



# Memorandum

To: Planning Commission  
From: Elizabeth J Corwin, PE, AICP; Planning Director  
Date: May 7, 2026  
Re: SPR 26-02  
Applicant/Owner: J&J of Highland  
958 N Milford  
PIN 11-22-176-010

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The application before you today is for site plan review of an expansion of the Highland Treatment headquarters at 958 N. Milford Road. This is a well-established business in Highland Township, with an impeccably maintained site and landscape. This proposal incorporates the parcel to the north and rehabilitates an existing house for use as a storage building. It also provides space to construct a new pole barn to store vehicles under roof. Two outbuildings will be demolished. The property owner will refresh the landscaping in front of the former home and incorporate new drives to provide more efficient traffic flow.

As expected, BF Thompson has presented a thoroughly documented and well considered site design. There is not much to critique. The plan maintains the one-way traffic flow around the site, converting the residential driveway to a one way exit northbound. The plan will include removal of the illicit parking spaces in the Milford Road right-of-way and extension of the existing sidewalk to the new north property line of the combined parcels. Adequate parking is provided, particularly given that the proposed pole building will serve as indoor garage space for company vehicles and equipment.

The designer has extended the drainage system using the past design philosophy which has worked well on the site for 30 years. The new buildings will not be staffed, so the existing septic system will be abandoned per Oakland County Health Department standards. It is my understanding that the existing well will be converted to landscape irrigation only.

Other site features such as the pole lighting will remain consistent with what is already on the remainder of the site. The photometric plan shows that lighting levels comply with the Zoning Ordinance requirements. All wallpack lights must be downward directed so as not create glare or light trespass.

The Fire Marshal has no concerns with the proposal. While I do not have the Township Engineer review at this moment, I have reviewed the drainage calculations and foresee no issues with approval. Hubbell, Roth and Clark will provide a review before construction.

The plan is to be presented to the Zoning Board of Appeals on May 6 for a variance request of 10 feet from the required sideyard setback on the north property line. Mr. Zeolla will be able to report on their decision at your meeting.



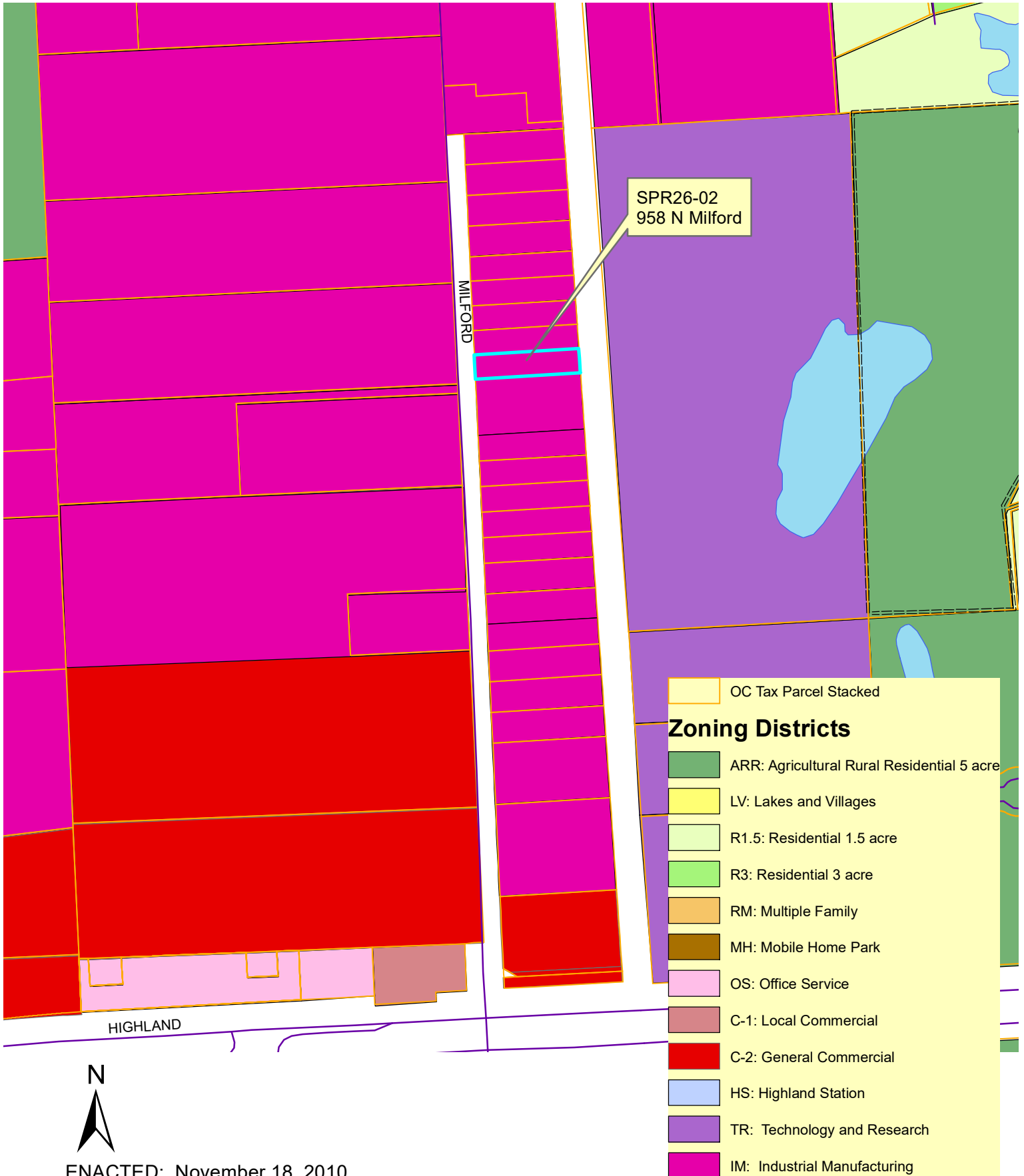
SPR 26-02  
J&J Of Highland/Highland Treatment  
958 N Milford  
pin 11-22-176-010



80 40 0 80 Feet

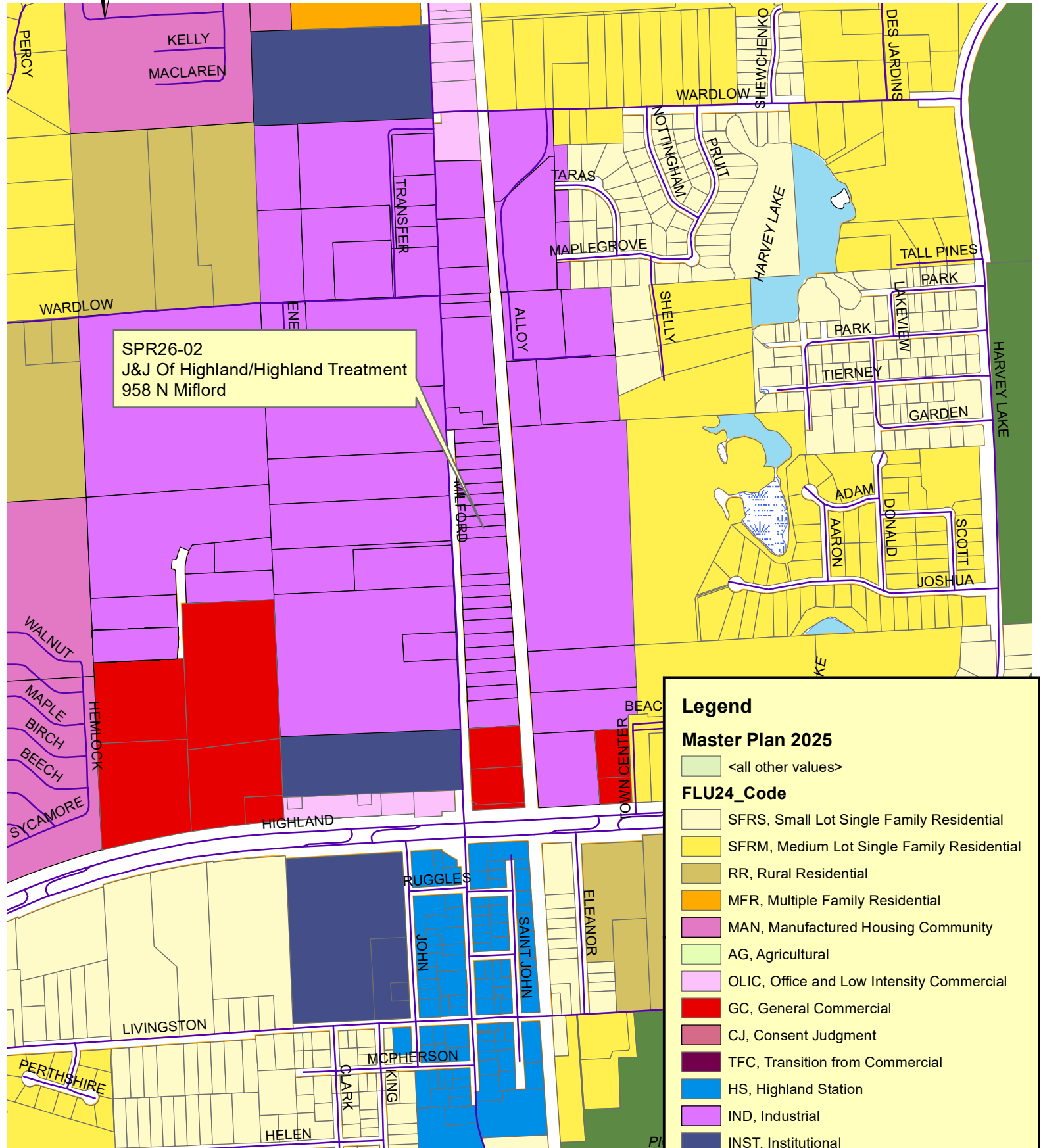


# CHARTER TOWNSHIP OF HIGHLAND ZONING MAP





**MASTER LAND USE MAP**  
PIN 11-29-100-025



SPR26-02  
J&J Of Highland/Highland Treatment  
958 N Miflord

**Legend**

**Master Plan 2025**

<all other values>

**FLU24\_Code**

- SFRS, Small Lot Single Family Residential
- SFRM, Medium Lot Single Family Residential
- RR, Rural Residential
- MFR, Multiple Family Residential
- MAN, Manufactured Housing Community
- AG, Agricultural
- OLIC, Office and Low Intensity Commercial
- GC, General Commercial
- CJ, Consent Judgment
- TFC, Transition from Commercial
- HS, Highland Station
- IND, Industrial
- INST, Institutional
- PR, Parks and Recreation



PLAN REVIEW APPLICATION

Date Applied: 4/16/26

Case Number: SPR 26-02

Fee: 900.00

Escrow: 2500.00

Hearing Date: 5/6/26

PLANNING COMMISSION

205 N. JOHN ST, HIGHLAND MI 48357  
(248) 887-3791 ext. 2

APPLICANT NAME: J. & J. of Highland LLC

PROPERTY OWNER NAME (if different): SAME

TYPE OF REVIEW (circle one)

SITE PLAN? Y N REZONING? Y N ROAD PROFILE? Y N

USE REQUIRING SPECIAL APPROVAL? Y N OTHER: \_\_\_\_\_

SITE INFORMATION

ADDRESS OR ADJACENT STREETS: #958 N. MILFORD RD. ZIP: 48357

ZONING DISTRICT: IM PARCEL ID NUMBER: 11-22-176-010

LOT WIDTH: 80.00' LOT DEPTH: 341' LOT AREA: 0.628 Ac.

PROJECT INFORMATION

PROJECT NAME: HIGHLAND TREATMENT FACILITY

PROPOSED ZONING: IM PROPOSED USE: STORAGE DOCUMENTS

DESCRIBE THE NATURE OF YOUR PROPOSAL (attach additional pages as needed): & VEHICLES.

REHAB EX. RESIDENTIAL HOUSE INTO A STORAGE BUILDING FOR COMPANY RECORDS. CONSTRUCT A NEW 11 VEHICLE GARAGE FOR STORAGE OF COMPANY VEHICLES OVERNIGHT. THIS WILL REQUIRE EXPANSION OF THE EXISTING LEACHING DETENTION BASINS TO THE NORTH ~~BEHIND~~ BEHIND THE PROPOSED NEW GARAGE. NEW LANDSCAPING WILL BE INSTALLED ON THE ROADSIDE OF THE EX. HOUSE & ALSO IN THE GREENSPACE NEAR THE EXIT DRIVE.

**SITE PLAN OF TAX ID #11-22-176-010 & -022  
FOR J&J OF HIGHLAND, LLC  
OF PART OF HIGHLAND TOWNSHIP,  
OAKLAND COUNTY, MICHIGAN**

TAX ID  
#11-22-176-009  
ZONED: IM

TAX ID  
#11-22-176-010  
ZONED: IM  
0.628 Net Ac.

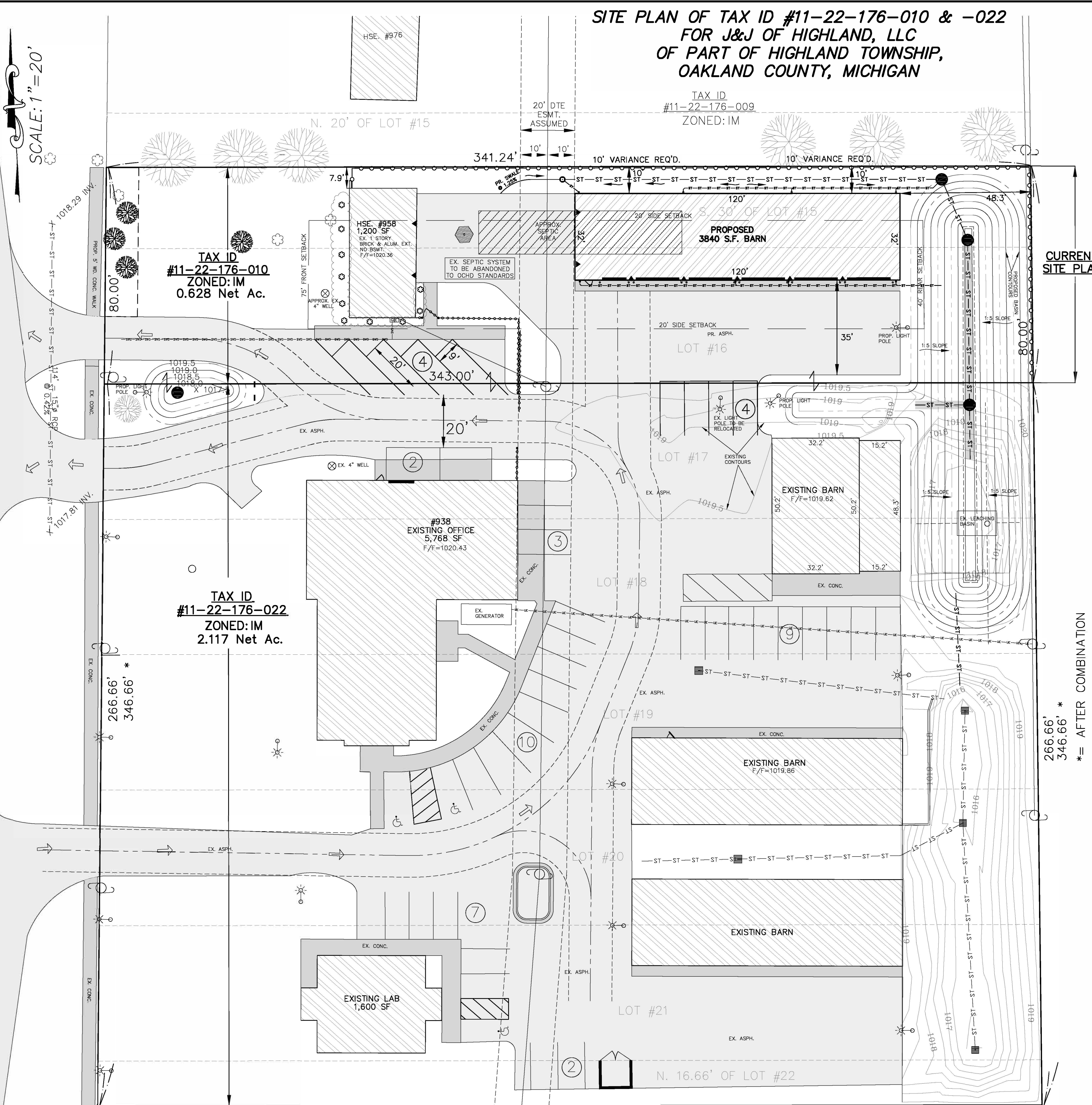
TAX ID  
#11-22-176-022  
ZONED: IM  
2.117 Net Ac.

