

**GENOA CHARTER TOWNSHIP BOARD**  
**Regular Meeting**  
**April 17, 2017**  
**6:30 p.m.**

**AGENDA**

Call to Order:

Pledge of Allegiance:

Call to the Public (Public comment will be limited to two minutes per person)\*:

**Approval of Consent Agenda:**

1. Payment of Bills.
2. Request to Approve Minutes: April 3, 2017
3. Request for approval of a proposal from American Aqua to install iron filtration at the Township Hall for an amount not to exceed \$3,000.
4. Request for approval of the proposal from Crampton Electric for the removal of 11 non-functioning light poles adjacent to Figurski Drive in Section 4.

**Approval of Regular Agenda:**

3. Request for approval of an amendment to Resolution No. 2 [to approve the project, schedule the first hearing, and direct the issuances of statutory notices] adding a sixth column to the resolution approved April 3, 2017 for the Lake Chemung Aquatic Weed Control Project Winter 2017.
4. Consideration of a request for approval of impact assessment for a proposed parking lot expansion for Consumer's Energy located at 1000 Grand Oaks Drive, Howell. The request is petitioned by Tyme Consulting Engineering, Inc.
5. Consideration of a request for approval of site plan application and impact assessment for a proposed new 2,360 sq. ft. Lake Trust Credit Union building located on the north side of Grand River, west of Lawson Drive. The property is located within the Lorentzen PUD on parcel #11-09-100-034. The request is petitioned by Lake Trust Credit Union.

Correspondence  
Member Discussion  
Adjournment

\*Citizen's Comments- In addition to providing the public with an opportunity to address the Township Board at the beginning of the meeting, opportunity to comment on individual agenda items may be offered by the Chairman as they are presented.

CHECK REGISTERS FOR TOWNSHIP BOARD MEETING
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DATE: April 17, 2017
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TOWNSHIP GENERAL EXPENSES: Thru April 17, 2017	\$16,524.99
April 7, 2017 Bi Weekly Payroll	\$100,838.40
OPERATING EXPENSES: Thru April 17, 2017	\$153,907.62
TOTAL:	<u>\$271,271.01</u>

Check Date	Bank	Check	Vendor	Vendor Name	Amount
Bank FNBCK CHECKING ACCOUNT					
03/31/2017	FNBCK	33579	RAUCH	ERIC RAUCH	148.00
04/03/2017	FNBCK	33570	CARDM	CHASE CARD SERVICES	2,240.36
04/03/2017	FNBCK	33571	DTE EN	DTE ENERGY	153.01
04/03/2017	FNBCK	33572	DTE LAKE	DTE ENERGY	1,069.56
04/03/2017	FNBCK	33573	DYK	DYKEMA GOSSETT, PLLC	757.50
04/03/2017	FNBCK	33574	ETNA SUP	ETNA SUPPLY COMPANY	650.00
04/03/2017	FNBCK	33575	NETWORK	NETWORK SERVICES GROUP, L.L.C.	45.00
04/03/2017	FNBCK	33576	PERFECT	PERFECT MAINTENANCE CLEANING	565.00
04/03/2017	FNBCK	33577	TETRA TE	TETRA TECH INC	6,500.00
04/03/2017	FNBCK	33578	TRI COUN	TRI COUNTY SUPPLY, INC.	174.06
04/07/2017	FNBCK	33580	CONTINEN	CONTINENTAL LINEN SERVICE	113.43
04/07/2017	FNBCK	33581	GORDON	GORDON FOOD SERVICE	55.14
04/07/2017	FNBCK	33582	GORDONFO	GORDON'S FOOD SERVICES	351.89
04/07/2017	FNBCK	33583	SAPIENZA	KRISTEN RENEE SAPIENZA	48.15
04/07/2017	FNBCK	33584	LIVCTYAS	LIVINGSTON CTY ASSESSOR'S ASSN	55.00
04/07/2017	FNBCK	33585	OEX	OFFICE EXPRESS INC.	94.31
04/11/2017	FNBCK	33586	COMCAST	COMCAST	323.10
04/11/2017	FNBCK	33587	CONSUMER	CONSUMERS ENERGY	386.16
04/11/2017	FNBCK	33588	HUBBELL	HUBBELL, ROTH & CLARK, INC	322.73
04/11/2017	FNBCK	33589	MEI	MINNESOTA ELEVATOR, INC	115.00
04/11/2017	FNBCK	33590	PACKERLAND	PACKERLAND RECORDS MANAGEMENT	50.00
04/11/2017	FNBCK	33591	SEWARD	SEWARD PECK & HENDERSON PLLC	2,084.00
04/11/2017	FNBCK	33592	TRI COUN	TRI COUNTY SUPPLY, INC.	63.59
04/11/2017	FNBCK	33593	WELLNESS I	WELLNESS IQ	160.00

FNBCK TOTALS:

Total of 24 Checks:	16,524.99
Less 0 Void Checks:	0.00
Total of 24 Disbursements:	16,524.99

4

Payroll ID: 29

Pay Period End Date: 03/31/2017 Check Post Date: 04/07/2017 Bank ID: FNBCK

\* YTD values reflect values AS OF the check date based on all current adjustments, checks, void checks

DPW MED REIM	0.00	0.00	329.24	2,304.68	ILLDPW	10.03	63.88
EL_TAXED	0.00	0.00	0.00	0.00	ILLTWP	7.93	43.93
FLOATER HOLIDAY	0.00	0.00	0.00	745.92	ILLTWS	7.93	43.93
FUNERAL LEAVE	0.00	0.00	0.00	0.00	LOAN	1,207.46	8,452.22
G1	1,668.75	0.00	39,827.43	253,166.64	LOAN 2	134.58	942.06
G2	0.00	83.50	2,615.41	18,867.60	MEDDPW	937.45	6,089.51
HOLIDAY PAY	0.00	0.00	0.00	30,363.52	MEDICARE_EE	1,128.92	8,131.96
IN LIEU MED INS	0.00	0.00	329.24	2,304.68	MEDTWP	567.27	3,970.89
LIQUOR LAW	0.00	0.00	315.18	2,206.26	MIPF	724.53	5,071.71
LONGEVITY	0.00	0.00	0.00	0.00	OPTDPC	4.55	27.80
ON CALL	0.00	25.00	717.75	4,846.07	OPTDPS	5.43	35.19
OVERTIME	0.00	0.00	0.00	86.99	OPTDPW	44.91	291.63
PC CHAIR	1.50	0.00	267.00	623.00	OPTWPC	0.97	6.28
PERSONAL PAYOUT	0.00	0.00	0.00	6,308.27	OPTWPS	0.97	6.40
PERSONAL TIME	63.25	0.00	1,148.64	14,884.14	PRINCF	1,780.00	7,300.00
PLANNING MINUTE	0.00	0.00	0.00	0.00	ROTH	595.00	3,925.00
PP PER DIEM	0.00	0.00	0.00	336.00	SITW	3,024.24	21,789.95
REGULAR PAY	672.50	0.00	12,546.08	92,771.71	SOCSEC_EE	4,827.14	34,771.13
SALARY	436.00	0.00	14,807.91	102,193.89			
SELCRA	0.00	0.00	0.00	0.00			
TRAINING	0.00	0.00	0.00	0.00			
TRUSTEE - DIEM	8.50	0.00	1,632.00	5,856.00			
TRUSTEE MIN	0.00	0.00	0.00	450.00			
UNIFORM ALLOW	19.00	0.00	4,275.00	4,275.00			
VACATION NONTAX	0.00	0.00	0.00	306.32			
VACATION PAY	190.00	0.00	4,900.79	18,669.76			
VACATION PTIME	0.00	0.00	0.00	10,151.22			
WELL IQ	0.00	0.00	0.00	1,311.83			
ZBA MINUTES	0.00	0.00	0.00	0.00			
ZBA PER DIEM	0.00	0.00	0.00	1,008.00			

Gross Pay This Period	Deduction Refund	Ded. This Period	Net Pay This Period	Gross Pay YTD	Dir. Dep.
85,683.49	0.00	23,560.00	62,123.49	588,356.55	62,123.49



Check Register Report For Genoa Charter Township  
For Check Dates 04/07/2017 to 04/07/2017

Check Date	Bank	Check Number	Name	Check Gross	Physical Check Amount	Direct Deposit	Status
04/07/2017	FNBCK	12529	STATE OF MICHIGAN	6,147.34	6,147.34	0.00	Cleared
04/07/2017	FNBCK	12530	STATE OF MICHIGAN	6,459.64	6,459.64	0.00	Open
04/07/2017	FNBCK	EFT95	FLEX SPENDING (TASC)	1,109.13	1,109.13	0.00	Cleared
04/07/2017	FNBCK	EFT96	INTERNAL REVENUE SERVICE	20,070.28	20,070.28	0.00	Cleared
04/07/2017	FNBCK	EFT97	PRINCIPAL FINANCIAL	2,375.00	2,375.00	0.00	Cleared
04/07/2017	FNBCK	EFT98	PRINCIPAL FINANCIAL	1,342.04	1,342.04	0.00	Cleared
Totals:			Number of Checks: 006	37,503.43	37,503.43	0.00	
Total Physical Checks:			2				
Total Check Stubs:			4				

ck # 12531-12542 issued (12541 voided)

\$ 1211.48

04/11/2017 02:00 PM  
User: Tara 6  
DB: Genoa Township

CHECK REGISTER FOR GENOA TOWNSHIP  
CHECK NUMBERS 2183 - 4100

Page: 1/1

Check Date	Bank	Check	Vendor	Vendor Name	Amount
Bank 595FN PINE CREEK OPERATING FUND #595					
03/30/2017	595FN	2183	GENOADPW	GENOA TOWNSHIP DPW FUND	3,502.98
03/30/2017	595FN	2184	GENOA D	GENOA TOWNSHIP D.P.W. FUND	3,512.96
04/07/2017	595FN	2185	CITY B	CITY OF BRIGHTON	39,496.45

595FN TOTALS:

Total of 3 Checks:	46,512.39
Less 0 Void Checks:	0.00
Total of 3 Disbursements:	46,512.39

04/11/2017 01:59 PM  
User: Tara  
DB: Genoa Township

CHECK REGISTER FOR GENOA TOWNSHIP  
CHECK NUMBERS 3138 - 4100

Page: 1/1

Check Date	Bank	Check	Vendor	Vendor Name	Amount
Bank 593FN LAKE EDGEWOOD OPERATING FUND #593					
03/30/2017	593FN	3138	BRIGHTON	BRIGHTON ANALYTICAL , L.L.C.	134.00
03/30/2017	593FN	3139	GENOA D	GENOA TOWNSHIP D.P.W. FUND	1,037.92
03/30/2017	593FN	3140	PVS NOLW	PVS NOLWOOD CHEMICALS, INC.	1,226.00
03/30/2017	593FN	3141	STATE	STATE OF MICHIGAN	3,650.00
03/30/2017	593FN	3142	BRIGHTON	BRIGHTON ANALYTICAL , L.L.C.	134.00
04/03/2017	593FN	3143	DTE LAKE	DTE ENERGY	4,003.46
04/03/2017	593FN	3144	DUBOIS	DUBOIS-COOPER	7,465.00
04/07/2017	593FN	3145	BRIGHTON	BRIGHTON ANALYTICAL , L.L.C.	67.00
04/07/2017	593FN	3146	CHARTERT	CHARTER TOWNSHIP OF BRIGHTON	880.00
04/07/2017	593FN	3147	CITY B	CITY OF BRIGHTON	24,604.02
04/11/2017	593FN	3150	CONSUMER	CONSUMERS ENERGY	401.60

593FN TOTALS:

Total of 11 Checks:	43,603.00
Less 0 Void Checks:	0.00
Total of 11 Disbursements:	43,603.00

Check Date	Bank	Check	Vendor	Vendor Name	Amount
Bank 592FN OAK POINTE OPERATING FUND #592					
03/30/2017	592FN	3878	AT&TLONG	AT&T LONG DISTANCE	70.00
03/30/2017	592FN	3879	DTE EN	DTE ENERGY	80.20
03/30/2017	592FN	3880	DTE LAKE	DTE ENERGY	348.22
03/30/2017	592FN	3881	ALEXAND	ALEXANDER CHEMICAL CORPORATION	1,617.60
03/30/2017	592FN	3882	DUBOIS	DUBOIS-COOPER	22,650.00
03/30/2017	592FN	3883	GENOA5 OP	GENOA TWP-OAK POINTE OPERATING	18.51
03/30/2017	592FN	3884	H. PRATT	HENRY PRATT COMPANY, LLC	3,000.00
03/30/2017	592FN	3885	KENNEDY IN	KENNEDY INDUSTRIES	272.00
03/30/2017	592FN	3886	SHERWIN	SHERWIN- WILLIAMS	160.29
03/30/2017	592FN	3887	TLS	TLS CONSTRUCTION LLC	1,889.50
03/30/2017	592FN	3888	USA BLUE	USA BLUEBOOK	187.63
03/30/2017	592FN	3889	UTILITI	UTILITIES INSTRUMENTATION SERVICE	260.00
03/30/2017	592FN	3890	WATSON MAR	WATSON MARLOW	14,345.00
03/30/2017	592FN	3891	UTILITI	UTILITIES INSTRUMENTATION SERVICE	800.00
04/03/2017	592FN	3892	DTE LAKE	DTE ENERGY	1,502.05
04/03/2017	592FN	3893	UTILITI	UTILITIES INSTRUMENTATION SERVICE	230.00
04/03/2017	592FN	3894	VIC BON	VIC BOND SALES	34.85
04/03/2017	592FN	3895	DTE EN	DTE ENERGY	363.37
04/03/2017	592FN	3896	DTE LAKE	DTE ENERGY	282.24
04/07/2017	592FN	3897	CONSUMER	CONSUMERS ENERGY	496.30
04/07/2017	592FN	3898	G/O SWR	GENOA OCEOLA SEWER	18.51
04/11/2017	592FN	3899	DTE LAKE	DTE ENERGY	1,552.66
04/11/2017	592FN	3900	J. LEONARD	JAMES LEONARD	1,634.26

592FN TOTALS:

Total of 23 Checks:	51,813.19
Less 1 Void Checks:	18.51
Total of 22 Disbursements:	51,794.68

Check Date	Bank	Check	Vendor	Vendor Name	Amount
Bank 503FN DPW-UTILITIES #503					
03/30/2017	503FN	3929	ABE'S A	ABE'S AUTO GLASS, INC.	365.00
03/30/2017	503FN	3930	AUTO ZO	AUTO ZONE	9.98
03/30/2017	503FN	3931	CRUISER	CRUISERS	1,419.00
03/30/2017	503FN	3932	GRAINGER	GRAINGER	715.20
03/30/2017	503FN	3933	JACK DO	JACK DOHENY SUPPLIES, INC.	203.76
03/30/2017	503FN	3934	MASTER M	MASTER MEDIA SUPPLY	176.14
03/30/2017	503FN	3935	MWEA	MWEA	200.00
03/30/2017	503FN	3936	OHM ENG	OHM ENGINEERING ADVISORS	3,128.00
03/30/2017	503FN	3937	RED WIN	RED WING SHOE STORE	390.98
03/30/2017	503FN	3938	SENSUS T	SENSUS USA, INC	1,893.15
03/30/2017	503FN	3939	SIGNWRKS	SIGN WORKS	150.00
03/30/2017	503FN	3940	VICTORY	VICTORY LANE QUICK OIL CHANGE	259.62
04/07/2017	503FN	3941	BUGEJA	LINDSAY BUGEJA	114.43
04/07/2017	503FN	3942	MWEA	MWEA	70.00
04/07/2017	503FN	3943	PORT CI	PORT CITY COMMUNICATIONS, INC.	197.30
04/11/2017	503FN	3944	PAETEC	PAETEC	29.55
04/11/2017	503FN	3945	WEX	WEX BANK	2,675.44

503FN TOTALS:

Total of 17 Checks:	11,997.55
Less 0 Void Checks:	0.00
Total of 17 Disbursements:	11,997.55

**GENOA CHARTER TOWNSHIP BOARD**

**Regular Meeting**

**April 3, 2017**

**MINUTES**

Supervisor Rogers called the regular meeting of the Genoa Charter Township Board to order at 6:30 p.m., with the Pledge of Allegiance. The following members were present constituting a quorum for the transaction of business: Bill Rogers, Paulette Skolarus, Robin Hunt, Jim Mortensen, Terry Croft, Diana Lowe and Jean Ledford. Also present were Township Manager, Michael Archinal and no persons in the audience.

A Call to the Public was made with no response.

**Approval of Consent Agenda:**

Moved by Ledford and supported by Lowe to approve all items listed under the Consent Agenda as requested. The motion carried unanimously.

**1. Payment of Bills.**

**2. Request to Approve Minutes: March 20, 2017**

**Approval of Regular Agenda:**

Moved by Lowe and supported by Mortensen to approve for action all items listed under the Regular Agenda as requested. The motion carried unanimously.

**3. Request for approval of Resolution No. 1 [to proceed with the project and direct preparation of the plans and cost estimates] for the Lake Chemung Aquatic Weed Control Project Winter 2017.**

Moved by Lowe and supported by Skolarus to approve resolution No. 1 for the Lake Chemung Aquatic Weed Control Project as requested. The motion carried by roll call vote as follows: Ledford, Croft, Hunt, Lowe, Mortensen, Skolarus and Rogers. Nays – None. Absent – None.

**4. Request for approval of Resolution No. 2 [to approve the project, schedule the first hearing, and direct the issuances of statutory notices] for the Lake Chemung Aquatic Weed Control Project Winter 2017.**

Moved by Skolarus and supported by Ledford to approve resolution No.2 for the Lake Chemung Aquatic Weed Control Project, deleting the following from page 4, Exhibit B “including publications and mailings and a \$xxxx credit balance from the previous district.” The motion carried by roll call vote as follows: Ledford, Croft, Hunt, Lowe, Mortensen, Skolarus and Rogers. Nays – None. Absent – None.

**5. Request to enter in to closed session to consider the purchase of real property for which an option to purchase has not been obtained pursuant to MCL 15.268 § 8 (d).**

Moved by Skolarus and supported by Lowe to enter into closes session to discuss the purchase of real property as requested. The motion carried by roll call vote as follows: Ledford, Croft, Hunt, Lowe, Mortensen, Skolarus and Rogers. Nays – None. Absent – None.

**The closed session of the board was adjourned and the regular meeting was reopened at 7:05 p.m. and adjourned at 7:20 p.m.**

**Mike Archinal is looking for volunteers to help the Rotary Club of Brighton at Top of the Mountain Dash or Crash, hosted by Mt. Brighton. Please contact Mike Archinal.**

**Paulette A. Skolarus, Clerk  
Genoa Charter Township Board**



2911 Dorr Road  
Brighton, MI 48116  
810.227.5225  
810.227.3420 fax  
genoa.org

## MEMORANDUM

**TO:** Honorable Board of Trustees

**FROM:** Adam VanTassell

**DATE:** April 17, 2017

**RE:** Proposed Township Water system upgrades

Manager's Review: \_\_\_\_\_

The Township water system recently has been experiencing issues with higher than normal iron content. A test was conducted showing the iron content of the water was in excess of 2.0ppm even with filtering through the existing soft-water system. This affects both water inside the building as well as at the playground/Pavilion. Our Utility Director recommends no higher than .3 ppm of iron. The proposed iron filter will reduce the iron content to an acceptable level and will cut the Township's salt consumption for filtering in half.

### Recommended Motion

Moved by \_\_\_\_\_, Supported by \_\_\_\_\_ to approve the proposal from American Aqua for the purchase of a new for Hellenbrand Storm-Blaster iron filter for \$2999.60

#### SUPERVISOR

Bill Rogers

#### CLERK

Paulette A. Skolarus

#### TREASURER

Robin L. Hunt

#### TRUSTEES

Jason W. Ledford

H. James Mortensen

Torry Croft

Diana Lowe

#### MANAGER

Michael C. Archinal

723 W. Michigan. Saline, MI 48176  
1-800-224-2528

# American

Problem Water Solved



704 S. Michigan Ave., Howell, MI.  
48843

Good People Treating Bad Water

WWW.AMERICANAQUA.COM

Customer #: GENOA+

Phone: 810-227-5225

Phone 2:

PO#:

Work Order #: 336375

Date/Time of Request: 4/11/2017/15:00

SLS: SMM

FOR:

Job/Location:

Genoa Township  
2911 Dorr Rd.  
Accounts Payable  
Brighton, MI 48116

Recall

Rental

Billable

Warr./No Charge

### Description of Service Requested:

cust would like FE on IC system, getting rust & hard water thru--ask for Adam--run call AM

### Directions & Crossroads:

Bring 10 bottles every delivery

Work Performed	Tech	Date	Time In	Time Out	Shoe Covers
	Adam	4-11-17	12:00 PM		
RAW WATER TESTED: 20 GPG HARDNESS - 6.0 PPM IRON					
TREATED WATER TESTED: 9 GPG HARDNESS - 2.0 PPM IRON					
RECOMMEND: HELLENBRAND 13x54" STORM-BLASTER					
@ \$2999 <sup>00</sup> INCLUDES TAX + INSTALLATION					

Parts Used	Description	Quantity	Unit Price	Ext. Cost
				Tax:
				Total:

*OK - Adam to Board*  
*Adam Van Tassel*

Parts & Service Received

MEMBER  
WATER QUALITY  
ASSOCIATION  
Your Water Treatment Professional



**Hellenbrand**

**BLASTER™**

ProMate-6.0 Iron Curtain Jr Blaster Series

**The Natural Power  
of Ozone**



**Achieve Aqualibrium.™**







## What's In Your Water?™

### Potential Impact From the Atmosphere

- Smoke
- Industrial Pollutants
- Dust
- CO<sub>2</sub>

### Potential Impact From Soil

- Pesticides
- Fertilizers
- Animal Waste

### Potential Impact From Bedrock

- Radioactivity
- Arsenic
- Sodium
- Hardness
- Nitrate
- Hydrogen Sulfide
- Iron

### Potential Impact From Water Sources

- Phosphates
- VOCs
- Disinfection Byproducts
- Chlorine
- PCBs
- Mercury
- Lead

## The Natural Power of Ozone

- > Ozone (O<sub>3</sub>) is 1.5 times stronger oxidizer than chlorine and many times faster acting
- > Ozone (O<sub>3</sub>) readily changes iron to rust particles that are filtered out with the ProMate 6 Iron Curtain Jr BLASTER™
- > Ozone (O<sub>3</sub>) also converts "rotten egg" odor into harmless sulfur byproduct that is filtered out with the ProMate 6 Iron Curtain Jr BLASTER™
- > Eliminates the need for chemical feed pumps on iron bacteria or sulfate-reducing bacteria
- > No more mixing of chemicals like chlorine, hydrogen peroxide and potassium permanganate
- > Environmentally responsible and safe for septic systems

## Achieve Aqualibrium.™

Hellenbrand treated water is in perfect balance and harmony with our lives, our homes and the environment. It is water the way nature intended, free of unwanted minerals.

Our ProMate 6 Iron Curtain Jr BLASTER™ does just that, uses nature's way of cleaning our environment to clean your water. With the latest technology, we are using ozone to clean your water of contaminants. Removing unwanted minerals and providing you with odor and stain free water.

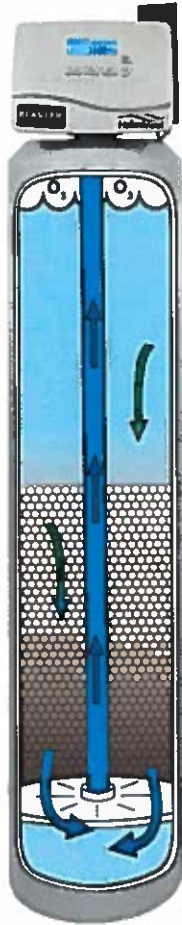
With over 200 years of combined experience in the water conditioning industry, Hellenbrand is the first family of water treatment.

### Features

- > Low maintenance system
- > No chemical feed pumps to maintain
- > Septic system safe
- > Disinfection properties with Ozone (O<sub>3</sub>)
- > Improves taste

### Removes and Reduces

- > Iron
- > Iron bacteria
- > Sulfur
- > Sulfate reducing bacteria
- > Manganese
- > Organic & musty smell



## How Does the ProMate 6 Iron Curtain Jr BLASTER™ Work?

- 1 Untreated water is forced through the head of ozone in the top of the tank which converts dissolved minerals such as iron and manganese into particles. Sulfur and iron bacteria, common nuisance bacteria, are destroyed by exposure to ozone.
- 2 Particles are filtered as the water moves through the filter bed and out to service.
- 3 The ProMate 6 controller automatically initiates a regeneration cycle based on number of days or number of gallons through the system. During regeneration the trapped particles are flushed to drain. A fresh head of ozone is provided by the ozone generator during the regeneration cycle.



Vortech™ Distributor - Enhanced filter cleaning.  
Not available in all sizes.

## Why the BLASTER™ is Better Than Our Competitors

### Ecologically Friendly

- > The Blaster™ System is a "Green Technology"

### No Harmful Chemicals

- > Results in low-cost operation
- > Environmentally safe for septic systems
- > No hazardous chemicals in the home
- > No damage to plants and animals

### Produces Highly Oxygenated Water

- > Free from odor
- > Free from problem-causing rust

### Minimal Pressure Loss

- > Reduced pressure loss in the home
- > System designs for larger homes
- > High-flow control valve

### Self-Diagnostic Software

- > Informs the homeowner about system operation
  - Flow rates
  - Operation sequence
  - Time and maintenance schedule
  - Local service provider's phone number

## Problems In Your Water?

Rust Stains



Rotten Egg Odor



Iron/Sulfate Reducing Bacteria



## Benefits of the ProMate 6 Iron Curtain Jr BLASTER™ System

- > Eliminates rust stains in the bathroom, kitchen and laundry; saving you time and money on cleaning
- > Clothing will be brighter, whiter and last longer
- > Water-using appliances and fixtures last longer and stay cleaner
- > Lengthens the life of your water softener and drinking water systems





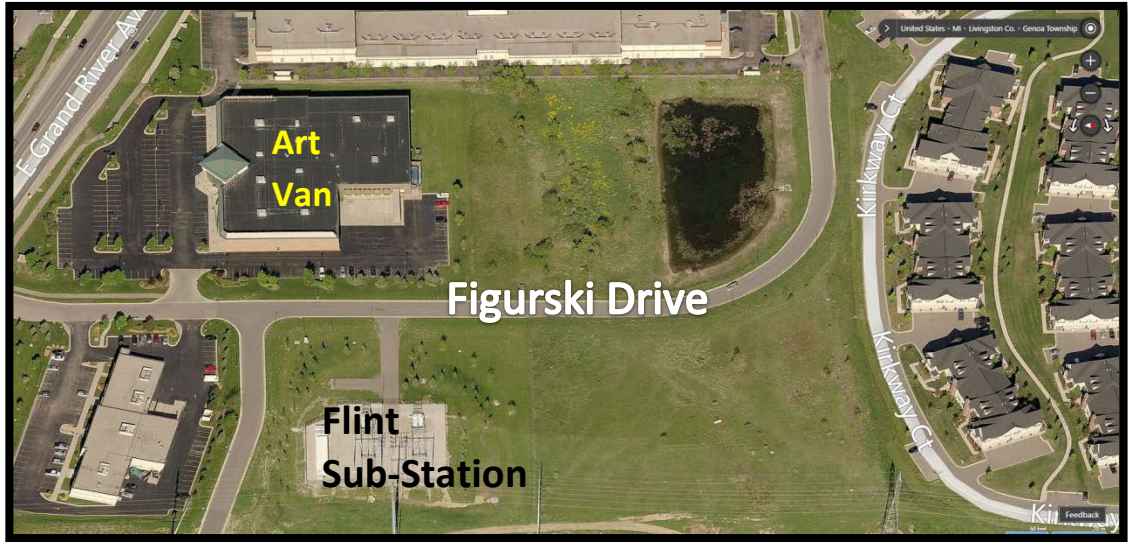
# MEMORANDUM

2911 Dorr Road  
Brighton, MI 48116  
810.227.5225  
810.227.3420 fax  
genoa.org

**TO:** Honorable Board of Trustees  
**FROM:** Kelly VanMarter, Assistant Township Manager  
**DATE:** April 13, 2017  
**RE:** Removal of Figurski/Whitehorse Drive Light Fixtures

Manager's Review: \_\_\_\_\_

In 2003, Detroit Edison installed the Figurski Drive/White Horse Connector and associated ornamental light fixtures as required per the approved site plan for the Flint Substation. See the image below for general location and the attached plan sheet details the specific light locations:



**SUPERVISOR**

Bill Rogers

**CLERK**

Paulette A. Skolarus

**TREASURER**

Robin L. Hunt

**TRUSTEES**

Jean W. Ledford  
H. James Mortensen  
Terry Croft  
Diana Lowe

**MANAGER**

Michael C. Archinal

In 2009, DTE deeded the Figurski/Whitehorse Roadway to Genoa Township in preparation for the dedication to the Livingston County Road Commission. During road construction for the Latson Road interchange, a number of vehicles began using the road as a cut-through to avoid the roadwork. During this time, Township staff received calls with concerns that the ornamental lights along the road were not turned on. In response, Township staff began researching the status and options available in regard to the lights. I will spare you the details but it has taken years and considerable staff resources to determine that the lights were not properly installed and no transformer is available to power them.

We have analyzed multiple options including turning the lights on and/or utilizing the Community Street Light program offered by DTE. The option to turn the lights on has a cost of \$12,000 to \$15,000 which doesn't include usage bills, liability or responsibility for long term maintenance which is why we don't view this as a viable option. The costs for the Community Street Light program were also not feasible at over \$78,000 due to the fact that the existing lights could not be utilized. The final option is therefore removal of the poles. Enclosed herein you will find a proposal from Crampton Electric detailing the cost of this work. We have met with the County Road Commission (who now owns the road) and they support this proposal. The total cost to remove the poles is \$4,800. We are proposing to leave the conduit and footings in the event a future user would be interested in lighting the area. The Road Commission has agreed to furnish conduit caps to install over the footings for protection. In addition to the attached proposal, please find a plan sheet, photographs of the light poles and a detail sheet for the caps.

In regard to this proposal I request your consideration of the following action:

**Moved by \_\_\_\_\_, supported by \_\_\_\_\_, to approve the revised estimate #114220 (dated 04/05/2017) from Crampton Electric to remove the specified light poles from Figurski and Whitehorse Drive for an amount not to exceed \$4,800.00.**

I trust this meets your needs at this time. Please don't hesitate to contact me if you have any questions or concerns in this regard.

Sincerely,



Kelly VanMarter

Assistant Township Manager/Community Development Director



10975 W. GRAND RIVER  
PO BOX 380  
FOWLerville MI 48836  
517-223-9691/ FAX 517-223-9970

**Electrical Proposal &  
Scope of Work**

**To:** Genoa Charter Township  
2911 Dorr Road  
Brighton, MI 48116

**Attn:** Ms. Kelly VanMarter, AICP

**Date:** April 5<sup>th</sup>, 2017

**Estimator:** Ryan Atherton

**Project:** Figurski Drive Light Pole Removal

**Estimate # 114220 Revised**

Crampton Electric Co. will furnish and install electrical work for the above project as described herein. All electrical work as described in the drawings emailed 4/4/2017 and Specification section(s) 26000 are included except as noted or clarified below. This proposal includes: Addenda No(s) None

Included	Excluded		Included	Excluded	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Sales & Use Tax	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Payment & Performance Bonds
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Electrical Permit costs	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Overtime Costs
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Trenching, Excavation, & Backfill	<input type="checkbox"/>	<input checked="" type="checkbox"/>	A.G.C. cleanup charges
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Concrete, Manholes, & Handholes	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Energy Usage Charges
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Instrumentation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Painting (except elec. touch-up)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Mechanical Work	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Motor Generator Set
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Temperature Controls	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Temporary wiring per OSHA Standards for Lighting and 120Volt Power in Facility
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Patching &/or repair of holes in walls or floors created by CRAMPTON ELECTRIC CO.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Temporary wiring for dewatering or welding

Our proposal is based upon Crampton Electric Company's Standard Terms and Conditions (see Page 2) unless otherwise indicated below.

Crampton Electric Co. will provide labor and materials for the following scope of work:

**Included:**

1. Perform Demolition of (11) Lighting Poles and Fixtures along Figurski Road per drawings
2. Haul away and disposal of the (11) poles
3. Install MDOT provided conduit caps

**Excluded:**

1. Existing Code Violation
2. Utility Connection Charges
3. Dumpsters/Porta Johns

**Assumptions:**

1. Working Hours Monday Through Friday 7:00AM to 3:30 PM
2. We are bidding this as an ABC Contractor with No Prevailing Wage Rate

**Total Quote: Four Thousand Eight Hundred US Dollars .....\$4,800.00**

**CRAMPTON ELECTRIC CO.**

*Ryan Atherton*

Ryan Atherton  
Estimator  
(517) 2239691



10975 W. GRAND RIVER  
PO BOX 380  
FOWLERVILLE MI 48836  
517-223-9691/ FAX 517-223-9970

## Electrical Proposal & Scope of Work

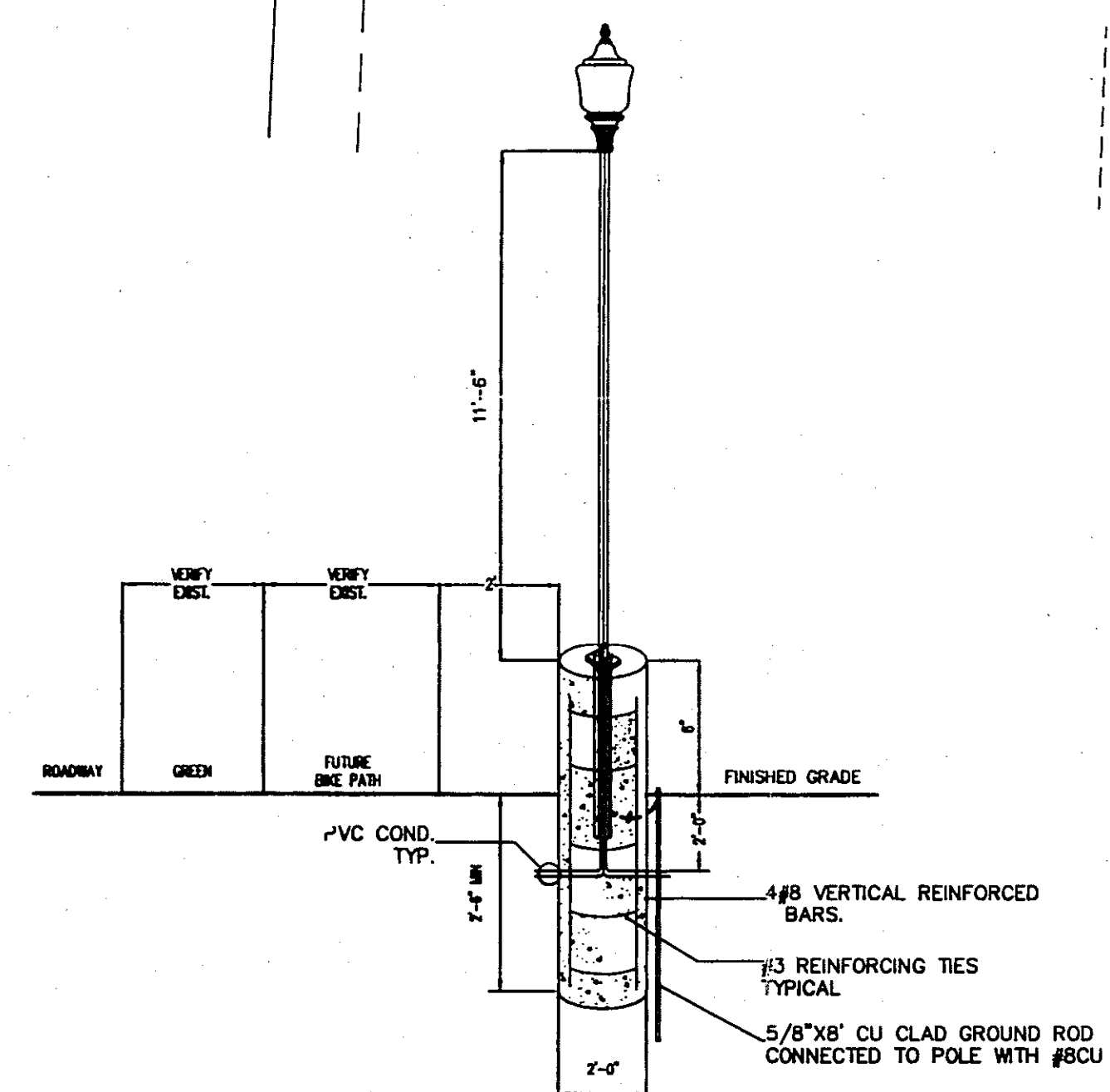
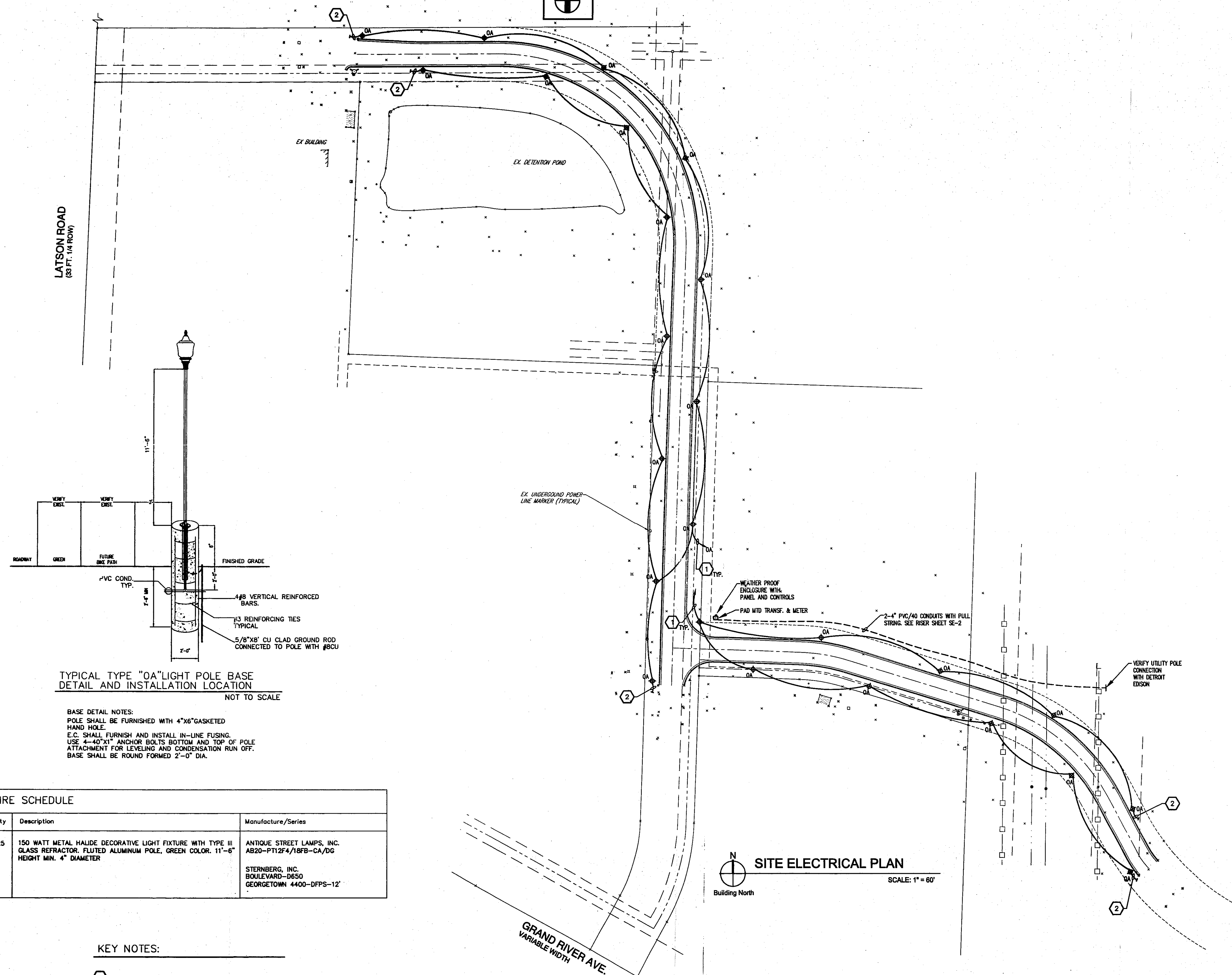
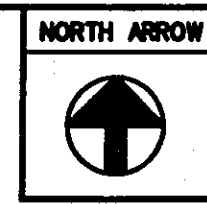
**Acceptance of Proposal - The above price, specifications and conditions are satisfactory and are hereby accepted. You are authorized to do the work as specified. Pricing is valid for 30 days from date quoted. Work cannot commence on above project until a SIGNED copy of this proposal is received by Crampton Electric Co (Mailed or Faxed) & P.O. number if required by your company.**

Date \_\_\_\_\_

Signature \_\_\_\_\_

### Standard Terms & Conditions

1. **Work to be completed in accordance with standard practices, for the amount(s) specified above. Any alteration or deviation from the below specifications involving extra costs will be executed only upon written orders and will become an extra charge over and above the estimate. All agreements are contingent upon strikes, accidents, or delays beyond our control. Our employees are fully covered by worker compensation insurance**
2. **Payment terms are monthly progress payments net 30 days due.**
3. **The offering price is valid for 30 days Crampton Electric Co. reserves the right to extend this term without notice.**
4. **All products offered by Crampton Electric Co. are Y2K compliant unless noted.**
5. **Subcontract terms and conditions are subject to review and approval prior to award of a subcontract To Crampton Electric Co.**
6. **Terms are pending approval by Crampton Electric Co. credit manager.**
7. **This Proposal is based on the schedule and time duration's presented at time of bid. A change in schedule shall constitute a change in scope of work.**
8. **All equipment furnished is F.O.B. shipping points with freight allowed to jobsite.**
9. **The price includes a one year warranty as specified in the Bid Documents. No other warranty is expressed or implied.**



TYPICAL TYPE "OA" LIGHT POLE BASE  
DETAIL AND INSTALLATION LOCATION  
NOT TO SCALE

BASE DETAIL NOTES:  
POLE SHALL BE FURNISHED WITH 4"x6" GASKETED HAND HOLE.  
E.C. SHALL FURNISH AND INSTALL IN-LINE FUSING.  
USE 4-40"x1" ANCHOR BOLTS BOTTOM AND TOP OF POLE ATTACHMENT FOR LEVELING AND CONDENSATION RUN OFF.  
BASE SHALL BE ROUND FORMED 2'-0" DIA.

LUMINAIRE SCHEDULE			
Label	Qty	Description	Manufacture/Series
OA	25	150 WATT METAL HALIDE DECORATIVE LIGHT FIXTURE WITH TYPE III GLASS REFRACTOR. FLUTED ALUMINUM POLE, GREEN COLOR. 11'-6" HEIGHT MIN. 4" DIAMETER	ANTIQUE STREET LAMPS, INC. AB20-P112F4/18FB-CA/DG  STERNBERG, INC. BOULEVARD-D650 GEORGETOWN 4400-DFPS-12'

KEY NOTES:

- ① 2 #10 + #12 GRD-3/4" PVC/40 CONDUIT CONNECTED TO DESIGNATED BREAKER IN PANEL VIA LIGHTING CONTROLLER.
- ② PROVIDE 3/4" PVC/40 STUB OUT FOR FUTURE CONNECTION AND CAP OFF.

**SITE ELECTRICAL PLAN**  
SCALE: 1" = 60'

**Barton Malow Design**  
26500 American Drive  
Suite 451  
Southfield, MI 48034  
tel 248.436.5100  
fax 248.436.5101  
www.bmco.com  
ISO 9001 Certified

BMD Project No. 03017-100

Issued For:	Date:	Issued For:	Date:
BIDS	07/10/03		

**Detroit Edison Company Engineering**

**SITE ELECTRICAL PLAN**

APERTURE CARD TITLE

LOCATION NAME	UNIT NUMBER
GENOA TWP, MICHIGAN	
ORIGINATING SOURCE	SCALE
	1" = 60'
DRAWING NUMBER	USE DIMENSIONS ON 1" DO NOT SCALE
SE-1	ORDER FOR WORK

PROJ. DIR.	PROJ. DIR.	PROJ. DIR.	PROJ. DIR.	OTHER APPROVALS	DATE	DIVISION	SUPERVISOR	DATE	PRODUCED OR INTERACTIVE SERVICES BY	DATE
						ARCH-CIVIL			LAYOUT BY	DATE
						CONTROL & ELECT.			CHECKED BY	DATE
									PROJECT ENGINEER	DATE
									S. LEO	07/10/03
									PROJECT DIRECTOR	DATE
									DIVISION DIRECTOR	DATE

**ETS ENGINEERING, INC.**  
418-1/2 S. WASHINGTON  
P.O. Box 1116  
Royal Oak, MI 48068-1116  
OFF: 248/744-0360  
FAX: 248/744-0367



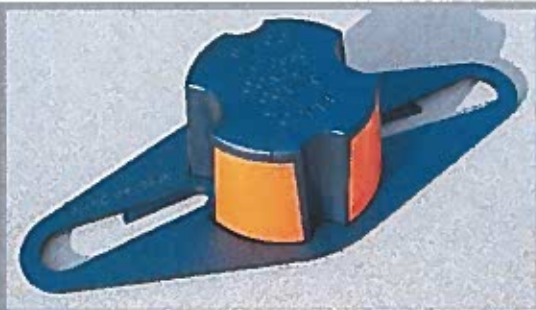


**Conduit Cover, Pelco Topper,  
ABS Plastic w/ Safety Orange Reflectors  
8-1/2" to 15" Bolt Circle**

PB-0530-PNC



Covers wiring temporarily, preventing damage or injury. Easily fits over installed anchor bolts and uses existing hardware. Made from durable ABS molded plastic.



**Adapter, Pelco Topper  
HMD Plastic  
8-3/4" to 20-1/2" Bolt Circle**

PB-0636-PNC



Easily slips over the Pelco Topper to accommodate up to 2" anchor bolts on a 20-1/2" bolt circle.

Note: 1. Fabricated from black ABS plastic.




































**MEMORANDUM**

**TO:** Township Board

**FROM:** Michael Archinal 

**DATE:** 4/13/17

**RE:** Lake Chemung Weed Control  
SAD Resolution #2

At the last Board meeting you approved a resolution for statutory notice for the above referenced project. The resolution inadvertently omitted a number of properties from the list of tax codes. The resolution before you this evening has been corrected to include all parcels within the SAD. We still have time to meet the statutory notice and publication requirements of PA 188.

Resolution #2 – Lake Chemung Aquatic Weed Control Project  
Special Assessment Project (Winter 2017)

**GENOA CHARTER TOWNSHIP**

At a regular meeting of the Township Board of the Genoa Charter Township of Livingston County, Michigan, (the “Township”) held at the Township Hall on April 3, 2017, at 6:30 p.m., there were

PRESENT: Ledford, Croft, Hunt, Lowe, Mortensen, Skolarus, and Rogers.

ABSENT:

The following preamble and resolution were offered by Skolarus and supported by Ledford:

**Resolution to Approve the Project,  
Schedule the First Hearing  
and Direct the Issuance of Statutory Notices**

WHEREAS, the Board of Trustees of the Township has approved the Lake Chemung Aquatic Weed Control Project within the Township as described in Exhibit A (the “Project”);

WHEREAS, preliminary plans and cost estimates for the Project have been filed with the Township Clerk;

WHEREAS, the Board of Trustees of the Township has determined to proceed with the Project in accordance with Act No. 188, Michigan Public Acts of 1954, as amended;

WHEREAS, the Board of Trustees of the Township has determined to advance the costs of the Project from Township funds and to use special assessments to raise the money necessary to reimburse the Township for the advance of such funds;

WHEREAS, the special assessment district for the Project has been tentatively determined by the Township and is described in Exhibit B;

NOW, THEREFORE, BE IT RESOLVED THAT:

1. The Board of Trustees of the Township hereby tentatively declares its intent to proceed with the Project and tentatively designates the special assessment district as shown on Exhibit B
2. In accordance with Act No. 188, Michigan Public Acts of 1954, as amended, and the laws of the State of Michigan, there shall be a public hearing on the Project and the proposed Special Assessment District for the Project which is known as the Lake Chemung Aquatic Weed Control Project”(Winter 2017) Special Assessment District.
3. The public hearing will be held on Monday, May 1, 2017 at 6:30 p.m., at the offices of Genoa Charter Township, Livingston County, Michigan.

4. The Township Clerk is directed to mail, by first class mail, a notice of the public hearing to each owner of or party in interest in property to be assessed, whose name appears upon the last Township tax assessment records. The last Township tax assessment records means the last assessment roll for ad valorem tax purposes which has been reviewed by the Township Board of Review, as supplemented by any subsequent changes in the names or addresses of such owners or parties listed thereon. The notice to be mailed by the Township Clerk shall be similar to the notice attached as Exhibit B and shall be mailed by first class mail on or before April 17, 2017. Following the mailing of the notices, the Township Clerk shall complete an affidavit of mailing similar to the affidavit set forth in Exhibit C.

5. The Township Clerk is directed to publish a notice of the public hearing in the Livingston County Daily Press & Argus, a newspaper of general circulation within the Township. The notice shall be published twice, once on or before April 21, 2017 and once on or before April 28, 2017. The notice shall be in a form substantially similar to the notice attached as Exhibit D.

A vote on the foregoing resolution was taken and was as follows:

YES: Ledford, Croft, Hunt, Lowe, Mortensen, Skolarus, and Rogers.

NAYS: None.

ABSENT: None.

CLERK’S CERTIFICATE

The undersigned, being the duly qualified and acting Clerk of the Township, hereby certifies that (1) the foregoing is a true and complete copy of a resolution duly adopted by the Township Board at a meeting of the Township Board, at which meeting a quorum was present and remained throughout; (2) the original thereof is on file in the records in my office; (3) the meeting was conducted, and public notice thereof was given, pursuant to and in full compliance with the Open Meetings Act (Act No. 267, Public Acts of Michigan, 1976, as amended); and (4) minutes of such meeting were kept and will be or have been made available as required thereby.

---

Paulette A. Skolarus, Clerk  
Genoa Charter Township

## EXHIBIT A

DESCRIPTION OF PROJECT  
A FIVE YEAR SPECIAL ASSESSMENT DISTRICT  
WITH PROJECTED COSTS AS FOLLOWS:

The unit five year cost for the project will consist of:

	<b>2017-2021</b>
Nuisance Aquatic Plant Control	\$42,000
Aquatic Plant Control Administration/Inspections	\$9,000
LCRA Lake Management Activities	\$7,455
Administration Contingency	\$6,000
Annual Total	\$64,455
<b>5-Year Total</b>	<b>\$322,275</b>

The five year estimated cost from December 2017 until 2021 is projected to be \$322,275.00 (including publications and mailings for the establishment of the special assessment district). The number of parcels sharing in this district is 507 with annual cost of \$127.13 each.

## EXHIBIT B

Genoa Charter Township  
Livingston County, Michigan

NOTICE OF PUBLIC HEARING  
UPON A PROPOSED LAKE CHEMUNG AQUATIC WEED CONTROL PROJECT  
AND SPECIAL ASSESSMENT DISTRICT FOR THE PROJECT

NOTICE IS HEREBY GIVEN:

(1) The Township Board of Genoa Charter Township, Livingston County, Michigan, in accordance with the laws of the State of Michigan, will hold a Public Hearing on May 1, 2017, at 6:30 p.m., at the Genoa Charter Township Offices, 2911 Dorr Road, Brighton, Michigan 48116, to review the following proposed special assessment district for aquatic weed control, and to hear any objections thereto and to the proposed project.

The project (the "Project") will consist of the following:

	2017-2021
Nuisance Aquatic Plant Control	\$42,000
Aquatic Plant Control Administration/Inspections	\$9,000
LCRA Lake Management Activities	\$7,455
Administration Contingency	\$6,000
Annual Total	\$64,455
5-Year Total	\$322,275

The five year estimated cost from 2017 until 2021 is projected to be \$322,275.00. **The estimate cost to each parcel is expected to be \$127.13 annually beginning in the Winter of 2017.** Note: The last payment of the previous district for Lake Chemung will concluded with the 2017 Summer tax collections. The new district will be included in the Winter 2017 collection, creating two taxable aquatic control collections in a single year.

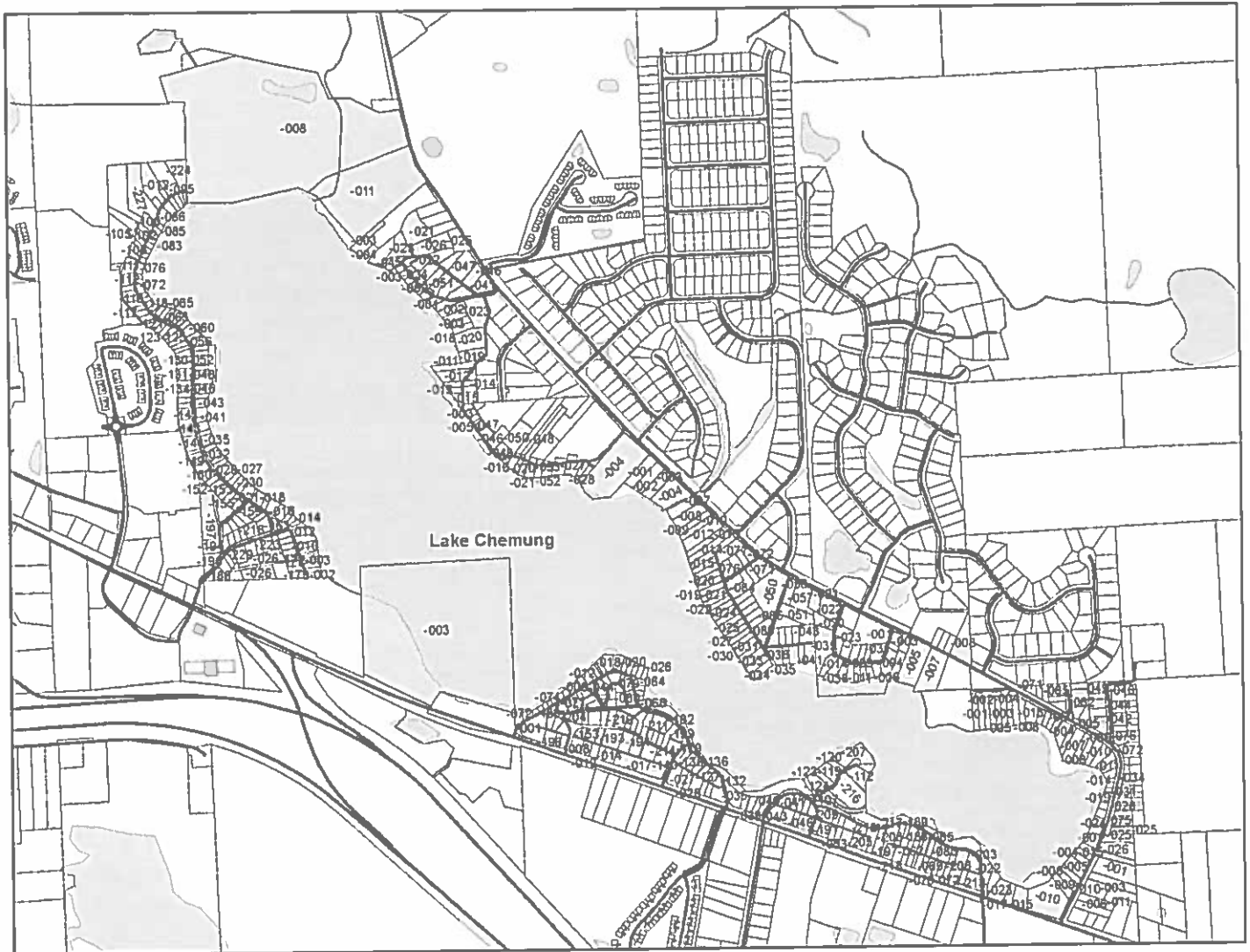
(2) The Project is being designed to serve the properties in the Special Assessment District, which district is illustrated on the map and includes the specific properties that are identified by the following permanent parcel numbers:

4711-03-300-003	4711-09-201-070	4711-09-201-218	4711-10-201-010	4711-10-301-038	4711-11-300-025
4711-03-300-004	4711-09-201-071	4711-09-201-223	4711-10-201-012	4711-10-301-039	4711-11-300-026
4711-03-300-011	4711-09-201-072	4711-09-201-224	4711-10-201-013	4711-10-301-040	4711-11-301-001
4711-03-300-021	4711-09-201-075	4711-09-201-227	4711-10-201-014	4711-10-301-041	4711-11-301-002
4711-03-300-022	4711-09-201-076	4711-09-201-228	4711-10-201-015	4711-10-301-043	4711-11-301-003
4711-03-300-023	4711-09-201-078	4711-09-201-229	4711-10-201-016	4711-10-301-045	4711-11-301-004
4711-03-300-025	4711-09-201-079	4711-09-201-230	4711-10-201-017	4711-10-301-046	4711-11-301-005
4711-03-300-026	4711-09-201-080	4711-09-201-231	4711-10-201-018	4711-10-301-048	4711-11-301-006



4711-09-201-025	4711-09-201-149	4711-10-102-044	4711-10-202-003	4711-10-301-180	4711-11-302-068
4711-09-201-026	4711-09-201-150	4711-10-102-047	4711-10-202-004	4711-10-301-182	4711-11-302-069
4711-09-201-027	4711-09-201-152	4711-10-102-051	4711-10-202-006	4711-10-301-187	4711-11-302-070
4711-09-201-028	4711-09-201-153	4711-10-102-064	4711-10-202-008	4711-10-301-188	4711-11-302-071
4711-09-201-029	4711-09-201-155	4711-10-102-065	4711-10-202-009	4711-10-301-189	4711-11-302-072
4711-09-201-030	4711-09-201-157	4711-10-102-066	4711-10-202-010	4711-10-301-190	4711-11-302-073
4711-09-201-031	4711-09-201-158	4711-10-102-067	4711-10-202-011	4711-10-301-191	4711-11-302-075
4711-09-201-032	4711-09-201-159	4711-10-102-068	4711-10-202-012	4711-10-301-193	4711-11-302-076
4711-09-201-034	4711-09-201-161	4711-10-102-069	4711-10-202-014	4711-10-301-194	4711-11-302-077
4711-09-201-035	4711-09-201-162	4711-10-102-070	4711-10-202-020	4711-10-301-196	4711-11-302-078
4711-09-201-037	4711-09-201-163	4711-10-102-071	4711-10-202-021	4711-10-301-197	4711-11-304-001
4711-09-201-041	4711-09-201-168	4711-10-102-072	4711-10-202-022	4711-10-301-199	4711-11-304-003
4711-09-201-043	4711-09-201-169	4711-10-102-073	4711-10-202-023	4711-10-301-203	4711-11-304-006
4711-09-201-045	4711-09-201-171	4711-10-102-074	4711-10-202-024	4711-10-301-204	4711-11-304-010
4711-09-201-046	4711-09-201-172	4711-10-102-077	4711-10-202-031	4711-10-301-205	4711-11-304-011
4711-09-201-048	4711-09-201-174	4711-10-102-078	4711-10-202-033	4711-10-301-206	4711-11-305-001
4711-09-201-050	4711-09-201-175	4711-10-102-079	4711-10-202-035	4711-10-301-208	4711-11-305-003
4711-09-201-051	4711-09-201-176	4711-10-102-080	4711-10-202-038	4711-10-301-209	4711-11-305-004
4711-09-201-052	4711-09-201-179	4711-10-102-083	4711-10-301-001	4711-10-301-210	4711-11-305-005
4711-09-201-055	4711-09-201-186	4711-10-200-003	4711-10-301-006	4711-10-301-211	4711-11-305-007
4711-09-201-056	4711-09-201-188	4711-10-200-004	4711-10-301-007	4711-10-301-212	4711-11-305-008
4711-09-201-058	4711-09-201-190	4711-10-200-005	4711-10-301-008	4711-10-301-213	4711-11-305-009
4711-09-201-060	4711-09-201-193	4711-10-200-007	4711-10-301-010	4711-10-301-214	4711-11-305-010
4711-09-201-061	4711-09-201-194	4711-10-200-008	4711-10-301-012	4711-10-301-215	4711-11-305-015
4711-09-201-062	4711-09-201-197	4711-10-201-001	4711-10-301-014	4711-10-301-216	4711-11-305-017
4711-09-201-063	4711-09-201-210	4711-10-201-002	4711-10-301-017	4711-10-301-217	4711-11-305-020
4711-09-201-065	4711-09-201-211	4711-10-201-003	4711-10-301-027	4711-10-301-218	4711-11-305-022
4711-09-201-066	4711-09-201-212	4711-10-201-004	4711-10-301-028	4711-10-301-219	4711-11-305-023
4711-09-201-067	4711-09-201-213	4711-10-201-007	4711-10-301-032	4711-10-301-220	
4711-09-201-068	4711-09-201-214	4711-10-201-008	4711-10-301-035	4711-10-301-221	
4711-09-201-069	4711-09-201-215	4711-10-201-009	4711-10-301-037	4711-11-300-015	





(3) The Township plans to impose special assessments on the properties located in the Special Assessment District to pay for the costs of the Project.

(4) The preliminary plans and cost estimates for the proposed Project and the boundaries of the Special Assessment District are reflected in the attached map and general project costs. The Township Board has received a letter from representatives of the association asking that the district be renewed for five years and provided the project cost details. Pursuant to the provisions of Public Act 188 of 1954, record owners of land have the right to file written objections to the Project with the Township Board. Any person objecting to the proposed Project or the proposed Special Assessment District shall file an objection in writing with the Township Clerk before the close of the May 1, 2017 public hearing.

This notice is given by order of the Genoa Township Board.

Dated: April 3, 2017

Paulette A. Skolarus, Clerk  
Genoa Charter Township

(Press/Argus 04/21/2017 & 04/28/2017)

## EXHIBIT C

AFFIDAVIT OF MAILING

STATE OF MICHIGAN     )  
  )  
COUNTY OF LIVINGSTON)

PAULETTE A. SKOLARUS, being first duly sworn, deposes and says that she personally prepared for mailing, and did on April 17, 2017 send by first-class mail, the notice of hearing, a true copy of which is attached hereto, to each record owner of or party in interest in all property to be assessed for the improvement described therein, as shown on the last local tax assessment records of the Township of Genoa; that she personally compared the address on each envelope against the list of property owners as shown on the current tax assessment rolls of the Township; that each envelope contained therein such notice and was securely sealed with postage fully prepaid for first-class mail delivery and plainly addressed; and that she personally placed all of such envelopes in a United States Post Office receptacle on the above date.

Paulette A. Skolarus, Clerk  
Genoa Charter Township



2911 Dorr Road  
Brighton, MI 48116  
810.227.5225  
810.227.3420 fax  
genoa.org

## MEMORANDUM

**TO:** Honorable Board of Trustees

**FROM:** Kelly VanMarter, Assistant Township Manager/Community Development Director

**DATE:** April 12, 2017

**RE:** Consumer's Energy Paving

**MANAGER'S REVIEW:** 

Attached please find the case file for the proposed parking lot expansion for Consumer's Energy located at 1000 Grand Oaks Drive, Howell. The request is petitioned by Tyme Consulting Engineering, Inc.

The applicant requests approval to expand 4 areas on the site to increase employee and customer parking and to provide a truck staging area. In addition to paving, the project includes storm water controls and removal of a landscape island. Procedurally, the Planning Commission has authority over the site plan and issues a recommendation to the Board regarding the Environmental Impact Assessment.

At the April 10, 2017 Planning Commission meeting the site plan was approved and the Commission recommended Board approval of the Impact Assessment. A revised Impact Assessment was received by the applicant on April 12, 2017 which incorporated the Planning Commission comments. Based on the action of the Planning Commission and in response to the revised materials I offer the following action for your consideration:

**Moved by \_\_\_\_\_, Supported by \_\_\_\_\_ to approve the Environmental Impact Assessment dated 4-12-17 subject to the following:**

- 1.) A statement regarding dust control measures to be used during construction shall be added.
- 2.) All conditions of the Planning Commission in regard to the site plan shall be satisfied.

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

### **SUPERVISOR**

Bill Rogers

### **CLERK**

Paulette A. Skolarus

### **TREASURER**

Robin L. Hunt

### **TRUSTEES**

Jean W. Ledford

H. James Mortensen

Terry Croft

Diana Lowe

### **MANAGER**

Michael C. Archinal



**GENOA CHARTER TOWNSHIP**  
**Application for Site Plan Review**

**RECEIVED**  
By Kelly VanMarter at 4:09 pm, Mar 21, 2017

**TO THE GENOA TOWNSHIP PLANNING COMMISSION AND TOWNSHIP BOARD:**

APPLICANT NAME & ADDRESS: Michael D. Stieler, P.E.; TYME Consulting Engineers, Inc., 32121 Schoolcraft Road, Livonia, MI 48150  
*If applicant is not the owner, a letter of Authorization from Property Owner is needed.*

OWNER'S NAME & ADDRESS: Todd Grondin, CMS Energy, 1000 Grand Oaks Drive, Howell, MI 48843

SITE ADDRESS: 1000 Grand Oaks Drive, Howell, MI 48843 PARCEL #(s): (N/A)

APPLICANT PHONE: (734) 744-5125 OWNER PHONE: 616-485-6480

OWNER EMAIL: todd.grondin@cmsenergy.com

LOCATION AND BRIEF DESCRIPTION OF SITE: Consumers Energy Howell Service Center  
1000 Grand Oaks Drive, Howell, MI 48843

This is a current Consumer's Energy Service Center.

BRIEF STATEMENT OF PROPOSED USE: Consumers Energy Service Center

THE FOLLOWING BUILDINGS ARE PROPOSED: No new buildings, the improvements are for the  
addition of approximately 15 parking spaces.

**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: Michael D. Stieler, P.E., TYME Consulting Engineers, Inc.

ADDRESS: 32121 Schoolcraft Road, Livonia, MI 48150

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

1.) Michael D. Stieler, P.E. of TYME Consulting Engineers, Inc. at michaels@tymeengineering.com  
Name Business Affiliation E-mail Address

**FEE EXCEEDANCE AGREEMENT**

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

Digitaly signed by Michael D. Stieler, P.E.  
 DN: cn=Michael D. Stieler, P.E., o=TYME Engineering, Inc., ou=Project  
 Manager, email=michaels@tymeengineering.com, c=US  
 Date: 2017.02.22 11:17:21 -0500

SIGNATURE: Michael D. Stieler, P.E. DATE: 02/22/2017  
 PRINT NAME: Michael D. Stieler, P.E. PHONE: 734-74-5125  
 ADDRESS: TYME Consulting Engineers, Inc. 32121 Schoolcraft Road, Livonia, MI 48150

Commissioner Rach asked if any hazardous materials will be stored in this building. Mr. Sparks said, "No".

Mr. Siwek stated their only outstanding issue was the storm water management and the applicant has addressed this concern.

Chairman Brown reviewed the Brighton Area Fire Authority's letter of March 15, 2017. Mr. Eckstein stated they will work with the Fire Authority regarding the location of the new fire hydrant.

The call to the public was made at 6:44 pm with no response.

**Moved** by Mortensen, seconded by McManus, to approve the sketch plan dated February 27, 2017 for Chem-Trend with the following conditions:

- The building materials and color samples reviewed this evening by the Planning Commission are acceptable and will become the property of the Township.
- The Planning Commission agrees that the building may exceed the 25 percent limit for metal siding as it is consistent with the main building.
- The requirements of the Brighton Area Fire Authority in their letter dated March 15, 2017 shall be met prior to a land use permit being issued.
- The requirements of the Township Engineer in their letter dated March 13, 2017 shall be complied with prior to a land use permit being issued.
- A water main easement will be provided in connection with the new fire hydrant.

**The motion carried unanimously.**

**OPEN PUBLIC HEARING #2...** Review of site plan and impact assessment for a proposed parking lot expansion for Consumer's Energy located at 1000 Grand Oaks Drive, Howell. The request is petitioned by Tyme Consulting Engineering, Inc.

Planning Commission recommendation of petition:

A. Recommendation of impact assessment. (3-21-17)

B. Disposition of site plan. (3-21-17)

Mr. Michael Stieler of TYME Consulting Engineers and Dave Neil of Consumers Energy were present. Mr. Stieler advised they would like to expand four of the parking areas on the site. He explained the details of each of the locations, such as storm water control, removing one of the landscape islands, employee parking, a truck staging area, and increased customer parking.

Ms. VanMarter reviewed Mr. Borden's letter of March 24, 2017.

- All of the dead and/or diseased plantings required as part of the 2009 Site Plan approval must be replaced.
- A condition of the 2009 Site Plan approval was that the applicant combine the multiple parcels that comprise this site; however, this has not been done.
- The applicant must obtain approvals for work within the water main and County drain easements.

Mr. Neil stated they have started the process to combine the parcels.

Mr. Siwek reviewed his letter of April 4, 2017. Updated storm detention calculations are required to be provided on the plans. He concurred with Ms. VanMarter's comments regarding approval being needed to work within public utility easements.

The Brighton Area Fire Authority has no outstanding issues; however, their letter of March 28, 2017 reminded the applicant that the access road may not be obstructed by construction materials, equipment or vehicles during the construction process.

The call to the public was made at 6:56 pm with no response.

**Moved** by McManus, seconded by Mortensen, to approve the Site Plan dated March 21, 2017 for Consumers Energy with the following conditions:

- All landscaping per the approval of 2009 shall be installed and/or replaced.
- The applicant shall combine all of the parcels.
- The requirements of the Township Engineer's letter of April 4, 2017 shall be complied with.

**The motion carried unanimously.**

**Moved** by Figurski, seconded by McManus, to recommend to the Township Board approval of the Impact Assessment for Consumers Energy dated April, 2017 and its amendment to their 2009 submission conditioned upon the inclusion for dust control measures. **The motion carried unanimously.**

**OPEN PUBLIC HEARING #3...** Review of site plan application and impact assessment for a proposed new 2,360 sq. ft. Lake Trust Credit Union building located on the north side of Grand River, west of Lawson Drive. The property is located within the Lorentzen PUD on parcel #11-09-100-034. The request is petitioned by Lake Trust Credit Union.

Planning Commission recommendation of petition:

A. Recommendation of Impact Assessment (3-21-17)

B. Recommendation of Site Plan (3-21-17)

Mr. Dave Vanderklok of Studio Intrigue Architects and representatives from Lake Trust Credit Union were present. Mr. Vanderklok gave a history of the credit union. They would like to build a one-story, 2,360 square foot branch. This building will be the second one of the new prototype design for Lake Trust. The first one is in East Lansing and was completed in April of 2016.

He presented sample building materials and showed colored renderings of the proposed building. They would like relief to the brick requirement. He showed the wood material that would be used instead of the brick.

They would also like relief for the parking space limitations. They do not believe that the 14-space maximum is sufficient for their bank and are proposing 25 spaces.

He addressed the traffic flow concerns of the Township Planner. They believe the way they have designed the site will not cause a conflict with the drive-through lane exit and two-way traffic drive.



March 24, 2017

Planning Commission  
Genoa Township  
2911 Dorr Road  
Brighton, MI 48116

<b>Attention:</b>	Kelly Van Marter, AICP Planning Director and Assistant Township Manager
<b>Subject:</b>	Consumers Energy – Site Plan Review #1
<b>Location:</b>	1000 Grand Oaks Drive – west side of Grand Oaks, south of Grand River Avenue
<b>Zoning:</b>	IND Industrial District

Dear Commissioners:

At the Township's request, we have reviewed the site plan (dated 3/9/17) proposing a parking lot expansion and new impervious surfacing for the existing Consumers Energy Howell Service Center.

We have reviewed the proposal in accordance with the applicable provisions of the Genoa Township Zoning Ordinance and provide the comments below for your consideration.

**A. Summary**

1. Given the relatively limited scope of the project, a new special land use approval is not required.
2. All dead and/or diseased plantings required as part of the 2009 site plan approval must be replaced.
3. As a result of the 2009 approval, the applicant was to combine the multiple parcels that comprise this site; however, it is our understanding that this has not yet occurred.
4. The applicant must obtain approvals for work within the water main and County drain easements.

**B. Proposal/Process**

The applicant requests site plan review and approval for 9 new parking spaces off the northerly drive aisle accessing the site. The project also entails new paved surfacing for "heavy duty" trucks.

The overall project received special land use and site plan approval in 2009. Given the relatively limited scope of the project, the applicant only needs site plan review (as opposed to a new special land use review).

As such, Planning Commission has review and approval authority over the site plan, although the Environmental Impact Assessment will be subject to review and approval by the Township Board (following a recommendation by the Planning Commission).





*Aerial view of site and surroundings prior to Phase I development (looking north)*

### C. Site Plan Review

- 1. Dimensional Requirements.** As described in the table below, the project complies with the applicable dimensional standards of the IND:

District	Lot Size		Parking Setbacks	Lot Coverage
	Lot Area (acres)	Width (feet)		
IND	1	150	20' front 10' side/rear	85% impervious
Proposal	18.5	531	50' front 45' side (N)	16.3% impervious

- 2. Parking.** Based on our 2009 review, the project required 83 parking spaces, while 85 were provided. The additional 9 spaces proposed remain within the amount of parking allowed by Ordinance.

The proposed parking spaces, drive aisles and number of barrier free spaces all meet or exceed the requirements of Article 14.

- 4. Landscaping.** The proposal includes 2 new canopy trees, ornamental grasses, decorative ground cover and 2 deciduous shrubs in front of the existing parking lot in between the two drive aisles.

Additionally, based on discussion with staff it is our understanding that much of the landscaping approved as part of the 2009 site plan has died. Section 12.02.11 requires that dead or diseased trees be replaced.

