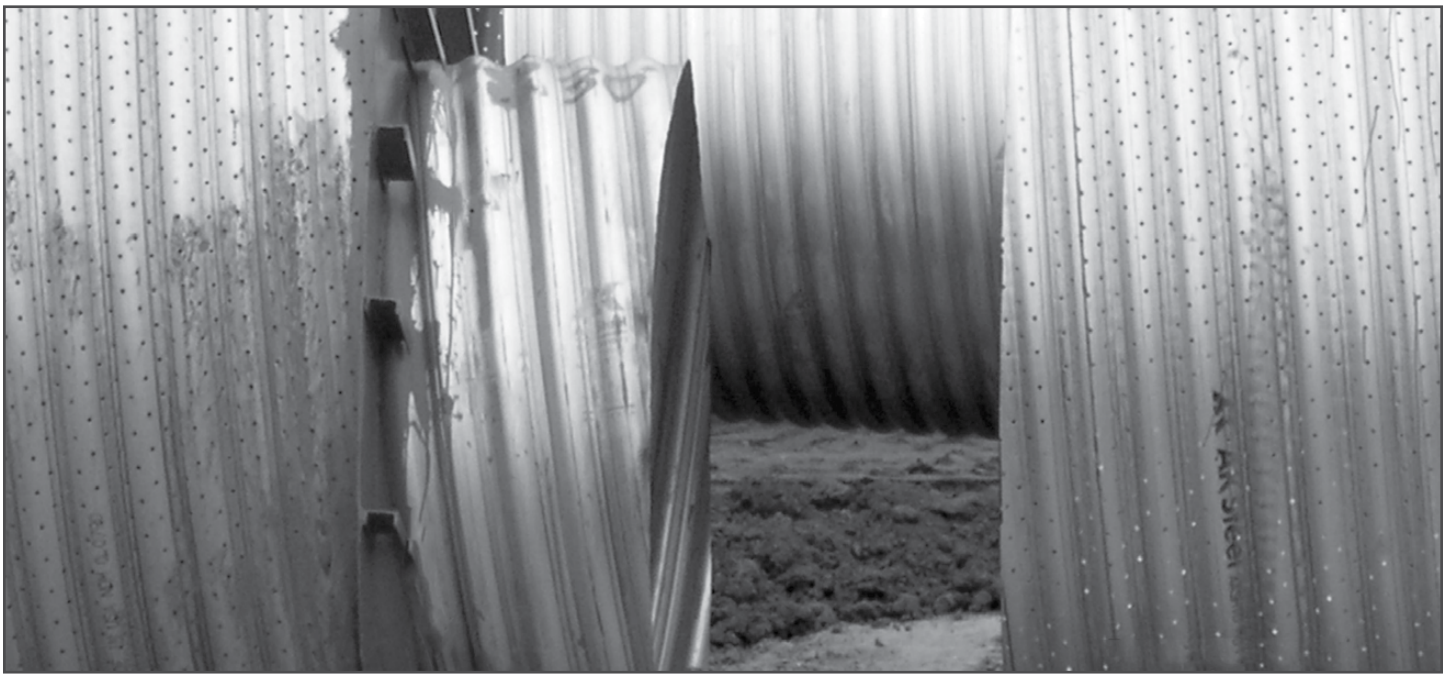
Maintenance

CMP detention systems should be cleaned when an inspection reveals accumulated sediment or trash is clogging the discharge orifice. Accumulated sediment and trash can typically be evacuated through the manhole over the outlet orifice. If maintenance is not performed as recommended, sediment and trash may accumulate in front of the outlet orifice. Manhole covers should be securely seated following cleaning activities. Contech suggests that all systems be designed with an access/inspection manhole situated at or near the inlet and the outlet orifice. Should it be necessary to get inside the system to perform maintenance activities, all appropriate precautions regarding confined space entry and OSHA regulations should be followed.

Annual inspections are best practice for all underground systems. During this inspection if evidence of salting/de-icing agents is observed within the system, it is best practice for the system to be rinsed, including above the spring line soon after the spring thaw as part of the maintenance program for the system.

Maintaining an underground detention or infiltration system is easiest when there is no flow entering the system. For this reason, it is a good idea to schedule the cleanout during dry weather.

The foregoing inspection and maintenance efforts help ensure underground pipe systems used for stormwater storage continue to function as intended by identifying recommended regular inspection and maintenance practices. Inspection and maintenance related to the structural integrity of the pipe or the soundness of pipe joint connections is beyond the scope of this guide.



CONTECH® CMP DETENTION SYSTEMS

CONTECH® ENGINEERED SOLUTIONS

UPS Howell
Employee Parking Lot Improvements
1183 Fendt Drive
Howell, Michigan 48843

UTILITY COMPANIES

WARNING!!
THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS DRAWING ARE ONLY APPROXIMATE. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINING THE EXACT UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.

TELEPHONE
AT&T
550 S. MAPLE ROAD
ANN ARBOR, MI 48103
PH: 734.996.5341

CABLE
COMCAST CABLE
SIGMA TECHNOLOGIES, LTD.
27096 OAKMEAN DRIVE
PERRYSBURG, OH 43551
PH: 419.874.9262 EXT. 6012

WATER
M.H.O.G. SEWER AND WATER UTILITY
4288 NORTON RD
HOWELL, MI 48843
PH: 810.227.5225

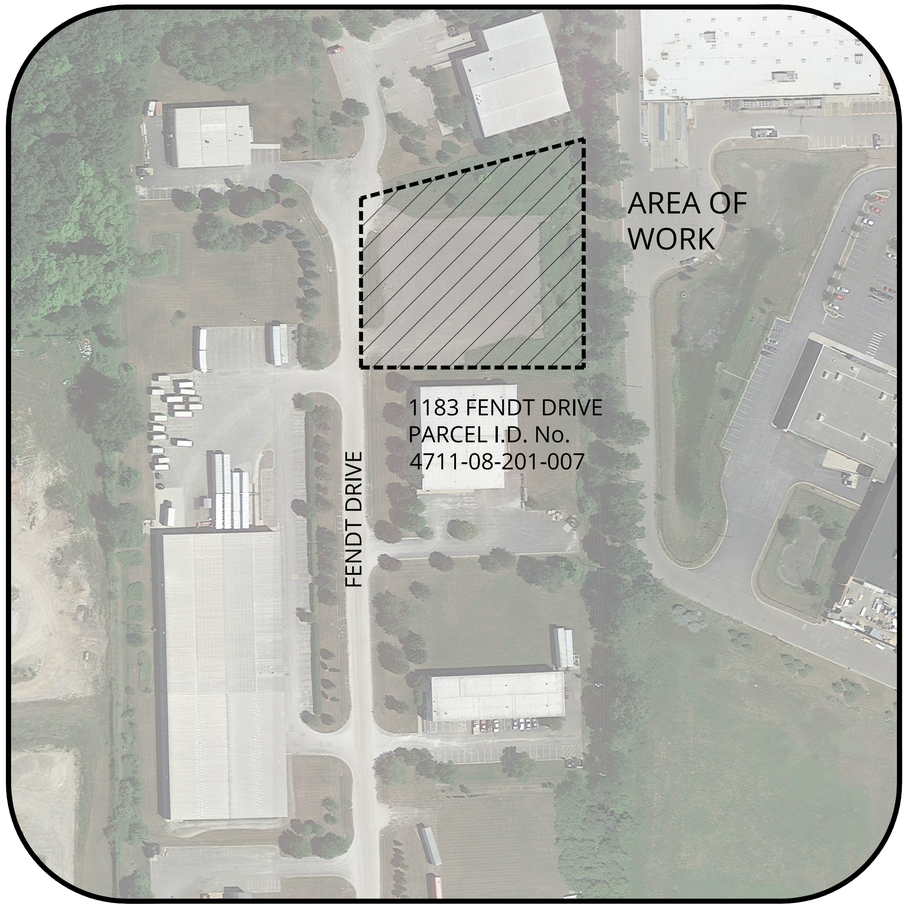
ELECTRICAL
DETROIT EDISON
NORTHWEST PLANNING AND DESIGN - FARMINGTON HILLS
37849 INTERCHANGE DR.
FARMINGTON HILLS, MI 48335
PH: 248.427.2200

GAS
CONSUMERS ENERGY COMPANY
G&GAM TRANSMISSION PIPELINE ENGINEERING
PH: 989.574.7538

LEGAL DESCRIPTION

LAND SITUATED IN THE TOWNSHIP OF GENOA, COUNTY OF LIVINGSTON, MICHIGAN, MORE PARTICULARLY DESCRIBED AS:

UNIT 7, OF GEN TECH INDUSTRIAL PARK, A MICHIGAN CONDOMINIUM, AS ADOPTED PURSUANT TO ACT 59 OF PUBLIC ACTS 1978, BEING LIVINGSTON COUNTY CONDOMINIUM NO. 68, A PORTION OF THE UNITS RECORDED IN THE MASTER DEED WHICH WAS RECORDED IN LIVINGSTON COUNTY REGISTER OF DEEDS OFFICE AT LIBER 1897, PAGES 42 THROUGH 101, TOGETHER WITH RIGHTS IN GENERAL COMMON ELEMENTS AND LIMITED COMMON ELEMENTS, AS SET FORTH IN THE ABOVE DESCRIBED MASTER DEED AND ALL AMENDMENTS THERETO; AND AS DESCRIBED IN ACT 59 OF THE PUBLIC ACTS OF 1978, AS AMENDED.



OVERALL SITE PLAN
NOT TO SCALE

OWNER
UNITED PARCEL SERVICE
1212 FENDT DRIVE
HOWELL, MI 48843

CONTACT: MR. ADAM MARCHWINSKI
PH: 248-266-0950

LANDSCAPE
SME
43980 PLYMOUTH OAKS BLVD.
PLYMOUTH, MI 48170

CONTACT: MR. LLOYD DUBISKY, RLA
PH: 734.454.9900
www.sme-usa.com

ENGINEER AND APPLICANT
SME
43980 PLYMOUTH OAKS BLVD.
PLYMOUTH, MI 48170

CONTACT: MR. JASON SCHWARTZENBERGER, PE
PH: 734.454.9900
www.sme-usa.com

SME PROJECT NO. 083760.00

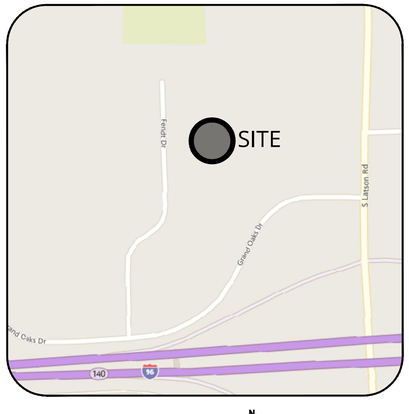
ELECTRICAL
PETER BASSO ASSOCIATES, INC.
5145 LIVERNOIS, SUITE 100
TROY, MI 48098

CONTACT: MR. SCOTT GIBBS, PE
PH: 248.879.5666

SURVEY
NOWAK & FRAUS ENGINEERS
46777 WOODWARD AVE.
PONTIAC, MI 48342

PROJECT DESCRIPTION
PROJECT INCLUDES THE REPLACEMENT OF EXISTING GRAVEL PARKING LOT WITH AN ASPHALT PAVEMENT SECTION WITH CONCRETE CURB AND GUTTER, STORM UNDERGROUND INFRASTRUCTURE, SITE LIGHTING AND OTHER IMPROVEMENTS.

PERMITS REQUIRED FOR PROJECT		
PERMIT	CITY/AGENCY	APPROVAL
SESC	LIVINGSTON	



LOCATION MAP
NOT TO SCALE

COUNTY MAP
NOT TO SCALE

LIST OF DRAWINGS

SITE DATA/ZONING REQUIREMENTS

SITE AREA:	2.00 AC
SITE ZONING:	IND, INDUSTRIAL
MINIMUM LOT AREA:	1 ACRE
MINIMUM LOT WIDTH:	150 FT
MAXIMUM LOT COVERAGE:	40% BLDG/ 85% IMPERVIOUS SURFACE
MINIMUM SETBACKS:	
FRONT YARD:	85 FEET IF PARKING IN THE FRONT YARD 50 FEET IF NO PARKING IN THE FRONT YARD
SIDE YARD:	25 FEET, 50 FEET IF ADJACENT TO RESIDENTIAL DISTRICT
REAR YARD:	40 FEET, 80 FEET IF ADJACENT TO RESIDENTIAL DISTRICT
PARKING LOT:	20 FEET, 10 FEET SIDE AND REAR
MAXIMUM STRUCTURE HEIGHT:	30 FEET, 2 STORIES
REQUIRED PARKING:	1.5 SPACES PER 1,000 SFT GROSS FLOOR AREA, OR 1.2 SPACES PER EMPLOYEE AT PEAK SHIFT, WHICHEVER IS GREATER; PLUS 1 SPACE FOR EACH CORPORATE VEHICLE.
OFF STREET LOADING:	0 (UP TO 1,400 SFT GFA)
LANDSCAPE:	20' WIDE FRONT GREENBELT INCLUDING ONE (1) CANOPY TREE, ROUNDED UPWARD, FOR EVERY FORTY (40) LINEAR FEET OF FRONTAGE.

ISSUED FOR SITE PLAN APPROVAL

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

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Orientation | Scale

Project
UPS HOWELL
EMPLOYEE PARKING LOT IMPROVOMENTS

Project Location
1183 FENDT DRIVE
HOWELL, MI 48843

Sheet Name
COVER SHEET

Engineer's Seal
STATE OF MICHIGAN
HUGO J. CERON
ENGINEER
No. 67351
PROFESSIONAL
Hugo Javier Ceron

Revisions

REV	ISSUED FOR	DATE	BY
01	TOWNSHIP COMMENTS	09/23/2020	JAS

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

Date
09/02/2020

SME Project No.
084617.00

Project Manager:
J. SCHWARTZENBERGER

Designer:
H. CERON

CADD:
H. CERON

Checked By:
B. HART

Reviewed By:
J. SCHWARTZENBERGER

Sheet No.
C-100

PLOT DATE: Sep 22, 2020 - 3:09pm - ceron
FILE LOCATION: \\Sme.inc\gp\WIP\084617.00\CAD\DWGS\SPA\rev6\084617.00-Cover.dwg

GENERAL NOTES

1. MATERIAL AND CONSTRUCTION METHODS SHALL FOLLOW THE PRACTICE DEFINED BY THE 2012 EDITION OF THE MICHIGAN DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" AND APPLICABLE SPECIAL PROVISIONS UNLESS OTHERWISE MODIFIED HEREWITHIN OR IN THE PROJECT SPECIFICATIONS.

2. THE LOCATION OF ALL PUBLIC UTILITIES SHOWN ON THESE PLANS IS TAKEN FROM AVAILABLE DATA. OWNER WILL NOT BE RESPONSIBLE FOR ANY OMISSION OR VARIATIONS FROM THE LOCATIONS SHOWN. PURSUANT TO ACT 174 OF THE PA OF 2013 AS A CONDITION OF THIS CONTRACT NOTICE SHALL BE GIVEN TO MISS DIG PRIOR TO UNDERGROUND WORK TO BE PERFORMED IN ACCORDANCE WITH THIS CONTRACT. CALL 811.

3. FOR PRIVATE UTILITIES, CONTRACTOR SHALL RETAIN THE SERVICES OF A PRIVATE UTILITY LOCATOR TO LOCATE ALL PRIVATE UTILITIES OWNED BY OWNER.

4. CONTRACTOR SHALL NOTIFY OWNER'S REPRESENTATIVE A MINIMUM OF 72 HOURS PRIOR TO BEGINNING CONSTRUCTION ACTIVITIES OR DISRUPTION OF ANY UTILITY.

5. THE CONTRACTOR SHALL LOCATE ALL ACTIVE UNDERGROUND UTILITIES PRIOR TO STARTING WORK AND SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER AS TO ENSURE THAT THOSE UTILITIES NOT REQUIRING RELOCATION WILL NOT BE DISTURBED. CONTRACTOR SHALL BE RESPONSIBLE TO REPAIR UTILITIES DAMAGED DURING CONSTRUCTION. SPRINKLER SYSTEMS SHALL BE REPAIRED BY CONTRACTOR AT NO COST TO OWNER.

6. THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER TO COMPLY WITH ALL FEDERAL, STATE, AND LOCAL CODES FOR NOISE LEVELS, VIBRATIONS, OR ANY OTHER RESTRICTIONS WHILE REMOVING PAVEMENT OR FOR ANY OTHER CONSTRUCTION OPERATIONS WITHIN THIS CONTRACT TO BE INCLUDED IN THE RESPECTIVE ITEM OF WORK.

7. CONTRACTOR AGREES TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROTECTION OF PROPERTY.

8. THE CONTRACTOR SHALL DESIGN, CONSTRUCT, AND MAINTAIN ALL SAFETY DEVICES, AND SHALL BE SOLELY RESPONSIBLE FOR CONFORMING TO ALL LOCAL, STATE, AND FEDERAL SAFETY AND HEALTH STANDARDS, LAWS, AND REGULATIONS. ALL TRAFFIC CONTROL ACTIVITIES SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST VERSION OF THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AND SHALL SUBMIT ALL REQUESTS TO OWNER'S REPRESENTATIVE AT LEAST SEVENTY-TWO (72) HOURS PRIOR TO THE ANTICIPATED NEED TO CLOSE AREAS.

9. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY NECESSARY PERMITS AND CONFORMING TO ALL APPLICABLE PERMIT REQUIREMENTS.

10. CONTRACTOR SHALL SUBMIT ALL MATERIAL SUBMITTALS REQUIRED BY THE PROJECT SPECIFICATIONS INCLUDING ASPHALT CONCRETE AND PORTLAND CEMENT CONCRETE MIX DESIGNS TO SME A MINIMUM OF 14 DAYS PRIOR TO BEGINNING FIELD WORK.

11. CONTRACTOR IS RESPONSIBLE FOR LAYOUT AND FIELD VERIFICATION. ADJUST CATCHBASINS AS REQUIRED. CONTRACTOR IS RESPONSIBLE FOR PROVIDING POSITIVE DRAINAGE. (MIN. 1.5%). DRAINAGE ISSUES SHALL BE BROUGHT TO THE ATTENTION OF SME PRIOR TO PLACEMENT OF ANY PAVEMENT STRUCTURE LAYERS. AREAS OF PONDING WATER SHALL BE REPAIRED BY FULL DEPTH PATCHING AT NO ADDITIONAL COST TO OWNER. CONTRACTOR SHALL PERFORM WALKTHROUGH WITH OWNER AND SME BEFORE PLACEMENT OF ASPHALT CONCRETE LEVELING COURSE TO REVIEW PROPOSED GRADES.

12. OBJECTS DESIGNATED TO REMAIN INCLUDING SIDEWALKS, PAVEMENT, CURB, LIGHT POLES, TRAFFIC SIGNS, LANDSCAPE AREAS, ETC. SHALL BE PROTECTED. IF DAMAGED BY THE CONTRACTOR, IT SHALL BE REPAIRED TO OWNER SATISFACTION AT NO ADDITIONAL COST TO THE OWNER.

13. UPON COMPLETION OF EACH DAY OF WORK, THE CONTRACTOR SHALL BE RESPONSIBLE FOR LEAVING THE WORK AREA FREE OF HAZARDS AND SHALL PROVIDE ALL NECESSARY TEMPORARY SIGNS, WARNING DEVICES, AND BARRICADES.

14. THE CONTRACTOR SHALL HAVE AN APPROVED SET OF FINAL PLANS MARKED ``FOR CONSTRUCTION'' ON THE JOB SITE AT ALL TIMES.THE CONTRACTOR SHALL KEEP ACCURATE AND LEGIBLE RECORDS OF ALL CHANGES OF WORK THAT OCCUR DURING CONSTRUCTION AND INFORMATION ON ``AS-BUILT'' CONDITIONS. DOCUMENTATION OF CHANGES AND AS-BUILT INFORMATION SHALL BE RECORDED ON AN APPROVED SET OF FINAL PROJECT PLANS AND DELIVERED TO SME AFTER COMPLETION OF WORK.

15. THE CONTRACTOR SHALL TAKE THE NECESSARY STEPS TO PROTECT THE PROJECT AND ADJACENT PROPERTY FROM ANY EROSION AND SILTING THAT RESULT FROM THE CONSTRUCTION BY APPROPRIATE MEANS UNTIL SUCH TIME THE PROJECT IS COMPLETED AND ACCEPTED FOR MAINTENANCE BY OWNER.

EARTHWORK NOTES

1. ALL NATURAL SOIL LEFT IN PLACE, IN CUT SECTIONS, SHALL BE COMPACTED TO NOT LESS THAN 95 PERCENT OF MAXIMUM DRY DENSITY OF THE MATERIAL AS DETERMINED BY THE MODIFIED PROCTOR TO A MINIMUM DEPTH OF 12 INCHES.

2. THE LIMIT OF EARTH DISTURBANCE SHALL BE THE SLOPE STAKE LINE UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

3. ALL SLOPES SHALL BE CLASS A SLOPES.

4. AREAS DISTURBED BY THE CONTRACTOR OR SUBCONTRACTOR SHALL BE RESTORED AS SPECIFIED IN THE SOIL EROSION AND SEDIMENTATION CONTROL PLAN, RESTORATION PLAN OR DIRECTED BY THE ENGINEER. NO ADDITIONAL PAYMENT OR COMPENSATION WILL BE ALLOWED FOR AREAS DISTURBED OUTSIDE THE SLOPE STAKE LINE.

5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE PROPERTY BEYOND THE GRADING LIMITS, INCLUDING EXISTING FENCING, LAWN, TREES, SHRUBBERY, AND SIDEWALKS.

EARTH EXCAVATION NOTES

1. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE TEMPORARY STORAGE AREAS FOR EXCAVATED MATERIAL WHICH MAY BE USED AS EMBANKMENT MATERIAL IN OTHER AREAS IF IT IS SUITABLE MATERIAL AS DETERMINED BY THE ENGINEER, ANY EXTRA HANDLING OF EXCAVATED MATERIAL IS CONSIDERED INCLUDED IN THESE PAY ITEMS.

2. EXCAVATION DROP-OFFS GREATER THAN 8 INCHES SHALL BE PROTECTED BY 4 FT TALL ORANGE PLASTIC SAFETY FENCE (SNOW FENCE) SECURELY ATTACHED TO GROUND DRIVEN STAKES WHEN LEFT OVERNIGHT. SAFETY FENCING SHALL BE MAINTAINED UNTIL AREA IS WITHIN 8 INCHES OF ADJACENT GRADE. PAYMENT FOR THIS WORK IS INCLUDED IN TRAFFIC CONTROL LUMP SUM UNIT PRICE.

SOIL BORING NOTES

1. THE SOIL BORINGS LOGS DEPICT POINT LOCATIONS AND DO NOT INFER THAT THE SURFACE CONDITIONS ARE THE SAME IN OTHER AREAS. BORING LOCATIONS ARE SHOWN ON THE PLANS, SOIL BORING LOGS ARE INCLUDED IN THE SPECIFICATIONS.

SITE GRADING NOTES

1. PROPOSED ELEVATIONS ARE SHOWN WHERE SIGNIFICANT GRADE CHANGES ARE ANTICIPATED. IF PROPOSED GRADES ARE NOT SHOWN THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING POSITIVE DRAINAGE WITH MIN. SLOPE OF 1.5%. LONGITUDINAL SLOPE ALONG GUTTER LINES SHALL BE 0.5% MIN.

2. PRIOR TO INSTALLING ANY PAVEMENT LAYERS, THE CONTRACTOR SHALL REVIEW THE PROPOSED SITE GRADES WITH THE ENGINEER TO IDENTIFY AND RECTIFY ANY COMPLICATIONS.

3. PROPOSED SIDEWALKS SHALL HAVE MIN. 1.0% AND MAX. 2.0% CROSS SLOPE.

4. CONTRACTOR SHALL ADJUST ALL UTILITY RIMS LOCATED WITHIN THE WORK LIMITS AS NECESSARY TO BE FLUSH WITH THE PROPOSED FINISHED SURFACE. THIS INCLUDES ALL STORM MANHOLES, CATCH BASINS, CLEANOUTS, SANITARY MANHOLES AND CLEANOUTS, WATER MAIN MANHOLES, GATE VALVES, AND BOXES OR ANY OTHER UTILITY RIMS OR BOXES.

5. WHERE PROPOSED PAVEMENT ABUTS EXISTING PAVEMENT DESIGNATED TO REMAIN, MATCH ELEVATIONS UNLESS INDICATED OTHERWISE.

6. ADJUST GUTTER PAN FROM SPILL IN TO SPILL OUT AS REQUIRED TO ACHIEVE POSITIVE DRAINAGE.

7. ADJUST ELEVATION OF CURB REPAIRS AS REQUIRED TO ACHIEVE POSITIVE DRAINAGE.

8. TAPER CURB HEIGHT TO 0" IN 10' WHEN ABUTTING TO EX. PAVEMENT WITHOUT CURB.

GENERAL PAVING NOTES

1. NEW PAVEMENT SHALL BE OF THE TYPE, THICKNESS AND CROSS-SECTION INDICATED ON THE PLANS.

2. MATCH EXISTING ELEVATIONS WHERE NEW PAVEMENT ABUTS EXISTING PAVEMENTS OR OTHER FIXED OBJECTS.

3. CONTRACTOR SHALL MATCH EXISTING STRIPING PATTERNS UNLESS OTHERWISE REQUIRED BY THE OWNER'S REPRESENTATIVE. CONTRACTOR SHALL DOCUMENT EXISTING STRIPING PATTERN PRIOR TO REMOVAL OF ANY PAVEMENT.

4. CONTRACTOR IS RESPONSIBLE FOR LAYOUT TO PROVIDE POSITIVE SITE DRAINAGE. WATER PONDING AND BIRD BATHS SHALL BE CORRECTED AS DIRECTED BY THE OWNER'S REPRESENTATIVE AT NO ADDITIONAL COST TO THE OWNER.

5. NEW AGGREGATE BASE REQUIRED SHALL BE MDOT 21AA CRUSHED LIMESTONE MATERIAL.

6. SUBGRADE SOIL FOUND TO BE UNSUITABLE SHALL BE RECONDITIONED OR REPLACED AS DIRECTED BY THE OWNER, INCLUDING THE NECESSARY FINE GRADING TO ENSURE THAT MINIMUM SPECIFIED PAVEMENT THICKNESS IS ACHIEVED.

TRAFFIC CONTROL NOTES

1. OBTAIN WRITTEN PERMISSION FROM OWNER'S REPRESENTATIVE WHEN ROADS, SIDEWALKS AND PARKING LOTS NEED TO BE CLOSED PRIOR TO CLOSING ANY PAVED AREA.

2. SUBMIT ALL REQUESTS TO OWNER'S REPRESENTATIVE AT LEAST SEVENTY-TWO (72) HOURS PRIOR TO THE ANTICIPATED NEED TO CLOSE ANY PAVED AREA.

3. PROVIDE ALTERNATE TRAFFIC ROUTES AROUND CLOSED OR OBSTRUCTED TRAFFIC ROUTES AS NECESSARY OR REQUIRED BY OWNER'S REPRESENTATIVE.

4. THE CONTRACTOR IS RESPONSIBLE FOR FURNISHING, PLACING AND MAINTAINING ALL TRAFFIC CONTROL DEVICES ACCORDING TO THE LATEST EDITION OF THE "MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES."

DEMOLITION NOTES

1. SAWCUT FULL DEPTH THE PAVEMENT, SIDEWALK AND CURB DESIGNATED TO BE REMOVED AT THE LIMITS OF WORK SHOWN ON THE PLANS OR MARKED IN THE FIELD.

2. REMOVE ONLY THE STRUCTURES AND PAVEMENTS WITHIN THE LIMITS OF WORK AS DETAILED ON THE PLANS AND CROSS SECTIONS. ALL OTHER STRUCTURES AND PAVEMENT SHALL BE PROTECTED AS REQUIRED.

3. ALL EXISTING UNDERGROUND UTILITIES WITHIN THE AREA OF WORK SHALL REMAIN AND BE PROTECTED DURING CONSTRUCTION, UNLESS, OTHERWISE DESIGNATED TO BE REMOVED. CONTRACTOR SHALL VERIFY EXACT LOCATION AND DEPTHS OF ALL EXISTING UTILITIES PRIOR TO COMMENCEMENT OF DEMOLITION OPERATIONS.

4. CONTRACTOR SHALL DISPOSE OF ALL CONCRETE , ASPHALT, AGGREGATE BASE AND SUBGRADE SPOILS AT LEGAL DISPOSAL SITE. CONTRACTOR SHALL PAY FOR ALL TRUCKING AND DISPOSAL COSTS.

CURB REPAIR NOTES

1. SAWCUT THE CURB AREAS DESIGNATED FOR REPAIR AT THE LIMITS MARKED IN THE FIELD BY OWNER'S REPRESENTATIVE.

2. REMOVE EXISTING CONCRETE WITHOUT CAUSING DAMAGE OR SPALLING TO ADJACENT SIDEWALK OR CURBS WHICH ARE DESIGNATED TO REMAIN. DAMAGED AREAS SHALL BE REMOVED AND REPLACED TO THE SATISFACTION OF THE OWNER AT NO ADDITIONAL COST.

3. DRILL AND EPOXY GROUT TWO (2) #5 (18 INCH LONG EPOXY COATED) DEFORMED BARS A MINIMUM OF 6 INCHES INTO EXISTING CONCRETE CURBS (TWO FACES) WHICH ARE DESIGNATED TO REMAIN.

4. MATCH EXISTING CURB GEOMETRY.

5. PLACE AND CONSOLIDATE CONCRETE IN THE REPAIR AREA TO MATCH THE ELEVATION OF ADJACENT CURB AND SIDEWALK AREAS TO MAINTAIN POSITIVE DRAINAGE. FINISH CURBS TO MATCH FINISH OF ADJACENT AREAS WHICH ARE DESIGNATED TO REMAIN.

6. VOID/HOLES (HONEYCOMB AREAS) ON THE CURB BACK/FACE SHALL BE REPAIRED WITH CEMENT MORTAR PASTE TO THE SATISFACTION OF THE OWNER.

CLEANUP AND RESTORATION NOTES

1. CLEAN AND RESTORE ALL DISTURBED AREAS WITH 4 INCHES OF TOPSOIL, HYDROSEED AND HIGH VELOCITY MULCH BLANKETS. DISPOSE OF DEBRIS OFFSITE AT APPROVED DISPOSAL SITE.

2. UPON COMPLETION OF WORK, THE ENTIRE SITE SHALL BE CLEARED OF EQUIPMENT, UNUSED MATERIALS, AND RUBBISH AND ANY DISTURBED AREAS RESTORED TO THE SATISFACTION OF THE OWNER.

3. FINAL PAYMENT WILL NOT BE MADE UNTIL THE SITE IS CLEARED, RESTORED AND CLEANED PER THE PROJECT SPECIFICATIONS.

ABBREVIATIONS USED IN DRAWINGS

THE FOLLOWING ABBREVIATIONS ARE USED ON THESE PLANS:

@	AT (RATE OF)
&	AND
"	INCH
'	FOOT
#	NUMBER
AC	ASPHALT CONCRETE
ADA	AMERICANS WITH DISABILITIES ACT (BARRIER FREE ACCESS)
AGG	AGGREGATE BASE
ALT	ALTERNATE
APPROX.	APPROXIMATE/APPROXIMATELY
ARCH.	ARCHITECT
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AVG	AVERAGE
B	BORING
BDY	BOUNDARY
BIT	BITUMINOUS
BF	BARRIER FREE
BFF	BANK FULL FLOOD
BLDG	BUILDING
BM	BENCHMARK
BOT	BOTTOM
BRG	BEARING
BSMT	BASEMENT
C	CORE
CAP	CAPACITY
CB	CATCH BASIN
CENTL.	CENTERLINE
CF	CUBIC FEET
CHAN.	CHANNEL
CJ	CONTROL JOINT
CLS	CRUSHED LIMESTONE
CL.	CLASS
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
COEF	COEFFICIENT
COL	COLUMN
CO	CLEAN OUT
CONC.	CONCRETE
CONN.	CONNECTION
COV.	COVER
CULV.	CULVERT
CRB	CURB
CY	CUBIC YARD
DIA.	DIAMETER
DI	DUCTILE IRON
DIM.	DIMENSION
DEG.	DEGREE
DEMO.	DEMOLITION
DEPT.	DEPARTMENT
DMH	DROP MANHOLE
DS	DOWNSPOUT
EA	EACH
E	EAST
EE	EACH END
EG	EDGE OF GRAVEL
ELEV.	ELEVATION
EM	EDGE OF METAL
ENG.	ENGINEER
ENT.	ENTRANCE
EQUIP.	EQUIPMENT
ES	END SECTION
EXCAV.	EXCAVATE
EX.	EXISTING
EXPN	EXPANSION
FD	FLOOR DRAIN
FDC	FIRE DEPARTMENT CONNECTION
FDN	FOUNDATION
FDR	FULL DEPTH RECLAMATION
FF	FINISH FLOOR
FG	FINISH GRADE
FURN.	FURNISH
FP	FLOOD PLAIN
FT	FEET/FOOT
FTG	FOOTING
ELEV.	ELEVATION
EQUIP.	EQUIPMENT
GAL.	GALLON
GEN.	GENERAL
GU	GUTTER
GVA	GATE VALVE
GVL	GRAVEL
HD	HEAVY DUTY
HDPE	HIGH DENSITY POLYTHYLENE
HP	HIGH POINT
HGL	HYDRAULIC GRADE LINE
HMA	HOT MIX ASPHALT
HORIZ.	HORIZONTAL
HYD	HYDRANT
INT	INSTALL
LD	LIGHT DUTY
LF	LINEAR FEET
LP	LOW POINT
MAX.	MAXIMUM
ME	MATCH EXISTING
MDOT	MICHIGAN DEPARTMENT OF TRANSPORTATION
MH	MANHOLE
MIN.	MINIMUM
N	NORTH
NIC	NOT IN CONTRACT
NO	NUMBER
NFV	NOT FIELD VERIFIED
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
PCC	PORTLAND CEMENT CONCRETE
PVC	POLYVINYL CHLORIDE
PR	PROPOSED
RCP	REINFORCED CONCRETE PIPE
RY	REAR YARD
S	SOUTH
SAN	SANITARY SEWER
SBC	STABILIZED BASE COURSE
SESC	SOIL EROSION AND SEDIMENT CONTROL
SF	SQUARE FEET
SG	SUBGRADE
STM	STORM SEWER
SY	SQUARE YARD
TA	TOP OF HMA PAVEMENT ELEVATION
TC	TOP OF PROPOSED CURB
TERS	TEMPORARY EARTH RETENTION SYSTEM
TP	TEST PIT
TYP.	TYPICAL
TW	TOP OF SIDEWALK
VB	VAPOR BARRIER
VCP	VITRIFIED CLAY PIPE
VERT.	VERTICAL
VIF	VERIFY IN FIELD
VLT	VAULT
VOL	VOLUME
W	WEST
BOW	BOTTOM OF WALL
WM	WATER MAIN
TOW	TOP OF WALL
WTR	WATER
WWF	WELDED WIRE FABRIC

DEFINITIONS USED IN DRAWINGS

THE FOLLOWING DEFINITIONS ARE USED ON THESE PLANS:

ENGINEER	SME
CITY	GENOA TOWNSHIP
COUNTY	LIVINGSTON
OWNER	UPS

ISSUED FOR SITE PLAN APPROVAL

SME
www.sme-usa.com

Orientation

Scale

Project

UPS HOWELL EMPLOYEE PARKING LOT IMPROVOMENTS

Project Location

1183 FENDT DRIVE HOWELL, MI 48843

Sheet Name

GENERAL PROJECT NOTES

Engineer's Seal

STATE OF MICHIGAN
HUGO J. CERON
ENGINEER
NO. 67351
LICENSED PROFESSIONAL

Revisions

REV	ISSUED FOR	DATE	BY
01	TOWNSHIP COMMENTS	09/23/2020	JAS

Date
09/02/2020

SME Project No.
084617.00

Project Manager:
J. SCHWARTZENBERGER

Designer:
H. CERON

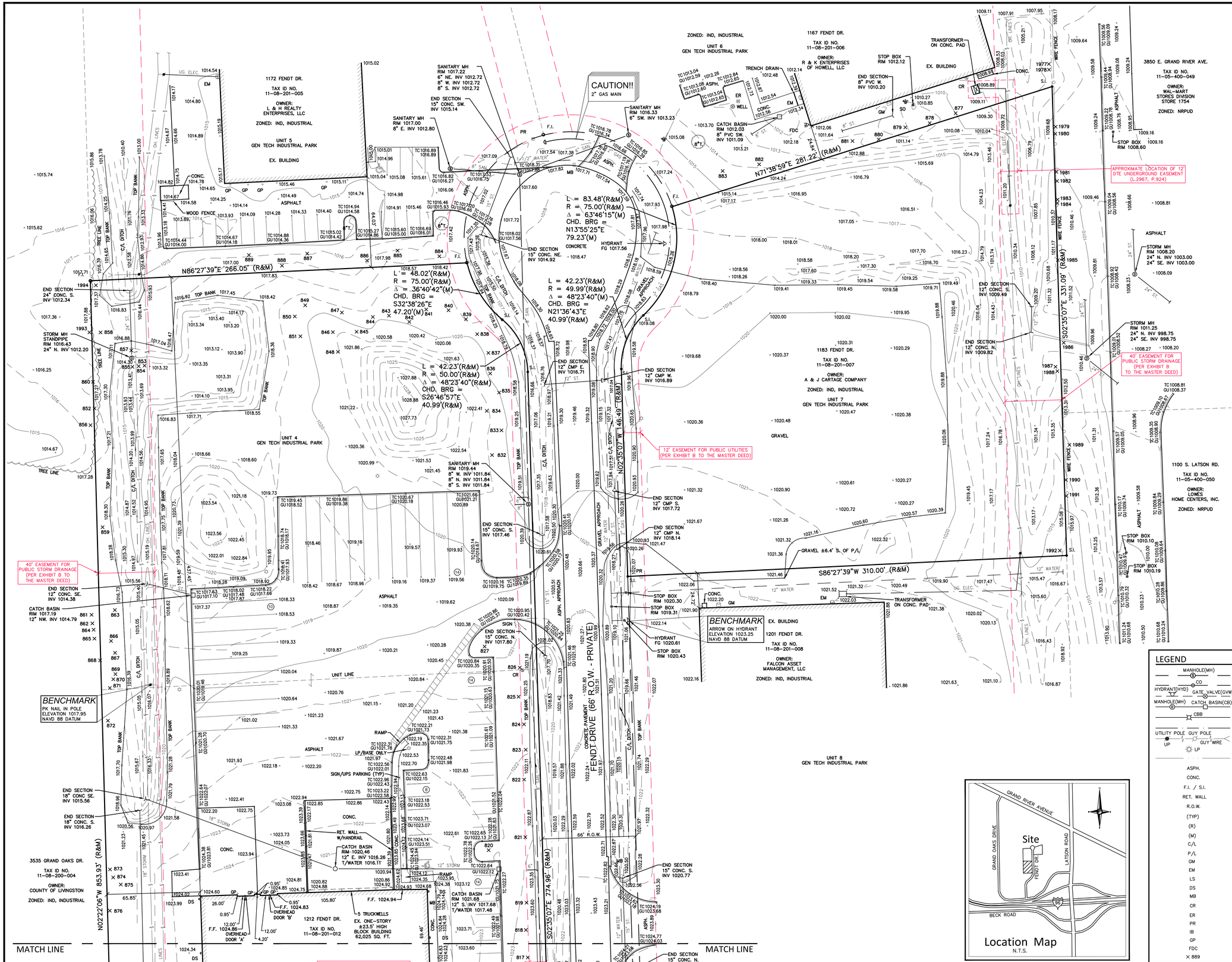
CADD:
H. CERON

Checked By:
B. HART

Reviewed By:
J. SCHWARTZENBERGER

Sheet No.
C-200

PLOT DATE: Sep 22, 2020 - 3:10pm - ceron
FILE LOCATION: \\Sme-hic-pc\WIP\084617.00\CAD\DWGS\SPA\rev084617.00-Notes.dwg



NOWAK & FRAUS ENGINEERS

CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS

NOWAK & FRAUS ENGINEERS
46777 WOODWARD AVE.
PONTIAC, MI 48342-5032
TEL. (248) 332-7931
FAX. (248) 332-8257
WWW.NOWAKFRAUS.COM

SEAL

PROJECT

UPS Facility -
1212 & 1183 Fendt Drive
Howell, MI 48843

CLIENT

Sidock Group, Inc.
45650 Grand River Ave.
Novi, MI 48374

Contact: Casey Leach, PE
Phone: 248.349.4500
Email:
cleach@sidockgroup.com

PROJECT LOCATION

Part of the NE 1/4
of Section 8
T.2N., R.5E.,
Genoa Township,
Livingston County, Michigan

SHEET

ALTA/NSPS Land Title /
Topographic / Tree Survey

Know what's below Call before you dig.