TAX ID  
#11-22-176-014  
ZONED: IM

S. 33.34' OF LOT #22

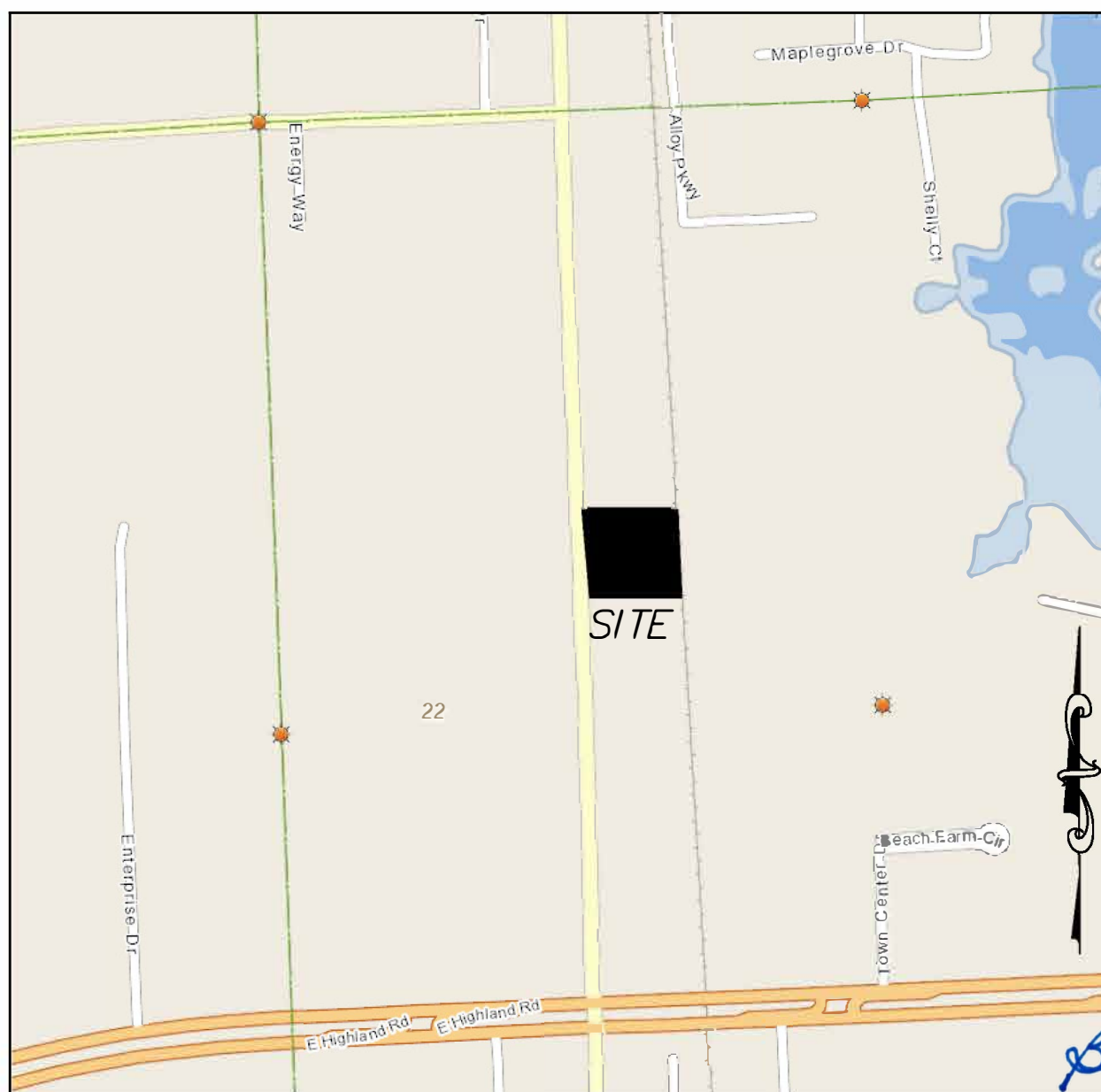
MILFORD RD. 60'-1/2 R/W

SCALE: 1"=20'



CURRENT SITE PLAN

\*= AFTER COMBINATION



SITE LOCATION MAP

**SITE DEVELOPMENT NARRATIVE**

In 1994 the owner of J & J of Highland LLC, began to develop Lots 17 & 18, also known as 938 N. Milford Rd. (P.I.#11-22-176-022), with the original Highland Treatment Inc. office building on the west portion of the parcel with parking in the rear of the building as well as a detention basin on the very east end of the parcel adjacent to the CSX RR corridor. Shortly thereafter they constructed a 2-story gambrel roof barn for parts, equipment, and vehicle storage east of the parking area. In 2005, the office building was enlarged with an addition on the south side, and a new driveway was constructed to allow vehicles to enter the site in one direction and use the existing driveway as an exit. During that period, additional parking spaces were constructed, along with a single-story garage measuring 32 ft. x 100 ft. for parts and overnight storage of their company vehicles used by employees to visit sites under their purview. Additionally, they needed to expand the current detention basin toward the south along the eastern edge of the property. In 2008, they acquired more land to the south and received approval to build a separate small office building that serves as their laboratory, along with associated parking areas and trash receptacle for the overall complex. They also extended the existing detention basin further south to support the expansion. In 2010 they obtained approvals to add a similar 32 ft. by 100 ft. garage east of the lab and again made improvements to the detention basin on the east side of the site.

They are now in possession of the land at 958 N. Milford Road (P.I.#11-22-176-010), just north of the original office building and need additional area for "cold" storage of records and company vehicles. They are proposing to update the exterior of the existing house and renovate the interior area for "cold" storage. The west side of the house facing Milford Rd. is eventually planned to be refreshed but will remain residential in appearance. The existing garage and sheds on the property will be removed to create additional parking space and allow for the construction of a new 32-ft. by 120 ft. garage matching the style of the two existing southern garages. In an effort to reduce wait times for their employees exiting the site during the morning rush hour, they want to utilize and improve on the existing driveway on the new property for an "Exit North Only" for north bound traffic on Milford Road and the existing southerly drive for "Exit South Only". We propose to enlarge the detention basin east of the two-story barn to accommodate the added drainage, using the same historic approach that has been effective on the rest of the site for over 30 years. We do intend on removing accumulated silt from the north basin to the original design elevation called for in the 1994 plans and reseeded the basin.

**SHEET INDEX**

- 1) COVER SHEET
- 2) EXISTING CONDITIONS PLAN
- 3) SITE PLAN/CATCH BASIN X-SECTIONS
- 4) STORM DRAINAGE PLAN
- 5) BUILDING ELEVATIONS
- 6) ELECTRICAL PLAN
- 7) PHOTOMETRIC PLAN
- 8) HIGHLAND TWP. STORM STANDARD DETAILS
- 9) HIGHLAND TWP. STORM STANDARD DETAILS

**NOTICE:**

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

**NOTE:**

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

**LEGEND**

FOUND IRON	●	UTILITY POLE	○
SET IRON	⊗	GUY ANCHOR	○
STORM DRAIN PIPE	—ST—ST—ST—ST—	OVERHEAD WIRES	—UE—UE—UE—UE—
STORM MANHOLE	⊙	UNDERGROUND ELECTRIC	—UE—UE—UE—UE—
STORM CATCH BASIN	⊕	CONC. PAD W/TRANSFORMER	⊕
STORM INLET	⊖	PEDESTAL-ELEC. OR TELE.	⊕
STORM END SECTION	⊖	GAS MAIN	—GAS—GAS—GAS—GAS—
DRAINAGE SWALE OR DITCH	—	FENCE LINE	—
SANITARY SEWER PIPE	—SN—SN—SN—SN—	EXISTING ELEVATION	999.99
SANITARY SEWER MANHOLE	⊙	PROPOSED ELEVATION	X(999.99)
WATER MAIN	—WM—WM—WM—WM—	GUTTER	TA
WELL	⊗	TOP OF ASPHALT	TC
WALL DOWNLIGHT	▲	TOP OF CONCRETE	F.F.
WALL SCONCE	○	FINISHED FLOOR	FG
		AS BUILT	AB

**Legal Description: Tax ID #11-22-176-010**  
The South 30 ft. of Lots #15 and all of Lot #16 of "Highland Gardens", a subdivision of part of the East 1/2 of the West 1/2 of Section 22, T.3N., R.7E., Highland Township, Oakland County, Michigan, as recorded in Liber 72 of Plats, Page 3, Oakland County records.

**Legal Description: Tax ID #11-22-176-022**  
All of Lots #17 through 21 and the North 16.67 ft. of Lot #22 of "Highland Gardens", a subdivision of part of the East 1/2 of the West 1/2 of Section 22, T.3N., R.7E., Highland Township, Oakland County, Michigan, as recorded in Liber 72 of Plats, Page 3, Oakland County records.

**ENGINEER/SURVEYOR CLIENT:**  
B.F. THOMPSON P.C. J&J OF HIGHLAND, LLC  
1520 GULLEY ROAD 938 N. MILFORD RD.  
HOWELL, MICH. 48843 HIGHLAND, MI. 48357  
PHONE: (517) 548-3142 PHONE: (248) 889-1922

**B.F. Thompson P.C.**  
civil engineering & land surveying  
VOICE 517/548-3142  
bftompsonpc@outlook.com  
EMAIL: bftompsonpc@outlook.com  
1520 GULLEY ROAD,  
HOWELL, MI, 48843

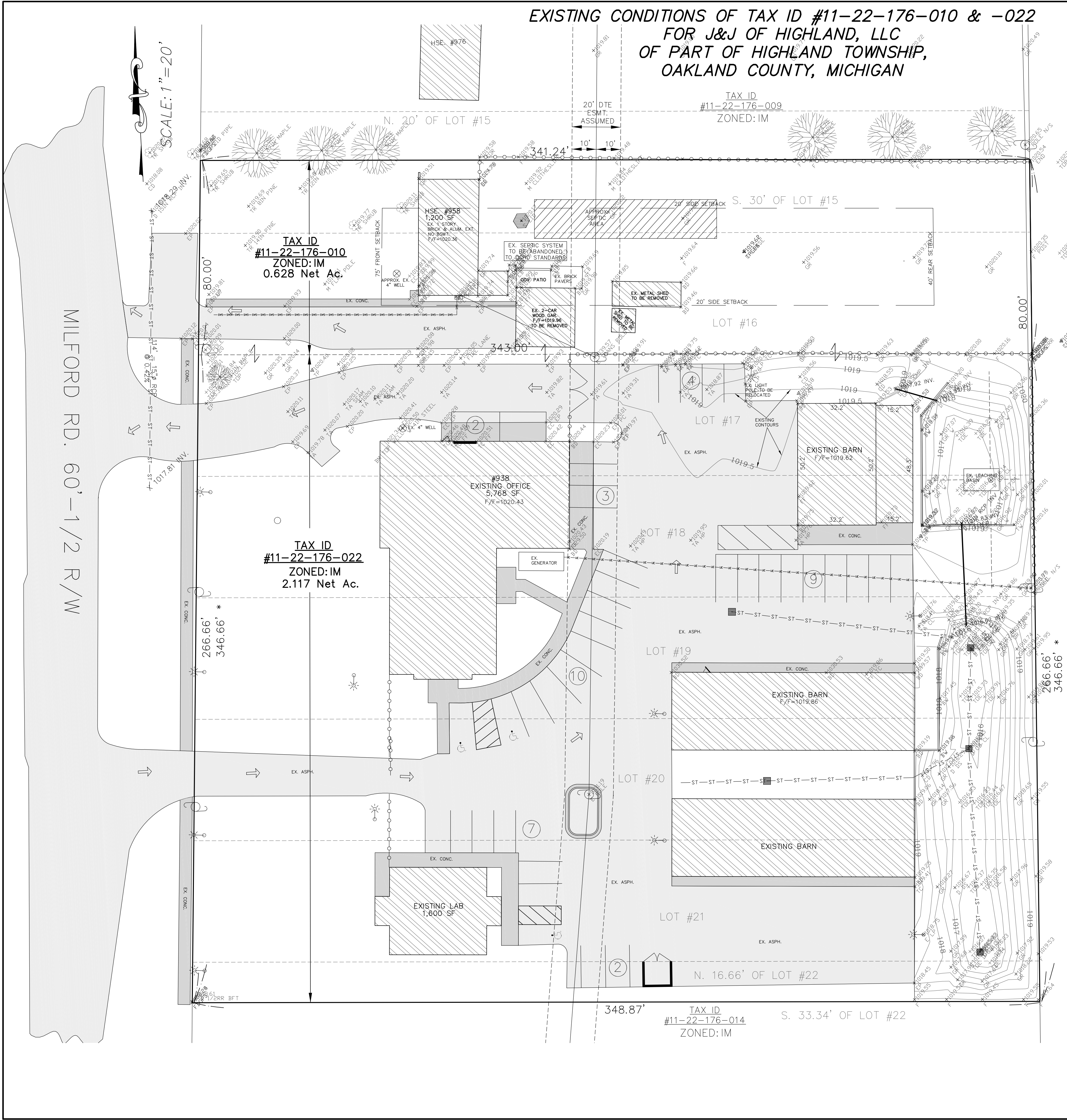


**3 WORKING DAYS BEFORE YOU DIG CALL MISS DIG (TOLL FREE) 1-800-482-7171**

**UTILITIES NOTE:** Utility locations are from Municipal and various Utility Company records and no guarantee, either implied or expressed, is given by this firm as to the accuracy of said location. The contractor shall request appropriate approval from the utility companies before any excavation work where construction will take place 72 hours before such work starts, and shall not start construction until such stakes have been placed. The Contractor shall protect, or have relocated, at contractor's expense, all utilities and stakes that may be affected by the proposed work. The Contractor shall coordinate with the various utility owners in accordance with Michigan P.A. No. 53 of 1974.

PROJECT	"J&J OF HIGHLAND"
SITE INFO	CLIENT: J & J OF HIGHLAND, LLC ATTN: MRS. JULIA DOWSON SITE LOCATION: SEC. 22, T.3N., R.7E., HIGHLAND TWP., OAKLAND CO. TAX ID: #11-22-176-010 & -022
SHEET TITLE	SITE PLAN
DATE	4/10/26
REVISION	Drawn By: NDT
	Chkd. By: BFT
	Scale: 1"=20'
	BFT Job: #23-4436
	Sh. 1 of 9

EXISTING CONDITIONS OF TAX ID #11-22-176-010 & -022  
 FOR J&J OF HIGHLAND, LLC  
 OF PART OF HIGHLAND TOWNSHIP,  
 OAKLAND COUNTY, MICHIGAN



MILFORD RD. 60'-1/2 R/W

CSX R/R 100' WD. R/W

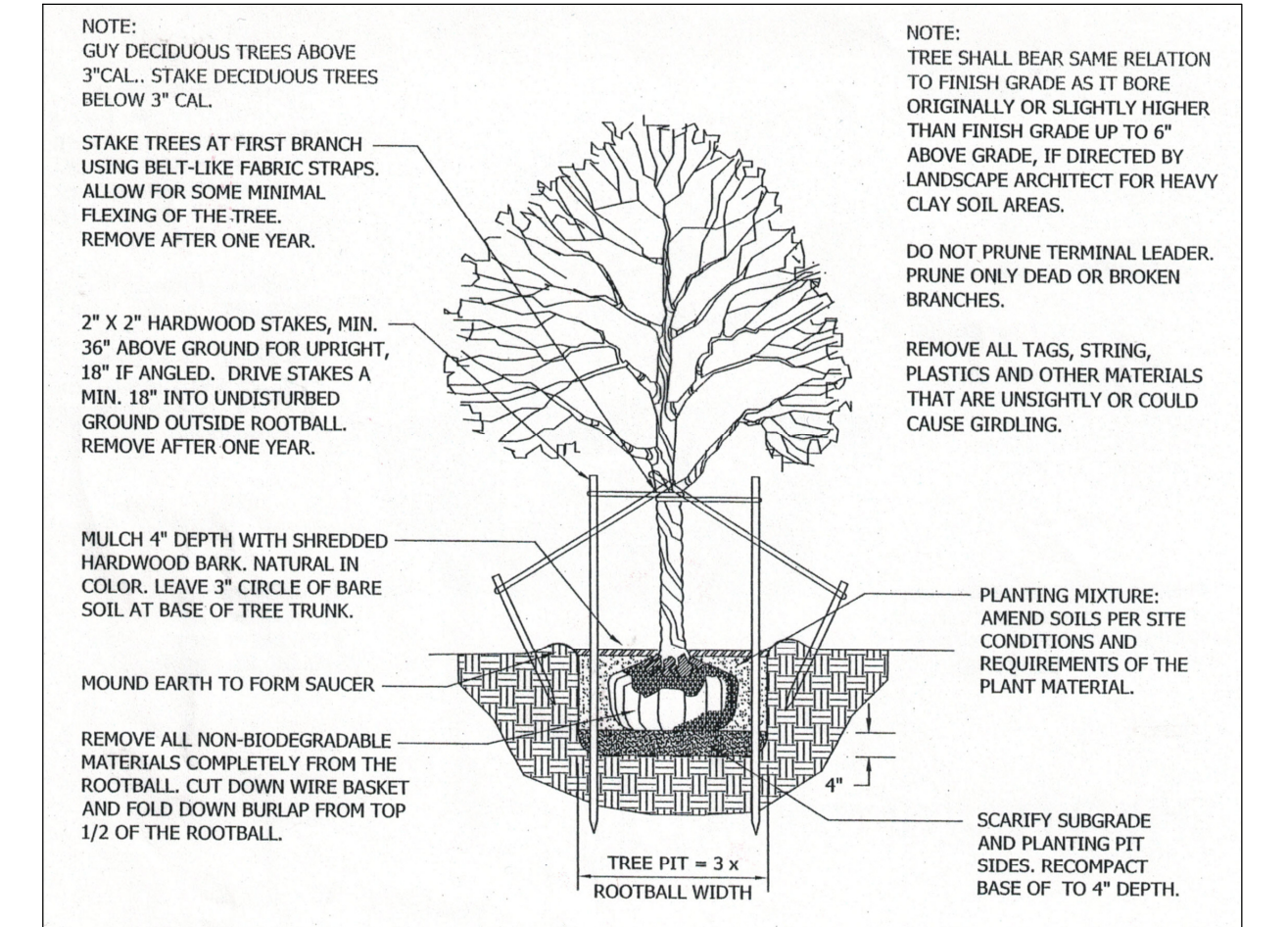
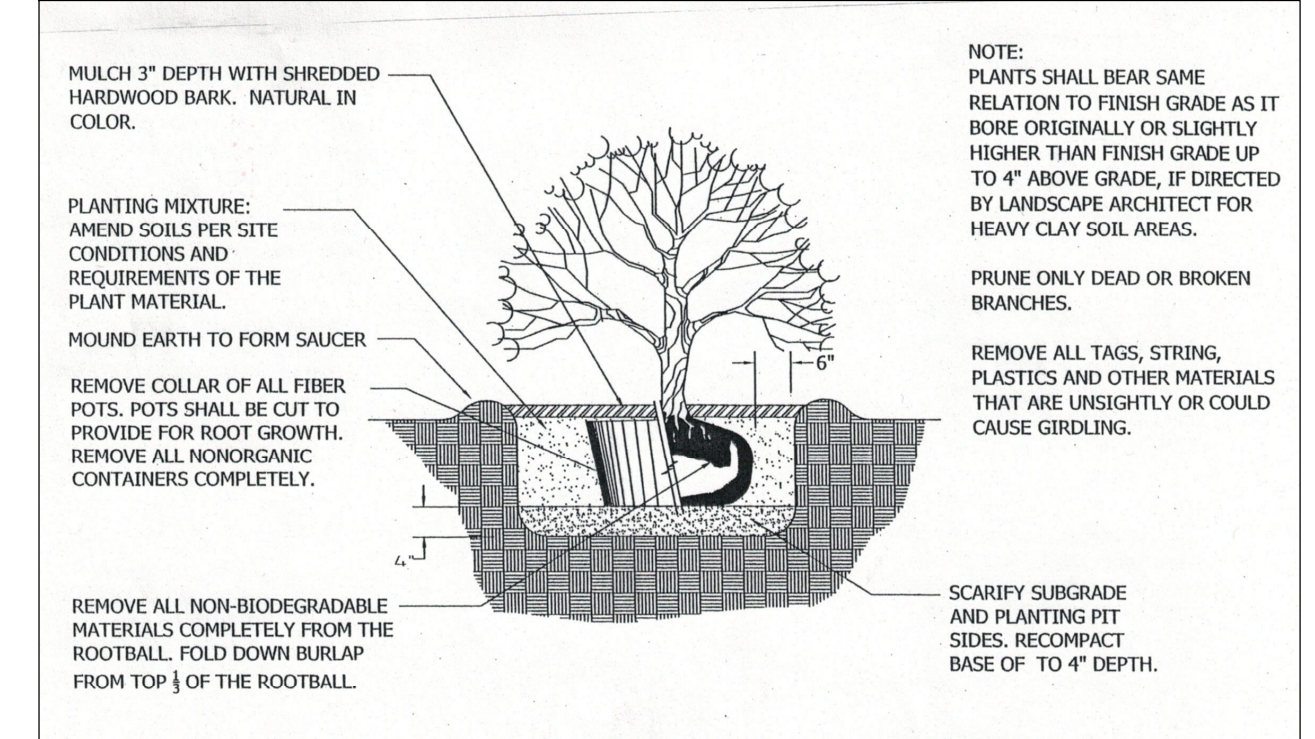
SCALE: 1"=20'

TAX ID #11-22-176-010  
 ZONED: IM  
 0.628 Net Ac.