- 5. Impact Assessment.** The submittal includes a new Impact Assessment (dated April 2017), which notes that the proposed project is not expected to adversely impact natural features, public services/utilities, surrounding land uses or traffic.

- 6. Additional Considerations.** Based on discussion with Township staff, it was brought to our attention that the 2009 approval included a condition that the multiple parcels comprising this site be combined. It is our understanding that this has not yet occurred.

The project also includes work within easements for a County drain and water main. The applicant must obtain the necessary approvals for such activities.

**Consumers Energy**

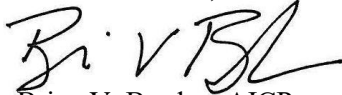
Site Plan Review #1

Page 3

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

Respectfully,

**LSL PLANNING, A SAFE BUILT COMPANY**

A handwritten signature in black ink, appearing to read "B. V. Borden". The signature is stylized and cursive.

Brian V. Borden, AICP

Planning Manager



April 4, 2017

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

**Re: Consumers Energy Site Plan Review**

Dear Ms. Van Marter:

Tetra Tech conducted a site plan review of the TYME Engineering submittal dated March 9, 2017, for the Consumers Energy Howell Service Center Parking Lot Expansion. The applicant is proposing to expand/improve several parking areas on the site located at 1000 Grand Oaks Drive. Our review comments are summarized below.

**SUMMARY**

1. Storm detention calculations are required.
2. Proposed expansions are within public utility easements.

**SITE PLAN**

1. The percent of impervious area for the site is increasing in the proposed parking lot expansions. Stormwater and detention calculations should be provided to verify the existing detention ponds will meet the total storage required with the additional impervious areas.
2. Two expansion areas, 3 and 4, occur within a public easement for water main or storm sewer. The applicant should note these areas may require excavation at the discretion of the utility for maintenance and/or repair.

The petitioner should revise and resubmit the site plan to address the above comments prior to approval.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Gary Markstrom'.

Gary J. Markstrom, P.E.  
Unit Vice President

A handwritten signature in blue ink, appearing to read 'Marguerite K. Davenport'.

Marguerite K. Davenport  
Project Engineer

copy: Michael D. Stieler, P.E., TYME Consulting Engineers, Inc.

**Tetra Tech**

401 South Washington Square, Suite 100, Lansing, MI 48933  
Tel 517.316.3930 Fax 517.484.8140 [www.tetrattech.com](http://www.tetrattech.com)



# BRIGHTON AREA FIRE AUTHORITY

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

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March 28, 2017

Kelly VanMarter  
Genoa Township  
2911 Dorr Road  
Brighton, MI 48116

RE: Consumers Energy - Parking Lot expansion  
1000 Grand Oaks Dr.

Dear Kelly:

The Brighton Area Fire Department has reviewed the above mentioned site plan. The plans were received for review on March 22, 2017 and the drawings are dated March 9, 2017. The project is for the installation of new parking within the parameters of the existing lot. There is no planned building construction in the scope of this project. The plan review is based on the requirements of the International Fire Code (IFC) 2015 edition.

The fire authority has no objection to the submitted plan. There is no effect on emergency vehicle access or fire protection within the scope of this project. The fire authority would like to remind the applicant that access roads may not be obstructed by construction materials, equipment or vehicles at any time during the the construction process.

If you have any questions about the comments on this plan review please contact me at 810-229-6640.

Cordially,

A handwritten signature in black ink, appearing to read "R. Boisvert".

Capt. Rick Boisvert, CFPS  
Fire Inspector



TYME Consulting Engineers, Inc.  
32121 Schoolcraft Road  
Livonia, Michigan 48150  
P: 248.522.0300  
F: 248.522.0308  
connect@tymeengineering.com

**RECEIVED**

*By Amy Ruthig at 1:26 pm, Apr 12, 2017*

## Impact Statement

Consumers Energy

Existing Howell Service Center

Parking Lot Expansion Project

SW ¼ Section 5

Genoa Township, Livingston County, MI

Engineers Project Number 28909602

April 2017



This Impact Statement is an Amendment to the original Impact Statement submitted in 2009 for the development of the site. The original Impact Statement is attached to this document for reference.

**1.0 Preparer**

This Impact Assessment has been prepared by MR. Michael Stieler, P.E. of TYME Consulting Engineers, Inc. Mr. Stieler has 30 years of experience in civil engineering and is a licensed Professional Engineer in the State of Michigan.

**2.0 Location**

This subject site is the current Consumers Energy Howell Service Center located at 1000 Grand Oaks Drive, Howell, Michigan 48843.

**3.0 Impact on Natural Features**

None. The proposed parking lot expansions are adjacent to existing paved areas. Minimal disturbance will be made to the site.

**4.0 Impact on Stormwater Management**

None. The proposed parking lot expansions are within the limits and areas of the current stormwater systems. The small amount of added paved surface will not adversely impact the existing stormwater system.

**5.0 Impact on Surrounding Land Uses**

None. The proposed parking lot expansions are within the limits of the existing site; there will be no impacts on any of the surrounding land.

**6.0 Impact on Public Facilities and Services**

None. The proposed parking lot expansions are within the limits of the existing site, there will be no impact on public facilities and services.

**7.0 Impact on Public Utilities**

None. The proposed parking lot expansions are within the limits of the existing site, there will be no impact on public utilities.

**8.0 Storage and Handling of Any Hazardous Materials**

None. The proposed parking lot expansion work will not produce any hazardous materials.

**9.0 Traffic Impact Study**

Not required. The proposed parking lot expansion work will not require the need for a Traffic Impact Study.

**10.0 Historic and Cultural Resources**

The proposed parking lot expansion work is within the existing site, no historic or cultural resources will be affected.

**11.0 Special Provisions**

None. There are no deed restrictions or restrictive covenants on this site and it is not subject to any master deeds or association bylaws.

**12.0 Sources**

Original Impact Statement submitted in 2009 for the development of the site.

**13.0 Previous Impact Assessments**

The original Impact Statement submitted in 2009 for the development of the site (attached).

**RECEIVED**  
MAY 15 2009  
GENOA TOWNSHIP

# **Impact Statement**

## **Consumers Energy Proposed Howell Service Center SW ¼ Section 5 Genoa Township, Michigan**

**Engineers Project No. 09037  
March 2009  
May 2009**



**Sidock Group, Inc.**

**ENGINEERS • ARCHITECTS • CONSULTANTS • PROJECT MANAGERS**

CONSUMERS ENERGY  
PROPOSED HOWELL SERVICE CENTER  
SW ¼ SECTION 5  
GENOA TOWNSHIP, MICHIGAN

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**Appendices**

- Appendix A Figures**
- Appendix B Well Logs**
- Appendix C Endangered Species Assessment**



## **1.0 Preparer**

This Impact Assessment has been prepared by Ms. Carrie Rivette, P.E. and Mr. Bill Frazier, P.E. of Sidock Group, Inc. Ms. Rivette has 15 years experience in civil and environmental engineering and Mr. Frazier has 32 years experience in civil and structural engineering. Both are licensed Professional Engineer in the State of Michigan.

## **2.0 Location**

The subject site is the proposed Consumers Energy Howell Service Center. The site consists of 18.48 acres situated in the southwest ¼ of Section 5 of Genoa Township, Michigan. The site survey, prepared by Rowe, is presented in Appendix A.

As shown on the survey, the only structures located on the site are drainage structures on the eastern portion of the site. A drainage ditch extends from the central portion of the site to wetlands on the northwestern portion of the site.

An aerial photograph of the site prepared by Wetland Coastal Resources is presented in Appendix A. Site access is provided by Grand Oaks Drive to the east. Livingston County Hockey Association borders the site to the north and Burkhart Products, Inc. borders the site to the south. No structures are apparent within 100 feet of the western property boundary.

## **3.0 Impact on Natural Features**

The Consumers Service Center site is being developed to provide minimal impact on the wetlands that are located on the site. The proposed buildings are all located near Grand Oaks Ave in order to reduce building in the large area of wetlands that are located at the west end (back area) of the site. There is currently a small area of wetland located within the building and parking area that was created when the county drain outlet was constructed. This area is approximately .29 acres and will be filled. This area will be mitigated with a new .5 acre wetland constructed at the rear of the site adjacent to the existing wetlands. Delineated and impacted wetlands and proposed mitigation area are depicted on Figure 3 in Appendix A. In addition, an application for the wetlands mitigation has been submitted to the MDEQ on behalf of Consumers Energy by King & MacGregor Environmental, Inc. of Grand Rapids, Michigan.

Approximately five (5) acres in the northwestern portion of the site are heavily wooded. Only the eastern 65 feet of the wooded area is expected to be impacted by the project as shown on Figure 3 in Appendix A. No mature trees (trunk greater than 8" in diameter) are situated in this area.

Well logs for the properties to the north and south of the subject site are included in Appendix B. As shown on the logs, groundwater in the area is situated approximately 170 to 180 feet below grade in shale. Both logs indicate layers of sand and clay above the shale. Soils at the site are depicted on the well logs in Appendix B and also shown on Figure 1 in Appendix A.

The only surface water at the site is an approximately 60-foot long channel that was created by the discharge from the county drain on the site.

According to the endangered species assessment tool on the Michigan Department of Natural Resources website, "No unique natural features are known to occur" at or near the subject site. A copy of the information is presented in Appendix C. During the site reconnaissance, only indications of typical woodland wildlife were noted.

#### **4.0 Impact on Stormwater Management**

Currently, groundwater at the site, in addition to stormwater from the area, discharges to the wetlands in the northwestern portion of the site.

Figure 3 in Appendix A depicts the proposed changes to the stormwater collection system at the site. The county drain will be relocated to run along the southern boundary of the site and then run diagonally across the site to drain into the same wetland that it currently drains. The new outlet will be approximately 500 feet south of the existing outlet.

Water, sanitary sewer and site utilities will be accessed along Grand Oaks Ave. and this construction will not impact the existing wetlands.

Site drainage has been designed in accordance with Livingston County Drain Commissioner standards. Areas adjacent to and north of the service center building will drain directly to a first flush basin. The first flush basin is sized to accommodate the first half inch of rainfall and allow the sediment, etc. to settle out. From the first flush basin the water will drain over a spillway into a detention basin. This basin has been sized to reduce the 2 and 10 year flows to below predeveloped conditions and the 100 year storm to discharge at .2 CFS per acre of drainage area.

All other areas of the developed site will be collected into a storm sewer that will discharge to a first flush basin. From this basin the storm water will flow over a spillway into a detention basin. This basin has also been sized to reduce the 2 and 10 year flows to below predeveloped conditions and the 100 year storm to discharge at .2 CFS per acre of drainage area.

During construction erosion control measures will be in place in accordance with the Drain Commissioner standards to protect the wetlands from sediment. All

disturbed areas will be seeded and sloped areas will have erosion control blankets to protect the seeded areas until vegetation has been established.

### **5.0 Impact on Surrounding Land Uses**

The subject site is intended for use by Consumers Energy as a regional service center to service its natural gas customers in the Howell and Brighton area. The site must be relocated from its current location due to the Latson Road interchange planned by the Michigan Department of Transportation.

Site activities will consist of offices for customer inquiries and service calls, truck storage and an equipment maintenance garage. The office area will operate from 7 am to 4 pm, with indoor lighting estimated to be from 7 am to 5 pm.

The outdoor operations are 24 hours a day to provide emergency services. Outdoor lighting will be via photo cell. All outdoor lighting will be dark sky compliant.

Given that the only noise generated at the site will be from vehicle traffic and repairs inside the garage, noise levels at the property boundaries will meet the required maximum of 65 decibels.

The proposed structures will be one-story in height and will not obstruct views or sunlight from neighboring properties.

The future land use map included in Genoa Township's Master Plan is presented in Appendix A. As shown on the map, the site is currently intended for Industrial use. Current Zoning is also industrial. As such, the proposed site usage conforms to zoning and the Master Plan.

During construction, water will be utilized as need to control dust emissions at the site. During hot, dry weather conditions, site evaluation for water application will be evaluated more often. In addition, dust will be swept from paved areas where it collects to prevent additional dust emissions.

### **6.0 Impact on Public Facilities and Services**

Site employees will consist of 24 primarily office employees and 40 employees associated with maintenance and response. An estimated 5 visitors per day are expected.

Given that the operations are moving from one area of the township to another, there will be no significant impact on schools, recreation, police, fire or emergency services.

## **7.0 Impact on Public Utilities**

The site will be connected to municipal water and sanitary sewer. Current line sizing in the area is adequate to accommodate the site for both water and sanitary sewer.

Given the connection to municipal water, no additional water conditioning will be performed at the site.

Stormwater handling is as noted above in Section 4.0

## **8.0 Storage and Handling of Any Hazardous Materials**

The only hazardous materials that will be utilized onsite are thermostats, AA and D batteries, used oil and anti freeze. The thermostats are encased in a Ziploc bag and then stored in 55 gallon drums until there is significant quantity for disposal. Used oil and anti-freeze is stored in a double-walled 250-gallon aboveground storage tank. The tank is pumped out by a licensed waste hauler for offsite disposal. Spent batteries are sent to a recycling facility. Storage, handling and disposal of hazardous materials at the site will meet all applicable State, Federal and local regulatory requirements.

## **9.0 Traffic Impact Study**

Traffic at the site will consist of 24 workers and visitors that will arrive and leave during potentially peak hours (from 7 am to 5 pm). The remaining 40 maintenance and response workers and 5 visitors will be distributed throughout the day. As such, there will be less than 50 trips in any given hour, and peak hours will not generate an excess of more than 50 directional trips per hour. As such, impact on the surrounding roads will be negligible and a Traffic Impact Assessment or Statement is not required.

## **10.0 Historic and Cultural Resources**

No structures will be demolished as a result of this project. As such, no historic or cultural resources will be affected.

## **11.0 Special Provisions**

There are no deed restrictions or restrictive covenants on the site and it is not subject to any master deeds or association bylaws.

## **12.0 Sources**

Figure 1 in Appendix B is the survey performed by Rowe in 2008.

Figure 2 in Appendix B was taken from the February 27, 2009 wetland report by King & MacGregor Environmental, Inc.

The Future Land Use Map in Appendix A was taken from the Master Plan, Genoa Charter Township, Livingston County, Michigan, Adopted by the Genoa Township Planning Commission, May 22, 2006, Adopted by the Genoa Township Board, June 19 2006.

### **13.0 Previous Impact Assessments**

No previous Impact Assessment has been performed for the subject site.



**LEGAL DESCRIPTIONS AS PROVIDED**

**THE NORTH 1/4 - 30-0-02 - SECTION 14, TOWNSHIP 3 NORTH, RANGE 3 EAST, CEDAR TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN, CONTAINING EASEMENTS**  
 A PART OF THE SOUTHWEST 1/4 OF SECTION 14, TOWNSHIP 3 NORTH, RANGE 3 EAST, CEDAR TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN, DESCRIBED AS FOLLOWS: COMMENCED AT THE SOUTH 1/4 CORNER OF SAID SECTION 14 THENCE NORTH 89 DEGREES 00' 00" WEST 400.00 FEET TO THE POINT OF BEGINNING; THENCE SOUTH 89 DEGREES 00' 00" WEST 400.00 FEET TO THE POINT OF BEGINNING; THENCE SOUTH 89 DEGREES 00' 00" WEST 400.00 FEET TO THE POINT OF BEGINNING; THENCE SOUTH 89 DEGREES 00' 00" WEST 400.00 FEET TO THE POINT OF BEGINNING.

**THE NORTH 1/4 - 30-0-04 - SECTION 14, TOWNSHIP 3 NORTH, RANGE 3 EAST, CEDAR TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN, CONTAINING EASEMENTS**  
 A PART OF THE SOUTHWEST 1/4 OF SECTION 14, TOWNSHIP 3 NORTH, RANGE 3 EAST, CEDAR TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN, DESCRIBED AS FOLLOWS: COMMENCED AT THE SOUTH 1/4 CORNER OF SAID SECTION 14 THENCE NORTH 89 DEGREES 00' 00" WEST 400.00 FEET TO THE POINT OF BEGINNING; THENCE SOUTH 89 DEGREES 00' 00" WEST 400.00 FEET TO THE POINT OF BEGINNING; THENCE SOUTH 89 DEGREES 00' 00" WEST 400.00 FEET TO THE POINT OF BEGINNING; THENCE SOUTH 89 DEGREES 00' 00" WEST 400.00 FEET TO THE POINT OF BEGINNING.

**THE NORTH 1/4 - 30-0-06 - SECTION 14, TOWNSHIP 3 NORTH, RANGE 3 EAST, CEDAR TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN, CONTAINING EASEMENTS**  
 A PART OF THE SOUTHWEST 1/4 OF SECTION 14, TOWNSHIP 3 NORTH, RANGE 3 EAST, CEDAR TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN, DESCRIBED AS FOLLOWS: COMMENCED AT THE SOUTH 1/4 CORNER OF SAID SECTION 14 THENCE NORTH 89 DEGREES 00' 00" WEST 400.00 FEET TO THE POINT OF BEGINNING; THENCE SOUTH 89 DEGREES 00' 00" WEST 400.00 FEET TO THE POINT OF BEGINNING; THENCE SOUTH 89 DEGREES 00' 00" WEST 400.00 FEET TO THE POINT OF BEGINNING; THENCE SOUTH 89 DEGREES 00' 00" WEST 400.00 FEET TO THE POINT OF BEGINNING.

**THE NORTH 1/4 - 30-0-08 - SECTION 14, TOWNSHIP 3 NORTH, RANGE 3 EAST, CEDAR TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN, CONTAINING EASEMENTS**  
 A PART OF THE SOUTHWEST 1/4 OF SECTION 14, TOWNSHIP 3 NORTH, RANGE 3 EAST, CEDAR TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN, DESCRIBED AS FOLLOWS: COMMENCED AT THE SOUTH 1/4 CORNER OF SAID SECTION 14 THENCE NORTH 89 DEGREES 00' 00" WEST 400.00 FEET TO THE POINT OF BEGINNING; THENCE SOUTH 89 DEGREES 00' 00" WEST 400.00 FEET TO THE POINT OF BEGINNING; THENCE SOUTH 89 DEGREES 00' 00" WEST 400.00 FEET TO THE POINT OF BEGINNING; THENCE SOUTH 89 DEGREES 00' 00" WEST 400.00 FEET TO THE POINT OF BEGINNING.

**LEGAL DESCRIPTIONS AS SURVEYED**

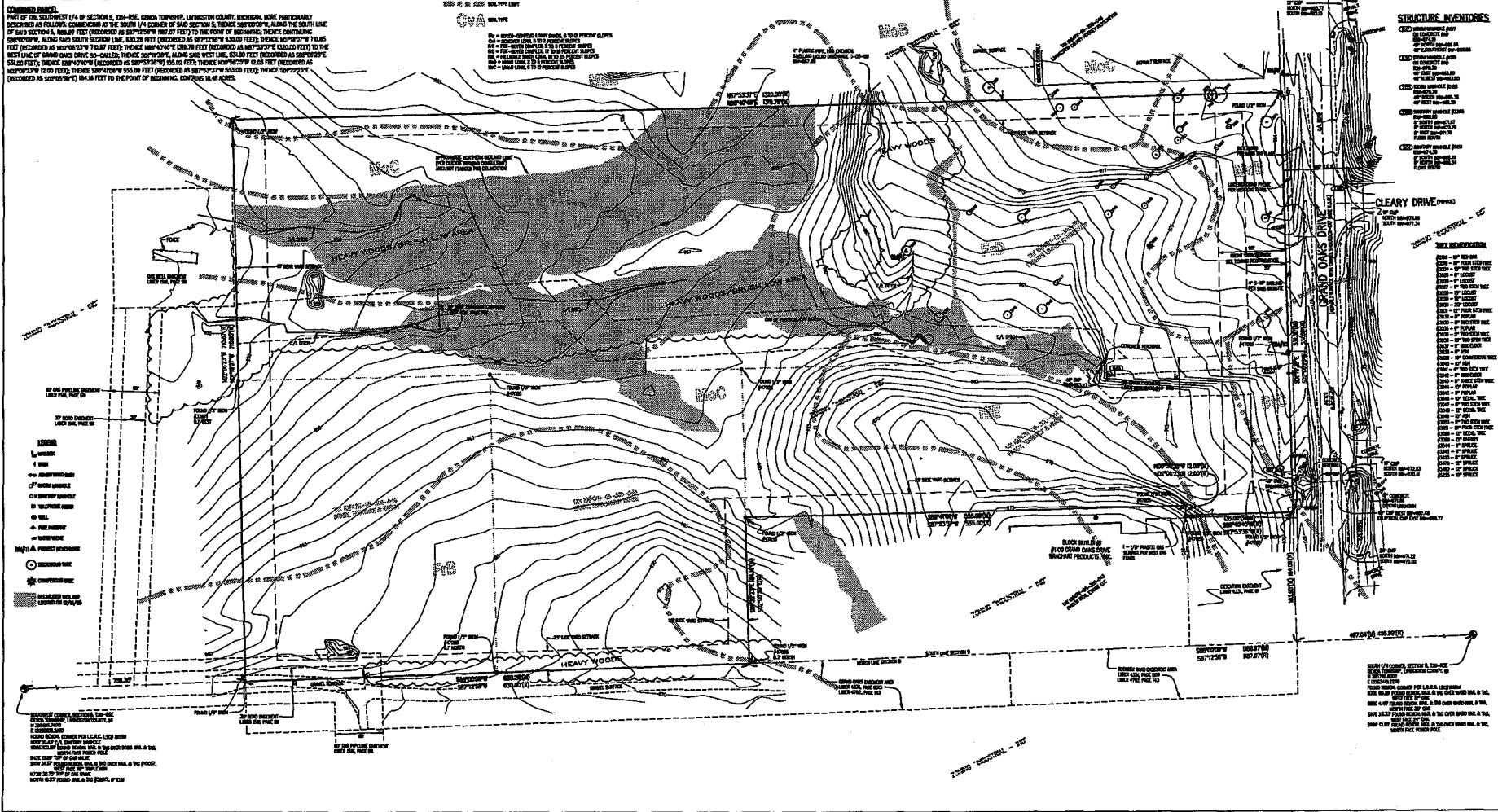
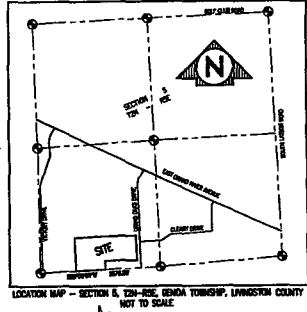
**CONVEYED PARCELS**  
 PART OF THE SOUTHWEST 1/4 OF SECTION 14, TOWNSHIP 3 NORTH, RANGE 3 EAST, CEDAR TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN, MORE PARTICULARLY DESCRIBED AS FOLLOWS: COMMENCED AT THE SOUTH 1/4 CORNER OF SAID SECTION 14 THENCE NORTH 89 DEGREES 00' 00" WEST 400.00 FEET TO THE POINT OF BEGINNING; THENCE SOUTH 89 DEGREES 00' 00" WEST 400.00 FEET TO THE POINT OF BEGINNING; THENCE SOUTH 89 DEGREES 00' 00" WEST 400.00 FEET TO THE POINT OF BEGINNING; THENCE SOUTH 89 DEGREES 00' 00" WEST 400.00 FEET TO THE POINT OF BEGINNING.

**GENERAL NOTES**

1. SUBJECT PROPERTY IS BOUND BY THE EAST BY THE PLANNED COMMUNITY DEVELOPMENT THAT THE USER WILL NOT BE RESPONSIBLE FOR THE COST OF THE SURVEY AND THE USER WILL NOT BE RESPONSIBLE FOR THE COST OF THE SURVEY.
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**GENERAL NOTES**

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DRAWING NO.	REFERENCE DRAWING	REV.	DATE	DESCRIPTION	BY	APP.	REV.	DATE	DESCRIPTION
		A	12/19/09	ADDED EASEMENTS	J.P.				
		B	12/17/09	WOODED AREA CONTOURS AND WETLAND AREAS	J.P.				

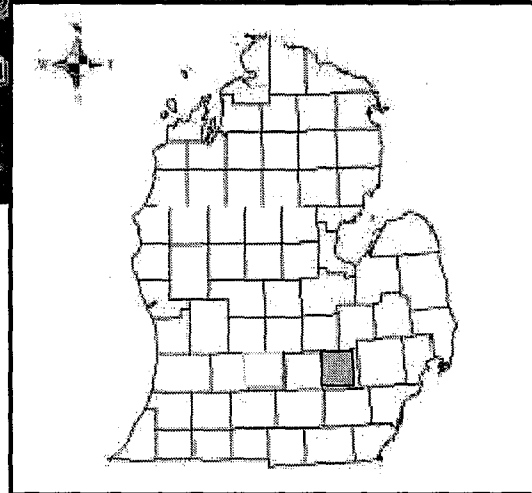
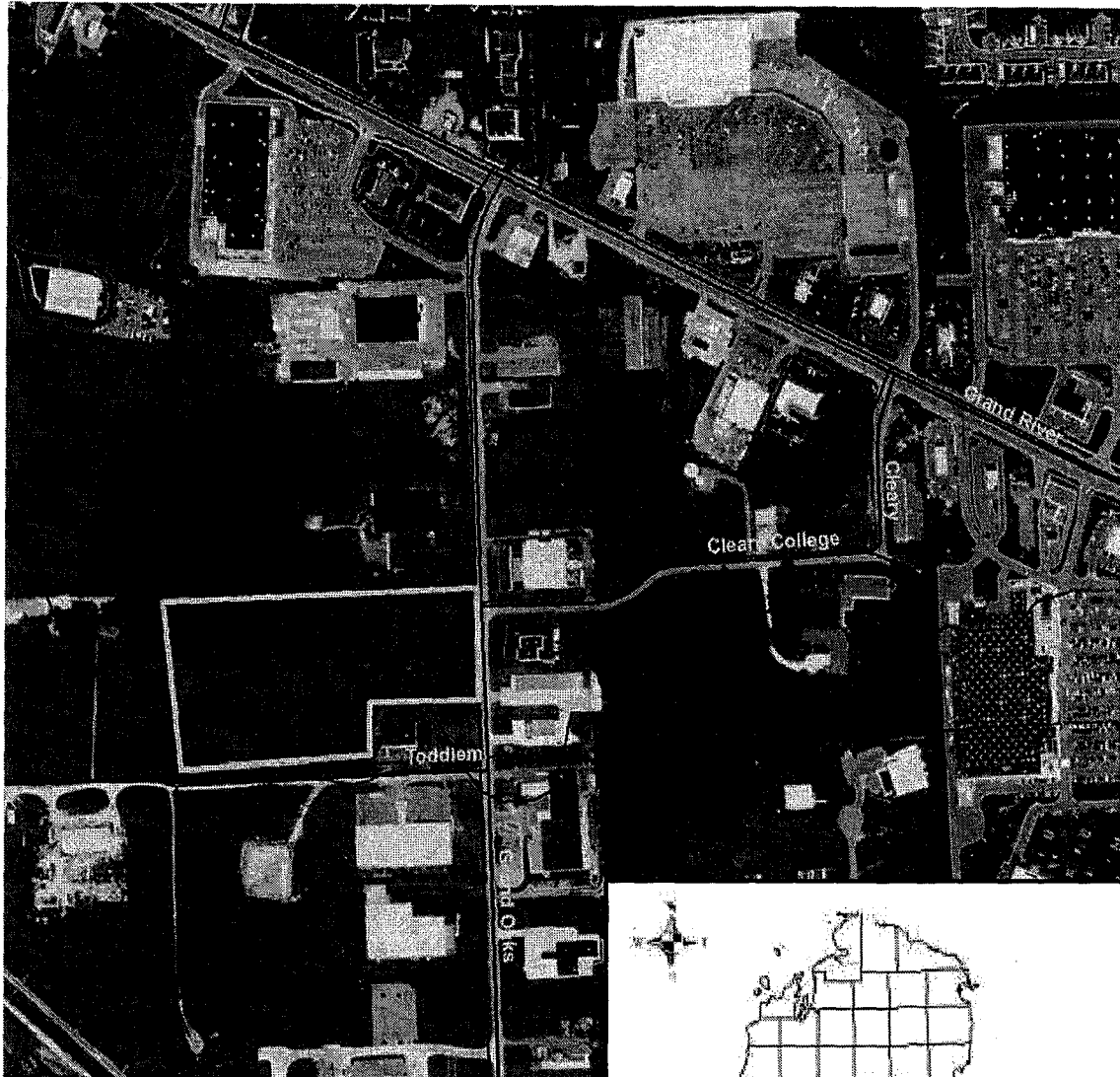
  

NO.	DATE	BY	APP.
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2	11/17/09	J.P.	J.P.
3	12/17/09	J.P.	J.P.

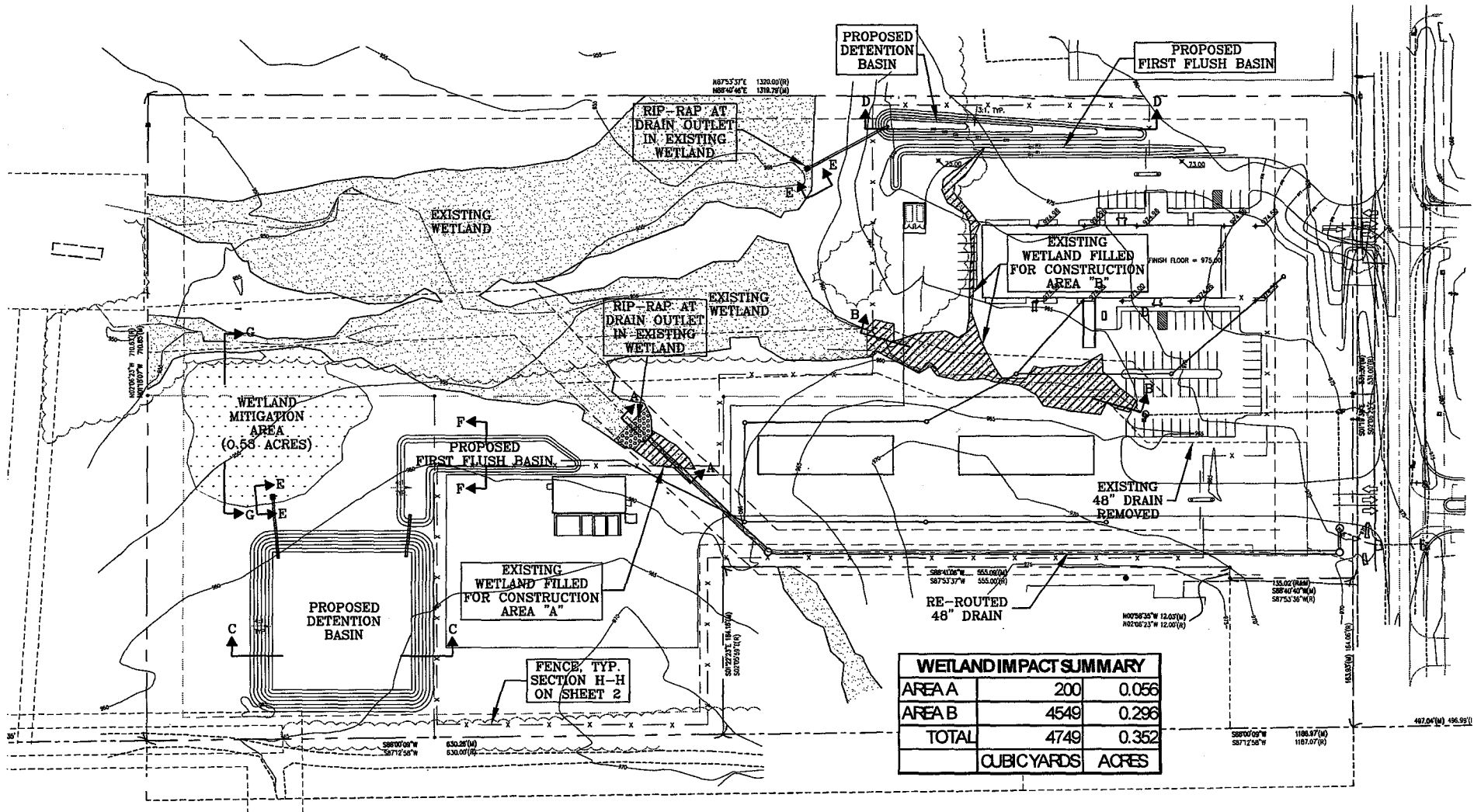
NO.	DATE	BY	APP.
1	11/17/09	J.P.	J.P.
2	11/17/09	J.P.	J.P.
3	12/17/09	J.P.	J.P.

**LIVINGSTON COUNTY SERVICE CENTER**  
 WO# 1000X286  
 SCALE: 1" = 80'  
 SHEET 1 OF 1  
 CONSUMERS ENERGY

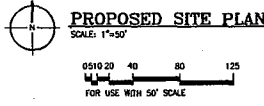


**Site Location Map**

	<p><b>Wetland and Coastal Resources, Inc.</b> 5801 W. Michigan Ave. Lansing, MI 48917</p>	<p><b>Consumers Energy</b> Wetland Delineation</p>	<p>FIGURE NO <b>2</b></p>
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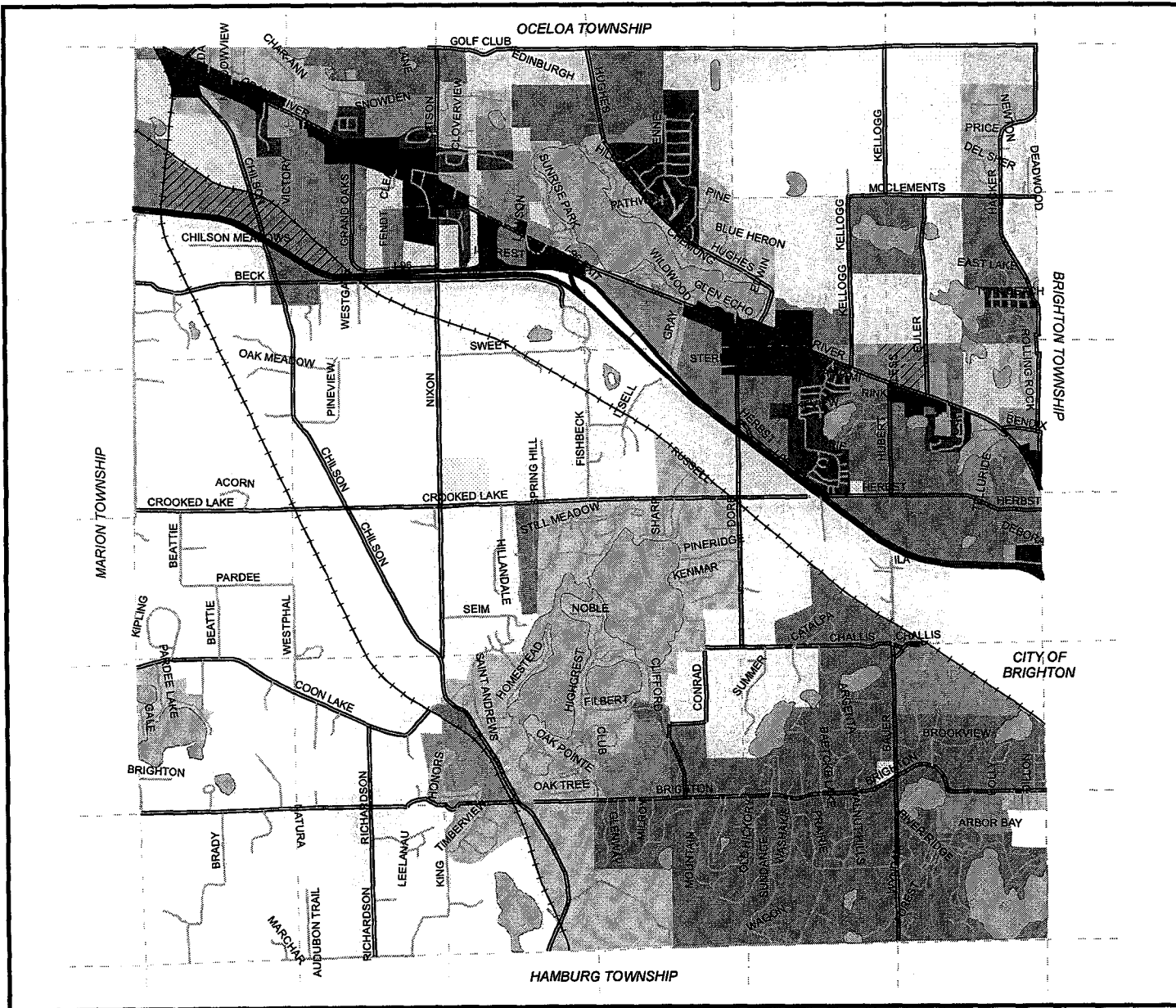


WETLAND IMPACT SUMMARY		
AREA A	200	0.056
AREA B	4549	0.296
TOTAL	4749	0.352
	CUBIC YARDS	ACRES



**Sidock Group, Inc.**  
DESIGNERS • ARCHITECTS • CONSULTANTS • PROJECT MANAGERS  
300 W. 100th Ave., Suite 200 • Denver, Colorado 80231 • Phone: 303.752.2222

Job Number 09037	File Name PLAN1	Sheet 3	Last Drawn 9/26/09	By EPJ
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# Map 9 Future Land Use

Genoa Township  
Livingston County, MI

- AGRICULTURE/COUNTRY ESTATE - 5 acres per unit
- LARGE LOT RURAL RESIDENTIAL - 2 acres per unit
- LOW DENSITY RESIDENTIAL - 1 acre per unit
- SMALL LOT SINGLE FAMILY RESIDENTIAL - 2 to 3 units per acre
- MEDIUM DENSITY RESIDENTIAL - 5 units per acre
- HIGH DENSITY RESIDENTIAL - 8 units per acre
- MANUFACTURED HOUSING
- NEIGHBORHOOD COMMERCIAL
- GENERAL COMMERCIAL
- REGIONAL COMMERCIAL
- MIXED-USE TOWN CENTER
- OFFICE/RESEARCH
- INDUSTRIAL
- PLANNED INDUSTRIAL
- PUBLIC/QUASI PUBLIC
- PRIVATE RECREATION

May 2006



LSL Planning, Inc.



Data Sources:  
Base Map: Genoa Township





## WATER WELL AND PUMP RECORD

Completion is required under authority of Part 127 Act 368 PA 1978.

Well ID: 47000007526

Failure to comply is a misdemeanor.

Import ID: 47027505405

<b>Tax No:</b>	<b>Permit No:</b>	<b>County:</b> Livingston		<b>Township:</b> Genoa	
<h1 style="margin: 0;">Well ID: 47000007526</h1>	<b>Fraction:</b> SW¼ U¼ U¼	<b>Section:</b> 5	<b>Town/Range:</b> 02N 05E	<b>WSSN:</b> 2023247	<b>Source ID/Well No:</b>
	<b>Distance and Direction from Road Intersection:</b> 2023247;1 GRAND OAKS ICE ARENA				
	<b>Well Owner:</b> Livingston Co. Hockey Ass.				
Elevation: 997 ft	<b>Well Address:</b> 970 GRAND OAKS DR HOWELL MI 48843		<b>Owner Address:</b> 970 GRAND OAKS DR HOWELL MI 48843		
Latitude: 42.58616972					
Longitude: -83.88542892					

<b>Drilling Method:</b> Cable Tool	<b>Pump installed:</b> Yes		<b>Pump Installation only:</b> No	
<b>Well Depth:</b> 206.00 ft.	<b>Pump Installation date:</b>		<b>HP:</b>	
<b>Well Use:</b> Other	<b>Manufacturer:</b> Other		<b>Pump Type:</b> Submersible	
<b>Well Type:</b> New	<b>Model Number:</b>		<b>Pump Capacity:</b> 0.00 GPM	
<b>Date Completed:</b> 10/2/1982	<b>Length of Drop Pipe:</b> 147.00 ft.		<b>Id of Well:</b>	
<b>Casing Type:</b> Unknown	<b>Diameter of Drop Pipe:</b>			
<b>Casing Joint:</b> Welded	<b>Draw Down Seal Used:</b> No			
<b>Diameter:</b> 6.00 in. to 172.00 ft. depth	<b>Pressure Tank installed:</b> No			
<b>Bore Diameter 1:</b>	<b>Pressure Tank Type:</b>			
<b>Bore Diameter 2:</b>	<b>Manufacturer:</b>			
<b>Bore Diameter 3:</b>	<b>Model Number :</b>		<b>Tank Capacity :</b> Gallons	
<b>Height:</b> 1.00 ft. above grade	<b>Pressure Relief Valve installed :</b> No			
<b>Casing Fitting:</b> Drive shoe				
<b>Static Water Level:</b> 49.00 ft. Below Grade(Not Flowing)	<b>Formation Description</b>		<b>Thickness</b>	<b>Depth to Bottom</b>
<b>Yield Test Method:</b> Unknown	Brown Clay		8.00	8.00
<b>Measurement Taken During Pump Test:</b>	Brown Clay & Sand		24.00	32.00
87.00 ft. after 48.00 hrs. pumping at 42.00 GPM	Brown Sand Coarse		23.00	55.00
<b>Abandoned Well Plugged:</b> No	Gray Sand Heaving/Quick		3.00	58.00
<b>Reason for not plugging Well:</b>	Blue Clay & Sand		63.00	121.00
<b>Abandoned well ID:</b>	Blue Clay		21.00	142.00
<b>Screen installed:</b> No	Blue Clay & Sand		17.00	159.00
<b>Well Intake:</b> Bedrock Well	Gravel & Clay Coarse		2.00	161.00
<b>Filter Packed:</b>	Blue Clay		11.00	172.00
<b>Screen Diameter:</b>	Blue Shale		34.00	206.00
<b>Screen Material Type:</b>				
<b>Slot:</b>				
<b>Blank:</b>				
<b>Fittings:</b>				
<b>Well Grouted:</b> Yes	<b>Grouting Method:</b> Unknown			
<b>No. of Bags:</b>	<b>Additives:</b> None			
<b>Grouting Materials:</b>	Other			
	From 0.00 ft. to 0.00 ft.			
<b>Well Head Completion:</b>	Pitless adapter			
<b>Nearest source of possible contamination:</b>			<b>Geology Remarks:</b> 1. [BROWN CLAY] [8] [8] 2. [BROWN CLAY & SAND] [32] [24] 3. [BROWN COARSE SAND] [55] [23] 4. [GRAY QUICK SAND] [58] [3] 5. [BLUE CLAY & SAND] [121] [63] 6. [BLUE CLAY] [142] [21] 7. [BLUE CLAY & SAND] [159] [17] 8. [COARSE GRAVEL & CLAY] [161] [2] 9. [BLUE CLAY] [172] [11] 10. [BLUE SHALE] [206] [34]	
<b>Type</b>	<b>Distance</b>		<b>Contractor Type:</b> Unknown	
Unknown	0.00 ft.		<b>Registration Number:</b> 657	
Unknown			<b>Business Name:</b>	
			<b>Business Address:</b>	
<b>Drilling Machine Operator Name:</b>			<b>WATER WELL CONTRACTOR'S CERTIFICATION:</b>	
<b>Employment:</b> Unknown			This well was drilled under my supervision and this report is true to the best of my knowledge and belief.	
			<b>Signature of Registered Contractor</b>	
			<b>Date</b>	
<b>General Remarks:</b>				
<b>OTHER REMARKS</b> Well Use: Closed Type 2 Grouting Material 1: Listed as other in Wellkey Pump Manufacturer: F & W				

EQP 2017C (2/2000)

**ATTENTION WELL OWNER: FILE WITH DEED**

2/17/2000 20:51





**WATER WELL AND PUMP RECORD**

Completion is required under authority of Part 127 Act 368 PA 1978.

Well ID: 47000007517

Failure to comply is a misdemeanor.

Import ID: 47027505006

Tax No: 011-05-300-013		Permit No:		County: Livingston		Township: Genoa	
<b>Well ID: 47000007517</b>		Fraction: SW¼ SE¼ SW¼		Section: 5		Town/Range: 02N 05E	
		WSSN:		Source ID/Well No:			
		Distance and Direction from Road Intersection:					
Elevation: 979 ft		Well Owner: Bradhart Products					
Latitude: 42.5853441774		Well Address: 1100 GRAND OAKS DR. HOWELL MI 48843			Owner Address: 1100 GRAND OAKS DR. HOWELL MI 48843		
Longitude: -83.8866003374							

Drilling Method: Rotary		Pump Installed: Yes		Pump Installation only: No	
Well Depth: 185.00 ft		Well Use: Other		Pump Installation date:	
Well Type: New		Date Completed: 8/10/1986		Manufacturer: Webtrol	
Casing Type: PVC plastic		Casing Joint: Unknown		Model Number:	
Diameter: 5.00 in. to 181.00 ft. depth		Length of Drop Pipe: 140.00 ft.		Diameter of Drop Pipe:	
Bore Diameter 1:		Draw Down Seal Used: No		Pressure Tank Installed: No	
Bore Diameter 2:		Pressure Tank Type:		Manufacturer:	
Bore Diameter 3:		Model Number:		Tank Capacity: Gallons	
Height: 1.00 ft. above grade		Pressure Relief Valve Installed: No			
Casing Fitting: Drive shoe					
Static Water Level: 22.00 ft. Below Grade(Not Flowing)					
Yield Test Method: Unknown					
Measurement Taken During Pump Test:					
0.00 ft. after 0.00 hrs. pumping at 25.00 GPM					
Abandoned Well Plugged: No					
Reason for not plugging Well:					
Abandoned well ID:					
Screen Installed: Yes		Well Intake:			
Filter Packed: No		Length: 4.00 ft.			
Screen Diameter: 4.00 in.					
Screen Material Type:					
Slot: 40.00 in. Set Between 181.00 ft. and 185.00 ft.					
Blank: 1.00 ft. Above					
Fittings:					
Neoprene packer					
Well Grouted: Yes		Grouting Method: Unknown			
No. of Bags:		Additives: None			
Grouting Materials:		Other			
From 0.00 ft. to 25.00 ft.					
Well Head Completion: Pitless adapter					
Nearest source of possible contamination:					
Type: Septic tank		Distance Direction: 150.00 ft. East			
Drilling Machine Operator Name: C. GOFF JR. AND MIKE SPIRL					
Employment: Unknown					
General Remarks:					
OTHER REMARKS		Well Use: Listed Type 2 Unconfirmed		Grouting Material 1: Listed as other in Wellkey	

Formation Description	Thickness	Depth to Bottom
Brown Clay & Sand	22.00	22.00
Blue Clay	38.00	60.00
Gray Sand Fine	12.00	72.00
Blue Clay	109.00	181.00
Gravel Coarse Water Bearing	3.00	184.00
Blue Shale	1.00	185.00

**Geology Remarks:** 1. [BR. CLAY & SAND] [22] [22] 2. [BLUE CLAY] [60] [38] 3. [FINE GRAY SAND] [72] [12] 4. [BLUE CLAY] [181] [109] 5. [COARSE MUDDY GRAVEL WATER BEARING] [184] [3] 6. [BLUE SHALE ROCK] [185] [1]

**Contractor Type:** Unknown  
**Registration Number:** 657  
**Business Name:**  
**Business Address:**

**WATER WELL CONTRACTOR'S CERTIFICATION:**  
 This well was drilled under my supervision and this report is true to the best of my knowledge and belief.

**Signature of Registered Contractor** \_\_\_\_\_ **Date** \_\_\_\_\_

EQP 2017C (2/2000)

**ATTENTION WELL OWNER: FILE WITH DEED**

2/17/2000 20:51

*Appendix C*  
*Endangered Species Assessment*




Department of **Natural Resources** michigan.gov

Michigan Gov Home Home | FAQ | Help | Contact MDNR

→ Find a Location

→ Browse the Map

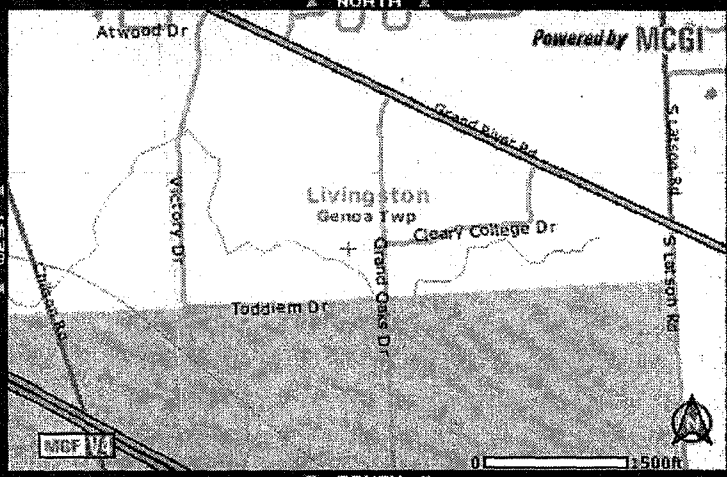
→ Related Links

### ENDANGERED SPECIES ASSESSMENT

Print Map | Save Map | Email Map | Clear Map | Enlarge Map

Zoom Out | Zoom In | Re-center | Identity



Street Map | Aerial Photo | Topo Map | Plat Map | Land Cover


Search Results For:  
 Lat: 42.588407, Lon: -83.888846 TRS: 02N, 05E, 05

**No unique natural features are known to occur at or near your site of interest.**

To request a formal review of your selected site please click the Request Review button below.

Request Review

Location Overview



My Points of Interest

Refresh Map

Unique Natural Features

No Listed Features

Michigan.gov Home | Site Map | State Web Sites | Contact Michigan | FAQ | Privacy Policy | Link Policy | Accessibility Policy | Security Policy | Disclaimer  
Copyright © 2009-2005 State of Michigan

## How to set-up Remote VPN access to Sidock servers (Windows Vista clients)

*(Note: this should be done from a remote network.)*

1. Click on Start and then click on Control Panel.
2. Double-click on Network and Sharing Center.
3. Under Tasks (left side of window), click on Create to a Network.
4. Click on Set-up a connection or network.
5. Click on Connect to a workplace and click on Next<sup>1</sup>.
6. Click on Use my Internet connection (VPN).
7. For Internet address, type in: "mail.sidockgroup.com" (no quotes). For Destination Name, type in a descriptive name (such as Sidock or VPN to Work) and click on Next.
8. The wizard will pop-up with a windows that says "Connect to a workplace". Enter your network logon username (usually first initial followed by last name) and password. Click the box that says "Remember this password". Click on Connect.

To access the shares on the server, once connected via the VPN, do the following:

1. Click on Start.
2. Go to Run and type in: "\\acc-2.sidockgroup.local\data" (no quotes) to access the data share.
3. To see a list of shares, type in: "\\acc-2.sidockgroup.local" (no quotes) instead.

---

<sup>1</sup> If you see: "Do you want to use a connection that you already have?", click No, create a new connection and click on Next.

Drainage Structure No.		Drainage Area	A	C	i	Q					
Upstream MH	Downstream MH	Area Number	Area Size (Ac)	Runoff Coefficient	Rainfall Intensity	Storm Water Volume	Cumulative Volume (QFS)	Pipe Size (Inch)	Pipe Length (Feet)	Pipe Slope	Velocity (FPS)
CB 1	CB 2	1	0.25	0.9	3.84	0.864	0.864	12	55	0.40%	2.4
CB 2	CB 3	2	0.08	0.05	3.84	0.015	0.879	12	85	0.40%	2.4
CB3	CB 4	3A	0.07	0.9	3.84	0.252					
		3B	0.14	0.65	3.84	0.601	1.481	12	120	0.40%	2.4
CB 4	OUTLET	4B	0.09	0.5	3.84	0.173	1.653	12	100	4.99%	10





# Howell Service Center Parking Lot Expansion

GENOA TOWNSHIP, MICHIGAN

**LEGAL DESCRIPTIONS AS PROVIDED**

TAX ID#4711-05-300-012 -- DECHRIS LIMITED PARTNERSHIP (PER FIRST AMERICAN TITLE INSURANCE COMPANY, COMMITMENT #382408)

A PART OF THE SOUTHWEST 1/4 OF SECTION 5, TOWN 2 NORTH, RANGE 5 EAST, GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN, DESCRIBED AS: COMMENCING AT THE SOUTH 1/4 CORNER; THENCE SOUTH 87 DEGREES WEST 496.99 FEET; THENCE NORTH 02 DEGREES EAST 364.06 FEET TO THE POINT OF BEGINNING; THENCE SOUTH 87 DEGREES WEST 1320 FEET; THENCE NORTH 02 DEGREES WEST 331 FEET; THENCE NORTH 87 DEGREES EAST 1320 FEET; THENCE SOUTH 02 DEGREES WEST 331 FEET TO THE POINT OF BEGINNING.

TAX ID#4711-05-300-044 -- BRADY, TERENCE & KAREN (PER PARCEL 2, FIRST AMERICAN TITLE INSURANCE COMPANY, COMMITMENT #382436)

PART OF THE SOUTHWEST 1/4 OF SECTION 5, T2N-R5E, GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN, MORE PARTICULARLY DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTH 1/4 CORNER OF SAID SECTION 5; THENCE ALONG THE SOUTH LINE OF SAID SECTION 5, S87°12'58"W 496.98 FEET; THENCE ALONG THE WEST RIGHT OF WAY LINE OF GRAND OAK DRIVE (100 FOOT WIDE), N02°06'23"W 164.06 FEET TO THE POINT OF BEGINNING OF THE PARCEL TO BE DESCRIBED; THENCE S87°53'36"W 135.02 FEET; THENCE N02°06'23"W 12.00 FEET; THENCE S87°53'37"W 555.00 FEET; THENCE N02°05'59"W 188.00 FEET; THENCE N87°53'37"E 690.00 FEET; THENCE S02°06'23"E 200.00 FEET TO THE POINT OF BEGINNING.

TAX ID#4711-05-300-045 -- BRADY, TERENCE & KAREN (PER PARCEL 3, FIRST AMERICAN TITLE INSURANCE COMPANY, COMMITMENT #382436)

PART OF THE SOUTHWEST 1/4 OF SECTION 5, T2N-R5E, GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN, MORE PARTICULARLY DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTH 1/4 CORNER OF SAID SECTION 5; THENCE ALONG THE SOUTH LINE OF SAID SECTION 5, S87°12'58"W 1187.07 FEET TO THE POINT OF BEGINNING OF THE PARCEL TO BE DESCRIBED; THENCE CONTINUING ALONG SAID LINE, S87°12'58"W 315.00 FEET; THENCE N02°06'11"W 375.95 FEET; THENCE N87°53'37"E 315.00 FEET; THENCE S02°05'59"E 372.22 FEET TO THE POINT OF BEGINNING.

TAX ID#4711-05-300-046 -- BRADY, TERENCE & KAREN (PER PARCEL 4, FIRST AMERICAN TITLE INSURANCE COMPANY, COMMITMENT #382436)

PART OF THE SOUTHWEST 1/4 OF SECTION 5, T2N-R5E, GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN, MORE PARTICULARLY DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTH 1/4 CORNER OF SAID SECTION 5; THENCE ALONG THE SOUTH LINE OF SAID SECTION 5, S87°12'58"W 1502.07 FEET TO THE POINT OF BEGINNING OF THE PARCEL TO BE DESCRIBED; THENCE CONTINUING ALONG SAID LINE, S87°12'58"W 315.00 FEET; THENCE N02°06'23"W 379.67 FEET; THENCE N87°53'37"E 315.00 FEET; THENCE S02°06'11"E 375.95 FEET TO THE POINT OF BEGINNING.

**LEGAL DESCRIPTION AS SURVEYED**

**COMBINED PARCEL**

PART OF THE SOUTHWEST 1/4 OF SECTION 5, T2N-R5E, GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN, MORE PARTICULARLY DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTH 1/4 CORNER OF SAID SECTION 5; THENCE S88°00'09"W, ALONG THE SOUTH LINE OF SAID SECTION 5, 1186.97 FEET (RECORDED AS S87°12'58"W 1187.07 FEET) TO THE POINT OF BEGINNING; THENCE CONTINUING S88°00'09"W, ALONG SAID SOUTH SECTION LINE, 630.26 FEET (RECORDED AS S87°12'58"W 630.00 FEET); THENCE N01°18'07"W 710.85 FEET (RECORDED AS N02°06'23"W 710.67 FEET); THENCE N88°40'46"E 1319.79 FEET (RECORDED AS N87°53'37"E 1320.00 FEET) TO THE WEST LINE OF GRAND OAKS DRIVE SO-CALLED; THENCE S01°19'38"E, ALONG SAID WEST LINE, 531.30 FEET (RECORDED AS S02°06'23"E 531.00 FEET); THENCE S88°40'40"W (RECORDED AS S87°53'36"W) 135.02 FEET; THENCE N00°58'35"W 12.03 FEET (RECORDED AS N02°06'23"W 12.00 FEET); THENCE S88°41'06"W 555.09 FEET (RECORDED AS S87°53'37"W 555.00 FEET); THENCE S01°22'23"E (RECORDED AS S02°05'59"E) 184.16 FEET TO THE POINT OF BEGINNING. CONTAINS 18.48 ACRES.

**ZONING REQUIREMENTS:**

SUBJECT PROPERTY IS ZONED INDUSTRIAL "IND"

MINIMUM LOT AREA (a) - 1 ACRE  
 MINIMUM LOT WIDTH (b)(c) - 150 FEET  
 SETBACKS(d)(e)(f):  
 FRONT YARD(g)(h)(i)(j) - 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 LOT COVERAGE(k) - 40% BUILDING, 85% IMPERVIOUS SURFACE  
 MAXIMUM HEIGHT(l) - 30 FEET, 2 STORIES

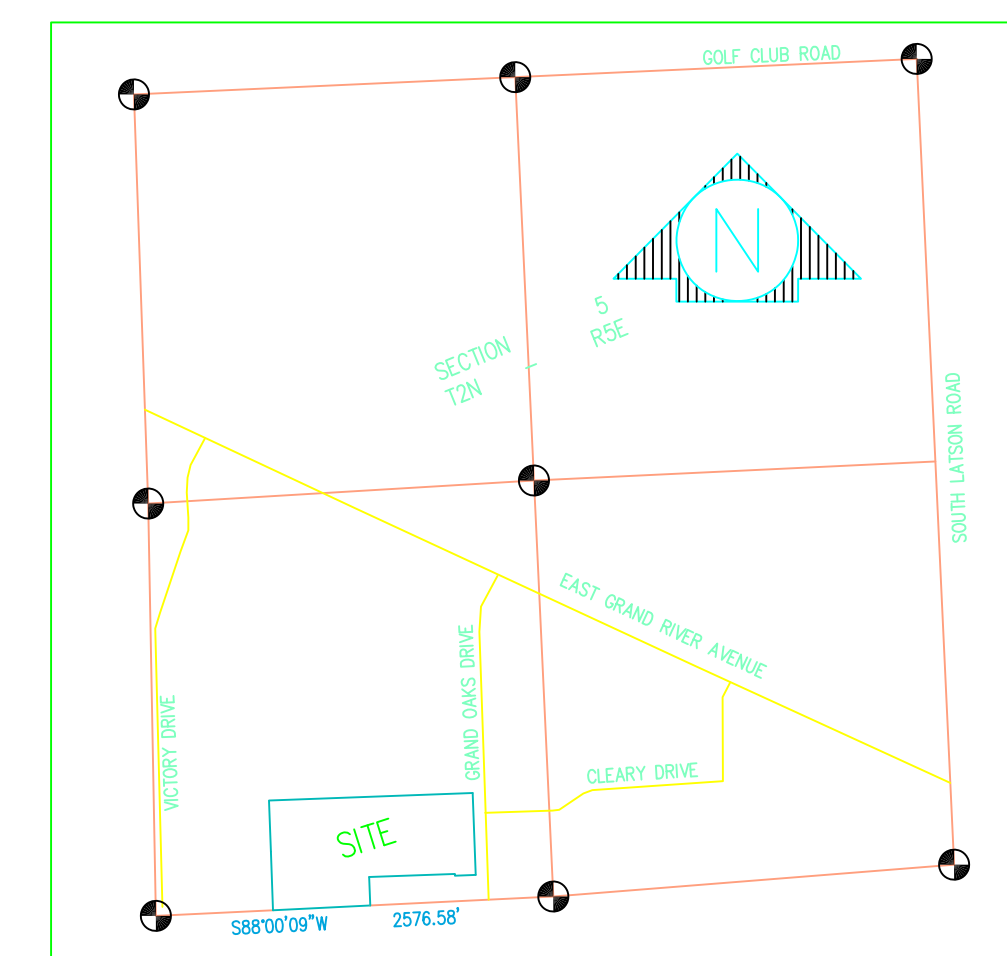
- (a) LOT AREA WITH SHARED ACCESS: THE PLANNING COMMISSION MAY ALLOW THE LOT AREA AND WIDTH TO BE REDUCED TO 20,000 SQUARE FEET AND 80 FOOT LOT WIDTH WHERE:
  - (1) THE PLANNING COMMISSION DETERMINES THAT THE USE WILL NOT ADVERSELY IMPACT SURROUNDING LAND USES AND THERE IS SUFFICIENT AREA TO PROVIDE THE BUFFERS REQUIRED BY SECTION 12.02; AND,
  - (2) THE SITE HAS SHARED DRIVEWAYS WITH ADJACENT USES, AND ALL ACCESS MANAGEMENT REQUIREMENTS OF SECTION 15.06 ARE COMPLIED WITH OR THE LOT IS WITHIN AN INDUSTRIAL PARK WITH ACCESS TO A ROAD THAT ONLY SERVES THE INDUSTRIAL PARK.
- (b) LOT WIDTH: MINIMUM LOT WIDTH IS MEASURED AT THE REQUIRED FRONT YARD SETBACK DISTANCE FROM RIGHT-OF-WAY. MEASUREMENT FOR FLAG SHAPED LOTS SHALL BE AT THE POINT WHERE THE NARROW ACCESS STRIP JOINS THE LARGER SECTION OF THE LOT, AS DETERMINED BY THE ZONING ADMINISTRATOR.
- (c) DEPTH TO WIDTH RATIO: LOT DEPTH SHALL BE NO GREATER THAN FOUR (4) TIMES THE WIDTH.
- (d) LANDSCAPE BUFFERS: SEE LANDSCAPE BUFFER ZONE AND SCREENING REQUIREMENT IN SECTION 12.02 BASED ON ADJACENT ZONING.
- (e) NATURAL FEATURES SETBACK: ALL STRUCTURES SHALL BE SETBACK A MINIMUM OF TWENTY FIVE (25) FEET FROM AN MDEQ REGULATED WETLAND AND SEVENTY (70) FEET FROM THE SHORELINE OF A LAKE.
- (f) PROJECTIONS INTO YARDS: PROJECTIONS INTO REQUIRED YARDS ARE PERMITTED FOR CERTAIN ARCHITECTURAL FEATURES AS DESCRIBED IN SECTION 11.01.04.
- (g) USE OF FRONT YARD: EXCEPT FOR NECESSARY DRIVES, WALKS AND APPROVED SIGNS, THE REQUIRED FRONT YARD SHALL NOT BE USED FOR LOADING, STORAGE OR ACCESSORY STRUCTURES.
- (h) LANDSCAPE GREENBELT: THE FRONT YARD SHALL INCLUDE A LANDSCAPED GREENBELT AS REQUIRED BY SECTION 12.02.
- (i) DETENTION PONDS: DETENTION PONDS SHALL BE PROHIBITED IN THE FRONT YARD, UNLESS THE TOWNSHIP ENGINEER DETERMINES THERE IS NO REASONABLE ALTERNATIVE DUE TO EXISTING TOPOGRAPHY AND NATURAL DRAINAGE PROBLEMS OR THE POND IS INCORPORATED INTO A NATURAL LANDSCAPED AREA AND APPROVED BY THE PLANNING COMMISSION.
- (j) FRONT YARD SETBACK REDUCTION: THE REDUCED FRONT YARD SETBACK IS ALLOWED FOR SITES THAT DO NOT HAVE PARKING IN THE FRONT YARD. THE PARKING LOT, INCLUDING PARKING SPACES AND DRIVE AISLES MUST BE LOCATED IN THE REAR YARD OR THE SIDE YARD WHERE THE PARKING LOT IS LOCATED NO CLOSER TO THE FRONT LOT LINE THAN THE FRONT WALL OF THE BUILDING, WITH THE EXCEPTION OF DRIVEWAYS PROVIDING ACCESS FROM THE ROAD AND SERVICE DRIVES OR FRONTAGE ROADS PROVIDING CROSS-ACCESS TO ADJACENT LOTS.
- (k) IMPERVIOUS SURFACE: IMPERVIOUS SURFACE SHALL BE DETERMINED AS THE TOTAL GROUND SQUARE FOOTAGE OF THE BUILDING FOOTPRINT PLUS THE TOTAL OF ALL PAVED SURFACES.
- (l) EXCEPTIONS TO HEIGHT LIMITATIONS: SEE EXCEPTIONS TO MAXIMUM HEIGHT REQUIRED FOR MECHANICAL EQUIPMENT; CORNICES; SPIRES; CUPOLAS; FOR INSTITUTIONAL USES ETC. IN SECTION 11.01.05.

**LOT COVERAGE CALCULATION:**

SITE TOTAL : 18.48 ACRES  
 BUILDING COVERAGE = 4.6% (0.84 ACRES BUILDINGS / 18.48 ACRES SITE = 4.6%) 40% ALLOWED  
 BUILDING COVERAGE INCLUDES: SERVICE CENTER, VEHICLE PORT 2, AND COLD STORAGE BUILDING.  
 IMPERVIOUS SURFACE COVERAGE = 10.22% 1.89 ACRES IMPERVIOUS / 18.48 ACRES SITE= 10.22% 85% ALLOWED  
 IMPERVIOUS SURFACES INCLUDE BUILDINGS, ASPHALT PAVING, CONCRETE SIDEWALKS, CURBS, MATERIAL BINS AND DUMPSTER ENCLOSURE AREA.

IMPERVIOUS SURFACES COVERAGE (INCLUDING GRAVEL AREA)= 16.34% (3.02 ACRES IMPERVIOUS / 18.48 ACRES SITE= 16.34%)

Drawing No.	Sheet Title
9037-G001	Cover Sheet
SG-20407	Site Survey
C-01	Site Layout and Pavement
	Marking Plan
C-02	Grading Plan
C-03	Utilities Plan
C-04	proposed Storm Sewer Profile
C-05	Site Details
C-06	Site Details
C-07	Site Details
C-08	Soil Erosion and Sedimentation Control Details
L-01	Landscape Plan



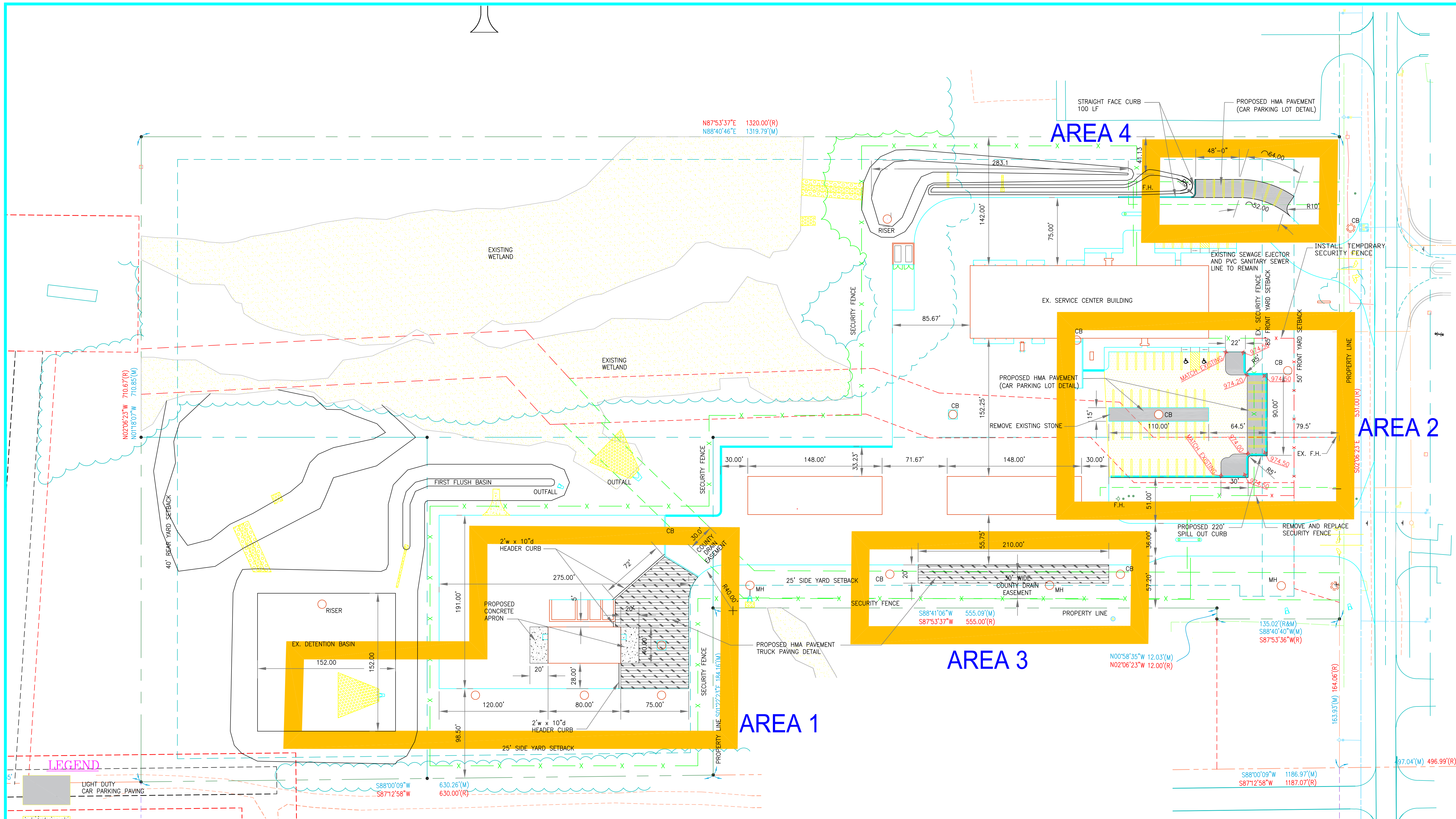
LOCATION MAP - SECTION 5, T2N-R5E, GENOA TOWNSHIP, LIVINGSTON COUNTY

NOT TO SCALE



Drawing No. Reference Drawings Rev Date Description By App Acct Title 9037-G001 Plot Scale 1"=1"		Dr F. ISSA Date 03/09/17 Des App App		JACKSON, MICHIGAN		Proj. Building/Location <b>HOWELL SERVICE CENTER PARKING LOT EXPANSION</b> 1000 GRAND OAKS BOULEVARD GENOA TOWNSHIP, MICHIGAN		Sheet Title <b>COVER SHEET</b>		Scale: NO SCALE Work Req. # WORK ORDER: 28909602		Drawing Number <b>9037-G001</b>		Sheet Rev <b>G001</b>	
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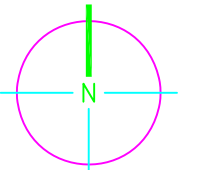


**LEGEND**

- LIGHT DUTY CAR PARKING PAVING
- CONCRETE PAVEMENT
- HEAVY DUTY TRUCK PARKING PAVING

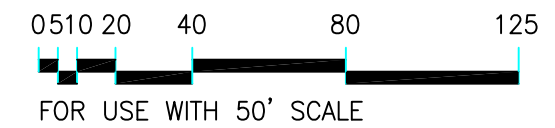
**3 WORKING DAYS BEFORE YOU DIG**  
**CALL MISS DIG**  
 800-482-7171  
 (TOLL FREE)

**NOTE**  
 1. REFER TO ELECTRICAL SITE DRAWING FOR LOCATIONS AND DETAILS OF SITE LIGHT FIXTURES, TYP.



**SITE LAYOUT AND PAVEMENT MARKING PLAN**

SCALE: 1"=50'



Drawing No	Reference Drawings	Rev	Date	Description	By	App	Acad Title	Plot Scale
			3/09/17	90% OWNER REVIEW				

**Consumers Energy**  
 JACKSON, MICHIGAN

Proj. Building/Location  
**HOWELL SERVICE CENTER PARKING LOT EXPANSION**  
 1000 GRAND OAKS BOULEVARD  
 GENOA TOWNSHIP, MICHIGAN  
 PARKING LOT UPGRADE

Sheet Title  
**SITE LAYOUT PLAN**

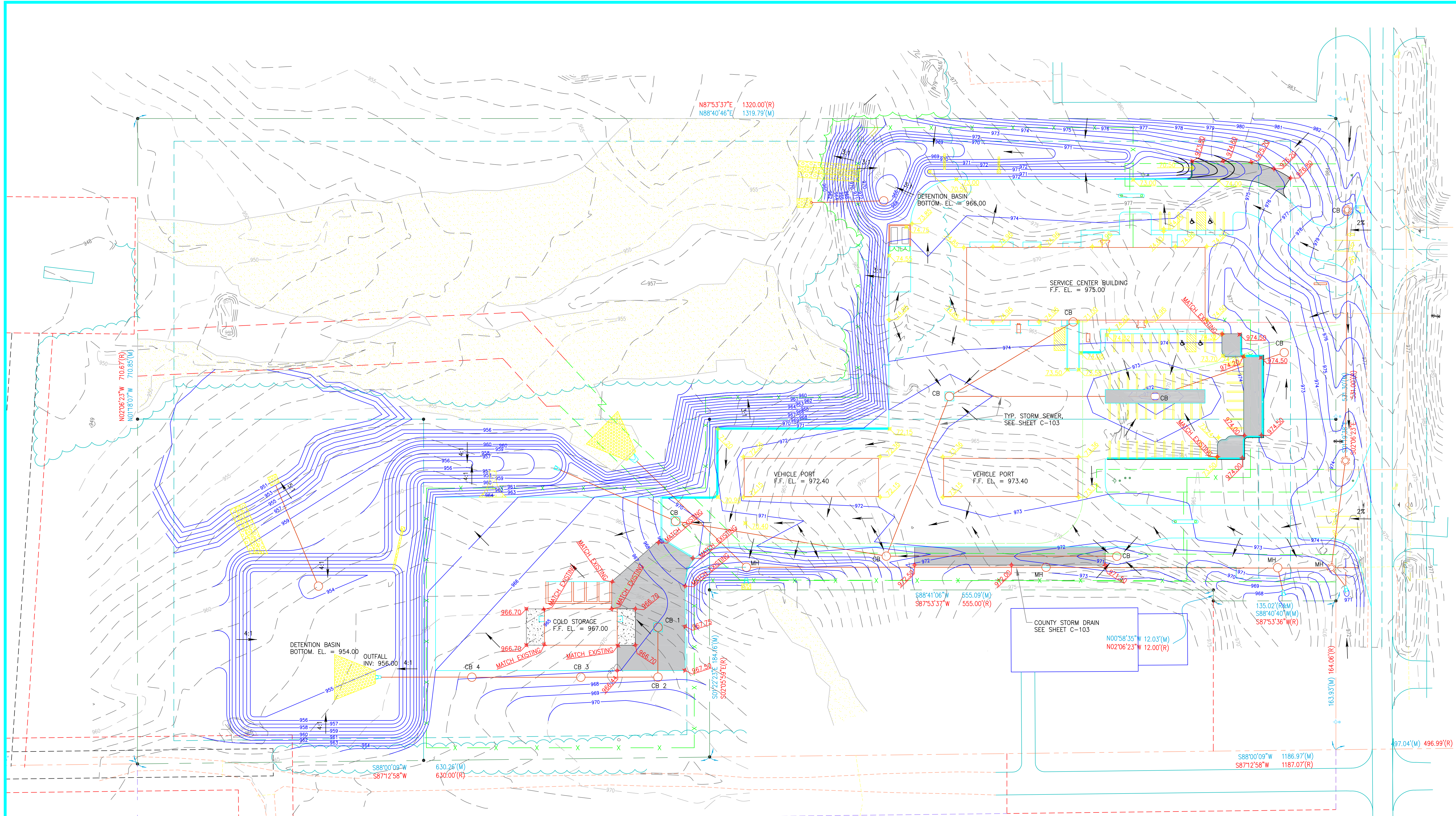
Scale: 1"=50'  
 Work Req. # WORK ORDER: 28909602

Drawing Number  
**C-01**

Sheet  
**C-01**







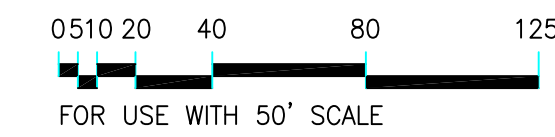
**GRADING PLAN**  
SCALE: 1"=50'

**NOTES**

1. ADD 900.00 TO SPOT ELEVATIONS TO MATCH USGS CONTOURS.
2. MAINTAIN 2% CROSS SLOPE OF GRAND OAKS DRIVE THROUGH THE FIRST 12 FEET OF THE NORTH AND SOUTH ENTRY DRIVES PER THE LIVINGSTON COUNTY ROAD COMMISSION REQUIREMENTS.