DATE	ISSUED/REVISED
03-27-20	PRELIMINARY ALTA SURVEY ISSUED
03-30-20	ALTA & TOPO SURVEY ISSUED

DRAWN BY:
M. Carnaghi

DESIGNED BY:

APPROVED BY:
K. Navaroli

DATE:
March 27, 2020

SCALE: 1" = 30'

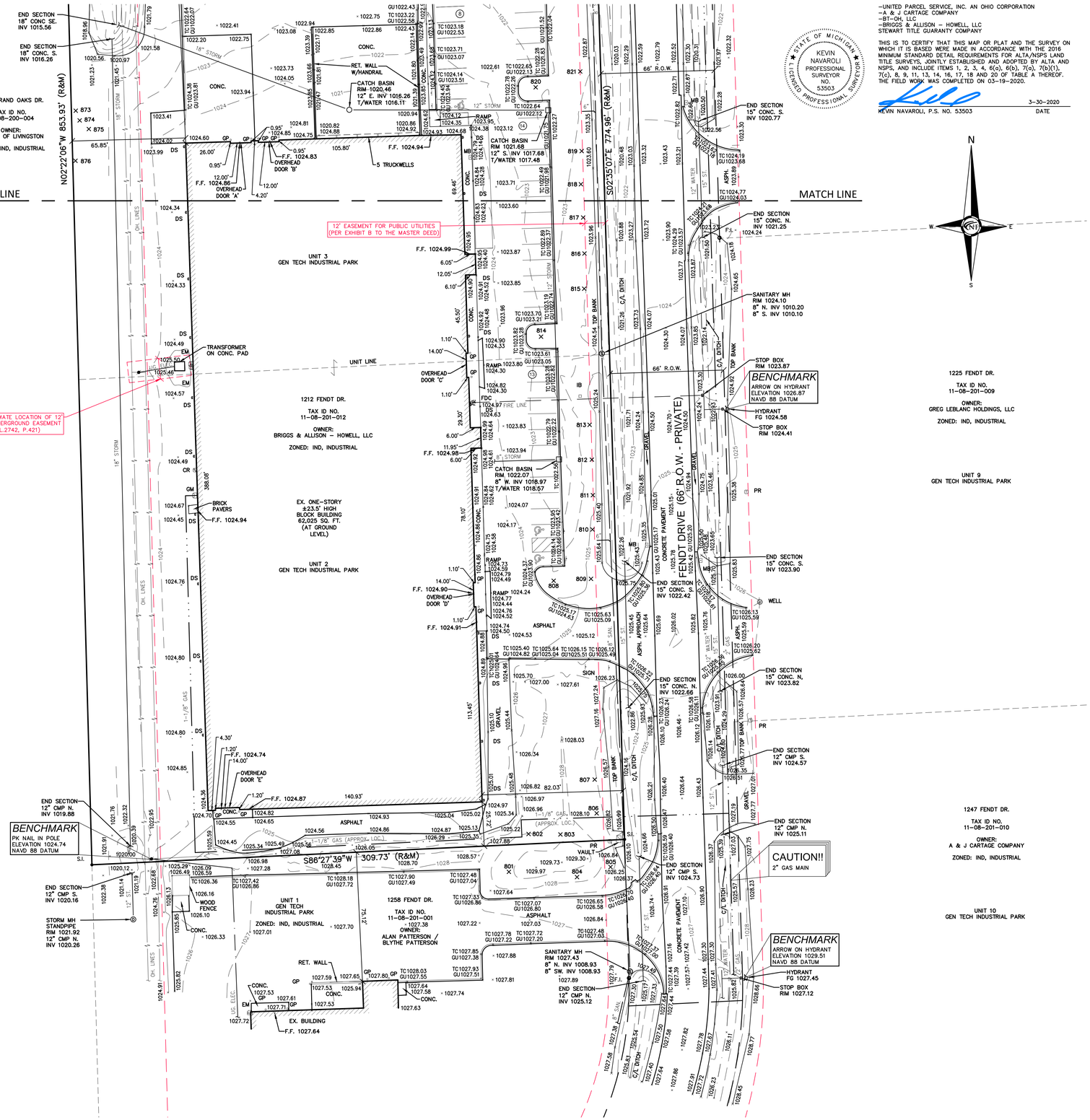
30 15 0 15 30 45

NFE JOB NO. L641

SHEET NO. 1 of 3

LEGEND

MANHOLE(MH)	EXISTING SANITARY SEWER
CO	EXISTING SAN. CLEAN OUT
HYDRANT(HYD)	EXISTING WATER MAIN
GATE VALVE(GVW)	EXISTING STORM SEWER
MANHOLE(MH) CATCH BASIN(CB)	EX. BEEHIVE CATCH BASIN
CBB	EX. UNDERGROUND (UG.) CABLE
UTILITY POLE GUY POLE	OVERHEAD (OH.) LINES
UP GUY WIRE	LIGHT POLE
LP	EXISTING GAS MAIN
ASPH.	ASPHALT
CONC.	CONCRETE
F.I. / S.I.	FOUND IRON / SET IRON
RET. WALL	RETAINING WALL
R.O.W.	RIGHT-OF-WAY
(TYP)	TYPICAL
(R)	RECORD
(M)	MEASURED
C/L	CENTERLINE
P/L	PROPERTY LINE
GM	GAS METER
EM	ELECTRIC METER
LS	LANDSCAPE
DS	DOWNSPOUT
MB	MAIL BOX
CR	CABLE RISER
ER	ELECTRIC RISER
PR	PHONE RISER
IB	IRRIGATION BOX
GP	GUARD POST
FDC	FIRE DEPARTMENT CONNECTION
× 889	TREE TAG NUMBER



CERTIFICATE OF SURVEY

CERTIFIED TO:

–UNITED PARCEL SERVICE, INC. AN OHIO CORPORATION
–A & J CARTAGE COMPANY
–BT–OH, LLC
–BRIGGS & ALLISON – HOWELL, LLC
STEWART TITLE GUARANTY COMPANY

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2016 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDE ITEMS 1, 2, 3, 4, 6(a), 6(b), 7(a), 7(b)(1), 7(c), 8, 9, 11, 13, 14, 16, 17, 18 AND 20 OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED ON 03–19–2020.

STATE OF MICHIGAN — KEVIN NAVAROLI — PROFESSIONAL SURVEYOR NO. 53503 — LICENSED PROFESSIONAL SURVEYOR

KEVIN NAVAROLI, P.S. NO. 53503 — 3–30–2020 DATE

LEGAL DESCRIPTION - PER TITLE COMMITMENT

LAND SITUATED IN THE TOWNSHIP OF GENOA, COUNTY OF LIVINGSTON, MICHIGAN, MORE PARTICULARLY DESCRIBED AS:

UNIT 7, OF GEN TECH INDUSTRIAL PARK, A MICHIGAN CONDOMINIUM, AS ADOPTED PURSUANT TO ACT 59 OF PUBLIC ACTS 1978, BEING LIVINGSTON COUNTY CONDOMINIUM NO. 68, A PORTION OF THE UNITS RECORDED IN THE MASTER DEED WHICH WAS RECORDED IN LIVINGSTON COUNTY REGISTER OF DEEDS OFFICE AT LIBER 1897, PAGES 42 THROUGH 101, TOGETHER WITH RIGHTS IN GENERAL COMMON ELEMENTS AND LIMITED COMMON ELEMENTS, AS SET FORTH IN THE ABOVE DESCRIBED MASTER DEED AND ALL AMENDMENTS THERETO; AND AS DESCRIBED IN ACT 59 OF THE PUBLIC ACTS OF 1978, AS AMENDED.

COMMONLY KNOWN AS: 1183 FENDT DR.
TAX PARCEL ID: 11–08–201–007

TITLE REPORT NOTES

2. RIGHTS OR CLAIMS OF PARTIES IN POSSESSION NOT SHOWN BY THE PUBLIC RECORDS.

3. EASEMENTS, OR CLAIMS OF EASEMENTS, NOT SHOWN BY THE PUBLIC RECORDS.

8. RIGHTS OF THE PUBLIC AND ANY GOVERNMENTAL UNIT IN ANY PART OF THE LAND TAKEN, DEEDED OR USED FOR ROAD, STREET OR HIGHWAY PURPOSES.

9. MINERALS OF WHATSOEVER KIND, SUBSURFACE AND SURFACE SUBSTANCES, INCLUDING BUT NOT LIMITED TO COAL, LIGNITE, OIL, GAS, URANIUM, CLAY, ROCK, SAND AND GRAVEL IN, ON, UNDER AND THAT MAY BE PRODUCED FROM THE LAND, TOGETHER WITH ALL RIGHTS, PRIVILEGES, AND IMMUNITIES RELATING THERETO, WHETHER OR NOT APPEARING IN THE PUBLIC RECORDS OR LISTED IN SCHEDULE B. THE COMPANY MAKES NO REPRESENTATION AS TO THE PRESENT OWNERSHIP OF ANY SUCH INTERESTS. THERE MAY BE LEASES, GRANTS, EXCEPTIONS OR RESERVATIONS OF INTERESTS THAT ARE NOT LISTED.

10. RIGHTS OF TENANTS AND/OR PARTIES IN POSSESSION UNDER ANY UNRECORDED LEASES, AND THE RIGHT OF ANY PARTY CLAIMING BY AND THROUGH SAID TENANT(S).

11. RIGHTS OF OTHERS OVER THAT PORTION OF THE LAND USED AS INGRESS AND EGRESS TO OTHER LANDS.

13. RIGHTS OF THE CO–OWNERS OF GEN TECH INDUSTRIAL PARK, A MICHIGAN CONDOMINIUM IN THE GENERAL COMMON ELEMENTS AND LIMITED COMMON ELEMENTS AS SET FORTH IN THE MASTER DEED RECORDED IN LIBER 1897, PAGES 42 THROUGH 101, INCLUSIVE, LIVINGSTON COUNTY RECORDS, AND AS AMENDED AND AS DESCRIBED IN ACT 59 OF THE PUBLIC ACTS OF 1978 AS AMENDED, AND ALL THE TERMS AND CONDITIONS, PROVISIONS, AGREEMENTS, OBLIGATIONS, REGULATIONS, RESTRICTIONS, EASEMENTS AND OTHER MATTERS SET FORTH IN THE ABOVE DESCRIBED MASTER DEED, AMENDMENT(S) AND STATUTE. NOTE: THE MASTER DEED PROVIDES, AMONG OTHER THINGS FOR ASSESSMENTS TO BE MADE AGAINST EACH UNIT/APARTMENT, AND FOR EACH SUCH UNPAID DELINQUENT ASSESSMENTS TO CONSTITUTE A LIEN. [SAID EASEMENTS AS SHOWN ON EXHIBIT B TO THE MASTER DEED ARE PLOTTED HEREON].

14. DETROIT EDISON UNDERGROUND EASEMENT (RIGHT OF WAY) RECORDED IN LIBER 2967, PAGE 924. [SAID EASEMENT IS PLOTTED HEREON].

15. TERMS, CONDITIONS AND PROVISIONS SET FORTH IN MEMORANDUM OF PURCHASE OPTION RECORDED AUGUST 6, 2015 IN INSTRUMENT: 2015R–024698. [NO PLOTTABLE EASEMENTS/RESTRICTIONS. NOT PLOTTED HEREON].

ALL EXCEPTIONS SHOWN OR NOTED ON THIS SURVEY WERE OBTAINED FROM TITLE COMMITMENT NO. 19000112696, WITH AN EFFECTIVE DATE OF 12–02–2019, ISSUED BY STEWART TITLE GUARANTY COMPANY.

BASIS OF BEARING NOTE

ALL BEARINGS ARE IN RELATION TO GENTECH INDUSTRIAL PARK AS RECORDED IN LIBER 1897, PAGES 42 THROUGH 101 LIVINGSTON COUNTY RECORDS.

FLOOD HAZARD NOTE

THE PROPERTY DESCRIBED ON THIS SURVEY DOES NOT LIE WITHIN A SPECIAL FLOOD HAZARD AREA AS DEFINED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY; THE PROPERTY LIES WITHIN ZONE X OF THE FLOOD INSURANCE RATE MAP IDENTIFIED AS MAP NO. 26093C0309D BEARING AN EFFECTIVE DATE OF 09–17–2008.

MISS DIG / UTILITY DISCLAIMER NOTE

A MISS DIG TICKET NUMBER B00691502, PURSUANT TO MICHIGAN PUBLIC ACT 174 WAS ENTERED FOR THE SURVEYED PROPERTY. DUE TO THE EXTENDED REPORTING PERIOD FOR UNDERGROUND FACILITY OWNERS TO PROVIDE THEIR RECORDS, THE SURVEY MAY NOT REFLECT ALL THE UTILITIES AT THE TIME THE SURVEY WAS ISSUED ON MARCH 30, 2020. THE SURVEY ONLY REFLECTS THOSE UTILITIES WHICH COULD BE OBSERVED BY THE SURVEYOR IN THE FIELD OR AS DEPICTED BY THE UTILITY COMPANY RECORDS FURNISH PRIOR TO THE DATE THIS SURVEY WAS ISSUED. THE CLIENT AND/OR THEIR AUTHORIZED AGENT SHALL VERIFY WITH THE FACILITY OWNERS AND/OR THEIR AUTHORIZED AGENTS, THE COMPLETENESS AND EXACTNESS OF THE UTILITIES LOCATION.

DTE DISCLAIMER NOTE

PLEASE NOTE THAT DTE HAS NEW REGULATIONS THAT MAY IMPACT DEVELOPMENT OUTSIDE THEIR EASEMENT OR THE PUBLIC RIGHT OF WAY. CLIENT SHALL CONTACT DTE TO DETERMINE THE "NEW STRUCTURES AND POWER LINE" REQUIREMENTS AS THEY MAY APPLY TO ANY FUTURE BUILDING OR RENOVATION OF A STRUCTURE. DTE ENERGY CAN BE CONTACTED AT 800–477–4747

ALTA SURVEY NOTES

THERE IS NO VISIBLE EVIDENCE OF CURRENT EARTH MOVING WORK, BUILDING CONSTRUCTION OR BUILDING ADDITIONS.

THERE IS NO PROPOSED CHANGES IN STREET RIGHT OF WAY LINES AND THERE IS NO EVIDENCE OF RECENT STREET OR SIDEWALK CONSTRUCTION OR REPAIR.

THERE IS NO VISIBLE EVIDENCE OF SITE USE AS A SOLID WASTE DUMP, SUMP OR SANITARY LANDFILL.

THERE WERE NO FIELD DELINEATED WETLAND MARKERS OBSERVED ON THE SUBJECT PROPERTY.

LOCATION OF UTILITIES EXISTING ON OR SERVING THE PROPERTY AS DETERMINED BY: OBSERVED EVIDENCE OR EVIDENCE FROM PLANS REQUESTED BY THE SURVEYOR AND OBTAINED FROM UTILITY COMPANIES:

THE SUBJECT PROPERTY HAS ACCESS TO FENDT DRIVE, BEING A PRIVATE ROAD ACCORDING TO THE EXHIBIT B TO THE MASTER DEED OF GENTECH INDUSTRIAL PARK CONDOMINIUM. FENDT DRIVE CONNECTS TO GRAND OAK DRIVE, A PUBLICLY DEDICATED ROAD, VIA 66' PRIVATE ROAD EASEMENT RECORDED IN LIBER 1284, PAGE 875.

LEGAL DESCRIPTION - PER TITLE COMMITMENT

LAND SITUATED IN THE TOWNSHIP OF GENOA, COUNTY OF LIVINGSTON, MICHIGAN, MORE PARTICULARLY DESCRIBED AS:

UNITS 2, 3 AND 4, OF GEN TECH INDUSTRIAL PARK, A CONDOMINIUM ACCORDING TO THE MASTER DEED THEREOF RECORDED IN LIBER 1897, PAGE 42, LIVINGSTON COUNTY RECORDS, AND DESIGNATED AS LIVINGSTON COUNTY CONDOMINIUM SUBDIVISION PLAN NO. 68, AND ANY AMENDMENTS THERETO, TOGETHER WITH AN UNDIVIDED INTEREST IN THE COMMON ELEMENTS OF SAID CONDOMINIUM AS SET FORTH IN SAID MASTER DEED AND AS DESCRIBED IN ACT 59 OF THE PUBLIC ACTS OF MICHIGAN OF 1978, AS AMENDED.

COMMONLY KNOWN AS: 1212 FENDT DR.
TAX PARCEL ID: 11–08–201–012

TITLE REPORT NOTES

2. RIGHTS OR CLAIMS OF PARTIES IN POSSESSION NOT SHOWN BY THE PUBLIC RECORDS.

3. EASEMENTS, OR CLAIMS OF EASEMENTS, NOT SHOWN BY THE PUBLIC RECORDS.

8. RIGHTS OF THE PUBLIC AND ANY GOVERNMENTAL UNIT IN ANY PART OF THE LAND TAKEN, DEEDED OR USED FOR ROAD, STREET OR HIGHWAY PURPOSES.

9. MINERALS OF WHATSOEVER KIND, SUBSURFACE AND SURFACE SUBSTANCES, INCLUDING BUT NOT LIMITED TO COAL, LIGNITE, OIL, GAS, URANIUM, CLAY, ROCK, SAND AND GRAVEL IN, ON, UNDER AND THAT MAY BE PRODUCED FROM THE LAND, TOGETHER WITH ALL RIGHTS, PRIVILEGES, AND IMMUNITIES RELATING THERETO, WHETHER OR NOT APPEARING IN THE PUBLIC RECORDS OR LISTED IN SCHEDULE B. THE COMPANY MAKES NO REPRESENTATION AS TO THE PRESENT OWNERSHIP OF ANY SUCH INTERESTS. THERE MAY BE LEASES, GRANTS, EXCEPTIONS OR RESERVATIONS OF INTERESTS THAT ARE NOT LISTED.

10. RIGHTS OF TENANTS AND/OR PARTIES IN POSSESSION UNDER ANY UNRECORDED LEASES, AND THE RIGHT OF ANY PARTY CLAIMING BY AND THROUGH SAID TENANT(S).

11. RIGHTS OF OTHERS OVER THAT PORTION OF THE LAND USED AS INGRESS AND EGRESS TO OTHER LANDS.

RIGHTS OF THE CO–OWNERS OF GEN TECH INDUSTRIAL PARK, A MICHIGAN CONDOMINIUM IN THE GENERAL COMMON ELEMENTS AND LIMITED COMMON ELEMENTS AS SET FORTH IN THE MASTER DEED RECORDED IN LIBER 1897, PAGES 42 THROUGH 101, INCLUSIVE, LIVINGSTON COUNTY RECORDS, AND AS AMENDED AND AS DESCRIBED IN ACT 59 OF THE PUBLIC ACTS OF 1978 AS AMENDED, AND ALL THE TERMS AND CONDITIONS, PROVISIONS, AGREEMENTS, OBLIGATIONS, REGULATIONS, RESTRICTIONS, EASEMENTS AND OTHER MATTERS SET FORTH IN THE ABOVE DESCRIBED MASTER DEED, AMENDMENT(S) AND STATUTE. NOTE: THE MASTER DEED PROVIDES, AMONG OTHER THINGS FOR ASSESSMENTS TO BE MADE AGAINST EACH UNIT/APARTMENT, AND FOR EACH SUCH UNPAID DELINQUENT ASSESSMENTS TO CONSTITUTE A LIEN. [SAID EASEMENTS AS SHOWN ON EXHIBIT B TO THE MASTER DEED ARE PLOTTED HEREON].

12. DETROIT EDISON UNDERGROUND EASEMENT (RIGHT OF WAY) RECORDED IN LIBER 2742, PAGE 421. [SAID EASEMENT IS PLOTTED HEREON].

13. LEASE INTEREST OF MATTRESS WORLD, INC., AND THE TERMS, COVENANTS, CONDITIONS AND PROVISIONS CONTAINED IN THE LEASE, AND ALL AMENDMENTS THERETO AS DISCLOSED BY THE DOCUMENT RECORDED IN INSTRUMENT: 2008R–029674. [NO PLOTTABLE EASEMENTS/RESTRICTIONS. NOT PLOTTED HEREON].

ALL EXCEPTIONS SHOWN OR NOTED ON THIS SURVEY WERE OBTAINED FROM TITLE COMMITMENT NO. 20000110074, WITH AN EFFECTIVE DATE OF 01–10–2020, ISSUED BY STEWART TITLE GUARANTY COMPANY.

SURVEY DATA

SITE AREA:
UNIT 7 = 87,149 SQUARE FEET OR 2.00 ACRES
UNITS 2, 3 AND 4 = 261,554 SQUARE FEET OR 6.00 ACRES

ZONED:
IND, INDUSTRIAL DISTRICT

BUILDING SETBACKS:
FRONT = 85' IF PARKING IN THE FRONT YARD
50' IF NO PARKING IN THE FRONT YARD
SIDES = 25'; 50' IF ADJACENT TO RESIDENTIAL DISTRICT
REAR = 40'; 80' IF ADJACENT TO RESIDENTIAL DISTRICT

MAX. BUILDING HEIGHT PERMITTED: 2 STORIES / 30'

THE ABOVE SETBACK & HEIGHT REQUIREMENTS WERE OBTAINED FROM THE TOWNSHIP OF GENOA ZONING ORDINANCE.

PARKING SPACES:
UNIT 7 = NO STRIPED PARKING SPACES
UNITS 2, 3 AND 4 = 46 REGULAR SPACES, 3 BARRIER FREE SPACES AND 24 TRAILER TRUCK SPACES

A SURVEYOR CANNOT MAKE A CERTIFICATION ON THE BASIS OF AN INTERPRETATION OR OPINION OF ANOTHER PARTY. A ZONING ENDORSEMENT LETTER SHOULD BE OBTAINED FROM THE TOWNSHIP OF GENOA TO INSURE CONFORMITY AS WELL AS MAKE A FINAL DETERMINATION OF THE REQUIRED BUILDING SETBACK REQUIREMENTS.

LEGEND

MANHOLE(MH)	EXISTING SANITARY SEWER
CO	EXISTING SAN. CLEAN OUT
HYDRANT(HYD) / GATE VALVE(GVW)	EXISTING WATER MAIN
MANHOLE(MH) / CATCH BASIN(CB)	EXISTING STORM SEWER
CBB	EX. BEEHIVE CATCH BASIN
UTILITY POLE / GUY POLE	EX. UNDERGROUND (UG.) CABLE
UP / GUY WIRE	OVERHEAD (OH.) LINES
LP	LIGHT POLE
	EXISTING GAS MAIN
ASPH.	ASPHALT
CONC.	CONCRETE
F.I. / S.I.	FOUND IRON / SET IRON
RET. WALL	RETAINING WALL
R.O.W.	RIGHT–OF–WAY
(TYP)	TYPICAL
(R)	RECORD
(M)	MEASURED
C/L	CENTERLINE
P/L	PROPERTY LINE
GM	GAS METER
EM	ELECTRIC METER
LS	LANDSCAPE
DS	DOWNSPOUT
MB	MAIL BOX
CR	CABLE RISER
ER	ELECTRIC RISER
PR	PHONE RISER
IB	IRRIGATION BOX
GP	GUARD POST
FDC	FIRE DEPARTMENT CONNECTION
× 889	TREE TAG NUMBER

50 NF ENGINEERS 1969 – 2019

NOWAK & FRAUS ENGINEERS

CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS

NOWAK & FRAUS ENGINEERS
46777 WOODWARD AVE.
PONTIAC, MI 48342–5032
TEL. (248) 332–7931
FAX. (248) 332–8257
WWW.NOWAKFRAUS.COM

SEAL

PROJECT
UPS Facility -
1212 & 1183 Fendt Drive
Howell, MI 48843

CLIENT
Sidock Group, Inc.
45650 Grand River Ave.
Novi, MI 48374

Contact: Casey Leach, PE
Phone: 248.349.4500
Email:
cleach@sidockgroup.com

PROJECT LOCATION
Part of the NE 1/4
of Section 8
T.2N., R.5E.,
Genoa Township,
Livingston County, Michigan

SHEET
ALTA/NSPS Land Title /
Topographic / Tree Survey

811 Know what's below Call before you dig.

DATE	ISSUED/REVISED
03-27-20	PRELIMINARY ALTA SURVEY ISSUED
03-30-20	ALTA & TOPO SURVEY ISSUED

DRAWN BY:
M. Carnaghi

DESIGNED BY:

APPROVED BY:
K. Navaroli

DATE:
March 27, 2020

SCALE: 1" = 30'

30 15 0 15 30 45

NFE JOB NO. L641

SHEET NO. 2 of 3

Tree Inventory List

Job Number: L641
Job Location: 1212 Fendt Drive, Howell Michigan
Date: Sunday, March 29, 2020
Performed By Alexander Kriebel **Forestry Registration No.**

Condition Description Notes:
"Good" - no observed structural defects*
"Fair" - minor structural defects, marginal form, some insect activity noted*
"Poor" - major structural defects, poor form, insect infested*

**Structural defects may include decayed wood, cracks, root problems, weak branch unions cankers, poor tree architecture, dead/failed branches due to various causes.*

Tree #	Botanical Name	Common Name	Dia.	Type	Other Dia.	Condition	Comments
801	Pyrus calleryana	Callery Pear	13			Fair	Competing Leads, Inosculation
802	Malus spp.	Crabapple	8			Fair	Competing Leads, Suckers At Base
803	Malus spp.	Crabapple	9			Fair	Competing Leads
804	Pyrus calleryana	Callery Pear	12			Fair	Competing Leads, Inosculation
805	Pyrus calleryana	Callery Pear	11			Fair	Competing Leads, Inosculation
806	Pinus strobus	Eastern White Pine	5			Good	
807	Pinus strobus	Eastern White Pine	7			Fair	Bent Lead
808	Pyrus calleryana	Callery Pear	8			Fair	Suckers At Base, Canopy Die-Back, Competing Leads
809	Picea pungens	Colorado Blue Spruce	9			Good	
810	Too Small Remove From List						
811	Picea pungens	Colorado Blue Spruce	8			Good	
812	Acer rubrum	Red Maple	8			Poor	Girdling Roots, Poor Growth Structure, Lacks Upper Branching
813	Picea pungens	Colorado Blue Spruce	7			Good	
814	Pyrus calleryana	Callery Pear	8			Fair	Broken Limbs Due To Vehicle Traffic, Competing Leads
815	Pinus nigra	Austrian Pine	12			Fair	Insect Activity, Canopy Die-Back, Competing Leads
816	Pinus nigra	Austrian Pine	10			Fair	Canopy Die-Back, Bent Lead
817	Pinus nigra	Austrian Pine	11			Fair	Insect Activity, Canopy Die-Back, Bent Lead
818	Pinus nigra	Austrian Pine	12			Fair	Insect Activity, Canopy Die-Back, Minor Lean
819	Pinus nigra	Austrian Pine	12	Twin	8	Fair	Insect Activity, Canopy Die-Back, Competing Leads
820	Pyrus calleryana	Callery Pear	10			Good	
821	Pinus nigra	Austrian Pine	13			Fair	Insect Activity, Canopy Die-Back, Competing Leads
822	Pinus nigra	Austrian Pine	11			Poor	Major Canopy Die-Back, Missing Lead, Oozing Sap
823	Tree Is Dead Remove From List						
824	Pinus nigra	Austrian Pine	9			Poor	Fungus, Insect Activity, A-Typical Growth Structure
825	Tree Is Dead Remove From List						
826	Pinus nigra	Austrian Pine	11			Fair	Canopy Die-Back
827	Malus spp.	Crabapple	9			Fair	Competing Leads
828	Pinus strobus	Eastern White Pine	12			Good	
829	Pinus strobus	Eastern White Pine	10			Fair	Bent Lead, Competition
830	Pinus strobus	Eastern White Pine	12			Fair	Bent Lead
831	Pinus strobus	Eastern White Pine	5			Good	
832	Pinus strobus	Eastern White Pine	10			Good	
833	Picea pungens	Colorado Blue Spruce	9			Good	
834	Picea pungens	Colorado Blue Spruce	9			Fair	Bent Lead, Competition
835	Picea pungens	Colorado Blue Spruce	9			Good	
836	Picea pungens	Colorado Blue Spruce	9			Fair	Competition, Canopy Die-Back
837	Picea pungens	Colorado Blue Spruce	9			Good	
838	Picea pungens	Colorado Blue Spruce	12			Good	
839	Picea pungens	Colorado Blue Spruce	12			Fair	Competing Leads
840	Picea pungens	Colorado Blue Spruce	9			Fair	Competition, Canopy Die-Back
841	Picea pungens	Colorado Blue Spruce	12			Good	
842	Picea pungens	Colorado Blue Spruce	11			Good	
843	Picea pungens	Colorado Blue Spruce	11			Good	
844	Pinus nigra	Austrian Pine	12			Fair	Competition, Canopy Die-Back, Insect Activity, Competing Leads
845	Pinus nigra	Austrian Pine	12			Fair	Competition, Canopy Die-Back, Insect Activity
846	Pinus strobus	Eastern White Pine	11			Fair	Bent Lead, Competition, Canopy Die-Back
847	Pinus nigra	Austrian Pine	10			Fair	Competition, Canopy Die-Back, Insect Activity
848	Pinus strobus	Eastern White Pine	13			Fair	Competing Leads, Competition, Canopy Die-Back
849	Pinus strobus	Eastern White Pine	14			Fair	Competing Leads, Competition, Canopy Die-Back
850	Pinus strobus	Eastern White Pine	11			Fair	Competing Leads, Competition, Canopy Die-Back
851	Pinus strobus	Eastern White Pine	10			Fair	Competing Leads, Competition
852	Catalpa speciosa	Northern Catalpa	15			Poor	Rotting Split Running Up Trunk, Major Canopy Die-Back
853	Salix amygdaloides	Peachleaf Willow	13	Multiple Stemmed	7, 6, 4, 4, 4	Fair	Competing Leads, Canopy Die-Back, Minor Leans, In ROW
854	Populus deltoides	Eastern Cottonwood	11			Fair	Competing Leads, Rotting At Seam, In ROW
855	Too Small Remove From List						
856	Catalpa speciosa	Northern Catalpa	13	Twin	6 (Dead)	Poor	Rotting Split Running Up Trunk, Canopy Die-Back, Rotting Base
857	Too Small Remove From List						
858	Prunus serotina	Black Cherry	9			Fair	Moderate Lean, Climbing Vines, Competition
859	Prunus serotina	Black Cherry	8	Twin	7	Poor	Major Canopy Die-Back, Strangling Vines, Competition, Competing Leads
860	Catalpa speciosa	Northern Catalpa	17			Poor	Rotting Split Running Up Trunk, Major Canopy Die-Back
861	Carya glabra	Pignut Hickory	8	Multiple Stemmed	8, 5	Fair	Bent Leads, Competing Leads, Climbing Vines, Competition
862	Carya glabra	Pignut Hickory	11			Fair	Competition, Bent Lead
863	Prunus serotina	Black Cherry	8			Poor	Nearly Dead, Major Canopy Die-Back, Strangling Vines, Competition
864	Same Tree As 865						
865	Prunus serotina	Black Cherry	23	Multiple Stemmed	23, 14 (Dead)	Poor	Dead And Dying Leads, Major Rot At Base, Canopy Die-Back, Competing Leads
866	Sassafras albidum	Sassafras	10			Poor	Bent Lead, Contorted Crown, Competition, Minor Lean, Large Rotting Canker
867	Sassafras albidum	Sassafras	11			Poor	Nearly Dead, Missing Lead, Large Rotting Canker, Minor Lean, Insect Activity
868	Quercus rubra	Northern Red Oak	39			Good	
869	Carya glabra	Pignut Hickory	10			Fair	Canopy Die-Back, Contorted Crown, Competition
870	Prunus serotina	Black Cherry	18	Twin	16	Fair	Dying Lead, Competing Leads, Winding Leads, Competition
871	Quercus rubra	Northern Red Oak	15			Poor	A-Typical Growth Structure, Bent Lead, Contorted Crown, Competition
872	Quercus rubra	Northern Red Oak	12			Fair	Winding Lead, Canopy Die-Back, Strangling Vines
873	Populus deltoides	Eastern Cottonwood	22	Twin	8	Fair	Rotting Canker At Base, Competing Leads, Canopy Die-Back
874	Tree Is Dead Remove From List						
875	Populus deltoides	Eastern Cottonwood	8			Fair	Competing Leads, Competition
876	Too Small Remove From List						
877	Pyrus calleryana	Callery Pear	10			Fair	Competing Leads, Inosculation
878	Pyrus calleryana	Callery Pear	10			Good	
879	Picea glauca	White Spruce	6			Fair	Canopy Die-Back
880	Picea glauca	White Spruce	7			Good	
881	Pyrus calleryana	Callery Pear	14			Fair	Competing Leads, Inosculation, Surfacing Roots Getting Mowed, Minor Lean
882	Picea glauca	White Spruce	7			Good	
883	Picea glauca	White Spruce	6			Fair	Canopy Die-Back
884	Acer rubrum	Red Maple	11			Good	
885	Acer saccharum	Sugar Maple	11			Fair	Girdling Roots, Competing Leads
886	Acer saccharum	Sugar Maple	14			Good	
887	Acer saccharum	Sugar Maple	11			Good	
888	Acer rubrum	Red Maple	13			Fair	Competing Leads
889	Acer saccharum	Sugar Maple	10			Fair	Surfacing Roots Getting Mowed, Girdling Roots
1977	Quercus rubra	Northern Red Oak	16	Twin	12	Fair	Competing Leads, Canopy Die-Back Competition
1978	Quercus rubra	Northern Red Oak	14			Fair	Bent Lead, A-Typical Growth Structure, Competition
1979	Carya ovata	Shagbark Hickory	18			Poor	Canopy Die-Back, Missing Leads, Competition, Dead And Dying Leads
1980	Carya glabra	Pignut Hickory	21	Twin	13	Poor	Dead And Dying Lead, Competing Leads, Numerous Burls, Winding Lead
1981	Carya glabra	Pignut Hickory	20			Good	
1982	Quercus rubra	Northern Red Oak	15			Fair	Competing Leads, Minor Lean, Competition, Canopy Die-Back
1983	Carya ovata	Shagbark Hickory	8			Fair	Competition, Bent Lead
1984	Prunus serotina	Black Cherry	10			Poor	Nearly Dead, Major Canopy Die-Back, Dead And Dying Leads
1985	Carya ovata	Shagbark Hickory	18			Good	
1986	Carya ovata	Shagbark Hickory	22			Good	
1987	Carya glabra	Pignut Hickory	8			Fair	Competition, Canopy Die-Back
1988	Carya glabra	Pignut Hickory	8			Fair	Competition, Bent Lead
1989	Carya glabra	Pignut Hickory	25			Poor	Lost Major Lead, Spilt Running Down Trunk, Exposed Heratwood, Weak Structure
1990	Prunus serotina	Black Cherry	29			Poor	Nearly Dead, Major Canopy Die-Back, Dead And Dying Leads
1991	Quercus rubra	Northern Red Oak	13			Fair	Contorted Crown, Minor Lean, Competition
1992	Prunus serotina	Black Cherry	8			Poor	Nearly Dead, Major Canopy Die-Back, Dead And Dying Leads
1993	Catalpa speciosa	Northern Catalpa	15			Poor	Rotting Split Running Up Trunk, Major Canopy Die-Back, Dead Lead
1994	Prunus serotina	Black Cherry	8			Poor	Strangling Vines, Competition, Major Canopy Die-Back

NOWAK & FRAUS ENGINEERS
CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS

NOWAK & FRAUS ENGINEERS
46777 WOODWARD AVE.
PONTIAC, MI 48342-5032
TEL. (248) 332-7931
FAX. (248) 332-8257
WWW.NOWAKFRAUS.COM

SEAL

PROJECT
UPS Facility -
1212 & 1183 Fendt Drive
Howell, MI 48843

CLIENT
Sidock Group, Inc.
45650 Grand River Ave.
Novi, MI 48374

Contact: Casey Leach, PE
Phone: 248.349.4500
Email:
cleach@sidockgroup.com

PROJECT LOCATION
Part of the NE 1/4
of Section 8
T.2N., R.5E.,
Genoa Township,
Livingston County, Michigan

SHEET
Tree List

Know what's below Call before you dig.

DATE ISSUED/REVISED
03-27-20 PRELIMINARY ALTA SURVEY ISSUED
03-30-20 ALTA & TOPO SURVEY ISSUED

DRAWN BY:
M. Carnaghi
DESIGNED BY:
APPROVED BY:
K. Navaroli
DATE:
March 27, 2020
SCALE: 1" = 30'
30 15 0 15 30 45

NFE JOB NO. **L641**
SHEET NO. **3 of 3**

WARNING!!
THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS DRAWING ARE ONLY APPROXIMATE. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINING THE EXACT UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.