TAX ID #11-22-176-022  
 ZONED: IM  
 2.117 Net Ac.

TAX ID #11-22-176-014  
 ZONED: IM

\*= AFTER COMBINATION



**LEGEND**

FOUND IRON	●	UTILITY POLE	○
SET IRON	⊗	GUY ANCHOR	⊙
STORM DRAIN PIPE	—ST—ST—ST—ST—	OVERHEAD WIRE	—O—O—O—O—
STORM MANHOLE	●	UNDERGROUND ELECTRIC	—UE—UE—UE—UE—
STORM CATCH BASIN	■	CONC. PAD W/ TRANSFORMER	□
STORM INLET	▲	PEDESTAL-ELEC. OR TELE.	⊕
STORM END SECTION	□	GAS MAIN	—G—G—G—G—
DRAINAGE SWALE OR DITCH	---	FENCE LINE	—F—F—F—F—
SANITARY SEWER PIPE	—SN—SN—SN—SN—	EXISTING ELEVATION	○
GUTTER	—G—G—G—G—	PROPOSED ELEVATION	○
SANITARY SEWER MANHOLE	●	TOP OF ASPHALT	○
WATER MAIN	—WM—WM—WM—WM—	TOP OF CONCRETE	○
WELL	⊗	FINISHED FLOOR	○
WALL DOWNLIGHT	▲	FINISHED GRADE	○
WALL SCONCE	○	AS BUILT	○

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 EMAIL: bftompsonpc@outlook.com  
 1520 GULLEY ROAD,  
 HOWELL, MI, 48843

STATE OF MICHIGAN  
 BRAD F. THOMPSON  
 PROFESSIONAL ENGINEER  
 6201023828

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FOR THE LOCATION OF UNDERGROUND FACILITIES

UTILITIES NOTE: Utility locations are from Municipal and various Utility Company records and no guarantee, either implied or expressed, is given by this firm as to the accuracy of said location. The contractor shall request appropriate utility records for the project. Construction shall not start until such stakes have been placed. The Contractor shall start construction until such stakes have been placed. The Contractor shall project, or have rechecked, all contractor stakes, all utility stakes that are to be used, and all other stakes that are to be used by the various utility owners in accordance with Michigan P.A. No. 83 of 1974.

PROJECT: "J&J OF HIGHLAND"  
 CLIENT: J & J OF HIGHLAND, LLC  
 ATT: MRS. JULIA DOWSON  
 SITE LOCATION: SEC. 22, T.3N., R.7E., HIGHLAND TWP., OAKLAND CO.  
 TAX ID: #11-22-176-010 & -022

SHEET TITLE: EXISTING CONDITIONS PLAN

Date: 4/10/26  
 Drawn By: NDT  
 Chkd. By: BFT  
 Scale: 1"=20'  
 BFT Job: #23-4436  
 Sh. 2 of 9

**SITE PLAN OF TAX ID #11-22-176-010 & -022  
FOR J&J OF HIGHLAND, LLC  
OF PART OF HIGHLAND TOWNSHIP,  
OAKLAND COUNTY, MICHIGAN**

**LEGAL DESCRIPTION (For Overall Combined Parcel)**  
The South 30.00 ft. of Lot 15, all of Lots 16 through 21, inclusive, and the North 16.66 ft. of Lot 22 of "Highland Gardens", a subdivision of part of the East 1/2 of the West 1/2 of Section 22, T.3N., R.7E., Highland Township, Oakland County, Michigan as recorded in Liber 72 of Plats, Page 3, Oakland County Records.

Tax I.D. # = #11-22-176-010 (N. parcel) & -022 (Primary parcel)  
Area = 27,369 sq. ft. = 0.628 Ac. North Parcel Area (-010)  
Area = 92,220 sq. ft. = 2.117 Ac. South Parcel Area (-022)  
Area = 119,589 sq. ft. = 2.745 Ac. Combined Parcel Area (-010 + -022 Combined)

**GENERAL NOTES**

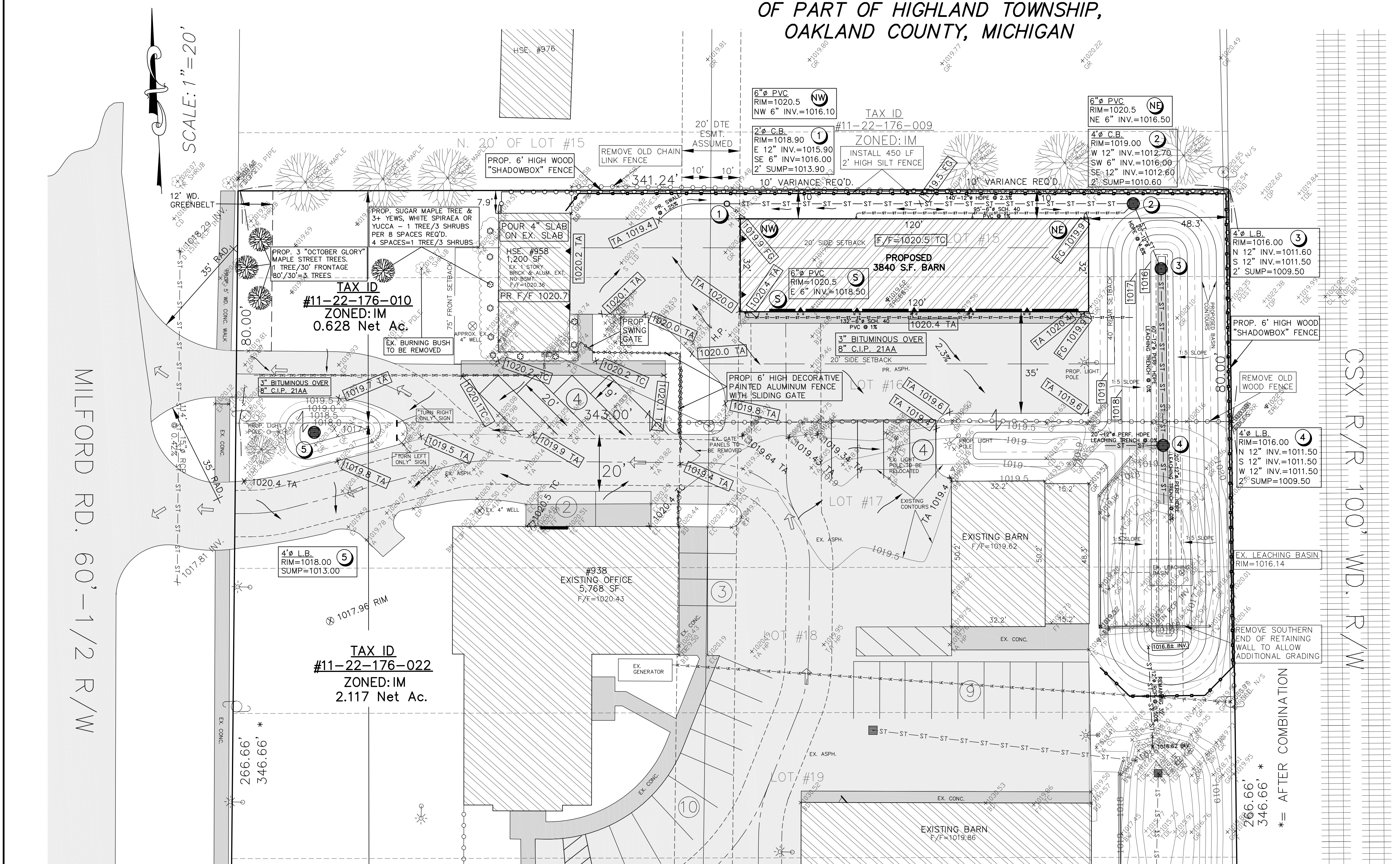
- The property is currently zoned "IM". The adjacent zonings are as follows:  
North: "IM", East: Railroad & then "TR", South: "IM", West: "IM". This use is a permitted use in Sec. 4-11.1, B.2.
- All exterior lighting will be either mounted on the face of the building near entrances or will be a single pole mounted "DDA" type light (see detail) as shown on the plan.
- No new signs are proposed for this development due to this Site Plan request other than the addition of 2 directional traffic signs near the exit from the site.
- If this Site Plan and 10' variance request are approved by Highland Twp., the Owner will pursue a combination of the two parcels (176-010 & 176-022), prior to any commencement of construction, so that no cross access or other easements will be necessary.

SITE	BLDG. AREA	SITE AREA	% SITE COVERAGE
176-010	5,020 Sq. Ft.	27,369 Sq. Ft.	18.3%
176-022	15,940 Sq. Ft.	92,220 Sq. Ft.	17.3%
AFTER COMBINE	20,960 Sq. Ft.	119,589 Sq. Ft.	17.5%

- The owner is involved in potable water supply and wastewater treatment plant maintenance, operation and testing. The existing residential building will be used for "cold" storage of company and client records and the proposed 32 ft. x 120 ft. building will be used for storage of company vehicles and equipment.
- No outdoor storage, other than company vehicles, will be required.
- No new employees are expected due to these two storage buildings.
- Electric service to the proposed building will be underground as required by the Ordinance. The exact route will be determined by the DTE service planner.
- There currently are no desirable trees east of the house. None of the existing trees west of the house will have to be removed due to any proposed site construction.
- No new driveways will be requested on N. Milford Road, simply improvements to an existing driveway entrance and some existing concrete removal from the right of way.

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BRAD F. THOMPSON  
PROFESSIONAL ENGINEER  
No. 6201023828



- Landscaping Requirements:  
Sec. 12.01 & 12.02: We believe that we have complied with all of the applicable requirements as they apply to this development.  
Sec. 12.03: A & B: We have complied with and planting details are on Sht. 2. We will comply with the landscape maintenance requirements.  
Sec. 12.04: There are notes on Sht 3 of the plans describing that we propose to add a 6' high wood shadowbox style fence along the north and the east property lines and remove any existing duplicate chain link fence in those areas. We will remove the existing wood fence along the south line.  
Sec. 12.05: We believe that we have met the Parking Lot Landscaping requirements.  
Sec. 12.06: We believe that we have met the Greenbelt Landscaping requirements.  
Sec. 12.07: We believe we have met the requirements of Site Landscaping with the extra plantings west of the existing house.  
Sec. 12.08: We will use the existing trash receptacle that is east of the Laboratory. N/A.  
Sec. 12.09: N/A.  
Sec. 12.10: We have & will meet or exceed all requirements for Size and Spacing.
- Article 13: We believe that we have complied with all requirements of the Lighting Plan shown on page 7 of the Site Plan.
- No new parking spaces are required but we are proposing 4 new angle spaces as part of this site plan. Parking is based upon IM "...testing and related accessory office" at 1 per 550 sq. ft. Lab = 1,600 sq. ft. + Office = 5,768 sq. ft. = 7,368 sq. ft. total / 550 = 14 spaces are required for the entire Site. With the 4 new angled spaces we will have a total of 41 spaces including 3 handicapped spaces.
- Neither the existing house, nor the proposed garage, will require any water supply or sewage disposal facilities. Restrooms are available in the Office and the Laboratory.
- A soil erosion control permit from the OCWRC is not required for this site because the disturbed acreage is well less than 1.0 acre and the site is not within 500 ft. of open water. However, prior to any site disturbance, the existing chain link fence will be removed and the new 6' shadowbox wood fence will be installed and silt fence installed inside the fenced area to prevent any siltation occurring on the neighbors properties.