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



3/9/17 90% OWNER REVIEW		Dr. F. ISSA	Date: 03/09/17
		Des.	
		App.	
		App.	
		Acad. Title: C-02	Plot Scale: 1:1

**Consumers Energy**  
JACKSON, MICHIGAN

Proj. Building/Location  
**HOWELL SERVICE CENTER PARKING LOT EXPANSION**  
1000 GRAND OAKS BOULEVARD  
GENOA TOWNSHIP, MICHIGAN  
PARKING LOT UPGRADE

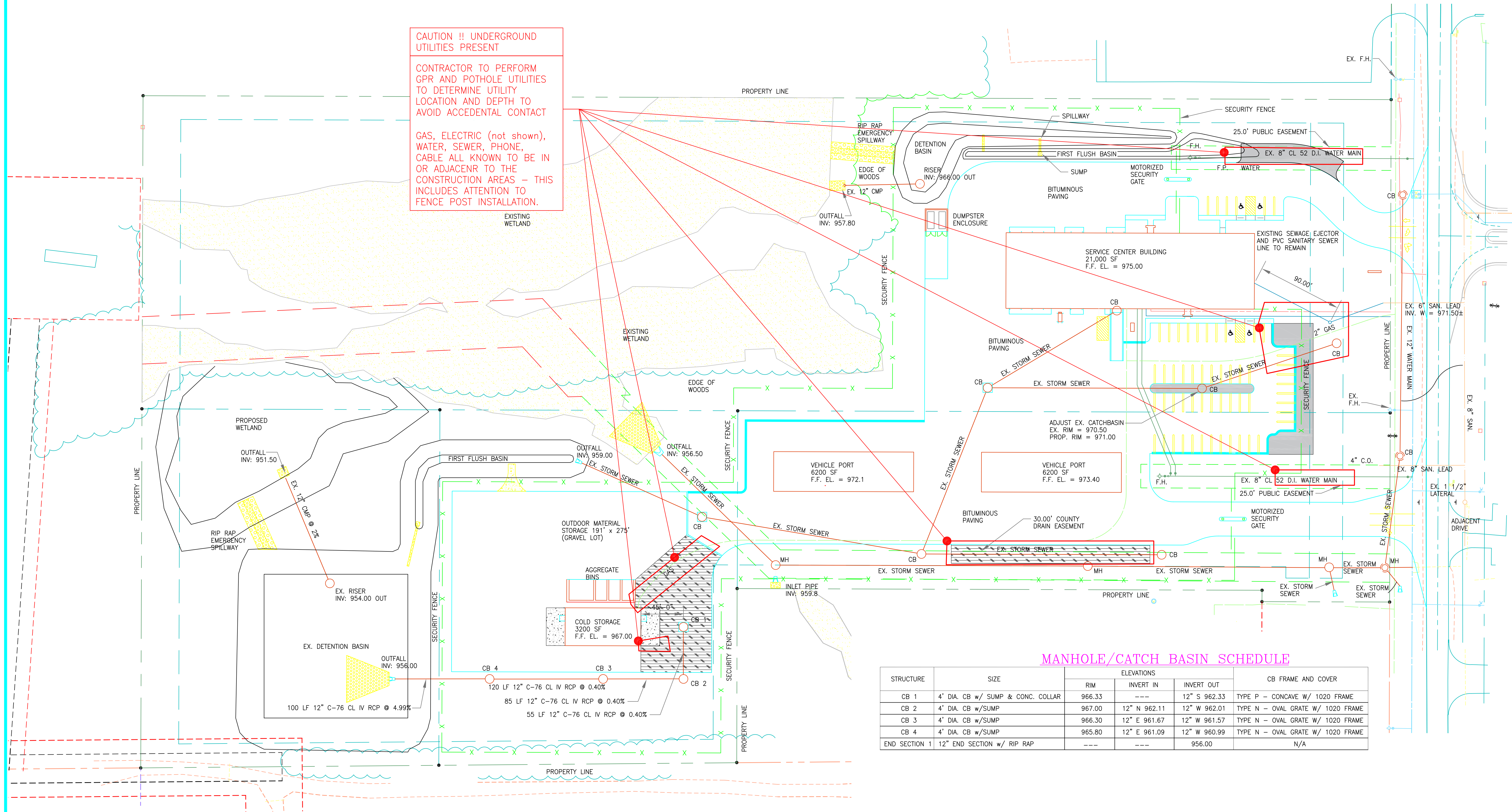
Sheet Title <b>GRADING PLAN</b>		Drawing Number <b>C-02</b>	Sheet <b>C-02</b>	Rev
Scale: 1"=50'	Work Req. # WORK ORDER: 28909602			



**CAUTION !! UNDERGROUND UTILITIES PRESENT**

CONTRACTOR TO PERFORM GPR AND POTHOLE UTILITIES TO DETERMINE UTILITY LOCATION AND DEPTH TO AVOID ACCIDENTAL CONTACT

GAS, ELECTRIC (not shown), WATER, SEWER, PHONE, CABLE ALL KNOWN TO BE IN OR ADJACENT TO THE CONSTRUCTION AREAS - THIS INCLUDES ATTENTION TO FENCE POST INSTALLATION.



**MANHOLE/CATCH BASIN SCHEDULE**

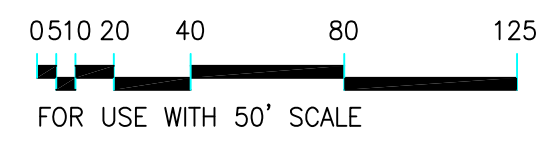
STRUCTURE	SIZE	ELEVATIONS			CB FRAME AND COVER
		RIM	INVERT IN	INVERT OUT	
CB 1	4' DIA. CB w/ SUMP & CONC. COLLAR	966.33	---	12" S 962.33	TYPE P - CONCAVE W/ 1020 FRAME
CB 2	4' DIA. CB w/SUMP	967.00	12" N 962.11	12" W 962.01	TYPE N - OVAL GRATE W/ 1020 FRAME
CB 3	4' DIA. CB w/SUMP	966.30	12" E 961.67	12" W 961.57	TYPE N - OVAL GRATE W/ 1020 FRAME
CB 4	4' DIA. CB w/SUMP	965.80	12" E 961.09	12" W 960.99	TYPE N - OVAL GRATE W/ 1020 FRAME
END SECTION 1	12" END SECTION w/ RIP RAP	---	---	956.00	N/A

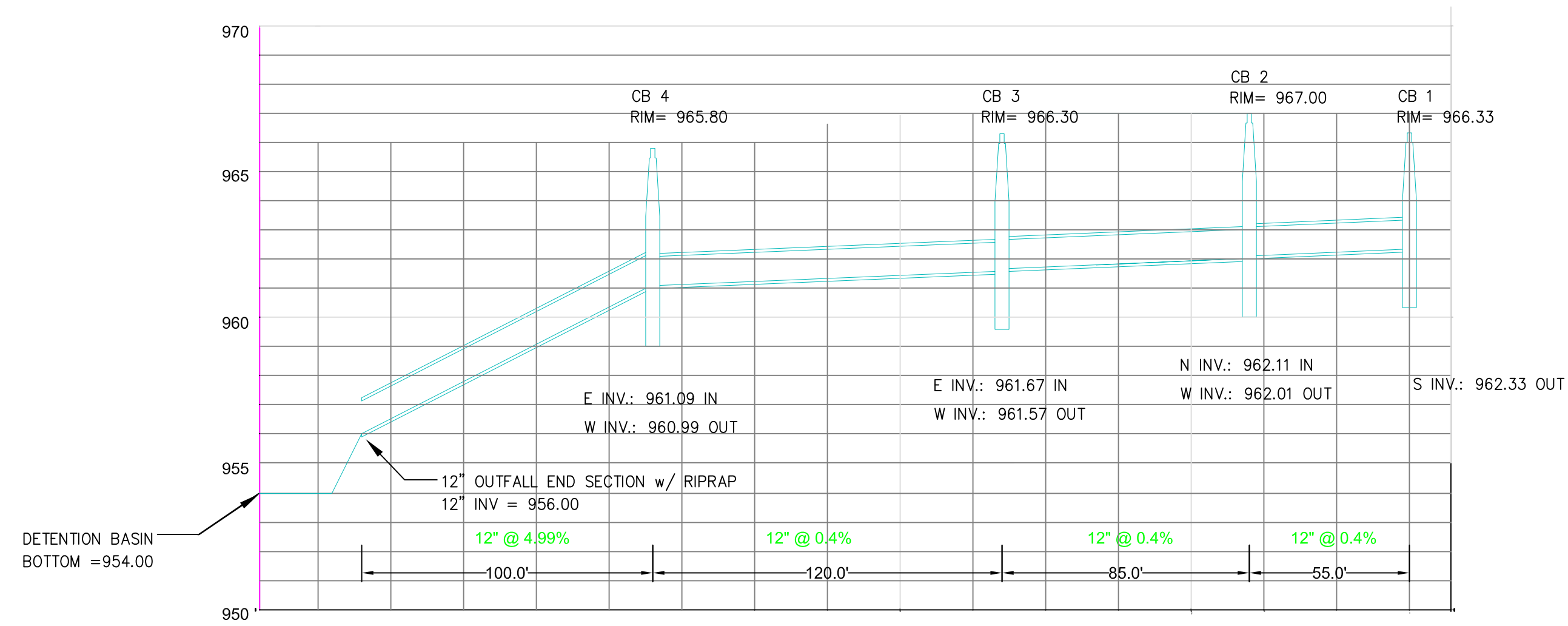
**3 WORKING DAYS BEFORE YOU DIG**  
**CALL MISS DIG 800-482-7171**  
**800-482-7171 (TOLL FREE)**

**UTILITY WARNING**  
 Underground utility locations, as shown on the plan, were obtained from utility owners and were not field located.  
 A minimum of 3 working days prior to beginning construction, the contractor shall notify "MISS DIG" and have all underground utilities staked before any work may begin.  
 The contractor shall be responsible for the protection of all utilities that may interfere with construction. Protection of utilities shall be incidental to construction.

**UTILITIES PLAN**  
 SCALE: 1"=50'

NOTE: SEE SHEET C-04 FOR STORM PROFILES





**PROPOSED STORMWATER SYSTEM PROFILES**

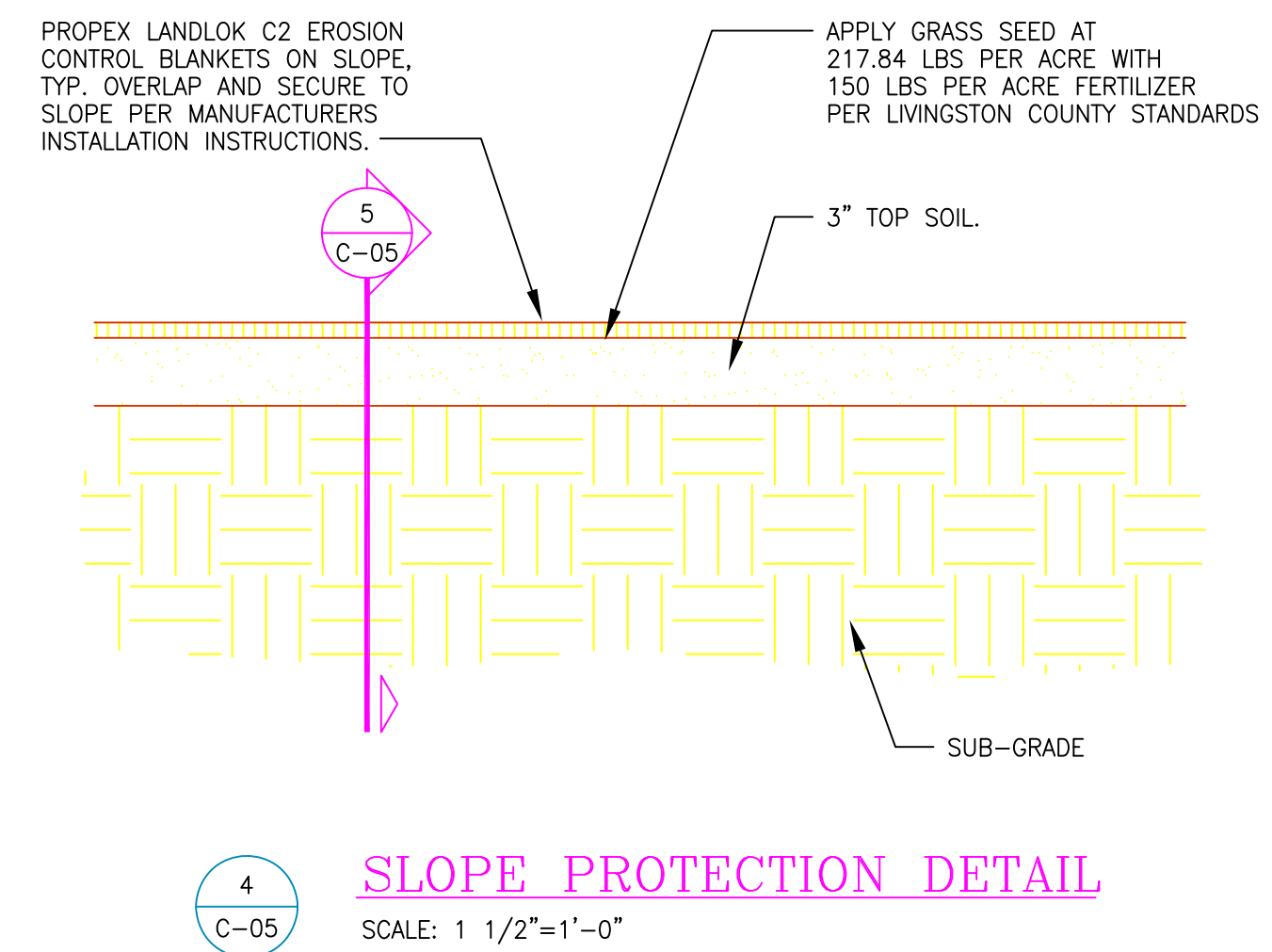
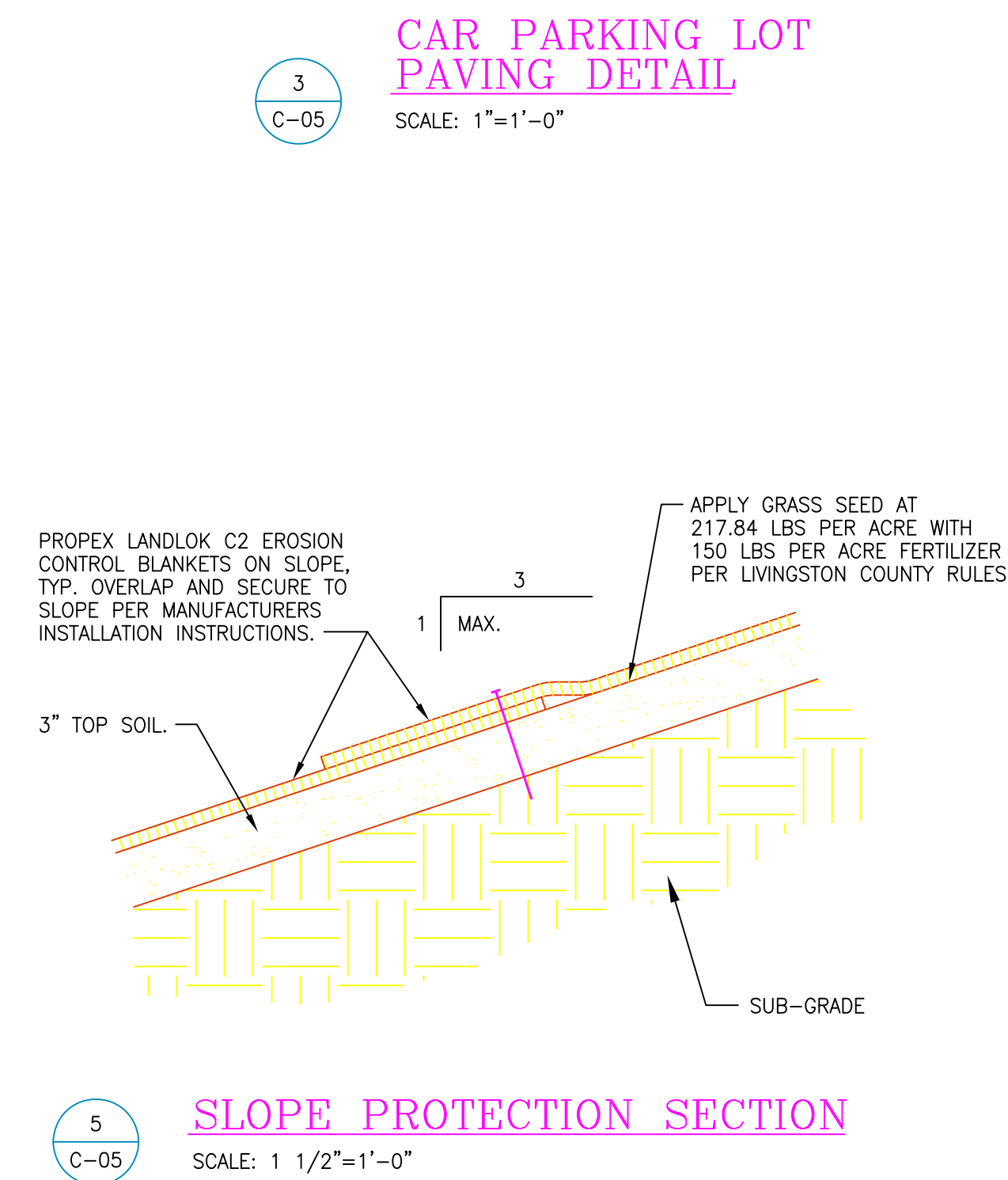
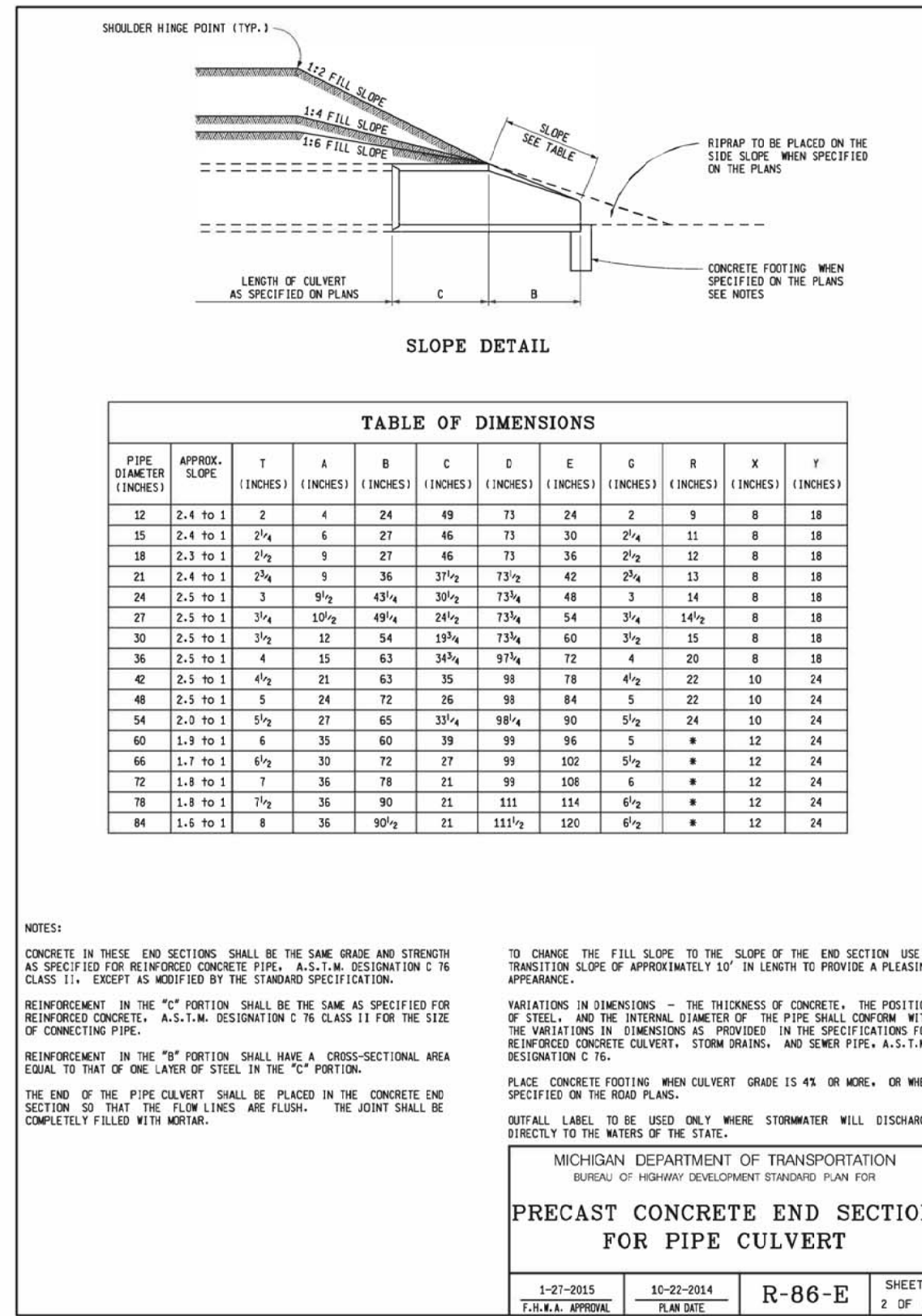
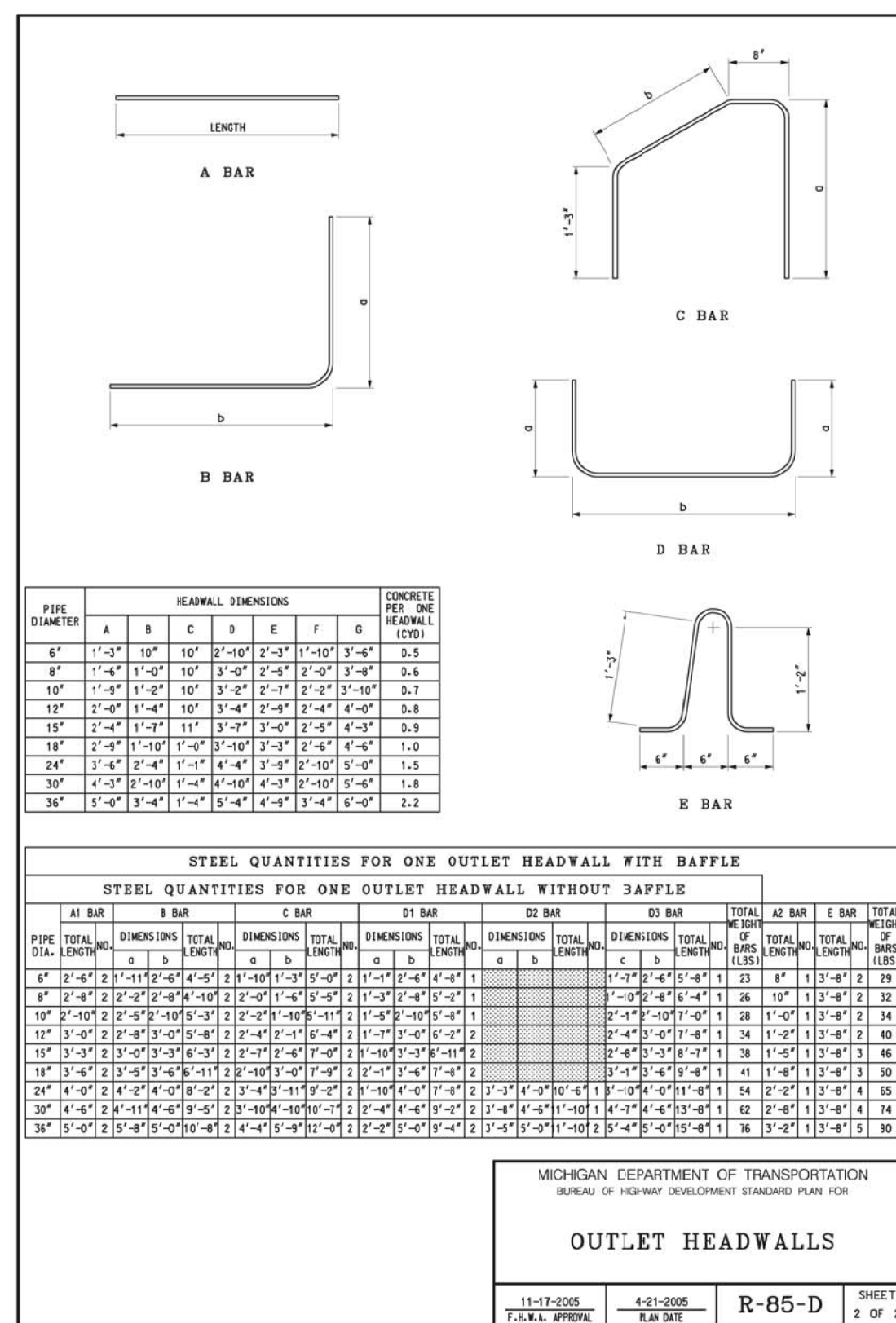
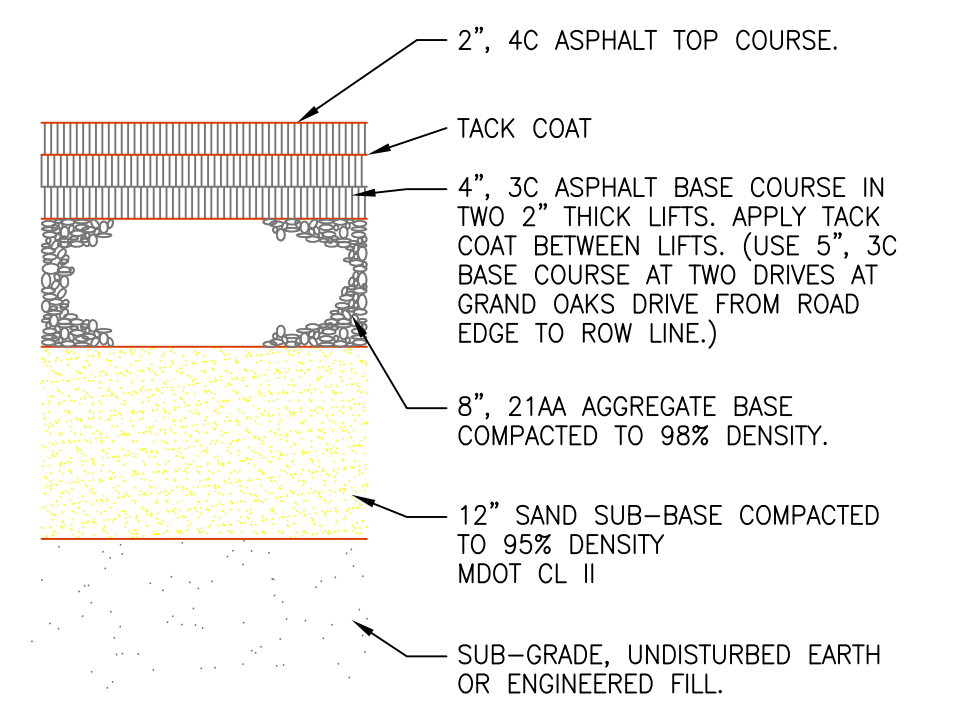
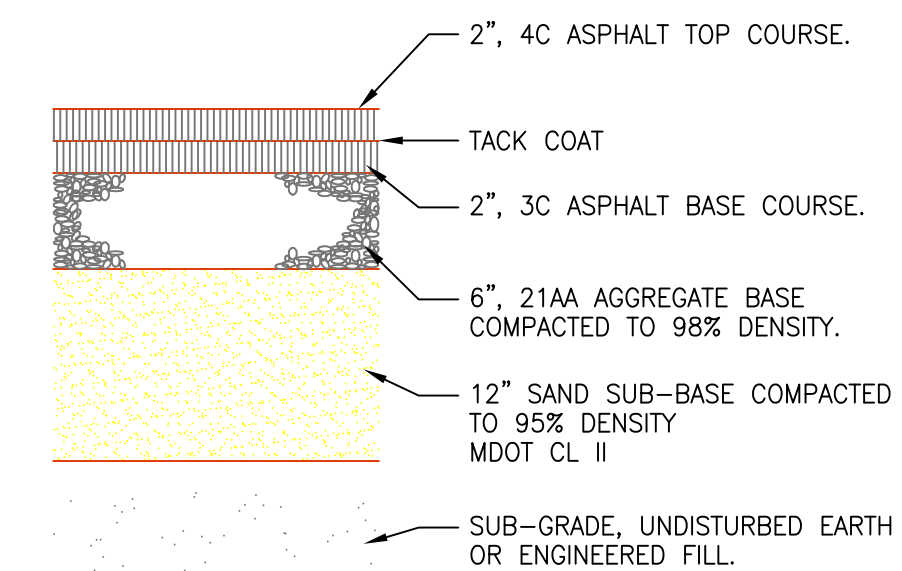
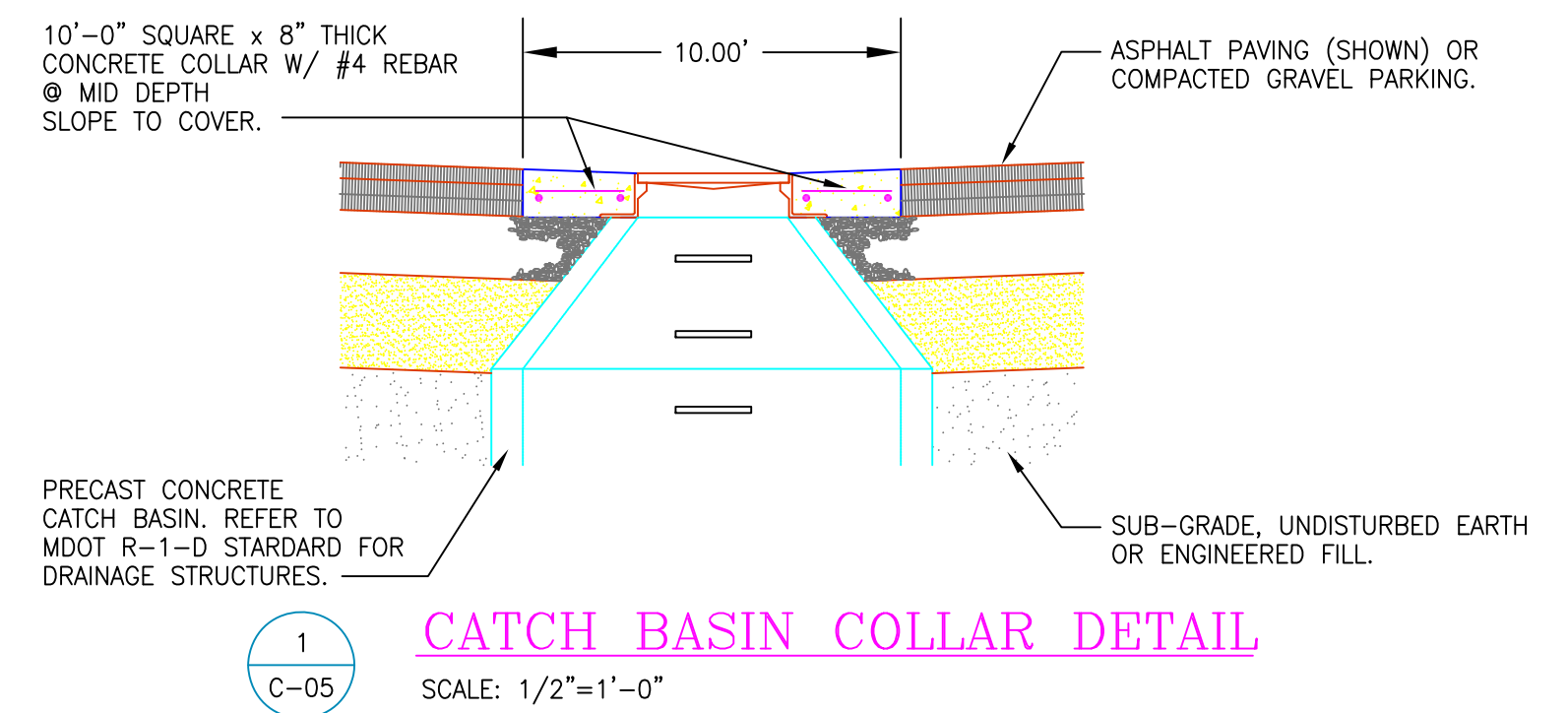
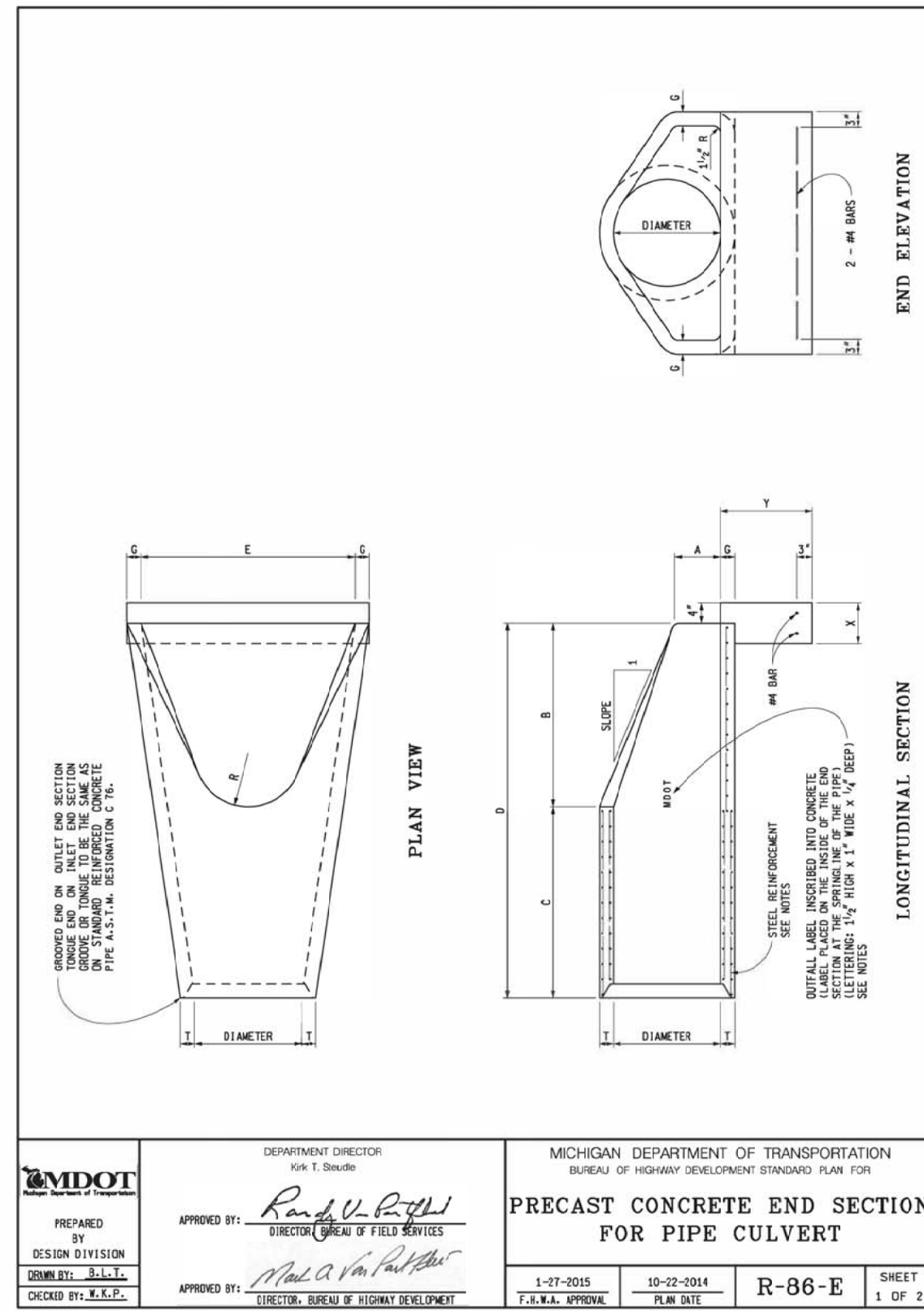
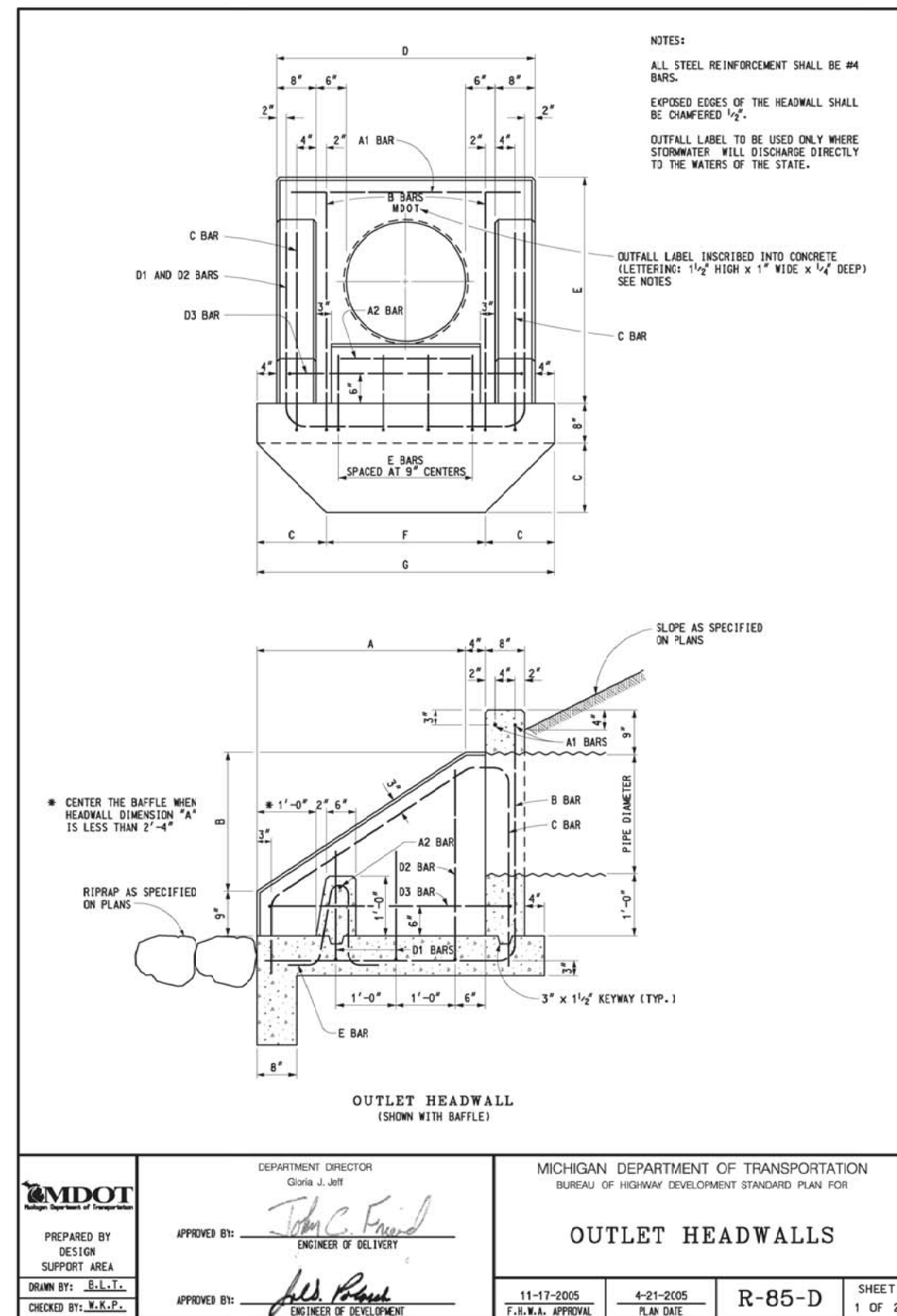
HORIZONTAL SCALE: 1"=40'  
 VERTICAL SCALE: 1"=4'



		3/09/17	90% OWNER REVIEW			Dr. F. ISSA	Date: 03/09/17	Proj. Building/Location <b>HOWELL SERVICE CENTER PARKING LOT EXPANSION</b> 1000 GRAND OAKS BOULEVARD GENOA TOWNSHIP, MICHIGAN PARKING LOT UPGRADE		Sheet Title <b>PROPOSED STORMWATER SYSTEM PROFILES</b>			
Drawing No	Reference Drawings	Rev	Date	Description	By	App	Acad Title: C-04	Plot Scale: 1:1	Scale: 1"= 40'	Work Req. # WORK ORDER: 28909602	Drawing Number C-04	Sheet C-04	Rev

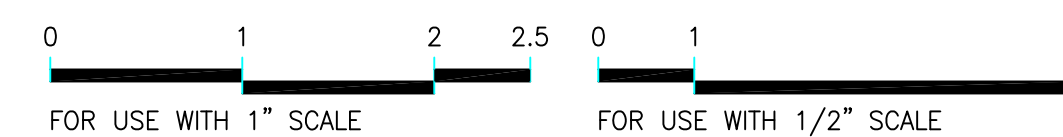
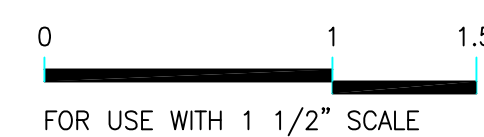






7 MDOT OUTLET HEADWALL SCALE: NONE

6 MDOT FLARED END SECTION SCALE: NONE



Drawing No	Reference Drawings	Rev	Date	Description	By	App	Acc'd Title	Plot Scale	Date
			3/09/17	90% OWNER REVIEW			Dr. F. ISSA		03/09/17



Proj. Building/Location  
**HOWELL SERVICE CENTER PARKING LOT EXPANSION**

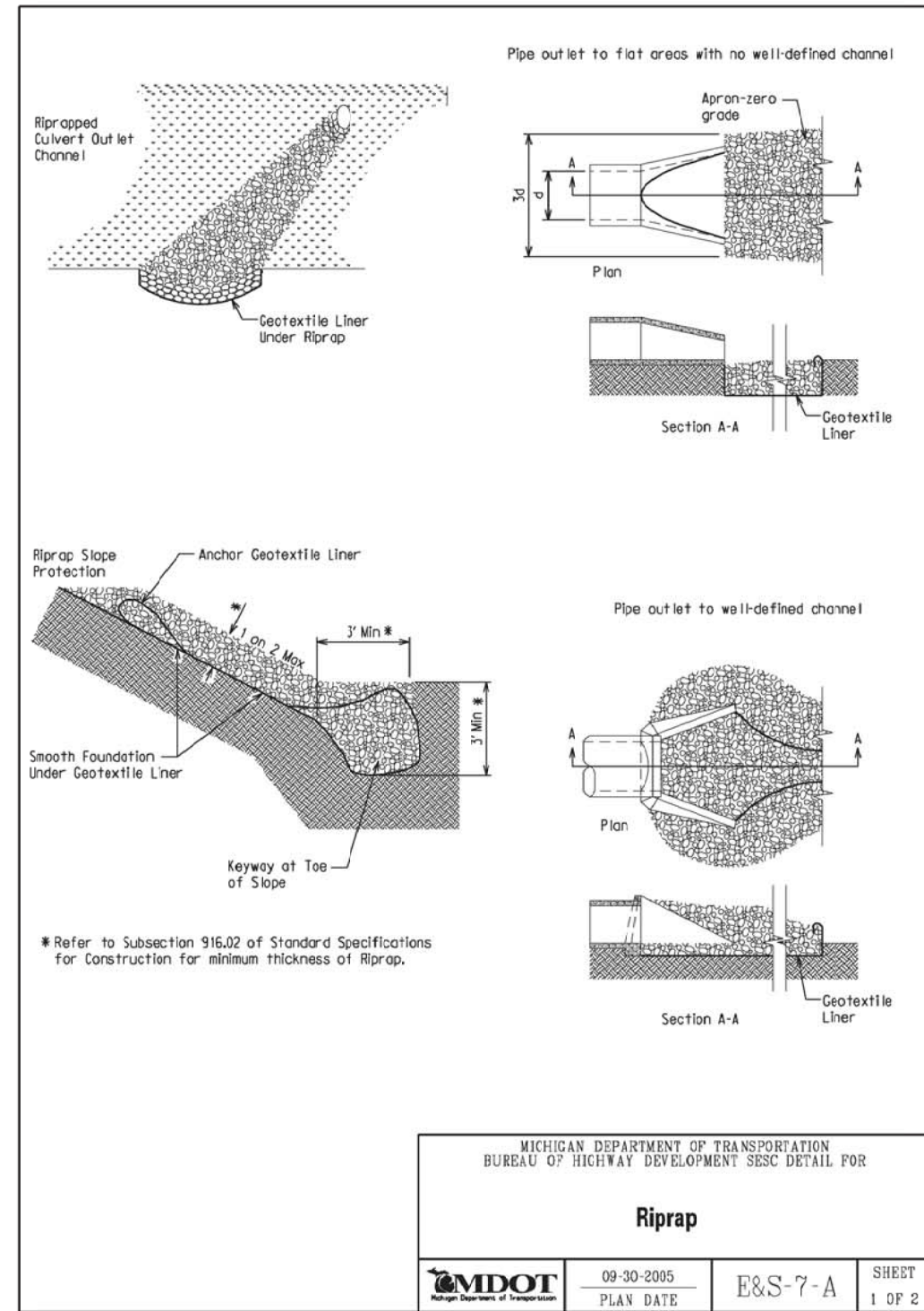
1000 GRAND OAKS BOULEVARD  
 GENOA TOWNSHIP, MICHIGAN

PARKING LOT UPGRADE

Scale	Drawing Number	Sheet	Rev
AS NOTED	C-05	C-05	

Work Req. # WORK ORDER: 28909602





6 MDOT RIP RAP DETAIL  
SCALE: NONE

**Use:**  
Riprap should be sized to ensure that the size of stone is adequate to protect the area from erosion and subsequent siltation to off-site locations. Refer to Chapter 9 of the Drainage Manual for additional information on specifying Riprap.  
Riprap provides an immediate and effective, non-erodible cover over low erodible areas. A properly designed layer of stone can be used to control erosion. Riprap protects the soil surface from direct erosive forces such as wind rain and surface runoff. It is often used on steep slopes subject to weathering or seepage, for channel linings, inlet and outlet protection of culverts, streambank protection and to protect shorelines subjected to wave action.  
Clean, well-graded riprap forms a dense, flexible, self-healing cover that will adjust well to uneven surfaces. Care must be exercised in the design and installation process so that the Riprap is clean, free of visible debris, sized correctly and placed to the proper thickness.  
Riprap placed at culvert outlets can be used to protect the stream bed and channel, thus reducing the flow velocity to a level that is non-erosive.  
Riprap is used at the outlet of storm drains and as channel linings when flow velocities and concentrations are high and/or the channel slope is steep. Riprap is effective on the banks of channels, at changes in flow direction and to stabilize erodible slopes.

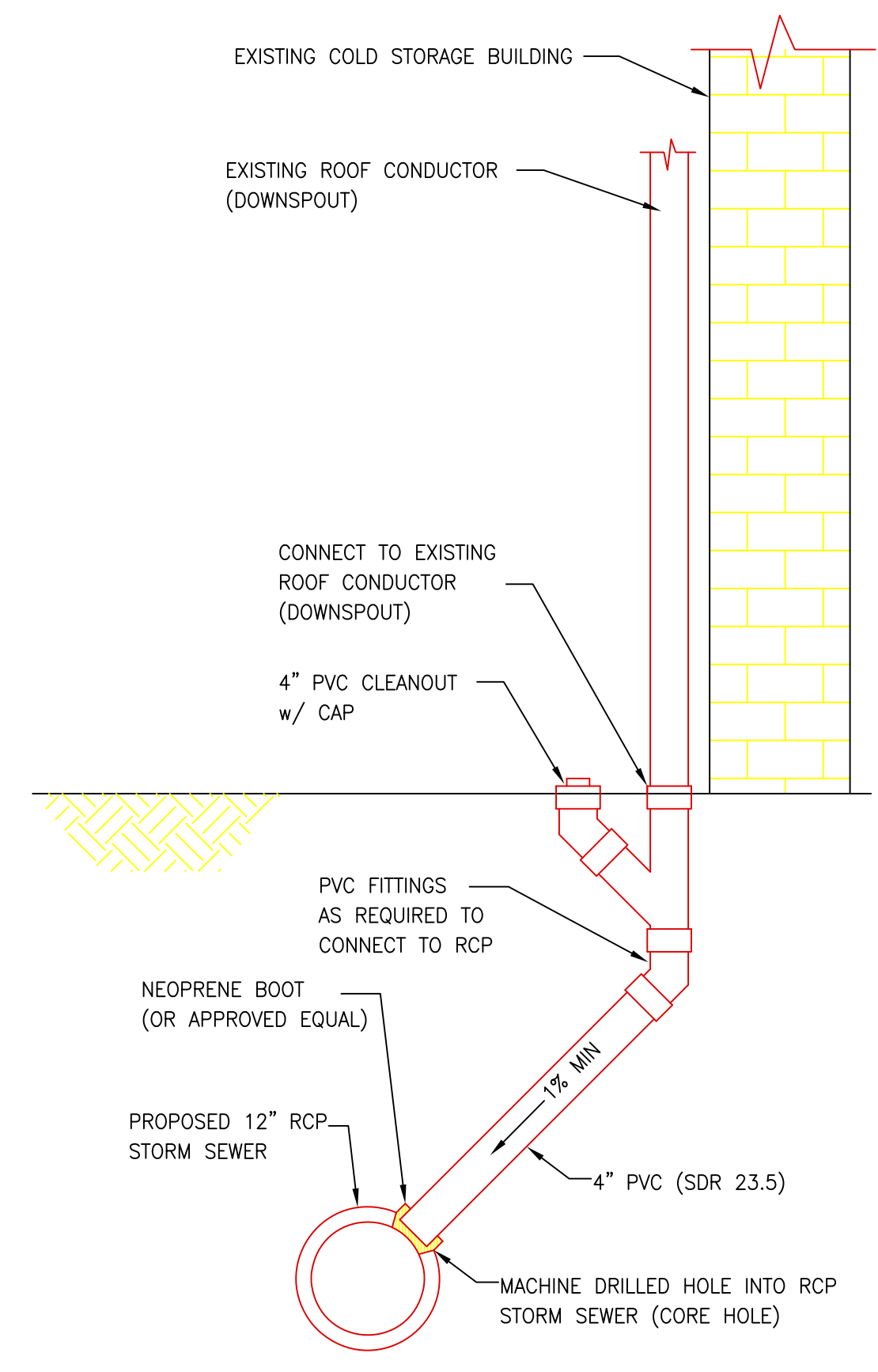
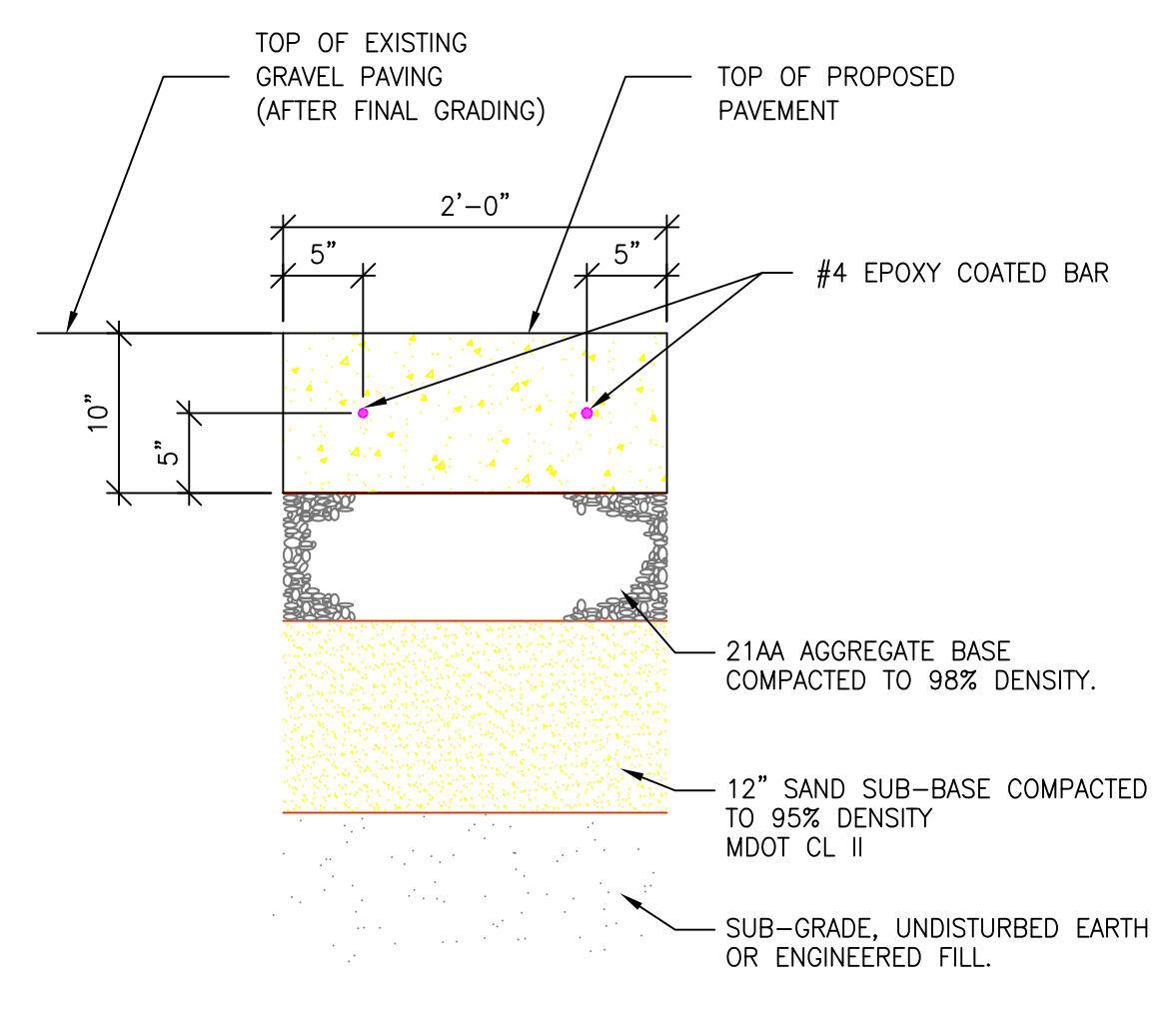
**Installation and Maintenance:**  
Riprap shall be placed on Geotextile Liner to prevent soil "blowing" from seepage or runoff. The edges of the Geotextile Liner shall be overlapped a minimum of 2 feet. Place Riprap immediately after installing Geotextile Liner.  
When Riprap, Heavy is specified, Geotextile Liner, Heavy must be used.  
Refer to Subsection B13.03E of the Standard Specifications for Construction for additional installation details.  
Care must be taken to properly secure edges of Geotextile Liner to prevent piping.  
When Riprap is placed as a permanent erosion control measure, the top of Riprap should be approximately level with surrounding soil surface.  
Do not mix erodible soil with Riprap during placement.

**Optional Measures:**  
Related **SSC Measures:**  
S & E-15 Energy Dissipators

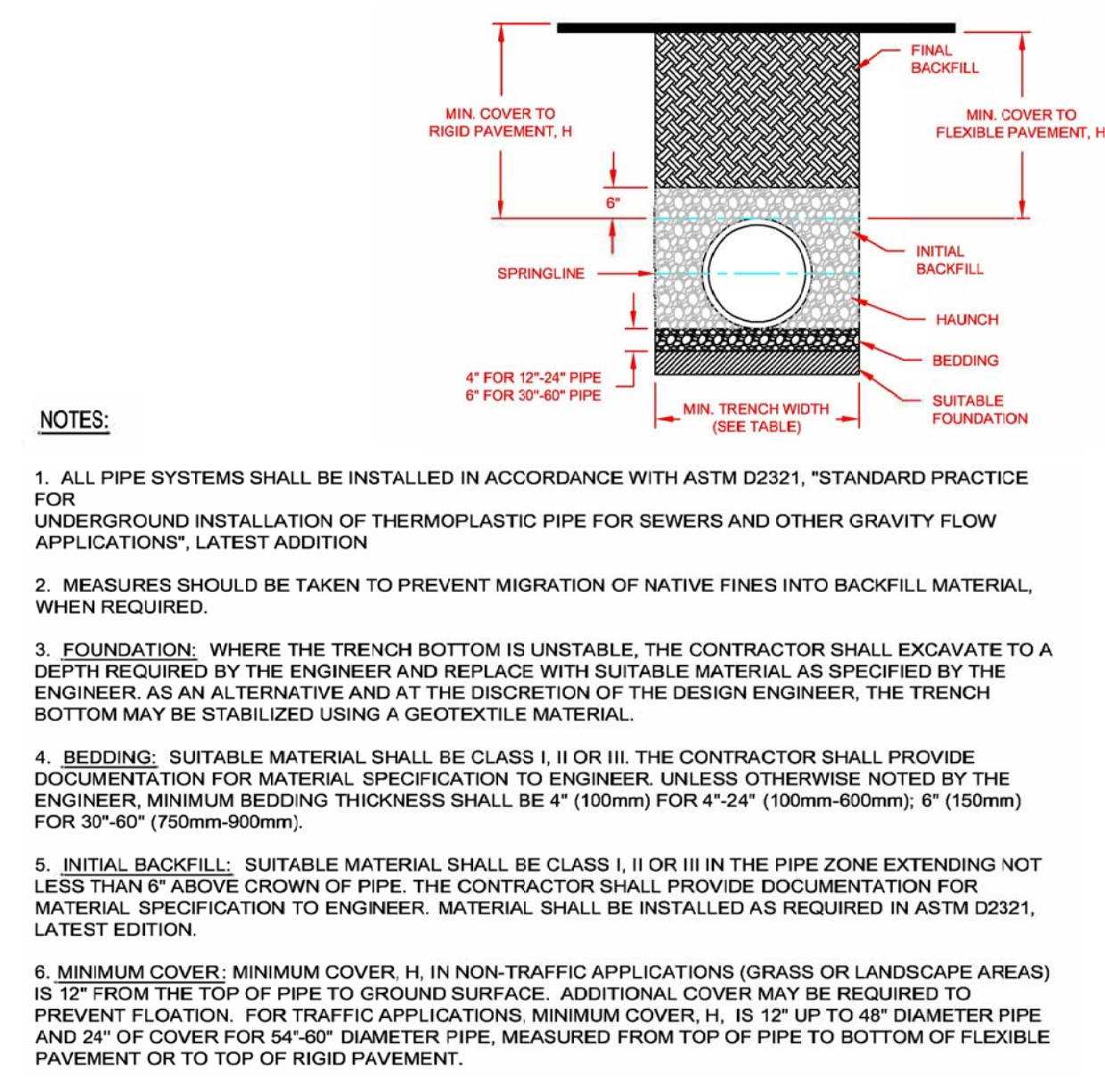
**Measurement and Payment:**  
Contract Item (Pay Item) Pay Unit  
Riprap, Heavy Square Yard  
Riprap, Heavy, LM Cubic Yard  
Riprap, Plain Square Yard  
Riprap, Plain, LM Cubic Yard  
Grouted Riprap Square Yard

Notes: Gradations and dimensions of Riprap may be modified by Special Provision.  
PERMITS FROM THE MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY MAY BE REQUIRED.

2 CONCRETE HEADER CURB DETAIL  
SCALE: NONE



1 DOWNSPOUT CONNECTION  
SCALE: NONE



5 TYP. TRENCH DETAIL  
SCALE: NONE (FOR HANCOR OR ADS PIPE)

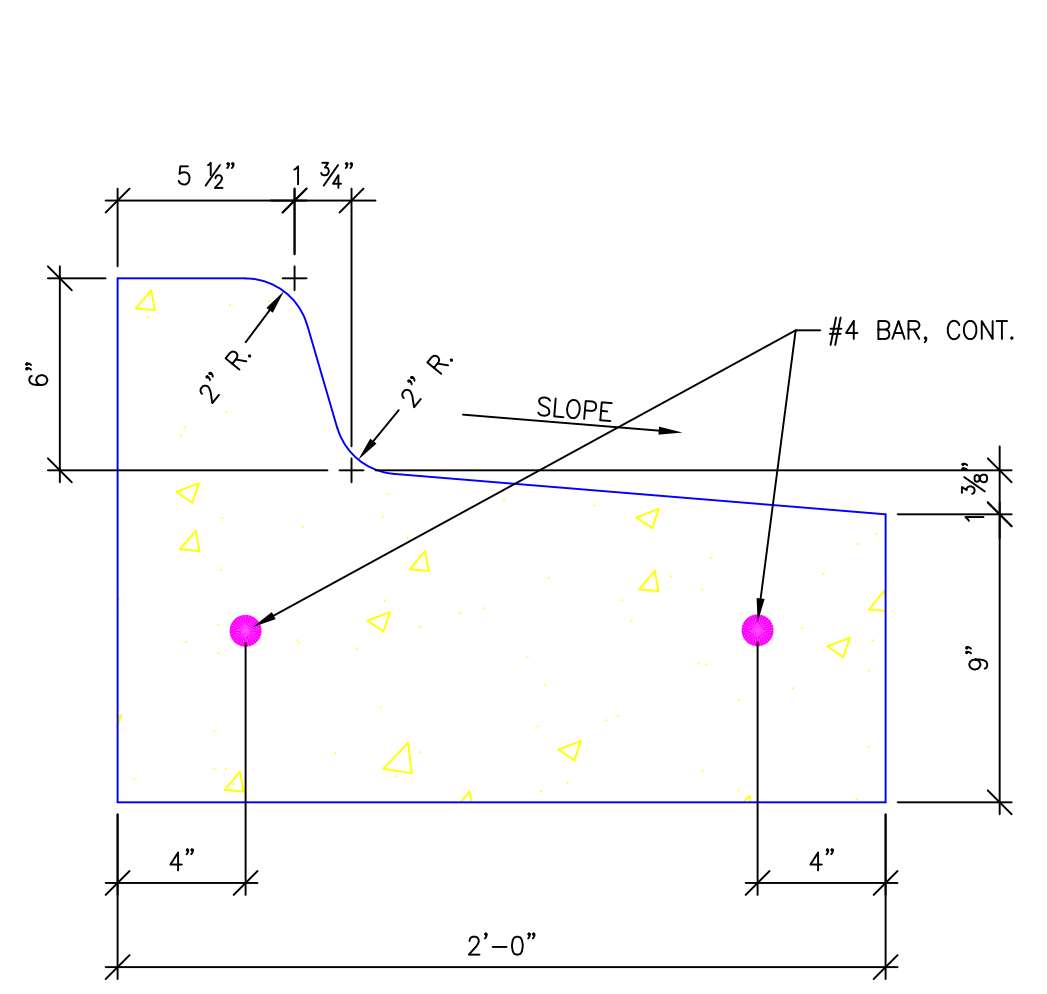
**RECOMMENDED MINIMUM TRENCH WIDTHS**

PIPE DIAM.	MIN. TRENCH WIDTH
4"	21"
6"	23"
8"	26"
10"	28"
12"	30"
15"	34"
18"	39"
24"	48"
30"	56"
36"	64"
42"	72"
48"	80"
54"	88"
60"	96"

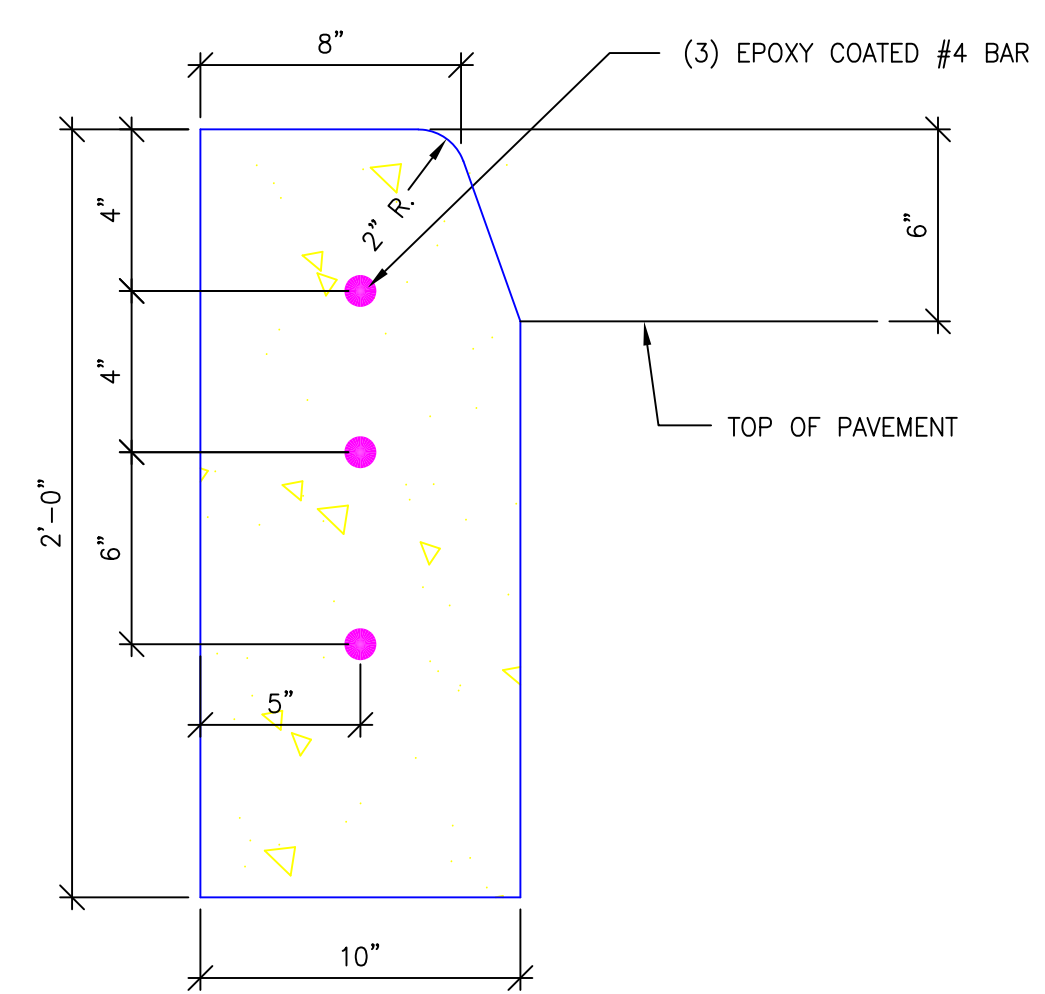
**MINIMUM RECOMMENDED COVER BASED ON VEHICLE LOADING CONDITIONS**

PIPE DIAM.	SURFACE LIVE LOADING CONDITION	
	H-20	HEAVY CONSTRUCTION (75T AXLE LOAD)*
12"-48"	12"	48"
54"-60"	24"	60"

\* VEHICLES IN EXCESS OF 75T MAY REQUIRE ADDITIONAL COVER



4 SPILLOVER CURB DETAIL  
SCALE: NONE



3 STRAIGHT FACE CURB DETAIL  
SCALE: NONE





APPLICABLE SOIL EROSION AND SEDIMENTATION CONTROL MEASURES (COMPREHENSIVE DETAILS ARE LOCATED IN SECTION 6 OF THE SOIL EROSION & SEDIMENTATION CONTROL MANUAL)									
A = SLOPES B = STREAMS AND WATERWAYS C = SURFACE DRAINAGEWAYS D = ENCLOSED DRAINAGE (INLET & OUTFALL CONTROL) E = LARGE FLAT SURFACE AREAS F = BORROW AND STOCKPILE AREAS G = DNRE PERMIT MAY BE REQUIRED									
KEY	DETAIL	CHARACTERISTICS	A	B	C	D	E	F	G
1	TURBIDITY CURTAIN	A Turbidity Curtain is used when stock water area is necessary to isolate construction activities from the watercourse. The still water area contains the sediments within the construction limits.							
2	GRUBBING OMITTED	Retains existing root mat which assists in stabilizing slopes. Assists in the revegetation process by providing sprout growth. Reduces sheet flow velocities preventing rilling and gullying. Discourages off-road vehicle use.							
3	PERMANENT/TEMPORARY SEEDING	Inexpensive but effective erosion control measure to stabilize flat areas and mild slopes. Permits runoff to infiltrate soil, reducing runoff volumes. Proper preparation of the seed bed, fertilizing, mulching and watering is critical to its success.							
4	DUST CONTROL	Dust control can be accomplished by watering and/or applying calcium chloride. The disturbed areas should be kept to a minimum. PERMANENT/TEMPORARY SEEDING (KEY 3) should be applied as soon as possible.							
5	SODDING	Provides immediate vegetative cover such as at spillways and ditch bottoms. Proper preparation of the sods, placement of the sod, and watering is critical to its success.							
6	VEGETATED BUFFER STRIPS	Reduces sheet flow velocities preventing rilling and gullying. Assists in the collection of sediments by filtering runoff. Assists in the establishment of a permanent vegetative cover.							

MICHIGAN DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR  
**SOIL EROSION & SEDIMENTATION CONTROL MEASURES**

9-10-2010 T.S.E.A. APPROVE  
6-3-2010 PLAN DATE  
R-96-E SHEET 1 OF 4

KEY	DETAIL	CHARACTERISTICS	A	B	C	D	E	F	G
7	RPRAP	Used where vegetation cannot be established. Very effective in protecting against high velocity flows. Should be placed over a geotextile liner.							
8	AGGREGATE COVER	Can be used in any area where a stable condition is needed for construction operations, equipment storage or in heavy traffic areas. Reduces potential soil erosion and fugitive dust by stabilizing raw areas.							
9	BENCHES	Reduces sheet flow velocities preventing rilling and gullying. Assists in the collection and filtering of sediments. Provides access for stabilizing slopes.							
10	DIVERSION DIKE	Assists in the diversion of runoff to a stable outlet or sediment control device. Reduces sheet flow velocities preventing rilling and gullying. Collects and diverts runoff to properly stabilized drainage ways. Works well with INTERCEPTING DITCH (KEY 11).							
11	INTERCEPTING DITCH	Assists in the diversion of runoff to a stable outlet or sediment control device. Reduces sheet flow velocities preventing rilling and gullying. Works well with DIVERSION DIKE (KEY 10).							
12	INTERCEPTING DITCH AND DIVERSION DIKE	Assists in the diversion of runoff to a stable outlet or sediment control device. Reduces sheet flow velocities preventing rilling and gullying.							
13	GRAVEL FILTER BERM	Useful in filtering flow prior to its entry into a lake, stream or wetland. Works well with SEDIMENT TRAP (KEY 20) and TEMPORARY BYPASS CHANNEL (KEY 36). Not to be used in lieu of a CHECK DAM (KEY 37) in a ditch.							
14	GRAVEL ACCESS APPROACH	Provides a stable access to roadways minimizing fugitive dust and tracking of materials onto public streets and highways.							