CAUTION!!
2" GAS MAIN

N71°38'59"E 281.22' (R&M)
10' SIDE PARKING LOT SETBACK
L = 83.48'(R&M)
R = 75.00'(R&M)
Δ = 63°46'15"(M)
CHD. BRG = N13°55'25"E
79.23'(M)
L = 48.02'(R&M)
R = 75.00'(R&M)
Δ = 36°40'42"(M)
CHD. BRG = S32°38'26"E
47.20'(M)
L = 42.23'(R&M)
R = 49.99'(R&M)
Δ = 48°23'40"(M)
CHD. BRG = N21°36'43"E
40.99'(R&M)
L = 42.23'(R&M)
R = 50.00'(R&M)
Δ = 48°23'40"(R&M)
CHD. BRG = S26°46'57"E
40.99'(R&M)
10' FRONT PARKING LOT SETBACK
N02°35'07"W 146.49' (R&M)
FENDT DRIVE (66' R.O.W. - PRIVATE)
S02°35'07"E 331.09' (R&M)
10' REAR PARKING LOT SETBACK
S86°27'39"W 310.00' (R&M)
GRAVEL ±6.4' S. OF P/L
10' SIDE PARKING LOT SETBACK

EXCEPTION 13 (COMMITMENT NO. 19000112696): 12' EASEMENT FOR PUBLIC UTILITIES (PER EXHIBIT B TO THE MASTER DEED)

EXCEPTION 14 (COMMITMENT NO. 19000112696): APPROXIMATE LOCATION OF 12' DTE UNDERGROUND EASEMENT (L.2967, P.924)

EXCEPTION 13 (COMMITMENT NO. 19000112696): 40' EASEMENT FOR PUBLIC STORM DRAINAGE (PER EXHIBIT B TO THE MASTER DEED)

1183 FENDT DR.
TAX ID NO. 11-08-201-007
OWNER: A & J CARTAGE COMPANY
ZONED: IND, INDUSTRIAL
UNIT 7 GEN TECH INDUSTRIAL PARK

1201 FENDT DR.
TAX ID NO. 11-08-201-008
OWNER: FALCON ASSET MANAGEMENT, LLC
ZONED: IND, INDUSTRIAL

B1 B2 B3 B4

BENCHMARK DATA

BM A
ARROW ON HYDRANT
ELEVATION = 1023.25
(NAVD88 DATUM)

BM B
PK NAIL IN POLE
ELEVATION = 1017.95
(NAVD88 DATUM)

BM C
ARROW ON HYDRANT
ELEVATION = 1026.87
(NAVD88 DATUM)

BM D
PK NAIL IN POLE
ELEVATION = 1024.74
(NAVD88 DATUM)

EXISTING LEGEND

CONTOUR 881
INDEX CONTOUR 880
WATER MAIN
STORM SEWER
SANITARY SEWER
CABLETV
OVERHEAD UTILITY
FIBER OPTIC
GAS
ELECTRICAL
FENCE
HYDRANT
GATE VALVE
POST INDICATOR VALVE (PIV)
WATER MAIN MANHOLE
SQUARE CATCH BASIN
ROUND CATCH BASIN
BEEHIVE CATCH BASIN
SANITARY MANHOLE
END SECTION
CULVERT
STORM MANHOLE
CLEAN OUT
SIGN
UTILITY POLE
RISER
LIGHT POLE
LANDSCAPE LIGHT
SPRINKLER
ELECTRICAL BOX
ELECTRICAL MANHOLE
FLAG POLE
MAILBOX
TOP OF CURB TC
GUTTER GU
EX. GRADE 999.99
TOP OF ASPHALT TA
TOP OF WALL TW
BOTTOM OF WALL BW
TREE
CONCRETE
ASPHALT PAVEMENT
GRAVEL
RIP-RAP

BENCHMARK
PK NAIL IN POLE
ELEVATION 1017.95
NAVD 88 DATUM B

BENCHMARK
ARROW ON HYDRANT
ELEVATION 1023.25
NAVD 88 DATUM A

BENCHMARK
ARROW ON HYDRANT
ELEVATION 1026.87
NAVD 88 DATUM C

BENCHMARK
PK NAIL IN POLE
ELEVATION 1024.74
NAVD 88 DATUM D

BENCHMARK
ARROW ON HYDRANT
ELEVATION 1029.51
NAVD 88 DATUM

BENCHMARK LOCATIONS
NOT TO SCALE

NOTES

1. TOPOGRAPHIC AND BOUNDARY PERFORMED BY NOWAK & FRAUS ENGINEERS, DATED 04-09-2020 AND PROVIDED BY THE CLIENT.
2. THE LOCATION OF THE EXISTING UTILITIES AS SHOWN WERE OBTAINED FROM MUNICIPAL AND UTILITY COMPANIES RECORDS. NO GUARANTEE CAN BE MADE REGARDING THE COMPLETENESS OR EXACTNESS OF THE UTILITIES LOCATION. IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY IN THE FIELD THE LOCATION OF ALL UTILITIES.

ISSUED FOR SITE PLAN APPROVAL

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Orientation: N W E S
Scale: 0' 20' 40'
GRAPHIC SCALE: 1" = 20'

Project
UPS HOWELL
EMPLOYEE PARKING LOT
IMPROVOMENTS

Project Location
1183 FENDT DRIVE
HOWELL, MI 48843

Sheet Name
EXISTING SITE CONDITIONS

Engineer's Seal
STATE OF MICHIGAN
HUGO J. CERON
ENGINEER
No. 67351
PROFESSIONAL
Hugo Javier Ceron

Revisions

REV	ISSUED FOR	DATE	BY
01	TOWNSHIP COMMENTS	09/23/2020	JAS

Date
09/02/2020

SME Project No.
084617.00

Project Manager:
J. SCHWARTZENBERGER

Designer:
H. CERON

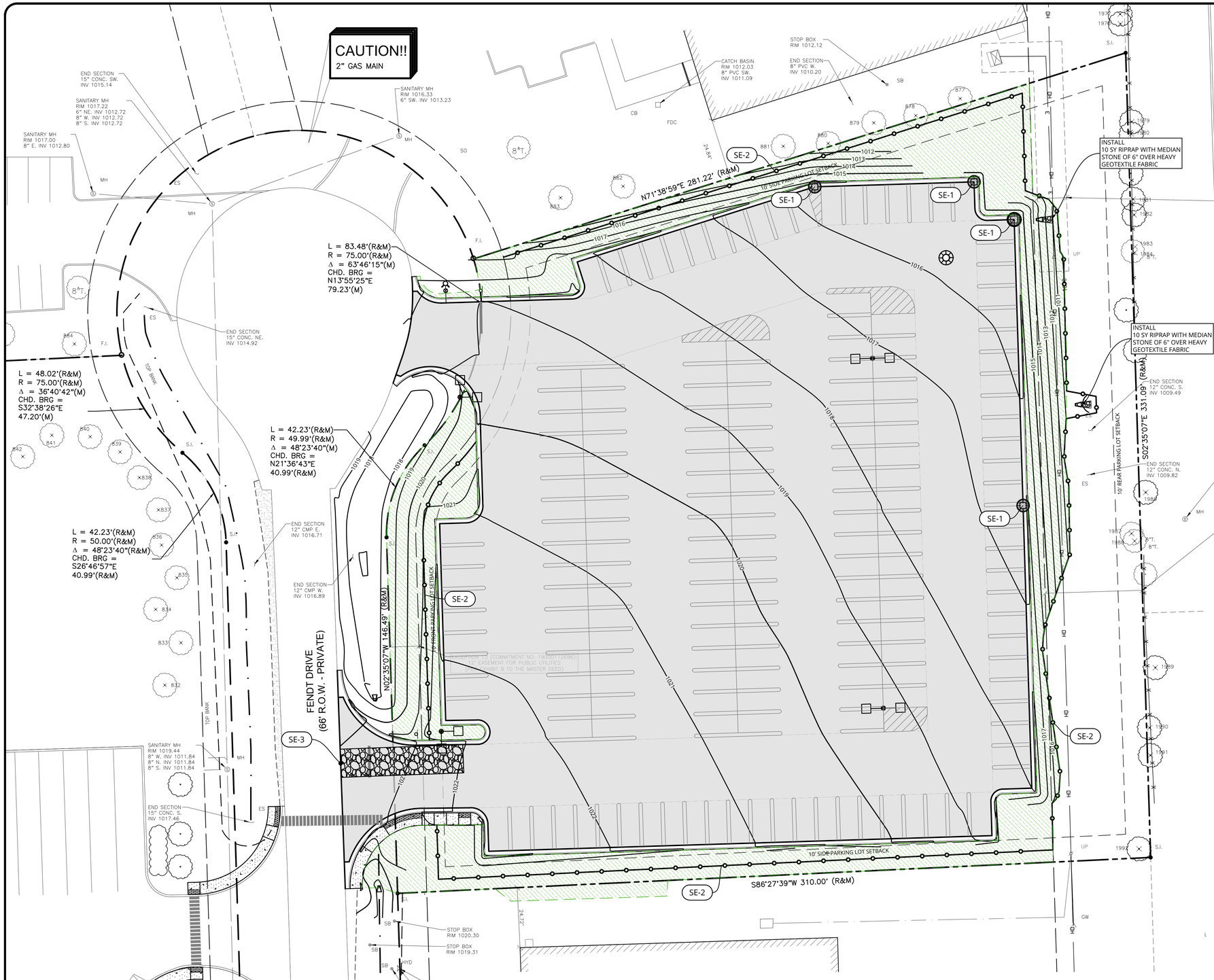
CADD:
H. CERON

Checked By:
B. HART

Reviewed By:
J. SCHWARTZENBERGER

Sheet No.
C-300

PLOT DATE: Sep 22, 2020 - 3:12pm - ceron
FILE LOCATION: \\Sme-inc\pr\WIP\084617.00\CAD\DWGS\PA\rev#\084617.00 EXSC.dwg



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FLAG POLE
MAILBOX
TOP OF CURB TC
GUTTER GU
EX. GRADE 999.99
TOP OF ASPHALT TA
TOP OF WALL TW
BOTTOM OF WALL BW
TREE
CONCRETE
ASPHALT PAVEMENT
GRAVEL
RIP-RAP

SOIL EROSION CONTROL LEGEND

SE-1 FURNISH AND INSTALL INLET PROTECTION FILTER
SE-2 FURNISH AND INSTALL SILT FENCE
SE-3 FURNISH AND INSTALL TEMPORARY GRAVEL TRACKING PAD
SE-4 RESTORE AREA PER GOVERNING AGENCY STANDARD AND SPECIFICATIONS

SOIL TYPES ON SITE

MoB - WAWASEE LOAM, 2 TO 6 PERCENT SLOPES (ENTIRE PARCEL)

(SOIL INFORMATION TAKEN FROM THE UNITED STATES DEPARTMENT OF AGRICULTURE SOIL SURVEY)

AREA OF DISTURBANCE

APPROX. 1.89 ACRES

EXCAVATION NOTES

1. EXCAVATED SOILS SHALL BE UTILIZED TO BACKFILL AND ROUGH GRADE BEHIND CURBS.
2. EXCESS EXCAVATED SOILS SHALL BE TRANSPORTED OFF SITE AND DISPOSE IN A LEGAL MANNER.

NOTE

1. SOIL EROSION CONTROLS WILL BE MAINTAINED WEEKLY AND AFTER EVERY STORM EVENT BY THE SELECTED CONTRACTOR.

SESC CONSTRUCTION SCHEDULE

1. START PROJECT: 09/01/2020
2. INSTALL SESC MEASURES: 09/01/2020 - 09/04/2020
3. PERFORM REMOVALS GRADING: 09/07/2020 - 09/18/2020
4. PERFORM GRADING: 09/21/2020 - 09/25/2020
5. INSTALL UTILITIES: 09/28/2020 - 10/02/2020
6. INSTALL AGGREGATE BASE: 10/05/2020 - 10/07/2020
7. INSTALL CURB AND GUTTER: 10/08/2020 -
8. INSTALL PAVEMENT: 10/09/2020 - 10/25/2020
9. RESTORE SITE: 10/26/2020 - 10/31/2020

ZONING

PROJECT LOCATED IN ZONING IND , INDUSTRIAL

OWNER

UNITED PARCEL SERVICE
1212 FENDT DRIVE
HOWELL, MI 48843

EROSION CONTROL

EARTH DISTURBANCE IS NOT PERMITTED OUTSIDE THE NOTED DISTURBANCE LIMITS. DISTURBANCE IS NOT PERMITTED WITHIN THE FLOODPLAIN LIMITS.

EARTH EXCAVATION FOR THIS PROJECT SHALL INCLUDE THE EXCAVATION FOR UNDERGROUND UTILITIES AND SITE BALANCING TO REACH FINAL PAVEMENT SUBGRADE LEVELS.

THE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ALL SOIL EROSION AND SEDIMENTATION CONTROL (SESC) MEASURES, INCLUDING DUST CONTROL.

THE FOLLOWING MINIMUM SESC MEASURES SHALL BE INSTALLED PRIOR TO CONSTRUCTION AND MAINTAINED UNTIL CONSTRUCTION IS COMPLETE AND TURF IS ESTABLISHED:

1. MUD MATS AT SITE ENTRANCE/EXIT POINTS TO MINIMIZE THE TRACKING OF DEBRIS/SOIL ONTO ROADWAYS OR NEIGHBORING PROPERTY. MUD MATS SHALL CONSIST OF LARGE COARSE AGGREGATE OVERLYING A GEOTEXTILE SEPARATOR FABRIC.
2. STOCKPILED SOILS SHALL BE COVERED OR OTHERWISE PROTECTED FROM ERODING INTO OFFSITE AREAS.
3. THE CONTRACTOR SHALL ESTABLISH PERMANENT STABILIZATION OF ALL EXPOSED AREAS WITHIN 7 DAYS OF FINAL GRADING.
4. BURLAP AND/OR STRAW BALES ARE NOT ALLOWED.
5. SEDIMENT TRAPS (I.E., SILT SACKS) SHALL BE INSTALLED AT EXISTING AND NEWLY INSTALLED INLET STRUCTURES AND SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION.
6. SILT FENCING SHALL BE INSTALLED ALONG THE PERIMETER OF THE DISTURBED LIMITS (SEE PLAN) AND MAINTAINED.

MAINTENANCE REQUIREMENTS FOR SOIL EROSION AND SEDIMENTATION CONTROL

THE CONTRACTOR IS RESPONSIBLE FOR THE REGULAR INSPECTION AND MAINTENANCE OF ALL SOIL EROSION AND SEDIMENTATION CONTROL (SESC) MEASURES THROUGHOUT CONSTRUCTION IN ACCORDANCE WITH MDEQ REQUIREMENTS.

REINSTALL OR OTHERWISE REPLACE SESC MEASURES IF FOUND TO BE DEFICIENT OR DO NOT MEET THE INTENDED FUNCTION.

SEDIMENT AND DEBRIS ACCUMULATIONS SHALL BE REGULARLY REMOVED FROM SITE ENTRANCES, CLEARED FROM SILT FENCE, AND INLET FILTERS. SEDIMENT AND DEBRIS SHALL NOT BE PERMITTED TO MIGRATE OUTSIDE OF THE DISTURBANCE LIMITS INDICATED ON THESE DRAWINGS. ANY SILT OR MUD TRACKED ON PAVED SURFACES OUTSIDE OF THE AREA OF DISTURBANCE SHALL BE REMOVED IN A MANNER THAT DOES NOT GENERATE AIRBORNE DUST.

DUST CONTROL ACTIVITIES SHALL BE PERFORMED ON AN AS-NEEDED BASIS (MINIMUM OF ONCE PER DAY), AND SHALL CONSIST OF AT LEAST THE USE OF A WATER TRUCK.

RESTORATION NOTES

1. FOLLOWING FINAL GRADING CONTRACTOR SHALL INSTALL 4 INCHES OF TOPSOIL AND SEED OF DISTURBED AREAS.
2. INSTALL SOIL EROSION BLANKET ON ALL DISTURBED AREAS WITH SLOPES FLATTER THAN 1V:2H.
3. INSTALL HIGH VELOCITY SOIL EROSION BLANKET ON ALL DISTURBED AREAS WITH SLOPE STEEPER THAN 1V:2H.

ISSUED FOR SITE PLAN APPROVAL

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Orientation: N W E S
Scale: 0' 20' 40'
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Project
UPS HOWELL
EMPLOYEE PARKING LOT
IMPROVOMENTS

Project Location
1183 FENDT DRIVE
HOWELL, MI 48843

Sheet Name
SESC AND SITE PREPARATION PLAN

Engineer's Seal
STATE OF MICHIGAN
HUGO J. CERON
ENGINEER
NO. 67351
PROFESSIONAL ENGINEER
Hugo James Ceron

Revisions

REV	ISSUED FOR	DATE	BY
01	TOWNSHIP COMMENTS	09/23/2020	JAS

Date
09/02/2020

SME Project No.
084617.00

Project Manager:
J. SCHWARTZENBERGER

Designer:
H. CERON

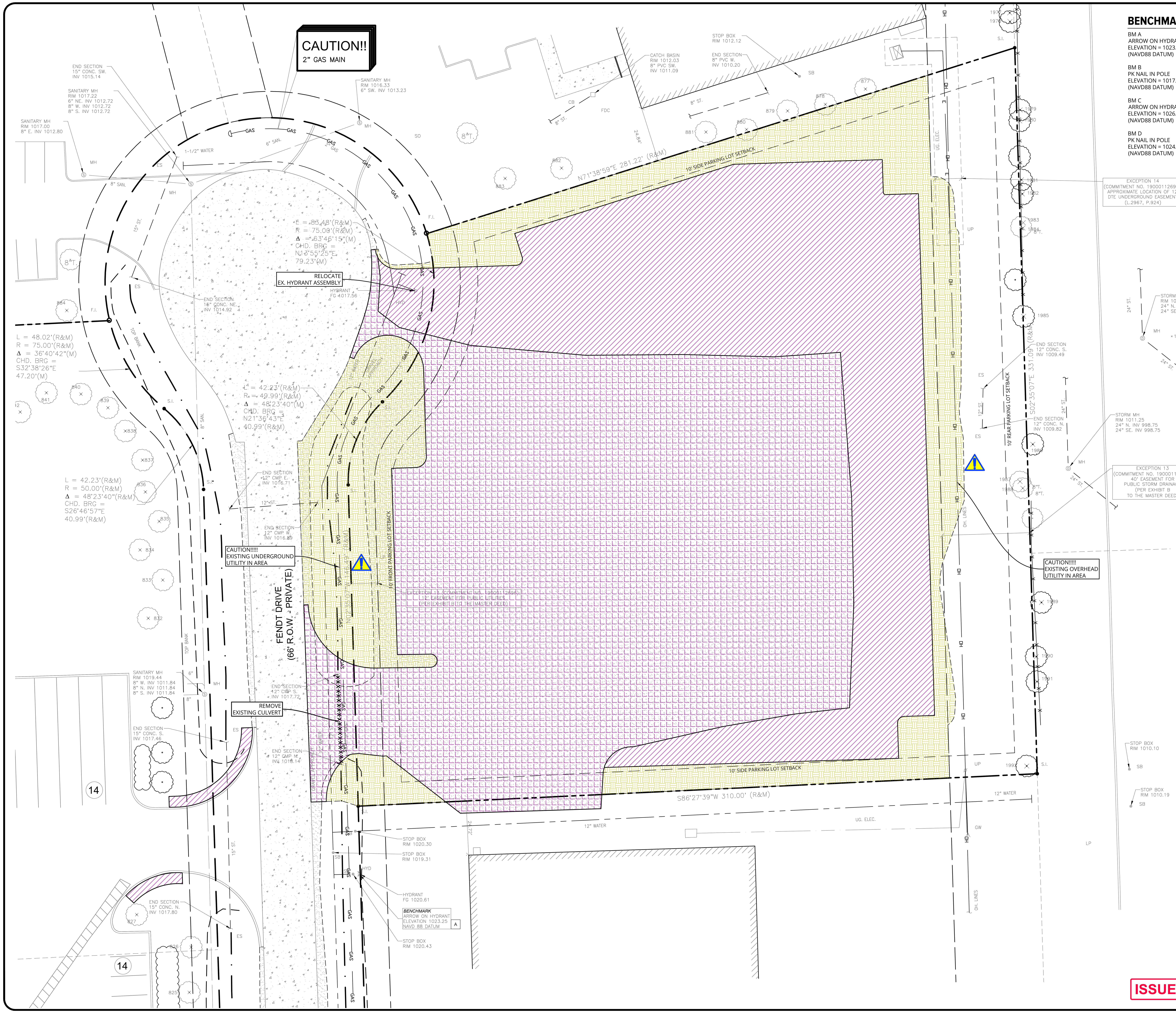
CADD:
H. CERON

Checked By:
B. HART

Reviewed By:
J. SCHWARTZENBERGER

Sheet No.
C-400

PLOT DATE: Sep 22, 2020 - 3:22pm - ceron
FILE LOCATION: \\Sme-hic-pc\WIP\084617.00\CAD\DWGS\SPA\rev084617.00-SESCandSitePrep.dwg



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ELEVATION = 1024.74
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EXISTING LEGEND

CONTOUR
INDEX CONTOUR
WATER MAIN
STORM SEWER
SANITARY SEWER
CABLETV
OVERHEAD UTILITY
FIBER OPTIC
GAS
ELECTRICAL
FENCE
HYDRANT
GATE VALVE
POST INDICATOR VALVE (PIV)
WATER MAIN MANHOLE
SQUARE CATCH BASIN
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BEEHIVE CATCH BASIN
SANITARY MANHOLE
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FLAG POLE
MAILBOX
TOP OF CURB — TC
GUTTER — GU
EX. GRADE — 999.99
TOP OF ASPHALT — TA
TOP OF WALL — TW
BOTTOM OF WALL — BW
TREE
CONCRETE
ASPHALT PAVEMENT
GRAVEL
RIP-RAP

REMOVAL LEGEND

EXCAVATE AND STOCKPILE EX. GRAVEL FOR RE-USE TO ACCOMMODATE PROPOSED PAVEMENT SECTIONS.
EXCAVATE EX. GREENSPACE TO ACCOMMODATE INSTALLATION OF PROPOSED PAVEMENT SECTIONS.
GRADING LIMITS TO ACCOMMODATE PROPOSED GRADING
REMOVE EXISTING STORM SEWER
CAUTION!!!!! EX. UTILITY IN AREA

ISSUED FOR SITE PLAN APPROVAL

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Orientation | Scale: 0' 20' 40' GRAPHIC SCALE: 1" = 20'

Project
UPS HOWELL EMPLOYEE PARKING LOT IMPROVOMENTS

Project Location
1183 FENDT DRIVE
HOWELL, MI 48843

Sheet Name
REMOVAL PLAN

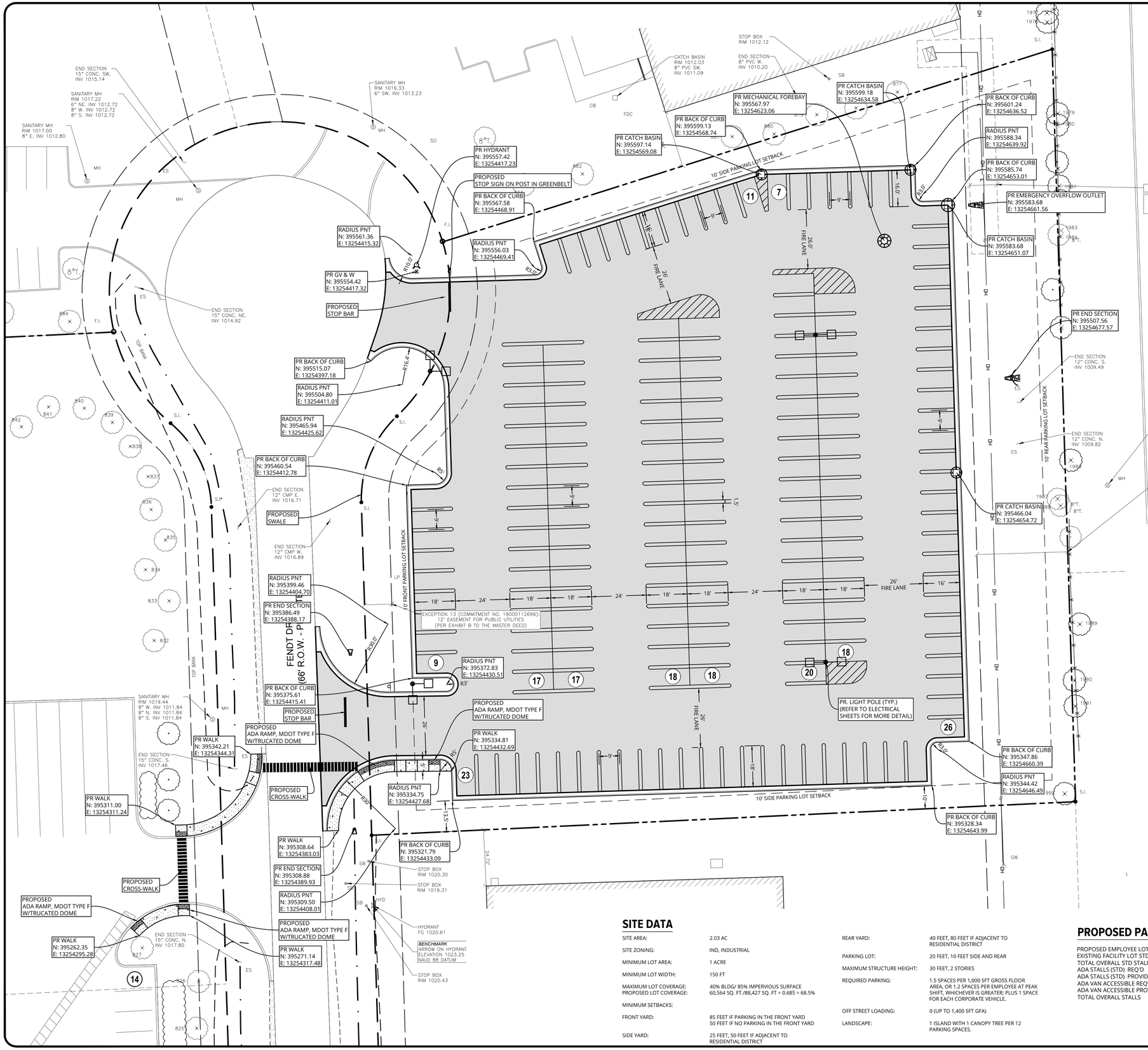
Engineer's Seal
STATE OF MICHIGAN HUGO J. CERON ENGINEER No. 67351 LICENSED PROFESSIONAL ENGINEER

Revisions

REV	ISSUED FOR	DATE	BY
01	TOWNSHIP COMMENTS	09/23/2020	JAS

Date: 09/02/2020
SME Project No.: 084617.00
Project Manager: J. SCHWARTZENBERGER
Designer: H. CERON
CADD: H. CERON
Checked By: B. HART
Reviewed By: J. SCHWARTZENBERGER
Sheet No.: C-500

FILE LOCATION: \\sme-inc\pz\WIP\084617.00\CAD\DWGS\SPA\rev0\084617.00-Removal.dwg
PLOT DATE: Sep 22, 2020 - 3:23pm - ceron



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ARROW ON HYDRANT
ELEVATION = 1026.87
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BM D
PK NAIL IN POLE
ELEVATION = 1024.74
(NAVD88 DATUM)

EXISTING LEGEND

- CONTOUR
- INDEX CONTOUR
- WATER MAIN
- STORM SEWER
- SANITARY SEWER
- CABLETV
- OVERHEAD UTILITY
- FIBER OPTIC
- GAS
- ELECTRICAL
- FENCE
- HYDRANT
- GATE VALVE
- POST INDICATOR VALVE (PIV)
- WATER MAIN MANHOLE
- SQUARE CATCH BASIN
- ROUND CATCH BASIN
- BEEHIVE CATCH BASIN
- SANITARY MANHOLE
- END SECTION
- CULVERT
- STORM MANHOLE
- CLEAN OUT
- SIGN
- UTILITY POLE
- RISER
- LIGHT POLE
- LANDSCAPE LIGHT
- SPRINKLER
- ELECTRICAL BOX
- ELECTRICAL MANHOLE
- FLAG POLE
- MAILBOX
- TOP OF CURB (TC)
- GUTTER (GU)
- EX. GRADE (999.99)
- TOP OF ASPHALT (TA)
- TOP OF WALL (TW)
- BOTTOM OF WALL (BW)
- TREE
- CONCRETE
- ASPHALT PAVEMENT
- GRAVEL
- RIP-RAP

PROPOSED LEGEND

- PROPOSED ASPHALT CONCRETE PAVEMENT
- PROPOSED CONCRETE SIDEWALK
- PROPOSED CONCRETE PAVEMENT SECTION
- PROPOSED CONCRETE CURB AND GUTTER
- PROPOSED CONCRETE CURB AND GUTTER (REVERSE OR SPILLOUT)
- PROPOSED ADA RAMP (TYPE SPECIFIED PER PLAN) WITH TRUNCATED DOME
- FURNISH AND INSTALL CATCH BASIN
- PROPOSED END SECTION
- PROPOSED STD HYDRANT ASSEMBLY
- PROPOSED GATE VALVE AND WELL
- FURNISH INSTALL BLUE PAINT ADA COMPLIANT BARRIER FREE PARKING LOGO
- PROPOSED SIGN ON POST
- PROPOSED ADA SIGN ON POST
- FURNISH AND INSTALL 4" WIDE PAINT STRIPES
- FURNISH AND INSTALL STRIPING @ 36" O.C.
- FURNISH AND INSTALLCROSS-WALK STRIPING
- FURNISH AND INSTALL PAINTED ARROWS
- (#) (ADA 4) PROPOSED STD./ADA STALL COUNT

NOTE
PARKING STALL DIMENSIONS TYPICAL UNLESS OTHERWISE NOTED.

SITE DATA

SITE AREA:	2.03 AC
SITE ZONING:	IND, INDUSTRIAL
MINIMUM LOT AREA:	1 ACRE
MINIMUM LOT WIDTH:	150 FT
MAXIMUM LOT COVERAGE: PROPOSED LOT COVERAGE:	40% BLDG/ 85% IMPERVIOUS SURFACE 60,564 SQ. FT./88,427 SQ. FT = 0.685 = 68.5%
MINIMUM SETBACKS:	
FRONT YARD:	85 FEET IF PARKING IN THE FRONT YARD 50 FEET IF NO PARKING IN THE FRONT YARD
SIDE YARD:	25 FEET, 50 FEET IF ADJACENT TO RESIDENTIAL DISTRICT
REAR YARD:	40 FEET, 80 FEET IF ADJACENT TO RESIDENTIAL DISTRICT
PARKING LOT:	20 FEET, 10 FEET SIDE AND REAR
MAXIMUM STRUCTURE HEIGHT:	30 FEET, 2 STORIES
REQUIRED PARKING:	1.5 SPACES PER 1,000 SFT GROSS FLOOR AREA, OR 1.2 SPACES PER EMPLOYEE AT PEAK SHIFT, WHICHEVER IS GREATER; PLUS 1 SPACE FOR EACH CORPORATE VEHICLE.
OFF STREET LOADING:	0 (UP TO 1,400 SFT GFA)
LANDSCAPE:	1 ISLAND WITH 1 CANOPY TREE PER 12 PARKING SPACES.

PROPOSED PARKING DATA :

PROPOSED EMPLOYEE LOT STD STALLS	= 184
EXISTING FACILITY LOT STD STALLS	= 39
TOTAL OVERALL STD STALLS	= 223
ADA STALLS (STD) REQ'D	= 6
ADA STALLS (STD) PROVIDED	= 6
ADA VAN ACCESSIBLE REQ'D	= 2
ADA VAN ACCESSIBLE PROVIDED	= 2
TOTAL OVERALL STALLS	= 231

ISSUED FOR SITE PLAN APPROVAL

VERTICAL CLEARANCE NOTE:

A MINIMUM OF 13.5 FT. VERTICAL CLEARANCE ABOVE THE ACCESS DRIVES TO BE MAINTAINED.

OUTDOOR STORAGE NOTE:

NO OUTDOOR STORAGE ALLOWED IN PARKING LOT FOR MORE THAN 24 HOURS.

DIMENSIONAL VARIANCE REQUIRED:

SECTION 14.02.03 - PARKING SPACES SHALL BE PROVIDED EITHER ON THE SAME LOT, WITHIN LOTS UNDER THE SAME OWNERSHIP OR WHERE A SHARED PARKING EASEMENT IS PROVIDED ON AN ADJACENT LOT WITHIN THREE-HUNDRED (300) FEET OF THE BUILDING IT IS INTENDED TO SERVE, MEASURED FROM THE NEAREST PUBLIC BUILDING ENTRANCE TO THE NEAREST PARKING SPACE OF THE OFF-STREET PARKING LOT.

APPROX. 310 FEET FROM BUILDING ENTRANCE TO NEAREST PARKING SPACE OF THE OFF-STREET PARKING LOT.

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Orientation: N W E S
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Project
UPS HOWELL EMPLOYEE PARKING LOT IMPROVOMENTS

Project Location
1183 FENDT DRIVE HOWELL, MI 48843

Sheet Name
SITE LAYOUT PLAN

Engineer's Seal
STATE OF MICHIGAN
HUGO J. CERON
ENGINEER
No. 67351
PROFESSIONAL ENGINEER
Hugo Javier Ceron
Sep 22, 2020

Revisions

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CADD:
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Checked By:
B. HART

Reviewed By:
J. SCHWARTZENBERGER

Sheet No.
C-600

PLOT DATE: Sep 22, 2020 - 10:38pm - ceron
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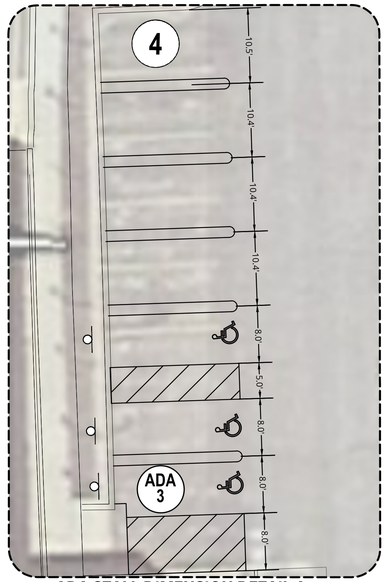
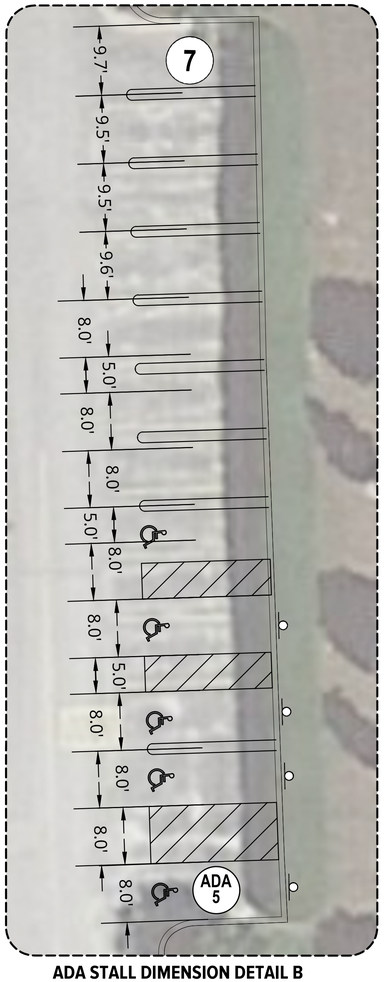


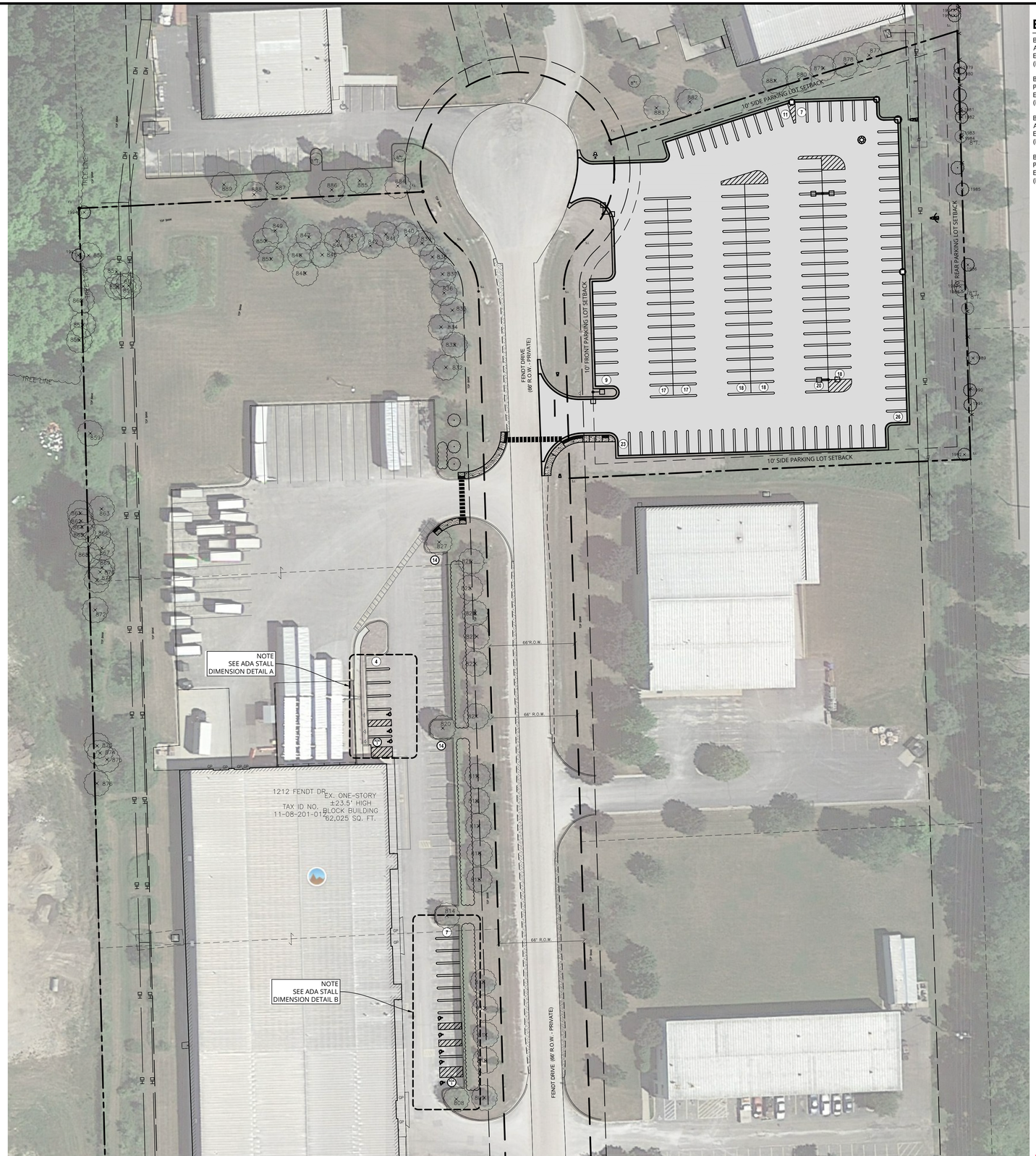
ADA STALL DIMENSION DETAIL A

SCALE: 1" = 10'



ADA STALL DIMENSION DETAIL B

SCALE: 1" = 10'



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PROPOSED LEGEND

- PROPOSED ASPHALT CONCRETE PAVEMENT
- PROPOSED CONCRETE SIDEWALK
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- PROPOSED CONCRETE CURB AND GUTTER
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- PROPOSED GATE VALVE AND WELL
- FURNISH INSTALL BLUE PAINT ADA COMPLIANT BARRIER FREE PARKING LOGO
- PROPOSED SIGN ON POST
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GRAPHIC SCALE: 1" = 40'

Project
UPS HOWELL
EMPLOYEE PARKING LOT
IMPROVOMENTS

Project Location
1183 FENDT DRIVE
HOWELL, MI 48843

Sheet Name
OVERALL STRIPING PLAN

Engineer's Seal
STATE OF MICHIGAN
HUGO J. CERON
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No. 67351
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Date
09/02/2020

SME Project No.
084617.00

Project Manager:
J. SCHWARTZENBERGER

Designer:
H. CERON

CADD:
H. CERON

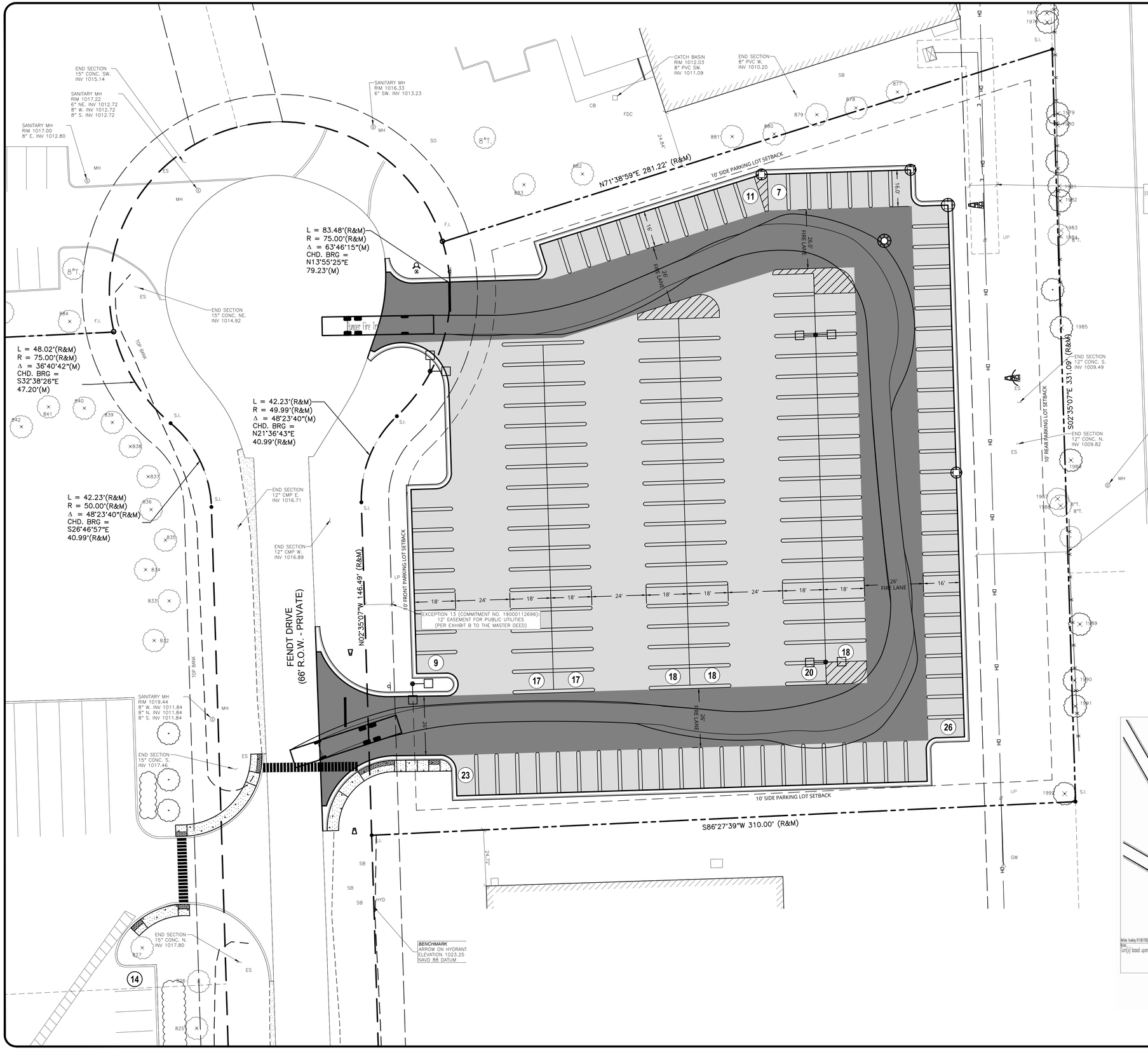
Checked By:
B. HART

Reviewed By:
J. SCHWARTZENBERGER

Sheet No.
C-601

FILE LOCATION: \\Sme.inc\gx\WIP\084617.00\CAD\DWGS\SPA\rev6\084617.00-SiteLayout.dwg

