

**GENOA CHARTER TOWNSHIP BOARD**  
**Regular Meeting**  
**November 20, 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: Nov. 6, 2017
3. Request to reappoint members to expiring terms on the Board of Review and reaffirm the appointment of Jill Rickard to the Planning Commission.
4. Request for approval of an amended calendar of holidays adding Veteran's Day as paid holiday to the calendar beginning 2018, as requested by Township residents and recommended by the Administrative Committee.

**Approval of Regular Agenda:**

5. Request for approval of budget amendments to Funds 101, 212, 261, 264, 270, and 271 as requested by the Administrative Committee.
6. Request for approval of Resolution 171120 to waive the interest and penalty for property transfer affidavits as recommended by the Township Assessor.
7. Consideration of a recommendation for approval regarding amended conditions of previously approved special land use and site plan for the Brighton Church of the Nazarene located at 7669 Brighton Road, Brighton. The request is petitioned by Brighton Church of the Nazarene.
  - A. Disposition of amendment to special land use and site plan conditions.
8. Consideration of a recommendation for approval with conditions regarding a special use application, environmental impact assessment and site plan for a proposed K-12 Livingston Christian School to be located within the Brighton Church of the Nazarene at 7669 Brighton Road, Brighton. The request is petitioned by Livingston Christian Schools.
  - A. Disposition of Special Use Application.
  - B. Disposition of Environmental Impact Assessment.
  - C. Disposition of Site Plan.
9. Consideration of a recommendation for approval with conditions regarding a special use application, environmental impact assessment and site plan for proposed outdoor storage and parking lot improvements location at 5818 Sterling Drive, Howell. The request is petitioned by Dennis Cregar.
  - A. Disposition of Special Use Application.
  - B. Disposition of Environmental Impact Assessment.

C. Disposition of Site Plan.

10. Consideration of a recommendation for approval with conditions regarding an environmental impact assessment and site plan for a proposed multi-use athletic field with storage building and concessions building with parking lot expansion at 3750 Cleary Drive. The request is within the Cleary University Planned Unit Development and is petitioned by Cleary University.

- A. Disposition of Environmental Impact Assessment.
- B. Disposition of Site Plan.

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**

**DATE: November 20, 2017**

TOWNSHIP GENERAL EXPENSES: Thru November 20, 2017	\$196,652.96
November 17, 2017 Bi Weekly Payroll	\$87,675.32
OPERATING EXPENSES: Thru November 20, 2017	\$88,221.46
TOTAL:	<u>\$372,549.74</u>

Check Date	Check	Vendor Name	Amount
<b>Bank FNBCK CHECKING ACCOUNT</b>			
11/02/2017	34019	DTE ENERGY	869.45
11/02/2017	34020	MICHIGAN DEPT OF ENV QUALITY	137.22
11/06/2017	34021	AMERICAN PLANNING ASSOCIATION	568.00
11/06/2017	34022	CONTINENTAL LINEN SERVICE	113.43
11/06/2017	34023	DTE ENERGY	151.90
11/06/2017	34024	HART INTERCIVIC, INC.	7,465.00
11/06/2017	34025	LIVINGSTON CO. ASSOC. OF REALTORS	533.00
11/06/2017	34026	MHOG	44,767.20
11/06/2017	34027	TETRA TECH INC	2,015.00
11/06/2017	34028	WELLNESS IQ	160.00
11/07/2017	34029	ETNA SUPPLY COMPANY	10,935.00
11/07/2017	34030	GENOA TOWNSHIP DPW FUND	105.60
11/07/2017	34031	STATE TAX COMMISSION	1,000.00
11/09/2017	34032	CONSUMERS ENERGY	121.79
11/09/2017	34033	COOPER'S TURF MANAGEMENT LLC	865.00
11/09/2017	34034	CUMMINS SALES & SERVICE	2,628.89
11/09/2017	34035	DTE ENERGY	123.50
11/09/2017	34036	GORDON FOOD SERVICE	12.98
11/09/2017	34037	MASTER MEDIA SUPPLY	338.68
11/09/2017	34038	MICHIGAN ASSESSOR'S ASSOC	90.00
11/09/2017	34039	MICHIGAN OFFICE SOLUTIONS	284.13
11/09/2017	34040	PACKERLAND RECORDS MANAGEMENT	75.00
11/09/2017	34041	PFEFFER-HANNIFORD-PALKA	2,750.00
11/09/2017	34042	STATE OF MICHIGAN	175.00
11/09/2017	34043	STATE OF MICHIGAN	175.00
11/09/2017	34044	STATE OF MICHIGAN	50.00
11/13/2017	34045	AMERICAN AQUA	68.00
11/13/2017	34046	GFL ENVIRONMENTAL USA INC.	79,354.29
11/13/2017	34047	LAURA MROCZKA	10.47
11/13/2017	34048	LIVINGSTON COUNTY TREASURER	14.19
11/13/2017	34049	LIVINGSTON PRESS & ARGUS	250.00
11/14/2017	34050	AT & T	1.83
11/14/2017	34051	AT&T	327.98
11/14/2017	34052	GREATLAND CORPORATION	124.99
11/14/2017	34053	NETWORK SERVICES GROUP, L.L.C.	50.00
11/14/2017	34054	SAFEBUILT STUDIO	3,937.51
11/15/2017	34055	BLUE CROSS & BLUE SHIELD OF MI	35,889.97
11/15/2017	34056	FEDERAL EXPRESS	72.96
11/15/2017	34057	LIVINGSTON COUNTY CLERKS ASSOC	40.00
11/15/2017	34058		0.00 V

Void Reason: PRINTED ON CHECK BY MISTAKE

**FNBCK TOTALS:**

Total of 40 Checks:	196,652.96
Less 1 Void Checks:	0.00
<b>Total of 39 Disbursements:</b>	<b>196,652.96</b>

Check Register Report For Genoa Charter Township  
 For Check Dates 11/17/2017 to 11/17/2017

Check Date	Bank	Check Number	Name	Check Gross	Physical Check Amount	Direct Deposit	Status
11/17/2017	FNBCK	EFT165	FLEX SPENDING (TASC)	1,159.13	1,159.13	0.00	Open
11/17/2017	FNBCK	EFT166	INTERNAL REVENUE SERVICE	21,652.35	21,652.35	0.00	Open
11/17/2017	FNBCK	EFT167	PRINCIPAL FINANCIAL	2,625.00	2,625.00	0.00	Open
11/17/2017	FNBCK	EFT168	PRINCIPAL FINANCIAL	1,161.40	1,161.40	0.00	Open
<b>Totals:</b>							
			Number of Checks: 004	26,597.88	26,597.88	0.00	
					Dir. Dep.		
					<u>61,077.44</u>		

Total Physical Checks:

Total Check Stubs:

4

**\$ 87,675.32**

Check Date                      Check                      Vendor Name                      Amount

Bank 503FN DPW-UTILITIES #503

1/07/2017	4161	ADVANCED AUTO PARTS	19.98
1/07/2017	4162	BELLE TIRE	1,494.68
1/07/2017	4163	BELLE TIRE	850.00
1/07/2017	4164	NORTHWEST PIPE & SUPPLY	118.53
1/07/2017	4165	PORT CITY COMMUNICATIONS, INC.	546.95
1/07/2017	4166	RED WING SHOE STORE	203.99
1/07/2017	4167	ROYS AUTOWORKS CORP	677.58
1/07/2017	4168	VICTORY LANE QUICK OIL CHANGE	162.46
1/08/2017	4169	TRACTOR SUPPLY CO.	139.94
1/09/2017	4170	PFEFFER-HANNIFORD-PALKA	1,750.00
11/13/2017	4171	LOWE'S	1,653.06
11/13/2017	4172	SPIRIT OF LIVINGSTON	636.58
11/13/2017	4173	STAPLES CREDIT PLAN	99.47
11/13/2017	4174	WINDSTREAM	45.49
11/14/2017	4175	CHASE CARD SERVICES	2,080.95

503FN TOTALS:

Total of 15 Checks:	10,479.66
Less 0 Void Checks:	0.00
Total of 15 Disbursements:	10,479.66

Check Date                      Check                      Vendor Name                      Amount

Bank 593FN LAKE EDGEWOOD OPERATING FUND #593

10/10/2017	3274	Void Reason: PRINTED ON THEM BY MISTAKE	0.00 V
11/02/2017	3275	BRIGHTON ANALYTICAL , L.L.C.	134.00
11/02/2017	3276	DTE ENERGY	425.64
11/07/2017	3277	BRIGHTON ANALYTICAL , L.L.C.	67.00
11/07/2017	3278	CONSUMERS ENERGY	25.04
11/07/2017	3279	COOPER'S TURF MANAGEMENT LLC	579.00
11/07/2017	3280	DTE ENERGY	3,738.15
11/07/2017	3281	GENOA TOWNSHIP D.P.W. FUND	11,106.72
11/07/2017	3282	GENOA TOWNSHIP DPW FUND	22.06
11/07/2017	3283	MICHIGAN CAT	1,330.00
11/07/2017	3284	PVS NOLWOOD CHEMICALS, INC	1,226.00
11/09/2017	3285	BRIGHTON ANALYTICAL , L.L.C.	67.00
11/09/2017	3286	CONSUMERS ENERGY	94.29

593FN TOTALS:

Total of 13 Checks:	18,814.90
Less 1 Void Checks:	0.00
Total of 12 Disbursements:	18,814.90

Check Date	Check	Vendor Name	Amount
Bank 592FN OAK POINTE OPERATING FUND #592			
11/02/2017	4102	CONSUMERS ENERGY	51.16
11/02/2017	4103	DTE ENERGY	881.05
11/02/2017	4104	DTE ENERGY	1,739.84
11/07/2017	4105	AT&T LONG DISTANCE	55.56
11/07/2017	4106	CLEAN HARBORS ENV. SERVICE	1,287.00
11/07/2017	4107	COOPER'S TURF MANAGEMENT LLC	310.00
11/07/2017	4108	DTE ENERGY	32.74
11/07/2017	4109	DUBOIS-COOPER	2,434.38
11/07/2017	4110	GENOA OCEOLA SEWER	629.64
11/07/2017	4111	GENOA TOWNSHIP D.P.W. FUND	38,000.54
11/07/2017	4112	GENOA TOWNSHIP DPW FUND	394.71
11/07/2017	4113	HACH COMPANY	395.73
11/07/2017	4114	MICHIGAN CAT	2,372.34
11/07/2017	4115	MICHIGAN DEPT OF ENV QUALITY	1,291.55
11/07/2017	4116	MICHIGAN DEPT OF ENV QUALITY	193.00
11/07/2017	4117	NORTHERN PUMP & WELL	2,912.00
11/07/2017	4118	TETRA TECH INC	3,025.00
11/07/2017	4119	TLS CONSTRUCTION	1,980.75
11/07/2017	4120	USABLUBOOK	287.91
11/07/2017	4121	UTILITIES INSTRUMENTATION SERVICE	402.00
11/07/2017	4122	YORK REPAIR, INC	250.00

592FN TOTALS:

Total of 21 Checks:	58,926.90
Less 0 Void Checks:	0.00
Total of 21 Disbursements:	58,926.90

## GENOA CHARTER TOWNSHIP BOARD

Regular Meeting

November 6, 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, Robin Hunt, Jim Mortensen, Terry Croft, Diana Lowe, and Jean Ledford. Also present were Township Manager, Michael Archinal; and six persons in the audience.

A Call to the Public was made with no response.

#### Approval of Consent Agenda:

Mortensen motioned to move item two from the consent agenda to the regular agenda for further discussion and clarification. Moved by Mortensen and supported by Croft to approve all items listed under the Consent Agenda as revised. The motion carried unanimously.

#### **1. Payment of Bills.**

#### **3. Consider approval of board appointments as recommend by the Township Supervisor**

#### Approval of Regular Agenda:

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

#### **2. Request to Approve Minutes: October 16, 2017**

Mortensen asked that the words Howell Township be removed from item five of the minutes.

Moved by Mortensen and supported by Hunt to approve the October 16, 2017 minutes removing the words Howell Township as amended. The motion carried unanimously.

#### **4. Presentation and request for approval of changes to the Employee Benefits plan from Human Recourses Director Kim Lane.**

Lane gave a brief power point presentation on the Employee Benefits plans. Medical coverage will increase by 5.6%. Dental will increase by 19% and change to Delta Dental. The wellness program that was implemented last year has been very beneficial in prevention and incentivizing participants. 32 employees out of the 40 participated in the wellness program. There will be a new app for next year called, *Me, You* and will be more user friendly with a desktop component.

Moved by Lowe and supported by Mortensen to approve changes to the Employee Benefits plan from Human Resources Director Kim Lane as presented. The motion carried unanimously.

#### **5. Request for approval of the Howell Area Parks and Recreation proposed budget for 2018.**

Current Director Paul Rogers and incoming Director Tim Church gave a brief overview of statistical information so the board could see which demographics use the facilities and services.



Rogers thanked the board for all their support and dedication over the years. His last day will be December 21<sup>st</sup>.

Incoming Director Church gave a description of the budget for the next year. The budget is balanced, with revenue equaling expenditures. There will be a new line item in the budget; Howell Parks and Recreation has won a transportation grant from United Way.

Mortensen noted that there was a very low turnout for those aged 30-49, as indicated on page 20 of the packet. Church indicated that the study was done during a time where classes and activities geared towards younger ages were in session. Usually an increase in the 30-49 age range is seen during the winter season.

The Township Board expressed their gratitude to Rogers for his dedication and wished him well. The board also welcomed incoming Director Church and looks forward to working with him.

Moved by Mortensen and supported by Croft to approve the Howell Parks and Recreation budget as presented. The motion carried unanimously.

#### **6. Action on the Lake Edgewood Waste Water Treatment Plant Equalization System.**

Utilities Director Greg Tatara and Deputy Director Dave Miller addressed the Board and gave a detailed overview and logistical necessity of the Lake Edgewood Waste Water Treatment Plant Equalization System.

##### **A. Request to award construction bid to Midwest Power Systems in an amount not to exceed \$298,000.00.**

Moved by Ledford and supported by Croft to award construction bid to Midwest Power Systems in the amount not to exceed \$298,000.00. The motion carried unanimously.

##### **B. Request to approve Hubbell, Roth, and Clark, Inc. to provide construction oversight of the project.**

Moved by Hunt and supported by Lowe to approve Hubbell, Roth, and Clark, Inc. to provide construction oversight of the project not to exceed \$37,000.00. The motion carried unanimously.

#### **Correspondence**

Gravel hauler disturbance

Cromaine Library annual report for fiscal year 2016-2017

LUCA

#### **Member Discussion**

Archinal informed the Board that the Round Lake Weed Project will have an information meeting at the Township, date to be determined.

The regular meeting of the board was adjourned at 7:17 p.m.

Tara Brown, Deputy 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:** Kelly VanMarter, Assistant Township Manager  
**DATE:** November 16, 2017  
**RE:** Appointments

### BOARD OF REVIEW

Pursuant to The General Property Tax Act (Act 206) of 1893, the Township Board shall appoint members to the Board of Review for terms of 2 years beginning at noon on January 1 of each odd-numbered year (MCL 211.28 (1)). The current term of the Board of Review members which was approved on December 1, 2016 set their expiration date at 12/31/2017 which would create a term start date in an even year. To correct this please consider a motion to reappointment as follows:

Moved by \_\_\_\_\_, Supported by \_\_\_\_\_ to appoint Ron Matkin, Chris Grajek, Marianne McCreary, and Patricia Petrat (alternate) to a term expiring 12/31/2018.

Next December we will correct the terms to provide for the required 2 years starting in the odd-numbered year of 2019 as required.

### PLANNING COMMISSION

As a clarifying measure, please consider a motion to affirm the appointment of Planning Commissioner Jill Rickard with a term expiration date of 06/30/2020. Jill replaced Trustee Diana Lowe on the Commission and it is unclear if she was reappointed upon expiration of Diana's term.

Moved by \_\_\_\_\_, Supported by \_\_\_\_\_ to affirm the appointment of Jill Rickard to the Planning Commission with a term expiring on June 30, 2020.

Please don't hesitate to contact me if you have any questions or concerns in this regard.

#### **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

11/13/2017

## BUDGET REPORT FOR GENOA TOWNSHIP

General Fund 101

Amended: 11/20/2017

GL NUMBER	DESCRIPTION	2013-14 ACTIVITY	2014-15 ACTIVITY	2015-16 ACTIVITY	2016-17 ACTIVITY	2017-18 ORIGINAL BUDGET	2017-18 ACTIVITY THRU 03/31/18	2017-18 AMENDED BUDGET
ESTIMATED REVENUES								
101-000-403-000	CURRENT REAL PROP TAX/INTEREST	805,572	820,731	845,920	858,935	866,000	130,612	866,000
101-000-407-000	DELINQ TAX - PERSONAL & REAL	8,906	7,414	6,088	10,489			
101-000-423-000	COLLECT FEES/EXCESS OF ROLL	295,138	296,125	299,329	322,582	340,400	98,925	340,400
101-000-423-100	COLLECTION FEE - SCHOOLS	28,410	24,771	24,897	25,282			
101-000-423-200	SET FEES COLLECTED	218	188	195	195			
101-000-445-000	PENALTIES & INTEREST ON TAXES	138	128					
101-000-476-000	LICENSES & PERMITS	15,488						
101-000-476-100	LICENSE/PERMIT/CABLE FRANCHISE	336,385	371,686	399,976	412,994	420,000	309,456	420,000
101-000-477-000	METRO ACT REVENUE	11,212	9,579	9,579	17,697	13,000		13,000
101-000-477-001	LCSA-PPT REIMBURSEMENT				17,418			
101-000-480-000	TRAILER FEES	3,310	2,707	3,003	5,354	3,500	2,353	3,500
101-000-574-000	STATE SHARED REVENUE	1,477,501	1,571,139	1,575,600	1,590,988	1,650,000	1,127,371	1,650,000
101-000-608-000	CHARGES FOR SERV-APPL FEES	28,732	60,727	68,666	37,739	60,000	25,818	60,000
101-000-631-000	REFUSE COLLECTION FEES	762,623	767,616	782,652	802,947	844,000	414,190	844,000
101-000-664-000	INTEREST	7,083	6,671	9,444	3,928	10,000	2,580	10,000
101-000-676-000	ADMIN FEE/UTILITY-OPERATING	50,000	51,500	53,000	54,100	54,550	30,689	54,550
101-000-676-100	ADM FEE LIQUOR LAW	3,500	3,500	3,500	3,500	3,500	1,750	3,500
101-000-678-300	TAXES ON LAND TRANSFER	122,869	127,905	142,699	148,885	134,000	3,632	134,000
101-000-678-700	WHITE PINES/STREET LIGHTING	18						
101-000-695-000	OTHER/CEMETERY/ SCHOOLS	10,888			1,762			
101-000-699-001	MISC/SCHOOL/CEMETERY/ELECTI	14,098	14,073	37,540	69,049	15,000	7,905	15,000
101-000-699-002	MMRMA REIMBURSEMENT				24,658		17,305	17,305
101-000-699-505	TRANSFER IN FROM SELCRA	1,862						
TOTAL ESTIMATED REVENUES		3,983,951	4,136,460	4,262,088	4,408,502	4,413,950	2,172,586	4,431,255

GL NUMBER	DESCRIPTION	2013-14 ACTIVITY	2014-15 ACTIVITY	2015-16 ACTIVITY	2016-17 ACTIVITY	2017-18 ORIGINAL BUDGET	2017-18 ACTIVITY THRU 03/31/18	2017-18 AMENDED BUDGET
APPROPRIATIONS								
101-000-000-106								
101-101-703-000	SALARIES/TRUSTEES	27,705	24,730	26,766	23,436	30,000	21,510	30,000
101-171-703-000	SALARIES/TWP SUPERVISOR	51,479	52,500	53,400	53,400	54,500	35,619	54,500
101-191-703-000	SALARIES/ELECTION	25,046	50,923	69,749	69,353	15,000	500	15,000
101-209-703-000	CONTRACTUAL SALARIES	337,860	338,842	357,790	348,382	378,000	230,163	378,000
101-210-801-000	PROF.CONTR./LEGAL	107,757	73,424	99,355	65,412	100,000	34,013	100,000
101-215-703-000	SALARIES/TWP CLERK	50,500	51,500	52,400	52,400	53,500	34,965	53,500
101-223-801-000	PROF. CONTR. AUDITOR	17,600	21,100	22,375	20,600	25,000	17,035	25,000
101-241-801-000	PROF.CONSULTING/ENG/PLANNING	42,272	11,454	21,998	22,246	50,000	15,259	50,000
101-247-703-000	BD OF REVIEW SALARIES	2,675	2,250	2,000	2,150	5,000	225	5,000
101-247-964-000	REFUNDS & CHARGEBACKS	15,682	6,336	4,090	2,028	10,000	512	10,000
101-253-703-000	SALARIES/TWP TREASURER	50,500	51,500	52,400	52,400	53,500	34,965	53,500
101-265-775-000	REPAIRS & MAINTENANCE	146,599	86,257	100,754	115,969	125,000	92,661	125,000
101-265-910-000	INSURANCE BC/BS & MCM	259,377	262,144	248,964	281,904	328,000	179,405	328,000
101-265-911-000	WELLNESS IQ REIMBURSE				519	10,000	2,692	10,000
101-265-920-000	UTIL:ELECTRICITY & NAT.GAS	22,719	20,126	20,314	18,624	22,000	12,159	22,000
101-284-703-000	SALARIES	308,655	313,275	260,546	281,503	296,000	192,383	296,000
101-284-704-000	RETIREMENT	95,298	92,938	87,850	83,953	110,000	56,902	110,000
101-284-715-000	EMPLOYER'S SHARE FICA	67,543	70,839	68,190	64,111	80,000	46,934	80,000
101-284-720-000	M.E.S.C.	61				20,000		20,000
101-284-727-000	PRINTG, POSTAGE, OFC SUPPLIES	86,219	92,671	83,863	79,333	95,000	25,535	95,000
101-284-728-000	ECONOMIC DEVELOPMENT	20,000	20,000	21,500	22,000	23,500	22,000	23,500
101-284-850-000	TELEPHONE	21,775	18,056	19,452	19,756	25,000	12,902	25,000
101-284-861-000	MILEAGE & TRAVEL EXPENSE	17,996	14,497	12,269	11,589	15,000	9,097	15,000
101-284-957-000	DUES	17,622	19,702	17,124	21,236	20,000	12,946	20,000
101-284-958-000	MEETING FEES & MISC. EXPENSES	13,194	17,941	20,944	31,428	25,000	8,183	25,000
101-284-958-001	692 RED OAKS DR				5,335			
101-284-959-000	APPL FEES EXPENSES	28,800	42,233	59,987	44,613	60,000	37,434	60,000

GL NUMBER	DESCRIPTION	2013-14 ACTIVITY	2014-15 ACTIVITY	2015-16 ACTIVITY	2016-17 ACTIVITY	2017-18 ORIGINAL BUDGET	2017-18 ACTIVITY THRU 03/31/18	2017-18 AMENDED BUDGET
101-284-959-001	PLANNING /ZBA SALARIES	29,754	30,016	31,437	28,545	32,000	17,018	32,000
101-301-703-000	SALARY/ORDINANCE/ ZONING ADMIN	44,105	50,165	68,572	81,725	88,000	54,232	88,000
101-336-999-001	FIRE SUB STATION EXPENSES-DORR	359		1,435				
101-441-801-010	ROAD IMPROVEMENT	194,572	224,361					
101-441-803-000	DUMP MAINTENANCE	931,751	970,891	967,656	956,602	1,015,000	562,817	1,015,000
101-441-804-000	DUST CONTROL/CHLORIDE	55,621	55,861					
101-751-881-000	RECREATION	128,324	131,426					
101-916-962-000	DRAIN AT LARGE	24,908	25,912	30,055	28,421	30,000		30,000
101-929-977-000	CAPITAL OUTLAY	88,266	28,079	94,020	88,953	125,000	40,076	125,000
101-966-999-010	TRANS OUT FUTURE RD IMPR #261	250,000	250,000	426,000	150,000	250,000		500,000
101-966-999-013	ADV FOR ROAD PROJECTS #264	500,000	250,000	450,000	600,000	300,000		150,000
101-966-999-027	FUT DEV PARKS & REC.#270	250,000	350,000	592,500	300,000	300,000		500,000
101-966-999-028	TRANS TO RESERVE BLDG/GRD #271	200,000		75,000	20,000	50,000	50,000	50,000
101-966-999-110	CONTINGENCIES					50,000		50,000
TOTAL APPROPRIATIONS		4,532,594	4,121,949	4,520,755	4,047,926	4,269,000	1,860,142	4,569,000
NET OF REVENUES/APPROPRIATIONS - FUND 101		(548,643)	14,511	(258,667)	360,576	144,950	312,444	(155,050)
BEGINNING FUND BALANCE		2,562,403	2,013,761	2,028,270	1,777,795	2,138,369	2,138,369	2,138,369
FUND BALANCE ADJUSTMENTS				8,190				
ENDING FUND BALANCE		2,013,760	2,028,272	1,777,793	2,138,371	2,283,319	2,450,813	1,983,319

11/16/2017  
 Future Roads Fund 264  
 Amended: 11/20/2017

BUDGET REPORT FOR GENOA TOWNSHIP

GL NUMBER	DESCRIPTION	2013-14 ACTIVITY	2014-15 ACTIVITY	2015-16 ACTIVITY	2016-17 ACTIVITY	2017-18 ORIGINAL BUDGET	2017-18 ACTIVITY 11/16/2017	2017-18 AMENDED BUDGET
<b>ESTIMATED REVENUES</b>								
264-000-665-000	INTEREST	918	811	1,121	680	1,000	725	1,000
264-000-699-101	TRANSFER IN - FUND # 101	500,000	250,000	450,000	600,000	300,000		150,000
264-000-699-261	TRANSFER IN- FUND 261				500,000			
264-448-450-000	SAD PRINCIPAL - WHITE PINES STREELIGHTS	758	891	848	705	800	27	779
264-451-695-000	PROFESSIONAL FEES	(2,000)	(2,000)					
264-470-450-000	SAD PRINCIPAL - FENDT DRIVE				(915)			
264-470-678-000	NORTH SHORE ROAD IMPROVE SAD			11,897				
264-470-682-000	NORTH SHORE RDS ASSOCIATION			11,898				
264-471-450-000	SAD PRINCIPAL - GRAND OAKS				138,037	138,000	116,137	135,961
264-471-671-000	RETURN FROM COUNTY						157,793	157,793
264-472-450-000	SAD PRINCIPAL - RED OAKS	69,149	69,143	59,762	59,268	56,000	3,210	56,600
264-473-450-000	SAD PRINCIPAL - GLENWAY DRIVE	17,861	15,628	15,628	15,628			
264-474-450-000	SAD PRINCIPAL - SUNRISE PARK				135,947	128,000	114,082	124,902
264-475-688-000	GRAND BEACH-SAD				9,336	10,000		9,336
264-476-450-000	SAD PRINCIPAL - TIMBERVIEW							42,167
264-476-699-261	TRANSFER IN # 261 - TIMBERVIEW						49,000	49,000
264-477-450-000	SAD PRINCIPAL - SUNDANCE TRAIL				37,020	36,000	6,170	23,304
264-477-687-000	OP HONORS-SAD				178,000			
264-478-450-000	SAD PRINCIPAL - HOMESTEAD TRAIL				38,333	39,000	36,010	35,429
264-479-450-000	SAD PRINCIPAL - E COON LAKE ROAD				26,961	19,000	17,157	19,607
264-480-450-000	SAD PRINCIPAL - OAK POINTE HONORS					30,000	30,000	30,000
264-480-699-261	TRANSFER IN # 261 - OAK POINTE HONORS						44,000	44,000
264-482-450-000	SAD PRINCIPAL - HILLENDALE							22,605
264-570-450-000	SAD PRINCIPAL - LAKE CHEMUNG	58,649	54,395	54,196	53,349	54,000	44,070	48,493
264-571-450-000	SAD PRINCIPAL - PARDEE LAKE	24,055	24,055	24,054	26,000	25,000		26,000
264-573-450-000	SAD PRINCIPAL - E/W CROOKED LAKE WEED!	21,272	21,136	20,419	19,434	18,500	17,417	18,715
<b>TOTAL ESTIMATED REVENUES</b>		<b>690,662</b>	<b>434,059</b>	<b>649,823</b>	<b>1,837,783</b>	<b>855,300</b>	<b>635,798</b>	<b>995,691</b>

GL NUMBER	DESCRIPTION	2013-14 ACTIVITY	2014-15 ACTIVITY	2015-16 ACTIVITY	2016-17 ACTIVITY	2017-18 ORIGINAL BUDGET	2017-18 ACTIVITY 11/16/2017	2017-18 AMENDED BUDGET
<b>APPROPRIATIONS</b>								
264-448-801-000	PROJECT COSTS - WHITE PINES STREETLIGHT	700	824	661	841		505	800
264-470-802-000	NORTH SHORE ROAD IMPROVEMENT			22,197				
264-471-801-000	PROJECT COSTS - GRAND OAKS			1,980	619,730			
264-472-801-000	PROJECT COSTS - RED OAKS	740,703						
264-474-801-000	PROJECT COSTS - SUNRISE PARK			4,415	535,114			
264-475-801-000	PROJECT COSTS - MOUNTAIN/MYSTIC/MILROY				508	800		800
264-476-801-000	PROJECT COSTS - TIMBERVIEW		6,170			255,000	154,310	255,000
264-477-801-000	PROJECT COSTS - SUNDANCE TRAIL			1,700	155,742		2,152	2,152
264-477-816-000	PINE RIDGE PAVING-EXPENSES				1,007			
264-478-801-000	PROJECT COSTS - HOMESTEAD TRAIL			1,320	177,880			
264-479-801-000	PROJECT COSTS - E COON LAKE ROAD				124,405			
264-480-801-000	PROJECT COSTS - OAK POINTE HONORS				660	179,000	217,645	209,000
264-482-801-000	PROJECT COSTS - HILLENDALE						1,519	22,605
264-570-801-000	PROJECT COSTS - LAKE CHEMUNG	48,222	43,728	52,169	57,672	55,000	24,669	68,325
264-571-801-000	PROJECT COSTS - PARDEE LAKE	25,095	30,071	21,456	24,866	30,000	21,152	30,000
264-572-801-000	PROJECT COSTS - GRAND BEACH WEEDS				1,080	10,000	8,430	9,300
264-573-801-000	PROJECT COSTS - E/W CROOKED LAKE WEEE	47,226	8,906	12,851	10,920	50,000	16,919	50,000
264-574-801-000	PROJECT COSTS - ROUND LAKE						1,619	500
264-906-956-000	MISC EXPENSE	638	599	729	3,529	3,000	8,110	8,000
264-966-999-261	TRANS OUT TO FUND #261				500,000			
<b>TOTAL APPROPRIATIONS</b>		<b>862,584</b>	<b>90,298</b>	<b>119,478</b>	<b>2,213,954</b>	<b>612,800</b>	<b>457,030</b>	<b>656,482</b>
<b>NET OF REVENUES/APPROPRIATIONS - FUND 264</b>								
		(171,922)	343,761	530,345	(376,171)	242,500	178,768	339,209
<b>BEGINNING FUND BALANCE</b>		<b>816,648</b>	<b>644,725</b>	<b>988,487</b>	<b>1,518,832</b>	<b>1,142,661</b>	<b>1,142,661</b>	<b>1,142,661</b>
<b>ENDING FUND BALANCE</b>		<b>644,726</b>	<b>988,486</b>	<b>1,518,832</b>	<b>1,142,661</b>	<b>1,385,161</b>	<b>1,321,429</b>	<b>1,481,870</b>

11/13/2017

## BUDGET REPORT FOR GENOA TOWNSHIP

Liquor Law 212

Amendment: 11/20/2017

GL NUMBER	DESCRIPTION	2013-14 ACTIVITY	2014-15 ACTIVITY	2015-16 ACTIVITY	2016-17 ACTIVITY	2017-18 ORIGINAL BUDGET	2017-18 ACTIVITY 11/13/2017	2017-18 AMENDED BUDGET
ESTIMATED REVENUES								
212-000-570-000	STATE SHARED REV LIQUOR LAW	12,328	13,034	13,660	13,833	13,900	14,942	15,000
TOTAL ESTIMATED REVENUES		12,328	13,034	13,660	13,833	13,900	14,942	15,000
APPROPRIATIONS								
212-000-956-000	MISC EXPENSE					200		
212-330-702-000	LIQUOR LAW ENF WAGES	8,240	8,240	8,240	8,240	8,240	4,120	8,240
212-330-704-000	RETIREMENT	824	824	824	824	824	412	824
212-330-715-000	EMPLOYER'S SHARE FICA	700	700	640	640	640	315	640
212-330-716-000	LIQUOR LAW ADM FEE/GENOA TWP.	3,500	3,500	3,500	3,500	3,500	1,750	3,500
212-330-717-000	AUDITING EXPENSE	300	300	200		200		200
TOTAL APPROPRIATIONS		13,564	13,564	13,404	13,404	13,404	6,597	13,404
NET OF REVENUES/APPROPRIATIONS - FUND 212		(1,236)	(530)	256	429	496	8,345	1,596
BEGINNING FUND BALANCE		2,180	944	415	671	1,100	1,100	1,100
ENDING FUND BALANCE		944	414	671	1,100	1,596	9,445	2,696



## 11/13/2017 BUDGET REPORT FOR GENOA TOWNSHIP

Future Development Roads/Misc. 261

Amended: 11/20/2017

GL NUMBER	DESCRIPTION	2013-14 ACTIVITY	2014-15 ACTIVITY	2015-16 ACTIVITY	2016-17 ACTIVITY	2017-18 ORIGINAL BUDGET	2017-18 ACTIVITY 11/13/2017	2017-18 AMENDED BUDGET
<b>ESTIMATED REVENUES</b>								
261-000-664-000	INTEREST	520	801	612	131	800	467	800
261-000-674-000	NEW ACCOUNT	139,416						
261-000-699-000	OPERATING TRANSFER IN	250,000	250,000	426,000	150,000	250,000		500,000
261-000-699-264	TRANS IN FROM 264				500,000			51,281
<b>TOTAL ESTIMATED REVENUES</b>		<b>389,936</b>	<b>250,801</b>	<b>426,612</b>	<b>650,131</b>	<b>250,800</b>	<b>467</b>	<b>552,081</b>
<b>APPROPRIATIONS</b>								
261-330-717-000	MISC./AUDIT EXPENSE							
261-441-804-000	DUST CONTROL			59,209	56,790	60,000	70,484	70,000
261-470-802-000	NORTH SHORE ROAD IMPROVEMENT			14,000				
261-471-803-000	GRAND OAKS ROAD IMPROVEMENT				200,000			
261-472-804-000	GOLF CLUB			33,116				
261-473-805-000	MCCLEMENTS			14,268				
261-477-809-000	TRI LAKES			136,999	11,714			
261-477-810-000	SUNDANCE TRAIL				30,000			
261-477-811-000	HUGHES ROAD				44,434			
261-477-813-000	WILDWOOD DRIVE				7,798			
261-477-817-000	LATSON ROAD SIGNAL					150,000		150,000
261-477-818-000	HACKER AND LAWSON					130,000	120,372	130,000
261-477-819-000	TIMBERVIEW					48,000	49,000	49,000
261-477-820-000	OAP POINTE HONORS					48,000	44,000	44,000
261-906-956-000	MISC EXPENSE/AUDIT	719	1,985	624	180	2,000	400	2,000
261-906-968-001	COON LAKE OVERLAY	283,764						
261-966-999-264	TRANS OUT TO 264				500,000			
<b>TOTAL APPROPRIATIONS</b>		<b>284,483</b>	<b>1,985</b>	<b>258,216</b>	<b>850,916</b>	<b>438,000</b>	<b>284,256</b>	<b>445,000</b>
<b>NET OF REVENUES/APPROPRIATIONS - FUND 261</b>		<b>105,453</b>	<b>248,816</b>	<b>168,396</b>	<b>(200,785)</b>	<b>(187,200)</b>	<b>(283,789)</b>	<b>107,081</b>
BEGINNING FUND BALANCE		833,822	939,276	1,188,092	1,356,488	1,155,703	1,155,703	1,155,703
ENDING FUND BALANCE		939,275	1,188,092	1,356,488	1,155,703	968,503	871,914	1,262,784

11/13/2017

## BUDGET REPORT FOR GENOA TOWNSHIP

Parks &amp; Recreation 270

Amended: 11/20/2017

GL NUMBER	DESCRIPTION	2013-14 ACTIVITY	2014-15 ACTIVITY	2015-16 ACTIVITY	2016-17 ACTIVITY	2017-18 ORIGINAL BUDGET	2017-18 ACTIVITY 11/13/2017	2017-18 AMENDED BUDGET
<b>ESTIMATED REVENUES</b>								
270-000-664-000	INTEREST	1,219	1,862	1,276	1,429	2,000	576	2,000
270-000-670-000	CONTRIBUTIONS							
270-000-680-000	RENTAL INCOME	12,750	10,450	11,400	11,450	11,750	7,000	11,750
270-000-699-000	OPERATING TRANSFER IN #101	250,000	350,000	592,500	300,000	300,000		500,000
270-000-699-001	MISC REVENUE-OTHER					500		500
270-000-699-101	TRANSFER IN-GENERAL FUND							
<b>TOTAL ESTIMATED REVENUES</b>		<b>263,969</b>	<b>362,312</b>	<b>605,176</b>	<b>312,879</b>	<b>314,250</b>	<b>7,576</b>	<b>514,250</b>
<b>APPROPRIATIONS</b>								
270-000-801-000	PROFESSIONAL FEES-ENGINEERING							
270-241-801-000	ATTORNEY/ENGINEERING		19,226	24,921	32,690	35,000	240	35,000
270-241-802-000	ENGINEERING		25,063					
270-265-775-000	MAINTENANCE		50,683	51,883	61,556	75,000	41,381	75,000
270-265-920-000	UTILITIES			479		1,000		1,000
270-330-694-002	RENTAL HOUSE EXPENSE		1,391			2,000		2,000
270-330-695-002	MISC EXPENSE/AUDIT	800	500	368	1,291	1,500	494	1,500
270-330-696-002	GENOA TWP ATHLETIC FIELD	91,569	17,000					
270-330-697-002	RECREATION BIKE PATH	1,573	168,258	134,224	408,373			350,000
270-330-701-000	HOWELL PARKS AND REC			177,283	103,225	115,000	75,806	115,000
270-536-972-100	LAND FOR RECREATION					200,000		200,000
270-536-972-200	I-96 INTERCHANGE WALK	391,232						
<b>TOTAL APPROPRIATIONS</b>		<b>485,174</b>	<b>282,121</b>	<b>389,158</b>	<b>607,135</b>	<b>429,500</b>	<b>117,921</b>	<b>779,500</b>
<b>NET OF REVENUES/APPROPRIATIONS - FUND 270</b>		<b>(221,205)</b>	<b>80,191</b>	<b>216,018</b>	<b>(294,256)</b>	<b>(115,250)</b>	<b>(110,345)</b>	<b>(265,250)</b>
<b>BEGINNING FUND BALANCE</b>		<b>718,042</b>	<b>496,837</b>	<b>577,027</b>	<b>793,045</b>	<b>498,789</b>	<b>498,789</b>	<b>498,789</b>
<b>ENDING FUND BALANCE</b>		<b>496,837</b>	<b>577,028</b>	<b>793,045</b>	<b>498,789</b>	<b>383,539</b>	<b>388,444</b>	<b>233,539</b>

11/13/2017

## BUDGET REPORT FOR GENOA TOWNSHIP

Building Reserve/Cemetery 271

Amended: 11/20/2017

GL NUMBER	DESCRIPTION	2013-14 ACTIVITY	2014-15 ACTIVITY	2015-16 ACTIVITY	2016-17 ACTIVITY	2017-18 ORIGINAL BUDGET	2017-18 ACTIVITY 11/13/2017	2017-18 AMENDED BUDGET
<b>ESTIMATED REVENUES</b>								
271-000-664-000	INTEREST	275	84	77	132	300	132	300
271-000-699-000	OPERATING TRANSFER IN #101	200,000		75,000	20,000	50,000	50,000	50,000
<b>TOTAL ESTIMATED REVENUES</b>		<b>200,275</b>	<b>84</b>	<b>75,077</b>	<b>20,132</b>	<b>50,300</b>	<b>50,132</b>	<b>50,300</b>
<b>APPROPRIATIONS</b>								
271-906-956-000	MISC EXPENSE	31			465	1,000		1,000
271-906-957-000	CEMETARY PURCHASE				40,440			
271-906-958-000	CEMETARY MAINTENANCE						5,500	5,500
271-929-977-000	CAPITAL OUTLAY/PAVEMENT/PARKIN	118,622	10,882	174,286		2,000		67,000
<b>TOTAL APPROPRIATIONS</b>		<b>118,653</b>	<b>10,882</b>	<b>174,286</b>	<b>40,905</b>	<b>3,000</b>	<b>5,500</b>	<b>73,500</b>
<b>NET OF REVENUES/APPROPRIATIONS - FUND 271</b>		<b>81,622</b>	<b>(10,798)</b>	<b>(99,209)</b>	<b>(20,773)</b>	<b>47,300</b>	<b>44,632</b>	<b>(23,200)</b>
<b>BEGINNING FUND BALANCE</b>		<b>200,921</b>	<b>282,543</b>	<b>271,745</b>	<b>172,537</b>	<b>151,763</b>	<b>151,763</b>	<b>151,763</b>
<b>ENDING FUND BALANCE</b>		<b>282,543</b>	<b>271,745</b>	<b>172,536</b>	<b>151,764</b>	<b>199,063</b>	<b>196,395</b>	<b>128,563</b>

**GENOA CHARTER TOWNSHIP**  
**LIVINGSTON COUNTY**

**RESOLUTION NO. 17-1120**

**WAIVE THE INTEREST AND PENALTY**  
**FOR PROPERTY TRANSFER AFFIDAVITS**

At a regular meeting of the Board of Trustees of Genoa Charter Township, County of Livingston, State of Michigan, held on November 20, 2017, the following Resolution was moved, supported and adopted.

**WHEREAS**, pursuant to MCL 211.27b (1) (c) & (d), the local unit shall levy up to a \$200 penalty per parcel for failure to file a property transfer affidavit within 45 days of acquisition of real property; and,

**WHEREAS**, MCL 211.27b (5) allows the governing body of a local tax collecting unit to waive, by resolution the penalty levied under subsection (1) (c) & (d) of the General Property Tax Act; and,

**WHEREAS**, Township staff has determined that enforcing & collecting the penalty is not cost effective and,

**WHEREAS**, the Township is hereby waiving all Property Transfer Affidavits that have failed to timely file; and,

**THEREFORE, BE IT RESOLVED** that the penalty levied pursuant to MCL 211.27b(1) (c) & (d) shall be waived.

**PASSED AND APPROVED BY THE TOWNSHIP OF GENOA BOARD**,  
Brighton, Michigan, this 20th day of November, 2017.

	YES	NO
✓ Conway		X
✓ Cohoctah		X
✓ Deerfield		X
✓ Tyrone		X
✓ Handy		X
✓ Howell		X
✓ Oceola		X
✓ Hartland		X
✓ Iosco		X
✓ Marion		X
✓ Genoa		X
✓ Brighton		X
✓ Unadilla		X
✓ Putnam		X
✓ Hamburg		X
✓ Green Oak		X
✓ City of Howell		X
✓ City of Brighton	X	

**THE GENERAL PROPERTY TAX ACT (EXCERPT)**  
Act 206 of 1893

**211.27b Failure to notify assessing office; adjustment.**

Sec. 27b (1) If the buyer, grantee, or other transferee in the immediately preceding transfer of ownership of property does not notify the appropriate assessing office as required by section 27a(10), the property's taxable value shall be adjusted under section 27a(3) and all of the following shall be levied:

(a) Any additional taxes that would have been levied if the transfer of ownership had been recorded as required under this act from the date of transfer.

(b) Interest and penalty from the date the tax would have been originally levied.

(c) For property classified under section 34c as either industrial real property or commercial real property, a penalty in the following amount:

(i) Except as otherwise provided in subparagraph (ii), if the sale price of the property transferred is \$100,000,000.00 or less, \$20.00 per day for each separate failure beginning after the 45 days have elapsed, up to a maximum of \$1,000.00.

(ii) If the sale price of the property transferred is more than \$100,000,000.00, \$20,000.00 after the 45 days have elapsed. However, if the appropriate assessing office determines that the failure to notify the assessing office within 45 days after the property's transfer of ownership was due to reasonable cause and not the willful neglect of the buyer, grantee, or other transferee, the penalty under subparagraph (i) shall be imposed. If the appropriate assessing office makes a determination that the failure to notify the assessing office within 45 days after the property's transfer of ownership was a result of the willful neglect of the buyer, grantee, or other transferee, that assessing office shall promptly send that buyer, grantee, or other transferee written notice, by certified mail, of that determination. A buyer, grantee, or other transferee who is assessed the penalty under this subparagraph may appeal that determination to the Michigan tax tribunal.

(d) For real property other than real property classified under section 34c as industrial real property or commercial real property, a penalty of \$5.00 per day for each separate failure beginning after the 45 days have elapsed, up to a maximum of \$200.00.

(2) The appropriate assessing officer shall certify for collection to the treasurer of the local tax collecting unit if the local tax collecting unit has possession of the tax roll or the county treasurer if the county has possession of the tax roll any additional taxes due under subsection (1)(a) and any penalty due under subsection (1)(c) or (d).

(3) The treasurer of the local tax collecting unit if the local tax collecting unit has possession of the tax roll or the county treasurer if the county has possession of the tax roll shall collect any taxes, interest, and penalty due pursuant to this section, and shall immediately prepare and submit a corrected tax bill for any additional taxes due under subsection (1)(a) and any interest and penalty due under subsection (1)(b). A penalty due under subsection (1)(c) or (d) may be collected with the immediately succeeding regular tax bill.

(4) Any taxes, interest, and penalty collected pursuant to subsection (1)(a) and (b) shall be distributed in the same manner as other delinquent taxes, interest, and penalties are distributed under this act. Any penalty collected under subsection (1)(c) or (d) shall be distributed to the local tax collecting unit.

(5) The governing body of a local tax collecting unit may waive, by resolution, the penalty levied under subsection (1)(c) or (d).

(6) If the taxable value of property is increased under this section, the appropriate assessing officer shall immediately notify by first-class mail the owner of that property of that increase in taxable value. A buyer, grantee, or other transferee may appeal any increase in taxable value or the levy of any additional taxes, interest, and penalties under subsection (1) to the Michigan tax tribunal within 35 days of receiving the notice of the increase in the property's taxable value. An appeal under this subsection is limited to the issues of whether a transfer of ownership has occurred and correcting arithmetic errors. A dispute regarding the valuation of the property is not a basis for appeal under this subsection.

(7) If the taxable value of property is adjusted under subsection (1), the assessing officer making the adjustment shall file an affidavit with all officials responsible for determining assessment figures, rate of taxation, or mathematical calculations for that property within 30 days of the date the adjustment is made. The affidavit shall state the amount of the adjustment and the amount of additional taxes levied. The officials with whom the affidavit is filed shall correct all official records for which they are responsible to reflect the adjustment and levy.

(8) Notification of a transfer of ownership provided as required under section 27a(10) or a levy of additional taxes, interest, and penalty under this section shall not be considered a determination of or evidence of the classification of the property transferred as real or personal property.

History: Add 1994, Act 415, Imd. Eff. Dec. 29, 1994; Am 1996, Act 476, Imd. Eff. Dec. 26, 1996; Am 2012, Act 382, Imd. Eff. Dec. 26, 2012; Am 2017, Act 1, Imd. Eff. Dec. 29, 2017.



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:** November 16, 2017

**RE:** **Brighton Church of the Nazarene – Special land use and site plan amendment.**

---

Attached please find the project case file requesting deviations from condition of prior approvals relating to the special land use and site plan for the Brighton Church of the Nazarene located at 7669 Brighton Road, Brighton. The request is petitioned by Brighton Church of the Nazarene.

The applicant requests an amendment to landscaping requirements involving a net reduction of 19 trees within the east buffer zone (39 to be removed; 20 new to be planted), a request to change the requirement regarding maintenance responsibility for the off-premise easterly tree line from the church to the neighborhood association and to remove the requirement to have a security guard for the skate park.

Per Section 18.10 of the Zoning Ordinance, the proposed site plan amendment does not qualify as “minor” amendment; therefore, the modification is subject to Planning Commission review and approval. Since the Township Board originally held the approval authority for conditions of special use and site plan approval (2003 and 2013), the modification of conditions warrants review/action by the same body.

At the November 13, 2017 Planning Commission meeting the amendments to the special use conditions and site plan requirements were recommended for Board approval with conditions. Based on the action of the Planning Commission I offer the following action for your consideration:

**Moved by \_\_\_\_\_, Supported by \_\_\_\_\_ to APPROVE the amendments to the special land use and site plan conditions for the Brighton Church of the Nazarene for the reasons found by the Planning Commission with the following conditions:**

1. The landscape plan provided by Landscape Design and Associates dated October 2, 2017 is approved.

### 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

2. The requirement for the Church of the Nazarene to maintain the off-premise tree line along the Aljoann Road right-of-way is eliminated. The maintenance responsibilities are transferred to the Worden Lake homeowner's association as provided by Article 3, Section 3, Item 1 in the Declaration of Covenants and Building and Use Restrictions as recorded in Liber 2925 Page 0082.
3. The requirement for the skate park security guard is discontinued.

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

Sincerely,

Kelly VanMarter  
Assistant Township Manager/Community Development Director





GENOA CHARTER TOWNSHIP
Application for Site Plan Review

TO THE GENOA TOWNSHIP PLANNING COMMISSION AND TOWNSHIP BOARD:

APPLICANT NAME & ADDRESS: Brighton Church of the Nazarene
If applicant is not the owner, a letter of Authorization from Property Owner is needed.

OWNER'S NAME & ADDRESS: Ben D. Walls 495 Lillyview Ct, Howell

SITE ADDRESS: 7669 Brighton Rd. PARCEL #(s):

APPLICANT PHONE: (810) 227-6600 OWNER PHONE: (810) 599-0941

OWNER EMAIL: pastorben@thenaz.org

LOCATION AND BRIEF DESCRIPTION OF SITE:
Eastern boundary between Brighton Church of the Nazarene
and Worden Lake Woods Subdivision.

BRIEF STATEMENT OF PROPOSED USE: See Attachments 1-

THE FOLLOWING BUILDINGS ARE PROPOSED:

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

BY: Jim Burgen

ADDRESS: 12277 Birchcrest Dr, Milford, MI 48380

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

1.) Jim Burgess of Brighton Nazarene Church jim@thenaz.org  
 Name Business Affiliation E-mail Address

**FEE EXCEEDANCE AGREEMENT**

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

SIGNATURE: Ben D. Walls DATE: 7-18-17  
 PRINT NAME: Ben D. walls PHONE: 810-227-6600  
 ADDRESS: ~~patterson~~ 7669 Brighton Rd. Brighton, MI 48116

**GENOA CHARTER TOWNSHIP  
PLANNING COMMISSION  
PUBLIC HEARING  
NOVEMBER 13, 2017  
6:30 P.M.  
MINUTES**

CALL TO ORDER: The meeting of the Genoa Charter Township Planning Commission was called to order at 6:31 p.m. Present were Chairman Doug Brown, Jim Mortensen, Eric Rauch, Chris Grajek, and Jill Rickard. Absent were Barb Figurski and John McManus. Also present was Kelly VanMarter, Community Development Director/Assistant Township Manager, Gary Markstrom from Tetra Tech, Brian Borden of LSL Planning, and an audience of 24.

PLEDGE OF ALLEGIANCE: The pledge of allegiance was recited.

APPROVAL OF AGENDA:

Chairman Brown asked to have a discussion prior to the start of Old Business.

**Moved** by Mortensen, seconded by Grajek, to approve the agenda as presented.

CALL TO THE PUBLIC: The call to the public was made at 6:31 pm with no response.

Chairman Brown stated that there are two members who are absent this evening and one of the Commissioners will need to be excused from Open Public Hearing #2. That will leave only four members to vote. The applicant has the option to have their item tabled.

With regard to Hearing #5, he will need some additional information from the Planner and staff during the discussion. He also has some suggestions to the language.

**OLD BUSINESS:**

**OPEN PUBLIC HEARING #1...** (Tabled 9-11-17) Review of a request to amend conditions of previously-approved special land use and site plan for the Brighton Church of the Nazarene located at 7669 Brighton Road, Brighton. The request is petitioned by Brighton Church of the Nazarene.

Planning Commission Recommendation of Petition:

A. Recommendation of amendment to special land use and site plan conditions.

Pastor Ben Walls stated that they were asked to meet with the neighbors. They have done that and contracted Landscape Designs to determine which trees should be

moved. They all walked the tree line and the homeowners determined which trees should be taken out. The church paid to have them removed. They also paid to have Landscape Designs plant new trees, which were also approved by the neighbors.

Commissioner Grajek questioned who will maintain the trees. Pastor Walls stated this has not been resolved.

Mr. Borden reviewed his letter of November 6, 2017.

The amendment of the number of trees to be removed and replanted must be approved by the Township. He noted that the trees that were planted are 1.5"-2" caliper whereas the ordinance standard is 2.5" caliper.

A condition of a previous approval by the Township Board was that the church would maintain the tree line. If this is going to be changed, it must be approved by the Township.

The church is also requesting to eliminate the need for the security guard and this will need to be approved by the Township as it was also a condition of a previous approval.

Mr. Jim Burgess stated that they were not provided the size of the trees by their landscape architect and they were not aware there was a minimum caliper required. The landscape store told them that the 2" caliper containerized trees were better for the location.

Commissioner Grajek asked if there is someone on site at the skate park during its operating hours. Pastor Walls said they have a skate park manager and volunteers who are always there when the park is open.

Chairman Brown stated that an e-mail was received from Colleen Bussey of 4897 Aljoann. Ms. Bussy asked if the landscaping is finished because she did not get a chance to review the blueprints. She is not in favor of the deciduous trees that will lose their leaves, would like the Township to require the church to maintain the landscape and that records have been kept of the church's many agreements that have been rescinded on.

Mr. Rob Stogdill of 4793 Aljoann submitted a letter stating his approval of the new tree line; however, he, as well as other homeowners, do not want to be responsible for maintaining the trees. A condition of the Township's previous approval was that the church shall maintain the tree line. Another condition was that the sixteen trees that have died or been removed as well as the addition of three pine trees be planted along the east property line. The church has not maintained the tree line and many trees have died.

Pastor Wells stated that the church as spent a lot of money on the tree line. They have spent almost \$50,000. He disagrees that they have not maintained the tree line. They did have a delay in replacing the dead trees due to funding. The trees did not die because of the snow plowing or the salting of the parking lot; they died because they were diseased.

Chairman Brown asked if there any of these trees are on church property. Mr. Burgess stated there are no trees in this tree line on their property. Chairman Brown stated that he was not on the Planning Commission in 2003; however, he has learned that the homeowners signed a deed restriction stating they would maintain the tree line. Then other requests were made by the church and they were required to maintain the tree line. He feels that the homeowners should maintain the trees since they originally agreed to do it.

Commissioner Mortensen stated that the landscaping was put in to shield the view of the church from the residential area as well as to limit the children from the skate park running through the neighborhood. Pastor Walls stated the fence was put up to stop the kids from running through the trees. Commissioner Mortensen stated that the fence shields the neighbors from the church and the fence solves the safety issues. He believes it is unreasonable to ask the church to maintain them since they are not on their property.

Chairman Brown stated that at last month's Planning Commission meeting, there were residents who had concerns about the west side of the property. He visited the site today and saw that the church can be seen from their property. Pastor Walls stated that they did plant 12 evergreen trees when they built the sanctuary. They are not mature and will continue to grow.

Commissioner Rauch stated that when the privacy fence was put up, it created a visual condition that the tree line is on the residential property.

Commissioner Grajek thanked Chairman Brown for mentioning the deed restriction. This shows that the homeowners are responsible for the tree line and the church has done a lot of work in that area in good faith.

Commissioner Rickard stated that as it relates to the caliper of the trees, she believes they should be allowed to stay. Grajek agrees.

The call to the public was made at 7:15 pm.

Mr. Larry Webb of 7951 Brighton Road stated he is one of the three residents on that road on the west side of the church. There are no evergreen trees shielding his home from the site. Pastor Walls stated he is willing to work with the neighbors. He was not aware of their concerns until last month's Planning Commission meeting.

The call to the public was closed at 7:16 pm.

**Moved** by Mortensen, seconded by Rauch, to recommend to the Township Board approval of amendments to the special land use and site plan conditions for the Brighton Church of the Nazarene as follows:

- The site plan design of Landscape Design and Associates dated October 2, 2017 showing is recommended.
- The requirement that the Church of the Nazarene maintain the tree line along the ROW should be removed with the assumption of the maintenance responsibilities be transferred to the homeowner's association of Aljoann Drive. This is consistent with the covenant in the master deed of the subdivision on Aljoann Drive.
- It is recommended that a paid security individual on site of the Church of the Nazarene be discontinued.

These recommendations are made for the following reasons:

- The construction several years ago of the 6-foot high, 700-foot long fence along Aljoann shields the view of the church and its activities from the neighborhood.
- There has been no reported incidents requiring continuation of a security guard and during operation of the skate park, there is a director and volunteers available.
- This amendment does not include the northeast portion of the site where there are plantings on the church property, which will continue to be maintained by the Church of the Nazarene.

**The motion carried unanimously.**

**OPEN PUBLIC HEARING #2...** (Tabled 10-10-17) Review of a special use application, environmental impact assessment and site plan for a proposed K-12 Livingston Christian Schools to be located within the Brighton Church of the Nazarene at 7669 Brighton Road, Brighton. The request is petitioned by Livingston Christian Schools.

Planning Commission Recommendation of Petition:

- A. Recommendation of Special Use Application
- B. Recommendation of Environmental Impact Assessment
- C. Recommendation of Site Plan.

Commissioner Rauch asked to be excused from the discussion and motion as his children attend Brighton Christian Schools.

**Moved by** Mortensen, seconded Grajek, to excuse Commissioner Rauch. **The motion carried unanimously.**

Brett LaVanway of Boss Engineering, Steven Russo of Fleis & VandenBrink Engineering, Inc., and Roger Wiegand of Livingston Christian Schools were present.

**GENOA CHARTER TOWNSHIP  
PLANNING COMMISSION  
PUBLIC HEARING  
September 11, 2017  
6:30 P.M.  
MINUTES**

CALL TO ORDER: The meeting of the Genoa Charter Township Planning Commission was called to order at 6:30 p.m. Present were Chairman Doug Brown, Eric Rauch, John McManus, Chris Grajek, James Mortensen and Jill Rickard. Absent was Barbara Figurski. Also present was Kelly VanMarter, Community Development Director/Assistant Township Manager, Brian Borden from LSL Planning and an audience of 10.

PLEDGE OF ALLEGIANCE: The pledge of allegiance was recited. There was also a moment of silence in remembrance of the terrorist attacks of September 11, 2001.

APPROVAL OF AGENDA:

**Moved** by McManus, seconded by Mortensen, to approve the agenda as presented.

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

**OPEN PUBLIC HEARING #1...** Review of a request to amend conditions of a previously-approved Special Land Use and Site Plan for the Brighton Church of the Nazarene located at 7669 Brighton Road, Brighton. The request is petitioned by Brighton Church of the Nazarene.

Planning Commission disposition of petition:

A. Recommendation of amendment to Special Lane Use and Site Plan Conditions

Pastor Ben Wallace, Jim Burgos, and Josh Latson were present.

Pastor Wallace stated they are asking for a revised plan for the trees. They are aware that the trees put in by the contractor have died. As part of their previous approval, they were required to maintain the trees. An arborist came out and determined that they were planted too close together and are fighting for nutrients. There is also a disease in the soil affecting the blue spruces. The trees need to be thinned out and a 15-foot perimeter needs to be around each one. They would like to take out the dead trees and put in new ones, within the parameters of the 15 feet. Because of the security issues, it was suggested by the Planning Commission to put up a fence. They have done this to prevent kids from the skate park cutting through the trees and into the adjacent neighborhood.

They would like to amend the landscape design plan requirements. They will be removing 16 trees and planting 5 new trees and ask that the neighbors on the residential street adjacent to their church maintain the trees on their properties.

Additionally, since the fence has been put up, there have not been any incidences reported of kids cutting through the trees and climbing the fence. Therefore, they would also like to remove the requirement of having a security guard on site when the skate park is open.

Commissioner Mortensen noted that some of the area in question does not belong to the church or the association. It is Right-of-Way along a Livingston County road. He believes the church should only be responsible for the trees on their property and the homeowner's association should be responsible for any trees that are located in the ROW.

There was a brief discussion regarding the maintenance of all of the trees in this area. It was a condition of a previous approval that the church would maintain all of the trees in this tree line. Mr. Burgos stated they have spent \$50,000 to maintain it. At this point, they would like to remove any trees that are dead, even if they are not on their property, and restore the area to level so that the homeowners have something manageable to maintain going forward.

Mr. Borden reviewed his letter of September 6, 2017.

Because this is not a minor amendment to a previously-approved plan, it must be approved by the Township Board. The Planning Commission will only be making a recommendation this evening.

- He requested a report of the condition of the trees that are said to be dead or dying as well as what is being proposed to be planted. The applicant submitted this report to Mr. Borden and the Planning Commission this evening.
- The applicant should also provide a more detailed amended landscape plan, such as when a formal site plan is submitted. He would like the Planning Commission and residents to know exactly what to expect.
- He believes that the applicant has provided the rationale as to why they should no longer be required to maintain the trees that are not on their property as well as why a security guard is no longer needed. The decision to agree to amend these conditions of the previous approval would ultimately be decided by the Planning Commission and the Township Board.

Commissioner McManus agrees with Mr. Borden. If he was a resident on the adjacent street, he would like to have a detail of what is being taken out, what is being put in, and what he would be required to maintain.

Commissioner Rauch stated that the Livingston County Road Commission should have input as to the removing and planting of trees.



Chairman Brown suggested the church and the residents meet to come to an agreement as to what will be done along the tree line. Commissioner Mortensen agrees; and the meeting should include a landscape architect. He believes this is an issue between the church and the homeowners.

Commissioner Rickard asked staff if these trees were planted by the developer as part of the site plan approval. Ms. VanMarter has researched this and there were no requirements placed on the developer by the Township to plant these trees.

Commissioner Rickard would like to see a landscape plan as suggested by Mr. Borden.

The Call to the Public was made at 7:21 pm.

Mr. Jay Johnston of 4931 Aljoann stated that one of the homeowners' concerns is that as part of previous approvals for expansions for the church, they were required to maintain the trees and they did not do this. They did not care for the trees when they were dying. He stated that a previous arborist suggested that 46 trees be removed and a mixture of deciduous and pine trees should be planted. He and other homeowners feel that there are an additional 11 trees that will need to be removed in the next few years.

The fence has been an improvement. He does not agree that removing 16 trees and planting 5 new trees will be sufficient.

Chairman Brown asked Mr. Johnston if he would be agreeable to meeting with representatives of the church to come to an agreement on a landscape plan that can be presented to the Planning Commission and Township Board. Mr. Johnston stated he has spoken to them; however, he is willing to meet again.

Commissioner Rickard understands that these trees are not all on the church's property; however, at this time, per the condition of the previous approvals, they are required to maintain the entire tree line.

Ms. Sandy Stogdill of 4793 Aljoann stated that different landscapers have had different opinions regarding these trees so they may have a different opinion than what was put in Leppek's report and presented to the Township.

Rob Stogdill of 4793 Aljoann does not feel that a security guard is needed at this time; however, he would like to keep it open for discussion if incidents do occur.

The call to the public was closed at 7:32 pm.

Commissioner Grajek stated that not all of the conditions put on the previous approvals regarding these trees have been met. He thinks this is an opportunity to make this right.

**Moved** by Commissioner Mortensen, seconded by Commissioner Grajek, to table the request from the Church of the Nazarene to amend the Special Land Use and Site Plan Conditions.

**The motion carried unanimously.**

**Administrative Business:**

**From:** [Kelly VanMarter](#)  
**To:** [Amy Ruthig](#)  
**Subject:** FW: Worden Lake Woods-Aljoann  
**Date:** Monday, November 13, 2017 12:53:23 PM

---

-----Original Message-----

From: Colleen Bussey [<mailto:busseysoccer@comcast.net>]  
Sent: Monday, November 13, 2017 12:22 PM  
To: Kelly VanMarter  
Subject: Worden Lake Woods-Aljoann

Hi Kelly,

I am very sorry I haven't been involved in all the church discussions as I am dealing with my sister's stage 4 cancer. Please forgive me if I am mistaken about things but I would like to voice some concerns.

I am not sure if the landscaping is finished. I hope not. I was under the impression that we would be able to see the blueprints and have one opportunity to change things. I did approve that the evergreens could go in now (with the dead trees being replaced) while they are at their cheapest.

I am not in favor of the deciduous trees which will lose their leaves and expose the fence, and massive church and just as important block a little of the noise. Our house value has decreased and all our front windows no longer have a decent view.

Also, I do believe they should honor their agreement with the township (made before they received approval for their additional buildings/additions) to upkeep the landscape.

I hope the township is keeping a record of the many agreements they have rescinded on.

Thank you for your attention to these matters,

Colleen Bussey  
4897 Aljoann

Genoa Township Planning Commission:

As a representative from Worden Lake Woods Homeowners Association I would like to provide feedback regarding the Landscape Design Plan for Brighton Church of the Nazarene.

We have a majority of homeowners that are accepting and pleased with the newly planted landscaping provided by the Church. In time, as it fills in and along with the fencing installed previously, it should be an acceptable barrier between our subdivision and the Church. Our neighborhood had a fair amount of input into the new plantings as well.

However, we have no majority of homeowners, in fact almost none that are in favor of Worden Lake Woods becoming responsible for future maintenance. We refused to sign the maintenance agreement with the church. Our objections simply stem from the numerous times the Naz has agreed to maintain this property over the years in order to gain something they wanted.

I did not go through all prior meeting minutes but I did want to highlight a few passages from the past Genoa Township meeting minutes. The following passages are copied directly from the township website:

Pastor Ben advised that he met with residents on May 3, 2003 and they had a good meeting. There were discussions on how the church can be a better neighbor. The church will make the following improvements:

1. A tree barrier will be planted and maintained. The original developer of the residential subdivision asked the church for permission to plant trees and now the developer is gone from the area and has not maintained the trees. The church will maintain the trees on their side of the fence. They will add three trees to help screen the building as well as replace the 16 trees that have died.

Mr. Jamie Todd of 4931 Aljoann asked to speak on behalf of the neighboring subdivision.

He noted the following discussions and agreements that were made at their meeting with the church.

- 1. The church will maintain the trees.**

Moved by Burchfield, seconded by Brown, to recommend to the Township Board approval of the Special Use Application for a proposed 17,600 sq. ft. sanctuary addition to existing church facility (Brighton Nazarene Church) located at 7679 Brighton Road, Section 25, petitioned by Brivar Construction with the following conditions:

- 1. The petitioner shall replace the 16 trees that have died or been removed along the east property line.**
- 2. The petitioner will add three additional Austrian Pine trees to the east property line.**
- 3. The petitioner shall maintain the tree line along the east property line.**

Over the last 15 years of these agreements being in place the tree line was not maintained at all by the Church. It was neglected and left to die. It had salt-laden snow dumped upon it, trees were allowed to die, diseases weren't addressed, and pruning of dead branches wasn't done. Now that the Church has finally planted something acceptable to all, they should finally be to be held responsible for the maintenance.

Worden Lake Woods hasn't expanded, added a youth center, a sanctuary, and an outbuilding, nor have we built a skatepark or anything else. We haven't asked for a school nor have we made multiple prior agreements with Genoa Township to maintain the tree line. We haven't been before this body asking for and agreeing to these things. The Church has!

Only the commission can remove the maintenance requirement as it was placed upon the Church by the commission and agreed to many times. I respectfully ask that you not grant this relief and enforce the current maintenance agreement moving forward.

Regards,

Rob Stogdill  
4793 Aljoann Road  
Brighton, MI 48116



November 6, 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>	Brighton Church of the Nazarene – Site Plan Amendment (Review #2)
<b>Location:</b>	7669 Brighton Road – northwest corner of Brighton and Aljoann Roads
<b>Zoning:</b>	SR Suburban Residential

Dear Commissioners:

At the Township’s request, we have reviewed Brighton Church of the Nazarene’s application to amend their approved site plan (revised request letter dated 10/25/17).

We have reviewed the proposal in accordance with the applicable provisions of the Genoa Township Zoning Ordinance.

#### **A. Summary**

1. The proposal to alter conditions attached to previous approvals can only be done by the body who attached the conditions – in this instance, the Township Board.
2. The proposed deciduous tree plantings are slightly smaller (1.5-2” caliper) than the minimum Ordinance standard (2.5” caliper).

#### **B. Proposal**

The applicant requests review and approval of an amendment to an approved site plan. The proposal includes:

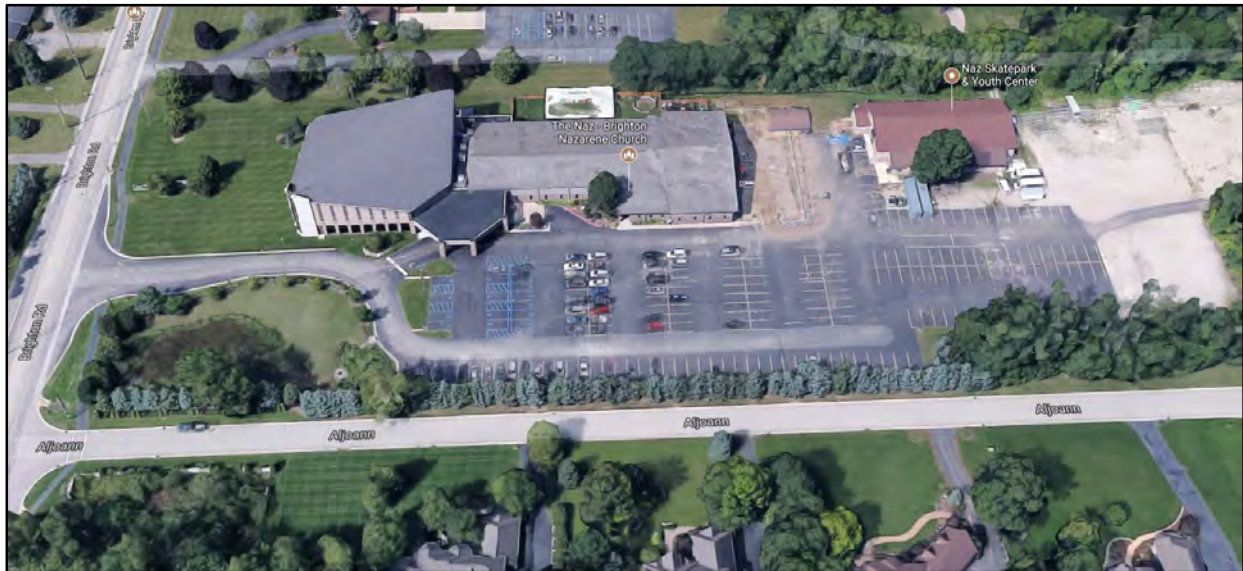
- An amendment to the approved landscape plan with a net reduction of 19 trees within the easterly buffer zone (39 to be removed; 20 new to be planted);
- A request to change the requirement regarding maintenance responsibility for the easterly tree line from the church to the neighborhood association; and
- A request to remove the requirement to have a security guard for the skate park.

Per Section 18.10 of the Zoning Ordinance, the proposed site plan amendment does not qualify as “minor” amendment; therefore, the modification is subject to Planning Commission review and approval.

However, since the Township Board originally held the approval authority for conditions of special use and site plan approval (2003 and 2013), we are of the opinion that the modification of conditions such as church maintenance of the easterly tree line and a security guard at the skate park warrants review/action by the same body. The Planning Commission should still make a recommendation on these matters, following the original procedure.

#### **C. Review**

The site plan’s primary proposed change is the landscape plan for the easterly buffer zone area. As noted above, the proposal entails a net reduction of 19 trees within this area. In the time since the last plan was approved, the applicant has also installed 6-foot tall privacy fencing in this area.



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

The initial submittal included a report from a Certified Arborist indicating that many of the trees between the church and neighborhood are diseased and in poor condition. The revised letter of request notes that 39 trees have already been removed and that all were dead, dying or diseased.

The revised submittal also includes a landscape plan (dated 10/21/17) showing 7 new deciduous trees and 13 new evergreen trees in place of those removed, as well as their proximity to existing trees that remain.

Our only comment is that the size noted for the deciduous trees (1.5-2" caliper) is smaller than the minimum Ordinance standard (2.5" caliper). The applicant needs to increase the size of the proposed deciduous trees.

With respect to the request to remove previously established conditions, the Commission should evaluate each with respect to the initial intent and any change in conditions since the requirements were established. In our opinion, both conditions were likely intended to address concerns raised over protection of the adjacent residential properties as part of the special land use review(s).

The revised submittal indicates that the applicant and representatives from the Homeowner's Association have met and agreed upon the proposed landscape plan. The applicant also states they "hope to have full HOA approval for the takeover of the maintenance of the tree line once the Township releases the church from this requirement."

Regarding the requirement for a security guard, the applicant notes the presence of the privacy fencing, installation of outdoor security cameras and use of trained staff as its rationale. Furthermore, as was discussed at the previous meeting, there appear to have been no security issues tied to the skate park.

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@lsplanning.com](mailto:borden@lsplanning.com).

Respectfully,  
**LSL PLANNING, A SAFE BUILT COMPANY**

*B. V. B.*  
Brian V. Borden, AICP  
Planning Manager

## Request to Amend the Approved Site Plan

(Revised 10/25/2017)

(original application dated 7/18/2017)

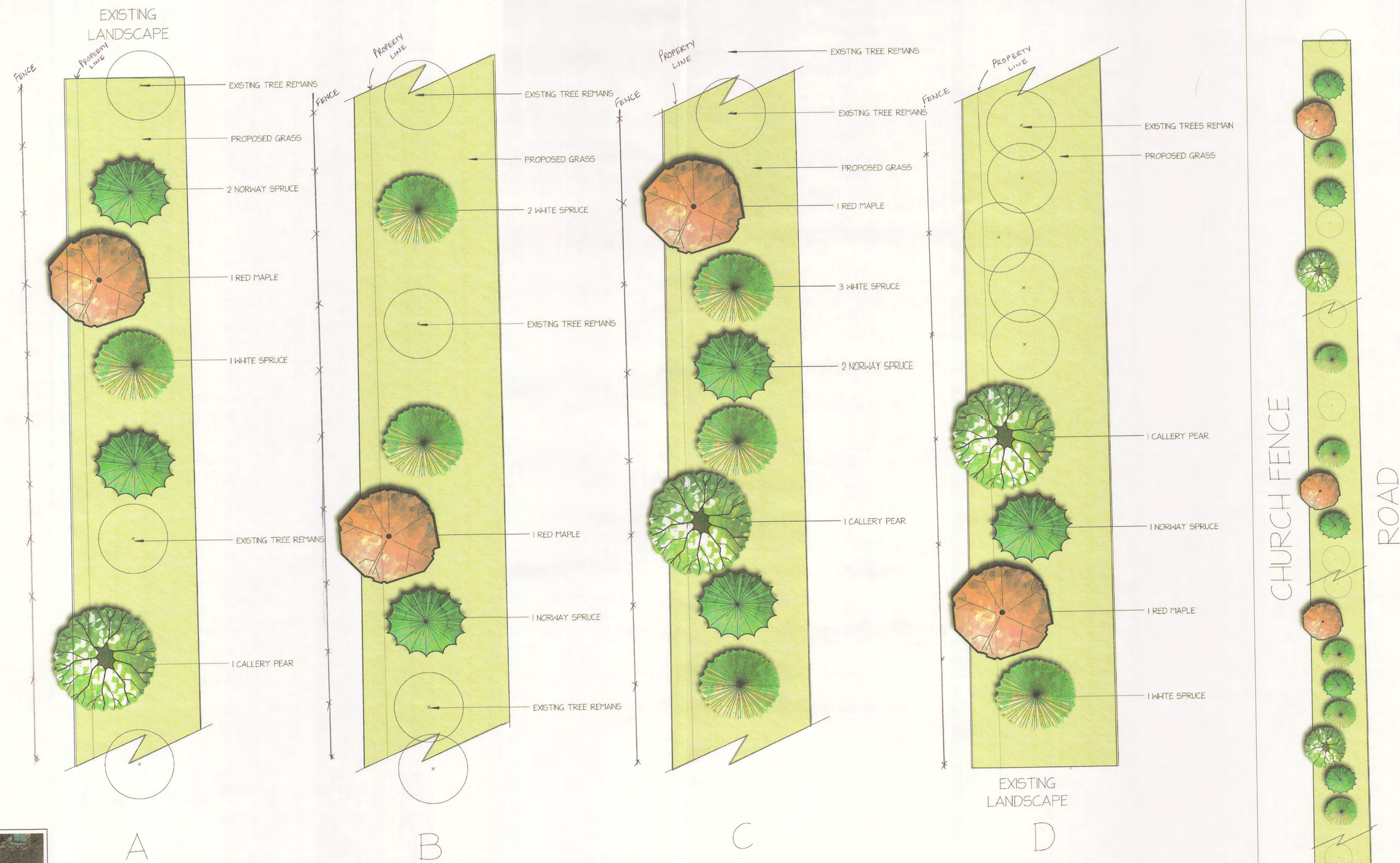
Revised in response to comments received at the Planning Commission Meeting on 9/11/2017

The purpose of this application is to:

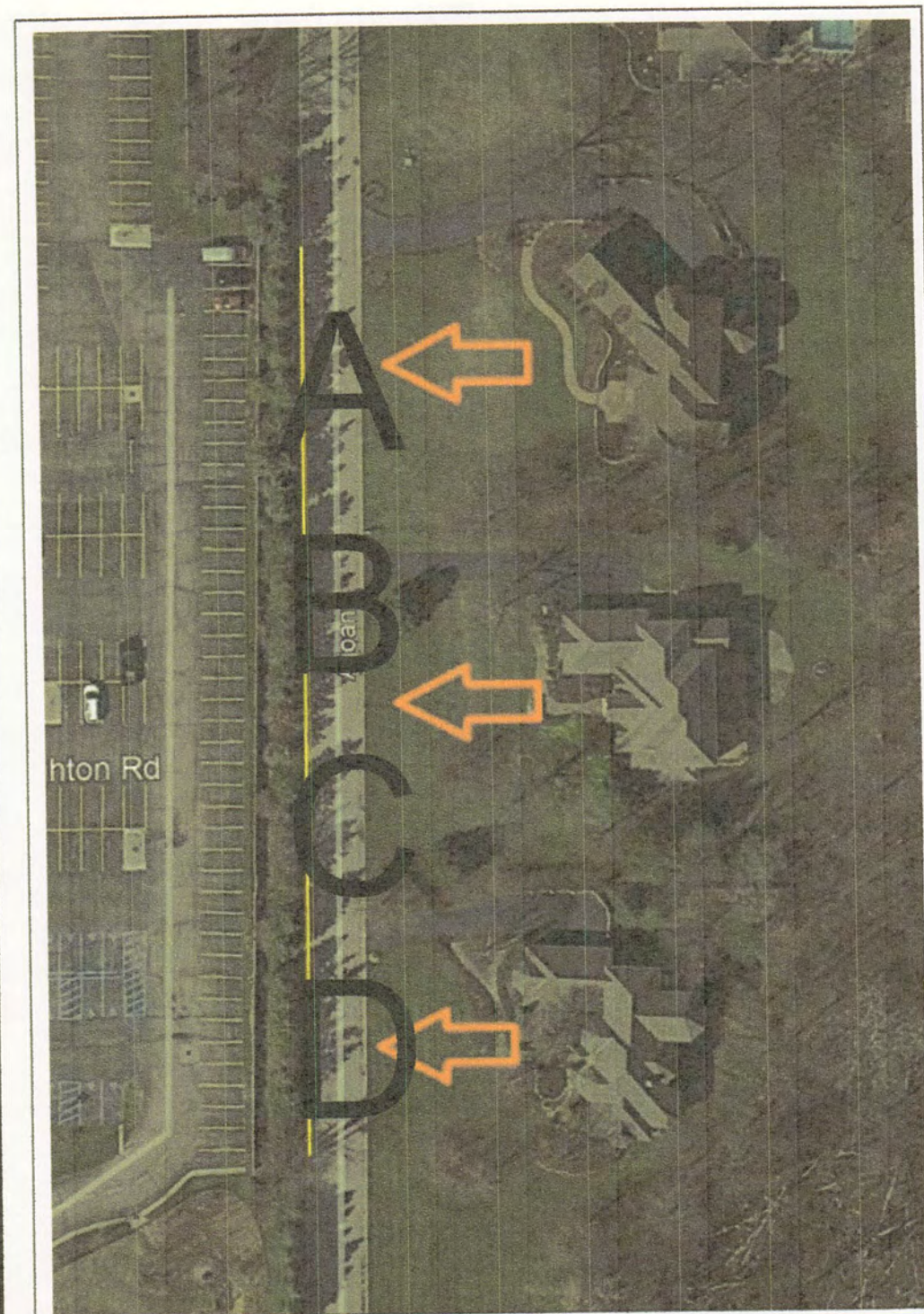
1. Provide the revised landscape design change for the boundary between Aljoann Road and the Brighton Church of the Nazarene, as requested by the Planning Commission at the 11 September 2017 Genoa Township Planning Commission meeting. Brighton Nazarene has removed the 39 dead, dying, or diseased trees in the boundary tree line and will be planting, and staking as necessary, 20 new trees as identified and drawn in the attached landscape design plan provided by Landscape Design and Associates, dated 21 October 2017. Note: the closest trees in this new plan are 1' east of the property line, and the fence is 10' west of the property line. Brighton Nazarene will also restore the terrain around the entire tree line, installing topsoil, mulch, grass seed, and straw as agreed in discussion with the Worden Lake Woods Homeowners' Association (see Attachment 1). This will restore the tree line to a beautiful and like new state.
  
2. Request a change of the responsibility for maintaining the landscaping, including the trees, along the property boundary adjoining the Brighton Church of the Nazarene back to the Worden Lake Woods Homeowners' Association (hereafter HOA) as stated in the HOA By-Laws (page 10)(sec III)(paragraph 1) (see Attachment 2). In addition to the above noted planned changes to the tree line, Brighton Nazarene has added a permanent 6' fence along the boundary of the property. We believe with these new improvements, we have fulfilled the original intention of the Township requirements to maintain the boundary between our properties and request the maintenance of such boundary be given back to HOA. Representatives from the HOA have agreed to the planned plantings and landscaping to be done by the Nazarene Church and we would hope to have full HOA approval for the takeover of the maintenance of the tree line once the Township releases the church from this requirement (see Attachment 3).
  
3. Remove the requirement to have a paid certified security guard present on the days the Brighton Nazarene Skate Park is open. With the addition of a new boundary fence, added outdoor security cameras and a trained volunteer staff, Skate Park personnel can better monitor the parking lot to ensure visitors are properly conducting themselves. Brighton Church of the Nazarene is concerned about the privacy of all our neighbors and will continue to operate so as to promote a family-friendly environment for all who live in our area. Note: the Planning Commission and the president of the Worden Lake Woods HOA agreed at the September Planning Commission meeting that the security guard is not needed at this time.