MICHIGAN DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR  
**SOIL EROSION & SEDIMENTATION CONTROL MEASURES**

9-10-2010 T.S.E.A. APPROVE  
6-3-2010 PLAN DATE  
R-96-E SHEET 2 OF 4

KEY	DETAIL	CHARACTERISTICS	A	B	C	D	E	F	G
15	SLOPE DRAIN SURFACE	Excellent device for carrying water down slopes without creating an erosive condition. Generally used in conjunction with DIVERSION DIKE (KEY 10), INTERCEPTING DITCH (KEY 11) and INTERCEPTING DITCH AND DIVERSION DIKE (KEY 12) to direct flow to a stable discharge area or SEDIMENT TRAP (KEY 20).							
16	TREES, SHRUBS AND PERENNIALS	Trees, shrubs and perennials can provide low maintenance long term erosion protection. These plants may be particularly useful where site aesthetics are important along the roadside slopes.							
17	PIPE DROP	Effective way to allow water to drop in elevation very rapidly without causing an erosive condition. Also works as a sediment collector device. May be left in place as a permanent erosion control device.							
18	DEWATERING WITH FILTER BAG	It may be necessary to dewater from behind a cofferdam or construction dam to create a dry work site. Discharged water must be pumped to a filter bag. A GRAVEL FILTER BERM (KEY 13) may be placed downslope of the filter bag to provide additional filtration prior to entering any stream or wetland.							
19	ENERGY DISSIPATORS	A device to prevent the erosive force of water from eroding soils. Used at outlets of culverts, drainage pipes or other conduits to reduce the velocity of the water. Prevents structure scouring and undermining.							
20	SEDIMENT TRAP	Used to intercept concentrated flows and prevent sediments from being transported off site or into a watercourse or wetland. The size of a Sediment Trap is 5 cubic yards or less. Works well when used with CHECK DAM (KEY 37).							
21	SEDIMENT BASIN	A Sediment Basin is used to trap sediments from an upstream construction site. Requires periodic inspections, repairs, and maintenance. Where practical, sediments should be contained on site. A Sediment Basin should be the best choice of sediment control. The size of a Sediment Basin is greater than 5 cubic yards.							
22	VEGETATIVE BUFFER AT WATERCOURSE	This practice is used to maintain a vegetative buffer adjacent to a watercourse. When utilized with SILT FENCE (KEY 26) it will, under normal circumstances, prevent sediment from leaving the construction site.							

MICHIGAN DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR  
**SOIL EROSION & SEDIMENTATION CONTROL MEASURES**

9-10-2010 T.S.E.A. APPROVE  
6-3-2010 PLAN DATE  
R-96-E SHEET 3 OF 4

**Use:**  
Refer to the Drainage Manual for additional design considerations when specifying this device.  
Mulch Blankets and High Velocity Mulch Blankets provide an immediate and effective cover over raw erodible slopes and in ditch bottoms.  
There are currently two types of mulch blankets acceptable for stabilizing slopes and ditch bottoms:  
1. Mulch Blankets have matting on one side and shall be used on slopes flatter than 1:2 along shoulders, ditches, utility curbs. These mulch blankets shall be placed with the matting on top and the fibers in contact with the soil.  
2. High velocity mulch blankets have matting on both sides and shall be used on 1:2 slopes or steeper and in ditch bottoms.  
**Installation and Maintenance:**  
In waterways and ditches, High Velocity Mulch Blankets shall be placed in the direction of the flow and extend 12 inches up the slope.  
On back-slopes, the blankets shall be placed perpendicular to the roadbed.  
On foreslopes, the first strip adjacent to the road shall be set parallel to the road. The remainder of the strips shall be placed either parallel or transverse to the road.  
Install according to Standard Specifications for Construction and Standard Plan R-100 Series.  
**Optional Measures:**  
**Related SESC Measures:**  
E & S-3 Permanent/Temporary Seeding  
E & S-29 Mulching and Mulch Anchoring  
**Measurement and Payments:**  
Contract Item Pay Item: Mulch Blanket, High Velocity  
Pay Unit: Square Yard  
Source Yard

MICHIGAN DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR  
**Mulch Blankets and High Velocity Mulch Blankets**

04-07-2008 PLAN DATE  
E&S-33-A SHEET 1 OF 1

**Use:**  
Mulching and Mulch Anchoring provides erosion protection and promotes growth of vegetation. This is one of the most important, effective and economical erosion control practices available.  
**Installation and Maintenance:**  
The in-place mulch shall be loose or open enough to allow some sunlight and air to penetrate to the soil. The mulch should be thick enough to shade the ground, conserve soil moisture and prevent or reduce wind and water erosion. Mulch should be anchored.  
Mulch should not be used in areas where flowing water will occur or adjacent to the shoulder of the roadway, unless approved by the Engineer.  
Loose mulch material shall consist of any straw or manure hay in an air-dry condition. Hay in an air-dry condition will be permitted only when straw mulch or manure hay is unavailable. Mulch material shall be clean, unadorned and free of any other objectionable foreign matter.  
**Optional Measures:**  
When hay is permitted, herbicide application, if necessary, shall be applied as per specification. Herbicide application shall be made at the contractor's expense.  
Mulching and Mulch Anchoring shall be in accordance with Michigan Department of Transportation Standard Specifications for Construction Section 816 Turf Establishment and Standard Plan R-100 Series.  
**Related SESC Measures:**  
E & S-3 Mulch Blankets and High Velocity Mulch Blankets  
**Measurement and Payments:**  
Contract Item Pay Item: Mulch Anchoring  
Pay Unit: Square Yard  
Source Yard

MICHIGAN DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR  
**Mulching and Mulch Anchoring**

09-30-2005 PLAN DATE  
E&S-28-A SHEET 1 OF 1

1 MDOT SLOPE PROTECTION DETAIL  
SCALE: NONE

KEY	DETAIL	CHARACTERISTICS	A	B	C	D	E	F	G
23	STREAM RELOCATION	A detail depicting the proper procedures for stream relocation. Maintains same width, depth, and flow velocity as the natural stream. Revegetate banks with PERMANENT/TEMPORARY SEEDING (KEY 3), MULCHING AND MULCH ANCHORING (KEY 26), MULCH BLANKETS AND HIGH VELOCITY MULCH BLANKETS (KEY 33) and woody plants to shade the stream.							
24	SAND AND STONE BAGS	Sand and stone bags are a useful tool in the prevention of erosion. Can be used to divert water around a construction site by creating a DIVERSION DIKE (KEY 10). Works well for creating a CONSTRUCTION DAM (KEY 36) and temporary culvert end fill.							
25	SAND FENCE AND DUNE STABILIZATION	A Sand Fence traps blowing sand by reducing wind velocities. Can be used to prevent sand from blowing onto roads. Must be maintained until sand source is stabilized.							
26	SILT FENCE	A permeable barrier erected below disturbed areas to capture sediments from sheet flow. Can be used to divert large volumes of water to stable outlets. Ineffective as a filter and should never be placed across streams or ditches where flow is concentrated.							
27	PLASTIC SHEETS OR GEOTEXTILE COVER	Plastic Sheets can be used to create a liner in temporary channels. Can also be used to create a temporary cover to prevent erosion of stockpiled materials.							
28	MULCHING AND MULCH ANCHORING	Anchored mulch provides erosion protection against rain and wind. Mulch must be used on seeded areas to promote water retention and growth. Should be inspected after every rainstorm and repaired as necessary until vegetation is well established.							
29	INLET PROTECTION FABRIC DROP	Provides settling and filtering of silt laden water prior to its entry into the drainage system. Can be used in median and side ditches where vegetation will be disturbed. Allows for early use of drainage systems prior to project completion.							
30	INLET PROTECTION GEOTEXTILE AND STONE	Provides settling and filtering of silt laden water prior to its entry into the drainage system. Should be used in paved areas where drainage structures are existing or proposed. Allows for early use of drainage systems prior to project completion.							

MICHIGAN DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR  
**SOIL EROSION & SEDIMENTATION CONTROL MEASURES**

9-10-2010 T.S.E.A. APPROVE  
6-3-2010 PLAN DATE  
R-96-E SHEET 4 OF 6

KEY	DETAIL	CHARACTERISTICS	A	B	C	D	E	F	G
31	INLET PROTECTION SEDIMENT TRAP	An Inlet Protection Sediment Trap is a temporary device that can be used in areas where medium flows are anticipated. Effective in trapping small quantities of sediments prior to water entering the drainage system. Can be used in areas such as median and side ditches.							
32	SLOPE ROUGHENING AND SCARIFICATION	A simple and economical way to reduce soil erosion by wind and water. Can be accomplished by harrowing with a disk, back blading, or tracking with a dozer perpendicular to the slope.							
33	MULCH BLANKETS AND HIGH VELOCITY MULCH BLANKETS	Mulch blankets provide an immediate and effective cover over raw erodible slopes affording excellent protection against rain and wind erosion. High velocity mulch blankets work well for stabilizing the bottom of ditches in waterways.							
34	COFFERDAM	Used to create a dry construction area and protect the stream from raw erodible areas. Must be pumped dry or dewatered according to DEWATERING WITH FILTER BAG (KEY 18).							
35	TEMPORARY BYPASS CHANNEL	Utilized when a dry construction area is needed. Isolates stream flows from raw erodible areas minimizing erosion and subsequent siltation. Can incorporate SEDIMENT BASIN (KEY 21), CHECK DAM (KEY 37), and GRAVEL FILTER BERM (KEY 13) to remove sediments from water. Construction sequence of events may be necessary.							
36	CONSTRUCTION DAM	Used to create a dry or slack water area for construction. Isolates the stream from raw erodible areas. Can be created out of any non-erodible materials such as SAND AND STONE BAGS (KEY 24), a gravel dike with clay core or plastic liner, steel plates or plywood.							
37	CHECK DAM	Can be constructed across ditches or any area of concentrated flow. Protects vegetation in early stages of growth. A Check Dam is intended to reduce water velocities and capture sediment. A Check Dam is not a filtering device.							

MICHIGAN DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR  
**SOIL EROSION & SEDIMENTATION CONTROL MEASURES**

9-10-2010 T.S.E.A. APPROVE  
6-3-2010 PLAN DATE  
R-96-E SHEET 5 OF 6

8" CONC. SLAB W/ #3 BARS @ 12" O.C., E.W., W/ 2 1/2" COVER.  
6", 21AA AGGREGATE BASE COMPACTED TO 98% DENSITY.  
12" SAND SUB-BASE COMPACTED TO 95% DENSITY MOOT CL II  
SUB-GRADE, UNDISTURBED EARTH OR ENGINEERED FILL.  
GEOTEXTILE FILTER FABRIC FASTENED ON UPHILL SIDE, TOWARDS EARTH DISRUPTION.  
3'-0" MIN. HEIGHT HARDWOOD STAKES.  
RIDGE OF COMPACTED EARTH ON UPHILL SIDE OF FILTER FABRIC.  
SHEET FLOW  
6" x 6" ANCHOR TRENCH TO SECURE FILTER FABRIC.  
DRIVE STAKES 1'-0" MIN. DEPTH INTO GROUND.

NOTES:  
THIS STANDARD PLAN WILL SERVE AS A KEY IN THE SELECTION OF THE APPROPRIATE SOIL EROSION AND SEDIMENTATION CONTROL DETAILS. THIS PLAN ALSO PROVIDES THE KEY TO THE NAMED EROSION CONTROL ITEMS SPECIFIED ON THE CONSTRUCTION PLANS. REFER TO THE MOST SOIL EROSION & SEDIMENTATION CONTROL MANUAL, SECTION 6 FOR SPECIFIC DETAILS, CONTRACT ITEM, PAY ITEMS, AND PAY UNITS.  
COLLECTED SILT AND SEDIMENT SHALL BE REMOVED PERIODICALLY TO MAINTAIN THE EFFECTIVENESS OF THE SEDIMENT TRAP, SEDIMENT BASIN, AND SILT FENCE. HORSESHOE PILES IN STREAMS SHOULD CONFORM TO STANDARD PLAN R-100.  
TEMPORARY EROSION AND SEDIMENTATION CONTROL PROVISIONS SHALL BE COORDINATED WITH THE PERMANENT CONTROL MEASURES TO ASSURE EFFECTIVE CONTROL OF SEDIMENTS DURING CONSTRUCTION OF THE PROJECT.  
ALL TEMPORARY EROSION CONTROL DEVICES SHALL BE REMOVED AFTER VEGETATION ESTABLISHMENT OR AT THE DISCRETION OF THE ENGINEER. CARE SHALL BE TAKEN DURING REMOVAL TO MINIMIZE SILTATION IN NEARBY DRAINAGE COURSES.

MICHIGAN DEPARTMENT OF TRANSPORTATION  
BUREAU OF HIGHWAY DEVELOPMENT STANDARD PLAN FOR  
**SOIL EROSION & SEDIMENTATION CONTROL MEASURES**

9-10-2010 T.S.E.A. APPROVE  
6-3-2010 PLAN DATE  
R-96-E SHEET 6 OF 6

3 LCDC SILT FENCE DETAIL  
SCALE: NONE

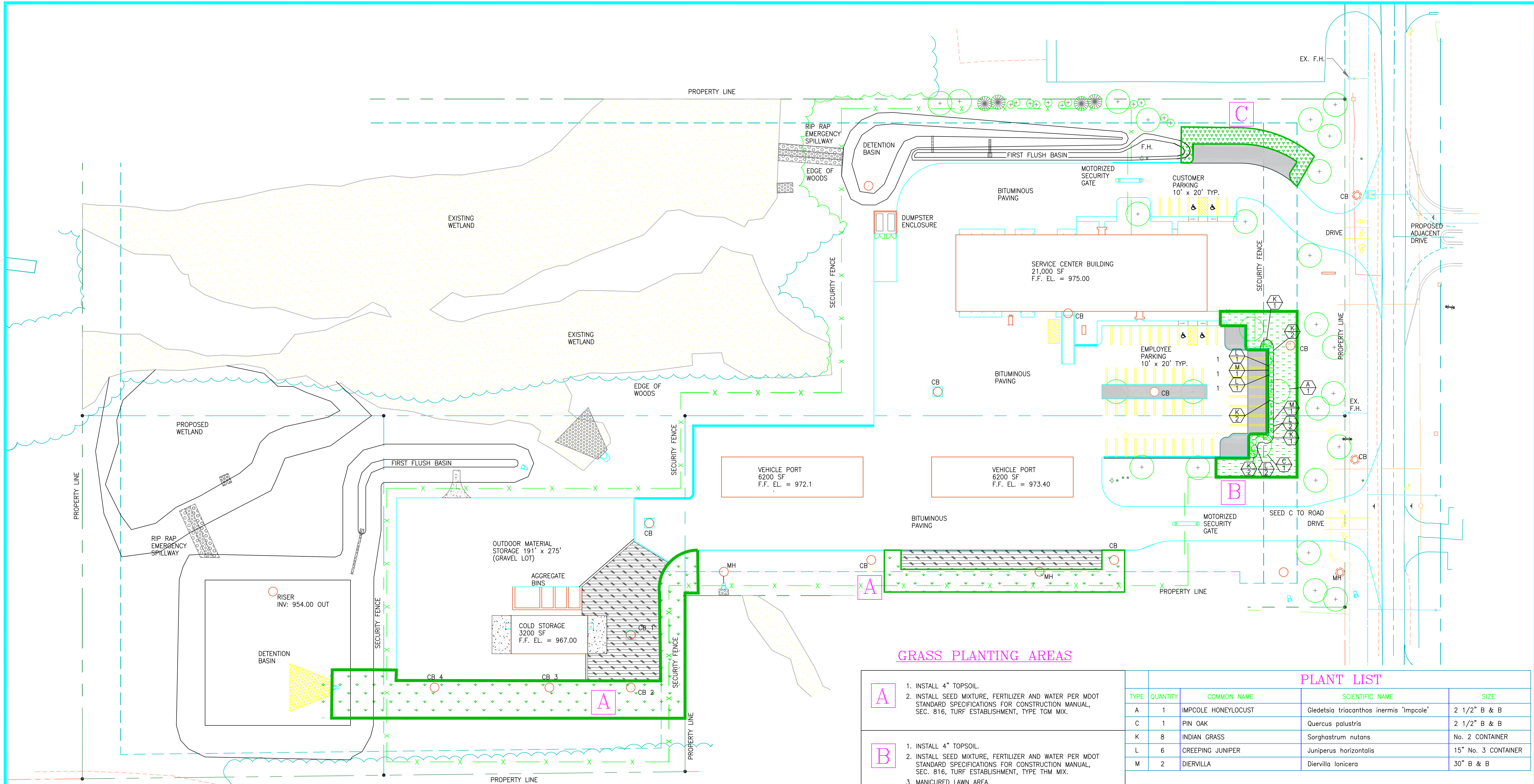
4 SESC CONTROL MEASURES  
SCALE: NONE

2 CONCRETE APRON  
SCALE: 1"=1'-0"

Drawing No	Reference Drawings	Rev	Date	Description	By	App	Acad Title	Plot Scale
			3/09/17	90% DWNER REVIEW			Dr F. ISSA	Date 03/09/17
<p>Consumers Energy JACKSON, MICHIGAN</p> <p>Proj. Building/Location <b>HOWELL SERVICE CENTER PARKING LOT EXPANSION</b> 1000 GRAND OAKS BOULEVARD GENOA TOWNSHIP, MICHIGAN PARKING LOT UPGRADE</p> <p>Scale: NONE Work Req. # WORK ORDER: 28909602</p> <p>Drawing Number <b>C-07</b></p> <p>Sheet <b>C-07</b></p> <p>Rev</p>								





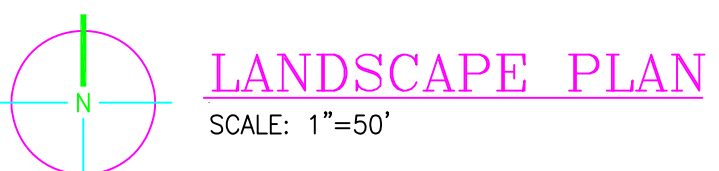
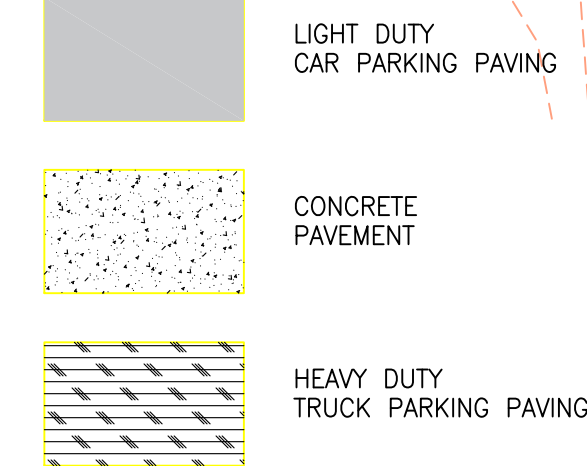


**GRASS PLANTING AREAS**

- A**
  - INSTALL 4" TOPSOIL.
  - INSTALL SEED MIXTURE, FERTILIZER AND WATER PER MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION MANUAL, SEC. 816, TURF ESTABLISHMENT, TYPE TGM MIX.
- B**
  - INSTALL 4" TOPSOIL.
  - INSTALL SEED MIXTURE, FERTILIZER AND WATER PER MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION MANUAL, SEC. 816, TURF ESTABLISHMENT, TYPE THM MIX.
  - MANICURED LAWN AREA.
- C**
  - INSTALL 4" TOPSOIL.
  - INSTALL SEED MIXTURE, FERTILIZER AND WATER PER MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION MANUAL, SEC. 816, TURF ESTABLISHMENT, TYPE TGM MIX.
  - NATURALIZE PLANTING AREA WITH ADDITION OF THE FOLLOWING NATIVE GRASS SPECIES:
    - A. Bromus kalmii                      ARCTIC BROME
    - B. Carex pensylvanica                PENNSYLVANIA SEDGE
    - C. Koeleria macrantha                PRAIRIE JUNEGRASS
    - D. Panicum virgatum                  SWITCHGRASS
    - E. Schizachyrium scoparium        LITTLE BLUESTEM
    - F. Sorghastrum nutans                INDIANGRASS

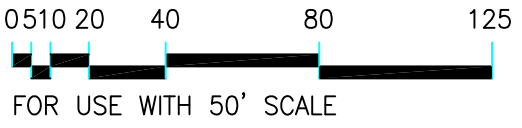
**PLANT LIST**

TYPE	QUANTITY	COMMON NAME	SCIENTIFIC NAME	SIZE
A	1	IMPCOLE HONEYLOCUST	Gleditsia triacanthos inermis 'Impcole'	2 1/2" B & B
C	1	PIN OAK	Quercus palustris	2 1/2" B & B
K	8	INDIAN GRASS	Sorghastrum nutans	No. 2 CONTAINER
L	6	CREeping JUNIPER	Juniperus horizontalis	15" No. 3 CONTAINER
M	2	DIERVILLA	Diervilla lonicera	30" B & B



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

**UTILITY WARNING**  
 Underground utility locations, as shown on the plan, were obtained from utility owners and were not field located.  
 A minimum of 3 working days prior to beginning construction, the contractor shall notify "MISS DIG" and have all underground utilities staked before any work may begin.  
 The contractor shall be responsible for the protection of all utilities that may interfere with construction. Protection of utilities shall be incidental to construction.



3/09/17	90% OWNER REVIEW	Dr. F. ISSA	Date: 03/09/17
		Des.	
		App.	
		App.	
		Acad Title: L-01	Plot Scale: 1:1



Proj. Building/Location  
**HOWELL SERVICE CENTER PARKING LOT EXPANSION**  
 1000 GRAND OAKS BOULEVARD  
 GENOA TOWNSHIP, MICHIGAN  
 PARKING LOT UPGRADE



Sheet Title <b>LANDSCAPE PLAN</b>		
Scale: 1"=50'	Drawing Number <b>L-01</b>	Sheet <b>L-01</b>
Work Req. # WORK ORDER: 28909602		Rev



2911 Dorr Road  
Brighton, MI 48116  
810.227.5225  
810.227.3420 fax  
genoa.org

## MEMORANDUM

**TO:** Honorable Board of Trustees

**FROM:** Kelly VanMarter, Assistant Township Manager/Community Development Director

**DATE:** April 12, 2017

**RE:** Lake Trust Credit Union

**MANAGER'S REVIEW:** \_\_\_\_\_

Attached please find the case file for the proposed for a proposed new 2,360 sq. ft. Lake Trust Credit Union building located on the north side of Grand River, west of Lawson Drive. The property is located within the Lorentzen PUD on parcel #11-09-100-034. The request is petitioned by Lake Trust Credit Union. This project is part of the Lorentzen PUD and is zoned MU-PUD.

Procedurally, projects within a PUD require the Planning Commission to make a recommendation to the Township Board for both the site plan and the Environmental Impact Assessment. The proposed building will be the second branch for Lake Trust which uses a new prototype design. The Planning Commission was extremely pleased with the architecture of the proposed building and they are excited to forward it for your final review.

At the April 10, 2017 Planning Commission meeting the Commission recommended approval of the Site Plan and Impact Assessment. A revised Site Plan and Impact Assessment were received from the applicant on April 12, 2017 which incorporated the Planning Commission comments. Based on the action of the Planning Commission and in response to the revised materials I suggest Board consideration of the following action:

Moved by \_\_\_\_\_, Supported by \_\_\_\_\_ to approval the Environmental Impact Assessment dated 04-12-17 with the following conditions:

1. Statements shall be added to the assessment to ensure that judicious efforts are made to arrange for refuse collection during non-peak times so that refuse removal vehicles do not disrupt traffic patterns.

### SUPERVISOR

Bill Rogers

### CLERK

Paulette A. Skolarus

### TREASURER

Robin L. Hunt

### TRUSTEES

Jean W. Ledford

H. James Mortensen

Terry Croft

Diana Lowe

### MANAGER

Michael C. Archinal



**Moved by \_\_\_\_\_, Supported by \_\_\_\_\_ to approve the Site Plan dated 04-12-17 with the following conditions:**

1. The applicant will work with Township staff regarding the orientation of the dumpster enclosure. It may be allowed in the required side yard to minimize traffic impacts.
2. With regard to the proposed new curb cut on Grand River, Township Staff shall consult with the Township Attorney to ensure permanent closure of the existing curb cut to the east and to avoid future issues with a potential purchaser of this site.
3. The requirements outlined in the Township Engineers letter of April 4, 2017 shall be met.
4. The requirements outlined in the Brighton Area Fire Authority's letter of March 28, 2017 shall be met.
5. The applicant shall work with the MHOG Authority and the Brighton Area Fire Authority regarding the proposed hydrant extension. A water main easement for the new fire hydrant shall be provided prior to the issuance of a Land Use Permit.

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



**GENOA CHARTER TOWNSHIP**  
**Application for Site Plan Review**

**TO THE GENOA TOWNSHIP PLANNING COMMISSION AND TOWNSHIP BOARD:**

APPLICANT NAME & ADDRESS: Terri Guzzstella, Lake Trust Credit Union  
4605 S. Old US Highway 23, Brighton, MI  
*If applicant is not the owner, a letter of Authorization from Property Owner is needed.*

OWNER'S NAME & ADDRESS: Lake Trust Credit Union, 4605 S. Old US Hwy 23, Brighton, MI 48114

SITE ADDRESS: E. Grand River Ave PARCEL #(s): 4711-09-100-033

APPLICANT PHONE: (517) 372-8804 OWNER PHONE: (888) 267.7200 x 5296

OWNER EMAIL: tguastella@laketrust.org

LOCATION AND BRIEF DESCRIPTION OF SITE: 4433 E. Grand River Ave  
is located between Aubree's Pizzeria and Sunoco Gas Station. The site  
is currently undeveloped.

BRIEF STATEMENT OF PROPOSED USE: The undeveloped site will be used  
for a new single story Credit Union branch.

THE FOLLOWING BUILDINGS ARE PROPOSED: The proposed building shall be a  
single story Credit Union with 03 drive-through lanes.

**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: David C. Vanderklok

ADDRESS: 114 S. Washington #100  
Lansing, MI 48910

Architect/owner rep.

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

1.) Matt Nelson of Studio [intrigue] Architects, LLC at nelson@studiointrigue.com  
Name Business Affiliation E-mail Address

**FEE EXCEEDANCE AGREEMENT**

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

SIGNATURE: Terru Guastella DATE: 2.22.17  
PRINT NAME: TERRI GUASTELLA PHONE: 800.267.7200 x5296  
ADDRESS: 4005 S. OLD US HIGHWAY 23, BRIMTON, MI 48114

Mr. Neil stated they have started the process to combine the parcels.

Mr. Siwek reviewed his letter of April 4, 2017. Updated storm detention calculations are required to be provided on the plans. He concurred with Ms. VanMarter's comments regarding approval being needed to work within public utility easements.

The Brighton Area Fire Authority has no outstanding issues; however, their letter of March 28, 2017 reminded the applicant that the access road may not be obstructed by construction materials, equipment or vehicles during the construction process.

The call to the public was made at 6:56 pm with no response.

**Moved** by McManus, seconded by Mortensen, to approve the Site Plan dated March 21, 2017 for Consumers Energy with the following conditions:

- All landscaping per the approval of 2009 shall be installed and/or replaced.
- The applicant shall combine all of the parcels.
- The requirements of the Township Engineer's letter of April 4, 2017 shall be complied with.

**The motion carried unanimously.**

**Moved** by Figurski, seconded by McManus, to recommend to the Township Board approval of the Impact Assessment for Consumers Energy dated April, 2017 and its amendment to their 2009 submission conditioned upon the inclusion for dust control measures. **The motion carried unanimously.**

**OPEN PUBLIC HEARING #3...** Review of site plan application and impact assessment for a proposed new 2,360 sq. ft. Lake Trust Credit Union building located on the north side of Grand River, west of Lawson Drive. The property is located within the Lorentzen PUD on parcel #11-09-100-034. The request is petitioned by Lake Trust Credit Union.

Planning Commission recommendation of petition:

A. Recommendation of Impact Assessment (3-21-17)

B. Recommendation of Site Plan (3-21-17)

Mr. Dave Vanderklok of Studio Intrigue Architects and representatives from Lake Trust Credit Union were present. Mr. Vanderklok gave a history of the credit union. They would like to build a one-story, 2,360 square foot branch. This building will be the second one of the new prototype design for Lake Trust. The first one is in East Lansing and was completed in April of 2016.

He presented sample building materials and showed colored renderings of the proposed building. They would like relief to the brick requirement. He showed the wood material that would be used instead of the brick.

They would also like relief for the parking space limitations. They do not believe that the 14-space maximum is sufficient for their bank and are proposing 25 spaces.

He addressed the traffic flow concerns of the Township Planner. They believe the way they have designed the site will not cause a conflict with the drive-through lane exit and two-way traffic drive.



With regard to the request to have the trash emptied during non-peak hours, they will request their trash hauler to perform this before or after business hours.

Ms. VanMarter reviewed Mr. Borden's letter of March 24, 2017. The applicant has addressed the outstanding items in his presentation. She noted that the Planning Commission has authority over the building materials, colors, and parking.

Commissioner Grajek asked if there is any signage at the end of the drive through lanes to alert customers that there is two-way traffic coming from the left. Mr. Vanderklok stated he can add "Yield" signs or possibly move the lanes further back from the edge of the building. There was a discussion regarding the traffic flow concerns.

Commissioner Rickard is concerned with the location of the Dumpster enclosure. It appears to be blocking the traffic lane. Commissioner Rauch suggested rotating the enclosure 180 degrees. Mr. Vanderklok stated he is willing to work with the Township on the enclosure location.

Commissioner Mortensen questioned the curb cut that is currently just to the east of this site. Mr. Vanderklok stated they have worked with the property owner of that site and they have agreed to close the curb cut as it is vacant property. Commissioner Mortensen would like to ensure that the Township Attorney reviews this proposal.

Commissioner Mortensen questioned the building design and materials. He noted that it is quite different from what is along Grand River in that location. It is very modern and he likes the design. Commissioners McManus agrees. Commissioner Rauch's opinion is that this is a fabulous-looking building.

Mr. Siwek reviewed his letter of April 4, 2017.

- The applicant shall provide written approval of the authorization to close the driveway entrance to the east of their site.
- The water main and new fire hydrant must be included in the plans.
- Due to the addition of the fire hydrant, as required by the Brighton Area Fire Authority, Mr. Siwek is recommending that the applicant meet with MHOG to determine the best way to serve the site with the new hydrant.

Chairman Brown reviewed the Brighton Area Fire Authority's letter of March 28, 2017. The applicant has met all of their requirements outlined in their prior review letter.

The call to the public was made at 7:44 pm with no response.

**Moved** by Figurski, seconded by Rauch, to recommend to the Township Board, approval of the Impact Assessment dated March 21, 2017. **The motion carried unanimously.**

**Moved** by Mortensen, seconded by Grajek, to recommend to the Township Board approval of the Site Plan dated March 21, 2017 for Lake Trust Credit Union with the following conditions:

- The building materials reviewed this evening are acceptable to the Planning Commission and shall become the property of the Township.
- The Township finds that while the proposed building design does not meet the 25 percent brick requirement per section 12.01 of the Township Ordinance, the



substituted material, which is a wood-like product, is attractive and meets the intent of the ordinance.

- The Planning Commission accepts the parking quantity displayed on the Site Plan due to the petitioner's experience for financial planning services and other activities in the evenings.
- The Dumpster enclosure shall be allowed in the side yard setback if required to minimize traffic impact.
- The petitioner shall arrange with their trash hauler to pick up during non-peak times so that refuse removal vehicles do not disrupt vehicles exiting the drive through area.
- A sign permit will be required from the Township prior to installation.
- With regard to the proposed new curb cut on Grand River, Township Staff shall consult with the Township Attorney on ways to ensure closure of the existing curb cut to the east will avoid future issues with a potential purchaser of this site.
- The requirements outlined in the Township Engineers letter of April 4, 2017 shall be met.
- The requirements outlined in the Brighton Area Fire Authority's letter of March 28, 2017 shall be met.
- A water main easement for the new fire hydrant shall be provided prior to the issuance of a Land Use Permit.

**The motion carried unanimously.**

**Administrative Business:**

- Staff Report

Ms. VanMarter gave an update on the Genoa Plaza Project, which is on the corner of Latson Road and Grand Oaks Drive. It is anticipated to be on the May Planning Commission Agenda.

She is continuing to work on the Zoning Ordinance Update.

- Approval of the March 13, 2017 Planning Commission meeting minutes

**Moved** by Commissioner Figurski, seconded by Commissioner Rickard, to approve the minutes of the March 13, 2017 Planning Commission Meeting as presented. **The motion carried unanimously.**

- Member Discussion

Commissioner Mortensen questioned if the Township still wants to keep building material samples. Ms. VanMarter advised that she needs to keep them for a while to ensure that the developer uses the materials that were presented and approved.



March 24, 2017

Planning Commission  
Genoa Township  
2911 Dorr Road  
Brighton, Michigan 48116

<b>Attention:</b>	Kelly Van Marter, AICP Planning Director and Assistant Township Manager
<b>Subject:</b>	Lake Trust Credit Union – Site Plan Review #2
<b>Location:</b>	Vacant property on the north side of Grand River Avenue, west of Lawson Drive
<b>Zoning:</b>	MU PUD Mixed Use Planned Unit Development / NSD Neighborhood Services District

Dear Commissioners:

At the Township's request, we have reviewed the revised site plan (dated 3/21/17) proposing development of a new credit union on vacant land within the Lorentzen PUD. The site itself is located on the north side of Grand River, immediately east of the existing Aubrey's restaurant.

We have reviewed the proposal in accordance with the applicable provisions of the Genoa Township Zoning Ordinance, as well as the PUD Agreement for this property.

#### **A. Summary**

1. The Planning Commission has approval authority over the building elevations, including materials and colors.
2. The amount of parking proposed (179% of the minimum requirement) exceeds the maximum allowance under the Zoning Ordinance (120% of the minimum requirement). As such, Planning Commission approval is required for the amount of parking proposed.
3. In our opinion, there is a potential vehicular conflict between the drive-through lane exit and two-way drive connecting the site to White Horse Lane.
4. We request the applicant schedule trash/recycling pick-up for non-peak times so that refuse removal vehicles do not disrupt vehicles exiting the drive-through area.
5. The proposed signage is compliant, although a sign permit will be required prior to installation.

#### **B. Proposal**

The applicant requests site plan review and approval of a new 2,360 square foot credit union with 3 drive-through lanes. Banks and credit unions with up to 3 drive-through lanes are permitted uses in this PUD. As such, site plan review is the only process needed.

However, since this is a final PUD site plan, procedurally the Planning Commission is to make a recommendation to the Township Board on both the Environmental Impact Assessment and Site Plan Review.



*Aerial view of site and surroundings (looking north)*

**C. Site Plan Review**

**1. Dimensional Requirements.** As shown in the table below, the proposal complies with the dimensional requirements of the Lorentzen PUD:

District	Lot Size		Minimum Setbacks (feet)				Max. Height
	Area (acres)	Width (feet)	Front Yard	Side Yard	Rear Yard	Parking	
MU-PUD	1	100	70	10	40	10 front 10 side/rear	20' 1 story
Proposal	1.36	272	95 (Grand River) 133 (White Horse)	67 (E) 65 (W)	N/A	20 front 10 side	18'-10" 1 story

**2. Building Materials and Design.** The proposed elevations, including colors and materials, are subject to review and approval by the Planning Commission. Building elevation drawings are found on Sheets A-301 and A-302. The submittal also includes color renderings, and the applicant has indicated that they intend to present material samples at the upcoming meeting.

Primary building materials include brick, wood and stone with aluminum, stone and wood accents. The building includes large windows and several decorative elements, such as wood beams projecting through the canopy.

The revised submittal includes building material calculations, which are compliant with the standards of Section 12.01.03 of the Township Zoning Ordinance.

**3. Parking.** The revised plan provides 25 parking spaces, including the 2 required barrier-free spaces. The Ordinance requires only 14 spaces; therefore, the proposal exceeds the maximum amount of parking allowed by Section 14.01.06.

The proposal entails 179% of the minimum parking required, while the Ordinance limitation is 120% unless otherwise approved by the Planning Commission. The applicant indicates that this branch will have 5 employees and is expected to host monthly seminars with 15 additional participants. As such, the intent of the proposed parking is to avoid disrupting patrons' use of the site or impact neighboring businesses via the shared access drive.

**Lake Trust Credit Union**

Site Plan Review #2

Page 3

The parking spaces and drive aisles meet or exceed the dimensional standards of Section 14.06 and the plan shows the use of looped (double striped) spaces, as required. Additionally, the plan demonstrates compliance with the stacking space requirements for the drive-through lanes.

4. **Pedestrian Circulation.** The site plan identifies an existing concrete sidewalk along Grand River, with ramps on each side of the driveway. Sidewalks are also proposed along 3 sides of the building with a connection to the public walkway, including a striped crosswalk across the main drive aisle.
5. **Vehicular Circulation.** Primary vehicular access is proposed via a new curb cut on Grand River with a cross access drive that connects the site with the properties to the east and west. This design also entails closure of the existing curb cut on the adjacent property to the east, as well as a connection to White Horse Lane.

Internally, there are two-way drives going north/south and east/west with a one-way pattern through the drive-through. Given the revised plans, we still believe there is a potential conflict between the drive-through exit and two-way drive connecting to White Horse.

More specifically, vehicles exiting the drive-through lanes may conflict with those traveling north towards White Horse with limited visibility around the building. There is also the potential that vehicles exiting different drive-through lanes could conflict with one another – for instance, a vehicle exiting via White Horse in the lane nearest the building versus a vehicle leaving another lane that wants to exit via Grand River.

The Commission should also consider any comments provided by the Township Engineer and/or Fire Marshal with respect to vehicular access/circulation.

6. **Loading.** The Ordinance requires one loading space for the project, which is to be 500 square feet in area and located in a rear or side yard not directly visible from a public street. Sheet C-101 has been revised to provide the required space.
7. **Landscaping.** As shown in the table below, we have reviewed the landscape plan based on the conventional standards of Section 12.02:

Location	Requirements	Proposed	Comments
Greenbelt (Grand River)	20' width 7 canopy trees Hedgerow	20' width 7 canopy trees Hedgerow	Requirements met
Greenbelt (White Horse)	20' width 3 canopy trees	120' width 3 canopy trees	Requirements met
Buffer zone "C" (East)	10' width 18 canopy trees OR 18 evergreens OR 72 shrubs (OR combination thereof)	10' width (minimum) 3 existing canopy trees 1 canopy tree 4 evergreen trees 28 shrubs	Requirements met
Buffer zone "C" (West)	10' width 16 canopy trees OR 16 evergreens OR 64 shrubs (OR combination thereof)	10' width (minimum) 1 canopy tree 5 evergreen trees 42 shrubs	Requirements met
Parking lot	3 canopy trees 300 SF landscaped area	3 canopy trees 432 SF landscaped area	Requirements met
Detention pond	6 trees 60 shrubs	6 trees 60 shrubs	Requirements met

- 8. Waste Receptacle and Enclosure.** The project includes an area for trash and recycling receptacles within an enclosure northwest of the proposed building. The proposed location, concrete base pad and masonry enclosure comply with the standards of Section 12.04.

Additionally, we request the applicant schedule pick-up for non-peak times so that refuse removal vehicles do not disrupt vehicles exiting the drive-through area.

- 9. Exterior Lighting.** The submittal includes a lighting plan (Sheet C-103), which proposes the 9 light poles around the perimeter of the site, 9 wall-mounted fixtures, 3 bollard lights and 6 fixtures underneath the drive-through canopy.

Details show 6 of the parking lot fixtures as cut-off/downward directed, while there are also 3 decorative fixtures along the Grand River frontage.

The maximum on-site lighting intensity is 10 footcandles, which meets the Ordinance limit.

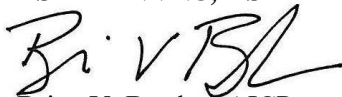
- 10. Signage.** The submittal identifies 2 wall signs, 1 ground sign and 2 directional signs with advertising. Because the site is a through lot, 2 wall signs are allowed. Additionally, the sizes and heights of each type of signage complies with current Ordinance standards; however, the applicant should be aware that a separate sign permit will be required prior to installation.

- 11. Impact Assessment.** The submittal includes an updated Impact Assessment (dated March 21, 2017). In summary, the Assessment 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. I can be reached by phone at (248) 586-0505, or via e-mail at [borden@lslplanning.com](mailto:borden@lslplanning.com).

Respectfully,

**LSL PLANNING, A SAFE BUILT COMPANY**



Brian V. Borden, AICP  
Planning Manager





April 4, 2017

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

**Re: Lake Trust Credit Union – Site Plan Review #2**

Dear Ms. Van Marter:

We have reviewed the revised site plans completed by KEBS, Inc. dated March 21, 2017. The plans were originally submitted in 2007 by Boss Engineering with the most recent submission from Studio [intrigue] Architects, LLC. The applicant is proposing to build a 2,360 sft single-story credit union with access from Grand River Avenue and a shared access road adjacent to Grand River that is shared with adjoining parcels. The site is located between Arundell Avenue and Lawson Drive on the north side of Grand River Avenue.

Tetra Tech has reviewed the documents and has the following comments:

1. The site plan includes a note that the existing drive entrance on the property to the east be closed off when the new entrance is complete. The applicant must supply written approval or authorization from the adjacent property owner to eliminate the existing driveway on their property.
  - a. The applicant has noted this comment in the latest submission and will provide the letter of approval at or before the scheduled Planning Commission meeting.
2. The 12” existing main and 8” line to the proposed fire hydrant should be shown on page C-101.
3. Due to the additional hydrant requirement from Brighton Area Fire, the plans will have to go through construction plan review per Section 3 of the MHOG Connection Manual. There is existing water main located on both the south side of Grand River and along Whitehorse Drive. It is recommended the petitioner meet with MHOG prior to developing construction plans to determine the best way to serve this site with a new hydrant.

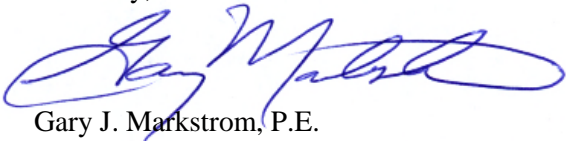
The planning commission should take the above comments into consideration during their review to ensure all comments are addressed.

**Tetra Tech**

401 South Washington Square, Suite 100, Lansing, MI 48933  
Tel 517.316.3930 Fax 517.484.8140 [www.tetrattech.com](http://www.tetrattech.com)

**Ms. Kelly Van Marter**  
**Re: Lake Trust Credit Union Site Plan Review**  
**March 15, 2017**  
**Page 2**

Sincerely,



Gary J. Markstrom, P.E.  
Unit Vice President



Marguerite K. Davenport  
Project Engineer

copy: Matt Nelson, Studio [intrigue] Architects, LLC



# BRIGHTON AREA FIRE AUTHORITY

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

March 28, 2017

Kelly VanMarter  
Genoa Township  
2911 Dorr Road  
Brighton, MI 48116

RE: Lake Trust Credit Union  
E. Grand River  
Genoa Twp., MI

Dear Kelly,

The Brighton Area Fire Department has reviewed the above mentioned site plan. The plans were received for review on March 22, 2017 and the drawings are dated December 13, 2016 with latest revisions dated March 21, 2017. The project is for a proposed new Business Occupancy (Bank) that is approximately 2,500 square feet.

This plan review is based on the requirements of the International Fire Code (IFC) 2015 edition.

1. A new fire hydrant must be installed on the site due to proximity of the structure to adjacent existing hydrants. The hydrant is to be located at the inside corner or the Grand River entry drive near the proposed monument sign. **(The fire hydrant has been included on teh shop drawings)**
2. The address shall be a **minimum of 6"** high letters of contrasting colors and be clearly visible from the street (Grand River). The location and size shall be verified prior to installation. Future submittals shall include the address once assigned. **(The address is shown on the elevation drawings and is noted to be compliant with minimum sizing)**

**IFC 505.1**
3. The access drives shown at 24' must be widened to a minimum of 26' wide. The drive-thru bypass lane must be widened to 16' from the 14' shown. Areas with a width of 16' and 26' wide, the curbed areas along the drives shall be marked as a fire lane. Include the location of the proposed fire lane signage and include a detail of the fire lane sign in the submittal. 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 75,000 pounds. **(Access drive widths have been revised, as well as the inclusion of fire lane signage)**

**IFC D 102.1**  
**IFC D 103.3**  
**IFC D 103.6**  
**IFC D 103.3**
4. Access onto and through the site shall provide emergency vehicles with a turning radius of 30' inside and 50' outside. A minimum vertical clearance of 13½ feet must also be maintained. **(Turning radii have been determined to be in compliance)**
5. The location of a key box (Knox Box) shall be indicated on future submittals. The Knox box will be located adjacent to the main entrance of the structure. **(Knox box has been added)**



March 28, 2017  
Page 2  
Lake Trust Credit Union  
E. Grand River  
Site Plan Review

**to the east elevation of the architectural drawings)**

**IFC 506.1**

6. Provide names, addresses, phone numbers, emails of owner or owner's agent, contractor, architect, on-site project supervisor. **(Provided in response letter)**

Additional comments will be given during the building plan review process (specific to the building plans and occupancy). If applicable, 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,

A handwritten signature in black ink, appearing to read 'R. Boisvert'.

Capt. Rick Boisvert, CFPS  
Fire Inspector





2911 Dorr Road  
Brighton, MI 48116  
810.227.5225  
810.227.3420 fax  
genoa.org

## MEMORANDUM

**TO:** Matt Nelson, Studio Intrigue Architects, LLC  
**FROM:** Kelly VanMarter, Assistant Township Manager/Community Development Director  
**DATE:** April 5, 2017  
**RE:** Lake Trust Credit Union

---

This memo will describe the connection fees required for a proposed 2,360 sq. ft. bank with 7 employees located on parcel 11-09-100-033 which is located in the Lorentzen Planned Unit Development.

**2,360 sq.ft. bank      7 employees @ .12 REU per employee =      .84 REU's**

---

**TOTAL REU =      .84 REUs**

.84 REU x \$3,100 per Sewer REU =	\$ 2,604.00
.84 REU x \$3,000 per Water REU =	\$ 2,520.00
<b>TOTAL DUE =</b>	<b>\$ 5,124.00</b>

### **Connection Fees must be paid at time of land use permit issuance.**

A meter package may also need to be purchased including the appropriate sized meter. Should you have any questions please feel free to contact me at 810-227-5225.

#### **SUPERVISOR**

Bill Rogers

#### **CLERK**

Paulette A. Skolarus

#### **TREASURER**

Robin L. Hunt

#### **TRUSTEES**

Jean W. Ledford

H. James Mortensen

Terry Croft

Diana Lowe

#### **MANAGER**

Michael C. Archinal

Standard Form of Owner Authorization/ Acknowledgement between Owner(s) and Applicant(s)

Date: April 3, 2017

I, Michael B. Corrigan, President of BMH Realty LLC  
(Print name(s))

Owner(s) of Parcel(s) 47-11-09-200-005  
(Parcel ID(s) from tax records)

otherwise known as 4483 E. Grand River, Howell, MI 48843  
(Street address(es))

hereby acknowledge and authorize the Applicant(s)

Lake Trust Credit Union,  
(Print name(s) of Applicant(s))

to submit any required documents in pursuit of their Site Plan Approval, which includes the request to abandon my current, MDOT 'curb cut' on Grand River and the installation of a new, MDOT-compliant 'curb cut' that will be shared between my property and theirs. The ingress/egress easements have been previously recorded in support of a similar application several years ago.

Michael B. Corrigan      4-3-17  
Signed                                  Date

\_\_\_\_\_  
Signed (if multiple Owners)                  Date

\_\_\_\_\_  
Signed (if multiple Owners)                  Date

**GENOA TOWNSHIP**

APR 10 2017

**RECEIVED**

*@PC mtg.*

IMPACT ASSESSMENT FOR LAKE TRUST CREDIT UNION  
GENOA TOWNSHIP, LIVINGSTON COUNTY MICHIGAN

Prepared for:

**Lake Trust Credit Union  
4605 S. Old US Hwy 23  
Brighton, Michigan 48114  
517-267-7200**

Revised by:

**Studio [intrigue] Architects  
Attn: David C. VanderKlok, Architect  
1114 S. Washington Ave. #100  
Lansing, Michigan 48910  
517-282-9954 (c)  
517-372-8804 (o)  
David@studiointrigue.com**

**March 21, 2017**

Original Prepared by:

Boss Engineering Company  
3121 E. Grand River  
Howell, Michigan 48843  
November 14, 2007

**Narrative:**

This development was previously submitted for site plan review back in 2007. The original application was for a Nu-Union Credit Union (now Lake Trust) – the current application is for a new LTCU branch that is smaller than what was originally proposed.

**RECEIVED**

**By Amy Ruthig at 2:26 pm, Apr 12, 2017**

## INTRODUCTION

The purpose of this Impact Assessment (IA) report is to show the effect that this proposed development has on various factors in the general vicinity of the project. The format used for presentation of this report conforms to the *Submittal Requirements for Impact Assessment/Impact Statement* guidelines in accordance with Section 18.07 of the published Zoning Ordinance of Genoa Township, Livingston County, Michigan.

## 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.

Original Prepared by:  
Boss Engineering Company  
3121 E. Grand River  
Howell, Michigan 48843

Revised by:  
Studio [intrigue] Architects  
1114 S. Washington Ave #100  
Lansing, Michigan, 48910

Prepared for:  
Lake Trust Credit Union  
4605 S. Old US Hwy 23  
Brighton, Michigan 48114

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

The proposed Lake Trust Credit Union site is located on 1.36 acres on the North side of Grand River Avenue just east of Aubree's Pizzeria. The north property line also fronts White Horse Drive. The site is open with a few small trees around the perimeter of the property planted at the time of the restaurant construction.

The property is substantially 'flat' in the center with an elevation of 995.30 (USGS Datum) with minimal slopes towards the northwest and southeast. The storm water runoff flowing towards the northwest is detained in the existing detention basin on the Singh – Westbury site. The storm water flowing towards the southeast ends up in the Grand River Avenue ditch. The parcel is part of the Lorentzen PUD.

Existing utilities on-site and abutting the site include a 12" watermain along the south side of Grand River Ave., a 8" watermain along the south side of White Horse Drive, an 8" sanitary sewer along the north side of Grand River Ave., a 24" storm sewer along the east property line, overhead utility lines along the south property line adjacent to Grand River Ave., and a 24" storm sewer along the north side of Grand River Ave.



Grand River Avenue is a five (5) lane roadway under the jurisdiction of the Michigan Department of Transportation (M.D.O.T.) with a curb, gutter, and a center left turn lane.



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

As previously mentioned, the subject site slopes gradually from the center towards the northwest and the southeast from elevation 995.30. The geotechnical report from Wolverine Engineers and Surveyors, Inc. dated February 7, 2017 indicates the soils to be as follows:

Percent of Site	Name	Percent Slopes
100%	Sandy clay with 6"-10" topsoil	2-6%

The site contains no streams, creeks, ponds, or wetlands per the National Wetland Inventory Plan prepared by the United States Department of the Interior, and site visit.

Except for a few small trees around the perimeter of the property, the subject parcel is an open manicured lawn.

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

Storm runoff from approximately 1/3 of the subject site is currently detained in the existing detention basin on the Singh – Westbury property, the other 2/3 of the site sheet flows to the MDOT R.O.W.. The existing detention basin is designed to be a “dry detention basin” meaning that the pond will hold storm water for a short period of time following a rainfall. As part of the new construction, a second detention basin will be added at the north end of the property. This detention has been sized to detain for the entire parcel (1.36 acres). There is a proposed forebay with a rip rap filter that provides treatment before discharge. There is also a controlled outlet structure within the proposed basin that will allow 0.27 cfs to the existing stormwater facility. The outlet will be covered with stone/gravel to act as a secondary filter prior to storm water discharge. A small sediment area has been provided below the outlet elevation to help capture sediment.

The Livingston County Drain Commissioner must issue a Soil Erosion Control permit to ensure soil erosion control measures are used during construction. All requirements will be met including temporary drainage control, temporary dust control and runoff control. The following methods will be used as required: diversion berms, geotextile sediment control fences, diversion ditching, slope stabilization. Stone filters will be installed on catch basins, inlets, and pipe inlets. Finish grades, redistribution of top soil and lawn with shrubbery will be installed upon building and paving construction completion. Pavements, swales, basins, etc. will be cleaned after construction and properly maintained by Lake Trust Credit Union.

At the time of construction, there may be some temporary dust, noise, vibration and smoke, but these conditions will be of relatively short duration and shall be controlled by applying appropriate procedures to minimize the effects, such as watering if necessary for dust control and working near adjacent buildings only during daytime hours.

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

The applicant is proposing to construct a 2,360 S.F. building to be used by the credit union. The building will be one (1) story and will have a three (3) lane drive-thru attached to the north side of the building. An ATM location will be integrated within the third drive-thru lane (furthest from building).

Nuisances such as fumes, vibration and smoke will not be associated with the proposed credit union and will therefore have no impact on the surrounding land uses.

All lighting, in parking areas and at the building will be directional and aimed in such a manner as to eliminate glare and contain light within the site.

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

The development will be served by public water and sewer systems adjacent to the site. Because the use is a credit union, a majority of patrons will be on the site for a very brief period of time. Therefore, the impact on the general services will minimal.

- 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.

The site is located within the Genoa-Oceola Sanitary Sewer District. The applicant will work with the Township staff to determine the number of Residential Equivalent Units (R.E.U.) for the proposed use. The parcel is also within the water district along Grand River Avenue. Because of the type of use, little impact is anticipated with regards to public utilities.

As described above the storm sewer system will be designed to filter runoff. Storm water will be released at an agricultural runoff rate to the appropriate natural/designed storm water systems.

All other utilities, including gas, electric, and telephone are available at the site and are not expected to increase in size or capacity. All proposed dry utilities will be underground.

- 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.

The proposed development will have no hazardous materials used or disposed of on this site.

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

Based on the Institute of Transportation Engineers Publication TRIP GENERATION manual for a three (3) lane drive-thru bank, the number of trips at peak hours are as follows:

AM Peak Hour

Total = 28 vehicles  
Enter = 17 vehicles  
Exit = 11 vehicles

PM Peak Hour

Total = 100 vehicles  
Enter = 49 vehicles  
Exit = 51 vehicles

Please note that this parcel is less than ten (10) acres.

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

None.

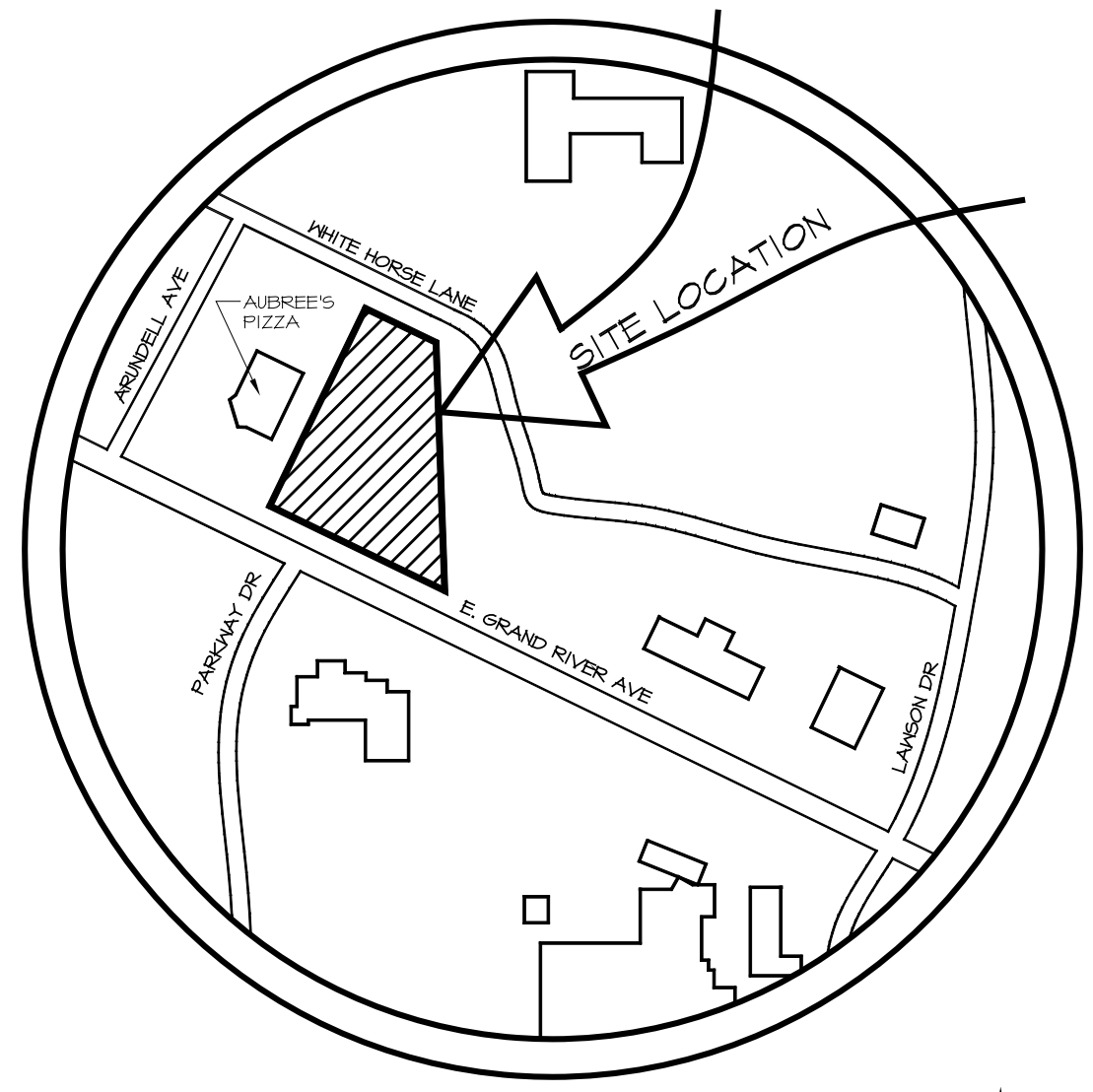
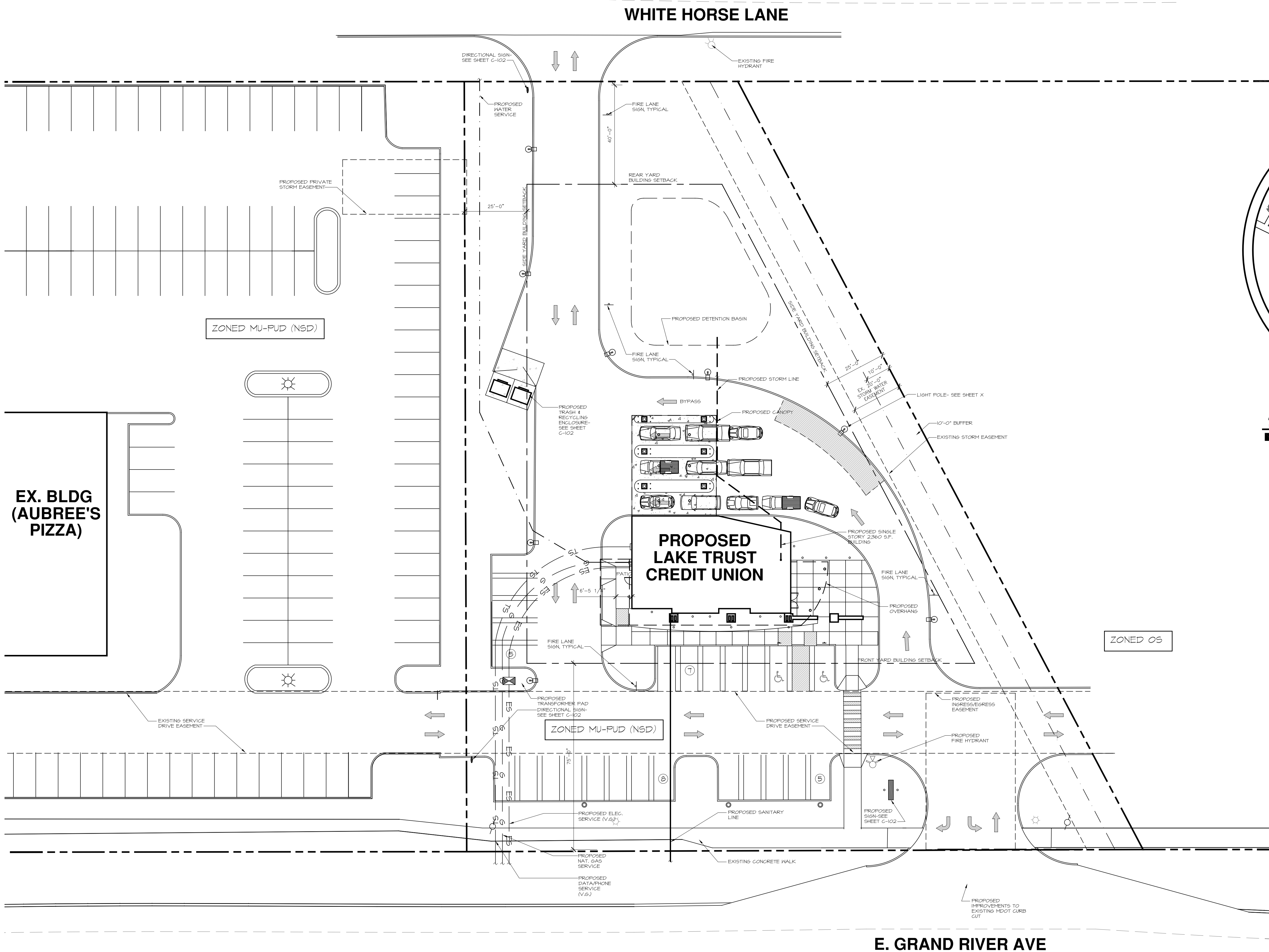
- k. **A list of all sources shall be provided.**

- Genoa Township's Submittal Requirement for Impact Assessment/Impact Statement
- Genoa Township Zoning Ordinances
- Trip Generation 6<sup>th</sup> Edition, Institute of Transportation Engineers
- Geotechnical Survey – Proposed Lake Trust Credit Union, Genoa Twp., Livingston Co., MI 17-0013 by Wolverine Engineers and Surveyors, Inc. dated February 7, 2017

Previously submitted environment assessments

- T.W. & Friends Site Impact Assessment
- Impact Assessment for "NuUnion Credit Union"





**SITE LOCATION MAP**  
N.T.S.

SITE DATA	
AREA:	1.85 ACRES
ZONING:	MU-PUD (NSD) - SEE DEVELOPMENT AGREEMENT FROM 1996.
PARKING -	REQ'D: 01 SPACE PER 200 S.F. GROSS PLUS 02 SPACES PER ATM  2,360 S.F./200 S.F. + (02 ATMS)  14 SPACES  PROVIDED: 25 SPACES
BUILDING COVERAGE -	ALLOWED; NOT LISTED IN DEVELOPMENT AGREEMENT
LOT COVERAGE (IMPERVIOUS) -	ALLOWED; NOT LISTED IN DEVELOPMENT AGREEMENT
	03.6% PROPOSED 59.6% PROPOSED

**GRAPHIC SITE PLAN**  
1" = 20'-0"

PRELIMINARY BUILDING REDUCTION REVISIONS	12/13/16
SITE PLAN REVIEW	02/06/17
SITE PLAN REVIEW REVISIONS	02/10/17
SITE PLAN REVIEW REVISIONS	02/27/17
SITE PLAN REVIEW REVISIONS	03/21/17
SITE PLAN REVIEW REVISIONS	04/12/17

12/13/16	02/06/17	02/10/17	02/27/17	03/21/17	04/12/17
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**studio [intrigue] ARCHITECTS**  
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Project Type  
**FINANCIAL INSTITUTION**

**LAKE TRUST CREDIT UNION**  
NEW GENDA TOWNSHIP BRANCH  
EAST GRAND RIVER AVE.  
GENDA TWP, MI 48834

**LAKE TRUST CREDIT UNION**  
4605 S. OLD US HWY 23  
BRIGHTON, MI 48114

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Project Number  
**16.126**

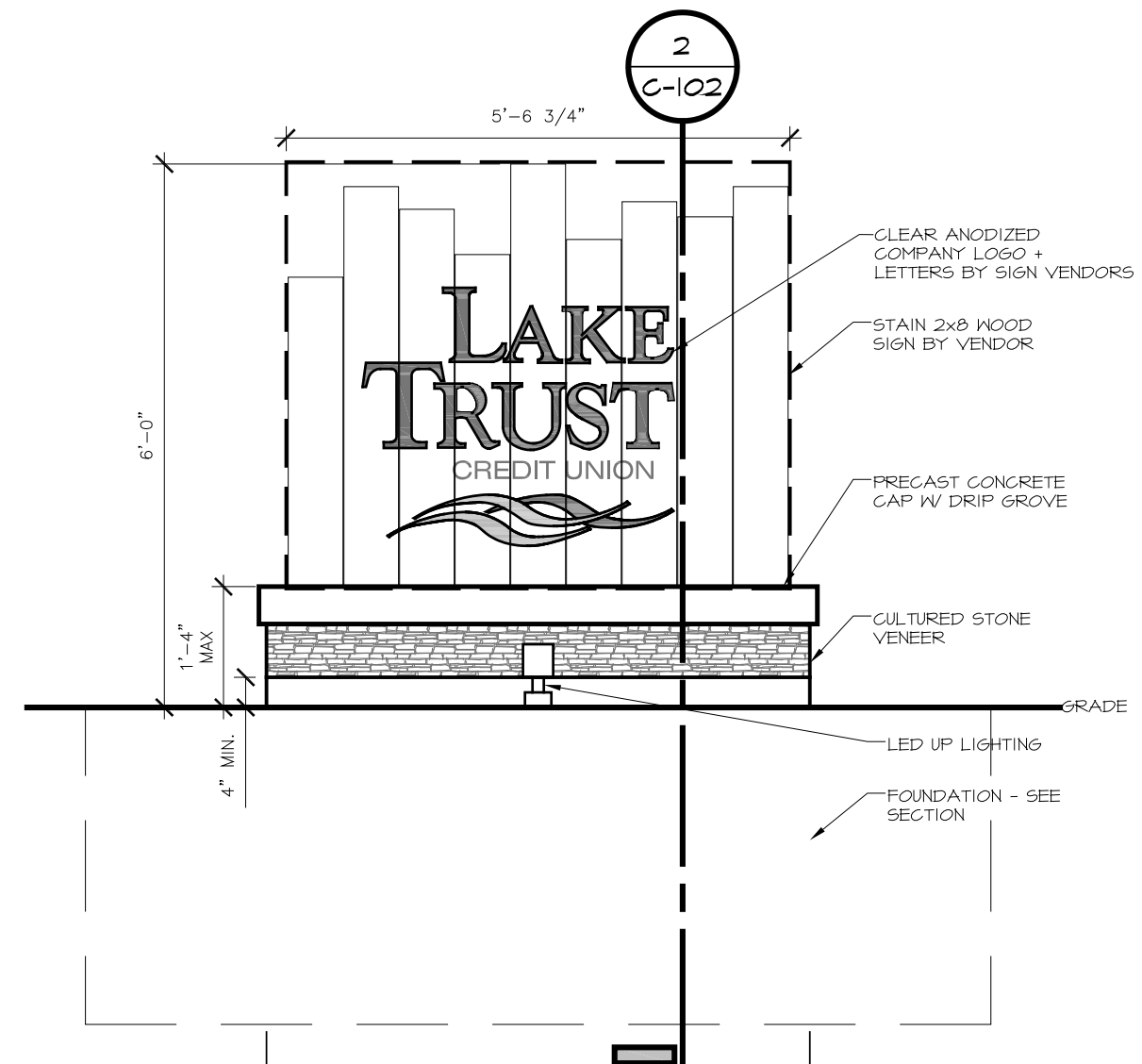
Sheet  
**C-101**



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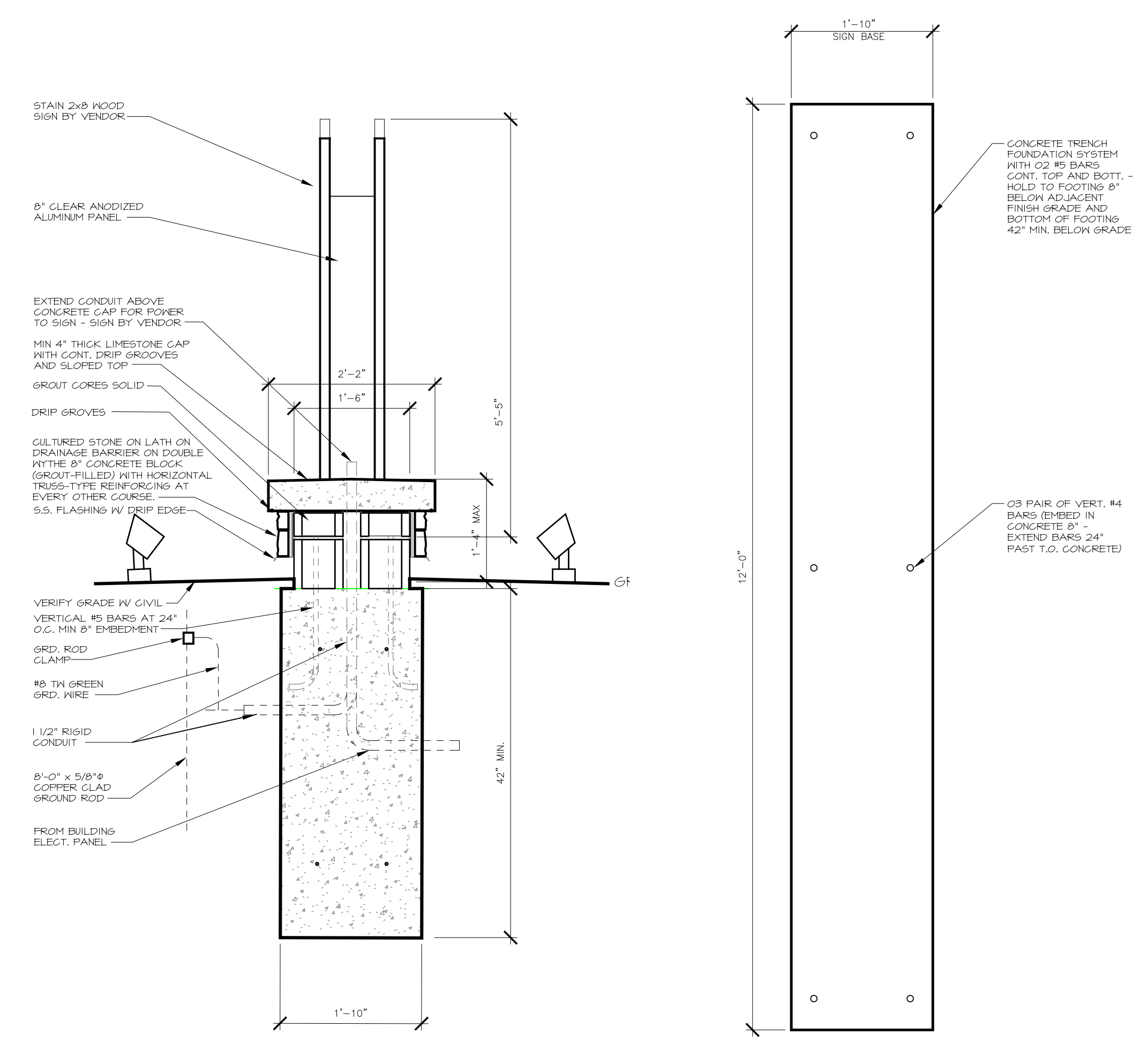


GROUND SIGNAGE	
GROUND SIGN:	
AREA ALLOWED:	60 SQ. FT.
HEIGHT ALLOWED:	6'-0" MAX.
PROPOSED:	
AREA PROPOSED:	26 SQ. FT.
HEIGHT PROPOSED:	6'-0"
TOTAL GROUND SIGNAGE	42 SQ. FT. < 60 SQ. FT. (OK)
NOTE: ANY DIRECTIONAL SIGNAGE WILL COUNT TOWARDS TOTAL GROUND / MONUMENTAL SIGNAGE SQUARE FOOTAGE.	