PLOT DATE: Sep 22, 2020 - 10:10pm - ceron



SME
www.sme-usa.com

Orientation

Scale
0' 20' 40'
GRAPHIC SCALE: 1" = 20'

Project
UPS HOWELL EMPLOYEE PARKING LOT IMPROVOMENTS

Project Location
1183 FENDT DRIVE HOWELL, MI 48843

Sheet Name
VEHICLE TRACKING SIMULATION

Engineer's Seal
STATE OF MICHIGAN
HUGO J. CERON
ENGINEER
No. 67351
PROFESSIONAL ENGINEER

Revisions

REV	ISSUED FOR	DATE	BY
01	TOWNSHIP COMMENTS	09/23/2020	JAS

Date
09/02/2020

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J. SCHWARTZENBERGER

Sheet No.
C-602

PLOT DATE: Sep 22, 2020 - 10:03pm - ceron
FILE LOCATION: \\Sme-inc\pw\WIP\084617.00\CAD\DWGS\SPA\rev6\084617.00-SiteLayout.dwg

CAUTION!!
2" GAS MAIN

BENCHMARK DATA

BM A
ARROW ON HYDRANT
ELEVATION = 1023.25
(NAVD88 DATUM)

BM B
PK NAIL IN POLE
ELEVATION = 1017.95
(NAVD88 DATUM)

BM C
ARROW ON HYDRANT
ELEVATION = 1026.87
(NAVD88 DATUM)

BM D
PK NAIL IN POLE
ELEVATION = 1024.74
(NAVD88 DATUM)

EXCEPTION 14
(COMMITMENT NO. 19000112696):
APPROXIMATE LOCATION OF 12" DTE UNDERGROUND EASEMENT (L.2967, P.924)

EXCEPTION 13
(COMMITMENT NO. 19000112696):
40' EASEMENT FOR PUBLIC STORM DRAINAGE (PER EXHIBIT B TO THE MASTER DEED)

EXISTING LEGEND

- CONTOUR
- INDEX CONTOUR
- WATER MAIN
- STORM SEWER
- SANITARY SEWER
- CABLETV
- OVERHEAD UTILITY
- FIBER OPTIC
- GAS
- ELECTRICAL
- FENCE
- HYDRANT
- GATE VALVE
- POST INDICATOR VALVE (PIV)
- WATER MAIN MANHOLE
- SQUARE CATCH BASIN
- ROUND CATCH BASIN
- BEEHIVE CATCH BASIN
- SANITARY MANHOLE
- END SECTION
- CULVERT
- STORM MANHOLE
- CLEAN OUT
- SIGN
- UTILITY POLE
- RISER
- LIGHT POLE
- LANDSCAPE LIGHT
- SPRINKLER
- ELECTRICAL BOX
- ELECTRICAL MANHOLE
- FLAG POLE
- MAILBOX
- TOP OF CURB (TC)
- GUTTER (GU)
- EX. GRADE (×999.99)
- TOP OF ASPHALT (TA)
- TOP OF WALL (TW)
- BOTTOM OF WALL (BW)
- TREE
- CONCRETE
- ASPHALT PAVEMENT
- GRAVEL
- RIP-RAP

SEC. I.D. INSTALL/PAVING LEGEND

(SEE SHEET D-100 FOR PAVEMENT SECTION DETAILS)

- SEC SD D-100 — FURNISH AND INSTALL SD ASPHALT CONCRETE PAVEMENT SECTION
- SEC HD D-100 — FURNISH AND INSTALL HD ASPHALT CONCRETE PAVEMENT SECTION
- SEC SW D-100 — FURNISH AND INSTALL CONCRETE SIDEWALK
- F4 D-100 — FURNISH AND INSTALL CONCRETE CURB AND GUTTER (STANDARD)
- REV-F4 D-100 — FURNISH AND INSTALL CONCRETE CURB AND GUTTER (REVERSE/SPILL-OUT)
- FURNISH AND INSTALL ADA RAMP (TYPE SPECIFIED PER PLAN) WITH TRUNCATED DOME WARNING MAT
- FURNISH AND INSTALL SIGN ON POST IN GREENBELT AS INDICATED ON PLAN
- FURNISH AND INSTALL CATCH BASIN
- FURNISH AND INSTALL STD. HYDRANT ASSEMBLY
- FURNISH AND INSTALL GATE VALVE AND WELL

GRADING LEGEND

- XX.XXX.XX / XX.XXX.XX — PROPOSED SPOT ELEVATION
- FF — FINISH FLOOR
- FG — FINISH GRADE
- GU — GUTTER ELEVATION
- HP — HIGH POINT
- ME — MATCH EX. ELEVATION
- RIM — RIM ELEVATION
- TA — TOP OF PR AC PAVEMENT
- TC — TOP OF CURB ELEVATION
- TW — TOP OF WALK
- BOW — BOTTOM OF WALL
- TOW — TOP OF WALL
- SLOPE DIRECTION (PAVEMENT)
- SLOPE DIRECTION (GREENBELT)
- XXX — PROPOSED CONTOUR (MINOR)
- XX5 — PROPOSED CONTOUR (INDEX)

ISSUED FOR SITE PLAN APPROVAL

SME
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Orientation: N, W, E, S

Scale: 0' 20' 40'
GRAPHIC SCALE: 1" = 20'

Project
UPS HOWELL
EMPLOYEE PARKING LOT
IMPROVOMENTS

Project Location
1183 FENDT DRIVE
HOWELL, MI 48843

Sheet Name
PAVING AND GRADING PLAN

Engineer's Seal
STATE OF MICHIGAN
HUGO J. CERON
ENGINEER
No. 67351
PROFESSIONAL ENGINEER

Revisions

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01	TOWNSHIP COMMENTS	09/23/2020	JAS

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09/02/2020

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084617.00

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B. HART

Reviewed By:
J. SCHWARTZENBERGER

Sheet No.
C-700

DRAWING NOTE: SCALE DEPICTED IS MEANT FOR 24" X 36" AND WILL SCALE INCORRECTLY IF PRINTED ON ANY OTHER SIZE MEDIA

PLOT DATE: Sep 22, 2020 - 3:42pm - ceron
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CAUTION!!
2" GAS MAIN

NOTE
COORDINATE WITH MHOG TO RELOCATED EX. HYDRANT. LOCATE AND HAND DIG EX. GAS PRIOR TO RELOCATION.

STM I.D. 1
MECHANICAL FOREBAY
CDS2015-4-C
RIM 1015.75
21" INV. 1009.66 NE
21" INV. 1009.56 S

STM I.D. 3
4' DIA. CATCH BASIN
RIM 1015.10
15" INV. 1009.90 SE
12" INV. 1010.00 W

STM I.D. 4
4' DIA. CATCH BASIN
RIM 1015.60
12" INV. 1010.31 E

66 LF OF 12" C-76 CL.IV @ 0.48%

23 LF OF 15" C-76 CL.IV @ 0.36%

STM I.D. 2
5' DIA. CATCH BASIN
RIM 1015.10
21" INV. 1009.72 SW
12" INV. 1011.44 S
15" INV. 1009.82 NW
6" INV. 1013.15 E

10 LF OF 6" PVC SCHD.40 @ 1.00%

STM I.D. ES2
6" EMERGENCY OVERFLOW
OUTLET WITH GRATE
6" INV. 1013.25 W

EXCEPTION 14
(COMMITMENT NO. 19000112696):
APPROXIMATE LOCATION OF 12'
DTE UNDERGROUND EASEMENT
(L.2967, P.924)

32 LF OF 21" C-76 CL.IV @ 0.20%

8 LF OF 21" C-76 CL.IV @ 0.21%

21" INV. 1009.54 N
48" INV. 1009.54 S

118 LF OF 12" C-76 CL.IV @ 0.48%

41 LF OF 6" PVC SCHD.40 @ 1.00%

STM I.D. ES1
6" CMP END SECTION
WITH GRATE
6" INV. 1009.09 W

END SECTION
12" CONC. S.
INV 1009.49

6" INV. 1009.50 E
48" INV. 1009.50 W
12" CONC. N.
INV 1009.82

STM I.D. 5
4' DIA. CATCH BASIN
RIM 1016.55
12" INV. 1012.00 N

EXCEPTION 13
(COMMITMENT NO. 19000112696):
40' EASEMENT FOR
PUBLIC STORM DRAINAGE
(PER EXHIBIT B
TO THE MASTER DEED)

STORM MH
RIM 1011.25
24" N. INV 998.75
24" SE. INV 998.75

PROPOSED UNDERGROUND DETENTION
4 RUNS OF 95 LF
2 HEADERS 22 LF

SME D.A.M. : 1
Area : 0.31

SME D.A.M. : 2
Area : 0.30

SME D.A.M. : 3
Area : 0.36

SME D.A.M. : 4
Area : 0.40

SME D.A.M. : 5
Area : 1.19

STM I.D. ES4
12" CMP END SECTION
WITH GRATE
12" INV. 1017.70 S

STM I.D. ES3
12" CMP END SECTION
WITH GRATE
12" INV. 1018.55 N

78 LF OF 12" CMP @ 1.09%

STOP BOX
RIM 1020.30

STOP BOX
RIM 1019.31

HYDRANT
FG 1020.61

BENCHMARK
ARROW ON HYDRANT
ELEVATION 1023.25
NAVD 88 DATUM

STOP BOX
RIM 1020.43

FENDT DRIVE
(66' R.O.W. - PRIVATE)

10' SIDE PARKING LOT SETBACK

10' REAR PARKING LOT SETBACK

S86°27'39"W 310.00' (R&M)

N71°38'59"E 281.22' (R&M)

N02°35'07"W 146.49' (R&M)

N02°35'07"E 331.09' (R&M)

BENCHMARK DATA

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PK NAIL IN POLE
ELEVATION = 1017.95
(NAVD88 DATUM)

BM C
ARROW ON HYDRANT
ELEVATION = 1026.87
(NAVD88 DATUM)

BM D
PK NAIL IN POLE
ELEVATION = 1024.74
(NAVD88 DATUM)

EXISTING LEGEND

CONTOUR 881
INDEX CONTOUR 880
WATER MAIN
STORM SEWER
SANITARY SEWER
CABLETV
OVERHEAD UTILITY
FIBER OPTIC
GAS
ELECTRICAL
FENCE
HYDRANT
GATE VALVE
POST INDICATOR VALVE (PIV)
WATER MAIN MANHOLE
SQUARE CATCH BASIN
ROUND CATCH BASIN
BEEHIVE CATCH BASIN
SANITARY MANHOLE
END SECTION
CULVERT
STORM MANHOLE
CLEAN OUT
SIGN
UTILITY POLE
RISER
LIGHT POLE
LANDSCAPE LIGHT
SPRINKLER
ELECTRICAL BOX
ELECTRICAL MANHOLE
FLAG POLE
MAILBOX
TOP OF CURB TC
GUTTER GU
EX. GRADE 999.99
TOP OF ASPHALT TA
TOP OF WALL TW
BOTTOM OF WALL BW
TREE
CONCRETE
ASPHALT PAVEMENT
GRAVEL
RIP-RAP

D.A.M. LEGEND

AREA X
X.XX AC. — DRAINAGE AREA

DRAINAGE AREA I.D.

X — PR STORM STRUCTURE IDENTIFICATION TAG

UTILITY LEGEND

FURNISH AND INSTALL STORM SEWER PIPE
FURNISH AND INSTALL CATCH BASIN
FURNISH AND INSTALL REAR YARD CATCH BASIN
FURNISH AND INSTALL STORM MANHOLE
FURNISH AND INSTALL STD. HYDRANT ASSEMBLY
FURNISH AND INSTALL GATE VALVE AND WELL
FURNISH AND INSTALL WATER SERVICE LEAD
FURNISH AND INSTALL 6" UNDERDRAIN

ISSUED FOR SITE PLAN APPROVAL

SME
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Orientation
Scale
0' 20' 40'
GRAPHIC SCALE: 1" = 20'

Project
UPS HOWELL
EMPLOYEE PARKING LOT
IMPROVOMENTS

Project Location
1183 FENDT DRIVE
HOWELL, MI 48843

Sheet Name
UTILITY PLAN AND DRAINAGE AREA MAP

Engineer's Seal
STATE OF MICHIGAN
HUGO J. CERON
ENGINEER
No. 67351
PROFESSIONAL
Hugo Javier Ceron

Revisions

REV	ISSUED FOR	DATE	BY
01	TOWNSHIP COMMENTS	09/23/2020	JAS

Date 09/02/2020
SME Project No. 084617.00
Project Manager: J. SCHWARTZENBERGER
Designer: H. CERON
CADD: H. CERON
Checked By: B. HART
Reviewed By: J. SCHWARTZENBERGER
Sheet No. C-800

PLOT DATE: Sep 23, 2020 - 8:55am - ceron
FILE LOCATION: \\Sme-hic\pc\WP\084617.00\CAD\DWGS\PA\rev0\084617.00 Utility.dwg

UPS Howell Employee Parking Lot Improvements
SME Project No. 084617.00

Tc = 15 Min.
n= 0.013

I = a/(Tc+b)
a = 175
b = 25

To Structure	From Structure	Area Drainage	Drainage Area (Acres)	Runoff Coefficient (C)	Equivalent Area (C*A) (Acres)	Total Area (sum(C*A))	Time of Concentration (Minutes)	Rainfall Intensity (in/hr)	Actual Discharge (CFS)	Pipe Size (in)	Pipe Size (ft)	Pipe Area (ft^2)	P Wetted Perimeter	Pipe Design Slope (%)	HG Slope (%)	Pipe Length (ft)	Flow Full Velocity (ft/sec)	Time of Flow (min)	Full Pipe Capacity (CFS)	Upper RIM Elevation (ft)	Lower RIM Elevation (ft)	Invert Elev. Upper End (ft)	Invert Elev. Lower End (ft)	HG Elev Top	Cover (ft)	Diff Rim to HG (ft)
4	3	1	0.31	0.94	0.291	0.291	15.00	4.375	1.275	12	1.00	0.79	3.14	0.48	0.13	66	3.14	0.350	2.47	1015.60	1015.10	1010.31	1,010.00	1011.22	4.29	4.38
3	2	2	0.30	0.94	0.282	0.573	15.35	4.337	2.487	15	1.25	1.23	3.93	0.36	0.15	23	3.16	0.121	3.88	1015.10	1015.10	1009.90	1,009.82	1011.13	3.95	3.97
5	2	4	0.40	0.94	0.376	0.376	15.00	4.375	1.645	12	1.00	0.79	3.14	0.48	0.21	118	3.14	0.626	2.47	1016.55	1015.10	1012.00	1,011.44	1011.69	3.55	4.86
2	1	3	0.36	0.94	0.338	1.288	16.10	4.258	5.484	21	1.75	2.41	5.50	0.20	0.12	32	2.95	0.181	7.09	1015.10	1015.75	1009.72	1,009.66	1011.10	3.63	4.00
1	UDS	-	0.00	0.94	0.000	1.288	16.28	4.240	5.460	21	1.75	2.41	5.50	0.20	0.12	8	2.95	0.045	7.09	1016.70	1009.30	1009.50	1,009.30	1010.71	5.45	5.99
UDS	ES1	-	0.00	0.94	0.000	1.288	16.32	4.235	5.454	6	0.50	0.20	1.57	1.00	45.34	41	2.86	0.239	0.561	1016.70	1,009.09	1009.50	1,009.09	1028.08	6.70	0.00

BENCHMARK DATA

BM A
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(NAVD88 DATUM)

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ELEVATION = 1017.95
(NAVD88 DATUM)

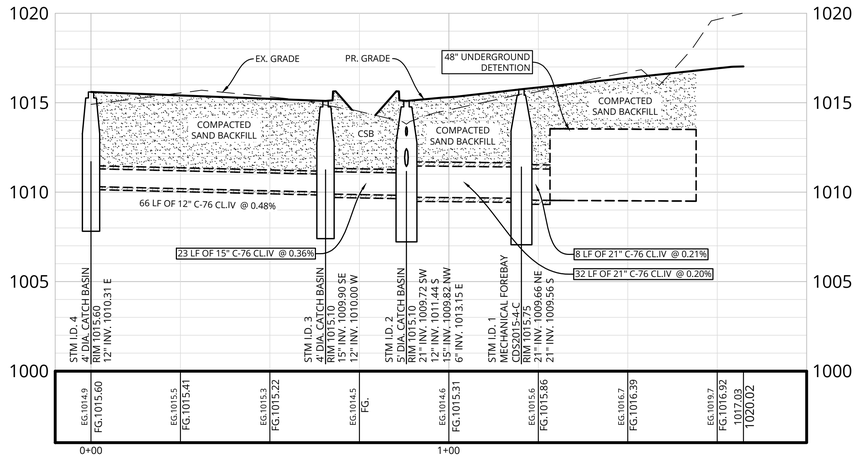
BM C
ARROW ON HYDRANT
ELEVATION = 1026.87
(NAVD88 DATUM)

BM D
PK NAIL IN POLE
ELEVATION = 1024.74
(NAVD88 DATUM)

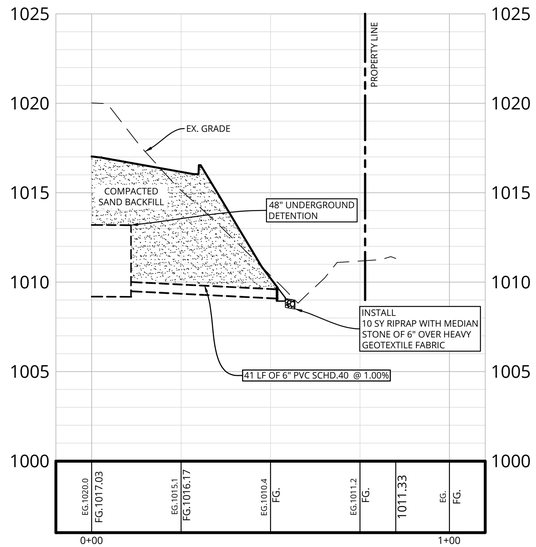
NOTES

1. ALL CATCH BASINS AND INLETS WILL HAVE 6" UNDERDRAIN, TAP AT ONE LOCATION.
2. EACH UTILITY CROSSING SHALL MAINTAIN AN 18" VERTICAL CLEARANCE.
3. ALL UTILITIES WITHIN, OR AT MOST 3 FEET FROM, PAVEMENT LIMITS SHALL BE BACKFILLED WITH COMPACTED SAND.
4. *ALL FRANCHISE UTILITY LOCATIONS SHALL BE VERIFIED WITH THE FRANCHISE UTILITY OWNERS.
5. ALL UTILITIES MUST BE CONSTRUCTED PER GENOA TOWNSHIP STANDARDS AND SPECIFICATIONS.
6. LOCATIONS OF HYDRANT AND FIRE DEPARTMENT CONNECTION TO BE APPROVED BY FIRE CHIEF.
7. ALL CATCH BASINS TO HAVE 2' SUMP MINIMUM.
8. ALL CATCH BASINS TO HAVE E.J.I.W. 7065-T1-M1.
9. ALL STORM SEWER MANHOLES TO HAVE E.J.I.W. 1040 TYPE C FRAME AND COVER.

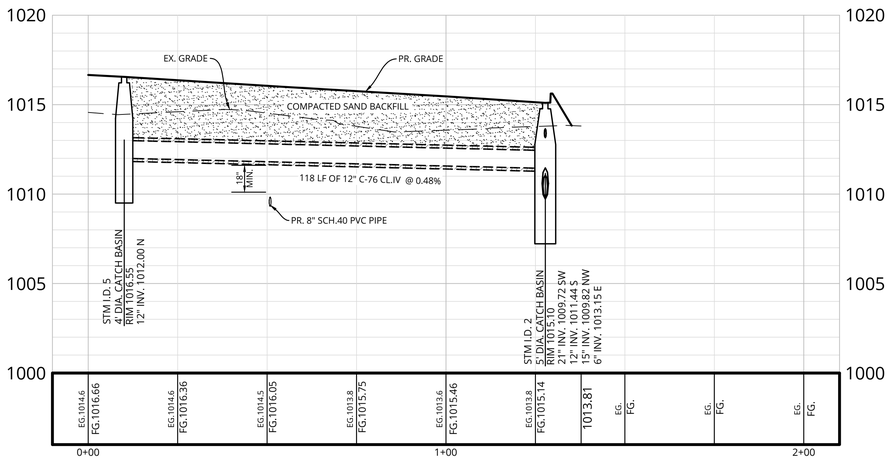
STRUCTURE 4 TO UNDERGROUND DETENTION PROFILE



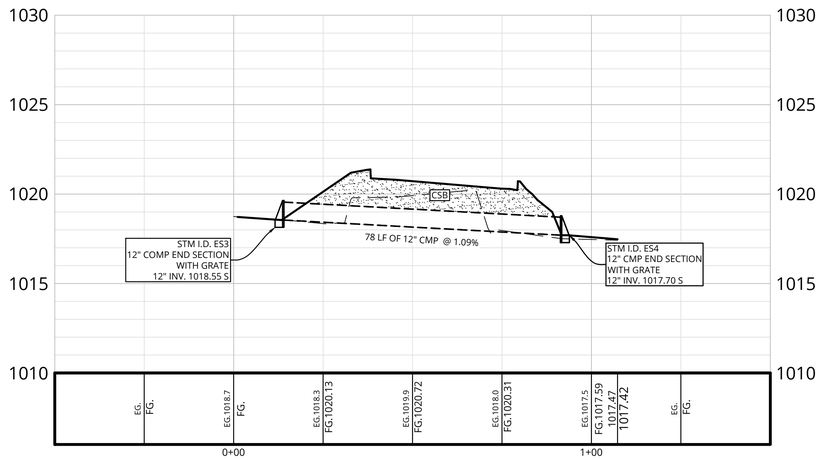
UNDERGROUND DETENTION TO OUTLET PROFILE



STRUCTURE 5 TO STRUCTURE 2 PROFILE



Pr Culvert PROFILE



ISSUED FOR SITE PLAN APPROVAL

SME
www.sme-usa.com

Orientation: N, W, E, S
Scale: 0' 20' 40'
GRAPHIC SCALE: 1" = 20'H,5'V

Project
UPS HOWELL
EMPLOYEE PARKING LOT
IMPROVOMENTS

Project Location
1183 FENDT DRIVE
HOWELL, MI 48843

Sheet Name
STORM SEWER PROFILES

Engineer's Seal
STATE OF MICHIGAN
HUGO J. CERON
ENGINEER
No. 67351
PROFESSIONAL ENGINEER
Hugo Javier Ceron

Revisions

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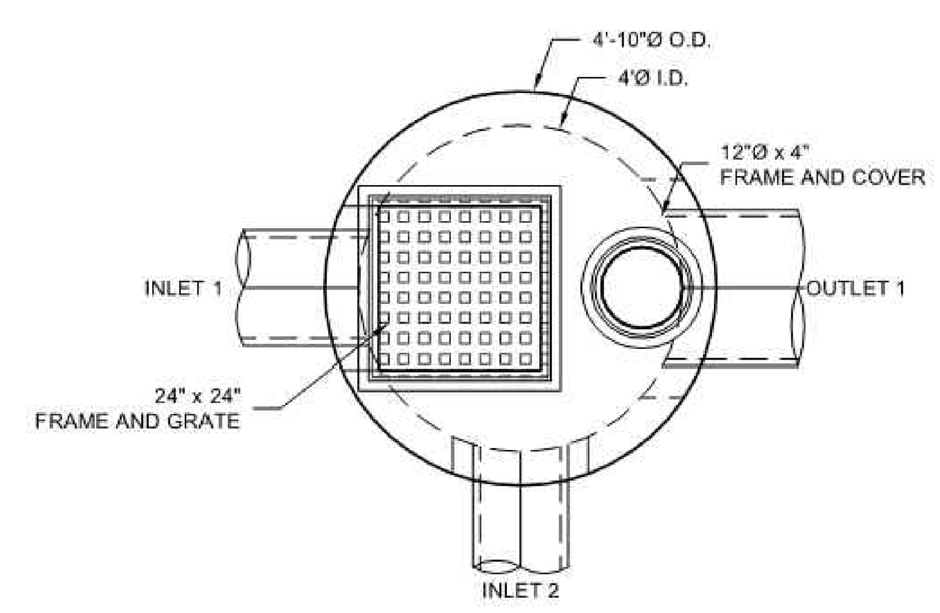
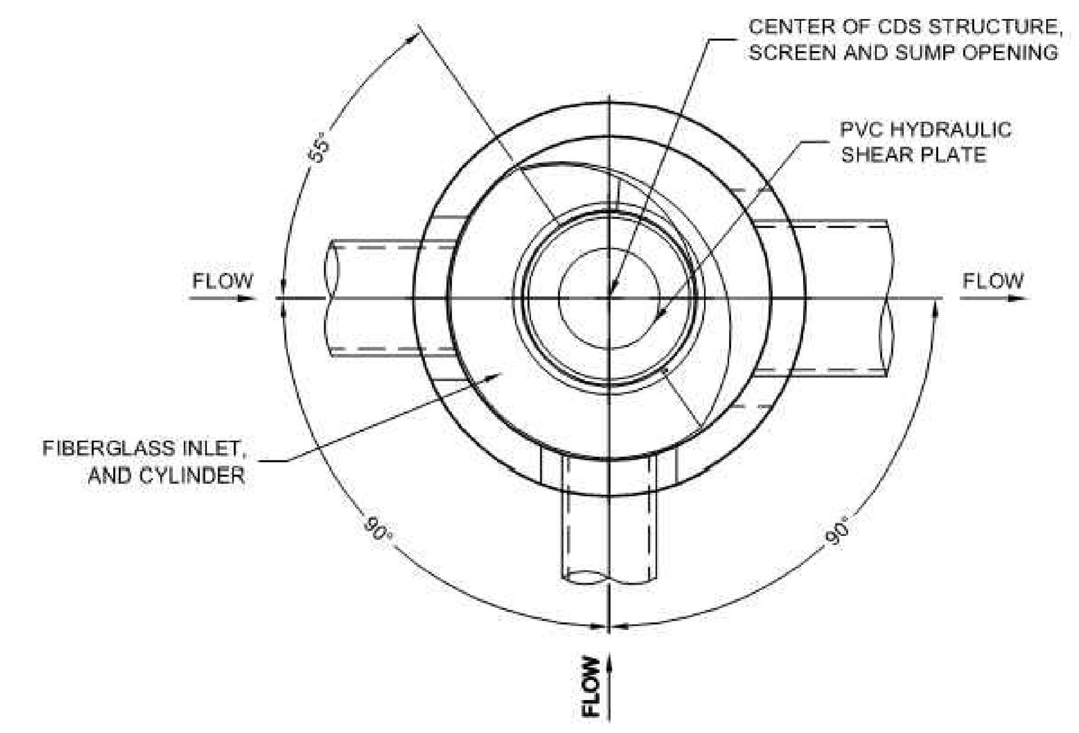
J. SCHWARTZENBERGER

Sheet No.
C-801

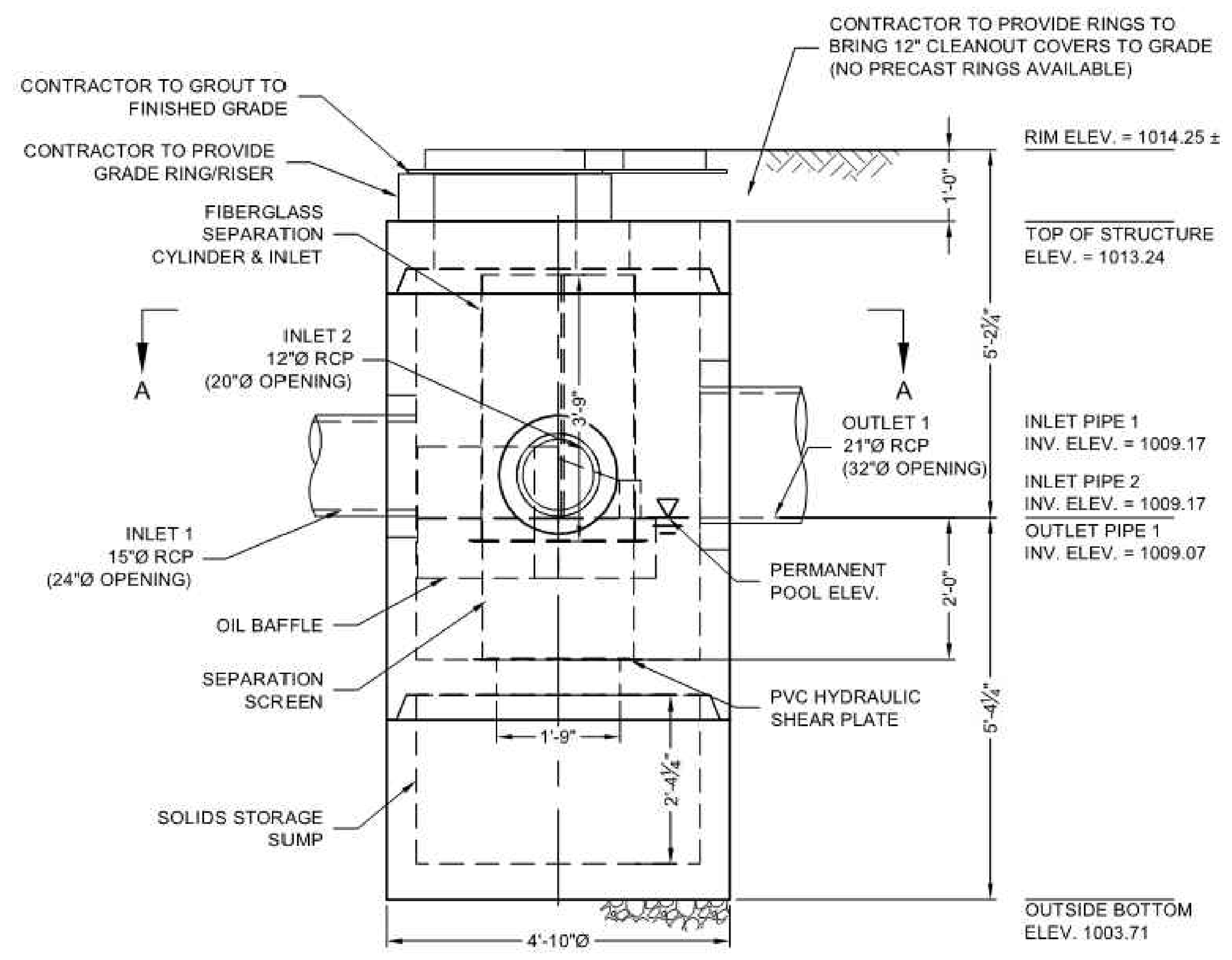
FILE LOCATION: \\Sme-inc\pw\WIP\084617.00\CAD\DWGS.SPA\rev6\084617.00-Utility.dwg
PLOT DATE: Sep 23, 2020 - 8:55am - ceron



PLAN VIEW



SECTION A-A



ELEVATION VIEW

MATERIAL LIST (PROVIDED BY CONTECH)

COUNT	DESCRIPTION	INSTALLED BY
1	FIBERGLASS INLET AND CYLINDER	CONTECH
1	2400 micron, 2' O.D. x 1.67' SEP. SCREEN	CONTECH
1	3/16 INCH PVC HYDRAULIC SHEAR PLATE *	CONTECH
1	SEALANT FOR JOINTS	CONTRACTOR
1	24" x 24" FRAME & GRATE, EJ#45624050A01, OR EQUIV.	CONTRACTOR
1	12"Ø x 4" FRAME & COVER, EJ#41610201, OR EQUIV.	CONTRACTOR

* SEE HYDRAULIC SHEAR PLATE DETAIL

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
3. CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. STRUCTURE SHALL MEET AASHTO HS-20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 2', AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
5. IF REQUIRED, PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.
6. CDS STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-478 AND AASHTO LOAD FACTOR DESIGN METHOD.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE.
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET AND OUTLET PIPE(S). MATCH PIPE INVERTS WITH ELEVATIONS SHOWN. ALL PIPE CENTERLINES TO MATCH PIPE OPENING CENTERLINES.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

STRUCTURE WEIGHT
APPROXIMATE HEAVIEST PICK = 6000 LBS.
STRUCTURE IS DELIVERED IN 3 PIECES

MAX FOOTPRINT = Ø4'-10"

CONTECH
CONTRACT
DRAWING

NCI
LAYOUT 1A
2015-4-FGIS
5824 / 5824

CDS2015-4-C - 653688-10
UPS HOWELL EMPLOYEE PARKING LOT
HOWELL, MI
for SYSTEM: STM 1

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com

DATE: 07/17/20 | SCALE: 3/8" = 1'-0"
DESIGNED: PWV | DRAWN: PWV
CHECKED: ### | APPROVED: ###
PROJECT No.: 653688 | SEQUENCE No.: 10
SHEET: 1 OF 1

MARK | DATE | REVISION DESCRIPTION | BY

Existing Site Conditions

	SFT	C					Compound C
Ex. Greenspace	64,620	0.3					**0.551**
Ex. Gravel	40,835	0.8					
Ex. Building	17,411	0.9					
Tributary Area (SFT)	122,866	ft					
Tributary Area (A)	2.82	Acres					
Run-off Coefficient (C)	0.551						
Design Constant (K1)	1.555		K1 = A x C				
Allowable Outflow Rate (Q0)	0.564	cfs	Q0 = 0.2 cfs/acre x A				
Intensity			I = 275/(t+25)				
	1	**2**	**3**	**4**	**5**	**6**	**7**
	Duration (m)	**Duration (s)**	**Intensity**	**col 2x col 3**	**Col. 4 x K1**	**Outflow Volume (CFT)**	**Storage Volume (CFT)**
	5	300	9.17	2,750	4,275	169	4,106
	10	600	7.86	4,714	7,329	338	6,991
	15	900	6.88	6,188	9,620	508	9,112
	20	1,200	6.11	7,333	11,401	677	10,724
	30	1,800	5.00	9,000	13,992	1,015	12,977
	60	3,600	3.24	11,647	18,108	2,031	16,077
	90	5,400	2.39	12,913	20,076	3,046	17,030
	120	7,200	1.90	13,655	21,230	4,062	17,168
	180	10,800	1.34	14,488	22,524	6,093	**16,432**

Proposed Improvements

	SFT	C					Compound C		
Ex. Greenspace	44,891	0.3					**0.681**		
Proposed Pavement	60,564	0.9							
Ex. Building	17,411	0.9							
Tributary Area (SFT)	122,866								
Tributary Area (A)	2.82	Acres							
Run-off Coefficient (C)	0.681								
Design Constant (K1)	1.920		K1 = A x C						
Design Outflow Rate (Q0)	0.561	cfs	Q0 = 0.2 cfs/acre x A						
Intensity			I = 275/(t+25)						
	1	**2**	**3**	**4**	**5**	**6**	**7**		
	Duration (m)	**Duration (s)**	**Intensity**	**col 2x col 3**	**Col. 4 x K1**	**Outflow Volume (CFT)**	**Storage Volume (CFT)**		
	5	300	9.17	2,750	5,281	168	5,112		
	10	600	7.86	4,714	9,052	337	8,716		
	15	900	6.88	6,188	11,881	505	11,376		
	20	1,200	6.11	7,333	14,082	673	13,408		
	30	1,800	5.00	9,000	17,282	1,010	16,272		
	60	3,600	3.24	11,647	22,365	2,020	20,345	**Volume Required to Detain (CFT)**	**Volume Provided (CFT)**
	90	5,400	2.39	12,913	24,796	3,029	21,766		
	120	7,200	1.90	13,655	26,221	4,039	22,182		
	180	10,800	1.34	14,488	27,820	6,059	**21,761**	**5,329**	**5,329**

Project: UPS Howell Employee Parking Lot
Location: *Howell, MI*
Prepared For: SME

CONTECH ENGINEERED SOLUTIONS

Purpose: To calculate the first flush runoff flow rate (WQF) over a given site area. In this situation the WQV to be analyzed is the runoff produced by the first 0.5" of rainfall.

Reference: United States Department of Agriculture Natural Resources Conservation Service TR-55 Manual

Given:

Structure Name	A (acres)	A (miles^2)	Runoff Coefficient	Percent Imp. (%)*	t_c (min)	t_c (hr)
WQU	1.32	0.00206	0.94	98.67	17.0	0.283
		0.00000		-33.33		0.000
		0.00000		-50.00		0.000

* Assumes runoff coefficient of 0.3 for pervious areas and 0.9 for impervious areas.