Attachments:

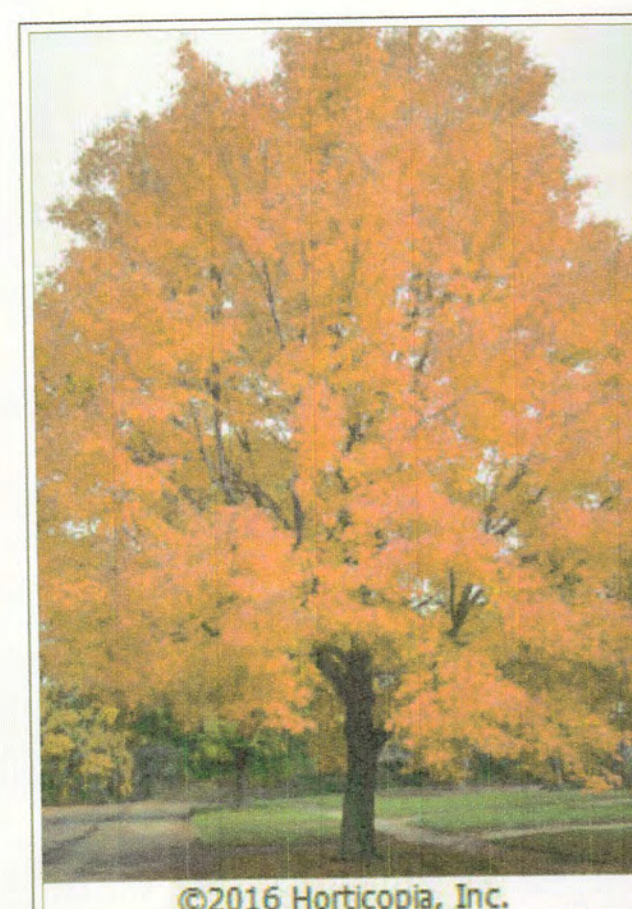
1. Landscape Design Plan, dated 10/21/2017
2. Excerpt from the Worden Lake Woods Homeowners' Association By-Laws
3. Maintenance Agreement between Brighton Church of the Nazarene and the Worden Lake Woods Homeowners' Association



INSET



PLAN VIEW



RED MAPLE



NORWAY SPRUCE



BRADFORD CALLERY PEAR



WHITE SPRUCE

PLANT LIST

Qty	Botanical Name	Common Name	Size/Condition
<b>Trees</b>			
4	<i>Acer rubrum</i>	RED MAPLE	15-2" cal.
6	<i>Picea abies</i>	NORWAY SPRUCE	6' ht. or greater
3	<i>Pyrus calleryana</i>	CALLERY PEAR	15-2" cal.
7	<i>Picea glauca</i>	WHITE SPRUCE	6' ht. or greater



FULL PLAN VIEW  
NOT TO SCALE

NOTES



No.	Date	Description
	10/20/2017	REVISED
	10/21/2017	REVISED

**LD LANDSCAPE DESIGN & ASSOCIATES LLC**  
810-360-0365 LDandA.COM  
DESIGN CONCEPT

EAST SIDE OF FENCE DESIGN

THE NAZ - BRIGHTON CHURCH OF THE NAZARENE  
7669 BRIGHTON ROAD  
BRIGHTON, MI 48116

SCALE	1" = 10' - 0"
DRAWN BY	T. TURNER
CHECKED BY	K. SHAFER
DATE	10/21/17
DATE OF PRINT	

PROJECT NO.	17 - 245
SHEET NO.	3



ARTICLE III

WORDEN LAKE WOODS HOMEOWNER'S ASSOCIATION BY LAWS

SECTION I  
Definitions

- 1) "Developer" shall mean and include Frances Serkian or her assigns.
- 2) "Association" shall mean and refer to the Worden Lake Woods Subdivision Homeowner's Association.
- 3) "Properties" shall mean and include Lots 1-7 and Parcels F1, F2, F3 and F4, both inclusive, of Worden Lake Woods Subdivision described above.
- 4) "Owners" shall mean and refer to the record owner whether one or more persons or entity of the fee simple title to any lots and parcels above-described including land contract vendees, but not including any mortgagee, unless and until such mortgagee shall have acquired fee simple title pursuant to foreclosure or any proceeding of conveyance in lieu of foreclosure. When more than one person or entity has an interest in the fee simple title of any lot, the interest of all such persons collectively shall be that of a single owner.
- 5) "Owner/Occupant" shall mean the same as "Owner" only at such time as a certificate of occupancy shall be issued by the Livingston County Department of Building and Safety for a dwelling upon a lot or parcel and not prior thereto.
- 6) "Member" shall mean and refer to all those owners who are or qualify as members of the Association as hereinafter set forth.

SECTION II  
Name

The name of the association shall be called Worden Lake Woods Homeowner's Association, a non-profit organization, and shall be composed of Lots 1 through 7 and Parcels F1, F2, F3 and F4. Parcels F1, F2, and ~~F3~~ are riparian parcels adjoining Worden Lake.

\*F3

SECTION III  
Object

- 1. To promote wholesome and attractive conditions for the property owners that form a part of the Worden Lake Woods Homeowner's Association. This includes the maintenance and upkeep of the Subdivision park, front entrance, landscaping along the ~~west~~ property boundary adjoining the Church of the Nazarene, and the entrance to the private drive leading to parcels F1, F2, F3, and F4.

west

**Maintenance Agreement between Brighton Church of the Nazarene and  
the Worden Lake Woods Homeowners' Association**

To Whom It May Concern:

We, as the Homeowners Association of Worden Lake Woods subdivision, agree with the landscape design plan provided by Landscape Design and Associates, dated 21 October 2017. We also agree to provide water to the new plantings until the first freeze, per the instructions from Mayhew's Tree Farm & Nursery.

We are agreeable to take over the maintenance of the tree line, should the Township release the church from this requirement.

\_\_\_\_\_ Date: \_\_\_\_\_

President of the Homeowners Association



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:** November 16, 2017

**RE:** **Livingston Christian School**  
Special Land Use, Environmental Impact Assessment & Sketch Plan

---

In the following pages please find the project case file for the proposed special land use, environmental impact assessment and site plan for the inclusion of a private K-12 school within the existing Brighton Nazarene Church facility located at 7669 Brighton Road on parcel # 4711-25-400-059. The request is petitioned by Livingston Christian School.

In accordance with Section 3.03.02(I), private schools are allowed as an accessory use to a church, while churches and similar places of worship are listed as special land uses in Table 3.03. Based upon the standards in Section 19.06, the request constitutes a major amendment to an existing special land use; therefore, new applications for special land use and site plan approval are required.

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

At the November 13, 2017 Planning Commission meeting, the Commission recommended approval with conditions in regard to the Special Land Use, Impact Assessment and Site Plan. The motions below are based on the action taken by the Planning Commission.

Please take note that because of the number of meetings and reviews, the applicant will need to remit payment to cover the cost of site plan review fee exceedances.

**Moved by \_\_\_\_\_, Supported by \_\_\_\_\_ to APPROVE the Special Land Use permit with conditions. This approval is granted based upon finding consistency with the standards of section 19.03 of the Zoning Ordinance and**

### 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

**furthermore the use is found to be consistent with the general character in the area, which includes of a number of churches and schools. This approval is based upon compliance with the following conditions:**

1. An agreement shall be provided which defines the costs and responsibilities for implementation of the approved site plan between the Church of the Nazarene (landlord) and Livingston Christian Schools (tenant). This agreement shall be approved by the Township Attorney prior to issuance of the Special Land Use Permit and within the 60 day compliance period provided by 19.02.04(h). This agreement can be a copy of an amended lease agreement between the Livingston Christian Schools and the Church of the Nazarene.
2. A copy of the Livingston Christian Schools annual report to the State of Michigan certifying the school enrollment shall be provided to the Township on or before December 1<sup>st</sup> of each year.

**Moved by \_\_\_\_\_, Supported by \_\_\_\_\_, to APPROVE the environmental impact assessment dated November 14, 2017 which includes the Traffic Impact Study dated November 14, 2017**

**Moved by \_\_\_\_\_, Supported by \_\_\_\_\_, to APPROVE the site plan dated November 14, 2017 with the following conditions:**

1. A Land Use Permit will be required prior to any construction.
2. All site plan application fee exceedances shall be paid prior to issuance of the Land Use Permit.
3. Water tap fees due to the City of Brighton shall be paid prior to issuance of a Land Use Permit.
4. Any future signage is subject to permitting and shall comply with the sign ordinance and be approved by the Township.
5. All requirements of the Brighton Area Fire Authority shall be met.

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

Sincerely,

Kelly VanMarter  
Assistant Township Manager/Community Development Director



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

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

APPLICANT NAME & ADDRESS: LIVINGSTON CHRISTIAN SCHOOLS 2877 MAIN ST WHITMORE LAKE, MI 48189  
*If applicant is not the owner, a letter of Authorization from Property Owner is needed.*

OWNER'S NAME & ADDRESS: BRIGHTON MAZELINE CHURCH 7669 BRIGHTON RD BRIGHTON, MI 48114

SITE ADDRESS: 7669 BRIGHTON RD PARCEL #(s): 4711-25-400-059

APPLICANT PHONE: (503) 716-4306 OWNER PHONE: (810) 227-6600

OWNER EMAIL: THEHAZ.P.THEHAZ.ORG

LOCATION AND BRIEF DESCRIPTION OF SITE: WILL UTILIZE SPACE  
INSIDE EXISTING BRIGHTON MAZELINE CHURCH WHICH IS  
LOCATED NORTH OF BRIGHTON RD JUST EAST OF  
LAKE FOREST BOULEVARD.

BRIEF STATEMENT OF PROPOSED USE: A PRIVATE CHRISTIAN  
SCHOOL

THE FOLLOWING BUILDINGS ARE PROPOSED: NO PROPOSED BUILDINGS

**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: [Signature]


ADDRESS: \_\_\_\_\_

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

1.) CAMERON HORVATH of ROSS ENGINEERING at CAMERON.HORVATH@ROSSENGINEERING.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:  DATE: 8/30/17  
 PRINT NAME: ROBERT WEILAND PHONE: 503-710-431  
 ADDRESS: \_\_\_\_\_



## GENOA CHARTER TOWNSHIP Special Land Use Application

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

APPLICANT NAME & ADDRESS: LIVESTON CHRISTIAN SCHOOLS 2577 HAN ST WHITMORE LAKE, MI 48189  
Submit a letter of Authorization from Property Owner if application is signed by Acting Agent.

APPLICANT PHONE: (503) 710-4306 EMAIL: RWIEGAND@LIVESTONCHRISTIANSCHOOLS.ORG

OWNER NAME & ADDRESS: BRIGHTON MAZERIE CHURCH 7669 BRIGHTON RD BRIGHTON, MI 48116

SITE ADDRESS: 7669 BRIGHTON RD BRIGHTON, MI 48116 PARCEL #(s): 4711-25-400-059

OWNER PHONE: (810) 227-6600 EMAIL: THEMAZ@THEMAZ.ORG

### Location and brief description of site and surroundings:

WILL UTILIZE SPACE INSIDE EXISTING BRIGHTON MAZERIE CHURCH WHICH IS LOCATED NORTH OF BRIGHTON RD JUST EAST OF LAKE FOREST BOULEVARD.

### Proposed Use:

A PRIVATE CHRISTIAN SCHOOL

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

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

PRIVATE SCHOOLS ARE LISTED AS A SPECIAL USE FOR THE CURRENT ZONING AND SINCE IT IS A PRIVATE CHRISTIAN SCHOOL IT FITS WITH THE EXISTING CHURCH ON-SITE. IT OFFERS THE TOWNSHIP ANOTHER SCHEDULING OPTION FOR THOSE LOOKING FOR THAT TYPE OF EDUCATION.

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

NOTHING MAJOR NEEDS TO BE CONSTRUCTED. THE GOAL IS TO MOVE INTO AN EXISTING CHURCH BUILDING WITH MINIMAL CHANGES TO THE SITE.

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

ALL OF THE ESSENTIAL INFRASTRUCTURE IS ALREADY IN PLACE. THE TRAFFIC AND USE OF SURROUNDING ROADS WILL INCREASE AND THAT STUDY HAS BEEN INCLUDED IN THIS SUBMITTAL.

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

NO.

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

PRIVATE SCHOOLS ARE LISTED AS A SPECIAL USE UNDER THE SITES CURRENT ZONING OF SR.

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

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

BY: [Signature]

ADDRESS: \_\_\_\_\_

<b>Contact Information</b> - Review Letters and Correspondence shall be forwarded to the following:		
<u>CATHERINE HERWATH</u>	of <u>PESS ENGINEERING</u>	at <u>CATHERINE@PESSENG.COM</u>
Name	Business Affiliation	Email

<b>FEE EXCEEDANCE AGREEMENT</b>	
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: <u>[Signature]</u>	DATE: <u>8/30/17</u>
PRINT NAME: <u>ROBERT WICKLAND</u>	PHONE: <u>503-710-4306</u>



The call to the public was closed at 7:16 pm.

**Moved** by Mortensen, seconded by Rauch, to recommend to the Township Board approval of amendments to the special land use and site plan conditions for the Brighton Church of the Nazarene as follows:

- The site plan design of Landscape Design and Associates dated October 2, 2017 showing is recommended.
- The requirement that the Church of the Nazarene maintain the tree line along the ROW should be removed with the assumption of the maintenance responsibilities be transferred to the homeowner's association of Aljoann Drive. This is consistent with the covenant in the master deed of the subdivision on Aljoann Drive.
- It is recommended that a paid security individual on site of the Church of the Nazarene be discontinued.

These recommendations are made for the following reasons:

- The construction several years ago of the 6-foot high, 700-foot long fence along Aljoann shields the view of the church and its activities from the neighborhood.
- There has been no reported incidents requiring continuation of a security guard and during operation of the skate park, there is a director and volunteers available.
- This amendment does not include the northeast portion of the site where there are plantings on the church property, which will continue to be maintained by the Church of the Nazarene.

**The motion carried unanimously.**

**OPEN PUBLIC HEARING #2...** (Tabled 10-10-17) Review of a special use application, environmental impact assessment and site plan for a proposed K-12 Livingston Christian Schools to be located within the Brighton Church of the Nazarene at 7669 Brighton Road, Brighton. The request is petitioned by Livingston Christian Schools.

Planning Commission Recommendation of Petition:

- A. Recommendation of Special Use Application
- B. Recommendation of Environmental Impact Assessment
- C. Recommendation of Site Plan.

Commissioner Rauch asked to be excused from the discussion and motion as his children attend Brighton Christian Schools.

**Moved by** Mortensen, seconded Grajek, to excuse Commissioner Rauch. **The motion carried unanimously.**

Brett LaVanway of Boss Engineering, Steven Russo of Fleis & VandenBrink Engineering, Inc., and Roger Wiegand of Livingston Christian Schools were present.

Mr. LaVanway believes they have addressed all of the items requested at the previous Planning Commission meeting.

Mr. Borden reviewed his letter dated November 6, 2017.

- The general special land use standards have been met.
- The only deficiency with the specific use conditions is the east side parking lot setback.
- The site plan still shows an increase in building coverage; however, the building is not being expanded. This should be corrected.
- The Township can require looped or double-striped parking spaces for the modified parking area.
- When future signage is proposed, the applicant must obtain approval and a permit from the Township.
- They would like the applicant to describe where and how the students above the 3rd grade will be provided access to outdoor during the school day.
- They are suggesting that a method for the school to regularly report enrollment numbers to the Township be developed.

Mr. Wiegand stated that the play area is 7,300 square feet and the State of Michigan has approved this area for 250 kids. The school also believes this is sufficient for their students. They will also be utilizing the gymnasium for recess.

Ms. VanMarter asked to have a statement, such as "All of the children will use the playground or the gymnasium area during recess" added to the Impact Assessment.

Mr. Wiegand stated they have updated the lease agreement with the Church. Ms. VanMarter stated a letter was received from Pastor Walls stating that the church and the school have agreed to amend the present lease. Commissioner Grajek asked if all of the site improvements have been agreed upon by the church and the school and has it been decided who will bear the cost. Mr. Wiegand stated this still needs to be discussed between the school and the church. The commissioners would like to have an agreement between the church and the school submitted to the Township for review.

Mr. Markstrom stated that the applicant has completed the updated traffic study as requested. There was not a significant change from the study that was done in May of 2015.

Commissioner Mortensen questioned the Level of Service F on the traffic study. Mr. Russo stated there is a Level of Service F for the cars turning left out of the site onto Brighton Road. This would cause a back-up on the site and not on the surrounding public streets.

Chairman Brown asked what the level of service will be on Aljoann. Mr. Russo stated he does not believe the level of service would be an F, as it is on the church site, but he cannot be sure without running the numbers.

Ms. VanMarter noted that there will be tap fees required to be paid to the City of Brighton. In 2015, the cost was \$81,000. She is not aware what it will be now.

The call to the public was made at 8:01 pm.

Chairman Brown stated that a letter was received from Jay Johnson who is concerned with the traffic. He is suggesting using the church next door for a drop off and then the children could walk on the sidewalk to the church. He suggested a shuttle service be used during inclement weather.

The call to the public was closed at 8:04 pm.

**Moved** by Commissioner Mortensen, seconded by Commissioner Rickard, to recommend to the Township Board approval of the special use application to permit Livingston Christian Schools to operate a school on the site of the Church of the Nazarene with the following conditions:

- The terms of the special use agreement insofar as responsibilities between the Church of the Nazarene and the Livingston Christian Schools will be spelled out in a way that is satisfactory to the Township attorney prior to the issuance of a special land use permit. The agreement can be a copy of the lease agreement between the Livingston Christian Schools and the Church of the Nazarene.
- A copy of the Livingston Christian Schools' annual report to the State of Michigan certifying the school enrollment shall be provided to the Township.

This recommendation for the special use application is made because the Planning Commission finds it is consistent with the requirements of Section 19.03 of the Township Zoning Ordinance, and furthermore, is consistent with the general character in the area, which consists of a number of churches and schools.

**The motion carried unanimously.**

**Moved** by Commissioner Mortensen, seconded by Commissioner Grajek, to recommend to the Township Board approval of the impact assessment with a revision date of October 25, 2017 to permit Livingston Christian Schools to operate a school on the site of the Church of the Nazarene with the following note added:

- "The playground will be confined to the outdoor area identified on the site plan reviewed tonight by the Planning Commission as well as the gymnasium".

**The motion carried unanimously.**

**Moved** by Commissioner Mortensen, seconded by Commissioner Rickard, to recommend to the Township Board approval of the site plan dated October 25, 2017 to

permit Livingston Christian Schools to operate a school on the site of the Church of the Nazarene with the following conditions:

- Correction on the site plan to indicate that the building coverage is 8.19 percent and not 6.99 percent.
- Parking spaces in the modified parking area will be double striped / looped
- Any future signage will need to be approved by the Township.
- The requests of the Engineer in his letter dated November 6, 2017 shall be met.
- The requests of the Brighton Area Fire Authority in their letter dated November 7, 2017 shall be met.
- The applicant shall play the required tap fees to the City of Brighton.

**The motion carried unanimously.**

### **NEW BUSINESS:**

**OPEN PUBLIC HEARING #3...** Review of a special use application, environmental impact assessment, and site plan for proposed outdoor storage and parking lot improvements located at 5818 Sterling Drive, Howell. The request is petitioned by Dennis Cregar.

#### Planning Commission Recommendation of Petition:

- A. Recommendation of Special Use Application
- B. Recommendation of Environmental Impact Assessment.
- C. Recommendation of Site Plan

Mr. Brent LaVanway and Mr. Dennis Cregar were present. Mr. LaVanway stated that they would like to add fencing to screen their outdoor storage. They will be making improvements to the parking lot, which will include additional parking spaces. These spaces are used for employees as well as training and staff meetings that are occasionally held at this location. Additional improvements to the site will be signage and a dumpster enclosure. They will also be requesting to connect to public water and sewer.

Mr. Borden reviewed his letter dated November 1, 2017.

- The special land use standards of Article 19 are met.
- The Planning Commission will need to approve a six-foot privacy fence in lieu of Buffer Zone B for the accessory outdoor storage area.
- The Planning Commission has the authority to require the applicant to install the banked parking spaces if they feel they are necessary.
- He suggests adding a note to the impact assessment stating the applicant acknowledges he may be required to install the banked parking spaces if required by the Township.

Mr. Markstrom stated the applicant met all of his previous concerns.

**GENOA CHARTER TOWNSHIP  
PLANNING COMMISSION  
PUBLIC HEARING  
OCTOBER 10, 2017  
6:30 P.M.  
MINUTES**

CALL TO ORDER: The meeting of the Genoa Charter Township Planning Commission was called to order at 6:30 p.m. Present were Chairman Doug Brown, Eric Rauch, John McManus, Chris Grajek, Jill Rickard and Barbara Figurski. Absent was James Mortensen. Also present was Kelly VanMarter, Community Development Director/Assistant Township Manager, Gary Markstrom from Tetra Tech, and an audience of 40.

PLEDGE OF ALLEGIANCE: The pledge of allegiance was recited.

APPROVAL OF AGENDA:

**Moved** by McManus, seconded by Figurski, to approve the agenda as presented.

CALL TO THE PUBLIC: The call to the public was made at 6:31 pm with no response.

**OPEN PUBLIC HEARING #1...** Review of a special use application, site plan application, environmental impact assessment, and site plan for a proposed K-12 Livingston Christian School to be located within the Brighton Church of the Nazarene at 7669 Brighton Road, Brighton. The request is petitioned by Livingston Christian Schools.

Planning Commission disposition of petition:

- A. Recommendation of Special Use Application
- B. Recommendation of Environmental Impact Assessment
- C. Recommendation of Site Plan

Commissioner Rauch asked to be excused from the discussion and motion as his children attend Brighton Christian Schools.

**Moved by** Figurski, seconded Grajek, to excuse Commissioner. **The motion carried unanimously.**

Brett LaVanway of Boss Engineering, Steven Russo of Fleis & VandenBrink Engineering, Inc., and Roger Wiegand of Livingston Christian Schools were present.

Mr. LaVanway stated that LCS is requesting to occupy Brighton Church of the Nazarene for a K – 12 Christian School. They have included their site plan, impact assessment,

and traffic impact study. They will have a maximum of 200 students and the school is in session Monday through Friday.

They have received the review letters and are working with the church with regard to the parking. There may be some minor adjustments made to the plan. They anticipate this being reconciled in approximately one week. The concerns are that the church would like to give up the least amount of parking spaces as possible as well as the number of ADA spaces. The school will need approximately 197 spaces and the church currently has 211 spaces available.

They believe they have complied with all of the other consultants' requirements.

Chairman Brown stated there is nothing in the packet showing that the church is in agreement with the proposals being made by LCS. Additionally, he would like to have the assurance that the two organizations agree to coordinate their events so that they do not overlap. This is very important.

Mr. Borden was not present this evening. Ms. VanMarter reviewed his letter dated October 5, 2017.

The Planner has found that this request does meet the special land use criteria. She noted that the school is proposing to stagger their start and end times, which will help with the traffic impact on the neighborhood.

Also, the driving school that currently operates at the church will no longer be there.

Additionally, the school and the church have different peak times; however, the Township would like more information ensuring that the church and the school are communicating and coordinate the days and times of their special events so that they do not overlap. This should be stated in the Impact Assessment.

The impacts are increased traffic and increased use of the site in general. There will now be school activities in addition to the current church activities.

The revised plan notes a slight increase in building coverage; however, there are no modifications to the building proposed. This should be corrected.

Ms. VanMarter stated that the site plan notes 180 parking spaces; however, Mr. LaVanway stated there are 197. The correct number of parking will need to be provided. The church needs to confirm that they approve with this much loss of parking as well as the physical changes that are being proposed for the site.

The plan shows an additional sign at the front of the site on Brighton Road; however there are no details. The applicant must obtain approval and a permit for any signs.

She reviewed the proposed drop-off and pick-up circulation plan for the site as well as other proposed structural changes for the parking lot. If the student count exceeds 200, then the driveway closest to the building where it narrows to two lanes would need to be widened. The driveway at Brighton Road is already three lanes. Ms. VanMarter suggested a tracking mechanism be put in place so that the Township is aware if the

population reaches close to the 200 students, as there will need to be significant changes to the site.

Mr. Wiegand stated that the current student population is 147. He believes that the enrollment will reach 200 within the next five years. The second week of the school year, they report their population to the State. This can also be reported to the Township.

Commissioner Rickard noted that the playground seems small. Mr. Wiegand stated that they have not discussed the playground at this time.

Gary Markstrom reviewed his letter of October 4, 2017. His only outstanding issue is regarding the traffic study. The traffic counts are from May of 2015 and he is recommending that updated counts be obtained. He does not expect it to change dramatically and impact the study they have presented; however, it would be good information to have. He added that the study was done at the time the I-96 and US-23 interchange was under construction so the traffic pattern may have been different in this area at that time.

Mr. Russo stated he has spoken to the Road Commission and their representative believed that their numbers from 2015 would be fairly accurate for today.

Commissioner Rickert stated that the amount of traffic on Brighton Road is very high in the morning. She would like to see an updated traffic study.

Commissioner Grajek has concerns about traffic making a left-hand turn out of the site. Mr. Russo stated that they estimated the number of left turns based on data provided by Livingston Christian Schools. When they performed the calculations for the additional student enrollment, they followed a similar formula. Mr. Markstrom is comfortable with the way this has been calculated.

Wiegand stated that they will not increase their enrollment to 200 until they have received approval for a revised site plan and the driveway has been widened as discussed by Ms. VanMarter.

Mr. Markstrom noted that Page 3 of the site plan has a narrative that includes how they will educate the parents and students regarding the traffic flow on the site as it relates to drop off and pick up.

Commissioner Grajek referred to Chairman Brown's earlier point. He would like to see written documentation that the church is in agreement with the changes that the school is proposing on their site. He would like to have that before this item moves any further. He suggested tabling the applicant until the document is received.

Mr. Wiegand stated that he can obtain all of that information in time for next month's Planning Commission meeting.

Chairman Brown stated that the Brighton Area Fire Department's letter dated September 28, 2017 notes that the applicant has met all of their outstanding requirements.

Chairman Brown reviewed the Livingston County Road Commission's letter dated September 28, 2017. They are requiring a driveway permit due to a change in use on this site.

Chairman Brown read a letter from Pastor Walls stating that the AK Services driving school has been notified that they have 3-4 months to cease their operations on their site

Commissioner McManus questioned if the issue of turning right out of the site and then turning around on the neighboring residential streets should be addressed with the parents. This could occur when parents are unable to make a left out of the site due to the heavy traffic. Commissioner Grajek agrees.

Chairman Brown noted that the lease agreement between the church and the school is three years old and should be updated.

Commissioner Figurski would like to have the Impact Assessment include that the church and the school will coordinate their events so they do not overlap. She would also like, "There will be an increase in noise and traffic in the a.m. hours" added.

The Call to the Public was made at 7:19 pm.

Chairman Brown stated a letter of support has been received from Brighton First United Methodist Church.

An e-mail from Skip Blunt of 7426 Pine Vista Drive was received. He is concerned with the increased traffic due to the addition of another school in the area. He also stated that the addition of more teenage drivers will increase the propensity for accidents.

Mr. Jay Johnson of 4931 Aljoann stated his biggest concern is the traffic study. It was done on May 15, 2015. At that time, the seniors were out of school so the count may be off. He understands that staggering the start times is a way to help with the traffic; however, it then makes the length of time there is a lot of traffic longer for the residents. He also noted that the high school has special events and there could be occasions where they have events at the same time as the Livingston Christian School.

There are currently 600 parking permits for the high school. Also, they have recently changed the flow of the parking lot. Traffic is not able to enter off of Seventh Street and is now required to enter at the light on Brighton Road. He is also concerned that cars will stand on his street during the pick-up times. He suggests a new traffic study be done.

Mr. Markstrom stated that there is ample room on the site for the car stacking for drop off and pick up and he believes it will function as it is supposed to.

Scott McCormick, Steve Warden, and Larry Webb live in the three houses on the dirt road on the west side of the parking lot. Mr. McCormick stated that he is concerned his property values will go down. The view from his front yard is now the gravel parking lot. They would like the same type of fence put on their side of the parking lot that was put on the east side. He will now be seeing 200 cars parking in the parking lot.



Mr. Webb stated that in 2013 there were items required to be done by the church that were never resolved, or resolved later than was expected. He stated that everything discussed this evening is ambiguous; the traffic study is 2 years old, the lease is 3 years old, and there is no signed agreement by the church.

Chairman Brown noted that there were issues with the church regarding the landscaping; however, they have done some landscaping and a fence has been installed. Additional landscaping issues are currently being discussed. He was not aware of the views that the three residents were experiencing.

Commissioner Rickert asked if buffer zones can be addressed during the site plan approval. Ms. VanMarter stated yes if the gravel area that Mr. McCormick was referring to is going to be used by the school. There can be additional landscaping requirements put in place.

Mr. Rob Stogdill of 4793 Aljoann agrees that if events are overlapped there will be a lot of traffic and the cars will be parking on his street, which will affect his property values and increase noise.

Commissioner McManus ask how many driving students there are currently at the school. Mr. LaVanway stated that based on an enrollment of 200, they have allotted 30 spaces for students. Today there are seven students who drive.

Commissioner Grajek asked about snow plowing and where the snow will be stored. Mr. LaVanway stated that the church will be responsible for the plowing of the parking lot. They can designate on their site plan where the snow will be stored.

Ms. Virginia Wennerburg of 7230 Pine Vista Drive would like to know the number of licensed enrollment. Mr. Wiegand stated the Fire Marshall stated the building capacity is 370; however, they are here this evening to discuss a maximum student enrollment of 200. She believes the traffic planning should be for the maximum number of students allowed. Chairman Brown stated the Township has put a maximum of 200 students on this plan. If their enrollment goes beyond that, they will need to come back to the Township for further approval.

Ms. Wennerburg asked if other locations have been considered and what is the goal of LCS. Mr. Wiegand stated the goal is to have a Christian school and be a part of a church. She asked if other locations have been considered. Mr. Wiegand stated they have had two years to pursue other options and no other sites have met their needs.

Commissioner Grajek asked when there are 200 students, how many faculty members will there be. There will be 20 faculty. Mr. Russo stated the traffic study was based on 20 faculty.

Ms. Norma Wilson lives in one of the three houses on the south side of Brighton Road between the high school and Pine Creek. People turning left into the church can block the left turn lane so she is unable to turn left into her driveway. Mr. Russo stated that their traffic study showed the maximum queue in the left turn lane during peak hours was three vehicles.

Ms. Jillian Mackey of 5696 Windham Lane is concerned with the cut through traffic. Pine Creek did their own traffic study and there are 1200 cars per day, including 200 from 7-8 am and 2-3 pm. This new school could increase this traffic. She would like her neighborhood to be considered in the traffic study.

Mr. McCormick noted that there is an elementary school on Bauer Road and a lot of traffic is generated from that.

Ms. Amy Hilscher of 4769 Aljoann is very concerned about the traffic. It is very difficult to exit out of their neighborhood at all times of the day. It is many times impossible to make a left out of her street. This new school will have a significant impact on traffic. She would encourage the new traffic study. Commissioner Grajek noted that they are proposing to stagger their start times. Ms. Hilscher is not sure if this will help with the traffic.

Mr. Wiegand stated they have done their traffic study with a student count of 200 and a conservative number for cars. They typically have three students per car. All of the kids do not leave at the same time; they filter out. Currently, they have 147 students, with 54 cars dropping off and picking up total at their Whitmore Lake location. They have many families with multiple children.

Chairman Brown stated that when this item was before the Planning Commission previously, he and Commissioner Mortensen went to the Pinckney site and he agrees with what Mr. Wiegand said.

Commissioner Figurski asked if they expect more people to come to the school because it will now be located in Brighton. Mr. Wiegand stated, "yes".

Commissioner Grajek questioned if this is approved and school starts and then the traffic is as bad as it is being stated, can the special use be removed. Ms. VanMarter stated it can only be removed if they were openly violating a condition of approval. Then the Township would have enforcement abilities.

Ms. Tammy Kay May's children attend Brighton Christian School. There were three traffic studies done over the years and they have all been consistent. The traffic impact will be negligible. She confirmed that there are seven driving students with the current enrollment. She is a mom who carpools to LCS currently, and she estimates that 50 cars are there for drop off and pick up. She can drop off and pick up in four minutes and that is a much smaller lot than the Nazarene church. With regard to the playground, they have a very small need for a playground. She would be willing to work with the parents on the education of the drop off and pick up traffic flow as she is a safety liaison for a Fortune 500 company. She hopes that the request is approved.

The call to the public was closed at 8:12 pm.

Ms. VanMarter stated that a lot of kids go to the skate park after school lets out in the afternoon. She would like to know if this traffic would coincide with the school end time of LCS. Pastor Walls stated that the skate park opens at 4 pm.

Commissioner Figurski has concerns with the noise and commotion at the school, the increased traffic on Brighton Road. Aljoann and the Pine Creek subdivision were not included in the traffic study.

**Moved** by Grajek, seconded by McManus, to table Agenda Item #1 until the November 13, 2017 Planning Commission meeting in order to allow the applicant to provide the following:

- An updated lease agreement to include written documentation of approval by the Naz for the improvements on the site.
- A reconfigured site plan to include the correct number of parking spaces as negotiated with the Naz.
- An updated traffic study.
- The Impact Assessment noting that the organization will coordinate their activities so they do not overlap.
- Health Department approval of the septic system for the increased student population.

**The motion carried unanimously.**

**OPEN PUBLIC HEARING #2...** Review of a site plan application, environmental impact assessment and site plan for proposed 123-bed student housing apartment building located on the south side of Grand River Avenue and the east side of Grand Oaks Drive, at 38750 Cleary Drive, Howell. The property is located in the Cleary University Planned Unit Development. The request is petitioned by Cleary University.

Planning Commission Recommendation of Petition:

- A. Recommendation of Environmental Impact Assessment.
- B. Recommendation of Site Plan.

Commissioner Grajek stated that his daughter works indirectly for Cleary University. She is an athletic trainer for a vendor contracted by the university. He does not have a fiduciary interest in Cleary University.

Brent LaVanway of Boss Engineering; Dave Howard, the Facility Director for Cleary University; and Alan Price of University Housing Solutions were present.

Mr. LaVanway stated they would like approval to put in the Student Housing Building #2. They received approval for the first housing building a few years ago and they are in need of a second one. It will include a parking lot and a loop road, which will meet the Fire Department's requirement for access. They will be extending the water main loop for fire suppression purposes. It is in compliance with the Cleary University PUD Agreement. They are in concurrence with the recommendations of the consultants.

Mr. Price presented building samples. They will be using the same materials as the existing building. The footprint is a mirror image of Building #1. It will have double-



November 6, 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>	Livingston Christian Schools – Special Land Use and Site Plan Review #3
<b>Location:</b>	7669 Brighton Road – northwest corner of Brighton and Aljoann Roads
<b>Zoning:</b>	SR Suburban Residential

Dear Commissioners:

At the Township's request, we have reviewed the revised submittal from Livingston Christian Schools requesting special land use (application dated 8/30/17) and site plan (plans dated 10/25/17) review and approval. The project entails use of existing space within the main building owned by the Brighton Church of the Nazarene for a private school.

We have reviewed the proposal in accordance with the applicable provisions of the Genoa Township Zoning Ordinance.

#### A. Summary

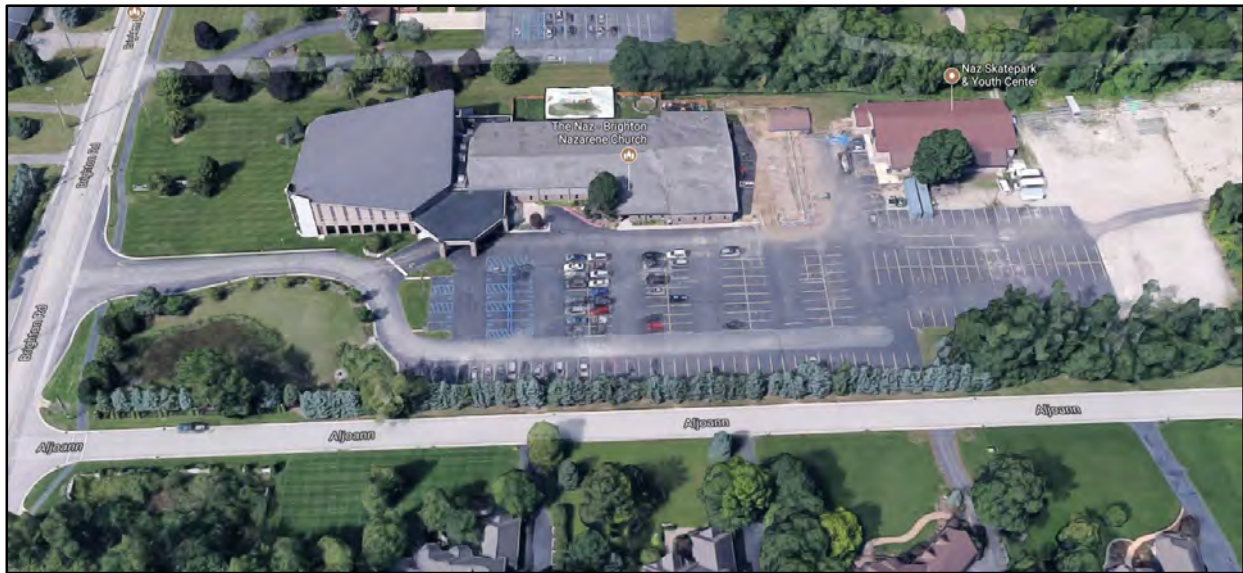
1. Pending any concerns identified by the Township Engineer or Fire Department, we are of the opinion that the general special land use standards of Section 19.03 are met.
2. The site is generally compliant with the specific use conditions of Section 3.03.02(1), with the only deficiency being an existing condition (east side parking setback).
3. The revised site plan notes a slight increase in building coverage (from 6.99% to 8.19%), although no modifications are proposed to the building. The applicant must correct this note.
4. The Township may wish to require double-striped (looped) spaces for the modified parking area.
5. When future signage is proposed, the applicant must obtain approval and a permit from the Township prior to installation.
6. We request the applicant describe where and how those students above 3<sup>rd</sup> grade will be provided access to outdoor activities during the school day.
7. We suggest the applicant and Township devise a method to regularly report enrollment numbers.

#### B. Proposal/Process

In accordance with Section 3.03.02(1), private schools are allowed as an accessory use to a church, while churches and similar places of worship are listed as special land uses (Table 3.03). The revised submittal identifies an enrollment of up to 200 students for the proposed private school.

Based upon Section 19.06, the request constitutes a major amendment to an existing special land use; therefore, a new application for special land use approval is required. Additionally, site plan review and approval is required for all new special land uses.

Procedurally, the Planning Commission is to review the special land use, site plan and Environmental Impact Assessment and provide a recommendation on each to the Township Board (following a public hearing). The Township Board has the final review/approval authority over the request.



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

### **C. Special Land Use Review**

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

- 1. Master Plan.** The Township Master Plan identifies the subject site, as well as the adjacent properties to the east and west, as Low Density Residential. This designation is intended for single family residential uses on lots of at least 1-acre in size.

The description of the Low Density Residential category does not specifically mention institutional uses; however, one of the Plan's land use goals is to "accommodate a variety of land uses that are located in a logical pattern and complement community goals, the surrounding land uses, environment, capacity of roads and the sanitary sewer, and public water system capabilities."

Provided favorable findings are made on the remaining special land use criteria, the case can be made that the proposal is consistent with the Master Plan.

- 2. Compatibility.** The subject area contains a mixture of uses, including institutional and residential. Given the presence of other schools in the area, the proposal includes school start and end times that are spaced at least 30 minutes from the start/end times of the other schools to minimize potential traffic impacts.

The submittal includes a letter from a representative of the property owner indicating that they have informed the company operating the drivers training program that they can no longer use the church parking lot (letter dated 9/12/17). The letter notes a 3 to 4-month timeframe within which the company needs to find an alternative site.

- 3. Public Facilities and Services.** As a developed site along a main roadway, we anticipate necessary public facilities and services are in place to support the proposal; however, the Commission should consider any comments provided by the Township Engineer and Brighton Area Fire Department under this criterion.
- 4. Impacts.** From our perspective, the proposal entails two important considerations with respect to the overall impact of the use – an increase in traffic and increased use of the site in general.

With respect to the traffic impacts, the applicant included a traffic study (prepared by Fleis & Vanderbrink, most recently dated 10/24/17). The revised study is based on a maximum enrollment of 200 students and includes several recommendations to ensure proper traffic flow to, on and from the site. The revised site plan incorporates the recommended site improvements, as well as a plan to educate staff, students and parents of the parking operations plan.

As requested in our prior review letters, the revised submittal includes a communication protocol between the church and school to ensure that events and activities are well coordinated. This will help avoid overlap of uses and keep the site functioning properly.

- 5. Mitigation.** The Township may require mitigation necessary to limit or alleviate any potential adverse impacts as a result of the proposal.

#### **D. Use Conditions**

Churches and similar places of worship are subject to the following use conditions of Section 3.03.02(1):

- 1. Minimum lot area shall be three (3) acres plus an additional fifteen thousand (15,000) square feet for each one hundred (100) persons of seating capacity.**

The primary use of the property is a church, which, based on the information provided, has a worship area with 520 seats. This condition results in the need for 4.7 acres of lot area, while the subject site has a gross lot area of 16.43 acres.

- 2. Buildings of greater than the maximum height allowed in Section 3.04, Dimensional Standards, may be allowed provided front, side and rear yards are increased above the minimum required yards by one foot for each foot of building height that exceeds the maximum height allowed. The maximum height of a steeple shall be sixty (60) feet.**

The project does not entail exterior building modifications. While the submittal does not identify building heights, based on review of previous requests for this site, we believe this condition is met.

- 3. Wherever an off-street parking area is adjacent to a residential district, there shall be a minimum parking lot setback of fifty (50) feet with a continuous obscuring wall, fence and/or landscaped area at least four (4) feet in height shall be provided. The Township Board may reduce this buffer based on the provision of landscaping, the presence of existing trees or in consideration of topographic conditions.**

This condition applies to both the east and west side lot lines.

The existing parking along the east side of the subject site does not comply with this condition; however, this is an existing condition that is not being modified as a result of the proposal. Additionally, there is existing screening between these parking spaces and the adjacent residential district in the form of landscaping and a 6-foot tall privacy fence.

The parking space nearest the west side lot line provides a 50-foot setback and contains existing vegetation. Additionally, the adjacent property (also an institutional use) has dense, mature vegetation along their side lot line.

- 4. Private schools and child day care centers may be allowed as an accessory use to churches, temples and similar places of worship where the site has access to a paved public roadway.**

Vehicular access to the subject site is provided via Brighton Road, which is a paved public roadway.

## **E. Site Plan Review**

- 1. Dimensional Requirements.** The only dimensional standard impacted is the maximum impervious surface ratio of 35%. The table on Sheet 3 notes that the plan results in a ratio of 23.95%.

Lastly, the table on Sheet 3 also shows an increase in building coverage (from 6.99% to 8.19%), although no modifications are proposed to the building. The applicant must correct this information.

- 2. Building Materials and Design.** No exterior changes are proposed to the existing building(s).
- 3. Parking.** The parking calculations on the site plan demonstrate that as separate uses, the church requires more parking (174) than the school (122). The revised parking lot layout provides 198 spaces.

Provided the two uses operate at different peak times and events are well coordinated, as has been noted, the amount of parking provided should suffice.

Lastly, given the reconfiguration of a portion of the parking lot, the Township may wish to require double-striped (looped) spaces for the modified parking area.

- 4. Pedestrian and Vehicular Circulation.** The overall circulation pattern for drop-off/pick-up will be a counter clockwise movement around the parking lot with two egress lanes (one for drop-off/pick-up and one for bypass) along the east side of the building.

Curbed islands are to be installed between the parking lot and drop-off/pick-up lanes; thus, creating a physical barrier between the two (as recommended by the traffic study). Additionally, pavement striping will be added between a portion of the two egress lanes, as well as adjacent to the sidewalk/building entrances.

A striped crosswalk is also provided between the parking lot and sidewalk adjacent to the main building entrance.

The revised plan also includes modifications to the parking lot, such that the spaces in the center of the lot will be re-oriented with drive aisles running parallel to the main building (also per the traffic study).

- 5. Landscaping.** The revised landscape plan (Sheet 6) includes new plantings in the form of 2 deciduous trees and 21 perennials within two different landscaped islands.

The trees are located on the south side of the modified parking lot, while the perennials are on the north side. Two trees will also be removed as a result of the modified parking lot.

- 6. Waste Receptacle and Enclosure.** The submittal does not propose any changes to the existing waste receptacle and enclosure, which were approved as part of the 2013 project undertaken by the church.
- 7. Exterior Lighting.** A note on the revised plan (Sheet 6) states that no changes are proposed to existing site lighting.
- 8. Signs.** The submittal states that no new signage is proposed, though the site plan identifies a “potential area for LCS signage” in front of the building. If/when new signage is desired, the applicant will need to obtain approval and a permit from the Township prior to installation.

For the applicant’s reference, the Township’s sign regulations are found in Article 16 of the Zoning Ordinance.

**9. Impact Assessment.** The submittal includes a revised Impact Assessment prepared by Boss Engineering (most recently dated 10/25/17). In summary, the Assessment notes that the project is not anticipated to adversely impact natural features, public services/utilities, surrounding land uses or traffic.

**10. Additional Considerations.** The revised submittal indicates that the outdoor play area on the west side of the building will suffice for grades K-3; however, it does not address the remainder of the school.

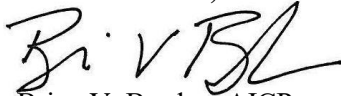
We request the applicant describe where and how those students above 3<sup>rd</sup> grade will be provided access to outdoor activities during the school day.

Lastly, since the request establishes a maximum of 200 children, we suggest the applicant and Township devise a method to regularly report actual enrollment numbers.

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





November 6, 2017

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

**Re: Livingston Christian Schools Site Plan Review #3**

Dear Ms. Van Marter:

Tetra Tech conducted a site plan review of the revised plans, dated October 25, 2017, submitted by Boss Engineering on behalf of Livingston Christian Schools. The applicant is proposing to use the existing Brighton Nazarene Church as a private Christian school, which is a special land use of the Suburban Residential zoned property. The site is located at 7669 Brighton Road between Lake Forest Boulevard and Aljoann Street.

Tetra Tech's previous comment requesting current traffic counts was addressed in the Fleis & Vandenbrink Memo dated October 24, 2017. Current, non-holiday week counts during the proposed arrival and dismissal times were collected along Brighton Road at both Nazarene Church Drive and Brighton High School Drive. The data collection resulted in no significant changes to the originally submitted May 2015 traffic counts. During our verification of the traffic counts two areas of discrepancy in the memo were discovered:

- The last sentence of the first paragraph in the section titled "Data Collection": The dismissal time is incorrectly stated as 2:30 – 3:30 pm. The correct dismissal time is 2:45 – 3:45 pm, which is correctly stated in the paragraph discussing peaking characteristics.
- The last sentence of the first paragraph in the subsection titled "Pick-Up/Drop-Off": The minimum on-site loading space is incorrectly described as 365'. The correct distance, as stated in the following paragraph, is 265'.

Tetra Tech discussed both discrepancies with Fleis & Vandenbrink and received confirmation they are errors that will be corrected prior to site plan approval.

Although any additional traffic in this area may be viewed by some as detrimental, the applicant has provided mitigating measures such as the off-peak hours of operation and user education materials that

**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: Livingston Christian Schools Site Plan Review #3  
November 6, 2017  
Page 2

maintains the current levels of service on Brighton Road. With these measures the impacts on the existing roadway system are shown to be minimal in the traffic models.

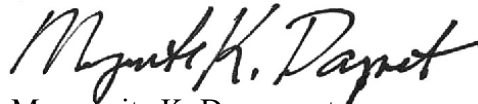
In addition to updated traffic counts, the site plan shows a revised layout for the parking lot east of the building. Review of the revised orientation and layout of the parking spaces, as well as the one-way route, resulted in no engineering related comments. The spacing widths and lengths and drive aisle dimension all meet requirements in Article 14 of the Genoa Township Zoning Ordinance.

With the correction to the typographical errors in the report being completed we have no further engineering related objections to approval of the site plan.

Sincerely,



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



Marguerite K. Davenport  
Project Engineer

copy: Brent LaVanway, P.E., Boss Engineering, Inc.



# BRIGHTON AREA FIRE AUTHORITY

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

---

November 7, 2017

Kelly VanMarter  
Genoa Township  
2911 Dorr Road  
Brighton, MI 48116

RE: Livingston Christian Schools  
7669 Brighton Rd.  
Genoa Twp., MI

Dear Kelly:

The Brighton Area Fire Department has reviewed the above mentioned site plan. The plans were received for review on October 26, 2017 and the drawings are dated August 30, 2017 with latest revisions dated October 25, 2017. The project is for the alteration of the access drives to accommodate the traffic flow of a proposed new school to be administered in an existing Assembly/Educational Occupancy. The plan review is based on the requirements of the International Fire Code (IFC) 2015 edition.

**New proposed vehicle circulation and parking plan appear to compliant with the fire code and BAFA requirements for emergency vehicle access. No parking fire lane signage that was previously reflected is no longer shown on the site plan. Signage locations will be verified and coordinated prior to final inspection.**

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".

Rick Boisvert, CFPS  
Fire Marshal

Livingston County Road Commission (LCRC)  
Review Comments (October 26, 2017)

Livingston Christian School  
Site Access and Circulation Evaluation

Below are LCRC comments with respect to the revised site access and circulation evaluation, prepared by Fleis and VandenBrink, dated October 24, 2017, for the proposed Livingston Christian School (LCS) in Genoa Township.

The LCRC accepts the findings and conclusions of the report with the following conditions:

1. Despite no anticipated work within the Brighton Road right-of-way, a new or revised driveway approach permit is required from LCRC due to a change in use of the driveway through the addition of a school.
2. The new driveway permit will be conditioned upon the approved traffic assessment, with a maximum of 200 students and start and dismissal times of 8 AM and 3 PM, respectively.
3. Any changes to school enrollment or operations that can affect site circulation are subject to review and approval by LCRC as part of the permit conditions. This may require a new traffic assessment.



September 12, 2017

To Whom It May Concern:

I have told the owners of AK Services, that have run their State drivers licensing services to the area, that they need to find another location. I told them that they have 3-4 months to find an alternative spot.

If there are other questions, please feel free to call me.

Pastor Ben Walls

A handwritten signature in cursive script that reads "Pastor Ben Walls".

Brighton Nazarene Church

Brighton Nazarene Church  
7669 Brighton Rd. Brighton, MI 48116  
810.227.6600 [www.thenaz.org](http://www.thenaz.org)





October 25, 2017

To Whom It May Concern:

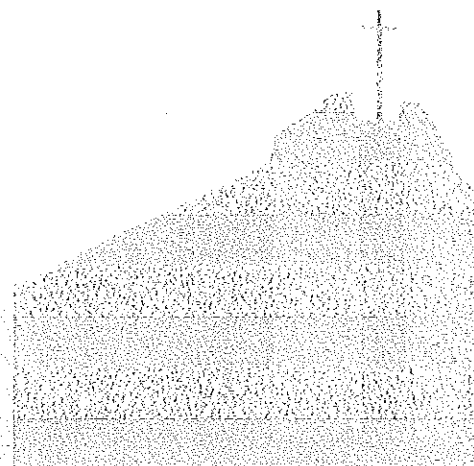
The Brighton Nazarene Church (The Naz) and Livingston Christian School have come to an agreement to amend the present lease to include the new site plan being presented to Genoa Township Planning Commission and Board.

Signed,

Ben D. Walls, Senior Pastor

Theodore Nast, Principle, Livingston Christian School

Brighton Nazarene Church  
 7669 Brighton Rd. Brighton, MI 48116  
 810.227.6600 www.thenaz.org

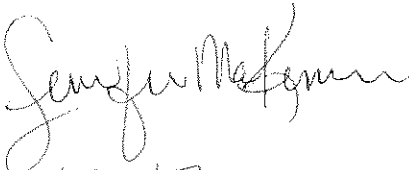


## LCS @ The Naz Communication Process

A communication process between The Naz and Livingston Christian Schools was established in the preliminary meetings during the planning stages of the school moving into the church. Present at those meetings were Pastor Ben Walls, Ted Nast, Linda Caswell, Sarah Slater, and Jennifer MacKinnon. Megan Farnsworth currently serves as BNC rep to LCS.

All communication between school (LCS) representatives, including employees, students and families, and church (The Naz) representatives, including ministerial staff, lay staff, and church member/attendees regarding school events to be held at The Naz will be presented to Megan Farnsworth ([meganf@thenaz.org](mailto:meganf@thenaz.org)) by Jennifer MacKinnon ([office@livingstonchristianschools.org](mailto:office@livingstonchristianschools.org)). The only exception to this is in the area of athletics where the LCS Athletics Department Secretary (currently Wendy Bury ([wbury@livingstonchristianschools.org](mailto:wbury@livingstonchristianschools.org))) will contact Megan directly, keeping Jennifer MacKinnon advised of the athletic events through email and/or shared calendars.

All events held at The Naz are subject to approval by The Naz staff and confirmation (or not) is submitted by Megan Farnsworth to Jennifer MacKinnon to communicate to the rest of the school.

  
10/23/17



8877 Main Street • Whitmore Lake, MI 48189  
• [www.livingstonchristianschools.org](http://www.livingstonchristianschools.org)

We have analyzed, and verified, the existing play area at the church and determined that it is sufficient for use for grades K-3.

Rob Wiegand,

10/24/17



**From:** [Kelly VanMarter](mailto:Kelly.VanMarter)  
**To:** [Amy Ruthig](mailto:Amy.Ruthig)  
**Subject:** FW: LCS input  
**Date:** Thursday, November 09, 2017 9:48:01 AM

---

-----Original Message-----

From: Jay Johnston [<mailto:hnljay@gmail.com>]  
Sent: Thursday, November 09, 2017 9:06 AM  
To: Kelly VanMarter  
Subject: LCS input

Board members,

I am out of country so will not be at the meeting. My primary concerns center around the traffic impact and the affect of entering and exiting our subdivision. Due to the close proximity of the church entrance to our street there will be an impact despite any study. During normal church start times we are affected, being a Sunday it doesn't really matter so much. On a work day there is always a timing issue associated with leaving the sub. No matter how well planned the drop off is organized, adding what could be up to 200 more cars inbound will cause an increase in traffic passing in front of our sub. Making a left out of the sub during school start times for BHS is very difficult already. Now, that difficulty will extend an additional 30 minutes due to the staggered times.

Some possible solutions could include

1. Use the church parking lot next door ( Jehovah witness) for drop off. Even possible shuttle from the BHS VIP lot to reduce flow in front of our sub. This gives a bit more space to our entrance which should allow more spacing out of the vehicle flow. There is a sidewalk that would increase the safety factor for children walking from the JW parking lot.. They could run a shuttle van/bus in inclement weather.
2. Definitely limit the student count initially until a year has passed and the planned process is validated. There seems to be some soft numbers as to the number of staff, students, parents plus church staff that may be coming to the area. Inclement weather could affect how the plan works.
3. Put up and enforce a no standing/ parking on the outbound lane of Aljoann. If, cars back up inbound to the school there may be parents who use the street to drop off.
4. Since enforcement after the fact is difficult there needs to be a trial period no matter what is decided. If the plan fails and traffic backs up on Main Street there will be a significant safety issue.
5. Look into reworking the traffic light at the high school entrance. The staggered stop light will be more of an issue since there will be an increase in east/west bound through traffic during drop off and pickup times.

Thank you for your time.

Jay Johnston  
4931 Aljoann RD

## Kelly VanMarter

---

**From:** Jillian Maki <Jillian.Maki@berkadia.com>  
**Sent:** Wednesday, October 11, 2017 10:15 AM  
**To:** Kelly VanMarter  
**Subject:** Livingston Christian School - Traffic Study

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Hi Kelly,

I attended the planning meeting last evening. Of particular interest to me was the agenda item pertaining to Livingston Christian School's application to occupy The Naz.

I voiced concern over the additional traffic that the school may create through my neighborhood, Pine Creek. At the end of the meeting, further discussion was had about incorporating our neighborhood into the Traffic Study along with Aljoann. I'm not clear on whether or not this is being required for November's meeting but feel strongly that the additional "cut through" traffic should be measured. The traffic engineer stated that while traffic going by the entrance was assessed, traffic coming out of our neighborhood (which is the "cut through" traffic as I see it) is not. It seems that the additional traffic could be estimated as they currently have zip codes for where the students reside – generally traffic coming up from the south cuts through our subdivision to avoid dirt roads.

I live at the intersection of Wyndam Lane and Forest Way which per a 2014 traffic study our neighborhood commissioned sees over 1200 cars per day. Approximately 360 of these cars pass at peak hours of 7-8 and 2-3, the same hours in which LCS traffic will be coming through. Unlike some of the larger roads with shoulders, sidewalks, stop signs, traffic lights, etc., our road is a narrow subdivision street. My intersection does not even have a stop sign. It is very dangerous and scary for all of the neighbors, children in the area, bikers, runners, etc. given the current flow of traffic – I'm extremely concerned about any increase to that volume. I understand that currently only 7 students drive to school but frankly, I'm just as concerned about the parental drivers as the teenagers. I witness all demographics speeding and driving dangerously through our subdivision frequently.

Please consider, if not already required, that our subdivision be taken into consideration in the traffic study.

Thanks in advance for the clarification and response.

Sincerely,  
 Jillian Maki  
 616.204.4765



**Jillian Maki**  
 Senior Analyst

28411 Northwestern Highway Suite 300 | Southfield MI 48034  
 T: +1 (248) 208-3465 | M: +1 (616) 204-4765  
[jillian.maki@berkadia.com](mailto:jillian.maki@berkadia.com) | [www.berkadia.com](http://www.berkadia.com)  
 Berkadia Commercial Mortgage LLC

**Amy Ruthig**

---

**From:** Skip Blunt <skipb48@comcast.net>  
**Sent:** Thursday, September 28, 2017 1:31 PM  
**To:** Amy Ruthig  
**Subject:** Oct. 10th Public Meeting

Unfortunately I'm not going to be able to attend October 10 meeting concerning the school to be located in the Brighton Church of the Nazarene, but would like to speak to the congestion this is going to add to that section of the road. I live in the Pine Creek Villas just across the street from the three churches contiguous churches on the road. As I'm sure you are all aware we are next-door to the Brighton High School and the congestion currently caused when the children are entering the school property leaving it makes it very difficult at certain times of day for us to enter and leave our subdivision. Adding more schools with entrances and exits to Brighton Road at this point would only exacerbate the problem.

Getting more and more teenage drivers on this small portion of road would create increased propensity for accidents during the time school is starting and ending. I do not believe more schools at the site is in the best interest of the whole community.

Lewis Blunt

7426 Pine Vista Dr.

Brighton, MI 48116



September 25, 2017

Genoa Township Planning Commission  
Genoa Township Hall  
2911 Dorr Road  
Brighton, MI 48116

Dear Members of the Genoa Township Planning Commission,

This letter is in regard to the Special Land Use Permit requested by Brighton Nazarene Church (Parcel No. 4711-25-400-058). The public hearing is scheduled for Tuesday, October 10 at 6:30 p.m.

We write on behalf of the Board of Trustees of First United Methodist Church of Brighton. Our church owns the house located in Mt. Brighton Subdivision at 7608 Brookview Court. The house and lot are directly adjacent to the Nazarene property and is the home of Rev. Dr. Sherry Parker-Lewis and Rev. George Lewis.

**The Board of Trustees and Dr. Parker-Lewis support the granting of a Special Land Use Permit so that Livingston Christian School may be located within the Brighton Nazarene Church.**

Sincerely,

  
Dr. Deb de Laski-Smith, Board of Trustees

  
Ms. Mary Margaret Whitely, Board of Trustees

  
Rev. Dr. Sherry Parker-Lewis

**Called to Know God, Love God and Serve God**

400 E. Grand River Ave. • Brighton, MI, 48116 • 810-229-8561 / [www.brightonfumc.org](http://www.brightonfumc.org)

**IMPACT ASSESSMENT  
FOR  
SITE PLAN PETITION  
"LIVINGSTON CHRISTIAN SCHOOLS"  
GENOA TOWNSHIP, LIVINGSTON COUNTY  
MICHIGAN**

Prepared for:

**LIVINGSTON CHRISTIAN SCHOOLS  
8877 MAIN ST  
WHITMORE LAKE, MICHIGAN 48189  
(734) 449-4715**

Prepared by:

**BOSS ENGINEERING COMPANY  
3121 E. GRAND RIVER  
HOWELL, MI 48843  
(517) 546-4836**

August 30, 2017  
Revised: 9-20-17  
Revised: 10-25-17  
Revised: 11-14-17

**17-315EIA**

## INTRODUCTION

The purpose of this Impact Assessment (IA) report is to show the effect that this proposed development may have 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* guidelines in accordance with Section 18.07 of the published Zoning Ordinance for 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.**

Prepared By :  
 Brent W. LaVanway, P.E.  
 BOSS ENGINEERING COMPANY  
 Civil Engineers, Land Surveyors, Landscape Architects and Planners  
 3121 E. Grand River  
 Howell, MI 48843  
 (517) 546-4836

Prepared For :  
 Livingston Christian Schools  
 Client  
 8877 Main St  
 Whitmore Lake, MI 48189  
 (734) 449-4715

### **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 site is located on the north side of Brighton Road immediately west of the Worden Lake Woods development and slightly west of the entrance to Brighton High School. The subject property is currently the Brighton Nazarene Church Facility. There is the existing church building, parking lot, detention basin and parsonage. The north end of the property is heavily wooded. There are established tree row buffers on the east and west property lines. The subject property and both adjacent properties are zoned Suburban Residential (SR). The Brighton Nazarene Church also owns the contiguous parcel to the north.

**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.**

The total site area is 16.43 acres. The front (south) portion of the site is the existing Church facility, associated parking lot, detention basin and parsonage. The developed site slopes south toward Brighton Road and the remainder of the site slopes north toward Worden Lake. The undeveloped portion of the site is predominantly wooded with the north end of the parcel terminating at Worden Lake. The USDA Soil Conservation Service soil classification for the site is Boyer-Oshtemo Loamy Sand.

There are no new buildings and parking improvements are proposed but minimal and will cause the removal of some parking lot trees (2 trees being removed).

Children's play areas will consist of the fenced in outdoor area as shown on plans and a gymnasium which is interior to the building.

**D. Impact on storm water management: Description of measures to control soil erosion and sedimentation during grading and construction operations and until a permanent ground cover is established. Recommendations for such measures may be obtained from County Soil Conservation Service.**

Since this project is unique in the fact that the school is moving into an already existing structure, no storm water management is being proposed. The site as a whole currently manages storm water through existing catch basins and pipes that discharge into an existing detention basin located towards the front of the site. Although, construction on site will be minimal soil erosion control measures will still be needed to ensure soil is not leaving the site.

At the time of construction of the parking lot improvements, 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.

The Site Plan documents show the proposed locations of all site improvements along with detailed soil erosion control information.

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

As previously stated the site is the current home of the Brighton Nazarene Church. During the school year a portion of the Church is proposed to be occupied by the Livingston Christian School (LCS).

In general the site will see an increase in use due to the school moving into the existing church. Increased use would be during AM and PM peaks for short periods of time during school drop off

and pick up times which again, would be offset from school start and dismissal times of Brighton High School.

**F. Impact on public facilities and services: Description of 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 current use of the facility is for Sunday Church services however additional activities take place throughout the week. These activities vary from small group meetings to additional worship services. Typically these occur during off peak traffic hours thus do not significantly impact the traffic on Brighton Road. The site is serviced by public water and a septic system. The public water is provided by the City of Brighton. The septic system is under the jurisdiction of the Livingston County Health Department.

LCS is proposing to occupy a portion of the Church during the school year as a private Christian School. The hours of operation have been scheduled to minimize traffic impacts on Brighton Rd. For this submittal an enrollment of 200 students was used however, the current enrollment numbers are less than 200 students.

In regard to coordination and communication between the school and church and potential impacts to visitors, schools, and residents, agents representing both entities have been chosen. Part of these agent's duties would be to have an open line of communication in coordinating and scheduling events to avoid any potential conflicts between the two entities. All events held at the church would be subject to approval by the church staff.

There will be minimal impact on Brighton Area Schools and very minimal impact on the police and fire departments.

**G. Impact on public utilities: Description of 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 service with sanitary sewer, calculations for pre- and post development flows 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 development is currently served by both public water and septic system. With regards to storm water management, the project will be required to meet all local, county, and state storm water and erosion control requirements. No modification of the detention basin near Brighton Rd is needed based upon minimal changes to the site. All of the existing information is included in the Site Plan documents.

**H. Storage or handling of any hazardous materials: 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.**

There will be 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.**

Please see the revised Site Access and Circulation Evaluation prepared by Fleis & Vandenbrink (Appendix A).

In addition to the Site Access and Circulation Evaluation and more in terms of on-site circulation and traffic the school will host a Family Fall Meeting prior to school starting where site circulation will be talked about with the parents and students. Informational handouts would be distributed covering the following items in terms of safe site circulation:

- Enter the parking lot and drive north, follow designated markings towards pick up/dropoff area
- While unloading passengers put the car in park and stay clear of pedestrian crosswalk. Beware of parents and children standing in pedestrian marked areas and walking to and from designated parking area.
- Drivers depart the pick up/dropoff zone by following the designated markings and exiting via the 2 parallel lanes.
- Vehicles designated for the school students and parents should remain locked at all times.
- Inform students and parents alike that you cannot make a right turn onto Brighton Rd then turnaround and head back east on Brighton Rd.

**J. 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.**

Prior analysis has been completed by the Livingston County Road Commission and Fleis & Vandenbrink have more recently provided an updated Site Access and Circulation Evaluation dated 11-14-17 (see Appendix A).

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

The School requires a Special Use Permit to operate in a residentially zoned district.

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

Genoa Township's *Submittal Requirements For Impact Assessment*

Genoa Township Zoning Ordinances

Soil Survey of Livingston County, Michigan, U.S.D.A. Soil Conservation Service

National Wetland Inventory Plan, United States Department of the Interior, Fish and Wildlife Service

**APPENDIX A**

VIA EMAIL

**To:** Mr. Robert Wiegand  
Livingston Christian Schools

**From:** Steven J. Russo, PE  
Fleis & VandenBrink

**Date:** November 14, 2017

**Re:** Livingston Christian School  
Genoa Township, Michigan  
Site Access and Circulation Evaluation

### Introduction

This memorandum presents the results of the site access and circulation evaluation for the proposed Livingston Christian School (LCS) in Genoa Township, Michigan. The project site is located on the north side of Brighton Road approximately 300 feet west of the signalized Brighton High School driveway and is currently occupied by the Brighton Nazarene Church. The proposed development plans include the addition of a school which will occupy a portion of the existing Church. Site access is currently provided via a single site driveway to Brighton Road and is not proposed to change as part of the development plans. The school is expected to open in 2018 and will have a maximum enrollment of 200 students. The Township has requested a site access and circulation evaluation to analyze future operations of the site driveway to Brighton Road and on-site operations.

The scope of this study was developed to address the traffic related impacts of the school addition and provide recommendations for any road improvements and/or traffic management plans that would be required to mitigate any traffic impacts. Additionally, F&V provided analysis and recommendations for on-site traffic circulation to adequately accommodate parent pick-up / drop-off activities. This study was conducted in accordance with accepted traffic engineering practice to provide information and recommendations to LCS and address concerns of Genoa Township and the Livingston County Road Commission (LCRC).

### Data Collection

The proposed LCS start time is 8:00 AM and the dismissal time is 3:00 PM for all grades. These times were established to provide a minimum 30 minute separation between the start and end times of the nearby Brighton High School (7:25 AM to 2:25 PM), Maltby Middle School (8:30 AM to 3:31 PM), and Hornung Elementary School (8:47 AM to 3:50 PM) to account for the traffic arriving and departing these schools.

The existing weekday turning movement traffic volume data were collected by Fleis & VandenBrink (F&V) subconsultant Traffic Data Collection, Inc. (TDC) on Wednesday, October 18, 2017. Intersection turning movement counts were collected during the weekday AM (7:00 AM to 9:00 AM) and PM (2:00 PM to 4:00 PM) peak periods that coincide with the proposed arrival and dismissal times. This data was collected during a non-holiday week while schools were in session operating under normal school hours and was used as a baseline to establish existing traffic conditions without the proposed development.

Schools typically experience strong peaking characteristics with 80% or more of school related traffic arriving and departing within a peak 30 minute period. As the proposed school start and end times provide a minimum 30 minute separation from the neighboring Brighton High School, the peak hour volumes from 7:30 AM to 8:30 AM and 2:45 PM to 3:45 PM were utilized for this study as the peak 30 minute periods for the

proposed LCS and Brighton High School will not coincide. These volumes were agreed upon and approved for use by LCRC.

Additionally, due to the proximity of the site driveway to the signalized intersection of Brighton Road & Brighton High School Drive, this intersection was also included in the analysis for simulation purposes only as vehicle queues from this intersection could have adverse impacts on site driveway operations and the signal may help to facilitate gaps along Brighton Road. Turning movement count data for this intersection were also collected by TDC on Wednesday, October 18, 2017. The resulting existing traffic volumes are summarized on the attached Figure 2.

Peak Hour Factors (PHFs) at the study intersections were also calculated based on the requirements of MDOT's *Electronic Traffic Control Device Guidelines*. Typically PHFs are calculated by approach and PHFs less than 0.60 and greater than 0.95 should not be utilized; however, given the subject site is a school with strong peaking characteristics, PHFs were calculated by movement at the study intersections and a PHF of 0.4 was used for all movements in and out of the site driveway consistent with the peaking characteristics of other schools in southeast Michigan. A default PHF of 0.92 was utilized for through traffic along Brighton Road which was agreed upon and approved by LCRC.

### Background Conditions

Historical traffic volumes from LCRC on Brighton Road adjacent to the site were reviewed to calculate an applicable growth rate for the existing traffic volumes to the projected maximum enrollment year of 2019. The historical traffic volumes indicate that traffic volumes along Brighton Road between 2010 and 2017 have experienced periods of growth and decline, but overall have remained stagnant in the seven year period. Therefore, background traffic conditions **without the proposed school** are assumed to be equal to existing conditions.

In addition to background traffic growth, it is important to account for traffic that will be generated by developments within the vicinity of the study area that have yet to be constructed or are currently under construction. At the time of this study, no background developments were identified within the study area.

### Site Trip Generation

The number of AM and PM peak hour trips that would be generated by the proposed school was forecast based on existing trip generation and student enrollment information provided by LCS. The existing trip generation information was then extrapolated to the future maximum enrollment of 200 students. The resulting trip generation forecast is summarized in Table 1 and is broken down by driver type. The existing trip generation information is also attached to this memorandum.

**Table 1: Site Trip Generation**

Land Use	Amount	Units	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
<b>Livingston Christian School</b>	<b>200</b>	<b>Students</b>	<b>131</b>	<b>101</b>	<b>232</b>	<b>101</b>	<b>125</b>	<b>226</b>
<i>Parents</i>			101	101	202	101	101	202
<i>Student Drivers</i>			17	0	17	0	17	17
<i>Staff</i>			13	0	13	0	7	7

The peak hour site generated trips shown in Table 1 were assigned to the adjacent road network based on address information for current LCS families provided by LCS. This information indicates the site trip distribution summarized in Table 2.

**Table 2: Site Trip Distribution**

To / From	via	AM / PM
East	Brighton Road	35%
West	Brighton Road	65%
		100%

The site generated trips are shown on Figure 3 and were added to the existing traffic volumes shown on Figure 2 to calculate the future peak hour traffic volumes shown on Figure 4.

### Future Conditions

Future peak hour vehicle delays and LOS **with the proposed school** were calculated based on the existing lane use and traffic control, the proposed site access, the future traffic volumes, and the methodologies presented in the *Highway Capacity Manual, 6<sup>th</sup> Edition* (HCM6). Typically, LOS D is considered acceptable, with LOS A representing minimal delay, and LOS F indicating failing conditions. The results of the analysis of future conditions are attached and are summarized in Table 3.

**Table 3: Future Intersection Operations**

Intersection	Control	Approach	AM Peak		PM Peak	
			Delay (s/veh)	LOS	Delay (s/veh)	LOS
1. Brighton Road & Site Drive	STOP (Minor)	EB LT	8.9	A	10.1	B
		WB	Free	Free		
		SB	92.9	F	33.8	D

The future conditions results indicate that the STOP controlled egress left turn movement from the site driveway to eastbound Brighton Road will operate at a LOS F during both peak periods. However, the HCM analysis does not take into account the effects of upstream signalized intersections. Therefore, SimTraffic simulations were utilized to further evaluate network operations including the effects of the signalized Brighton High School driveway on the site driveway operations.

Review of the SimTraffic network simulations indicates acceptable traffic operations during both peak hours and significant vehicle queues are not observed. The signalized Brighton High School driveway helps to provide gaps in the Brighton Road traffic stream to facilitate egress left turns. 95<sup>th</sup> percentile queue lengths for the STOP controlled site driveway approach based on SimTraffic simulations are calculated to be 57 feet (2 vehicles) and 135 feet (5 vehicles) during the AM and PM peak hours, respectively, which is not significant and will not extend back into the pick-up / drop-off area. Therefore, future traffic operations with the proposed school will be acceptable and no improvements are recommended for the existing site driveway to Brighton Road.

### On-Site Facilities

In order to accommodate school traffic volumes on-site, proper vehicle facilities must be provided for pick-up / drop-off activities. Providing the necessary on-site operations minimizes the impact to adjacent off-site traffic operations. The recommended site access for pick-up / drop-off facilities are summarized below.

#### *Pick-Up / Drop-Off Area*

Data collected by F&V staff for previous school studies indicate that 80% of AM peak hour traffic typically arrives in a peak 20 minute period and 70% of PM peak hour traffic typically arrives in a peak 30 minute period. During the AM peak period a minimum of 85 feet of on-site loading space should be provided, based on an average drop-off rate of 45 seconds per vehicle. During the PM peak period, a minimum of 265 feet of on-site loading space should be provided, based on an average pick-up rate of 5.5 minutes per vehicle.

In order to accommodate pick-up and drop-off activities, 265 feet of on-site loading space should be provided. Based on the most recent site plan, the pick-up / drop-off zone should be striped along the entire length of the east side of the building extending from the canopy to the rear of the school.

The pick-up / drop-off loading area should be designed with a one-way counterclockwise circulation with a width of 24 feet. This design will provide for student loading on the passenger side of the vehicle and allow for vehicle passing in the loading zone with minimal vehicle-pedestrian conflicts. Parents should be instructed to pull into the next available space in the pick-up / drop-off area and park along the curb while the child enters / exits the vehicle. Once loading is complete the parent can then pull away from the curb and use the drive lane to exit the site.

Additionally, the pick-up / drop zone should be physically separated from the adjacent parking lot to prevent vehicles from entering or exiting the loading zone early. To achieve this, it is recommended that the parking

layout east of the building be reconfigured to have the parking aisles run parallel with the building. With this reconfiguration the row of parking directly adjacent to the student pick-up / drop-off zone should be configured with angle parking along the one way drive aisle.

***It is important that parents do not wait in line to pick-up / drop-off their child at the front door. This will result in poor traffic operations and long vehicle queues which will spill out of the site onto adjacent streets.***

### Conclusions

1. Turning movement count data collected on October 18, 2017 during a non-holiday week while schools were in session was utilized for this study. The analysis periods were identified to be from 7:30 AM to 8:30 AM and 2:45 PM to 3:45 PM.
2. Based on historical traffic volumes along the study section of Brighton Road obtained from the LCRC traffic count database, traffic volumes have remained stagnant between 2010 and 2017. Therefore, background conditions ***without the proposed school*** were assumed equal to existing conditions.
3. The proposed school at maximum enrollment is projected to generate 232 AM peak hour trips (131 inbound and 101 outbound) and 226 PM peak hour trips (101 inbound and 125 outbound).
4. The STOP controlled egress left turn movement from the site driveway to Brighton Road will operate at a LOS F during both peak periods.
5. Review of the SimTraffic network simulations indicates acceptable traffic operations during both peak hours and significant vehicle queues are not observed. The signalized Brighton High School driveway helps to provide gaps in the Brighton Road traffic stream to facilitate egress left turns. 95<sup>th</sup> percentile queue lengths for the STOP controlled site driveway approach are calculated to be 57 feet (2 vehicles) and 135 feet (5 vehicles) during the AM and PM peak hours, respectively, which is not significant and will not extend back into the pick-up / drop-off area.
6. Create a one-way counter-clockwise vehicle circulation loop for student drop-off / pick-up activities, extending from the canopy to the rear of the school.

### Recommendations

1. Provide a minimum of 265 feet of on-site loading space for the pick-up / drop-off area.
2. Physically separate the pick-up / drop-off zone to prevent vehicles from entering or exiting the loading zone early.
3. Reconfigure the parking layout east of the building to have all parking aisles run parallel with the building.

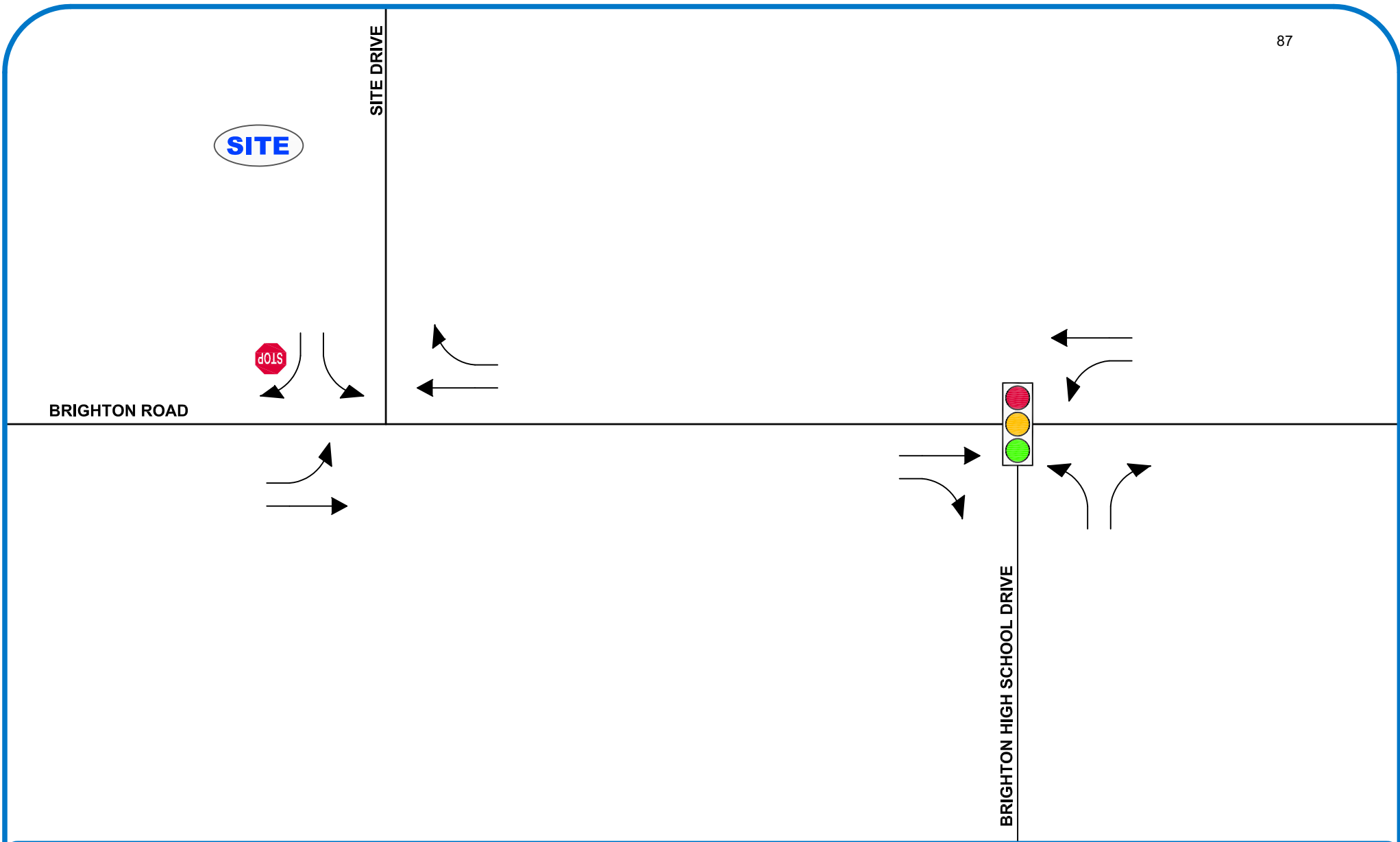
Additionally, the following should be encouraged to improve use of the student loading facilities:

4. Site circulation instructions should be distributed to the parents prior to the start of school each year and/or when changes are made in the operation.
5. Allocate staff to direct drivers in the loading zones and encourage efficient entrance/exiting procedures.
6. An informational meeting should be considered to distribute a pamphlet and discuss with parents and staff outlining the curb loading zones, circulation pattern, proposed traffic operations and parking restrictions.
7. Students should enter/exit their parent's vehicles only on the passenger side.

Any questions related to this memorandum, study, analyses, and results should be addressed to Fleis & VandenBrink.