**SIGN ELEVATION**  
1/4" = 1'-0"

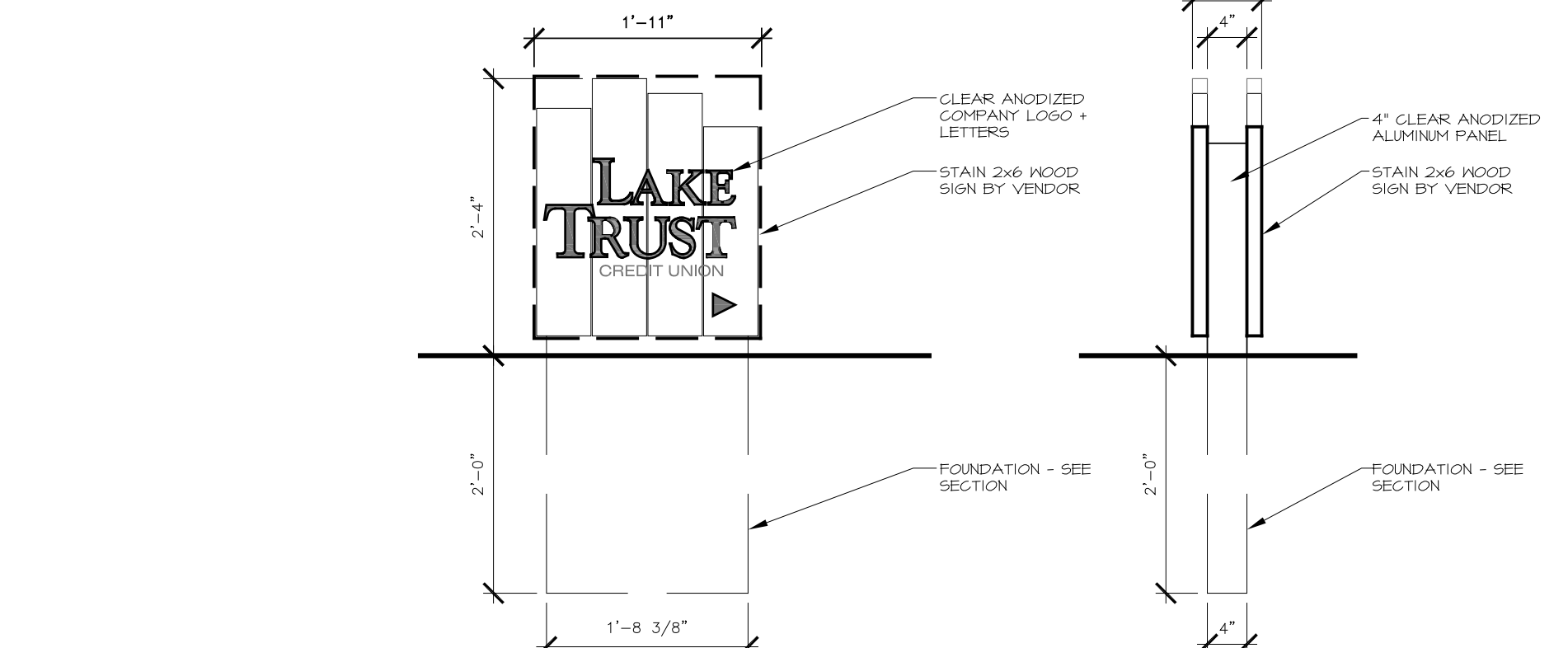
DIRECTIONAL SIGNAGE	
DIRECTIONAL SIGNS:	
AREA ALLOWED:	4 SQ. FT.
HEIGHT ALLOWED:	3'-0" MAX.
PROPOSED:	
AREA PROPOSED:	4 SQ. FT.
HEIGHT PROPOSED:	2'-4"
TOTAL GROUND SIGNAGE	4 SQ. FT. = 4 SQ. FT. (OK)
NOTE: ANY DIRECTIONAL SIGNAGE WILL COUNT TOWARDS TOTAL GROUND / MONUMENTAL SIGNAGE SQUARE FOOTAGE.	



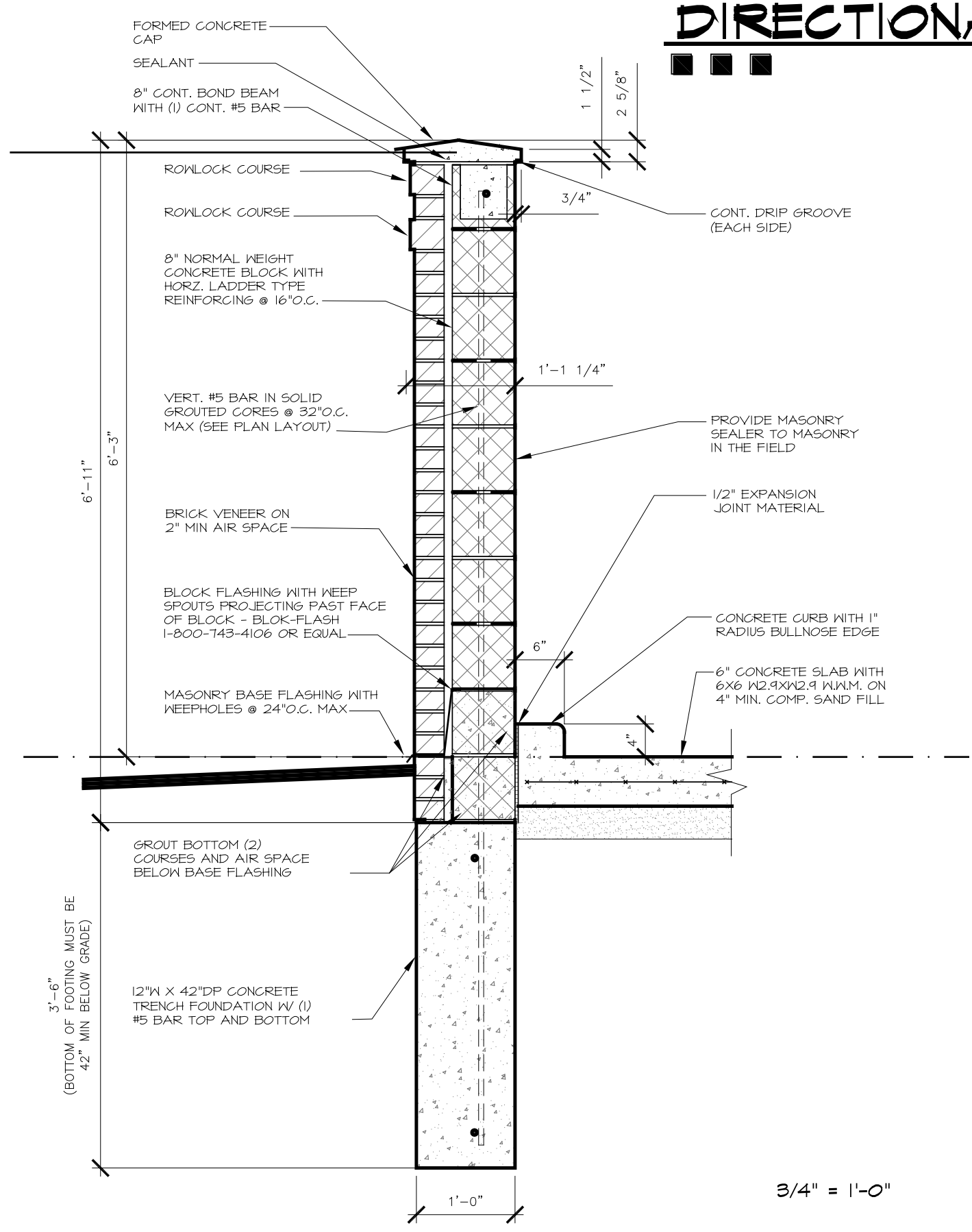
**SIGN BASE DETAIL**  
3/4" = 1'-0"



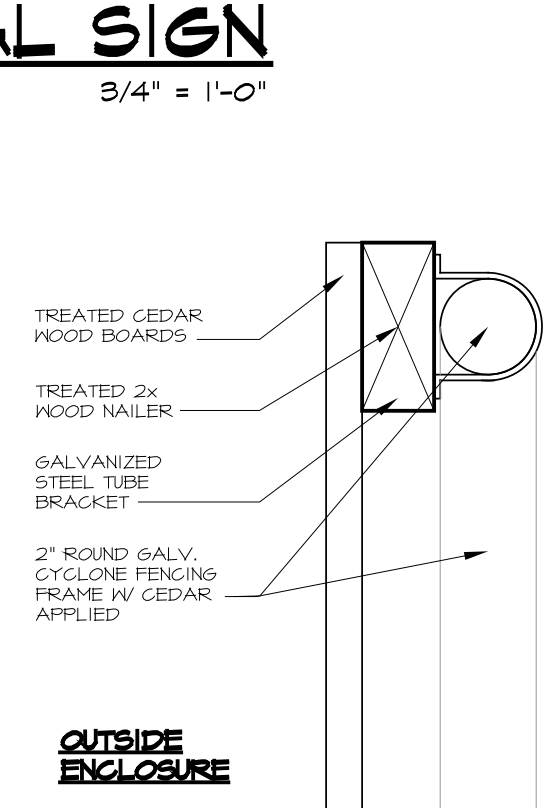
**SIGN FOUNDATION PLAN**  
3/4" = 1'-0"



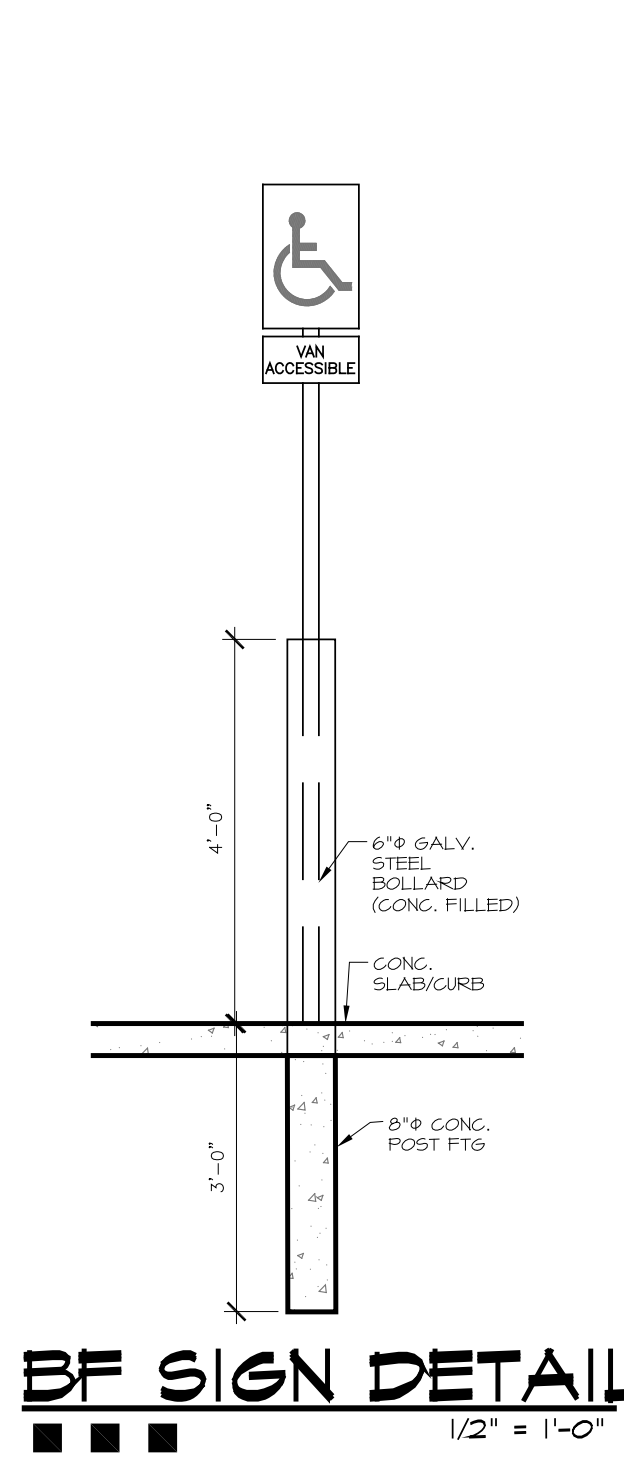
**DIRECTIONAL SIGN**  
3/4" = 1'-0"



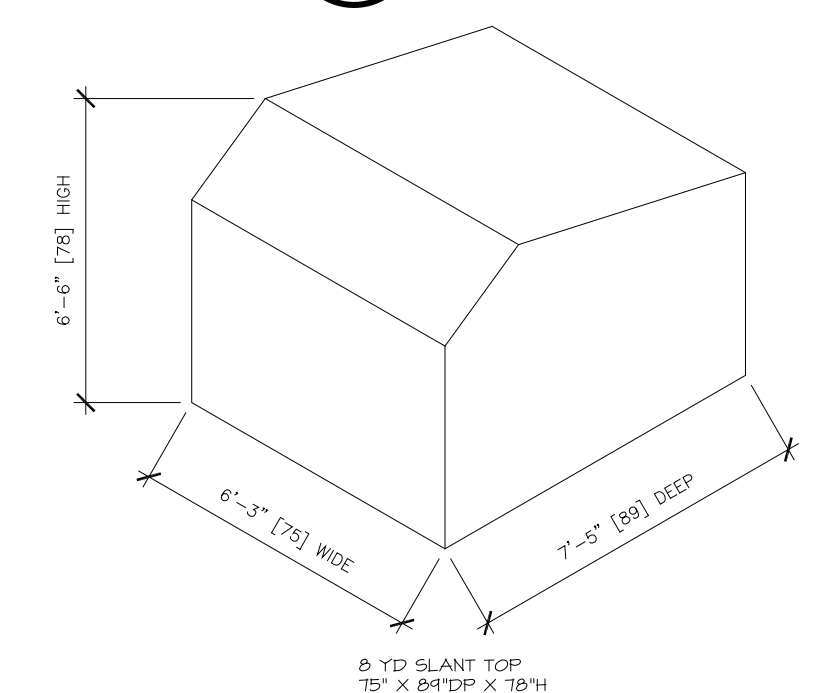
**TYPICAL WALL SECTION**  
3/4" = 1'-0"



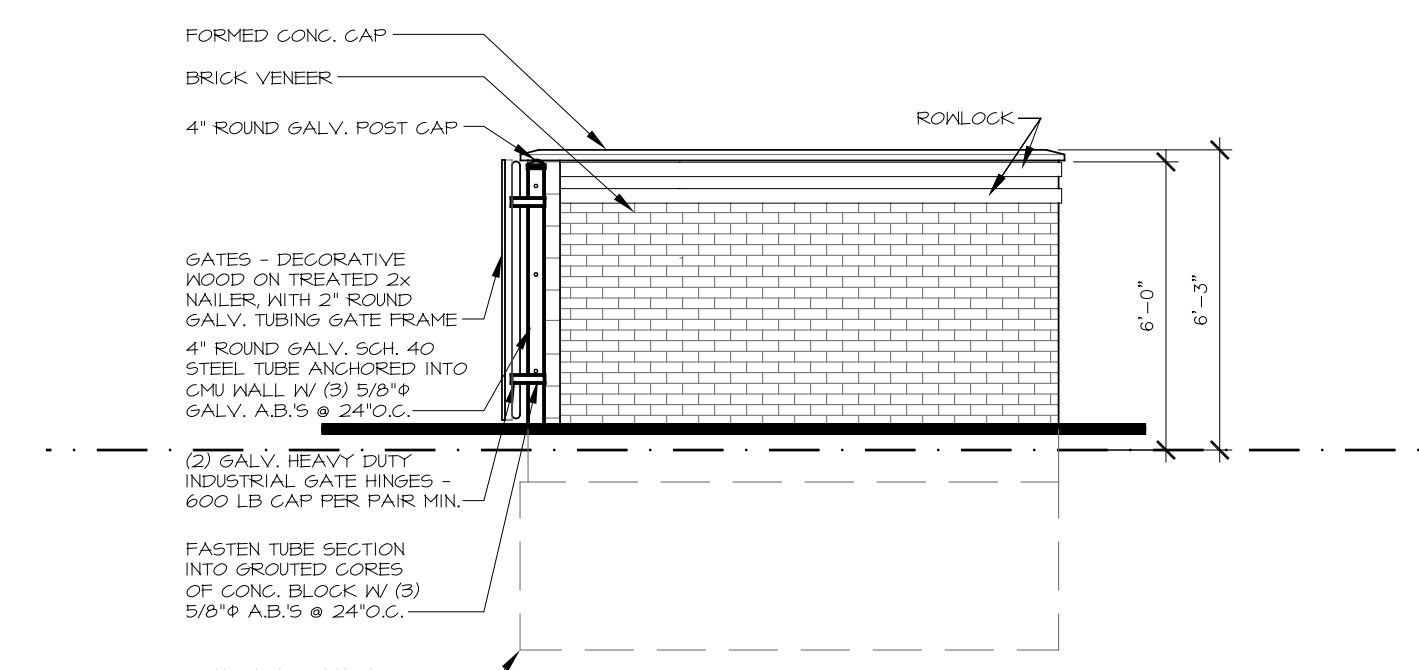
**DETAIL**  
3" = 1'-0"



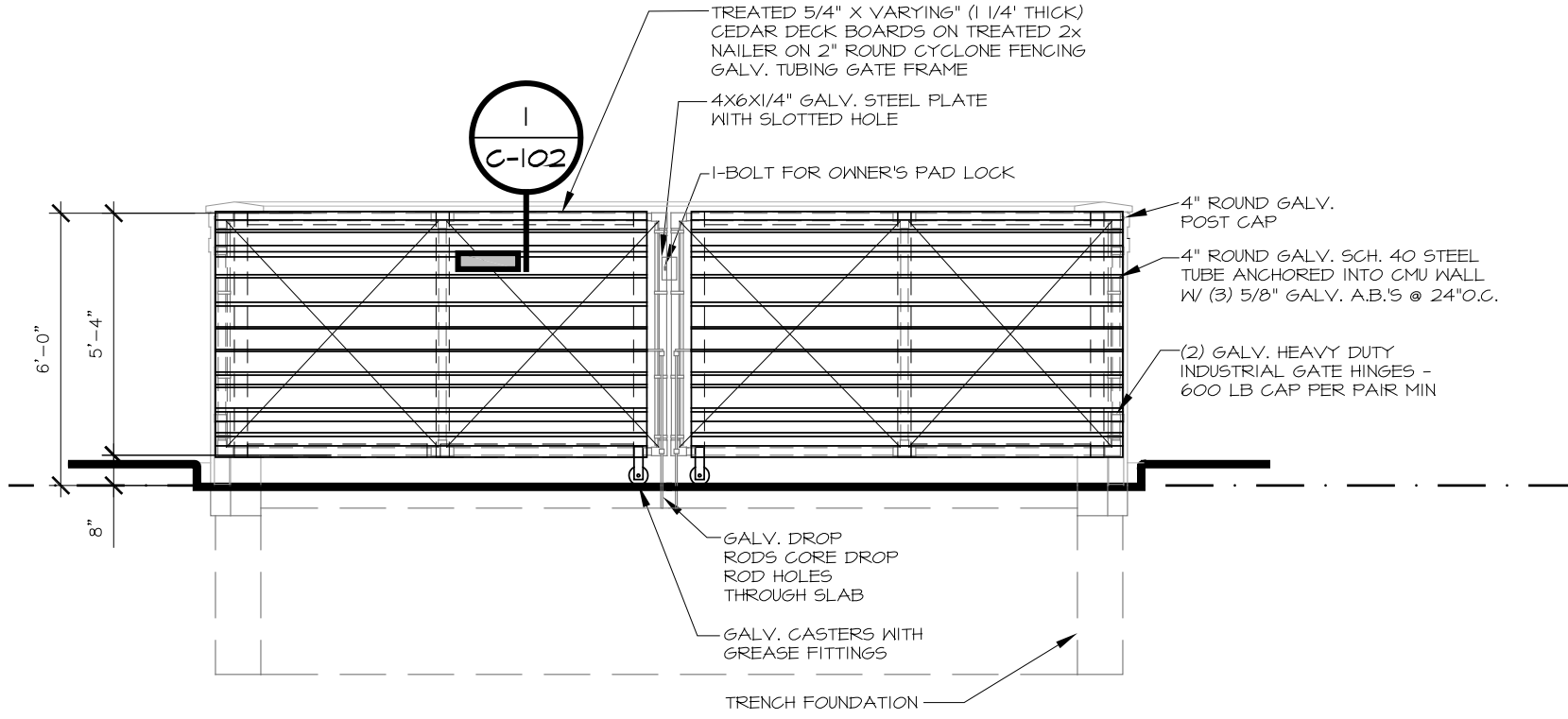
**BF SIGN DETAIL**  
1/2" = 1'-0"



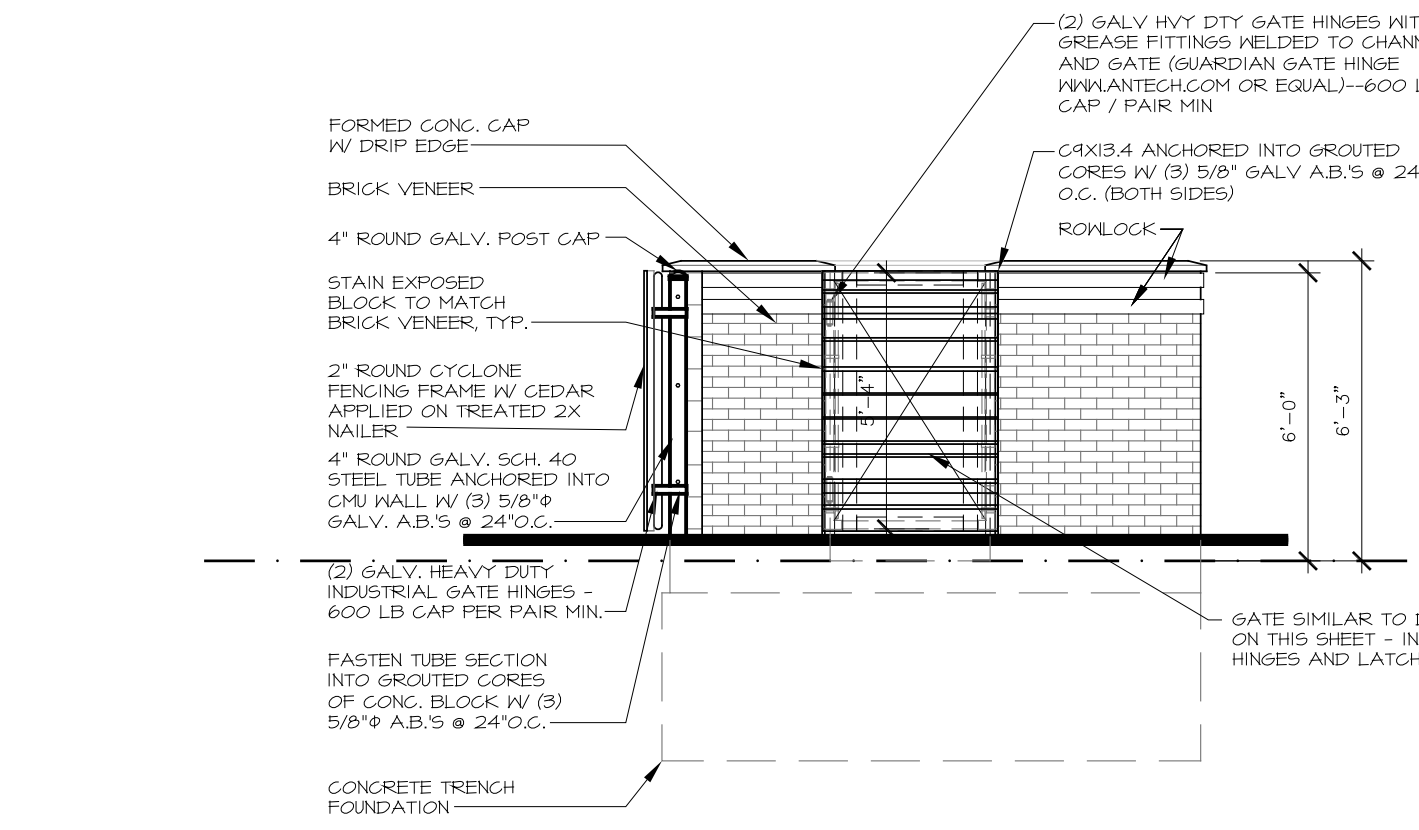
**TRASH CONTAINER SIZE**  
NOT TO SCALE



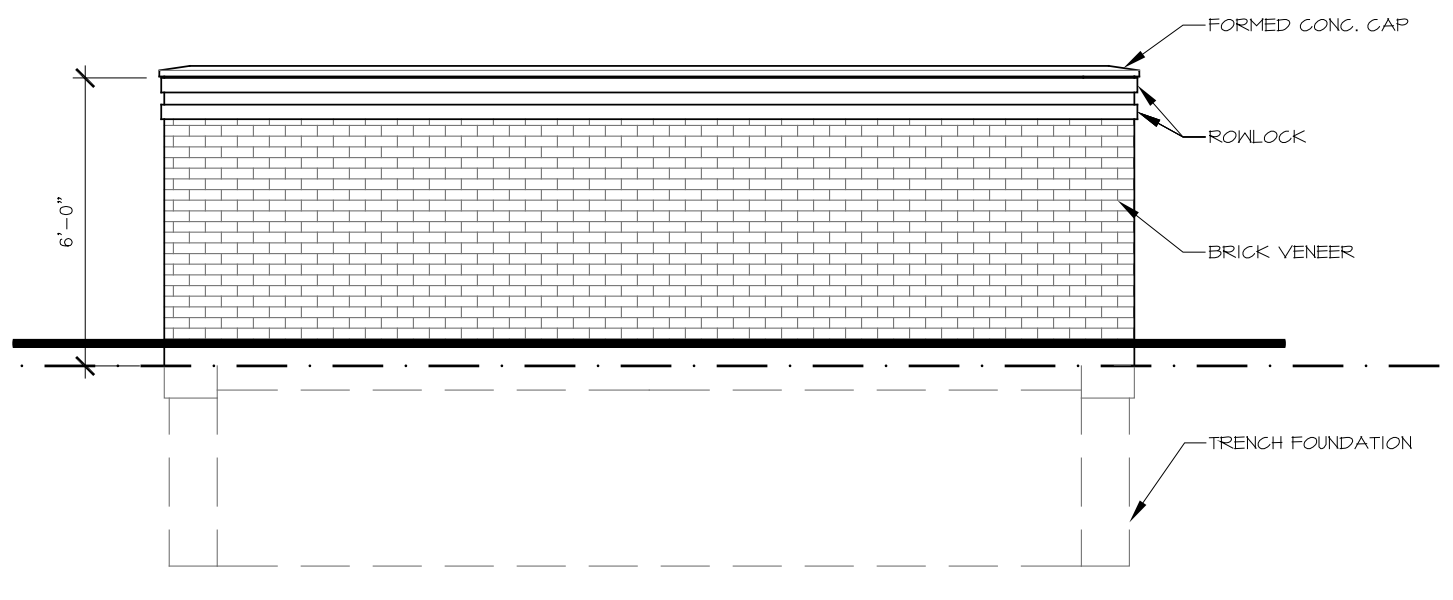
**SOUTH ELEVATION**  
1/4" = 1'-0"



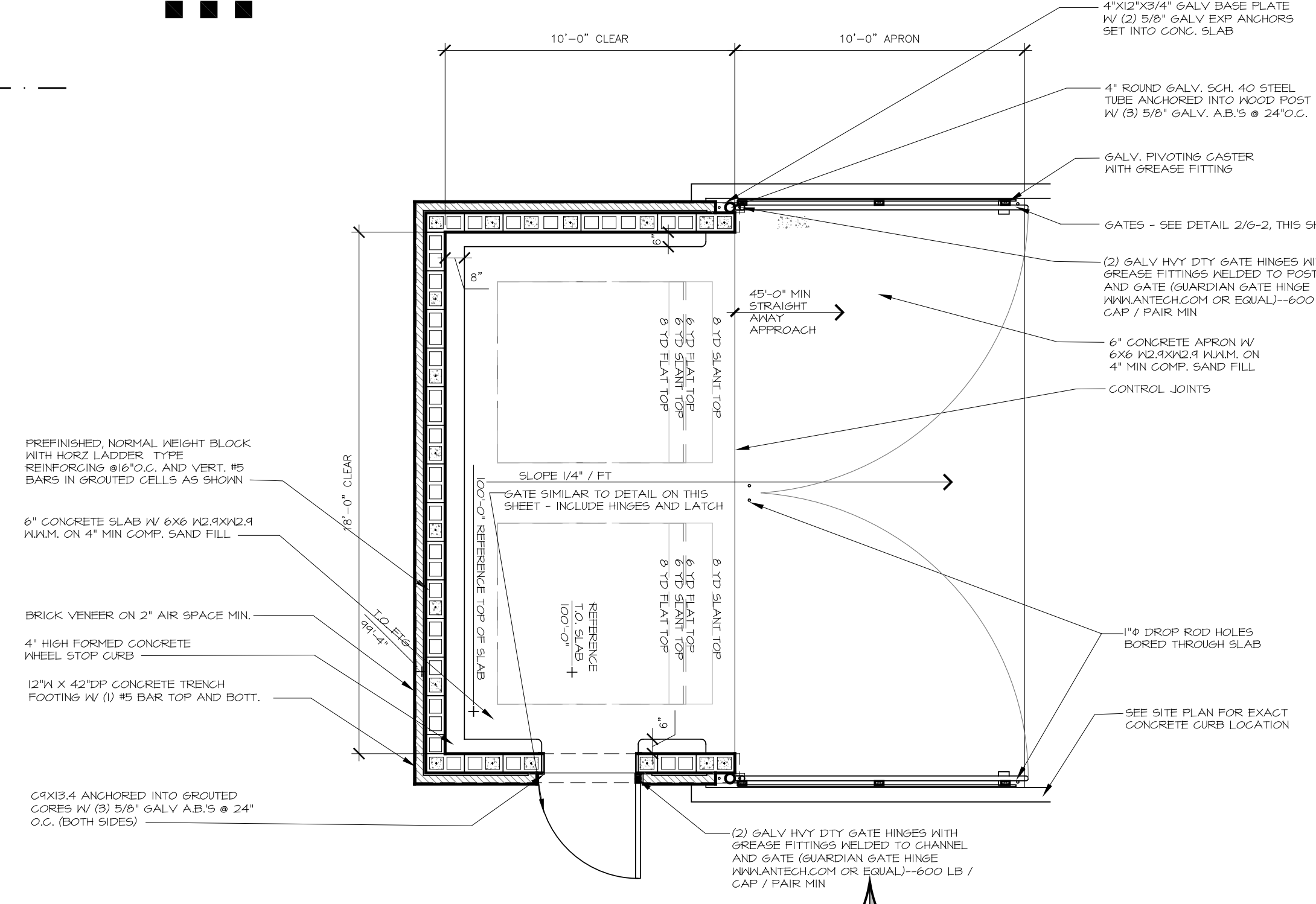
**WEST ELEVATION**  
1/4" = 1'-0"



**NORTH ELEVATION**  
1/4" = 1'-0"



**EAST ELEVATION**  
1/4" = 1'-0"



**FLOOR PLAN**  
1/4" = 1'-0"

- TRASH ENCLOSURE NOTES:**
1. CEDAR TO BE NATURAL TONE COLOR. APPLY BEHR PREMIUM EXTERIOR TRANSPARENT WATERPROOFING STAIN.
  2. ALL ITEMS CALLED OUT TO BE PAINTED SHALL BE PAINTED BLACK UNLESS NOTED OTHERWISE.
  3. DUMPSTER SIZE BASED ON UNITS USED BY GRANGER CONTAINER (LANSING, MICHIGAN 517-312-2800). 06/16
  4. VERIFY SIZES OF LOCAL CONTAINERS AVAILABLE PRIOR TO CONSTRUCTION OF TRASH ENCLOSURE.

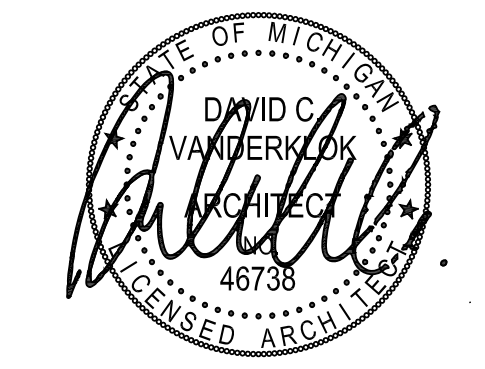
**NOTE:**  
ENSURE THAT ALL SUBTRADES RECEIVE A COPY OF THE TRASH ENCLOSURE DETAIL SHEET. NO ADDITIONAL PAYMENT WILL BE CONSIDERED BY THE OWNER FOR FAILURE TO INCLUDE THE TRASH ENCLOSURE IN THE BASE BID.

- NOTES:**
1. DIMENSIONAL REQUIREMENTS ARE BASED ON MINIMUM REQUIREMENTS AS REQUIRED BY GRANGER CONTAINER SERVICE, INC (LANSING, MICHIGAN). 06/16.
  2. VERIFY LOCAL, MINIMUM REQUIREMENTS WITH OWNER'S CONTAINER SUPPLIER.
  3. SOIL BEARING CAPACITY BASED ON A BEARING CAPACITY OF 3000 PSF.
  4. ALL FOUNDATIONS SHALL BE 3000 PSI.
  5. ALL TRASH ENCLOSURE SLABS, WHEEL STOP CURBS AND APRONS SHALL BE 4000 PSI AIR-ENTRAINED CONCRETE (THICKNESS AND REINFORCEMENT AS NOTED ON THE DRAWINGS).

PRELIMINARY BUILDING REDUCTION REVISIONS	
12/13/16	
02/06/17	
02/10/17	
02/27/17	
03/21/17	
4/5/2017	

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Project Type: **FINANCIAL INSTITUTION**

Project: **LAKE TRUST CREDIT UNION NEW GENDA TOWNSHIP BRANCH**  
EAST GRAND RIVER AVE. GENDA TWP. MI 48834

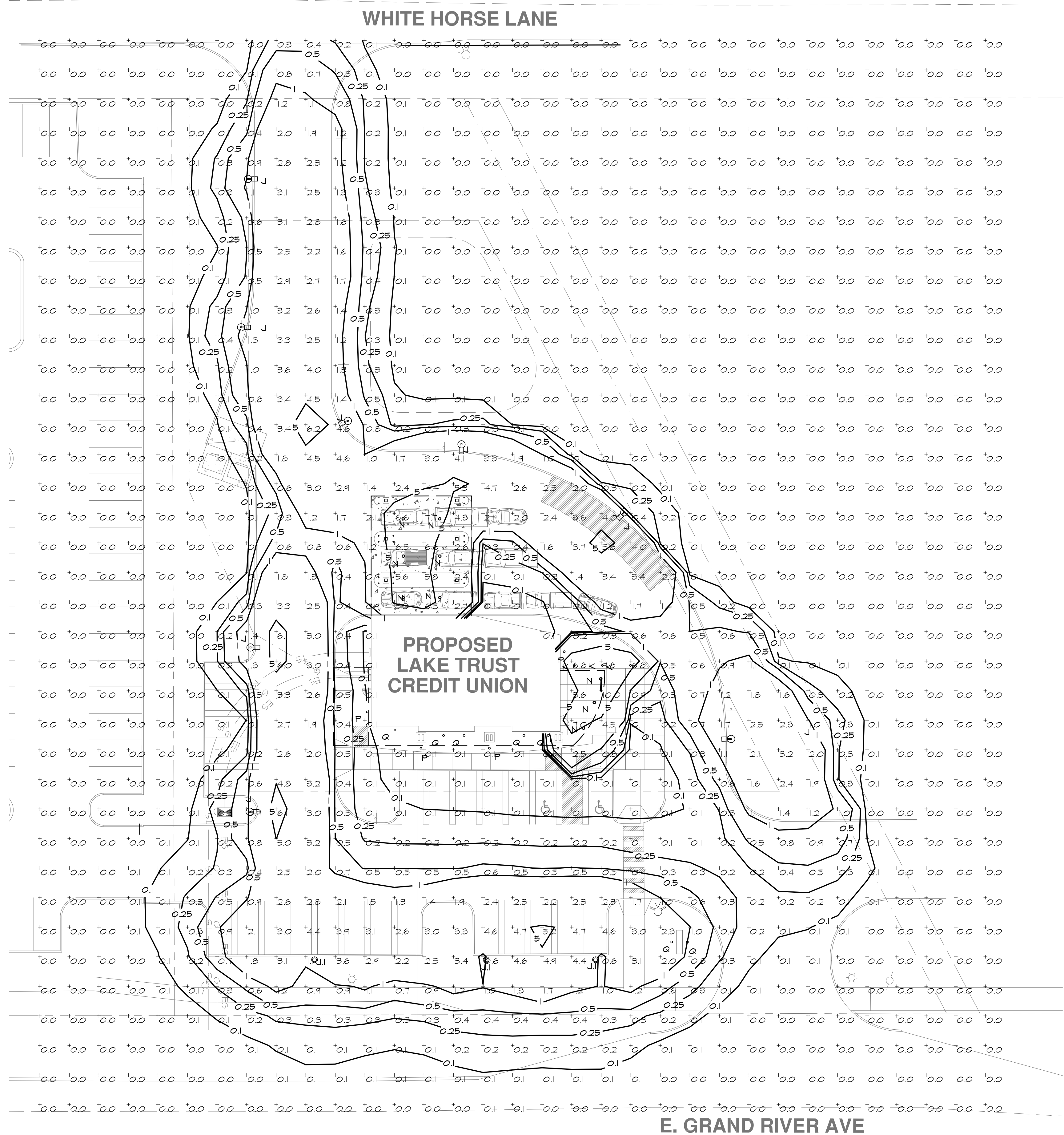
Client: **LAKE TRUST CREDIT UNION**  
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Project Number: **16.126**

Sheet: **C-102**

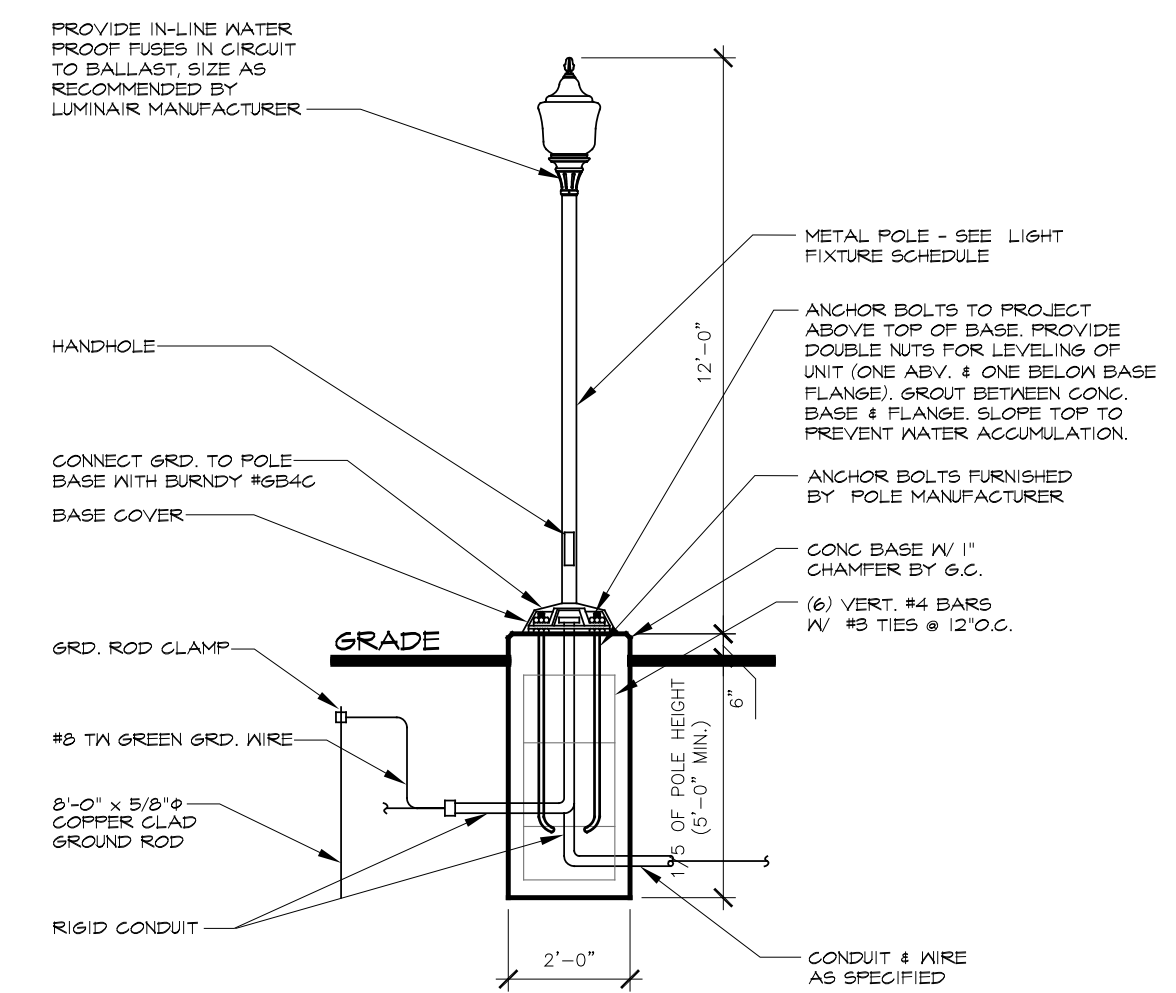




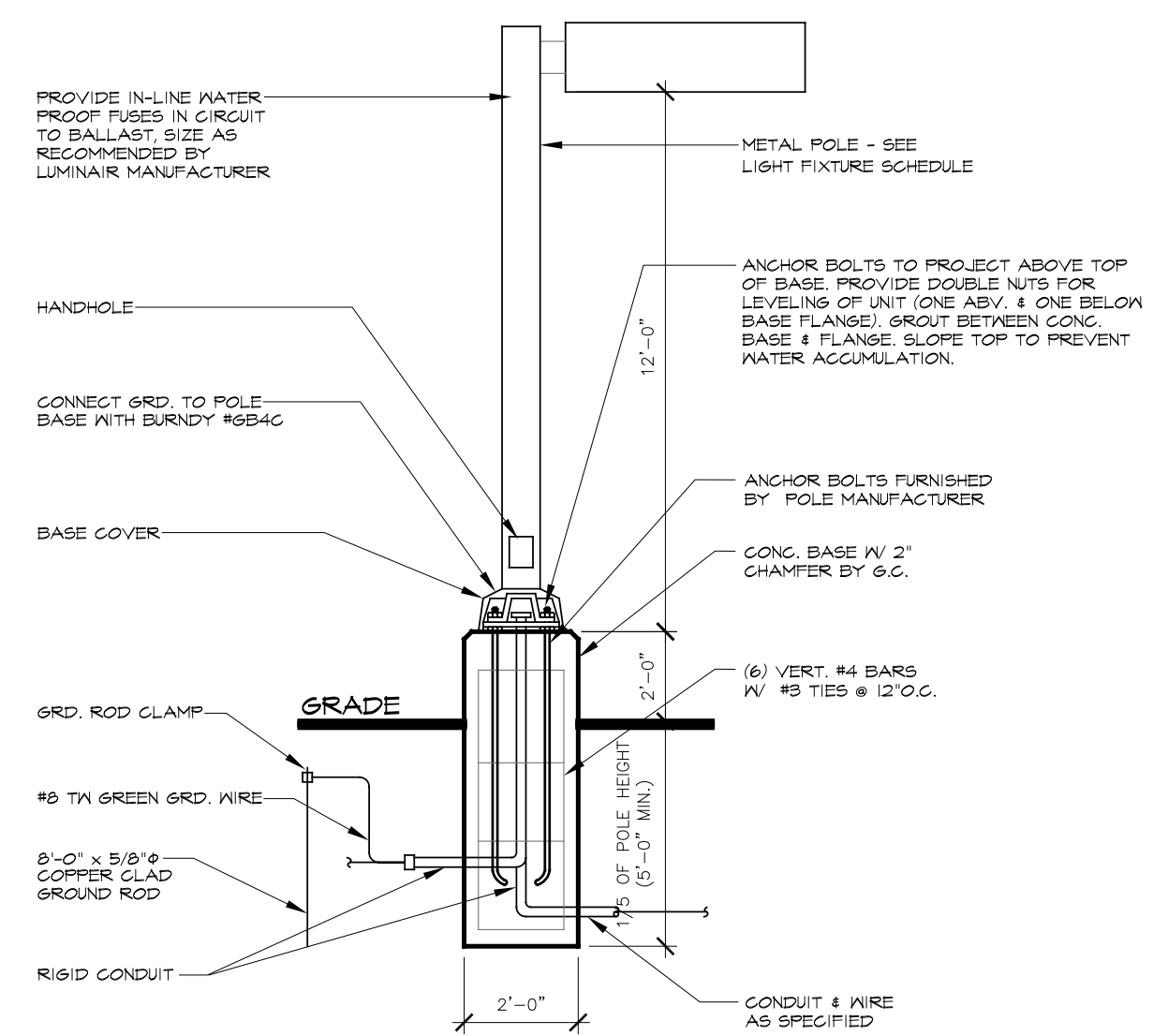
**SITE PHOTOMETRIC PLAN**  
 1" = 20'-0"

EXTERIOR LIGHT FIXTURE SCHEDULE				
MARK	MANUFACTURER	MODEL NUMBER	LAMPS	REMARKS
J	LITHONIA	D5XO LED 400 400 30K T3M MVOLT HS	LED	ONE HEAD PER POLE - 14 FOOT POLE W/ PHOTOMETRIC SENSOR / TIMER
J.I	STERNBERG LIGHTING	D650-XRLED-12L-30T3-MDL21	LED	ONE HEAD PER POLE - 8 FOOT POLE W/ PHOTOMETRIC SENSOR / TIMER
K	LITHONIA	KBC8 LED 12G 350 30K 3YM MVOLT DM6 DBLXD	34W LED	BOLLARD W/ PHOTOMETRIC SENSOR / TIMER
N	LITHONIA	LDN6 30/10 L06 WR 120	18W 3000K LED	6" RECESSED CAN LIGHT FIXTURE W/ PHOTOMETRIC SENSOR / TIMER
P	HYDREL	PDX10 B 22 LED WHT30K 120 SP FLC 34S LPI	22W 3000K LED	EXTERIOR IN-GRADE SPOT LIGHT W/ PHOTOMETRIC SENSOR / TIMER
Q	LITHONIA	OLBF 8 30K DDB	10.5W 3000K LED	EXTERIOR SPOT LIGHT W/ PHOTOMETRIC SENSOR / TIMER

SITE LIGHTING STATISTICS				
DESCRIPTION	SYMBOL	AVERAGE FOOTCANDLE	MAXIMUM FOOTCANDLE	MINIMUM FOOTCANDLE
CALCULATION ZONE	+	0.5 FC	10.0 FC	0.0 FC



**LIGHT POLE AND BASE**  
**@ LIGHT FIXTURE J.I.**  
 1/4" = 1'-0"



**LIGHT POLE AND BASE**  
**@ LIGHT FIXTURE J**  
 1/4" = 1'-0"

PRELIMINARY	12/13/16
BUILDING REDUCTION	02/09/17
REVISIONS	02/10/17
SITE PLAN REVIEW	02/27/17
SITE PLAN REVIEW REVISIONS	03/21/17
SITE PLAN REVIEW REVISIONS	04/12/17

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Project  
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 GENDA TWP., MI 48834

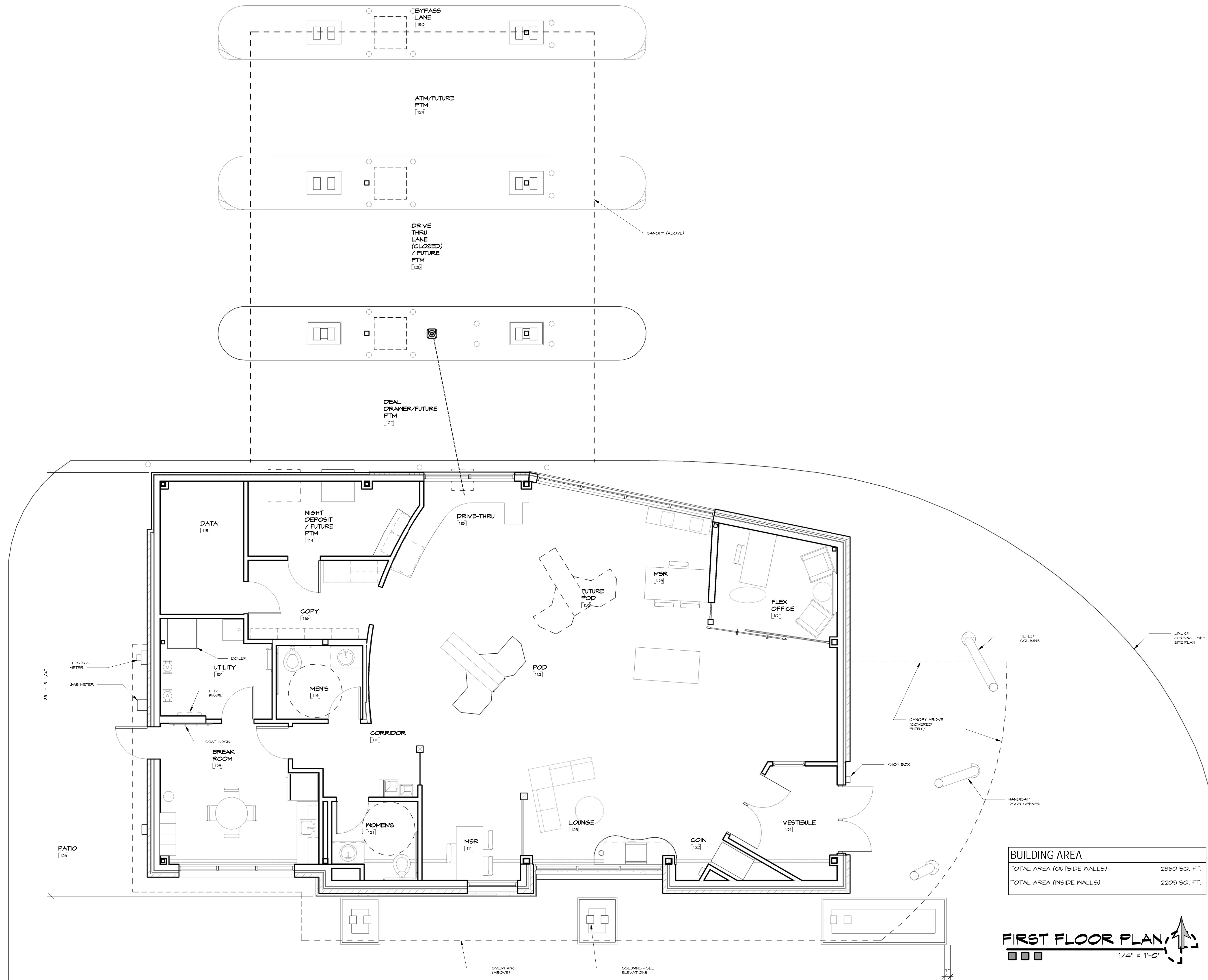
Client  
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Sheet  
**C-103**



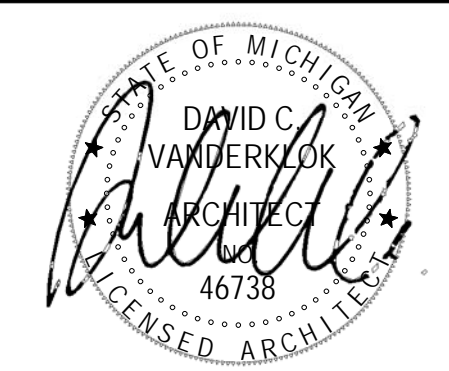


BUILDING AREA	
TOTAL AREA (OUTSIDE WALLS)	2360 SQ. FT.
TOTAL AREA (INSIDE WALLS)	2209 SQ. FT.

**FIRST FLOOR PLAN**  
 1/4" = 1'-0"

Revision Date	Revision Description
02/27/17	SITE PLAN REVIEW
03/21/17	SITE PLAN REVIEW REV.

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Project Type  
 NEW CONSTRUCTION

Project  
**LAKE TRUST CREDIT UNION**  
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 GENOA TWP, MI 48843

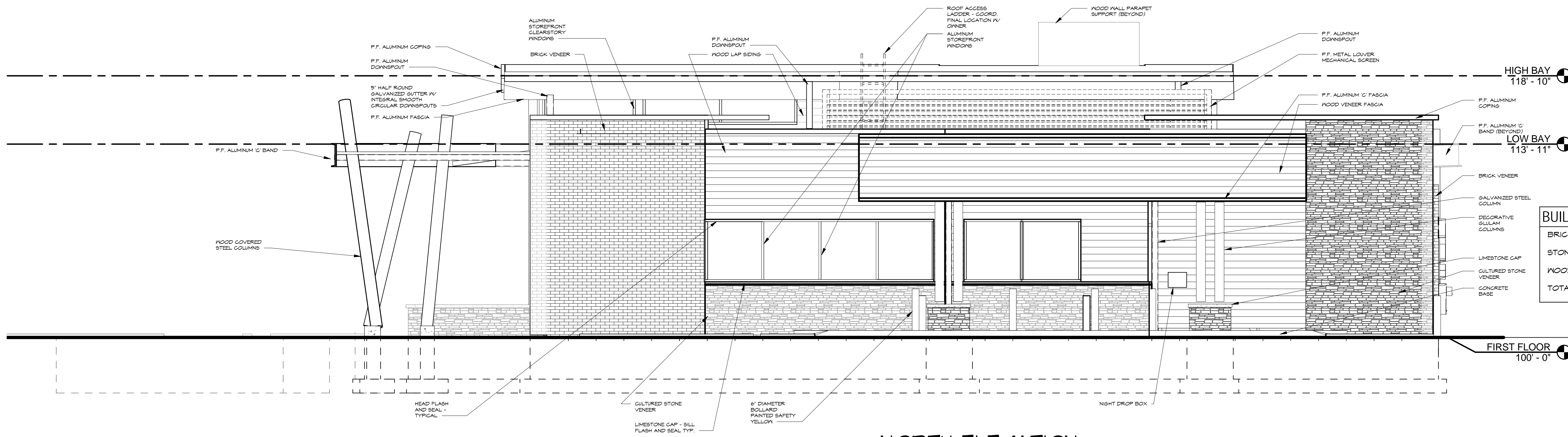
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 16.126

Sheet  
**A-101**





**NORTH ELEVATION**  
 1/4" = 1'-0"

**BUILDING MATERIALS (NORTH)**

BRICK	197 S.F.	23%
STONE	355 S.F.	41%
WOOD	312 S.F.	36%
<b>TOTAL</b>	<b>864 S.F.</b>	

**BUILDING SIGNAGE**

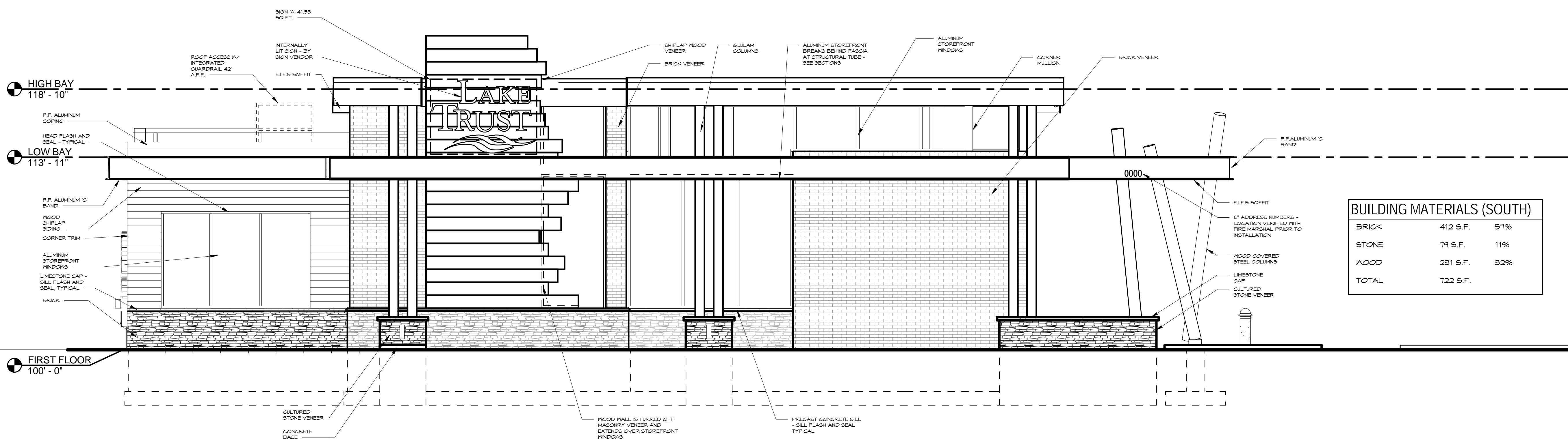
WALL SIGNS SHALL NOT EXCEED 10% OF THE FACADE AREA, WHERE THE SIGN IS TO BE LOCATED OR 100 SQ. FT. PER USE - WHICHEVER IS LESS.

TOTAL ALLOWED PER ORDINANCE:

TOTAL ALLOWED ON SOUTH ELEVATION 100 SQ. FT.  
 TOTAL ALLOWED ON WEST ELEVATION 69 SQ. FT.

PROPOSED BUILDING SIGN

SIGN 'A'	42 SQ. FT.
SIGN 'B'	33 SQ. FT.
<b>TOTAL WALL SIGN</b>	<b>75 SQ. FT. &lt; 100 SQ. FT. ALLOWED (OK)</b>



**SOUTH ELEVATION**  
 1/4" = 1'-0"

**BUILDING MATERIALS (SOUTH)**

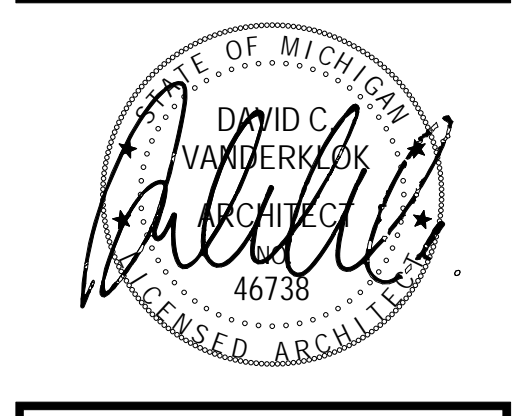
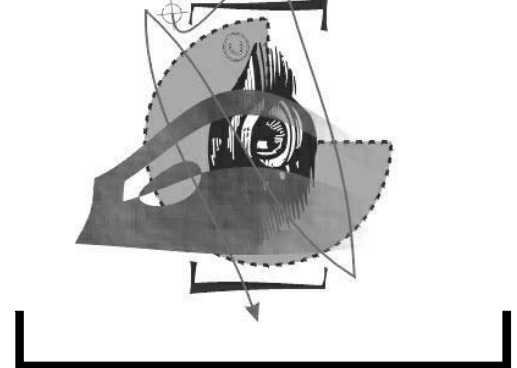
BRICK	412 S.F.	57%
STONE	79 S.F.	11%
WOOD	231 S.F.	32%
<b>TOTAL</b>	<b>722 S.F.</b>	

Revision Description	
02/27/17	SITE PLAN REVIEW

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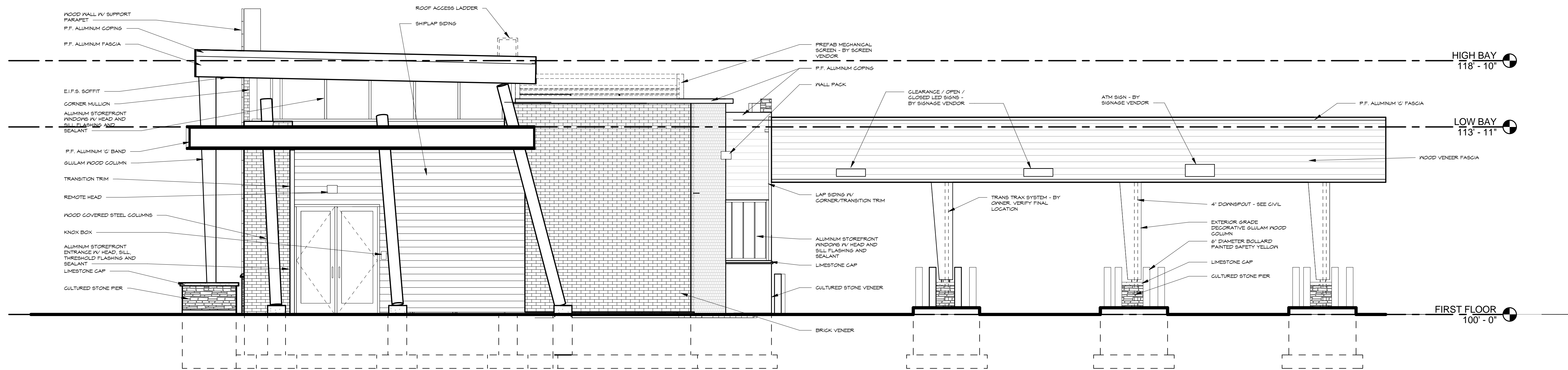
Project Type  
**NEW CONSTRUCTION**

Client  
**LAKE TRUST CREDIT UNION**  
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 GENOA TWP, MI 48843

Project Number  
**16.126**

Sheet  
**A-301**

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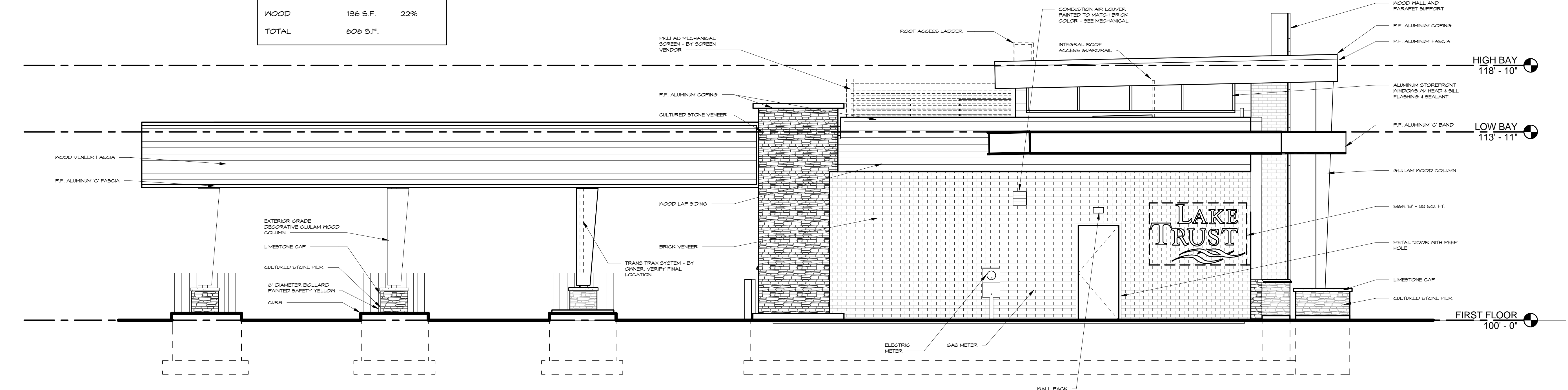


**EAST ELEVATION**

1/4" = 1'-0"

BUILDING MATERIALS (EAST)		
BRICK	222 S.F.	50%
WOOD	222 S.F.	50%
TOTAL	444 S.F.	

BUILDING MATERIALS (WEST)		
BRICK	382 S.F.	63%
STONE	88 S.F.	15%
WOOD	136 S.F.	22%
TOTAL	606 S.F.	



**WEST ELEVATION**

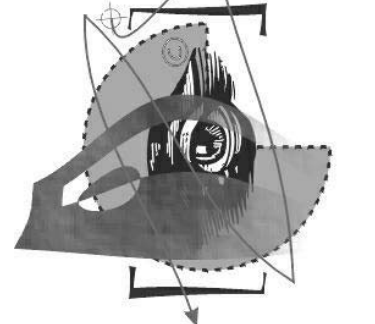
1/4" = 1'-0"

Revision Date	Revision Description
02/27/17	SITE PLAN REVIEW
04/11/17	SITE PLAN REVIEW REV.

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Project Type  
**NEW CONSTRUCTION**

Project  
**LAKE TRUST CREDIT UNION**

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**A-302**



# PLANT SCHEDULE

Shade Trees	Key	Qty.	Botanical Name	Common Name	Size	Remarks	Nursery
AB	2	Acer rubrum 'Bowhall'	Bowhall Maple	2.5" Cal.	Min. 6' Branch Height	LSI, RWN	
AS	2	Acer saccharum 'Green Mountain'	Green Mountain Sugar Maple	2.5" Cal.	Min. 6' Branch Height	CPC, LCN, LSI, RWN	
CO	1	Celtis occidentalis	Hackberry	2.5" Cal.	Min. 6' Branch Height	CPC, LCN, LNI, LSI, RWN	
GP	3	Ginkgo biloba 'Princeton Sentry'	Princeton Sentry Ginkgo	2.5" Cal.	Min. 6' Branch Height	CPC, LCN, LSI, RWN	
GT	4	Gleditsia triacanthos var. inermis 'Skycole'	Skyline Thornless Honeylocust	2.5" Cal.	Min. 6' Branch Height	CPC, LCN, LNI, LSI, RWN	
NS	1	Nyssa sylvatica	Black Gum	2" Cal.	Min. 6' Branch Height	CPC, LCN, LSI, RWN	
PA	4	Platanus x acerifolia 'Morton Circle'	Exclamation Planetree	2.5" Cal.	Min. 6' Branch Height	CPC, LCN, LSI, RWN	
QB	2	Quercus bicolor	Swamp White Oak	2.5" Cal.	Min. 6' Branch Height	CPC, LCN, LNI, LSI, RWN	
Conifer Trees	Key	Qty.	Botanical Name	Common Name	Size	Remarks	Nursery
AC	2	Abies concolor	Concolor Fir	6' Ht.	Non-sheared	CPC, LSI, RWN	
PO	6	Picea omorika	Serbian Spruce	6' Ht.	Non-sheared	CPC, LSI, RWN	
PS	2	Pinus strobus	White Pine	6' Ht.	Non-sheared	CPC, LSI	
TD	3	Taxodium distichum 'Mickelson'	Shawnee Brave Bald Cypress	2.5" Cal.		CPC, LCN, RWN	
Ornamental Trees	Key	Qty.	Botanical Name	Common Name	Size	Remarks	Nursery
BP	1	Betula populifolia 'Whitespire'	Whitespire Birch	10' Ht.	Multi-stem, Vegetatively Propagated	CPC, LCN, LSI, RWN	
Evergreen Shrubs	Key	Qty.	Botanical Name	Common Name	Size	Remarks	Nursery
JP	31	Juniperus x pfitzeriana 'Kallay's Compact'	Kallay's Compact Juniper	3 Gallon	3.5" O.C.	CPC, LSI, MGC	
Deciduous Shrubs	Key	Qty.	Botanical Name	Common Name	Size	Remarks	Nursery
AA	12	Aronia arbutifolia 'Brilliantissima'	Red Chokeberry	3 Gallon	5" O.C.	CPC, LCN, LSI, MGC, RWN	
CE	12	Cephalanthus occidentalis 'Sugar Shack'	Sugar Shack Buttonbush	3 Gallon	5" O.C.	MGC, NLF	
CS	17	Cornus stolonifera 'Arctic Fire'	Arctic Fire Redtwig Dogwood	3 Gallon	4" O.C.	LNI, LSI	
HA	3	Hydrangea arborescens 'Annabelle'	Annabelle Hydrangea	3 Gallon	4" O.C.	CPC, LCN, LNI, LSI, MGC, NLF, RWN	
HB	22	Hydrangea paniculata 'Bobo'	Bobo Hydrangea	3 Gallon	3.5" O.C.	CPC, LCN, LNI, LSI, MGC, NLF, RWN	
MP	19	Myrica pensylvanica	Bayberry	3 Gallon	6" O.C.	CPC, LCN, LSI, MGC, NLF	
PD	23	Physocarpus opulifolius 'Little Devil'	Little Devil Ninebark	3 Gallon	4" O.C.	CPC, LCN, LNI, LSI, MGC, NLF, RWN	
PP	24	Potentilla fruticosa 'Kupinpa'	Happy Face Pink Paradise Potentilla	3 Gallon	3" O.C.	LNI, LSI, MGC, NLF	
RK	6	Rosa 'Radrazz'	Knockout Rose	3 Gallon	3" O.C.	CPC, LCN, LNI, LSI, MGC, NLF, RWN	
RL	12	Rhus aromatica 'Gro-Low'	Gro-Low Sumac	3 Gallon	3" O.C.	CPC, LCN, LNI, LSI, MGC, NLF, RWN	
SW	20	Spiraea japonica 'Walburna'	Magic Carpet Spirea	3 Gallon	3" O.C.	CPC, LCN, LNI, LSI, MGC, NLF, RWN	
WB	52	Weigela florida 'Spilled Wine'	Spilled Wine Weigela	3 Gallon	3" O.C.	CPC, LCN, LNI, LSI, MGC, NLF, RWN	
Perennials & Ornamental Grasses	Key	Qty.	Botanical Name	Common Name	Size	Remarks	Nursery
AI	6	Amsonia 'Blue Ice'	Blue Ice Blue Star	1 Gallon	2" O.C.	HRT, MGC, RWN	
GR	52	Geranium 'Rozanne'	Rozanne Geranium	1 Gallon	2.5" O.C.	CPC, HRT, LNI, LSI, MGC, NLF, RWN	
HS	38	Hemerocallis x 'Strawberry Candy'	Strawberry Candy Daylily	1 Gallon	18" O.C.	CPC, HRT, LNI, RWN	
MC	21	Molinia caerulea 'Moorflamme'	Flaming Moor Grass	1 Gallon	2" O.C.	HRT, LSI, MGC	
NP	67	Nepeta x faassenii 'Purrsian Blue'	Purrsian Blue Catmint	1 Gallon	2" O.C.	HRT, LNI, NLF, RWN	
PH	22	Pennisetum alopecuroides 'Hameln'	Hameln Dwarf Fountain Grass	1 Gallon	3" O.C.	CPC, HRT, LCN, LNI, LSI, MGC, NLF, RWN	
SA	60	Sesleria autumnalis	Autumn Moor Grass	1 Gallon	18" O.C.	HRT, LSI, MGC, RWN	
Native Forbs	Key	Qty.	Botanical Name	Common Name	Size	Remarks	Nursery
AN	4	Anemone canadensis	Canada Anemone	Quart	18" O.C.	MGC, WTD	
HM	10	Hibiscus moscheutos	Rose Mallow	2" Pot	18" O.C.	MGC, WTD	
SI	10	Silphium perfoliatum	Cup Plant	2" Pot	18" O.C.	MGC, WTD	

Native Shrub and Forb Supplier:  
Wildtype design, native plants, & seed, ltd.  
Mason, MI Telephone: 517-244-1140

Miscellaneous Materials	Quantity	Material Type
	470 L.F.	Aluminum Edging
	12.5 C.Y.	Finished Compost for Planting Beds (1" Depth)
	4,200 S.F.	Native Seed Mixture - Low Detention Basin Mix w/ S75 E.C.B.
	38.5 C.Y.	Shredded Hardwood Mulch (3" Depth)
	2,015 S.Y.	Sod

Nursery Key	Key	Nursery	Location	Contact
CPC		Christensen's Plant Center	Plymouth, MI	(734) 454-1400
HRT		Hortech	Spring Lake, MI	(616) 842-1392
LCN		Lake County Nursery	Madison, OH	(440) 578-5290
LNI		Lincoln Nurseries, Inc.	Grand Rapids, MI	(616) 453-2351
LSI		Landscape Supply, Inc.	Taylor, MI	(734) 946-7000
MGC		Midwest Groundcovers	St. Charles, IL	(260) 750-2197 - David Kieser
NLF		Northland Farms	West Olive, MI	(800) 253-1812
RWN		Ray Wiegand's Nursery	Macomb, MI	(586) 727-3410

Note: Nurseries listed on plant schedule are for the convenience of the Contractor and indicate typical plants carried. Contact nursery to determine actual plant availability.

## EXISTING TREE PRUNING NOTE

Prune lower branches of (3) existing trees along east property line to be a min. of 6' above the ground to facilitate mowing underneath the tree canopy.