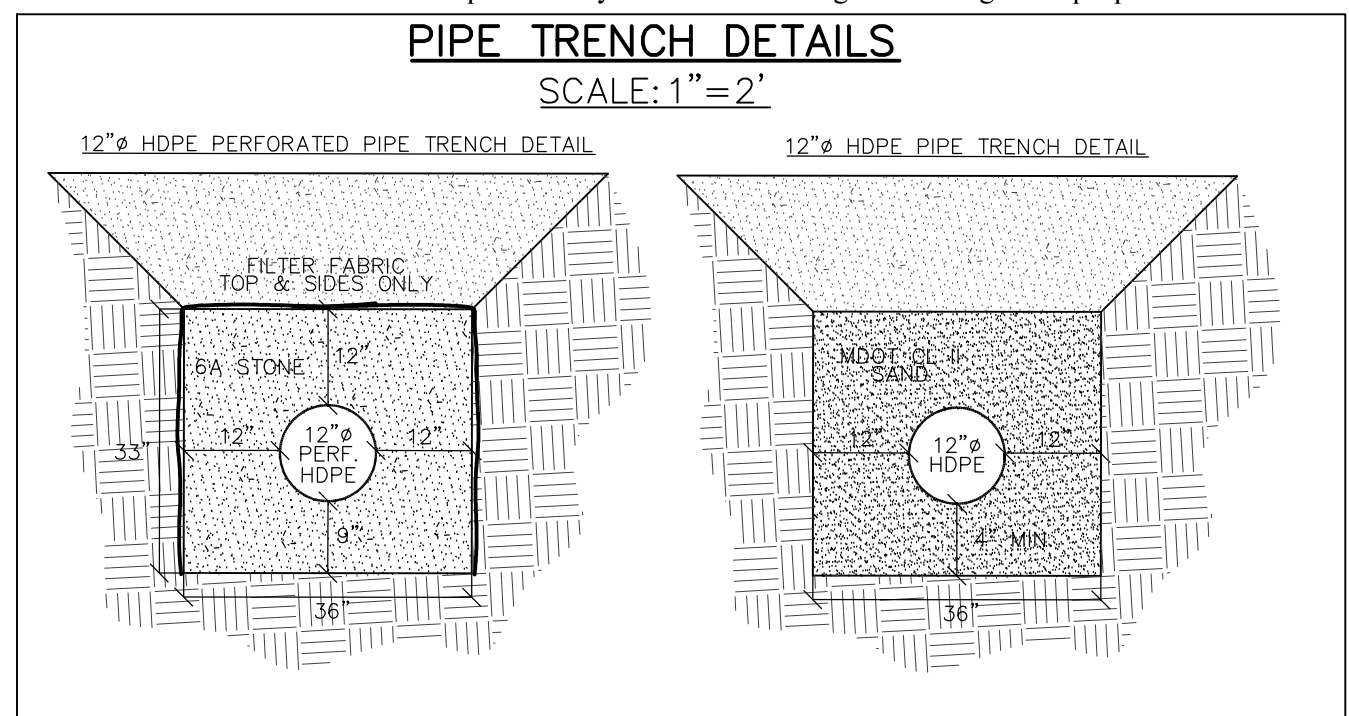
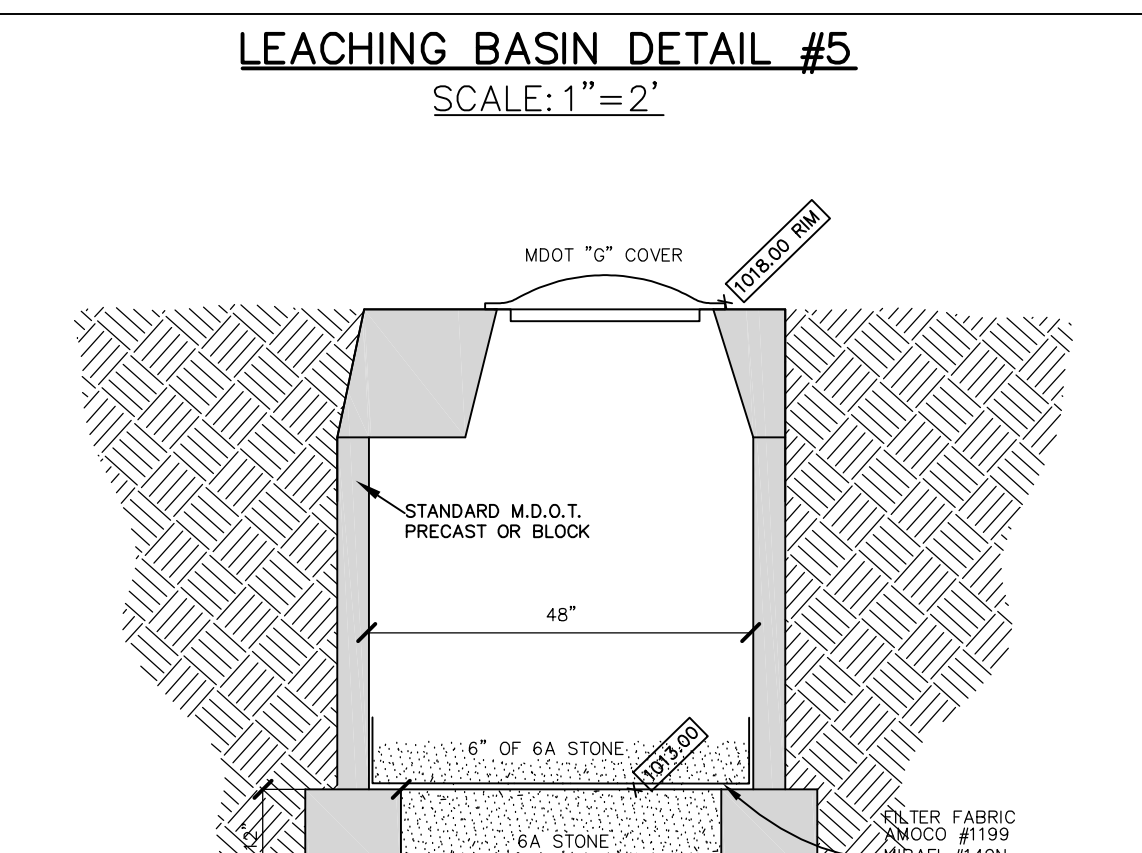
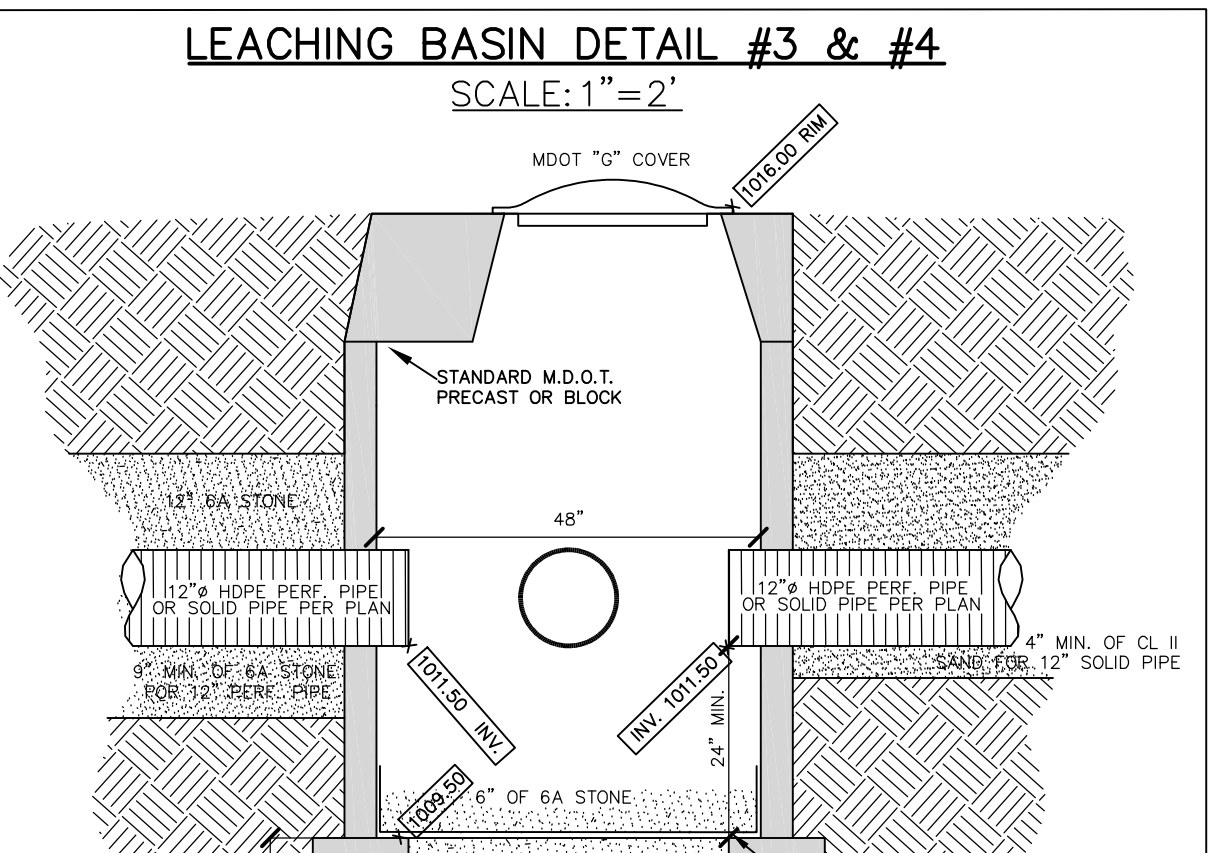
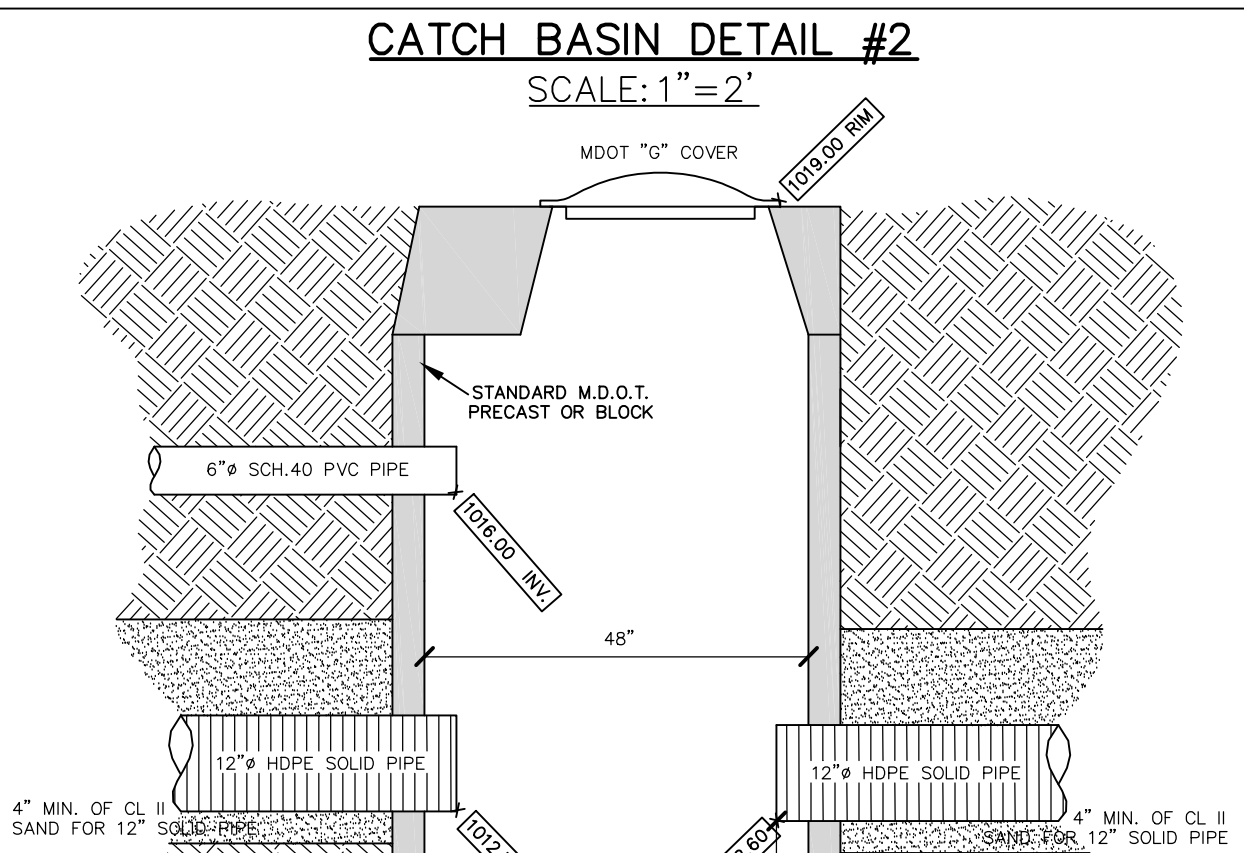
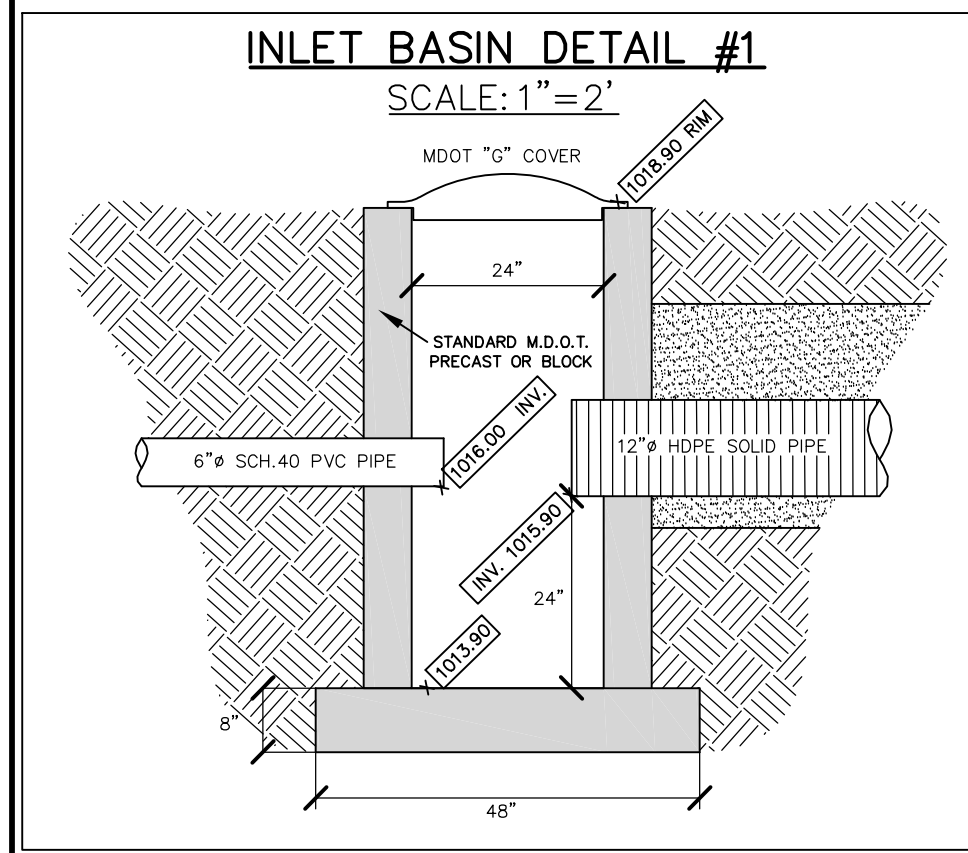
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**"J&J OF HIGHLAND"**

CLIENT: J & J OF HIGHLAND, LLC  
ATTN: MRS. JULIA DOWSON  
SITE LOCATION: SEC. 22, T.3N., R.7E., HIGHLAND TWP., OAKLAND CO.  
TAX I.D. #11-22-176-010 & -022



**LEGEND**

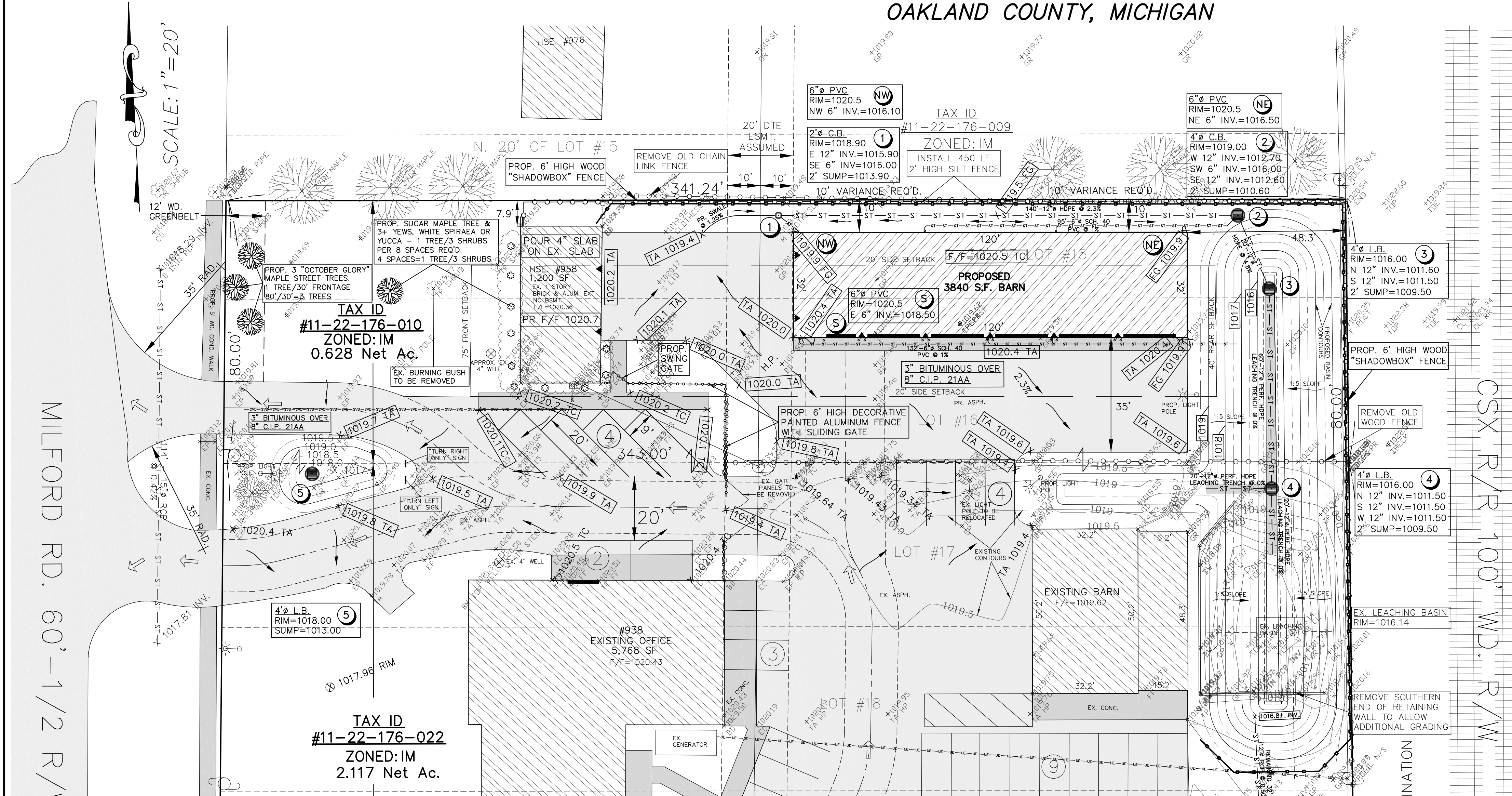
FOUND IRON	●	UTILITY POLE	○
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STORM INLET	□	PEDESTAL-ELEC. DR. TELE.	□
STORM END SECTION	▲	GAS MAIN	—GAS—GAS—GAS—GAS—
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WELL	⊗	FINISHED FLOOR	○
WALL DOWNLIGHT	▲	FINISHED GRADE	○
WALL SCONCE	○	AS BUILT	○

**SITE PLAN**

PROJECT: J&J OF HIGHLAND  
SITE INFO: CLIENT: J & J OF HIGHLAND, LLC  
SHEET TITLE: SITE PLAN

Date: 4/10/26  
Drawn By: NDT  
Chkd. By: BFT  
Scale: 1"=20'  
BFT Job: #23-4436  
Sh. 3 of 9

# STORM DRAINAGE PLAN OF TAX ID #11-22-176-010 & -022 FOR J&J OF HIGHLAND, LLC OF PART OF HIGHLAND TOWNSHIP, OAKLAND COUNTY, MICHIGAN



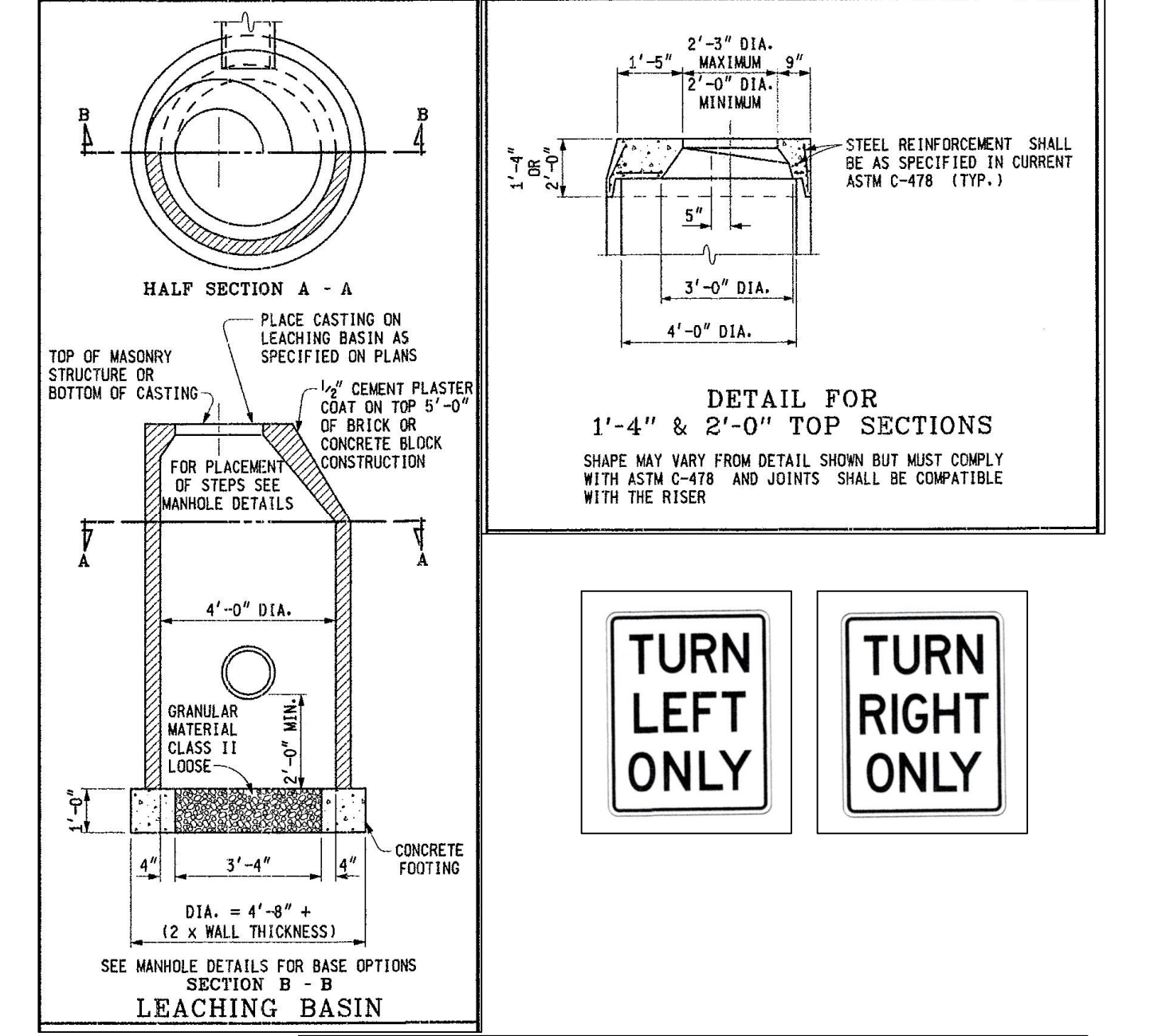
### STORM DRAINAGE DESIGN NARRATIVE:

The existing leaching basin system has performed effectively for more than 30 years, so we propose maintaining the current design with certain updates to meet Township requirements. The western 1/3 of the property currently drains to the open ditch in Milford Road and because we are not proposing to construct any improvements in that area we will allow the surface drainage to continue to the ditch. The eastern 2/3 of the property will drain to an enlarged existing leaching basin. Storm water from the east half of the house will flow easterly to a new swale and a 2' dia. catch basin at the northwest corner of the 32' x 120' proposed garage structure. The 2' catch basin will be connected with a 12" dia. HDPE dual wall solid pipe to a new 4' dia. catch basin at the northeast corner of the new garage. This catch basin will then flow through a 12" dia. HDPE dual wall solid pipe to a 4' dia. leaching basin in the newly constructed basin extension. Storm water will proceed through a 12" dia. slotted leaching dual wall HDPE pipe in a 3' wide by 2'9" high 6A stone bedding that will be wrapped with geotextile fabric on the top and both sides of the stone bedding to another 4' dia. leaching basin in the main detention basin. In addition, this catch basin will have 20' of 12" leaching pipe and stone to the west and also 20' to the south to a point about 20' north of the original rectangular leaching structure installed in 1994. We will also remove the silt and grass that has accumulated over the last 30 years from the bottom of the original basin and reseed it. This enlarged northerly basin is connected to the southerly basin by a 12" dia. RCP that was necessary so that electrical power could be run underground from the existing pole near the railroad tracks to the main office building. We have also added a new small western detention basin between the two Exit drives to accommodate any storm drainage developed on the nearby asphalt drives.

**Existing Soils:**  
The existing soils near the basin consist of: 1' of topsoil over 3' loamy sand over 7' of coarse sand - similar to previous holes on other portions of the site. The bottom of the proposed leaching basins and the perforated pipe will be in the area of the coarser sand. We therefore will continue to use the 6"/hr. as a minimum percolation rate for sand per the Soil Survey of Oakland County Manual.

**Supplied Outflow:**  
We propose to install a total of 3 new 4' dia. leaching structures in the basin and a total of 100 ft. of 12" dia. HDPE Dual Wall perforated pipe in a 3' wide by 2'9" high 6A stone trench. We have previously made the assumption that the sidewalls of the trench will percolate at only 50% of the rate of the trench bottom which is the 6"/hr. minimum.