**Attached:** Figure 1 – 4  
Traffic Volume Data  
Trip Generation Data  
Synchro / SimTraffic Results

SJR:mjl

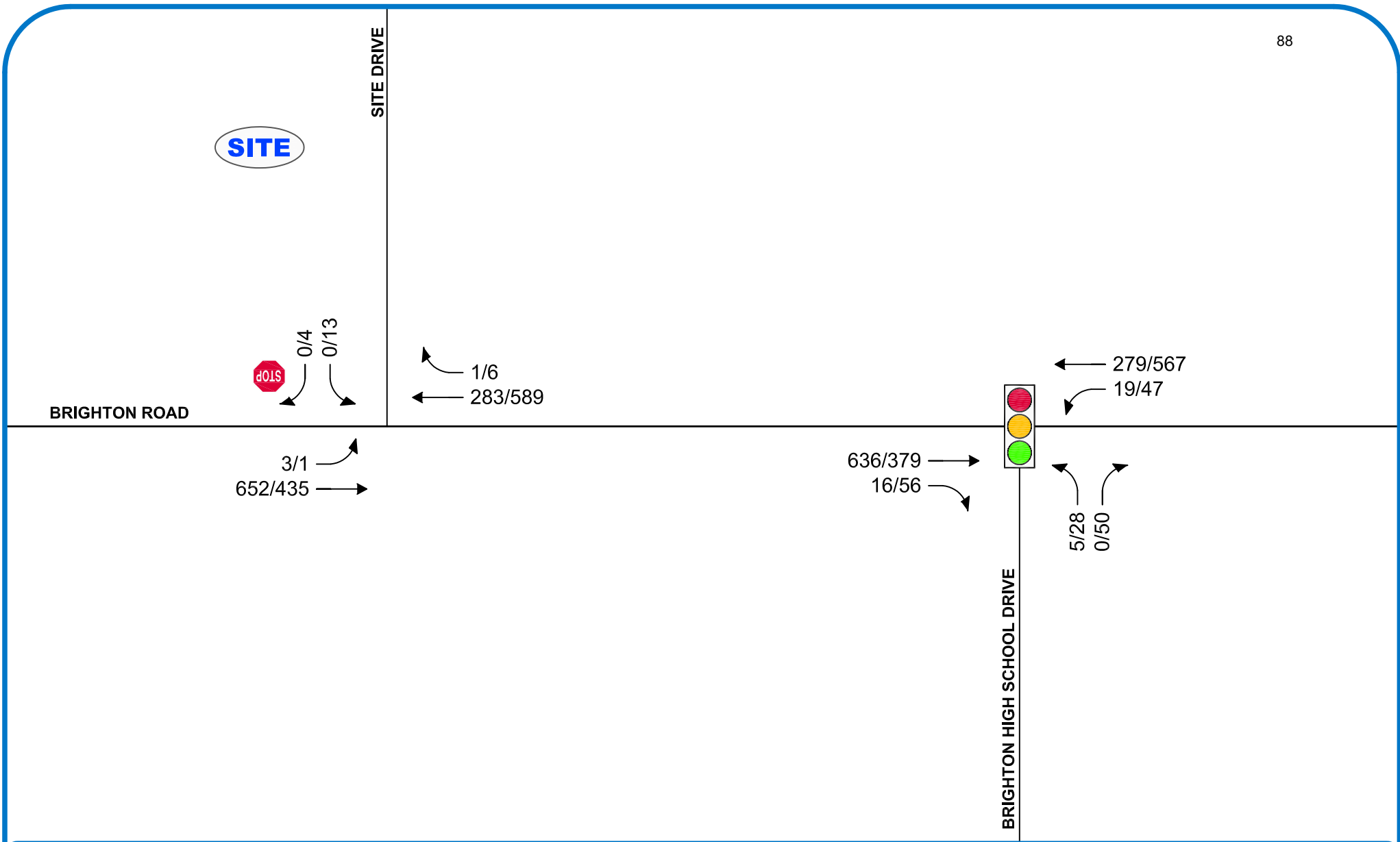


**FIGURE 1**  
**LANE USE AND TRAFFIC CONTROL**  
LIVINGSTON CHRISTIAN SCHOOL - GENOA TOWNSHIP, MI

**LEGEND**





-  SIGNALIZED INTERSECTION
-  UNSIGNALIZED INTERSECTION
-  ROADS
-  LANE USE





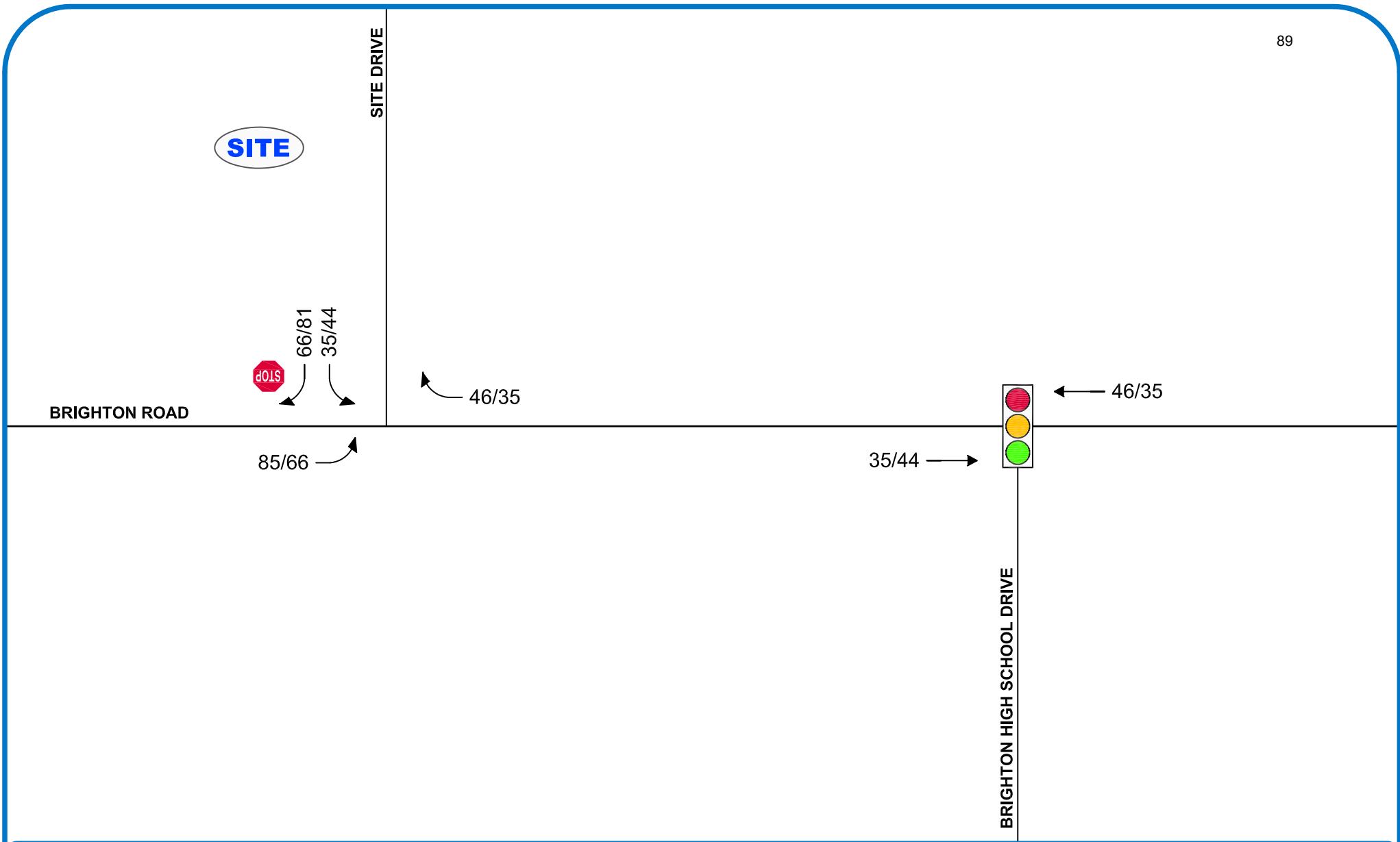
**FIGURE 2**  
**EXISTING TRAFFIC VOLUMES**  
 LIVINGSTON CHRISTIAN SCHOOL - GENOA TOWNSHIP, MI

**LEGEND**

-  SIGNALIZED INTERSECTION
-  UNSIGNALIZED INTERSECTION
-  TRAFFIC VOLUMES (AM/PM)
-  ROADS









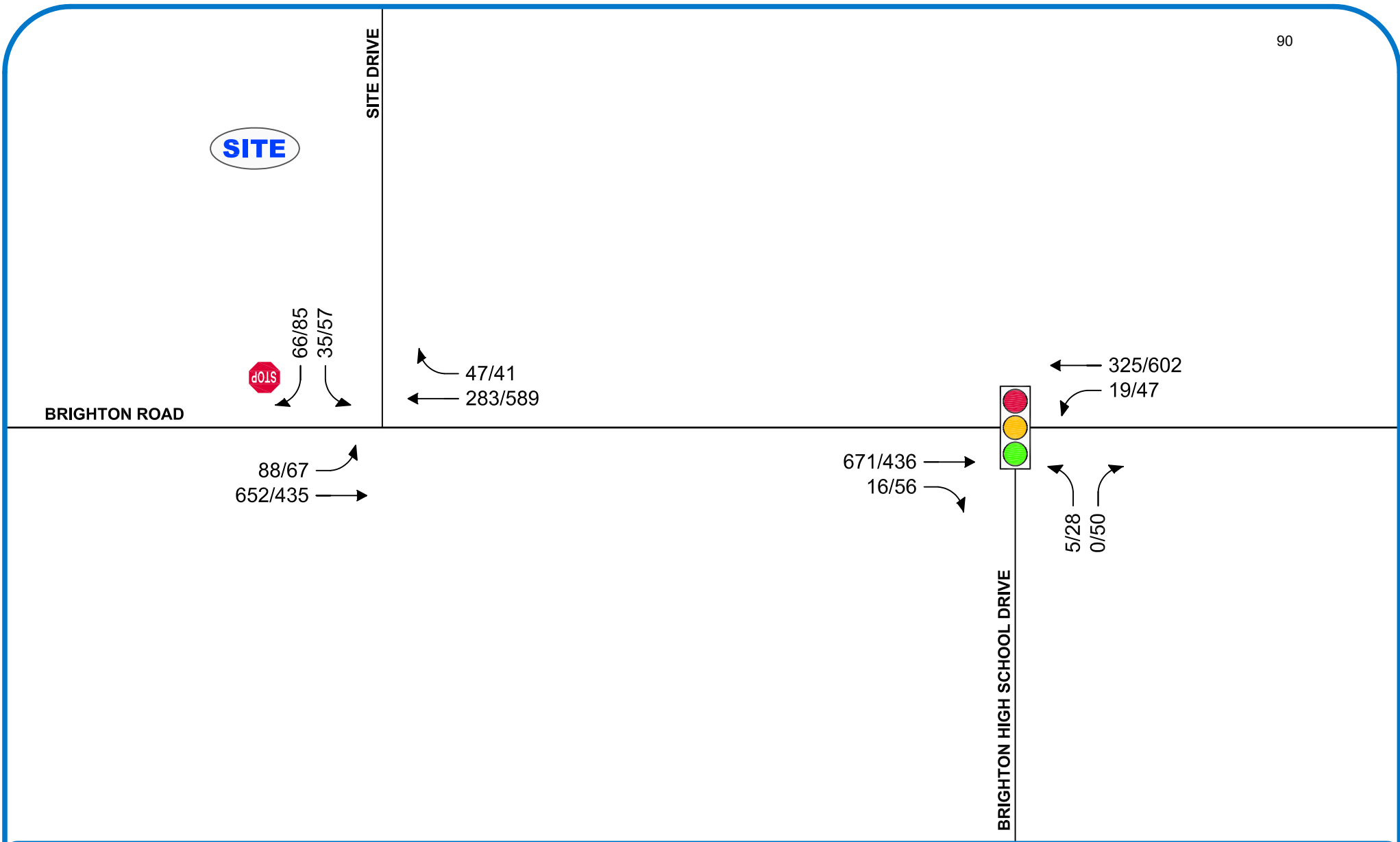


**FIGURE 3**  
**SITE-GENERATED TRAFFIC VOLUMES**  
 LIVINGSTON CHRISTIAN SCHOOL - GENOA TOWNSHIP, MI

**LEGEND**





-  SIGNALIZED INTERSECTION
-  UNSIGNALIZED INTERSECTION
-  TRAFFIC VOLUMES (AM/PM)
-  ROADS





**FIGURE 4**  
**FUTURE TRAFFIC VOLUMES**  
 LIVINGSTON CHRISTIAN SCHOOL - GENOA TOWNSHIP, MI

**LEGEND**

-  SIGNALIZED INTERSECTION
-  UNSIGNALIZED INTERSECTION
-  TRAFFIC VOLUMES (AM/PM)
-  ROADS



# Traffic Data Collection, LLC

91



tdccounts.com

Phone: (586) 786-5407

Traffic Study Performed For:

**Fleis & VandenBrink**

**Project: Brighton Traffic Impact Study**  
**Type: 4 Hr. Video Turning Movement Count**  
**Weather: Sunny/Cldy, Dry Deg. 70's**  
**Count By: Miovision Video SCU 340 NE**

**File Name : TMC\_1 Brighton & NazereneDw\_10-18-17**  
**Site Code : TMC\_1**  
**Start Date : 10/18/2017**  
**Page No : 1**

Groups Printed- Pass Cars - Single Units - Heavy Trucks - Peds.

Start Time	Brighton Nazerene Church Drive Southbound					Brighton Road Westbound					NA Northbound					Brighton Road Eastbound					Int. Total
	Rgt	Thru	Left	Peds	App. Total	Rgt	Thru	Left	Peds	App. Total	Rgt	Thru	Left	Peds	App. Total	Rgt	Thru	Left	Peds	App. Total	
07:00 AM	2	0	1	0	3	2	55	0	0	57	0	0	0	0	0	0	300	1	0	301	361
07:15 AM	0	0	0	0	0	0	61	0	0	61	0	0	0	0	0	0	218	0	0	218	279
07:30 AM	0	0	0	1	1	0	47	0	0	47	0	0	0	0	0	0	125	0	0	125	173
07:45 AM	0	0	0	0	0	1	71	0	0	72	0	0	0	0	0	0	159	2	0	161	233
Total	2	0	1	1	4	3	234	0	0	237	0	0	0	0	0	0	802	3	0	805	1046
08:00 AM	0	0	0	0	0	0	104	0	0	104	0	0	0	0	0	0	152	1	0	153	257
08:15 AM	0	0	0	1	1	0	61	0	0	61	0	0	0	0	0	0	216	0	0	216	278
08:30 AM	0	0	0	0	0	2	80	0	0	82	0	0	0	0	0	0	156	0	0	156	238
08:45 AM	0	0	0	2	2	1	89	0	0	90	0	0	0	0	0	0	183	1	0	184	276
Total	0	0	0	3	3	3	334	0	0	337	0	0	0	0	0	0	707	2	0	709	1049
**** BREAK ****																					
02:00 PM	2	0	0	0	2	1	86	0	0	87	0	0	0	0	0	0	70	0	0	70	159
02:15 PM	1	0	0	0	1	2	103	0	0	105	0	0	0	0	0	0	110	1	0	111	217
02:30 PM	2	0	1	2	5	1	244	0	0	245	0	0	0	0	0	0	80	1	0	81	331
02:45 PM	1	0	1	1	3	0	105	0	0	105	0	0	0	0	0	0	81	0	0	81	189
Total	6	0	2	3	11	4	538	0	0	542	0	0	0	0	0	0	341	2	0	343	896
03:00 PM	1	0	3	0	4	2	148	0	0	150	0	0	0	0	0	0	110	0	0	110	264
03:15 PM	1	0	3	0	4	2	153	0	0	155	0	0	0	0	0	0	115	1	0	116	275
03:30 PM	1	0	6	1	8	2	183	0	0	185	0	0	0	0	0	0	128	0	0	128	321
03:45 PM	0	0	0	0	0	1	158	0	0	159	0	0	0	0	0	0	124	0	0	124	283
Total	3	0	12	1	16	7	642	0	0	649	0	0	0	0	0	0	477	1	0	478	1143
Grand Total	11	0	15	8	34	17	1748	0	0	1765	0	0	0	0	0	0	2327	8	0	2335	4134
Apprch %	32.4	0	44.1	23.5		1	99	0	0		0	0	0	0	0	0	99.7	0.3	0		
Total %	0.3	0	0.4	0.2	0.8	0.4	42.3	0	0	42.7	0	0	0	0	0	0	56.3	0.2	0	56.5	
Pass Cars	11	0	15	0	26	17	1685	0	0	1702	0	0	0	0	0	0	2269	8	0	2277	4005
% Pass Cars	100	0	100	0	76.5	100	96.4	0	0	96.4	0	0	0	0	0	0	97.5	100	0	97.5	96.9
Single Units	0	0	0	0	0	0	61	0	0	61	0	0	0	0	0	0	56	0	0	56	117
% Single Units	0	0	0	0	0	0	3.5	0	0	3.5	0	0	0	0	0	0	2.4	0	0	2.4	2.8
Heavy Trucks	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	4
% Heavy Trucks	0	0	0	0	0	0	0.1	0	0	0.1	0	0	0	0	0	0	0.1	0	0	0.1	0.1
Peds.	0	0	0	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
% Peds.	0	0	0	100	23.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2

Comments: 4 hour traffic study conducted during typical weekday (Wednesday) from 7:00-9:00 AM morning & 2:00-4:00 PM afternoon peak hours while school was in session. Non-signalized "T" intersection. Video SCU camera was located within NE intersection quadrant.

# Traffic Data Collection, LLC

tdccounts.com

Phone: (586) 786-5407

Traffic Study Performed For:

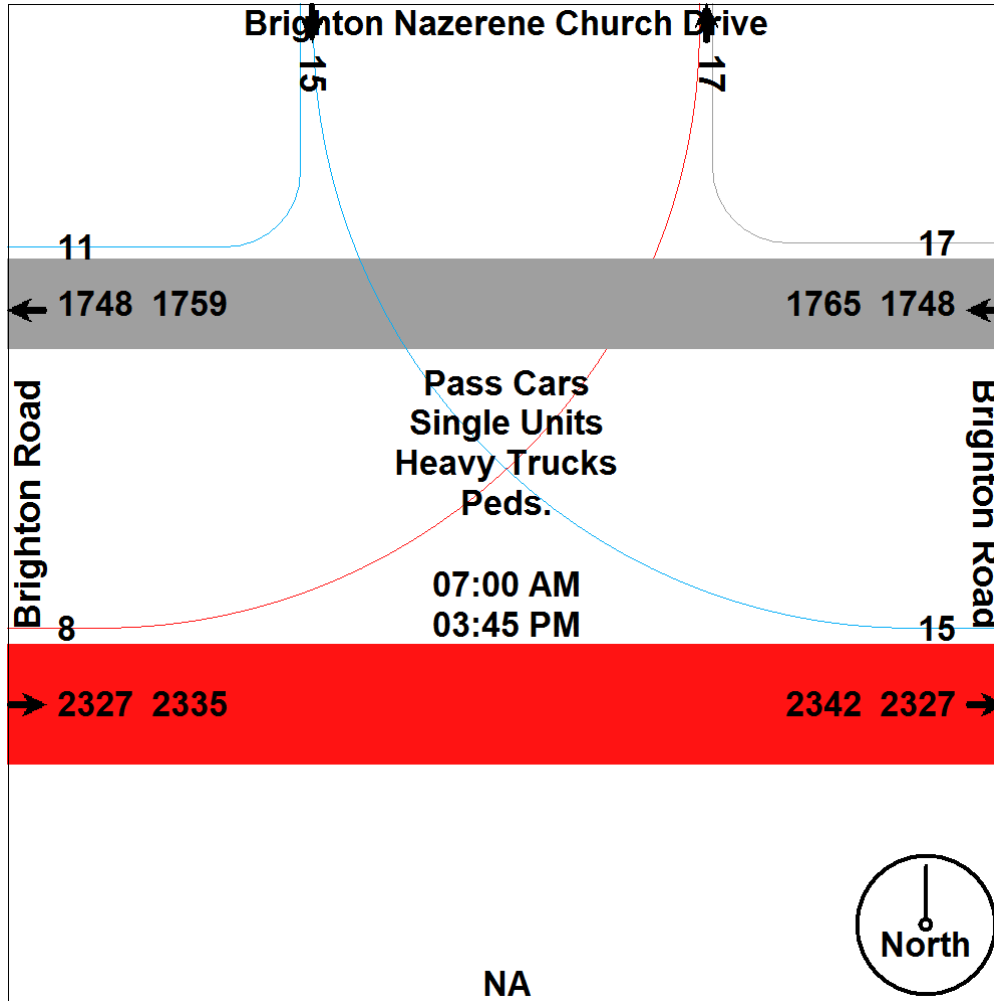
**Fleis & VandenBrink**

92



Project: Brighton Traffic Impact Study  
Type: 4 Hr. Video Turning Movement Count  
Weather: Sunny/Cldy, Dry Deg. 70's  
Count By: Miovision Video SCU 340 NE

File Name : TMC\_1 Brighton & NazereneDw\_10-18-17  
Site Code : TMC\_1  
Start Date : 10/18/2017  
Page No : 2



# Traffic Data Collection, LLC



tdccounts.com

Phone: (586) 786-5407

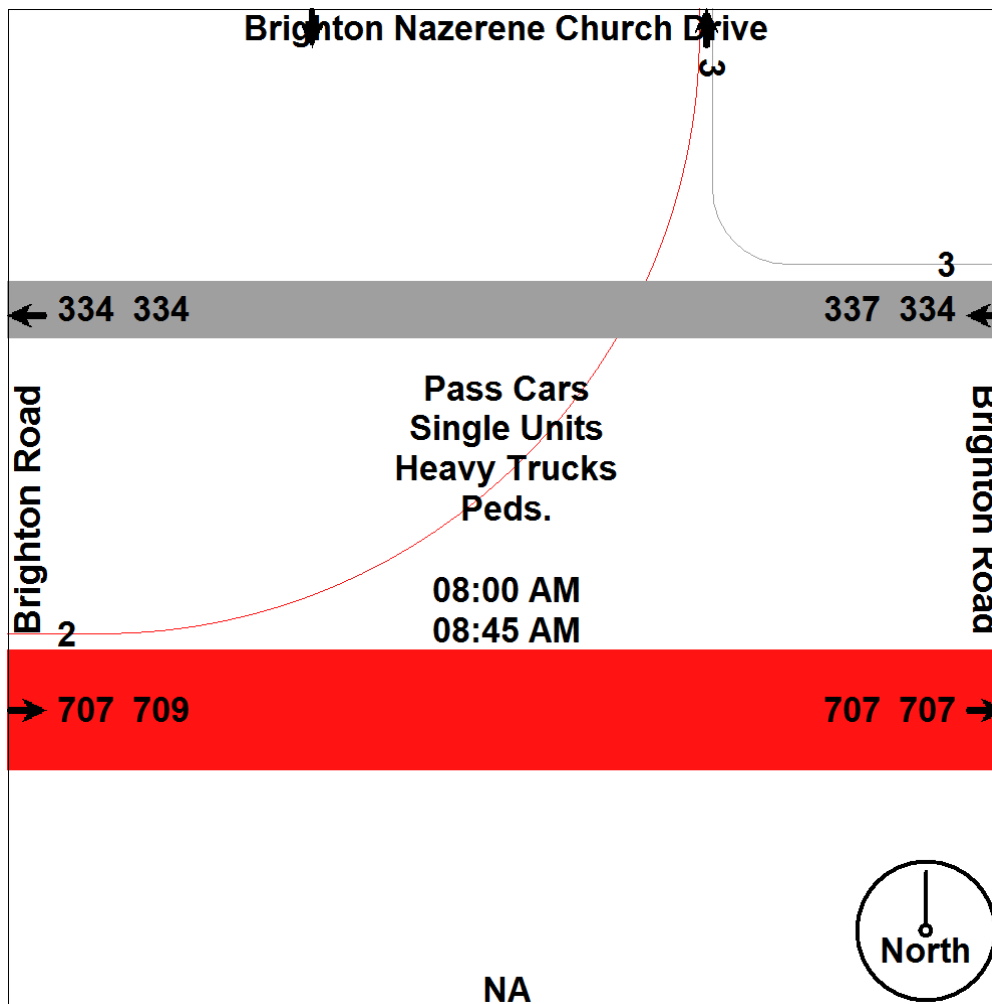
Traffic Study Peformed For:

**Fleis & VandenBrink**

**Project: Brighton Traffic Impact Study**  
**Type: 4 Hr. Video Turning Movement Count**  
**Weather: Sunny/Cldy, Dry Deg. 70's**  
**Count By: Miovision Video SCU 340 NE**

**File Name : TMC\_1 Brighton & NazereneDw\_10-18-17**  
**Site Code : TMC\_1**  
**Start Date : 10/18/2017**  
**Page No : 3**

Start Time	Brighton Nazerene Church Drive Southbound				Brighton Road Westbound				NA Northbound				Brighton Road Eastbound				Int. Total
	Rgt	Thru	Left	App. Total	Rgt	Thru	Left	App. Total	Rgt	Thru	Left	App. Total	Rgt	Thru	Left	App. Total	
Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	0	0	0	0	0	104	0	104	0	0	0	0	0	152	1	153	257
08:15 AM	0	0	0	0	0	61	0	61	0	0	0	0	0	216	0	216	277
08:30 AM	0	0	0	0	2	80	0	82	0	0	0	0	0	156	0	156	238
08:45 AM	0	0	0	0	1	89	0	90	0	0	0	0	0	183	1	184	274
Total Volume	0	0	0	0	3	334	0	337	0	0	0	0	0	707	2	709	1046
% App. Total	0	0	0	0	0.9	99.1	0		0	0	0	0	0	99.7	0.3		
PHF	.000	.000	.000	.000	.375	.803	.000	.810	.000	.000	.000	.000	.000	.818	.500	.821	.944
Pass Cars	0	0	0	0	3	302	0	305	0	0	0	0	0	678	2	680	985
% Pass Cars	0	0	0	0	100	90.4	0	90.5	0	0	0	0	0	95.9	100	95.9	94.2
Single Units	0	0	0	0	0	31	0	31	0	0	0	0	0	27	0	27	58
% Single Units	0	0	0	0	0	9.3	0	9.2	0	0	0	0	0	3.8	0	3.8	5.5
Heavy Trucks	0	0	0	0	0	1	0	1	0	0	0	0	0	2	0	2	3
% Heavy Trucks	0	0	0	0	0	0.3	0	0.3	0	0	0	0	0	0.3	0	0.3	0.3
Peds.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Peds.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



# Traffic Data Collection, LLC



tdccounts.com

Phone: (586) 786-5407

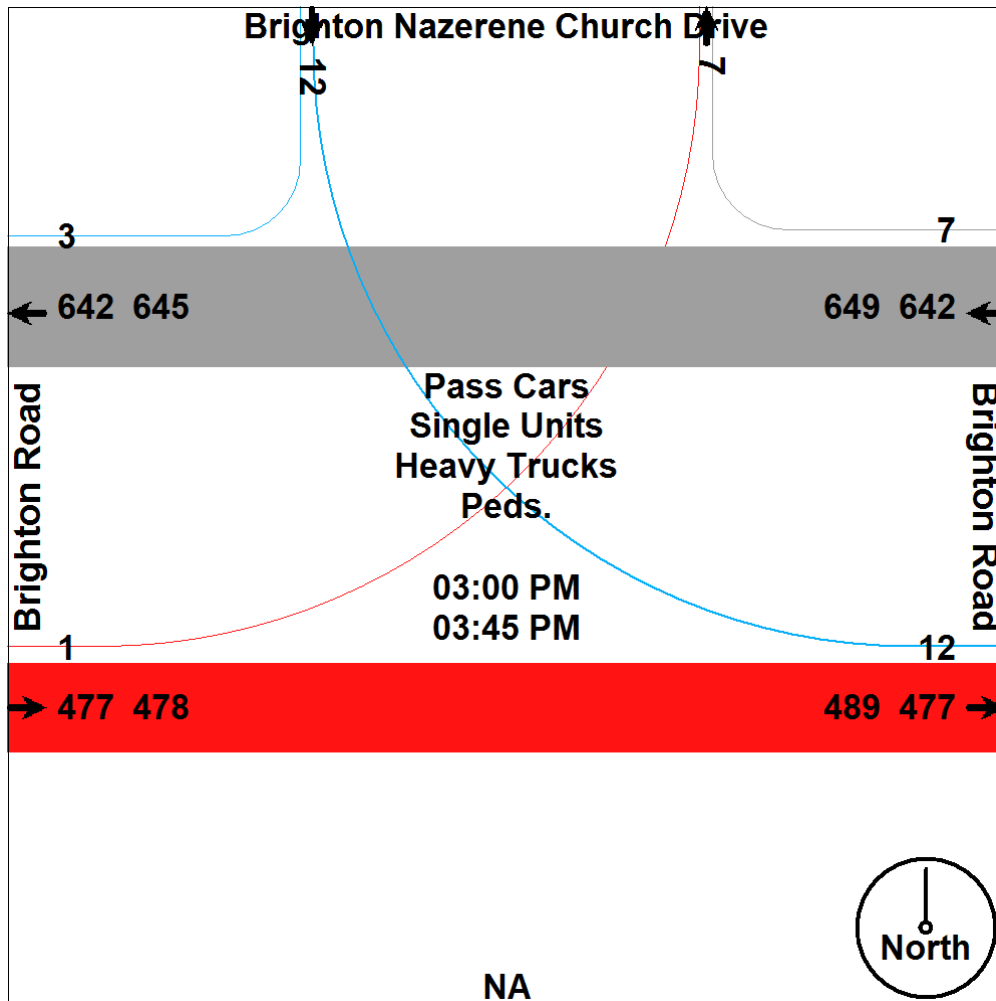
Traffic Study Performed For:

**Fleis & VandenBrink**

**Project: Brighton Traffic Impact Study**  
**Type: 4 Hr. Video Turning Movement Count**  
**Weather: Sunny/Cldy, Dry Deg. 70's**  
**Count By: Miovision Video SCU 340 NE**

**File Name : TMC\_1 Brighton & NazereneDw\_10-18-17**  
**Site Code : TMC\_1**  
**Start Date : 10/18/2017**  
**Page No : 4**

Start Time	Brighton Nazerene Church Drive Southbound				Brighton Road Westbound				NA Northbound				Brighton Road Eastbound				Int. Total
	Rgt	Thru	Left	App. Total	Rgt	Thru	Left	App. Total	Rgt	Thru	Left	App. Total	Rgt	Thru	Left	App. Total	
Peak Hour Analysis From 12:00 PM to 03:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:00 PM																	
03:00 PM	1	0	3	4	2	148	0	150	0	0	0	0	0	110	0	110	264
03:15 PM	1	0	3	4	2	153	0	155	0	0	0	0	0	115	1	116	275
03:30 PM	1	0	6	7	2	183	0	185	0	0	0	0	0	128	0	128	320
03:45 PM	0	0	0	0	1	158	0	159	0	0	0	0	0	124	0	124	283
Total Volume	3	0	12	15	7	642	0	649	0	0	0	0	0	477	1	478	1142
% App. Total	20	0	80		1.1	98.9	0		0	0	0	0	0	99.8	0.2		
PHF	.750	.000	.500	.536	.875	.877	.000	.877	.000	.000	.000	.000	.000	.932	.250	.934	.892
Pass Cars	3	0	12	15	7	625	0	632	0	0	0	0	0	461	1	462	1109
% Pass Cars	100	0	100	100	100	97.4	0	97.4	0	0	0	0	0	96.6	100	96.7	97.1
Single Units	0	0	0	0	0	17	0	17	0	0	0	0	0	16	0	16	33
% Single Units	0	0	0	0	0	2.6	0	2.6	0	0	0	0	0	3.4	0	3.3	2.9
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peds.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Peds.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



# Traffic Data Collection, LLC

95



tdccounts.com

Phone: (586) 786-5407

Traffic Study Performed For:

**Fleis & VandenBrink**

Project: Brighton Traffic Impact Study

Type: 4 Hr. Video Turning Movement Count

Weather: Sunny/Cldy, Dry Deg. 70's

Count By: Miovision Video SCU 4G2 SE

File Name : TMC\_2 Brighton & HighSchoolDw\_10-18-17

Site Code : TMC\_2

Start Date : 10/18/2017

Page No : 1

Groups Printed- Pass Cars - Single Units - Heavy Trucks - Peds.

Start Time	NA Southbound					Brighton Road Westbound					Brighton High School Drive Northbound					Brighton Road Eastbound					Int. Total
	Rgt	Thru	Left	Peds	App. Total	Rgt	Thru	Left	Peds	App. Total	Rgt	Thru	Left	Peds	App. Total	Rgt	Thru	Left	Peds	App. Total	
07:00 AM	0	0	0	0	0	0	35	147	0	182	8	0	21	0	29	174	129	0	0	303	514
07:15 AM	0	0	0	0	0	0	51	52	0	103	8	0	7	0	15	101	137	0	0	238	356
07:30 AM	0	0	0	0	0	0	44	5	0	49	0	0	3	0	3	6	117	0	0	123	175
07:45 AM	0	0	0	0	0	0	70	4	0	74	0	0	1	0	1	2	156	0	0	158	233
Total	0	0	0	0	0	0	200	208	0	408	16	0	32	0	48	283	539	0	0	822	1278
08:00 AM	0	0	0	0	0	0	103	5	0	108	0	0	1	0	1	1	151	0	0	152	261
08:15 AM	0	0	0	0	0	0	62	5	0	67	0	0	0	0	0	7	211	0	0	218	285
08:30 AM	0	0	0	0	0	0	79	3	0	82	0	0	2	0	2	1	151	0	0	152	236
08:45 AM	0	0	0	0	0	0	89	3	0	92	2	0	2	0	4	2	177	0	0	179	275
Total	0	0	0	0	0	0	333	16	0	349	2	0	5	0	7	11	690	0	0	701	1057
**** BREAK ****																					
02:00 PM	0	0	0	0	0	0	87	4	0	91	1	0	0	0	1	4	68	0	0	72	164
02:15 PM	0	0	0	0	0	0	91	21	0	112	13	0	15	0	28	15	97	0	0	112	252
02:30 PM	0	0	0	0	0	0	145	9	0	154	137	0	93	0	230	10	68	0	1	79	463
02:45 PM	0	0	0	0	0	0	101	10	0	111	18	0	5	0	23	8	75	0	0	83	217
Total	0	0	0	0	0	0	424	44	0	468	169	0	113	0	282	37	308	0	1	346	1096
03:00 PM	0	0	0	0	0	0	137	14	0	151	7	0	10	0	17	23	92	0	0	115	283
03:15 PM	0	0	0	0	0	0	150	13	0	163	13	0	6	0	19	16	102	0	0	118	300
03:30 PM	0	0	0	0	0	0	177	10	0	187	12	0	7	0	19	9	122	0	0	131	337
03:45 PM	0	0	0	0	0	0	154	11	0	165	2	0	4	0	6	3	121	0	0	124	295
Total	0	0	0	0	0	0	618	48	0	666	34	0	27	0	61	51	437	0	0	488	1215
Grand Total	0	0	0	0	0	0	1575	316	0	1891	221	0	177	0	398	382	1974	0	1	2357	4646
Apprch %	0	0	0	0	0	0	83.3	16.7	0		55.5	0	44.5	0		16.2	83.8	0	0		
Total %	0	0	0	0	0	0	33.9	6.8	0	40.7	4.8	0	3.8	0	8.6	8.2	42.5	0	0	50.7	
Pass Cars	0	0	0	0	0	0	1523	299	0	1822	199	0	170	0	369	379	1918	0	0	2297	4488
% Pass Cars	0	0	0	0	0	0	96.7	94.6	0	96.4	90	0	96	0	92.7	99.2	97.2	0	0	97.5	96.6
Single Units	0	0	0	0	0	0	51	17	0	68	22	0	7	0	29	3	52	0	0	55	152
% Single Units	0	0	0	0	0	0	3.2	5.4	0	3.6	10	0	4	0	7.3	0.8	2.6	0	0	2.3	3.3
Heavy Trucks	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	4	0	0	4	5
% Heavy Trucks	0	0	0	0	0	0	0.1	0	0	0.1	0	0	0	0	0	0	0.2	0	0	0.2	0.1
Peds.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
% Peds.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100	0	0

Comments: 4 hour traffic study conducted during typical weekday (Wednesday) from 7:00-9:00 AM morning & 2:00-4:00 PM afternoon peak hours while school was in session. Signalized intersection no ped. signals. Video SCU camera was located within SE intersection quadrant.

# Traffic Data Collection, LLC

tdccounts.com

Phone: (586) 786-5407

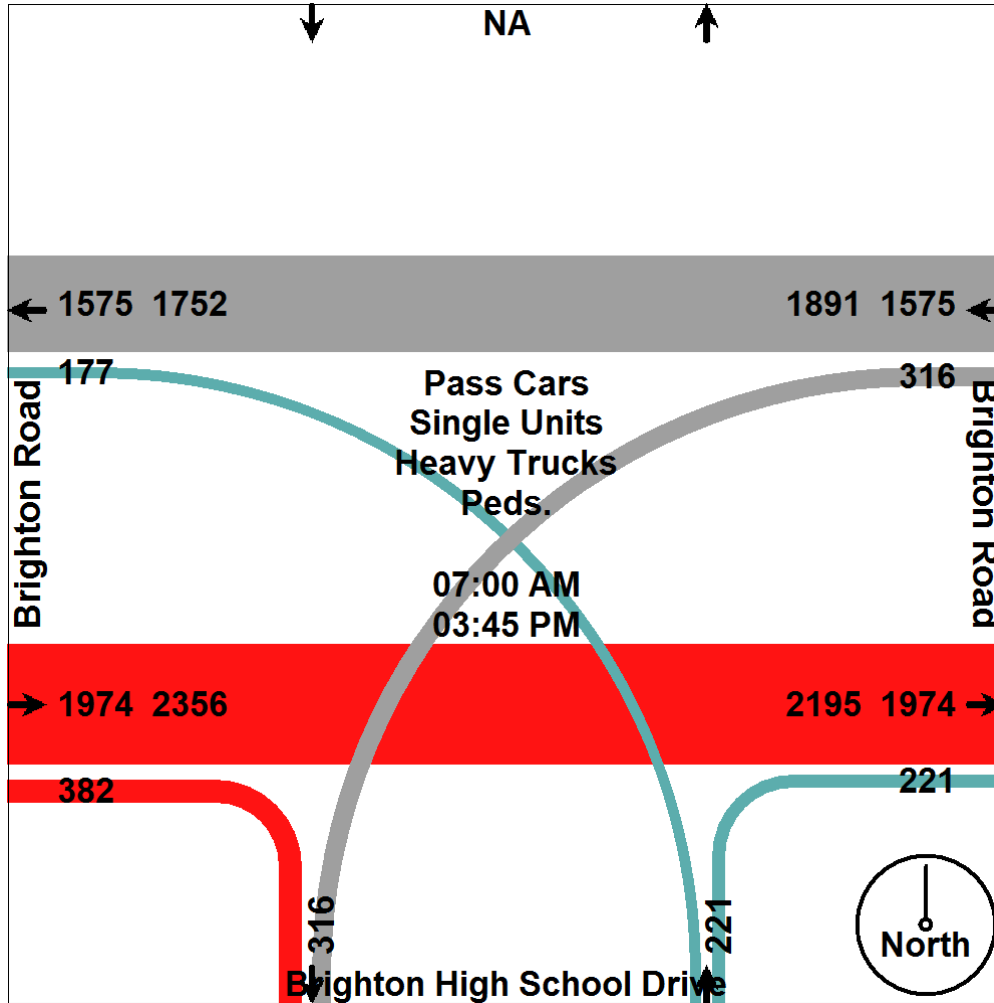
Traffic Study Performed For:

**Fleis & VandenBrink**



Project: Brighton Traffic Impact Study  
Type: 4 Hr. Video Turning Movement Count  
Weather: Sunny/Cldy, Dry Deg. 70's  
Count By: Miovision Video SCU 4G2 SE

File Name : TMC\_2 Brighton & HighSchoolDw\_10-18-17  
Site Code : TMC\_2  
Start Date : 10/18/2017  
Page No : 2





# Traffic Data Collection, LLC

tdccounts.com

Phone: (586) 786-5407

Traffic Study Peformed For:

**Fleis & VandenBrink**

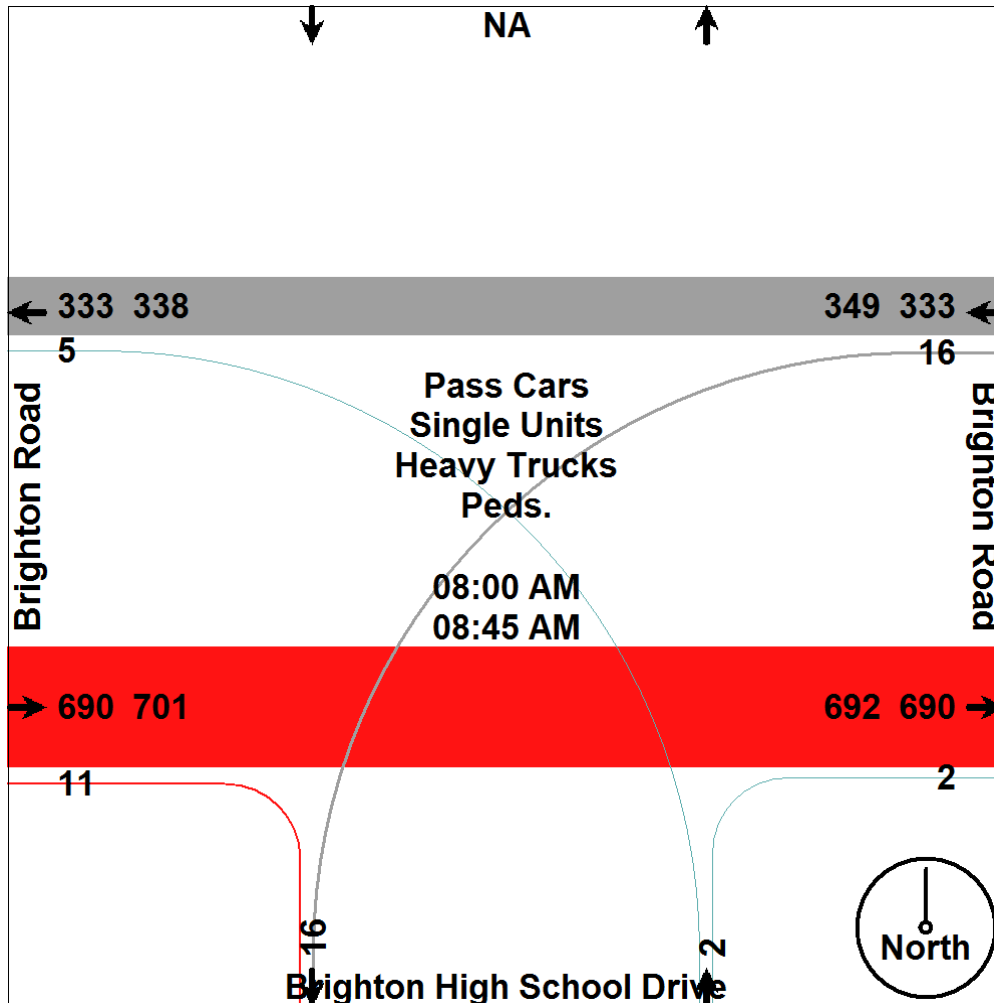
97



**Project: Brighton Traffic Impact Study**  
**Type: 4 Hr. Video Turning Movement Count**  
**Weather: Sunny/Cldy, Dry Deg. 70's**  
**Count By: Miovision Video SCU 4G2 SE**

**File Name : TMC\_2 Brighton & HighSchoolDw\_10-18-17**  
**Site Code : TMC\_2**  
**Start Date : 10/18/2017**  
**Page No : 3**

Start Time	NA Southbound				Brighton Road Westbound				Brighton High School Drive Northbound				Brighton Road Eastbound				Int. Total
	Rgt	Thru	Left	App. Total	Rgt	Thru	Left	App. Total	Rgt	Thru	Left	App. Total	Rgt	Thru	Left	App. Total	
Peak Hour Analysis From 08:00 AM to 12:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	0	0	0	0	0	103	5	108	0	0	1	1	1	151	0	152	261
08:15 AM	0	0	0	0	0	62	5	67	0	0	0	0	7	211	0	218	285
08:30 AM	0	0	0	0	0	79	3	82	0	0	2	2	1	151	0	152	236
08:45 AM	0	0	0	0	0	89	3	92	2	0	2	4	2	177	0	179	275
Total Volume	0	0	0	0	0	333	16	349	2	0	5	7	11	690	0	701	1057
% App. Total	0	0	0	0	0	95.4	4.6		28.6	0	71.4		1.6	98.4	0		
PHF	.000	.000	.000	.000	.000	.808	.800	.808	.250	.000	.625	.438	.393	.818	.000	.804	.927
Pass Cars	0	0	0	0	0	307	15	322	2	0	3	5	9	663	0	672	999
% Pass Cars	0	0	0	0	0	92.2	93.8	92.3	100	0	60.0	71.4	81.8	96.1	0	95.9	94.5
Single Units	0	0	0	0	0	26	1	27	0	0	2	2	2	24	0	26	55
% Single Units	0	0	0	0	0	7.8	6.3	7.7	0	0	40.0	28.6	18.2	3.5	0	3.7	5.2
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	3
% Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4	0	0.4	0.3
Peds.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Peds.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



# Traffic Data Collection, LLC

tdccounts.com

Phone: (586) 786-5407

Traffic Study Performed For:

**Fleis & VandenBrink**

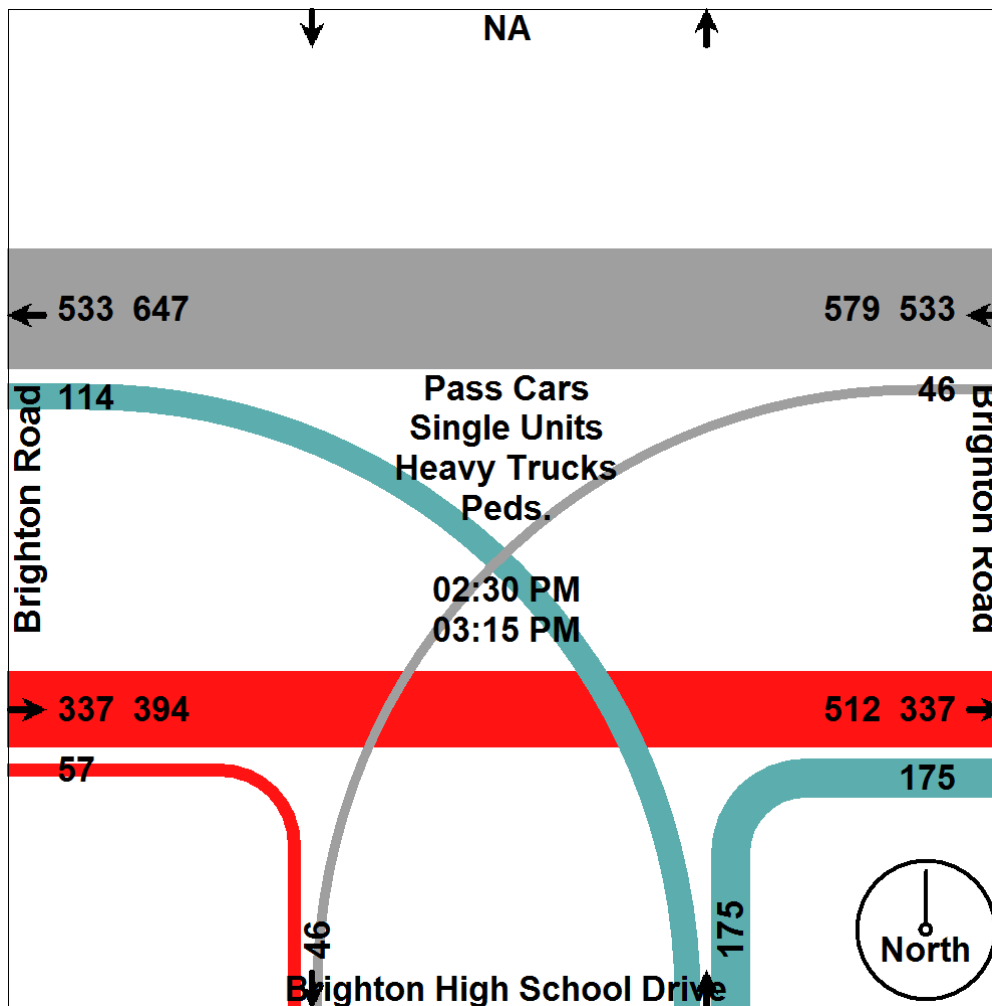
98



**Project: Brighton Traffic Impact Study**  
**Type: 4 Hr. Video Turning Movement Count**  
**Weather: Sunny/Cldy, Dry Deg. 70's**  
**Count By: Miovision Video SCU 4G2 SE**

**File Name : TMC\_2 Brighton & HighSchoolDw\_10-18-17**  
**Site Code : TMC\_2**  
**Start Date : 10/18/2017**  
**Page No : 4**

Start Time	NA Southbound				Brighton Road Westbound				Brighton High School Drive Northbound				Brighton Road Eastbound				Int. Total
	Rgt	Thru	Left	App. Total	Rgt	Thru	Left	App. Total	Rgt	Thru	Left	App. Total	Rgt	Thru	Left	App. Total	
Peak Hour Analysis From 12:45 PM to 03:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 02:30 PM																	
02:30 PM	0	0	0	0	0	145	9	154	137	0	93	230	10	68	0	78	462
02:45 PM	0	0	0	0	0	101	10	111	18	0	5	23	8	75	0	83	217
03:00 PM	0	0	0	0	0	137	14	151	7	0	10	17	23	92	0	115	283
03:15 PM	0	0	0	0	0	150	13	163	13	0	6	19	16	102	0	118	300
Total Volume	0	0	0	0	0	533	46	579	175	0	114	289	57	337	0	394	1262
% App. Total	0	0	0	0	0	92.1	7.9		60.6	0	39.4		14.5	85.5	0		
PHF	.000	.000	.000	.000	.000	.888	.821	.888	.319	.000	.306	.314	.620	.826	.000	.835	.683
Pass Cars	0	0	0	0	0	523	45	568	162	0	113	275	57	331	0	388	1231
% Pass Cars	0	0	0	0	0	98.1	97.8	98.1	92.6	0	99.1	95.2	100	98.2	0	98.5	97.5
Single Units	0	0	0	0	0	10	1	11	13	0	1	14	0	5	0	5	30
% Single Units	0	0	0	0	0	1.9	2.2	1.9	7.4	0	0.9	4.8	0	1.5	0	1.3	2.4
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
% Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3	0	0.3	0.1
Peds.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Peds.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



**2014-2015 (140 +/- Students)**

A.M. Arrivals/Dropoff

Parent/Carpool	71
Student Drivers	12
Staff	<u>18 (50% during peak hour)</u>
	101 Total Vehicles arriving
	71 Vehicles Exiting

P.M. Pickup

Parent/Carpool	71
Student Drivers	12
Staff	<u>18 (25% during peak hour)</u>
	101 Total Vehicles exiting
	71 Vehicles arriving

### Level of Service Criteria for Stop Sign Controlled Intersections

The level of service criteria are given in Table 17-2. As used here, control delay is defined as the total elapsed time from the time a vehicle stops at the end of the queue until the vehicle departs from the stop line; this time includes the time required for the vehicle to travel from the last-in-queue position to the first-in-queue position, including deceleration of vehicles from free-flow speed to the speed of vehicles in queue.

The average total delay for any particular minor movement is a function of the service rate or capacity of the approach and the degree of saturation. . . .

Exhibit 17-2. Level of Service Criteria for TWSC Intersections

LEVEL OF SERVICE	AVERAGE CONTROL DELAY (sec/veh)
A	$\leq 10$
B	$> 10$ and $\leq 15$
C	$> 15$ and $\leq 25$
D	$> 25$ and $\leq 35$
E	$> 35$ and $\leq 50$
F	$> 50$

Average total delay less than 10 sec/veh is defined as Level of Service (LOS) A. Follow-up times of less than 5 sec have been measured when there is no conflicting traffic for a minor street movement, so control delays of less than 10 sec/veh are appropriate for low flow conditions. To remain consistent with the AWSC intersection analysis procedure described later in this chapter, a total delay of 50 sec/veh is assumed as the break point between LOS E and F.

The proposed level of service criteria for TWSC intersections are somewhat different from the criteria used in Chapter 16 for signalized intersections. The primary reason for this difference is that drivers expect different levels of performance from different kinds of transportation facilities. The expectation is that a signalized intersection is designed to carry higher traffic volumes than an unsignalized intersection. Additionally, several driver behavior considerations combine to make delays at signalized intersections less onerous than at unsignalized intersections. For example, drivers at signalized intersections are able to relax during the red interval, where drivers on the minor approaches to unsignalized intersections must remain attentive to the task of identifying acceptable gaps and vehicle conflicts. Also, there is often much more variability in the amount of delay experienced by individual drivers at unsignalized than signalized intersections. For these reasons, it is considered that the total delay threshold for any given level of service is less for an unsignalized intersection than for a signalized intersection. . . .

LOS F exists when there are insufficient gaps of suitable size to allow a side street demand to cross safely through a major street traffic stream. This level of service is generally evident from extremely long total delays experienced by side street traffic and by queueing on the minor approaches. The method, however, is based on a constant critical gap size - that is, the critical gap remains constant, no matter how long the side street motorist waits. LOS F may also appear in the form of side street vehicles' selecting smaller-than-usual gaps. In such cases, safety may be a problem and some disruption to the major traffic stream may result. It is important to note that LOS F may not always result in long queues but may result in adjustments to normal gap acceptance behavior. The latter is more difficult to observe on the field than queueing, which is more obvious.

Source: Highway Capacity Manual, 2010. Transportation Research Board, National Research Council

## Level of Service for Signalized Intersections

Level of service for signalized intersections is defined in terms of delay, which is a measure of driver discomfort and frustration, fuel consumption, and lost travel time. Specifically, level-of-service (LOS) criteria are stated in terms of the average stopped delay per vehicle for a 15-min analysis period. The criteria are given in Exhibit 16-2. Delay may be measured in the field or estimated using procedures presented later in this chapter. Delay is a complex measure and is dependent on a number of variables, including the quality of progression, the cycle length, the green ratio, and the  $v/c$  ratio for the lane group in question.

**LOS A** describes operations with very low delay, up to 10 sec per vehicle. This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.

**LOS B** describes operations with delay greater than 10 and up to 20 sec per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of average delay.

Exhibit 16-2. Level-of-Service Criteria for Signalized Intersections

LEVEL OF SERVICE	STOPPED DELAY PER VEHICLE (SEC)
A	$\leq 10.0$
B	$> 10.0$ and $\leq 20.0$
C	$> 20.0$ and $\leq 35.0$
D	$> 35.0$ and $\leq 55.0$
E	$> 55.0$ and $\leq 80.0$
F	$> 80.0$

**LOS C** describes operations with delay greater than 20 and up to 35 sec per vehicle. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.

**LOS D** describes operations with delay greater than 35 and up to 55 sec per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high  $v/c$  ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

**LOS E** describes operations with delay greater than 55 and up to 80 sec per vehicle. This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high  $v/c$  ratios. Individual cycle failures are frequent occurrences.

**LOS F** describes operations with delay in excess of 80 sec per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection. It may also occur at high  $v/c$  ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

Source: Highway Capacity Manual, 2010. Transportation Research Board, National Research Council

HCM 6th TWSC  
1: Brighton Road & Site Drive

Intersection

Int Delay, s/veh 15.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗	↗	↘	↘	↘
Traffic Vol, veh/h	88	652	283	47	35	66
Future Vol, veh/h	88	652	283	47	35	66
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	25	60	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	40	92	92	40	40	40
Heavy Vehicles, %	0	4	10	0	0	0
Mvmt Flow	220	709	308	118	88	165

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	426	0	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	4.1	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	2.2	-	-
Pot Cap-1 Maneuver	1144	-	-
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1144	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	2.1	0	92.9
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1144	-	-	-	76	737
HCM Lane V/C Ratio	0.192	-	-	-	1.151	0.224
HCM Control Delay (s)	8.9	-	-	-	246.7	11.3
HCM Lane LOS	A	-	-	-	F	B
HCM 95th %tile Q(veh)	0.7	-	-	-	6.5	0.9

Notes

~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

HCM 6th TWSC  
1: Brighton Road & Site Drive

Intersection

Int Delay, s/veh	7.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↗	↗	↘	↘	↘
Traffic Vol, veh/h	67	435	589	41	57	85
Future Vol, veh/h	67	435	589	41	57	85
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	25	60	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	40	92	92	40	40	40
Heavy Vehicles, %	0	2	3	0	0	0
Mvmt Flow	168	473	640	103	143	213

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	743	0	0 1449 640
Stage 1	-	-	- 640 -
Stage 2	-	-	- 809 -
Critical Hdwy	4.1	-	- 6.4 6.2
Critical Hdwy Stg 1	-	-	- 5.4 -
Critical Hdwy Stg 2	-	-	- 5.4 -
Follow-up Hdwy	2.2	-	- 3.5 3.3
Pot Cap-1 Maneuver	873	-	- 146 479
Stage 1	-	-	- 529 -
Stage 2	-	-	- 441 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	873	-	- ~ 118 479
Mov Cap-2 Maneuver	-	-	- 202 -
Stage 1	-	-	- 427 -
Stage 2	-	-	- 441 -

Approach	EB	WB	SB
HCM Control Delay, s	2.6	0	33.8
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	873	-	-	-	202	479
HCM Lane V/C Ratio	0.192	-	-	-	0.705	0.444
HCM Control Delay (s)	10.1	-	-	-	56.8	18.4
HCM Lane LOS	B	-	-	-	F	C
HCM 95th %tile Q(veh)	0.7	-	-	-	4.5	2.2

Notes

~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon

**Intersection: 1: Brighton Road & Site Drive**

Movement	EB	WB	SB	SB
Directions Served	L	R	L	R
Maximum Queue (ft)	66	20	79	84
Average Queue (ft)	20	1	22	20
95th Queue (ft)	55	10	57	56
Link Distance (ft)				540
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	200	25	60	
Storage Blk Time (%)		0	3	0
Queuing Penalty (veh)		0	4	0

**Intersection: 8001: Brighton HS Drive & Brighton Road**

Movement	EB	EB	WB	WB	NB
Directions Served	T	R	L	T	L
Maximum Queue (ft)	148	23	31	73	29
Average Queue (ft)	33	1	8	5	4
95th Queue (ft)	105	9	30	37	18
Link Distance (ft)	284			527	347
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		275	300		
Storage Blk Time (%)					
Queuing Penalty (veh)					

**Network Summary**

Network wide Queuing Penalty: 4



**Intersection: 1: Brighton Road & Site Drive**

Movement	EB	WB	WB	SB	SB
Directions Served	L	T	R	L	R
Maximum Queue (ft)	83	10	22	109	208
Average Queue (ft)	21	1	1	33	44
95th Queue (ft)	60	8	10	90	135
Link Distance (ft)		284			570
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	200		25	60	
Storage Blk Time (%)		0	0	13	3
Queuing Penalty (veh)		0	0	23	3

**Intersection: 8001: Brighton HS Drive & Brighton Road**

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	149	49	54	183	70	45
Average Queue (ft)	57	10	19	57	18	18
95th Queue (ft)	119	35	48	127	46	37
Link Distance (ft)	284			527	347	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		275	300			100
Storage Blk Time (%)					0	
Queuing Penalty (veh)					0	

**Network Summary**

Network wide Queuing Penalty: 27

## LEASE AGREEMENT

1. THIS LEASE made this 25<sup>th</sup> day of November, 2014 by and between:

Brighton Church of the Nazarene, a domestic nonprofit corporation  
7669 Brighton Rd  
Brighton, MI 48116

the **Lessor**, hereinafter designated as the **Landlord**, and

Livingston Christian Schools, a domestic nonprofit corporation  
550 E Hamburg St  
Pinckney, MI 48169

the **Lessee**, hereinafter designated as the **Tenant**.

2. **DESCRIPTION:** Witnesseth: The Landlord, in consideration of the rents to be paid and the covenants and agreements to be performed by the Tenant, does hereby lease unto the Tenant a designated part of the following described premises situated in the Township of Genoa, County of Livingston, State of Michigan, to be operated during Tenant's normal school calendar year and special events, to-wit:

7669 Brighton Rd, Brighton, MI 48116, including designated classrooms; office space; restrooms; kitchen; gym; playground equipment as approved by the Landlord; parking as designated by the Landlord; lakefront property, shared with the Landlord, with Tenant's adult supervision for recreation of children during normal school hours and the Tenant's school calendar year; and from time to time, the use of the Landlord's main sanctuary for special occasions, as approved by the Landlord.

3. **TERM:** The term of this lease shall be for five (5) years, which shall commence on June 1, 2015. The term shall be fully completed and ended, the Tenant yielding and paying during the continuance of this lease unto the Landlord for rent of said premises for said term, in lawful money of the United States, payable in advance totaling Three Hundred Thousand and 00/100 Dollars (\$300,000.00), payable in monthly installments upon the 1<sup>st</sup> day of each and every month, in the amount of Five Thousand and 00/100 (\$5000.00) dollars, with a five (5) day grace period. After the fifteenth (15) day, a late fee of \$250.00 shall be assessed to the Tenant. Upon the execution of this lease agreement, Tenant agrees to pay a lump sum of Sixty

Seven Thousand Dollars and 00/100 (\$67,000), which shall be credited as pre-paid rent; a pre-paid rent credit of Fifty Thousand Dollars and 00/100 (\$50,000) is acknowledged by the Landlord for labor and tile material being donated by a Livingston Christian School family for the benefit of the Tenant; and a pre-paid rent credit of Fifty Three Thousand and 00/100 Dollars (\$53,000) having been paid to Landlord by a family attending the Brighton Nazarene Church for the benefit of the Tenant. With payment of the above, totaling One Hundred Seventy Thousand and 00/100 Dollars (\$170,000), rent shall be deemed to be pre-paid for the first 34 months of this Lease Agreement. Thereafter, monthly installments of Five Thousand and 00/100 Dollars (\$5000) per month shall be payable by Tenant beginning in month 35 and continuing through and including month 60, to the complete tenure of this Lease Agreement.

4. **RENT:** The Tenant hereby hires the said premises for the said term as above mentioned and covenants they will and truly pay, or cause to be paid unto the Landlord at the dates and times above mentioned, the rent above reserved, the Landlord hereby acknowledges receipt of the above referenced payments totaling One Hundred Seventy Thousand and 00/100 Dollars (\$170,000) paid in advance as pre-paid rent. Landlord acknowledges that no security deposit shall be paid by the Tenant upon the execution of this lease. In additional consideration of the rent herein, Tenant hereby agrees to provide a 20% discount to all regular attenders of the Brighton Nazarene Church, whose students are enrolled with Livingston Christian School, provided they are regularly attending the Landlord's church, from early childhood up to the 12<sup>th</sup> grade. A regular attender of the Brighton Nazarene Church is defined as having attended at least 30 weekly services in the prior 52 week period. If a family is receiving tuition assistance from Livingston Christian School and is receiving a discount for various reasons offered by the Tenant, then the greater of the 20% discount or the tuition assistance or discount amount already being offered by the Tenant, shall be applied to the tuition, but not both discounts.

5. **INSURANCE:** In addition to the rental hereinbefore specified, the Tenant shall NOT be responsible for reimbursement to the Landlord of any increase on premiums for insurance against loss by fire that may be charged during the term of the Lease on the amount of insurance covering the demised premises and on the improvements situated on said premises. The Tenant hereby acknowledges that the Landlord does NOT provide insurance coverage for any of the Tenant's business personal property or loss of use of the premises, due to an insured loss, whether the fault or negligence of the Tenant or Landlord. It shall be the Tenant's responsibility to secure

insurance for their business personal property, including comprehensive general liability insurance. The Landlord shall be named as an additional named insured on Tenant's policy for Section II, with a minimum limit of liability of \$1,000,000 per occurrence and \$2,000,000 in the aggregate. In addition, the Tenant shall at all times maintain worker's compensation insurance policy. The Tenant shall also provide a certificate of insurance to the Landlord, evidencing comprehensive general liability and workers compensation insurance, prior to occupying the premises and shall provide such certificate of insurance on the annual anniversary date of this lease agreement.

6. **PLACE OF PAYMENT:** All payments of rent or other sums to be made to the Landlord shall be made at such place as the Landlord shall designate in writing from time to time.

7. **ASSIGNMENT:** The Tenant covenants not to assign or transfer the Lease or hypothecate or mortgage the same or sublet said premises or any part thereof without written consent of the Landlord. Landlord will not withhold consent unreasonably. Any assignments, transfer hypothecation, mortgage or subletting without said written consent shall give the Landlord the right to terminate this Lease and to re-enter and repossess the leased premises.

8. **BANKRUPTCY AND INSOLVENCY:** The Tenant agrees that if the estate created hereby shall be taken in execution, or by other process of law or if the Tenant shall be declared bankrupt or insolvent, according to law, or any receiver be appointed for the business and property of the Tenant, or if any assignment shall be made of the Tenants property for the benefit of creditors, then and in such event this Lease may be cancelled at the option of the Landlord.

9. **RIGHT TO MORTGAGE:** The Landlord reserves the right to subject and subordinate this Lease at all times to the lien of any mortgage or mortgages now or hereafter placed upon the Landlord's interests in the said premises and on the land and buildings of which the leased premises form a part. And the Tenant covenants and agrees to execute and deliver upon demand such further instruments subordinating this Lease to the lien of any such mortgage or mortgages as shall be desired by the Landlord and any mortgagee or proposed mortgages within ten (10) days after Landlord's request.

10. **USE AND OCCUPANCY:** It is understood and agreed between the parties hereto the said premises during the continuance of the Lease shall be

used and occupied as an academic school and for no other purpose or purposes, without the written consent of the Landlord, and the Tenant will not use the premises for any other purpose in violation of any law, municipal ordinance or regulation, and that on any breach of this agreement, the Landlord may at its option terminate this Lease forthwith and re-enter and repossess the leased premises.

11. **FIRE:** It is understood and agreed that if the premises hereby leased be damaged or destroyed in whole or in part by fire or other casualty during the term hereof, the Landlord will repair and restore the same to good tenable condition with reasonable dispatch, and that the rent herein provided for shall abate entirely in case a part only is untenable and pro rata for the portion rendered untenable, in case a part only is untenable, until the same shall be restored to a tenable condition; provided, however, that if the Tenant shall fail to adjust his own insurance or to remove damaged goods, wares, equipment or property within ten (10) days after Landlord's request, and as a result thereof the repairing and restoration is delayed, there shall be no abatement of rental during the period of such resulting delay, and provided further that there shall be no abatement of rental if such fire or other cause damaging or destroying the leased premises shall result from the negligence or willful act of the Tenant, his agents or employees, and provided further that if the Tenant shall use any part of the leased premises for storage during the period of repair, a reasonable charge shall be made therefore against the Tenant, and provided further that in case the leased premises, or the building of which they are a part, shall be destroyed to the extent of more than one-half of the value thereof, the Landlord may at their option terminate this Lease forthwith by a written notice to the other party. Any repairs made by the Landlord shall be done as soon as reasonably feasible.

12. **REPAIRS:** The Landlord shall make all necessary repairs and replacements to the building, heating, air conditioning, plumbing, and electrical systems located therein, and Landlord shall also make repairs to the demised premises which are structural in nature or required due to fire, casualty, or any other act of God; provided, during the term of the Lease however that Tenant shall make all repair and replacements arising from its act, neglect, or default. Except as provided above, Tenant shall keep the demised premises in good repair, including any special equipment installed by the Landlord or Tenant, and Tenant shall upon the expiration of the term of this Lease, yield and deliver up the demised premises in like condition as when taken, reasonable use and wear thereof required to be made by Landlord excepted. If Landlord does not respond within ten (10) days of Tenant's written request, then Tenant shall have the right to make such

repairs and deduct the cost from monthly rent next due, after agreed upon by the Landlord.

**13. TENANT TO INDEMNIFY AND HOLD HARMLESS:** The Tenant hereby desires and wishes to hold harmless the Landlord and its successors and/or assigns, from any and all liabilities, loss, claims, judgments, lawsuits, fines, penalties, demands or expenses including but not limited to all reasonable costs for defense and investigation thereof (including, but not limited to attorney fees, court costs and expert fees) claimed by anyone by reason of injury or damage to persons or property sustained in or around the operation of the Tenant's school as a proximate result of acts or omissions of the Landlord, its agents, successors and/or assigns or arising out of the operation or the actions of the Landlord upon or about the Tenant as a school, except when such liability may arise from the sole negligence of the Landlord, its officers, director, agents, servants and/or employees; provided however, that upon the filing of any claim with the Tenant for damages arising out of incidents for which the Landlord herein agrees to hold the Tenant harmless, then and in that event the Tenant shall notify the Landlord of such claim and the Landlord shall have the right to settle, compromise, and/or defend the same.

**14. REPAIRS AND ALTERATIONS:** Except as provided in paragraph 12 hereof, the Tenant further covenants and agrees that they will, at their own expense, during the continuation of this lease, keep the said premises and every part thereof in as good repair and at the expiration of the term, yield and deliver up the same in like condition as when taken, reasonable use and wear thereof and damage by the elements excepted. The Tenant shall not make any alterations, additions, or improvements to said premises without the Landlord's written consent, and all alterations, additions or improvements made by either of the parties hereto upon the premises, shall be the property of the Landlord, and shall remain upon and be surrendered with the premises at the termination of this Lease, without molestation or injury. If any alterations are made by the Tenant without the Landlord's written approval, then Tenant agrees to make the Landlord whole as if alterations had not been made, and Landlord may assess reasonable liquidated damages.

**15. EMINENT DOMAIN:** If the whole or any part of the premises hereby leased shall be taken by any public authority under the power of eminent domain, the term of this lease shall cease on the part so taken, from the day of possession of that part shall be required for any public purpose and the rent shall, paid up to that day and from the day the Tenant shall have the right either to cancel this Lease and declare the same null and void or to be continued in the possession of the remainder of the same under the terms

herein provided, except that the rent shall be reduced in proportion to the amount of the premise taken. All damages awarded for such taking shall belong to the property of the Landlord whether such damages shall be awarded as compensation for diminution in value to the leasehold or the fee of the premises herein leased.

**16. CARE OF PREMISES:** The Tenant shall not perform any acts or carry on any practices which may injure or damage the building and shall keep the premises under their control, clean and free from rubbish at all times, and it is further agreed that in the event the Tenant shall not comply with these provisions, the Landlord may enter upon said premises and have rubbish removed in which event the Tenant agrees to pay all charges that the Landlord shall pay for hauling rubbish. Said charges shall be paid to the Landlord by the Tenant as soon as a bill is presented to them and the Landlord shall have the same remedy as is provided in paragraph 3 of this Lease in the event of Tenants failure to pay. Furthermore, the Tenant shall at their own expense under penalty of the forfeiture and damages, promptly comply with all lawful laws, orders, regulations or ordinances of all municipal, county and state authorities affecting the premises hereby leased and the cleanliness, safety, occupation and use of same. The Landlord will deliver the building in condition for occupancy by the Tenant and in compliance with all existing municipal and state building codes and ordinances. The Landlord shall arrange for the maintenance of the premise, including lawn care and snow and ice removal.

The Landlord shall provide janitorial services by a contractor or employee(s) of their choice, for the benefit of the Tenant's leased premise. The Tenant shall contribute to the actual costs of janitorial services to the Landlord, for a minimum of 30 labor hours per week, at a reasonable hourly cost to be determined by the Landlord. This contribution is exclusive of the contribution of utility cost as noted herein. The Tenant shall reimburse the Landlord within 30 days of a billing notice by the Landlord. Janitorial services shall be assessed from September 1<sup>st</sup> to June 30th of each year. Janitorial services provided during the months of July and August of each year shall be assessed to the Tenant, based on the actual needs of the Tenant.

**17. CONTIGUOUS PROPERTY:** The Landlord shall not be responsible or liable to the Tenant for any loss or damage that may be occasioned by or through the acts or omissions of persons occupying any part of any premises adjacent to or connected with the premises hereby leased, or any part of the building which the leased premises are a part of for any loss or damage resulting to the Tenant of their property from bursting, stoppage or leaking of water, gas, sewer or steam pipes.

18. **RENEWAL:** This Lease Agreement shall be reviewed by both parties at the end of year three (3) for the purpose of continuation of this agreement, to the satisfaction of both parties. The tenure and any modification of the terms herein of any extension or renewal of this Lease Agreement shall be determined by the parties herein, at the time of the negotiated renewal. If a satisfactory review of the lease or tenancy herein cannot be ascertained at that time by either party, then this lease shall terminate at the end of five years (5) years or specifically at the end of the 60<sup>th</sup> month of this Lease Agreement, and notice of such shall be given to the Tenant by the Landlord, in writing, no later than 90 days after the end of the three year initial period of this Lease Agreement.

19. **HOLDING OVER:** It is hereby agreed that in the event the Tenant holds over after the termination of this lease, the Landlord acknowledges that the tenancy of the leased premises shall be from month to month in the absence of a written agreement to the contrary, not to exceed sixty (60) days from the end of this Lease Agreement or any renewal thereof.

20. **UTILITIES:** The Tenant shall be responsible for all utilities, including but not limited to electric, gas service, water and sewer, rubbish removal and snow removal services. The Tenant's responsibility for such utilities shall be incurred starting September 1<sup>st</sup> of each year and shall end June 30<sup>th</sup> of each year. No contribution of utilities on the part of Tenant shall occur from July 1<sup>st</sup> to August 31<sup>st</sup>. Landlord shall provide lawn care service and Tenant will not be responsible for reimbursement thereof. Tenant's contribution in the first year of occupancy shall be 50% of the Landlord's actual utility costs. Tenant shall reimburse the Landlord of said utilities within 30 days' notice to the Tenant. The contribution of costs of utilities shall be re-evaluated by the Landlord at the end of each annual anniversary date of this Lease Agreement.

The Tenant shall provide their own internet service and computer equipment for their exclusive use, independent of Landlord's internet and computer service, without expense or cost to the Landlord. The Landlord shall not be liable or responsible for any failure of the Tenant's computer equipment.

21. **ACCESS TO THE PREMISES:** The Landlord shall have the right to enter upon the exclusive office space of the Tenant upon twenty-four (24) hours notice for the purpose of inspecting the same. If the Landlord deems any repairs (except Landlord repairs) necessary, the Landlord may demand the Tenant make the same, and if the Tenant refuses or neglects forthwith to commence such repairs and complete the same with reasonable dispatch



the Landlord may make or cause to be made such repairs and shall not be responsible to the Tenant for any loss or damage that may accrue. If the Landlord makes or causes to be made such repairs, the Tenant agrees that they will forthwith on demand, pay to the Landlord the cost thereof.

22. **RE-ENTRY:** In case any rent shall be due and unpaid or if the default be made in any of the covenants herein contained, or if said leased premises shall be deserted or vacated, then it shall be lawful for the Landlord, its certain attorney, heirs, representatives and/or assigns, to re-enter into, re-possess the said leased premises and the Tenant and each and every demised premises for the term aforesaid.

23. **QUIET ENJOYMENT:** The Landlord covenants to the said Tenant, on payment of all the aforesaid installments and performing all the covenants aforesaid, shall and may peacefully and quietly have, hold and enjoy the said demised premises for the term aforesaid.

24. **EXPENSES-DAMAGES UPON RE-ENTRY:** In the event the Landlord shall, during the period covered by this lease, obtain possession of said premises by re-entry, summary proceedings, or otherwise, the Tenant hereby agrees to pay the Landlord the expenses incurred in obtaining possession of said premises, including reasonable attorney fees, and also all reasonable expenses and commissions which may be paid in and about the letting of the same and all other damages.

25. **REMEDIES NOT EXCLUSIVE:** It is agreed that each and every right, remedy and benefit provided by this Lease shall be cumulative, and shall not be exclusive of any other said rights, remedies and benefits, or any other rights, remedies or benefits allowed by law. In the event any covenant, provision and/or restriction is found by a court of competent jurisdiction to be unenforceable, such provision shall be modified, rewritten or interpreted as much of its nature and scope as will render it enforceable. In the event it cannot be so modified, rewritten or interpreted to be enforceable in any respect, it will not be given effect, and the remainder of this agreement shall be enforced as if such provision was not included.

26. **WAIVER:** One or more waivers of any covenant or condition by the Landlord shall not be construed as a waiver of a further breach of the same covenant or condition. The failure of any party at any time to require performance of any provision or resort to any remedy provided under the provisions of this agreement shall in no way affect the right of that party to require the performance or resort to a remedy anytime thereafter. A waiver

shall not be effective unless it is in writing and signed by the party against whom the waiver is being enforced.

**27. DELAY OF POSSESSION:** It is understood that if the Tenant shall be unable to enter into and occupy the premises hereby leased at the time above provided, by reason of the said premises not being ready for occupancy, or by the reason of the holding over of any previous occupant of said premises, or as a result of any cause or reason beyond the direct control of the Landlord, the Landlord shall not be liable in damages to the Tenant therefore, but during the period the Tenant shall be unable to occupy said premises as hereinbefore provided, the rents therefore shall be abated and the Landlord is to use reasonable discretion as to when the premises are ready for occupancy.

**28. NOTICES:** Whenever under this Lease a provision is made for notice of any kind, it shall be deemed sufficient notice and service thereof if such notice to the Tenant is in writing addressed to the Tenant at the last known Post Office address or at the Leased premises and deposited in the mail with postage prepaid, return requested or Federal Express certified upon receipt. Notice need be sent by certified mail to only one Tenant or Landlord where the Tenant or Landlord is more than one person. Any notice required to be given as noted in this Lease Agreement by the Tenant, shall be addressed to and directed to the Senior Pastor of the Landlord's church.

**29. SIGNAGE:** Any exterior signs required or requested by the Tenant, shall be approved in writing by the Landlord, before the installation of a sign, including placement of the sign, size and font of the sign. The Tenant shall be responsible for all costs associated with the installation, maintenance and removal of their sign, including all appropriate permit fees.

**30 SUCCESSORS AND ASSIGNS:** The covenants, conditions and agreements made and entered into by the parties hereto are declared binding on their respective heirs, successors, representatives or assigns.

**31. LEGAL APPROVAL:** This lease has been prepared by the Landlord or its authorized representation for submission to Tenant for approval. No representation or recommendation is made by the Landlord as to the legal sufficiency, legal effect or tax consequences of this Lease or the transaction relating thereto, and the parties shall rely solely upon the advice of their own legal counsel as to the legal and tax consequences of this Lease.

**IN WITNESS WHEREOF**, the parties have hereunto set their hands and seals this \_\_\_\_\_ day of \_\_\_\_\_, 2014. The undersigned warrant that they are the authorized and legal representatives of each party herein.

WITNESSED:

*Viki Kennedy*  
NAME: *Viki Kennedy*

*Theodore Nast*  
Tenant: **Livingston Christian Schools**, Theodore Nast, Principal

*Keith Jones*  
NAME: *KEITH JONES*

*Pastor Ben D. Walls, Sr.*  
Landlord: **Brighton Church of The Nazarene**, Ben Walls, Pastor

Dated: 11-25-14

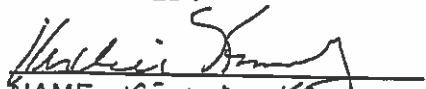
## Promissory Note and Acknowledgement

Whereas a lease agreement having been signed between the Brighton Church of the Nazarene and the Livingston Christian Schools, dated November 25, 2014, that for and in consideration of the pre-paid rent credit enumerated in paragraph 3 of the lease agreement, the parties hereto do hereby stipulate and agree to the following:


1. That Livingston Christian School does hereby acknowledge that the pre-paid rent credit of Fifty Thousand Dollars and 00/100 (\$50,000) for labor and tile material to be donated by a Livingston Christian School family has not been provided and credited to the lease as prepaid rent. When the labor and tile material have been installed and provided, the Brighton Church of the Nazarene will provide Livingston Christian Schools with a receipt thereof.
2. That the pre-paid rent credit of Fifty Three Thousand Dollars and 00/100 (\$53,000) to be paid to the Brighton Nazarene Church by a ... family attending the church, has not yet been paid to the church and has not yet been credited as pre-paid rent to the lease. When the payment is received, the Brighton Church of the Nazarene will provide Livingston Christian Schools with a receipt thereof.
3. That if either or both of the above referenced pre-paid rent credits are not received by the Brighton Church of the Nazarene on or before May 1, 2015, then Livingston Christian Schools shall forthwith provide the cash equivalent of the pre-paid rent credit(s) to the Brighton Church of the Nazarene on or before June 1, 2015.
4. That the Brighton Church of the Nazarene acknowledges receipt and payment of \$67,000 by the Livingston Christian Schools, in cash as pre-paid rent credit of the lease dated November 25, 2014.

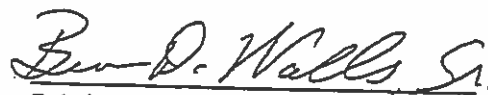
**IN WITNESS WHEREOF**, the parties have hereunto set their hands and seals this \_\_\_\_\_ day of \_\_\_\_\_, 2014. The undersigned warrant that they are the authorized and legal representatives of each party herein.

WITNESSED:

  
NAME: Vickie Kennedy

  
NAME: KAITI JONES

  
Livingston Christian Schools,  
Theodore Nast, Principal

  
Brighton Church of The  
Nazarene, Ben Walls, Pastor



3121 E. Grand River  
Howell, Michigan 48843

engineers  
surveyors  
planners  
landscape  
architects

11/18/2015

Mr. Aaron Aumock  
Livingston County Department of Public Health  
2300 E Grand River Ave  
Suite 102  
Howell, MI 48843

Re: Brighton Nazarene Church, 7679 Brighton Road, Genoa Township

Dear Aaron,

Please accept this letter as certification that the septic system as designed by Boss Engineering has been installed in substantial conformance to the approved plans by Bowman Excavating.

The following inspections were performed during construction:

1. October 21 - Witnessed the installation of the 3,320 gallon septic tank and the 5,600 flow equalization tank.
2. October 21 – Inspected the existing 1500 gallon septic tanks for structure integrity. The tanks were then hydrostatically tested by Marshall Bowman by plugging the inlets and outlets of the tanks. The water levels were observed after a twelve hour test period. The static water levels did not change in either one of the tanks.
3. November 6 – Inspected the installation of the new pump and flow inducer tower. The system start up was also conducted at this time. The pressure in the low pressure distribution network serving the final dispersal field was tested via a Squirt Test at distal orifices in each zone. The squirt heights were observed to be consistent with the design pressure specified in the plans of 5 ft.

The 3,320 gallon septic tank and the 5,600 Flow Equalization tank were pressure tested by American Concrete for water tightness. The results are attached for your file.

Feel free to contact me should you have any questions, or if you are in need of any additional information.

Sincerely,  
BOSS ENGINEERING COMPANY

Sean Nalepka  
Senior Project Manager



Livingston County Department of Public Health

Environmental Health Division
2300 E. Grand River Ave.
Howell, MI 48843
517.546.9858 \* 517.546.9853 FAX
co.livingston.mi.us/health

PERMIT #: SEP2015-00180
APPLIED: 06/24/2015
ISSUED: 06/26/2015
EXPIRES: 06/26/2016

Sewage Permit

SITE ADDRESS: 7679 BRIGHTON RD BRIGHTON 48116
PARCEL NO.: 11-25-400-058
TOWNSHIP: Genoa Township
SUBDIVISION:
LOT/PARCEL: /
DIRECTIONS: ACROSS FROM BRIGHTON HIGHSCHOOL



Table with 3 columns: OWNER (BRIGHTON CHURCH OF THE NAZAR), BUILDER (KINGSLAND BUILDING SYSTEMS), and CONTRACTOR (BOWMAN EXCAVATING INC)

Environmental Sanitarian: Aaron S. Aumock

Issued Date: June 26, 2015

Project Description:

CHURCH ADDITION

Information:

Type of Use: COMMERCIAL/MIXED USE
Type of Water: Municipal
Type of Work: New
# of Tanks/Capacity: 4 / 11,920
Field Size: 4,800 Sq.Ft.
#Beds/Baths: 0 / 0
Type of Parcel: Metes and Bounds
Bsmt Plumbing:
Disp.Sys: STANDARD FIELD
Pretreatment: None
Type of Flow: Pressure
Effluent Filter: COMMERCIAL
Sys.Elevation: Below Grade
Max.Est.Flow: 2,400

Special Requirements:

- Locate the system in the exact area as per Boss Engineering plans job # 13-100, dated 6/5/15.
100% Cutdown to sand at +/- 2 ft., then backfill with a clean sharp sand as needed, then lay stone and tile, 24" max., 12" min. cover. Adding 1200 sq. ft (zone 4) to existing 3600 sq. ft. system (zones 1 thru 3).
Install a septic tank filter on the outlet end of the septic tank.
\*\*\*Tank installation required. Sanitarian must witness excavation and tank placement. Contact Sanitarian to set up inspection.\*\*\*
Required inspections: 1) cutdown 2) final + pressure test.
The designing Engineer must supervise all phases of the construction work and shall certify in writing upon the completion of the system.