Procedure:
The Water Quality Flow (WQF) is calculated using the Water Quality Volume (WQV). This WQV, converted to watershed inches, is substituted for the runoff depth (Q) in the Natural Resources Conservation Service (formerly Soil Conservation Service), TR-55 Gr

1. Compute WQV in watershed inches using the following equation:

WQV = P * R

where: WQV = water quality volume (watershed inches)
P = design precipitation (inches)
R = volumetric runoff coefficient = 0.05 + 0.009(I)
I = percent impervious cover

Structure Name	Percent Imp. (%)	R	P (in)	WQV (in)	WQV (CF)
WQU	98.67	0.938	0.5	0.469	2,247.26
0	-33.33	-0.250		0.000	-
0	-50.00	-0.400		0.000	-

2. Compute the NRCS Runoff Curve Number (CN) using the following equation, or graphically using Figure 2-1 from TR-55 (USDA, 1986):

$$CN = 1000 / [10+5P+10Q-10(Q^2+1.25QP)^{1/2}]$$

where: CN = Runoff Curve Number
P = design precipitation (inches)
Q = runoff depth (watershed inches)

Structure Name	Q (in)	CN
WQU	0.469	99.73
0	0.000	100.00
0	0.000	100.00

CDS ESTIMATED NET ANNUAL SOLIDS LOAD REDUCTION
BASED ON THE RATIONAL RAINFALL METHOD
BASED ON AN AVERAGE PARTICLE SIZE OF 110 MICRONS
UPS EMPLOYEE PARKING LOT
HOWELL, MI
for SYSTEM: WQU

CONTECH ENGINEERED SOLUTIONS — CDS

Area 1.32 acres — CDS Model 2015
Weighted C 0.94 — Particle size 110 microns

Rainfall Intensity[1] (in/hr)	Percent Rainfall Volume[1]	Cumulative Rainfall Volume	Total Flowrate (cfs)	Removal Efficiency (%)	Incremental Removal (%)
0.02	13.13%	13.1%	0.02	100.00	13.13
0.04	11.36%	24.5%	0.05	99.70	11.33
0.06	10.08%	34.6%	0.07	98.85	9.96
0.08	7.49%	42.1%	0.10	98.01	7.34
0.10	7.01%	49.1%	0.12	97.17	6.81
0.12	5.37%	54.4%	0.15	96.33	5.17
0.14	4.73%	59.2%	0.17	95.48	4.52
0.16	4.13%	63.3%	0.20	94.64	3.91
0.18	3.53%	66.8%	0.22	93.80	3.31
0.20	2.99%	69.8%	0.25	92.96	2.78
0.25	5.50%	75.3%	0.31	90.85	5.00
0.30	4.47%	79.8%	0.37	88.75	3.97
0.35	3.85%	83.6%	0.43	86.64	3.34
0.40	2.16%	85.8%	0.50	84.5	1.8
0.45	2.09%	87.9%	0.56	82.4	1.7
0.50	1.31%	89.2%	0.62	80.3	1.1
0.75	5.07%	94.3%	0.93	58.4	3.0
1.00	2.58%	96.9%	1.24	43.8	1.1
1.50	2.50%	99.4%	1.86	29.2	0.7
2.00	0.51%	99.9%	2.48	21.9	0.1
2.54	0.15%	100.0%	3.15	17.2	0.0
					90.12
				Removal Efficiency Adjustment[2] =	6.5%
				Predicted % Annual Rainfall Treated =	87.9%
				Predicted Net Annual Load Removal Efficiency =	**83.6%**

1 - Based on Rainfall Data from DETROIT METRO AP Station
2 - Reduction due to use of 60-minute data for a site that has a time of concentration less than 30-minutes.

SME
www.sme-usa.com

Orientation — Scale
GRAPHIC SCALE: 1" = ###H,5'V

Project
UPS HOWELL EMPLOYEE PARKING LOT IMPROVEMENTS

Project Location
1183 FENDT DRIVE
HOWELL, MI 48843

Sheet Name
MECHANICAL FOREBAY AND DETENTION CALCULATIONS

Engineer's Seal
STATE OF MICHIGAN — HUGO J. CERON — ENGINEER — No. 67351 — LICENSED PROFESSIONAL ENGINEER

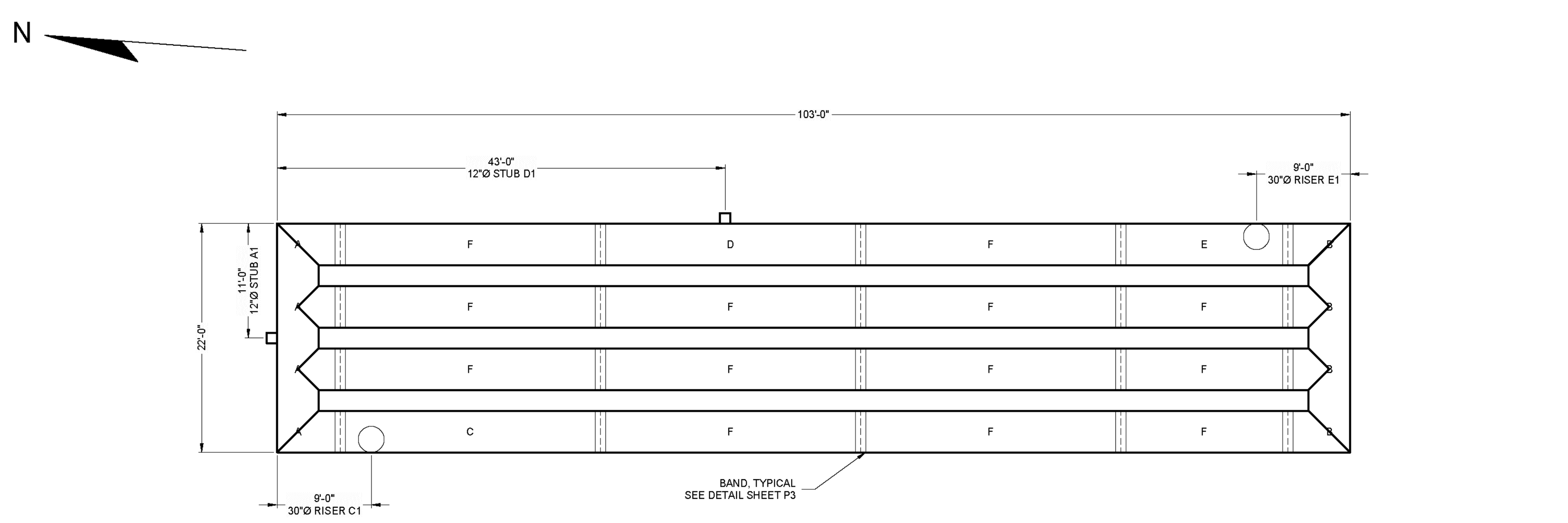
Revisions

REV	ISSUED FOR	DATE	BY
01	TOWNSHIP COMMENTS	09/23/2020	JAS

Date: 09/02/2020
SME Project No.: 084617.00
Project Manager: J. SCHWARTZENBERGER
Designer: H. CERON
CADD: H. CERON
Checked By: B. HART
Reviewed By: J. SCHWARTZENBERGER
Sheet No.: C-802

ISSUED FOR SITE PLAN APPROVAL

PLOT DATE: Sep 22, 2020 - 3:45pm - ceron
FILE LOCATION: \\Sme-inc\pr\WIP\084617.00\CAD\DWGS\SPA\rev6\084617.00-Utility.dwg



THE UNDERSIGNED HEREBY APPROVES THE ATTACHED (5) PAGES INCLUDING THE FOLLOWING:

- PIPE STORAGE = 5,329 CF
- MAINLINE PIPE GAGE = 14
- WALL TYPE = SOLID
- DIAMETER = 48"
- FINISH = ALT2
- CORRUGATION = 2 2/3x1/2

CUSTOMER DATE

ASSEMBLY
SCALE: 1" = 10'
PIPE STORAGE: 5,329 CF
LOADING: H20
PIPE INV. = TBD'±

NOTES

- ALL RISER AND STUB DIMENSIONS ARE TO CENTERLINE.
- ALL ELEVATIONS, DIMENSIONS, AND LOCATIONS OF RISERS AND INLETS, SHALL BE VERIFIED BY THE ENGINEER OF RECORD (EOR) PRIOR TO RELEASING FOR FABRICATION.
- ALL FITTINGS AND REINFORCEMENT COMPLY WITH ASTM A998.
- ALL RISERS AND STUBS ARE 2⅔" x ½" CORRUGATION AND 16 GAGE UNLESS OTHERWISE NOTED.
- RISERS TO BE FIELD TRIMMED TO GRADE AS REQUIRED, BY CONTRACTOR.
- QUANTITY OF PIPE SHOWN DOES NOT PROVIDE EXTRA PIPE FOR CONNECTING THE SYSTEM TO EXISTING PIPE OR DRAINAGE STRUCTURES. OUR SYSTEM AS DETAILED PROVIDES NOMINAL INLET AND/OR OUTLET PIPE STUB FOR CONNECTION TO EXISTING DRAINAGE FACILITIES. IF ADDITIONAL PIPE IS NEEDED IT IS THE RESPONSIBILITY OF THE CONTRACTOR.
- ALL ACCESS CASTINGS ARE THE RESPONSIBILITY OF THE CONTRACTOR AND ARE NOT SUPPLIED BY CONTECH.

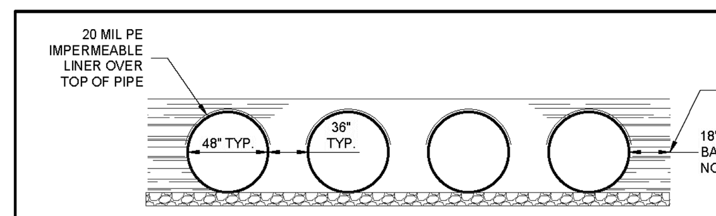
MARK | DATE | REVISION DESCRIPTION | BY

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
7037 Ridge Road, Hanover, MD 21076
866-740-3318 410-796-5505 866-376-8511 FAX

CONTECH CMP DETENTION SYSTEMS
CONTECH PROPOSAL DRAWING

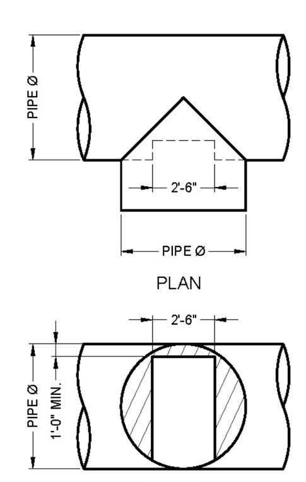
48"Ø UNDERGROUND DETENTION SYSTEM - 653688-020
UPS HOWELL EMPLOYEE PARKING LOT
HOWELL, MI
SITE DESIGNATION:

PROJECT No.: 653688 | SEQ. No.: 020 | DATE: 9/1/2020
DESIGNED: PWV | DRAWN: PWV
CHECKED: | APPROVED:
SHEET NO.: P1 OF 5



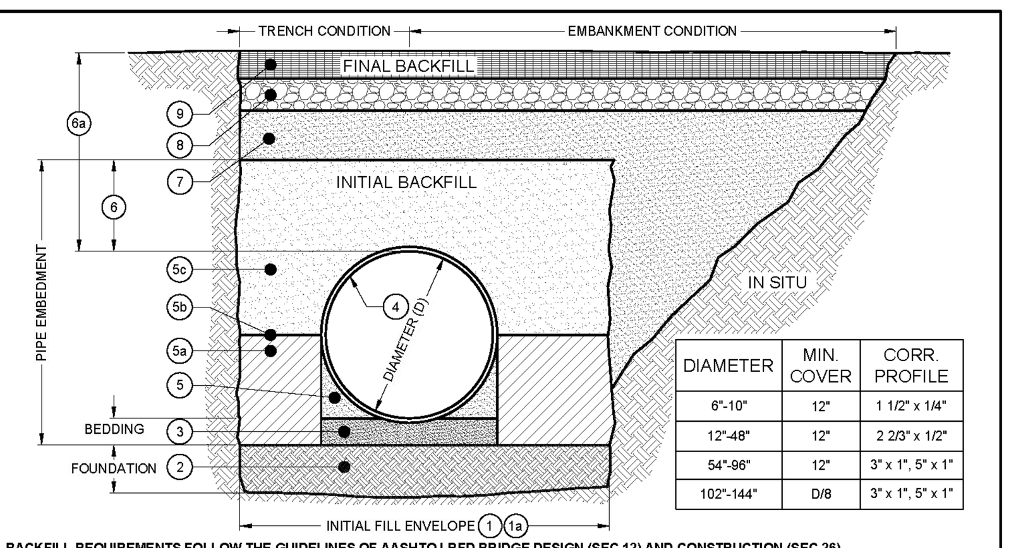
TYPICAL SECTION VIEW
NOT TO SCALE

NOTE: IF SALTING AGENTS FOR SNOW AND ICE REMOVAL ARE USED ON OR NEAR THE PROJECT, A GEOMEMBRANE BARRIER IS REQUIRED WITH THE SYSTEM. THE GEOMEMBRANE LINER IS INTENDED TO HELP PROTECT THE SYSTEM FROM THE POTENTIAL ADVERSE EFFECTS THAT MAY RESULT FROM A CHANGE IN THE SURROUNDING ENVIRONMENT OVER A PERIOD OF TIME. PLEASE REFER TO THE CORRUGATED METAL PIPE DETENTION DESIGN GUIDE FOR ADDITIONAL INFORMATION.



48"Ø to 90"Ø FITTING REINFORCEMENT MAY BE REQUIRED BASED ON HEIGHT OF COVER AND LIVE LOAD CONDITION

TYPICAL MANWAY DETAIL
NOT TO SCALE



DIAMETER	MIN. COVER	CORR. PROFILE
6"-10"	12"	1 1/2" x 1/4"
12"-48"	12"	2 2/3" x 1/2"
54"-96"	12"	3" x 1", 5" x 1"
102"-144"	D/8	3" x 1", 5" x 1"

BACKFILL REQUIREMENTS FOLLOW THE GUIDELINES OF AASHTO LRFD BRIDGE DESIGN (SEC 12) AND CONSTRUCTION (SEC 26)

1 MINIMUM TRENCH WIDTH MUST ALLOW ROOM FOR PROPER COMPACTION OF HAUNCH MATERIALS UNDER THE PIPE. THE MINIMUM TRENCH WIDTH (12.6.6.1):
PIPE ≤ 12": D + 16"
PIPE > 12": 1.5D + 12"

1a MINIMUM EMBANKMENT WIDTH (IN FEET) FOR INITIAL FILL ENVELOPE (12.6.6.2):
PIPE < 24": 3.0D
PIPE 24" - 144": D + 4'0"
PIPE > 144": D + 10'0"

2 THE FOUNDATION UNDER THE PIPE AND SIDE BACKFILL SHALL BE ADEQUATE TO SUPPORT THE LOADS ACTING UPON IT (26.5.2).

3 BEDDING MATERIAL SHALL BE A RELATIVELY LOOSE GRANULAR MATERIAL THAT IS ROUGHLY SHAPED TO FIT THE BOTTOM OF THE PIPE, AND A MINIMUM OF TWICE THE CORRUGATION DEPTH IN THICKNESS, WITH THE MAXIMUM PARTICLE SIZE OF ONE-HALF OF THE CORRUGATION DEPTH (26.3.8.1, 26.5.3).

4 CORRUGATED STEEL PIPE (CSP / HEL-COR), GAGE PER AASHTO SECTION 12 OR MDOT 2003 STANDARD SPECIFICATION FOR CONSTRUCTION.

5 HAUNCH ZONE MATERIAL SHALL BE HAND SHOVELED OR SHOVEL SLICED INTO PLACE TO ALLOW FOR PROPER COMPACTION (26.5.4).

5a INITIAL BACKFILL FOR PIPE EMBEDMENT SHALL BE CRUSHED STONE ANGULAR FILL SUCH AS #8, #57, MDOT 6A, 2G, 3G, 34G, OR APPROVED EQUAL, COMPACTED TO 90% STANDARD PROCTOR (T 99).

5b GEOTEXTILE SHOULD BE CONSIDERED FOR USE TO PREVENT SOIL MIGRATION INTO VARYING SOIL TYPES (PROJECT ENGINEER).

5c BACKFILL PLACED ABOVE THE SPRINGLINE TO MEET AASHTO A-3, MDOT CLASS II SAND OR AS APPROVED BY THE ENGINEER, COMPACTED TO 90% STANDARD PROCTOR (T 99). MAXIMUM PARTICLE SIZE NOT TO EXCEED 3" (12.4.1.2). ALL LIFTS PLACED IN A CONTROLLED MANNER. IT IS RECOMMENDED THAT LIFTS NOT EXCEED AN 8" UNCOMPACTED LIFT HEIGHT TO PREVENT UNEVEN LOADING, AND THE LESSER OF 1/3 THE DIAMETER OR 24" AS THE MAXIMUM DIFFERENTIAL SIDE-TO-SIDE (26.5.4).

6 INITIAL BACKFILL ABOVE PIPE MAY INCLUDE ROAD BASE MATERIAL (AND RIGID PAVEMENT IF APPLICABLE). SEE TABLE ABOVE.

6a TOTAL HEIGHT OF COMPACTED COVER FOR CONVENTIONAL HIGHWAY LOADS IS MEASURED FROM TOP OF PIPE TO BOTTOM OF FLEXIBLE PAVEMENT OR TOP OF RIGID PAVEMENT (12.6.6.3).

7 MDOT CLASS II SAND PLACED IN 8" LIFTS, COMPACTED TO 90% STANDARD PROCTOR (T 99).

8 GRANULAR ROAD BASE (MDOT 21-AA OR EQUAL).

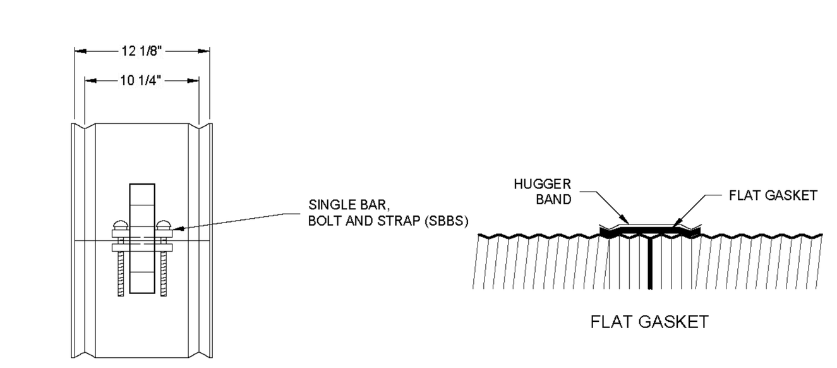
9 RIGID OR FLEXIBLE PAVEMENT.

NOTE:
- FOR MULTIPLE BARREL INSTALLATIONS THE RECOMMENDED STANDARD SPACING BETWEEN PARALLEL PIPE RUNS SHALL BE PIPE DIA./2 BUT NO LESS THAN 12", OR 36" FOR PIPE DIAMETERS 72" AND LARGER. CONTACT YOUR CONTECH REPRESENTATIVE FOR NONSTANDARD SPACING (TABLE C12.6.7-1).

TYPICAL BACKFILL DETAIL
NOT TO SCALE

48"Ø UNDERGROUND DETENTION SYSTEM - 653688-020
UPS HOWELL EMPLOYEE PARKING LOT
HOWELL, MI
SITE DESIGNATION:

PROJECT No.: 653688 | SEQ. No.: 020 | DATE: 9/1/2020
DESIGNED: PWV | DRAWN: PWV
SHEET NO.: P2 OF 5



CONNECTION DETAIL
(SBBS)

FLAT GASKET

2 2/3"x1/2" RE-ROLLED END HEL-COR PIPE

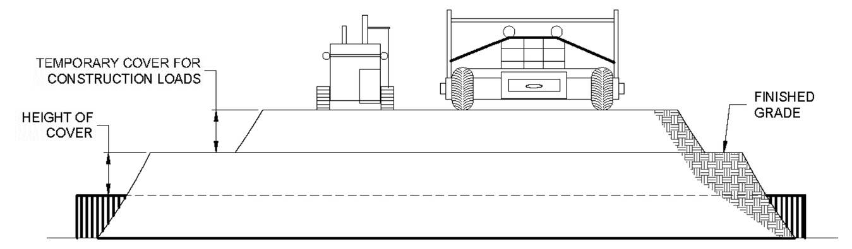
GENERAL NOTES:

1. JOINT IS TO BE ASSEMBLED PER AASHTO BRIDGE CONSTRUCTION SPECIFICATION SEC 26.4.2.4.
2. BAND MATERIALS AND/OR COATING CAN VARY BY LOCATION. CONTACT YOUR CONTECH REPRESENTATIVE FOR AVAILABILITY.
3. BANDS ARE SHAPED TO MATCH THE PIPE-ARCH WHEN APPLICABLE.
4. BANDS ARE NORMALLY FURNISHED AS FOLLOWS:
   - 12" THRU 48" 1-PIECE
   - 54" THRU 96" 2-PIECES
   - 102" THRU 144" 3-PIECES
5. BAND FASTENERS ARE ATTACHED WITH SPOT WELDS, RIVETS OR HAND WELDS.
6. ALL CMP IS REROLLED TO HAVE ANNULAR END CORRUGATIONS OF 2 2/3"x1/2"
7. DIMENSIONS ARE SUBJECT TO MANUFACTURING TOLERANCES.
8. ORDER SHALL DESIGNATE GASKET OPTION, IF REQUIRED (SEE DETAILS ABOVE).

H-12 HUGGER BAND DETAIL
NOT TO SCALE

48"Ø UNDERGROUND DETENTION SYSTEM - 653688-020
UPS HOWELL EMPLOYEE PARKING LOT
HOWELL, MI
SITE DESIGNATION:

PROJECT No.: 653688 | SEQ. No.: 020 | DATE: 9/1/2020
DESIGNED: PWV | DRAWN: PWV
SHEET NO.: P3 OF 5



CONSTRUCTION LOADS

FOR TEMPORARY CONSTRUCTION VEHICLE LOADS, AN EXTRA AMOUNT OF COMPACTED COVER MAY BE REQUIRED OVER THE TOP OF THE PIPE. THE HEIGHT-OF-COVER SHALL MEET THE MINIMUM REQUIREMENTS SHOWN IN THE TABLE BELOW. THE USE OF HEAVY CONSTRUCTION EQUIPMENT NECESSITATES GREATER PROTECTION FOR THE PIPE THAN FINISHED GRADE COVER MINIMUMS FOR NORMAL HIGHWAY TRAFFIC.

PIPE SPAN, INCHES	AXLE LOADS (kips)			
	18-50	50-75	75-110	110-150
	MINIMUM COVER (FT)			
12-42	2.0	2.5	3.0	3.0
48-72	3.0	3.0	3.5	4.0
78-120	3.0	3.5	4.0	4.0
126-144	3.5	4.0	4.5	4.5

*MINIMUM COVER MAY VARY, DEPENDING ON LOCAL CONDITIONS. THE CONTRACTOR MUST PROVIDE THE ADDITIONAL COVER REQUIRED TO AVOID DAMAGE TO THE PIPE. MINIMUM COVER IS MEASURED FROM THE TOP OF THE PIPE TO THE TOP OF THE MAINTAINED CONSTRUCTION ROADWAY SURFACE.

CONSTRUCTION LOADING DIAGRAM
NOT TO SCALE

SPECIFICATION FOR CORRUGATED STEEL PIPE-ALUMINIZED TYPE 2 STEEL

SCOPE

THIS SPECIFICATION COVERS THE MANUFACTURE AND INSTALLATION OF THE CORRUGATED STEEL PIPE (CSP) DETAILED IN THE PROJECT PLANS.

MATERIAL

THE ALUMINIZED TYPE 2 STEEL COILS SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF AASHTO M274 OR ASTM A929.

PIPE

THE CSP SHALL BE MANUFACTURED IN ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF AASHTO M36 OR ASTM A760. THE PIPE SIZES, GAGES AND CORRUGATIONS SHALL BE AS SHOWN ON THE PROJECT PLANS.

ALL FABRICATION OF THE PRODUCT SHALL OCCUR WITHIN THE UNITED STATES.

HANDLING AND ASSEMBLY

SHALL BE IN ACCORDANCE WITH RECOMMENDATIONS OF THE NATIONAL CORRUGATED STEEL PIPE ASSOCIATION (NCSPA)

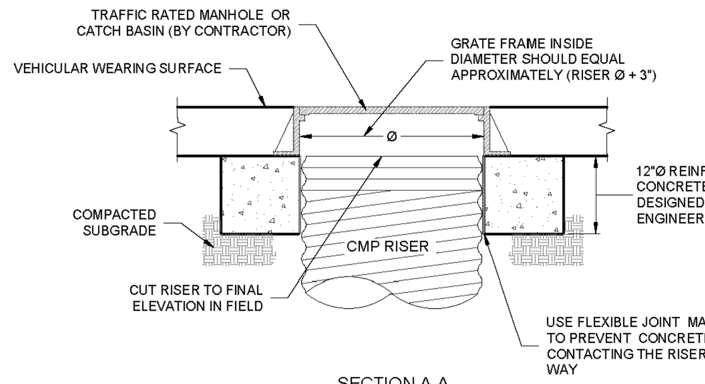
INSTALLATION

SHALL BE IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, SECTION 26, DIVISION II OR ASTM A798 AND IN CONFORMANCE WITH THE PROJECT PLANS AND SPECIFICATIONS. IF THERE ARE ANY INCONSISTENCIES OR CONFLICTS THE CONTRACTOR SHOULD DISCUSS AND RESOLVE WITH THE SITE ENGINEER.

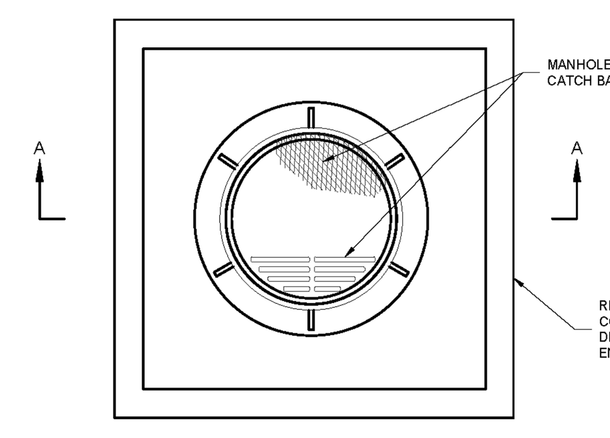
IT IS ALWAYS THE RESPONSIBILITY OF THE CONTRACTOR TO FOLLOW OSHA GUIDELINES FOR SAFE PRACTICES.

MATERIAL SPECIFICATION
NOT TO SCALE

ACCESS CASTING NOT SUPPLIED BY CONTECH



SECTION A-A



PLAN VIEW

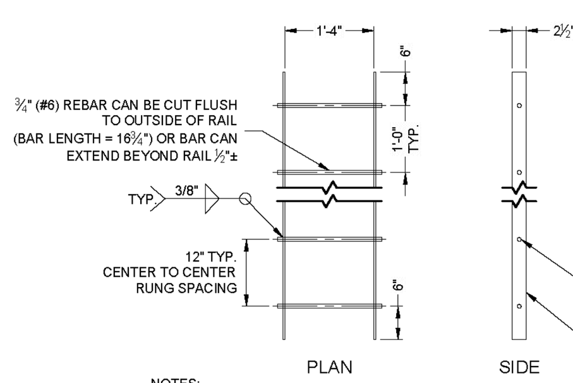
NOTES:

1. REINFORCED CONCRETE COLLAR SHALL BE SIZED AND DESIGNED BY ENGINEER OF RECORD SO THAT THE LOADS ARE TRANSMITTED TO THE SOIL, AND NOT THE RISER.
2. REINFORCED CONCRETE COLLAR SHALL BE SIZED TO PROVIDE AN ADEQUATE BOTTOM AREA BASED ON THE ALLOWABLE BEARING CAPACITY OF THE SOIL.
3. THE FLEXIBLE JOINT MATERIAL (RECYCLED VINYL OR EQUIVALENT) TO BE STIFF ENOUGH SO THAT THE CONCRETE CAN NEVER ENGAGE WITH THE RISER CORRUGATIONS.

MANHOLE CAP DETAIL
NOT TO SCALE

48"Ø UNDERGROUND DETENTION SYSTEM - 653688-020
UPS HOWELL EMPLOYEE PARKING LOT
HOWELL, MI
SITE DESIGNATION:

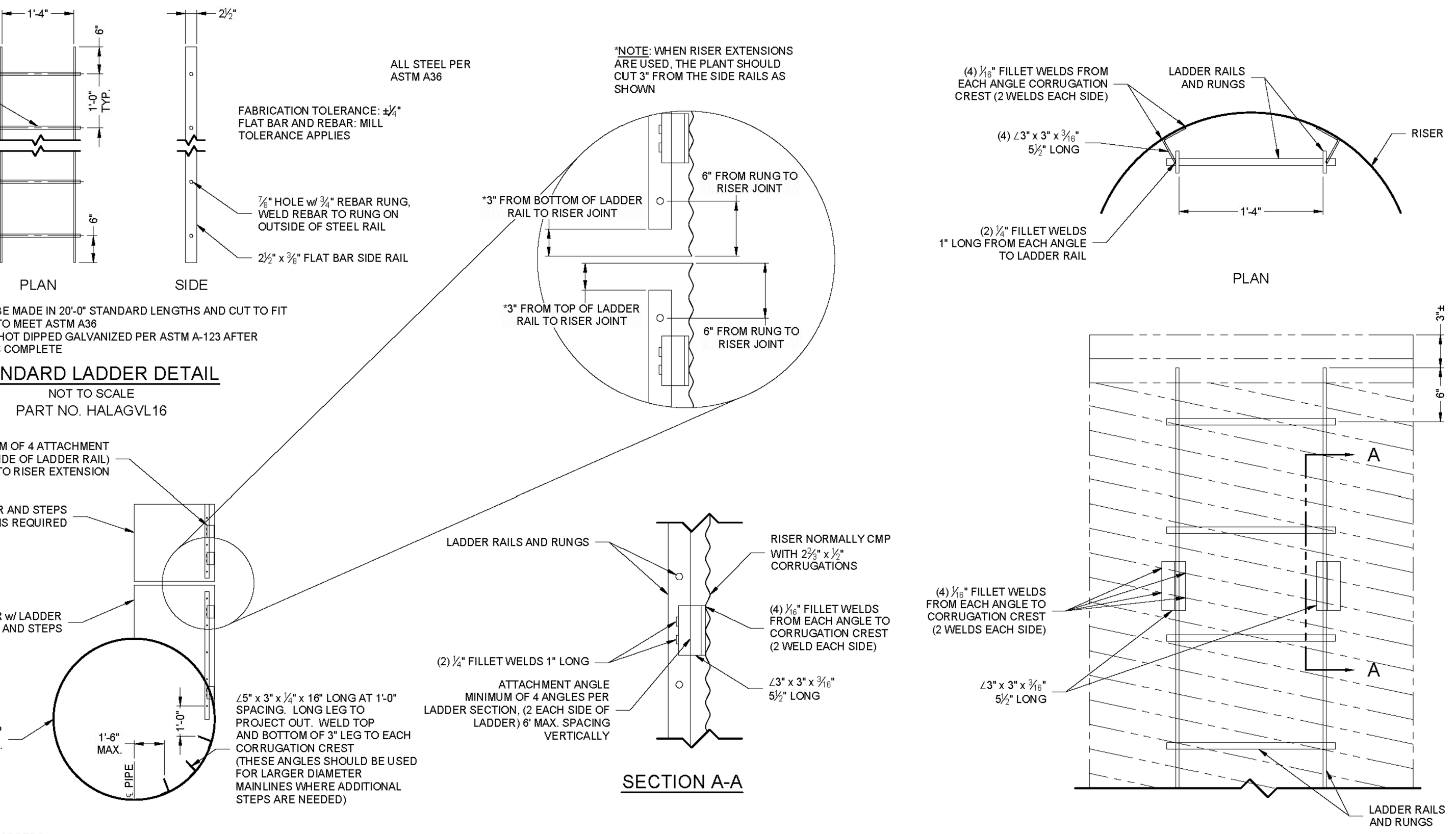
PROJECT No.: 653688 | SEQ. No.: 020 | DATE: 9/1/2020
DESIGNED: PWV | DRAWN: PWV
SHEET NO.: P4 OF 5



ALL STEEL PER ASTM A36

NOTES:
1. LADDERS CAN BE MADE IN 20'-0" STANDARD LENGTHS AND CUT TO FIT
2. ALL MATERIAL TO MEET ASTM A36
3. LADDER TO BE HOT DIPPED GALVANIZED PER ASTM A-123 AFTER FABRICATION IS COMPLETE

STANDARD LADDER DETAIL
NOT TO SCALE
PART NO. HALAGVL16



NOTE:
THIS DRAWING IS INTENDED TO APPLY TO LADDERS INSTALLED IN RISERS HAVING A DIAMETER OF 30" OR LARGER. DUE TO SPACE CONSTRAINTS AND LIMITED ACCESSIBILITY, THE PRACTICALITY AND SUITABILITY OF UTILIZING RISERS SMALLER THAN 30" DIAMETER AND/OR INCORPORATING LADDERS IN THESE SMALLER DIAMETER RISERS SHOULD BE ADDRESSED BY THE OWNER AND PROJECT ENGINEER

RISER LADDER DETAIL
NOT TO SCALE

48"Ø UNDERGROUND DETENTION SYSTEM - 653688-020
UPS HOWELL EMPLOYEE PARKING LOT
HOWELL, MI
SITE DESIGNATION:

PROJECT No.: 653688 | SEQ. No.: 020 | DATE: 9/1/2020
DESIGNED: PWV | DRAWN: PWV
SHEET NO.: P5 OF 5

Structural Design Check for Corrugated Metal Round Pipe
Per AASHTO LRFD Bridge Design Specifications, Section 12, 2014

CONTECH ENGINEERED SOLUTIONS

Project Name: UPS Howell — CRM #: 653,688
Location: Howell, MI — Date: 9/21/2020

Material	Steel			
Loading Case	1	(lanes)		
Corrugation Type (Classification Type I - Round Pipe)	Helical Pipe			
Corrugation Profile	2-2/3 X 1/2 in. CORRUGATION			
Gage	14			
S, Span	48	(in.)		
H, Height of Cover (Min cover required is S/8, >= 1 ft.)	2.4	(ft.)		
Design Truck (LRFD Highway Load is HL-93)	HL-93			
ρ, Density of Cover Material (120 pcf default)	0.12	(kcf)	120	(Table 3.5.1-1)
A_w, Pipe Wall Area	0.968	(sq. in./ft.)		(Table A12-1)
I, Moment of Inertia	0.002392	(in.⁴/in.)		(Table A12-1)
r, Radius of Gyration	0.1721	(in.)		(Table A12-1)
E_m, Modulus of Elasticity	29000	(ksi)		(Table A12-9)
F_u, Tensile Strength	45	(ksi)		(Table A12-9)
F_y, Yield Strength	33	(ksi)		(Table A12-9)
L_t, Surface Load Contact Length	0.83	(ft.)		(3.6.1.2.5)
w_t, Surface Load Contact Width	1.67	(ft.)		(3.6.1.2.5)
HS20 Controls				
s_w, Wheel	6.00	(ft)		
s_a, axle spacing	14.00	(ft)		
LLDF	1.15			(Table 3.6.1.2.6a-1)
H_{int-t}, Wheel Interaction Depth	3.56	(ft)		(3.6.1.2.6b-1)
W_w, live load patch length Ww=wt/12+LLDF x H + 0.06Di/12	4.67	(ft)		(3.6.1.2.6b-2)
H_{int-p}, Axle Interaction Depth	11.45			
DL, Design Lane Load	0.64	(klf)		(3.6.1.2.4)
l_w, live load patch length lw=lt/12+LLFD(H)	3.59	(ft)		(3.6.1.2.6a-1)
A_{LL}, Area of live load patch at H	16.77	(ft2)		(3.6.1.2.6a-1)
FFR, Flexibility Factor Required	43	(in./kip)		(Table 12.5.6.1-1)
Number of Interacting Wheels	1			
k, Soil Stiffness Factor	0.22			(12.7.2.4)
IM, Dynamic = 33(1.0-0.125H)	23.10	(%)		(3.6.2.2-1)
m, Multiple Presence Factor	1.2			(Table 3.6.1.1.2-1)
P, Design Truck Load (HS20)	16.0	(kip/wheel group)		(3.6.1.2.2)
SS, Seam Strength	N/A	(kip/ft.)		(Table A12-7)
$Φ_w$, Wall Area and Buckling	1.00			(Table 12.5.5-1)

Page 1 of 2

Structural Design Check for Corrugated Metal Round Pipe
Per AASHTO LRFD Bridge Design Specifications, Section 12, 2014

CONTECH ENGINEERED SOLUTIONS

$Φ_{SS}$, Seam		N/A	*Not Applicable to Helical Pipe*			(Table 12.5.5-1)
$η_{EV}$, Redundancy Factor		1.05				(1.3.4, 12.5.4)
$η_{LL}$, Redundancy Factor		1.00				(1.3.4, 12.5.4)
$γ_{EV}$, Dead Load Factor		1.95				(Table 3.4.1-2)
$γ_{LL}$, Live Load Factor		1.75				(Table 3.4.1-1)
P_L = (P(1+IM/100)m)/ALL		1.41	(ksf)			
P_{FD}, Factored Dead Load Crown Pressure $= η_{EV} γ_{EV} \times H \times ρ$		0.590	(ksf)			(3.5.1)
P_{FL}, Factored Live Load Crown Pressure $= η_{LL} γ_{LL} P_L$		2.47	(ksf)			
P_{DL}, Factored Design Lane Load $= η_{LL} γ_{LL} m DL/10$		0.134	(ksf)			
Factored Thrust (standard structures)						
F_{min}	= greater of 15/S or 1	1.00	(dimensionless)			(12.7.2.2-4)
F_1	= greater of 0.75S/lw or F_{min}	1.00	(dimensionless)			(12.7.2.2-3)
Culvert on which LL is	= lw ≤ S	3.59	(ft)			(12.7.2.2-2)
T_L, Factored Thrus	$=(P_{FD}+P_{DL})S/2+(P_{FL} C_L F_1)/2$	5.880	(kip/ft)			(12.7.2.2-1)
R_w, Wall	$R_w = Φ_w F_y A_w$	31.944	(kip/ft.)	> T	5.880 OK	(12.7.2.3-1)
F_{cr}, Critical Buckling Stress		39.523	(ksi)			

If: $S < \frac{r}{k}\sqrt{\frac{24E_m}{F_u}}$ Then: $F_{cr} = F_u - \frac{\left(\frac{F_u k S}{r}\right)^2}{48E_m}$ (12.7.2.4-1)

upper case controls

But if: $S > \frac{r}{k}\sqrt{\frac{24E_m}{F_u}}$ Then: $F_{cr} = \frac{12E_m}{\left(\frac{kS}{r}\right)^2}$ (12.7.2.4-2)

R_b, Buckling	If $F_{cr} > F_y$, then $F_{cr} = F_y$	39.523	(ksi)	>	33	
	$R_b = Φ_w F_{cr} A_w$	31.944	(kip/ft.)	> T	5.880 OK	(12.7.2.3-1)
FF, Flexibility Factor	$FF = S^2/(E_m I)$	33.214	(in./kip)	< FFR	43 OK	(12.7.2.6-1)
R_s, Factored Seam Strength	$R_s = Φ_{SS} SS$	N/A	(kip/ft.)	*See Note on ΦSS		(12.7.2.5)

Page 2 of 2

ISSUED FOR SITE PLAN APPROVAL

SME
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Orientation

Scale
0' ### ###
GRAPHIC SCALE: 1" = ###H,5'V

Project
UPS HOWELL
EMPLOYEE PARKING LOT
IMPROVOMENTS

Project Location
1183 FENDT DRIVE
HOWELL, MI 48843

Sheet Name
UNDERGROUND DETENTION DETAILS

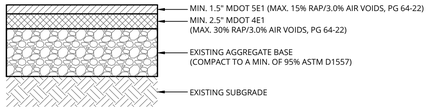
Engineer's Seal
STATE OF MICHIGAN HUGO J. CERON ENGINEER No. 67351 LICENSED PROFESSIONAL ENGINEER

Revisions

REV	ISSUED FOR	DATE	BY
01	TOWNSHIP COMMENTS	09/23/2020	JAS

Date: 09/02/2020
SME Project No.: 084617.00
Project Manager: J. SCHWARTZENBERGER
Designer: H. CERON
CADD: H. CERON
Checked By: B. HART
Reviewed By: J. SCHWARTZENBERGER
Sheet No.: C-803

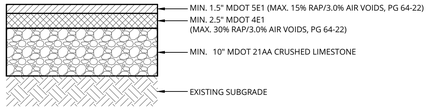
PLOT DATE: Sep 22, 2020 - 3:45pm - ceron
FILE LOCATION: \\Sme-inc\pz\WIP\084617.00\CAD\DWGS\SPA\rev6\084617.00-Utility.dwg



HMA OVER EXISTING AGGREGATE BASE - STANDARD DUTY - DETAIL

NOT TO SCALE

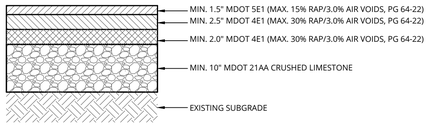
NOTE:
APPLY TACK COAT OF SS-IH (0.1 GALLONS/S.Y.) BETWEEN ALL HMA LAYERS



HMA OVER NEW AGGREGATE BASE - STANDARD DUTY - DETAIL

NOT TO SCALE

NOTE:
APPLY TACK COAT OF SS-IH (0.1 GALLONS/S.Y.) BETWEEN ALL HMA LAYERS



HMA OVER NEW AGGREGATE BASE - HEAVY DUTY - DETAIL

NOT TO SCALE

NOTE:
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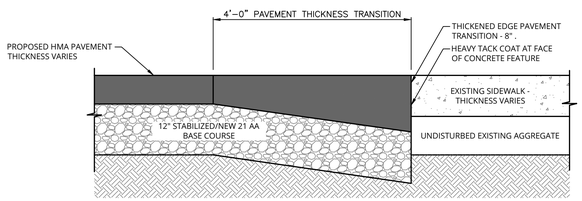
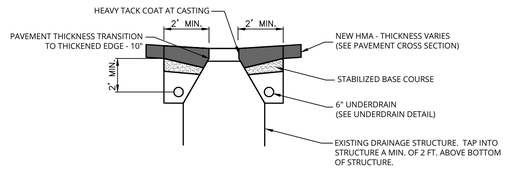


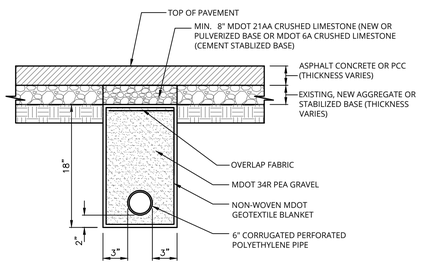
THICKENED EDGE DETAIL - DETAIL

NOT TO SCALE



THICKENED EDGE HMA AT UTILITY STRUCTURE DETAIL

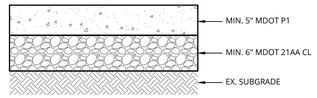
NOT TO SCALE



UNDERDRAIN / EDGEDRAIN - DETAIL

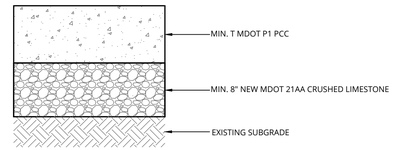
NOT TO SCALE

NOTES:
1. SLOPE UNDERDRAIN PIPES TOWARD EXISTING DRAINAGE STRUCTURES (MIN. 1.0%)
2. AT CATCH BASIN, INSTALL RING AROUND CATCH BASIN AND TAP STRUCTURE AT ONE LOCATION.
3. AT CURB INLETS, INSTALL HALF RING AROUND INLET AND TAP AT ONE LOCATION
4. IN CEMENT TREATED BASE AREAS, INSTALL UNDERDRAIN AFTER CEMENT TREATMENT.