3 - 4' Dia Leaching basin bottoms:  $3 \times \pi (4')^2 / 4 = 38 \text{ sq. ft.}$   
100 ft. of trench =  $100' \times (3' + 50\% \times (2 \times 2.75')) = 575$   
Total leaching area = 613 sq. ft.  
Total expected flow to soils = 613 sq. ft. x 0.5 ft./hr. x 3600 sec = 0.085 cfs



**PROPOSED BASIN BETWEEN NORTHERN EXITS**  
Date: 1-12-26 By: NDT JOB #: 23-4436

ELEV. (feet)	AREA* (sq. feet)	AVERAGE HEIGHT (feet)	VOLUME (cu. Feet)	TOTAL (cu. feet)	COMMENT
1017.50	0	0	0	0	
1018.00	109	36	0.50	18	SEDIMENT STORAGE
1018.50	252	181	0.50	90	108 TOP OF WATER
1019.00	423	338	0.5	169	277
1019.50	675	549	0.5	275	552 1' FREEBOARD

TOTAL VOLUME TO TOP OF WATER = 108 cu. Feet  
TOTAL VOLUME W/1' FREEBOARD = 552 cu. Feet

**EXISTING SOUTH END WITH NEW CUT MOVED 6' SOUTH & SILT REMOVED, PLUS PROP. ADDITION TO NORTHERN DETENTION BASIN VOLUME DATA**  
Date: 2-4-26 By: NDT JOB #: 23-4436

ELEV. (feet)	AREA* (sq. feet)	AVERAGE HEIGHT (feet)	VOLUME (cu. Feet)	TOTAL (cu. feet)	COMMENT
1015.50	411	0	0	0	
1015.64	599	505	0.14	71	71 SEDIMENT STORAGE
1016.00	1,098	849	0.36	305	376
1016.50	1,824	1,461	0.5	731	1,107
1017.00	2,590	2,207	0.5	1,104	2,210
1017.50	3,396	2,993	0.5	1,497	3,707
1018.00	4,241	3,819	0.5	1,909	5,616
1018.50	5,326	4,784	0.5	2,392	8,008 TOP OF WATER
1019.00	6,486	5,906	0.5	2,963	10,961
1019.50	7,667	7,077	0.50	3,538	14,499 OVERFLOW AT SOUTH END OF SITE = 1019.5

TOTAL VOLUME TO TOP OF WATER = 8,008 cu. Feet  
TOTAL VOLUME W/1' FREEBOARD = 14,499 cu. Feet

**OCDC 100 YEAR DETENTION BASIN SIZING & VOLUME CHART**  
JOB DESCRIPTION: J & J OF HIGHLAND, LLC - NORTH PARCEL ONLY #11-22-176-010  
Job#: 4436 By: BFT Date: 2/4/2026 Revisions:

Note: Statements followed with a colon (:) require the user to input a value and statements followed with an equal (=) sign are calculated.

1) SITE CHARACTERISTICS:  
Onsite Contributing Area = 0.44 ac. Onsite Composite "C" = 0.65 Allowable discharge rate/acre = 0.00 cfs/ac.  
Offsite Contributing Area = 0.00 ac. Offsite Composite "C" = 0.20 Allowable Onsite Discharge = 0.085 cfs \*  
Total Contributing Area = 0.44 ac. Total Composite "C" = 0.65 Allowable Total Discharge = 0.085 cfs \*  
cfs \*\*\* = Allowable outflow based on 6"/hr percolation from three (3) 4' dia. leaching basin and 100 ft. of 12" slotted line in a 3' x 2.75' stone trench = 0.085 cfs.

2) INITIAL DETENTION BASIN SIZING:  
Allowable site discharge area from above =  $Q_{allow} / C = 0.085 \text{ cfs} / 0.297 = 0.286 \text{ ac.}$   
 $T = 1.48 \text{ min.}$   
 $V_{min} = V_{in} \times \text{Area} \times C = 3.537 \text{ cu. ft.} = \text{initial required detention basin volume.}$

**ORIGINAL OFFICE BASIN VOLUME**  
VOLUME SUPPLIED - EAST BASIN

ELEV.	AREA (S.F.)	AVG. AREA	DEPTH	VOLUME	CUM. VOL.
1013.47	0				
1014	1014	507	0.53	269	269
1015	1650	1332	1	1332	1601
1016	2836	2243	1	2243	3844
1016.5	3630	3233	0.5	1617	5461

NOTE: THESE ELEVATIONS UTILIZED USGS DATUM WHICH IS 2.67' LOWER THAN CURRENT NAVD88 DATUM. ADD 2.67' TO THESE NUMBERS TO MATCH CURRENT.

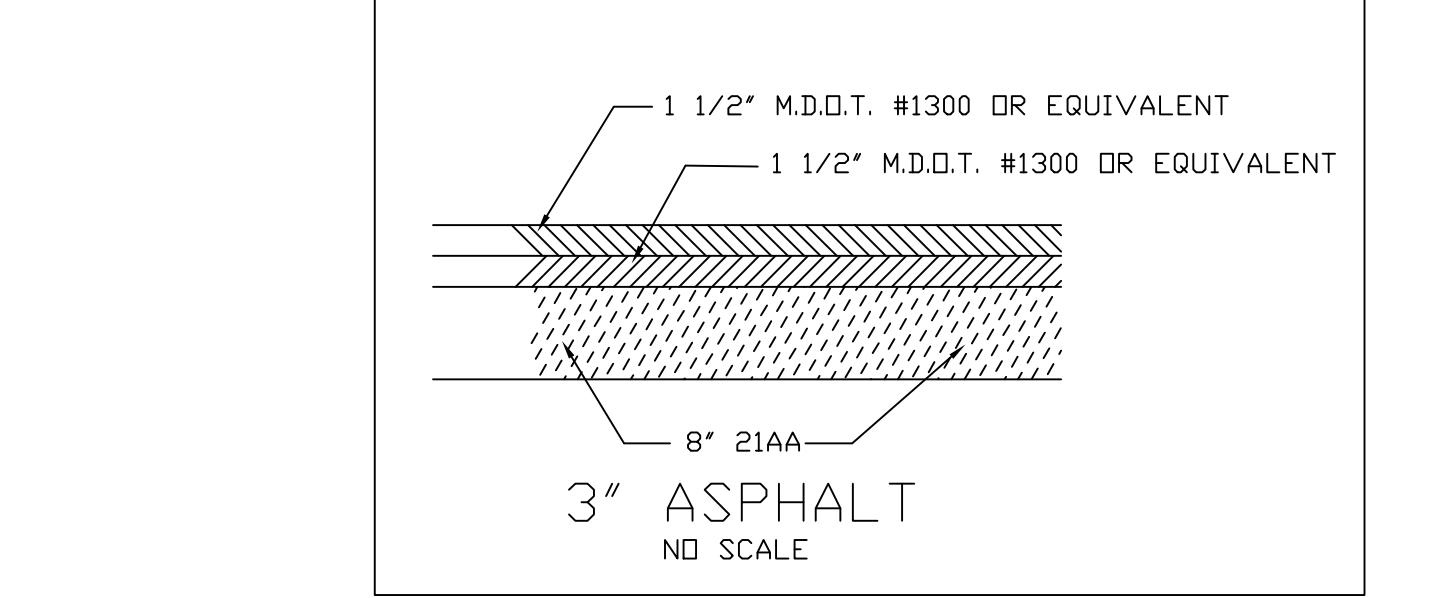
**COMPOSITE "C" CALCULATIONS FOR: J&J OF HIGHLAND, LLC - 4436**  
DATE: 1/28/26 JOB No: 23-4436 BY: NDT

AREA DESIGNATION:	EX. EAST	PROP. EAST
0.056 Ac. X 0.90 = 0.050		
0.000 Ac. X 0.50 = 0.000		
0.384 Ac. X 0.20 = 0.077		
0.000 Ac. X 0.00 = 0.000		
0.440 Ac. X 0.127 = 0.044		
<b>COMPOSITE "C" = 0.29</b>		

**COMPOSITE "C" FACTORS USED IN THESE CALCULATIONS:**  
SOURCE OF "C" FACTORS: TOTAL SITE AREA = 0.628 AC.  
HARD SURFACED AREAS = 0.90 GRAVEL AREAS = 0.50  
MISCELLANEOUS AREAS = 0.00 GRASS AREAS = 0.20

**DRAINAGE CALCULATION FORM FOR: B.F. Thompson P.C. PROJECT NAME: J & J OF HIGHLAND - NORTH SITE**  
DATE: 1/12/26 SHT. 1 OF 1 PREPARED BY: BFT INITIAL TC= 20 MIN PER TWP.

Area No.	Comp. "C" (t+25)	Intensity (in/hr)	Area (Ac.)	Q exp. (cfs)	Inflow from previous structure (cfs)	Total Expected Inflow (cfs)	Factor	From Struct. (ft.)	Rim Elev. (ft.)	Invert Elev. (ft.)	Length (ft.)	Dia. (in.)	% Slope	Vel. (fps)	Q. cap. (cfs)	Rim Elev. (ft.)	Invert Elev. (ft.)	To Struct.	Comments
NW	0.90	3.89	0.01	0.02	0.00	0.02	0.013	NW	20.50	16.10	7	6	1.40	3.38	0.663	18.90	16.00	CB 1	NW ROOF CONNECTION TO CB #1
1	0.69	3.89	0.09	0.24	0.02	0.26	0.013	CB 1	18.90	15.90	140	12	2.3	6.879	5.403	19.00	12.70	CB 2	EX. ROOF/ASPH. GRASS AREA N. OF HOUSEBARN
NE	0.90	3.89	0.04	0.13	0.00	0.39	0.013	NE	20.50	16.50	16	6	3.13	5.03	0.987	19.00	16.00	CB 2	NE ROOF CONNECTION TO CB #2
2	0.20	3.89	0.02	0.01	0.39	0.40	0.013	CB 2	19.00	12.60	20	12	4.80	9.938	7.805	16.00	11.60	CB 3	GRASS AREA N. OF BARN COMB. WITH NE ROOF AREA INTO CB#2
S	0.90	3.89	0.04	0.15	0.00	0.15	0.013	S	20.50	18.50	132	6	1.00	2.86	0.561	N/A	17.20	BASIN	SOUTHERN ROOF CONNECTION TO BASIN



**LEGEND**

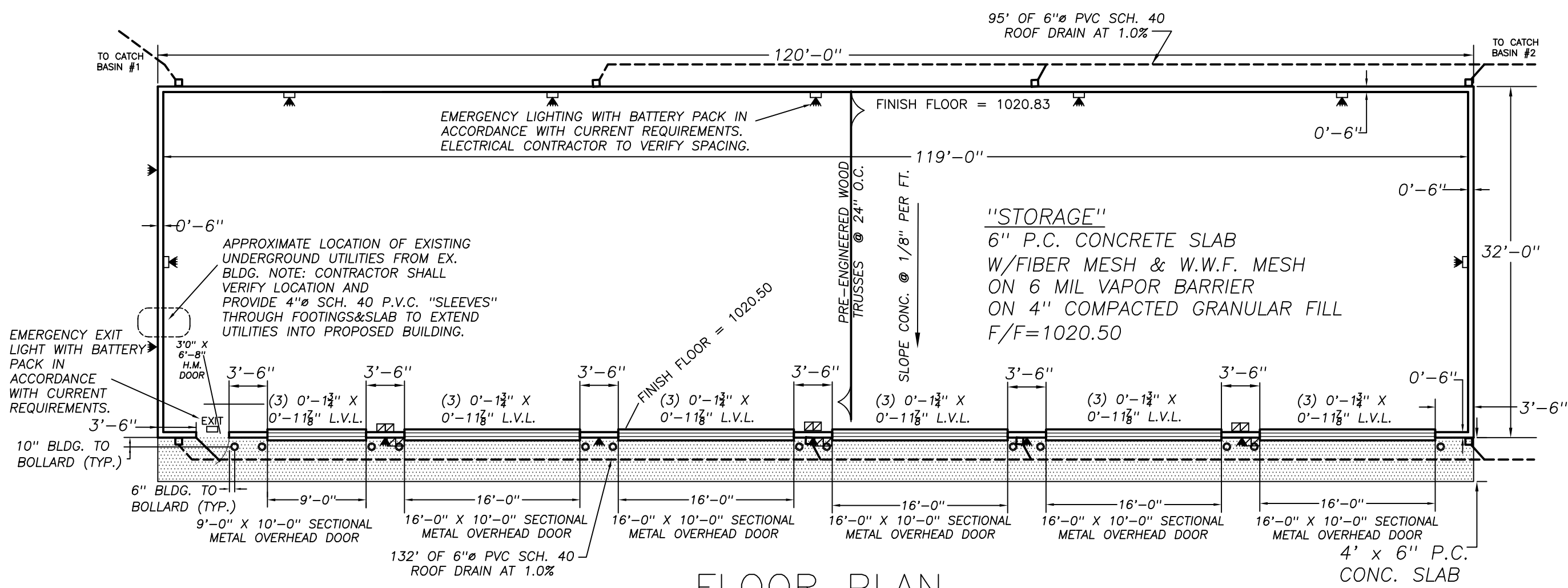
FOUND IRON	UTILITY POLE
SET IRON	GUY ANCHOR
STORM DRAIN PIPE	OVERHEAD WIRES
STORM MANHOLE	UNDERGROUND ELECTRIC
STORM CATCH BASIN	CONC. PAD W/ TRANSFORMER
STORM INLET	PEDESTAL-ELEC. OR TELE.
STORM END SECTION	GAS MAIN
DRAINAGE SWALE OR DITCH	FENCE LINE
SANITARY SEWER PIPE	EXISTING ELEVATION
SANITARY SEWER MANHOLE	GUTTER
WATER MAIN	TOP OF ASPHALT
WELL	TOP OF CONCRETE
WALL DOWNLIGHT	FINISHED FLOOR
WALL SOURCE	AS BUILT

**B.F. Thompson P.C.**  
civil engineering & land surveying  
VOICE 517/548-3142  
EMAIL: bftompsonpc@outlook.com  
1520 GUILLEY ROAD, HOWELL, MI, 48843

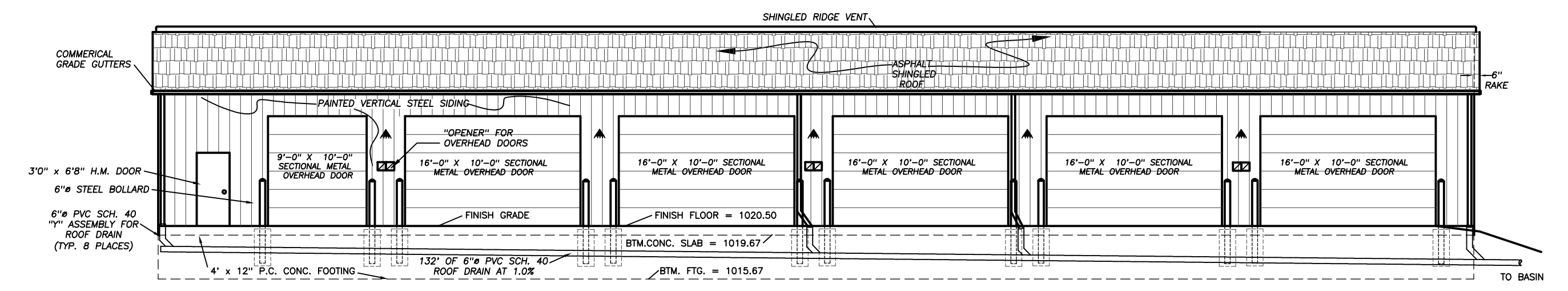
**STATE OF MICHIGAN**  
BRAD F. THOMPSON  
PROFESSIONAL ENGINEER  
6201023928

**CLIENT: J & J OF HIGHLAND, LLC**  
ATTN: MRS. JULIA DOWSON  
SITE LOCATION: SEC. 22, T.3N., R.7E., HIGHLAND TWP., OAKLAND CO.  
TAX ID: #11-22-176-010 & -022

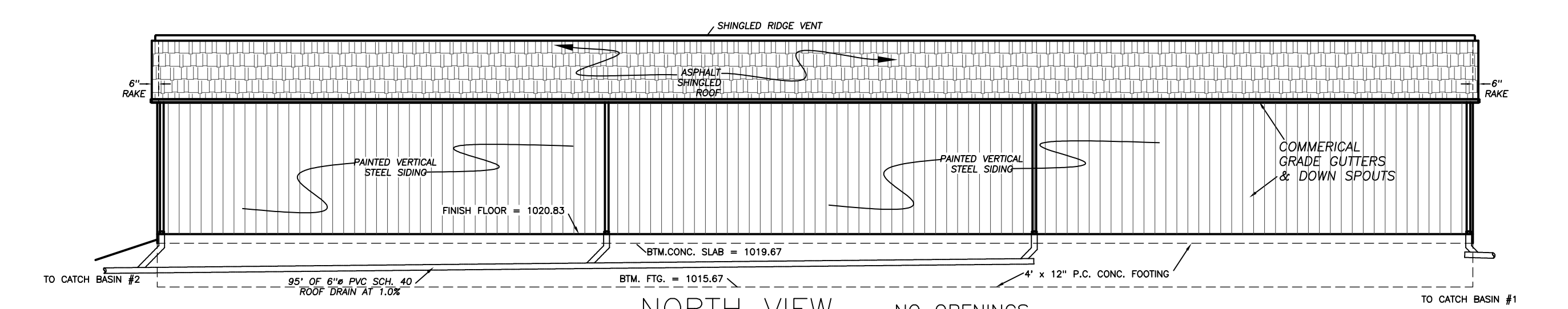
**PROJECT:** J&J OF HIGHLAND  
**SITE INFO:** STORM DRAINAGE PLAN  
**SHEET TITLE:** STORM DRAINAGE PLAN  
**DATE:** 4/10/26  
**Drawn By:** NDT  
**Chkd. By:** BFT  
**Scale:** 1"=20'  
**BFT Job:** #23-4436  
**Sh. 4 of 9**