Environmental Sanitarian:

Date Finalled:

Handwritten notes: GENOA, 215, 7679 BRIGHTON RD, SEP2015-00180

# SEPTIC SYSTEM PLAN FOR BRIGHTON NAZARENE CHURCH

## 7669 BRIGHTON ROAD BRIGHTON, MI 48116

Project: 950 seat church @ 3 gallons per seat = 2850 gallons per service  
 400 seat fellowship hall @ 7 gallons per seat = 2800 gallons at full use  
 School with 200 students + 15 Staff @ 7gallons per person = 1505 GPD

Day	Flow (gallons)
Monday = school + 300 person church use	2405
Tuesday = school + 100 person church use	1805
Wednesday = school + 300 person church use	2405
Thursday = school + 100 person church use	1805
Friday = school + 100 person church use	1805
Saturday = 300 person church use + fellowship hall use	3700
Sunday = 950 person church use	2850
<b>Weekly Total:</b>	<b>16775</b>

Equalization cycle is 1 week  
 Equalization of daily flow Weekly flow/cycle = 2396.428/gal/day

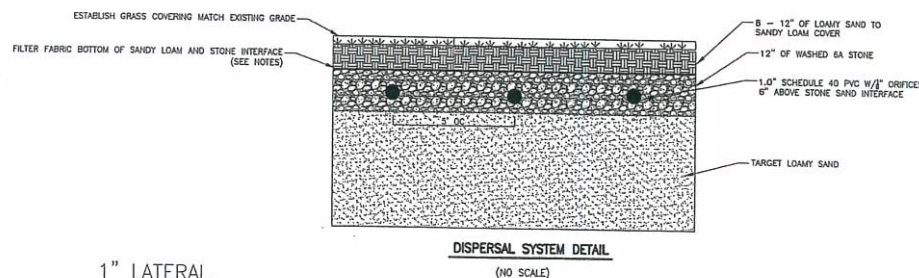
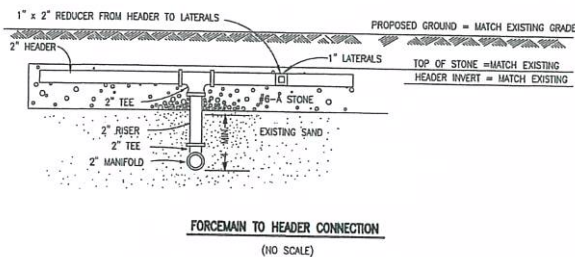
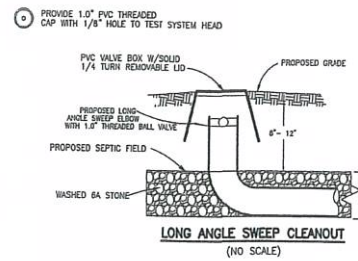
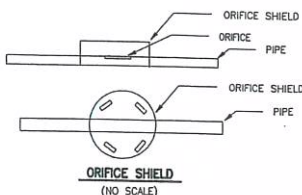
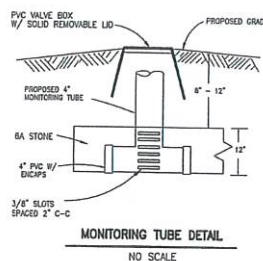
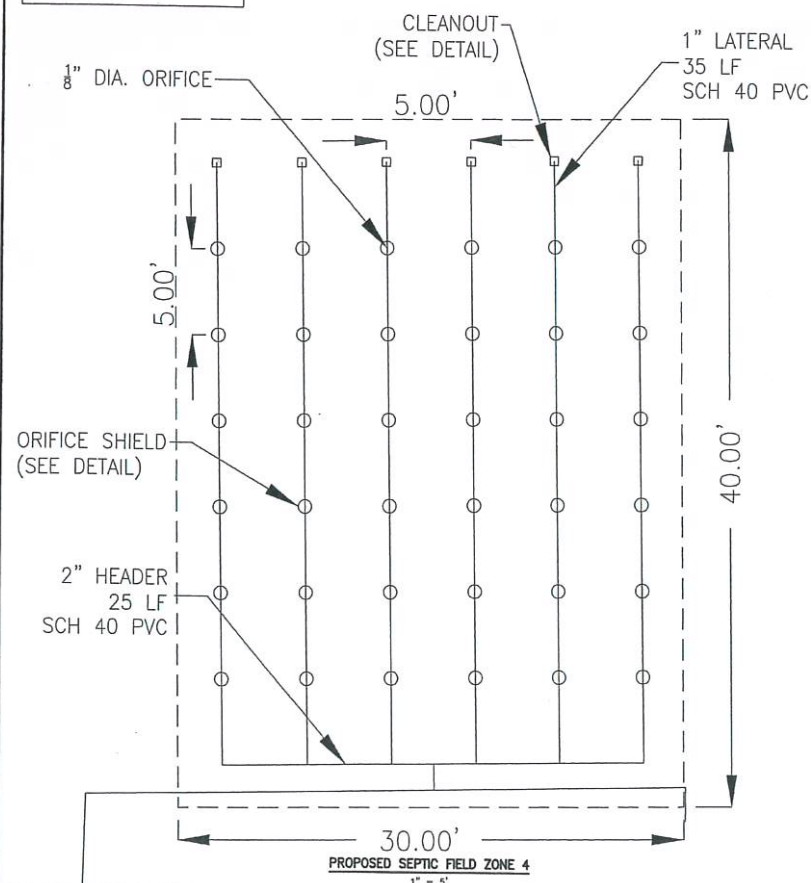
Day	In (gallons)	Out (gallons)	Residual (gallons)
Saturday	3700	2396.428571	1303.571429
Sunday	2850	2396.428571	1757.142857
Monday	2405	2396.428571	1765.714286
Tuesday	1805	2396.428571	1174.285714
Wednesday	2405	2396.428571	1182.857143
Thursday	1805	2396.428571	591.4285714
Friday	1805	2396.428571	0
<b>Total:</b>	<b>16775</b>	<b>16775</b>	<b>0</b>

The equalization storage volume the greater of the peak daily flow (3700 gallons) or the calculated maximum residual 1,766 gallons plus a 20% factor of safety = (2,119 gallons)  
 Equalization storage volume = 3700 gallons  
 The equalization tank must be large enough to provide the gallon volume plus additional volume to allow for pump submergence and high water float. Therefore, a 5,600 gal tank is being utilized.

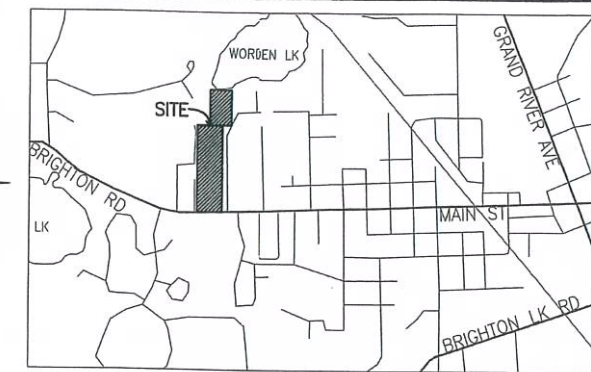
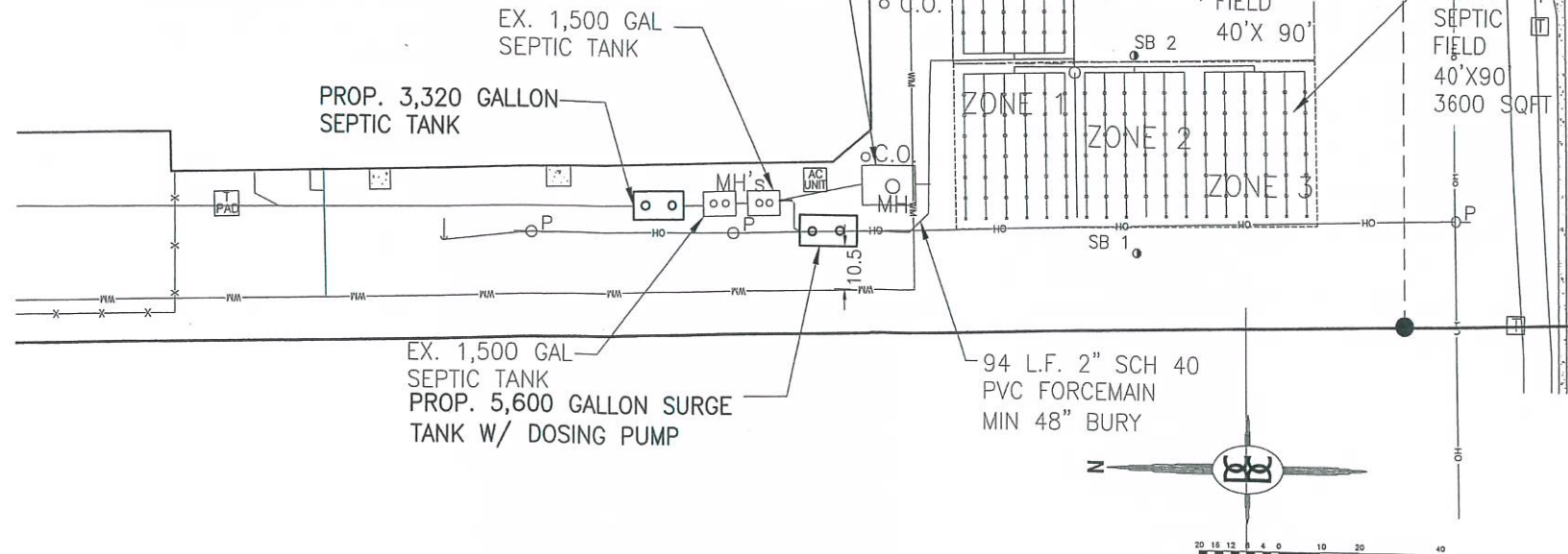
**BASIS OF DESIGN**

DESIGN SOILS - LOAMY SAND - SLR PER (MCFSSD) = .5 GAL PER SQFT  
 SOIL LOADING RATE = 2396 GPD / 4800 SQFT = 0.5

- SOIL BORING #1:  
 0-1' LOAMY SAND TOPSOIL  
 1'-4' LOAMY SAND  
 4'-8' COARSE SAND
- SOIL BORING #2:  
 0-1' LOAMY SAND TOPSOIL  
 1'-6' LOAMY SAND  
 6'-9' COARSE SAND

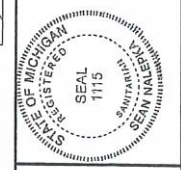


EXISTING CHURCH BUILDING  
 "BRIGHTON NAZARENE CHURCH"  
 7669 BRIGHTON ROAD



LOCATION MAP  
 NO SCALE

THE LOCATION AND PLANNING OF SEPTIC SYSTEMS IS AN ART AND AN ENGINEERING SERVICE. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF EXISTING UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE UTILITY OWNERS AT LEAST 48 HOURS PRIOR TO ANY CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE UTILITY OWNERS AT LEAST 48 HOURS PRIOR TO ANY CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE UTILITY OWNERS AT LEAST 48 HOURS PRIOR TO ANY CONSTRUCTION.



**BOSS ENGINEERING**  
 ENGINEERS • SURVEYORS • PLANNERS  
 LANDSCAPE ARCHITECTS  
 3110 GRAND RIVER AVE.  
 GRAND RIVER, MI 49431  
 (616) 246-0735 FAX (616) 548-1070

PROJECT: **B.N.C. SEPTIC PLAN**  
 PREPARED FOR: **BRIGHTON NAZARENE CHURCH**  
 7669 BRIGHTON ROAD  
 BRIGHTON, MI 48116  
 810-227-6600

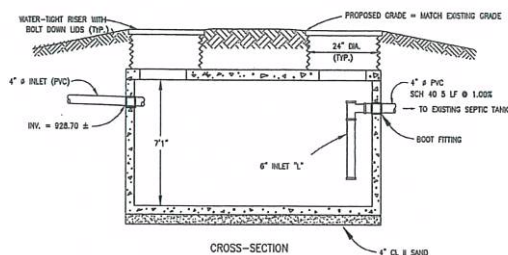
TITLE: **SEPTIC SYSTEM PLAN & DETAILS**

NO	BY	DATE	REVISION

DESIGNED BY: SN  
 DRAWN BY: TE  
 CHECKED BY:  
 SCALE: 1" = 20'  
 JOB NO. 13-100  
 DATE: 6/5/15  
 SHEET NO. 1

# SEPTIC SYSTEM PLAN DETAILS

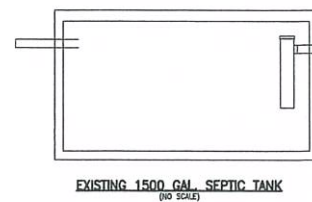
## TREATMENT TRAIN



**PROPOSED 320 SEPTIC TANK**  
(NO SCALE)

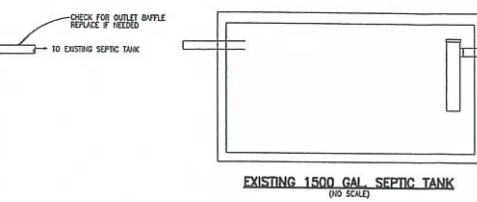
NOTE:  
ALL TANKS SHALL BE VERIFIED TO BE WATERTIGHT VIA HYDROSTATIC TESTING

NOTE:  
ALL JOINTS TO BE SEALED WITH PREMIUM MASTIC SEALER  
- RUBBER BOOT FITTINGS REQUIRED ON ALL TANK PENETRATIONS



**EXISTING 1500 GAL SEPTIC TANK**  
(NO SCALE)

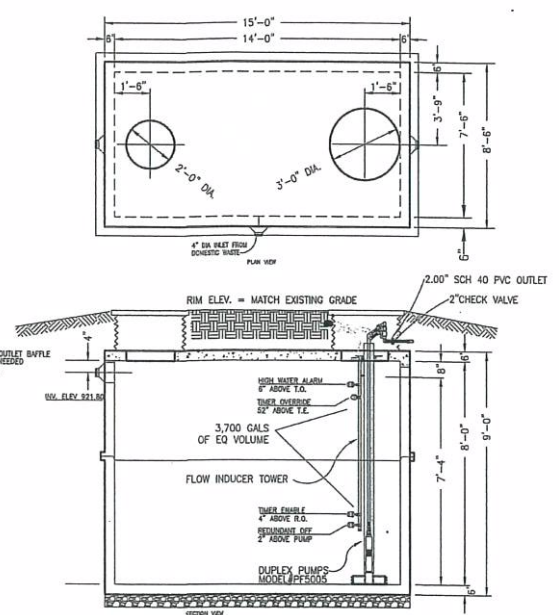
NOTE:  
ALL TANKS SHALL BE VERIFIED TO BE WATERTIGHT VIA HYDROSTATIC TESTING



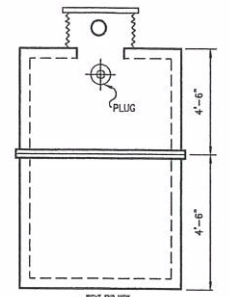
**EXISTING 1500 GAL SEPTIC TANK**  
(NO SCALE)

NOTE:  
ALL TANKS SHALL BE VERIFIED TO BE WATERTIGHT VIA HYDROSTATIC TESTING

CONTACT SYSTEM DESIGNER FOR HYDROSTATIC TESTING INSTRUCTIONS



**PROPOSED 5,600 GALLON TANK - 14' x 7'-6" x 8'**  
(ADVANCE CONCRETE PRODUCTS CO.)  
SCALE: NONE



**CONTROL PANEL MODEL # MVPDAX1R0PHTSA**  
(MUST BE MOUNTED WITHIN 8 FT OF TANK RISERS)  
SCALE: NONE

**BOSS ENGINEERING**  
ENGINEERS • SURVEYORS • PLANNERS  
LANDSCAPE ARCHITECTS  
3121 E. GRAND RIVER AVE.  
HOWELL, MI 48843  
(800) 246-0735 FAX (517) 548-1870

**B.N.C. SEPTIC PLAN**  
BRIGHTON NAZARENE CHURCH  
7669 BRIGHTON ROAD  
BRIGHTON, MI 48116  
810-227-6600

**SEPTIC SYSTEM PLAN & DETAILS**

### Pump Selection for a Pressurized System - Single Family Residence Project

**Discharge Assumptions**

Discharge Assumed Flow	2.00	gpm
Transport Length Below Valve	94	feet
Transport Pipe Class	40	
Transport Line Size	2.00	inches
Existing Valve Model	6004	
Transport Length Above Valve	48	feet
Transport Pipe Class	40	
Transport Line Size	2.00	inches
Max Elevation Lift	8	feet
Manifold Length	38	feet
Manifold Pipe Class	40	
Manifold Line Size	2.00	inches
Number of Laterals per Cell	24	
Lateral Length	38	feet
Lateral Pipe Class	40	
Lateral Line Size	1.25	inches
Orifice Size	1.86	inches
Orifice Spacing	5	feet
Manifold Head	5	feet
Flow Meter	None	inches
Add-on Friction Losses	2	feet

**Calculations**

Minimum Flow Rate per Orifice	0.47	gpm
Number of Orifices per Zone	48	
Total Flow Rate per Zone	22.56	gpm
Number of Laterals per Zone	6	
% Flow Differential between Orifices	0.3	%
Transport Velocity Below Valve	2.2	fps
Transport Velocity Above Valve	2.2	fps

**Frictional Head Losses**

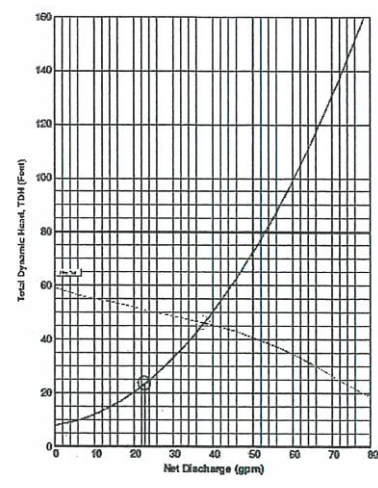
Loss through Discharge	1.9	feet
Loss in Transport Below Valve	0.9	feet
Loss through Valve	4.8	feet
Loss in Transport above Valve	0.4	feet
Loss in Manifold	0.1	feet
Loss in Laterals	0.2	feet
Loss through Flowmeter	0.9	feet
Add-on Friction Losses	2.0	feet

**Pipe Volumes**

Vol of Transport Line Below Valve	15.4	gals
Vol of Transport Line Above Valve	7.8	gals
Vol of Manifold	4.4	gals
Vol of Laterals per Zone	9.4	gals
Total Vol Below Valve	16.4	gals
Total Vol Above Valve	21.6	gals

**Minimum Pump Requirements**

Design Flow Rate	22.5	gpm
Total Dynamic Head	25.5	feet



**Pump Data**

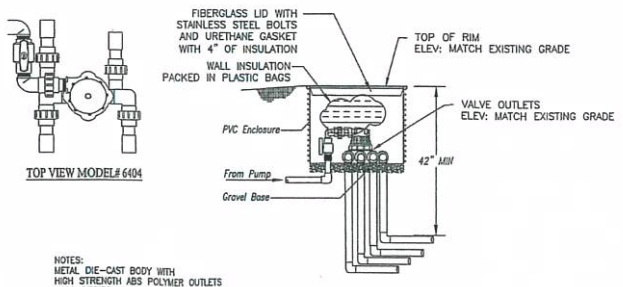
FF2008 High Head Effluent Pump  
95 GPM, 100PSI  
19 02071 19 02121 2020707A3 0104

**Legend**

- System Owner
- Pump Owner
- Pump Operator
- Operating Point
- Design Point

**TIMER SETTINGS**  
2388 GPD  
[(6 LINES x 35 LF/LINE) x 0.045 GAL/LF = 9.45 GAL PIPE VOLUME + 25LF HEADER x .1744 GAL/LF = 13.81 DOSE = 13.85 x 5 TIMES PIPE VOLUME = 69.05 GAL/DOSE  
2388 GPD / 69.05 GAL/DOSE = 35 DOSES PER DAY (ALTERNATING DOSING TO 4 ZONES)  
PUMP ON TIME = 89.25 GAL/50 GPM = 1.4 MIN x 60 SEC/MIN = 83 SEC ON TIME  
PUMP OFF TIME = 40 MIN. OFF TIME

**EQUALIZATION VOLUME**  
71 GAL PER INCH OF TANK VOLUME  
EQUALIZATION VOLUME = 52'971 GAL PER INCH > 3692 + 3700 GALLONS



**NOTES:**  
METAL DIE-CAST BODY WITH HIGH STRENGTH ABS POLYMER OUTLETS  
6000 SERIES  
4 OUTLET MODEL  
2 ZONES  
FLOW RANGE: 15-150 GPM  
PRESSURE RATING: 24-150 PSI  
INLET: THREADED 1-1/2" NPT CONNECTIONS  
OUTLETS: SLP AND GLUE CONNECTIONS TO 2" PVC PIPE

**AUTOMATIC DISTRIBUTING VALVE ASSEMBLIES**  
(NO SCALE)

**NOTES:**  
PRIOR TO INITIATING CONSTRUCTION THE CONTRACTOR SHALL OBTAIN A COPY OF THE PERMIT FROM THE LIVINGSTON CO. HEALTH DEPARTMENT AND CONTACT THE SYSTEM DESIGNER.

THE SYSTEM DESIGNER AND LCHD SHALL INSPECT THE TILE FIELD CONSTRUCTION AS NOTED:  
1) AFTER CUT DOWN TO THE LOMMY SAND IS ACHIEVED  
2) SYSTEM START UP  
3) FINAL COVER

UPON COMPLETION OF THE CONSTRUCTION THE SYSTEM DESIGNER SHALL SUBMIT A LETTER TO THE HEALTH DEPARTMENT INDICATING THE SYSTEM WAS INSTALLED IN SUBSTANTIAL COMPLIANCE WITH THE PLANS AND SPECIFICATIONS.  
IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY AND/OR OBTAIN ANY INFORMATION NECESSARY REGARDING THE PRESENCE OF UNDERGROUND UTILITIES WHICH MIGHT AFFECT THIS PROJECT. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY AND ALL DAMAGE TO THE UTILITIES CAUSED BY HIS OPERATION.

DOWNSPOUTS, WEEP TILE, FOOTING DRAINS, WATER SOFTENER DISCHARGE, OR ANY CONDUIT THAT CARRIES STORM OR GROUND WATER SHALL NOT BE ALLOWED TO DISCHARGE INTO THE SANITARY SYSTEM.

**INSTALLATION OF THE TILE FIELD:**

1. THE GRAVEL OR ROCK IS COVERED WITH A SYNTHETIC DRAINAGE FABRIC TO PREVENT THE UNCONSOLIDATED SAND COVER FROM ENTERING THE MEDIA. ALLOW A MINIMUM OF 3 INCHES OF OVERLAP TO COVER SEAMS AND TEARS. (MATERIAL SPECIFICATIONS NOTED BELOW)  
-AIR PERMEABILITY 500 CFM/FT  
-THICKNESS 4.4 MILS  
-WEIGHT 0.65 OZ/YD  
-GRAB TENSILE (MD) 30.2 LBS  
-TRAP TEAR (MD) 10.3 LBS  
-MULLEN BURST 29 PSI
2. THE PERFORATION HOLES IN THE LATERALS MUST BE DRILLED ON A STRAIGHT LINE AT 12 O'CLOCK AT SPECIFIED SPACING WITH EVERY 4th HOLE AT 6 O'CLOCK. CARE MUST BE USED TO DRILL THE HOLES PERPENDICULAR TO THE PIPE AND NOT AT AN ANGLE. ALL BURRS LEFT AFTER THE HOLES INSIDE THE PIPE SHOULD BE REMOVED. ORIFICE SHIELDS SHALL BE INSTALLED OVER EACH HOLE.
3. ALL LATERALS SHALL BE SCHEDULE 40 PVC WITH 1/8" HOLES DRILLED AS NOTED. LATERALS SHALL BE SPACED AS NOTED ON THE DETAIL.
4. THE HEADER SHALL BE SCHEDULE 40 PVC (SIZE AS NOTED)
5. LONG ANGLE SWEEP ELBOWS WITH 1-1/4" BALL VALVES SHALL BE INSTALLED ON EACH LINE FOR SYSTEM MAINTENANCE.
6. DISTURBED AREAS SHALL BE EITHER SEEDED OR SOODED ADEQUATELY TO PREVENT EROSION.

**ELECTRICAL**

1. ELECTRICAL INSTALLATION SHALL MEET ALL LOCAL REGULATORY REQUIREMENTS.
2. THE PUMP AND ALARM FLOW MUST BE ON SEPARATE CIRCUITS.
3. THE CONTROL PANEL MUST BE INSTALLED IN LINE OF SIGHT OF THE TANK RISERS FOR REPAIR AND MAINTENANCE ACTIVITIES.

**GENERAL**

THIS PRESSURE DOSED SYSTEM WILL REQUIRE REGULAR MAINTENANCE TO FUNCTION PROPERLY. IT IS RECOMMENDED THAT A QUALIFIED SERVICE PROVIDER COMPLETE THIS WORK ANNUALLY.

DESIGNED BY:	SN
DRAWN BY:	TE
CHECKED BY:	BL
SCALE:	NTS
JOB NO.:	13-100
DATE:	6/5/15
SHEET NO.:	2

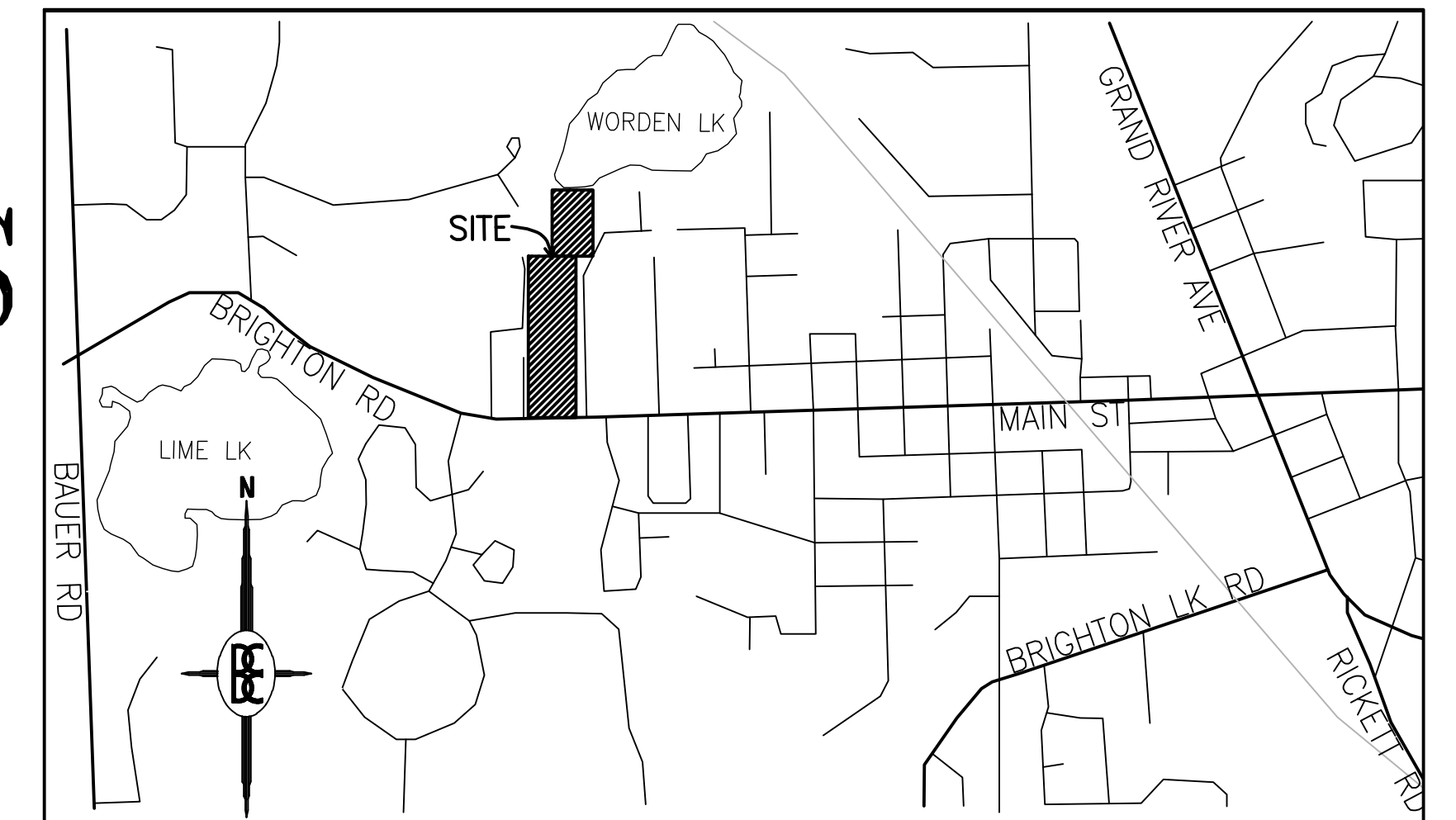


# SITE PLAN FOR LIVINGSTON CHRISTIAN SCHOOLS

## PART OF SE 1/4 SEC. 25, T.2N., R.5E. GENOA TOWNSHIP, LIVINGSTON COUNTY, MI

### PROPERTY DESCRIPTION:

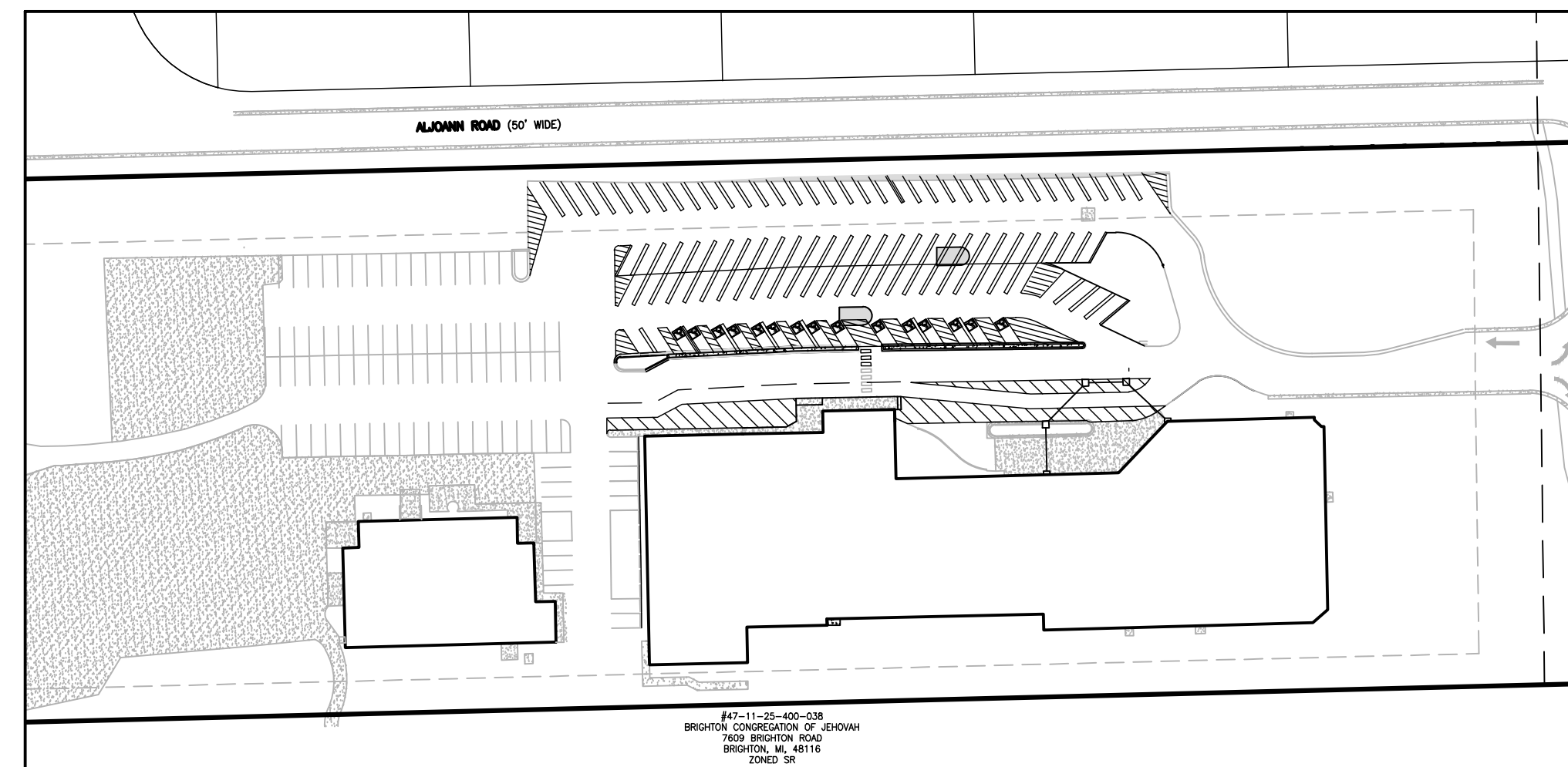
A part of the SE 1/4 of Section 25, T2N-R5E thence N 89°08'13" E 663.28 feet to Point of Beginning, thence continue E 331.64 feet, thence N 01°21'30" W 1341.53 feet, thence S 89°03'20" E 332.74 feet, thence S 01°24'19" E 1341.56 feet to Point of Beginning and also Section 25, T2N-R5E Beginning at the SE 1/4 corner, thence N 01° W 1340.63 feet thence N 89° E 823.63 feet to Point of Beginning, thence N 01° W 891.73 feet, thence N 88° E 400.81 feet, thence S 01° E 893.61 feet, thence S 89° W 400.83 feet to Point of Beginning, containing 16.43 acres, more or less split on 01/23/2012 with 4711-25-400-027 into 4711-25-400-058



**LOCATION MAP**  
NO SCALE

### CONSTRUCTION NOTES

- THE CONTRACTOR SHALL COMPLY WITH THE FOLLOWING NOTES AND ANY WORK INVOLVED SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.
1. THE CONTRACTOR SHALL HOLD HARMLESS THE DESIGN PROFESSIONAL, MUNICIPALITY, COUNTY, STATE AND ALL OF ITS SUB CONSULTANTS, PUBLIC AND PRIVATE UTILITY COMPANIES, AND LANDOWNERS FOR DAMAGES TO INDIVIDUALS AND PROPERTY, REAL OR OTHERWISE, DUE TO THE OPERATIONS OF THE CONTRACTOR AND/OR THEIR SUBCONTRACTORS.
  2. DO NOT SCALE THESE DRAWINGS AS IT IS A REPRODUCTION AND SUBJECT TO DISTORTION.
  3. A GRADING PERMIT FOR SOIL EROSION-SEDIMENTATION CONTROL SHALL BE OBTAINED FROM THE GOVERNING AGENCY PRIOR TO THE START OF CONSTRUCTION.
  4. IF DUST PROBLEM OCCURS DURING CONSTRUCTION, CONTROL WILL BE PROVIDED BY AN APPLICATION OF WATER, EITHER BY SPRINKLER OR TANK TRUCK.
  5. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH LOCAL MUNICIPAL STANDARDS AND SPECIFICATIONS.
  6. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL REQUIRED TOWNSHIP, COUNTY, AND STATE OF MICHIGAN PERMITS.
  7. PAVED SURFACES, WALKWAYS, SIGNS, LIGHTING AND OTHER STRUCTURES SHALL BE MAINTAINED IN A SAFE, ATTRACTIVE CONDITION AS ORIGINALLY DESIGNED AND CONSTRUCTED.
  8. ALL BARRIER-FREE FEATURES SHALL BE CONSTRUCTED TO MEET ALL LOCAL, STATE AND A.D.A. REQUIREMENTS.
  9. ANY DISCREPANCY IN THIS PLAN AND ACTUAL FIELD CONDITIONS SHALL BE REPORTED TO THE DESIGN ENGINEER PRIOR TO THE START OF CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL SETBACKS, EASEMENTS AND DIMENSIONS SHOWN HEREON BEFORE BEGINNING CONSTRUCTION.
  10. THE CONTRACTOR SHALL CONTACT ALL OWNERS OF EASEMENTS, UTILITIES AND RIGHTS-OF-WAY, PUBLIC OR PRIVATE, PRIOR TO THE START OF CONSTRUCTION.
  11. THE CONTRACTOR SHALL COORDINATE WITH ALL OWNERS TO DETERMINE THE LOCATION OF EXISTING LANDSCAPING, IRRIGATION LINES & PRIVATE UTILITY LINES. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO EXISTING LANDSCAPING, IRRIGATION LINES, AND PRIVATE UTILITY LINES.
  12. THE CONTRACTOR SHALL REMOVE ALL TRASH AND DEBRIS FROM THE SITE UPON COMPLETION OF THE PROJECT.
  13. THE CONTRACTOR SHALL MAINTAIN THE SITE IN A MANNER SO THAT WORKMEN AND PUBLIC SHALL BE PROTECTED FROM INJURY, AND ADJOINING PROPERTY PROTECTED FROM DAMAGE.
  14. THE CONTRACTOR SHALL KEEP THE AREA OUTSIDE THE "CONSTRUCTION LIMITS" BROOM CLEAN AT ALL TIMES.
  15. THE CONTRACTOR SHALL CALL MISS DIG A MINIMUM OF 72 HOURS PRIOR TO THE START OF CONSTRUCTION.
  16. ALL EXCAVATION UNDER OR WITHIN 3 FEET OF PUBLIC PAVEMENT, EXISTING OR PROPOSED SHALL BE BACKFILLED AND COMPACTED WITH SAND (MDOT CLASS II).
  17. ALL PAVEMENT REPLACEMENT AND OTHER WORKS COVERED BY THESE PLANS SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE TOWNSHIP, INCLUDING THE LATEST MICHIGAN DEPARTMENT OF TRANSPORTATION (MDOT) SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
  18. THE CONTRACTOR IS RESPONSIBLE FOR ALL DAMAGE TO EXISTING UTILITIES.
  19. NO ADDITIONAL COMPENSATION WILL BE PAID TO THE CONTRACTOR FOR ANY DELAY OR INCONVENIENCE DUE TO THE MATERIAL SHORTAGES OR RESPONSIBLE DELAYS DUE TO THE OPERATIONS OF SUCH OTHER PARTIES DOING WORK INDICATED OR SHOWN ON THE PLANS OR IN THE SPECIFICATION OR FOR ANY REASONABLE DELAYS IN CONSTRUCTION DUE TO THE ENCOUNTERING OR EXISTING UTILITIES THAT MAY OR MAY NOT BE SHOWN ON THE PLANS.
  20. DURING THE CONSTRUCTION OPERATIONS, THE CONTRACTOR SHALL NOT PERFORM WORK BY PRIVATE AGREEMENT WITH PROPERTY OWNERS ADJACENT TO THE PROJECT.
  21. IF WORK EXTENDS BEYOND NOVEMBER 15, NO COMPENSATION WILL BE DUE TO THE CONTRACTOR FOR ANY WINTER PROTECTION MEASURES THAT MAY BE REQUIRED BY THE ENGINEER.
  22. NO TREES ARE TO BE REMOVED UNTIL MARKED IN THE FIELD BY THE ENGINEER.
  23. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE PROPERTY BEYOND THE CONSTRUCTION LIMITS INCLUDING BUT NOT LIMITED TO EXISTING FENCE, LAWN, TREES AND SHRUBBERY.
  24. ALL AREAS DISTURBED BY THE CONTRACTOR BEYOND THE NORMAL CONSTRUCTION LIMITS OF THE PROJECT SHALL BE SODDED OR SEEDED AS SPECIFIED OR DIRECTED BY THE ENGINEER.
  25. ALL ROOTS, STUMPS AND OTHER OBJECTIONABLE MATERIALS SHALL BE REMOVED AND THE HOLE BACKFILLED WITH SUITABLE MATERIAL. WHERE GRADE CORRECTION IS REQUIRED, THE SUBGRADE SHALL BE CUT TO CONFORM TO THE CROSS-SECTION AS SHOWN IN THE PLANS.
  26. TRAFFIC SHALL BE MAINTAINED DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL SIGNS AND TRAFFIC CONTROL DEVICES. FLAG PERSONS SHALL BE PROVIDED BY THE CONTRACTOR IF DETERMINED NECESSARY BY THE ENGINEER. ALL SIGNS SHALL CONFORM TO THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AT NO COST TO THE TOWNSHIP. NO WORK SHALL BE DONE UNLESS THE APPROPRIATE TRAFFIC CONTROL DEVICES ARE IN PLACE.
  27. ALL DEMOLISHED MATERIALS AND SOIL SPOILS SHALL BE REMOVED FROM THE SITE AT NO ADDITIONAL COST, AND DISPOSED OF IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.
  28. AFTER REMOVAL OF TOPSOIL, THE SUBGRADE SHALL BE COMPACTED TO 95% OF ITS UNIT WEIGHT.
  29. ALL GRADING IN THE PLANS SHALL BE DONE AS PART OF THIS CONTRACT. ALL DELETERIOUS MATERIAL SHALL BE REMOVED FROM THE SUBGRADE PRIOR TO COMPACTING.
  30. NO SEEDING SHALL BE DONE AFTER OCTOBER 15 WITHOUT APPROVAL OF THE ENGINEER.
  31. ANY EXISTING APPURTENANCES SUCH AS MANHOLES, GATE VALVES, ETC. SHALL BE ADJUSTED TO THE PROPOSED GRADE AND SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.
  32. SOIL EROSION MEASURES SHALL BE MAINTAINED BY THE CONTRACTOR UNTIL VEGETATION HAS BEEN RE-ESTABLISHED.
  33. ALL PERMANENT SIGNS AND PAVEMENT MARKINGS SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST REVISION OF THE MICHIGAN MUTCD MANUAL AND SHALL BE INCIDENTAL TO THE CONTRACT.



**OVERALL SITE MAP**  
NO SCALE

<b>SHEET INDEX</b>	
SHEET NO.	DESCRIPTION
1	COVER SHEET
2	EXISTING CONDITIONS/DEMOLITION PLAN
3	SITE/TRAFFIC CIRCULATION PLAN
4	GRADING & SEC PLAN
5	UTILITY PLAN
6	LANDSCAPE & LIGHTING PLAN (NO NEW LIGHTING PROPOSED) PHOTOMETRIC PLAN NOT INCLUDED)

\*THERE ARE NO ARCHITECTURAL DRAWINGS AS THERE ARE NO BUILDING IMPROVEMENTS PROPOSED

**LIVINGSTON CHRISTIAN SCHOOLS**  
PREPARED FOR:  
**LIVINGSTON CHRISTIAN SCHOOLS**  
8877 WHITMORE LAKE RD  
WHITMORE LAKE, MI 48189  
CONTACT: ROBERT WIEGAND  
(734) 878-9818

PREPARED BY:

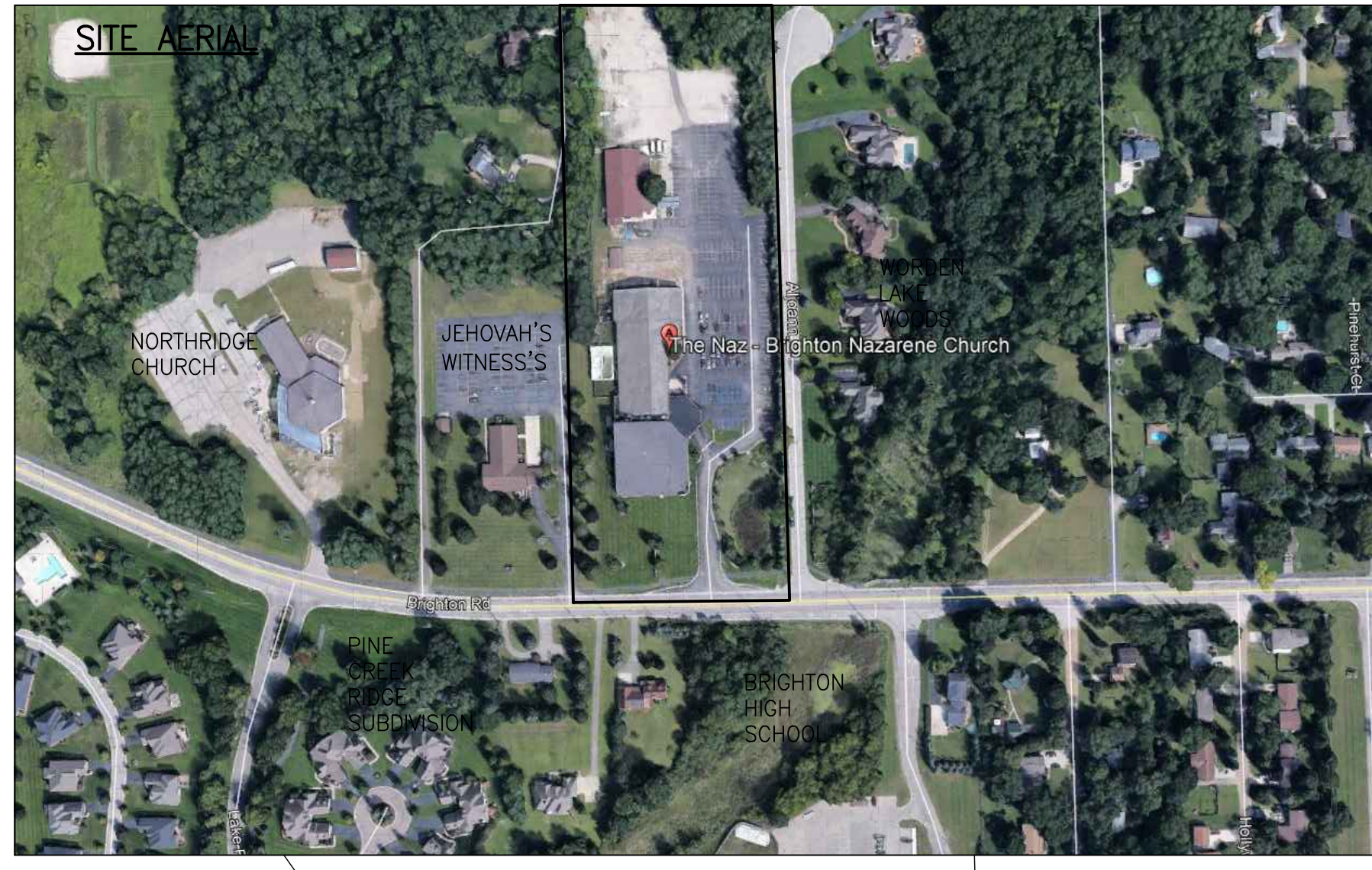
**BOSS ENGINEERING**  
ENGINEERS • SURVEYORS • PLANNERS  
LANDSCAPE ARCHITECTS  
(E-MAIL: [be@bosseng.com](mailto:be@bosseng.com))  
3121 E. GRAND RIVER AVE.  
HOWELL, MI 48843  
(800) 246-6735 FAX (517) 548-1670

### INDEMNIFICATION STATEMENT

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

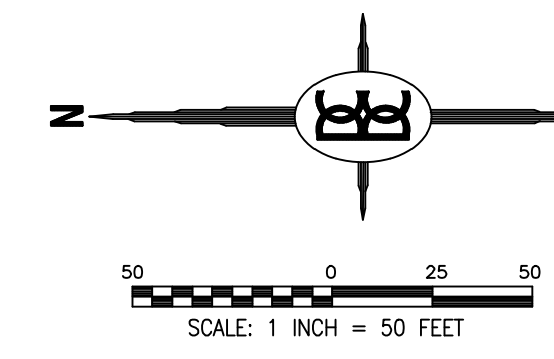
NO	BY	CK	REVISION	DATE	JOB NO.	<b>1</b>
3	CH	CK	PER PLANNING COMMISSION	11-14-17		
2	CH	CK	PER PLANNING COMMISSION	10-25-17		
1	CH	CK	PER TOWNSHIP REVIEW	9-20-17	ISSUE DATE: 8/30/17	

PROPOSED (PR)	EXISTING (EX)	
FF	FF	FINISHED FLOOR ELEVATION
FG	FG	FINISHED GRADE ELEVATION
T/A	T/A	TOP OF ASPHALT
T/C	T/C	TOP OF CURB / CONCRETE
T/W	T/W	TOP OF WALK
F/L	F/L	FLOW LINE
T/P	T/P	TOP OF PIPE
B/P	B/P	BOTTOM OF PIPE
RIM	RIM	RIM ELEVATION
INV	INV	INVERT ELEVATION
MH	MH	MANHOLE STRUCTURE
IN	IN	INLET STRUCTURE
CB	CB	CATCHBASIN STRUCTURE
RY	RY	REARYARD STRUCTURE
ES	ES	END-SECTION
GV	GV	GATEVALVE STRUCTURE
HY	HY	HYDRANT
UP	UP	UTILITY POLE
SN	SN	SANITARY SEWER
SL	SL	SANITARY LEAD
FM	FM	FORCE MAIN
PS	PS	PRESSURE SEWER
ST	ST	STORM SEWER
WM	WM	WATER MAIN
WL	WL	WATER LEAD
FO	FO	FIBER OPTIC
OH	OH	OVERHEAD WIRE
C	C	CABLE
E	E	ELECTRIC
G	G	GAS
T	T	TELEPHONE
□	□	MANHOLE
○	○	INLET / CATCHBASIN
○	○	FLARED END-SECTION
○	○	GATE VALVE
○	○	HYDRANT
○	○	UTILITY POLE
○	○	FENCE
○	○	SIGN
○	○	WETLAND BOUNDARY
■	■	CONCRETE
■	■	ASPHALT
○	○	MODIFIED CURB
○	○	'NO PARKING FIRE LANE' SIGN TO BE REMOVED
○	○	TBR



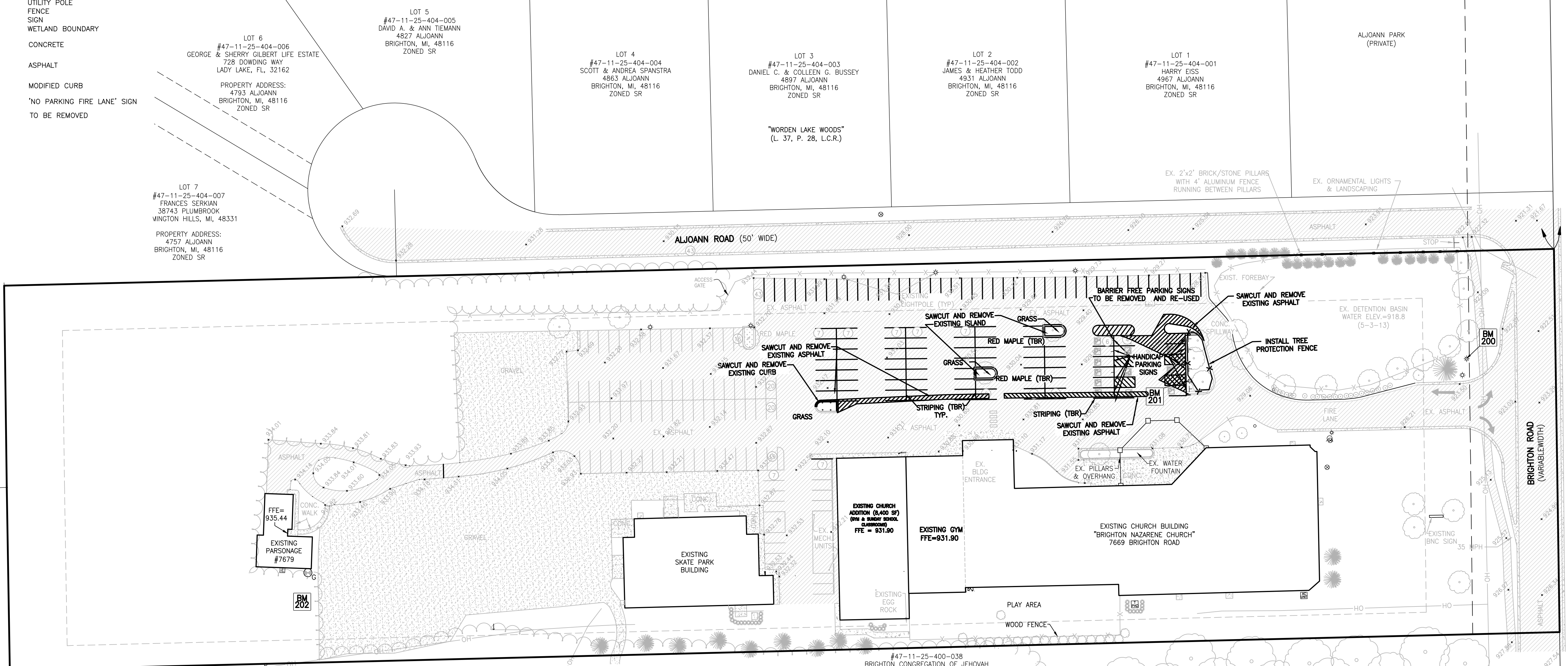
**EXISTING CONDITIONS NOTES:**

1. THE EXISTING SITE CURRENTLY HAS 200 PARKING SPACES INCLUDING 14 BARRIER FREE SPACES
2. TREES TO REMAIN SHALL BE PROTECTED BY SNOW FENCE FOR THE DURATION OF CONSTRUCTION ACTIVITY (SEE DETAIL THIS SHEET).
3. PARKING STRIPES SHOWN AS BEING REMOVED SHALL BE GROUND DOWN ENOUGH UNTIL PAINT IS COMPLETELY GONE TO ALLOW FOR NEW STRIPING.
4. ALL WASTE GENERATED SHALL BE PICKED UP ON A DAILY BASIS AND DISPOSED OF PROPERLY BY THE CONTRACTOR.



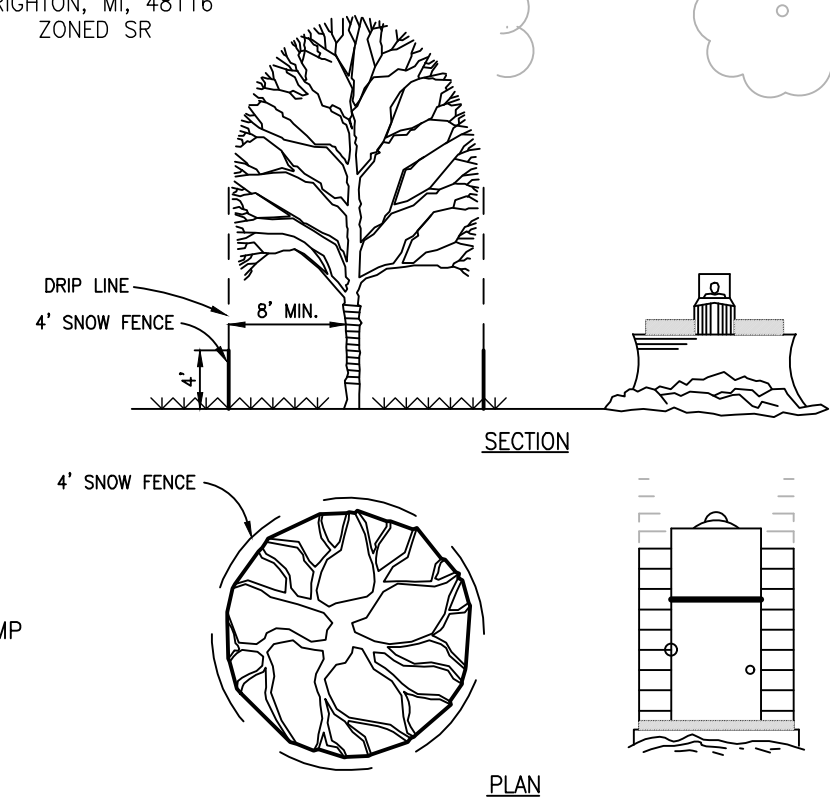
THE LOCATION AND ELEVATION OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS DRAWING ARE BASED ON RECORD DRAWINGS AND FIELD SURVEY DATA. THE LOCATION AND ELEVATION OF EXISTING UTILITIES AS SHOWN ON THIS DRAWING ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY THE LOCATION AND ELEVATION OF EXISTING UTILITIES BEFORE ANY CONSTRUCTION BEGINS. IF ANY DISCREPANCIES ARE FOUND, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY.

BEFORE YOU DIG  
1-800-482-7171  
DIG  
CALL MISS DIG TOLL FREE



**GENERAL SURVEY NOTES:**

1. BEARINGS WERE ESTABLISHED FROM THE PLAT OF "M. BRIGHTON SUBDIVISION NO. 2", AS RECORDED IN LIBER 13 OF PLATS, PAGE 12, LIVINGSTON COUNTY RECORDS.
2. SUBSURFACE UTILITIES NOT LOCATED FOR THIS SURVEY MAY EXIST. IT IS THE RESPONSIBILITY OF THE OWNER OF THE RESPECTIVE UTILITY TO ACCURATELY LOCATE SUCH UTILITIES.
3. EASEMENTS OR RESTRICTIONS OF RECORD NOT DEPICTED ON THIS DRAWING MAY EXIST.
4. ELEVATIONS WERE ESTABLISHED FROM BENCHMARK INFORMATION AS SHOWN ON BOSS ENGINEERING AS-BUILT PLANS FOR WORDEN LAKE WOODS UNDER JOB NO. 98011, AS-BUILT DATE OF 4-6-2000. (NGVD29 DATUM)
5. CONTOURS ARE SHOWN AT 1 FOOT INTERVALS.
6. ALL ELEVATIONS ARE SHOWN TO THE NEAREST 0.01 FOOT; HOWEVER SOFT-SURFACE ELEVATIONS CAN ONLY BE PRESUMED ACCURATE TO THE NEAREST 0.1 FOOT.
7. THE LOCATIONS OF STORM SEWER, SANITARY SEWER & WATERMAIN, AS SHOWN ON THIS DRAWING ARE APPROXIMATE. THE LOCATIONS ARE BASED ON PHYSICAL FIELD LOCATIONS OF STRUCTURES ALONG WITH RECORD DRAWINGS. SEPTIC TANKS, PUMP CHAMBER & FIELD AS SHOWN ON THIS SURVEY ARE DEPICTED FROM A PREVIOUS SITE PLAN BY BOSS ENGINEERING, JOB NO. 88603, DATED 10-25-89. LOCATIONS AS SHOWN ARE APPROXIMATE AND WILL NEED FIELD VERIFICATION.
8. ALL WORK SHALL BE IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE MUNICIPALITY, THE COUNTY, AND THE STATE OF MICHIGAN.
9. ALLOW THREE WORKING DAYS BEFORE YOU DIG, CALL MISS DIG TOLL FREE 1-800-482-7171.



**DESCRIPTION OF PARCEL #4711-25-400-058:**

A part of the SE 1/4 of Section 25, T2N-R5E thence N 89°08'13" E 663.28 feet to Point of Beginning, thence continue E 331.64 feet, thence N 01°21'30" W 1341.53 feet, thence S 89°03'20" E 332.74 feet, thence S 01°24'19" E 1341.56 feet to Point of Beginning and also Section 25, T2N-R5E Beginning at the SE 1/4 corner, thence N 01° W 1340.63 feet thence N 89° E 823.63 feet to Point of Beginning, thence N 01° W 891.73 feet, thence N 88° E 400.81 feet, thence S 01° E 893.61 feet, thence S 89° W 400.83 feet to Point of Beginning, containing 16.43 acres, more or less split on 01/25/2012 with 4711-25-400-027 into 4711-25-400-058

**SITE BENCHMARKS: (NGVD29 DATUM)**

BENCHMARK #200  
BOSS NAIL/TAG SET N/S LIGHT POLE, 20'± EAST OF BACK OF CURB, ENTRANCE TO MOUNTAIN BRIGHTON NAZARENE & 62'± NORTH OF BRIGHTON BRIGHTON ROAD, SUBDIVISION NO. 2 (L. 13, P. 12, CHISELED "X" N/S CONC. LIGHT POLE (L.C.R.) BASE: 59'± EAST & 108'± NORTH OF SOUTHEAST CORNER OF CHURCH. ELEV. = 924.79

BENCHMARK #201  
CHISELED "X" N/S CONC. LIGHT POLE (L.C.R.) BASE: 59'± EAST & 108'± NORTH OF SOUTHEAST CORNER OF CHURCH. ELEV. = 931.41

BENCHMARK #202  
BOSS NAIL/TAG SET S/S 24" OAK, 15'± WEST OF SW CORNER OF PARSONAGE. ELEV. = 933.32

**BOSS ENGINEERING**  
ENGINEERS • SURVEYORS • PLANNERS  
LANDSCAPE ARCHITECTS  
(E-MAIL: beb@bosseng.com)  
3121 E. GRAND RIVER AVE.  
BRIGHTON, MI 48116  
(800) 248-0735 FAX (517) 548-1670

PROJECT: **LIVINGSTON CHRISTIAN SCHOOLS**  
PREPARED FOR: **LIVINGSTON CHRISTIAN SCHOOLS**  
8877 WHITMORE LAKE RD  
WHITMORE LAKE, MI 48189  
(734) 878-9818

TITLE: **EXISTING CONDITIONS/DEMOLITION PLAN**

NO	BY	REVISION	PER	DATE
1	CH	PER PLANNING COMMISSION		10-25-17
2	CH	PER TOWNSHIP REVIEW		9-20-17

DESIGNED BY: ST  
DRAWN BY: AEB  
CHECKED BY:  
SCALE: 1" = 50'  
JOB NO. 17-315  
DATE: 8-30-17  
SHEET NO. 2



**LEGEND**

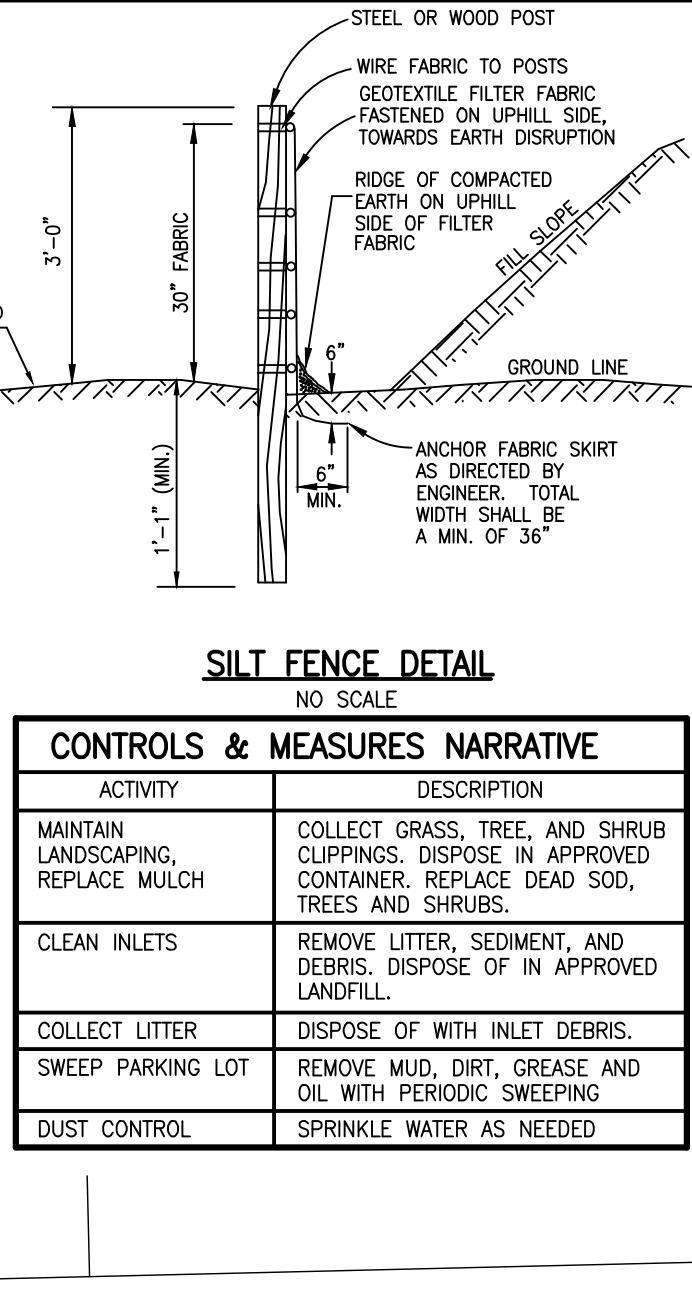
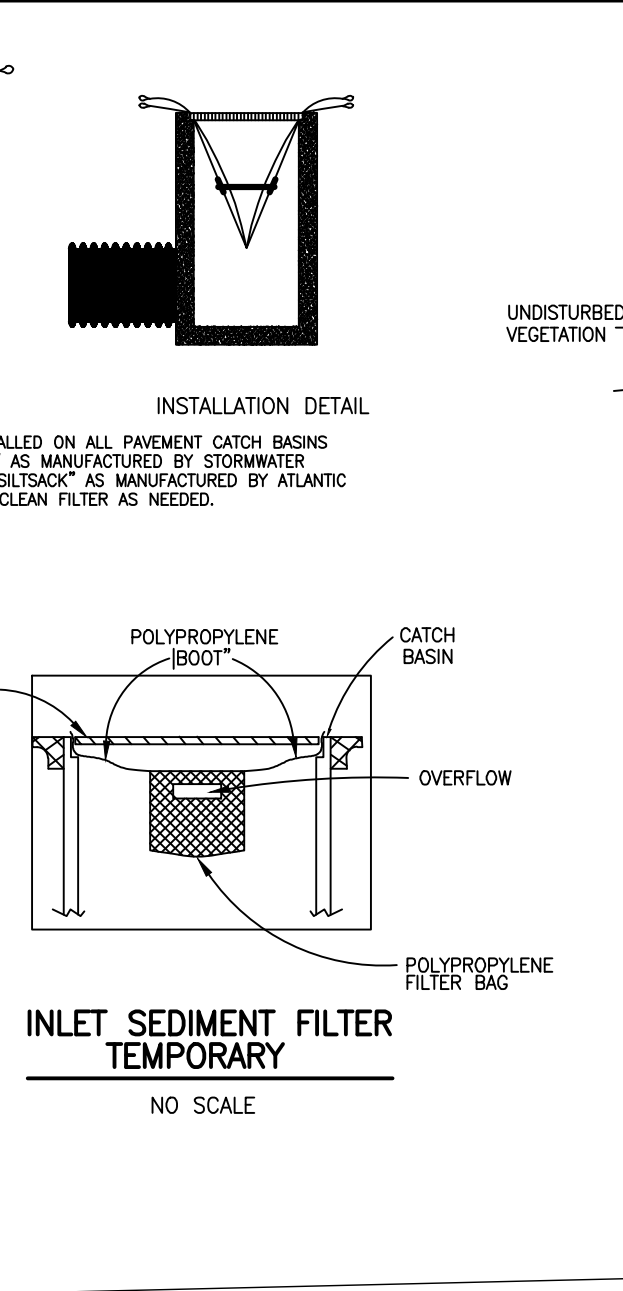
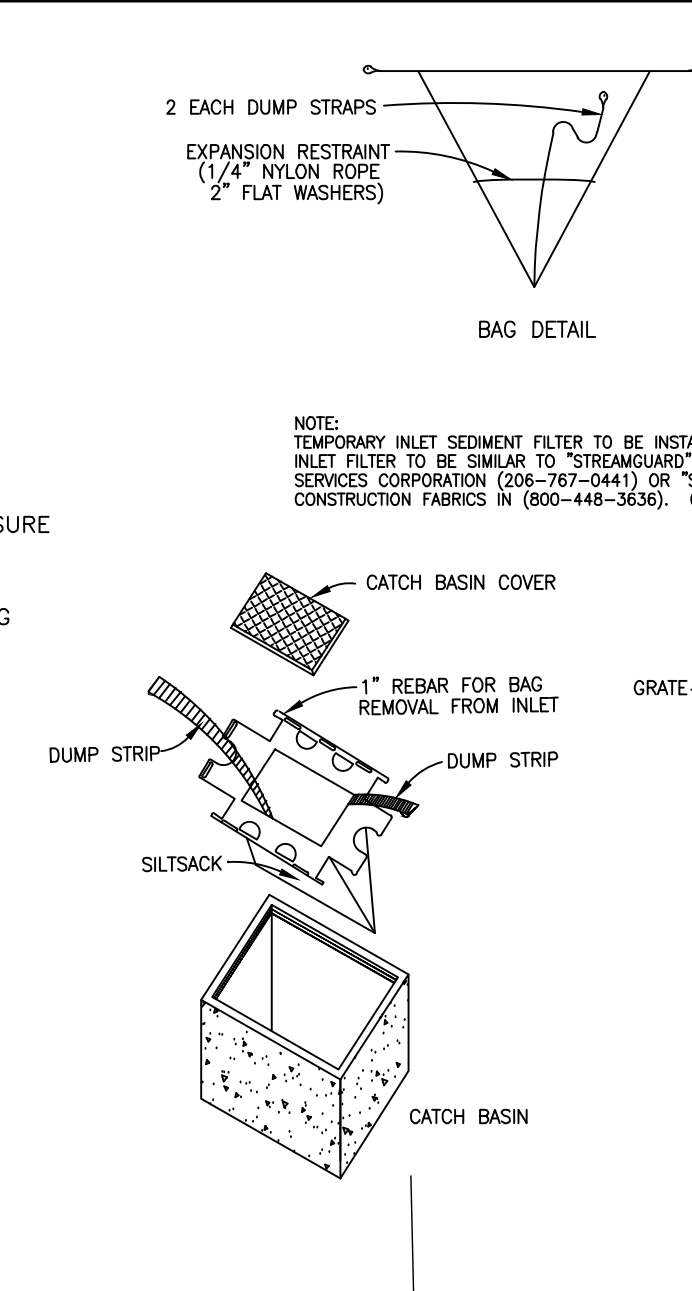
PROPOSED (PR)	EXISTING (EX)
900	900
T/C	XXX.XX
FF	+922.08
FG	
T/A	
T/C	
T/W	
F/L	
T/P	
B/P	
RIM	
INV	
MH	
IN	
CB	
RY	
ES	
GV	
HY	
UP	
SN	
SL	
FM	
ST	
WM	
WL	
OH	
C	
G	
T	
●	○
◆	◇
▲	△
▼	▽

**LEGEND**

PROPOSED (PR)	EXISTING (EX)
CONTOUR	
STORM DRAINAGE FLOW	
SPOT ELEVATION	
FINISHED FLOOR ELEVATION	
FINISHED GRADE ELEVATION	
TOP OF ASPHALT	
TOP OF CURB / CONCRETE	
FLOW LINE	
TOP OF PIPE	
BOTTOM OF PIPE	
RIM ELEVATION	
INVERT ELEVATION	
MANHOLE STRUCTURE	
INLET STRUCTURE	
CATCHBASIN STRUCTURE	
REARYARD STRUCTURE	
END-SECTION GATEVALVE STRUCTURE	
HYDRANT	
UTILITY POLE	
SANITARY SEWER	
SANITARY LEAD	
FORCE MAIN	
STORM SEWER	
WATER MAIN	
WATER LEAD	
OVERHEAD WIRE	
CABLE	
ELECTRIC	
GAS	
TELEPHONE	
MANHOLE	
INLET / CATCHBASIN	
FLARED END-SECTION	
GATE VALVE	
HYDRANT	
UTILITY POLE	

**LEGEND**

PROPOSED (PR)	EXISTING (EX)
FENCE SIGN	
NOT FIELD VERIFIED TO BE REMOVED	
COMPACTED SAND BACKFILL	
SANITARY SEWER LABEL	
STORM SEWER LABEL	
WATER MAIN LABEL	
SOIL EROSION CONTROL MEASURE	
SILT FENCE	
LIMITS OF GRADING/CLEARING	
CONCRETE	
ASPHALT	
GRAVEL	



**MAINTENANCE SCHEDULE FOR SOIL EROSION CONTROLS**

- SILT FENCE SHALL BE INSPECTED WEEKLY AND AFTER EACH MAJOR STORM EVENT. MAINTENANCE SHALL INCLUDE REMOVAL OF ACCUMULATED SILT AND REPLACEMENT OF TORN SECTIONS. SILT FENCE SHALL BE REMOVED WHEN ALL CONTRIBUTING AREAS HAVE BEEN STABILIZED.
- TRACKING PAD SHALL BE INSPECTED MONTHLY FOR ACCUMULATED DIRT. TRACKING PAD SHALL BE REPLACED WHEN THE STONES ARE CHOKED WITH DIRT. TRACKING SHALL BE REMOVED IMMEDIATELY PRIOR TO THE FIRST COURSE OF ASPHALT BEING LAID.
- DETENTION POND SHALL BE INSPECTED QUARTERLY ON A PERMANENT BASIS. MAINTENANCE SHALL INCLUDE SEDIMENT REMOVAL, EMBANKMENT STABILIZATION AND MAINTAINING THE OUTLET STRUCTURE IN GOOD CONDITION. NO TREES SHALL BE ALLOWED TO GROW ON THE EMBANKMENT.
- CATCH BASINS SHALL BE INSPECTED ANNUALLY FOR ACCUMULATION OF SEDIMENT. ALL SEDIMENT MUST BE REMOVED AND DISPOSED OF PROPERLY WHEN THE SUMP IS FULL.
- COMMON AREAS SHALL BE STABILIZED NO LATER THAN 15 DAYS AFTER GRADE WORK, PURSUANT TO RULE 1709 (5).

7	ROAD SEEDING	EFFECTIVE ON LARGE AREAS WHICH ARE NOT USED TO PROVIDE IMMEDIATE PROTECTION UNTIL GRASS IS ESTABLISHED.
15	PAVING	PROTECTS AREAS WHICH CANNOT OTHERWISE BE PROTECTED, BUT INCREASES REGULAR SURFACE WILL HELP SLOW VELOCITY.
16	CURB & GUTTER	KEEPS HIGH VELOCITY RINOFF ON PAVED AREAS FROM LEAVING PAVED SURFACE. COLLECTS AND CONVEYS RINOFF TO ENCLOSED DRAINAGE SYSTEM OR PREPARED DRAINAGEWAY.
40	INLET SEDIMENT FILTER	EASY TO SHAKE. COLLECTS SEDIMENT MAY BE CLEANED AND EXPANDED AS NEEDED.
54	SILT FENCE	USES GEOTEXTILE FABRIC AND POST OR POLES. EASY TO CONSTRUCT AND LOCATE AS NECESSARY. (SEE DETAIL THIS SHEET)

T= TEMPORARY P=PERMANENT

**CONTROLS & MEASURES NARRATIVE**

ACTIVITY	DESCRIPTION
MAINTAIN LANDSCAPING, REPLACE MULCH	COLLECT GRASS, TREE, AND SHRUB CLIPPINGS. DISPOSE IN APPROVED CONTAINER. REPLACE DEAD SOD, TREES AND SHRUBS.
CLEAN INLETS	REMOVE LITTER, SEDIMENT, AND DEBRIS. DISPOSE OF IN APPROVED LANDFILL.
COLLECT LITTER	DISPOSE OF WITH INLET DEBRIS.
SWEEP PARKING LOT	REMOVE MUD, DIRT, GREASE AND OIL WITH PERIODIC SWEEPING.
DUST CONTROL	SPRINKLE WATER AS NEEDED

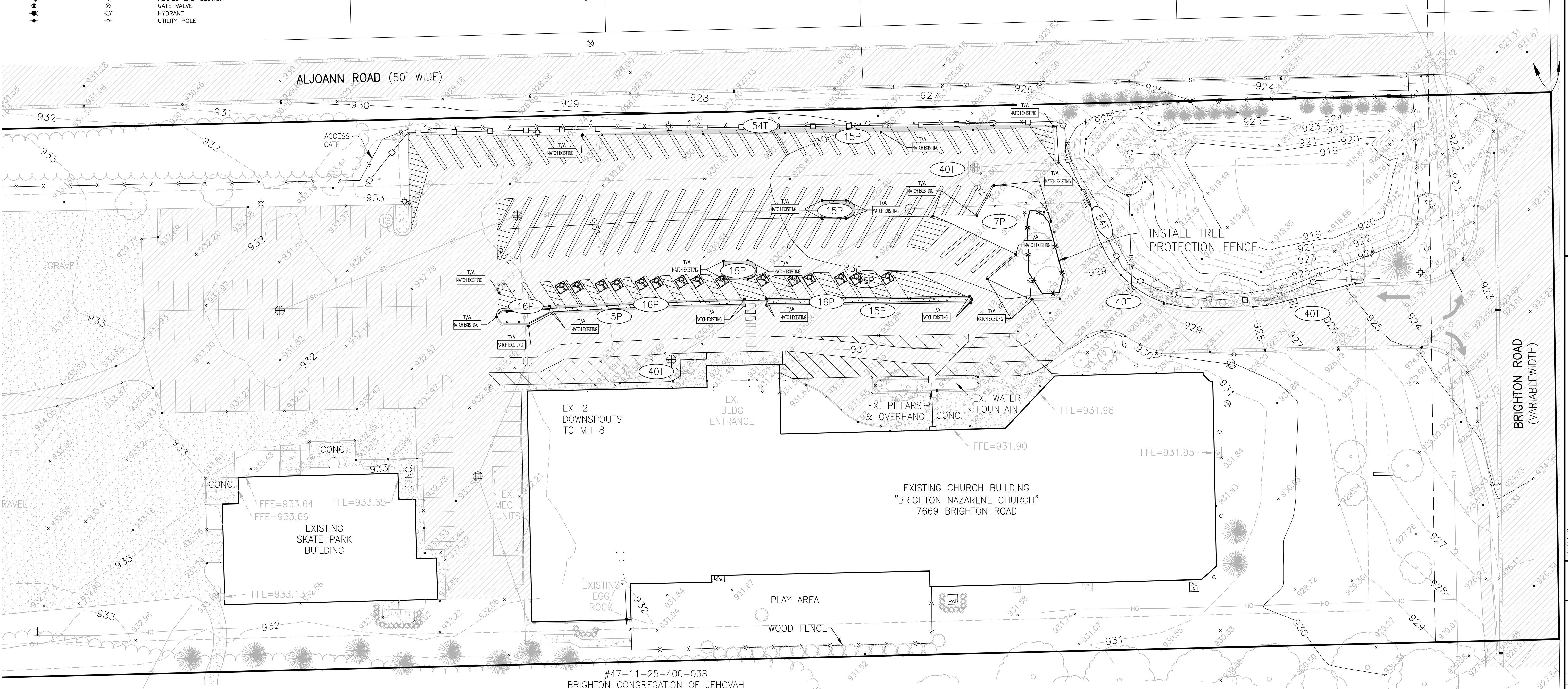
**CONSTRUCTION SEQUENCE**

THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT EROSION IS MINIMIZED AND THAT COMPLIANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL LAWS, REGULATIONS, AND ORDINANCES IS MAINTAINED THROUGHOUT EXECUTION OF THIS PROJECT.

ACTIVITY	WEEKLY	MONTHLY	AS REQUIRED
MAINTAIN LANDSCAPING, REPLACE MULCH	X	X	X
CLEAN INLETS		X	X
COLLECT LITTER	X		X
SWEEP PARKING LOT		X	X

**CONTROLS & MEASURES POST CONSTRUCTION SEQUENCE**

ACTIVITY	WEEKLY	MONTHLY	AS REQUIRED
MAINTAIN LANDSCAPING, REPLACE MULCH	X	X	X
CLEAN INLETS		X	X
COLLECT LITTER	X		X
SWEEP PARKING LOT		X	X



#47-11-25-400-038  
BRIGHTON CONGREGATION OF JEHOVAH  
7609 BRIGHTON ROAD  
BRIGHTON, MI, 48116  
ZONED SR

**SITE GRADING NARRATIVE**

THE EXTENT OF THE SITE GRADING IS LIMITED TO THE INSTALLATION OF NEW ASPHALT TO MATCH EXISTING SURROUNDING GRADES. SINCE THE ORIGINAL PARKING CONFIGURATION WAS MODIFIED, THE RELOCATION OF THE BARRIER FREE SPACES WAS A HIGH PRIORITY SO SPACES STILL MET ADA REQUIREMENTS. BECAUSE THE SITE IS RELATIVELY FLAT THE BARRIER FREE SPACES WERE ABLE TO BE MOVED AND STILL MEET ADA REQUIREMENTS WITH OUT RE-GRADING THE EXISTING PARKING LOT.

DESIGNED BY: ST  
DRAWN BY: AEB  
CHECKED BY:  
SCALE: 1" = 30'  
JOB NO. 17-315  
DATE 8-30-17  
SHEET NO. 4

PROJECT: LIVINGSTON CHRISTIAN SCHOOL  
PREPARED FOR: LIVINGSTON CHRISTIAN SCHOOLS  
8877 WHITMORE LAKE RD  
WHITMORE LAKE, MI 48189  
(734) 875-9818

TITLE: GRADING & SEC PLAN

NO	BY	REVISION	PER	DATE
1	CH	PRE PLANNING COMMISSION		11-14-17
2	CH	FOR PLANNING COMMISSION		10-25-17
1	CH	PER TOWNSHIP REVIEW		9-20-17

**BOSS ENGINEERING**  
ENGINEERS • SURVEYORS • PLANNERS  
LANDSCAPE ARCHITECTS

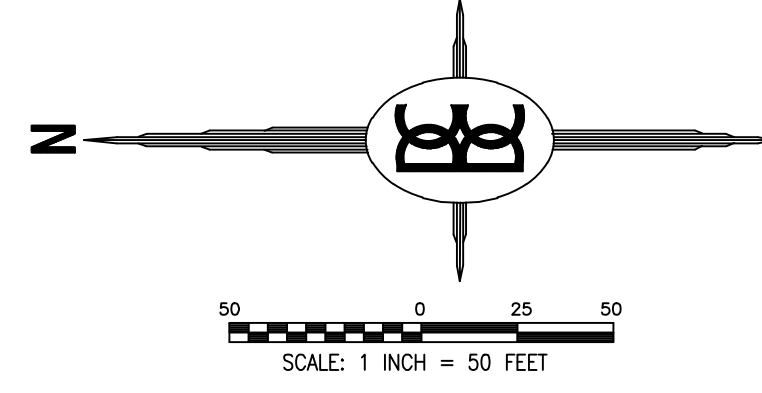
3121 E. GRAND RIVER AVE.  
HOTELL, MI 48843  
(800) 246-6725 FAX (517) 548-1670

**LIVINGSTON CHRISTIAN SCHOOL**  
LIVINGSTON CHRISTIAN SCHOOLS  
8877 WHITMORE LAKE RD  
WHITMORE LAKE, MI 48189  
(734) 875-9818

TITLE: GRADING & SEC PLAN

NO	BY	REVISION	PER	DATE
1	CH	PRE PLANNING COMMISSION		11-14-17
2	CH	FOR PLANNING COMMISSION		10-25-17
1	CH	PER TOWNSHIP REVIEW		9-20-17

DESIGNED BY: ST  
DRAWN BY: AEB  
CHECKED BY:  
SCALE: 1" = 30'  
JOB NO. 17-315  
DATE 8-30-17  
SHEET NO. 4



# SCHOOL REU CALCULATION

(PER CITY OF BRIGHTON REU TABLE)  
-14 CLASSROOMS ANTICIPATED x 1.0 REU PER CLASSROOM = 14 REU

## UTILITY NOTE:

- PER TOWNSHIP ENGINEER HEALTH DEPARTMENT APPROVAL OF THE EXISTING SEPTIC SYSTEM IS REQUIRED BEFORE OCCUPANCY.
- OVERALL IMPERVIOUS ON THE SITE IS DECREASING WITH THE ADDITION TO THE LANDSCAPE PARKING LOT ISLAND.