SIDEWALK - DETAIL

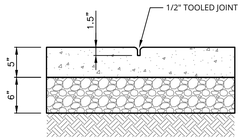
NOT TO SCALE



PCC OVER AGGREGATE BASE - DETAIL

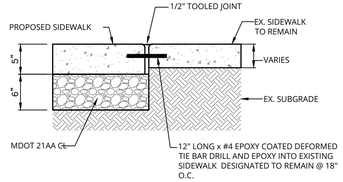
NOT TO SCALE

NOTE: T=X"



SIDEWALK CONTROL JOINT - DETAIL

NOT TO SCALE



SIDEWALK CONSTRUCTION JOINT - DETAIL

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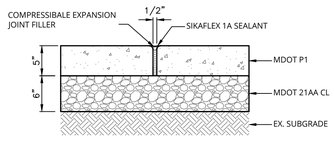

SIDEWALK EXPANSION JOINT - DETAIL

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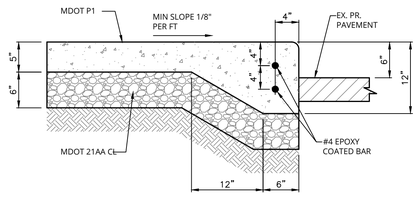
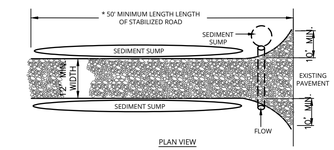


THICKENED EDGE SIDEWALK - DETAIL M110.05

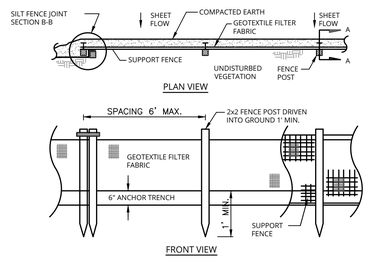
NOT TO SCALE

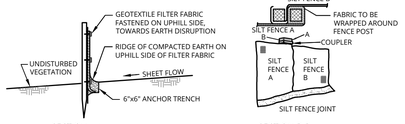


NOTES:
1. ESTABLISH STABILIZED CONSTRUCTION ENTRANCE PRIOR TO THE INITIATION OF SITE CONSTRUCTION ACTIVITIES.
2. CARE SHOULD BE TAKEN TO PREVENT MATERIAL MOVEMENT INTO ADJACENT WETLANDS/WATERBODIES.
3. CARE SHOULD BE TAKEN TO MAINTAIN EXISTING ROADSIDE DRAINAGE VIA CULVERT INSTALLATION, WITH SEDIMENT SUMP PLACED DOWNFLOW OF CULVERT.

STABILIZED CONSTRUCTION ACCESS

NOT TO SCALE





SILT FENCE - DETAIL

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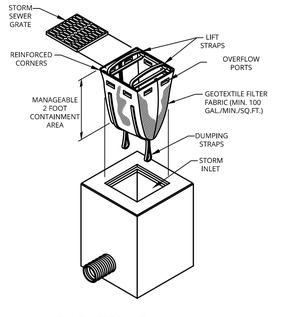

INLET FILTER - DETAIL

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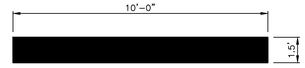
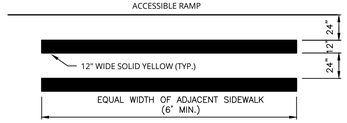


STOP BAR WITH STOP DETAIL

NOT TO SCALE



CROSSWALK MARKING DETAIL

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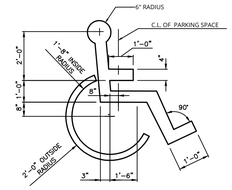

BARRIER FREE DETAIL

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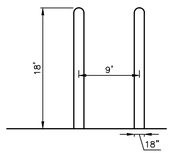
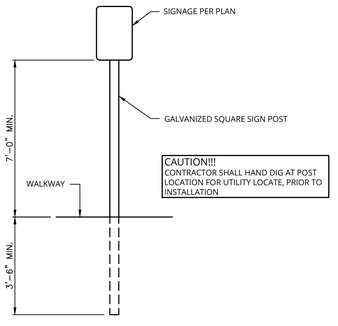


90° ANGLE PARKING DETAIL

NOT TO SCALE



PARKING SIGN WITH POST IN GREENBELT

NOT TO SCALE

ISSUED FOR SITE PLAN APPROVAL

SME
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Orientation	Scale

Project

UPS HOWELL EMPLOYEE PARKING LOT IMPROVOMENTS

Project Location

1183 FENDT DRIVE HOWELL, MI 48843

Sheet Name

DETAILS

Engineer's Seal

STATE OF MICHIGAN
HUGO J. CERON
ENGINEER
No. 67351
PROFESSIONAL ENGINEER

Revisions

REV	ISSUED FOR	DATE	BY
01	TOWNSHIP COMMENTS	09/23/2020	JAS

Date
09/02/2020

SME Project No.
084617.00

Project Manager:
J. SCHWARTZENBERGER

Designer:
H. CERON

CADD:
H. CERON

Checked By:
B. HART

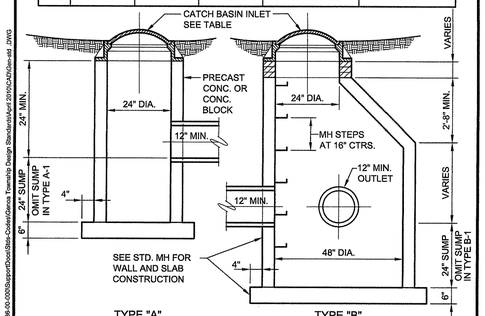
Reviewed By:
J. SCHWARTZENBERGER

Sheet No.
D-100

DRAWING NOTE: SCALE DEPICTED IS MEANT FOR 24" X 36" AND WILL SCALE INCORRECTLY IF PRINTED ON ANY OTHER SIZE MEDIA

PLOT DATE: Sep 22, 2020 - 3:33pm - ceron
FILE LOCATION: \\Sme-inc\pw\WP\084617.00\CAD\DWGS\PAlive\084617.00-Details.dwg

MANHOLE FRAME & COVER & CATCH BASIN INLETS					
TYPE	LOCATION	MANUFACTURER OR EQUAL		TYPE OF COVER OR INLET	MAXIMUM DRAINAGE AREA (ACRES)
		EAST JORDAN	NEENAH		
MH	ALL	1040	R-1916 F1	SANITARY-SOLID SELF-SEALING STORM-VENTED	N/A
CB	TYPE A CURB	7000-T1-M1	R-3070	FLAT GRATE WITH VERT. OPEN BACK	0.71
CB	TYPE B CURB	7065-T1-M1	R-3034-B	FLAT GRATE WITH ROLL BACK	0.87
CB	PAVEMENT/ SHOULDER	1020-M1	R-2060-D	FLAT GRATE	0.66
CB	OPEN AREA	1020-01	R-2560-D	BEEHIVE GRATE 4" HIGH	0.63
CB	GUTTER	5100	R-3238	CONCAVE INLET	0.96



TYPE "A"

NOTE:
TYPE A-1 EQUAL TO TYPE "A" EXCLUDING 24" SUMP BUT ADD ON BOTTOM CONC. FILLET.

TYPE "B"

NOTE:
TYPE B-1 EQUAL TO TYPE "B" EXCLUDING 24" SUMP BUT ADD ON BOTTOM CONC. FILLET.

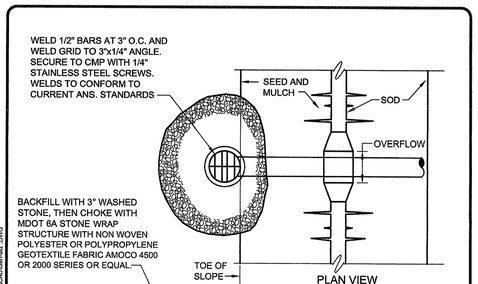
Genoa Charter Township
2911 Dorr Road Brighton, MI 48116

CATCH BASIN

Date: APRIL 2010

R-1

1 April 2010 DRAWING P:\IEIN\12736\200-12736-00-000\Support\Docs\Site-Codes\Genoa Township Design Standards\April 2010\CAD\Gen-std .DWG



Genoa Charter Township
2911 Dorr Road Brighton, MI 48116

OUTLET CONTROL STRUCTURE

Date: APRIL 2010

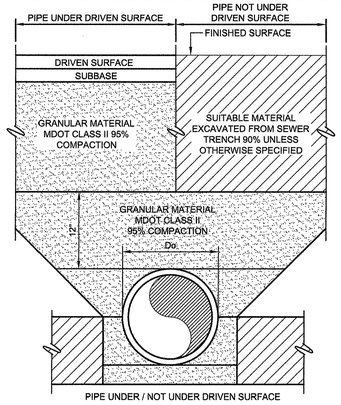
R-2

1 April 2010 DRAWING P:\IEIN\12736\200-12736-00-000\Support\Docs\Site-Codes\Genoa Township Design Standards\April 2010\CAD\Gen-std .DWG

NOTES:
1. COMPACTION PRESENTED AS STANDARD PROCTOR VALUES.

2. SOIL TYPES — ASTHO 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.



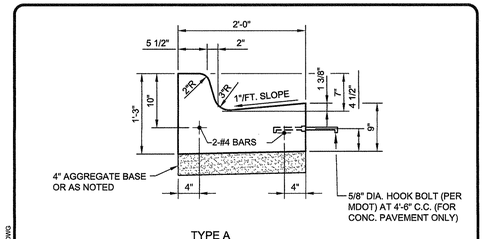
Genoa Charter Township
2911 Dorr Road Brighton, MI 48116

TRENCH EXCAVATION & BACKFILL

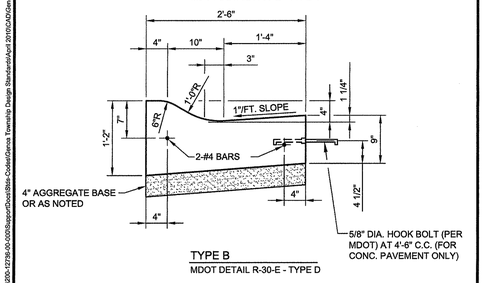
Date: APRIL 2010

R-3

1 April 2010 DRAWING P:\IEIN\12736\200-12736-00-000\Support\Docs\Site-Codes\Genoa Township Design Standards\April 2010\CAD\Gen-std .DWG



TYPE A
MDOT DETAIL R-30-E - TYPE C



TYPE B
MDOT DETAIL R-30-E - TYPE D

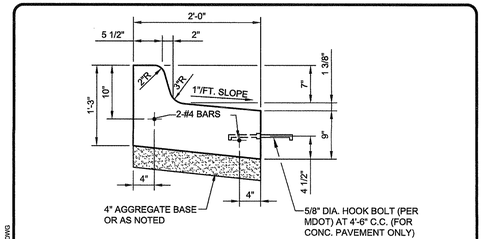
Genoa Charter Township
2911 Dorr Road Brighton, MI 48116

CONCRETE CURB & GUTTER

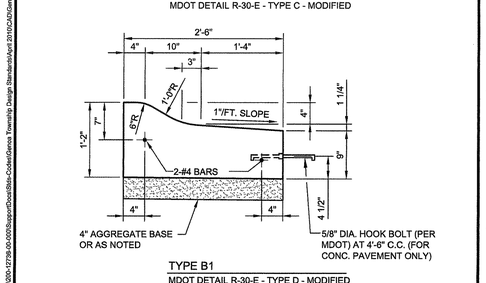
Date: APRIL 2010

G-1

1 April 2010 DRAWING P:\IEIN\12736\200-12736-00-000\Support\Docs\Site-Codes\Genoa Township Design Standards\April 2010\CAD\Gen-std .DWG



TYPE A1
MDOT DETAIL R-30-E - TYPE C - MODIFIED



TYPE B1
MDOT DETAIL R-30-E - TYPE D - MODIFIED

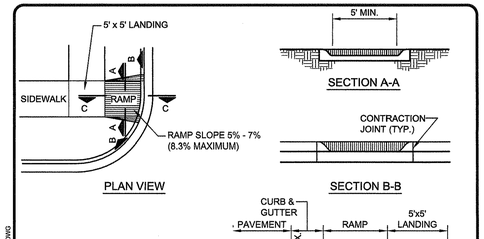
Genoa Charter Township
2911 Dorr Road Brighton, MI 48116

CONCRETE CURB SPILLOUT

Date: APRIL 2010

G-2

1 April 2010 DRAWING P:\IEIN\12736\200-12736-00-000\Support\Docs\Site-Codes\Genoa Township Design Standards\April 2010\CAD\Gen-std .DWG



NOTE: SEE MDOT R-28-F SIDEWALK RAMP AND DETECTABLE WARNING DETAILS FOR ADDITIONAL INFORMATION.

Genoa Charter Township
2911 Dorr Road Brighton, MI 48116

SIDEWALK RAMP

Date: APRIL 2010

G-3

1 April 2010 DRAWING P:\IEIN\12736\200-12736-00-000\Support\Docs\Site-Codes\Genoa Township Design Standards\April 2010\CAD\Gen-std .DWG

ISSUED FOR SITE PLAN APPROVAL

SME
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Orientation | Scale

Project
UPS HOWELL EMPLOYEE PARKING LOT IMPROVOMENTS

Project Location
1183 FENDT DRIVE HOWELL, MI 48843

Sheet Name
GENOA TOWNSHIP STANDARD DETAILS

Engineer's Seal
STATE OF MICHIGAN
HUGO J. CERON
ENGINEER
No. 67351
PROFESSIONAL ENGINEER

Revisions

REV	ISSUED FOR	DATE	BY
01	TOWNSHIP COMMENTS	09/23/2020	JAS

Date
09/02/2020

SME Project No.
084617.00

Project Manager:
J. SCHWARTZENBERGER

Designer:
H. CERON

CADD:
H. CERON

Checked By:
B. HART

Reviewed By:
J. SCHWARTZENBERGER

Sheet No.
D-101

PLOT DATE: Sep 22, 2020 - 3:34pm - ceron
FILE LOCATION: \\Sme-inc\gis\WIP\084617.00\CAD\DWGS\SPA\rev6\084617.00-Details.dwg

SME

PAVEMENT CORE LOG AND USACE DCP DATA

PROJECT NAME: UPS Howell Parking Addition
PROJECT NO.: 083760
LOCATION: 1183 Fendt Dr., Howell MI
CLIENT: UPS
A/E:
DATE: 7/20/20
BY: BJM/JSF

PROBE/CORE: B1
LOCATION:

PAVEMENT AND SUBSURFACE CONDITIONS

Layer, in.		Layer Thickness, in.	Description	Comment
From	To			
0	13	13	Pulverized Asphalt with mixture of Sand	(GP)
13	24	11	Fine to Medium Silty SAND with gravel - Trace Silt & Organics - Gray to Brown - Moist	(SM)
24	52	28	Fine to Medium Silty SAND - Trace Gravel - Brown - Moist	(SM)
52	84	32	LEAN CLAY with sand - Brown - Very Stiff	(CL) At 70" Qp =2.0; MC = 18%
84	120	36	Sandy LEAN CLAY - Brown - Stiff to Very Stiff	(CL) At 110" Qp =1.25; MC = 13%
			End of Test Hole at 120" Below Ground Surface	

Depth to Groundwater From Ground Surface
Upon Completion: Not Encountered

NOTES:

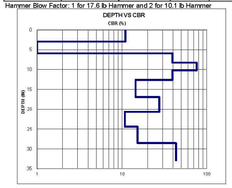
DCP TEST RESULTS

Depth to start of test from ex. ground surface: 0 inches

No. of Blows	Pen. (mm)	Blow Set (mm)	Pen./Blow (mm)	Blow Factor	Depth from Surface (inches)	CBR (%)	Comment	Soil Type	Average CBR (%)
0	160								
4	235	75	19	1	3.0	11.0	Very Poor	Agg Base	
1	310	75	75	1	5.9	0.6	Very Poor	Agg Base	
20	370	60	3	2	8.3	39.3	Poor	Agg Base	
30	420	50	2	2	10.2	75.8	Marginal	Agg Base	
20	480	60	3	2	12.6	39.3	Poor	Agg Base	29.1
15	590	110	7	2	16.9	14.4	Good	Subgrade	
23	686	95	4	2	20.7	27.4	Good	Subgrade	
10	780	95	10	2	24.4	10.8	Good	Subgrade	
15	885	105	7	2	28.5	15.2	Good	Subgrade	
20	940	55	3	2	30.7	43.3	Good	Subgrade	
20	996	55	3	2	32.9	43.3	Good	Subgrade	22.5

Hammer Blow Factor: 1 for 17.6 lb Hammer and 2 for 10.1 lb Hammer

*CBR breaklines are based on blow counts performed prior to sampling. Depths are approximate.



Support Conditions	CBR Range for Aggregate Base Materials (%)	CBR Range for Subgrade Soils (%)
Good	>80	>10
Marginal	60 to 80	5 to 10
Poor	30 to 60	3 to 5
Very Poor	<30	<3

**Core picture shows approximate thickness

SME

PAVEMENT CORE LOG AND USACE DCP DATA

PROJECT NAME: UPS Howell Parking Addition
PROJECT NO.: 083760
LOCATION: 1183 Fendt Dr., Howell MI
CLIENT: UPS
A/E:
DATE: 7/20/20
BY: BJM/JSF

PROBE/CORE: B2
LOCATION:

PAVEMENT AND SUBSURFACE CONDITIONS

Layer, in.		Layer Thickness, in.	Description	Comment
From	To			
0	6	6	Pulverized Asphalt	(GP)
6	12	6	Crushed Limestone	(GP)
12	88	76	Sandy LEAN CLAY - Brown - Very Stiff to Hard	(CL) At 34" Qp =3.5; MC = 15%
88	98	10	Fine to Medium SAND - Trace Gravel - Brown - Moist	(SP)
98	120	22	Sandy LEAN CLAY - Brown - Hard	(CL) At 106" Qp =4.5+; MC = 12%
			End of Test Hole at 120" Below Ground Surface	

Depth to Groundwater From Ground Surface
Upon Completion: Not Encountered

NOTES:

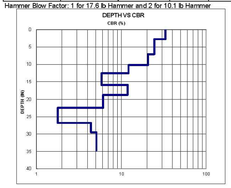
DCP TEST RESULTS

Depth to start of test from ex. ground surface: 0 inches

No. of Blows	Pen. (mm)	Blow Set (mm)	Pen./Blow (mm)	Blow Factor	Depth from Surface (inches)	CBR (%)	Comment	Soil Type	Average CBR (%)
0	150	0							
20	220	70	4	2	2.8	33.0	Poor	Agg Base	
12	275	55	5	2	4.9	24.4	Very Poor	Agg Base	
12	330	55	5	2	7.1	24.4	Very Poor	Agg Base	
15	410	80	5	2	10.2	20.6	Very Poor	Agg Base	
7	470	60	9	2	12.6	12.1	Very Poor	Agg Base	23
7	555	85	12	2	15.9	5.9	Marginal	Subgrade	
8	625	70	9	2	18.7	11.8	Good	Subgrade	
8	720	95	12	2	22.4	6.1	Marginal	Subgrade	
5	830	110	22	2	26.8	1.8	Very Poor	Subgrade	
5	900	70	14	2	29.5	4.4	Poor	Subgrade	
10	1030	130	13	2	34.6	5.1	Marginal	Subgrade	5.5

Hammer Blow Factor: 1 for 17.6 lb Hammer and 2 for 10.1 lb Hammer

*CBR breaklines are based on blow counts performed prior to sampling. Depths are approximate.



Support Conditions	CBR Range for Aggregate Base Materials (%)	CBR Range for Subgrade Soils (%)
Good	>80	>10
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Very Poor	<30	<3

**Core picture shows approximate thickness

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PAVEMENT CORE LOG AND USACE DCP DATA

PROJECT NAME: UPS Howell Parking Addition
PROJECT NO.: 083760
LOCATION: 1183 Fendt Dr., Howell MI
CLIENT: UPS
A/E:
DATE: 7/20/20
BY: BJM/JSF

PROBE/CORE: B3
LOCATION:

PAVEMENT AND SUBSURFACE CONDITIONS

Layer, in.		Layer Thickness, in.	Description	Comment
From	To			
0	10	10	Crushed Concrete & Pulverized Asphalt - Trace Organics	(GP)
10	52	42	Fine to Coarse SAND with Gravel - Trace Organics - Brown - Moist	(SP)
52	98	46	Fine to Medium Silty SAND - Trace Gravel - Brown - Moist	(SM)
98	120	22	LEAN CLAY with Sand - Trace Gravel- Brown - Very Stiff	(CL) At 110" Qp =2.75; MC = 17%
			End of Test Hole at 120" Below Ground Surface	

Depth to Groundwater From Ground Surface
Upon Completion: Not Encountered

NOTES:

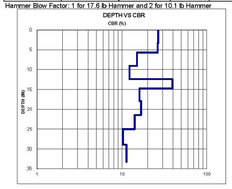
DCP TEST RESULTS

Depth to start of test from ex. ground surface: 0 inches

No. of Blows	Pen. (mm)	Blow Set (mm)	Pen./Blow (mm)	Blow Factor	Depth from Surface (inches)	CBR (%)	Comment	Soil Type	Average CBR (%)
0	155	0							
10	240	85	9	1	3.3	26.6	Very Poor	Agg Base	
7	300	60	9	1	5.7	26.3	Very Poor	Agg Base	
9	385	85	14	1	9.1	15.0	Very Poor	Agg Base	22.2
5	470	85	17	1	12.4	12.2	Good	Subgrade	
10	530	60	6	1	14.8	39.3	Good	Subgrade	
6	610	80	13	1	17.9	16.0	Good	Subgrade	
7	700	90	13	1	21.5	16.7	Good	Subgrade	
6	790	90	15	1	25.0	14.1	Good	Subgrade	
5	890	100	20	1	28.9	10.2	Good	Subgrade	
6	1000	110	18	1	33.3	11.2	Good	Subgrade	15.8

Hammer Blow Factor: 1 for 17.6 lb Hammer and 2 for 10.1 lb Hammer

*CBR breaklines are based on blow counts performed prior to sampling. Depths are approximate.



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PROJECT NO.: 083760
LOCATION: 1183 Fendt Dr., Howell MI
CLIENT: UPS
A/E:
DATE: 7/20/20
BY: BJM/JSF

PROBE/CORE: B4
LOCATION:

PAVEMENT AND SUBSURFACE CONDITIONS

Layer, in.		Layer Thickness, in.	Description	Comment
From	To			
0	8	8	Top Soil with Organics	
8	52	44	Sandy LEAN CLAY - Trace Gravel & Organics - Very Stiff	(CL) At 38" Qp =3.5; MC = 15%
52	76	24	Fine to Medium Silty SAND with gravel - Trace Clay - Brown - Moist	(SM)
76	110	34	Fine Silty Sand - Brown to Gray - Moist	(SM)
110	120	10	LEAN CLAY with Sand - Trace Gravel- Brown - Very Stiff	(CL) At 112" Qp =3.0; MC = 17%
			End of Test Hole at 120" Below Ground Surface	

Depth to Groundwater From Ground Surface
Upon Completion: Not Encountered

NOTES:

DCP TEST RESULTS

Depth to start of test from ex. ground surface: 0 inches

No. of Blows	Pen. (mm)	Blow Set (mm)	Pen./Blow (mm)	Blow Factor	Depth from Surface (inches)	CBR (%)	Comment	Soil Type	Average CBR (%)
0	200	0							
2	320	120	60	2	4.7	0.2	Very Poor	Subgrade	
3	415	95	32	2	8.6	0.9	Very Poor	Subgrade	
3	505	90	30	2	12.0	1.0	Very Poor	Subgrade	
5	585	80	16	2	15.2	3.4	Poor	Subgrade	
5	670	85	17	2	18.5	3.0	Very Poor	Subgrade	
5	750	80	16	2	21.7	3.4	Poor	Subgrade	
5	850	100	20	2	25.6	2.2	Very Poor	Subgrade	
5	925	75	15	2	28.5	3.8	Poor	Subgrade	
6	1030	105	18	2	32.7	2.8	Very Poor	Subgrade	2.2

Hammer Blow Factor: 1 for 17.6 lb Hammer and 2 for 10.1 lb Hammer

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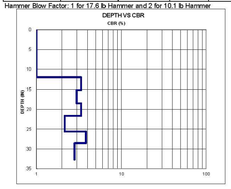

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Very Poor	<30	<3

**Core picture shows approximate thickness

ISSUED FOR SITE PLAN APPROVAL

SME
www.sme-usa.com

Orientation | Scale

Project
UPS HOWELL
EMPLOYEE PARKING LOT
IMPROVOMENTS

Project Location
1183 FENDT DRIVE
HOWELL, MI 48843

Sheet Name
BORING LOGS

Engineer's Seal
STATE OF MICHIGAN
HUGO J. CERON
ENGINEER
No. 67351
PROFESSIONAL
Hugo James Ceron

Revisions

REV	ISSUED FOR	DATE	BY
01	TOWNSHIP COMMENTS	09/23/2020	JAS

Date
09/02/2020

SME Project No.
084617.00

Project Manager:
J. SCHWARTZENBERGER

Designer:
H. CERON

CADD:
H. CERON

Checked By:
B. HART

Reviewed By:
J. SCHWARTZENBERGER

Sheet No.
D-102

PLOT DATE: Sep 22, 2020 - 3:35pm - ceron
FILE LOCATION: \\Sme-inc\pw\WIP\084617.00\CAD\DWGS\SPA\rev6\084617.00-Details.dwg

ELECTRICAL SYMBOL LIST

(NOTE: SOME SYMBOLS AND ABBREVIATIONS SHOWN MAY NOT APPLY TO THIS PROJECT)

SYMBOL	DESCRIPTION
FX (NL)	FIXTURE TYPE (NL INDICATES NIGHT LIGHT)
	LIGHTING FIXTURE
	DIRECT/INDIRECT LIGHTING FIXTURE
	EMERGENCY FIXTURE
	LIGHTING FIXTURE
	WALL MOUNTED LIGHTING FIXTURE
	LIGHTING FIXTURE
	DIRECTIONAL LIGHTING FIXTURE
	PENDANT LIGHTING FIXTURE
	WALL SCONCE
	LIGHTING TRACK
	TRACK LIGHTING FIXTURE
	POLE MOUNTED LIGHTING FIXTURE
	POLE MOUNTED LIGHTING FIXTURE – POST TOP
	BOLLARD LIGHTING FIXTURE
	EMERGENCY LIGHTING UNIT
	EXIT LIGHTING FIXTURE WITH DIRECTIONAL ARROWS (SHADED AREA INDICATES FACE)
	EXIT LIGHTING FIXTURE WITH DIRECTIONAL ARROWS (SHADED AREA INDICATES FACE)
	EXIT LIGHTING FIXTURE – WALL MOUNTED
BCELTS	BRANCH CIRCUIT EMERGENCY LIGHTING TRANSFER SWITCH
ALCR	AUTOMATIC LOAD CONTROL RELAY
LC	LIGHTING CONTROL DEVICE – REFER TO LIGHTING CONTROL SCHEDULE
XX	ROOM CONTROL DESIGNATION – REFER TO LIGHTING CONTROL SCHEDULE
S	SINGLE POLE TOGGLE SWITCH
S2	TWO POLE TOGGLE SWITCH
S3	3 WAY TOGGLE SWITCH
S4	4 WAY TOGGLE SWITCH
K	KEY OPERATED SWITCH
K3	3 WAY KEY OPERATED SWITCH
K4	4 WAY KEY OPERATED SWITCH
D	DIMMER SWITCH
D3	3 WAY DIMMER SWITCH
DO	DIMMER OCCUPANCY SENSOR SWITCH
DL	LOW VOLTAGE DIMMER SWITCH
SP	PILOT SWITCH

SYMBOL	DESCRIPTION
TWC	TWO-WAY COMMUNICATION SYSTEM CALL STATION
TWCD	TWO-WAY COMMUNICATION SYSTEM AUTO DIALER
TWCA	TWO-WAY COMMUNICATION SYSTEM ANNUNCIATOR & COMMUNICATION PANEL
TWCP	TWO-WAY COMMUNICATION SYSTEM POWER SUPPLY WITH BATTERY BACK-UP
TWCDP	TWO-WAY COMMUNICATION SYSTEM AUTO DIALER POWER SUPPLY WITH BATTERY BACK-UP
RGP	REMOTE GENERATOR ANNUCIATOR PANEL
ATS	AUTOMATIC TRANSFER SWITCH
UPS	UNINTERRUPTIBLE POWER SUPPLY
CSX	LOW VOLTAGE CONTROL STATION "X" INDICATES TYPE
	SINGLE/DUPLEX RECEPTACLE
DP	SINGLE/DUPLEX RECEPTACLE CONTROLLED BY AUTOMATIC CONTROL DEVICE/SYSTEM
	QUAD RECEPTACLE
	ABOVE COUNTER DUPLEX RECEPTACLE (SIMILAR FOR TAMPER RESISTANT, QUADS, EMERGENCY, USB AND GFCI RECEPTACLES)
	DUPLEX RECEPTACLE–GROUND FAULT CIRCUIT INTERRUPTER
	DUPLEX EMERGENCY RECEPTACLE
	DUPLEX TAMPER RESISTANT RECEPTACLE
	QUAD TAMPER RESISTANT RECEPTACLE
	ABOVE COUNTER DUPLEX TAMPER RESISTANT RECEPTACLE
	DUPLEX UPS RECEPTACLE
	DUPLEX RECEPTACLE WITH 2 USB PORTS
	4 PORT USB CHARGING STATION
	CEILING MOUNTED DUPLEX RECEPTACLE
	POWER POLE
	SPECIAL RECEPTACLE – REFER TO ELECTRICAL STANDARD SCHEDULES
	MULTI-OUTLET RACEWAY
"X"	MULTI-SERVICE DROP SEE ELECTRICAL DETAILS AND DIAGRAMS SHEET "X" INDICATES TYPE
PTX	POKE-THROUGH ASSEMBLY "X" INDICATES TYPE
FBX	FLOOR SERVICE FITTING "X" INDICATES TYPE
AFX	ACCESS FLOOR SERVICE FITTING "X" INDICATES TYPE
RX	CORD REEL "X" INDICATES TYPE
S	DUAL SWITCHING FOR INNER/OUTER LAMPS OF FLUORESCENT LIGHT FIXTURES
S3S3	3-WAY DUAL SWITCHING FOR INNER/OUTER LAMPS OF FLUORESCENT LIGHT FIXTURES
S4S4	4-WAY DUAL SWITCHING FOR INNER/OUTER LAMPS OF FLUORESCENT LIGHT FIXTURES
ST	DIGITAL TIME SWITCH
SI	ILLUMINATED TOGGLE SWITCH FOR CONTROL OF LIGHTING ON CRITICAL POWER–ILLUMINATED WHEN SWITCH IS IN "OFF" POSITION
SL	LOW VOLTAGE SWITCH
SO	OCCUPANCY SENSOR
SO2	OCCUPANCY SENSOR REFER TO ELECTRICAL STANDARD SCHEDULES
OS X	OCCUPANCY SENSOR "X" INDICATES TYPE

SYMBOL	DESCRIPTION
CP	CONTROL PANEL
	MOTOR
VFC	VARIABLE FREQUENCY CONTROLLER.
	MANUAL CONTROLLER
	MAGNETIC CONTROLLER
	COMBINATION MAGNETIC CONTROLLER
	NON–FUSIBLE DISCONNECT SWITCH
	FUSIBLE DISCONNECT SWITCH
CB	ENCLOSED CIRCUIT BREAKER
	PUSH BUTTON STATION
	JUNCTION BOX
	HARD WIRE POWER CONNECTION
DP	AUTOMATIC DOOR CONTROLLER
PP	AUTOMATIC DOOR PUSH PAD OPERATOR
	GROUND ROD
	GROUND CONNECTION
HH	HANDHOLE
X	CONDUIT SLEEVE WITH BUSHINGS LENGTH AS REQUIRED "X" INDICATES CONDUIT SIZE
	CONDUIT UP
	CONDUIT DOWN
	EMPTY BOX FOR FUTURE TELECOMMUNICATION OUTLET
	ABOVE COUNTER EMPTY BOX FOR FUTURE TELECOMMUNICATION OUTLET
	EMPTY BOX FOR FUTURE CEILING MOUNTED TELECOMMUNICATION OUTLET
	TELECOMMUNICATION OUTLET "X" INDICATES TYPE
	ABOVE COUNTER TELECOMMUNICATION OUTLET "X" INDICATES TYPE
	TELECOMMUNICATION CEILING MOUNTED OUTLET "X" INDICATES TYPE
	TELECOMMUNICATION BACKBOARD
TGB	TELECOMMUNICATION GROUNDING BUS BAR
TMGB	TELECOMMUNICATION MAIN GROUNDING BUS BAR
IC	INTERCOM OUTLET
S	SPEAKER
S	SPEAKER – WALL MOUNTED
MIC	MICROPHONE
VC	VOLUME CONTROL/STATION SELECTOR
B	SIGNALING BELL
	SINGLE FACE CLOCK – CEILING MOUNTED
	SINGLE FACE CLOCK – WALL MOUNTED
	DOUBLE FACE CLOCK – CEILING MOUNTED
S	DOUBLE FACE COMBINATION CLOCK/SPEAKER CEILING MOUNTED
	DOUBLE FACE CLOCK – WALL MOUNTED
S	DOUBLE FACE COMBINATION CLOCK/SPEAKER WALL MOUNTED
VC	TIME CLOCK
C	CONTACTOR
P	PHOTOCELL
TT	TWIST TIMER

REFER TO ELECTRICAL STANDARD SCHEDULES

SYMBOL	DESCRIPTION
	SECURITY CAMERA
MD	MOTION DETECTOR
K	SECURITY KEY SWITCH
DC	DOOR CONTACT
KP	KEY PAD
CR	ACCESS CONTROL STATION
DB	DURESS PUSH BUTTON STATION
DE	DELAYED EGRESS
REX	REQUEST TO EXIT STATION
	CIRCUIT BREAKER
	DRAWOUT CIRCUIT BREAKER MANUALLY/ OPERATED
	DRAWOUT CIRCUIT BREAKER ELECTRICALLY/ OPERATED
	SWITCH
	AUTOMATIC OR MANUAL TRANSFER SWITCH
	FUSE
	TRANSFORMER
	CURRENT TRANSFORMER
	POTENTIAL TRANSFORMER
	LIGHTNING ARRESTOR
X	PANELBOARD "X" INDICATES PANELBOARD NAME
	GROUND
	STRESS CONE TERMINATION
K	SECURITY KEY INTERLOCK
G	ENGINE GENERATOR
M	UTILITY METER
EMU	ELECTRONIC METERING UNIT
A	AMMETER
V	VOLTMETER
AS	AMMETER SWITCH
VS	VOLTMETER SWITCH
SPD	SURGE PROTECTIVE DEVICE
CR	CONTROL RELAY
TDR	TIME DELAY RELAY
	THERMAL OVERLOAD RELAY
	NORMALLY OPEN CONTACTS
	NORMALLY CLOSED CONTACTS
	N.O. PUSH BUTTON SINGLE CIRCUIT
	N.C. PUSH BUTTON SINGLE CIRCUIT
X–X	CABLE VAULT "X–X" INDICATES TYPE
	BRANCH CIRCUIT PANELBOARD
	LOAD CENTER
	MOTOR CONTROL CENTER
T	TRANSFORMER
	DISTRIBUTION PANEL
GB	GROUND BUS
PB	PLUG IN BUSWAY
FB	FEEDER BUSWAY

SYMBOL	DESCRIPTION
F	MANUAL FIRE ALARM BOX
SD	SMOKE DETECTOR
DD	DUCT SMOKE DETECTOR
CO	CARBON MONOXIDE DETECTOR
TD	THERMAL DETECTOR
BD	PROJECTED BEAM DETECTOR
F	FIRE ALARM BELL
F	FIRE ALARM AUDIBLE NOTIFICATION APPLIANCE
XX	FIRE ALARM VISUAL NOTIFICATION APPLIANCE "XX" INDICATES CANDELA RATING IF NO RATING SHOWN, APPLIANCE IS 15cd
XX	FIRE ALARM COMBINATION VISUAL/ AUDIBLE "XX" INDICATES CANDELA RATING IF NO RATING SHOWN, APPLIANCE IS 15cd
F XX	FIRE ALARM COMBINATION VISUAL/ AUDIBLE NOTIFICATION APPLIANCE– CEILING MOUNTED "XX" INDICATES CANDELA RATING IF NO RATING SHOWN, APPLIANCE IS 15cd
XX	FIRE ALARM VISUAL NOTIFICATION APPLIANCE CEILING MOUNTED "XX" INDICATES CANDELA RATING IF NO RATING SHOWN, APPLIANCE IS 15cd
F	FIRE ALARM AUDIBLE NOTIFICATION APPLIANCE – CEILING MOUNTED
F	FIREFIGHTERS PHONE JACK
FACP	FIRE ALARM CONTROL PANEL
FAA	FIRE ALARM ANNUNCIATOR PANEL
NAC	NOTIFICATION APPLIANCE CIRCUIT EXTENDER PANEL
IM	ADDRESSABLE MONITORING MODULE
CM	ADDRESSABLE CONTROL MODULE
TS	TAMPER SWITCH
FS	FLOW SWITCH
DR	MAGNETIC DOOR RELEASE