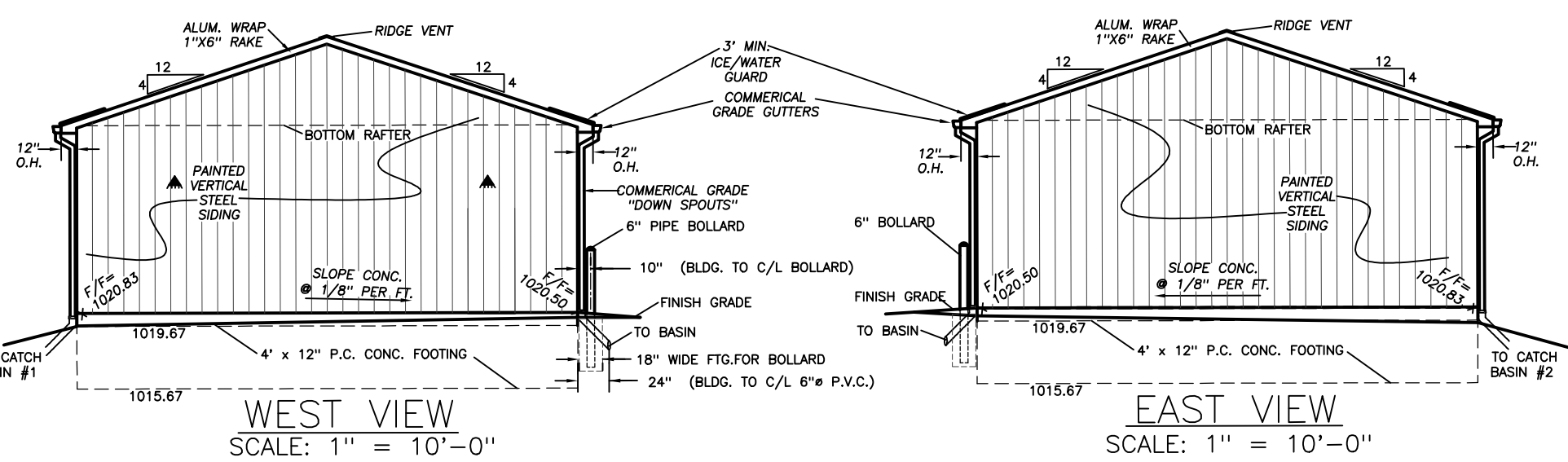
FLOOR PLAN  
SCALE: 1" = 10'-0"



SOUTH VIEW  
SCALE: 1" = 10'-0"



NORTH VIEW - NO OPENINGS  
SCALE: 1" = 10'-0"

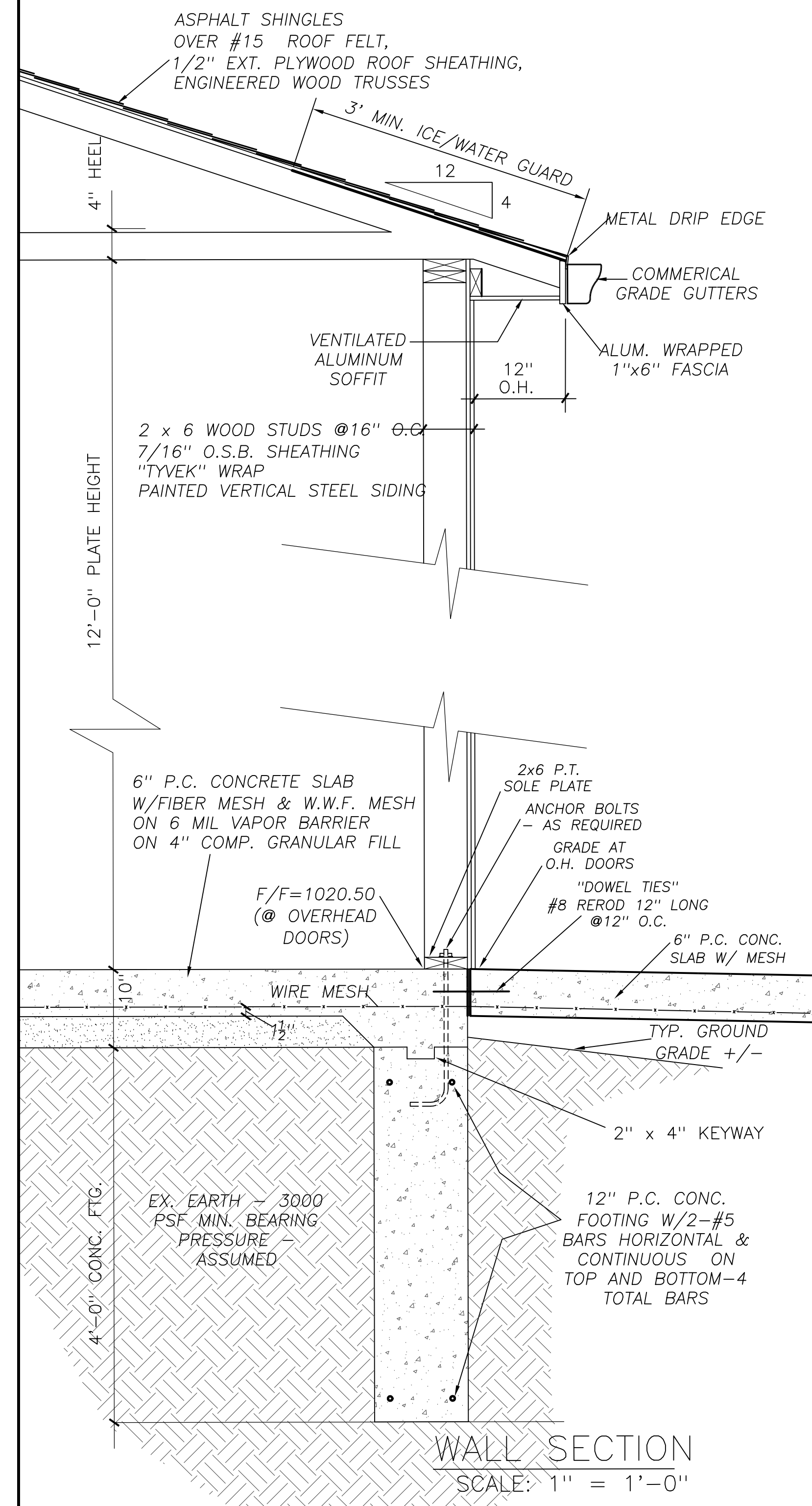


WEST VIEW  
SCALE: 1" = 10'-0"

EAST VIEW  
SCALE: 1" = 10'-0"

"LEGEND for BUILDING"  
 ▶=EXTERIOR BUILDING MOUNTED LIGHT (TYP. 5 PLACES)  
 ◻=EXTERIOR BUILDING MOUNTED SCORCE (TYP. 1 PLACE)  
 ◻=OPENER FOR OVERHEAD DOORS (TYP. 12 PLACES)  
 ○=6" STEEL BOLLARDS (TYP. 12 PLACES)  
 □=GUTTER DOWN SPOUT (TYP. 8 PLACES)  
 H.M.= HOLLOW METAL  
 L.V.L. = LAMINATED VENEER LUMBER

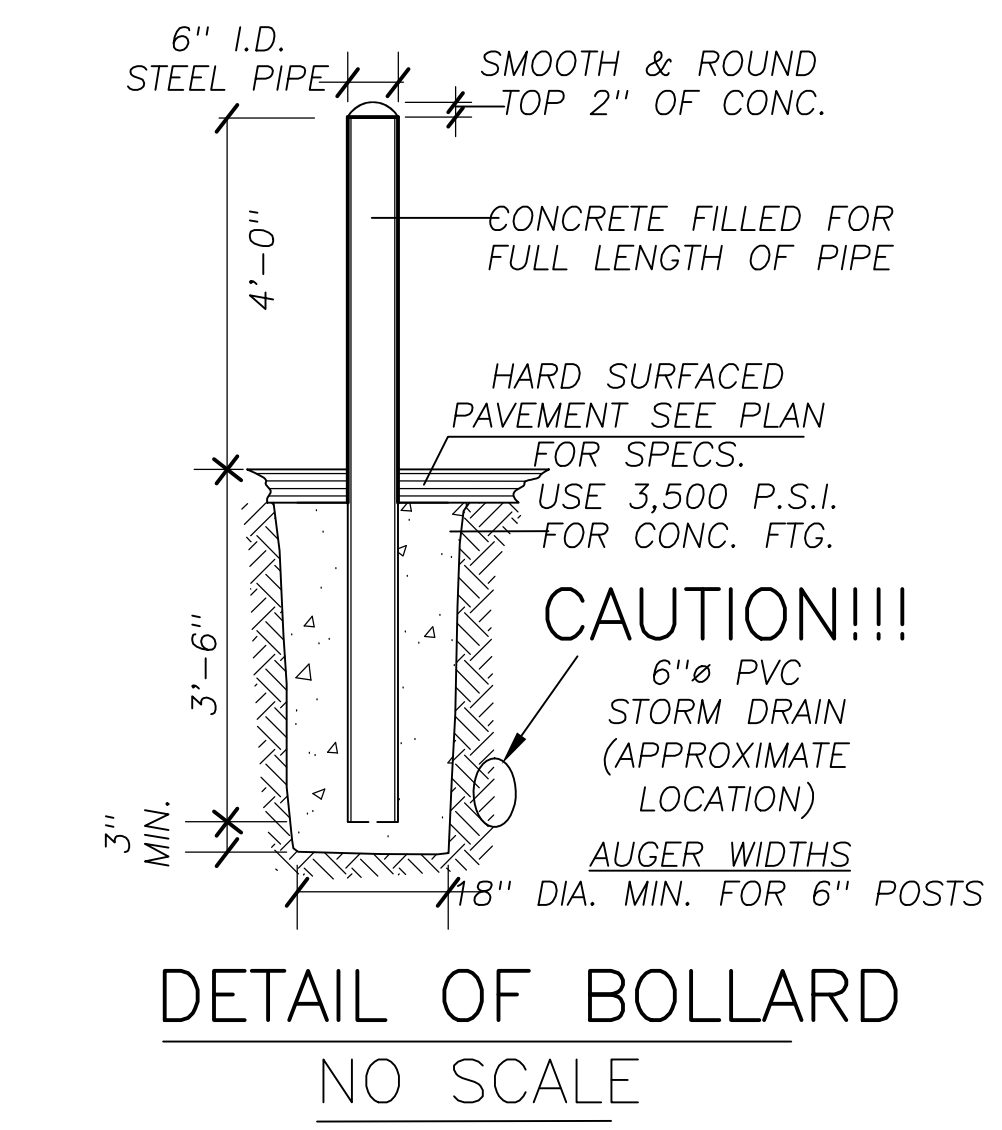
PLAN VIEW OF PROPOSED 32'X120' BARN



WALL SECTION  
SCALE: 1" = 1'-0"

GENERAL CONSTRUCTION NOTES:

- All construction shall be in accordance with the Municipality's current Standards & Regulations.
- The contractor shall notify the local building official and/or the authority having jurisdiction, 48 hours prior to the beginning construction.
- Contractor shall contact "Miss Dig" 72 hours in advance of construction for existing underground utility locations.
- The latest edition of the following issues shall govern the design, fabrication and construction.
  - Wood Structural Design Data, Third Edition, National Forest Products Association.
  - Timber Construction Manual Prepared by American Institute of Timber Construction, Washington, D.C. (A.I.T.C.).
  - Wood - Douglas Fir Larch (No. 2)
    - F<sub>b</sub> = 1,250 PSI F<sub>v</sub> = 1,450 PSI Repetitive Use
    - F<sub>c</sub> = 1,050 PSI F<sub>c</sub> L = 385 PSI
    - E = 1,700,000 H = 95 PSI
  - Laminated Wood Beams Shall be with the following Stress:
    - F = 2,400 PSI F<sub>v</sub> = 200 PSI
    - F<sub>c</sub> L = 385 PSI E = 1,800,000
- Pre-Engineered wood truss design shall bear the seal of a Registered Professional Engineer.
- Entire project to comply with the latest "Occupational, Safety and Health Act (OSHA).
- Soil Bearing Value assumed to be 3,000 P.S.F., unless otherwise noted.
- Footings shall bear on a undisturbed soil with a safe bearing capacity of 3,000 P.S.F. If soil of this capacity is not found at the elevations indicated, footings shall be enlarged or lowered at the direction of the Engineer.
- Excavate to the exact size for trenches and other work where forms are not used.
- Neatly step footings where shown at a slope not exceeding 1 to 2.
- Take extreme care when excavating adjacent to any existing buildings.
- Engineered fill shall be compacted in 9" (max.) layers to the required density of 95% of an A.A.S.H.O. Test T-180. Finished fill shall be capable of carrying a minimum load of 3,000 P.S.F.
- Concrete shall have a minimum compressive strength of 3,000 P.S.I at 28 days.
- Welded wire fabric shall be cold drawn steel wire mesh conforming to ASTM Spec. A-82.
- Key and dowel all construction joints.
- All block shall be clean, undamaged and shall have smooth flush faces of standard sizes. Block below grade shall be concrete block.
- All structural steel shall be A.S.T.M. A-36.
- The latest edition of the A.I.S.C. Specifications shall govern the design, fabrication and construction of structural steel.
- Concrete protection of structural steel columns and base plates below ground 2".



DETAIL OF BOLLARD  
NO SCALE

BUILDING PLANS OF PROPOSED 32' X 100' GARAGE & STORAGE BUILDING.

FOR "HIGHLAND TREATMENT"  
 J & J OF HIGHLAND, L.L.C.  
 P.O. BOX 1059  
 HIGHLAND, MI 48357  
 PHONE: (248) 889-1922

SITE ADDRESS: #958 N. MILFORD ROAD  
 TAX I.D. #: 11-22-176-010

**B.F. Thompson P.C.**  
 civil engineering & land surveying  
 VOICE 517/548-3142  
 EMAIL: bftompsonpc@outlook.com  
 1520 GUILLEY ROAD, HOWELL, MI, 48843

3 WORKING DAYS BEFORE YOU DIG CALL MISS DIG 1-800-482-7171 (TOLL FREE) FOR THE LOCATION OF UNDERGROUND UTILITIES

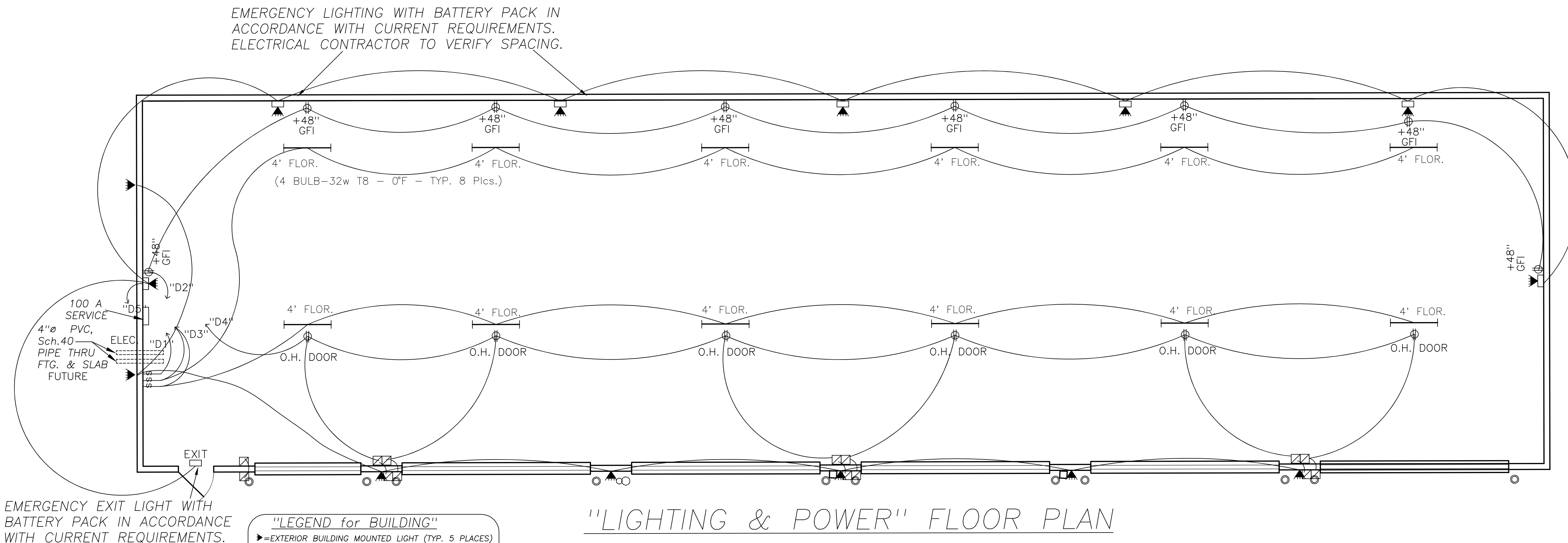
UTILITIES NOTE: Utility locations are from Municipal and various Utility Company records and no guarantee, either implied or expressed, is given by this firm as to the accuracy of said location. The contractor shall request appropriate permission from the utility owner before any work starts, and shall not start construction until such stakes have been placed. The Contractor shall protect, or have relocated, all contractor expenses, and all utilities and stakes that are the various utility owners in accordance with Michigan P.A. No. 53 of 1974.