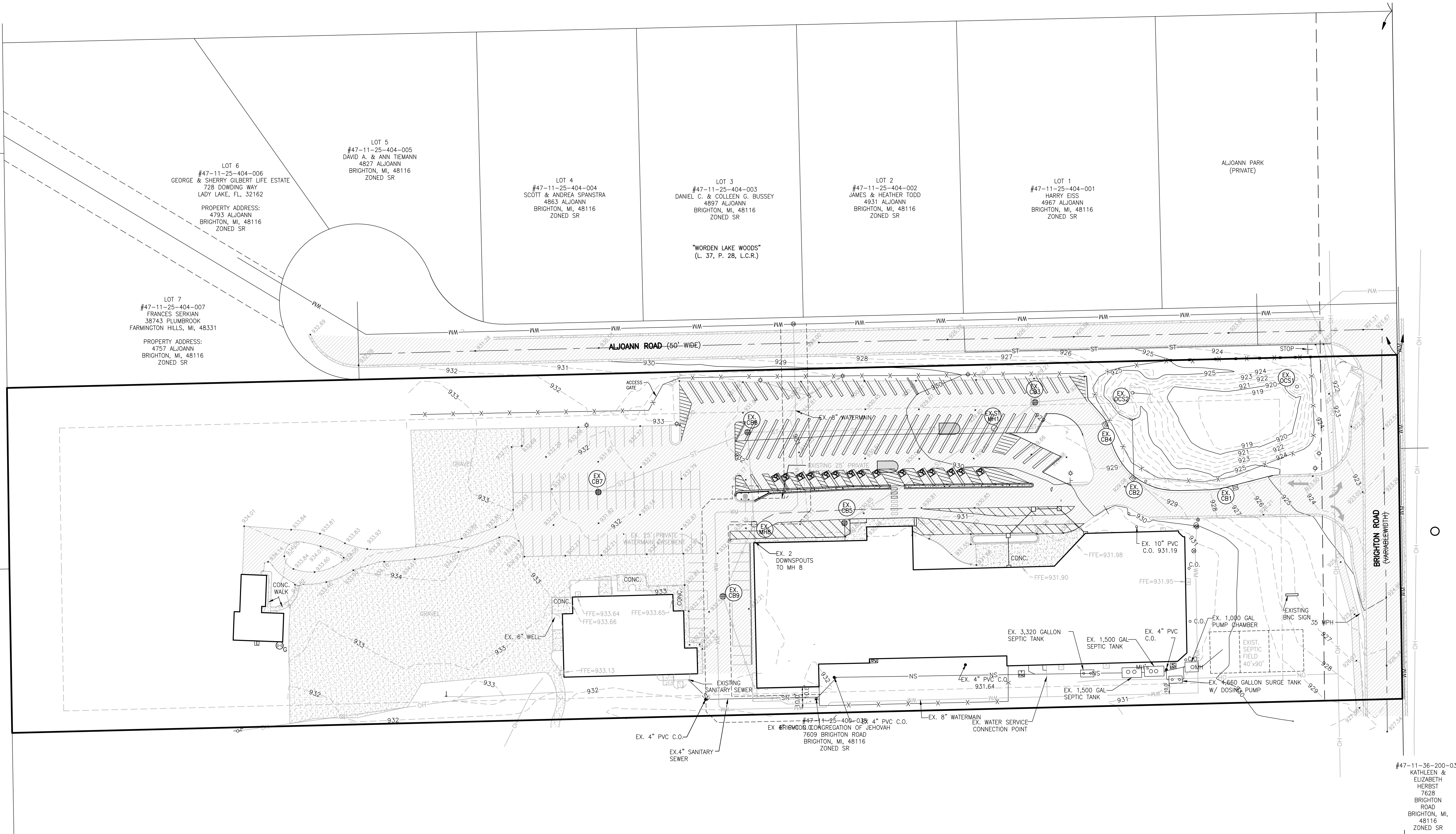
LEGEND		LEGEND	
PROPOSED (PR)	EXISTING (EX)	PROPOSED (PR)	EXISTING (EX)
—000—	—900—	—SN—	—SN—
T/C	+ 922.08	—SL—	—SL—
XXX.XX		—FM—	—FM—
FF	FF	—ST—	—ST—
FG	FG	—WM—	—WM—
T/A	T/A	—WL—	—WL—
T/W	T/W	—OH—	—OH—
F/L	F/L		
T/P	T/P		
B/P	B/P		
RIM	RIM		
INV	INV		
MH	MH		
IN	IN		
CB	CB		
RY	RY		
ES	ES		
GV	GV		
HY	HY		
UP	UP		

CONTOUR  
STORM DRAINAGE FLOW  
SPOT ELEVATION  
FINISHED FLOOR ELEVATION  
TOP OF ASPHALT  
TOP OF WALK / CONCRETE  
FLOW LINE  
TOP OF PIPE  
BOTTOM OF PIPE  
RIM ELEVATION  
INVERT ELEVATION  
MANHOLE STRUCTURE  
INLET STRUCTURE  
CATCHBASIN STRUCTURE  
REARYARD STRUCTURE  
END-SECTION  
GATEVALVE STRUCTURE  
HYDRANT  
UTILITY POLE

SANITARY SEWER  
SANITARY LEAD  
FORCE MAIN  
STORM SEWER  
WATER MAIN  
WATER LEAD  
OVERHEAD WIRE  
SILT FENCE  
LIMITS OF GRADING/CLEARING  
CONCRETE  
ASPHALT  
GRAVEL

- STORM SEWER INVENTORY:**
- OUTLET CONTROL STRUCTURE #1 (OCS 1)  
RIM = 924.11  
INV. = 919.04 (24" Conc.)
  - OUTLET CONTROL STRUCTURE #2 (OCS 2)  
RIM = 925.21  
INV. S = 922.98 (24" Conc.)
  - STORM CATCH BASIN #1 (CB 1) (SQUARE)  
RIM = 926.56 (FLOW LINE)  
INV. N = 922.71 (12" Conc.)
  - STORM CATCH BASIN #2 (CB 2) (SQUARE)  
RIM = 928.82 (FLOW LINE)  
INV. S = 922.22 (12" Conc.)  
INV. E = 922.22 (12" Conc.)  
INV. SW = 922.42 (12" PVC)  
INV. W = 924.77 (8" PVC)
  - STORM CATCH BASIN #3 (CB 3) (ROUND)  
RIM = 928.80  
INV. S = 926.17 (10" PVC)  
INV. NW = 926.19 (10" PVC) (COULD NOT LOCATE WESTERLY END)
  - STORM CATCH BASIN #4 (CB 4) (SQUARE)  
RIM = 927.79 (FLOW LINE)  
INV. SE = 922.59 (18" Conc.)  
INV. N = 922.67 (15" Conc.)
  - STORM MANHOLE #1 (MH 1)  
RIM = 929.14  
INV. S = 924.54 (15" Conc.)  
INV. N = 924.39 (15" Conc.)  
INV. NW = 926.94 (10" PVC)
  - STORM CATCH BASIN #5 (CB 5) (ROUND)  
RIM = 930.41  
INV. SE = 928.81 (10" PVC)  
INV. W = 928.91 (6" PVC)
  - STORM CATCH BASIN #6 (CB 6) (ROUND)  
RIM = 931.66  
INV. S = 926.06 (15" Conc.)  
INV. NW = 926.11 (15" Conc.)
  - STORM CATCH BASIN #7 (CB 7) (ROUND)  
RIM = 931.31  
INV. SE = 927.31 (15" Conc.)

- SITE BENCHMARKS: (NGVD29 DATUM)**
- BENCHMARK #200  
BOSS NAIL/TAG SET N/S LIGHT POLE, 20'± EAST OF BACK OF CURB, ENTRANCE TO BRIGHTON NAZARENE & 62'± NORTH OF E BRIGHTON ROAD.  
ELEV. = 924.79
  - BENCHMARK #201  
CHISELED "X" N/S CONC. LIGHT POLE BASE, 59'± EAST & 109'± NORTH OF SOUTHEAST CORNER OF CHURCH.  
ELEV. = 931.41
  - BENCHMARK #202  
BOSS NAIL/TAG SET S/S 24" OAK, 15'± WEST OF SW CORNER OF PARSONAGE.  
ELEV. = 933.32

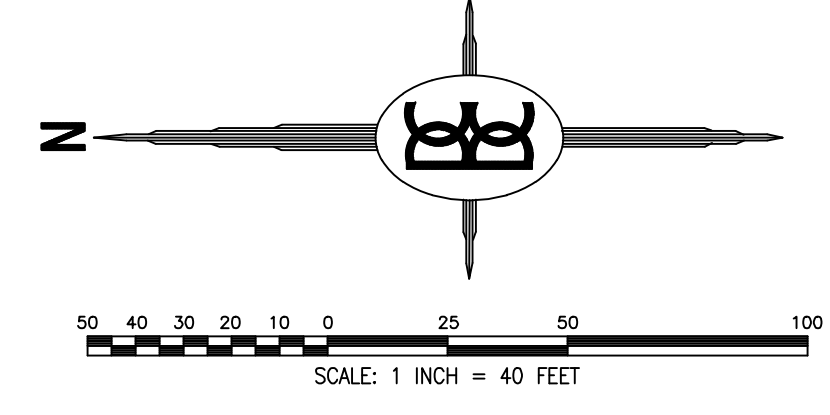
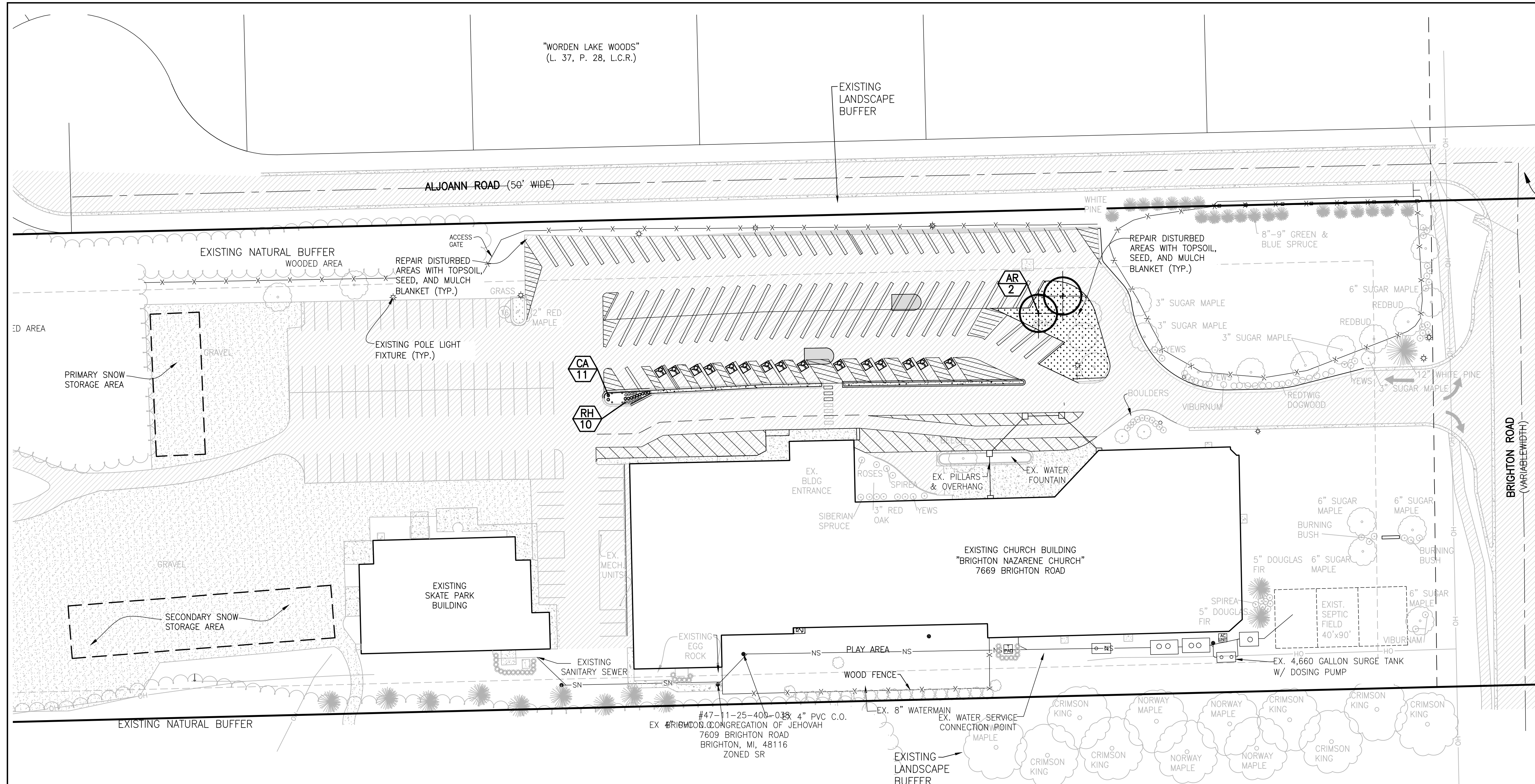


**BOSS ENGINEERING**  
ENGINEERS • SURVEYORS • PLANNERS  
LANDSCAPE ARCHITECTS  
(E-MAIL: BOSS@BOSS-ENG.COM)  
3121 E. GRAND RIVER AVE.  
HOWELL, MI 48843  
(800) 246-6335 FAX (517) 948-1870

**LIVINGSTON CHRISTIAN SCHOOL**  
LIVINGSTON CHRISTIAN SCHOOLS  
8877 WHITMORE LAKE RD  
WHITMORE LAKE, MI 48189  
(734) 878-9818

NO	BY	REVISION	PER	DATE
3	CH	PER PLANNING COMMISSION		11-14-17
2	CH	PER PLANNING COMMISSION		10-25-17
1	CH	PER TOWNSHIP REVIEW		9-20-17

DESIGNED BY: ST  
DRAWN BY: AEB  
CHECKED BY:  
SCALE: 1" = 50'  
JOB NO. 17-315  
DATE: 8-30-17  
SHEET NO. 5



**LEGEND**

PROPOSED (PR)	EXISTING (EX)	
-900	-900	CONTOUR
T/C		STORM DRAINAGE FLOW
XXXX		SPOT ELEVATION
FF	FF	FINISHED FLOOR ELEVATION
T/A	T/A	FINISHED GRADE ELEVATION
T/C	T/C	TOP OF ASPHALT
T/W	T/W	TOP OF CURB / CONCRETE
F/L	F/L	TOP OF WALK
T/P	T/P	FLOW LINE
B/P	B/P	TOP OF PIPE
RIM	RIM	BOTTOM OF PIPE
INV	INV	RIM ELEVATION
MH	MH	INVERT ELEVATION
IN	IN	MANHOLE STRUCTURE
CB	CB	INLET STRUCTURE
RY	RY	CATCHBASIN STRUCTURE
ES	ES	REARYARD STRUCTURE
GV	GV	END-SECTION
HY	HY	GATEVALVE STRUCTURE
UP	UP	HYDRANT
SN	SN	UTILITY POLE
SL	SL	SANITARY SEWER
FM	FM	SANITARY LEAD
PS	PS	FORCE MAIN
ST	ST	PRESSURE SEWER
WM	WM	STORM SEWER
WL	WL	WATER MAIN
FO	FO	WATER LEAD
OH	OH	FIBER OPTIC
C	C	OVERHEAD WIRE
E	E	CABLE
G	G	ELECTRIC
T	T	GAS
□	□	TELEPHONE
○	○	MANHOLE
○	○	INLET / CATCHBASIN
○	○	FLARED END-SECTION
○	○	GATE VALVE
○	○	HYDRANT
○	○	UTILITY POLE
○	○	FENCE
○	○	SIGN
■	■	CONCRETE
■	■	ASPHALT

**BOSS ENGINEERING**  
ENGINEERS • SURVEYORS • PLANNERS  
LANDSCAPE ARCHITECTS

3121 E. GRAND RIVER AVE.  
(E. MAIN ST. CORNER)  
HOWELL, MI 48843  
(800) 246-6335 FAX (517) 546-1670

**PLANT LIST**

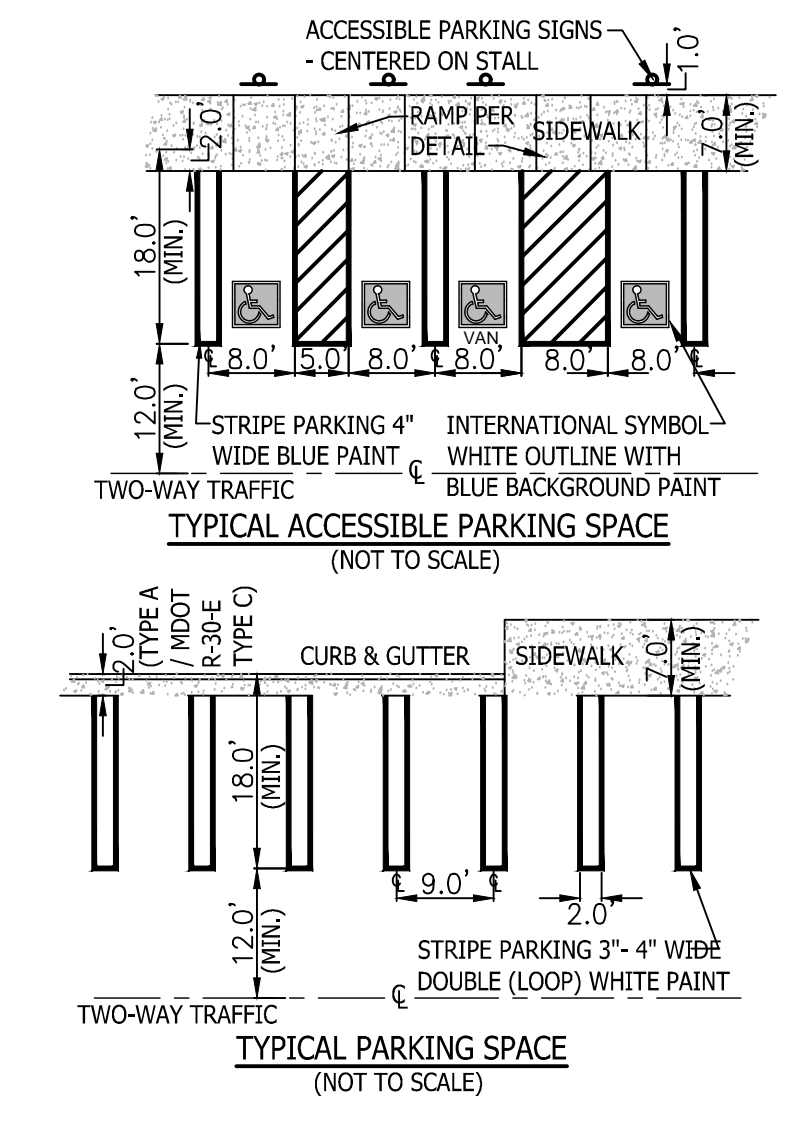
KEY	QUAN.	BOTANICAL NAME	COMMON NAME	SIZE	REMARK
<b>TREES</b>					
AR	2	Acer rubrum	Red Maple	2.5" cal.	B - B
<b>PERENNIALS</b>					
CA	11	Calamagrostis x acutiflora 'Karl Foerster	Karl Foerster Feather Reed Grass	3 gal.	Cont.
RH	10	Rudbeckia hirta	Black Eyed Susan	3 gal.	Cont.

**LANDSCAPE CALCULATIONS**

EXISTING TREES REMOVED = 2      PROPOSED TREES = 2  
 EXISTING PERENNIALS REMOVED = 0      PROPOSED PERENNIALS = 21

**LIGHTING NOTE:**

-NO NEW LIGHTING IS PROPOSED FOR THE SITE. EXISTING LIGHT FIXTURES WILL REMAIN AS IS. A PHOTOMETRIC PLAN HAS NOT BEEN INCLUDED SINCE SITE LIGHTING WILL REMAIN AS EXISTS.



PROJECT: **LIVINGSTON CHRISTIAN SCHOOL**  
 PREPARED FOR: **LIVINGSTON CHRISTIAN SCHOOLS**  
 8877 WHITMORE LAKE RD  
 WHITMORE LAKE, MI 48189  
 (734) 878-9818

TITLE: **LANDSCAPE & LIGHTING PLAN**

NO	BY	DATE
3	CH	11-14-17
2	CH	10-25-17
1	CH	9-20-17

DESIGNED BY: TD  
 DRAWN BY: TD  
 CHECKED BY:  
 SCALE: 1" = 40'  
 JOB NO. 17-315  
 DATE: 8-30-17  
 SHEET NO. **6**



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:** November 16, 2017

**RE:** **Town Center– Outdoor storage**  
Special Land Use, Environmental Impact Assessment & Site Plan

Attached please find the project case file requesting approval of a proposed outdoor storage area and expanded parking lot for Town Center Inc. located at 5818 Sterling Drive, Howell. The property is within the industrial (IND) zoning district and the request is petitioned by Dennis Cregar.

Table 8.02 of the Township Zoning Ordinance lists accessory outdoor material storage as a special land use in the IND Zoning District. Procedurally, the Planning Commission is to make a recommendation to the Township Board on the special land use, site plan and Impact Assessment, following a public hearing. The Township Board has the final review/approval authority over the proposal.

At the November 13, 2017 meeting the Planning Commission recommended conditional approval of the Special Land Use, Impact Assessment and Site Plan. A revised Site Plan and Impact Assessment were received from the applicant on November 14, 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 APPROVE the Special Land Use permit because it has been found that the requested use meets the requirements of Sections 19.03 and 8.02.02 of the Township Ordinance.**

**Moved by \_\_\_\_\_, Supported by \_\_\_\_\_ to APPROVE the Environmental Impact Assessment dated November 14, 2017 as submitted.**

**Moved by \_\_\_\_\_, Supported by \_\_\_\_\_ to APPROVE the site plan dated November 14, 2017 as submitted.**

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**

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

APPLICANT NAME & ADDRESS: DENNIS CRELAR  
*If applicant is not the owner, a letter of Authorization from Property Owner is needed.*

OWNER'S NAME & ADDRESS: 5818 STERLING DR. HOWELL MI 48843

SITE ADDRESS: 5818 STERLING DR. HOWELL MI PARCEL #(s): 4711-15-200-013

APPLICANT PHONE: (248) 207-0506 OWNER PHONE: ( )

OWNER EMAIL: DCRELAR@TOWHCENTERINC.COM

LOCATION AND BRIEF DESCRIPTION OF SITE: AN EXISTING SITE AND  
BUILDING LOCATED SOUTH OF STERLING DR AND WEST  
OF DERR RD.

BRIEF STATEMENT OF PROPOSED USE: THE PROPOSED USE WILL REMAIN  
THE SAME HOWEVER THE PARKING LOT WILL BE EXPANDED,  
FENCING WILL BE INSTALLED TO OFFER SCREENING FOR OUTDOOR  
STORAGE, AND A DUMPSTER ENCLOSURE WILL BE CONSTRUCTED.

THE FOLLOWING BUILDINGS ARE PROPOSED: NO BUILDINGS ARE  
PROPOSED TO BE BUILT, OTHER SITE MODIFICATIONS WILL  
TAKE PLACE SUCH AS CONSTRUCTING A DUMPSTER ENCLOSURE.

**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: 

ADDRESS: 5818 STERLING DR. HOWELL, MI 48843




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

I. CAMERON HERVATH of BES ENGINEERING at CAMERON.H@BES-ENR.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:  DATE: 10/3/17  
PRINT NAME: DENNIS CREAGAR PHONE: (248) 207-0506  
ADDRESS: 5818 STERLING DR HOWELL MI 48843



# GENOA CHARTER TOWNSHIP Special Land Use Application

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

APPLICANT NAME & ADDRESS: DETHIS CREGAN

Submit a letter of Authorization from Property Owner if application is signed by Acting Agent.

APPLICANT PHONE: (248) 207-0506 EMAIL: TCREGAN@TOWNSHIPGENOA.COM

OWNER NAME & ADDRESS: DETHIS CREGAN 5818 STERLING DR HOWELL MI 48843

SITE ADDRESS: 5818 STERLING DR HOWELL MI PARCEL #(s): 4711-15-200-013

OWNER PHONE: ( ) EMAIL: -

**Location and brief description of site and surroundings:**

SITE IS LOCATED ON SOUTH SIDE OF STERLING DR JUST WEST OF CORNER  
SITE INCLUDES AN EXISTING BUILDING BUT IS STILL COVERED IN  
WIDE PART BY EXISTING VEGETATION.

**Proposed Use:**

THE PROPOSED USE WILL REMAIN AS ALREADY FUNCTIONING  
AN INDUSTRIAL BUSINESS.

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

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

THE USE OF THE PROPERTY REMAINS INDUSTRIAL IN NATURE, HOWEVER  
SINCE THERE IS NEED FOR OUTDOOR STORAGE A SPECIAL USE APPLICATION  
IS REQUIRED.

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

FOR GENOA TOWNSHIP A FENCE TO MATCH EXISTING WILL BE  
INSTALLED TO SCREEN ANY OUTDOOR STORAGE.

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

THE USE OF THE PROPERTY WILL STILL BE SERVED IN THE SAME  
MANNER WITH THE EXCEPTION OF CONNECTING TO MUNICIPAL SEWER  
AND WATER.

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

NO, THE SPECIAL LAND USE IS ONLY TO STORE STORE EQUIPMENT AND MISCELLANEOUS PARTS OUTDOORS.

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

OUTDOOR STORAGE IS LISTED AS A SPECIAL USE IN INDUSTRIAL (IND) ZONED DISTRICTS.

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

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

BY: [Signature]

ADDRESS: 5818 STELLING DR. HOWELL MI 48843

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

CATHERINE HORWATH of BOSS ENGINEERING at CATHERINE.H@BOSS-ENG.COM  
Name Business Affiliation Email

**FEE EXCEEDANCE AGREEMENT**

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

SIGNATURE: [Signature] DATE: 10/3/17

PRINT NAME: DETTIS CREGAR PHONE: (248) 267-0506



November 1, 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>	Town Center, Inc. – Special Land Use and Site Plan Review #2
<b>Location:</b>	5818 Sterling Drive – south side of Sterling Drive, west of Dorr Road
<b>Zoning:</b>	IND Industrial District

Dear Commissioners:

At the Township's request, we have reviewed the special land use application (dated 10/3/17) and revised site plan (dated 10/25/17) proposing a new outdoor storage area and expanded parking lot for an existing industrial facility.

The 5.12-acre site is currently developed with a heating and cooling business that operates Monday through Friday. We have reviewed the proposal in accordance with the applicable provisions of the Genoa Township Zoning Ordinance and Master Plan.

#### **A. Summary**

1. In our opinion, the general special land use standards of Article 19 are met.
2. Any issues raised by the Township Engineer or Brighton Area Fire Department must be addressed and/or properly mitigated.
3. The use requirements of Section 8.02.02(b) for accessory outdoor storage are met, provided the Planning Commission allows a 6-foot privacy fence in lieu of a Buffer Zone B.
4. The applicant proposes to bank 19 of the 50 required parking spaces, which may be allowed by the Planning Commission in accordance with Section 14.02.05 of the Township Zoning Ordinance.
5. We suggest the Impact Assessment include a statement acknowledging that the applicant will install the banked parking upon notice by the Township (per Section 14.02.05).

#### **B. Proposal/Process**

The applicant requests special land use and site plan review/approval for an outdoor storage yard and parking lot expansion.

Section 8.02 lists outdoor storage areas that are accessory to an industrial use as special land uses. Such uses are also subject to the requirements of Section 8.02.02(b).

Procedurally, the Planning Commission is to make a recommendation to the Township Board on the special land use, site plan and Impact Assessment, following a public hearing. The Township Board has the final review/approval authority over the proposal.



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

### **C. Special Land Use Review**

Section 19.03 of the Zoning Ordinance identifies the following review criteria for Special Land Uses:

- 1. Master Plan.** The Township Master Plan and Future Land Use map identify the site as Industrial, which is intended for “industrial uses such as research, wholesale and warehouse activities and light industrial operations which manufacture, compounding, process, package, assemble and/or treat finished or semi-finished products from previously prepared material.”

The location, nature of the site as a developed industrial property, and proposal are consistent with this category and description.

- 2. Compatibility.** The area, which is planned and zoned for industrial uses, contains several industrial operations with outdoor storage areas.

Provided the use requirements of Section 8.02.02(b) are met, the proposal is expected to be compatible with the existing and planned conditions of the area.

- 3. Public Facilities and Services.** As a developed site, we anticipate that necessary public facilities and services are in place for the proposal; however, we defer to the Township Engineer and Brighton Area Fire Department for any specific comments under this criterion.
- 4. Impacts.** Given the existing and planned nature of the area, the proposal is not expected to create any adverse impacts on surrounding properties or roadways.
- 5. Mitigation.** The Township may require mitigation necessary to limit or alleviate any potential adverse impacts as a result of the proposal.

### **D. Use Requirements**

Section 8.02.02(b) identifies the requirements for accessory outdoor storage as follows:

- 1. Minimum lot area shall be one (1) acre.**

The submittal identifies a lot area of 5.12 acres.

2. **Any stockpiles of soils, fertilizer or similar loosely packaged materials shall be sufficiently covered or contained to prevent dust or blowing of materials.**

The submittal indicates that the storage area will be used for equipment and miscellaneous parts.

3. **All outdoor storage areas shall be paved with a permanent, durable and dustless surface and shall be graded and drained to dispose stormwater without negatively impact adjacent property. The Township Board, following a recommendation of the Planning Commission and the Township Engineer, may approve a gravel surface for all or part of the display or storage area for low intensity activities, upon a finding that neighboring properties and the environment will not be negatively impacted.**

The plans show a paved surface proposed for the outdoor storage area.

4. **No outdoor storage shall be permitted in any required yard (setback) of buildings for the district in which the outdoor display, sales or storage use is located. Any approved outdoor sales or display within a parking lot shall meet the required parking lot setback; provided the Planning Commission may require additional landscaping screening or ornamental fencing.**

The proposed outdoor storage area provides compliant side and rear yard setbacks.

5. **The site shall include a building of at least five hundred (500) feet of gross floor area for office use in conjunction with the use.**

The revised plans note that the existing building contains approximately 1,500 square feet of office space.

6. **All loading and truck maneuvering shall be accommodated on-site.**

The site has existing vehicular access from Sterling Drive. Sheet C6 includes vehicle turning templates for refuse removal truck and a fire truck demonstrating that maneuvering will be accommodated on-site.

7. **All outdoor storage area property lines adjacent to a residential district shall provide a buffer zone A as described in Section 12.02. A buffer zone B shall be provided on all other sides. The Planning Commission may approve a six (6) foot high screen wall or fence, or a four (4) foot high landscaped berm as an alternative.**

The request proposes the use of a 6-foot tall vinyl privacy fence and gate around the outdoor storage area. The Planning Commission may allow this in lieu of a buffer zone.

8. **The height of all material and equipment stored in an outdoor storage area shall not exceed the height of any landscape screening, wall or fence. Boats and recreational vehicles may exceed the height of the fence provided that they are setback from the fence a distance equal to their height. Storage of materials up to the height of the adjacent building wall may be permitted in the rear yard if it is illustrated on the site plan, the rear yard does not abut a residential district or face an expressway, and such storage is confined to within twenty (20) feet of the building.**

The revised plans note that the equipment and materials to be stored will not exceed 6 feet in height.

#### **E. Site Plan Review**

1. **Dimensional Requirements.** As noted under Paragraph D above, the proposed outdoor storage area complies with the applicable setback requirements. Additionally, the proposed increase in impervious surface remains well within that allowed by Ordinance – 13.26% proposed/85% allowed.

2. **Parking.** Based on the information provided, Section 14.04 requires 50 parking spaces, including 2 barrier-free spaces. The plans call for 31 parking spaces with the additional 19 spaces to be banked. Banked parking is allowed under Section 14.02.05, provided the applicant demonstrates that the amount of parking proposed is sufficient to meet their needs.

The Impact Assessment notes a peak shift of 18 employees. The submittal also references training courses and meetings that will be held on-site during off peak hours. Based on the information provided, the 31 spaces should be sufficient for usage as proposed.

3. **Vehicular Circulation.** Vehicular access is provided to/from Sterling Drive with no changes proposed. The proposed parking area (including the banked parking) will provide a one-way circulation pattern connecting back to the main (existing) driveway.

Given the mix of one- and two-way traffic, the project includes signage and pavement markings to help drivers navigate the site properly.

4. **Landscaping.** The landscape plan (Sheet C7) includes plantings within the new parking lot, along Sterling Drive and along the front of the building.

The species and sizes are compliant with the requirements of Section 12.02. Quantities are reviewed in the table below:


Location	Requirements	Proposed	Comments
Greenbelt (Sterling Dr.)	20' width 9 canopy trees	70' width 4 canopy trees proposed Existing vegetation	Requirements met
Parking lot	5 canopy trees 500 SF landscaped area	5 canopy trees 3,437 SF landscaped area	Requirements met

5. **Waste Receptacle and Enclosure.** The project includes a new waste receptacle and enclosure south of the building. Details on Sheet C3 include the required concrete base pad and masonry enclosure. The circulation plan (Sheet C6) also demonstrates that refuse removal vehicles can adequately maneuver throughout the site.
6. **Impact Assessment.** The submittal includes a revised Impact Assessment (dated 10/23/17), which states that the project is not anticipated to adversely impact natural features, public services/utilities, surrounding land uses or traffic.

We suggest the applicant add a statement acknowledging that the parking will be installed upon notice by the Township (per Section 14.02.05).

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



November 2, 2017

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

**Re: Town Center Site Improvements SPR #2**

Dear Ms. Van Marter:

Tetra Tech conducted a site plan review of the updated Town Center, Inc. proposed improvements at their site located on Sterling Drive just west of Dorr Road. The plans, submitted by Boss Engineering and dated October 25, 2017, convey Town Center, Inc.'s plans to increase their parking and outdoor storage area and connect to both water and sanitary services.

Tetra Tech's review of the updated plans resulted in no additional engineering related comments. The plans adequately address the comments in the first site plan review letter.

Please call if you have any questions.

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: Cameron Horvath, PLA, Boss Engineering

**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

November 7, 2017

Kelly VanMarter  
Genoa Township  
2911 Dorr Road  
Brighton, MI 48116

RE: Town Center Site Improvements  
5818 Sterling Dr.  
Genoa Twp., MI

Dear Kelly:

The Brighton Area Fire Department has reviewed the above mentioned site plan. The plans were received for review on October 26, 2017 and the drawings are dated October 3, 2017 with latest revisions dated October 25, 2017. The project is an existing 12,720 square-foot, F-2 occupancy located in a light industrial area. The site will be improving conditions for parking and a screened outside storage area. The plan review is based on the requirements of the International Fire Code (IFC) 2015 edition.

1. **(CORRECTED)** The building address shall be a **minimum of 6"** high letters of contrasting colors and be clearly visible from the street. The location and size shall be verified at inspection. **(Address improvement noted on Sheet C3)**

**IFC 505.1**

2. **(CORRECTED)** The existing two-way access drive adjacent to the structure shall be a minimum of 26' wide and is currently shown at 21' for the front portion of the landscape island then widens to 24' towards the rear. With a width of 26' wide, the landscape island side of the drive shall be marked as a fire lane. 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. **(Sheet C3 reflects revision to the landscape island dimension to provide for width and proper turning radius. Fire lane signage is also noted.)**

**IFC D 103.6**

**IFC D 103.1**

**IFC D 102.1**

**IFC D 103.3**

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".

Rick Boisvert, CFPS  
Fire Marshal

**IMPACT ASSESSMENT  
FOR  
SITE PLAN PETITION  
"TOWN CENTER INC."  
GENOA TOWNSHIP, LIVINGSTON COUNTY  
MICHIGAN**

Prepared for:

**TOWN CENTER INC.  
5818 STERLING DR.  
HOWELL, MICHIGAN 48843  
(517) 552-5770**

Prepared by:

**BOSS ENGINEERING COMPANY  
3121 E. GRAND RIVER  
HOWELL, MI 48843  
(517) 546-4836**

October 3, 2017  
REVISED: 10/23/17  
REVISED: 11/14/17

**17-329EIA**

## INTRODUCTION

The purpose of this Impact Assessment (IA) report is to show the effect that this proposed development may have 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* guidelines in accordance with Section 18.07 of the published Zoning Ordinance for 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.**

Prepared By :  
 Brent W. LaVanway, P.E.  
 BOSS ENGINEERING COMPANY  
 Civil Engineers, Land Surveyors, Landscape Architects and Planners  
 3121 E. Grand River  
 Howell, MI 48843  
 (517) 546-4836

Prepared For :  
 Town Center Inc.  
 Client  
 5818 Sterling Dr.  
 Howell MI 48843  
 (517) 552-5770

### **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 site is located on the south side of Sterling Dr. just west of Dorr Rd. The subject property is currently the Town Center Inc. business. The facility is existing with approximately 1,500 square feet of interior office space and some paved and gravel parking with storm water draining into an existing wetland near the south property line. The western and southern property lines are heavily wooded. There is an existing fence that helps screen some of the storage area and mechanical equipment near the eastern property setback line . The subject property and adjacent properties are all zoned Industrial (IND).

### **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.**

The total site area is 5.12 acres. The front (north) portion of the site is the existing drive entrance with some green space on the eastern side and an existing wooded area on the western side. The developed site slopes southwest towards the on-site unregulated wetland and the remainder of the site slopes north towards Sterling Dr. The undeveloped portion of the site is predominantly wooded and the developed portion consists of impervious surfaces such as paving and building footprint as well as green space areas. The USDA Soil Conservation Service soil classification for the site is a composition of the Miami Loam Series with Carlisle Muck present in the wetland area.

There are no new buildings or building additions proposed. Parking improvements and outdoor storage screening are the main proposed site alterations which will be occurring in areas previously cleared. This work may result in some minor removal of existing vegetation around the outskirts of the wooded areas. A sediment basin is also being constructed.

The banked parking shall be installed if the Township deems necessary for proper function of the site.

**D. Impact on storm water management: Description of measures to control soil erosion and sedimentation during grading and construction operations and until a permanent ground cover is established. Recommendations for such measures may be obtained from County Soil Conservation Service.**

This project features an already existing structure that is not being added on to but will include parking lot improvements. Currently there is no method for stormwater management and the site manages storm water through sheet draining into an existing wetland. To mimic existing natural drainage channels and current site conditions storm water management methods will be minimal. The proposed site will continue to sheet drain stormwater to the southwest corner of the property. This will occur through a curb cut and where a small first flush sediment basin meeting LCDC standards has been provided to help trap sediment with rip rap inlets and outlets for stormwater to enter and leave the basin and then continue to drain across pervious surfaces for roughly 170 feet until it reaches the existing wetland. Although construction on site will be minimal soil erosion control measures will still be needed to ensure soil is not leaving the site.

At the time of construction of the parking lot improvements, 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.

The Site Plan documents show the proposed locations of all site improvements along with detailed soil erosion control information.

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

As previously stated the site is the current home of Town Center Inc.

There will be no increase in light or air pollution. There may be some increased noise during construction but that would be the only change and it would be for a short period of time.

The banked parking is intended to accommodate some of the vehicles the site experiences during training seminars and meetings that take place at the facility a few times a year. It also provides the owner flexibility with potentially phasing different parts of the site improvements. The parking would be implemented at some point but since the intended use is only for overflow parking for certain events may not be implemented immediately.

**F. Impact on public facilities and services: Description of 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.**

Currently as many as 18 employees could be working during a peak shift. Throughout the year certain training courses are held here as well as occasional meeting which bring more people to the site that justify the increase in parking.

There will be no impact on surrounding schools and very minimal impact on the police and fire departments.

**G. Impact on public utilities: Description of 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 service with sanitary sewer, calculations for pre- and post development flows 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 current use of the facility is for a heating and cooling business that operates 5 days week Monday through Friday from 7am to 6pm. The proposed changes will help accommodate more vehicles for training seminars, company meetings, and a growing employee pool. The owner of the property also has intentions of connecting to municipal sewer and water and abandoning the two existing septic tanks. The existing 4" well will be used to irrigate lawn and landscape areas. Due to this new connection, municipal sewer and water will be slightly affected because of the addition of another user. Proper avenues will be followed during this transition and the owner will cooperate with M.H.O.G for issuance of an approval.

All of the existing information is included in the Site Plan documents.

**H. Storage or handling of any hazardous materials: 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.**

There will be 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.**

The anticipated impact on traffic is minimal given that Sterling Dr is not a frequently traveled route and there are only 18 employees on peak shift. The meetings and training which will occur at the site won't correspond to peak traffic times and will only be seldom occurrences. The banked parking shown is to help accommodate those vehicles while providing flexibility to the owner in regards to potentially phasing some of the improvements to his site. Traffic arrows and one way signage will help direct traffic on-site and given the small amount of users for the site should not create any problems .

**J. 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.**

This site is not greater than 10 acres and does not expect to generate a 100 directional vehicle trips.

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

This project requires a Special Use Permit for outdoor storage in an industrial zoned district.

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

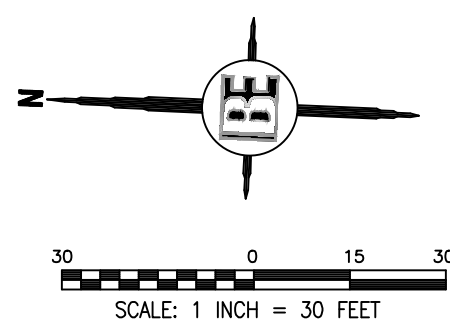
Genoa Township's *Submittal Requirements For Impact Assessment*

Genoa Township Zoning Ordinances

Soil Survey of Livingston County, Michigan, U.S.D.A. Soil Conservation Service

National Wetland Inventory Plan, United States Department of the Interior, Fish and Wildlife Service



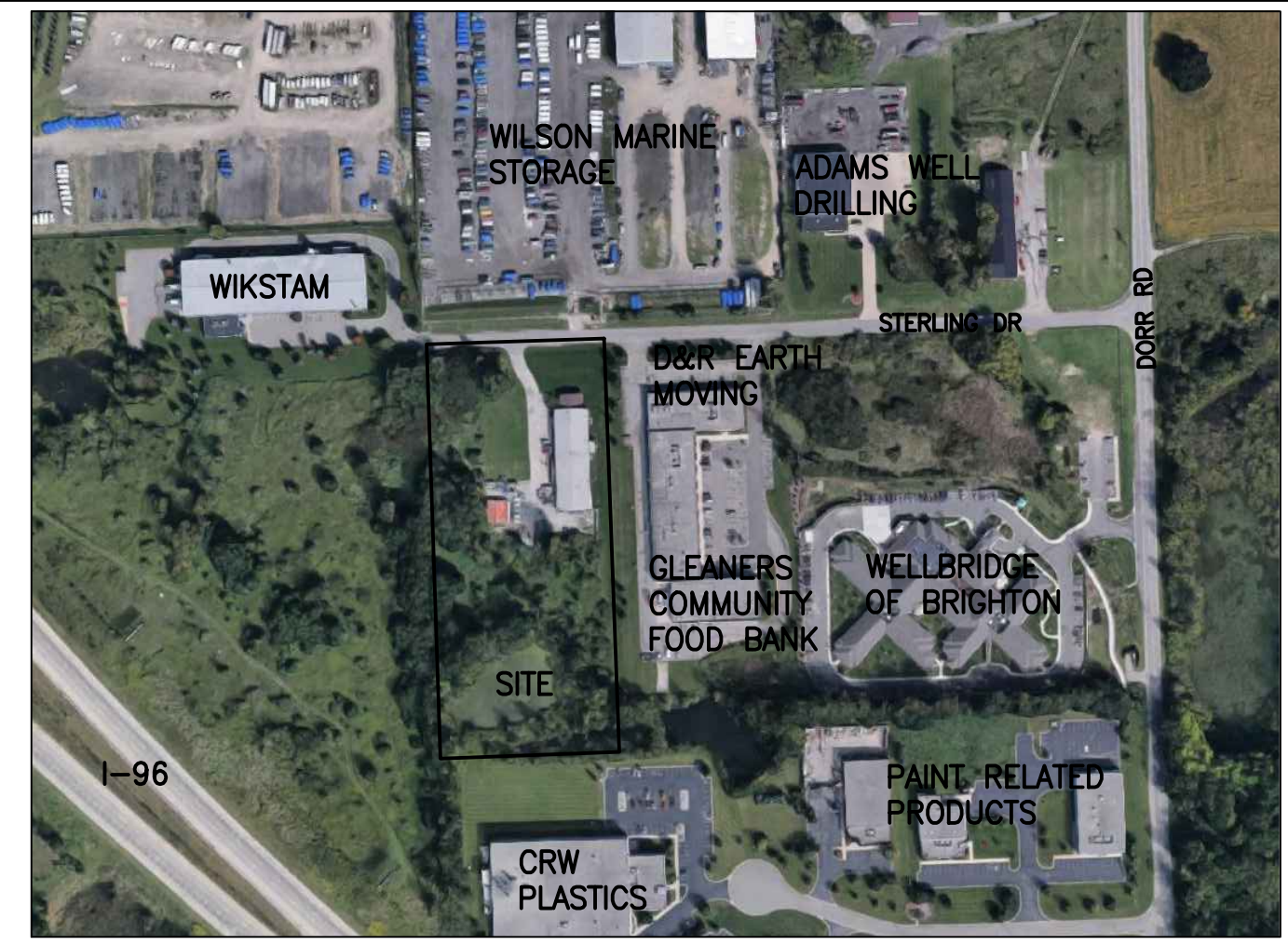


**DESCRIPTION OF PARCEL #4711-15-200-013 PER LIVINGSTON COUNTY TAX ROLL:**  
 SEC 15 T2N R5E BEG AT A POINT DISTANCE S ALONG THE E LINE OF SEC 15, 660 FT & S 89°54'29"W 996.75 FT FROM NE COR. OF SEC. TH S 89° 54'29"W 332.25 FT, TH S 0°06'18"E 670.31 FT, TH S 89°43'29"E 331.94 FT, TH N 0°04'43"W 672.44 FT TO POB, 5.13AC M/L

ABOVE DESCRIBED PARCEL BEING LOCATED IN THE NORTHEAST 1/4 OF SECTION 15, GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN

**SOIL NOTE:**  
 THE PREDOMINATE SOIL SERIES FOUND ON THE SITE IS MIAMI LOAM. OTHER NOTABLE SOILS INCLUDE CARLISLE MUCK, METAMORA SANDY LOAM, AND OAKVILLE SERIES.

**GENERAL SURVEY NOTES:**  
 1. BEARINGS ARE BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM SOUTH ZONE.  
 2. SUBSURFACE UTILITIES NOT LOCATED FOR THIS SURVEY MAY EXIST. IT IS THE RESPONSIBILITY OF THE OWNER OF THE RESPECTIVE UTILITY TO ACCURATELY LOCATE SUCH UTILITIES.  
 3. EASEMENTS OR RESTRICTIONS OF RECORD NOT DEPICTED ON THIS DRAWING MAY EXIST.  
 4. ELEVATIONS WERE ESTABLISHED WITH GPS USING OPUS. (NAVD88 DATUM)  
 5. CONTOURS ARE SHOWN AT 1 FOOT INTERVALS.  
 6. ALL ELEVATIONS ARE SHOWN TO THE NEAREST 0.01 FOOT; HOWEVER SOFT-SURFACE ELEVATIONS CAN ONLY BE PRESUMED ACCURATE TO THE NEAREST 0.1 FOOT.  
 7. BENCHMARK INFORMATION IS AS FOLLOWS:  
 BM #101- NW CORNER OF CONC PAD FOR A/C UNIT.....ELEV.= 989.72  
 BM #102- CENTER OF SEPTIC TANK MANHOLE.....ELEV.= 988.57

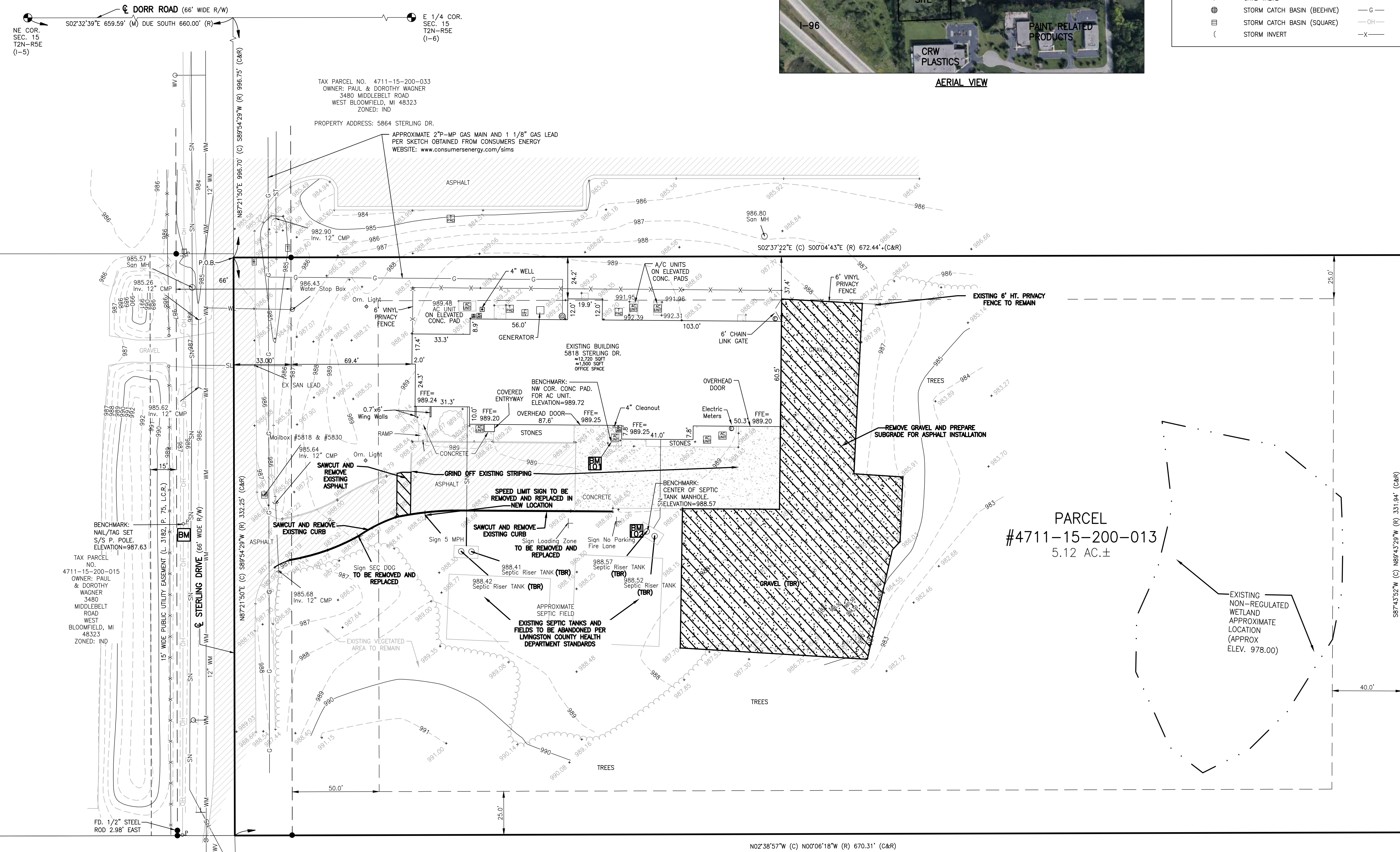


**LEGEND**

900	EXISTING CONTOUR	○	MANHOLE
○-P	EXISTING SPOT ELEVATION	□	TELEPHONE RISER
↓	POWER POLE	⊕	U.G. TELEPHONE MARKER
⊕	GUY WIRE	⊕	GAS METER
⊕	TRANSFORMER PAD	⊕	CABLE TV RISER
⊕	U.G. ELECTRIC MARKER	⊕	U.G. CABLE TV MARKER
⊕	ELECTRICAL METER	⊕	MAILBOX
⊕	AIR CONDITIONING UNIT	⊕	SIGN
⊕	LIGHT POLE	⊕	STEEL ROD/PIPE FOUND
⊕	ORNAMENTAL LIGHT	⊕	SECTION CORNER
⊕	WELL	—SN—	SANITARY SEWER
⊕	HYDRANT	—WM—	WATER MAIN
⊕	GATE VALVE	—ST—	STORM SEWER
⊕	STORM CATCH BASIN (BEEHIVE)	—G—	GAS MAIN
⊕	STORM CATCH BASIN (SQUARE)	—OH—	OVERHEAD WIRES
(	STORM INVERT	—X—	FENCE

THE SURVEY AND UTILITIES INFORMATION SHOWN ON THIS PLAN IS BASED ON THE INFORMATION PROVIDED BY THE CLIENT. BEBOSS ENGINEERING, INC. DOES NOT WARRANT THE ACCURACY OF THE INFORMATION PROVIDED BY THE CLIENT. THE CLIENT IS RESPONSIBLE FOR VERIFYING THE INFORMATION PROVIDED BY THE CLIENT. BEBOSS ENGINEERING, INC. IS NOT RESPONSIBLE FOR ANY ERRORS OR OMISSIONS IN THIS PLAN. THE CLIENT SHALL NOTIFY THE ENGINEER IF ANY CONSTRUCTION OF THE PROJECT SHALL BE LOCATED OR DEPT. OFFERS SIGNIFICANTLY FROM THE PLAN.

BEBOSS ENGINEERING, INC.  
 3121 E. GRAND RIVER AVE.  
 HOWELL, MI 48843  
 517-548-1670



TAX PARCEL NO. 4711-15-200-015  
 OWNER: PAUL & DOROTHY WAGNER  
 3480 MIDDLEBELT ROAD WEST BLOOMFIELD, MI 48323  
 ZONED: IND

PARCEL #4711-15-200-028  
 OWNER: KORICH, INC  
 5665 STERLING DR  
 HOWELL, MI 48843  
 ZONED: IND

PARCEL #4711-15-200-030  
 OWNER: KORICH, INC  
 5665 STERLING DR  
 HOWELL, MI 48843  
 ZONED: IND

TAX PARCEL ID # 4711-15-200-025  
 ZONED: INDUSTRIAL (IND)  
 OWNER: 5775 BRIGHTON PINES COURT LLC

**BEBOSS Engineering**  
 Engineers Surveyors Planners Landscape Architects  
 3121 E. GRAND RIVER AVE.  
 HOWELL, MI 48843  
 800-246-6735 FAX 517-548-1670

PROJECT: 5818 STERLING DRIVE, HOWELL, MI  
 PREPARED FOR: TOWN CENTER, INC.  
 5818 STERLING DRIVE  
 HOWELL, MI 48843  
 248-207-0506  
 TITLE: EXISTING CONDITIONS/DEMOLITION PLAN

DESIGNED BY:	AEB
DRAWN BY:	AEB
CHECKED BY:	
SCALE	1" = 30'
JOB NO.	17-329
DATE	10-3-17
SHEET NO.	C2

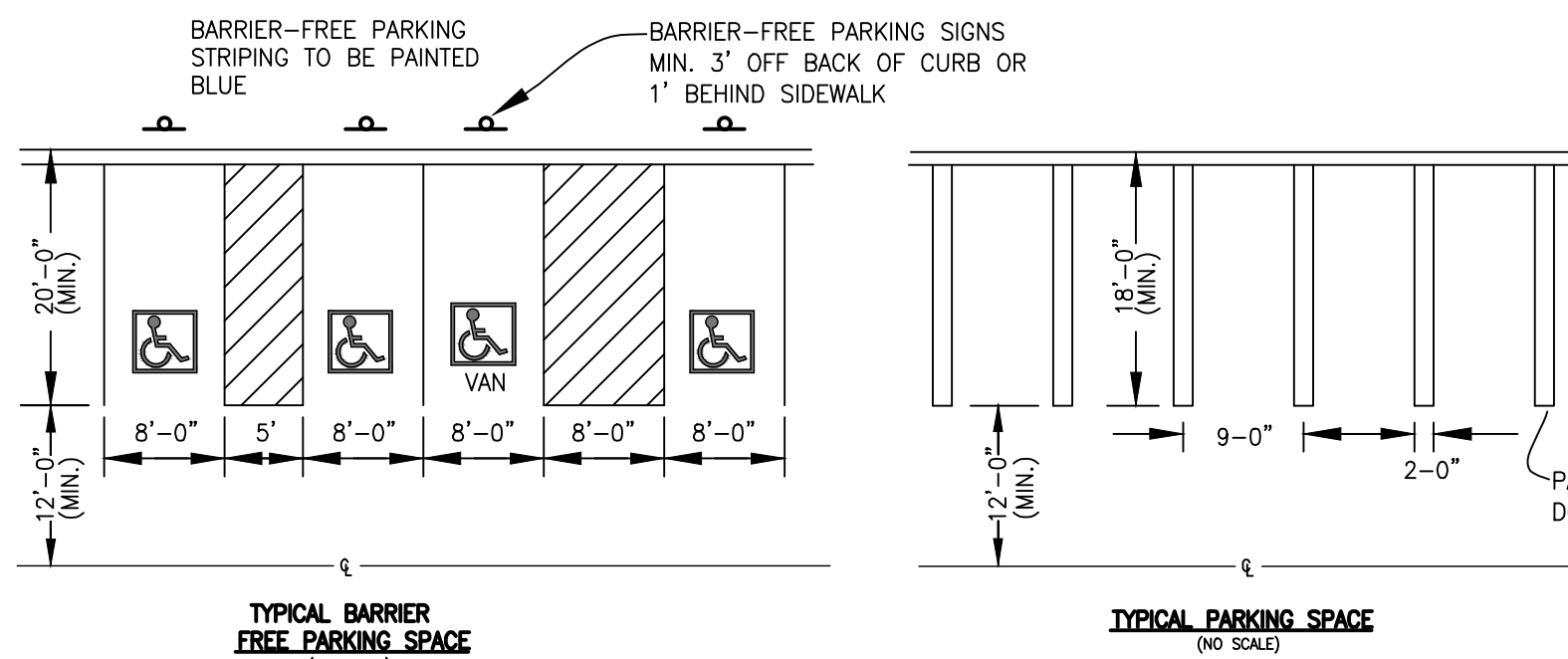




SITE DATA

	REQUIRED	EXISTING/PROPOSED
CURRENT ZONING: IND (INDUSTRIAL)		
MINIMUM SETBACK REQUIREMENTS:		
FRONT =	85 FEET (IF PARKING IN FRONT YARD) 50 FEET (IF NO PARKING IN FRONT YARD)	102.4'
SIDES =	25 FEET (50 FEET IF ADJACENT TO RESIDENTIAL DISTRICT)	24.2'
REAR =	40 FEET (80 FEET IF ADJACENT TO RESIDENTIAL DISTRICT)	357.6'
PARKING LOT =	20 FEET (10 FEET SIDE AND REAR)	CLOSEST IS 25' FROM E.PROP LINE
MAXIMUM LOT COVERAGE =	40% BUILDING, 85% IMPERVIOUS	5.7% BUILDING 13.26% IMPERVIOUS
MAXIMUM BUILDING HEIGHT =	30 FEET, 2 STORIES	1-STORY ≈ 23 FEET
PARKING CALCULATION: 1.5 SPACES PER 1,000 SQFT OF GROSS FLOOR AREA OR 1.2 SPACES PER EACH EMPLOYEE AT PEAK SHIFT WHICHEVER IS GREATER, PLUS 1 SPACE FOR EACH CORPORATE VEHICLE.		
-UP TO 18 EMPLOYEES AT PEAK SHIFT X 1.2 SPACES = 22 SPACES + 12 SPACES FOR TRAINING PURPOSES + 4 FOR PORTABLE REFRIGERATION UNITS + 12 SPACES FOR CORPORATE VEHICLES = 50 SPACES		
PROVIDED PARKING: 50 SPACES INCLUDING 2 BARRIER FREE SPACES (19 CONSIDERED BANKED PARKING)		

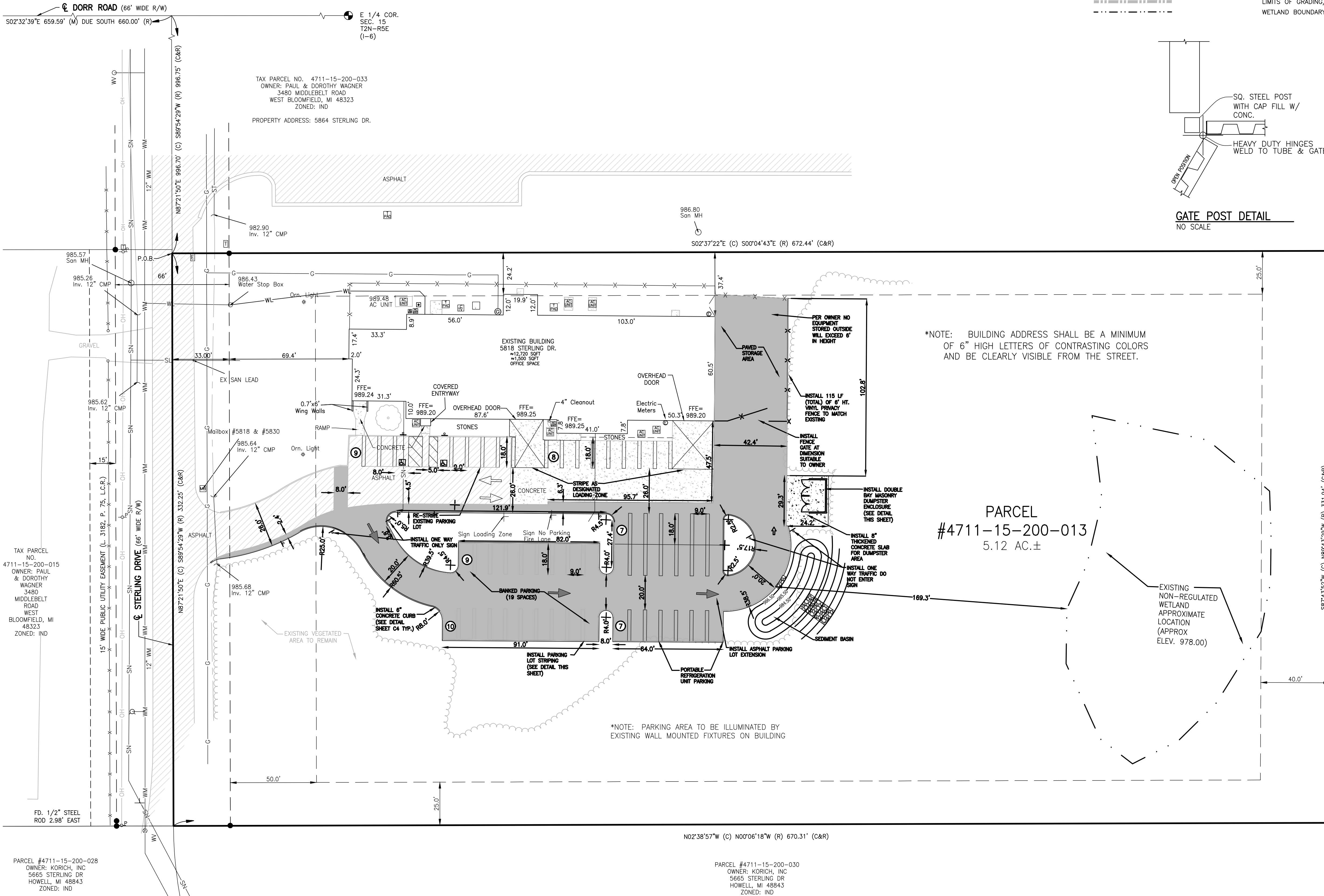
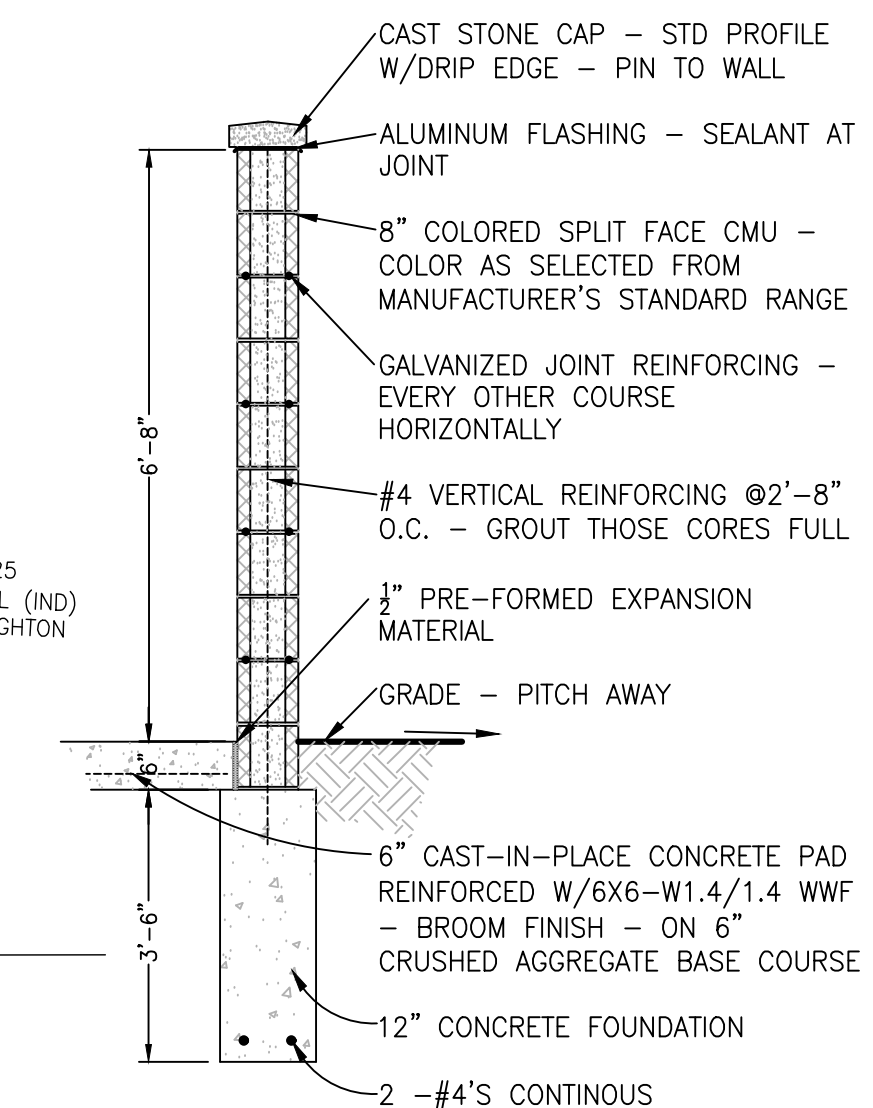
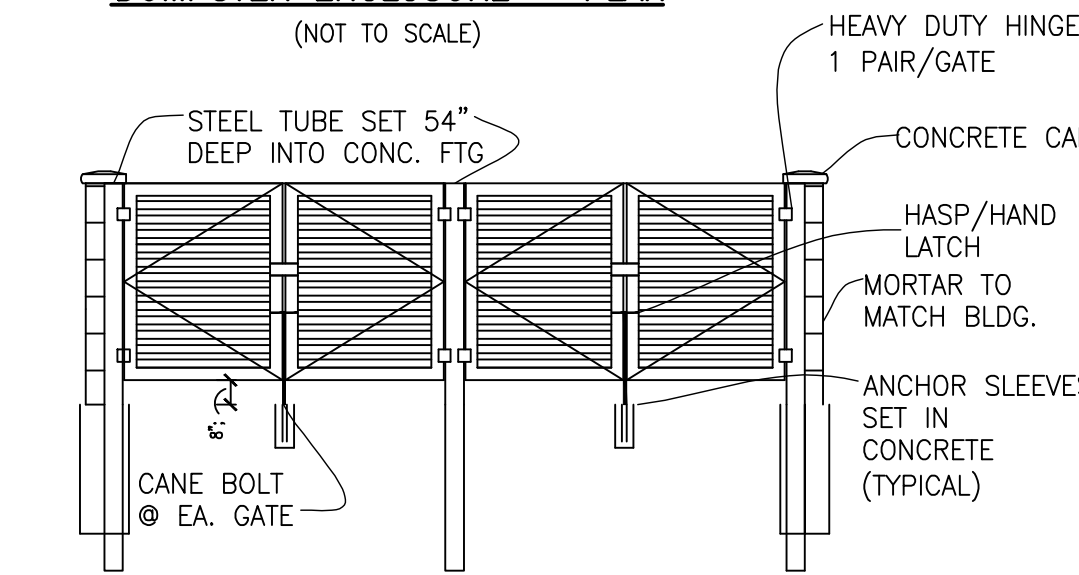
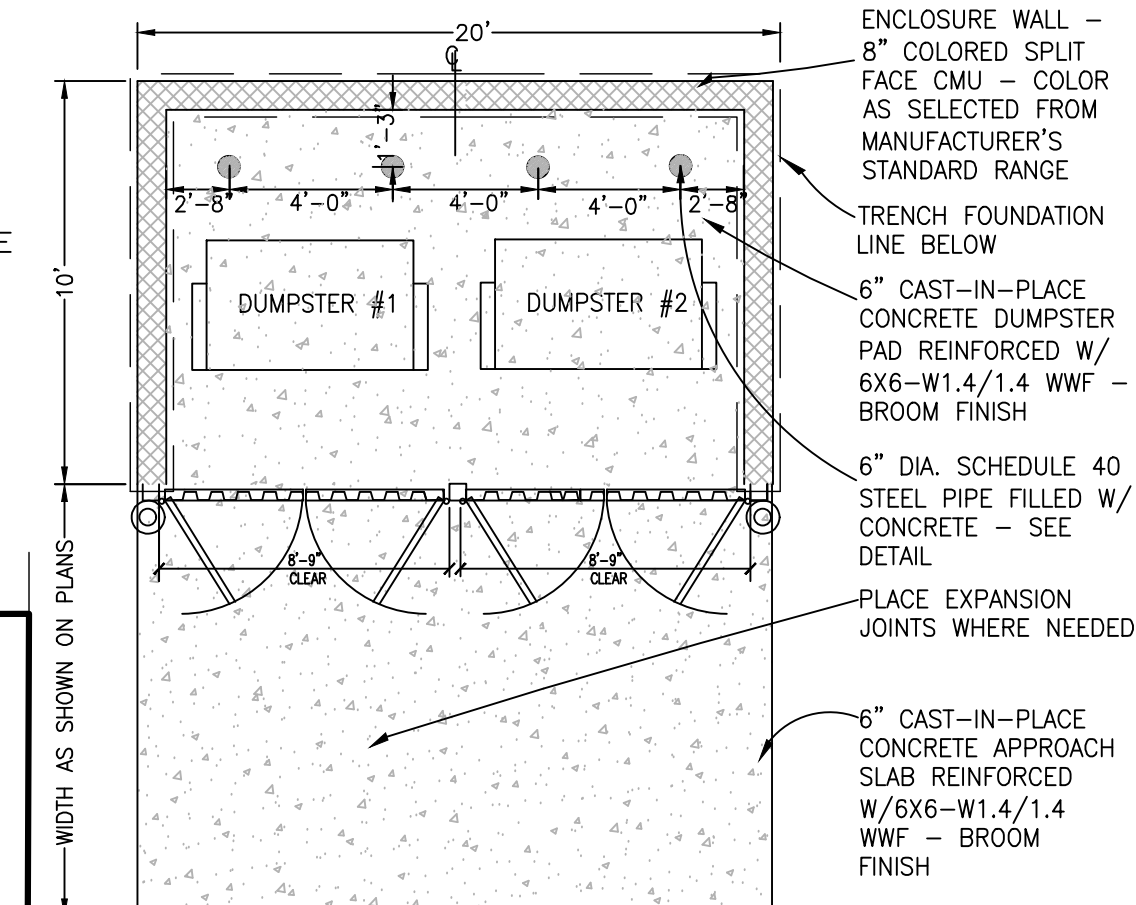
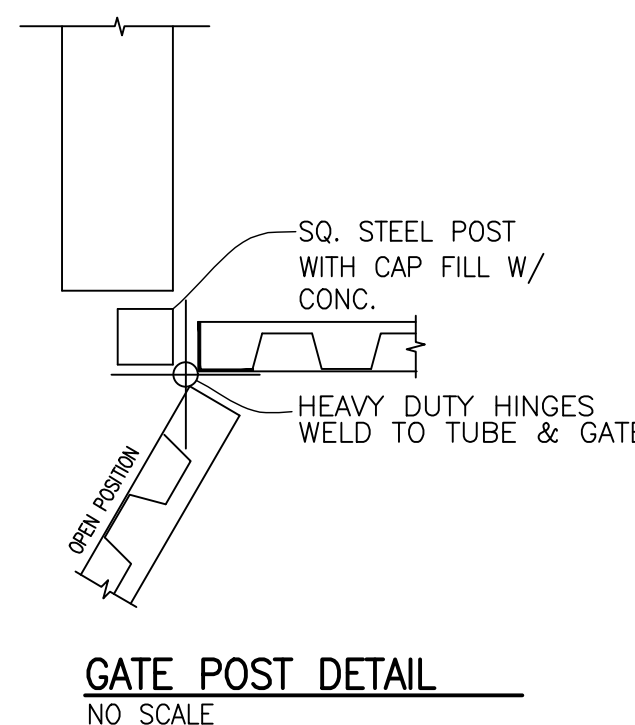
\*EXISTING BUILDING HAS APPROXIMATELY 12,720 SQFT 1,500 SQFT OF WHICH IS OFFICE SPACE



PROPOSED (PR)	EXISTING (EX)
900	900
T/C	T/A
XXX.XX	+922.08
FF	FF
FG	FG
T/A	T/A
T/C	T/C
T/W	T/W
F/L	F/L
T/P	T/P
B/P	B/P
RIM	RIM
INV	INV
MH	MH
IN	IN
CB	CB
RY	RY
ES	ES
GV	GV
HY	HY
UP	UP

LEGEND

PROPOSED (PR)	EXISTING (EX)	
SN	SN	SANITARY SEWER
SL	SL	SANITARY LEAD
FM	FM	FORCE MAIN
PS	PS	PRESSURE SEWER
ST	ST	STORM SEWER
WM	WM	WATER MAIN
WL	WL	WATER LEAD
FO	FO	FIBER OPTIC
OH	OH	OVERHEAD WIRE
C	C	CABLE
E	E	ELECTRIC
G	G	GAS
T	T	TELEPHONE
MH	MH	MANHOLE
I	I	INLET / CATCHBASIN
FL	FL	FLARED END-SECTION
GV	GV	GATE VALVE
UT	UT	UTILITY POLE
F	F	FENCE
S	S	SIGN
NFV	NFV	NOT FIELD VERIFIED
TBR	TBR	TO BE REMOVED
CSB	CSB	COMPACTED SAND BACKFILL
SW	SW	SANITARY SEWER LABEL
SS	SS	STORM SEWER LABEL
WM	WM	WATER MAIN LABEL
SE	SE	SOIL EROSION CONTROL MEASURE (P=PERMANENT, T=TEMPORARY)



**BEBOSS Engineering**  
 Engineers Surveyors Planners Landscape Architects  
 3121 E. GRAND RIVER AVE.  
 HOWELL, MI 48843  
 800.246.6735 FAX 517.548.1670

**5818 STERLING DRIVE, HOWELL, MI**  
**TOWN CENTER, INC.**  
 5818 STERLING DRIVE  
 HOWELL, MI 48843  
 248-207-0506

**SITE PLAN**

PROJECT:	5818 STERLING DRIVE, HOWELL, MI
PREPARED FOR:	TOWN CENTER, INC.
TITLE:	SITE PLAN
DATE:	10-25-17
REVISION PER:	
NO BY:	
DESIGNED BY:	
DRAWN BY:	AEB
CHECKED BY:	
SCALE:	1" = 30'
JOB NO.:	17-329
DATE:	10-3-17
SHEET NO.:	C3

**LIVINGSTON COUNTY SOIL EROSION PERMIT TEMPLATE TEMPORARY CONTROLS AND SEQUENCE**

- NOTIFY LIVINGSTON COUNTY DRAIN COMMISSIONER'S OFFICE 24 HOURS PRIOR TO START OF GRADE WORK.
- IN ACCORDANCE WITH PUBLIC ACT NO. 53, OF 1974 THE PERMIT HOLDER SHALL CALL MISS DIG FOR STAKING AND LOCATING OF UTILITIES, AT LEAST 72 HOURS IN ADVANCE OF THE START OF ANY WORK.
- (IMPORTANT NOTICE) RETENTION/DETENTION PONDS SHALL BE EXCAVATED, TOPSOILED, SEEDDED, MULCHED AND TACKED PRIOR TO THE START OF MASSIVE EARTH DISRUPTION. INGRESS/EGRESS MUST HAVE LARGE CRUSHED ROCK TO REDUCE THE TRACKING OF SOIL ONTO THE PUBLIC TRAFFIC AREAS. SEE DETAIL ITEMS BELOW.
- 36" M.D.O.T SPECIFICATION TYPE SILT FABRIC FENCE AS SHOWN ON PLANS SHALL BE PLACED AND MAINTAINED ALONG PERIMETER ON ALL LOW LYING AREAS OF THE CONSTRUCTION SITE TO FILTER RUNOFF BEFORE LEAVING PROJECT SITE.
- ALL TEMPORARY EROSION CONTROL DEVICES AS NOTED ON PLANS SHALL BE INSTALLED PRIOR TO THE START OF MASSIVE EARTH DISRUPTION.
- PLAN DOES DENOTE A DETAILED EROSION CONTROL DEVICE TO RESTRICT TRACKING OF MATERIAL ONTO THE HIGHWAY. STONE DAMPERS SHALL BE INSTALLED AT ALL INGRESS/EGRESS AREAS OF THE SITE PRIOR TO THE START OF MASSIVE EARTH DISRUPTION. DAMPERS SHALL BE OF CRUSHED STONE AND SHALL HAVE A MINIMUM LENGTH OF 100' LINEAL FEET.
- RETENTION PONDS
  - RETENTION/DETENTION/SEDIMENTATION PONDS SHALL BE EXCAVATED, TOPSOILED, SEEDDED, MULCHED AND TACKED PRIOR TO THE START OF MASSIVE EARTH DISRUPTION.

- DETENTION POND OUTLETS SHALL BE OF THE STANDPIPE AND STONE FILTER SYSTEM, WITH TRASH SCREEN. OUTLET FLOW SHALL NOT EXCEED 0.20 CUBIC FEET OF WATER PER SECOND/PER ACRE. POND DIKES SHALL HAVE A MINIMUM OF ONE (1) FOOT OF FREEBOARD. AN EMERGENCY SPILLWAY SHALL BE CONSTRUCTED WITHIN THE FREEBOARD LEVEL.
- THE EMERGENCY SPILLWAY FROM THE DETENTION POND SHALL BE SLOPED AND FREEZED, OR RIP RAPPED, 15 FEET PAST THE TOE OF THE SLOPE OF THE BERM.
- DIKES AND BERMS SHALL BE FREE OF ALL ORGANIC MATTER.
- RETENTION/DETENTION PONDS SHALL BE FENCED WITH A 4' CHAIN LINK FENCE, INCLUDING A 12' ACCESS GATE FOR MAINTENANCE UNLESS MINIMUM 5 FT. HORIZONTAL TO 1 FT. VERTICAL SIDE SLOPES ARE PROVIDED. FOR MAINTENANCE WORK TO BE DONE INSIDE THE FENCE.
- ALL UNIMPROVED DISTURBED AREAS SHALL BE STRIPPED OF TOPSOIL WHICH WILL BE STORED ONSITE DURING THE EXCAVATING STAGE. TOPSOIL PILES SHALL BE SEEDDED AND MULCHED, OR MATTED WITH STRAW IN THE NON-GROWING SEASON, IMMEDIATELY AFTER THE STRIPPING PROCESS IS COMPLETED, TO PREVENT WIND AND WATER EROSION.
- SOIL EROSION CONTROLS SHALL BE MONITORED DAILY BY THE ON-SITE ENGINEER, OR CONTRACTOR, WHICHEVER CASE APPLIES. THE FENCE SHALL BE INSTALLED AT THE OUTER PORTION OF THE BERM, TO ALLOW SLOPES AND DITCHES.
- ON SITE DITCHES SHALL BE OF THE FLAT BOTTOM TYPE MINIMUM WIDTH OF 2' WITH A MINIMUM OF 3 HORIZONTAL TO 1 VERTICAL SIDE SLOPES, 3:1.
- DITCHES WITH STEEP SLOPES WILL NEED FLOW CHECKS TO PREVENT SCOURING OF THE DITCH BOTTOM. THESE SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER OR INSPECTOR.
- SLOPES IN EXCESS OF 3 HORIZONTAL TO 1 VERTICAL SHALL NOT BE USED EXCEPT WITH A MECHANICAL DEVICE SUCH AS A RETAINING WALL, TERRACING, OR OTHER PRIOR APPROVED DEVICE.

- STABILIZATION**
- ALL UNIMPROVED DISTURBED AREAS SHALL BE RE-TOP SOILED, WITH A MINIMUM OF 3" OF MATERIAL, SEEDED, MULCHED AND TACKED WITHIN 15 DAYS OF THE COMPLETION OF THE MASSIVE EARTH DISRUPTION. IN THE NON-GROWING SEASON STRAW MATTING WILL SUFFICE. HYDROSEEDING WILL BE AN ACCEPTABLE ALTERNATE FOR MULCHING. EXTREME CARE SHOULD BE EXERCISED IN SPRING AND FALL PERIODS AS A FROST WILL BREAK THE BOND OF THE HYDROSEEDING, WHICH WILL AFFECT THE EFFECTIVENESS OF THIS PROCEDURE.
  - IN THE NON-GROWING SEASON, TEMPORARY STABILIZATION OF MASSIVELY EXPOSED AREAS FOR WINTER STABILIZATION SHALL BE DONE WITH STRAW MATTING.
  - PERIODIC INSPECTIONS WILL BE MADE THROUGHOUT THE COURSE OF THE PROJECT. IT WILL BE THE RESPONSIBILITY OF THE MANAGERS OF THE PROJECT TO CONTACT THIS OFFICE FOR THE FINAL INSPECTION AT THE END OF THE PROJECT.
  - THIS COMMERCIAL PERMIT IS VALID FOR THE MASS EARTH MOVEMENT. THE INSTALLATION OF ROADS, DRAINS, AND UTILITIES AND IS NOT FOR ANY SINGLE FAMILY RESIDENCE. ALL RESIDENTIAL BUILDERS WILL NEED TO SECURE WAIVERS AND OR PERMITS AS NECESSARY FOR EACH LOT IN THIS DEVELOPMENT AT THE TIME APPLICATION FOR SINGLE FAMILY RESIDENCE IS MADE.
  - THE ISSUING BUILDING DEPARTMENT SHALL NOT ISSUE THE CERTIFICATE OF OCCUPANCY UNTIL THE FINAL INSPECTION LETTER FROM THE LIVINGSTON COUNTY DRAIN COMMISSIONER'S OFFICE HAS BEEN OBTAINED.
  - PER THE LIVINGSTON COUNTY DRAIN COMMISSIONER THE SEEDING, FERTILIZER AND MULCH MINIMUM QUANTITIES SHALL BE AS FOLLOWS:
    - TOP-SOIL 218 LBS. PER ACRE
    - GRASS SEED 150 LBS. PER ACRE
    - FERTILIZER 3" IN DEPTH 1.5 TO 2 TONS PER ACRE (ALL MULCHING MUST HAVE A TIE DOWN, SUCH AS TACKIFIER, NET BINDING, ETC.)
    - HYDRO-SEEDING IS NOT ACCEPTABLE FOR SLOPES EXCEEDING 1% IN SUCH CASES STABILIZATION SHALL BE DONE WITH SEED AND STRAW MULCH WITH A TACKIFIER.