## ABBREVIATIONS

TYPE	DESCRIPTION
ALUM.	ALUMINUM
CAL.	CALIPER
C.Y.	CUBIC YARD
DWGS.	DRAWINGS
E.C.B.	EROSION CONTROL BLANKET
EX.	EXISTING
GAL.	GALLON
L.F.	LINEAR FEET
MAX.	MAXIMUM
MIN.	MINIMUM
O.C.	ON CENTER
S.F.	SQUARE FEET
S.Y.	SQUARE YARD

## REFERENCE SYMBOLS

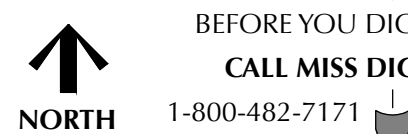


## GENERAL NOTES

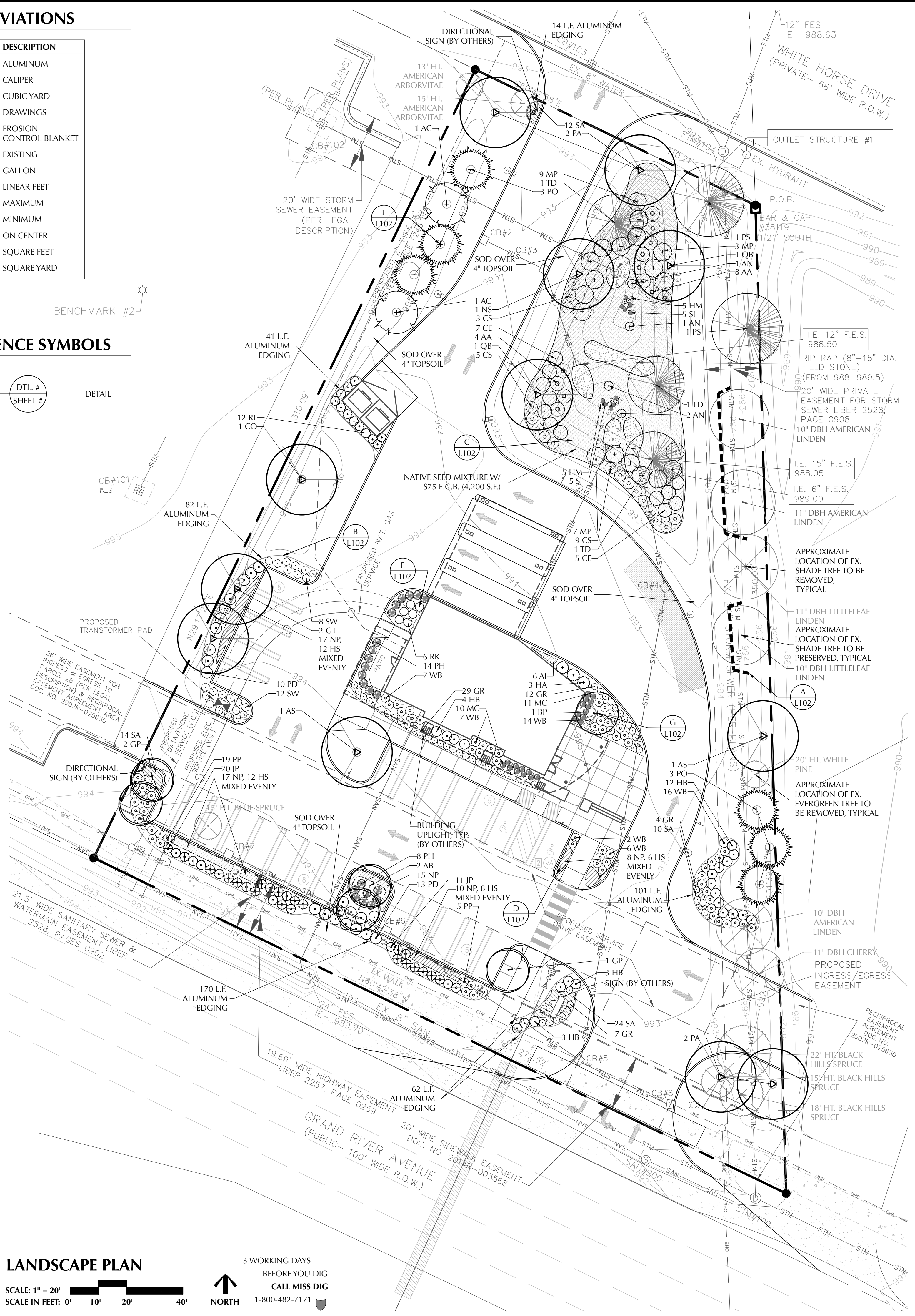
- Quantities shown are for the convenience of the Contractor only. Contractor is responsible for verifying quantities, and for providing sufficient materials to complete the job per plan.
- Contractor shall secure and pay for all permits, fees, and inspections necessary for the proper execution of this work and comply with all codes applicable to this work.
- Contractor shall call MISS DIG System, Inc. (800) 482-7171 three full working days before work commences to locate underground utility locations. Contractor shall avoid all existing utilities, underground and overhead where applicable, and is responsible for any damage.
- Contractor shall verify all existing conditions in the field prior to construction and shall notify Landscape Architect of any variance.
- Some field adjustments may be necessary to ensure that there are no conflicts between existing and proposed plants.
- The Contractor is responsible for protecting all existing vegetation to be preserved.
- Material quality and measurement shall conform to the most recent edition of the American Standard for Nursery Stock, ANSI Z60.1 by AmericanFert.
- All plants shall be installed per the landscape plan. Plantings not found to be in compliance shall be replanted correctly at no additional expense to the owner.
- An approved pre-emergent herbicide shall be applied in all proposed planting beds at a rate specified by manufacturer for each plant variety. Do not apply in Native Seed Mixture area.
- Where planting area meets turf area and edging is not specified, the contractor shall provide a trench edge. Mulch all planting areas to the bedline shown. Do not install edging for mulch tree rings in lawn.
- Ensure positive drainage away from all structures.
- Fine grade, fertilize and sod/seed all disturbed areas resulting from construction. All areas shall drain completely and shall not pond or puddle.
- Aerate existing turf where it has been compacted by equipment.

## LANDSCAPE PLAN

SCALE: 1" = 20'  
SCALE IN FEET: 0' 10' 20' 40'



3 WORKING DAYS BEFORE YOU DIG CALL MISS DIG 1-800-482-7171



**ELEMENTS STUDIO inc**  
LANDSCAPE ARCHITECTURE  
907 Britten Ave., Lansing, MI 48910  
www.ElementsStudio.net | P: (517) 599-7152

**CLIENT:**  
Studio (intrigue) Architects, LLC  
1114 S. Washington Ave.  
Suite 100  
Lansing, MI 48940-1649  
Phone: 517.372.8804

## LAKE TRUST CREDIT UNION EAST GRAND RIVER AVE., GENOA TOWNSHIP, MI LANDSCAPE PLAN



REVISIONS:	REVISION #	DATE
	3/2/17	Rev. Site Plan Rvw
	4/12/17	Rev. Site Plan Rvw

**DATE:**  
02/27/17-Site Plan Review  
**PROJECT NUMBER:**  
S11701  
**DRAWN BY:**  
KF, JF  
**CHECKED BY:**  
JF  
**SCALE:**  
AS INDICATED

**SHEET NUMBER:**  
**L101**



107  
GENOA TOWNSHIP LANDSCAPE REQUIREMENT CHART

REQUIRED GREENBELT ALONG STREET FRONTAGE

	REQUIREMENT	PROVIDED
	1 TREE / 40 L.F.	
STREET FRONTAGE DISTANCE: 273 L.F. SOUTH GREENBELT: GRAND RIVER AVE.	6.8 TREES	7 CANOPY TREES - TREES LOCATED NORTH OF 20' GREENBELT DUE TO OVERHEAD WIRES
STREET FRONTAGE DISTANCE: 110 L.F. NORTH GREENBELT: WHITE HORSE DR.	2.8 TREES	3 CANOPY TREES

REQUIRED BUFFER ZONE C

	REQUIREMENT	PROVIDED
	1 TREE -OR- 4 SHRUBS / 20 L.F.	
WEST BUFFER DISTANCE: 310 L.F.	15.5 TREES -OR- 64 SHRUBS	1 CANOPY TREE 5 EVERGREEN TREES 42 SHRUBS
EAST BUFFER DISTANCE: 350 L.F.	17.5 TREES -OR- 72 SHRUBS	3 EXISTING TREES OVER 8" DBH* 1 CANOPY TREE 4 EVERGREEN TREES 28 SHRUBS

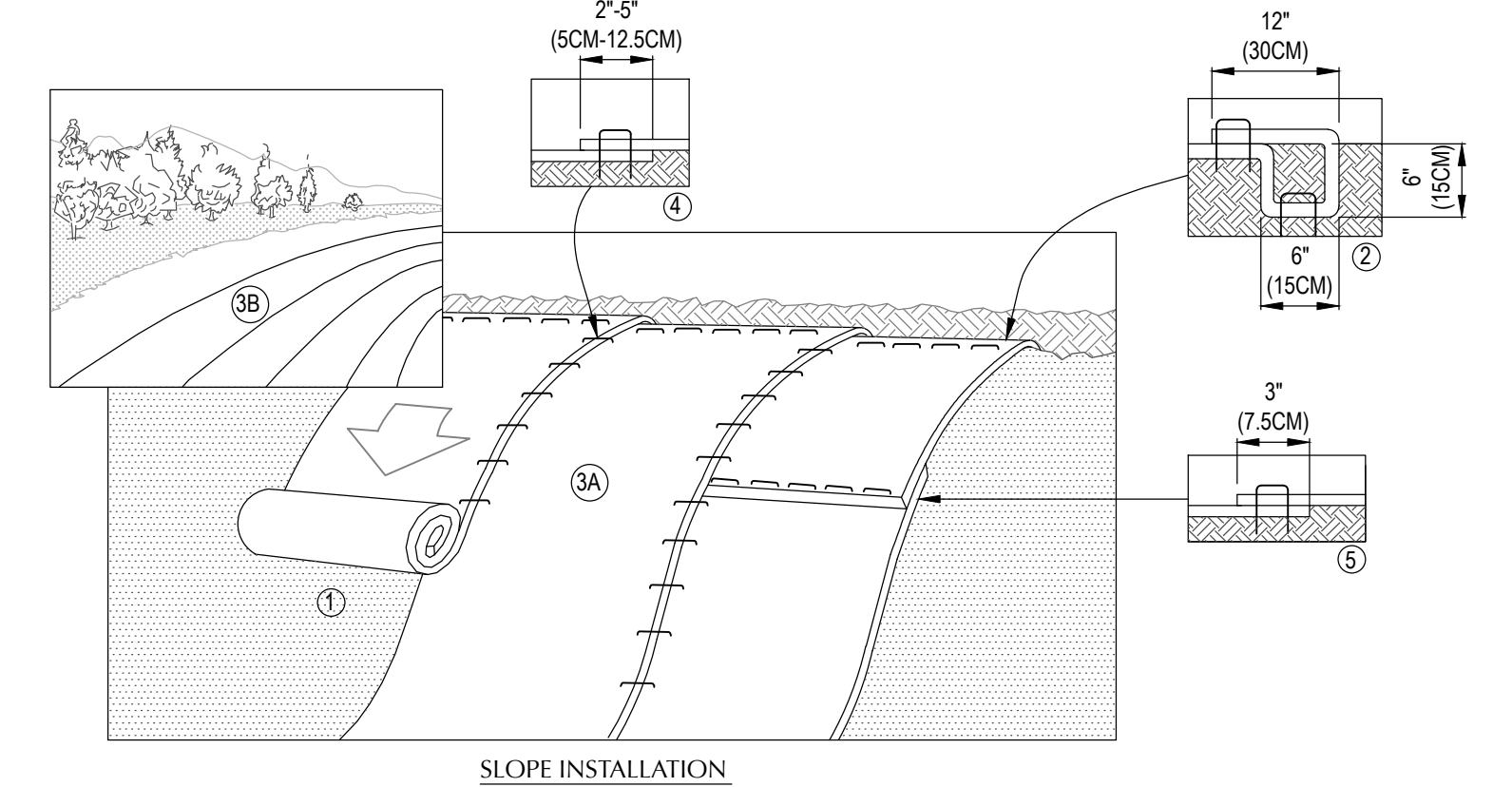
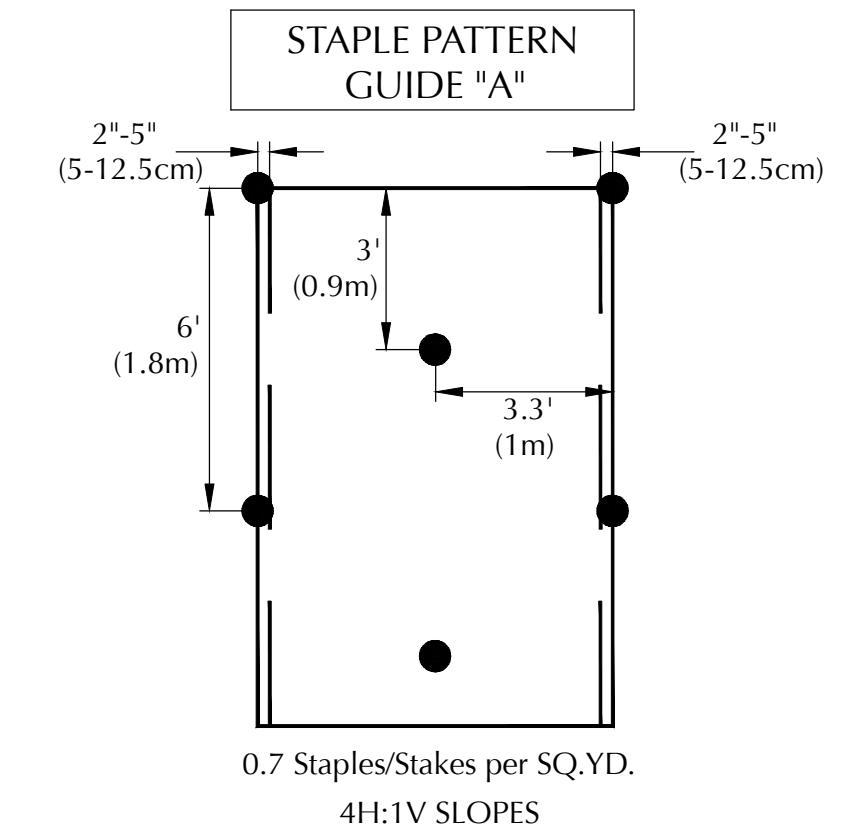
\*NOTE: EX. TREES WITH A CALIPER AT LEAST EIGHT (8) IN. SHALL COUNT AS TWO (2) TREES TOWARD THE ABOVE REQUIREMENTS.

REQUIRED PARKING AREA LANDSCAPING

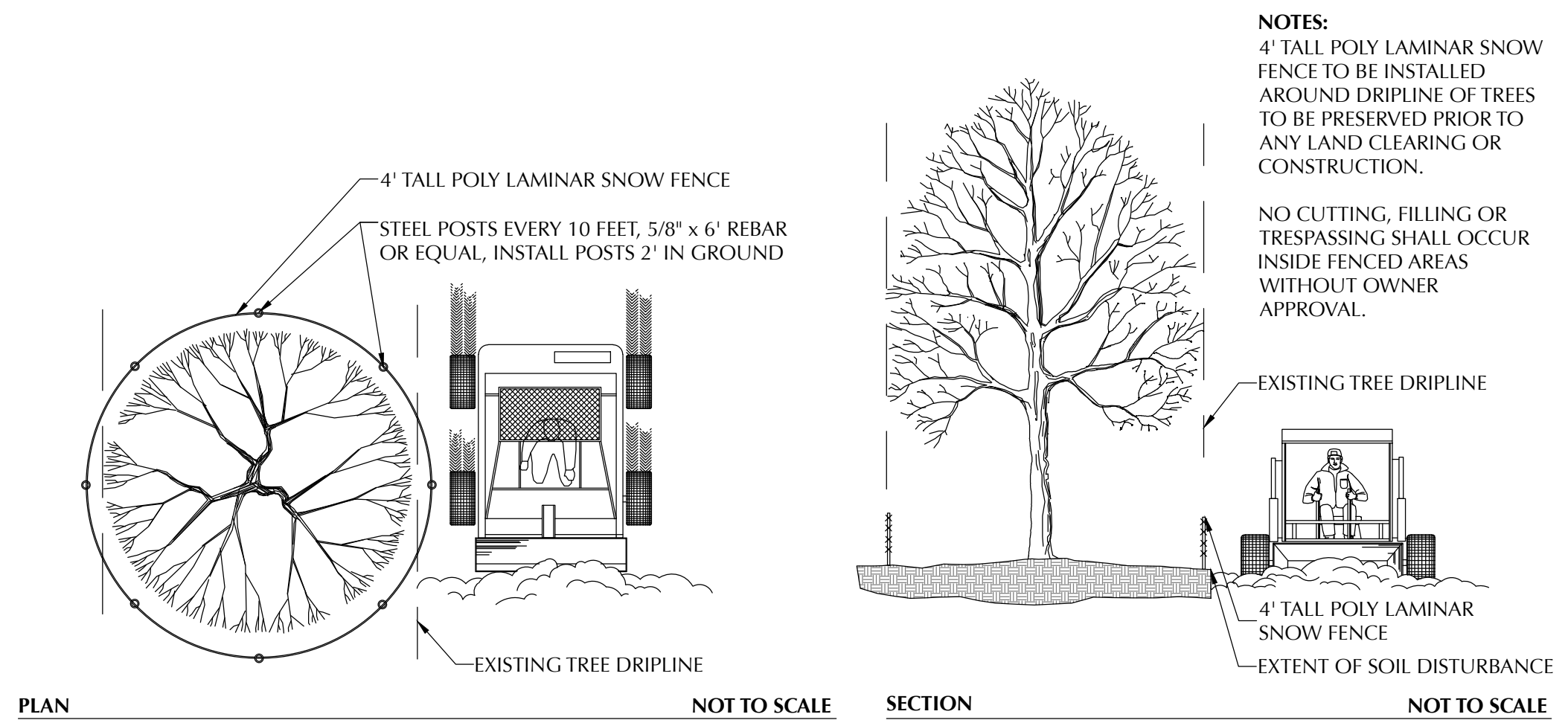
	REQUIREMENT	PROVIDED
	1 TREE / 10 SPACES 100 S.F. LANDSCAPE/10 SPACES HEDGEROW AT FRONT YARD	
PARKING SPACES: 25 SPACES	2.5 TREES 250 S.F. LANDSCAPE AREA HEDGEROW	3 CANOPY TREES 432 S.F. LANDSCAPE AREA HEDGEROW

REQUIRED DETENTION/RETENTION POND LANDSCAPING

	REQUIREMENT	PROVIDED
	1 TREE / 50 L.F. POND BANK 10 SHRUBS / 50 L.F. POND BANK	
DETENTION BASIN POND BANK AT 990.82 ELEV. DISTANCE: 287 L.F.	5.8 TREES 60 SHRUBS	6 CANOPY TREES 60 SHRUBS

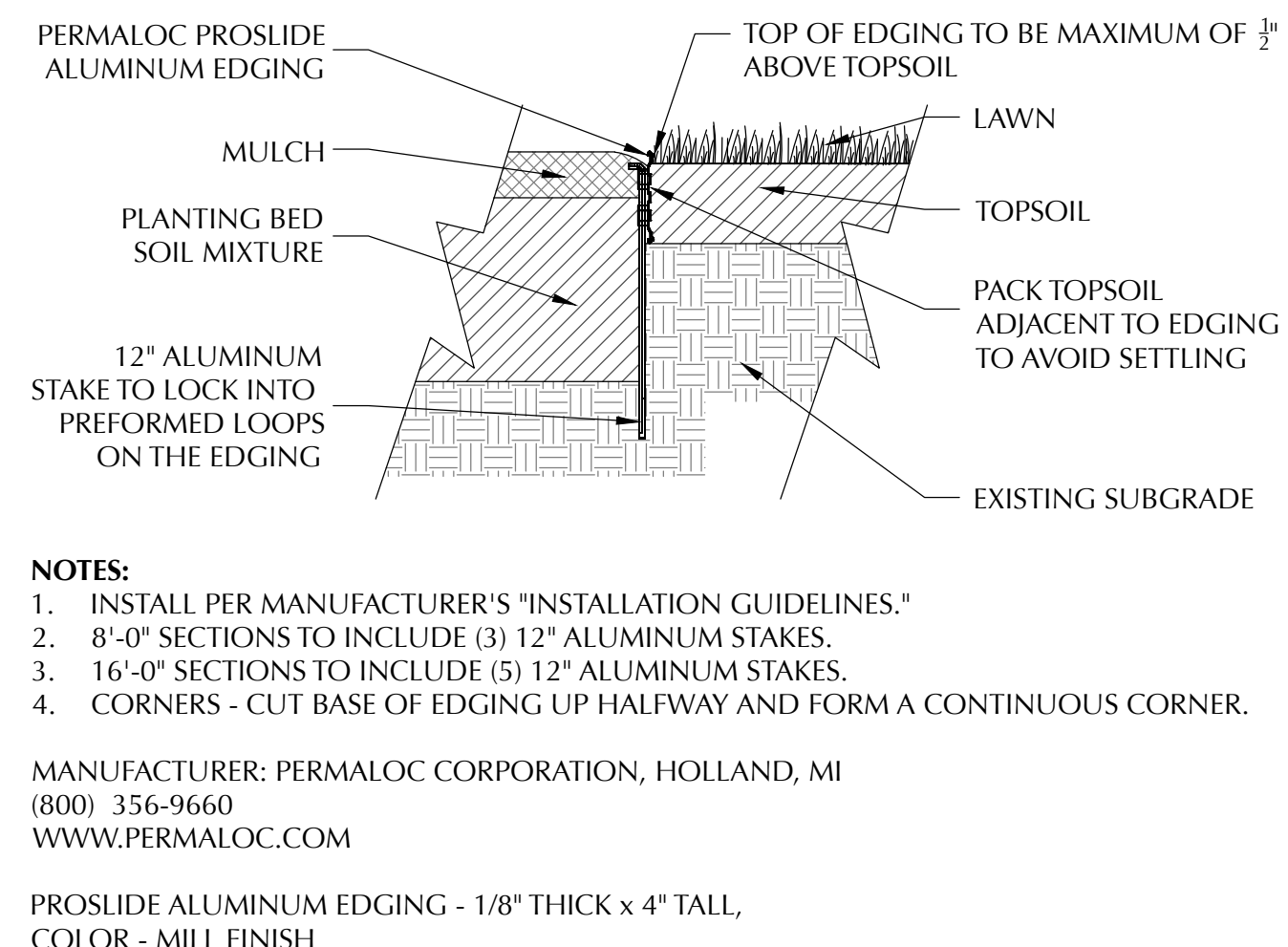


1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
  2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" (15CM) DEEP X 6" (15CM) WIDE TRENCH WITH APPROXIMATELY 12" (30CM) OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING/STAKING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30CM) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30CM) APART ACROSS THE WIDTH OF THE BLANKET.
  3. ROLL THE BLANKETS (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
  4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED/STAKED WITH APPROXIMATELY 2'-5" (5CM-12.5CM) OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
  5. CONSECUTIVE BLANKETS SPICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5CM) OVERLAP. STAPLE/STAKE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30CM) APART ACROSS ENTIRE BLANKET WIDTH.
- NOTES:  
1. INSTALLATION TO BE COMPLETED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.  
2. IN LOOSE SOIL CONDITIONS THE USE OF STAPLE/STAKE LENGTHS GREATER THAN 6" (15CM) MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.
- MANUFACTURER: NORTH AMERICAN GREEN, POSEVILLE, IN  
(800) 522-5011  
www.nagreen.com



A TREE PROTECTION FENCE DETAILS

L102 NOT TO SCALE

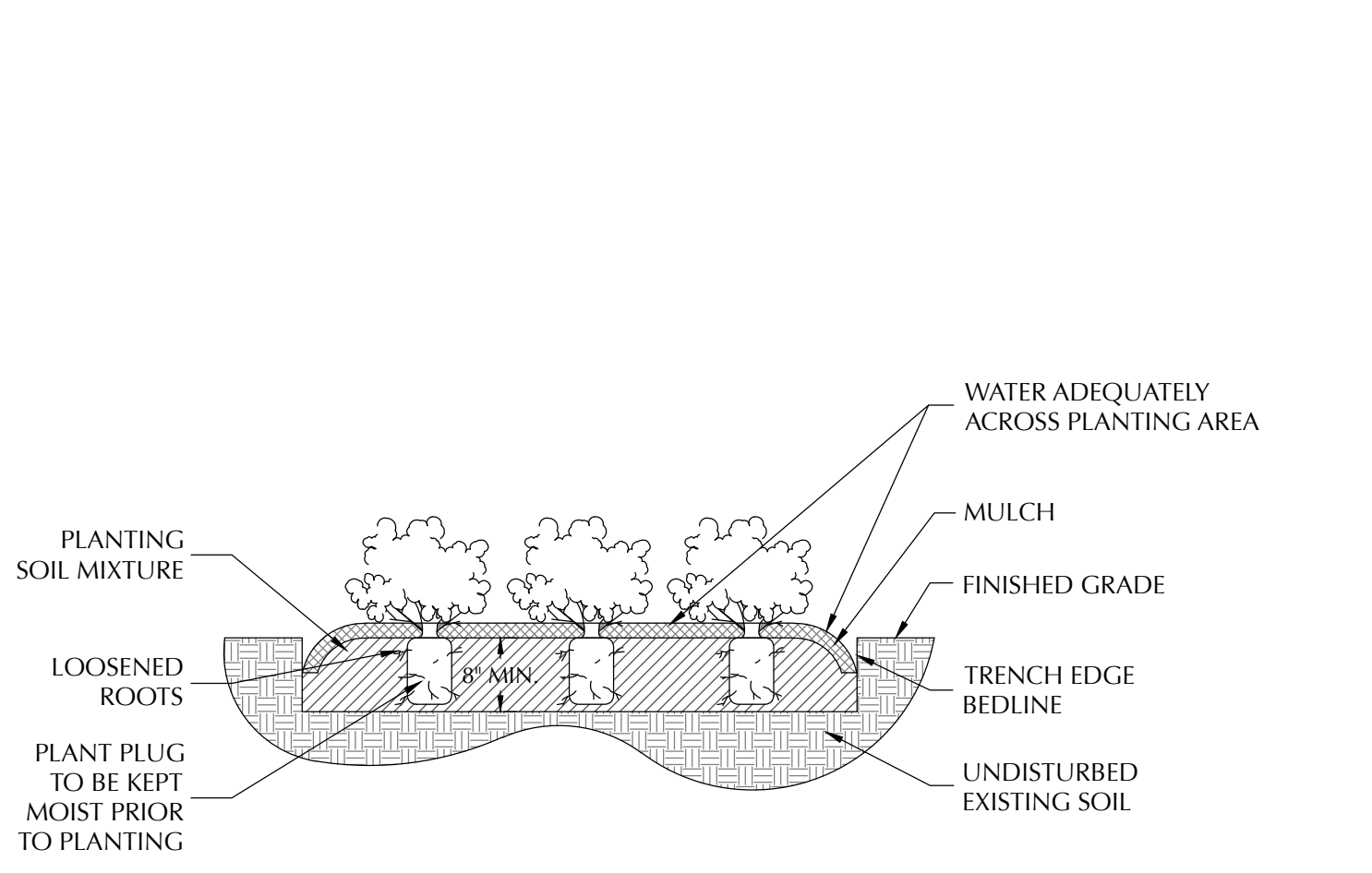


B ALUMINUM EDGING DETAIL

L102 NOT TO SCALE

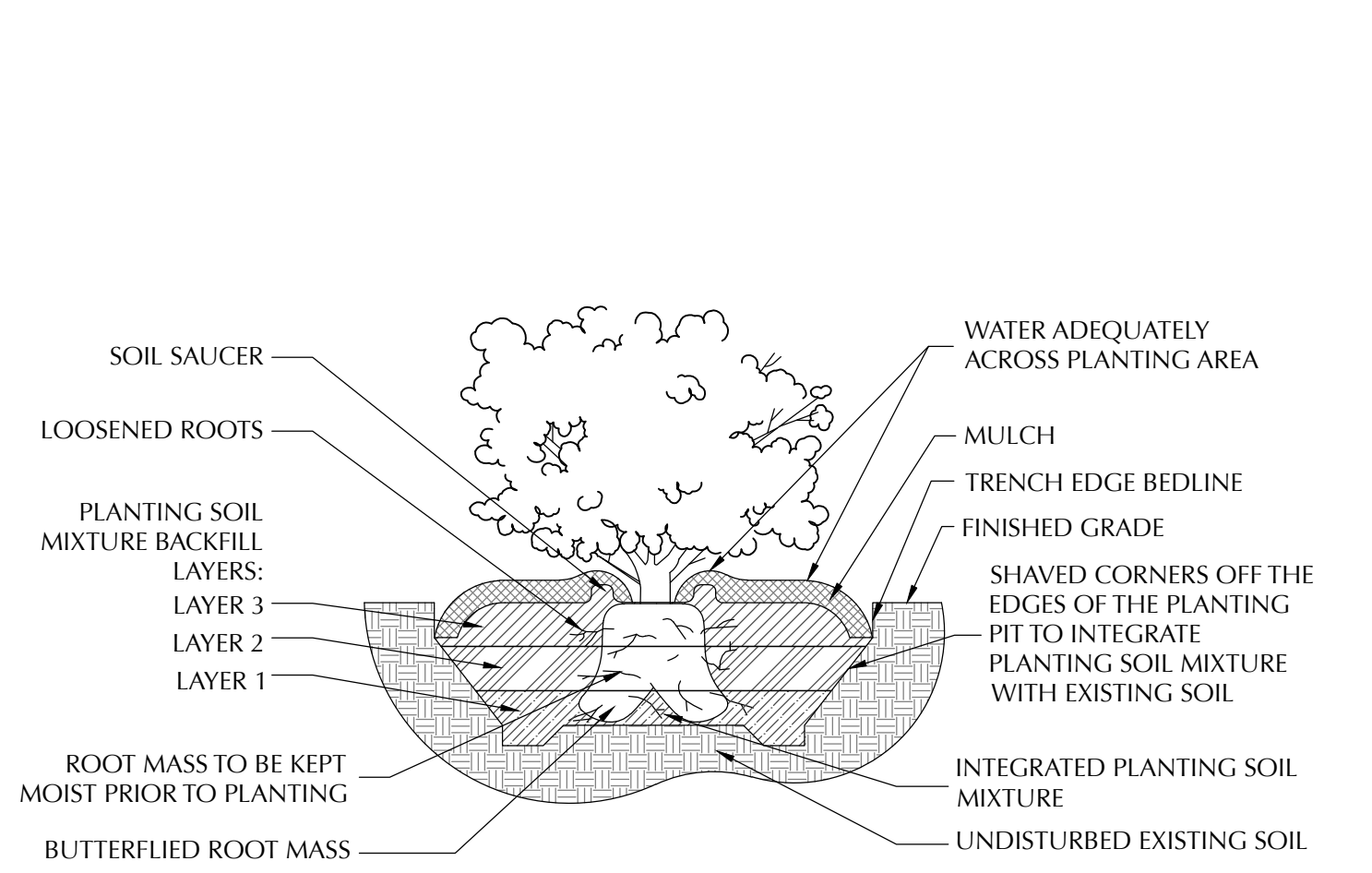
C S75 EROSION CONTROL BLANKET DETAIL

L102 NOT TO SCALE



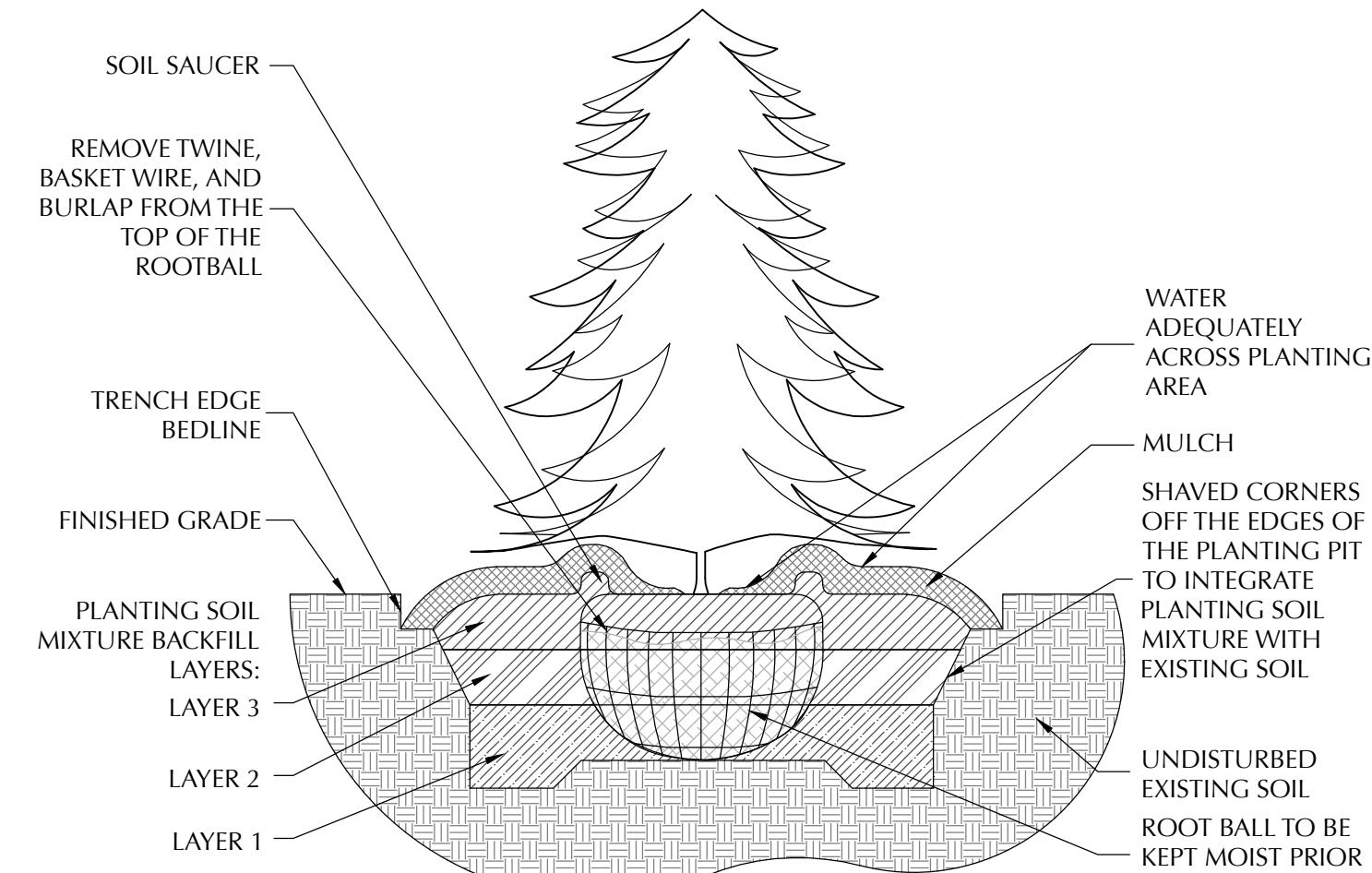
D PERENNIAL & GROUNDCOVER PLANTING DETAIL

L102 NOT TO SCALE



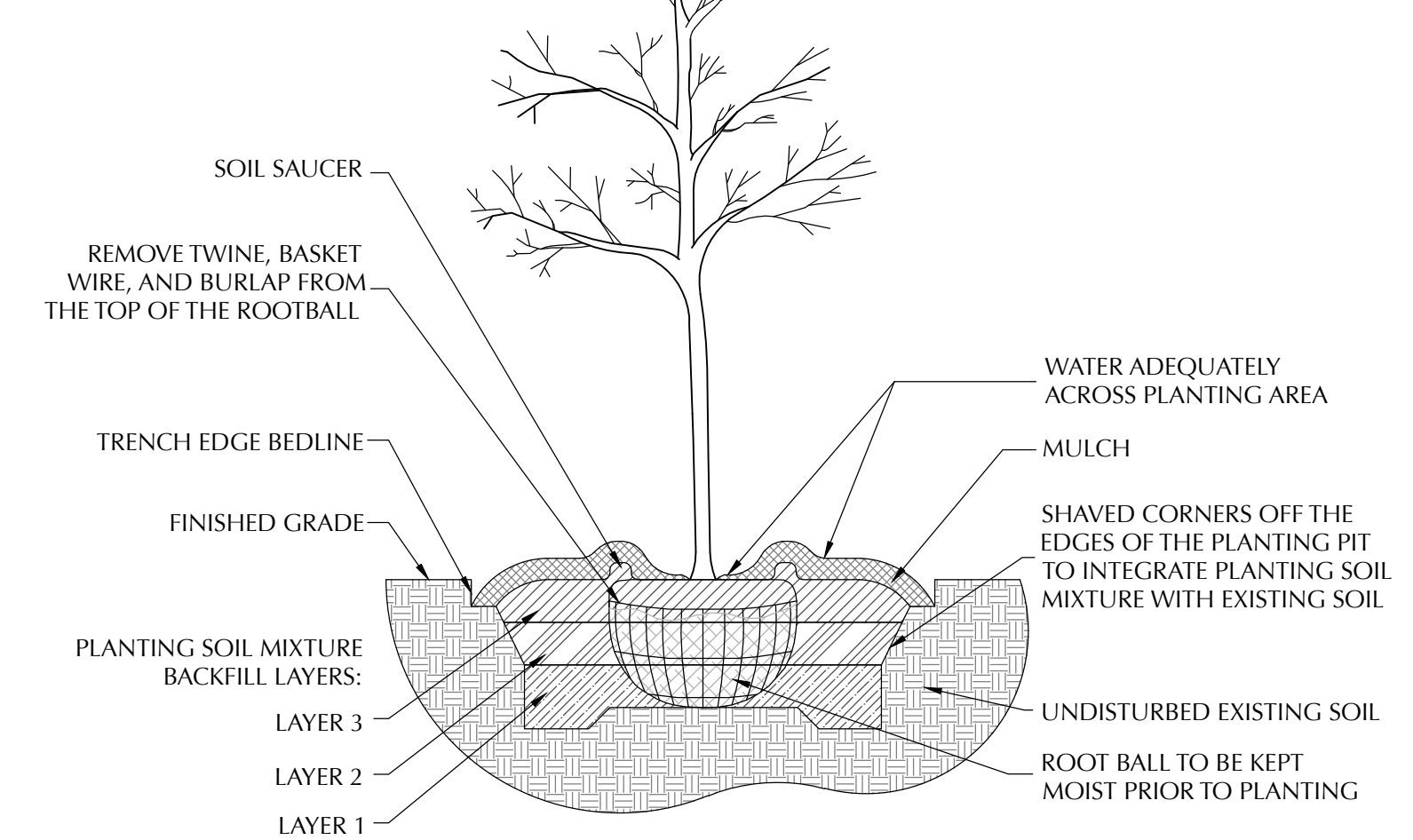
E SHRUB PLANTING DETAIL

L102 NOT TO SCALE



F EVERGREEN TREE PLANTING DETAIL

L102 NOT TO SCALE



G DECIDUOUS TREE PLANTING DETAIL

L102 NOT TO SCALE



REVISIONS:	REVISION #	DATE
	3/21/17	Rev. Site Plan Rvw
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S11701  
DRAWN BY:  
KF, JF  
CHECKED BY:  
JF  
SCALE:  
AS INDICATED

SHEET NUMBER:  
L102



LANDSCAPE WORK PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

A. The work shall consist of furnishing, transporting and installing all seeds, plants and other materials required for:

- 1. The establishment of trees, shrubs, groundcovers, perennials, annuals, lawn areas, and native seeded areas as shown on Landscape Plan;
2. The provision of post-planting management as specified herein;
3. Any remedial operations necessary in conformance with the plans as specified in this document;
4. The design, furnishing and installation of a complete underground irrigation system.

1.2 QUALITY ASSURANCE

A. Quality Control Procedures:

1. Do not make substitutions. If specified landscape material is not obtainable, submit to Landscape Architect proof of non-availability and proposal for use of equivalent material.

1.3 SUBMITTALS

A. Maintenance Instructions

- 1. Submit two (2) copies of typewritten instructions recommending procedures to be established by the Owner for the maintenance of all landscape work except native seeded areas, which are outlined for maintenance in section 3.1 - Initial Maintenance.
2. Maintenance instructions shall include: watering, fertilizing, spraying, mulching, pruning for plant material, and mowing of lawn. Instructions shall be submitted prior to request for inspection for final acceptance.

1.4 JOB CONDITIONS

- A. Examine and evaluate grades, soils and water levels. Observe the conditions under which work is to be performed and notify Owner of unsatisfactory conditions. Do not proceed with the work until unsatisfactory conditions have been corrected in an acceptable manner.
B. Utilities: Review underground utility location maps and plans. Notify local utility location service. Certify acceptance of liability for the protection of utilities during course of work. Contractor shall be responsible for any damage to utilities or property.
C. Excavation: When conditions detrimental to plant growth are encountered such as rubble fill, adverse drainage conditions or obstructions, correct conditions to be suitable for plant growth before planting.

1.5 GUARANTEES

- A. Guarantee seeded and sodded lawn areas until final acceptance.
B. Guarantee native seeded areas for a period of one year after date of installation.
1. Year 1: 70% Vegetative Cover, primarily by species contained in the cover crop.
2. Year 2: 85% Vegetative Cover, min. 70% species planted being alive and apparent. (Alternate Bid)
3. Year 3: 95% Vegetative Cover, min. 70% species planted being alive and apparent. (Alternate Bid)
4. Years 1-3+: There shall be no areas greater than .5 square meter which are devoid of vegetation. Where gullies form along basin side slopes or the basin shoreline becomes cut as a result of erosion, finished grade and seed shall be restored within 15 days of notice.
C. Guarantee trees, shrubs, groundcovers and perennials for a period of one year after date of final acceptance against defects including death and unsatisfactory growth, except for defects resulting from neglect by Owner, abuse or damage by others or unusual phenomena or incidents which are beyond Contractor's control.

LANDSCAPE WORK PART 2 - MATERIALS AND EXECUTION

2.1 LAWN SOD

- A. Remove existing grass, vegetation and turf. Dispose of such material legally off-site, do not turn over into soil being prepared for lawns.
B. Incorporate topsoil (stockpiled at site) into existing on-site soils while preserving existing soil structure as much as possible, so that resulting soil is not pulverized and prone to erosion. Remove high areas and fill in depressions; remove lumps, clods, stones over 1" diameter, roots and other extraneous matter. Dispose of such material legally off-site. Apply soil amendments to existing topsoil (stockpiled at site) based on soil test.
C. Sodded areas shall receive an application of slow-release fertilizer at the rate of 1/2 pound of actual nitrogen per 1,000 s.f. Apply phosphate and potash at rates per soil test results. Fertilizer shall be uniformly spread.
D. Provide strongly rooted sod, not less than two (2) years old and free of weeds and undesirable native grasses. Provide only sod capable of growth and development when planted (viable, not dormant) and in strips not more than 18" wide x 4' long. Provide sod composed of a 5-way blend of Kentucky Bluegrass such as: Midnight, Allure, Viva, Washington, Liberty.
E. Lay sod within 24 hours from time of stripping.
F. Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod strips; do not overlap. Stagger strips to offset joints in adjacent courses. Work from boards to avoid damage to subgrade or sod. Tamp or roll lightly to ensure contact with subgrade. Work sifted soil into minor cracks between pieces of sod; remove excess sod to avoid smothering of adjacent grass.
G. Water sod thoroughly with a fine spray immediately after planting.

2.2 NATIVE SEED MIXTURES

- A. The period for planting native seed mixtures shall be from April 1 - June 15 or September 1 - October 15. Plugs shall be planted in the spring.
B. Remove existing grass, vegetation and turf. Dispose of such material legally off-site.
C. Do not turn over into soil being prepared for native seed mix.
D. Incorporate topsoil (stockpiled at site) into existing on-site soils while

preserving existing soil structure as much as possible, so that resulting soil is not pulverized and prone to erosion. Remove high areas and fill in depressions; remove lumps, clods, stones over 1" diameter, roots and other extraneous matter. Dispose of such material legally off-site.

- E. Do not fertilize native seeded areas.
F. Install trees and shrubs before seeding; do not apply shredded hardwood mulch.
G. Provide fresh, clean, new crop of the species and proportions as specified. Seed shall be obtained from a reputable supplier within a 200 mile radius of the project site.

1. Low Detention Basin Mix Seed at a rate of 3 oz./1,000 SF or 6.0 lbs. per acre

Table with 3 columns: Botanic Name, Common Name, % PLS by weight. Lists various plants like Anemone canadensis, Iris virginica, Helenum autumnale, etc.

Table with 3 columns: Botanic Name, Common Name, % PLS by weight. Lists grasses like Carex cristatella, Carex vulpinoidea, Elymus virginicus, etc.

Native Seed Supplier: Michigan Wildflower Farm - Portland, MI, Phone: (517) 647-6010.

- H. Do not use wet seed or seed which is moldy or otherwise damaged in transit or storage.
I. Seed shall be hand broadcast. Do not seed when wind velocity exceeds five (5) miles per hour. Distribute seed evenly over entire area.
J. Sow not less than specified rate.
K. Water seed with a fine spray.
L. After the seeding operation is completed, install erosion control blanket per manufacturer's specifications over the entire native seed area. Install plugs in soil by cutting slits in erosion control blanket.
M. Native seed areas shall be planted and seed allowed to germinate (if possible), prior to flooding with significant amounts of water.

2.3 EROSION CONTROL BLANKET

A. 3H:1V Slope and/or Detention Basin: North American Green S75 or equivalent. Manufacturer: North American Green (800) 772-2040, www.tensarnagreen.com. Distributor: CSI Geoturf (248) 887-6767.

2.4 PLANTING SOIL MIXTURE

A. Tree and shrub planting pits, groundcover, perennial, and annual areas: Provide planting soil mixture consisting of three (3) parts friable topsoil (stockpiled at site) and one part finished compost. Finished compost to have a C:N ratio in the range of 15:1 to 20:1.

2.5 PLANT MATERIAL

- A. All plants shall be subject to inspection and review at the place of growth or upon delivery for conformity to specification requirements and quality. Rejected plants shall be removed immediately from the site.
B. The Contractor shall be wholly responsible for assuring that all trees are planted in a vertical and plumb position and remain so throughout the life of this contract and guarantee period. Trees may or may not be staked and guyed depending upon the individual preference of the Contractor; however, any bracing procedur(e)s must be approved by the Owner prior to its installation. If Contractor chooses to stake and guy the trees, stakes and guy wires are to be removed one year (1) after planting.

2.6 PLANTING BED MULCH

A. Provide mulch consisting of shredded hardwood. Do not use color enriched mulch.

2.7 CLEAN UP AND PROTECTION

- A. During landscape work, store materials and equipment where directed. Keep pavements clean and work areas and adjoining areas in an orderly condition.
B. Protect landscape work and materials from damage due to landscape operations, operations by other trades and trespassers. Maintain protection during installation and maintenance periods. Treat, repair or replace damaged landscape work as directed by Owner.

2.8 INSPECTION AND ACCEPTANCE

- A. Supply written affidavit to Owner certifying composition of seed mixtures and integrity of plant materials with respect to species, variety and source.
B. Landscape Architect or Owner will make a final inspection to determine acceptability of all seeded and sodded lawn areas, trees, shrubs, groundcovers, and perennials, excluding the native seeded areas. After final acceptance is complete, the contractor shall continue the first year maintenance of the native seeded areas and the Owner shall be responsible for the remainder of the landscape maintenance.
C. When the initial maintenance of the native seeded areas is complete, the Landscape Architect or Owner will make a final inspection to determine acceptability. After inspection is complete and approved, the Owner will be responsible for maintenance of the native seeded areas.

LANDSCAPE WORK PART 3 - MAINTENANCE

3.1 INITIAL MAINTENANCE

- A. Begin maintenance of seeded and sodded lawn areas, trees, shrubs, groundcovers, and perennials immediately after planting, continuing until final acceptance. A minimum of thirty (30) days.
B. Begin maintenance of native seeded areas immediately after planting, continuing for a period of one year after date of installation.

1. First Year: Mow/brush-cut to 6" height at the end of May or when plants reach 12" in height. Mow/brush-cut a minimum of two (2) more times throughout the season with the goal of reducing the flowering and forming of seeds by undesirable plants. DO NOT MOW/BRUSH-CUT TREES, SHRUBS, AND PLUGS ORIGINALLY INSTALLED.

- 2. Species that should be managed if encountered:
Alliaria petiolate - Garlic Mustard
Amaranthus palmerii - Palmer's Amaranth
Bromus inermis - Smooth Brome Grass
Butomus umbellatus - Flowering Rush
Cardamine impatiens - Bittercress
Celastrus orbiculatus - Oriental Bittersweet
Centauria maculosa - Spotted Knapweed
Cirsium arvense - Canada Thistle
Cirsium palustre - European Marsh Thistle
Convallaria majalis - Lily of the Valley
Convolvulus arvensis - Field Bindweed
Coronilla varia - Crown Vetch
Cynanchum louisae - Black Swallow-wort
Cynanchum rossicum - Pale Swallow-wort
Dipsacus laciniatus - Cut-leaved Teasel
Dipsacus sylestris - Teasel
Euphorbia esula - Leafy Spurge
Festuca arundinacea - Tall Fescue
Clechoma hederacea - Creeping Charlie
Cypsophila spp. - Baby's Breath
Hesperis matronalis - Dame's Rocket
Lotus corniculata - Bird's-foot Trefoil
Lysimachia nummularia - Moneywort
Lythrum salicaria - Purple Loosestrife
Melilotus alba - White Sweet Clover
Melilotus officinalis - Yellow Sweet Clover
Pastinaca sativa - Wild Parsnip
Phalaris arundinacea - Reed Canary Grass
Phragmites australis - Common Reed Grass
Poa compressa - Canada Bluegrass
Poa pratensis - Kentucky Bluegrass
Polygonum cuspidatum - Japanese Knotweed
Salix interior - Sandbar Willow

3.2 CONTINUED MAINTENANCE OF NATIVE SEEDED AREAS (ALTERNATE BID)

- A. Maintain native seeded areas to establish a vegetated detention basin free of erosion and undesirable plants in order to effectively filter and infiltrate stormwater runoff.
B. All woody species except those originally installed are to be controlled by foliar spraying, hand wicking or cut stump and herbicide treatment. Only wetland approved herbicides and surfactants shall be used and applied by a Certified Applicator with Category 5 Certification. See 3.1-B.2 above for other species that should be managed if encountered.

- 1. Second Year: Mow/brush-cut to 6" height at the end of May or when plants reach 12" in height. Mow/brush-cut a minimum of one (1) more time with the goal of reducing the flowering and forming of seeds by undesirable plants.
2. Third Year: Mow/brush-cut to 6" height at the end of May or when plants reach 12" in height.
3. During the fourth year, consult with professionals trained in prescribed burns of natural areas to determine if conducting a prescribed burn would be an appropriate management tool.

UNDERGROUND IRRIGATION SYSTEM

4.1 DESCRIPTION OF WORK

- A. This subcontractor shall design, furnish and install a complete underground lawn and planted area irrigation system including all necessary underground sleeves, fully automatic weather-based control systems, water pump, water meter, backflow preventer if required per code, and electrical wiring for system. Design shall be in accordance with good engineering practice.
B. Provide separate irrigation zones for lawn and planting beds with minimal overspray onto hard surfaces.
C. DO NOT IRRIGATE NATIVE SEED MIXTURE AREAS.
D. Provide quick coupler valves as directed by Owner.

4.2 QUALITY ASSURANCE

- A. All materials shall be new, first class, especially designed for intended use.
B. All work shall be installed with best workmanship in accordance with best practice of the trade, in accordance with all local codes, ordinances, rules and regulations, and in accordance with the system manufacturer's recommendations.
C. Special provisions shall be made to adequately and properly protect the system from damage due to weather and frost conditions.

4.3 SUBMITTALS

- A. Irrigation system contractor shall submit the following to the Owner:
1. "As-built" drawings shall be submitted at completion of project.
2. Operation and maintenance manuals - two (2) sets.

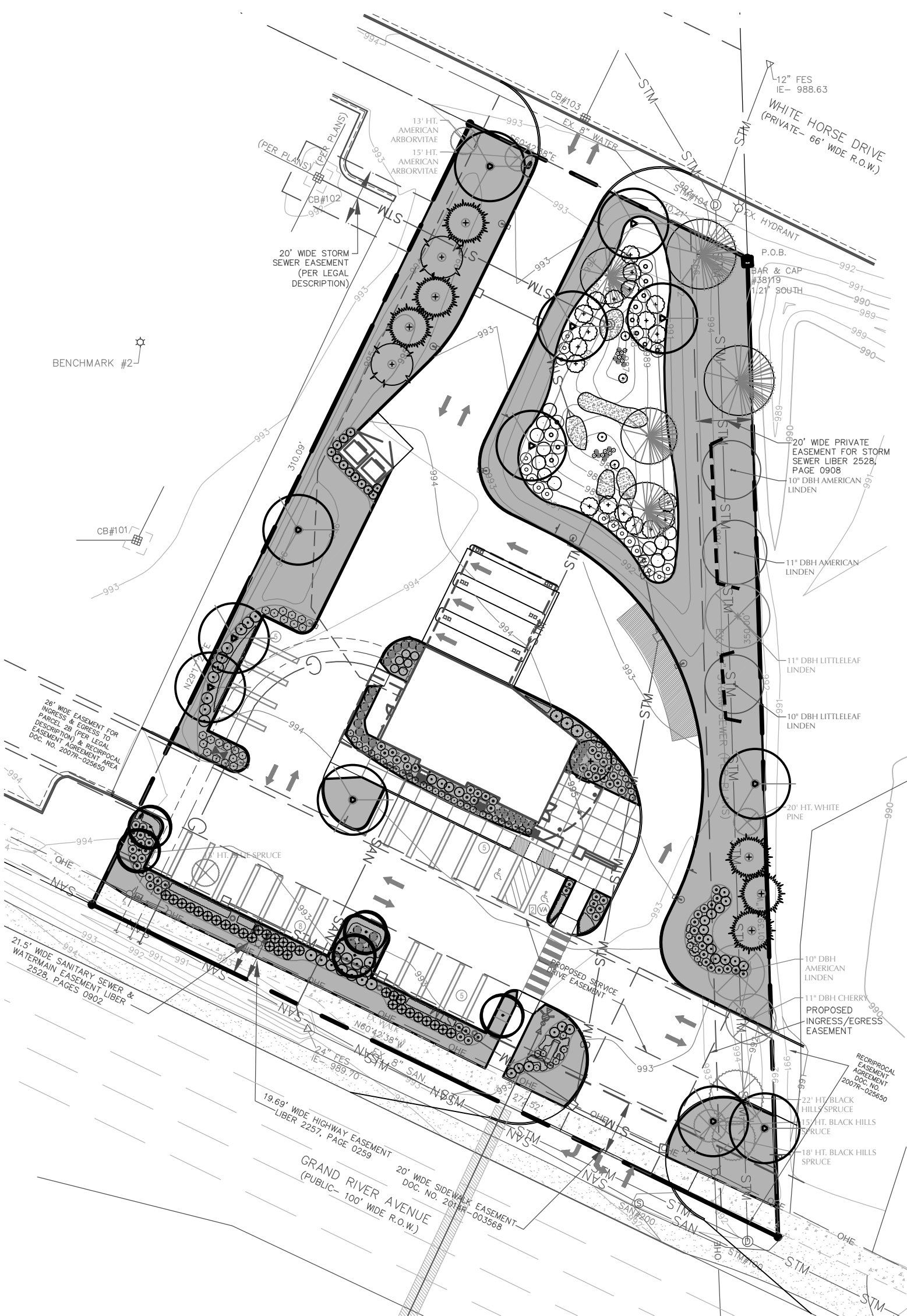
4.4 BID

A. Irrigation system contractor shall include with their bid quotation information identifying the manufacturer of the proposed irrigation equipment.

4.5 GUARANTEE

A. Furnish written manufacturer's and subcontractor's one (1) year unconditional guarantee against defects in material and workmanship from date of final acceptance of project by the Owner.

IRRIGATION LEGEND



AREAS TO IRRIGATE
SCALE: 1" = 40'
SCALE IN FEET: 0' 20' 40' 80'
3 WORKING DAYS BEFORE YOU DIG CALL MISS DIG 1-800-482-7171

ELEMENTS STUDIO inc LANDSCAPE ARCHITECTURE
907 Britten Ave., Lansing, MI 48910
www.ElementsStudio.net | P: (517) 599-7152

CLIENT: Studio (intrigue) Architects, LLC
1114 S. Washington Ave. Suite 100
Lansing, MI 48940-1649
Phone: 517.372.8804

LAKE TRUST CREDIT UNION
EAST GRAND RIVER AVE., GENOA TOWNSHIP, MI
SPECIFICATIONS & AREAS TO IRRIGATE

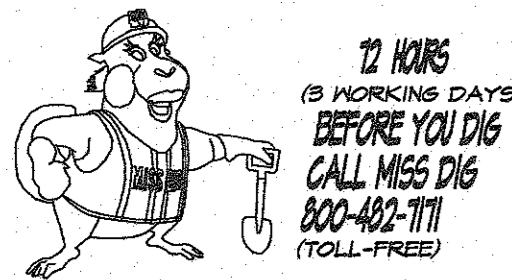


Table with 2 columns: REVISION #, DATE. Shows revisions 3/21/17 and 4/12/17 for Rev. Site Plan Rvw.

DATE: 02/27/17-Site Plan Review
PROJECT NUMBER: S11701
DRAWN BY: KF, JF
CHECKED BY: JF
SCALE: AS INDICATED

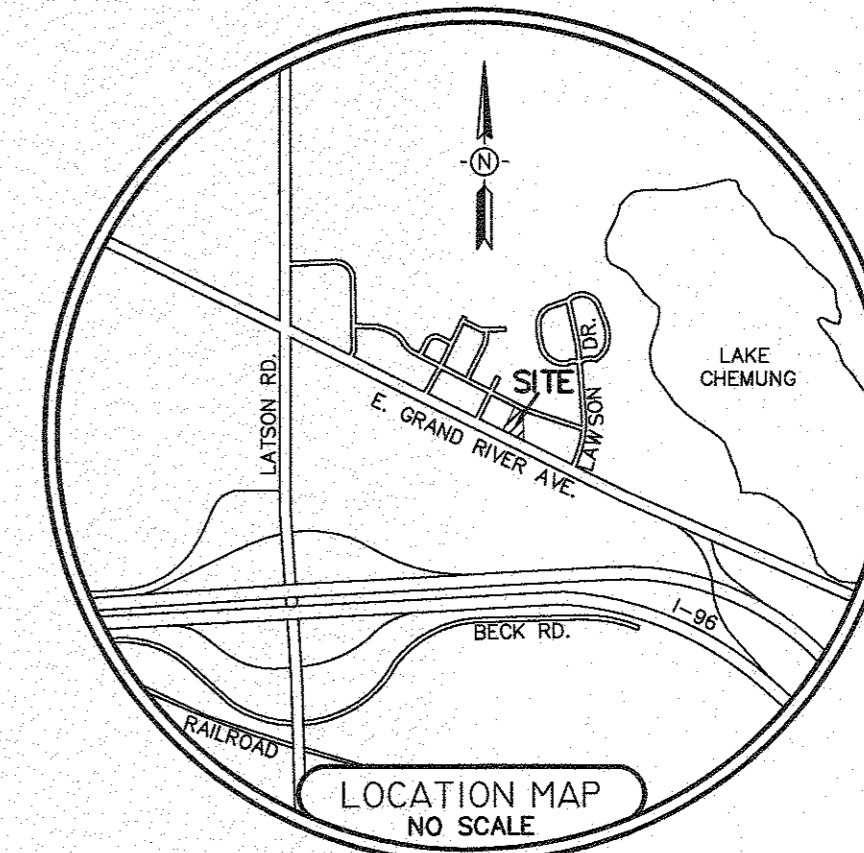
SHEET NUMBER: L103



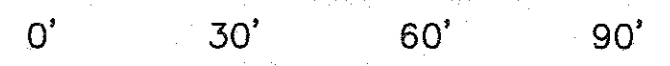


# Lake Trust Credit Union

## GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN



SCALE 1" = 30'



### CERTIFICATE OF SURVEY:

I hereby certify only to the parties named hereon that we have surveyed, at the direction of said parties, the following described parcel of land, and that we have found or set, as noted hereon, permanent markers to all corners of said parcel and that all visible encroachments of a permanent nature upon said parcel are as shown on this survey.

(As provided by Warranty Deed as recorded in Document No. 2007R-025649, recorded 7/25/2007)  
PARCEL 2B:  
Part of the Northwest 1/4 of Section 9, T2N-R5E, Genoa Township, Livingston County, Michigan, more particularly described as follows: Commencing at the North 1/4 corner of Section 9; thence along the North-South 1/4 line of Section 9, as previously surveyed and monumented, S01°39'41"W, 457.93 feet, to the POINT OF BEGINNING of the Parcel to be described; thence continuing along the North-South 1/4 line of Section 9, S01°39'41"W, 350.00 feet; thence along the Northernly line of Grand River Avenue (100 foot wide Right of Way), N60°42'38"W, 272.52 feet; thence along the Southernly line of White Horse Drive (66 foot wide Right of Way- Private), S60°42'38"E, 110.21 feet, to the POINT OF BEGINNING; and including the use of a 26 foot wide Easement for Ingress and Egress over Parcel 2A, as described below. Also including the use of Easement "A", a 66 foot wide Easement for Ingress, Egress and Public Utilities as recorded in Liber 2528, Pages 886-901, Livingston County Records (now known as Arundell Drive). Also including the use of a 20 foot wide Private Easement for Storm Sewer, as described below.

TOGETHER WITH AND SUBJECT TO A RECIPROCAL EASEMENT AGREEMENT FOR INGRESS AND EGRESS DESCRIBED AS FOLLOWS:  
Part of the Northwest 1/4 of Section 9, Town 2 North, Range 5 East, Genoa Township, Livingston County, Michigan, more particularly described as follows: Commencing at the North 1/4 corner of Section 9; thence along the North-South 1/4 line, as previously surveyed and monumented, South 01°39'41" West, 737.01 feet to the POINT OF BEGINNING of the easement to be described; thence continuing along the North-South 1/4 line of Section 9, South 01°39'41"W, 70.92 feet; thence along the Northernly line of Grand River Avenue (100 foot wide Right-of-Way), North 60°42'38" West, 272.52 feet; thence North 29°17'22" East, 36.83 feet; thence North 60°42'38" West, 253.15 feet; thence North 29°17'22" East, 155.60 feet; thence North 60°42'38" West, 38.00 feet; thence along the Easterly line of Easement "A", a 66 foot wide Easement for Ingress, Egress and Public Utilities, as recorded in Liber 2528, Page 886-901, Livingston County Records (now known as Arundell Drive), North 29°17'22" East, 26.00 feet; thence South 60°42'38"E, 64.00 feet; thence South 29°17'22" West, 130.60 feet; thence Southerly on an arc to the left, having a length of 39.27 feet, a radius of 25.00 feet, a central angle of 90°00'00" and a long chord which bears South 15°42'38" East, 35.36 feet; thence South 60°42'38" East, 441.78 feet to the POINT OF BEGINNING.

TOGETHER WITH AND SUBJECT TO AN EASEMENT FOR STORM WATER AND DIVERSION AND SEWER DESCRIBED AS FOLLOWS:  
Part of the Northwest 1/4 of Section 9, Town 2 North, Range 5 East, Genoa Township, Livingston County, Michigan, more particularly described as follows: Commencing at the North 1/4 corner of Section 9; thence along the North-South 1/4 line of Section 9, as previously surveyed and monumented, South 01°39'41" West, 457.93 feet; thence along the Southernly line of White Horse Drive (66 foot wide Right of Way), North 60°42'38" West, 110.21 feet; thence South 29°17'22" West, 20.00 feet; thence North 60°42'38" West, 50.00 feet; thence North 29°17'22" East, 20.00 feet; thence South 60°42'38"E, 50.00 feet to the POINT OF BEGINNING.

### SHEET INDEX

- 1. SITE & UTILITY PLAN
- 2. STORM & GRADING PLAN
- 3. EXISTING CONDITIONS PLAN
- 4. DETAILS

ATTACHMENTS:  
LANDSCAPING PLANS  
MHOG STANDARD DETAILS

- 1 DENOTES NUMBER OF B/F SPACES
- VA DENOTES VAN ACCESS B/F SPACES
- 0 DENOTES PROPOSED NUMBER OF 9' x 18' PARKING SPACES

SITE ADDRESS: E. GRAND RIVER AVENUE, HOWELL, MI 48843 91554.BND

REVISIONS		K.E.B.S., INC. KYES ENGINEERING BRYAN LAND SURVEYS	
2-27-17	SUBMITTAL	2116 HASLETT RD. PH. 517-339-1014 FAX. 517-339-8047	
3-21-17	REVISIONS	Marshall Office Ph. 269-781-9800	
4-12-17	REVISIONS	Lake Trust Credit Union SITE & UTILITY PLAN	
SCALE: 1" = 30'	DESIGNER: GAP	APPROVED BY: GAP	SHEET 1 OF 4
DATE: 1-27-17	PROJECT MGR. GAP	AUTHORIZED BY: Studio Intrigue Architects, LLC	JOB #: 91554

- #### EX. SEWER INVENTORIES
- STORM MANHOLE #100  
RM- 991.92  
24" RCP NORTH- 987.31  
24" SE- 987.24 (PIPE RECESSED)  
24" RCP NW- 987.32
- CATCH BASIN #101  
RM- 992.65  
12" RCP NE- 988.6± (NOT VISIBLE)  
12" RCP WEST- 988.77  
TOP OF WATER- 990.0±
- CATCH BASIN #102  
RM- 991.78  
TOP OF WATER- 990.1±  
NO VISIBLE PIPES
- CATCH BASIN #103  
RM- 992.59  
12" RCP NE- 988.11  
TOP OF WATER- 990.0±
- STORM MANHOLE #104  
RM- 992.45  
24" RCP NE- 988.33  
24" RCP SOUTH- 988.21  
24" RCP 988.31
- SANITARY MANHOLE #200  
RM 992.90  
8" PVC SE- 978.47  
8" PVC NW- 978.49

- #### SITE DATA
- PROPOSED CREDIT UNION  
TOTAL SITE AREA = 59,341 SF = 1.36 ACRES  
ZONED: MUPUD (NSD)
- #### BUILDING SETBACKS
- FRONT - 75 FEET  
SIDES - 25 FEET  
REAR - 40 FEET
- #### BUILDING/UNIT DATA
- PROPOSED BUILDING = 2,360 S.F.  
MAXIMUM BUILDING HEIGHT = 30 FT.
- #### PARKING
- REQUIRED: (SEE ARCHITECTURAL PLAN)  
TOTAL PROVIDED = 30 SPACES (INCL. 2 B/F)
- #### UTILITIES
- WATER:  
CITY PUBLIC WATER MAIN
- SANITARY:  
CITY PUBLIC SANITARY
- STORM:  
ON-SITE DETENTION BASIN
- #### NOTES
- LOCATE UTILITIES PRIOR TO INSTALLATION (COORDINATE W/ ENGINEER)

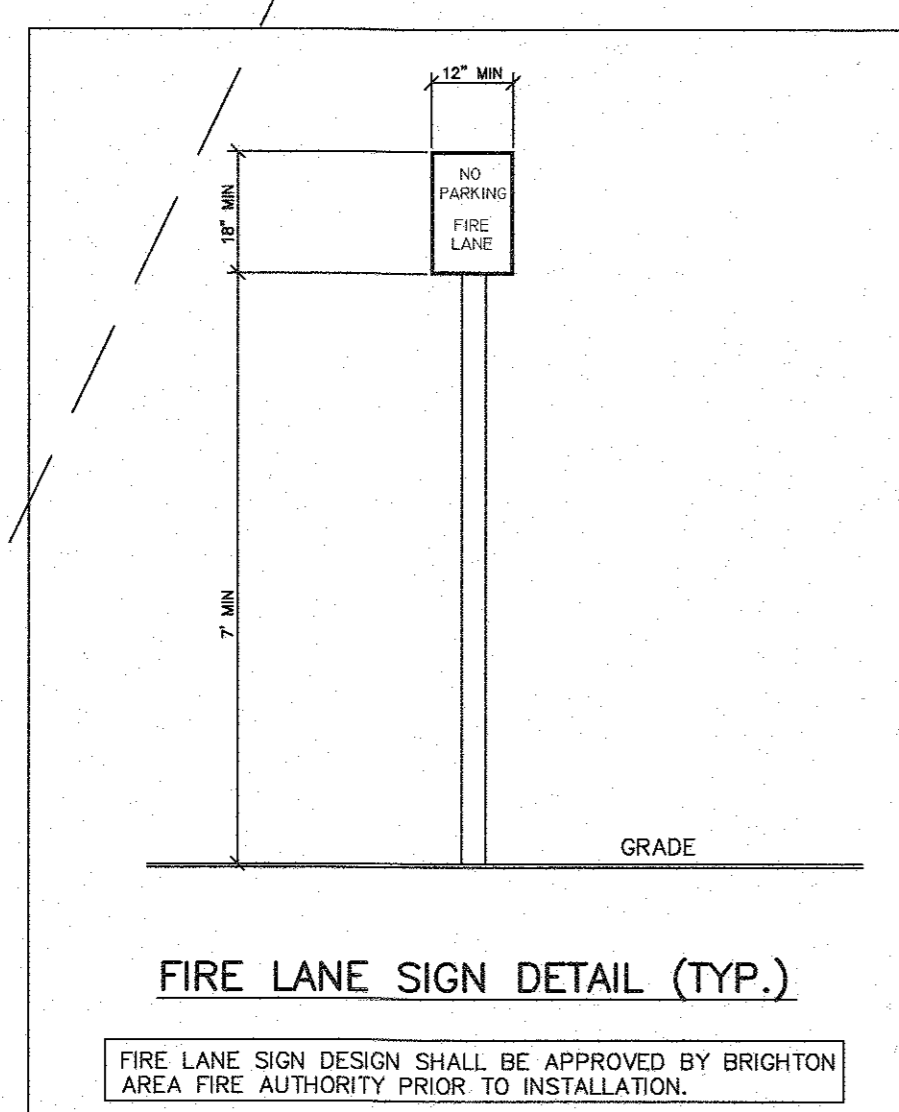
- #### FIRE DEPARTMENT NOTES:
1. THE ADDRESS SHALL BE A MINIMUM OF 6" HIGH LETTERS OF CONTRASTING COLORS AND BE CLEARLY VISIBLE FROM THE STREET (GRAND RIVER). THE LOCATION AND SIZE SHALL BE VERIFIED PRIOR TO INSTALLATION.
  2. A KNOX BOX SHALL BE INCLUDED. IT SHALL BE LOCATED ADJACENT TO THE MAIN ENTRANCE TO THE BUILDING.
  3. OWNER SHALL PROVIDE NAMES, ADDRESSES, PHONE NUMBERS AND EMAILS OF OWNER AND OWNER'S AGENTS, CONTRACTORS, ARCHITECT AND PROJECT SUPERVISOR PRIOR TO CONSTRUCTION.

#### EX. LEGEND

● = SET 1/2" BAR WITH CAP	⊙ = SANITARY MANHOLE
□ = FOUND IRON AS NOTED	⊖ = DRAINAGE MANHOLE
— = DISTANCE NOT TO SCALE	⊕ = ELECTRIC MANHOLE
— = FENCE	⊗ = TELEPHONE MANHOLE
— = ASPHALT	⊙ = CATCHBASIN
— = CONCRETE	⊙ = SANITARY CLEANOUT
— = GRAVEL	⊙ = VALVE
— = EXISTING SPOT ELEVATION	— = UTILITY POLE
— = EXISTING CONTOUR ELEVATION	— = LIGHT POLE
— = SANITARY SEWER	— = GUY POLE
— = STORM SEWER	— = GUY WIRE
— = WATER LINE	— = UTILITY PEDESTAL
— = GAS LINE	— = TRANSFORMER
— = UNDERGROUND TELEPHONE	— = HANDHOLE
— = UNDERGROUND TELEVISION	— = ELECTRIC METER
— = UNDERGROUND ELECTRIC	— = GAS METER
— = OVERHEAD WIRES	— = WATER METER
— = EDGE OF WOODS	— = SIGN
— = DEODOROUS TREE	— = POST
— = CONIFEROUS TREE	— = AIR CONDITIONING UNIT
— = BUSH	

#### LEGEND

— = PROPOSED WATER MAIN	— = PROPOSED HYDRANT
— = PROPOSED SANITARY SEWER	— = PROPOSED GATE VALVE
— = PROPOSED STORM SEWER	— = PROPOSED SAN. M.H.
— = PROPOSED STORM M.H.	— = PROPOSED STORM M.H.
— = PROPOSED C.B.	— = PROPOSED C.B.
— = PROPOSED GRADES	— = PROPOSED GRADES
— = PROPOSED FIRST FLOOR ELEV.	— = PROPOSED FIRST FLOOR ELEV.
— = PROPOSED TOP OF CURB ELEV.	— = PROPOSED TOP OF CURB ELEV.
— = PROPOSED TOP OF GROUND ELEV.	— = PROPOSED TOP OF GROUND ELEV.
— = PROPOSED TOP OF PAVT ELEV.	— = PROPOSED TOP OF PAVT ELEV.
— = PROPOSED TOP OF WALK ELEV.	— = PROPOSED TOP OF WALK ELEV.
— = DENOTES S.E.S.C. KEYING SYSTEM	



FIRE LANE SIGN DESIGN SHALL BE APPROVED BY BRIGHTON AREA FIRE AUTHORITY PRIOR TO INSTALLATION.

#### BENCHMARKS:

BENCHMARK #1 ELEVATION: 995.37 (NAVD 88) CHISELED "X" IN THE EAST SIDE OF THE SOUTHERN MOST CONCRETE LIGHT POLE BASE IN THE PARKING LOT OF "AUBREE'S PIZZA & GRILL", 72± WEST & 68± NORTH OF THE SOUTHWEST CORNER OF THE PROPERTY AND 63± SOUTHWEST OF CB#101.

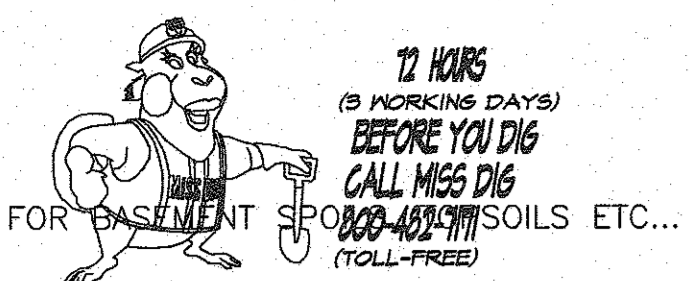
BENCHMARK #2 ELEVATION: 995.11 (NAVD 88) CHISELED "X" IN THE EAST SIDE OF THE NORTHERN MOST CONCRETE LIGHT POLE BASE IN THE PARKING LOT OF "AUBREE'S PIZZA & GRILL", 57± WESTERLY OF THE EDGE OF ASPHALT, 86± SOUTHWEST OF CB#102 AND 70± NORTHWEST OF CB#101.

NOTE: WATER SHALL HAVE 10" HORIZONTAL SEPARATION & 18" VERTICAL SEPARATION FROM ALL SEWERS.