CLIENT: J & J OF HIGHLAND, LLC  
 ATT: MRS. JULIA DOWSON  
 SITE LOCATION: SEC. 22, T.3N., R.7E., HIGHLAND TWP., OKLAND CO.  
 TAX I.D. #11-22-176-010 & -022

BUILDING ELEVATIONS, FLOOR AND CROSS SECTION PLANS

SHEET	TITLE	DATE	REVISION
101			

Date: 4/10/26  
 Drawn By: BFT  
 Chkd. By: BFT  
 Scale: AS SHOWN  
 BFT Job #23-4436  
 Sh. 5 of 9



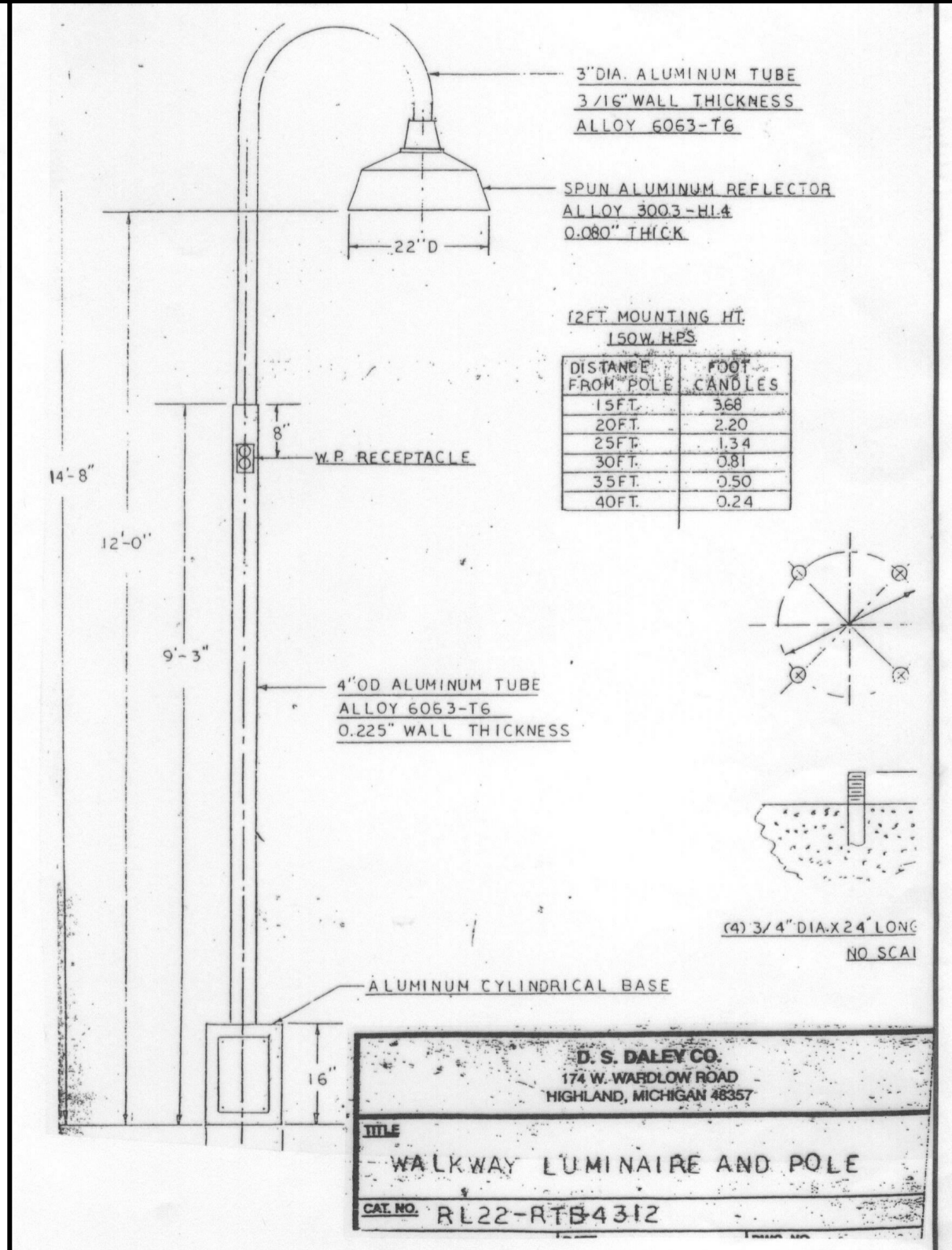
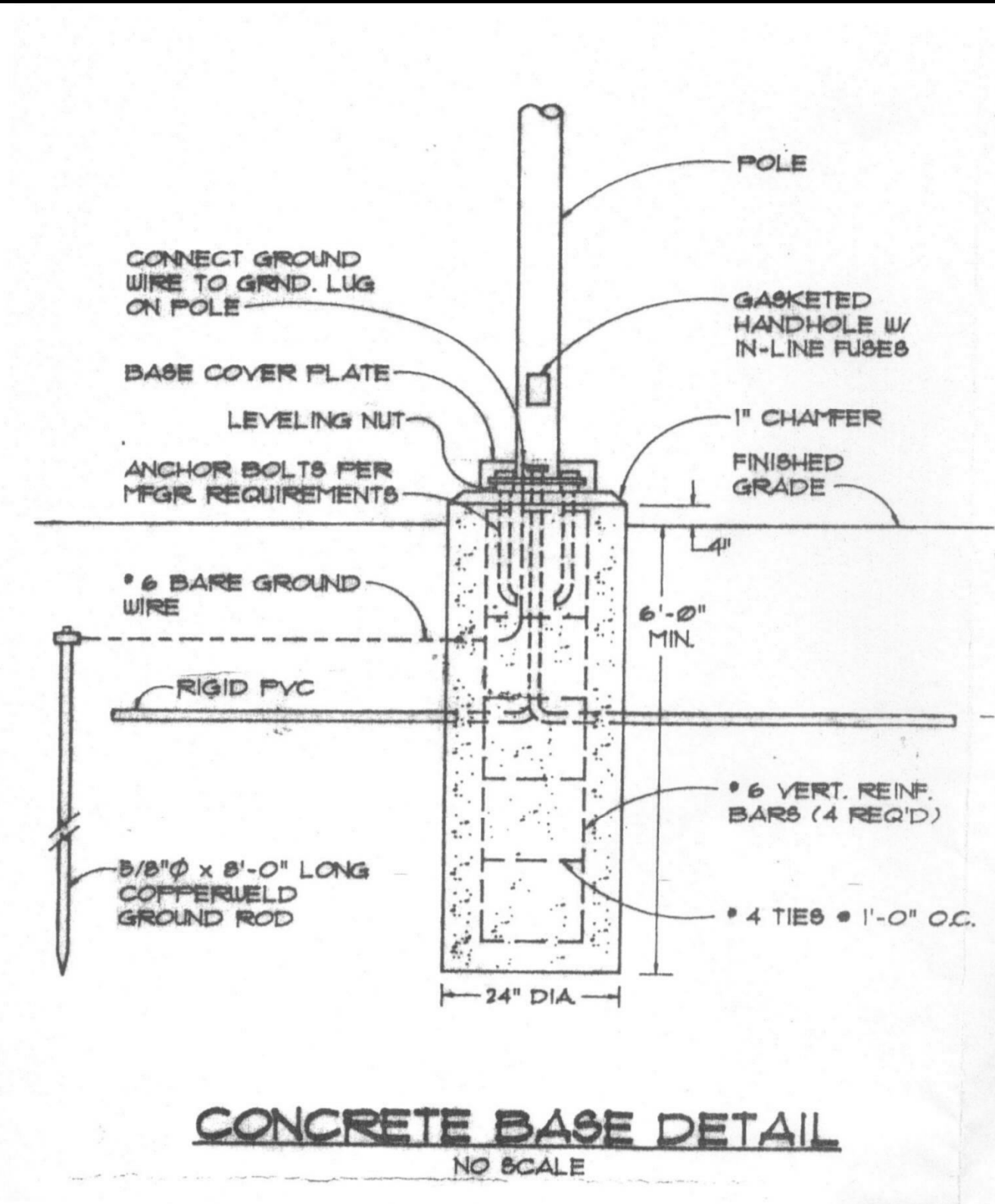
EMERGENCY LIGHTING WITH BATTERY PACK IN ACCORDANCE WITH CURRENT REQUIREMENTS. ELECTRICAL CONTRACTOR TO VERIFY SPACING.

EMERGENCY EXIT LIGHT WITH BATTERY PACK IN ACCORDANCE WITH CURRENT REQUIREMENTS.

- "LEGEND for BUILDING"**
- ▶ = EXTERIOR BUILDING MOUNTED LIGHT (TYP. 5 PLACES)
  - = EXTERIOR BUILDING MOUNTED SCOFFER (TYP. 1 PLACE)
  - = "OPENER" FOR OVERHEAD DOORS (TYP. 12 PLACES)
  - = 6" Ø STEEL BOLLARDS (TYP. 12 PLACES)
  - = GUTTER DOWN SPOUT (TYP. 8 PLACES)
  - H.M. = HOLLOW METAL
  - L.V.L. = LAMINATED VENEER LUMBER

## "LIGHTING & POWER" FLOOR PLAN

SCALE: 1" = 5'-0"



### GENERAL ELECTRICAL NOTES AND SPECIFICATIONS

**GENERAL**  
Contractor shall furnish all materials and labor as indicated on plans and as required for a complete lighting and power system.

**EXAMINATION OF PREMISES**  
Contractor shall visit the job site and be aware of conditions under which he must work.

**PERMITS AND FEES**  
Contractor shall obtain all permits and pay all fees.

**CODES**  
All work shall be executed and inspected in accordance with the latest approved addition of the National Electric Code, the codes of O.S.H.A. and all local authorities having jurisdiction.

**UTILITY COMPANY REQUIREMENTS**  
Comply with construction standards and rules of local utility companies. Contractor shall contact utility companies and verify all service requirements, include in base bid, all utility company charges.

**GROUNDING**  
Cabinets, motor frames, starters, conduit systems, panels, etc., shall be grounded in accordance with the latest N.E.C. and local codes.

**MATERIALS**  
Materials shall be new and bear the U.L. label or listing, wherever standards have been established.

**AS-BUILT DRAWINGS**  
Contractor shall prepare and maintain accurate record drawings of all underground and concealed work and shall submit these drawings to owner upon final acceptance of the work or upon owner's request.

**DRAWINGS AND MEASUREMENTS**  
The Site Plan Drawings are partly diagrammatic and are not intended to be scaled for rough-in measurements nor to serve as shop drawings. Field measurements necessary for ordering materials and fitting the installation to the building construction and arrangement shall be taken by the contractor.

**SHOP DRAWINGS**  
Complete shop drawings for all electrical work shall be submitted to the Owner for review before fabrication of the work. Three (3) copies of shop drawings shall be submitted on all items of electrical equipment, panels, light fixtures, specialties, etc.

**CLEANING AND FINISHING**  
After all tests have been made the contractor shall carefully make a thorough inspection of the entire installation and have the entire work thoroughly clean, all rubbish removed, and leave all work satisfactory to the Owner.

**COORDINATION WITH OTHER WORK**  
Consult the plans covering the work for the various other trades. The field layouts of the contractors for these trades, and their shop drawings. The contractor shall be aware and responsible in laying out the electrical work.

**DAMAGE TO OTHER WORK**  
The electrical contractor will be held responsible for damage to work caused by his work or through the neglect of his workmen. All patching and repairing of damaged work shall be done by the general contractor, but the cost of same shall be paid by the contractor responsible for the damage.

**TESTING**  
After all electrical work has been completed, the contractor shall demonstrate to the owner that the entire installation is in working order. Any defective work or equipment, or any work that is not in compliance with the specifications, shall be promptly corrected by the contractor.

**CUTTING AND PATCHING**  
Cutting, core drilling, inserts and conduit or cable sleeves and patching required in the general construction for completion of the work, specified herein, shall be furnished and installed by the electrical contractor.

**WIRE**  
Feeders shall be "THWN" or "XHHW". Branch circuit wiring shall be type "THWN/THHN", #12 minimum. All wire shall be copper, have 600 volt insulation and be installed in conduit.

**CONDUIT**  
Conduit in general shall be thinwall (EMT) or MC cable conduit installed in or under floor shall be 3/4" minimum, rigid galvanized steel. Conduit installed in finished areas shall be concealed.

**SWITCHES**  
Switches shall be ivory, 20A., 120/277V., 1 pole, 3 and 4 ay as indicated, Hubbell #1221 series, or equal.

**RECEPTACLES**  
Receptacles shall be ivory, duplex grounding type 20A., 125V., Hubbell #53621 or equal. Special purpose receptacles 30A., 40A., 50A.-2P. or 3P., etc. shall be specification grade. Weatherproof receptacles shall be polycarbonate, GFI type with gasket, Tymac #20310, or equal. Ground fault receptacles shall be ivory, Duplex 20A., 125V., Hubbell #GF43621 or equal.

**PLATES**  
Wall plates for switches, receptacles and telephone outlets in finished and office areas shall be Style-Line Series, super stainless steel, AISI 302, Hubbell #97000 series, or equal.

**WALL PLATES**  
Wall plates for switches, receptacles and telephone outlets in unfinished areas, plant, janitor closets, mechanical and electrical rooms, etc. shall be beveled anodized aluminum, Hubbell #95000 series, or equal.

**OUTLET BOXES**  
Outlet boxes for concealed work shall be pressed steel, galvanized #12 gauge. Wall or ceiling boxes shall be 4" square, round or octagonal, as required. Surface mounted outlet boxes shall be cast type "FS" or "FD".

**MAIN DISTRIBUTION PANEL**  
Main distribution panel shall be 1 phase, 3 wire, circuit breaker type, service entrance label, Square "D", I-Line" G.E., I.T.E. or Cutler Hammer, provide white phenolic label with 3/8" letters indicating item served.

**LAMPS**  
Incandescent lamps shall be inside frosted "A", "R" or "PAR" type as indicated, "Extended Service" where.

**FLUORESCENT LAMPS**  
Fluorescent lamps shall be energy saving type, T8, 3500K color temperature and 73 color rendering index, General Electric, Phillips, or Osram.

**BALLASTS**  
Fluorescent lamp ballast shall be electronic energy saving type, General Electric, Phillips or Osram.

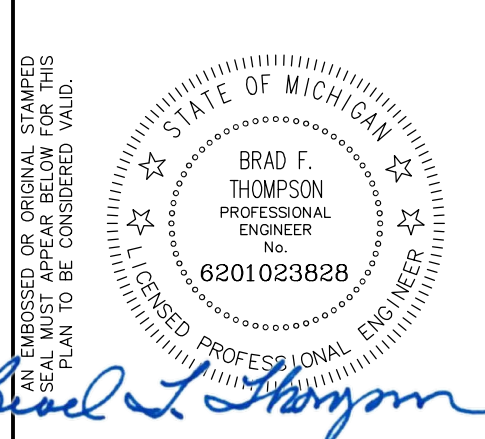
**H.I.D. BALLASTS**  
H.I.D. ballasts shall be H.P.F., auto transformer type as required, fused for full ballast protection, G.E. or Equal.

**TELEPHONE SERVICE**  
Provide telephone service as required, including outlets, plates, conduits with pull wires, etc., for a complete installation. Cover plate finish as specified herein. Telephone outlets shall consist of a single gang box with a 3/4" conduit stubbed into an accessible ceiling space.

**CERTIFICATE OF APPROVAL**  
When the job is completed, the contractor shall provide the owner with certificate of approval from the local electrical inspection authority. The contractor shall give the owner a written guarantee that he will make good, at his own expense, any defect in materials or workmanship which may develop within One (1) year from the date of final acceptance.

**MOTION SENSOR**  
Motion sensors shall be 120 volt single phase wall or canopy mounted as manufactured by Branford.

**B.F. Thompson P.C.**  
civil engineering & land surveying  
VOICE 517/548-3142  
EMAIL: bftompsonpc@outlook.com  
1520 GUILLEY ROAD,  
HOWELL, MI, 48843



**UTILITIES NOTE:** Utility locations are from Municipal and various Utility Company records and no guarantee, either implied or expressed, is given by this firm as to the accuracy of said location. The contractor shall request appropriate information from the utility companies before starting work. Construction will take place 72 hours before such work starts, and shall not start construction until such stakes have been placed. The Contractor shall protect, or have relocated, at contractor expense, all utilities and stakes that are in the way of the proposed construction. The Contractor shall be responsible for the various utility owners in accordance with Michigan P.A. No. 53 of 1974.

**"J & J OF HIGHLAND"**

CLIENT: J & J OF HIGHLAND, LLC  
ATTN: MRS. JULIA DOWSON  
SITE LOCATION: SEC. 22, T.3N., R.7E., HIGHLAND, MI., 48843  
TAX ID: #11-22-176-010 & -022

**ELECTRICAL PLAN**

PROJECT	SHEET	DATE	REVISION

Date: 4/10/26  
Drawn By: NDT  
Chkd. By: BFT  
Scale: AS SHOWN  
BFT Job: #23-4436  
Sh. 6 of 9





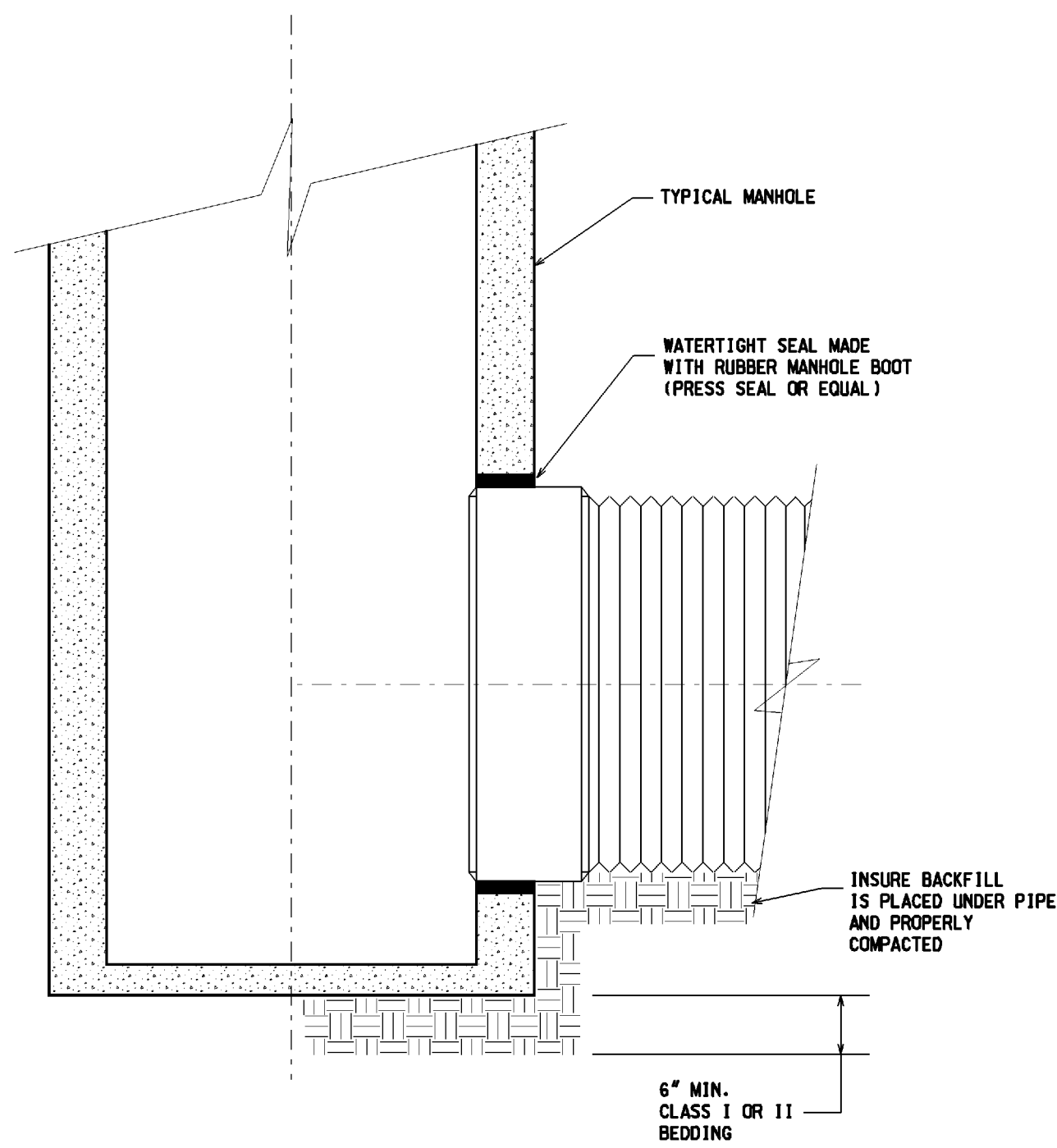
TIME: 05-14-2010 10:24

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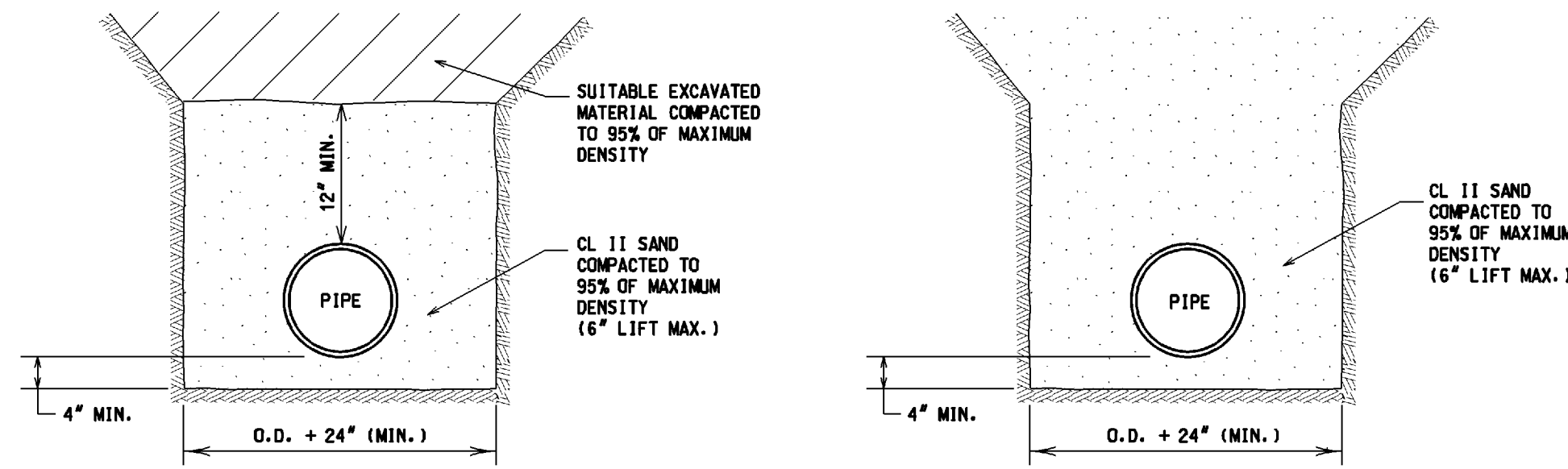
QUELLE - VBRWMB1804