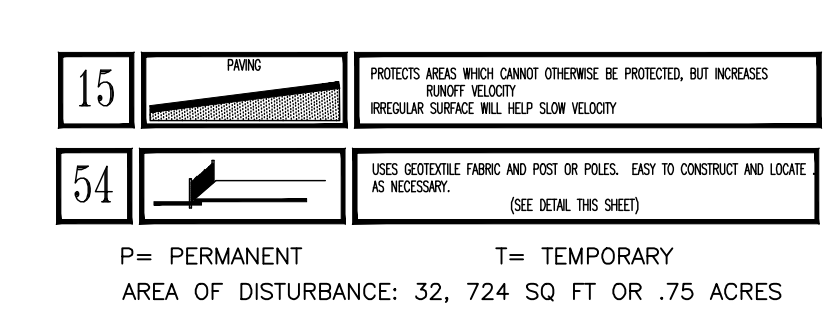
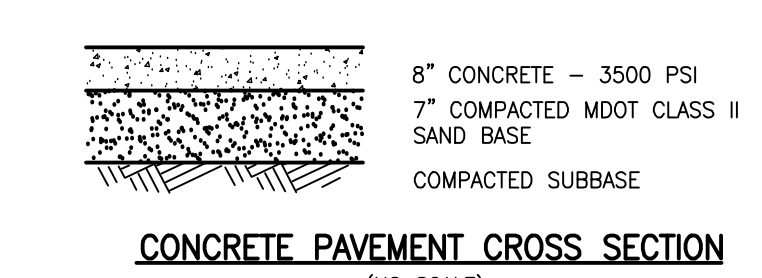
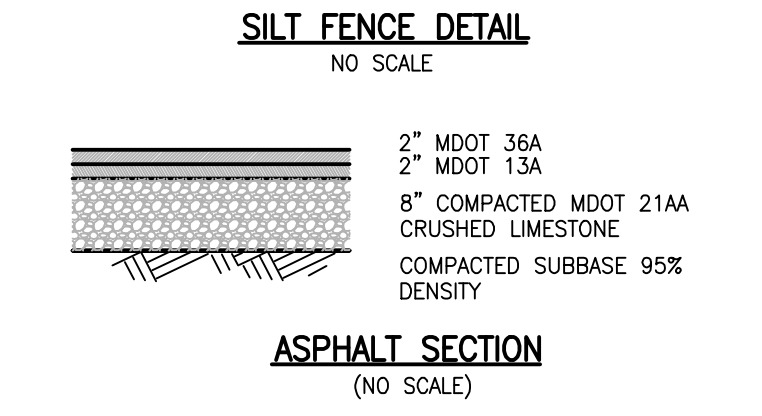
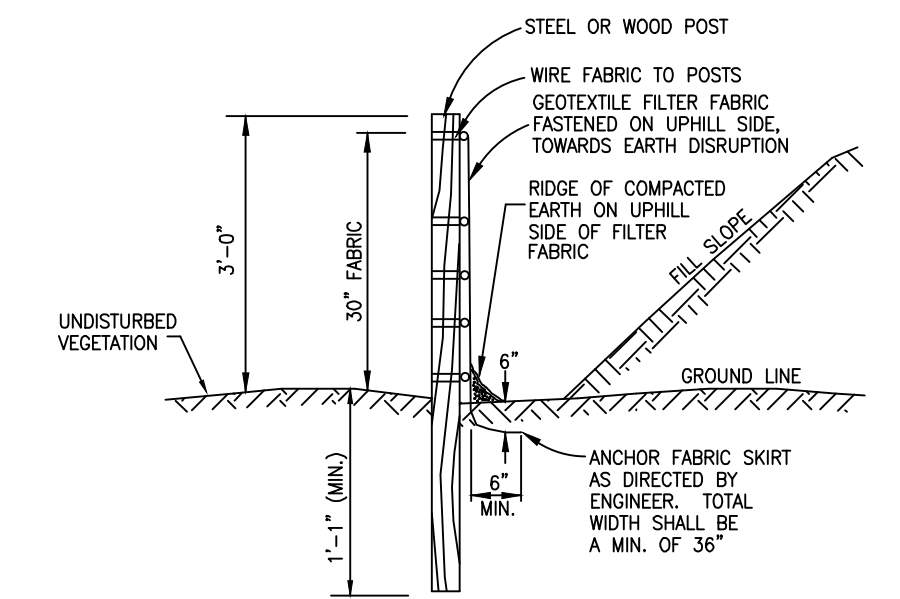
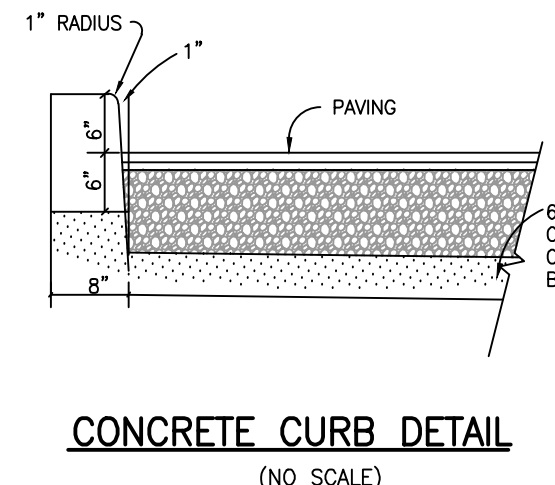
- MAINTENANCE SCHEDULE FOR SOIL EROSION CONTROLS**
- SILT FENCE SHALL BE INSPECTED WEEKLY AND AFTER EACH MAJOR STORM EVENT. MAINTENANCE SHALL INCLUDE REMOVAL OF ACCUMULATED SILT AND REPLACEMENT OF TORN SECTIONS. SILT FENCE SHALL BE REMOVED WHEN ALL CONTRIBUTING AREAS HAVE BEEN STABILIZED.
  - TRACKING PAD SHALL BE INSPECTED MONTHLY FOR ACCUMULATED DIRT. TRACKING PAD SHALL BE REPLACED WHEN THE STONES ARE CHECKED WITH DIRT. TRACKING PAD SHALL BE REMOVED IMMEDIATELY PRIOR TO THE FIRST COURSE OF ASPHALT BEING LAID.
  - DETENTION/RETENTION POND SHALL BE INSPECTED QUARTERLY ON A PERMANENT BASIS. MAINTENANCE SHALL INCLUDE SEDIMENT REMOVAL, EMBANKMENT STABILIZATION AND MAINTAINING THE OUTLET STRUCTURE IN GOOD CONDITION. NO TREES SHALL BE ALLOWED TO GROW ON THE EMBANKMENT.
  - CATCH BASINS SHALL BE INSPECTED ANNUALLY FOR ACCUMULATION OF SEDIMENT. ALL SEDIMENT MUST BE REMOVED AND DISPOSED OF PROPERLY WHEN THE SUMP IS FULL.
  - COMMON AREAS SHALL BE STABILIZED NO LATER THAN 15 DAYS AFTER GRADE WORK, PURSUANT TO RULE 1709 (5).

**GENERAL SURVEY NOTES:**

- BEARINGS ARE BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM SOUTH ZONE.
- SUBSURFACE UTILITIES NOT LOCATED FOR THIS SURVEY MAY EXIST. IT IS THE RESPONSIBILITY OF THE OWNER OF THE RESPECTIVE UTILITY TO ACCURATELY LOCATE SUCH UTILITIES.
- EASEMENTS OR RESTRICTIONS OF RECORD NOT DEPICTED ON THIS DRAWING MAY EXIST.
- ELEVATIONS WERE ESTABLISHED WITH OPUS USING OPUS. (NAVD83 DATUM)
- CONTOURS ARE SHOWN AT 1 FOOT INTERVALS.
- ALL ELEVATIONS ARE SHOWN TO THE NEAREST 0.01 FOOT; HOWEVER, SURFACE ELEVATIONS CAN ONLY BE PRESUMED ACCURATE TO THE NEAREST 0.1 FOOT.
- BENCHMARK INFORMATION IS AS FOLLOWS:
  - BM #101 - NW CORNER OF CONC PAD FOR A/C UNIT.....ELEV.= 989.72
  - BM #102 - CENTER OF SEPTIC TANK MANHOLE.....ELEV.= 988.57

**LEGEND**

PROPOSED (PR)	EXISTING (EX)	PROPOSED (PR)	EXISTING (EX)
SN	SN	SN	SANITARY SEWER
SL	SL	SL	SANITARY LEAD
FM	FM	FM	FORCE MAIN
PS	PS	PS	PRESSURE SEWER
ST	ST	ST	STORM SEWER
WM	WM	WM	WATER MAIN
WL	WL	WL	WATER LEAD
FO	FO	FO	FIBER OPTIC
OH	OH	OH	OVERHEAD WIRE
C	C	C	CABLE
E	E	E	ELECTRIC
G	G	G	GAS
T	T	T	TELEPHONE
CB	CB	CB	MANHOLE
CB	CB	CB	INLET / CATCHBASIN
CB	CB	CB	FLARED END-SECTION
CB	CB	CB	GATE VALVE
CB	CB	CB	HYDRANT
CB	CB	CB	UTILITY POLE
CB	CB	CB	FENCE
CB	CB	CB	SIGN
CB	CB	CB	NOT FIELD VERIFIED
CB	CB	CB	TO BE REMOVED
CB	CB	CB	COMPACTED SAND BACKFILL
CB	CB	CB	SANITARY SEWER LABEL
CB	CB	CB	STORM SEWER LABEL
CB	CB	CB	WATER MAIN LABEL
CB	CB	CB	SOIL EROSION CONTROL MEASURE (P=PERMANENT, T=TEMPORARY)



**CONTROLS & MEASURES NARRATIVE**

ACTIVITY	DESCRIPTION
MAINTAIN LANDSCAPING, REPLACE MULCH	COLLECT GRASS, TREE, AND SHRUB CLIPPINGS. DISPOSE IN APPROVED CONTAINER. REPLACE DEAD SOD, TREES AND SHRUBS
CLEAN INLETS	REMOVE LITTER, SEDIMENT, AND DEBRIS. DISPOSE OF IN APPROVED LANDFILL.
COLLECT LITTER	DISPOSE OF WITH INLET DEBRIS.
SWEEP PARKING LOT	REMOVE MUD, DIRT, GREASE AND OIL WITH PERIODIC SWEEPING
DUST CONTROL	SPRINKLE WATER AS NEEDED

**MAINTENANCE SCHEDULE FOR SOIL EROSION CONTROLS**

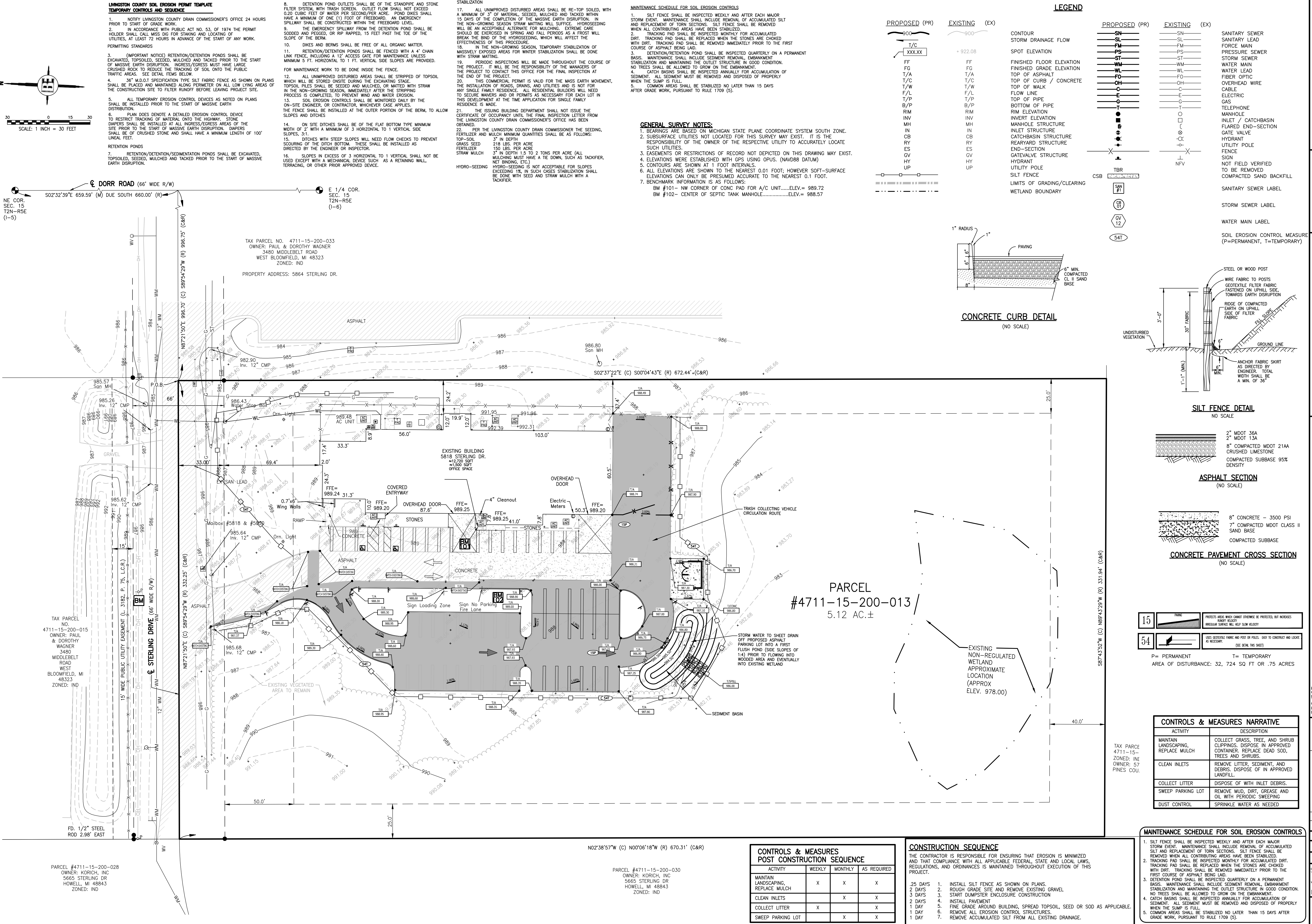
NO.	DAYS	ACTIVITY
1	25 DAYS	INSTALL SILT FENCE AS SHOWN ON PLANS.
2	2 DAYS	ROUGH GRADE SITE AND REMOVE EXISTING GRAVEL
3	3 DAYS	START DUMPSTER ENCLOSURE CONSTRUCTION
4	2 DAYS	INSTALL PAVEMENT
5	1 DAY	FINE GRADE AROUND BUILDING, SPREAD TOPSOIL, SEED OR SOD AS APPLICABLE.
6	1 DAY	REMOVE ALL EROSION CONTROL STRUCTURES
7	1 DAY	REMOVE ACCUMULATED SILT FROM ALL EXISTING DRAINAGE.

**CONTROLS & MEASURES POST CONSTRUCTION SEQUENCE**

ACTIVITY	WEEKLY	MONTHLY	AS REQUIRED
MAINTAIN LANDSCAPING, REPLACE MULCH	X	X	X
CLEAN INLETS		X	X
COLLECT LITTER	X		X
SWEEP PARKING LOT		X	X

**CONSTRUCTION SEQUENCE**

THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT EROSION IS MINIMIZED AND THAT COMPLIANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL LAWS, REGULATIONS, AND ORDINANCES IS MAINTAINED THROUGHOUT EXECUTION OF THIS PROJECT.



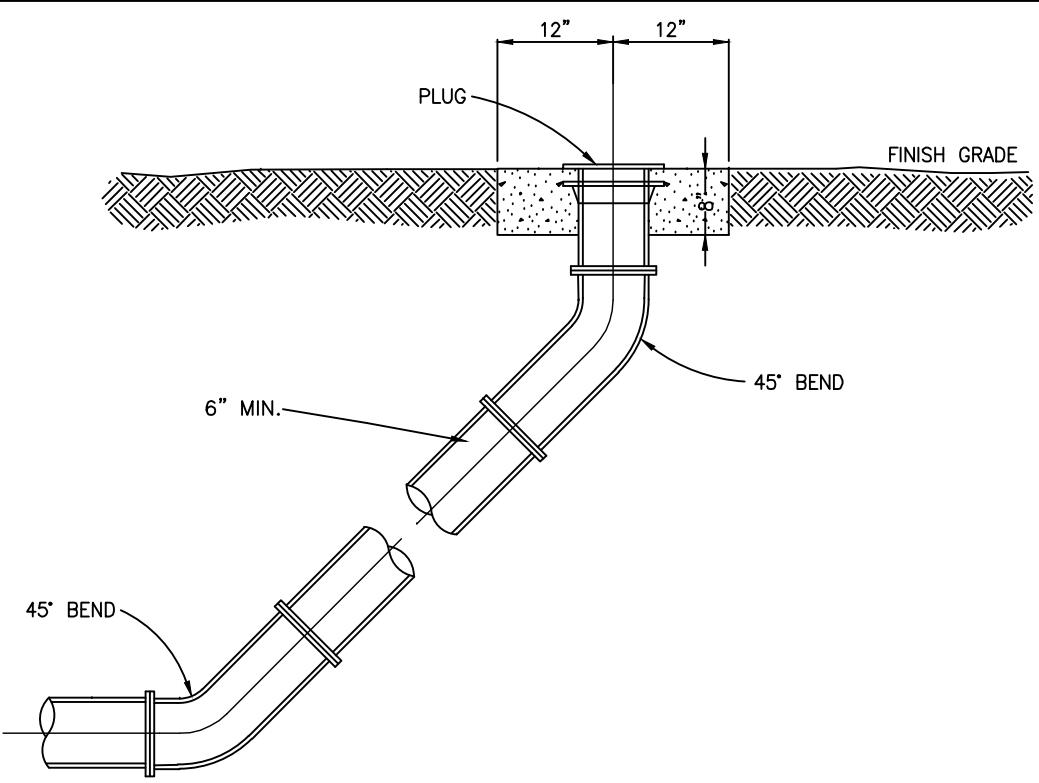
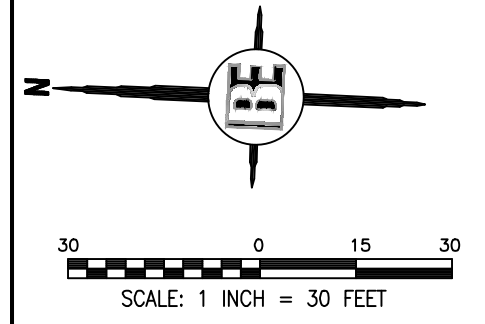
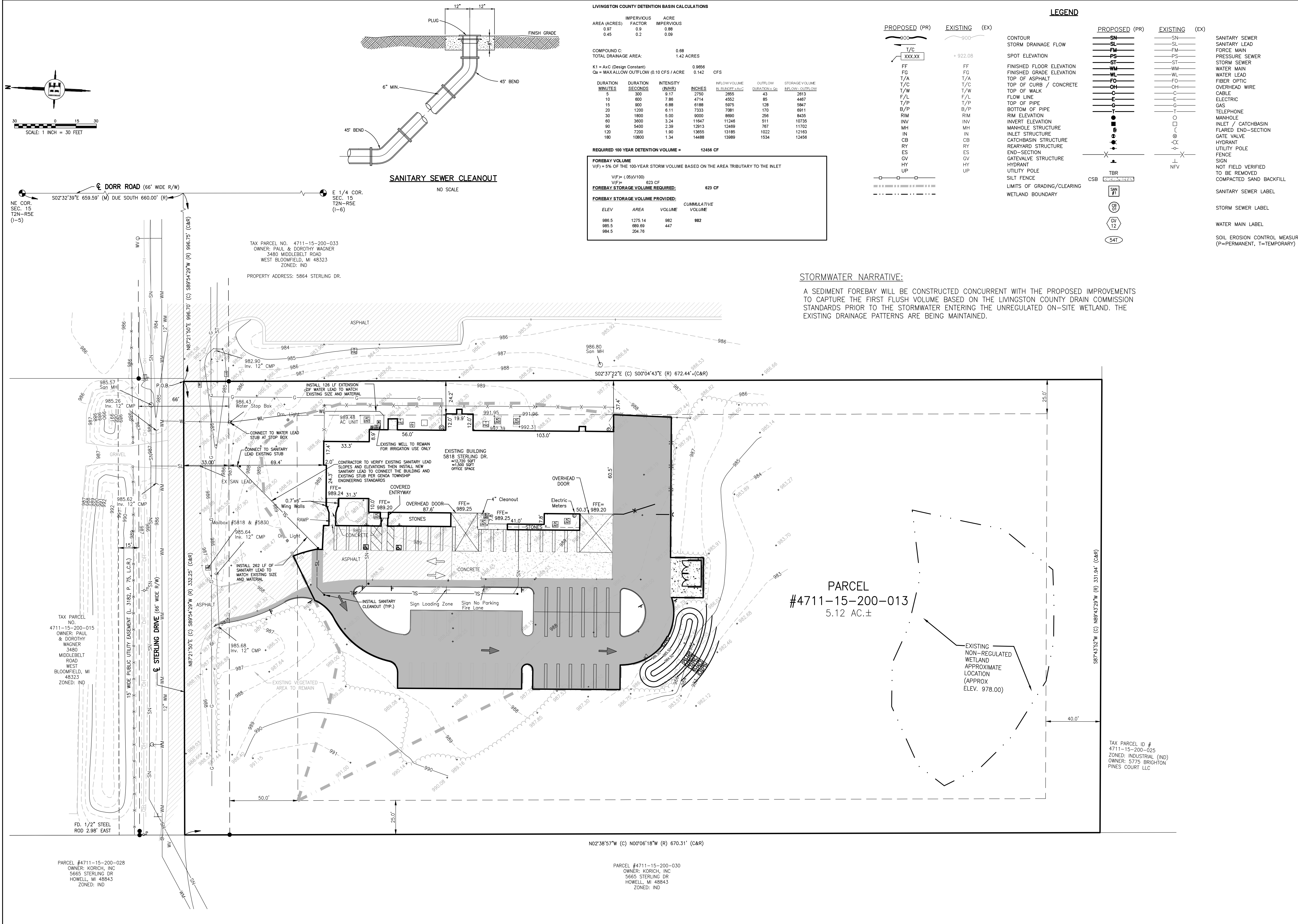
THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND ORDINANCES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND ORDINANCES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND ORDINANCES.

**BEBOSS Engineering**  
 Engineers Surveyors Planners Landscape Architects  
 3121 E. GRAND RIVER AVE.  
 HOWELL, MI 48843  
 800.246.6735 FAX 517.548.1670

**5818 STERLING DRIVE, HOWELL, MI**  
**TOWN CENTER, INC.**  
 5818 STERLING DRIVE  
 HOWELL, MI 48843  
 248-207-0506

PROJECT: 5818 STERLING DRIVE, HOWELL, MI  
 PREPARED FOR: TOWN CENTER, INC.  
 TITLE: GRADING, DRAINAGE, & SESC PLAN

DESIGNED BY: AEB  
 CHECKED BY: AEB  
 SCALE: 1" = 30'  
 JOB NO. 17-329  
 DATE 10-3-17  
 SHEET NO. C4



**LIVINGSTON COUNTY DETENTION BASIN CALCULATIONS**

AREA (ACRES)	IMPERVIOUS FACTOR	
	IMPERVIOUS	PERVIOUS
0.97	0.9	0.88
0.45	0.2	0.09

COMPOUND C:		0.9856
TOTAL DRAINAGE AREA:		1.42 ACRES
K1 = AxC (Design Constant)		0.142
Qa = MAX ALLOW OUTFLOW (0.10 CFS / ACRE)		0.142

DURATION (MINUTES)	DURATION (SECONDS)	INTENSITY (IN/HR)	INCHES	INFLOW VOLUME (GAL)	OUTFLOW (GAL)	STORAGE VOLUME (GAL)
5	300	9.17	2750	2655	43	2613
10	600	7.86	4714	4552	85	4467
15	900	6.88	6188	5975	128	5847
20	1200	6.11	7333	7081	170	6911
30	1800	5.00	9000	8960	264	8435
60	3600	3.24	11647	11246	511	10735
90	5400	2.39	12913	12469	767	11702
120	7200	1.90	13656	13185	1022	12163
180	10800	1.34	14488	13989	1534	12456

**REQUIRED 100 YEAR DETENTION VOLUME = 12456 CF**

**FOREBAY VOLUME**  
 V(F) = 5% OF THE 100-YEAR STORM VOLUME BASED ON THE AREA TRIBUTARY TO THE INLET  
 V(F) = (0.05)(12456)  
 V(F) = 623 CF  
**FOREBAY STORAGE VOLUME REQUIRED: 623 CF**

**FOREBAY STORAGE VOLUME PROVIDED:**

ELEV	AREA	VOLUME	CUMULATIVE VOLUME
988.5	1275.14	982	982
985.5	869.69	447	
984.5	204.76		

**LEGEND**

PROPOSED (PR)	EXISTING (EX)
900	900
T/C	T/A
XXX.XX	+ 922.08
FF	FF
FG	FG
T/A	T/A
T/C	T/C
T/W	T/W
F/L	F/L
B/P	B/P
RIM	RIM
INV	INV
MH	MH
IN	IN
CB	CB
RY	RY
ES	ES
GV	GV
HY	HY
UP	UP

**CONTOUR**  
**STORM DRAINAGE FLOW**  
**SPOT ELEVATION**  
**FINISHED FLOOR ELEVATION**  
**FINISHED GRADE ELEVATION**  
**TOP OF ASPHALT**  
**TOP OF CURB / CONCRETE**  
**TOP OF WALK**  
**FLOW LINE**  
**TOP OF PIPE**  
**BOTTOM OF PIPE**  
**RIM ELEVATION**  
**INVERT ELEVATION**  
**MANHOLE STRUCTURE**  
**CATCHBASIN STRUCTURE**  
**REARYARD STRUCTURE**  
**END-SECTION**  
**GATEVALVE STRUCTURE**  
**HYDRANT**  
**UTILITY POLE**  
**SILT FENCE**  
**LIMITS OF GRADING/CLEARING**  
**WETLAND BOUNDARY**

PROPOSED (PR)	EXISTING (EX)	SANITARY SEWER
SN	SN	SANITARY SEWER
SL	SL	SANITARY LEAD
FM	FM	FORCE MAIN
PS	PS	PRESSURE SEWER
ST	ST	STORM SEWER
WM	WM	WATER MAIN
WL	WL	WATER LEAD
FO	FO	FIBER OPTIC
OH	OH	OVERHEAD WIRE
C	C	CABLE
E	E	ELECTRIC
G	G	GAS
T	T	TELEPHONE
MH	MH	MANHOLE
IN	IN	INLET / CATCHBASIN
FL	FL	FLARED END-SECTION
GV	GV	GATE VALVE
HY	HY	HYDRANT
UP	UP	UTILITY POLE
S	S	SIGN
NFV	NFV	NOT FIELD VERIFIED
CSB	CSB	TO BE REMOVED
TBR	TBR	COMPACTED SAND BACKFILL
SW	SW	SANITARY SEWER LABEL
ST	ST	STORM SEWER LABEL
WM	WM	WATER MAIN LABEL
S41	S41	SOIL EROSION CONTROL MEASURE
		(P=PERMANENT, T=TEMPORARY)

**STORMWATER NARRATIVE:**

A SEDIMENT FOREBAY WILL BE CONSTRUCTED CONCURRENT WITH THE PROPOSED IMPROVEMENTS TO CAPTURE THE FIRST FLUSH VOLUME BASED ON THE LIVINGSTON COUNTY DRAIN COMMISSION STANDARDS PRIOR TO THE STORMWATER ENTERING THE UNREGULATED ON-SITE WETLAND. THE EXISTING DRAINAGE PATTERNS ARE BEING MAINTAINED.

**PARCEL #4711-15-200-013**  
 5.12 AC.±

THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL APPLICABLE AGENCIES. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL APPLICABLE AGENCIES. THE USER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL APPLICABLE AGENCIES.

**BEBOSS Engineering**  
 Engineers Surveyors Planners Landscape Architects  
 3121 E. GRAND RIVER AVE.  
 HOWELL, MI 48843  
 800.246.6735 FAX 517.548.1670

**PROJECT: 5818 STERLING DRIVE, HOWELL, MI**  
**PREPARED FOR: TOWN CENTER, INC.**  
 5818 STERLING DRIVE  
 HOWELL, MI 48843  
 248-207-0506  
**TITLE: UTILITY PLAN**

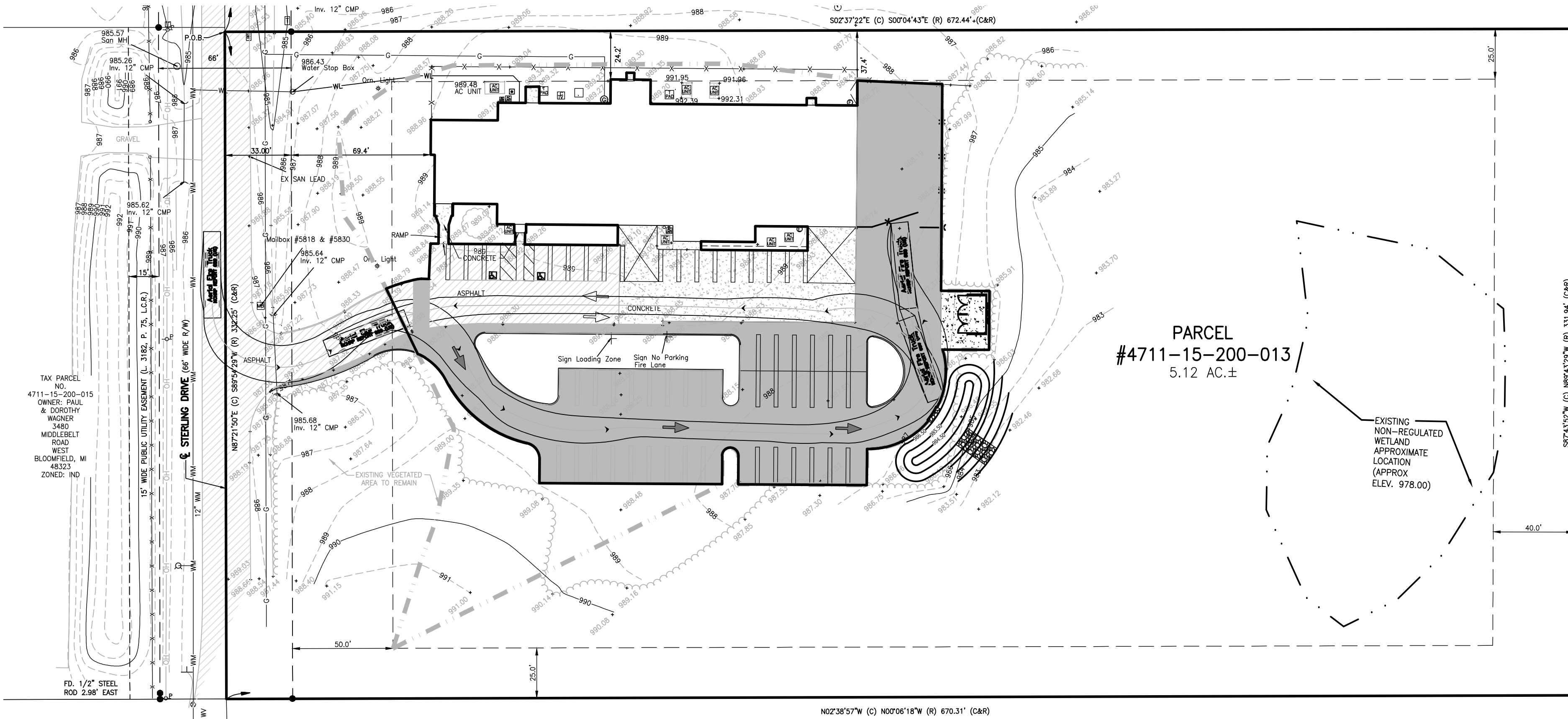
DESIGNED BY:	DATE
DRAWN BY: AEB	10-25-17
CHECKED BY:	
SCALE: 1" = 30'	
JOB NO.: 17-329	
DATE: 10-3-17	
SHEET NO. C5	

SITE DATA

CURRENT ZONING:	REQUIRED	EXISTING/PROPOSED
IND (INDUSTRIAL)		
MINIMUM SETBACK REQUIREMENTS:		
FRONT =	85 FEET (IF PARKING IN FRONT YARD)	102.4'
	50 FEET (IF NO PARKING IN FRONT YARD)	24.2'
SIDES =	25 FEET (50 FEET IF ADJACENT TO RESIDENTIAL DISTRICT)	357.6'
REAR =	40 FEET (80 FEET IF ADJACENT TO RESIDENTIAL DISTRICT)	
PARKING LOT =	20 FEET (10 FEET SIDE AND REAR)	CLOSEST IS 25' FROM E.PROP LINE
MAXIMUM LOT COVERAGE =	40% BUILDING, 85% IMPERVIOUS	5.7% BUILDING 13.26% IMPERVIOUS
MAXIMUM BUILDING HEIGHT =	30 FEET, 2 STORIES	1-STORY ≈23 FEET

PARKING CALCULATION: 1.5 SPACES PER 1,000 SQFT OF GROSS FLOOR AREA OR 1.2 SPACES PER EACH EMPLOYEE AT PEAK SHIFT WHICHEVER IS GREATER, PLUS 1 SPACE FOR EACH CORPORATE VEHICLE.  
 -UP TO 18 EMPLOYEES AT PEAK SHIFT X 1.2 SPACES = 22 SPACES + 12 SPACES FOR TRAINING PURPOSES  
 + 11 SPACES FOR CORPORATE VEHICLES = 45 SPACES  
 30 REQUIRED PARKING SPACES  
 PROVIDED PARKING: 45 SPACES (INCLUDING 2 BARRIER FREE SPACES)

FIRE VEHICLE CIRCULATION

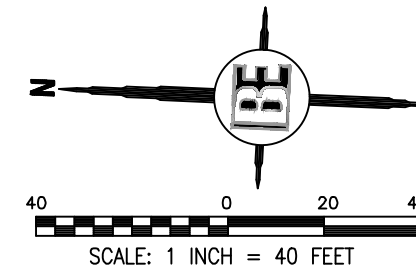


PARCEL #4711-15-200-013 / 5.12 AC.±

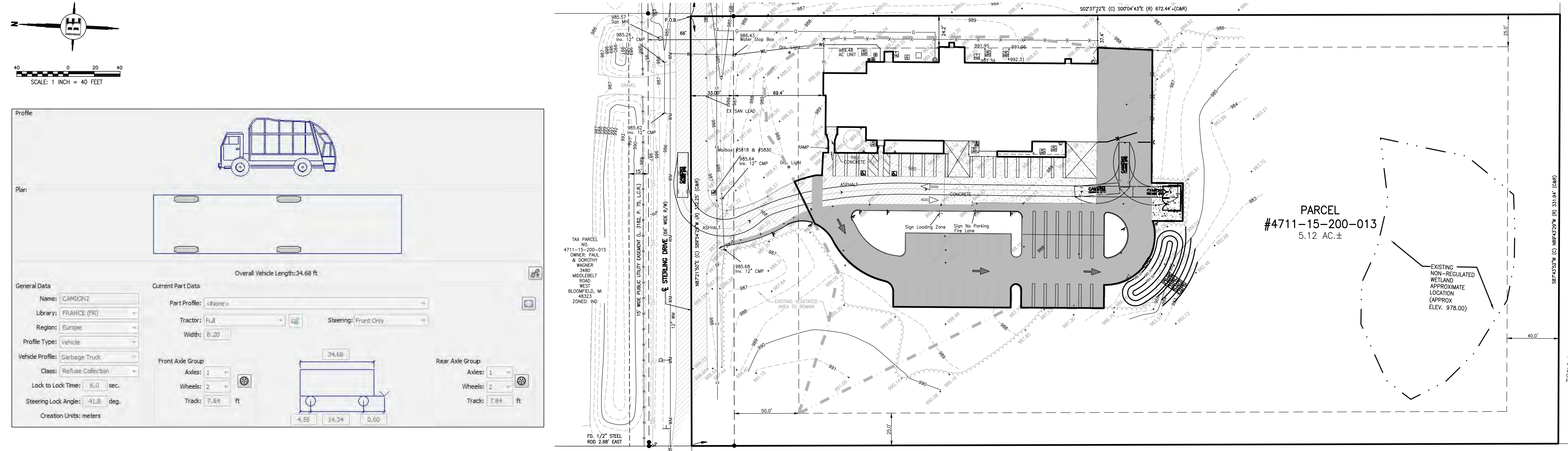
PROPOSED (PR)	EXISTING (EX)
900	900
T/C	T/A
XXX.XX	+ 922.08
FF	FF
FG	FG
T/A	T/A
T/C	T/C
T/W	T/W
F/L	F/L
T/P	T/P
B/P	B/P
RIM	RIM
INV	INV
MH	MH
IN	IN
CB	CB
RY	RY
ES	ES
GV	GV
HY	HY
UP	UP

LEGEND

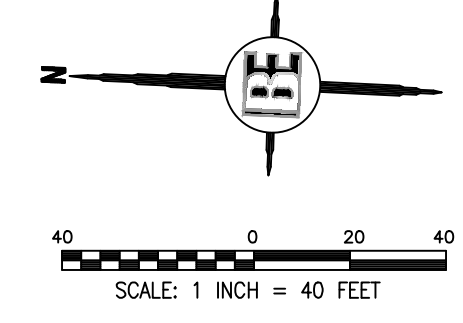
PROPOSED (PR)	EXISTING (EX)	
SN	SN	SANITARY SEWER
SL	SL	SANITARY LEAD
FM	FM	FORCE MAIN
PS	PS	PRESSURE SEWER
ST	ST	STORM SEWER
WM	WM	WATER MAIN
WL	WL	WATER LEAD
FO	FO	FIBER OPTIC
OH	OH	OVERHEAD WIRE
C	C	CABLE
E	E	ELECTRIC
G	G	GAS
T	T	TELEPHONE
M	M	MANHOLE
I	I	INLET / CATCHBASIN
F	F	FLARED END-SECTION
G	G	GATE VALVE
H	H	HYDRANT
U	U	UTILITY POLE
F	F	FENCE
S	S	SIGN
N	N	NOT FIELD VERIFIED
B	B	TO BE REMOVED
C	C	COMPACTED SAND BACKFILL
L	L	SANITARY SEWER LABEL
S	S	STORM SEWER LABEL
W	W	WATER MAIN LABEL
P	P	SOIL EROSION CONTROL MEASURE (P=PERMANENT, T=TEMPORARY)



GARBAGE VEHICLE CIRCULATION



PARCEL #4711-15-200-013 / 5.12 AC.±



**BEBOSS**  
**Engineering**  
 Engineers Surveyors Planners Landscape Architects  
 3121 E. GRAND RIVER AVE.  
 HOWELL, MI 48843  
 800.246.6735 FAX 517.548.1670

PROJECT: **5818 STERLING DRIVE, HOWELL, MI**  
 PREPARED FOR: **TOWN CENTER, INC.**  
 5818 STERLING DRIVE  
 HOWELL, MI 48843  
 248-207-0506

TITLE: **CIRCULATION PLAN**

NO	BY	REVISION PER	DATE
1	CH	REVISED PER TOWNSHIP	10-25-17

DESIGNED BY: AEB  
 DRAWN BY: AEB  
 CHECKED BY:  
 SCALE: 1" = 30'  
 JOB NO. 17-329  
 DATE 10-3-17  
 SHEET NO. **C6**

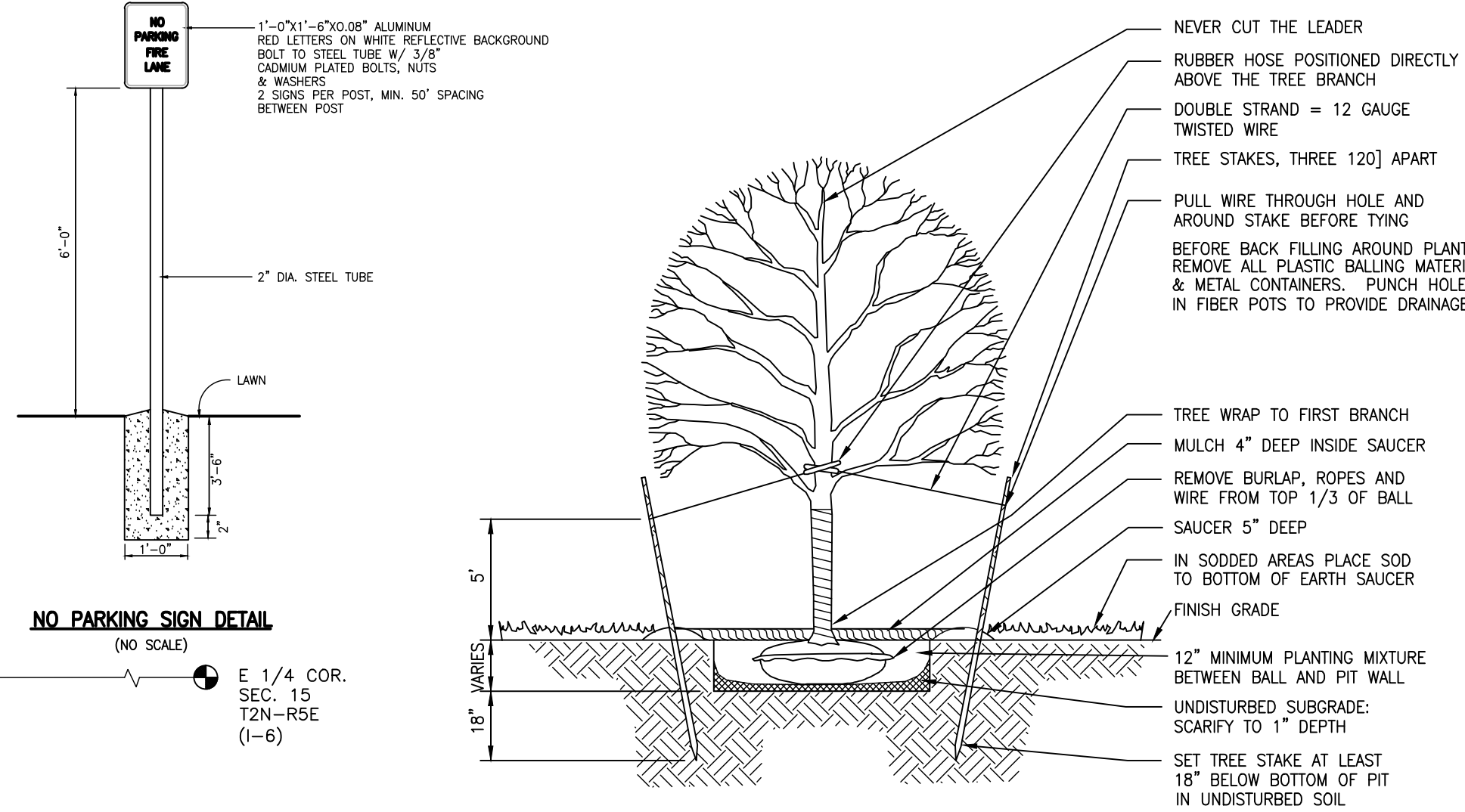
**BEBOSS**  
**Engineering**

LANDSCAPE CALCULATIONS:

WITHIN INDUSTRIAL DISTRICTS A TWENTY (20) FOOT WIDE GREENBELT SHALL BE PLANTED ALONG EACH PUBLIC STREET RIGHT-OF-WAY INCLUDING THE EQUIVALENT OF ONE (1) CANOPY TREE ROUNDED UPWARD FOR EVERY FORTY (40) LINEAR FEET OF FRONTAGE.

TREES REQUIRED: 323 / 40 = 9 TREES HOWEVER, THE ENTIRE WESTERN FRONTAGE IS EXISTING VEGETATION WHICH DECREASED THE AMOUNT OF SPACE TO MEET THE REQUIREMENT IN AND ALREADY HAS EXISTING VEGETATION IN THE GREENBELT AREA. FOR THAT REASON 4 TREES ARE PROPOSED IN THE GREENBELT SPACE THAT IS AVAILABLE (160 FEET OF FRONTAGE/40 = 4) TREES PROVIDED: 4 TREES

ONE (1) CANOPY TREE AND 100 SQFT OF LANDSCAPED AREA PER 10 SPACES REQUIRED: 50 SPACES / 10 = 5 TREES AND 450 SQFT OF LANDSCAPED AREA PROVIDED: 5 TREES AND 4,205 SQFT OF LANDSCAPED AREA



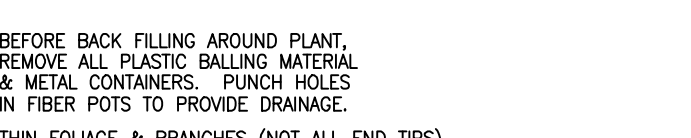
LIGHTING NOTE:

PARKING LOT AND DRIVES WILL BE ILLUMINATED BY EXISTING WALL MOUNTED LIGHTING ON BUILDING. OFFICE HOURS ARE FROM 7AM - 6PM

Legend table with columns for PROPOSED (PR) and EXISTING (EX) symbols for various utility lines like CONTOUR, STORM DRAINAGE FLOW, SPOT ELEVATION, FINISHED FLOOR ELEVATION, etc.

LEGEND

Legend table with columns for PROPOSED (PR) and EXISTING (EX) symbols for utility lines like SANITARY SEWER, STORM SEWER, WATER MAIN, etc.



BEFORE BACK FILLING AROUND PLANT, REMOVE ALL PLASTIC BAILING MATERIAL & METAL CONTAINERS. PUNCH HOLES IN FIBER POTS TO PROVIDE DRAINAGE.

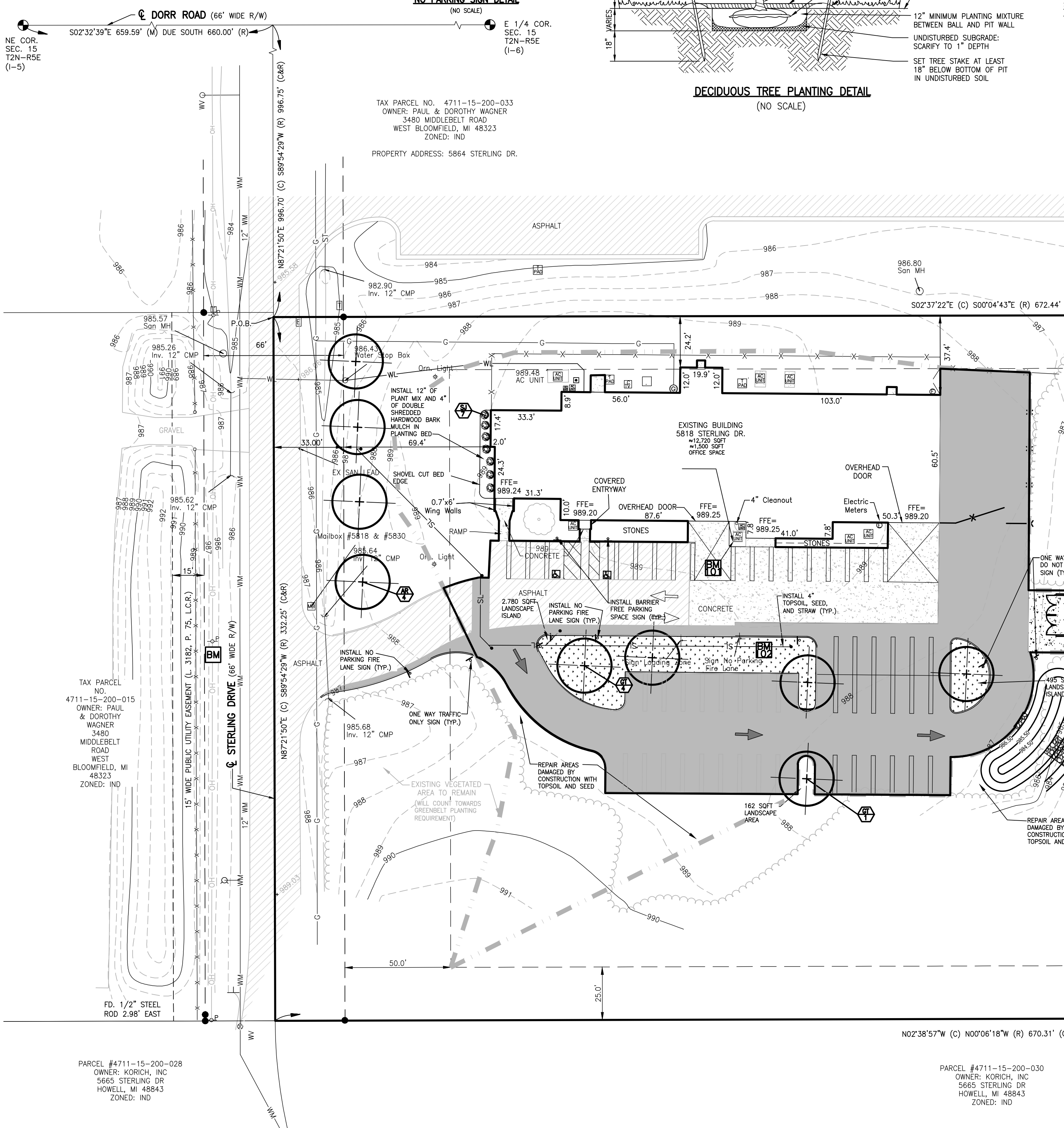


REMOVE TOP 1/3 BURLAP, ROPES & WIRE. 4" MULCH. 6" MIN. PLANTING MIXTURE BETWEEN BALL & PITWALL. UNDISTURBED SUBGRADE. SCARIFY TO 2" DEPTH.

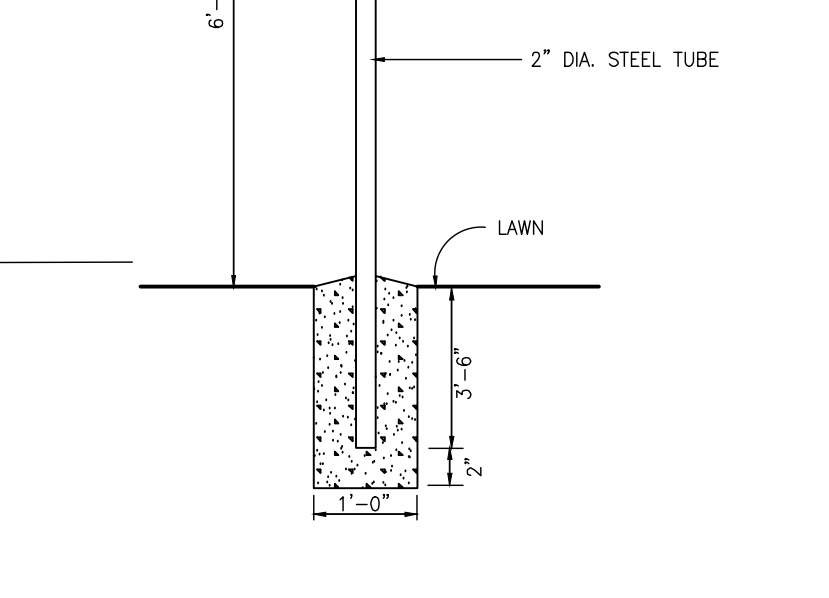
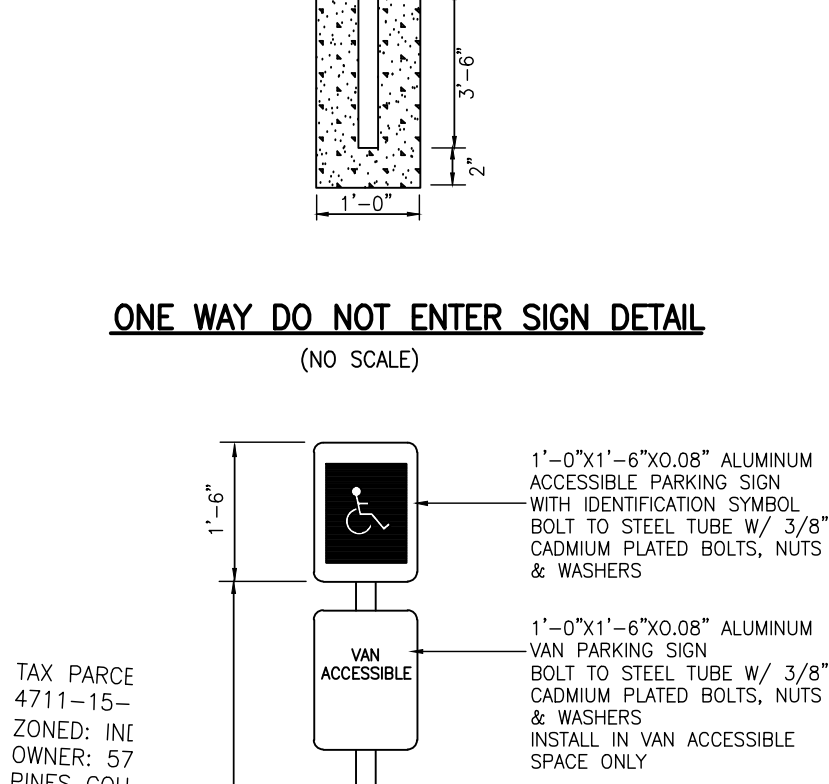
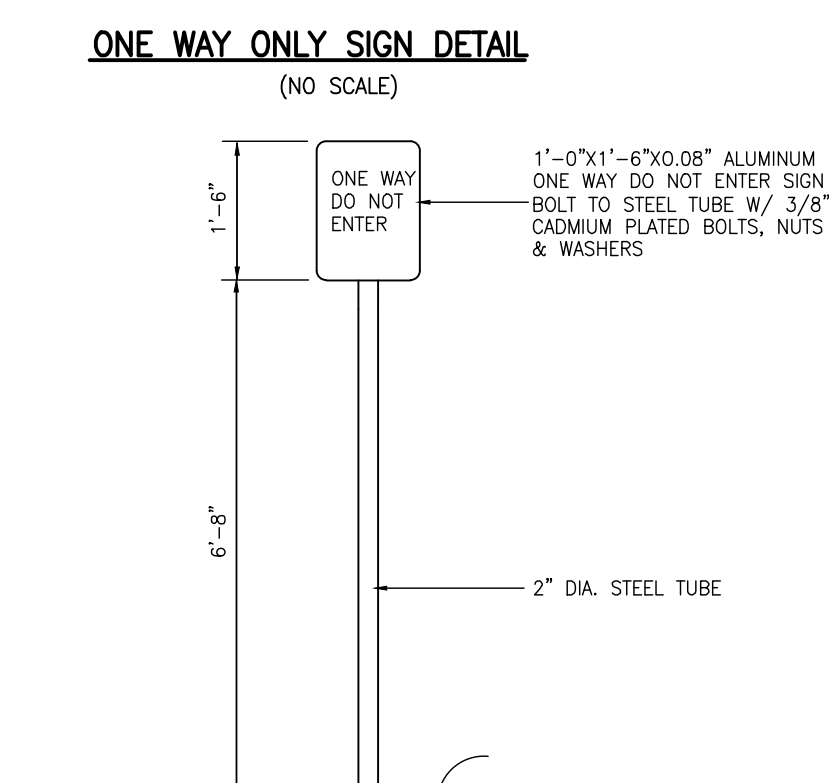
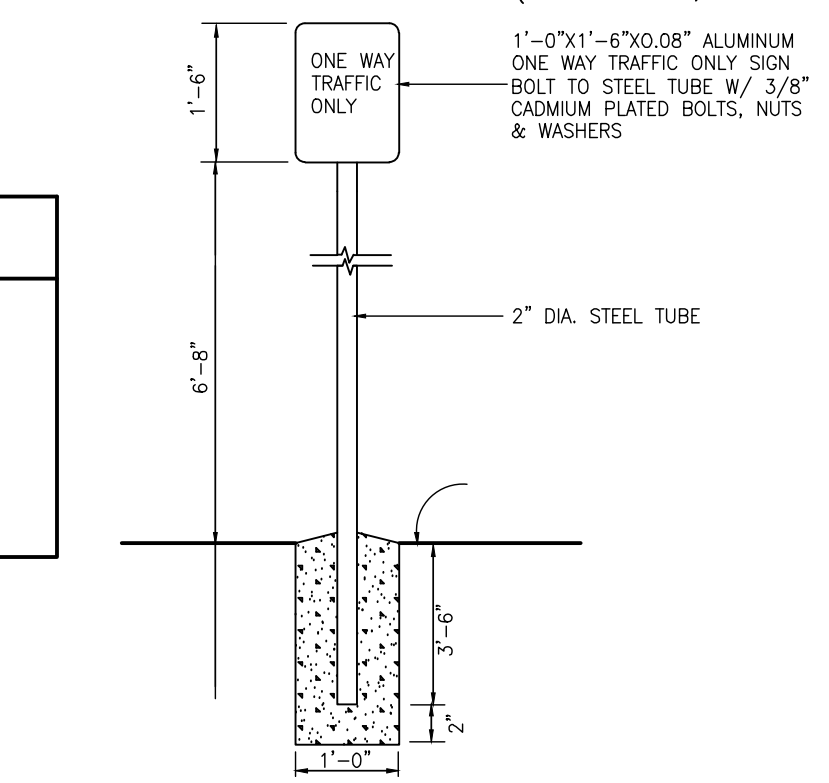
SHRUB PLANTING DETAIL (NO SCALE)

PLANT LIST

Table with columns: KEY QUAN., BOTANICAL NAME, COMMON NAME, SIZE, REMARK. Lists plants like Acer rubrum (Red Maple), Gleditsia tricanthos var. inermis (Thornless Honey Locust), and Spirea japonica 'Magic Carpet'.



PARCEL #4711-15-200-013 / 5.12 AC.±



PROJECT: 5818 STERLING DRIVE, HOWELL, MI  
PREPARED FOR: TOWN CENTER, INC.  
5818 STERLING DRIVE  
HOWELL, MI 48843  
248-207-0506

Revision table with columns: NO, BY, DATE, REVISION PER. Includes a 'DESIGNED BY' section with name AEB and 'CHECKED BY' section.



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:** November 16, 2017

**RE:** Cleary University Athletic Fields – Impact Assessment & Site Plan Approval

Attached please find the project case file requesting approval for a new multi-use athletic field, which will accommodate baseball, soccer and lacrosse for Cleary University located at 3750 Cleary Drive. The project includes expansion of an existing parking lot, as well as a storage building, scoreboard and press box/concessions building. The property is located within the Cleary University Planned Unit Development (PUD) on parcel #11-05-400-070 and is petitioned by Cleary University.

Procedurally, the Planning Commission is to make a recommendation to the Township Board on both the PUD site plan and Impact Assessment. The Township Board has the final review/approval authority over the proposal.

At the November 13, 2017 meeting the Planning Commission recommended conditional approval of the Site Plan and Impact Assessment. A revised Site Plan and Impact Assessment were received from the applicant on November 14, 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 APPROVE the Environmental Impact Assessment dated November 14, 2017 as submitted.**

**Moved by \_\_\_\_\_, Supported by \_\_\_\_\_ to APPROVE the Site Plan dated November 14, 2017 with the following conditions:**

1. An easement from MHOG shall be obtained regarding the off-premise improvements prior to the issuance of the land use permit.
2. The applicant shall comply with the requirements of the Engineer's letter dated November 2, 2017.
3. The applicant shall comply with the requirements of the Brighton Area Fire Authority's letter dated November 7, 2017.

### 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

4. Construction plan review shall be required for any public utility work and must be coordinated with the MHOG Utility Authority.
5. Any necessary utility easements shall be provided prior to issuance of a Certificate of Occupancy.
6. Any increased REU capacity costs as determined by Township staff shall be paid prior to issues of a Land Use Permit.

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

Sincerely,

Kelly VanMarter  
Assistant Township Manager/Community Development Director



GENOA CHARTER TOWNSHIP  
Application for Site Plan Review

OCT - 4 2017

RECEIVED

TO THE GENOA TOWNSHIP PLANNING COMMISSION AND TOWNSHIP BOARD:

APPLICANT NAME & ADDRESS: Mr. Alan Price, University Housing Solutions, 90 Hidden Ravines Dr, Powell, OH 43065  
*If applicant is not the owner, a letter of Authorization from Property Owner is needed.*

OWNER'S NAME & ADDRESS: Cleary University, 3750 Cleary Drive, Howell, MI 48843

SITE ADDRESS: 3750 Cleary Drive, Howell, MI 48843 PARCEL #(s): 11-05-400-062, 11-05-302-005 & 011

APPLICANT PHONE: ( 866 ) 711-7786 OWNER PHONE: ( 800 ) 686-1883

OWNER EMAIL: mbennett@cleary.edu

LOCATION AND BRIEF DESCRIPTION OF SITE: Cleary University - Livingston Campus.  
located on the south side of Grand River in Howell just east of Grand Oaks Drive.

The site is currently used for University classes and student housing.

BRIEF STATEMENT OF PROPOSED USE: Proposed multi-use athletic field for baseball,  
soccer, & lacrosse. Multiple accessory buildings are proposed along with the athletic  
fields.

THE FOLLOWING BUILDINGS ARE PROPOSED: There is a proposed storage building for the  
safekeeping of athletic field accessories. Also proposed is a press box/concessions/bathroom  
building.

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: 

ADDRESS: 561 Leeds Ave Wabash, IN 46781



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

1.) Mr. Scott Tousignant, P.E.	of Boss Engineering	at scottt@bosseng.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: Michael Brown DATE: 10/2/17

PRINT NAME: Michael Brown PHONE: (330) 334-6200

ADDRESS: 501 Leeds Ave. Walsworth, OH 44281

The applicant has met all of the requirements of the Brighton Area Fire Authority.

The call the public was made at 8:27 pm with no response.

**Moved** by Commissioner Rauch, seconded by Commissioner Rickard to recommend to the Township Board approval of the special use application for proposed outdoor storage and parking lot improvements for Town Center, Inc. as it meets the requirements of Article 19 of the Township Ordinance. **The motion carried unanimously.**

**Moved** by Commissioner Rauch, seconded by Commissioner Mortensen, to recommend to the Township Board approval of the environmental impact assessment with a revision date of October 23, 2017 for proposed outdoor storage and parking lot improvements for Town Center, Inc. with the following not added:

- "The 19 banked parking spaces are approved if the applicant finds they are not needed, but understands that the Township can require them to be installed at their discretion".

**The motion carried unanimously.**

**Moved** by Commissioner Rauch, seconded by Commissioner Grajek, to recommend to the Township Board approval of the site plan dated October 25, 2017 for proposed outdoor storage and parking lot improvements for Town Center, Inc. with the following conditions:

- The requirements of the engineer's letter dated November 2, 2017 shall be met.
- The requirements of the Brighton Area Fire Authority's letter dated November 7, 2017 shall be met.
- The Planning Commission finds the 19 parking spaces being requested as banked parking is acceptable.

**The motion carried unanimously.**

**OPEN PUBLIC HEARING #4...** Review of site plan application, environmental impact assessment and site plan for a proposed multi-use athletic field with storage building and concessions building with parking lot expansion at 3750 Cleary Drive. The request is within the Cleary University Planned Unit Development and is petitioned by Cleary University.

Planning Commission Recommendation of Petition:

- Recommendation of Environmental Impact Assessment.
- Recommendation of Site Plan

Brent LaVanway of Boss Engineering, Alan Price of University Housing Solutions, and Dave Howard, Facilities Director, were present.

Mr. LaVanway stated they are proposing to install a multi-use athletic field at Cleary University. It will also include a concession stand, an outdoor storage building, and

bleachers. It will be used for baseball, soccer, lacrosse, and softball. He showed the site plan.

The proposal is slightly different from the approved PUD; however, in order to consolidate resources, Cleary University wanted to put the fields all together.

Mr. Price reviewed the architectural details of the site plan. He showed the proposed building materials.

Commissioner Rickard questioned if the easement from MHOG has been received. Mr. LaVanway has spoken to MHOG and they are agreeable to granting the easement; however, it has not been completed at this time.

Mr. Borden reviewed his letter of November 8, 2017

- The building elevations, colors, and materials are subject to approval by the Planning Commission.
- There is one light on the photometric grid that is slightly (10.3) above the 10-foot candle maximum. Mr. LaVanway will make this change by altering the height of that light pole.
- They suggest that the lights be turned off within a specified time after an event concludes. The applicant is in agreement that they will have them turned off one hour after any event.
- The applicant must obtain authorization from MHOG for an easement over a portion of the water tower property.

Mr. Markstrom reviewed his letter of November 2, 2017.

- The regional detention basin calculations must be updated to include the 4+ acres from the athletic fields.
- The applicant should provide an access drive to the outlet structure for maintenance purposes. This can be gravel.

The Brighton Area Fire Authority letter dated November 7, 2017 states that some of their requirements have been met and others are still outstanding.

The call to the public was made at 8:49 pm with no response.

**Moved** by Commissioner Grajek, seconded by Commissioner Mortensen, to recommend to the Township Board approval of the environmental impact assessment dated October 4, 2017 for a multi-use field with storage building and concessions building with parking lot expansion for Cleary University with the following requirement:

- The lights on the fields will be turned off one hour after the conclusion of any event.

**The motion carried unanimously.**

**Moved** by Commissioner Grajek, seconded by Commissioner Rauch, to recommend to the Township Board approval of the site plan dated October 25, 2017 for a multi-use field with storage building and concessions building with parking lot expansion for Cleary University with the following requirements:

- An easement from MHOG shall be obtained prior to the issuance of the land use permit.
- The applicant shall comply with the requirements of the Engineer's letter dated November 2, 2017.
- The applicant shall comply with the requirements of the Brighton Area Fire Authority's letter dated November 7, 2017.
- The building materials reviewed this evening are acceptable to the Planning Commission and will become the property of the Township.

**The motion carried unanimously.**

**OPEN PUBLIC HEARING #5...** Consideration of Zoning Ordinance Text amendments to Article 7 of the Zoning Ordinance, entitled "Commercial and Service Districts", Table 7.02 and Section 7.02.02 is proposed to be amended to revise multiple conditions and to add standards related to "Dog Daycare Centers" and "Veterinary Clinics". This request is petitioned by Genoa Charter Township.

Planning Commission Recommendation of Petition:

A. Recommendation of Zoning Ordinance Text Amendment

Ms. VanMarter stated these proposed amendments are results of current and proposed future business owners asking for changes. The Township believes they are timely and appropriate so they have prepared the proposed ordinance changes.

The largest change would be to allow pets to stay overnight in a business in a commercial district.

Commissioner Rickard questioned how the pet waste will be handled. She is concerned about dogs barking and it being a disturbance to the neighboring businesses. Ms. VanMarter stated these businesses will require a special use permit so there are a lot of requirements, and they address the handling of pet waste and certain building materials to be used to mitigate the barking sound from leaving the building.

Commissioner Rauch questioned the "gaming establishments". Ms. VanMarter stated these types of uses are not gambling. The Planning Commission suggested having a definition placed in the ordinance. Ms. VanMarter agrees.

The call to the public was made at 9:12 pm.

Ms. Paula VanderKarr, who is interested in opening a pet day care facility in the Township, was present. She stated the waste is handled by a biodegradable bag with cedar chips. It helps with the smell and repels the bugs. Commissioner Rickard is concerned with the pet urine that could possibly be washed into the storm sewer. Ms. VanderKarr stated there is a certain system that is being required by the proposed ordinance that will filter the urine before it goes into the ground. Ms. VanMarter reviewed these conditions as outlined in Paragraph (w)(10). Commissioner Rickard



November 8, 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>	Cleary University athletic fields – PUD Site Plan Review #2
<b>Location:</b>	3750 Cleary Drive – south side of Grand River, between Grand Oaks and Latson Road
<b>Zoning:</b>	MUPUD Mixed Use Planned Unit Development

Dear Commissioners:

At the Township’s request, we have reviewed the revised PUD site plan (dated 10/25/17) proposing a new multi-use athletic field, along with associated structures and a parking lot expansion for Cleary University.

The 29.6-acre site is currently developed with Cleary’s Livingston Campus, which was approved as a MUPUD in 2015. 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. Building elevations, including colors and materials, are subject to review and approval by the Planning Commission.
2. The photometric plan has one reading (10.3) above the 10-footcandle maximum.
3. We suggest the applicant establish a protocol whereby the light towers will be turned off within a specified time after an event concludes.
4. The applicant must obtain authorization from MHOG for an easement over a portion of the water tower property.

#### **B. Proposal/Process**

The applicant requests PUD site plan review/approval for a new multi-use athletic field, which will accommodate baseball, soccer and lacrosse. The project includes expansion of an existing parking lot, as well as a storage building, scoreboard and press box/concessions building.

Exhibit C of the PUD Agreement lists “private non-commercial institutional or community recreation facilities” as a permitted use. The PUD concept plan included athletic fields in the proposed development area, although individual fields are shown on that plan (as opposed to one multi-purpose field).

Procedurally, the Planning Commission is to make a recommendation to the Township Board on both the PUD site plan and Impact Assessment. The Township Board has the final review/approval authority over the proposal.



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

### C. Site Plan Review

- 1. Dimensional Requirements.** The dimensions provided on the proposed site plan are consistent with both the approved PUD concept plan and PUD Agreement, including building height and coverage ratios.
- 2. Building Materials and Design.** The site plan includes two buildings – an athletic complex storage building and a press box/concessions/restroom building. The revised submittal includes elevation drawings for both buildings, noting the use of brick and siding with asphalt shingles, although the applicant must identify the specific type of siding proposed.

The proposed elevations, including colors and materials, are subject to review and approval by the Planning Commission. The applicant should be prepared to present a color rendering and material samples to the Commission for their consideration.

- 3. Parking.** Section 14.04 requires 1 parking space for each 6' of bleachers. Based on the information provided on Sheet 3, 131 parking spaces are required. The proposal includes a combination of existing and proposed parking spaces that add up to 131 spaces, including the 5 required barrier-free spaces.

Additionally, parking spaces and drive aisles meet or exceed the dimensional requirements of the Zoning Ordinance, and the parking lot provides looped (double-striped) spaces, as required.

4. **Pedestrian Circulation.** The site plan includes 5-foot wide concrete sidewalks along the south and west sides of the athletic complex. The proposed sidewalk connects the existing sidewalks within the campus, as well as the parking lot intended to serve the field.
5. **Vehicular Circulation.** The project area is served by Cleary Drive and no changes are proposed to the established circulation pattern.
6. **Landscaping.** The landscape plan (Sheet 7) includes plantings around the detention pond, along Cleary Drive, behind the press box and within two new parking lot islands.

In total, the plan contains 34 deciduous trees, 6 coniferous shrubs, 133 deciduous shrubs and a mix of perennials. The species and sizes are compliant with the requirements of Section 12.02. Quantities are reviewed in the table below:

Location	Requirements	Proposed	Comments
Greenbelt (Cleary Drive)	20' width 13 canopy trees	20' width 13 canopy trees	Requirements met
Parking lot	5 canopy trees 500 SF landscaped area	5 canopy trees 1,491 SF landscaped area	Requirements met
Detention pond	16 trees 81 shrubs	164 trees 89 shrubs	Requirements met

7. **Waste Receptacle and Enclosure.** The site plan shows the location of an existing waste receptacle and enclosure just west of the proposed field. As part of the revised submittal, the applicant has confirmed that the existing receptacle will accommodate the trash generated by events at the field.
8. **Exterior Lighting.** The lighting plan (Sheet 8) proposes 10 new light poles along Cleary Drive and the driveway to the parking lot, as well as 1 light pole within the parking lot. The storage building and press box each provide 3 wall-mounted fixtures.

The light poles have a maximum height of 22 feet, and the proposed fixtures are downward directed and cut-off, both of which comply with Ordinance standards. The maximum on-site intensity is 10.3 foot-candles (adjacent to fixture LB-5), which very slightly exceeds the Ordinance maximum of 10.

Additionally, the revised submittal includes supplemental details of the light towers used to illuminate the field. These details include 6 towers – 2 each along the outfield, 1<sup>st</sup> base line and 3<sup>rd</sup> base line. The outfield towers are 70' tall, while the base lines include one 80' tower and one 90' tower.

The PUD Agreement anticipated athletic field lighting that was beyond conventional height and intensity limitations of the Ordinance, noting that “athletic field lighting will be designed and installed to light appropriate venues and limit spread of lighting beyond the athletic field venues.” In our opinion, the proposed athletic field lighting plan is in accordance with this provision of the PUD Agreement.

9. **Signage.** The submittal includes a detail of a brick knee wall with Cleary University on it in the southwest corner of the field. The height and area of the proposed sign is well within that allowed by the Ordinance.
10. **Impact Assessment.** The submittal includes an Impact Assessment (dated 10/4/17). In summary, the Assessment notes that the project is not anticipated to adversely impact natural features, public services/utilities, surrounding land uses or traffic.

As previously noted, athletic fields were included in the PUD concept plan, although that plan depicted separated fields, as opposed to one multi-purpose field. For the purposes of discussing project impacts, the current proposal is likely to have less impact than would separate fields.

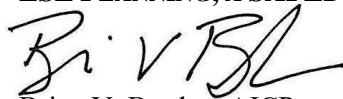
**11. Additional Considerations.** A portion of centerfield encroaches into the water tower property. The site plan identifies a proposed easement for “grading, drainage and athletic field” in this area.

The property is owned by MHOG and the applicant indicates they have been in discussion with the owner to accommodate the proposed easement/encroachment, though it has yet to be formally approved.

If the Commission considers a favorable recommendation on the PUD site plan, this item should be included as a condition.

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@lsplanning.com](mailto:borden@lsplanning.com).

Respectfully,  
**LSL PLANNING, A SAFE BUILT COMPANY**



Brian V. Borden, AICP  
Planning Manager





November 2, 2017

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

**Re: Cleary Athletic Fields Site Plan Review #2**

Dear Ms. Van Marter:

Tetra Tech conducted a site plan review of the revised Cleary Athletic Field plans submitted by Boss Engineering. The plans are dated October 25, 2017, and the applicant is proposing construction of athletic fields and complex on approximately 27 acres across three parcels, all owned by Cleary University.

A review of the updated plans resulted in one additional engineering related comment which pertains only to the Cleary Student Housing Phase 2 plans. The student housing and athletic fields projects are closely related; however, the petitioner has indicated the Cleary Student Housing Phase 2 plans will incorporate all water main work on the two sites. In addition, all improvements to the regional detention basin will be shown on the Student Housing Phase 2 site plans. Therefore, the comment resulting from this second review of Cleary Athletic Fields pertains to the Cleary Student Housing Phase 2 site plans.

**Summary**

1. Drainage area corrections to regional detention basin calculations
2. Basin outlet control structure access

**Site Plan**

1. The petitioner has indicated the regional detention basin plans, as shown in the Cleary Student Housing Phase 2 plans, is the first step towards the basin design. The petitioner assures the basin will be re-evaluated for storage volume and location when further development occurs. A review of the regional detention basin plans, with the updated drainage information from the Athletic Field plans, shows the drainage area for the basin does not include the drainage area as claimed on the Athletic Field plans. The petitioner plans to provide storage for approximately 4 acres of the athletic field area with the regional detention basin. The drainage calculation in the Student Housing Phase 2 drainage plans is 16.70 acres which does not account for the 4± acres of drainage from the athletic fields. The drainage calculations for the regional detention basin on the Cleary Student Housing Phase 2 plans should be updated so an accurate record of the amount of required storage is clear for future expansion of the basin. The athletic field drainage, while seemingly small, is significant, as the athletic field is proposed to be artificial turf with an underdrain system. Therefore, the runoff coefficient for the field is greater than the coefficient for a natural turf field.

**Tetra Tech**

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

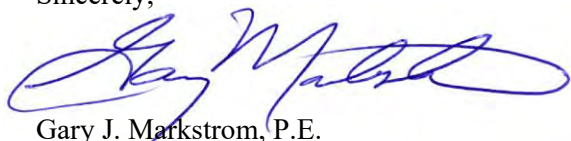
**Ms. Kelly Van Marter**  
**Cleary Athletic Fields Site Plan Review #2**  
**November 2, 2017**  
**Page 2**

2. More defined construction of the regional detention basin is not required for approval of the Cleary Athletic Field Site plans. However, since no construction, except for that proposed in the Cleary Student Housing Phase 2 plans, is proposed for the basin a maintenance access drive to the outlet structure is missing. Section II.2.e.4.c of the LCDC standards requires the riser to be accessible for maintenance.

The petitioner should review the above comments and revise the site plan drawings on Cleary Student Housing #2 before submitting them for the Construction Plan Review. As noted in the response letter for Boss all details for the water main relocation will be included in addition to the basin comments above. With the corrections to the above comments occurring prior to the site plan review, we have no additional engineering related comments on the Cleary Athletic Field plans.

Please call if you have any questions.

Sincerely,



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



Marguerite K. Davenport  
Project Engineer

copy: Scott Tousignant, P.E., Boss Engineering, Inc.



# BRIGHTON AREA FIRE AUTHORITY

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

November 7, 2017

Kelly VanMarter  
Genoa Township  
2911 Dorr Road  
Brighton, MI 48116

RE: Cleary Athletic Field  
3750 Cleary Drive  
Genoa Twp., MI

Dear Kelly:

The Brighton Area Fire Department has reviewed the above mentioned site plan. The plans were received for review on October 26, 2017 and the drawings are dated October 4, 2017 with latest revisions dated Oct. 25, 2017. The project is for construction of a new athletic field along with multiple accessory structures to be utilized for athletic storage and operations. The accessory structure will include a 1,500 square-foot storage and a 960 square-foot two-story press box. The plan review is based on the requirements of the International Fire Code (IFC) 2015 edition.

1. **(CORRECTED)** The water main location is indicated on the submittal however there are no fire hydrants shown on the utility plan. Provide locations of all hydrants near the site on Grand Oaks and Cleary Drive. **(Existing and new fire hydrant locations are now shown on the Utility Plan)**
2. **(CORRECTED)** Watermain with an additional hydrant must be extended to the landscape island next to the newly proposed handicap parking areas in the new parking area to the north. **(New hydrant location at the north end of the parking lot adjacent to the field is acceptable. It must be noted that orientation of the 5" connection shall be facing south following installation.)**
3. **(TBD)** If a physical address is issued for the field; future project submittals shall include the address and street name of the project in the title block. **(Currently there is no plan for the field to be provided with an address independent of the school. It is recommended that an address be provided for emergency response to the campus.)**  
IFC 105.4.2
4. **(TBD)** The building shall include the building address on the building. The address shall be a **minimum of 6"** high letters of contrasting colors and be clearly visible from the street. The location and size shall be verified prior to installation. **(Address numbers shall be provided if an address is issued for the stadium)**  
IFC 505.1
5. **(CORRECTED)** The location of a key box (Knox Box) shall be indicated on future submittals. The Knox box will be located adjacent to the front door of the structure. **(Note on Sheet 3 reflects the intent to install a knox box on the structure.)**  
IFC 506.1



*November 7, 2017  
Page 2  
Cleary Athletic Field  
3750 Cleary Drive  
Site Plan Review*

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".

Rick Boisvert, CFPS  
Fire Marshal

**IMPACT ASSESSMENT  
FOR  
“CLEARY UNIVERSITY ATHLETIC COMPLEX”  
GENOA TOWNSHIP  
LIVINGSTON COUNTY, MI**

Prepared for:

**UNIVERSITY HOUSING SOLUTIONS, LLC  
c/o Mr. Alan Price  
90 Hidden Ravines Drive  
Powell, OH 43065**

Prepared by:

**BOSS ENGINEERING COMPANY  
3121 E. GRAND RIVER  
HOWELL, MICHIGAN 48843  
517-546-4836  
BE Project No. 17-393**

October 4, 2017

Revised: November 14<sup>th</sup>, 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 13.05 of the published Zoning Ordinance for 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.**

Prepared By:  
BOSS ENGINEERING COMPANY  
3121 E. Grand River  
Howell, Michigan 48843  
Phone: 517-546-4836

Prepared For:  
Mr. Alan Price  
University Housing Solutions, LLC  
90 Hidden Ravines Drive  
Powell, OH 43065

### **B. Description of the site, including existing structures, man made facilities, and natural features, all-inclusive to within 10' of the property boundary.**

The subject site is located on the south side of Grand River Avenue, north of Cleary Drive and east of Grand Oaks Drive. The site improvements are located on parts of 3 parcels all owned by Cleary University. The parcels include 4711-05-400-070, 4711-05-302-011, and 4711-05-302-004. Their associated acreages of each property affected are 23.11, 2.54 acres, and 1.51 acres. The properties are located in the Northwest ¼ of Section 5, T2N-R5E, Genoa Township, Livingston County, Michigan. The 3 parcels in question include a MUPUD (Mixed Use Planned Unit Development) zoning and IND (Industrial District).

A paved parking lot exists at the Wellness Center building at the southwest corner of the subject site on parcel 4711-05-302-011. The site is gently rolling and generally slopes from the Northeast to the West. Elevations vary between 1004.0± and 986.0±, respectively. Stormwater management for the site includes sheet flow drainage to multiple existing stormwater detention areas. There are two existing basins to the east of the proposed athletic fields as well as a basin just north of the Cleary University Wellness Center approach off of Grand Oaks Drive. The stormwater detention area to the east is equipped with an outlet control structure and an emergency spillway. The stormwater detention area at the site approach off of Grand Oaks Drive has an overflow to the ditch in the Right-Of-Way of Grand Oaks Drive which continues south toward a County Drain.

Existing on-site utilities include overhead wires that run north-south along the property line. Also included are accesses to underground gas, telephone, sanitary and water services. A 16" watermain is located on the north side of Cleary Drive, and is to be relocated as a part of the Cleary University Student Housing #2 project.

Adjacent properties include:  
South – Office Building  
North – Office Building & the old Swat Sports Building  
East – Cleary University  
West – Grand Oaks Ice Arena

**C. Impact on natural features: A written description of the environmental characteristics of the site prior to development, i.e., topography, soils, vegetative cover, drainage, streams, creeks or ponds.**

As previously mentioned, subject site is gently rolling and generally slopes from the Northeast to the West. Site elevations vary between 1004.0± and 986.0±. The USDA Soil Conservation Service "Soil Survey of Livingston County, Michigan", indicates native site soils consist of:

1. MIAMI LOAM (MoB), 2% to 6% slopes. Surface runoff is slow, permeability is moderate, and erosion hazard is slight.
2. MIAMI LOAM (MoC), 6% to 12% slopes. Surface runoff is medium, permeability is moderate, and erosion hazard is moderate.
3. MIAMI LOAM (MoD), 12% to 18% slopes. Surface runoff is rapid, permeability is moderate, and erosion hazard is severe.
4. MIAMI LOAM (MoE), 18% to 25% slopes. Surface runoff is rapid, permeability is moderate, and erosion hazard is severe.

Vegetative cover for the site includes lawn and low brush cover. There are areas currently occupied by tree growth and there is a small amount of existing landscaping on the site around the existing detention basin by Cleary Drive.

The National Wetland Inventory Plan prepared by the United States Department of the Interior, Fish and Wildlife Service indicates that there are no wetlands located on the site.

Site drainage from the proposed site will utilize swales. All site drainage will be directed into multiple existing catch basins on site and to the existing detention basins. The outlet of the existing detention basin alongside the northern part of Cleary Drive will maintain its outlet into the woodlands south of Cleary Drive. The existing detention basin north of the site approach on Grand Oaks Drive will overflow into the ditch in the Right-Of-Way of Grand Oaks Drive and travel south under Cleary Drive.

**D. Impact on storm water management: description of soil erosion control measures during construction.**

Surface runoff during periods of construction will be controlled by proper methods set forth by the Livingston County Drain Commissioner. These methods shall include silt fence, inlet sediment filters, and seeding with mulch and/or matting.

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.