#### LEGEND

— = PROPOSED WATER MAIN	— = PROPOSED HYDRANT
— = PROPOSED SANITARY SEWER	— = PROPOSED GATE VALVE
— = PROPOSED STORM SEWER	— = PROPOSED SAN. M.H.
— = PROPOSED STORM M.H.	— = PROPOSED STORM M.H.
— = PROPOSED C.B.	— = PROPOSED C.B.
— = PROPOSED GRADES	— = PROPOSED GRADES
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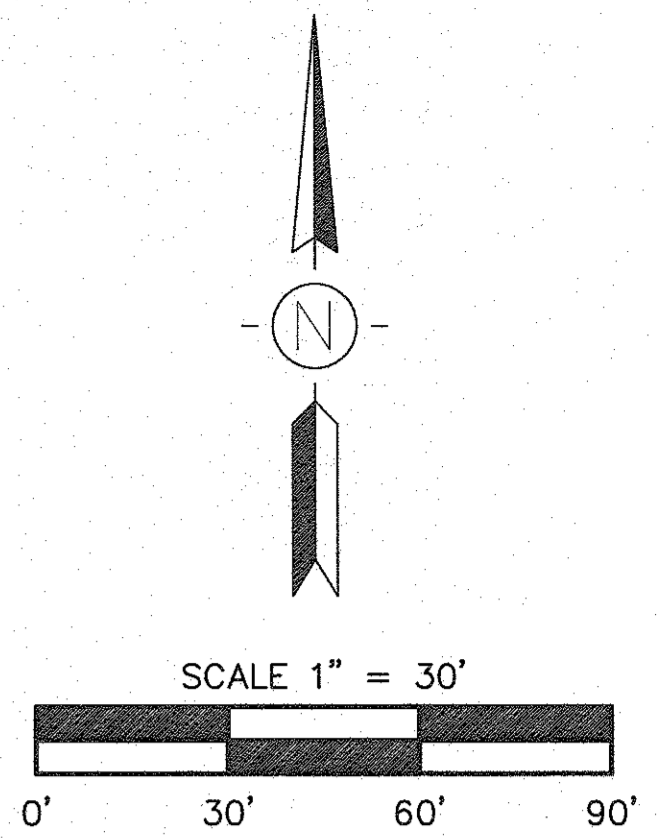


# Lake Trust Credit Union

GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN

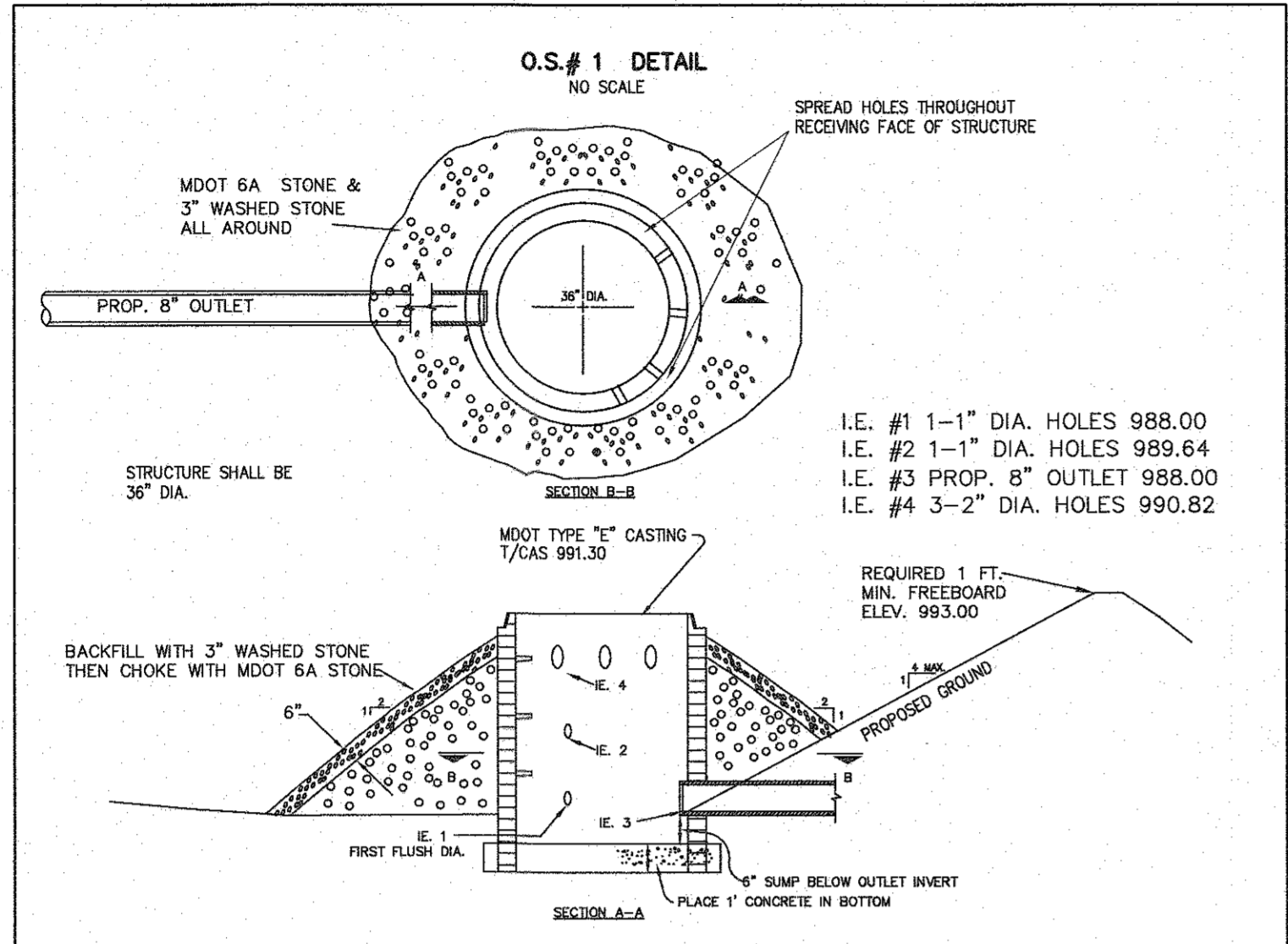
### SURVEYOR'S NOTES:

- This plan was made at the direction of the parties named herein and is intended solely for their immediate use. Survey prepared from fieldwork performed in January 2017.
- All bearings and distances on the survey are record and measured unless otherwise noted. Bearings are based on Boss Engineering Proposed Land Division Survey, Job No. 06427, dated 05-04-07. Elevations based on NAVD 88.
- All dimensions are in feet and decimals thereof.
- No building tie dimensions are to be used for establishing the property lines.
- By scaled map location and graphic plotting only, this property lies entirely within Flood Zone "X", areas outside the 0.2% annual chance floodplain, according to the National Flood Insurance Program, Flood Insurance Rate Map for the Township of Genoa, Livingston County, Michigan, Community Panel No. 260843 0330 D, dated September 17, 2008.
- Utility information as shown was obtained from available public records and from supporting field observations, where possible, and is subject to verification in the field by the appropriate authorities prior to use for construction.
- All plottable easements per documentation provided are shown. No independent easement research was completed by KEBS, Inc. All easements may not be shown.



### EX. SEWER INVENTORIES

- STORM MANHOLE #100**  
RM- 991.92  
24" RCP NORTH- 987.31  
24" RCP SE- 987.28 (PIPE RECESSED)  
24" RCP NW- 987.32
- CATCH BASIN #101**  
RM- 992.65  
12" RCP NE- 988.62 (NOT VISIBLE)  
12" RCP WEST- 988.77  
TOP OF WATER- 990.02
- CATCH BASIN #102**  
RM- 991.78  
TOP OF WATER- 990.14  
NO VISIBLE PIPES
- CATCH BASIN #103**  
RM- 992.59  
12" RCP NE- 989.11  
24" RCP SOUTH- 988.02
- STORM MANHOLE #104**  
RM- 992.45  
12" RCP NE- 988.33  
24" RCP SOUTH- 988.21  
24" RCP 988.31
- SANITARY MANHOLE #200**  
RM 992.90  
8" PVC SE- 978.47  
8" PVC NW- 978.49



### STORM INVENTORY:

- OS#1**  
(SEE DETAIL THIS SHEET)
- CB#2 (4' DIAM.)**  
T/CURB 993.00  
I.E. 12" E 988.76
- CB#3 (4' DIAM.)**  
T/CURB 993.00  
I.E. 12" W 988.65  
I.E. 12" SE 988.65
- CB#4 (4' DIAM.)**  
T/CURB 992.60  
I.E. 15" S 988.15  
I.E. 15" SE 988.15
- CB#5 (4' DIAM.)**  
T/CURB 923.00  
I.E. 15" N 988.49  
I.E. 12" W 988.49  
I.E. 12" E 988.49
- CB#6 (4' DIAM.)**  
T/CURB 993.15  
I.E. 12" SE 988.78  
I.E. 12" NW 988.78
- CB#7 (4' DIAM.)**  
T/CURB 993.05  
I.E. 12" SE 989.00
- CB#8 (4' DIAM.)**  
T/CURB 992.65  
I.E. 12" W 988.62

NOTE: ALL GRADES SHOWN ARE FOR FINAL CONSTRUCTED CONDITIONS AND CONTRACTOR IS RESPONSIBLE FOR HOLDING DOWN GRADES AS THEY OR THE DEVELOPER DEEMS NECESSARY

### EX. LEGEND

- = SET 1/2" BAR WITH CAP
- = FOUND IRON AS NOTED
- = DISTANCE NOT TO SCALE
- = FENCE
- = ASPHALT
- = CONCRETE
- = GRAVEL
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- = TELEPHONE MANHOLE
- = CATCHBASIN
- = SANITARY CLEANOUT
- = FIRE HYDRANT
- = VALVE
- = UTILITY POLE
- = LIGHT POLE
- = GUY POLE
- = GUY WIRE
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- = WATER METER
- = SIGN
- = POST
- = AIR CONDITIONING UNIT

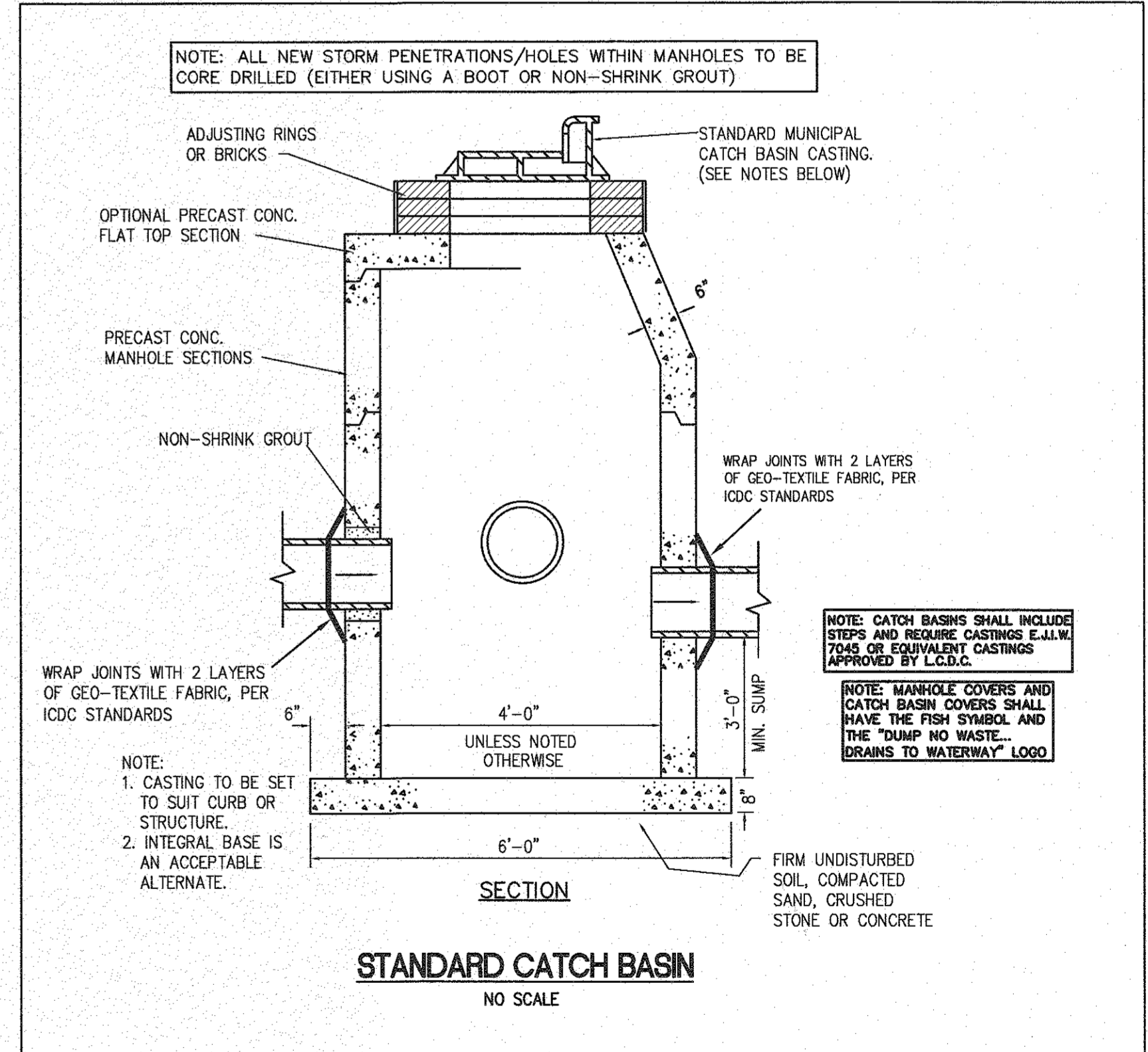
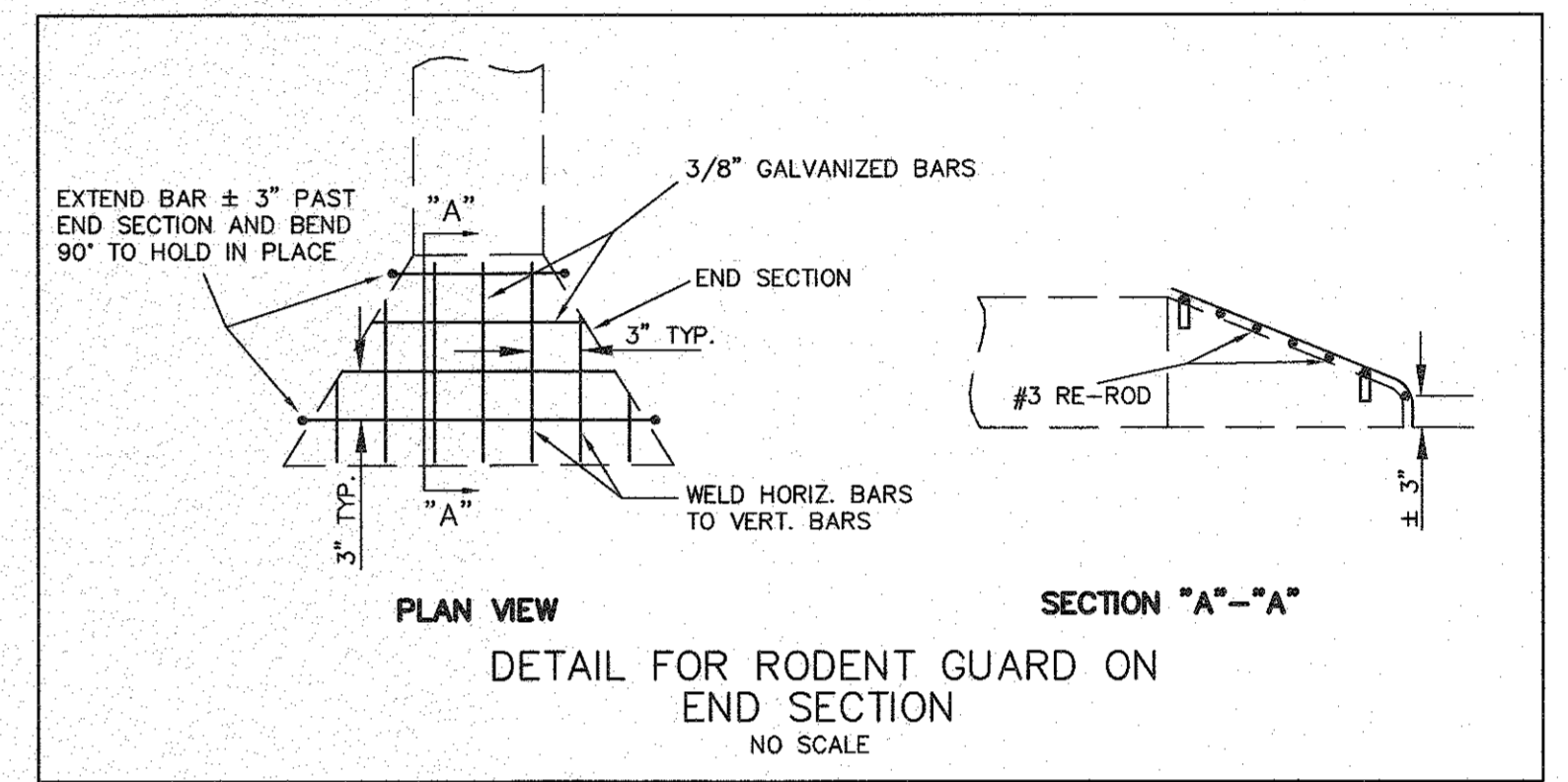
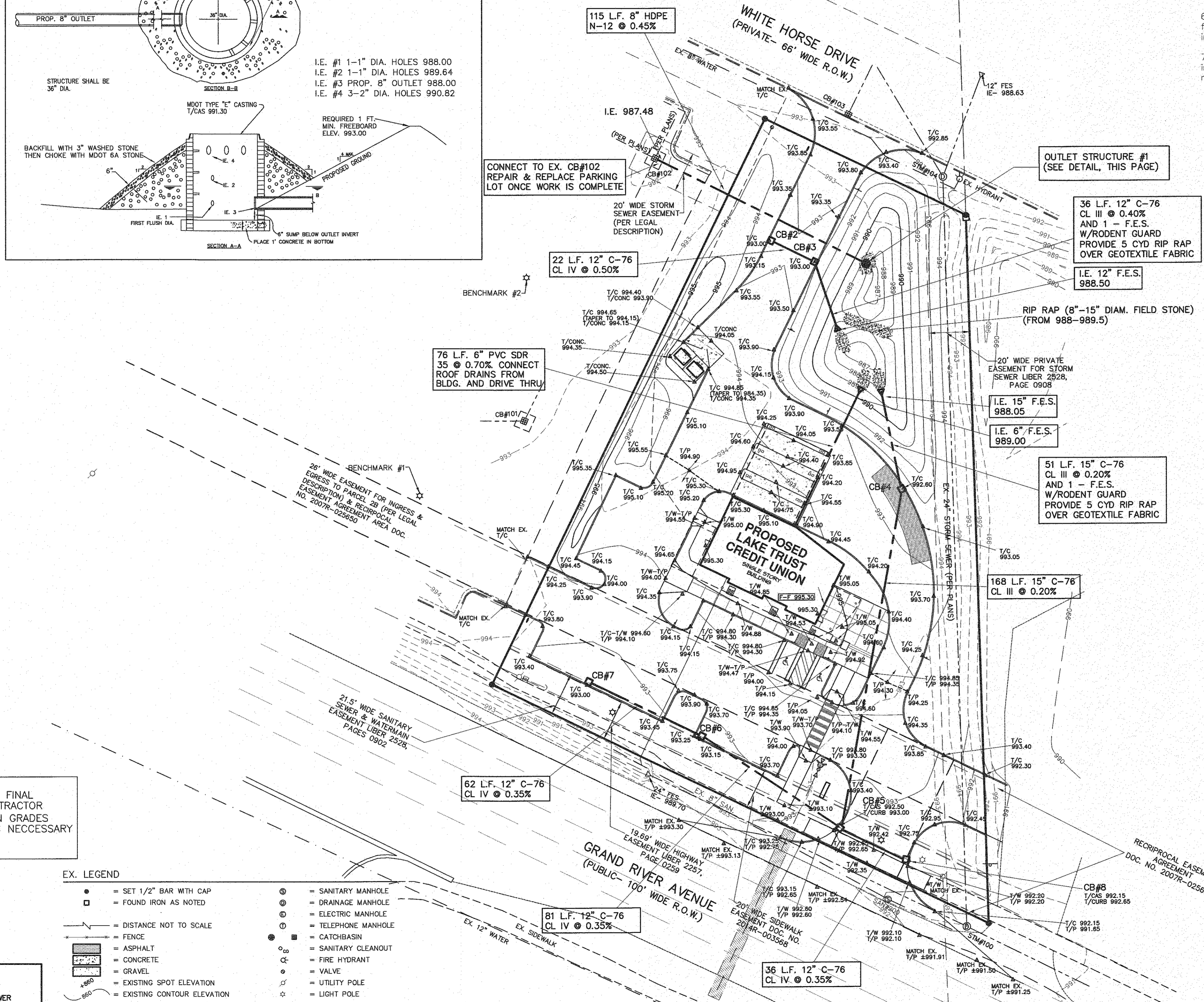
NOTE: WATER SHALL HAVE 10' HORIZONTAL SEPARATION & 18" VERTICAL SEPARATION FROM ALL SEWERS.

### LEGEND

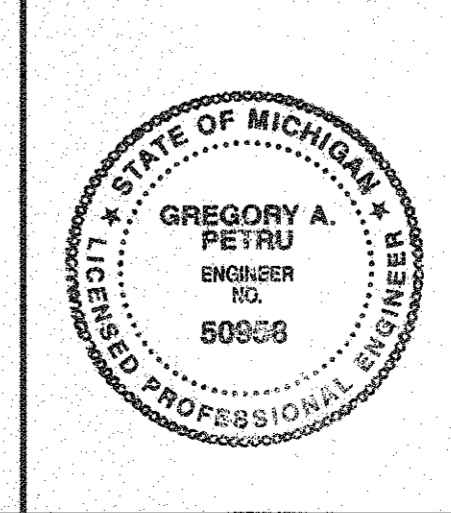
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- = DENOTES S.E.S.C. KEYING SYSTEM

### BENCHMARKS:

- BENCHMARK #1** ELEVATION: 995.37 (NAVD 88)  
CHISELED "X" IN THE EAST SIDE OF THE SOUTHERN MOST CONCRETE LIGHT POLE BASE IN THE PARKING LOT OF "AUBREE'S PIZZA & GRILL", 72'± WEST & 68'± NORTH OF THE SOUTHWEST CORNER OF THE PROPERTY AND 63'± SOUTHWEST OF CB#101.
- BENCHMARK #2** ELEVATION: 995.11 (NAVD 88)  
CHISELED "X" IN THE EAST SIDE OF THE NORTHERN MOST CONCRETE LIGHT POLE BASE IN THE PARKING LOT OF "AUBREE'S PIZZA & GRILL", 57'± WESTERLY OF THE EDGE OF ASPHALT, 86'± SOUTHWEST OF CB#102 AND 70'± NORTHWEST OF CB#101.



SITE ADDRESS: E. GRAND RIVER AVENUE, HOWELL, MI 48843 91554.BND



REVISIONS		DESIGNER: G.A.P.		APPROVED BY: G.A.P.	
2-27-17	SUBMITTAL	GAP		GAP	
3-21-17	REVISIONS	GAP		GAP	
4-12-17	REVISIONS	GAP		GAP	

**KEBS, INC.** KYES ENGINEERING BRYAN LAND SURVEYS  
2116 HASLETT ROAD, HASLETT, MI 48840  
PH. 517-339-1014 FAX. 517-339-8047  
Marshall Office Ph. 269-781-9800

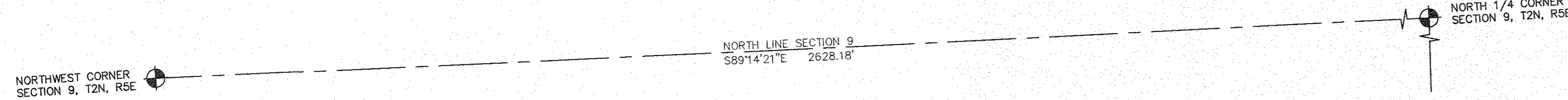
**Lake Trust Credit Union**  
PRELIMINARY STORM & GRADING PLAN

SCALE: 1" = 30'	DESIGNER: G.A.P.	APPROVED BY: G.A.P.
DATE: 1-27-17	PROJECT MGR: G.A.P.	SHEET 2 OF 4
AUTHORIZED BY: Studio Intrigue Architects, LLC	JOB #:	91554



# EXISTING CONDITIONS PLAN

## "E. GRAND RIVER AVENUE, HOWELL, MI 48843"



### SEWER INVENTORIES

STORM MANHOLE #100  
 RIM- 991.92  
 24" RCP NORTH- 987.31  
 24" SE- 987.2± (PIPE RECESSED)  
 24" RCP NW- 987.32

CATCH BASIN #101  
 RIM- 992.65  
 12" RCP NE- 988.6± (NOT VISIBLE)  
 12" RCP WEST- 988.77  
 TOP OF WATER- 990.0±

CATCH BASIN #102  
 RIM- 991.78  
 TOP OF WATER- 990.1±  
 NO VISIBLE PIPES

CATCH BASIN #103  
 RIM- 992.59  
 12" RCP NE- 989.11  
 TOP OF WATER- 990.0±

STORM MANHOLE #104  
 RIM- 992.45  
 12" RCP NE- 988.33  
 24" RCP SOUTH- 988.21  
 24" RCP 988.31

SANITARY MANHOLE #200  
 RIM 992.90  
 8" PVC SE- 978.47  
 8" PVC NW- 978.49

### SURVEYOR'S NOTES:

- This plan was made at the direction of the parties named hereon and is intended solely for their immediate use. Survey prepared from fieldwork performed in January 2017.
- All bearings and distances on the survey are record and measured unless otherwise noted. Bearings are based on Boss Engineering Proposed Land Division Survey, Job No. 06427, dated 05-04-07. Elevations based on NAVD 88.
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- No building tie dimensions are to be used for establishing the property lines.
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- All plottable easements per documentation provided are shown. No independent easement research was completed by KEBS, Inc. All easements may not be shown.

### EX. SOILS INFORMATION:

- MoB: Miami Loam, 2-6% Slopes.
- MoC: Miami Loam, 6-12% Slopes.

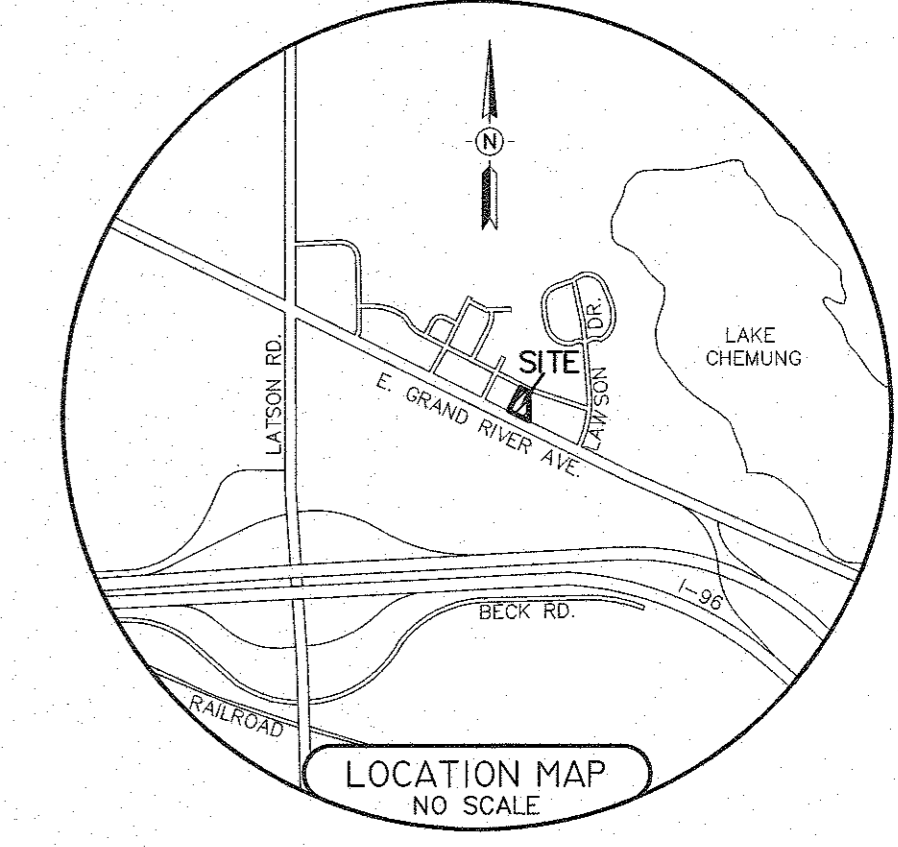
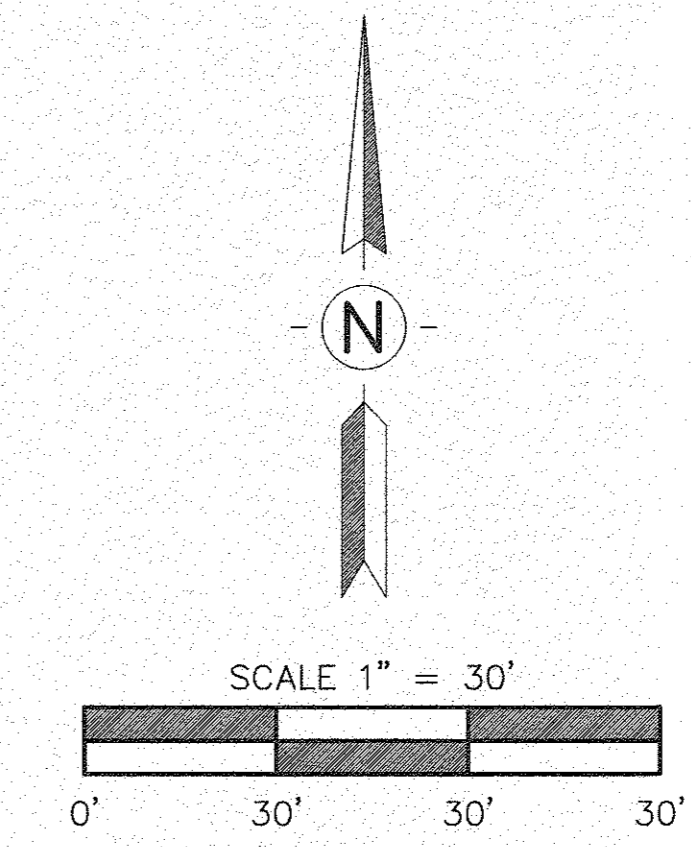
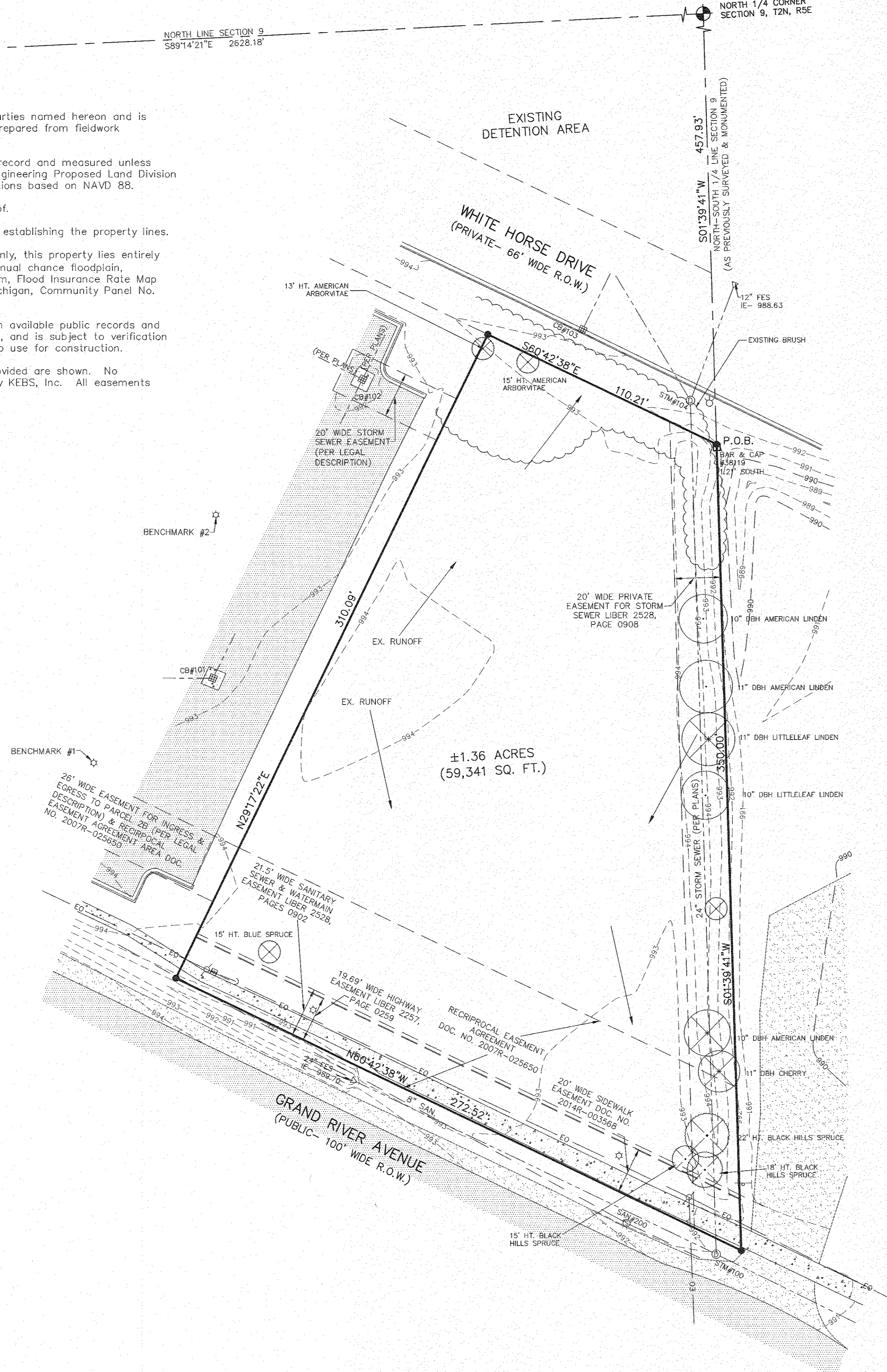
### BENCHMARKS:

BENCHMARK #1 ELEVATION: 995.37 (NAVD 88)  
 CHISELED "X" IN THE EAST SIDE OF THE SOUTHERN MOST CONCRETE LIGHT POLE BASE IN THE PARKING LOT OF "AUBREE'S PIZZA & GRILL", 72± WEST & 68± NORTH OF THE SOUTHWEST CORNER OF THE PROPERTY AND 63± SOUTHWEST OF CB#101.

BENCHMARK #2 ELEVATION: 995.11 (NAVD 88)  
 CHISELED "X" IN THE EAST SIDE OF THE NORTHERN MOST CONCRETE LIGHT POLE BASE IN THE PARKING LOT OF "AUBREE'S PIZZA & GRILL", 57± WESTERLY OF THE EDGE OF ASPHALT, 86± SOUTHWEST OF CB#102 AND 70± NORTHWEST OF CB#101.

### LEGEND

- = SET 1/2" BAR WITH CAP
- = FOUND IRON AS NOTED
- = DEED LINE
- = DISTANCE NOT TO SCALE
- = FENCE
- = ASPHALT
- = CONCRETE
- = GRAVEL
- +880 = EXISTING SPOT ELEVATION
- +880 = EXISTING CONTOUR ELEVATION
- = SANITARY SEWER
- = STORM SEWER
- = WATER LINE
- = GAS LINE
- = UNDERGROUND TELEPHONE
- = UNDERGROUND TELEVISION
- = UNDERGROUND ELECTRIC
- = OVERHEAD WIRES
- = EDGE OF WOODS/BRUSH
- = EX. TREE (LABELED ON PLAN)
- ⊙ = SANITARY MANHOLE
- ⊕ = DRAINAGE MANHOLE
- ⊖ = ELECTRIC MANHOLE
- ⊗ = TELEPHONE MANHOLE
- ⊘ = CATCHBASIN
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- ⊘ = GAS METER
- ⊙ = WATER METER
- ⊕ = SOIL BORING
- ⊖ = SIGN
- ⊗ = POST
- ⊘ = AIR CONDITIONING UNIT



### CERTIFICATE OF SURVEY:

I hereby certify only to the parties named hereon that we have surveyed, at the direction of said parties, the following described parcel of land, and that we have found or set, as noted hereon, permanent markers to all corners of said parcel and that all visible encroachments of a permanent nature upon said parcel are as shown on this survey.

(As provided by Warranty Deed as recorded in Document No. 2007R-025649, recorded 7/25/2007)  
 PARCEL 2B:  
 Part of the Northwest 1/4 of Section 9, T2N-R5E, Genoa Township, Livingston County, Michigan, more particularly described as follows: Commencing at the North 1/4 corner of Section 9; thence along the North-South 1/4 line of Section 9, as previously surveyed and monumented, S01°39'41"W, 457.93 feet, to the POINT OF BEGINNING of the Parcel to be described; thence continuing along the North-South 1/4 line of Section 9, S01°39'41"W, 350.00 feet; thence along the Northerly line of Grand River Avenue (100 foot wide Right of Way), N60°42'38"W, 272.52 feet; thence N29°17'22"E, 310.09 feet; thence along the Southerly line of White Horse Drive (66 foot wide Right of Way- Private), S60°42'38"E, 110.21 feet, to the POINT OF BEGINNING, and including the use of a 26 foot wide Easement for Ingress and Egress over Parcel 2A, as described below. Also including the use of Easement "A", a 66 foot wide Easement for Ingress, Egress and Public Utilities as recorded in Liber 2528, Pages 886-901, Livingston County Records (now known as Arundell Drive). Also including the use of a 20 foot wide Private Easement for Storm Sewer, as described below.

TOGETHER WITH AND SUBJECT TO A RECIPROCAL EASEMENT AGREEMENT FOR INGRESS AND EGRESS DESCRIBED AS FOLLOWS:

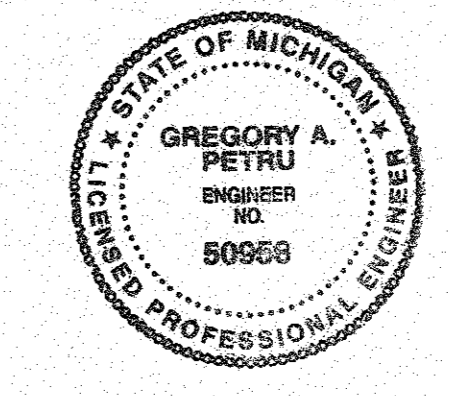
Part of the Northwest 1/4 of Section 9, Town 2 North, Range 5 East, Genoa Township, Livingston County, Michigan, more particularly described as follows: Commencing at the North 1/4 corner of Section 9; thence along the North-South 1/4 line, as previously surveyed and monumented, South 01°39'41" West, 737.01 feet to the POINT OF BEGINNING of the easement to be described; thence continuing along the North-South 1/4 line of Section 9, South 01°39'41"W, 70.92 feet; thence along the Northerly line of Grand River Avenue (100 foot wide Right-of-Way), North 60°42'38" West, 272.52 feet; thence North 29°17'22" East, 36.83 feet; thence North 60°42'38" West, 253.15 feet; thence North 29°17'22" East, 155.60 feet; thence North 60°42'38" West, 38.00 feet; thence along the Easterly line of Easement "A", a 66 foot wide Easement for Ingress, Egress and Public Utilities, as recorded in Liber 2528, Page 886-901, Livingston County Records (now known as Arundell Drive), North 29°17'22" East, 26.00 feet; thence South 60°42'38"E, 64.00 feet; thence South 29°17'22" West, 130.60 feet; thence Southerly on an arc to the left, having a length of 39.27 feet, a radius of 25.00 feet, a central angle of 90°00'00" and a long chord which bears South 15°42'38" East, 35.36 feet; thence South 60°42'38" East, 441.78 feet to the POINT OF BEGINNING.

TOGETHER WITH AND SUBJECT TO AN EASEMENT FOR STORM WATER AND DIVERSION AND SEWER DESCRIBED AS FOLLOWS:

Part of the Northwest 1/4 of Section 9, Town 2 North, Range 5 East, Genoa Township, Livingston County, Michigan, more particularly described as follows: Commencing at the North 1/4 corner of Section 9; thence along the North-South 1/4 line of Section 9, as previously surveyed and monumented, South 01°39'41" West, 457.93 feet; thence along the Southerly line of White Horse Drive (66 foot wide Right of Way), North 60°42'38" West, 110.21 feet; thence South 29°17'22" West, 31.00 feet, to the POINT OF BEGINNING of the Easement to be described; thence continuing, South 29°17'22" West, 20.00 feet; thence North 60°42'38" West, 50.00 feet; thence North 29°17'22" East, 20.00 feet; thence South 60°42'38"E, 50.00 feet to the POINT OF BEGINNING.

### WITNESSES TO SECTION CORNERS:

- North 1/4 Corner, Section 9, T2N, R5E, LSC#1720M  
 Found Livingston County Remon, bar & cap
- Found remon, nail & tag in West side of 10" Hickory, South, 28.18'
- Found remon, nail & tag in West side of 36" Oak, North, 88.30'
- Northwest side of 40" Oak, N30°E, 4.35'
- Northwest corner of building, S45°E, 58.84
- Northwest Corner Section 9, T2N, R5E, LSC#1718M  
 Found Livingston County Remon, bar & cap
- Found remon, nail & tag in Northwest side of utility pole, N65°E, 62.26'
- Found remon, nail & tag in North side of 24" Oak, S50°E, 33.38'
- Found remon, nail & tag in West side of utility pole, S30°E, 93.83'
- Found remon, nail & tag in West side of 24" Oak, S10°E, 113.34'



REVISIONS	COMMENTS	KEBS, INC. ENGINEERING AND LAND SURVEYING	
01/26/17	ORIGINAL	2116 HASLETT ROAD, HASLETT, MI 48840 PH. 517-338-1014 FAX 517-338-8047 WWW.KEBS.COM	
Marshall Office - Ph. 269-781-9800		DRAWN BY	SECTION 9, T2N, R5E
		FIELD WORK BY	JOB NUMBER: 91554
		SHEET	3 OF 4



E8 PERMANENT SEEDING SPECIFICATIONS

When: To finalize stabilization of temporary seeding area or when an area needs permanent stabilization following completion of construction. Also used when vegetative establishment can correct existing soil erosion or sedimentation problem.



PERMANENT SEEDING SPECIFICATIONS (E8)

Maintenance: Inspect weekly and within 24 hours following each rain event in the first few months following installation to be sure seed has germinated and permanent vegetative cover is being established.

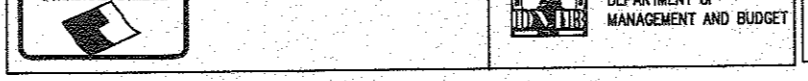
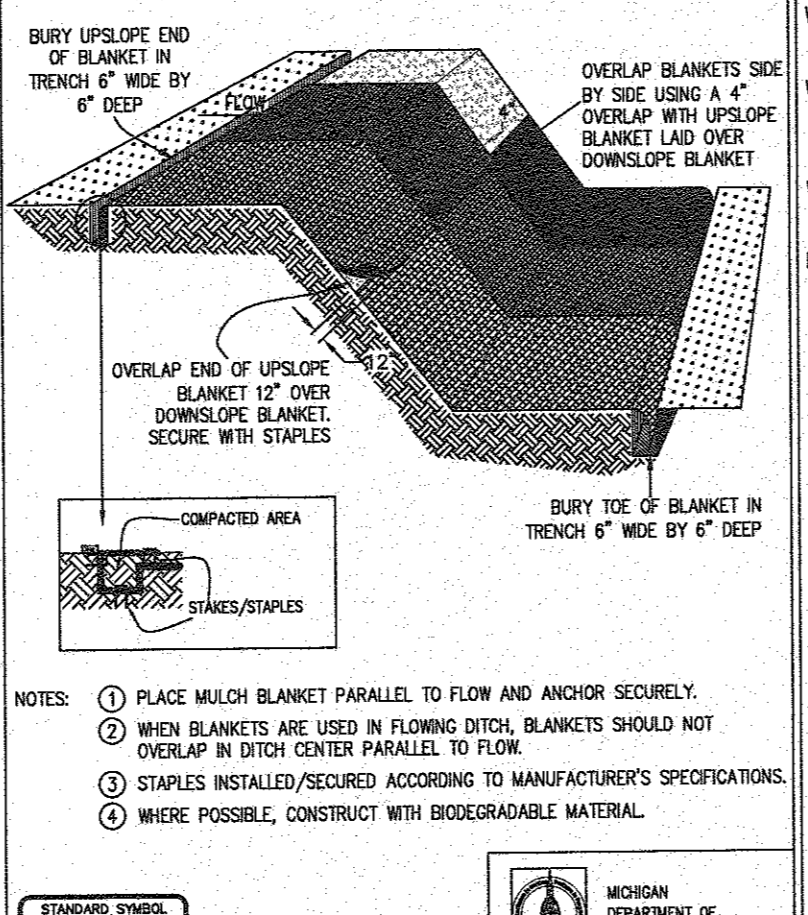


E8 PERMANENT SEEDING

Table with columns for Planting Zones (Zone 1, Zone 2, Zone 3) and rows for Seeding Windows (Perennial Seeding, Dormant Seeding) and Seeding Dates (South of U.S. 10, North of U.S. 10).

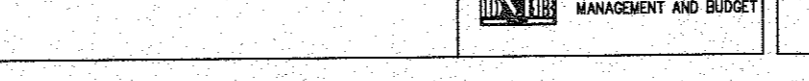


E9 MULCH BLANKETS



E9 MULCH BLANKETS SPECIFICATIONS

When: When seeded areas are subject to erosive surface flows, severe wind, or to protect non-vegetated slopes or areas during the winter.

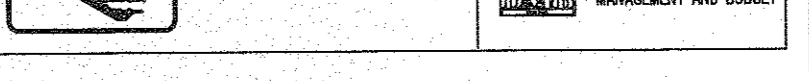
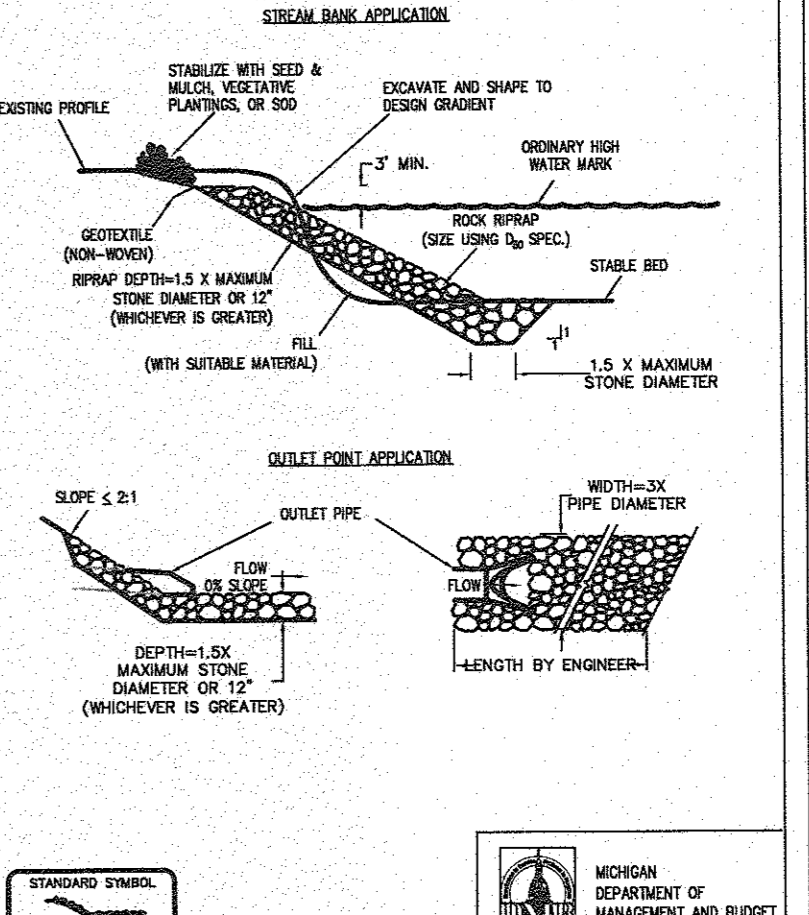


E9 MULCH BLANKETS SPECIFICATIONS

Maintenance: Check after a rain event to ensure the blanket is still in place. Keep eroded soil, vehicular and pedestrian traffic, and concentrated runoff away from the blanketed area.



E12 RIPRAP



E12 RIPRAP SPECIFICATIONS

Maintenance: All installations should be inspected immediately after the first rainfall to confirm the stability of the placed material. Follow-up inspections should occur regularly and provisions made for prompt repair if needed.



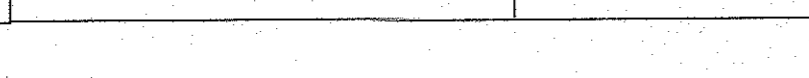
S51 SILT FENCE SPECIFICATIONS

When: A temporary measure for preventing sediment movement. Used to prevent sediment suspended in runoff from leaving an earth change area.

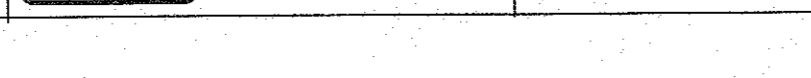
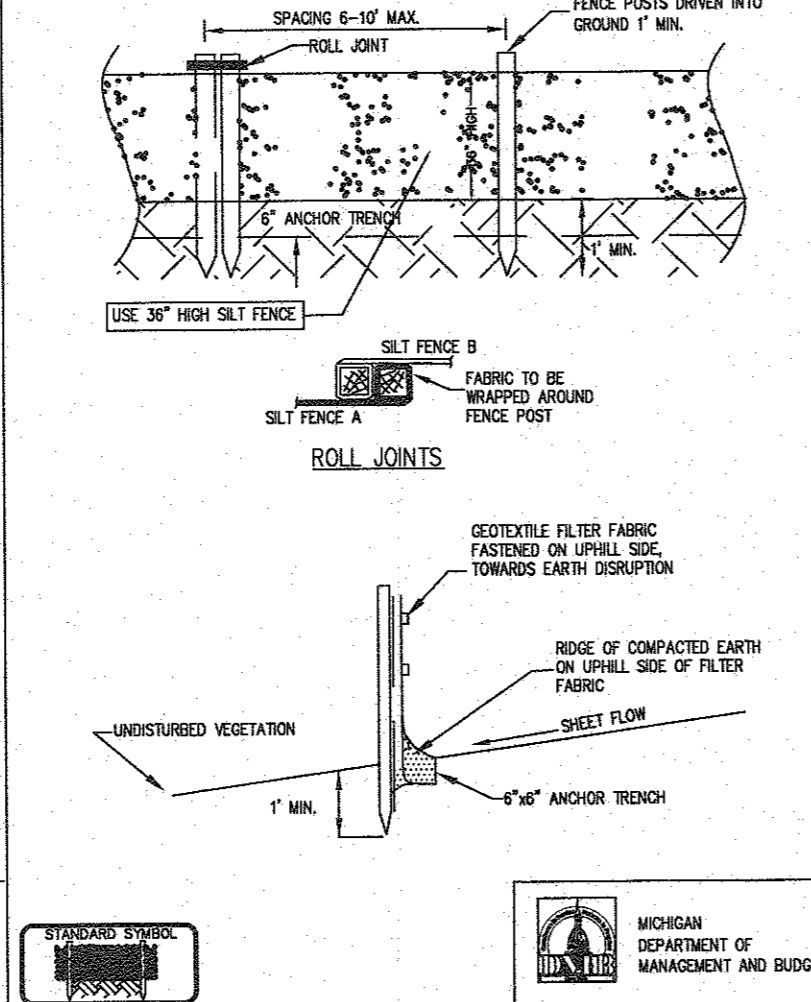


S51 SILT FENCE SPECIFICATIONS

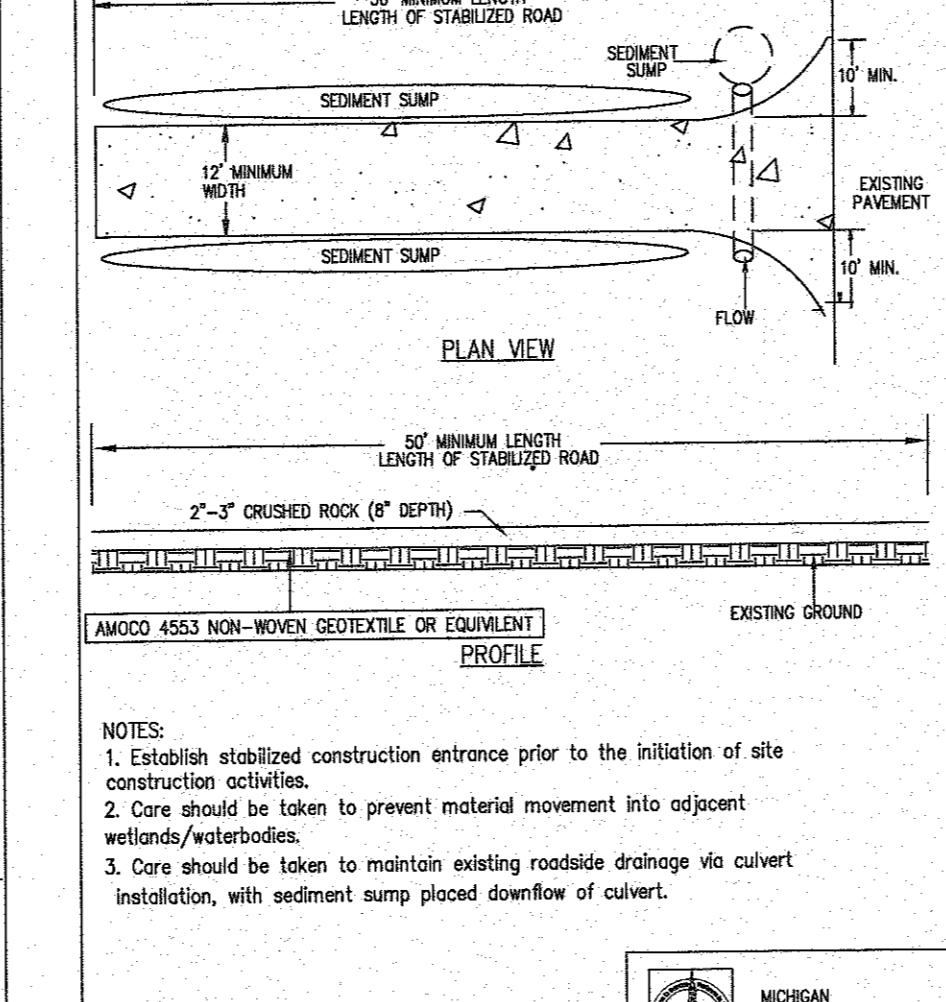
Maintenance: Inspect frequently and immediately after each storm event. Check several times during prolonged storm events. If necessary, repair immediately.



S51 SILT FENCE



S53 STABILIZED CONSTRUCTION ACCESS



S53 STABILIZED CONSTRUCTION ACCESS SPECIFICATIONS

Maintenance: Sediment deposited on public rights-of-way shall be removed immediately and returned to the construction site.



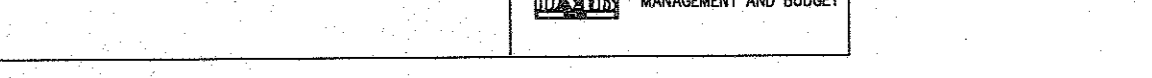
S53 STABILIZED CONSTRUCTION ACCESS SPECIFICATIONS

When: Construction traffic is expected to leave a construction site. Stabilization of interior construction roads is desired.

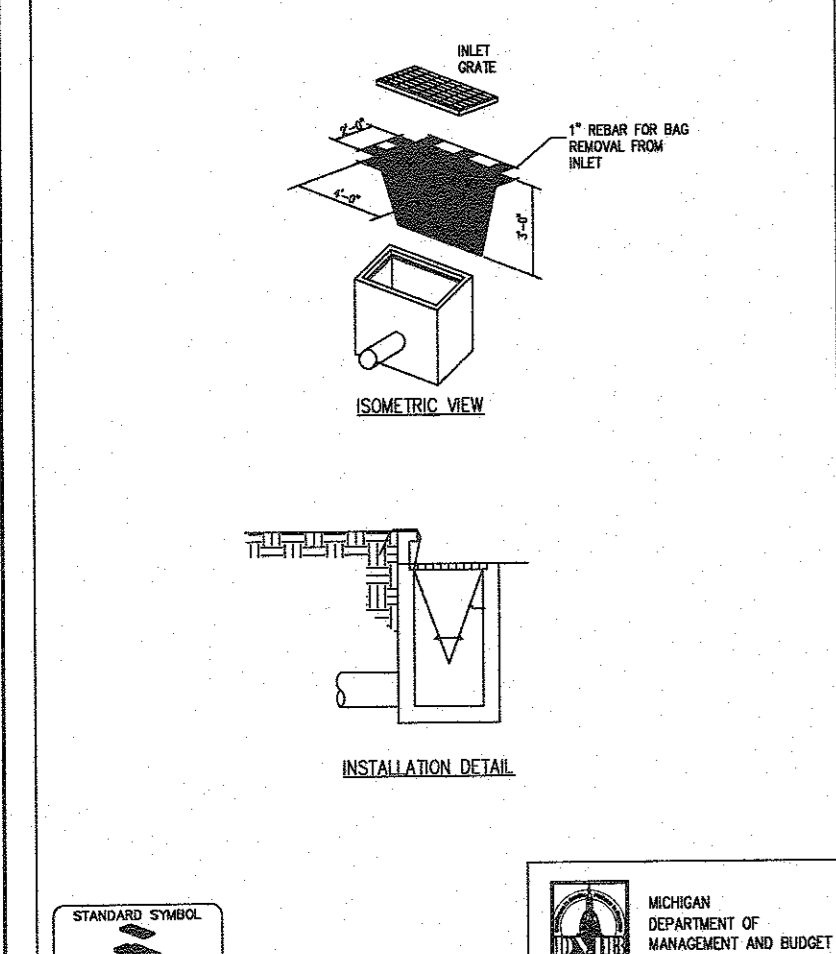


E12 RIPRAP SPECIFICATIONS

When: When concentrated water flows have the potential to create scour, down-cutting, or lateral cutting.



S58 INLET PROTECTION - FABRIC DROP

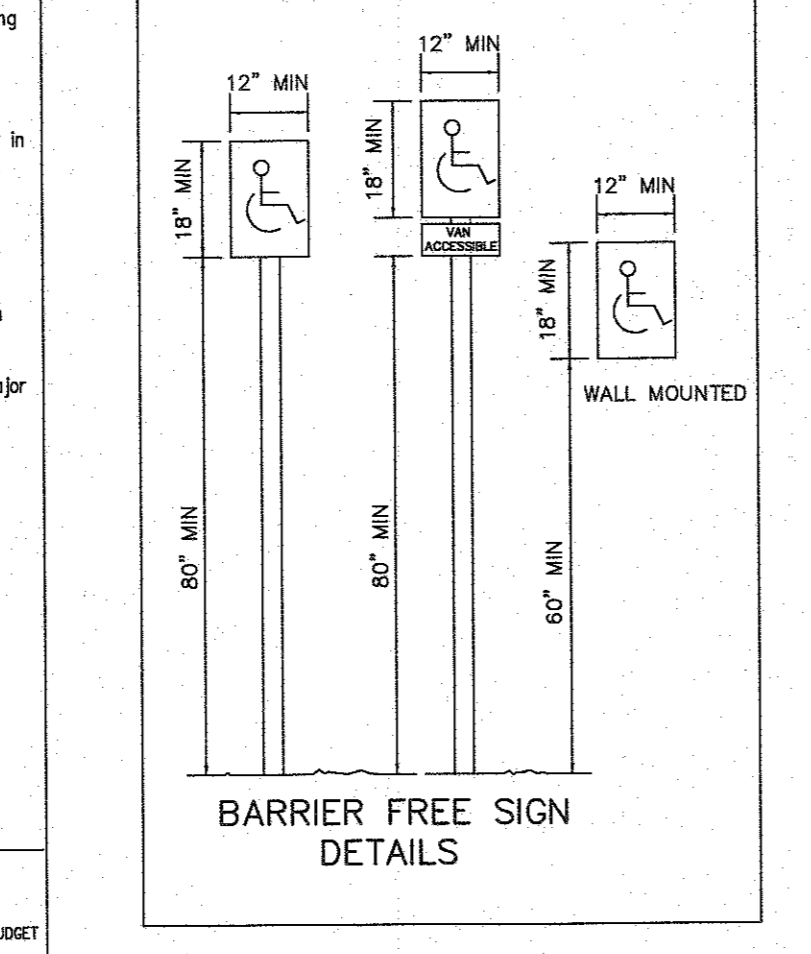


S58 INLET PROTECTION - FABRIC DROP SPECIFICATIONS

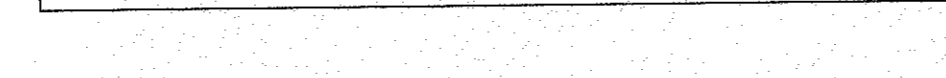
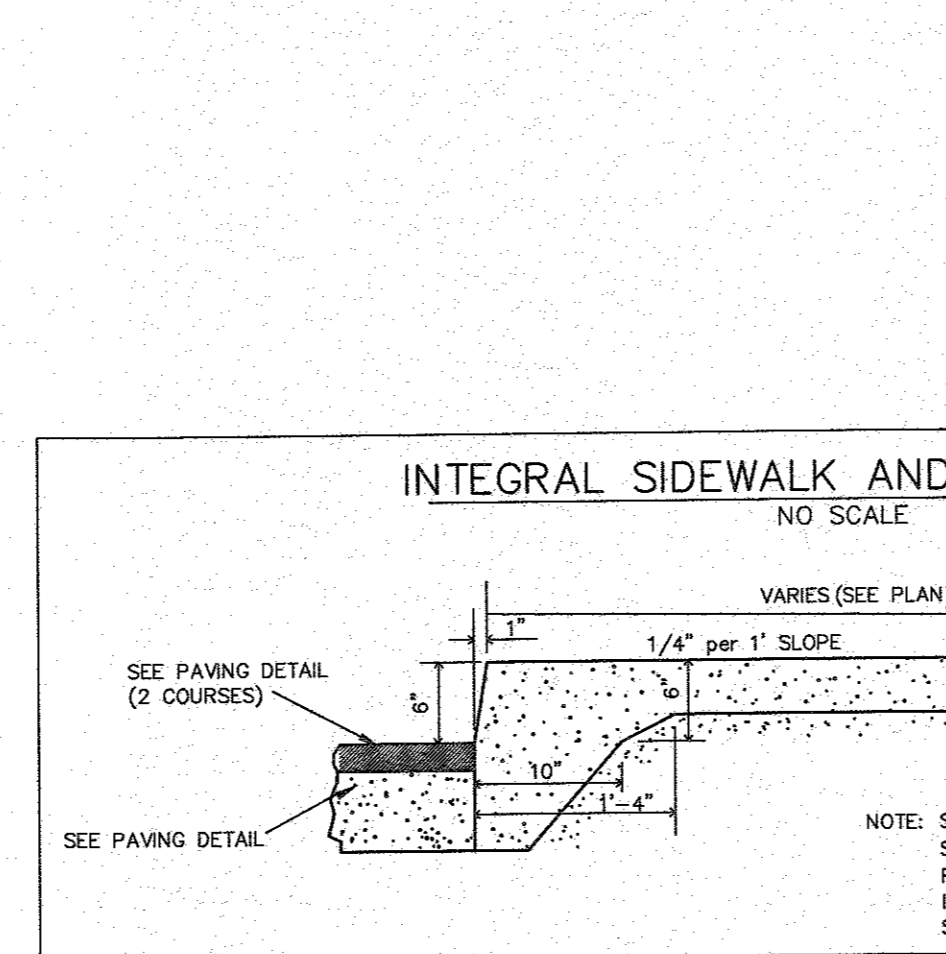
When: When sediment laden stormwater requires treatment before entering a stormwater drainage system.