ELECTRICAL DRAWING INDEX

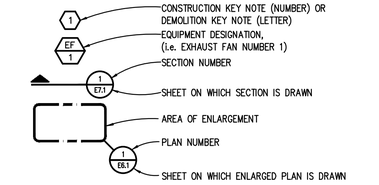
ELECTRICAL ABBREVIATION LIST

ABBREVIATION	DESCRIPTION
A	AMPERES
AER	ARC ENERGY REDUCTION
AF	AMPERES FRAME (BREAKER RATING)
AFCI	ARC FAULT CIRCUIT INTERRUPTER
A.F.F.	ABOVE FINISH FLOOR
AIC	AMPS INTERRUPTING CAPACITY
AL	AUDIENCE LEFT
AR	AUDIENCE RIGHT
AT	AMPERES TRIP (BREAKER SETTING)
ATS	AUTOMATIC TRANSFER SWITCH
AUX	AUXILIARY
BKR	BREAKER
BPS	BOLTED PRESSURE SWITCH
C	CONDUIT
CB	CIRCUIT BREAKER
CFCI	CONTRACTOR FURNISHED, CONTRACTOR INSTALLED
CKT	CIRCUIT
CT	CURRENT TRANSFORMER
DEMO	DEMOLITION
DIM	DIMENSION
DISC	DISCONNECT
DP	DISTRIBUTION PANEL
DS	DOWNSTAGE
DWG	DRAWING
EBU	EMERGENCY BATTERY UNIT
EC	ELECTRICAL CONTRACTOR
ELEC	ELECTRICAL
EM/ EMERG	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
EO	ELECTRICALLY OPERATED
EPO	EMERGENCY POWER OFF
EWC	ELECTRIC WATER COOLER
EXIST	EXISTING
FA	FIRE ALARM
FLA	FULL LOAD AMPS
FLR	FLOOR
FOH	FRONT OF HOUSE
FSEC	FOOD SERVICE EQUIPMENT CONTRACTOR
FU	FUSE
G/GRD/EG	GROUND
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFP	GROUND FAULT PROTECTION
HOA	HAND–OFF–AUTO
HP	HORSEPOWER
HV	HIGH VOLTAGE
HZ	HERTZ
IG	ISOLATED GROUND

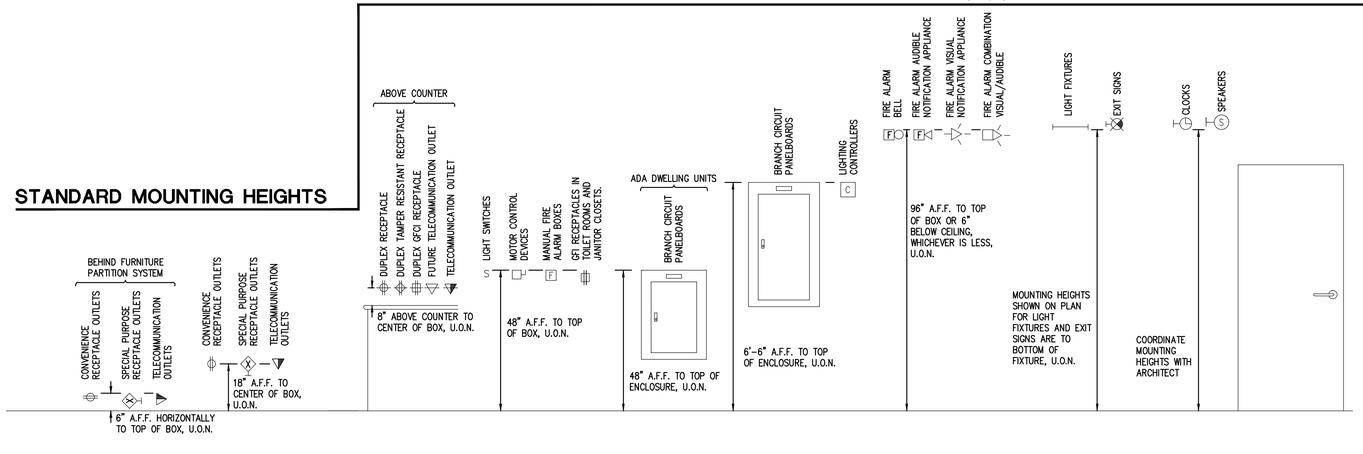
ABBREVIATION	DESCRIPTION
JB	JUNCTION BOX
KA	THOUSAND AMP
KV	KILOVOLT
KVA	KILOVOLT – AMPERES
KW	KILOWATT
KWH	KILOWATT – HOURS
LA	LIGHTNING ARRESTOR
LP	LIGHTING PANEL
LDP	LIGHTING DISTRIBUTION PANEL
MAX	MAXIMUM
MCA	MINIMUM CIRCUIT AMPACITY
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MDP	MAIN DISTRIBUTION PANEL
MECH	MECHANICAL
MIN	MINIMUM
MISC.	MISCELLANEOUS
MLO	MAIN LUGS ONLY
MOP	MAXIMUM OVERCURRENT PROTECTION
MTD	MOUNTED
MTG	MOUNTING
MTR	MOTOR
N	NEUTRAL
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NF	NON–FUSIBLE
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OC	ON CENTER
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED, OWNER INSTALLED

ABBREVIATION	DESCRIPTION
P	POLE
PB	PUSHBUTTON STATION
PH	PHASE
PT	POTENTIAL TRANSFORMER
PDP	POWER DISTRIBUTION PANEL
RECEPT.	RECEPTACLE
RDP	RECEPTACLE DISTRIBUTION PANEL
RP	RECEPTACLE PANEL
RSC	RIGID STEEL CONDUIT
SCCR	SHORT CIRCUIT CURRENT RATING
SCHED	SCHEDULE
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TB	TERMINAL BOX
TELECOM	TELECOMMUNICATIONS
TR	TAMPER RESISTANT
TTB	TELEPHONE TERMINAL BACKBOARD
TYP	TYPICAL
U.O.N.	UNLESS OTHERWISE NOTED
US	UPSTAGE
V	VOLTS
W	WIRE OR WATTS
WG	WIRE GUARD
WP	WEATHERPROOF
XFMR	TRANSFORMER
XP	EXPLOSION PROOF
(E)	EXISTING
(R)	RELOCATED

STANDARD METHODS OF NOTATION



STANDARD MOUNTING HEIGHTS



ISSUED FOR SITE PLAN APPROVAL

Not For Construction

SME
www.sme-usa.com

Peter Basso Associates Inc
CONSULTING ENGINEERS
5145 Livernois, Suite 100
Troy, Michigan 48098-3276
Tel: 248-879-5666 Fax: 248-879-0007
www.PeterBassoAssociates.com
PBA Project No. 2020.0233

Project

UPS HOWELL
EMPLOYEE PARKING LOT
IMPROVEMENTS

Project Location

1183 FENDT DRIVE
HOWELL, MI 48834

Sheet Name

ELECTRICAL STANDARDS AND DRAWING INDEX

Engineer's Seal

STATE OF MICHIGAN
MYRON SCOTT GIBBS
ENGINEER
No. 61469
LICENSED PROFESSIONAL ENGINEER

DATE SIGNED: 09-02-2020

Revisions

REV	ISSUED FOR	DATE	BY

811
Know what's below.
Call before you dig.
Min. Three Days prior to digging

Date: 09/02/2020

SME Project No.: 084617.00

Project Manager: S. GIBBS

Designer: B. REYNOLDS

CADD: D. ABB

Checked By: S. GIBBS

Sheet No.: **E001**

PLOT DATE: Sep 01, 2020 - 2:44pm - rhamid

FILE LOCATION: \\pba\local\projects\2020\2020-0233-00\CAD\2020-0233-E0-IND.dwg

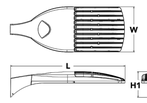
D-Series Size 1
LED Area Luminaire

Catalog Number
Notes
Type OL1

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

Specifications

EPA:	1.01 ft² (0.09 m²)
Length:	33" (83.8 cm)
Width:	13" (33.0 cm)
Height H1:	7-1/2" (19.0 cm)
Height H2:	3-1/2"
Weight (max):	27 lbs (12.2 kg)



Introduction

The modern styling of the D-Series is striking yet unobtrusive - making a bold, progressive statement even as it blends seamlessly with its environment. The D-Series distills the benefits of the latest in LED technology into a high performance, high efficacy, long-life luminaire.

The outstanding photometric performance results in sites with excellent uniformity, greater pole spacing and lower power density. It is ideal for replacing up to 750W metal halide in pedestrian and area lighting applications with typical energy savings of 65% and expected service life of over 100,000 hours.

ACCEPTABLE ALTERNATE MANUFACTURERS:
1. COOPER LIGHTING "GALLEON" SERIES
2. HUBBELL LIGHTING "VIPER L" SERIES

A+ Capable options indicated by this color background.

Ordering Information

EXAMPLE: DSX1 LED P7 40K T3M MVOLT SPA NLTAIR2 PIRHN DDBXD

DSX1 LED

Series	LEDs	Color temperature	Distribution	Voltage	Mounting
DSX1 LED	**Forward optics** P1 P4 P7 P2 P5 P8 P3 P6 P9 **Rotated optics** P10[1] P12[1] P11[1] P13[1]	30K 3000 K 40K 4000 K 50K 5000 K	T1S Type I short (Automotive) T2S Type II short T2M Type II medium T3S Type III short T3M Type III medium T4M Type IV medium TFTM Forward throw medium T5VS Type V very short[1] T5S Type V short[1] T5M Type V medium[1] T5W Type V wide[1] BLC Backlight control[1] LCCO Left corner cutoff[1] RCCO Right corner cutoff[1]	MVOLT[*] 120[1] 208[1] 240[1] 277[1] 347[1] 480[1]	**Shipped included** SPA Square pole mounting RPA Round pole mounting WBA Wall bracket[1] SPUMBA Square pole universal mounting adaptor[4] RPUMBA Round pole universal mounting adaptor[4] **Shipped separately** KMA8 DDBXD U Mast arm mounting bracket adaptor (specify finish)[1]

Control options	Other options	Finish (required)
Shipped installed NLTAIR2 nLight AIR generation 2 enabled[1] PIRHN Network, high/low motion/ambient sensor[1] PER NEMA twist-lock receptacle only (controls ordered separate)[10] PER5 Five-pin receptacle only (controls ordered separate)[10,11] PER7 Seven-pin receptacle only (controls ordered separate)[10,11] DMG 0-10v dimming wires pulled outside fixture (for use with an external control, ordered separately)[11] DS Dual switching[12,14,15]	**Shipped installed** HS House-side shield[18] SF Single fuse (120, 277, 347V)[1] DF Double fuse (208, 240, 480V)[1] L90 Left rotated optics[1] R90 Right rotated optics[1] **Shipped separately** BS Bird spikes[18] EGS External glare shield	DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white
PIR High/low, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 5fc[16,17] PIRH High/low, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 5fc[16,17] PIR1FCSV High/low, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 1fc[16,17] PIRH1FCSV Bi-level, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 1fc[16,17] FAO Field adjustable output[19]		

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COMMERCIAL OUTDOOR

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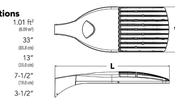
D-Series Size 1
LED Area Luminaire

Catalog Number
Notes
Type OL2

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

Specifications

EPA:	1.01 ft² (0.09 m²)
Length:	33" (83.8 cm)
Width:	13" (33.0 cm)
Height H1:	7-1/2" (19.0 cm)
Height H2:	3-1/2"
Weight (max):	27 lbs (12.2 kg)



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ACCEPTABLE ALTERNATE MANUFACTURERS:
1. COOPER LIGHTING "GALLEON" SERIES
2. HUBBELL LIGHTING "VIPER L" SERIES

A+ Capable options indicated by this color background.

Ordering Information

EXAMPLE: DSX1 LED P7 40K T3M MVOLT SPA NLTAIR2 PIRHN DDBXD

DSX1 LED

Series	LEDs	Color temperature	Distribution	Voltage	Mounting
DSX1 LED	**Forward optics** P1 P4 P7 P2 P5 P8 P3 P6 P9 **Rotated optics** P10[1] P12[1] P11[1] P13[1]	30K 3000 K 40K 4000 K 50K 5000 K	T1S Type I short (Automotive) T2S Type II short T2M Type II medium T3S Type III short T3M Type III medium T4M Type IV medium TFTM Forward throw medium T5VS Type V very short[1] T5S Type V short[1] T5M Type V medium[1] T5W Type V wide[1] BLC Backlight control[1] LCCO Left corner cutoff[1] RCCO Right corner cutoff[1]	MVOLT[*] 120[1] 208[1] 240[1] 277[1] 347[1] 480[1]	**Shipped included** SPA Square pole mounting RPA Round pole mounting WBA Wall bracket[1] SPUMBA Square pole universal mounting adaptor[4] RPUMBA Round pole universal mounting adaptor[4] **Shipped separately** KMA8 DDBXD U Mast arm mounting bracket adaptor (specify finish)[1]

Control options	Other options	Finish (required)
Shipped installed NLTAIR2 nLight AIR generation 2 enabled[1] PIRHN Network, high/low motion/ambient sensor[1] PER NEMA twist-lock receptacle only (controls ordered separate)[10] PER5 Five-pin receptacle only (controls ordered separate)[10,11] PER7 Seven-pin receptacle only (controls ordered separate)[10,11] DMG 0-10v dimming wires pulled outside fixture (for use with an external control, ordered separately)[11] DS Dual switching[12,14,15]	**Shipped installed** HS House-side shield[18] SF Single fuse (120, 277, 347V)[1] DF Double fuse (208, 240, 480V)[1] L90 Left rotated optics[1] R90 Right rotated optics[1] **Shipped separately** BS Bird spikes[18] EGS External glare shield	DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white
PIR High/low, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 5fc[16,17] PIRH High/low, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 5fc[16,17] PIR1FCSV High/low, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 1fc[16,17] PIRH1FCSV Bi-level, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 1fc[16,17] FAO Field adjustable output[19]		

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DSX1-LED
Rev. 02/05/20
Page 1 of 8

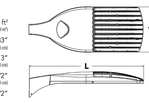
D-Series Size 1
LED Area Luminaire

Catalog Number
Notes
Type OL3

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

Specifications

EPA:	1.01 ft² (0.09 m²)
Length:	33" (83.8 cm)
Width:	13" (33.0 cm)
Height H1:	7-1/2" (19.0 cm)
Height H2:	3-1/2"
Weight (max):	27 lbs (12.2 kg)



Introduction

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ACCEPTABLE ALTERNATE MANUFACTURERS:
1. COOPER LIGHTING "GALLEON" SERIES
2. HUBBELL LIGHTING "VIPER L" SERIES

A+ Capable options indicated by this color background.

Ordering Information

EXAMPLE: DSX1 LED P7 40K T3M MVOLT SPA NLTAIR2 PIRHN DDBXD

DSX1 LED

Series	LEDs	Color temperature	Distribution	Voltage	Mounting
DSX1 LED	**Forward optics** P1 P4 P7 P2 P5 P8 P3 P6 P9 **Rotated optics** P10[1] P12[1] P11[1] P13[1]	30K 3000 K 40K 4000 K 50K 5000 K	T1S Type I short (Automotive) T2S Type II short T2M Type II medium T3S Type III short T3M Type III medium T4M Type IV medium TFTM Forward throw medium T5VS Type V very short[1] T5S Type V short[1] T5M Type V medium[1] T5W Type V wide[1] BLC Backlight control[1] LCCO Left corner cutoff[1] RCCO Right corner cutoff[1]	MVOLT[*] 120[1] 208[1] 240[1] 277[1] 347[1] 480[1]	**Shipped included** SPA Square pole mounting RPA Round pole mounting WBA Wall bracket[1] SPUMBA Square pole universal mounting adaptor[4] RPUMBA Round pole universal mounting adaptor[4] **Shipped separately** KMA8 DDBXD U Mast arm mounting bracket adaptor (specify finish)[1]

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DSX1-LED
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LITHONIA LIGHTING®

FEATURES & SPECIFICATIONS

Catalog Number
Notes
Type

INTENDED USE — Round tapered aluminum general purpose pole for up to 30 foot mounting heights.

CONSTRUCTION — Spun-tapered seamless 6063 alloy aluminum tubing, heat-treated to produce a T6 temper. Circumferential satin-brushed finish. The shaft is cone-tapered to the butt diameter.

Anchor base: Cast from A356 alloy aluminum, the anchor base is heat-treated to a T6 condition. The anchor base telescopes the pole shaft and is circumferentially welded at both the top and the bottom.

Hand hole: A nominal 3" x 5" or 4" x 6" reinforced flush-covered handhole is centered 18" above the base.

Hardware: Stainless steel.

Top cap: Removable top cap provided with all drill-mount poles.

Bolt covers: A16 bolt covers are included with anchor base unless otherwise specified. 3RTA poles include spun aluminum base cover.

Finish: Must specify finish.

Grounding: Provision located inside hand hole rim. Grounding hardware is not included (provided by others).

Anchor bolts: Top portion of anchor bolt is galvanized per ASTM A-153. Made of steel rod having a minimum yield strength of 55,000 psi.

Note: Specifications subject to change without notice.

Anchor Base Poles

RTA

ROUND TAPERED ALUMINUM
FLORIDA RATINGS

ORDERING INFORMATION — Lead times will vary depending on options selected. Consult with your sales representative.

Example: RTA 25 6E DM19 BA

Series	Nominal fixture mounting height	Nominal shaft base size/wall thickness	Mounting[1]	Options	Finish[11]
RTA	20 – 50 feet (See back page.)	(See back page.)	Tenon mounting PT Open top T20 2-3/8" O.D. (2" NPS) T25 2-7/8" O.D. (2-1/2" NPS) T30 3-1/2" O.D. (3" NPS)[2] T35 4" O.D. (3-1/2" NPS)[2,3] Drill mounting[4] DM19 1 at 90° DM28 2 at 180° DM28PL 2 at 180° with one side plugged DM29 2 at 90° DM32 2 at 120° DM39 3 at 90° DM49 4 at 90° CSX/OSX/AERBS™/OMERO™ Drill mounting[4] DM19AS 1 at 90° DM28AS 2 at 180° DM29AS 2 at 90° DM32AS 3 at 120° DM39AS 3 at 90° DM49AS 4 at 90° AERBS™ Suspend drill mounting[4,5] DMxxAST_ 1 at 90° OMERO™ Suspend drill mounting[4,5] DMxxMRT_ 1 at 90°	Shipped installed LJ6B Less anchor bolts FBC Full base cover VD Vibration damper TP Tamper proof H1-18Axx Horizontal arm bracket (1 fixture)[6,8] FOLxx Festoon outlet less electrical[7] CPL12xx 1/2" coupling[7] CPL34xx 3/4" coupling[7] CPLTxx 1" coupling[7] NPL12xx 1/2" threaded nipple[7] NPL34xx 3/4" threaded nipple[7] NPLTxx 1" threaded nipple[7] EHHxx Extra handhole[9,7] MAKEX Match existing[4] USPOM United States point of manufacture[10]	Standard colors DDB Dark bronze DWH White DBL Black DMB Medium bronze DNA Natural aluminum BA Brushed aluminum Classic colors DSS Sandstone DGC Charcoal gray DTG Tennis green DBR Bright red DSB Steel blue Class 1 architectural anodized ABL Black ADB Dark bronze ANA Natural Architectural colors (powder finish)[11]

AS APPLICABLE PER DRAWINGS

NOTES:
1. When ordering tenon mounting and drill mounting for the same pole, follow this example: DM28/T20. The combination includes a required extra handhole.
2. N/A with 4C, 5C, 5E and 5G because pole top is too small.
3. N/A with 6E, 6G and 7E because pole top is too small.
4. The drilling template to be used for a particular luminaire depends on the luminaire that is used. Refer to the Technical Data Section on www.lithonia.com for Drilling Templates.
5. Specify location and orientation when ordering option. For 1st x specify the height in feet above base of pole. Example: 3B = 3 and 2BB = 20
   For 2nd x, specify orientation from handhole (A,B,C,D)
   Refer to the Handhole Orientation diagram on page 577 in PSGD.
6. Horizontal arm is 18" x 2-3/8" O.D. standard.
7. Combination of tenon-top and drill mount includes extra handhole.
8. Insert "1" or "2" to designate fixture size; e.g. DM19AS2Z.
9. Must add original order number.
10. Use when mill certifications are required.
11. Finish must be specified. Additional colors available; see www.lithonia.com/archcolors or Architectural Colors brochure (Form No. TPA.3).

HANDHOLE ORIENTATION

IMPORTANT INSTALLATION NOTES:
- **Do not** erect poles without having fixtures installed.
- Factory-supplied templates must be used when setting anchor bolts. Lithonia Lighting will not accept claim for incorrect anchorage placement due to failure to use factory template.
- If poles are stored outside, all protective wrapping must be removed immediately upon delivery to prevent finish damage.
- Lithonia Lighting is not responsible for the foundation design.

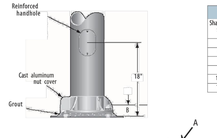
RTA-FLA Round Tapered Aluminum Poles

TECHNICAL INFORMATION

Catalog Number	Nominal mount ht. (ft)	Pole Shaft Size (in x ft)	Wall Thick (in)	EPA (ft2) 1.3 gust 100 mph	EPA (ft2) 1.3 gust Max. weight	EPA (ft2) Max 3 sec. gust 130 mph	EPA (ft2) Max 3 sec. gust Max. weight (lbs)	EPA (ft2) 150 mph	EPA (ft2) Max. weight (lbs)	Bolt Circle (in)	Bolt Size (in. x in. x in.)	Approximate ship weight (lbs.)
RTA 20 5C	20	5 x 3 x 19.8'	0.125	1.60	100	1.20	100	0.0	0	7.5 - 9.5	.75 x 18 x 3	62
RTA 20 5G	20	5 x 3 x 19.8'	0.188	3.80	100	3.10	100	2.0	100	7.5 - 9.5	.75 x 18 x 3	72
RTA 20 6G	20	6 x 4 x 19.8'	0.188	7.22	214	6.10	100	4.3	100	9 - 10	.75 x 30 x 3	107
RTA 20 7E	20	7 x 4 x 19.8'	0.156	9.00	256	7.50	100	5.3	100	9.875 - 11.25	1 x 36 x 4	103
RTA 25 6E	25	6 x 4 x 24.8'	0.156	2.60	114	1.80	200	1.0	200	9 - 10	.75 x 30 x 3	106
RTA 25 7E	25	7 x 4 x 24.8'	0.156	5.40	162	4.10	200	2.8	200	9.875 - 11.25	1 x 36 x 4	120
RTA 25 8E	25	8 x 4.5 x 24.8'	0.156	8.50	220	6.80	200	4.8	200	11 - 12	1 x 36 x 4	130
RTA 25 8G	25	8 x 4.5 x 24.8'	0.188	10.90	261	8.80	200	6.2	200	11 - 12	1 x 36 x 4	153
RTA 30 7E	30	7 x 4 x 29.8'	0.156	2.70	111	1.70	200	0.8	200	9.875 - 11.25	1 x 36 x 4	135
RTA 30 8E	30	8 x 4.5 x 29.8'	0.156	5.30	151	4.00	200	2.6	200	11 - 12	1 x 36 x 4	150
RTA 30 8G	30	8 x 4.5 x 29.8'	0.188	7.30	9	5.60	200	3.7	200	11 - 12	1 x 36 x 4	175
RTA 30 10G	30	10 x 6 x 29.8'	0.188	14.30	377	11.40	225	7.7	225	14 - 15	1 x 40 x 4	235
RTA 35 8E	35	8 x 4.5 x 34.8'	0.156	2.90	119	1.80	225	0.8	225	11 - 12	1 x 36 x 4	185
RTA 35 8G	35	8 x 4.5 x 34.8'	0.188	4.50	141	3.20	225	1.9	225	11 - 12	1 x 36 x 4	220
RTA 35 8J	35	8 x 4.5 x 34.8'	0.250	7.50	183	5.70	225	3.8	225	11 - 12	1 x 36 x 4	251
RTA 35 10G	35	10 x 6 x 34'8"	0.188	10.40	295	7.90	225	5.1	225	14 - 15	1 x 40 x 4	268
RTA 39 8G	39	8 x 4.5 x 38.8'	0.188	2.70	122	1.60	225	0.6	225	11 - 12	1 x 36 x 4	250
RTA 39 8J	39	8 x 4.5 x 38.8'	0.250	5.40	158	3.80	225	2.3	225	11 - 12	1 x 36 x 4	280
RTA 39 10G	39	10 x 6 x 38.8'	0.188	7.80	253	6.00	225	3.6	225	14 - 15	1 x 40 x 4	295
RTA 39 10J	39	10 x 6 x 38.8'	0.250	11.90	300	9.60	225	6.2	225	14 - 15	1.25 x 48 x 5	373
RTA 50 10J	50	10 x 6 x 49.8'	0.250	6.50	300	4.000	225	1.8	225	14 - 15	1.25 x 48 x 6	395

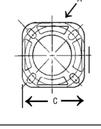
Pole to be 27'-6" in height

BASE DETAIL



POLE DATA

Shaft base size	Bolt circle A	Bolt projection B	Base square C	Ybolt bolt description	Warehouse Anchor description	Template number
5"	7.5" – 9.5"	3.25"	9.25"	ABR1A-5	AB18-0	P500032
6"	9" – 10"	3.50"[13]	10"	ABR1A-6	AB30-0	P500033
7"	9.875" – 11.25	4.125"	10.5"	ABR1A-7	AB36-0	P500034
8"	11" – 12"	4.25"	11.5"	ABR1A-8	AB36-0	P500035
10" G	14" - 15"	4.50"	14.5"	ABR1A-10G	n/a	P500036
10" J	14" - 15"	5"	14.5"	ABR1A-10J	n/a	P500063



IMPORTANT:
These specifications are intended for general purposes only. Lithonia reserves the right to change material or design, without prior notice, in a continuing effort to upgrade its products.

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An AcuityBrands Company

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Rev. 03/29/12

RACEWAY / CONDUCTOR / CABLE APPLICATION SCHEDULE

		WIRE		RACEWAY			
		COPPER, TYPE THHN/THWN-2	COPPER, TYPE XHHW-2	ELECTRICAL METALLIC TUBING (EMT)	RIGID STEEL CONDUIT (RSC)	RIGID NON-METALLIC CONDUIT (RNC) TYPE EPC-40	HIGH DENSITY POLYETHYLENE (HDPE) SCHEDULE 40
BRANCH CIRCUITS - EXTERIOR	EXPOSED, SURFACE MOUNTED TO STRUCTURE		X		X		
	BELOW PARKING LOTS AND ROADWAYS		X		X	X	X
	BELOW GREEN SPACE		X			X	
	WITHIN 5' OF FOUNDATION WALL		X		X		
BRANCH CIRCUITS - INTERIOR	EXPOSED, BELOW 10' AFF AND SUBJECT TO DAMAGE	X			X		
	EXPOSED, BELOW 10' AFF AND NOT SUBJECT TO DAMAGE	X		X			
	EXPOSED, ABOVE 10' AFF UNFINISHED SPACES	X		X			
	DAMP AND WET LOCATIONS	X			X	X	

GENERAL NOTES:
1. TRANSITION FROM PVC/HDPE AND PROVIDE RIGID STEEL SWEEPS WHERE CONDUITS PENETRATE WALLS, CONCRETE SLABS, CONCRETE BASES, AND ASPHALT.

NOTE: SOME SYMBOLS AND ABBREVIATIONS SHOWN MAY NOT APPLY TO THIS PROJECT.

ISSUED FOR SITE PLAN APPROVAL

Not For Construction

SME
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Peter Basso Associates Inc
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5145 Livernois, Suite 100
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PBA Project No.: 2020.0233

Project

UPS HOWELL
EMPLOYEE PARKING LOT
IMPROVEMENTS

Project Location

1183 FENDT DRIVE
HOWELL, MI 48834

Sheet Name

ELECTRICAL SCHEDULES AND LIGHTING CUTSHEETS

Engineer's Seal

STATE OF MICHIGAN
MYRON SCOTT GIBBS
ENGINEER
No. 61469
LICENSED PROFESSIONAL ENGINEER

DATE SIGNED: 09-02-2020

Revisions

REV	ISSUED FOR	DATE	BY

811
Know what's below.
Call before you dig.
Min. Three Days prior to digging

Date: 09/02/2020

SME Project No.: 084617.00

Project Manager: S. GIBBS

Designer: B. REYNOLDS

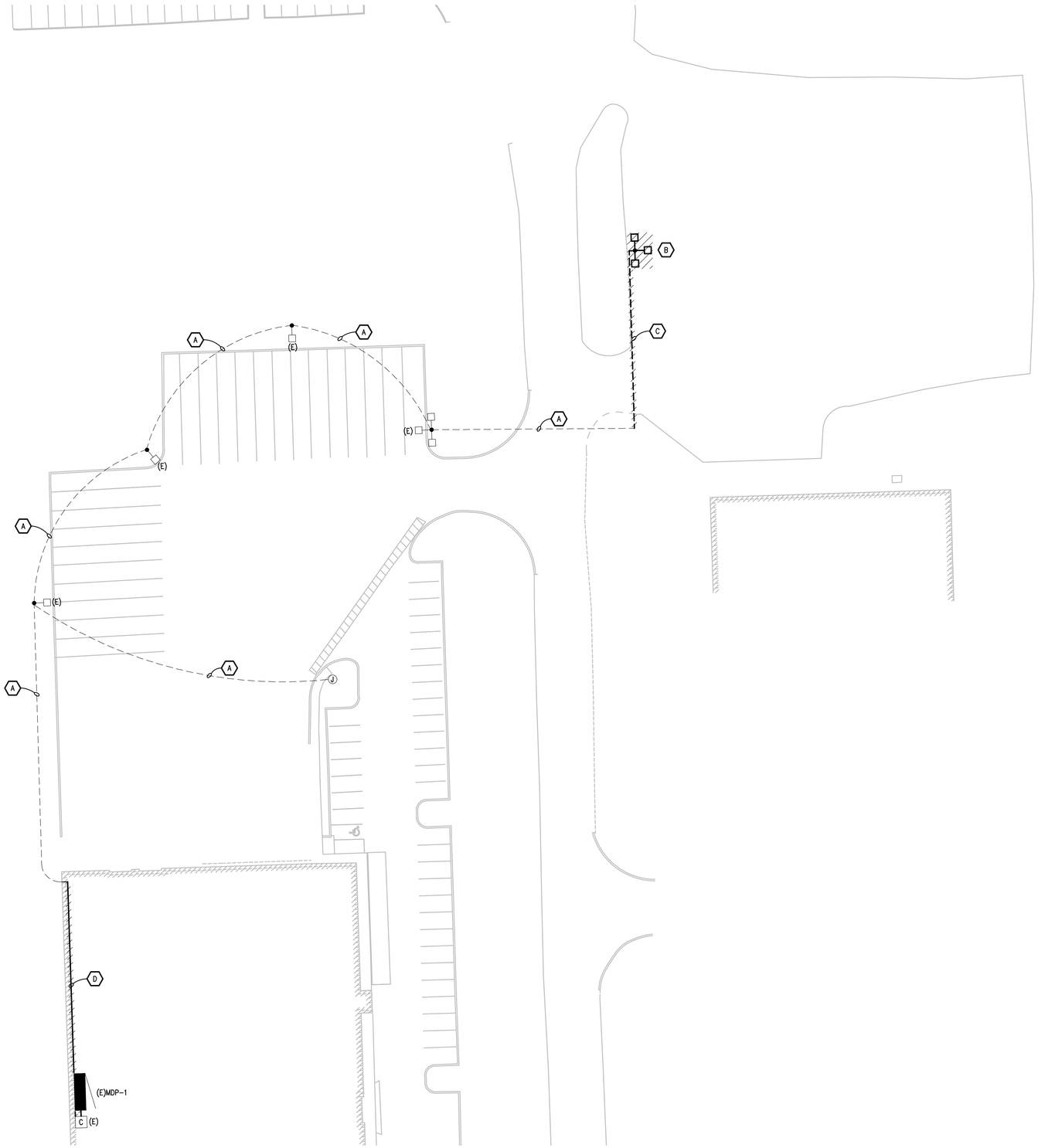
CADD: D. ABB

Checked By: S. GIBBS

Sheet No.: **E002**

PLOT DATE: Sep 01, 2020 - 2:44pm - nhamid
FILE LOCATION: \\pba.local\projects\2020\2020-0233-00\CAD\2020-0233-E0-IND.dwg

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



ELECTRICAL DEMOLITION SITE PLAN
SCALE: 1" = 30'

SITE PLAN GENERAL NOTES:

1. THESE NOTES ARE GENERIC GUIDELINES ONLY. ELECTRICAL CONTRACTOR'S PERSONNEL ON SITE SHALL BE THOROUGHLY FAMILIAR WITH THE PUBLISHED SPECIFICATIONS FOR EXACT DESCRIPTIONS OF SCOPE, METHODS, AND MATERIAL.
2. THESE DRAWINGS REPRESENT THE GENERAL EXTENT AND ARRANGEMENT OF SYSTEMS, BUT ARE NOT TO BE CONSIDERED FABRICATION DRAWINGS. COORDINATE WITH OTHER TRADES, AND PROVIDE EACH SYSTEM COMPLETE, INCLUDING ALL NECESSARY COMPONENTS, FITTINGS, AND OFFSETS.
3. CONDUCT A SURVEY TO IDENTIFY ALL UNDERGROUND UTILITIES. CALL 811 PRIOR TO EXCAVATION.
4. UTILITIES SHOWN ON THESE DRAWINGS ARE FOR REFERENCE ONLY. COORDINATE EXACT LOCATION OF ALL EXISTING UTILITIES, AND ROUTING OF ALL NEW UNDERGROUND UTILITIES PRIOR TO EXCAVATION.
5. DEWATER TRENCHES PRIOR TO INSTALLATION OF CONDUITS. PROVIDE WATER TIGHT FITTINGS ON ALL UNDERGROUND CONDUITS.
6. COORDINATE DEMOLITION WORK, AND ELECTRICAL AND TELEPHONE SERVICES TO THE SITE, WITH THE RESPECTIVE LOCAL UTILITY COMPANY REPRESENTATIVES PRIOR TO COMMENCEMENT OF WORK. INCLUDE ALL ASSOCIATED COST/FEES BY THE UTILITY COMPANIES IN THE BID PRICE.
7. INSTALL UNDERGROUND CONDUITS 42" BELOW FINISHED GRADE, MINIMUM, UNLESS NOTED OTHERWISE.
8. COORDINATE SERVICE SHUT-DOWNS WITH ALL TRADES INVOLVED ON SITE AND OBTAIN WRITTEN AUTHORIZATION FROM OWNER 72 HOURS PRIOR TO ANY ELECTRICAL AND/OR TELEPHONE SHUT-DOWN.
9. REMOVE ALL DE-ENERGIZED CONDUCTORS FROM SITE AT COMPLETION OF THE PROJECT.
10. OUTDOOR LIGHTING BRANCH CIRCUIT WIRING SHALL BE MINIMUM #8 AWG CONDUCTORS (XHHW-2), IN MINIMUM 1" DIA. CONDUIT, UNLESS NOTED OTHERWISE.
11. SPARE CONDUITS SHALL INCLUDE PULL STRING AND SHALL BE TERMINATED WITH A CAP.
12. EXCAVATE THE ENTIRE LENGTH OF TRENCH TO PROPERLY SET DUCT ELEVATIONS.

(#) DEMOLITION KEY NOTES:

A. REMOVE CONDUCTORS IN ALL EXTERIOR CONDUIT BACK TO SOURCE. EXTERIOR CONDUIT TO REMAIN WHERE INDICATED.

B. REMOVE POLE, BASE, AND LIGHTING FIXTURES COMPLETE. TURN FIXTURES OVER TO OWNER.

C. REMOVE CONDUIT WHERE INDICATED.

D. REMOVE CONDUIT AND CONDUCTORS FOR PARKING LOT LIGHTING INSIDE BUILDING BACK TO SOURCE.

Know what's **below.**
Call before you dig.

ISSUED FOR SITE PLAN APPROVAL

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PBA Project No. 2020.0233

Project
UPS HOWELL
EMPLOYEE PARKING LOT
IMPROVEMENTS

Project Location
1183 FENDT DRIVE
HOWELL, MI 48834

Sheet Name
ELECTRICAL DEMOLITION SITE PLAN

Engineer's Seal
STATE OF MICHIGAN
MYRON SCOTT GIBBS
ENGINEER
No. 61469
LICENSED PROFESSIONAL ENGINEER
DATE SIGNED: 09-02-2020

Revisions

REV	ISSUED FOR	DATE	BY

Know what's **below.**
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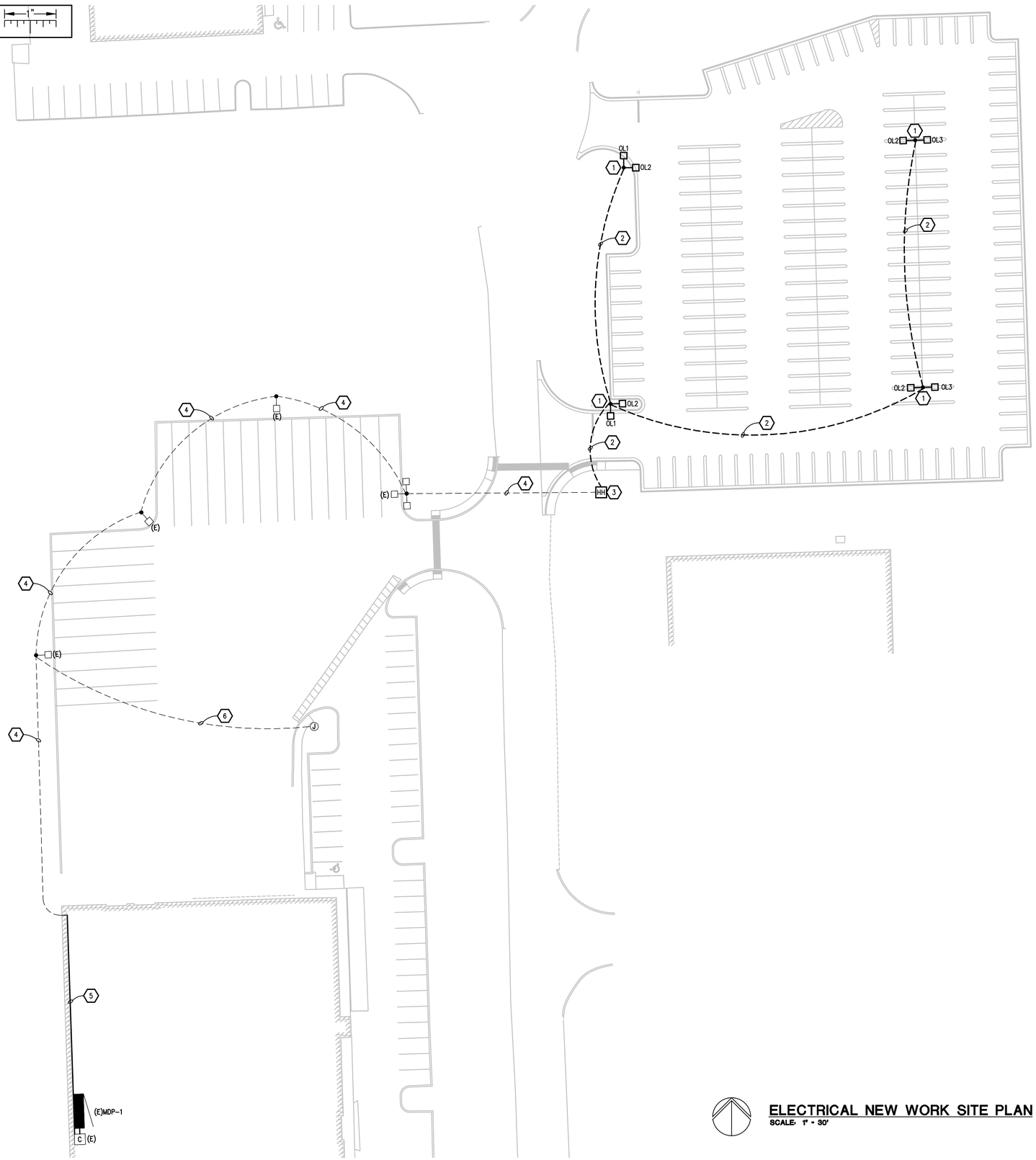
Min. Three Days prior to digging

Date: 09/02/2020
SME Project No.: 084617.00
Project Manager: S. GIBBS
Designer: B. REYNOLDS
CADD: D. ABB
Checked By: S. GIBBS
Sheet No.: **E003**

PLOT DATE: Sep 01, 2020 - 2:45pm - rhamid
FILE LOCATION: \\pba.local\projects\2020\2020-0233-00\CAD\2020-0233-E0-SPD.dwg

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



ELECTRICAL NEW WORK SITE PLAN
SCALE: 1" = 30'

SITE PLAN GENERAL NOTES:

1. THESE NOTES ARE GENERIC GUIDELINES ONLY. ELECTRICAL CONTRACTOR'S PERSONNEL ON SITE SHALL BE THOROUGHLY FAMILIAR WITH THE PUBLISHED SPECIFICATIONS FOR EXACT DESCRIPTIONS OF SCOPE, METHODS, AND MATERIAL.
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3. CONDUCT A SURVEY TO IDENTIFY ALL UNDERGROUND UTILITIES. CALL 811 PRIOR TO EXCAVATION.
4. UTILITIES SHOWN ON THESE DRAWINGS ARE FOR REFERENCE ONLY. COORDINATE EXACT LOCATION OF ALL EXISTING UTILITIES, AND ROUTING OF ALL NEW UNDERGROUND UTILITIES PRIOR TO EXCAVATION.
5. DEWATER TRENCHES PRIOR TO INSTALLATION OF CONDUITS. PROVIDE WATER TIGHT FITTINGS ON ALL UNDERGROUND CONDUITS.
6. COORDINATE DEMOLITION WORK, AND ELECTRICAL AND TELEPHONE SERVICES TO THE SITE, WITH THE RESPECTIVE LOCAL UTILITY COMPANY REPRESENTATIVES PRIOR TO COMMENCEMENT OF WORK. INCLUDE ALL ASSOCIATED COST/FEES BY THE UTILITY COMPANIES IN THE BID PRICE.
7. INSTALL UNDERGROUND CONDUITS 42" BELOW FINISHED GRADE, MINIMUM, UNLESS NOTED OTHERWISE.
8. COORDINATE SERVICE SHUT-DOWNS WITH ALL TRADES INVOLVED ON SITE AND OBTAIN WRITTEN AUTHORIZATION FROM OWNER 72 HOURS PRIOR TO ANY ELECTRICAL AND/OR TELEPHONE SHUT-DOWN.
9. REMOVE ALL DE-ENERGIZED CONDUCTORS FROM SITE AT COMPLETION OF THE PROJECT.
10. OUTDOOR LIGHTING BRANCH CIRCUIT WIRING SHALL BE MINIMUM #8 AWG CONDUCTORS (XHHW-2), IN MINIMUM 1" DIA. CONDUIT, UNLESS NOTED OTHERWISE.
11. SPARE CONDUITS SHALL INCLUDE PULL STRING AND SHALL BE TERMINATED WITH A CAP.
12. EXCAVATE THE ENTIRE LENGTH OF TRENCH TO PROPERLY SET DUCT ELEVATIONS.