**E. Impact on surrounding land use: Description of proposed usage and other man-made facilities; how it conforms to existing and potential development patterns. Effects of added lighting, noise or air pollution which could negatively impact adjacent properties.**

The applicant is proposing to construct a new athletic complex consisting of regulation size baseball field as well as a dual use soccer/lacrosse field. The property that the proposed baseball field is located is zoned MUPUD (Mixed Use Planned Unit Development) and the property that the proposed parking lot expansion is on is zoned IND (Industrial District); therefore, the proposed complex conforms to the existing and potential land development patterns in the area.

Proposed improvements will enhance current site conditions. There are minimal trees on site other than an existing tree line adjacent to the overhead powerlines that run north-south. There are no

significant natural site features. Site improvements planned with the athletic complex include establishment of lawn and landscaped areas. The landscaping meets the Genoa Township standards.

The layout was prepared taking into account the topography in order to balance the amount of earthwork required for the playing fields. Site drainage will be controlled via swales and storm sewers and will be restricted to predevelopment runoff rates. The existing detention basin along Grand Oaks Drive is to be expanded to accommodate any additional storm water being sent to it due to the additional parking lot. The detention basin immediately south of the water tower is to be filled in. The detention basin on the north side of Cleary Drive will be partially filled and converted into a forebay for the regional detention basin being constructed as a part of the Cleary University Student Housing #2 project.

Cleary Drive presently experiences a medium volume of traffic along with the associated noise level generated from commercial vehicles. It is anticipated the proposed athletic complex will cause no significant increase in traffic volume.

Hours of operation for the proposed athletic complex will be from 8:00am to 10:00 pm, Monday through Sunday. Practices are anticipated to be in the day and afternoon from approximately 300pm – 700pm while games will primarily be in the afternoons around 100 pm. Lighting towers are proposed to illuminate the athletic fields for night events. Should the athletic complex light towers be needed for an event, the lights shall be turned off within an hour from the conclusion of the event.

**F. Impact on public facilities and services: Description of number of residents, employees, patrons, and impact on general services, i.e., schools, police, fire.**

The proposed athletic complex will consist of a regulation size baseball field as well as a soccer/lacrosse field. There is no anticipated major change in the number of people using the Cleary University facilities. Practices that take place during the day are for Cleary University athletes only that will already be on campus, and games are typically during the day which will draw many people onto campus aside from the visiting team and family members. Normal police and fire protection services are anticipated.

**G. Impact on public utilities: Description of public utilities serving the project, i.e., water, sanitary sewer, and storm drainage system. Expected flows projected in residential units.**

There will be a concessions & bathroom facility as a part of this project that will require a water and sanitary service. The building is proposed in close proximity to both watermain and sanitary sewer main. Watermain is being relocated as a part of the Cleary University Student Housing #2 project.

Some existing storm water facilities (basins and storm sewers) are being removed and the storm water being redirected to a larger regional detention basin that is being constructed as a part of the Cleary University Student Housing #2 project. Storm water runoff will be restricted to predevelopment rates as required by the Livingston County Drain Commission.

**H. Storage or handling of any hazardous materials: Description of any hazardous materials used, stored, or disposed of on-site.**

Cleary University will not be storing or handling any hazardous materials.

**I. Impact on traffic and pedestrians: Description of traffic volumes to be generated and their effect on the area.**

Traffic will not be negatively affected. Practice times for the athletic facility are anticipated between 300pm to 700pm. The practices won't generate any additional traffic as the student athletes will be diverted from another portion of campus to the on-site athletic complex. Cleary University typically



has 2 games per week which usually occur around 100pm. With the games being in the middle of the day, they will not draw many attendants from the community. Games will generate a minimal amount of traffic due to the “Away” teams driving to the Cleary University campus. The minimal additional trips generated by “Away” teams visiting occur at off-peak times and will not have a negative impact on the traffic.

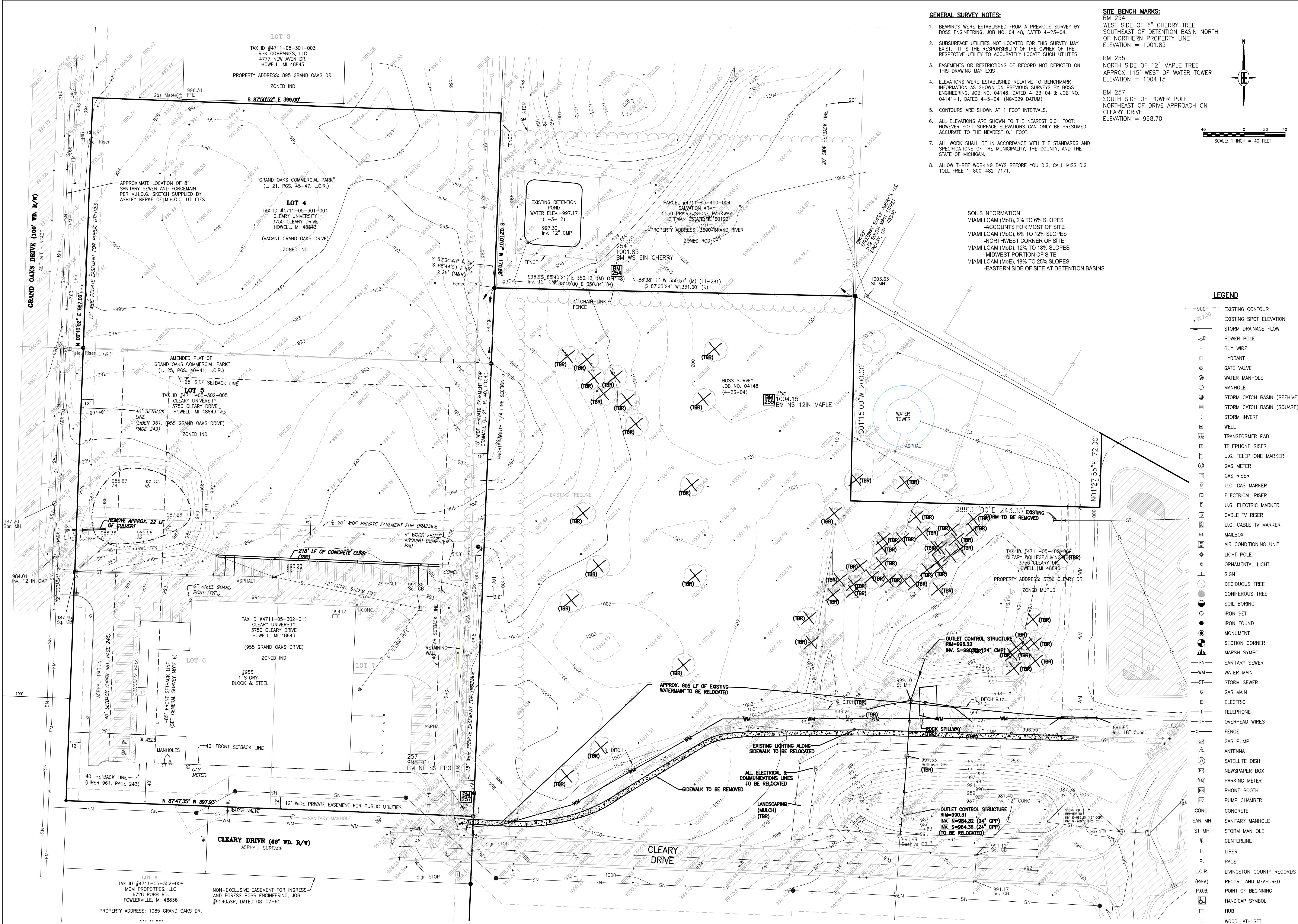
**J. Special provisions: Deed restrictions, protective covenants, etc.**

There are no special provisions for this development.

**K. Description of all sources:**

- Genoa Township Zoning Ordinance
- “Soil Survey of Livingston County, Michigan” Soil Conservation Services, U.S.D.A.
- National Wetlands Inventory, U.S. Department of Interior, Fish and Wildlife Service
- Cleary University Topographic Surveys (BE #04148 - April 2004) (BE #14-175 – July 2014)





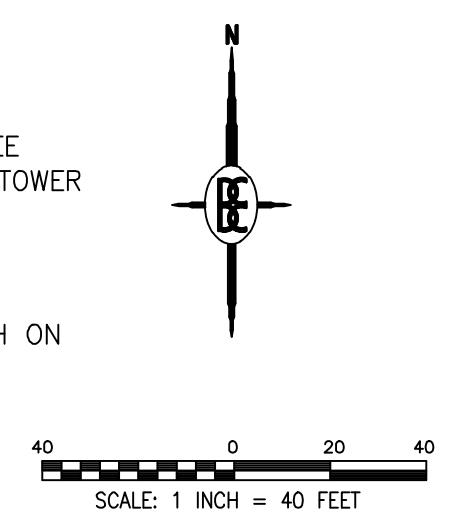
- GENERAL SURVEY NOTES:**
- BEARINGS WERE ESTABLISHED FROM A PREVIOUS SURVEY BY BOSS ENGINEERING, JOB NO. 04148, DATED 4-23-04.
  - SUBSURFACE UTILITIES NOT LOCATED FOR THIS SURVEY MAY EXIST. IT IS THE RESPONSIBILITY OF THE OWNER OF THE RESPECTIVE UTILITY TO ACCURATELY LOCATE SUCH UTILITIES.
  - EASEMENTS OR RESTRICTIONS OF RECORD NOT DEPICTED ON THIS DRAWING MAY EXIST.
  - ELEVATIONS WERE ESTABLISHED RELATIVE TO BENCHMARK INFORMATION AS SHOWN ON PREVIOUS SURVEYS BY BOSS ENGINEERING, JOB NO. 04148, DATED 4-23-04 & JOB NO. 04141-1, DATED 4-5-04. (NGVD29 DATUM)
  - CONTOURS ARE SHOWN AT 1 FOOT INTERVALS.
  - ALL ELEVATIONS ARE SHOWN TO THE NEAREST 0.01 FOOT; HOWEVER SOFT-SURFACE ELEVATIONS CAN ONLY BE PRESUMED ACCURATE TO THE NEAREST 0.1 FOOT.
  - ALL WORK SHALL BE IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE MUNICIPALITY, THE COUNTY, AND THE STATE OF MICHIGAN.
  - ALLOW THREE WORKING DAYS BEFORE YOU DIG, CALL MISS DIG TOLL FREE 1-800-482-7171.

**SITE BENCH MARKS:**

BM 254  
WEST SIDE OF 6" CHERRY TREE  
SOUTHEAST OF DETENTION BASIN NORTH  
OF NORTHERN PROPERTY LINE  
ELEVATION = 1001.85

BM 255  
NORTH SIDE OF 12" MAPLE TREE  
APPROX 115' WEST OF WATER TOWER  
ELEVATION = 1004.15

BM 257  
SOUTH SIDE OF POWER POLE  
NORTHEAST OF DRIVE APPROACH ON  
CLEARY DRIVE  
ELEVATION = 998.70



**SOILS INFORMATION:**

MIAMI LOAM (MoB), 2% TO 6% SLOPES  
-ACCOUNTS FOR MOST OF SITE  
MIAMI LOAM (MoC), 6% TO 12% SLOPES  
-NORTHWEST CORNER OF SITE  
MIAMI LOAM (MoD), 12% TO 18% SLOPES  
-MIDWEST PORTION OF SITE  
MIAMI LOAM (MoE), 18% TO 25% SLOPES  
-EASTERN SIDE OF SITE AT DETENTION BASINS

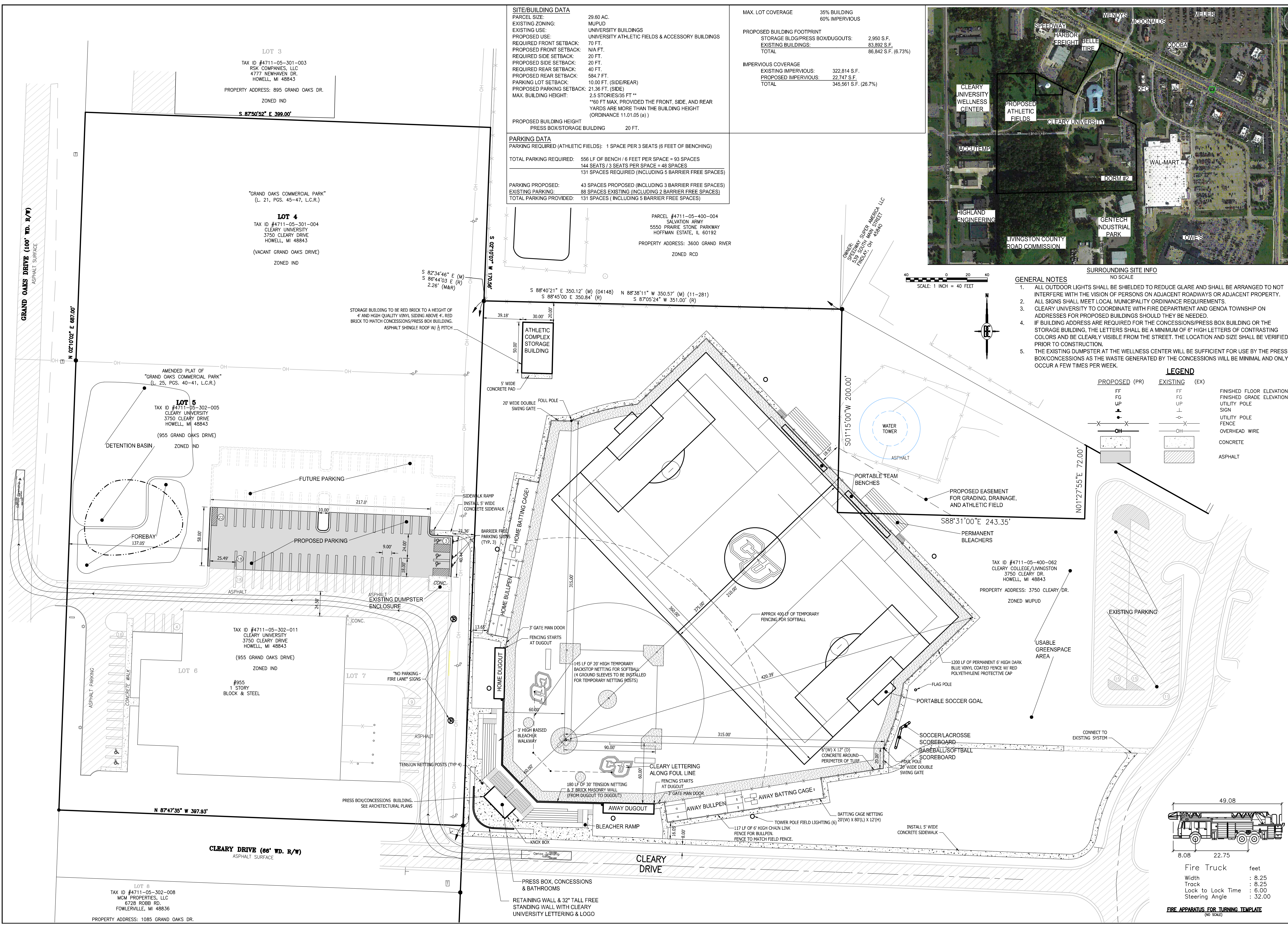
- LEGEND**
- 900 EXISTING CONTOUR
  - 922.00 EXISTING SPOT ELEVATION
  - STORM DRAINAGE FLOW
  - POWER POLE
  - GUY WIRE
  - HYDRANT
  - GATE VALVE
  - WATER MANHOLE
  - MANHOLE
  - STORM CATCH BASIN (BEEHIVE)
  - STORM CATCH BASIN (SQUARE)
  - STORM INVERT
  - WELL
  - TRANSFORMER PAD
  - TELEPHONE RISER
  - U.G. TELEPHONE MARKER
  - GAS METER
  - GAS RISER
  - U.G. GAS MARKER
  - ELECTRICAL RISER
  - U.G. ELECTRIC MARKER
  - CABLE TV RISER
  - U.G. CABLE TV MARKER
  - MAILBOX
  - AIR CONDITIONING UNIT
  - LIGHT POLE
  - ORNAMENTAL LIGHT
  - SIGN
  - DECIDUOUS TREE
  - CONIFEROUS TREE
  - SOIL BORING
  - IRON SET
  - IRON FOUND
  - MONUMENT
  - SECTION CORNER
  - MARSH SYMBOL
  - SANITARY SEWER
  - WATER MAIN
  - STORM SEWER
  - GAS MAIN
  - ELECTRIC
  - TELEPHONE
  - OVERHEAD WIRES
  - FENCE
  - GAS PUMP
  - ANTENNA
  - SATELLITE DISH
  - NEWSPAPER BOX
  - PARKING METER
  - PHONE BOOTH
  - PUMP CHAMBER
  - CONC.
  - SAN MH
  - ST MH
  - CENTERLINE
  - LIBER
  - PAGE
  - L.C.R.
  - (R&M)
  - P.O.B.
  - HANDICAP SYMBOL
  - HUB
  - WOOD LATH SET

**BEBOSS Engineering**  
Engineers Planners Landscape Architects  
3111 HOWELL MI 48843  
800.248.0735 FAX 517.548.1070

PROJECT: CLEARY UNIVERSITY ATHLETIC COMPLEX  
PREPARED FOR: CLEARY UNIVERSITY  
3750 CLEARY DRIVE  
HOWELL, MI 48843  
517-338-3014

DESIGNED BY: ST  
DRAWN BY: ST  
CHECKED BY:  
SCALE: 1" = 40'  
JOB NO. 17-393  
DATE 10-4-17  
SHEET NO. 2

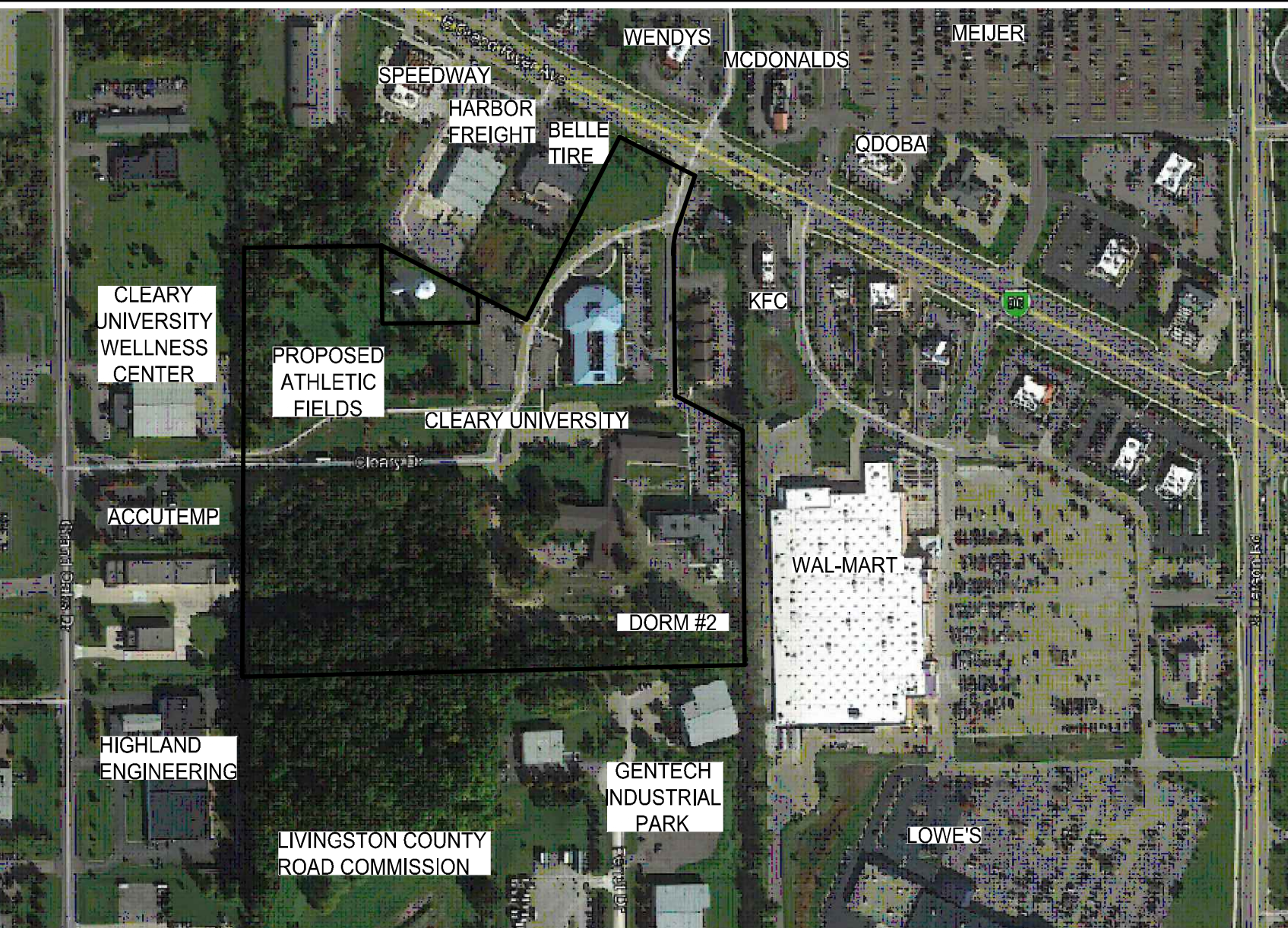
NO	BY	REVISION	DATE
1	ST	PER NWP REVIEW	10-25-17



**SITE/BUILDING DATA**  
 PARCEL SIZE: 29.60 AC.  
 EXISTING ZONING: MUPUD  
 PROPOSED USE: UNIVERSITY BUILDINGS  
 UNIVERSITY ATHLETIC FIELDS & ACCESSORY BUILDINGS  
 REQUIRED FRONT SETBACK: 70 FT.  
 PROPOSED FRONT SETBACK: N/A FT.  
 REQUIRED SIDE SETBACK: 20 FT.  
 PROPOSED SIDE SETBACK: 20 FT.  
 REQUIRED REAR SETBACK: 40 FT.  
 PROPOSED REAR SETBACK: 584.7 FT.  
 PARKING LOT SETBACK: 10.00 FT. (SIDE/REAR)  
 PROPOSED PARKING SETBACK: 21.36 FT. (SIDE)  
 MAX. BUILDING HEIGHT: 2.5 STORIES/35 FT \*\*  
 \*60 FT MAX, PROVIDED THE FRONT, SIDE, AND REAR YARDS ARE MORE THAN THE BUILDING HEIGHT (ORDINANCE 11.01.05 (a))

**MAX. LOT COVERAGE** 35% BUILDING  
 60% IMPERVIOUS  
**PROPOSED BUILDING FOOTPRINT**  
 STORAGE BLDG/PRESS BOX/DUGOUTS: 2,950 S.F.  
 EXISTING BUILDINGS: 83,892 S.F.  
 TOTAL: 86,842 S.F. (6.73%)  
**IMPERVIOUS COVERAGE**  
 EXISTING IMPERVIOUS: 322,814 S.F.  
 PROPOSED IMPERVIOUS: 22,747 S.F.  
 TOTAL: 345,561 S.F. (26.7%)

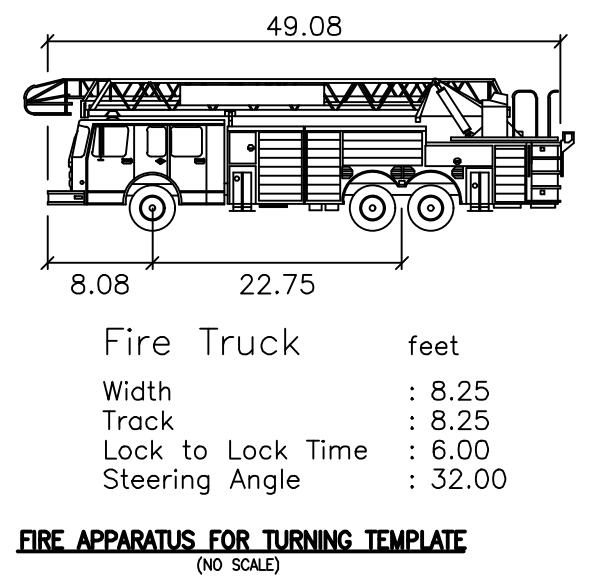
**PARKING DATA**  
 PARKING REQUIRED (ATHLETIC FIELDS): 1 SPACE PER 3 SEATS (6 FEET OF BENCHING)  
**TOTAL PARKING REQUIRED:** 556 LF OF BENCH / 6 FEET PER SPACE = 93 SPACES  
 144 SEATS / 3 SEATS PER SPACE = 48 SPACES  
 131 SPACES REQUIRED (INCLUDING 5 BARRIER FREE SPACES)  
**PARKING PROPOSED:** 43 SPACES PROPOSED (INCLUDING 3 BARRIER FREE SPACES)  
**EXISTING PARKING:** 88 SPACES EXISTING (INCLUDING 2 BARRIER FREE SPACES)  
**TOTAL PARKING PROVIDED:** 131 SPACES (INCLUDING 5 BARRIER FREE SPACES)



- GENERAL NOTES**
- ALL OUTDOOR LIGHTS SHALL BE SHIELDED TO REDUCE GLARE AND SHALL BE ARRANGED TO NOT INTERFERE WITH THE VISION OF PERSONS ON ADJACENT ROADWAYS OR ADJACENT PROPERTY. ALL SIGNS SHALL MEET LOCAL MUNICIPALITY ORDINANCE REQUIREMENTS.
  - CLEARY UNIVERSITY TO COORDINATE WITH FIRE DEPARTMENT AND GENOA TOWNSHIP ON ADDRESSES FOR PROPOSED BUILDINGS SHOULD THEY BE NEEDED.
  - IF BUILDING ADDRESS ARE REQUIRED FOR THE CONCESSIONS/PRESS BOX BUILDING OR THE STORAGE BUILDING, THE LETTERS SHALL BE A MINIMUM OF 6" HIGH LETTERS OF CONTRASTING COLORS AND BE CLEARLY VISIBLE FROM THE STREET. THE LOCATION AND SIZE SHALL BE VERIFIED PRIOR TO CONSTRUCTION.
  - THE EXISTING DUMPSTER AT THE WELLNESS CENTER WILL BE SUFFICIENT FOR USE BY THE PRESS BOX/CONCESSIONS AS THE WASTE GENERATED BY THE CONCESSIONS WILL BE MINIMAL AND ONLY OCCUR A FEW TIMES PER WEEK.

**LEGEND**

PROPOSED (PR)	EXISTING (EX)	DESCRIPTION
FF	FF	FINISHED FLOOR ELEVATION
FG	FG	FINISHED GRADE ELEVATION
UL	UL	UTILITY POLE
OH	OH	SIGN
OH	OH	UTILITY POLE
OH	OH	FENCE
OH	OH	OVERHEAD WIRE
CONC.	CONC.	CONCRETE
ASPH.	ASPH.	ASPHALT



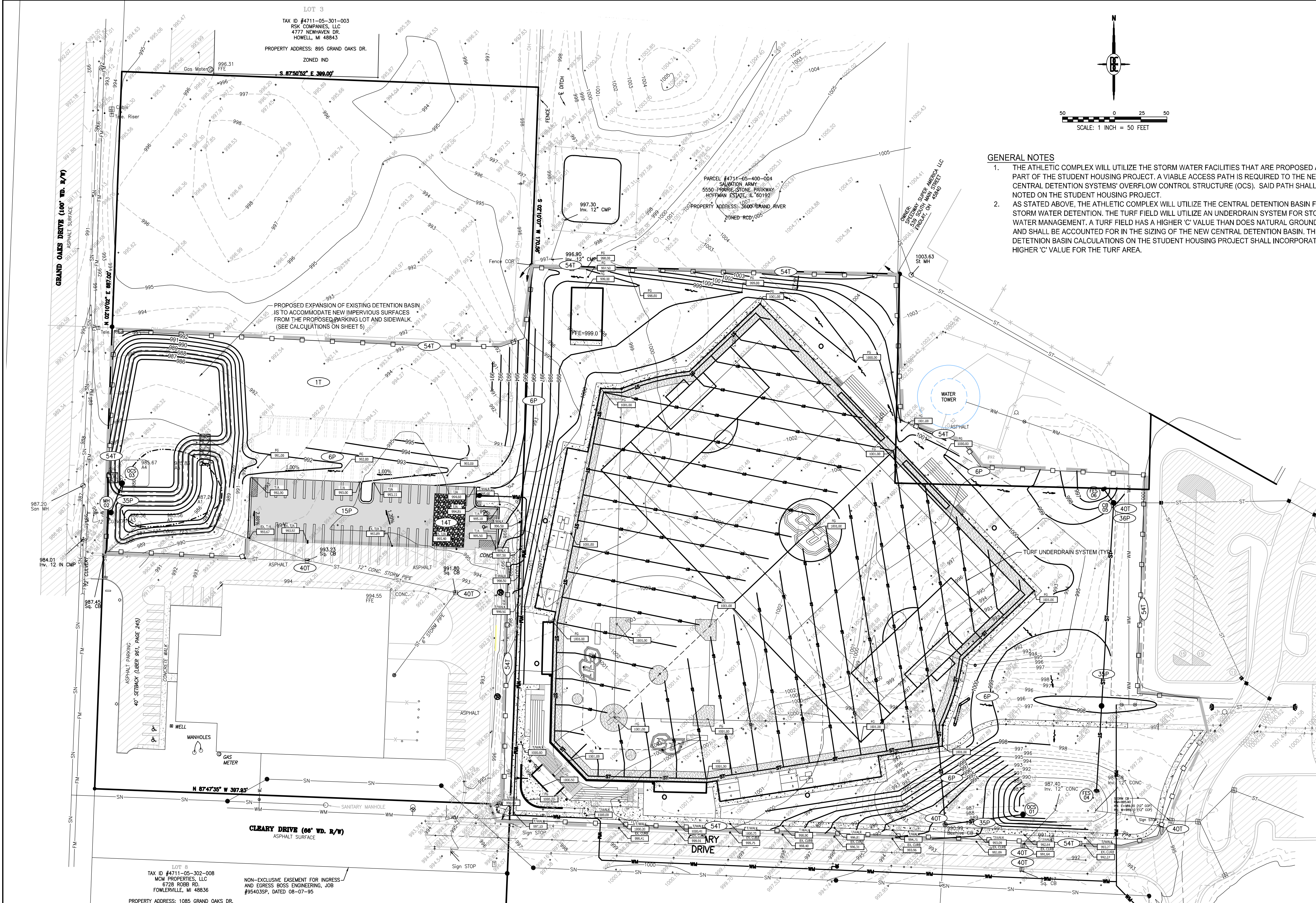
**CLEARY UNIVERSITY ATHLETIC COMPLEX**  
 CLEARY UNIVERSITY  
 3750 CLEARY DRIVE  
 HOWELL, MI 48843  
 517-338-3014

**SITE PLAN**

DESIGNED BY:	DATE
ST	11-14-17
ST	10-26-17

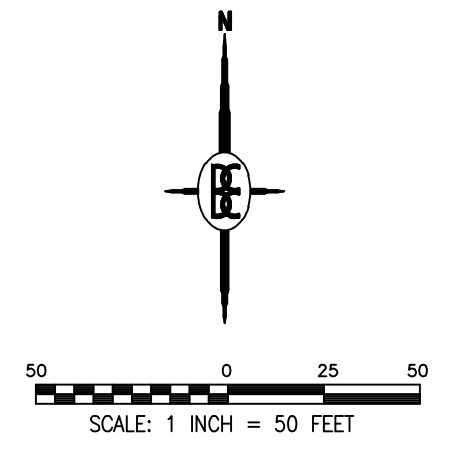
NO.	BY	REVISION PER	DATE
1	ST	PER IMP REVIEW	
2	ST	PER TWP & P.C. REVIEW	

CHECKED BY: ST  
 SCALE: 1" = 40'  
 JOB NO. 17-393  
 DATE: 10-4-17  
 SHEET NO. 3



**GENERAL NOTES**

- THE ATHLETIC COMPLEX WILL UTILIZE THE STORM WATER FACILITIES THAT ARE PROPOSED AS A PART OF THE STUDENT HOUSING PROJECT. A VIABLE ACCESS PATH IS REQUIRED TO THE NEW CENTRAL DETENTION SYSTEMS' OVERFLOW CONTROL STRUCTURE (OCS). SAID PATH SHALL BE NOTED ON THE STUDENT HOUSING PROJECT.
- AS STATED ABOVE, THE ATHLETIC COMPLEX WILL UTILIZE THE CENTRAL DETENTION BASIN FOR STORM WATER DETENTION. THE TURF FIELD WILL UTILIZE AN UNDERDRAIN SYSTEM FOR STORM WATER MANAGEMENT. A TURF FIELD HAS A HIGHER 'C' VALUE THAN DOES NATURAL GROUND COVER AND SHALL BE ACCOUNTED FOR IN THE SIZING OF THE NEW CENTRAL DETENTION BASIN. THE DETENTION BASIN CALCULATIONS ON THE STUDENT HOUSING PROJECT SHALL INCORPORATE THIS HIGHER 'C' VALUE FOR THE TURF AREA.



**LEGEND**

PROPOSED (PR)	EXISTING (EX)	DESCRIPTION
900	900	CONTOUR
T/C		STORM DRAINAGE FLOW
XXXXX	+922.08	SPOT ELEVATION
FF	FF	FINISHED FLOOR ELEVATION
FG	FG	FINISHED GRADE ELEVATION
T/A	T/A	TOP OF ASPHALT
T/C	T/C	TOP OF CURB / CONCRETE
T/W	T/W	TOP OF WALK
F/L	F/L	FLOW LINE
T/P	T/P	TOP OF PIPE
B/P	B/P	BOTTOM OF PIPE
RIM	RIM	RIM ELEVATION
INV	INV	INVERT ELEVATION
MH	MH	MANHOLE STRUCTURE
IN	IN	INLET STRUCTURE
CB	CB	CATCHBASIN STRUCTURE
RY	RY	REARWARD STRUCTURE
ES	ES	END-SECTION
CV	CV	GATEVALVE STRUCTURE
HY	HY	HYDRANT
UP	UP	UTILITY POLE
ST	ST	STORM SEWER
WM	WM	WATER MAIN
WL	WL	WATER LEAD
FM	FM	FORCE MAIN
OH	OH	OVERHEAD WIRE
C	C	CABLE
E	E	ELECTRIC
G	G	GAS
T	T	TELEPHONE
○	○	MANHOLE
□	□	INLET / CATCHBASIN
⊥	⊥	FLARED END-SECTION
⊥	⊥	GATE VALVE
⊥	⊥	HYDRANT
⊥	⊥	UTILITY POLE
⊥	⊥	FENCE
⊥	⊥	SIGN
⊥	⊥	NOT FIELD VERIFIED TO BE REMOVED
SS	SS	STORM SEWER LABEL
(F=)	(F=)	SOIL EROSION CONTROL MEASURE (F=PERMANENT, T=TEMPORARY)
---	---	SILT FENCE
---	---	LIMITS OF GRADING/CLEARING
[Pattern]	[Pattern]	CONCRETE
[Pattern]	[Pattern]	ASPHALT

**CONSTRUCTION SEQUENCE**

THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT EROSION IS MINIMIZED AND THAT COMPLIANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL LAWS, REGULATIONS, AND ORDINANCES IS MAINTAINED THROUGHOUT EXECUTION OF THIS PROJECT.

1 DAY	1. INSTALL SILT FENCE & INLET PROTECTION AS SHOWN ON PLANS.
45 DAYS	2. ROUGH GRADE AND INSTALL STORM DRAINAGE
180 DAYS	3. START BUILDING & FIELD CONSTRUCTION
30 DAYS	4. START TURF INSTALLATION
5 DAYS	5. INSTALL WALKWAYS
5 DAYS	6. FINE GRADE, SPREAD TOPSOIL, SEED OR SOD AS APPLICABLE.
1 DAY	7. REMOVE ALL EROSION CONTROL STRUCTURES.
1 DAY	8. REMOVE ACCUMULATED SILT FROM ALL EXISTING DRAINAGE.

**CONTROLS & MEASURES POST CONSTRUCTION SEQUENCE**

ACTIVITY	WEEKLY	MONTHLY	AS REQUIRED
MAINTAIN LANDSCAPING, REPLACE MULCH	X	X	X
CLEAN INLETS		X	X
COLLECT LITTER	X		X
SWEEP PARKING LOT		X	X

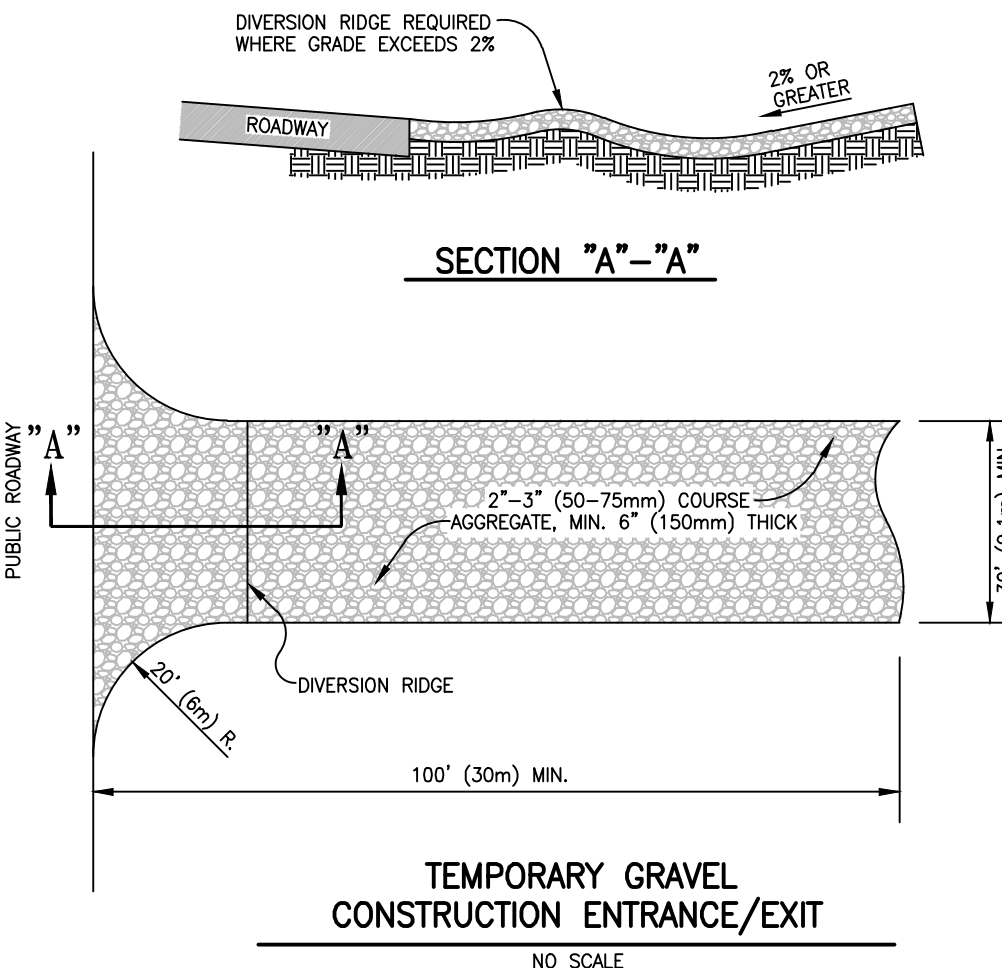
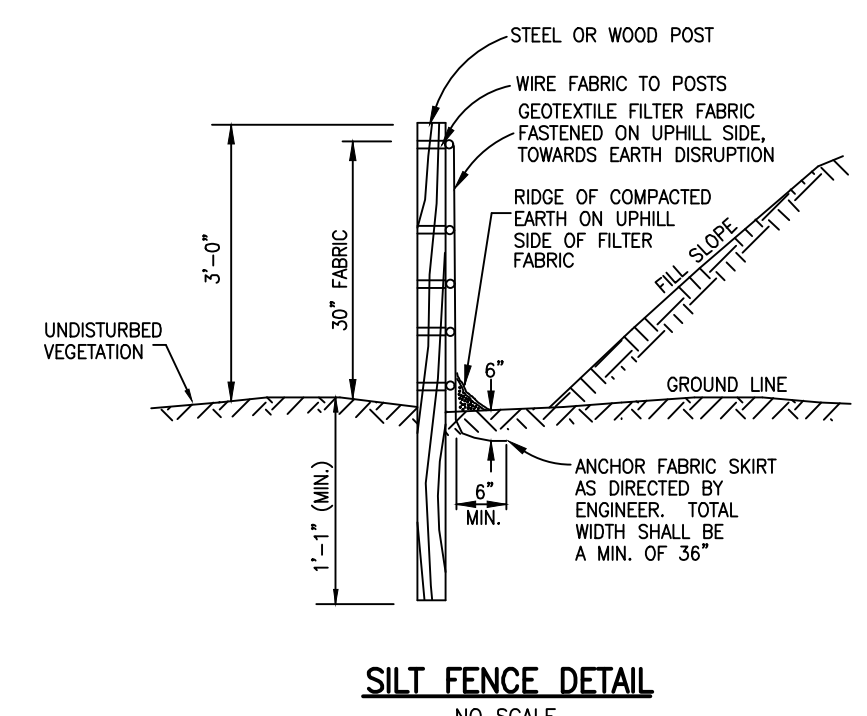
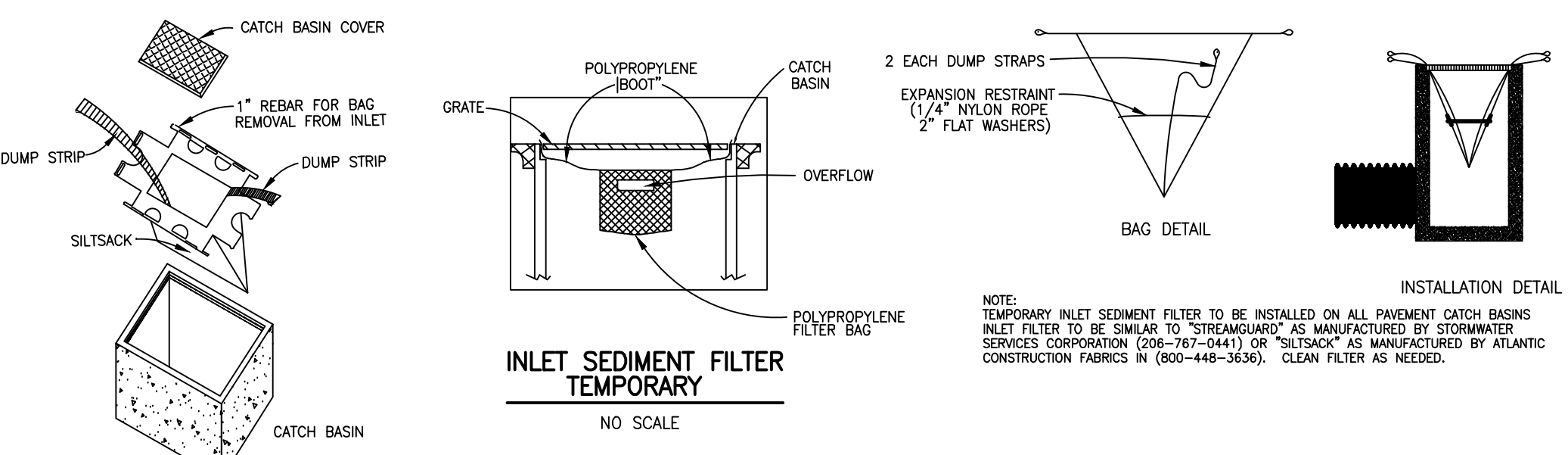
**CONTROLS & MEASURES NARRATIVE**

ACTIVITY	DESCRIPTION
MAINTAIN LANDSCAPING, REPLACE MULCH	COLLECT GRASS, TREE, AND SHRUB CLIPPINGS. DISPOSE IN APPROVED CONTAINER. REPLACE DEAD SOD, TREES AND SHRUBS.
CLEAN INLETS	REMOVE LITTER, SEDIMENT, AND DEBRIS. DISPOSE OF IN APPROVED LANDFILL.
COLLECT LITTER	DISPOSE OF WITH INLET DEBRIS.
SWEEP PARKING LOT	REMOVE MUD, DIRT, GREASE AND OIL WITH PERIODIC SWEEPING
DUST CONTROL	SPRINKLE WATER AS NEEDED

**SOIL EROSION CONTROL MEASURES**

NO	MEASURE	DESCRIPTION
1	STRIPPING & STOCKPILE TOPSOIL	TOPSOIL MAY BE STOCKPILED ABOVE BORROW AREAS TO ACT AS A DIVERSION STOCKPILE SHOULD BE TEMPORARILY SEED
6	SEEDING WITH MULCH AND/OR MATING	ACCELERATES ESTABLISHMENT OF VEGETATIVE COVER EFFECTIVE FOR BRANCHWAYS WITH LOW VELOCITY PILES PLACED IN SMALL QUANTITIES BY NONPROFESIONAL PERSONNEL SHOULD INCLUDE PREPARATION TOPSOIL SEED
14	AGGREGATE COVER	STABILIZES SOIL SURFACE. THIS MINIMIZES EROSION PERMITS CONSTRUCTION TRAFFIC IN ADVERSE WEATHER MAY BE USED AS PART OF PERMANENT BASE CONSTRUCTION OF PAVED AREAS
15	PAVING	PROTECTS AREAS WHICH CANNOT OTHERWISE BE PROTECTED, BUT INCREASES RUNOFF VELOCITY IRREGULAR SURFACE WILL HELP SLOW VELOCITY
35	STORM SEWER	SYSTEM REMOVES COLLECTED RUNOFF FROM SITE, PARTICULARLY FROM PAVED AREAS ON STEEP SLOPE CONCENTRATIONS OF RUNOFF CONDUCTS RUNOFF TO MUNICIPAL SEWER SYSTEM OR STABILIZED OUTFALL LOCATION USE PAVED AREAS TO COLLECT RUNOFF
36	CASTY BRUSH, DRAIN INLET	COLLECTS HIGH VELOCITY CONCENTRATED RUNOFF MAY USE FILTER CLOTH OVER INLET
40	INLET SEDIMENT FILTER	EASY TO SHAPE COLLECTS SEDIMENT MAY BE CLEANED AND EXPANDED AS NEEDED
54	SILT FENCE	USES GEOTEXTILE FABRIC AND POSTS OR POLES. EASY TO CONSTRUCT AND LOCATE AS NECESSARY. (SEE DETAIL SHEET)

P=PERMANENT T=TEMPORARY  
TOTAL DISTURBED AREA = 8.48 AC



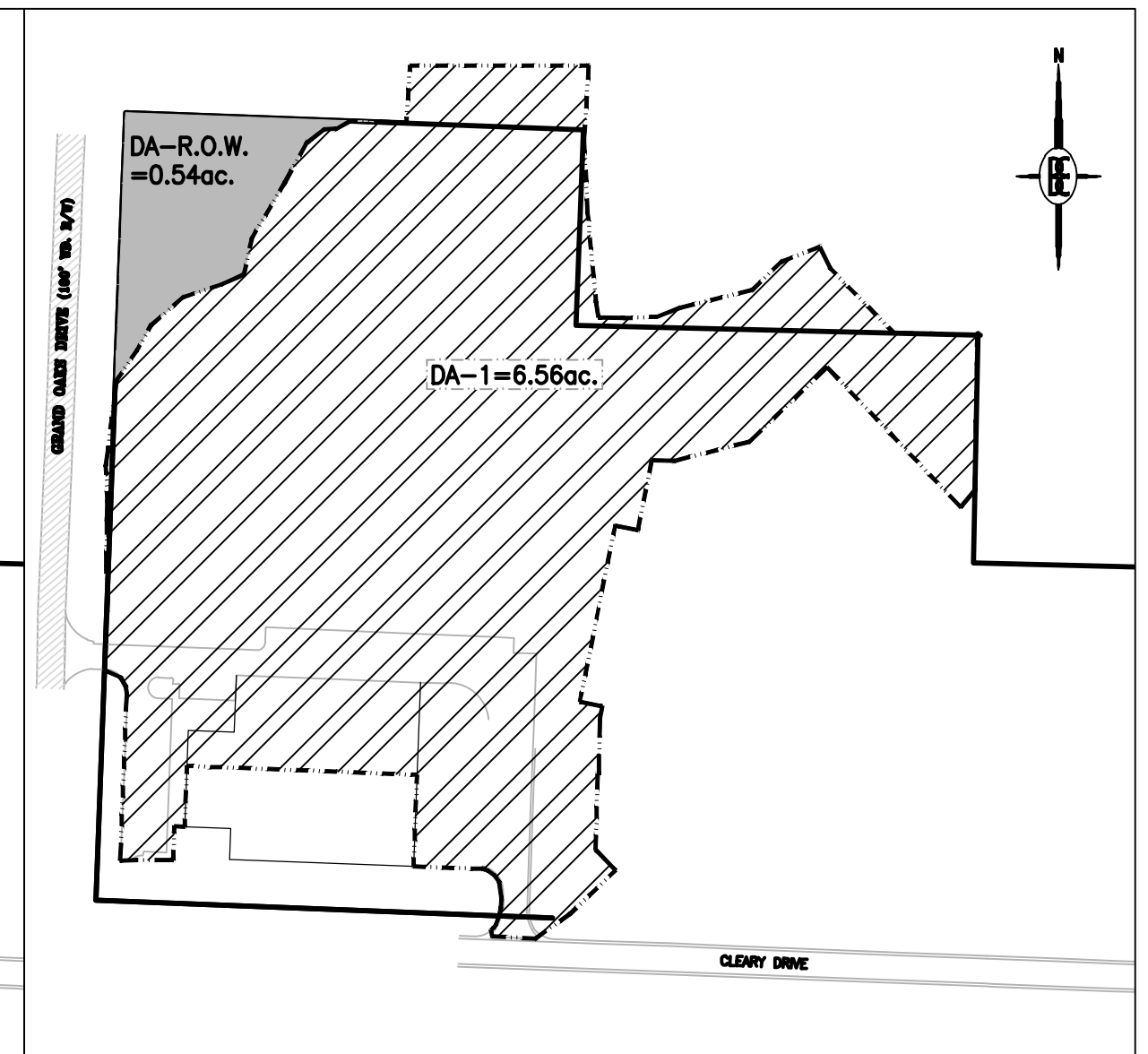
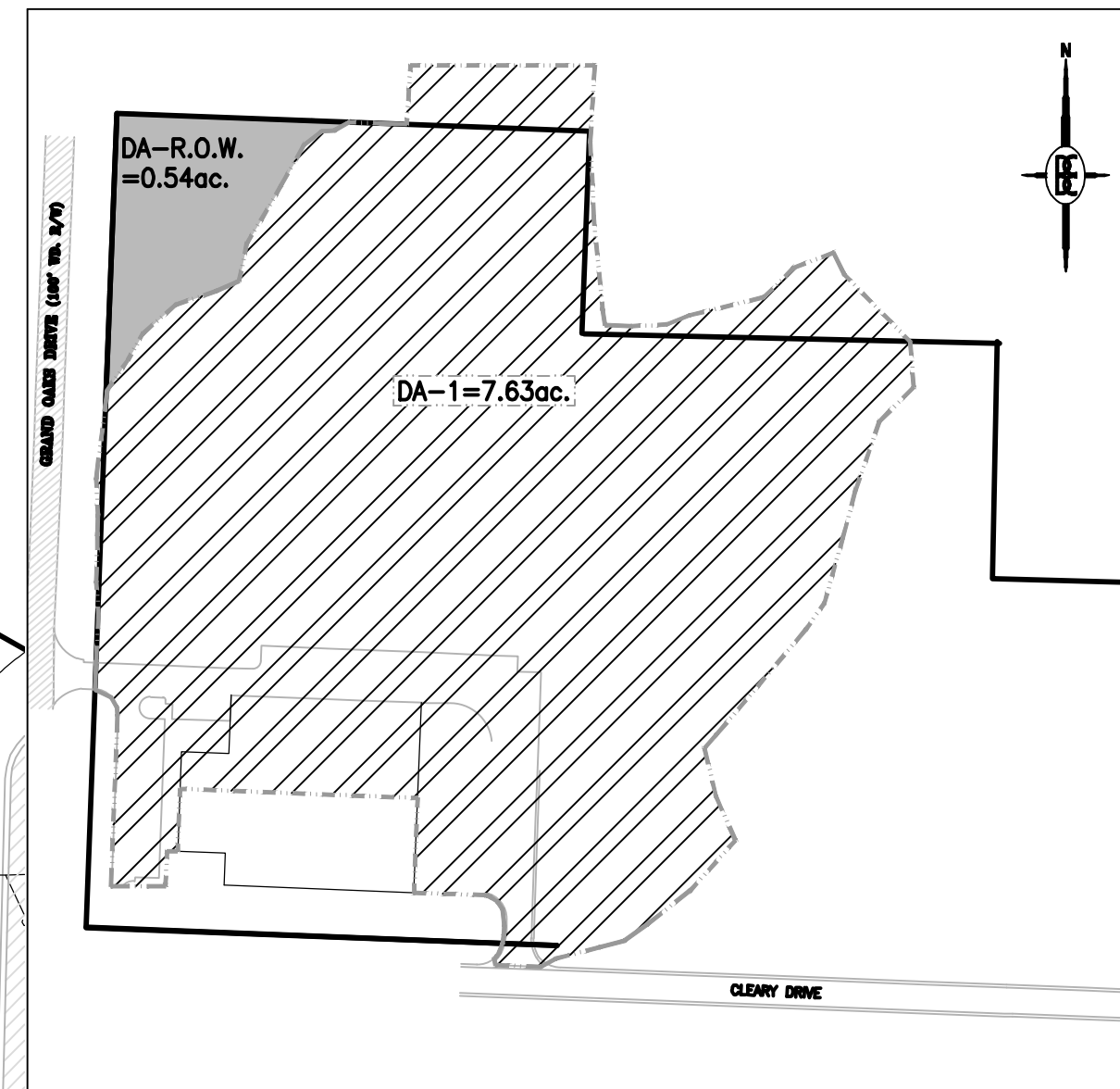
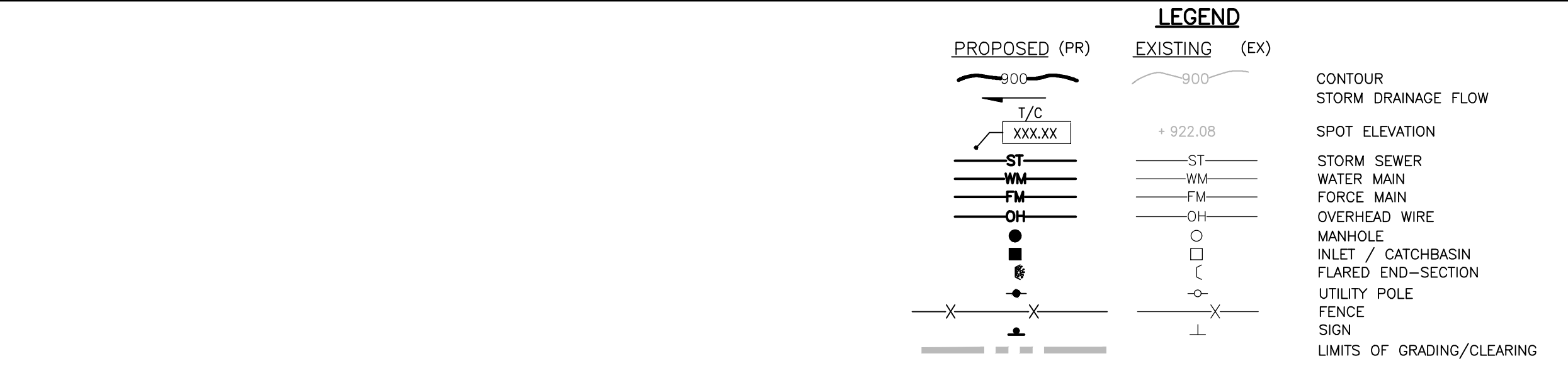
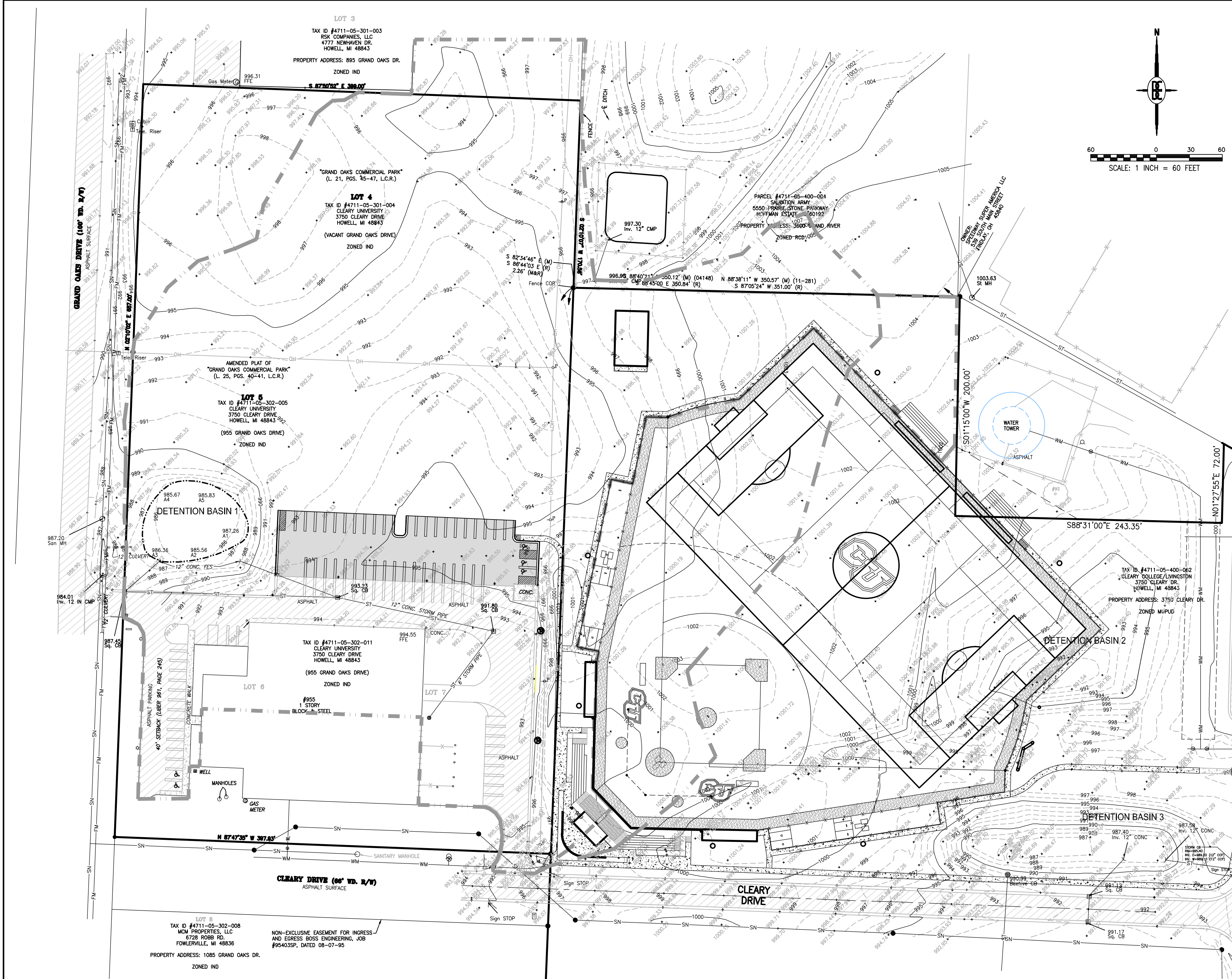
**BEBOSS Engineering**  
Engineers Surveyors Planners Landscape Architects  
3100 HOWELL DRIVE, HOWELL, MI 48843  
800.248.6278 FAX 517.548.1070

PROJECT: CLEARY UNIVERSITY ATHLETIC COMPLEX  
PREPARED FOR: CLEARY UNIVERSITY  
3750 CLEARY DRIVE, HOWELL, MI 48843, 517-338-3014  
TITLE: GRADING & SOIL EROSION CONTROL PLAN

DESIGNED BY:	DATE
ST	11-14-17
ST	10-25-17

NO	BY	REVISION PER
1	ST	PER IMP REVIEW
2	ST	PER TWP & P.C. REVIEW

CHECKED BY: ST  
SCALE: 1" = 50'  
JOB NO. 17-393  
DATE 10-4-17  
SHEET NO. 4



**EXISTING DRAINAGE PATTERN - BASIN 1**  
SCALE: 1" = 150"  
(BASED ON TOPOGRAPHY)

**PROPOSED DRAINAGE PATTERN - BASIN 1**  
SCALE: 1" = 150"  
(BASED ON PROPOSED GRADING)

**PRE-DEVELOPMENT**

LIVINGSTON COUNTY DETENTION BASIN CALCULATIONS

AREA (ACRES)	IMPERVIOUS FACTOR	ACRE IMPERVIOUS
1.05	0.9	0.95
0.00	0.7	0.00
6.58	0.2	1.32

COMPOUND C: 0.30  
TOTAL DRAINAGE AREA: 7.63 ACRES

K1 = AxC (Design Constant) 2.289  
Qa = MAX ALLOW OUTFLOW (0.20 CFS / ACRE) 1.526 CFS

DURATION (MINUTES)	DURATION (SECONDS)	INTENSITY (IN/HR)	INCHES	INFLOW VOLUME (IN RUNOFF xAc)	OUTFLOW (DURATION x Qa)	STORAGE VOLUME (INFLOW - OUTFLOW)
5	300	9.17	2750	6295	458	5837
10	600	7.86	4714	10791	916	9875
15	900	6.88	6188	14163	1373	12790
20	1200	6.11	7333	16786	1831	14955
30	1800	5.00	9000	20601	2747	17854
60	3600	3.24	11647	26660	5494	21167
90	5400	2.39	12913	29558	8240	21318
120	7200	1.90	13655	31257	10987	20269
180	10800	1.34	14488	33163	16481	16682

REQUIRED 100 YEAR DETENTION VOLUME = 21318 CF

**EXISTING BASIN STORAGE PROVIDED**

ELEV.	AREA (FT <sup>2</sup> )	DEPTH (FT)	VOLUME (FT <sup>3</sup> )	TOTAL VOLUME (FT <sup>3</sup> )
997.5	8003	0.5	3,782	9,542
997	7044	1	5,781	5,781
986	4517			

**POST-DEVELOPMENT**

LIVINGSTON COUNTY DETENTION BASIN CALCULATIONS

AREA (ACRES)	IMPERVIOUS FACTOR	ACRE IMPERVIOUS
1.05	0.9	0.95
0.85	0.9	0.77
4.66	0.2	0.93

COMPOUND C: 0.40  
TOTAL DRAINAGE AREA: 6.56 ACRES

K1 = AxC (Design Constant) 2.624  
Qa = MAX ALLOW OUTFLOW (0.20 CFS / ACRE) 1.312 CFS

DURATION (MINUTES)	DURATION (SECONDS)	INTENSITY (IN/HR)	INCHES	INFLOW VOLUME (IN RUNOFF xAc)	OUTFLOW (DURATION x Qa)	STORAGE VOLUME (INFLOW - OUTFLOW)
5	300	9.17	2750	7216	394	6822
10	600	7.86	4714	12370	787	11583
15	900	6.88	6188	16236	1181	15055
20	1200	6.11	7333	19243	1574	17669
30	1800	5.00	9000	23616	2361	21254
60	3600	3.24	11647	30662	4723	25939
90	5400	2.39	12913	33884	7085	26799
120	7200	1.90	13655	35831	9446	26385
180	10800	1.34	14488	38016	14170	23846

REQUIRED 100 YEAR DETENTION VOLUME = 26799 CF

BASIN EXPANSION VOLUME = POST-DEVELOPED REQUIRED - PRE-DEVELOPED REQUIRED  
BASIN EXPANSION VOLUME = 26,799 CFT - 21,318 CFT = 5,481 CFT

TOTAL BASIN VOLUME = EXISTING BASIN VOLUME + BASIN EXPANSION VOLUME  
TOTAL BASIN VOLUME = 9,542 CFT + 5,481 CFT = 15,023 CFT

TOTAL BASIN VOLUME = 15,023 CFT

FOREBAY VOLUME  
V(F) = 5% OF THE 100-YEAR STORM VOLUME BASED ON THE AREA TRIBUTARY TO THE INLET  
V(F) = (0.05)(V/100)  
V(F) = 751 CF

FOREBAY STORAGE VOLUME REQUIRED: 751 CF

FOREBAY STORAGE VOLUME PROVIDED:

ELEV.	AREA (FT <sup>2</sup> )	VOLUME (FT <sup>3</sup> )	TOTAL VOLUME (FT <sup>3</sup> )
988.25	5179	1253	8323
989	4841	3292	7071
987.25	3831	918	3819
987	3510	2901	2901
986	2292	0	0
985	1200		

BANKULL FLOOD VOLUME  
V<sub>FP</sub> = 5150 x A x C = 13540 CF

FIRST FLUSH VOLUME  
V<sub>FP</sub> = 1915 x A x C = 4763 CF

**BASIN STORAGE PROVIDED**

ELEV.	AREA (FT <sup>2</sup> )	DEPTH (FT)	VOLUME (FT <sup>3</sup> )	TOTAL VOLUME (FT <sup>3</sup> )
988.25	12569	0.25	3,085	24,990
988	12114	0.75	8,588	21,912
987.25	10788	0.25	2,643	13,324
987	10358	1	9,531	10,681
986	8703	0.25	1,150	1,150
985.75	500		0	0

BASIN VOLUME PROVIDED = 13,324 CFT + (FOREBAY PROVIDED - FOREBAY REQUIRED)  
BASIN VOLUME PROVIDED = 13,324 CFT + (3819 CFT - 751 CFT) = 16,392 CFT > 15,023 CFT

**STORM WATER NARRATIVE:**  
THERE ARE CURRENTLY 3 DETENTION BASINS WITHIN THE AREA OF SITE IMPROVEMENTS. THE BASINS ARE LABELED AS DETENTION BASINS 1, 2 AND 3 ON THE PLANS. DETENTION BASIN 1 WILL REMAIN BUT WILL BE INCREASED IN SIZE TO ACCOMMODATE ANY ADDITIONAL TRIBUTARY AREA AS WELL AS IMPERVIOUS SURFACE DRAINING TO IT. A SEDIMENT FOREBAY WILL BE ADDED TO DETENTION BASIN 1 AS A MEANS OF PRE-TREATMENT. ADDITIONALLY, AN OVERFLOW CONTROL STRUCTURE WILL BE ADDED TO DETENTION BASIN 1 FOR CONTROLLING THE OUTLET PER LDCO STANDARDS. DETENTION BASIN 2 WILL BE ELIMINATED ALTOGETHER. THIS BASIN IS TO BE FILLED IN AND SWALES SHALL BE CONSTRUCTED TO DIRECT STORM WATER SOUTHERLY. DETENTION BASIN 3 IS TO BE MODIFIED AND PARTIALLY FILLED. THIS BASIN WILL SERVE AS THE FOREBAY FOR THE NEW REGIONAL DETENTION BASIN THAT IS BEING CREATED AS A PART OF THE CLEARY UNIVERSITY STUDENT HOUSING #2 PROJECT. THE DESIGN OF THE STORM WATER DETENTION BASIN SHALL BE COORDINATED WITH THE STUDENT HOUSING PROJECT TO ENSURE THE BASIN IS SIZED APPROPRIATELY GIVEN THE FILLING OF BASIN 2 AND CONVERSION OF BASIN 3 INTO A FOREBAY FOR THE REGIONAL DETENTION BASIN.

**DETENTION BASIN 1 NARRATIVE:**  
DETENTION BASIN 1 DESIGN IS BASED SOLELY ON THE EXISTING CONDITIONS VOLUME AND THE PROPOSED INCREASE IN STORM WATER VOLUME DUE TO INCREASED IMPERVIOUS SURFACES. THE BASIN WILL BE SIZED BY ADDING THE EXISTING BASIN VOLUME TO THE ADDITIONAL VOLUME NEEDED FOR THE PROPOSED SITE IMPROVEMENTS. A FOREBAY AND OUTLET CONTROL STRUCTURE WILL ALSO BE ADDED TO THE EXISTING BASIN FOR STORM WATER TREATMENT AND CONTROL PER THE LDCO STANDARDS.

A PORTION OF THE SITE THAT IS TRIBUTARY TO THE DETENTION BASIN 1 THAT IS SUBJECT TO DEVELOPMENT IS 7.63 ACRES. AFTER DEVELOPMENT OF THE ATHLETIC FIELDS, THE PORTION OF THE TRIBUTARY AREA IN QUESTION REDUCES TO 6.56 ACRES, HOWEVER, THERE IS INCREASED IMPERVIOUS SURFACES IN THE POST-DEVELOPED CONDITION. THE POST DEVELOPED CONDITION CONTAINS 0.85 ACRES OF INCREASED IMPERVIOUS SURFACES. THESE SURFACES INCLUDE THE SIDEWALK, STORAGE BUILDING, DUCOUT, BLEACHERS, PROPOSED PARKING AREA AND THE AREA DESIGNATED AS FUTURE PARKING.

THE DETENTION BASIN 1 IS DESIGNED TO BE INCREASED TO COMPENSATE FOR THE INCREASED VOLUME DUE TO IMPERVIOUS SURFACES. THUS, THE VOLUME THE BASIN NEEDS TO EXPANDED IS AS FOLLOWS:

VOLUME REQUIRED  
ADDITIONAL VOLUME = PROPOSED VOLUME - EXISTING VOLUME  
26,799 CFT - 21,318 CFT = 5,481 CFT ADDITIONAL

TOTAL VOLUME OF BASIN = ORIGINAL VOLUME + ADDITIONAL VOLUME  
TOTAL VOLUME OF BASIN = 9,542 CFT + 5,481 CFT = 15,023 CFT

VOLUME PROVIDED  
VOLUME PROVIDED = BASIN VOLUME + EXCESS FOREBAY VOLUME  
VOLUME PROVIDED = 13,324 CFT + (3,819 CFT - 751 CFT) = 16,392 CFT > 15,023 CFT

SEE CLEARY UNIVERSITY STUDENT HOUSING #2 PROJECT FOR REGIONAL DETENTION BASIN DESIGN

**FOREBAY VOLUME**

FOREBAY STORAGE PROVIDED

ELEV.	AREA (FT <sup>2</sup> )	DEPTH (FT)	VOLUME (FT <sup>3</sup> )	TOTAL VOLUME (FT <sup>3</sup> )
992	6013	1	5,434	16,375
991	4854	1	4,320	10,942
990	3785	1	3,301	6,622
989	2816	1	2,351	3,322
988	1885	1	971	971
987	57		0	0

FREEBOARD ELEVATION  
DESIGN HIGHWATER ELEVATION

THE USER SHALL BE RESPONSIBLE FOR VERIFYING THE ACCURACY OF THE INFORMATION SHOWN ON THESE DRAWINGS ARE ONLY APPROXIMATE. NO GUARANTEE IS MADE THAT THE INFORMATION IS CORRECT. THE USER SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION AND ELEVATION OF EXISTING UTILITIES. THE USER SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION OF EXISTING UTILITIES. THE USER SHALL BE RESPONSIBLE FOR NOTIFYING THE ENGINEER IF ANY UTILITIES ARE FOUND TO BE DIFFERENT FROM THE INFORMATION SHOWN ON THESE DRAWINGS. THE USER SHALL BE RESPONSIBLE FOR NOTIFYING THE ENGINEER OF ANY CHANGES TO THE LOCATION OF EXISTING UTILITIES. THE USER SHALL BE RESPONSIBLE FOR NOTIFYING THE ENGINEER OF ANY CHANGES TO THE LOCATION OF EXISTING UTILITIES.

**BEBOSS Engineering**  
Engineers Surveyors Planners Landscape Architects  
3115 CLEARY DRIVE  
HOWELL, MI 48843  
800.246.6735 FAX 517.548.1070

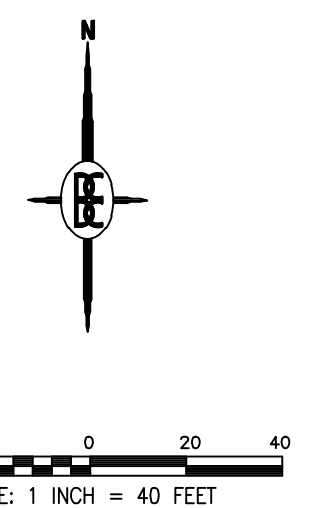
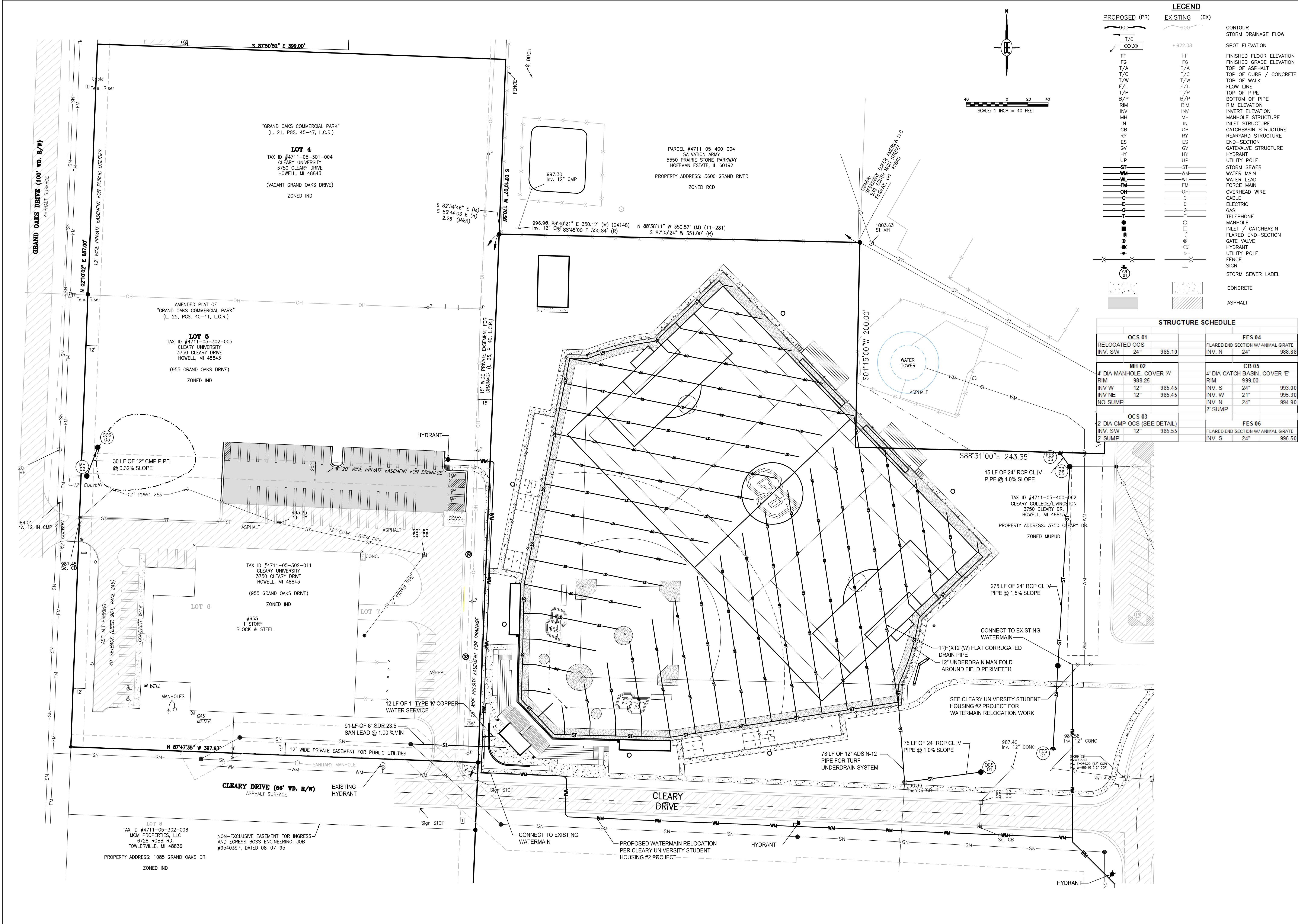
CLEARY UNIVERSITY ATHLETIC COMPLEX  
CLEARY UNIVERSITY  
3750 CLEARY DRIVE  
HOWELL, MI 48843  
517-338-3014

PROJECT: CLEARY UNIVERSITY ATHLETIC COMPLEX  
PREPARED FOR: CLEARY UNIVERSITY  
TITLE: DRAINAGE PLAN

NO	BY	DATE
1	ST	10-25-17

DESIGNED BY: ST  
DRAWN BY: ST  
CHECKED BY: ST

SCALE: 1" = 60'  
JOB NO. 17-393  
DATE 10-4-17  
SHEET NO. 5



**LEGEND**

PROPOSED (PR)	EXISTING (EX)	
900	900	CONTOUR
T/C	XXX.XX	STORM DRAINAGE FLOW
FF	+922.08	SPOT ELEVATION
FG		FINISHED FLOOR ELEVATION
T/A		FINISHED GRADE ELEVATION
T/C		TOP OF ASPHALT
T/W		TOP OF CURB / CONCRETE
F/L		TOP OF WALK
T/P		FLOW LINE
B/P		TOP OF PIPE
RIM		BOTTOM OF PIPE
INV		RIM ELEVATION
MH		INVERT ELEVATION
IN		MANHOLE STRUCTURE
CB		INLET STRUCTURE
RY		CATCHBASIN STRUCTURE
ES		REARYARD STRUCTURE
CV		END-SECTION
HY		GATE/VALVE STRUCTURE
UP		HYDRANT
ST		UTILITY POLE
WM		STORM SEWER
WL		WATER MAIN
FM		WATER LEAD
OH		FORCE MAIN
C		OVERHEAD WIRE
E		ELECTRIC
G		GAS
T		TELEPHONE
○		MANHOLE
□		INLET / CATCHBASIN
⊗		FLARED END-SECTION
⊘		GATE VALVE
⊙		HYDRANT
⊖		UTILITY POLE
⊕		FENCE
⊗		SIGN
⊖		STORM SEWER LABEL
■		CONCRETE
▨		ASPHALT

**STRUCTURE SCHEDULE**

OC3 01	FES 04
RELOCATED OCS	FLARED END SECTION W/ ANIMAL GRATE
INV. SW 24" 985.10	INV. N 24" 988.88
MH 02	CB 05
4' DIA MANHOLE, COVER 'A'	4' DIA CATCH BASIN, COVER 'E'
RIM 988.25	RIM 999.00
INV W 12" 985.45	INV. S 24" 993.00
INV NE 12" 985.45	INV. W 21" 995.30
NO SUMP	INV. N 24" 994.90
OC3 03	FES 06
2' DIA CMP OCS (SEE DETAIL)	FLARED END SECTION W/ ANIMAL GRATE
INV. SW 12" 985.55	INV. S 24" 995.50
2' SUMP	

THE USER SHALL BE RESPONSIBLE FOR VERIFYING THE ACCURACY OF ALL DATA SHOWN ON THESE DRAWINGS ARE ONLY APPROXIMATE. NO GUARANTEE IS MADE FOR THE ACCURACY OF THE DATA. THE USER SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION AND ELEVATION OF EXISTING UTILITIES. THE USER SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION OF EXISTING UTILITIES. THE USER SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION OF EXISTING UTILITIES. THE USER SHALL BE RESPONSIBLE FOR VERIFYING THE LOCATION OF EXISTING UTILITIES.

**BEBOSS Engineering**  
 Surveyors Planners Landscape Architects  
 315 HOWELL MI 48843  
 800.248.0275 FAX 517.548.1070

PROJECT: CLEARY UNIVERSITY ATHLETIC COMPLEX  
 PREPARED FOR: CLEARY UNIVERSITY  
 3750 CLEARY DRIVE  
 HOWELL, MI 48843  
 517-338-3014

TITLE: UTILITY PLAN

NO	BY	REVISION	PER	DATE
1	ST			10-25-17

DESIGNED BY: ST  
 DRAWN BY: ST  
 CHECKED BY:  
 SCALE: 1" = 40'  
 JOB NO. 17-393  
 DATE 10-4-17  
 SHEET NO. 6

GENERAL LANDSCAPE SPECIFICATIONS:

- 1. ALL PLANT MATERIAL SHALL CONFORM TO THE REQUIREMENTS AND SPECIFICATIONS OF THE GOVERNING MUNICIPALITY. ALL STOCK SHALL BE NURSERY GROWN, CONFORMING TO ANSI Z60.1 "AMERICAN STANDARD FOR NURSERY STOCK", AND IN ACCORDANCE WITH GOOD HORTICULTURAL PRACTICE. STOCK SHALL EXHIBIT NORMAL GROWTH HABIT AND BE FREE OF DISEASE, INSECTS, EGGS, LARVAE, AND DEFECTS SUCH AS KNOTS, SUN-SCALD, INJURIES, ABRASIONS, OR DISFIGUREMENT. ALL PLANT MATERIAL SHALL BE SUBJECT TO THE APPROVAL OF THE LANDSCAPE ARCHITECT.

11. SOD SHALL BE DENSE, WELL ROOTED TURF, FREE OF WEEDS. IT SHALL BE COMPRISED OF A BLEND OF AT LEAST TWO KENTUCKY BLUE GRASSES AND ONE FESCUE. IT SHALL HAVE A UNIFORM THICKNESS OF 3/4-INCH AT TIME OF PLANTING, AND CUT IN UNIFORM STRIPS NOT LESS THAN 10-INCHES BY 18-INCHES. SOD SHALL BE KEPT MOIST AND LAID WITHIN 36-HOURS AFTER CUTTING.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ESTABLISH A DENSE LAWN OF PERMANENT GRASSES, FREE OF LUMPS AND DEPRESSIONS. ALL SODDED AREAS THAT BROWN-OUT OR HAVE NOT FIRMLY KNITTED TO THE SOIL BASE WITHIN A PERIOD OF 1 MONTH SHALL BE REPLACED BY THE CONTRACTOR, AT NO COST TO THE OWNER.

12. ALL AREAS OF THE SITE THAT BECOME DISTURBED DURING CONSTRUCTION AND ARE NOT TO BE PAVED, STONED, LANDSCAPED, OR SODDED SHALL BE SEED AND MULCHED.

SEE MIXTURE SHALL BE AS FOLLOWS: KENTUCKY BLUEGRASS (CHOOSE 3 VARIETIES - ADELPHI, RUGBY, GLADE, OR PARADE) 30% RUBY RED OR DAWSON RED FINE FESCUE 30% ATLANTA RED FESCUE 20% PENNFINE PERENNIAL RYE 20%

THE ABOVE SEED MIXTURE SHALL BE SOWN AT A RATE OF 250 LBS PER ACRE. PRIOR TO SEEDING, THE TOPSOIL SHALL BE FERTILIZED WITH A COMMERCIAL FERTILIZER WITH A 10-0-10 ANALYSIS:

10% NITROGEN - MIN 25% FROM A UREA FORMALDEHYDE SOURCE 0% PHOSPHATE 10% POTASH - SOURCE POTASSIUM SULFATE OR POTASSIUM NITRATE

THE FIRST FERTILIZER APPLICATION SHALL BE AT A RATE OF 10 LBS PER 1000 SQ FT OF BULK FERTILIZER.