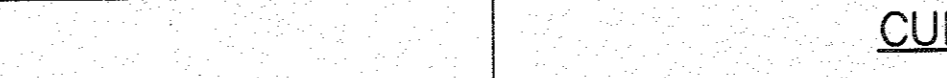
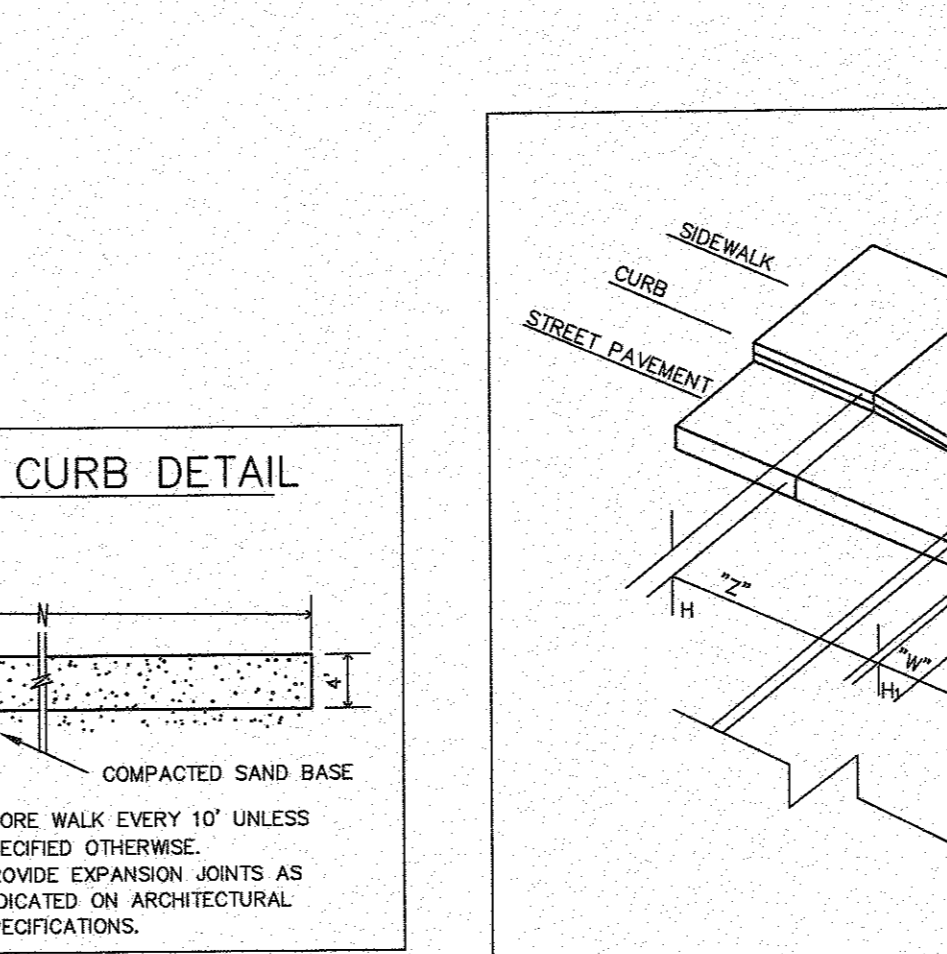
S58 BARRIER FREE SIGN DETAILS



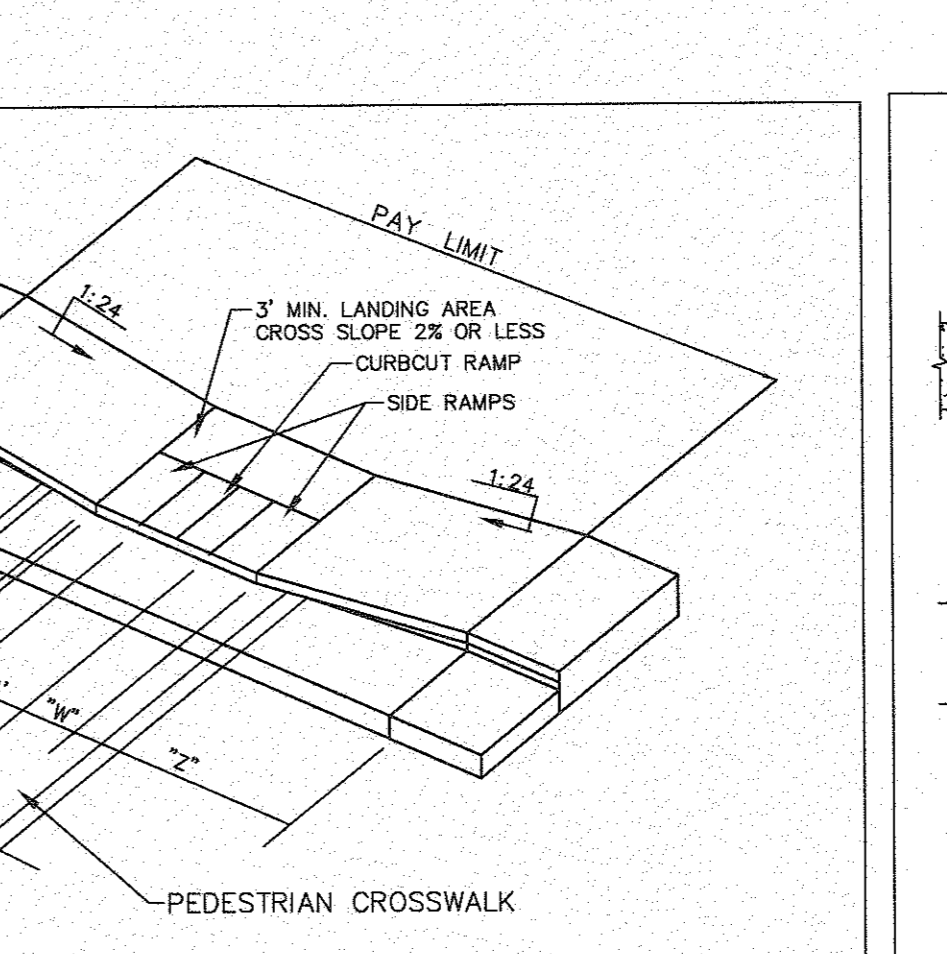
S58 INTEGRAL SIDEWALK AND CURB DETAIL



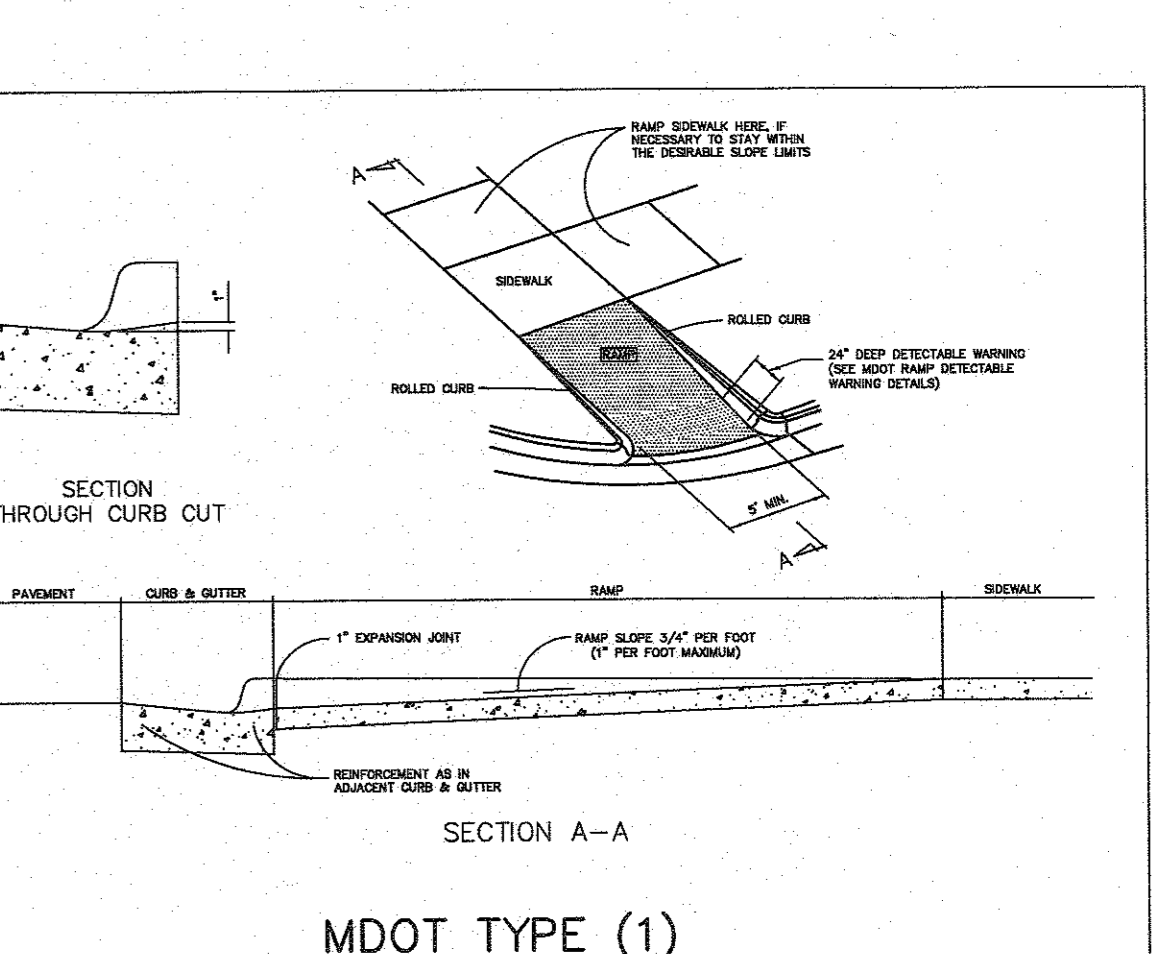
S58 ASPHALT PAVEMENT SECTION



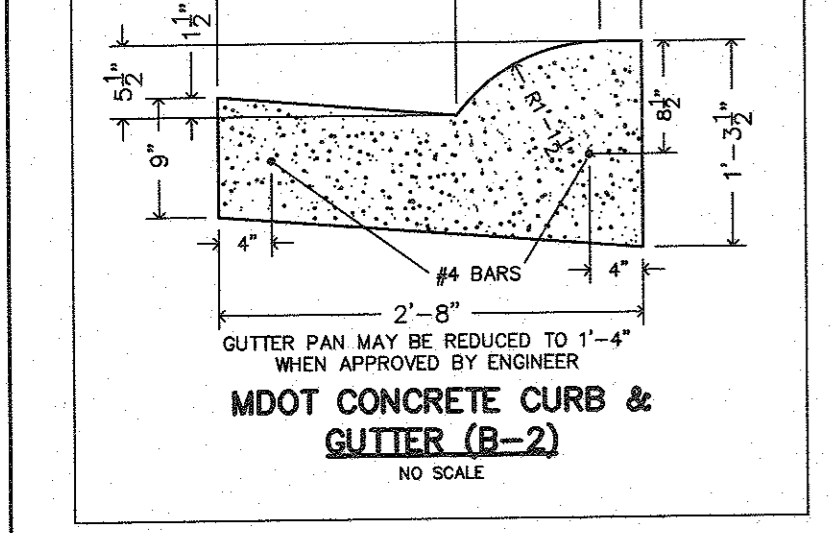
S58 CURB RAMP (TYPE 3)



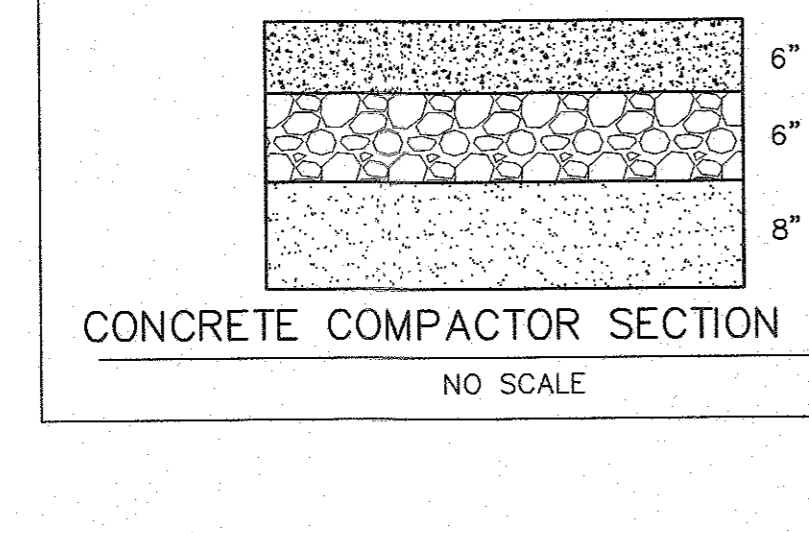
S58 MDOT TYPE (1) SIDEWALK RAMP DETAIL



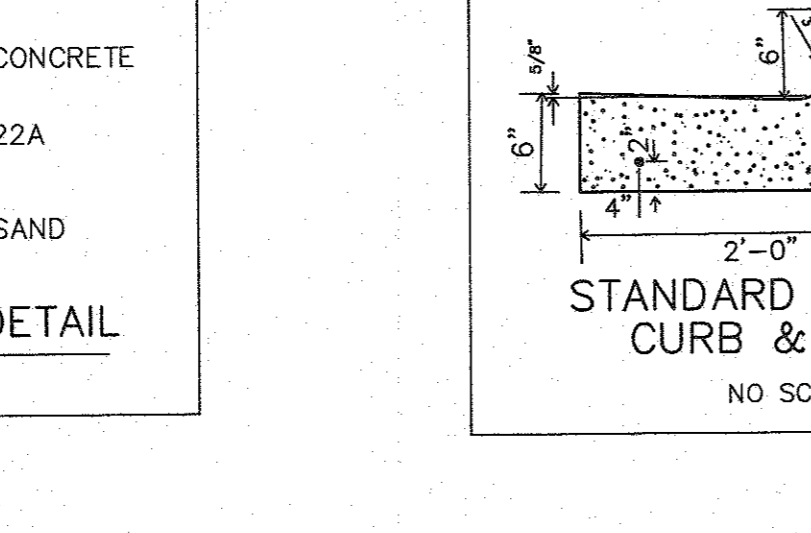
S58 MDOT CONCRETE CURB & GUTTER (R-2)



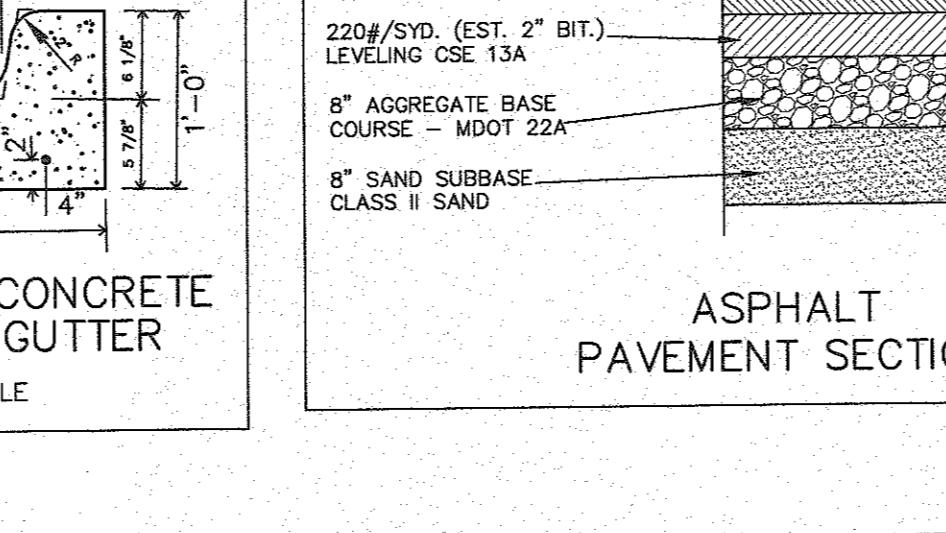
S58 CONCRETE COMPACTOR SECTION DETAIL



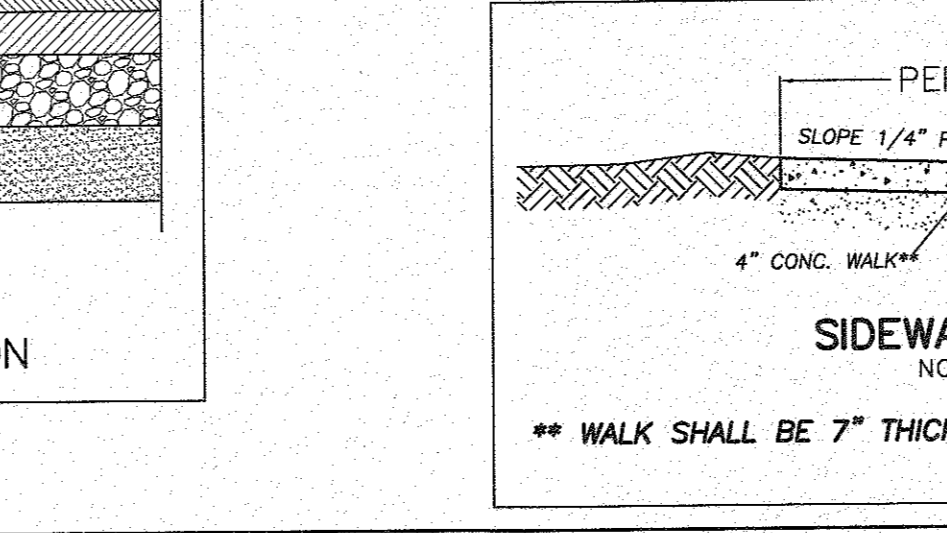
S58 STANDARD CONCRETE CURB & GUTTER



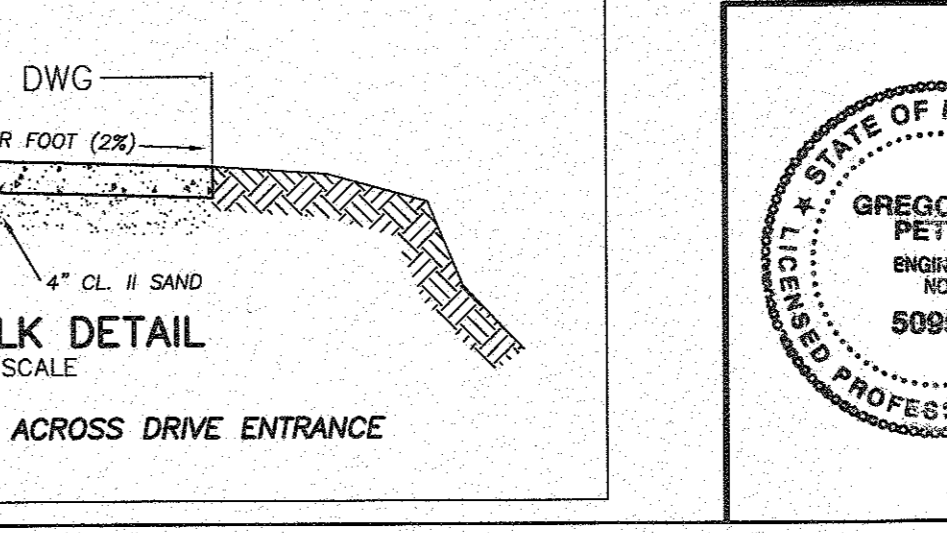
S58 ASPHALT PAVEMENT SECTION



S58 SIDEWALK DETAIL



S58 SIDEWALK DETAIL

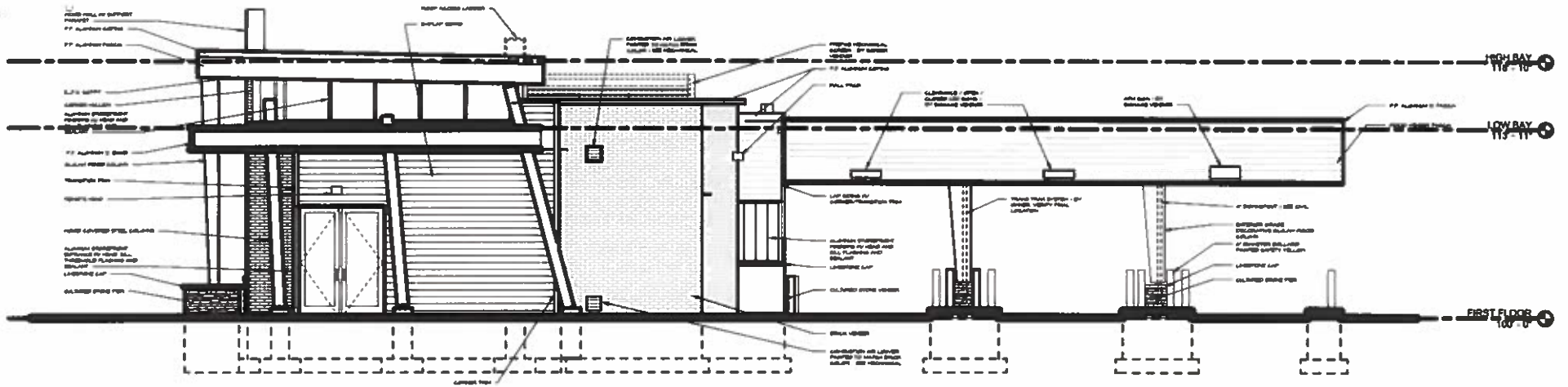


S58 KEBS, INC.

Professional engineer stamp for Gregory A. Petru, State of Michigan, License No. 50968. Includes company name KEBS, INC. and contact information.

Project information for Lake Trust Credit Union: Scale: NONE, Designer: GAP, Approved By: GAP, Date: 1-27-17, Project Mgr: GAP, Sheet 4 of 4, Authorized By: Studio Intrigue Architects, LLC, Job #: 91554.





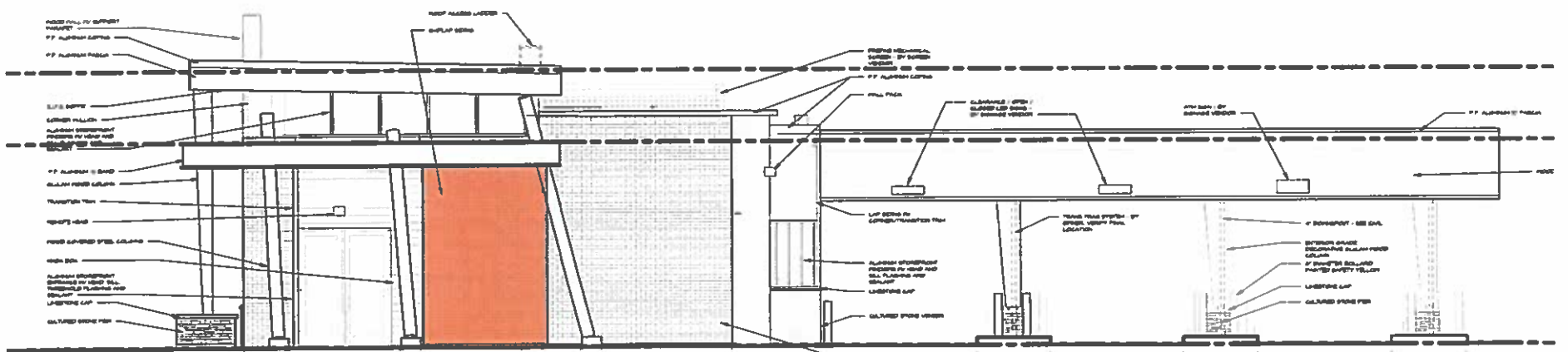
EAST ELEVATION  
1/4" = 1'-0"

# PROTOTYPE BUILDING



VIEW FROM SUNOCO

# PHOTO OF PROTOTYPE BLDG



GENOA TOWNSHIP

APR 10 2017

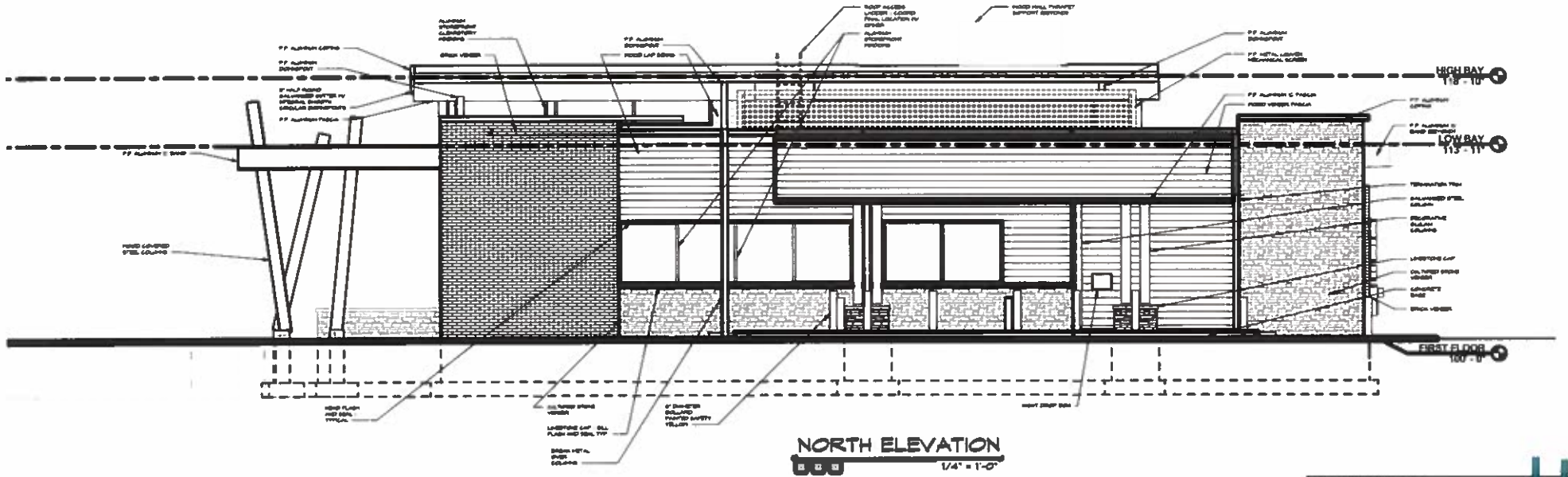
RECEIVED @ PC mtg.

EAST ELEVATION  
1/4" = 1'-0"

BUILDING MATERIALS (EAST)		
BRICK	300 S.F.	70%
WOOD	100 S.F.	24%
TOTAL	400 S.F.	

# ADDITIONAL BRICK TO MEET ORDINANCE





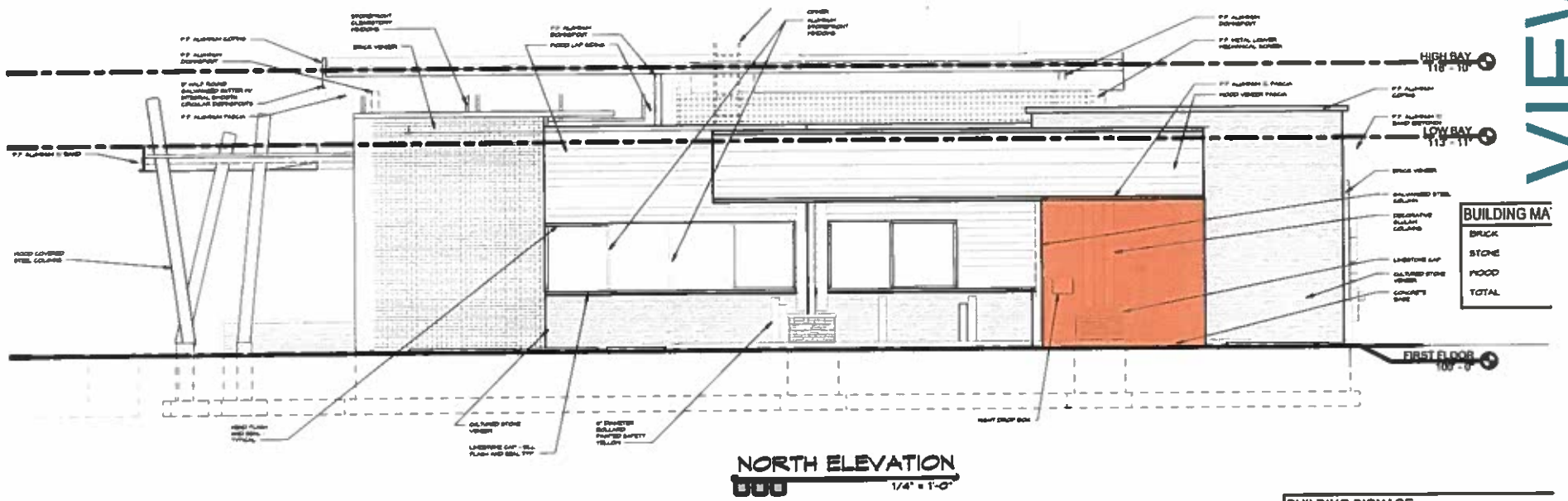
# PROTOTYPE BUILDING

**BUILDING SIGNAGE**  
 SMALL SIGNS SHALL NOT EXCEED 10% OF THE FACADE AREA TO BE LOCATED ON 100 SQ. FT. PER USE - WHICHEVER IS LESS

THIS SIGN NOT PROPOSED FOR GENOA



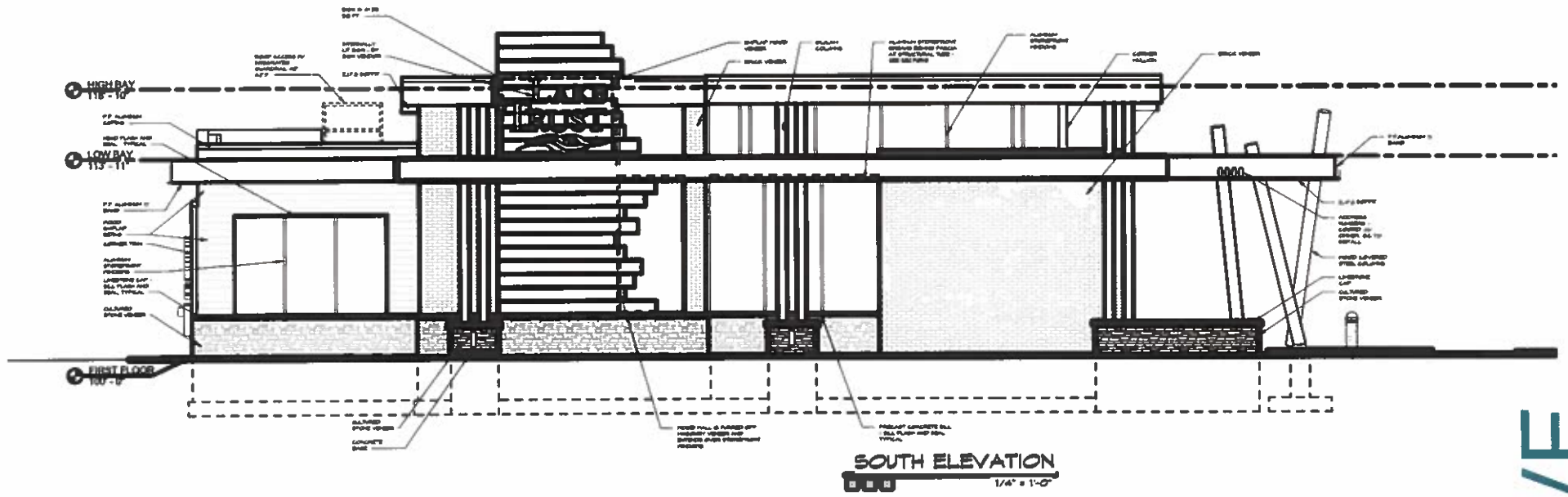
# PHOTO OF PROTOTYPE BLDG



# ADDITIONAL BRICK TO MEET ORDINANCE

VIEW FROM WHITEHORSE LANE



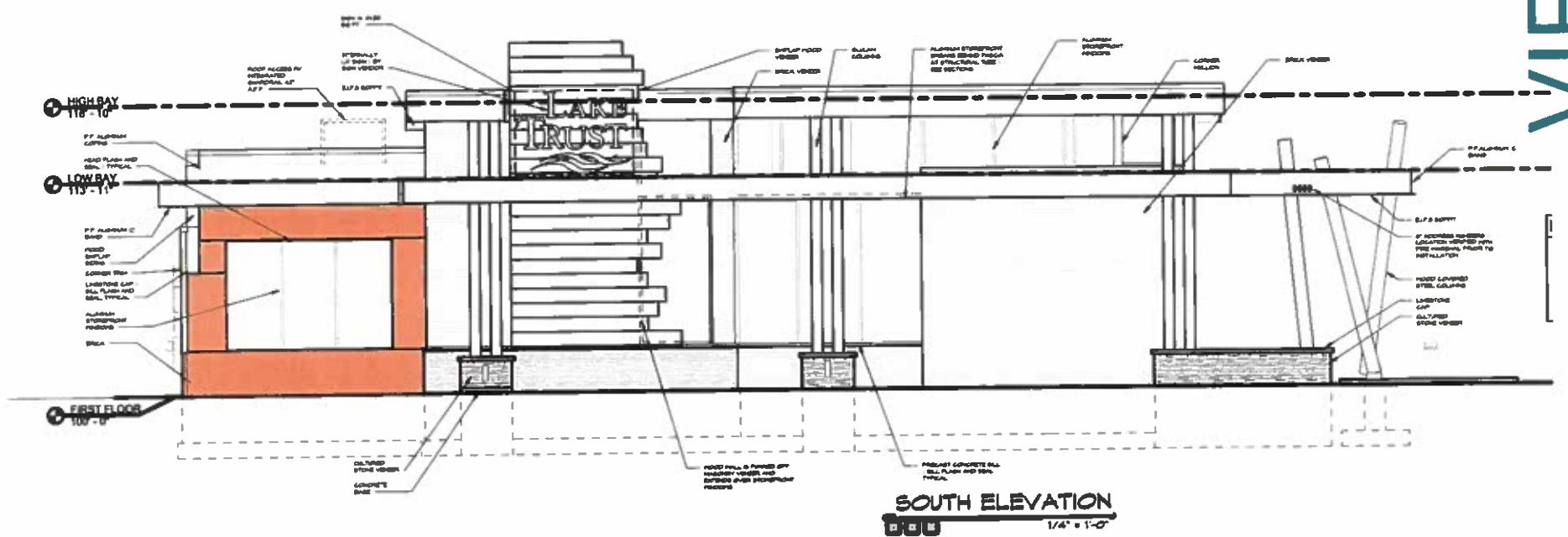


# PROTOTYPE BUILDING



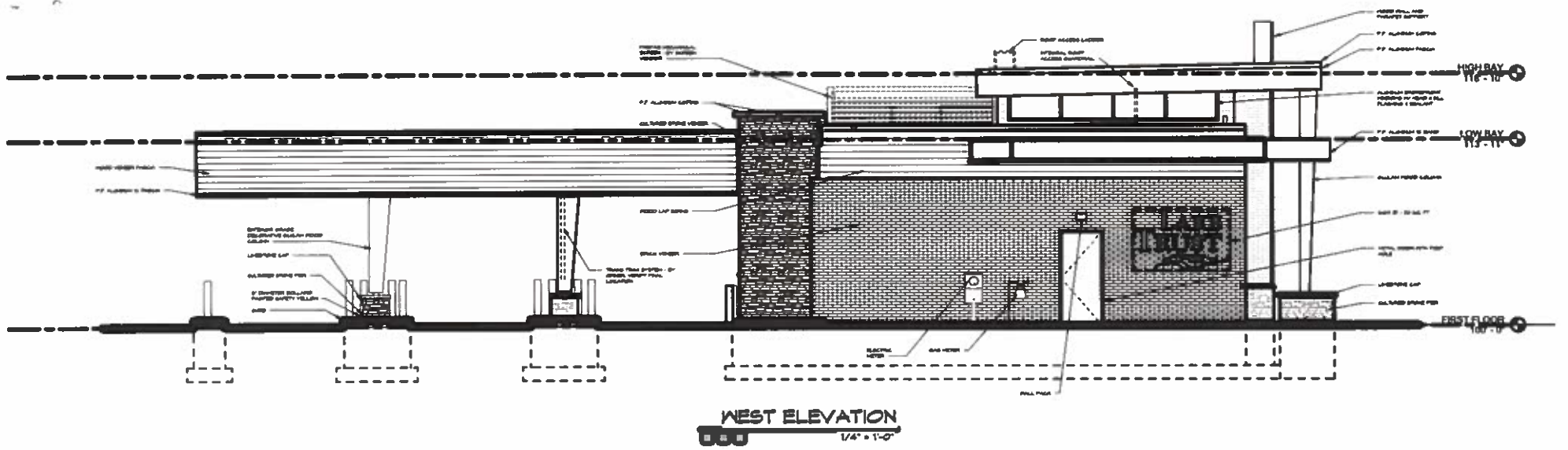
# PHOTO OF PROTOTYPE BLDG

VIEW FROM GRAND RIVER AVE.

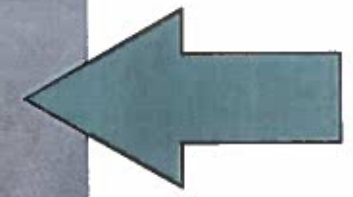
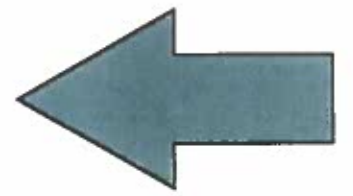


# ADDITIONAL BRICK TO MEET ORDINANCE





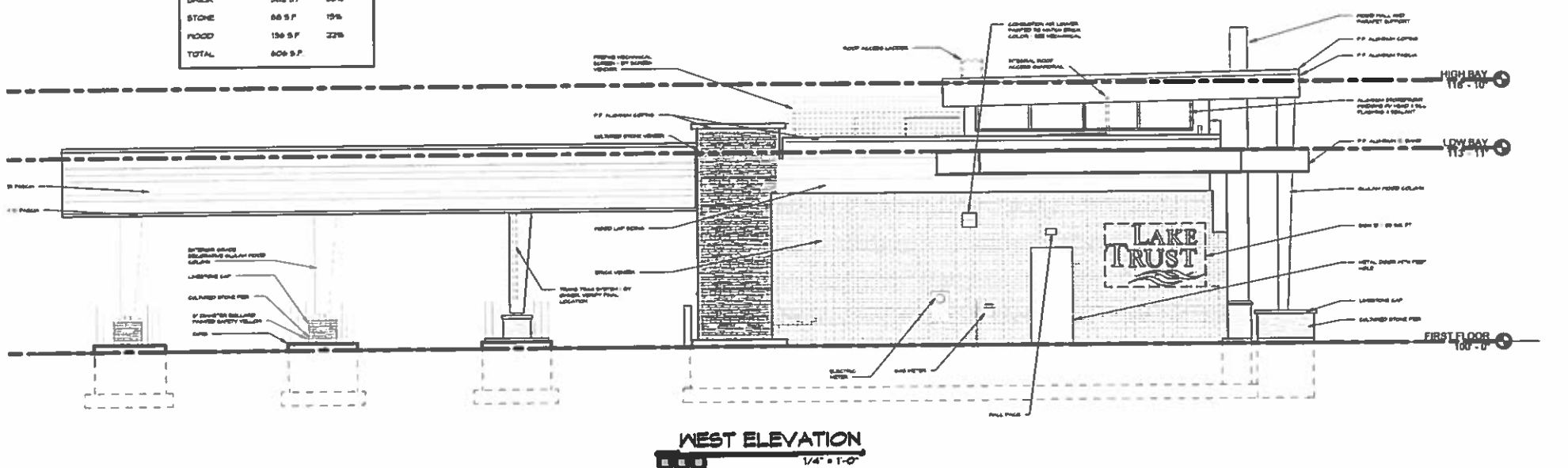
# PROTOTYPE BUILDING



VIEW FROM AUBREEE'S

# PHOTO OF PROTOTYPE BLDG

BUILDING MATERIALS (WEST)		
BRICK	963 S.F.	60%
STONE	88 S.F.	15%
WOOD	158 S.F.	22%
TOTAL	909 S.F.	



# NO ADDITIONAL BRICK NEEDED





# KBC8 LED

## LED Specification Bollard

### Specifications

8" Round  
(20.3 cm)

**Height:** 42"  
(106.7 cm)

**Weight (max):** 27lbs  
(12.25 kg)



Catalog  
Number

Notes

Type

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

### Introduction

The KBC8 Bollard is a stylish, fully integrated LED solution for walkways. It features a sleek, modern design and is carefully engineered to provide long-lasting, energy-efficient lighting with a variety of optical and control options for customized performance.

With an expected service life of over 20 years of nighttime use and up to 70% in energy savings over comparable 100W metal halide luminaires, the KBC8 Bollard is a reliable, low-maintenance lighting solution that produces sites that are exceptionally illuminated.

### Ordering Information

**EXAMPLE:** KBC8 LED 16C 700 40K SYM MVOLT DDBXD

KBC8 LED														
Series	LEDs	Drive current		Color temperature		Distribution		Voltage	Control options	Other options	Finish <i>(required)</i>			
KBC8 LED	<b>Asymmetric</b> 12C 12 LEDs <sup>1</sup>	350	350 mA	30K	3000 K	ASY	Asym- metric <sup>1</sup>	MVOLT <sup>5</sup>	<b>Shipped installed</b> PE Photoelec- tric cell, button type	<b>Shipped installed</b> SF Single fuse (120, 277, 347V) <sup>4,7</sup>	DWHXD	White	<b>Striping</b> <sup>9</sup>	
		450	450 mA <sup>3,4</sup>	40K	4000 K	SYM	Sym- metric <sup>2</sup>	120 <sup>5</sup>			DNAXD	Natural aluminum		SDDB
	<b>Symmetric</b> 16C 16 LEDs <sup>2</sup>	530	530 mA	50K	5000 K					208 <sup>5</sup>	DMG 0-10V dimming driver (no controls)	DF Double fuse (208, 240V) <sup>4,7</sup>	DDBXD	Dark bronze
		700	700 mA	AMBPC	Amber phosphor converted			240 <sup>5</sup>	H24	24" overall height			DBLXD	Black
				AMBLW	Amber limited wavelength <sup>3,4</sup>			277 <sup>5</sup>	ELCW Emergency battery backup <sup>6</sup>	H30 30" overall height	DDBTXD	Textured dark bronze	SDTG	Tennis green
								347 <sup>4</sup>			H36 36" overall height	DBLBXD	Textured black	SDBR
										FG Ground-fault festoon outlet	DNATXD	Textured natural aluminum	SDBUA	Dark blue
										L/AB Without anchor bolts (3 bolt base)	DWHGXD	Textured white	SDYLB	Yellow
										L/AB4 4 bolt retrofit base without anchor bolts <sup>8</sup>				

### Accessories

Ordered and shipped separately.

MRAB U Anchor bolts for KBC8 LED<sup>8</sup>

### NOTES

- 1 Only available in the 12C, ASY version.
- 2 Only available in the 16C, SYM version.
- 3 Only available with 450 AMBLW version.
- 4 Not available with ELCW.
- 5 MVOLT driver operates on any line voltage from 120-277V (50/60 Hz). Specify 120, 208, 240 or 277 options only when ordering with fusing (SF, DF options), or photocontrol (PE option).
- 6 Not available with 347V. Not available with fusing. Not available with 450 AMBLW.
- 7 Single fuse (SF) requires 120, 277, or 347 voltage option. Double fuse (DF) requires 208 or 240 voltage option.
- 8 MRAB U not available with L/AB4 option.
- 9 Striping is available only in the colors listed.

## Performance Data

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Actual performance may differ as a result of end-user environment and application. Actual wattage may differ by +/- 8% when operating between 120-480V +/- 10%.

Light Engines	Drive Current	System Watts	3000 K					4000 K					5000 K					Limited Wavelength Amber					
			Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	
Asymmetric 3 Engines (12 LEDs)	350	16	641	40	1	1	1	809	51	1	1	1	870	54	1	1	1						
	530	22	947	43	1	1	1	1,191	54	1	1	1	1,282	58	1	1	1						
	700	31	1,214	40	1	1	1	1,527	51	1	1	1	1,646	55	1	1	1						
	Amber 450	16																324	20	0	1	0	
Symmetric 4 Engines (16 LEDs)	350	20	888	44	1	0	0	1,116	56	1	0	0	1,203	60	1	0	0						
	530	28	1,254	45	1	0	0	1,598	57	1	0	1	1,719	61	1	0	1						
	700	39	1,608	41	1	0	1	2,022	52	1	0	1	2,180	56	2	0	1						
	Amber 450	20																374	19	0	0	0	

**Note:** Available with phosphor-converted amber LED's (nomenclature AMBPC). These LED's produce light with 97+% >530 nm. Output can be calculated by applying a 0.7 factor to 4000 K lumen values and photometric files.

### Projected LED Lumen Maintenance

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

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

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	1.00	0.98	0.97	0.95

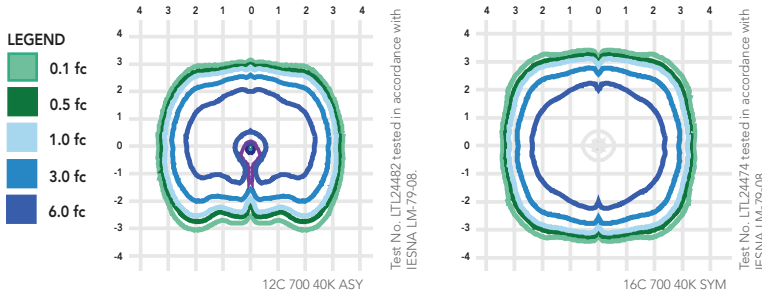
### Electrical Load

Light Engines	Drive Current (mA)	System Watts	Current (A)				
			120	208	240	277	347
12C	350	16W	0.158	0.118	0.114	0.109	0.105
	530	22W	0.217	0.146	0.136	0.128	0.118
	700	31W	0.296	0.185	0.168	0.153	0.139
	Amber 450	16W	0.161	0.120	0.115	0.110	0.106
16C	350	20W	0.197	0.137	0.128	0.121	0.114
	530	28W	0.282	0.178	0.162	0.148	0.135
	700	39W	0.385	0.231	0.207	0.185	0.163
	Amber 450	20W	0.199	0.139	0.130	0.123	0.116

## Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's [KBC8 Bollard homepage](#).

Isofootcandle plots for the KB LED Bollards. Distances are in units of mounting height (3').



## FEATURES & SPECIFICATIONS

### INTENDED USE

The rugged construction and clean lines of the KBA bollard is ideal for illuminating building entryways, walking paths, and pedestrian plazas, as well as any other location requiring a low mounting height light source with fully cutoff illumination.

### CONSTRUCTION

One-piece 8-inch round extruded aluminum shaft with thick side walls for extreme durability, a high-impact clear acrylic lens and welded top cap. Die-cast aluminum mounting ring allows for easy leveling even in sloped locations and a full 360-degree rotation for precise alignment during installation. Three 1/2" x 11" anchor bolts with double nuts and washers and 3/4" bolt circle template ensure stability. Overall height is 42" standard.

### FINISH

Exterior parts are protected by a zinc-infused super durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering for maximum retention of gloss and luster. A tightly controlled multi-stage process ensures a minimum 3-mil thickness for a finish that can withstand the elements without cracking or peeling. Available in both textured and non-textured finishes.

### OPTICS

Two fully cutoff optical distributions are available: symmetrical and asymmetrical. IP66 sealed LED light engine provides smoothly graduated illumination without any uplight. Light engines are available in standard 4000 K (>70 CRI) or optional 3000 K (>80 CRI) or 5000 K (67 CRI). Limited-wavelength amber LEDs are also available.

### ELECTRICAL

Light engines consist of high-efficacy LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long life (L95/100,000 hours at 700mA at 25°C). Class 2 electronic drivers are designed for an expected life of 100,000 hours with < 1% failure rate. Electrical components are mounted on a removable power tray.

### LISTINGS

CSA certified to U.S. and Canadian standards. Light engines are IP66 rated. Rated for -40°C minimum ambient. Cold-weather emergency battery backup rated for -20°C minimum ambient.

### WARRANTY

Five-year limited warranty. Complete warranty terms located at [www.acuitybrands.com/CustomerResources/Terms\\_and\\_conditions.aspx](http://www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx).

**Note:** Specifications subject to change without notice.



## FEATURES & SPECIFICATIONS

**INTENDED USE** — Typical applications include corridors, lobbies, conference rooms and private offices.

**CONSTRUCTION** — 16-gauge galvanized steel mounting/plaster frame with trim clips to mount open conical shape reflector.

Vertically adjustable mounting brackets that use 16-gauge flat bar hangers (included), 1/2" conduit or C channel T-bar fasteners. Provides 3-3/4" total adjustment.

Post installation adjustment possible from above or below the ceiling.

Galvanized steel junction box with bottom-hinged access covers and spring latches. Two combination 1/2"-3/4" and three 1/2" knockouts for straight-through conduit runs. Capacity: 8 (4 in, 4 out) No. 12 AWG conductors, rated for 90°C.

Secondary housing adjustment system for precise, final ceiling-to-flange alignment.

Maximum 1-1/2" ceiling thickness.

**OPTICS** — LED light source with diffused lens, recessed in a deep reflector with a 55-degree cutoff. Aluminum full reflectors are optically designed to maximize lumen output and to provide superior glare control.

Anodized trim colors for open and wallwash reflectors are available in clear, pewter, wheat or gold. White polyester powder coat also available.

Minimum CRI of 80.

**ELECTRICAL** — High-efficiency, eldoLED 0-10V dimming driver mounted to the junction box, dims luminaire to 10% of its light output. 1% dimming option available (see EZ1 ordering options below).

Dimming fixture requires two (2) additional low-voltage wires to be pulled.

For compatible dimmers and dimming range, refer to Dimmer Compatibility Chart on page 4.

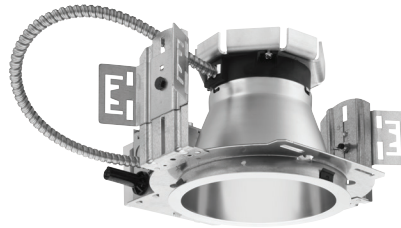
The system maintains 70% lumen output for more than 50,000 hours.

**LISTINGS** — CSA certified to US and Canadian safety standards. Open downlight (LO6): Wet location listed. Wallwash downlight (LW6): Rated for damp and dry locations only. ENERGY STAR® certified.

**WARRANTY** — 5-year limited warranty. Complete warranty terms located at [www.acuitybrands.com/CustomerResources/Terms\\_and\\_conditions.aspx](http://www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx)

Note: Specifications subject to change without notice.

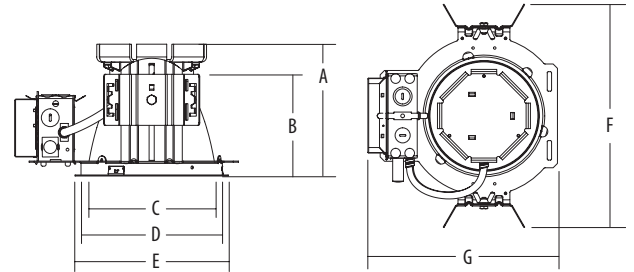
Catalog Number
Notes
Type



LDN6 35/15 L06AR 120

# LDN6

**6" OPEN and WALLWASH LED Non-IC New Construction Downlight**



Overall height varies by lumen package. Reference dimension chart for details.

Maximum Overall Dimensions — All dimensions are inches (centimeters) unless otherwise indicated.							
Lumen package	(A) Height	(B) Frame height	(C) Aperture	(D) Ceiling opening	(E) Outside diameter	(F) Width	(G) Length
600 lm	6-7/16 (16.4)	5-3/4 (14.6)	6-15/16 (17.6)	7-1/8 (18.1)	7-1/2 (19.1)	12-15/16 (32.8)	10-15/16 (27.8)
1000 lm							
1500 lm							
2000 lm	7-13/16 (19.9)						

### ORDERING INFORMATION

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

**Example: LDN6 35/15 L06AR 120**

LDN6 Series	Color temperature	Lumens <sup>1,2</sup>	Reflector	Trim color	Finish	Voltage	Options
LDN6	27/ 2700 K	06 600 lumens	L06 Open downlight	AR Clear	(blank) Semi-specular	120	EL Emergency battery pack with integral test switch <sup>6</sup>
	30/ 3000 K			PR Pewter	LD Matte-diffuse		277 ELR Emergency battery pack with remote test switch <sup>6</sup>
	35/ 3500 K	10 1000 lumens	LW6 Wallwash downlight <sup>3</sup>	WTR Wheat	LS Specular	347 <sup>5</sup>	SF Single fuse
	40/ 4000 K			GR Gold			TRW White painted flange <sup>7</sup>
		15 1500 lumens		WR White <sup>4</sup>		TRBL Black painted flange	
		20 2000 lumens				NPS80EZ nLight® dimming pack controls 0-10V eldoLED drivers. Refer to <a href="#">TN-633</a> .	
						NPS80EZER nLight® dimming pack controls 0-10V eldoLED drivers. ER controls fixtures on emergency circuit. Refer to <a href="#">TN-633</a> . <sup>8</sup>	
						RRL___ RELOC®-ready luminaire connectors enables a simple and consistent factory installed option across all ABL luminaire brands. Refer to <a href="#">RRL</a> for complete nomenclature.	
						EZ1 eldoLED dims to 1%	
						CP Chicago plenum <sup>5,9</sup>	

Accessories: Order as separate catalog number.	
<a href="#">EAC ISSM 375</a>	Compact interruptible emergency AC power system
<a href="#">EAC ISSM 125</a>	Compact interruptible emergency AC power system
GRA68 JZ	Oversized trim ring with 8" outside diameter <sup>10</sup>
SCA6	Sloped ceiling adapter. Refer to <a href="#">TECH-SCA</a> for more options.

#### Notes

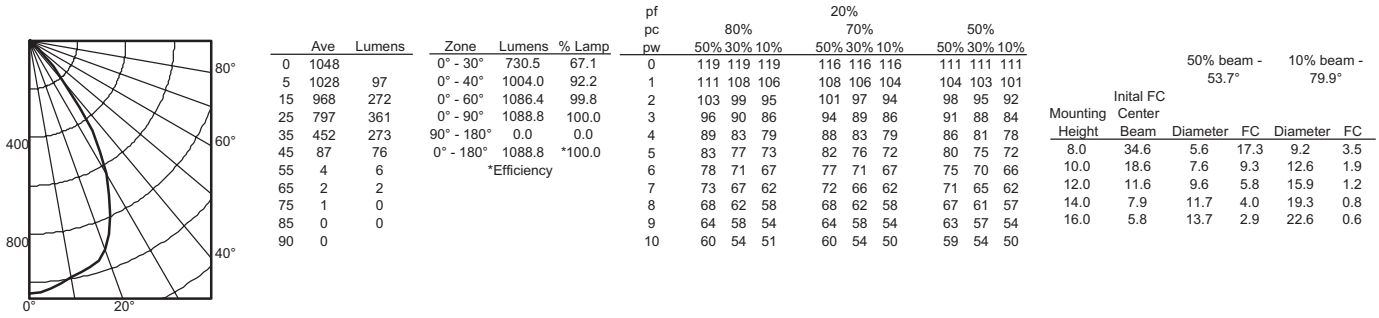
- 1 Approximate lumen output.
- 2 Overall height varies by lumen package. Reference dimension chart on page 1.
- 3 Rated for damp and dry locations only.
- 4 Not available with finishes.
- 5 Not available with emergency options.
- 6 For dimensional changes, refer to chart on page 4. Not available with CP option.
- 7 Not available with WR (white trim color).
- 8 For use with generator supply EM power. Will require an emergency hot feed and normal hot feed.
- 9 277 volt CP products require marked spacing. Install with minimal spacing between: (a) Center-to-center of adjacent luminaires: 2 ft.; (b) Top of luminaire to overhead building member: 3 in.; (c) Luminaire center to side of building member: 1 ft.
- 10 Refer to [TECH-GOOF RINGS](#) for more options.



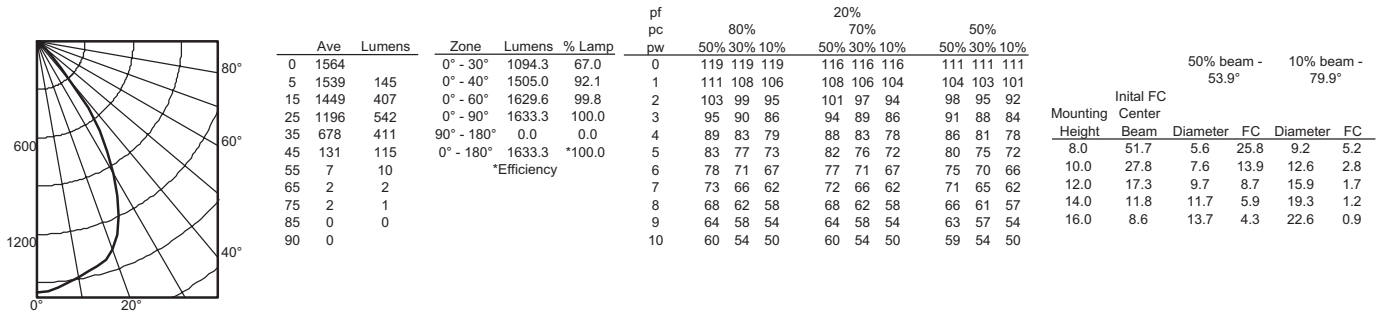
PHOTOMETRY

Distribution Curve      Distribution Data      Output Data      Coefficient of Utilization      Illuminance Data at 30" Above Floor for a Single Luminaire

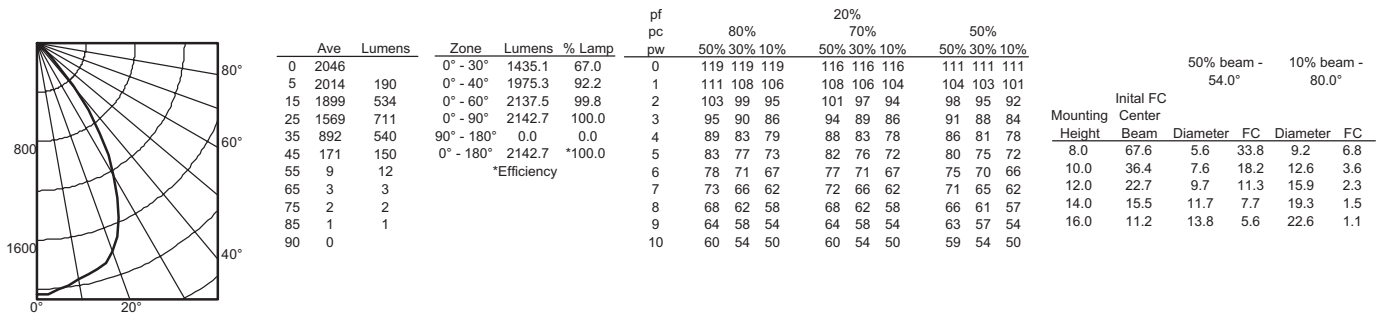
LDN6 35/10 L06AR 120, input watts: 18, delivered lumens: 1089, LM/W = 61, spacing criterion at 0 = 1.03, test no. LTL25148SL.



LDN6 35/15 L06AR 120, input watts: 26, delivered lumens: 1633, LM/W = 63, spacing criterion at 0 = 1.03, test no. LTL25146.



LDN6 35/20 L06AR 120, input watts: 35, delivered lumens: 2143, LM/W = 61, spacing criterion at 0 = 1.04, test no. LTL25144.

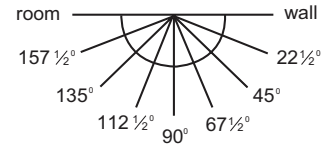


Notes

- Tested in accordance with IESNA LM-79-08.
- Tested to current IES and NEMA standards under stabilized laboratory conditions.
- Actual performance may differ as a result of end-user environment and application.
- Actual wattage may differ by +/- 10% when operating between 120-277V +/- 10%.
- CRI: 80 typical.

**TECHNICAL INFORMATION**

Footcandle values are initial and tables are based on minimum of six units. For fixture-to-wall distance other than those shown, use maximum of one-to-one spacing (distance between fixtures not more than distance to wall) for best results.



**Candlepower Data**

**Footcandle values**

**LDN6 35/10 LW6AR 120**, input watts: 18, delivered lumens: 1090, LM/W = 61, test no. LTL25147.

Vertical Angle	Plane angle							
	Wall	22.5	45	67.5	90	112.5	135	157.5
0	888	888	888	888	888	888	888	888
5	813	811	824	854	875	902	922	926
15	652	675	728	803	862	905	930	935
25	488	524	601	678	723	748	749	741
35	319	355	387	414	409	407	409	403
45	241	229	190	139	87	76	76	74
55	181	172	114	40	9	5	7	8
65	139	117	57	11	1	2	3	4
75	74	57	19	3	2	2	3	2
85	19	13	0	0	0	0	0	0
90	5	6	0	0	0	0	0	0

ft. from ceiling	Wallwash Illuminance Study (fc)								
	Illuminance on wall from 6 luminaires								
	Luminaire mounted 3 ft. from wall			Luminaire mounted 3 ft. from wall			Luminaire mounted 3 ft. from wall		
	3 ft. between luminaires			4 ft. between luminaires			5 ft. between luminaires		
	3	3.5	4	3	3.5	4	3	3.5	4
1	10	8	10	9	5	9	9	2	9
2	15	15	15	13	10	13	12	6	12
3	15	14	15	12	10	12	10	7	10
4	13	14	13	10	11	10	8	8	8
5	12	13	12	9	10	9	7	8	7
6	12	12	12	8	9	8	7	7	7
7	10	10	10	8	8	8	6	6	6
8	9	9	9	7	7	7	5	5	5
9	8	8	8	6	6	6	5	5	5
10	6	6	6	5	5	5	4	4	4

**LDN6 35/15 LW6AR 120**, input watts: 26, delivered lumens: 1639, LM/W = 63, test no. LTL25145.

Vertical Angle	Plane angle							
	Wall	22.5	45	67.5	90	112.5	135	157.5
0	1312	1312	1312	1312	1312	1312	1312	1312
5	1198	1187	1202	1244	1285	1326	1371	1409
15	956	976	1052	1153	1246	1333	1403	1438
25	697	720	837	953	1028	1082	1109	1126
35	442	482	548	586	583	590	612	623
45	348	336	303	222	132	105	112	115
55	283	269	196	80	19	8	10	11
65	230	191	102	22	3	2	3	6
75	121	88	30	1	1	1	1	4
85	30	18	1	1	0	0	0	0
90	5	6	0	2	1	1	1	0

ft. from ceiling	Wallwash Illuminance Study (fc)								
	Illuminance on wall from 6 luminaires								
	Luminaire mounted 3 ft. from wall			Luminaire mounted 3 ft. from wall			Luminaire mounted 3 ft. from wall		
	3 ft. between luminaires			4 ft. between luminaires			5 ft. between luminaires		
	3	3.5	4	3	3.5	4	3	3.5	4
1	17	13	17	16	7	16	15	4	15
2	24	24	24	20	16	20	19	10	19
3	22	22	22	17	16	17	15	11	15
4	20	21	20	14	16	14	12	12	12
5	18	19	18	13	15	13	10	12	10
6	17	17	17	12	13	12	9	11	9
7	15	15	15	11	11	11	9	9	9
8	13	13	13	10	10	10	8	8	8
9	11	11	11	8	8	8	7	7	7
10	9	9	9	7	7	7	6	6	6

**LDN6 35/20 LW6AR 120**, input watts: 35, delivered lumens: 2137, LM/W = 61, test no. LTL25143.

Vertical Angle	Plane angle							
	Wall	22.5	45	67.5	90	112.5	135	157.5
0	1712	1712	1712	1712	1712	1712	1712	1712
5	1566	1544	1598	1633	1710	1739	1783	1806
15	1254	1276	1394	1533	1658	1755	1811	1834
25	913	956	1140	1307	1420	1489	1512	1521
35	592	654	766	839	851	852	855	861
45	446	425	402	325	215	170	167	167
55	335	317	248	115	32	13	12	14
65	251	213	129	35	5	4	5	5
75	121	92	39	4	1	1	1	3
85	24	14	2	0	1	0	0	0
90	1	1	1	0	1	1	1	0

ft. from ceiling	Wallwash Illuminance Study (fc)								
	Illuminance on wall from 6 luminaires								
	Luminaire mounted 3 ft. from wall			Luminaire mounted 3 ft. from wall			Luminaire mounted 3 ft. from wall		
	3 ft. between luminaires			4 ft. between luminaires			5 ft. between luminaires		
	3	3.5	4	3	3.5	4	3	3.5	4
1	17	13	17	16	7	16	16	4	16
2	28	27	28	23	18	23	22	11	22
3	28	27	28	22	19	22	19	14	19
4	26	27	26	19	20	19	16	15	16
5	24	25	24	17	20	17	13	16	13
6	22	22	22	16	17	16	12	15	12
7	20	20	20	15	15	15	11	13	11
8	17	17	17	13	13	13	10	11	10
9	15	15	15	11	11	11	9	9	9
10	13	13	12	10	10	10	8	8	8

**Notes**

- Tested in accordance with IESNA LM-79-08.
- Tested to current IES and NEMA standards under stabilized laboratory conditions.
- Actual performance may differ as a result of end-user environment and application.
- Actual wattage may differ by +/- 10% when operating between 120-277V +/- 10%.
- CRI: 80 typical.



**ADDITIONAL DATA**

DIMMER COMPATIBILITY CHART	
Manufacturer	Model/Series
<b>600 &amp; 1000 Lumen products</b>	
Leviton	IllumaTech - IP710-DLX
Lutron	Nova T - NTFTV-WH <i>For on/off control, this switch requires a power pack. Consult Lutron for more information.</i>
Sensor Switch	nPODM DX
Synergy	ISD BC 120/277
<b>1500 &amp; 2000 Lumen products</b>	
Busch-Jaeger	2112U-101
Jung	240-10
Leviton Lighting Controls	IllumaTech - IP710-DLX
Lightolier Controls	ZP600FAM120
Lutron Electronics	Nova T - NTFTV
	Diva - DDTV
	Diva - NFTV
	GraphicEye - GRX-TVI w GRX3503
	Energy Savr Node - QSN-4T16-S
TVM2 Module	
Merten	5729
Pass & Seymour	CD4FB-W
Sensor Switch	nPODM DX
Synergy	ISD BC 120/277
The Watt Stopper	DCLV1

EL/ELR DIMENSIONAL CHANGES	
Add to overall housing length for EL/ELR option	Overall housing width with EL/ELR option
4-1/2	16-1/2

EL/ELR AVAILABILITY/COMPATIBILITY - INITIAL LUMENS			
Lumen package	Watts	Initial lumens EL/ELR	Emergency LED driver
600	12	500	PS1030
1000	18	575	PS1030
1500	26	640	Bodine BSL17C-C2
2000	35	690	Bodine BSL17C-C2

KEY SPECIFICATION SUMMARY				
Product Description	Watts (W)	Delivered lumens (lm)	Efficacy (lm/W)	Spacing criteria (s/mh)
LDN6 35/06 L06AR	12	670	56	1.03
LDN6 35/10 L06AR	18	1090	61	1.03
LDN6 35/15 L06AR	26	1640	63	1.03
LDN6 35/20 L06AR	35	2140	61	1.04

**Choose Wall Controls.**

nLIGHT offers multiple styles of wall controls – each with varying features and user experience.



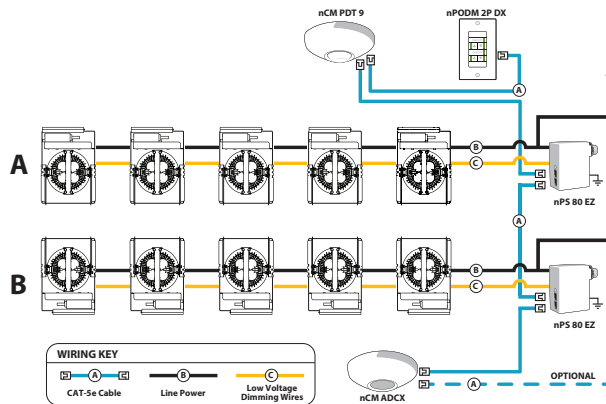
**Push-Button WallPod**  
Traditional tactile buttons and LED user feedback



**Touch WallPod**  
Contemporary capacitive touch style buttons with audible clicker for user feedback



**Graphic WallPod**  
Full color touch screen provides a sophisticated look and feel



**EXAMPLE**

Group Fixture Control\*

\*Application diagram applies for fixtures with eldoLED drivers only.

**nPS 80 EZ** Dimming/Control Pack (qty 2 required)

**nPODM 2P DX** Dual On/Off/Dim Push-Button WallPod

**nCM ADCX** Daylight Sensor with Automatic Dimming Control

**nCM PDT 9** Dual Technology Occupancy Sensor

**Description:** This design provides a dual on/off/dim wall station that enables manual control of the fixtures in Row A and Row B separately. Additionally, a daylight harvesting sensor is provided so the lights in row B can be configured to dim automatically when daylight is available. An occupancy sensor turns off all lights when the space is vacant.





An Acuity Brands Company

SUITABLE FOR WET LOCATIONS IP68



# PARADOX 10

## 22W LED MONOCHROMATIC

### 10" ARCHITECTURAL IN-GRADE

#### DESCRIPTION:

Hydrel's Paradox Series sealed modular in-grade luminaires are multi-purpose units designed for up lighting architectural and landscape features. These units can be flush mounted into a variety of substrates including concrete or tile, or landscape materials, and are ideal when aperture size or luminaire depth is a priority.

#### SPECIFICATIONS:

**DOOR MATERIAL:** Die cast bronze or stainless steel.

**HOUSING:** Compression molded polyester with patent pending internal direct access junction box for through-branch wiring. Internal junction box provides 44in<sup>3</sup> volume to ensure proper seal during installation. The housing is U.V. stabilized, impact and corrosion resistant for use in all types of environments. The housing has a side-car configuration and houses the lamp and power module components as well as the lens/door finishing section.

**LED TYPE:** Monochromatic LEDs, 22W.

**VOLTAGE:** See Ordering Guide.

**LIGHT DISTRIBUTION:** See Ordering Guide. LED module has 15° of internal tilt.

**LENS/SEAL:** Tempered clear flat borosilicate glass. The patent pending door/lens seal uses proprietary knife edge technology to secure the assembly to the housing. Four captive screws hold the assembly in place. The lens is notched to provide maximum aperture opening.

**CONDUIT ENTRIES:** Two molded 3/4" NPT side entries standard, bottom hubs are molded with a 3/4" NPT membrane knockout.

**POWER MODULE:** Integrally mounted modular LED driver, prewired with quick connectors for easy installation and maintenance.

**ACCESSORIES:** See Ordering Guide.

**FINISH:** Natural bronze, stainless steel or stainless steel with a brushed finish.

**LISTING:** U.L., C.U.L

NOTE: HYDREL RESERVES THE RIGHT TO MODIFY SPECIFICATION WITHOUT NOTICE. Any dimension on this sheet is to be assumed as a reference dimension: "Used for information purposes only. It does not govern manufacturing or inspection requirements." (ANSI Y14.5-1973)

TYPE			JOB NAME		
PART NO.					
Model	Material	LED Type	LED Color	Voltage	Distribution
Lens	Conduit	Accessories	Options	Lamp	Listing

APPROVALS

# PDX10 LED MONOCHROMATIC ORDERING INFORMATION

## 60 Hz Application

Choose the boldface catalog nomenclature that best suits your needs.

**PART NO.**

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### EXAMPLE:

<p><b>PDX10</b> <b>B</b></p> <p><b>*Model</b></p> <p><input type="checkbox"/> PDX10</p> <p><b>*Door Material</b></p> <p><input type="checkbox"/> <b>SS</b> Stainless Steel</p> <p><input type="checkbox"/> <b>BSS</b><sup>1</sup> Brushed Stainless Steel</p> <p><input type="checkbox"/> <b>B</b> Bronze</p>	<p><b>22LED</b></p> <p><b>*LED Type</b></p> <p><input type="checkbox"/> <b>22LED</b> 22 Watts</p>	<p><b>RED</b></p> <p><b>*LED Color</b></p> <p><input type="checkbox"/> <b>WHT30K</b> White</p> <p><input type="checkbox"/> <b>WHT41K</b> White</p> <p><input type="checkbox"/> <b>WHT53K</b> White</p> <p><input type="checkbox"/> <b>AMB</b> Amber</p> <p><input type="checkbox"/> <b>BLU</b> Blue</p> <p><input type="checkbox"/> <b>GRN</b> Green</p> <p><input type="checkbox"/> <b>RED</b> Red</p> <p><input type="checkbox"/> <b>RBL</b> Royal Blue</p>	<p><b>120</b></p> <p><b>*Voltage</b></p> <p><input type="checkbox"/> <b>MVOLT</b></p> <p><input type="checkbox"/> <b>120</b><sup>2</sup></p>	<p><b>SP</b></p> <p><b>*Light Distribution</b></p> <p><input type="checkbox"/> <b>SP</b> Spot, clear flat lens</p> <p><input type="checkbox"/> <b>MFL</b> Medium flood, clear flat lens</p> <p><input type="checkbox"/> <b>WFL</b> Wide flood, clear flat lens</p> <p><input type="checkbox"/> <b>LSD</b> Linear Spread Distribution, clear flat lens</p>	<p><b>FLC</b></p> <p><b>*Lens</b></p> <p><input type="checkbox"/> <b>FLC</b> Flat lens clear</p> <p><input type="checkbox"/> <b>FLCAS</b><sup>1</sup> Flat Lens Clear, Anti-Slip</p> <p><input type="checkbox"/> <b>FLCSR</b><sup>1</sup> Flat Lens Frosted, Slip Resistant</p>	<p><b>34S</b></p> <p><b>*Conduit Entries</b></p> <p><input type="checkbox"/> <b>34S</b> Two 3/4" NPT Side (Standard)</p> <p><b>Accessories</b></p> <p><b>Internal</b></p> <p><input type="checkbox"/> <b>IHL</b> Internal honeycomb louver</p> <p><b>External</b></p> <p><input type="checkbox"/> <b>RG</b> Decorative Rock guard</p>	<p><b>LPI</b></p> <p><b>*Lamp</b></p> <p><input type="checkbox"/> <b>LPI</b> Lamp Included</p> <p><b>Options</b></p> <p><input type="checkbox"/> <b>LDIM</b><sup>3</sup> 0-10V Dimming</p>
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**\*Required Categories**

### Notes:

- <sup>1</sup> Not available with Decorative Rock Guard.
- <sup>2</sup> Only valid if LDIM chosen.
- <sup>3</sup> LDIM only valid with 120 volt.

# PDX10 LED MONOCHROMATIC ORDERING INFORMATION

## 50 Hz Application

Choose the boldface catalog nomenclature that best suits your needs.

**PART NO.**

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**EXAMPLE:**

<b>PDX10</b>	<b>B</b>	<b>22LED</b>	<b>RED</b>	<b>22050HZ</b>	<b>SP</b>	<b>FLC</b>	<b>25S</b>	<b>IHL</b>	<b>LPI</b>	<b>IEC</b>
<b>*Model</b>		<b>*LED Type</b>		<b>*LED Color</b>		<b>*Light Distribution</b>		<b>*Conduit Entries</b>		
<input type="checkbox"/> <b>PDX10</b>		<input type="checkbox"/> <b>22LED</b> 22 Watts		<input type="checkbox"/> <b>WHT30K</b> White <input type="checkbox"/> <b>WHT41K</b> White <input type="checkbox"/> <b>WHT53K</b> White <input type="checkbox"/> <b>AMB</b> Amber <input type="checkbox"/> <b>BLU</b> Blue <input type="checkbox"/> <b>GRN</b> Green <input type="checkbox"/> <b>RED</b> Red <input type="checkbox"/> <b>RBL</b> Royal Blue		<input type="checkbox"/> <b>SP</b> Spot, clear flat lens <input type="checkbox"/> <b>MFL</b> Medium flood, clear flat lens <input type="checkbox"/> <b>WFL</b> Wide flood, clear flat lens <input type="checkbox"/> <b>LSD</b> Linear Spread Distribution, clear flat lens		<input type="checkbox"/> <b>25S</b> Two 25mm Side		
<b>*Door Material</b>		<b>*Voltage</b>		<b>*Lens</b>		<b>Accessories</b>			<b>*Lamp</b>	
<input type="checkbox"/> <b>SS</b> Stainless Steel <input type="checkbox"/> <b>BSS<sup>1</sup></b> Brushed Stainless Steel <input type="checkbox"/> <b>B</b> Bronze		<input type="checkbox"/> <b>MVOLT</b>		<input type="checkbox"/> <b>FLC</b> Flat lens clear <input type="checkbox"/> <b>FLCAS<sup>1</sup></b> Flat Lens Clear, Anti-Slip <input type="checkbox"/> <b>FLCSR<sup>1</sup></b> Flat Lens Frosted, Slip Resistant		<b>Internal</b> <input type="checkbox"/> <b>IHL</b> Internal honeycomb louver  <b>External</b> <input type="checkbox"/> <b>RG</b> Decorative Rock guard			<input type="checkbox"/> <b>LPI</b> Lamp Included	
									<b>Listing</b>	
									<input type="checkbox"/> <b>IEC</b> International Electro-technical Commission.	

**\*Required Categories**

**Notes:**

<sup>1</sup> Not available with Decorative Rock Guard.



## FEATURES & SPECIFICATIONS

### INTENDED USE

The OLB LED Bullet Floodlight is a long-lasting energy-efficient landscape flood light. Available with spot or flood optics making it ideal for many commercial and residential outdoor applications such lighting of landscapes, building details and flag poles.

### CONSTRUCTION

Die-cast aluminum housing has integral heat sink fins to optimize thermal management through conductive and convective cooling. The LED driver is mounted in the lower housing promoting a low operating temperature and long life. Housing is sealed against moisture and environmental contaminants (IP65).

Finish: Exterior parts are protected by a thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling.

### OPTICS

Optics are engineered for superior field-to-beam ratios, uniformity and spacing. Available with 5H x 4V flood optics for illuminating larger objects or 2H x 2V spot optics for illuminating targets up to 50 feet away. Light engines are available in 3000K (80 CRI min.) or 5000K (66 CRI min.) configurations.

### ELECTRICAL

MVOLT driver operates on any line voltage from 120-277V (50/60 Hz).

Light engine consists of four (4) discrete LEDs directly mounted directly to the heat sink to maximize heat dissipation and promote long life (100,000 hrs at 40°C, L82).

Driver is thermally isolated in base to promote long-life.

Operating temperature -30°C to 40°C.

### INSTALLATION

Integral adjustable knuckle with 1/2-14 NPS threaded pipe facilitates quick and easy installation in a variety of mounting methods.

### LISTINGS

UL Listed to U.S. and Canadian safety standards for wet locations within four feet of the ground.

Tested in accordance with IESNA LM-79 and LM-80 standards.

### WARRANTY

5-year limited warranty. Complete warranty terms located at

[www.acuitybrands.com/CustomerResources/Terms\\_and\\_conditions.aspx](http://www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx)

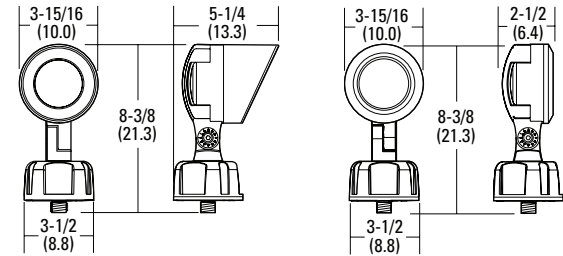
Actual performance may differ as a result of end-user environment and application.

Note: Specifications subject to change without notice.

Catalog Number
Notes
Type

# OLB

## LED Bullet Flood Light



All dimensions are inches (centimeters) unless otherwise indicated.

### ORDERING INFORMATION

For shortest lead times, configure product using **bolded options**.

**Example:** OLBF 8 30K DDB

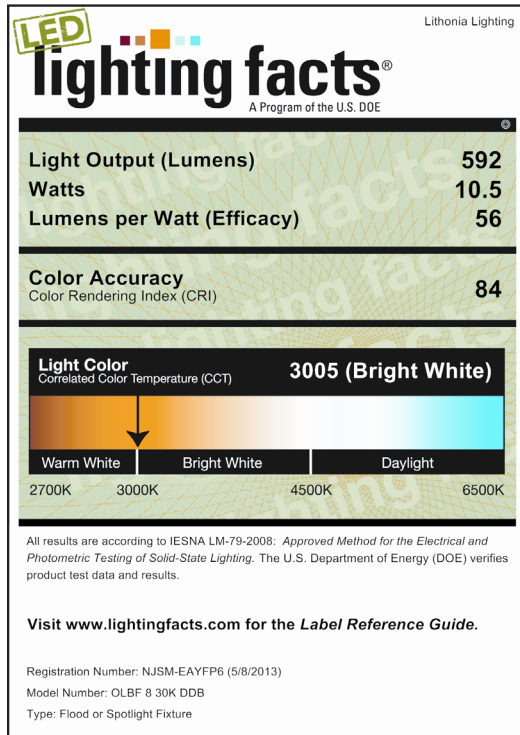
Series	Light engine	Color temperature (CCT)	Voltage	Finish
<b>OLBF</b>	5x4 flood optics	<b>8</b>	<b>30K</b> 3000K	<b>DDB</b>
<b>OLBS</b>	2x2 spot optics	<b>8</b>	<b>50K</b> 5000K	<b>DDB</b> Dark bronze
			<b>(blank)</b> MVOLT	

# OLB LED Barrel Flood Light

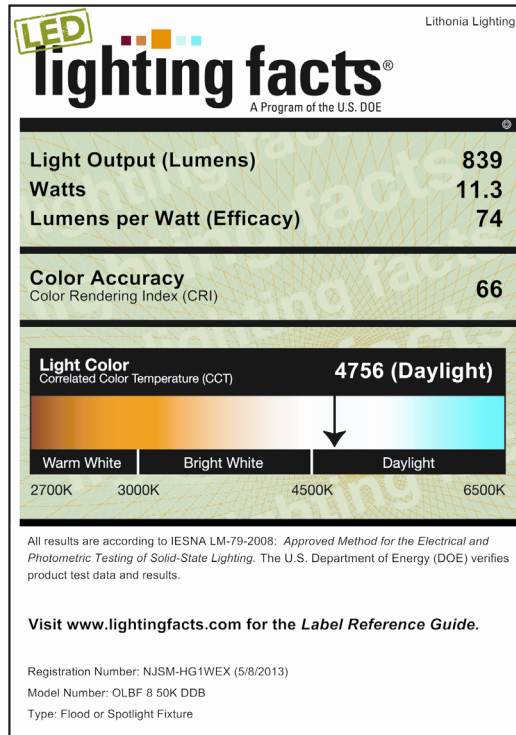
## LIGHTING FACTS

To see complete photometric reports or download .ies files for this product, visit [www.lithonialighting.com](http://www.lithonialighting.com). Actual wattage may differ by +/- 8% when operating at 120V or 277V +/- 10%.

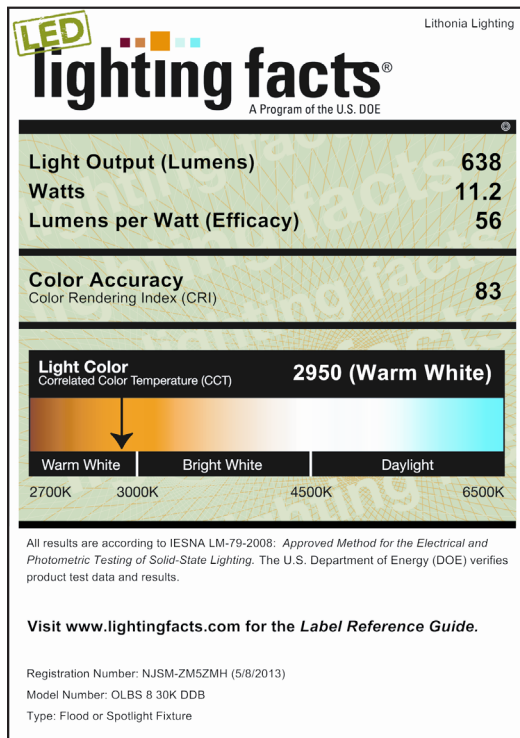
### OLBF 8 30K DDB



### OLBF 8 50K DDB



### OLBS 8 30K DDB



### OLBS 8 50K DDB