(#) CONSTRUCTION KEY NOTES:

1. PROVIDE 27'-6" ROUND TAPERED ALUMINUM POLE ON 2'-6" CONCRETE BASE.
2. PROVIDE (1)1" SCHEDULE 40 PVC CONDUIT WITH 2#8 & 1#8G.
3. INTERCEPT EXISTING CONDUIT AND INSTALL 24"x24"x24" HANDHOLE.
4. PROVIDE 2#8 & 1#8G IN EXISTING EXTERIOR CONDUIT. PROVIDE NEW WIRING IN POLE TO FIXTURE.
5. PROVIDE 2#8 & 1#8G IN 3/4"C INSIDE BUILDING. RECONNECT PARKING LOT LIGHT FIXTURES TO EXISTING CONTACTOR ADJACENT TO (E)MDP-1.
6. EXISTING CONDUIT TO REMAIN AS SPARE.

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

ISSUED FOR SITE PLAN APPROVAL

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PBA Project No. 2020.0233

Project

UPS HOWELL
EMPLOYEE PARKING LOT
IMPROVEMENTS

Project Location

1183 FENDT DRIVE
HOWELL, MI 48834

Sheet Name

ELECTRICAL NEW WORK SITE PLAN

Engineer's Seal

STATE OF MICHIGAN
MYRON SCOTT GIBBS
ENGINEER
No. 61469
LICENSED PROFESSIONAL ENGINEER

DATE SIGNED: 09-02-2020

Revisions

REV	ISSUED FOR	DATE	BY

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Date: 09/02/2020

SME Project No.: 084617.00

Project Manager: S. GIBBS

Designer: B. REYNOLDS

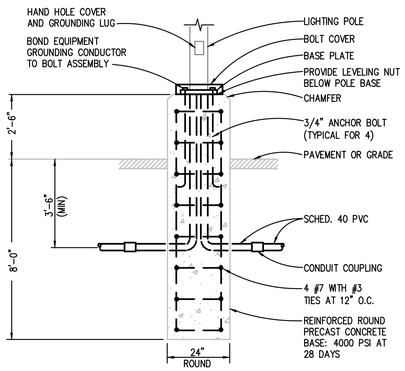
CADD: D. ABB

Checked By: S. GIBBS

Sheet No.: **E004**

PLOT DATE: Sep 01, 2020 - 2:45pm - mhamid
FILE LOCATION: \\pba.local\projects\2020\2020-0233-00\CAD\2020-0233-E0-SPN.dwg

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"

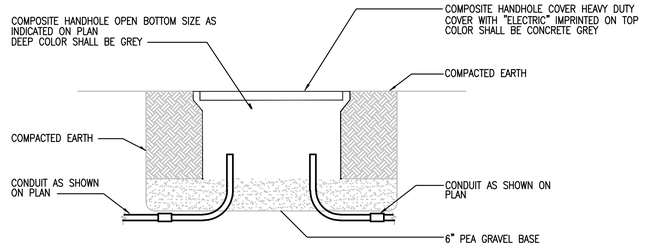


LIGHTING POLE BASE DETAIL

NO SCALE

NOTE:

1. PROVIDE PRECAST CONCRETE BASE AS MANUFACTURED BY NORTHERN CONCRETE PIPE, INC. OR APPROVED EQUAL.
2. CONCRETE REINFORCEMENTS SHALL BE BARE, ZINC GALVANIZED, OR ELECTRICALLY CONDUCTIVE COATED STEEL. BOND ALL CONCRETE REINFORCEMENTS AND ANCHOR BOLTS TOGETHER SO THAT SYSTEM IS ELECTRICALLY CONTINUOUS.



COMPOSITE HANDHOLE DETAIL FOR ELECTRIC

NO SCALE

(E)PANELBOARD MDP-1

#	LOAD TYPE	DESCRIPTION	CB TYPE	CB	VA	ØA	ØB	ØC	VA	CB	CB TYPE	DESCRIPTION	LOAD TYPE	#
1	NC		EXIST		27713	31593			3880		EXIST		M	2
3	NC	(E)CDP-1 PANEL	EXIST	125	27713		31593		3880	30	EXIST	(E)A/C UNIT	M	4
5	NC		EXIST		27713			31593	3880		EXIST		M	6
7	L	(E)LIGHTING (EMERGENCY)	EXIST	20	4432	8864			4432	20	EXIST	(E)LIGHTING	L	8
9	L	(E)LIGHTING	EXIST	20	4432		8864		4432	20	EXIST	(E)LIGHTING	L	10
11	L	LIGHTING (PHOTOCELL)	EXIST	20	3562			7994	4432	20	EXIST	(E)LIGHTING	L	12
13	L	(E)LIGHTING (EMERGENCY)	EXIST	20	4432	8864			4432	20	EXIST	(E)LIGHTING	L	14
15	L	(E)LIGHTING	EXIST	20	4432		8864		4432	20	EXIST	(E)LIGHTING	L	16
17	NC		EXIST		22170			26602	4432	20	EXIST	(E)LIGHTING	L	18
19	NC	(E)RP1-1	EXIST	100	22170	26602			4432	20	EXIST	(E)LIGHTING	L	20
21	NC		EXIST		22170		26602		4432	20	EXIST	(E)LIGHTING	L	22
23	L	(E)LIGHTING	EXIST	20	4432			8864	4432	20	EXIST	(E)LIGHTING	L	24
25	MH		EXIST		4739	9171			4432	20	EXIST	(E)LIGHTING	L	26
27	MH	(E)EXHAUST FANS	EXIST	20	4739		9171		4432	20	EXIST	(E)LIGHTING	L	28
29	MH		EXIST		4739			9171	4432	20	EXIST	(E)LIGHTING	L	30
						85094	85094	84224						
						ØA	ØB	ØC						

PANELBOARD INFORMATION
VOLTAGE: 480Y/277
BUS AMPACITY: 400A
MAIN TYPE: 400A MCB
MINIMUM A.I.C.: 22,000
MOUNTING: SURFACE
☐ FEED-THROUGH LUGS
☐ DOUBLE LUGS
☐ INTEGRAL SPD

PANELBOARD LOCATION
WEST WALL (CENTER)

BRANCH CIRCUIT CONNECTED LOAD		DEMAND FACTOR	CALCULATED DEMAND	FEEDER AND OVERCURRENT SIZING	
CONTINUOUS LOAD (C)		100%		125%	
ELECTRIC HEAT (E)		100%		125%	
NON-CONTINUOUS LOAD (NC)	149649	100%	149649	100%	149649
KITCHEN LOAD (K)		100%		100%	
RECEPTACLE BASE LOAD (R)		100%		100%	
RECEPTACLE DEMAND LOAD (R)		50%		100%	
LIGHTING LOAD (L)	78906	100%	78906	125%	98633
ADDITIONAL TRACK LIGHTING LOAD				100%	
MOTORS, HIGHEST LOAD (MH)	14217	100%	14217	125%	17771
MOTORS, REMAINING LOAD (M)	11640	100%	11640	100%	11640
		TOTAL(KVA):	254.41		
NOTE: DEMAND AND SIZING INFORMATION IS CALCULATED FROM CONNECTED LOAD		TOTAL (AMPS):	306	TOTAL (AMPS):	334

NOTES:

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PBA Project No. 2020.0233

Project
UPS HOWELL
EMPLOYEE PARKING LOT
IMPROVEMENTS

Project Location
1183 FENDT DRIVE
HOWELL, MI 48834

Sheet Name
ELECTRICAL DETAILS AND DIAGRAMS

Engineer's Seal
STATE OF MICHIGAN
MYRON SCOTT GIBBS
ENGINEER
No. 61469
LICENSED PROFESSIONAL ENGINEER
DATE SIGNED: 09-02-2020

Revisions

REV	ISSUED FOR	DATE	BY

Know what's below.
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Date
09/02/2020

SME Project No.
084617.00

Project Manager:
S. GIBBS

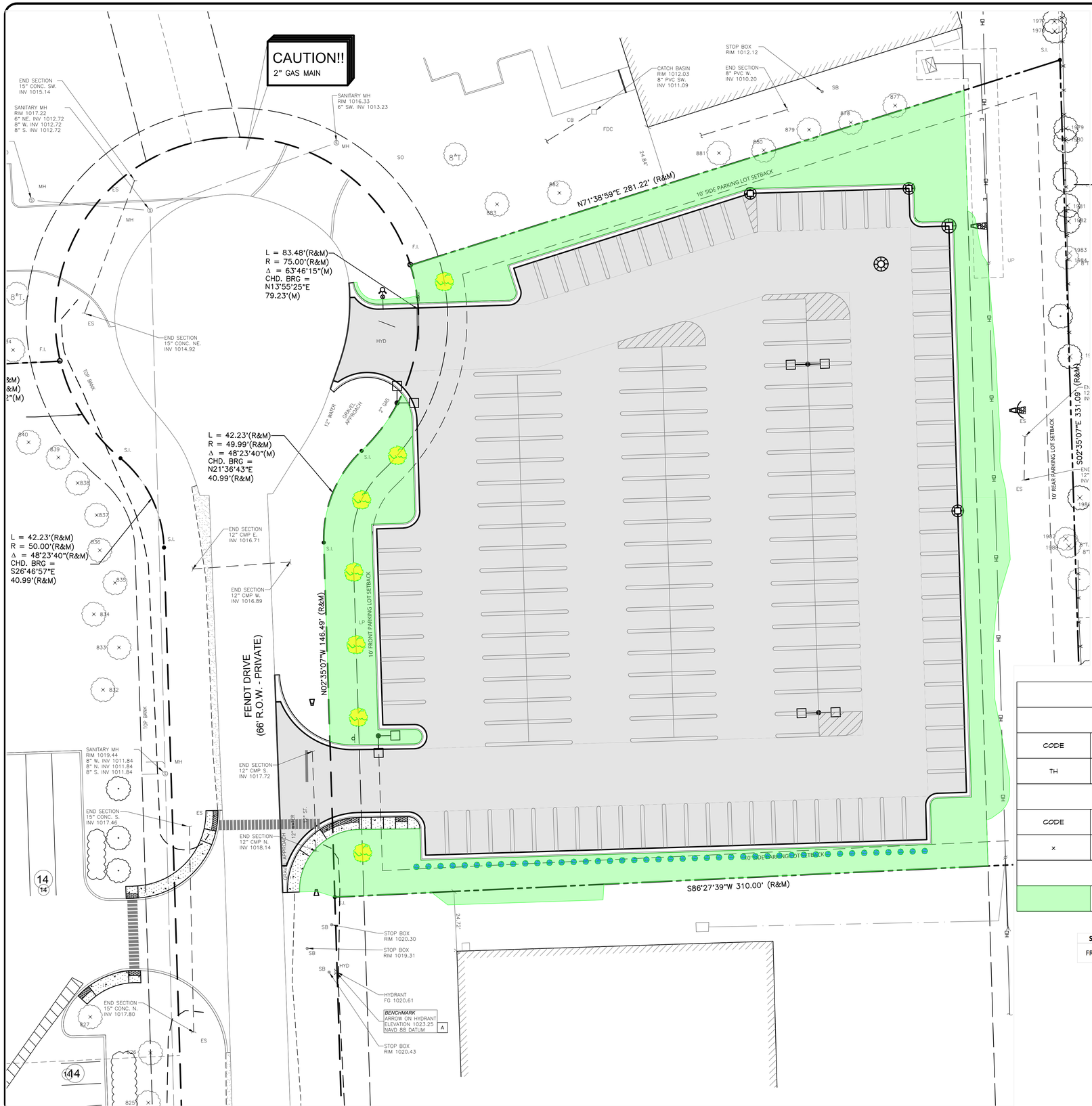
Designer:
B. REYNOLDS

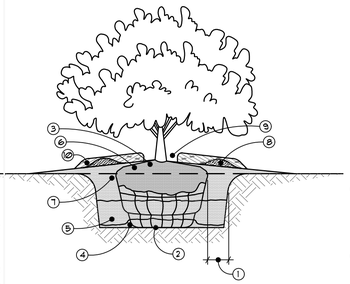
CADD:
D. ABB

Checked By:
S. GIBBS

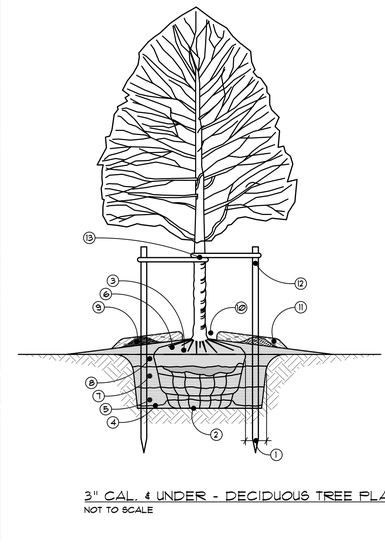
Sheet No.
E701

PLOT DATE: Sep 01, 2020 - 2:45pm - rhamid
FILE LOCATION: \\pba.local\projects\2020\2020-0233-00\CAD\2020-0233-E7-DT.dwg





BALLED & BURLAPED SHRUB PLANTING DETAIL
NOT TO SCALE



3" CAL. & UNDER - DECIDUOUS TREE PLANTING DETAIL
NOT TO SCALE

INSTALLATION NOTES:

1. DIG PLANT POCKET 6" WIDER THAN EDGE OF ROOTBALL.
2. THOROUGHLY COMPACT BOTTOM OF PLANT POCKET.
3. REMOVE ALL TWINE FROM TOP OF ROOTBALL. EXAMINE TRUNK COLLAR AND REMOVE EXCESS SOIL FROM TOP OF ROOTBALL DOWN TO THE UPPER LEVEL OF SYSTEM. SET ROOTBALL WITH TOP 1/8 OF BALL ABOVE FINISH GRADE.
4. PLACE BACKFILL UNDER & ALONGSIDE BASE OF BALL TO STRAIGHTEN SHRUB. THOROUGHLY COMPACT TO FILL ALL VOIDS.
5. BACKFILL PLANT POCKET 1/2 WITH PLANTING MIX CONSISTING OF 50% TOPSOIL & 50% NATIVE SOIL & COMPACT THOROUGHLY, ASSURING SHRUB IS STILL STRAIGHT.
6. BEFORE CONTINUING WITH BACKFILL, REMOVE EXCESS BURLAP. IF APPLICABLE, REMOVE TOP WIRE LOOPS, OR BEND LOOPS DOWN UNTIL THEY TOUCH SIDE OF BALL.
7. BACK FILL REMAINING 1/2 OF PLANT POCKET WITH PLANTING MIX & COMPACT THOROUGHLY, ASSURING SHRUB IS STILL STRAIGHT.
8. IF PLANTED IN NON-IRRIGATED AREAS, FORM A SAUCER WITH SOIL AT OUTSIDE EDGE OF ROOTBALL.
9. SHREDDED BARK MULCH, 3" DEPTH. MULCH TO BE NATURAL IN COLOR. LEAVE 1-2" RING EXPOSED AT BASE OF TRUNK.
10. IF NOT PLANTED WITHIN A LANDSCAPE BED, MULCH RINGS TO BE CONSISTENT IN SIZE WITH PLANT TYPE/SIZE THROUGHOUT PROJECT AND SHOULD NOT EXTEND BEYOND PLANT POCKET.

PLANT LIST

EVERGREEN SHRUBS

CODE	QTY	KEY	SCIENTIFIC NAME	COMMON NAME	SIZE	COMMENTS
TH	7		GLEDITSIA TRIACANTHOS INERMIS	THORNLESS HONEYLOCUST	3 GAL.	

EVERGREEN SHRUBS

CODE	QTY	KEY	SCIENTIFIC NAME	COMMON NAME	SIZE	COMMENTS
×	43		THUJA OCCIDENTALIS 'RHEINGOLD'	RHEINGOLD ARBORVITAE	3 GAL.	60" O.C.

LANDSCAPING

	16,225 SF	SEEDED LAWN ON MIN. 4" DEPTH TOPSOIL,

SIDE	DESCRIPTION	CALCULATIONS	REQUIRED	PROVIDED
FRONT	20' WIDE GREENBELT ONE CANOPY TREEFOR EVERY FORTY LINEAR FEET OF FRONTAGE	275.3 LF FRONTAGE/40 LF PER TREE = 7	7	7

NOTES:
INTERIOR LANDSCAPE REQUIREMENT IS REQUESTED TO BE WAIVED TO ACCOMMODATE THE PROPERTY OWNER'S NEED FOR ADDITIONAL PARKING STALLS DURING PEAK SEASONS AS WELL AS GENERAL LACK OF INTERIOR ISLANDS ON OTHER PARCELS IN THE DEVELOPMENT. THIS IS ONE POINT DISCUSSED AT THE PRE-APPLICATION MEETING..

BUFFER ZONED "C" ON THE EAST IS REQUESTED TO BE WAIVED DUE TO THE EXISTING STORMWATER EASEMENT AND TREES ALREADY PROVIDING A BUFFER/SCREEN FROM THE PROPERTY TO THE EAST.

ISSUED FOR SITE PLAN APPROVAL

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Orientation: N W E S
Scale: 0' 20' 40'
GRAPHIC SCALE: 1" = 20'

Project
UPS HOWELL
EMPLOYEE PARKING LOT
IMPROVOMENTS

Project Location
1183 FENDT DRIVE
HOWELL, MI 48843

Sheet Name
LANDSCAPE PLAN

Engineer's Seal
STATE OF MICHIGAN
HUGO J. CERON
ENGINEER
No. 67351
PROFESSIONAL ENGINEER
Hugo James Ceron

Revisions

REV	ISSUED FOR	DATE	BY
01	TOWNSHIP COMMENTS	09/23/2020	JAS

Date
09/02/2020

SME Project No.
084617.00

Project Manager:
J. SCHWARTZENBERGER

Designer:
H. CERON

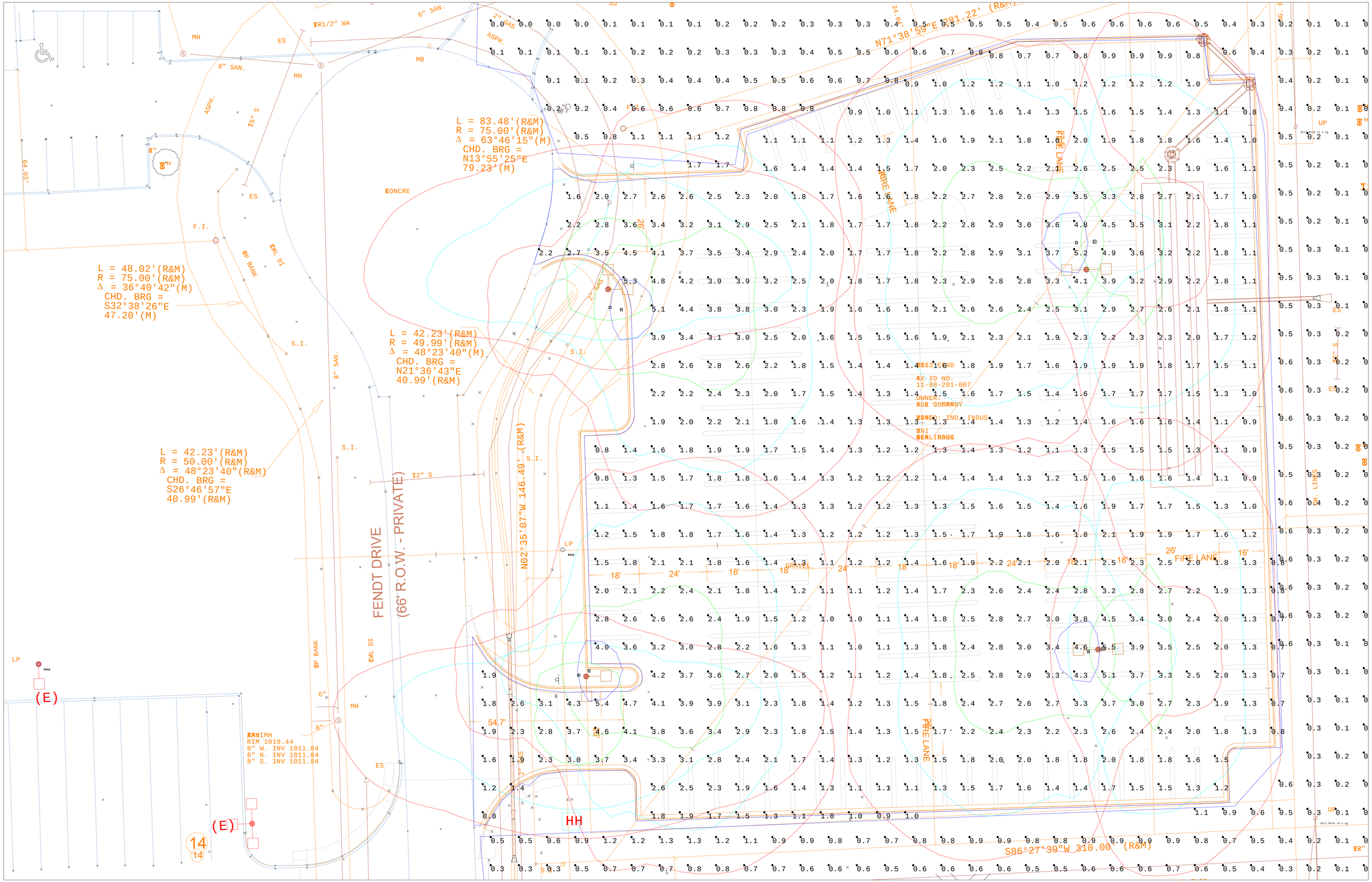
CADD:
H. CERON

Checked By:
B. HART

Reviewed By:
J. SCHWARTZENBERGER

Sheet No.
L-100

PLOT DATE: Sep 22, 2020 - 11:08pm - ceron
FILE LOCATION: \\Sme-hic-pr\WIP\084617.00\CAD\DWGS\SPA\rev084617.00-Landscape.dwg



Scale: 1 inch= 15 Ft.

Luminaire Schedule						
Symbol	Qty	Label	Lum. Lumens	LLF	Lum. Watts	Description
	2	L1	18996	0.900	163	DSX1 LED P6 40K T2M MVOLT
	4	L2	27577	0.900	241	DSX1 LED P9 40K TFTM MVOLT
	2	L3	20139	0.900	183	DSX1 LED P7 40K T3M MVOLT

Calculation Summary						
Label	Units	Avg	Max	Min	Max/Min	Avg/Min
Light Tresspass_Planar	Fc	0.21	1.7	0.0	N.A.	N.A.
Parking Lot_Planar	Fc	2.03	5.5	0.7	7.86	2.90

REVISION

date

5145 Livernois, Suite 100
Troy, Michigan 48098-3275
T: 248-879-5666 F: 248-879-007
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PBA Project #

Peter Basso Associates Inc
CONSULTING ENGINEERS

PROJECT TITLE
UPS Howell
Employee Parking Lot Improvements

SHEET TITLE
Lighting Calculations

DATE
09-02-2020

ISSUE
For Review

SHEET No.
L201

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

CALL TO ORDER: Vice-Chairman Rauch called the meeting of the Genoa Charter Township Planning Commission to order at 6:32 p.m. Present were Marianne McCreary, Eric Rauch, Jim Mortensen, Jeff, Dhaenens, and Glynis McBain, Absent were Chris Grajek and Jill Rickard. Also present were Kelly VanMarter, Community Development Director/Assistant Township Manager, Gary Markstrom of Tetra Tech and Brian Borden of Safebuilt Studio. There were 15 audience members present.

PLEDGE OF ALLEGIANCE: The pledge of allegiance was recited.

APPROVAL OF AGENDA:

Moved by Commissioner Mortensen, seconded by Commissioner Dhaenens, to approve the agenda as presented. **The motion carried unanimously.**

CALL TO THE PUBLIC: The call to the public was made at 6:33 pm with no response.

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)

Ms. Eavan Yaldo of Saroki Architecture was present representing the applicant. Father Andrew Seba, Father Manuel Boji, and Vincent Jarbow, CFO for the applicant, were present.

Ms. Yaldo stated the property is 160 acres and includes Euler Lake. They would like to construct a 28,851 square foot retreat center to be used for religious retreats, youth retreats, as well as to foster community gatherings. These retreats will occur mainly on the weekends. It will be located on the southwest portion of the property and adjacent to the existing church. Over the last 10 years, when the church was first built, it has been underutilized. One portion of the proposed building is one story, a portion is two story and there is a walkout basement.

There are 20 each two-bedroom units; however, it can sleep a total of 80 people. She noted there will be an enclosed walkway connecting the retreat center to the existing church.

She showed the proposed site plan and building elevations. They do have their proposed building materials and can supply them if the Planning Commission would like.

Commissioner Mortensen asked if it will be available to the public. Ms. Yaldo stated it will be open to other faiths; however, they must abide by the rules and standards that will be put in place by the Caldean Catholic Church. He asked if alcohol will be served anywhere on the property. Ms. Yaldo stated this retreat center will not have alcohol; however, she is not sure about other locations on the campus.

Commissioner Dhaenens questioned where the retreats are currently held. Father Seba stated their retreats are held in different locations in Detroit or Lansing.

Mr. Borden reviewed his letter dated September 2, 2020.

- Provided comments from the Township Engineer and Brighton Area Fire Authority are addressed, his opinion is that the special land use standards of Section 19.03 are generally met.
- The Commission may wish to request building material calculations as it is mostly a brick building.
- The Commission may wish to consider whether the existing gravel parking lot should be improved as part of this project.
- The Commission may wish to require landscaping around the proposed detention pond. He calculated that 7 trees and 70 shrubs should be planted, although this property is heavily wooded.
- The Planning Commission must approve the use of rough sawn cedar for the waste receptacle enclosure. His opinion is that the proposed material is appropriate for this site.
- The Planning Commission may require submission of a photometric plan per Section 12.03.07 of the Ordinance due to the addition of light fixtures. Based on the type and numbers of fixtures, he believes they will meet the Ordinance.
- If approval is granted, the applicant must obtain a sign permit from the Township prior to its installation.

Mr. Borden noted that if this project is approved, it may be appropriate to have the Township evaluate the Future Land Use classification for the property during its next Master Plan review period.

Mr. Markstrom reviewed his letter dated September 10, 2020.

- 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.
- 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 the church, which has 102 parking spaces currently. Due to the church and retreat center being used mostly by the same group of people, he finds this co-use of parking to be reasonable.
- 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.
- 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 storm water management guidelines and is acceptable as presented. He noted that they are making improvements to the storm water management on the site.

Ms. Yaldo acknowledged receipt of the Brighton Area Fire Authority's letter. She has been working with the Fire Marshal and she will address their concerns. She is also working with the Livingston County Health Department.

She stated that many of the retreats are youth retreats and the kids are bussed in. With regard to the adult retreats, most people carpool or are also bussed in so the amount of vehicular traffic and parking will be low; therefore she does not feel it is necessary to pave the parking lot. The applicant would like to keep the natural look of the area as well as reduce the amount of runoff from the site.

Commissioner Mortensen noted that the Township Engineer recommended at least paving the parking spaces adjacent to the drive. Vice-Chairman Rauch agrees, especially since Ms. Yaldo stated that there will be buses coming in. Chairman Dhaenens agrees.

The call to the public was made at 7:10 pm.

Mr. Mike Berean of 1273 Euler Road has concerns with the addition of a 30,000 square foot building and the capacity being 80 people every weekend, the potential for a decrease in their

property values, and the increased drainage, which already drains onto his property. He does not believe this is the appropriate site for this type of use. This will affect all of the residents in the area. He has lived in his home for two years and has heard the music from the camp in his home with the windows closed.

Mr. James Drouillard of 6781 Filice stated that 300 feet of his property borders this property. He questioned what type of people will be at the retreats and where will they be coming from. If the building will accommodate 80 people then he believes there will always be 80 people there. He wants to know how the drainage and the septic system will affect him. Will there be more garbage trucks coming to the site? Will there be a backup generator? He is concerned about the traffic and speed of drivers on Kellogg Road as there are many walkers and bicycle riders on this road, and how this use will affect the condition of the road. He asked why he didn't know about this until the end of August. He is concerned about the condition of the existing fence; it has not been maintained.

Ms. Patricia Kopicko of 6843 Filice Drive has complained numerous times about the noise from the camp. She cannot be in the yard most times due to the noise. She is concerned about a 30,000 square foot building in their residential neighborhood.

Ms. Dori Berean of 1273 Euler Road stated trees have fallen on the fence and it has not been repaired, they have taken down trees that were protected, she finds alcohol bottles on both sides of the road, and the parties and concerts on the property are loud. This will negatively affect the neighbors and the property values.

Father Andrew Seba agrees with many of the comments made this evening, specifically regarding the maintenance. It costs a lot of money to maintain the property so they need income. The intention of the use of the proposed building is for people to come to escape noise; they are coming to a religious Catholic retreat. He appreciates the neighbors' concerns. He wants to work with them and have a better relationship.

Father Manuel Boji reiterated what Father Seba stated regarding the events that will be taking place at the new facility.

Mr. Berean asked if the Township knew that the church needed income when it approved their plan. Will they have the money to maintain the new facility or will they need to hold more events for their income.

Commissioner Mortensen noted that when the church was first built, there were many noise complaints within the first few years and the Township acted upon those complaints. He is not aware that there have been more complaints. Ms. VanMarter stated she receives approximately one complaint per year regarding the noise.

Mr. Robert Kopicko of 6843 Filice Drive has taken measurements of the noise and has presented them to the Township. They are in the 95 range from 150 feet away. Currently the lights in the parking lot shine into his home in the winter when the trees have no leaves.

The call to the public was closed at 7:59 pm.

Commissioner McCreary is a supporter of people being allowed to use their property as they wish and that the applicant is trying to bring people together for retreats. The question she asks herself is will this alter the character of the area. She does not feel that this is the appropriate place for this. It is a rural area surrounded by five-acre parcels.

Commissioner Dhaenens is familiar with this site as he used to camp there as a child. Because of the current use of the property and the noise concerns and parties, the neighbors do not believe that this place will change and that it will be more quiet . He thinks it will be a great place for a retreat and the noise issue does need to be addressed.

Commissioner McBain noted that the current zoning of the property allows for this type of use.

Mr. Jarbow stated that if this property starts to be used for the retreats as what is being proposed this evening, there would no longer be wedding receptions, family reunions, concerts, etc. The income generated from having these events was not used to maintain the property. They are a very minor source of income. It is not intended to be a profit making facility.

Ms. Yaldo reiterated that they are here this evening proposing a retreat center to have a quiet, meditative place to pray in a church and in a peaceful setting, and to remove people from the noise of the world.

Commissioner Mortensen is not in favor of the Township approving the expansion of a use that currently has violations of the sound ordinance. He needs the applicant to absolutely guarantee that they will comply with the sound ordinance.

Moved by Commissioner Mortensen, seconded by Commissioner McCreary, to table the request for a Special Land Use, Site Plan, and Environmental Impact Assessment for the Prophet Elijah Retreat Center to allow the applicant to come back with information regarding how they will address the noise concerns of the neighborhood. **he motion carried unanimously**.

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)

Mr. Tom Dewitt, the owner of the building, and Mike Long from Dewitt's radiator, who is the tenant, were present. Mr. Dewitt stated he applied for and was granted approval in 2015 for an addition to his building. He would like to begin the construction of the plan that was approved by the Township at that time..

Mr. Borden stated that nothing has changed since the original plan. He has reviewed the Township Ordinance to see if there were any changes that would affect this project and there were none.

Mr. Markstrom reviewed his letter dated September 9, 2020.

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

Vice-Chairman Rauch advised Mr. Dewitt that the concerns noted in the Fire Marshal's letter dated September 8, 2020 shall be addressed. Mr. Dewitt's architect has reviewed the letter and will be working with them to address their requirements. He added that there may be areas where the applicant and the Fire Marshal can compromise on some of his comments in their letter.

The call to the public was made at 8:21 pm with no response.

Moved by Commissioner Mortensen, seconded by Commissioner McBain, to recommend to the Township Board approval of the Environmental Impact Assessment dated July 28, 2020 for Tadbad, LLC. **The motion carried unanimously.**

Moved by Commissioner Mortensen, seconded by Commissioner Dhaenens, to approval the Site Plan dated July 27, 2020 for Dewitt Radiator, subject to the following:

1. The applicant shall meet the requirements listed in the Township Engineer's letter dated September 9, 2020
2. The applicant shall work with the Fire Marshal to address his concerns.

The motion carried unanimously.

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)

Mr. Shawn Toole, the project manager, Steve Baibak of Desine Inc, and Todd Ballou, the architect, was present.

Mr. Toole stated they are working on the former Tenpenny Furniture store at 2700 East Grand River and are requesting to increase the size of the rear parking lot.

Mr. Baibak stated this will be an improvement to the site. They would be increasing the permeable area of the greenspace, adding landscaping, and increasing the quality of the asphalt.

Mr. Borden reviewed his letter dated September 2, 2020.

- 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. Ms. VanMarter stated that this land transfer is pending at this time.
- The applicant is deficient in the side and rear parking lot setbacks. The Planning Commission may reduce side and rear parking setbacks given the use of shared drives and connected parking lots.
- The applicant must provide lot coverage calculations for both building and impervious surfaces.
- He would like the applicant to present building material samples or a color rendering to the Planning Commission.
- He agrees that the applicant is adding additional landscaping; however, the landscape plan is deficient in greenbelt, parking lot, and buffer zone plantings along both sides and the rear setback. He acknowledges the difficulty in adding plantings to the greenbelt area in the front of the site. The Planning Commission has discretion over the waiving of this requirement.
- Light fixture and pole details must be provided as part of a lighting plan.
- Maximum lighting intensities are exceeded along the east and rear property lines.
- The applicant must obtain a sign permit from the Township prior to installation of any new signage.

Mr. Baibak has sent the photometric plan back to the lighting engineer and he is confident that they can meet the Ordinance requirements. They can add some additional landscaping, such as shrubs and trees in the areas noted and he agrees that adding plantings to the front of the site would be difficult.

Mr. Markstrom reviewed his letter dated September 9, 2020.

- 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. He noted that the Drain Commissioner is withholding approval until comments in their letter dated August 28, 2020 have been addressed.
- The revised site plan no longer proposes a fire suppression lead. The petitioner should verify this is correct.
- 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.

Vice-Chairman Rauch asked the applicant if they have received the Fire Marshal's letter dated August 8, 2020. Mr. Baibak stated he has and they will be able to meet all of his requirements.

Vice-Chairman Rauch stated the Livingston County Drain Commissioner's letter was included in the review letters and these issues and concerns will have to be addressed.

Commissioner McCreary asked how many tenants will be allowed. Mr. Toole showed the site plan and colored renderings, showing that there are three addresses for this building; however, it is being built to accommodate up to eight tenants.

The call to the public was made at 8:56 pm with no response.

Moved by Commissioner Mortensen, seconded by Commissioner Dhaenens, to recommend to the Township Board approval of the Environmental Impact Assessment dated August 18, 2020 for the building located at 2700 East Grand River. **The motion carried unanimously**.

Moved by Commissioner Mortensen, seconded by Commissioner Dheanans, to approve the Site Plan dated August 18, 2020 for the building located at 2700 East Grand River, subject to the following:

- Execution and recording of a land transfer agreement between this site and the adjacent property to the east shall be obtained and submitted to the Township.
- The applicant will provide lot coverage calculations to Township Staff to ensure the building and surface coverage are within the Township Ordinance.
- The building and colored renderings are acceptable and will become Township property.
- The landscape plan is deficient in various plantings and recognizing the difficulty of the site, the applicant will work with Township staff for appropriate plantings.
- The applicant will provide light fixture and pole details to Township Staff and demonstrate that lighting intensities will not exceed the Township Ordinance across the east and rear property lines.
- The requirements of the Township engineer's letter dated September 2, 2020 shall be met.
- The requirements of the Livingston County Drain Commissioner's letter dated August 28, 2020 shall be met.
- The requirements of the Brighton Area Fire Authority Fire Marshal's letter dated August 28, 2020 shall be met.

The motion carried unanimously.

ADMINISTRATIVE BUSINESS

Staff Report

Ms. VanMarter stated the October Planning Commission meeting will be held on Tuesday, October 13, due to Columbus Day on Monday.

Staff is working on the Master Plan and there may be a joint meeting between the Planning Commission, ZBA, and Township Board at the end of October.

Approval of the August 10, 2020 Planning Commission meeting minutes

Moved by Commissioner McCreary, seconded by Commissioner Dhaenens, to approve the minutes of the August 10, 2020 Planning Commission Meeting as presented. **The motion carried unanimously.**

Member Discussion

Commissioner McCreary advised there is a Zoom Meeting being held on water quality issues on Wednesday. If anyone is interested in attending, she can send you the link.

Adjournment

Moved by Commissioner Mortensen, seconded by Commissioner McCreary, to adjourn the meeting at 9:09 pm. **The motion carried unanimously.**

Respectfully Submitted,

Patty Thomas, Recording Secretary