DESIGN FILE: 1\200503\20050368\CD\dwg\std\std12\_118.dwg

USER NAME: twif09



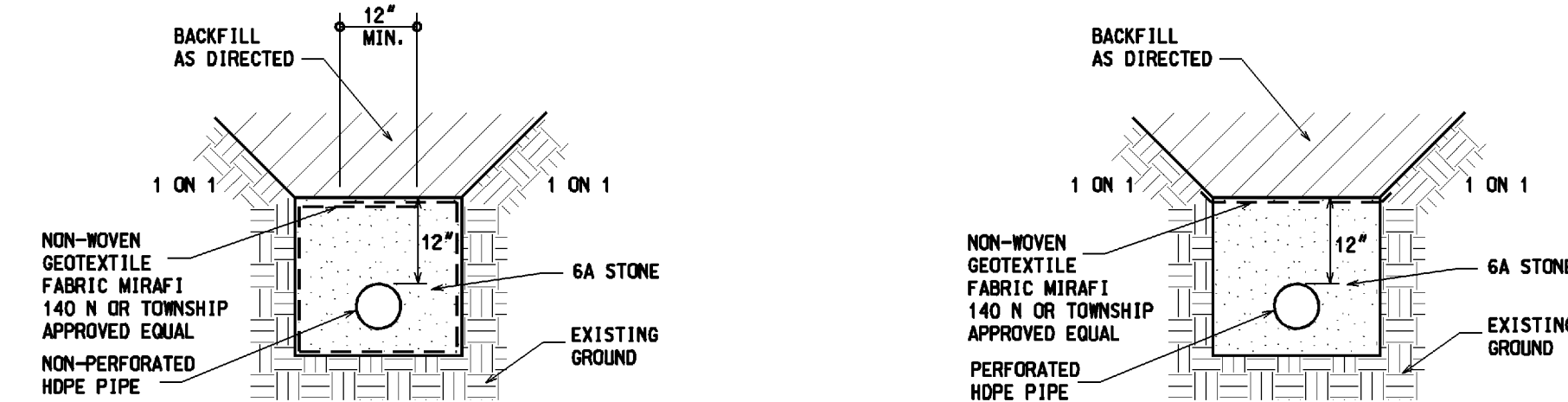
**WATERTIGHT MANHOLE CONNECTION  
HDPE TO CONCRETE DETAIL**



**BEDDING DETAIL - TRENCH B**

**BEDDING DETAIL - TRENCH A**

(REQUIRED FOR INSTALLATION UNDER PAVEMENT OR WITHIN THE INFLUENCE OF ROAD BED.)

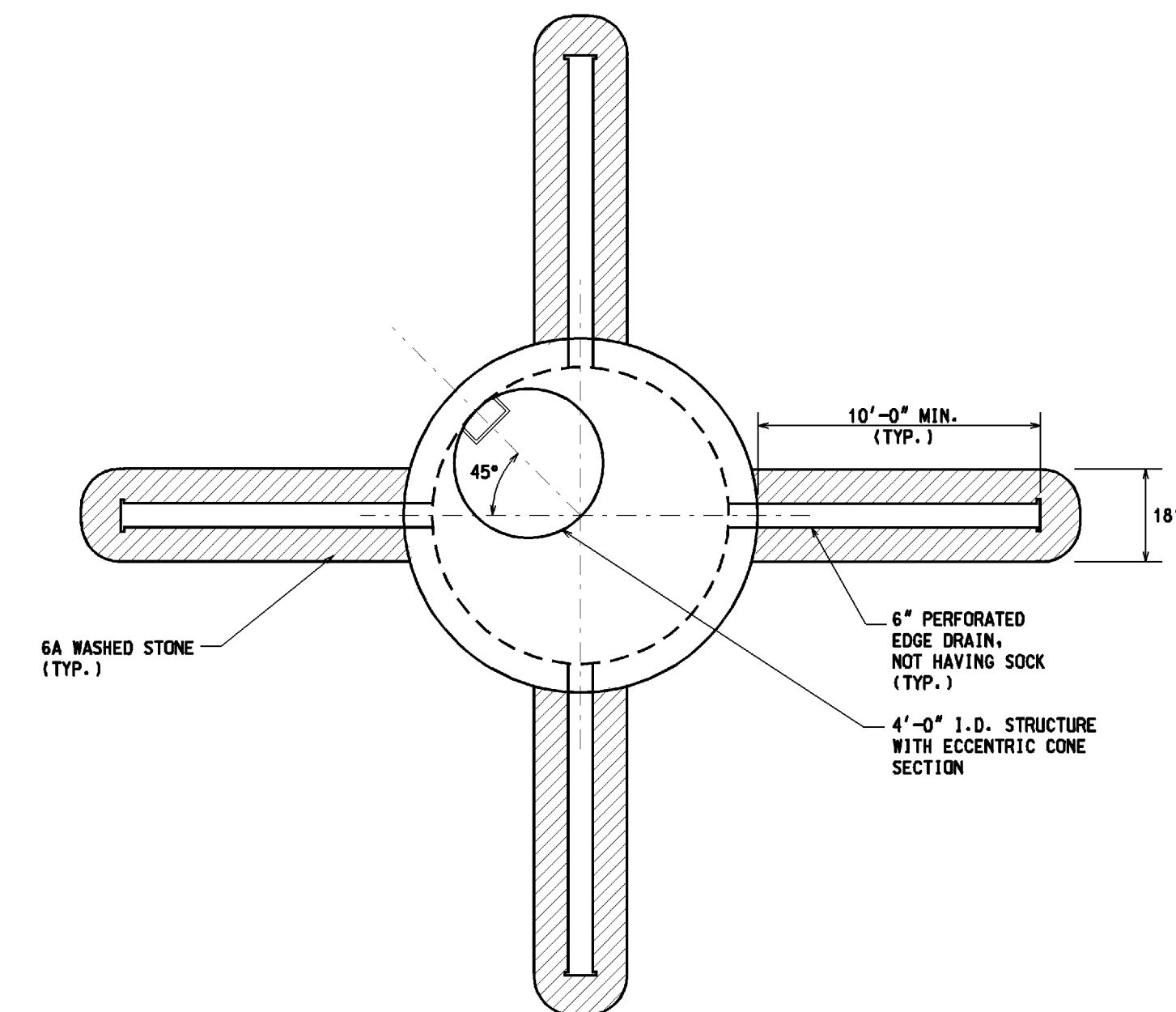


**HDPE PIPE TRENCH DETAIL  
FOR DETENTION SYSTEMS  
WITHOUT GROUNDWATER  
RECHARGE**

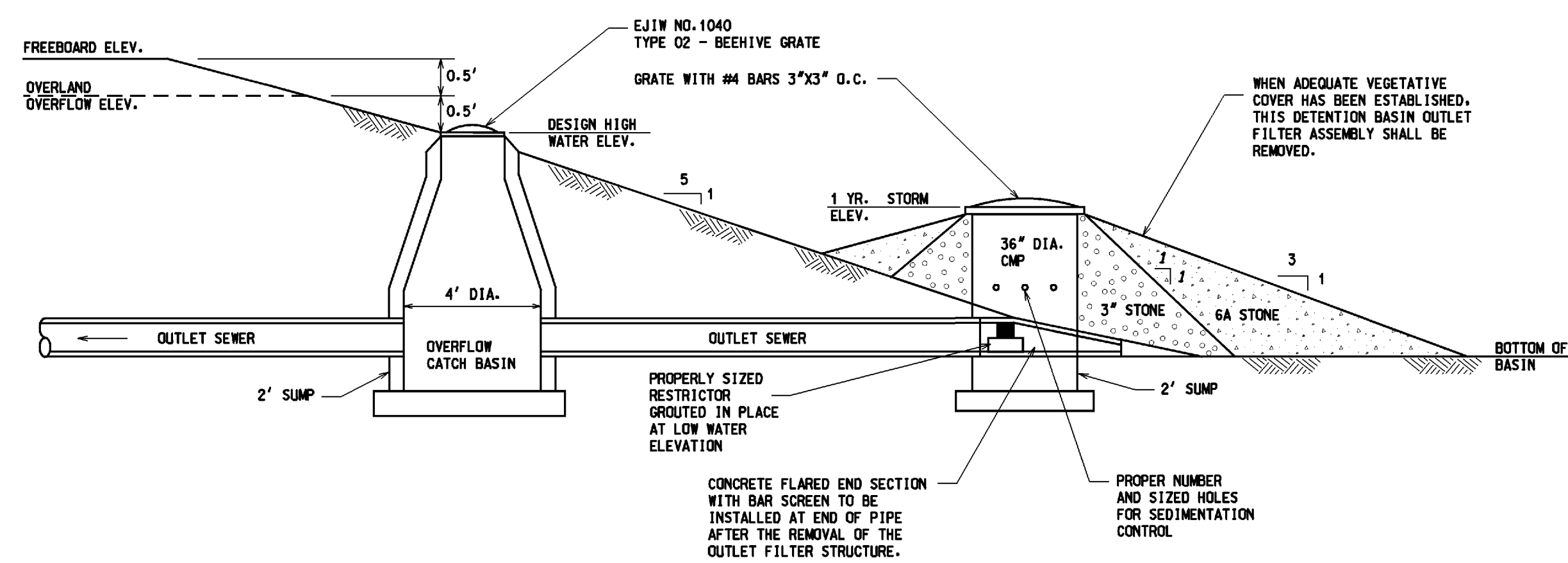
**HDPE PIPE TRENCH DETAIL  
FOR DETENTION/RETENTION SYSTEMS  
WITH GROUNDWATER  
RECHARGE**

**NOTES:**

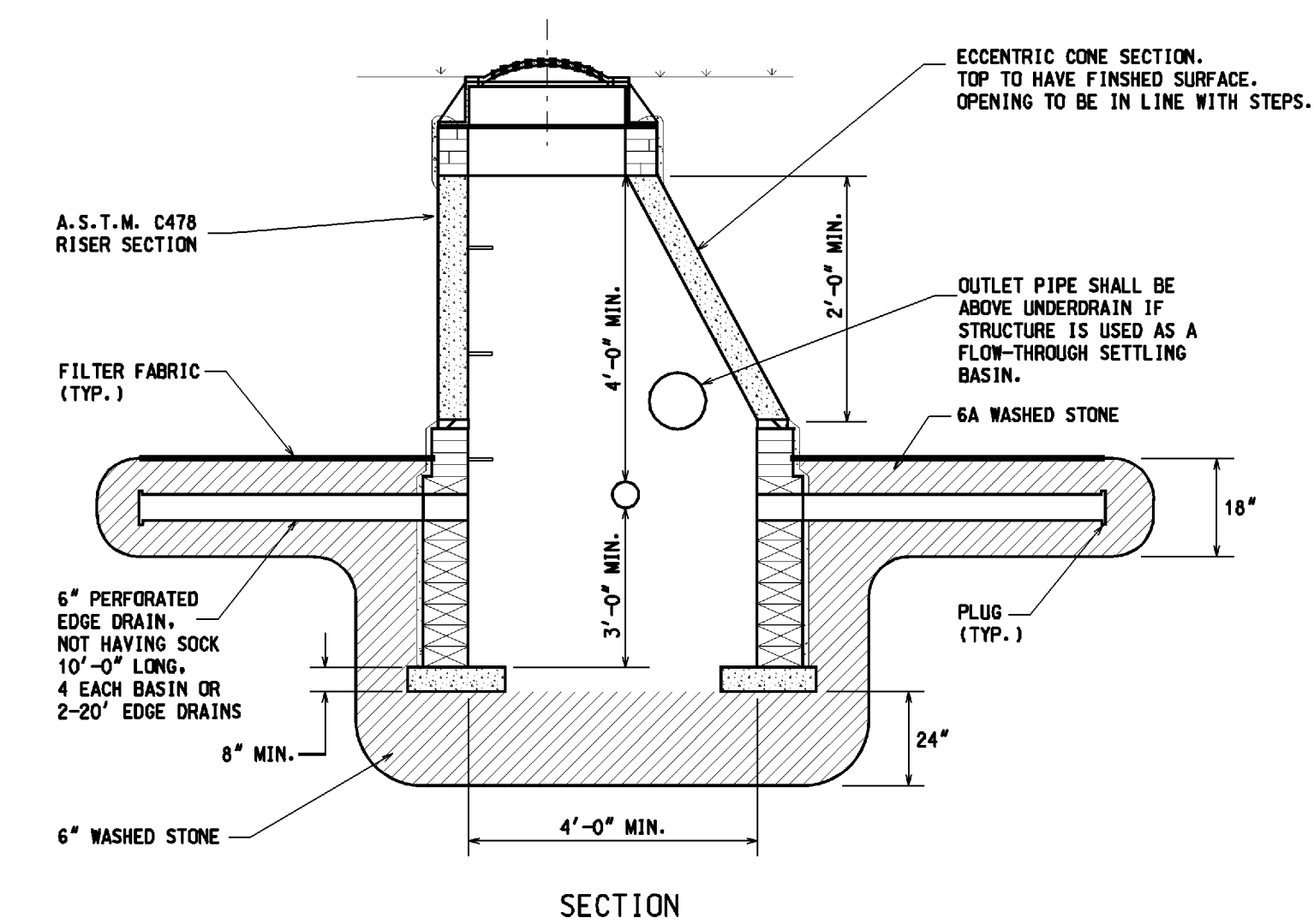
1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CURRENT ENGINEERING DESIGN STANDARDS AND SPECIFICATIONS OF HIGHLAND TOWNSHIP.
2. IT SHALL BE THE OWNER'S ENGINEER AND CONTRACTOR'S RESPONSIBILITY TO VERIFY THE EXISTENCE AND LOCATION OF ALL UNDERGROUND UTILITIES.
3. ALL SEWER TRENCHES UNDER THE 45 DEGREE ZONE OF INFLUENCE LINE OF EXISTING OR PROPOSED PAVEMENTS, BIKE PATHS, SIDEWALKS OR DRIVE APPROACHES SHALL BE BACKFILLED WITH MDOT CLASS II SAND COMPACTED TO AT LEAST 95% OF MAXIMUM UNIT WEIGHT.
4. ALL STORM SEWER SHALL BE INSTALLED ON CLASS "B" BEDDING OR BETTER.
5. JOINTS FOR STORM SEWER SHALL BE PREMIUM JOINTS (TONGUE AND GROOVE WITH RUBBER GASKETS).
6. LEAD MATERIAL SHALL BE 4" DIA. (MIN.) PVC SCHEDULE 40 OR SDR 23.5. LEAD CONNECTIONS MAY ONLY BE AT STRUCTURES.
7. CONTACT THE TOWNSHIP ENGINEER 48 HOURS PRIOR TO STORM SEWER INSTALLATION TO SCHEDULE OBSERVATION. FULL TIME OBSERVATION IS REQUIRED FOR ALL UNDERGROUND STORM SEWER AND LEACHING SYSTEM CONSTRUCTION. CONTACT MICHAEL DARGA WITH HUBBELL, ROTH & CLARK, INC. 248-454-6532.
8. BEFORE YOU DIG CALL MISS DIG AT 1-800-482-7171.
9. ALL MORTAR AND CONCRETE WORK SHALL BE PROTECTED FROM FREEZING (40° F. AND FALLING) FOR A MINIMUM OF 48 HOURS.
10. PIPE FOR STORM SEWERS WITHIN THE PUBLIC ROAD RIGHT-OF-WAY OR PRIVATE ROAD EASEMENT SHALL BE RCP, C-76, CLASS IV OR V RCP.
11. DOUBLE WALLED HDPE MEETING THE REQUIREMENTS OF ASTM F2306.



**PLAN VIEW**



**DETENTION POND OUTLET STRUCTURE DETAIL**



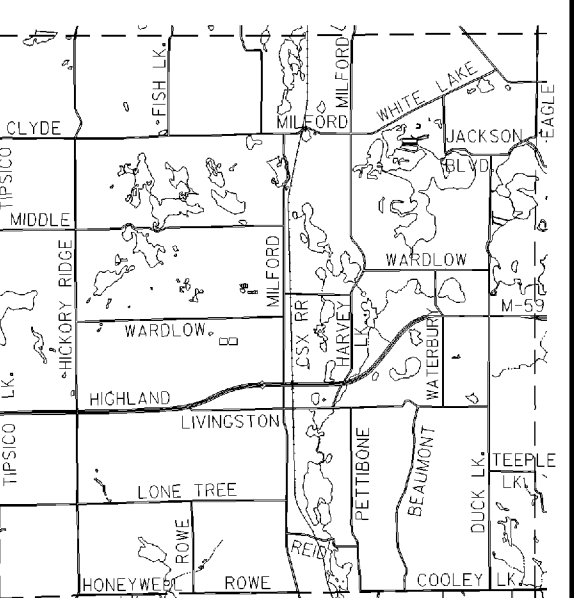
**SECTION  
STANDARD LEACHING BASIN**



**Hubbell, Roth & Clark, Inc.**  
CONSULTING ENGINEERS  
105 W. GRAND RIVER AVE.  
HOWELL, MICHIGAN 48843  
PHONE: (248) 454-6300  
DIRECT PHONE: (517) 852-9199  
FAX: (517) 852-6098  
WEB SITE: <http://www.hrc-anr.com>

DATE	ADDITIONS AND/OR REVISIONS
DESIGNED	M.P.D.
DRAWN	T.E.W.
CHECKED	J.B.
APPROVED	G.E.H.

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HIGHLAND TOWNSHIP

**HIGHLAND TOWNSHIP  
DESIGN STANDARDS**

STORM SEWER DETAILS  
BFT JOB #23-4436  
SHEET 9 OF 9

HRC JOB NO. 20050368	SCALE NONE
DATE SEPTEMBER 2005	SHEET NO. 2 OF 2