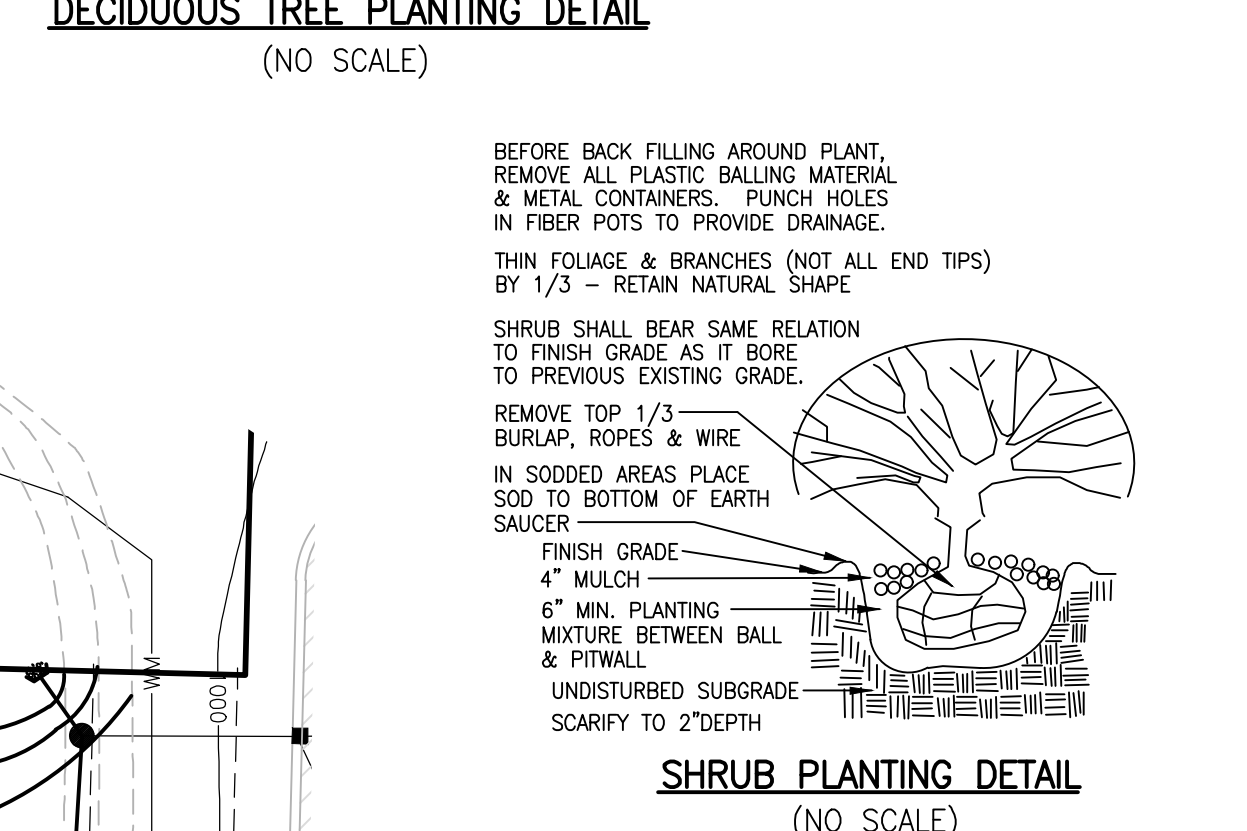
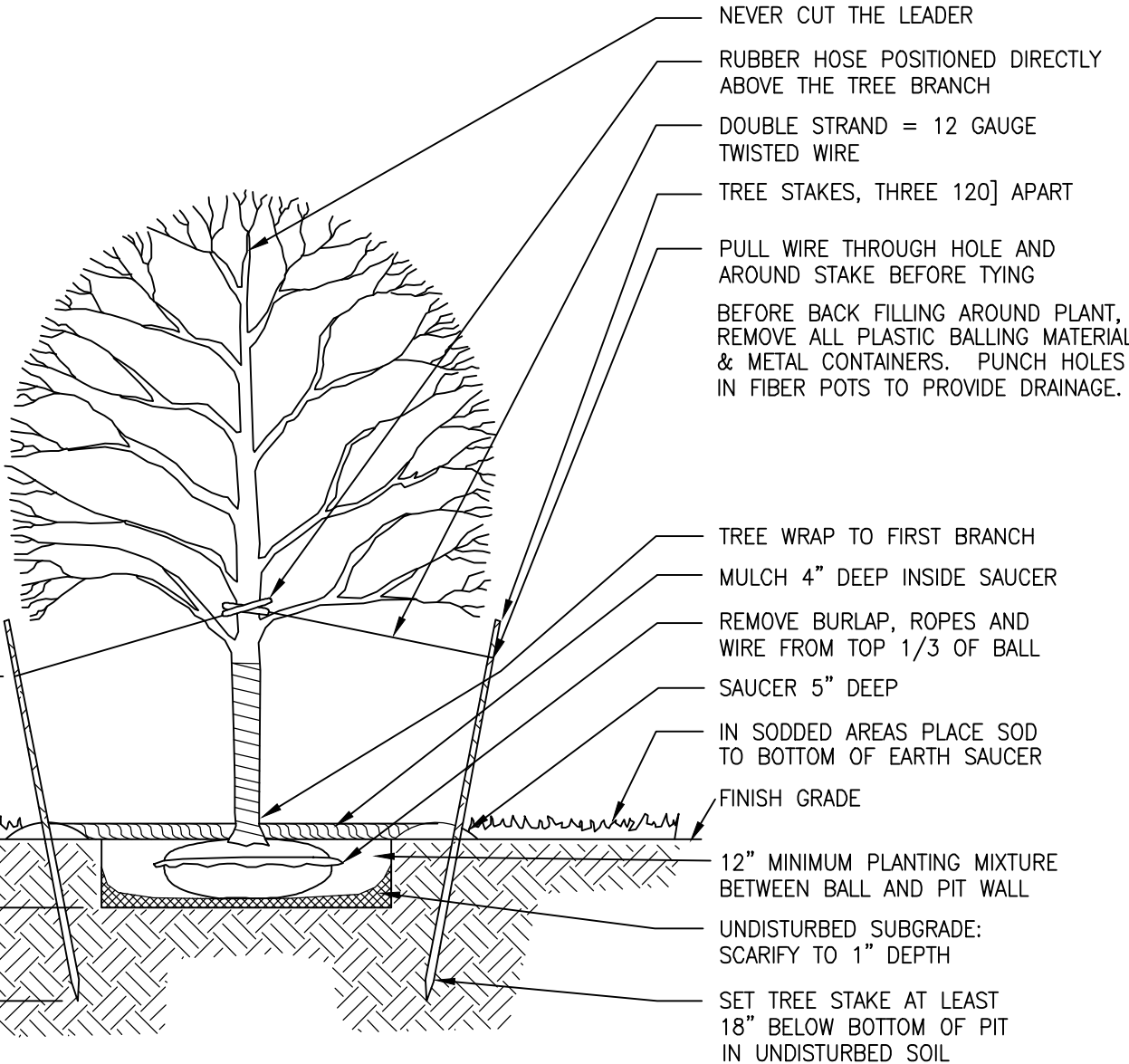
IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ESTABLISH A DENSE LAWN OF PERMANENT GRASSES, FREE OF LUMPS AND DEPRESSIONS. ANY PART OF THE AREA THAT FAILS TO SHOW A UNIFORM GERMINATION SHALL BE RE-SEED AND SUCH RE-SEEDING SHALL CONTINUE UNTIL A DENSE LAWN IS ESTABLISHED. DAMAGE TO SEEDED AREAS RESULTING FROM EROSION SHALL BE REPAIRED BY THE CONTRACTOR.

13. ALL AREAS OF THE SITE SCHEDULED FOR SEEDING OR SODDING SHALL FIRST RECEIVE A 6-INCH LAYER OF CLEAN, FRUITABLE TOPSOIL. THE SOIL SHALL BE DISCED AND SHALL BE GRADED IN CONFORMANCE WITH THE GRADING PLAN.

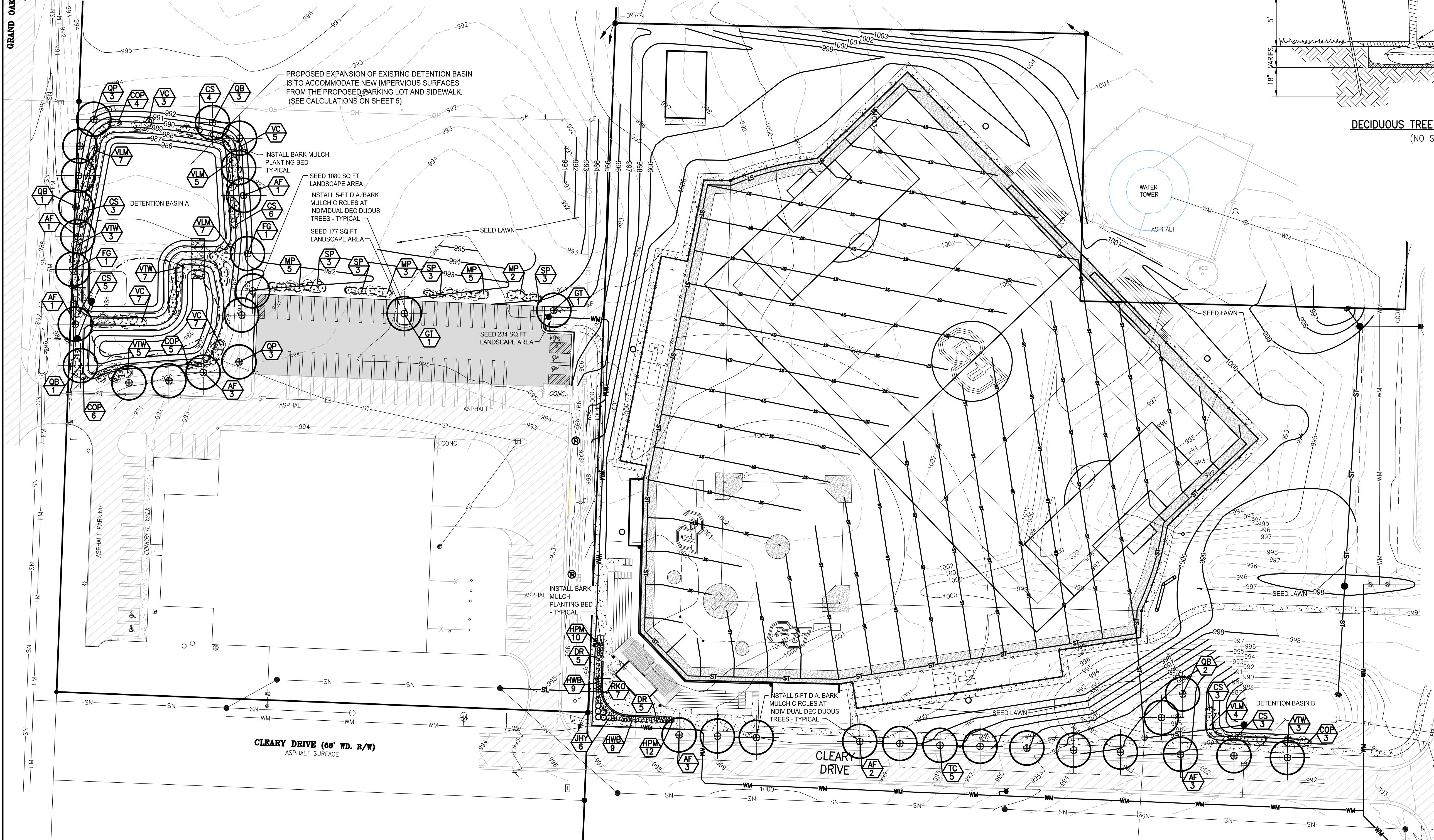
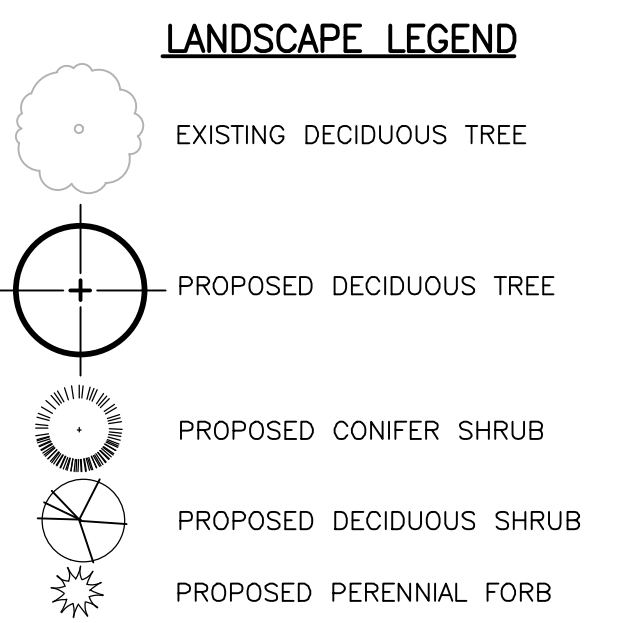
14. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION OF ALL UTILITIES AND TO INFORM THE LANDSCAPE ARCHITECT OF ANY CONFLICTS PRIOR TO COMMENCING LANDSCAPING.

15. ALL LANDSCAPED AREAS WITHIN PROJECT AREA SHALL BE PROVIDED WITH AN UNDERGROUND AUTOMATIC SPRINKLER SYSTEM.

PLANT LIST table with columns: KEY, QUAN., BOTANICAL NAME, COMMON NAME, SIZE, REMARK. Lists various trees, shrubs, and perennials with their specifications.

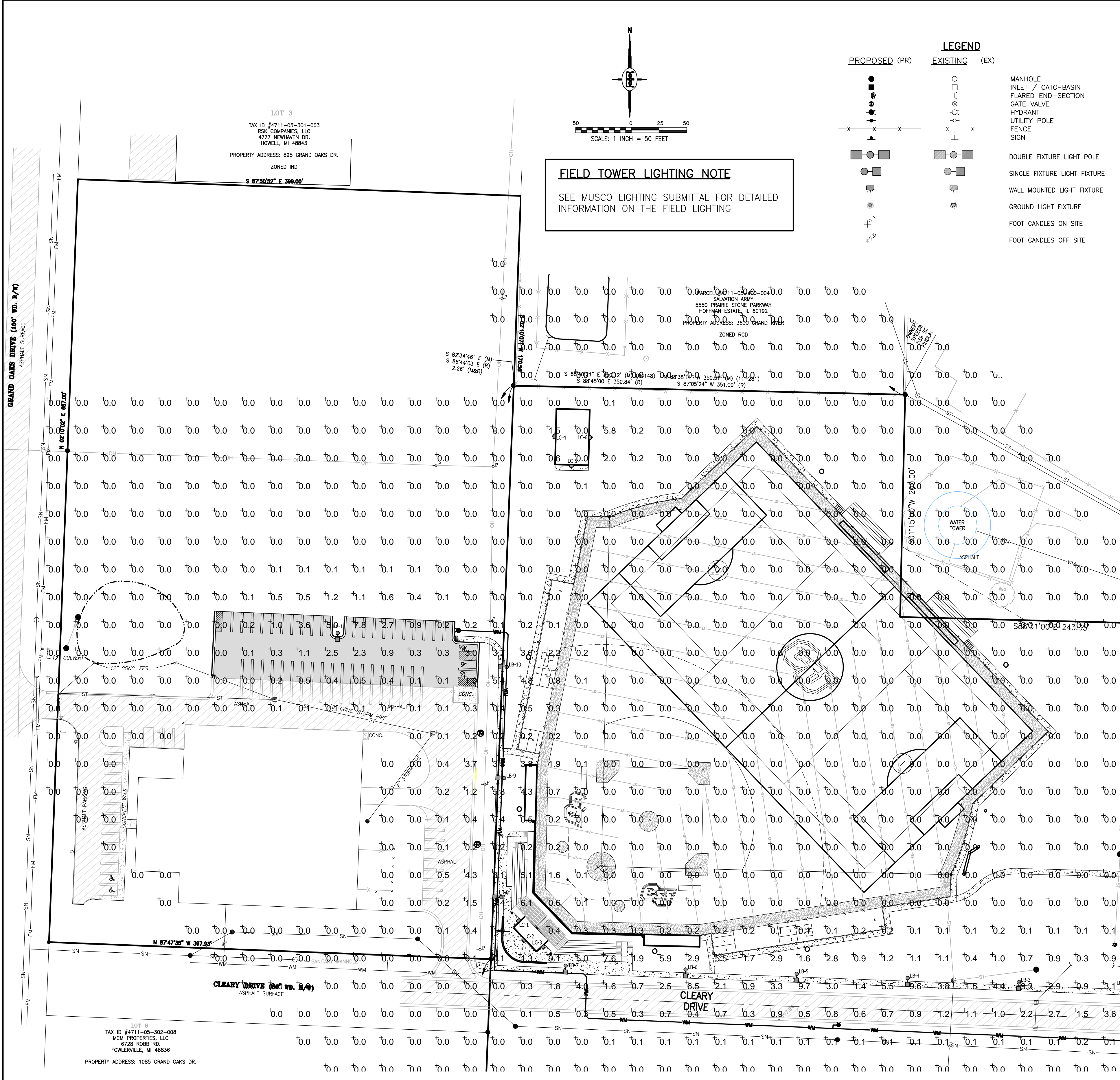


- LANDSCAPE REQUIREMENTS 1. ZONING: MUPUD - BALL FIELD IND - PARKING EXPANSION AREA 2. STREET FRONTAGE - BALLFIELD REQUIRED: 1 CANOPY TREE / 40 LFT OF FRONTAGE 520 LFT ON FRONTAGE OF NEW WORK AREA = 520 / 40 = 13 TREES PROVIDED: 13 TREES IN CLUSTERS + LANDSCAPING AT RETAINING WALL AREA 3. PARKING LOT - 43 SPACES ADDED REQUIRED: 1 CANOPY TREE & 100 SQ FT LANDSCAPED AREA / 10 PARKING SPACES = 5 CANOPY TREES & 500 SQ FT LANDSCAPED AREA PROVIDED: 5 CANOPY TREES & 1,491 SQ FT OF LANDSCAPE AREA - ARRANGED TO PROVIDE FOR FUTURE PARKING EXPANSION 4. DETENTION BASIN A REQUIRED: 1 DECIDUOUS OR EVERGREEN TREE + 10 SHRUBS / 50 LF OF BASIN PERIMETER PROPOSED: EXISTING BASIN TO BE EXPANDED. 988.25 CONTOUR TOP OF BANK (FREE BOARD ELEV.) - NEW GRADING OF 808 LFT (INCL FOREBAY) = 808 / 50 = 16 TREES AND 81 SHRUBS REQUIRED 16 TREES AND 89 SHRUBS PROVIDED 5. DETENTION BASIN B PROPOSED: EXISTING BASIN TO BE MODIFIED / REDUCED. 990.00 CONTOUR TOP OF BANK - NEW GRADING OF 121 LFT = 121 / 50 = 2 TREES AND 12 SHRUBS REQUIRED 2 TREES AND 16 SHRUBS PROVIDED



Vertical sidebar containing BEBOSS Engineering logo, project name (CLEARY UNIVERSITY ATHLETIC COMPLEX), address, and a revision table.





**FIELD TOWER LIGHTING NOTE**  
SEE MUSCO LIGHTING SUBMITTAL FOR DETAILED INFORMATION ON THE FIELD LIGHTING

**LEGEND**

PROPOSED (PR)	EXISTING (EX)	DESCRIPTION
●	○	MANHOLE / CATCHBASIN
□	□	FLARED END-SECTION
○	○	GATE VALVE
○	○	HYDRANT
○	○	UTILITY POLE
○	○	FENCE
○	○	SIGN
○	○	DOUBLE FIXTURE LIGHT POLE
○	○	SINGLE FIXTURE LIGHT FIXTURE
○	○	WALL MOUNTED LIGHT FIXTURE
○	○	GROUND LIGHT FIXTURE
○	○	FOOT CANDLES ON SITE
○	○	FOOT CANDLES OFF SITE

**LITHONIA LIGHTING**

**FEATURES & SPECIFICATIONS**

**KSF2**

METAL HALIDE, 250-400W  
HIGH PRESSURE SODIUM, 200-400W

Model	Wattage	Ballast	Mounting
KSF2 400M R2	400W	ESW 400M R2	SSA-20-4G-T25-DM19-DOB
KSF2 400M R2	400W	ESW 400M R2	SSA-20-4G-T25-DM19-DOB

**KSF2 Arm-Mounted Rectilinear Cutoff Lighting**

Coefficient of Utilization  
Initial Footcandle  
IES LM-79-02  
IES LM-79-02

**LITHONIA LIGHTING**

**ESW-WP111**  
ARCHITECTURAL HALF-MOON, FULL CUTOFF WALL PACK

**PRODUCT SPECIFICATIONS**

**CONSTRUCTION**  
The ESW-WP111 Series features a durable, die-cast aluminum enclosure with an architectural bronze powder coated finish, enclosure is fully sealed and gasketed, and is built to last. The ESW-WP111 Series is available in 150W and 250W configurations. The ESW-WP111 Series is available in 150W and 250W configurations. The ESW-WP111 Series is available in 150W and 250W configurations.

**INSTALLATION**  
The ESW-WP111 Series is ideal for mounting to any vertical surface and features a rugged, die-cast aluminum mounting plate. Can be wired to a 4" junction box. Can be mounted in an overhead position in Open Locations ONLY.

**WARRANTY**  
An electronic component that fails due to manufacturer's defect is guaranteed for two years from time of shipment. Ballasts, Capacitors, and Lamps are not covered by this warranty. Warranty does not apply to damages caused by improper installation, abuse, fire or acts of God. Lamp is not covered by manufacturer's warranty.

**ORDERING INFORMATION**

MODEL	LAMP	WATTS	VOLTS	OPTIONS	ACCESSORIES
ESW-WP111	150W	150	120V	Factory Installed	Field Installed

**PHOTOMETRICS**  
ESW-WP111-PSM11-150 Mounted at 10'

**DIMENSIONS**

Approximate Weight: 14 lbs.

**Footcandle Correction**  
Multiply fixture beam footcandle values for changes in lamp type.  
Lamp: 150W MPS 150W MPS 150W MPS  
Factor: .34 .68 1.00 1.50 2.00

**GENERAL LIGHTING NOTES**

- THE LIGHTING PATTERN REPRESENTS ILLUMINATION LEVELS CALCULATED FROM LABORATORY DATA TAKEN UNDER CONTROLLED CONDITIONS IN ACCORDANCE WITH ILLUMINATING ENGINEERING SOCIETY APPROVED METHODS. ACTUAL PERFORMANCE OF ANY MANUFACTURER'S LUMINAIRE MAY VARY DUE TO VARIATION IN ELECTRICAL VOLTAGE, TOLERANCE IN LAMPS, AND OTHER VARIABLE FIELD CONDITIONS.
- ALL POLES ARE TO BE MOUNTED ON CONCRETE PEDESTALS 2' ABOVE GRADE IN PARKING LOTS AS SHOWN IN DETAIL.
- ALL POLES LOCATED OUTSIDE OF THE PARKING AREA SHALL BE LOCATED 3' FROM BACK OF CURB OR EDGE OF SIDEWALKS.
- SHOP DRAWINGS FOR THE ELECTRICAL WIRING OF THE POLES NEED TO BE SUBMITTED TO THE ENGINEER FOR COORDINATION OF UNDERGROUND CONDUIT AND APPROVAL OF LAYOUT.

**SITE LIGHTING SUMMARY**

LIGHTING LEVELS ARE SHOWN IN FOOTCANDLES AT GRADE  
MAX. LIGHT LEVEL AT THE PROPERTY LINE: NOT NEAR PROPERTY  
MIN. LIGHT LEVEL AT THE PROPERTY LINE: NOT NEAR PROPERTY

**BOX LIGHT FIXTURE DETAIL (TYP.)**  
(NO SCALE)

**LUMINAIRE SCHEDULE**

SYMBOL	LABEL	QTY.	DESCRIPTION	CATALOG NUMBER	LAMP	FILE	LUMENS	LLF	POLE DESCRIPTION	POLE HEIGHT	BASE HEIGHT	TOTAL HEIGHT
●	LA	1	LITHONIA SPECIFICATION AREA LUMINAIRE, 400W METAL HALIDE, R2 REFLECTOR, FULL CUTOFF	KSF2 400M R2	400 WATT CLEAR ED28 PULSE START METAL HALIDE	KSF2 400M R2.IES	38,000	.72	SSA-20-4G-T25-DM19-DOB	20'	2'	22'
●	LB	10	LITHONIA SPECIFICATION AREA LUMINAIRE, 400W METAL HALIDE, R2 REFLECTOR, FULL CUTOFF	KSF2 400M R2	400 WATT CLEAR ED28 PULSE START METAL HALIDE	KSF2 400M R2.IES	38,000	.72	SSA-20-4G-T25-DM19-DOB	12'	2.5'	14.5'
■	LC	6	ESW WP111A ARCHITECTURAL HALF-MOON, FULL CUTOFF WALL PACK	ESW-WP111A PSM11 150W MT	150 WATT BD17 TYPE LAMPS PULSE START METAL HALIDE		14,000	.72	WALL MOUNTED	12'	0'	12'

ALL IES FILES PROVIDED BY MANUFACTURER FOR CALCULATION OF LIGHTING LEVEL.

**BEBOSS Engineering**  
Engineers Planners Landscape Architects  
310 HOWELL BLVD.  
HOWELL, MI 48843  
800.248.0735 FAX 517.548.1070

**CLEARY UNIVERSITY ATHLETIC COMPLEX**  
PROJECT:  
PREPARED FOR:  
CLEARY UNIVERSITY  
3750 CLEARY DRIVE  
HOWELL, MI 48843  
517-338-3014

**LIGHTING PLAN**  
TITLE:  
DATE:  
DESIGNED BY: CH  
DRAWN BY: CH  
CHECKED BY:  
SCALE: 1" = 40'  
JOB NO. 17-393  
DATE 10-4-17  
SHEET NO. 8

NO.	BY	REVISION	DATE
1	CH	PER TWP REVIEW	11-14-17
2	CH	PER TWP REVIEW	10-25-17

LIVINGSTON COUNTY SOIL EROSION PERMIT TEMPLATE  
TEMPORARY CONTROLS AND SEQUENCE

- NOTIFY LIVINGSTON COUNTY DRAIN COMMISSIONER'S OFFICE 24 HOURS PRIOR TO START OF GRADE WORK.
- IN ACCORDANCE WITH PUBLIC ACT NO. 53, OF 1974 THE PERMIT HOLDER SHALL CALL MISS DIG FOR STAKING AND LOCATING OF UTILITIES, AT LEAST 72 HOURS IN ADVANCE OF THE START OF ANY WORK.

- PERMITTING STANDARDS
- (IMPORTANT NOTICE) RETENTION/DETENTION PONDS SHALL BE EXCAVATED, TOPSOILED, SEEDED, MULCHED AND TACKED PRIOR TO THE START OF MASSIVE EARTH DISRUPTION. INGRESS/EGRESS MUST HAVE LARGE CRUSHED ROCK TO REDUCE THE TRACKING OF SOIL ONTO THE PUBLIC TRAFFIC AREAS. SEE DETAIL ITEMS BELOW.
  - 36" M.D.O.T SPECIFICATION TYPE SILT FABRIC FENCE AS SHOWN ON PLANS SHALL BE PLACED AND MAINTAINED ALONG PERIMETER ON ALL LOW LYING AREAS OF THE CONSTRUCTION SITE TO FILTER RUNOFF BEFORE LEAVING PROJECT SITE.

- ALL TEMPORARY EROSION CONTROL DEVICES AS NOTED ON PLANS SHALL BE INSTALLED PRIOR TO THE START OF MASSIVE EARTH DISRUPTION.
- PLAN DOES DENOTE A DETAILED EROSION CONTROL DEVICE TO RESTRICT TRACKING OF MATERIAL ONTO THE HIGHWAY. STONE DIAPHRAGMS SHALL BE INSTALLED AT ALL INGRESS/EGRESS AREAS OF THE SITE PRIOR TO THE START OF MASSIVE EARTH DISRUPTION. DIAPHRAGMS SHALL BE OF CRUSHED STONE AND SHALL HAVE A MINIMUM LENGTH OF 100' LINEAL FEET.

- RETENTION PONDS
- RETENTION/DETENTION/SEDIMENTATION PONDS SHALL BE EXCAVATED, TOPSOILED, SEEDED, MULCHED AND TACKED PRIOR TO THE START OF MASSIVE EARTH DISRUPTION.
  - DETENTION POND OUTLETS SHALL BE OF THE STANDPIPE AND STONE FILTER SYSTEM, WITH TRASH SCREEN. OUTLET FLOW SHALL NOT EXCEED 0.20 CUBIC FEET OF WATER PER SECOND PER POND DIAMETER. POND DIKES SHALL HAVE A MINIMUM OF ONE (1) FOOT OF FREEBOARD. AN EMERGENCY SPILLWAY SHALL BE CONSTRUCTED WITHIN THE FREEBOARD LEVEL.

- THE EMERGENCY SPILLWAY FROM THE DETENTION POND SHALL BE SODDED AND PEGGED, OR RIP RAPPED, 15 FEET PAST THE TOE OF THE SLOPE OF THE BERM.
- DIKES AND BERMS SHALL BE FREE OF ALL ORGANIC MATTER.
- RETENTION/DETENTION PONDS SHALL BE FENCED WITH A 4' CHAIN LINK FENCE, INCLUDING A 12' ACCESS GATE FOR MAINTENANCE UNLESS MINIMUM 5 FT. HORIZONTAL TO 1 FT. VERTICAL SIDE SLOPES ARE PROVIDED. THE FENCE SHALL BE INSTALLED AT THE OUTER PORTION OF THE BERM, TO ALLOW FOR MAINTENANCE WORK TO BE DONE INSIDE THE FENCE.

- ALL UNIMPROVED DISTURBED AREAS SHALL BE STRIPPED OF TOPSOIL WHICH WILL BE STORED ONSITE DURING THE EXCAVATING STAGE. TOPSOIL PILES SHALL BE SEEDED AND MULCHED, OR MATTED WITH STRAW IN THE NON-GROWING SEASON. IMMEDIATELY AFTER THE STRIPPING PROCESS IS COMPLETED, TO PREVENT WIND AND WATER EROSION.
- SOIL EROSION CONTROLS SHALL BE MONITORED DAILY BY THE ON-SITE ENGINEER, OR CONTRACTOR, WHICHEVER CASE APPLIES. SLOPES AND DITCHES

- ON SITE DITCHES SHALL BE OF THE FLAT BOTTOM TYPE MINIMUM WIDTH OF 2' WITH A MINIMUM OF 3' HORIZONTAL TO 1' VERTICAL SIDE SLOPES. 3:1
- DITCHES WITH STEEP SLOPES WILL NEED FLOW CHECKS TO PREVENT SCOURING OF THE DITCH BOTTOM. THESE SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER OR INSPECTOR.
- SLOPES IN EXCESS OF 3' HORIZONTAL TO 1' VERTICAL SHALL NOT BE USED EXCEPT WITH A MECHANICAL DEVICE SUCH AS A RETAINING WALL, TERRACING, OR OTHER PRIOR APPROVED DEVICE.

- STORM DRAINS
- ALL STORM WATER STRUCTURES, CATCH BASINS AND/OR MANHOLES, IF BLOCK, SHALL BE PLASTERED ON BOTH THE INSIDE AND OUTSIDE OF THE STRUCTURES. GROUTING AND POINTING WILL BE NECESSARY AT THE CASTING AND STRUCTURE JOINT TO PREVENT LEAKAGE AND THE RESULTING SOIL MOVEMENT AROUND THE STRUCTURE.
  - STORM WATER INLETS SHALL HAVE AS A TEMPORARY CONTROL A STRAW BALE BARRIER AND STONE FILTER INSTALLED AROUND THE INLET DURING CONSTRUCTION. AS AN ALTERNATIVE TO THE STRAW BALE BARRIER, A BURLAP AND PEA STONE FILTER MAY BE USED. THREE LAYERS OF BURLAP FIBER AND A FILTER OF PEA STONE MINIMUM 1 FT. IN DEPTH CAN BE USED. DUE TO THE POROSITY OF THE BURLAP FILTER THE MINIMUM OF 1 FT. OF STONE IS VERY IMPORTANT. THE CONTROL SHALL BE INSTALLED AS SOON AS THE STRUCTURE IS BUILT AND INSPECTED DAILY.

- BURLAP AND PEA STONE FILTERS WILL NEED TO BE CHANGED AFTER EACH RAINFALL.
- COUNTY CODE REQUIRES A MINIMUM PIPE SIZE OF 12" IN DIAMETER. IF SMALLER PIPE IS NEEDED FOR OUTLET PURPOSES THE 12" CAN BE BAFFLED TO THE CORRECT SIZE. ALL PIPE SHALL MEET THE 12" DIAMETER CODE SIZE.
- ALL STORM DRAIN OUTLETS 15" IN DIAMETER OR LARGER SHALL HAVE ANIMAL GUARDS INSTALLED TO PREVENT ENTRANCE TO THE SYSTEM.
- ALL STORM DRAINAGE PIPE 30" IN DIAMETER OR LARGER SHALL BE POINTED, AT THE JOINTS ON THE INSIDE WITH MORTAR, AFTER BACKFILLING.

- ALL STORM DRAIN OUTLETS THAT DO NOT EMPT INTO THE RETENTION/DETENTION POND SHALL HAVE A TEMPORARY 5'X10'X3' SUMP INSTALLED AT THE TERMINATION OF THE STORM SEWER. UPON COMPLETION OF THE STABILIZATION WORK THE SUMP AREA SHALL BE FILLED AND RIP RAPPED WITH COBBLE STONE. SILT TRAPS SHALL BE INSPECTED AFTER EACH STORM.
- STORM WATER OUTLETS DO DENOTE RIP RAP. ALL OUTLETS SHALL BE RIP RAPPED OVER KEYED FILTER FABRIC WITH A MINIMUM OF 15 SQ. YARDS OF 6" OR LARGER COBBLE STONE.
- STORM WATER OUTLETS DO DENOTE RIP RAP. ALL OUTLETS SHALL BE RIP RAPPED OVER KEYED FILTER FABRIC WITH A MINIMUM OF 15 SQ. YARDS OF 6" OR LARGER COBBLE STONE.
- STORM WATER OUTLETS DO DENOTE RIP RAP. ALL OUTLETS SHALL BE RIP RAPPED OVER KEYED FILTER FABRIC WITH A MINIMUM OF 15 SQ. YARDS OF 6" OR LARGER COBBLE STONE.

- STORM WATER OUTLETS DO DENOTE RIP RAP. ALL OUTLETS SHALL BE RIP RAPPED OVER KEYED FILTER FABRIC WITH A MINIMUM OF 15 SQ. YARDS OF 6" OR LARGER COBBLE STONE.
- STORM WATER OUTLETS DO DENOTE RIP RAP. ALL OUTLETS SHALL BE RIP RAPPED OVER KEYED FILTER FABRIC WITH A MINIMUM OF 15 SQ. YARDS OF 6" OR LARGER COBBLE STONE.
- STORM WATER OUTLETS DO DENOTE RIP RAP. ALL OUTLETS SHALL BE RIP RAPPED OVER KEYED FILTER FABRIC WITH A MINIMUM OF 15 SQ. YARDS OF 6" OR LARGER COBBLE STONE.
- STORM WATER OUTLETS DO DENOTE RIP RAP. ALL OUTLETS SHALL BE RIP RAPPED OVER KEYED FILTER FABRIC WITH A MINIMUM OF 15 SQ. YARDS OF 6" OR LARGER COBBLE STONE.

- IT WILL BE NECESSARY FOR THE DEVELOPER TO HAVE THE STORM DRAINAGE LINES CLEANED PRIOR TO FINAL INSPECTION BY THE LIVINGSTON COUNTY DRAIN COMMISSIONER'S OFFICE. IF REQUIRED, THIS WORK SHALL BE DONE BY A PROFESSIONAL SEWER CLEANING FIRM AND CERTIFIED IN WRITING BY THE PROJECT ENGINEER. ALL SUMPS AND TEMPORARY SILT TRAPS SHALL ALSO BE CLEANED AT THIS TIME.
- STABILIZATION

- ALL UNIMPROVED DISTURBED AREAS SHALL BE RE-TOP SOILED, WITH A MINIMUM OF 3" OF MATERIAL, SEEDED, MULCHED AND TACKED WITHIN 15 DAYS OF THE COMPLETION OF THE MASSIVE EARTH DISRUPTION. IN THE NON-GROWING SEASON STRAW MATTING WILL SUFFICE. HYDROSEEDING WILL BE AN ACCEPTABLE ALTERNATE FOR MULCHING. EXTREME CARE SHOULD BE EXERCISED IN SPRING AND FALL PERIODS AS A FROST WILL BREAK THE BIND OF THE HYDROSEEDING, WHICH WILL AFFECT THE EFFECTIVENESS OF THIS PROCEDURE.
- IN THE NON-GROWING SEASON, TEMPORARY STABILIZATION OF MASSIVELY EXPOSED AREAS FOR WINTER STABILIZATION SHALL BE DONE WITH STRAW MATTING.

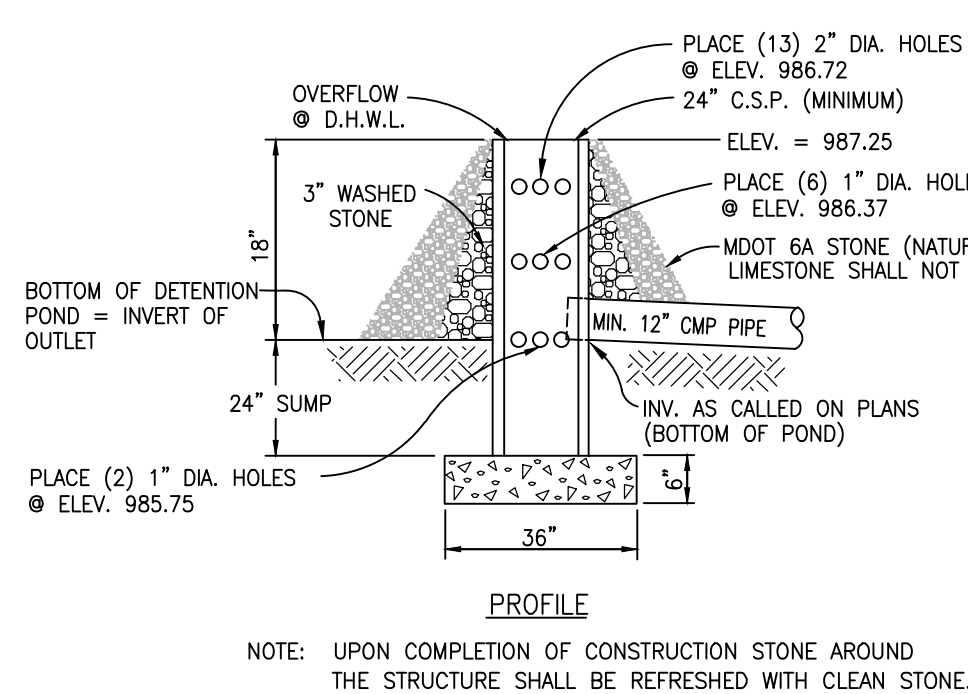
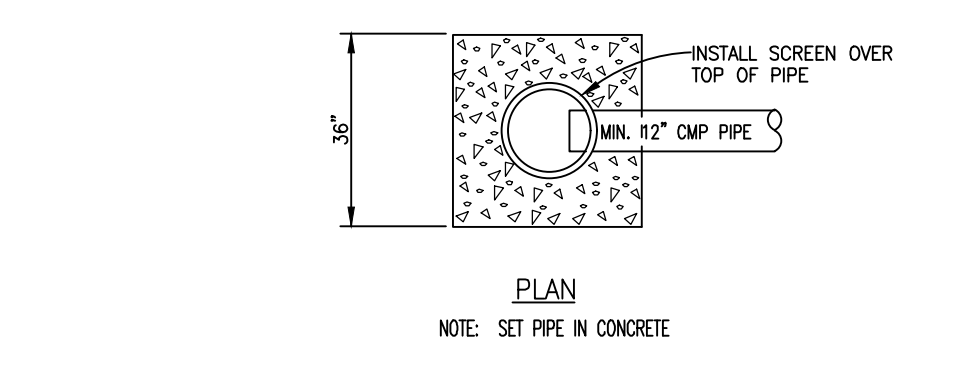
- PERMIT FEES DURING THE WINTER PERIOD OF NON-CONSTRUCTION, (OCTOBER 1 THROUGH MARCH 31), SHALL NOT BE IMPOSED IF THE PERMIT HOLDER TEMPORARILY STABILIZES THE EXPOSED AREAS WITH STRAW MATTING, AND OTHER APPROVED CONTROLS, AND OBTAINS A WINTER STABILIZATION CERTIFICATE FROM THIS OFFICE.
- PERIODIC INSPECTIONS WILL BE MADE THROUGHOUT THE COURSE OF THE PROJECT. IT WILL BE THE RESPONSIBILITY OF THE MANAGERS OF THE PROJECT TO CONTACT THIS OFFICE FOR THE FINAL INSPECTION AT THE END OF THE PROJECT.

- THIS COMMERCIAL PERMIT IS VALID FOR THE MASS EARTH MOVEMENT, THE INSTALLATION OF ROADS, DRAINS, AND UTILITIES AND IS NOT FOR ANY SINGLE FAMILY RESIDENCE. ALL RESIDENTIAL BUILDERS WILL NEED TO SECURE WAIVERS AND OR PERMITS AS NECESSARY FOR EACH LOT IN THIS DEVELOPMENT AT THE TIME APPLICATION FOR SINGLE FAMILY RESIDENCE IS MADE.
- THE ISSUING BUILDING DEPARTMENT SHALL NOT ISSUE THE CERTIFICATE OF OCCUPANCY UNTIL THE FINAL INSPECTION LETTER FROM THE LIVINGSTON COUNTY DRAIN COMMISSIONER'S OFFICE HAS BEEN OBTAINED.
- PER THE LIVINGSTON COUNTY DRAIN COMMISSIONER THE SEEDING, FERTILIZER AND MULCH MINIMUM QUANTITIES SHALL BE AS FOLLOWS:

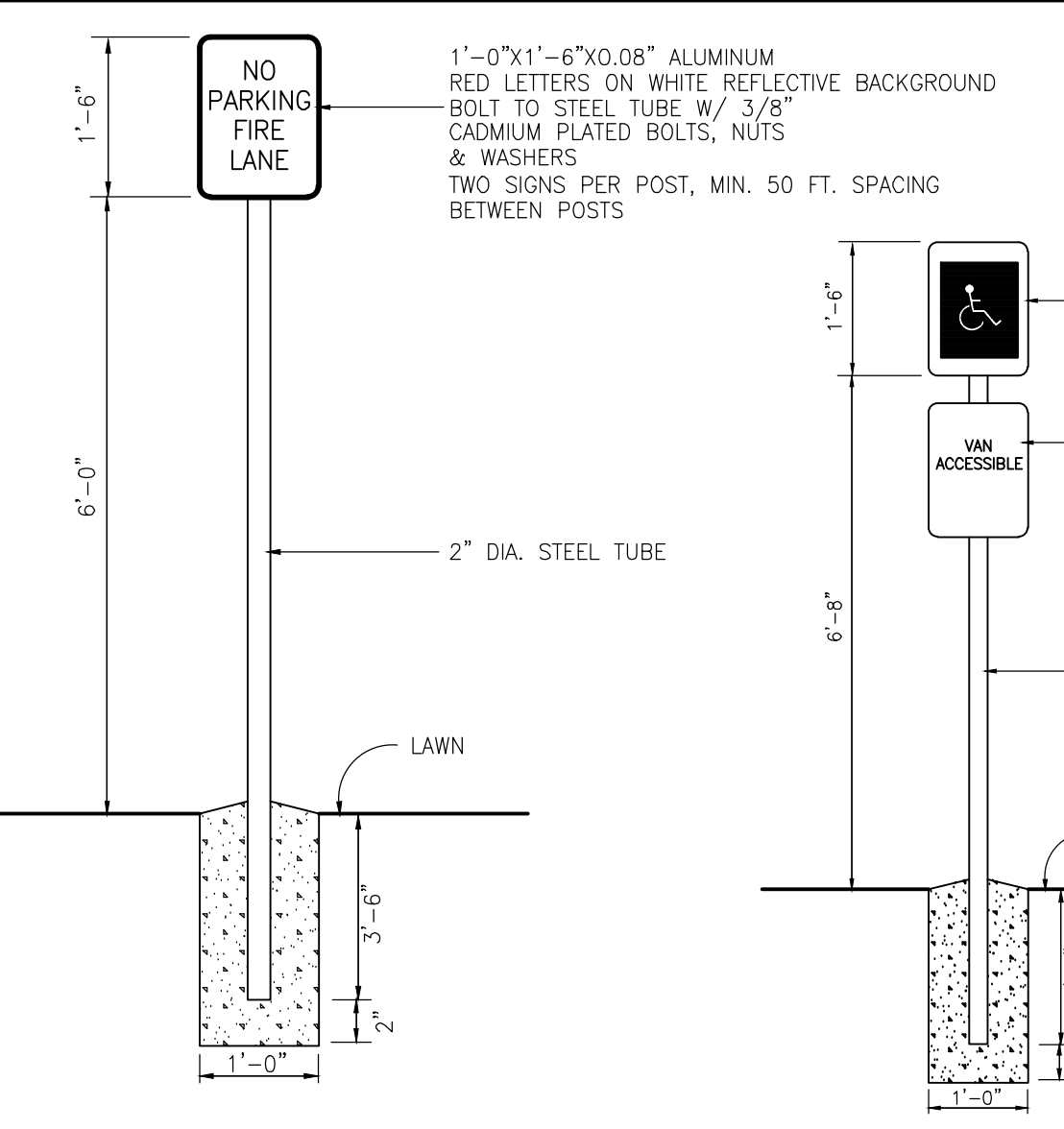
- MAINTENANCE SCHEDULE FOR SOIL EROSION CONTROLS
- SILT FENCE SHALL BE INSPECTED WEEKLY AND AFTER EACH MAJOR STORM EVENT. MAINTENANCE SHALL INCLUDE REMOVAL OF ACCUMULATED SILT AND REPLACEMENT OF TORN SECTIONS. SILT FENCE SHALL BE REMOVED WHEN ALL CONTRIBUTING AREAS HAVE BEEN STABILIZED.
  - TRACKING PAD SHALL BE INSPECTED MONTHLY FOR ACCUMULATED DIRT. TRACKING PAD SHALL BE REPLACED WHEN THE STONES ARE CHOKED WITH DIRT. TRACKING PAD SHALL BE REMOVED IMMEDIATELY PRIOR TO THE FIRST COURSE OF ASPHALT BEING LAID.
  - DETENTION/RETENTION POND SHALL BE INSPECTED QUARTERLY ON A PERMANENT BASIS. MAINTENANCE SHALL INCLUDE SEDIMENT REMOVAL, EMBANKMENT STABILIZATION AND MAINTAINING THE OUTLET STRUCTURE IN GOOD CONDITION. NO TREES SHALL BE ALLOWED TO GROW ON THE EMBANKMENT.
  - CATCH BASINS SHALL BE INSPECTED ANNUALLY FOR ACCUMULATION OF SEDIMENT. ALL SEDIMENT MUST BE REMOVED AND DISPOSED OF PROPERLY WHEN THE SUMP IS FULL.
  - COMMON AREAS SHALL BE STABILIZED NO LATER THAN 15 DAYS AFTER GRADE WORK, PURSUANT TO RULE 1709 (5).

SILT FENCE SHALL BE A MINIMUM 36".

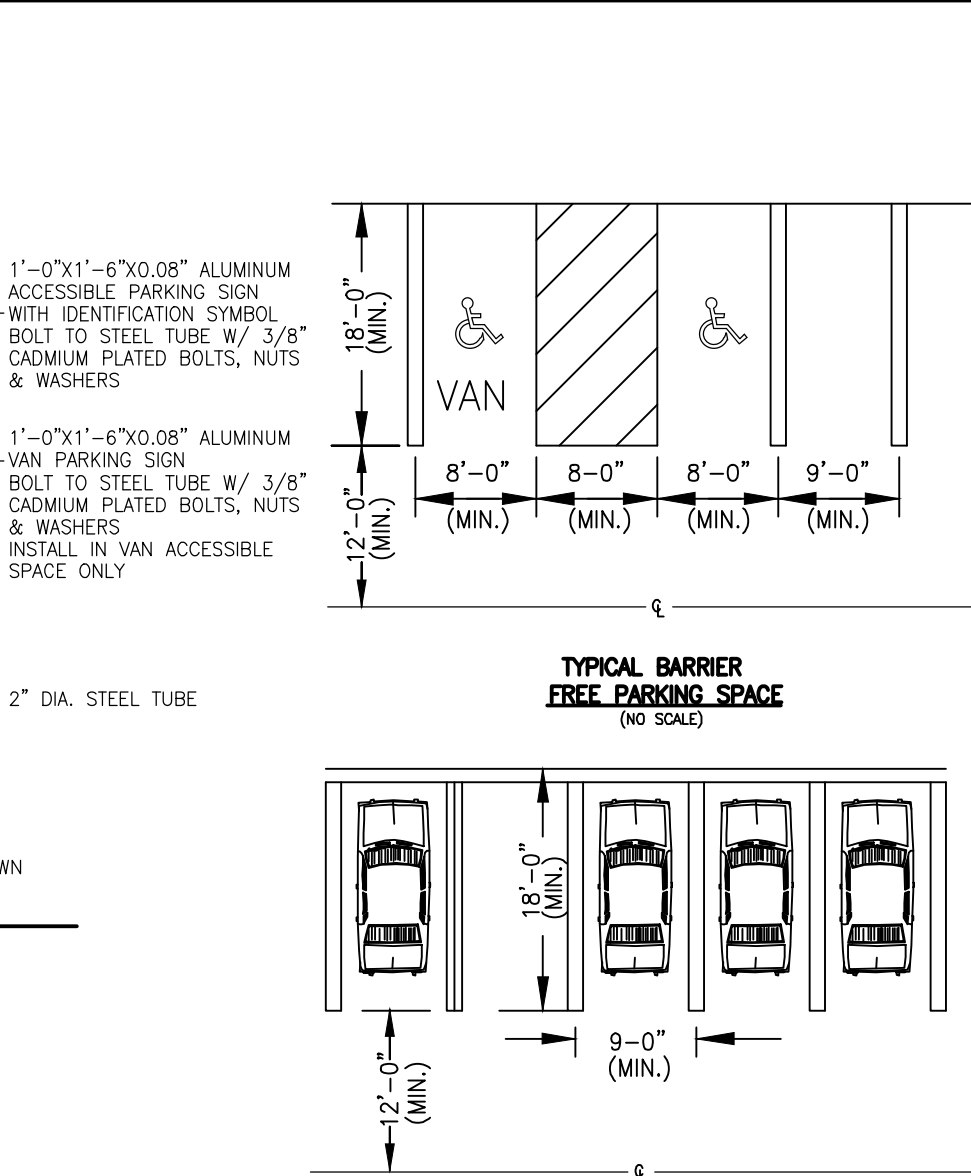
STRUCTURE FRAMES & COVERS				
COVER	TYPE	USE	MANUFACTURER OR EQUAL	TYPE OF COVER OR GATE
A	MH	ALL	EAST JORDAN 1120	R-1415
B	CB & INLET	TYPE BE CURB	7045	R-3031-A
K	CB & INLET	TYPE C & F CURB	7045	R-3031-B
C	CB & INLET	WALKWAY CURB	7065	R-3034-D
D	CB & INLET	PARKING LOTS	1020-MI	R-2560-D
E	CB & INLET	LAWN AREA OR DIRT	1020-01	BEEHIVE GRATE 4" HIGH



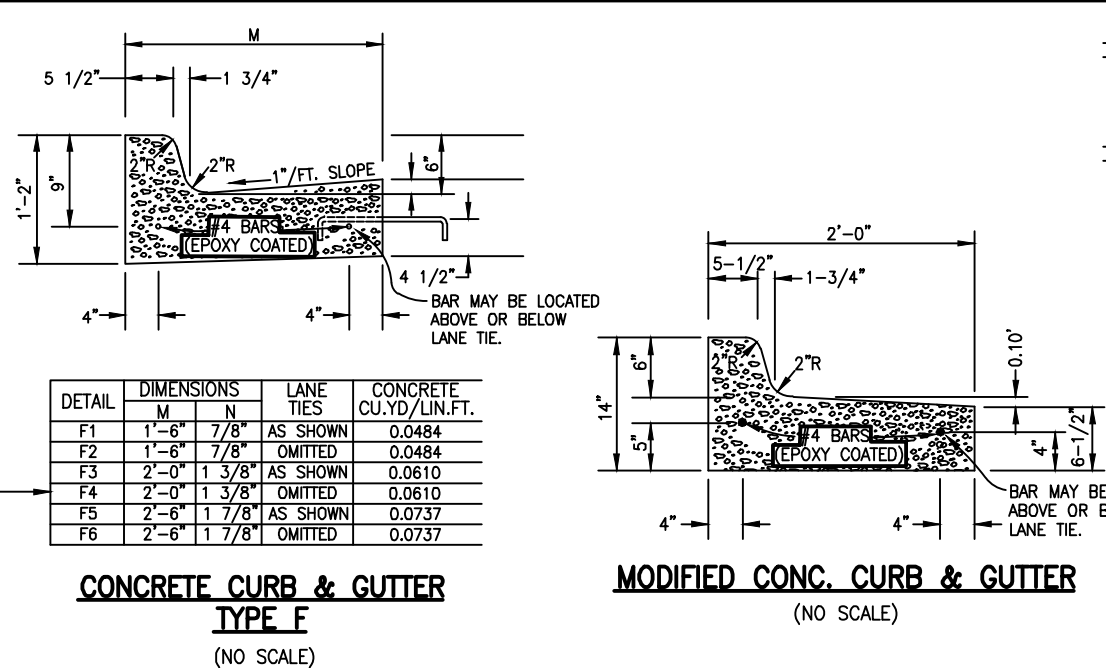
**LCDC DETENTION/SEDIMENTATION POND OUTLET CONTROL STRUCTURE**  
(NO SCALE)



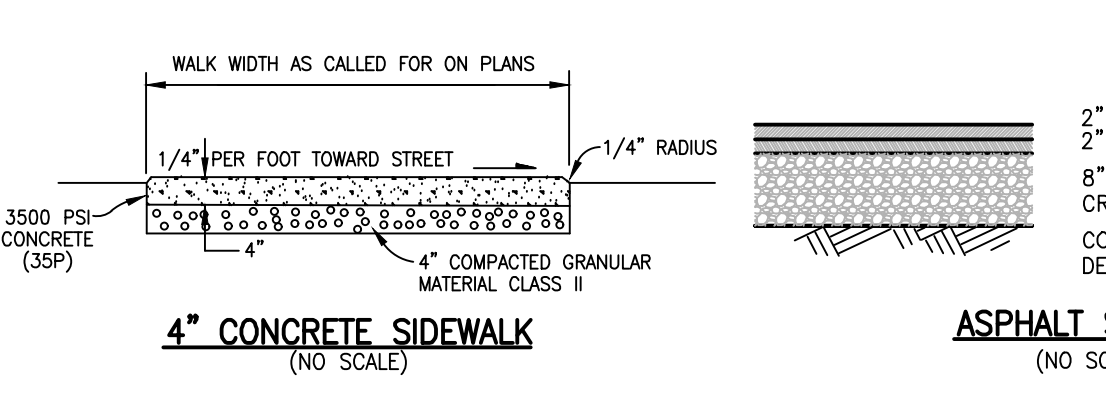
**NO PARKING SIGN DETAIL**  
(NO SCALE)



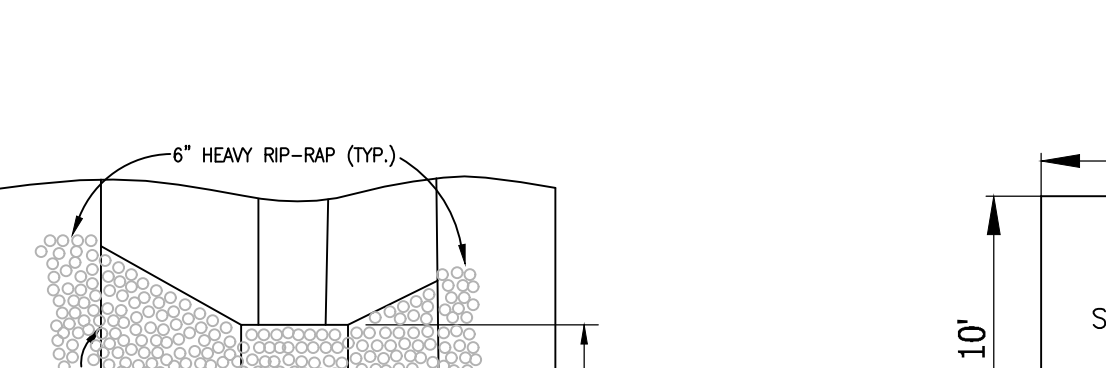
**HANDICAP PARKING SIGN DETAIL**  
(NO SCALE)



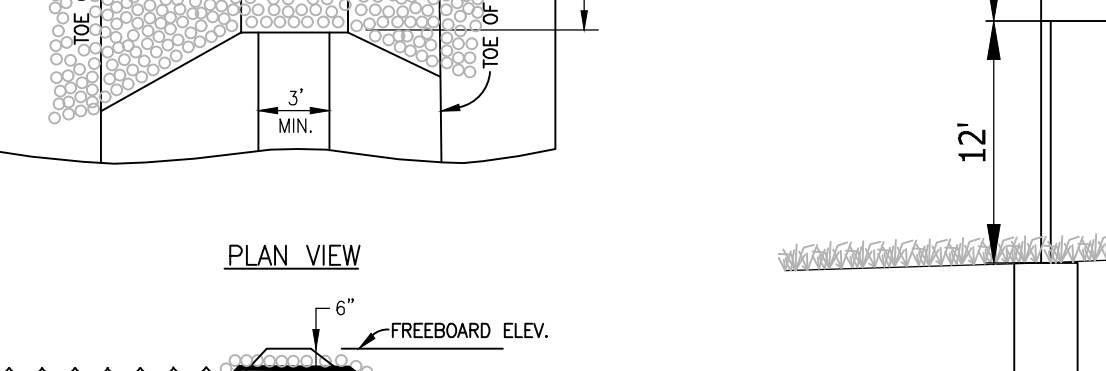
**TYPICAL PARKING SPACE**  
(NO SCALE)



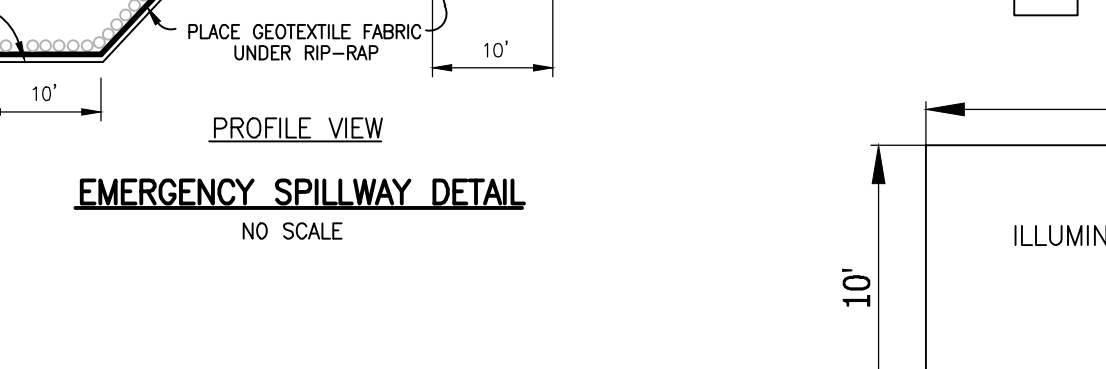
**CONCRETE CURB & GUTTER TYPE F**  
(NO SCALE)



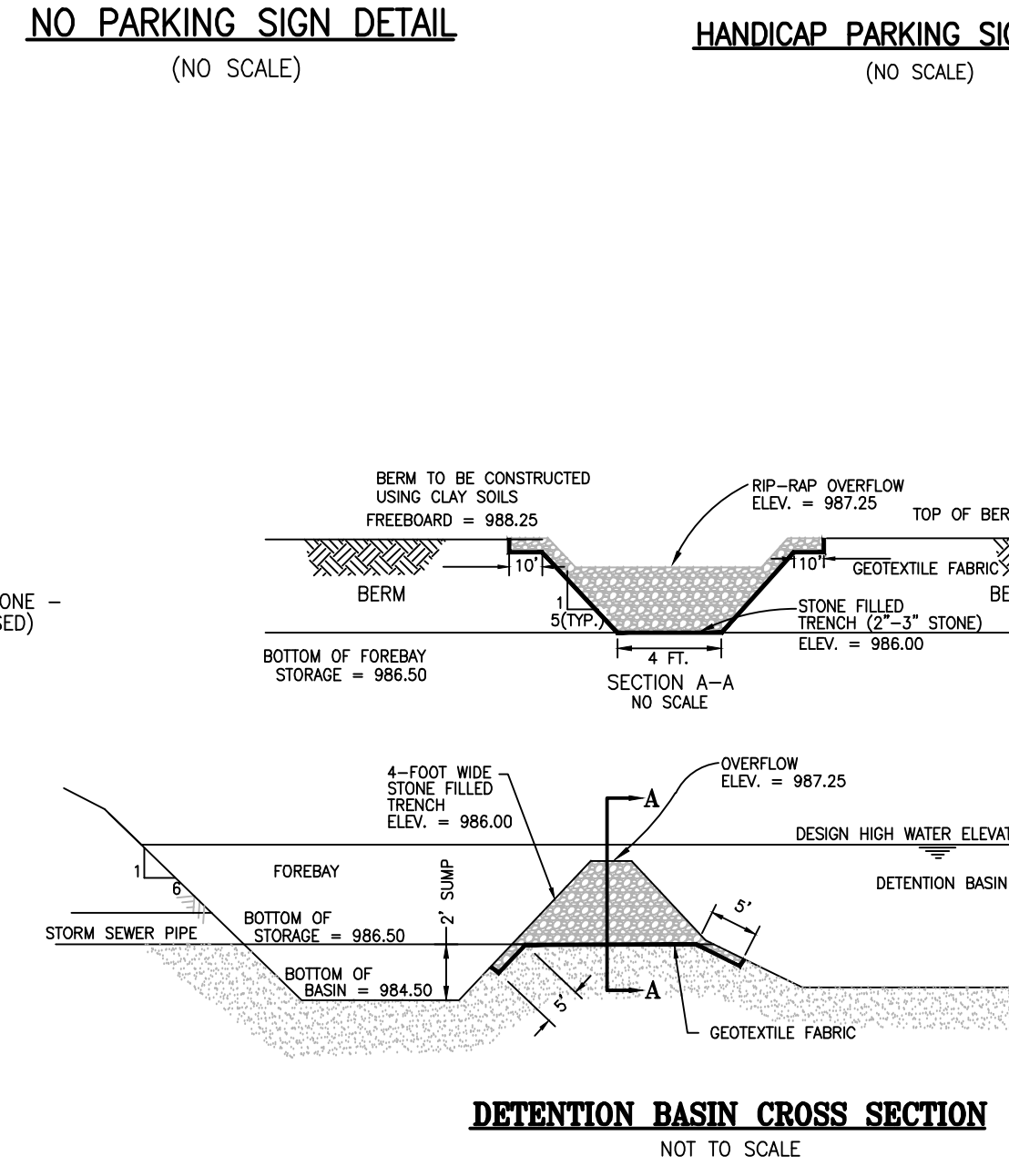
**MODIFIED CONC. CURB & GUTTER**  
(NO SCALE)



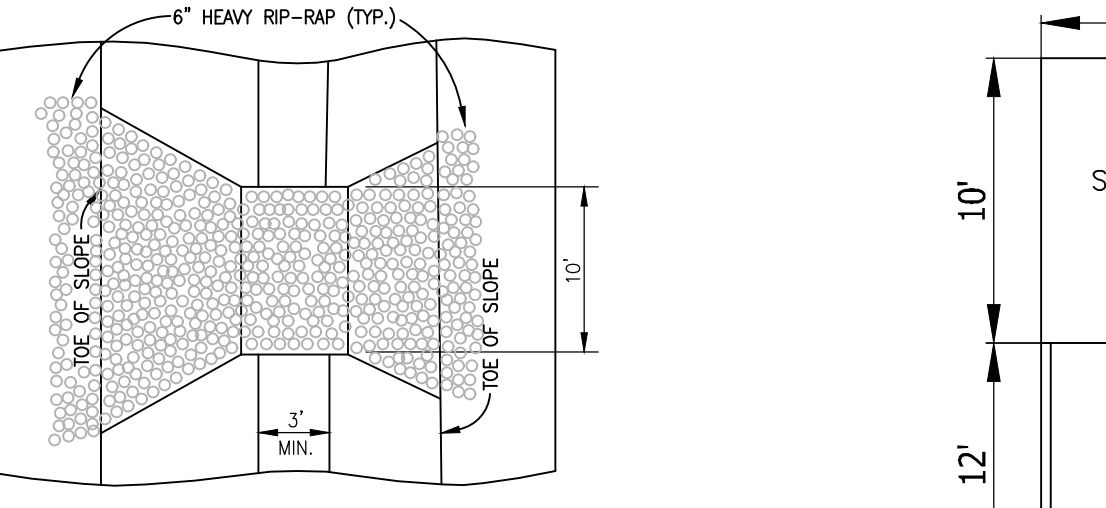
**4" CONCRETE SIDEWALK**  
(NO SCALE)



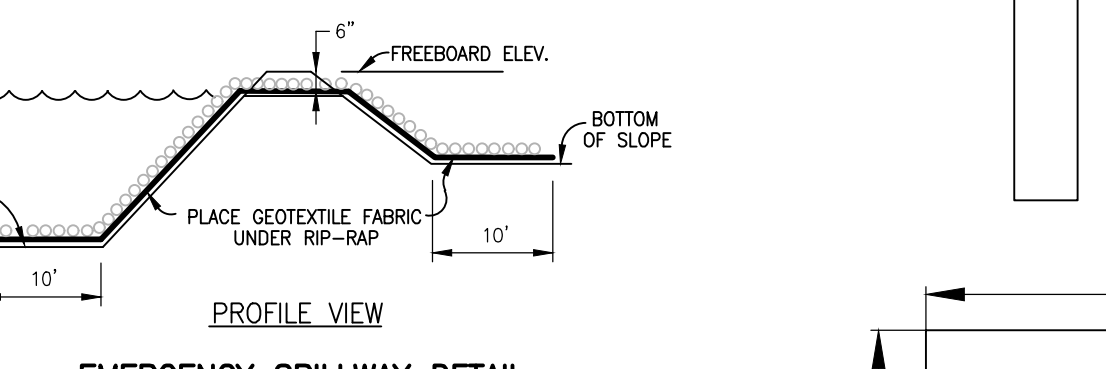
**ASPHALT SECTION**  
(NO SCALE)



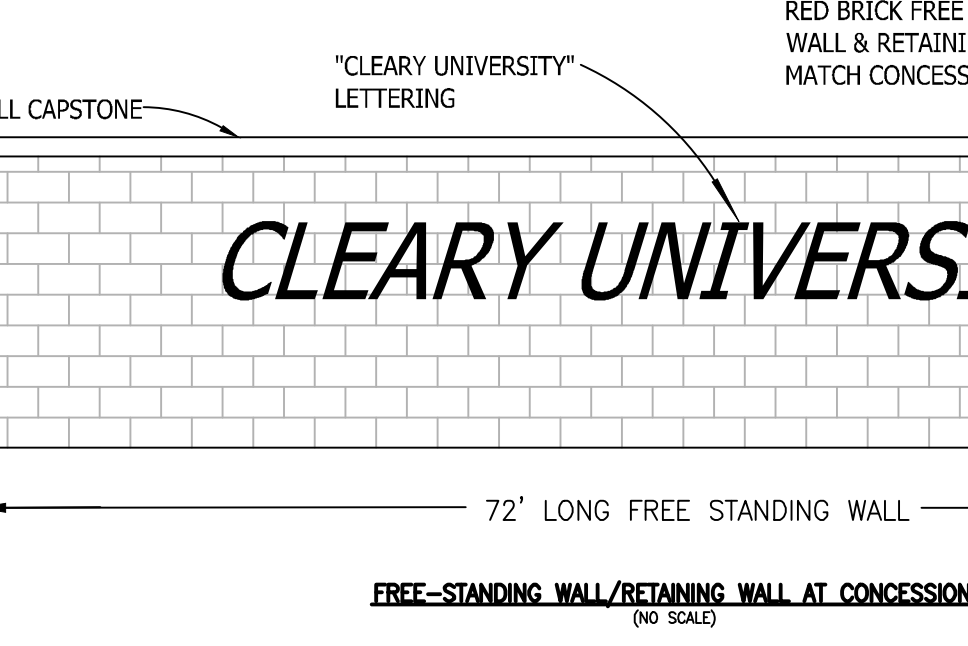
**DETENTION BASIN CROSS SECTION**  
NOT TO SCALE



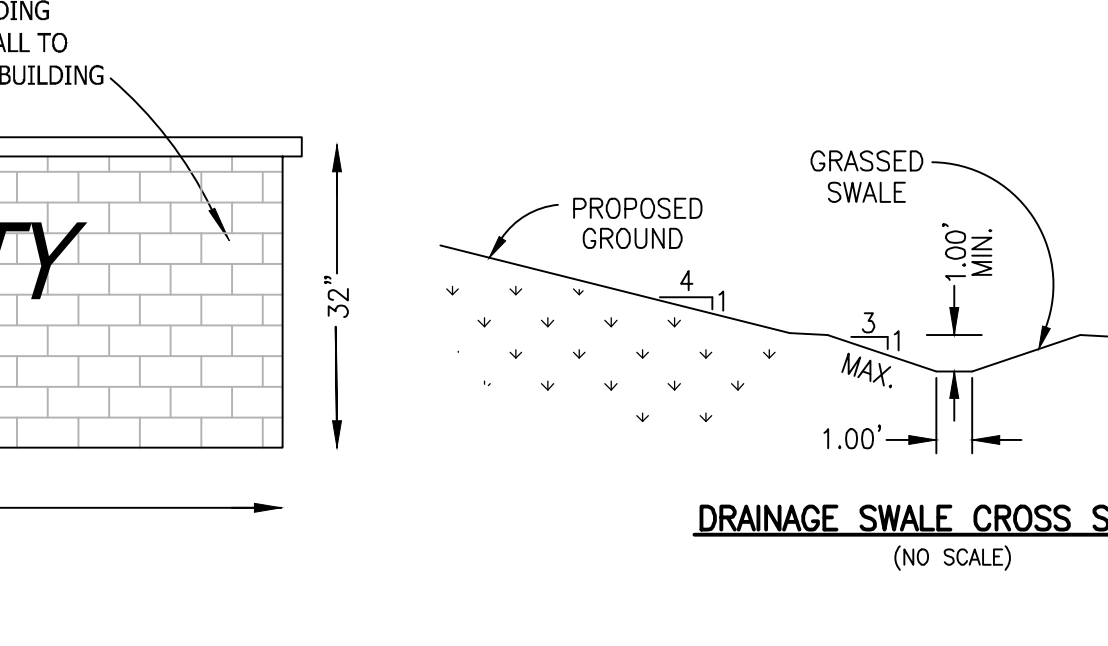
**EMERGENCY SPILLWAY DETAIL**  
NO SCALE



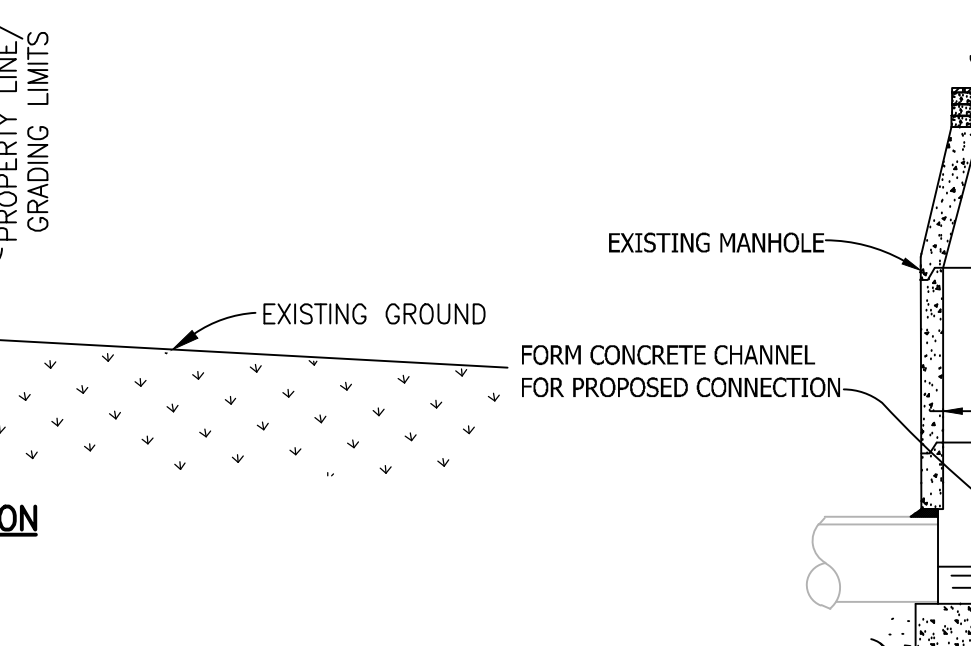
**DUAL SCOREBOARD DETAIL**  
(NO SCALE)



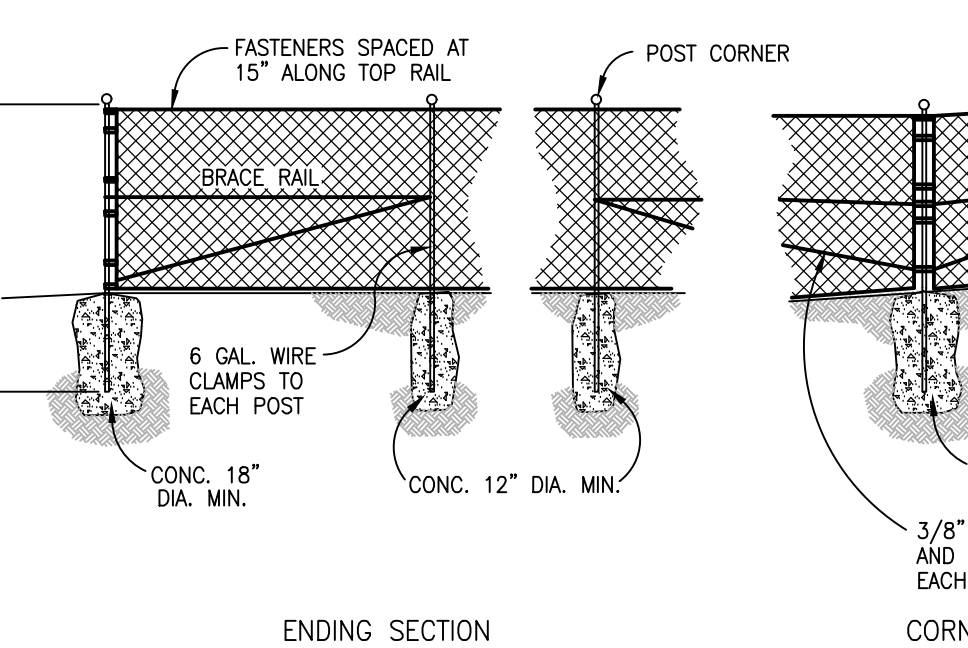
**FREE-STANDING WALL/RETAINING WALL AT CONCESSIONS**  
(NO SCALE)



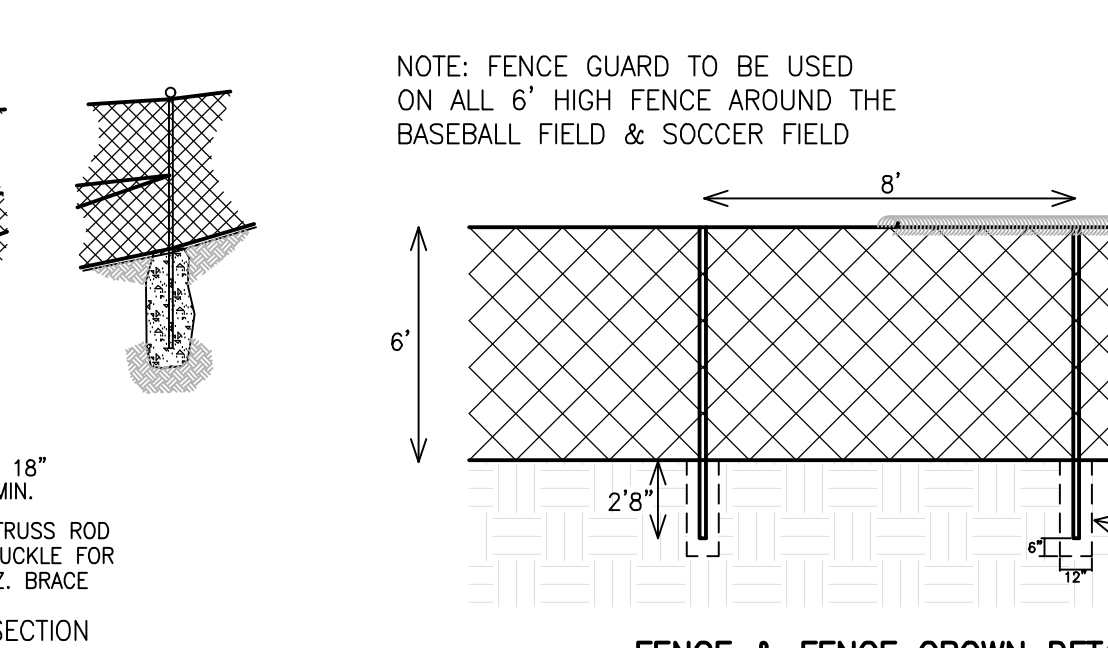
**DRAINAGE SWALE CROSS SECTION**  
(NO SCALE)



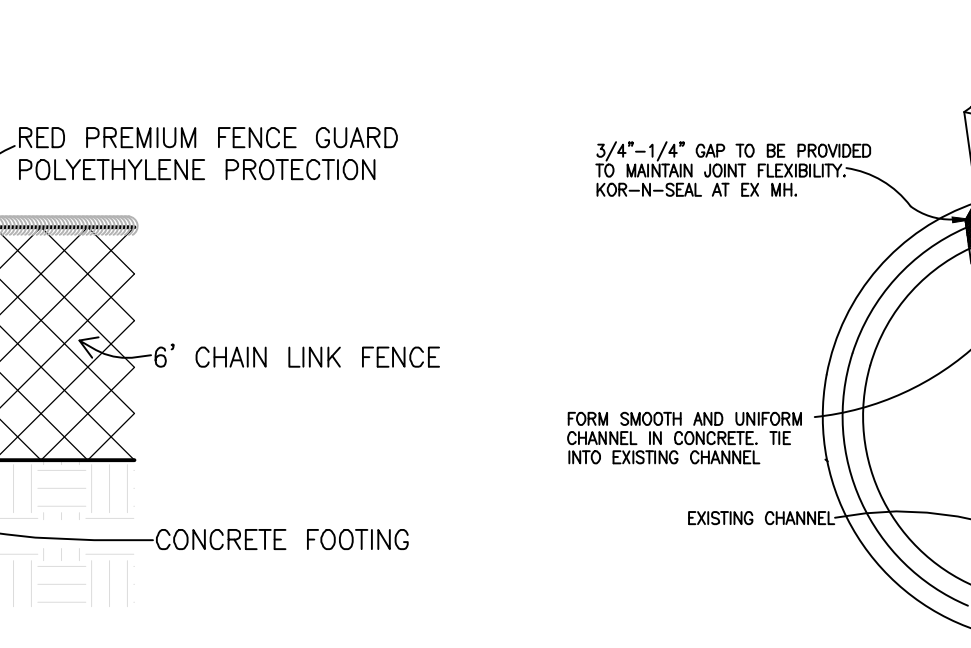
**EXISTING SANITARY MANHOLE**  
(NO SCALE)



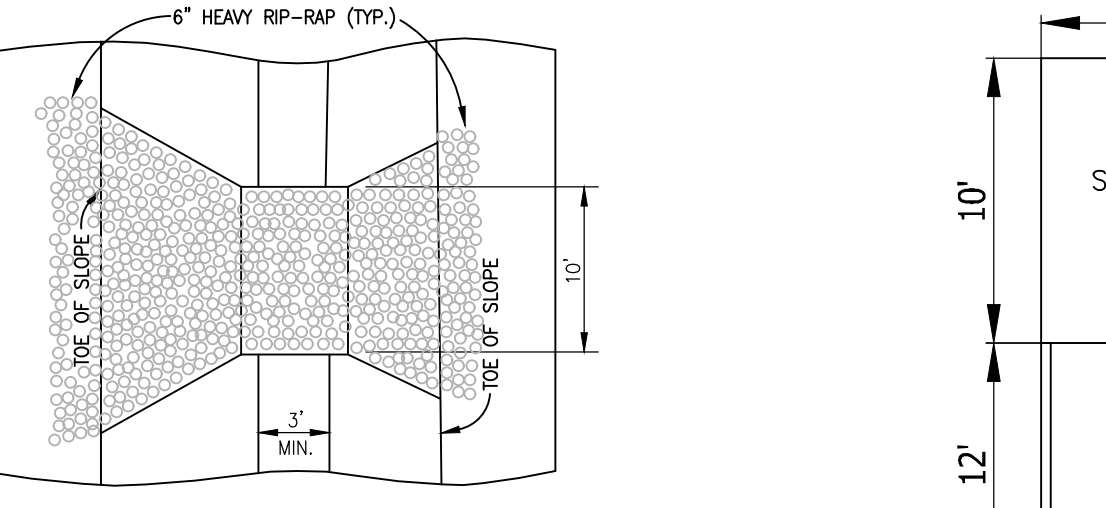
**CHAIN-LINK FENCE END & CORNER DETAIL**  
(NO SCALE)



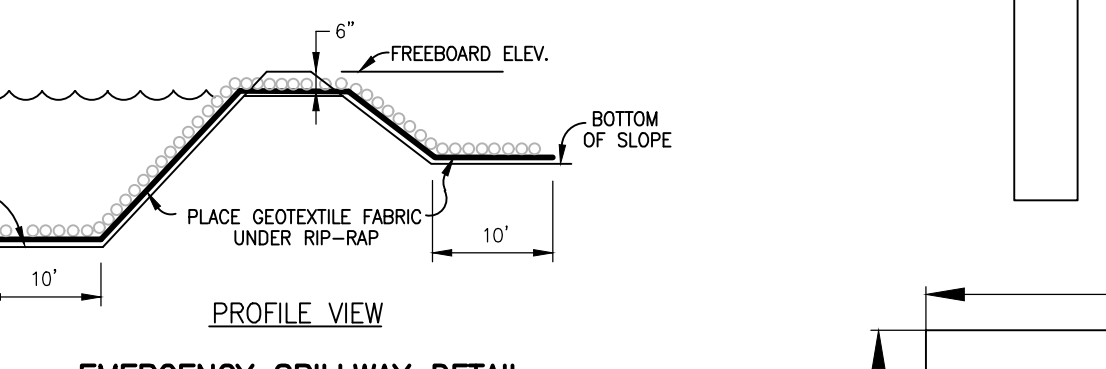
**FENCE & FENCE CROWN DETAIL**  
NO SCALE



**FLOW CHANNEL FOR MH ON EXISTING SEWER**  
(NO SCALE)



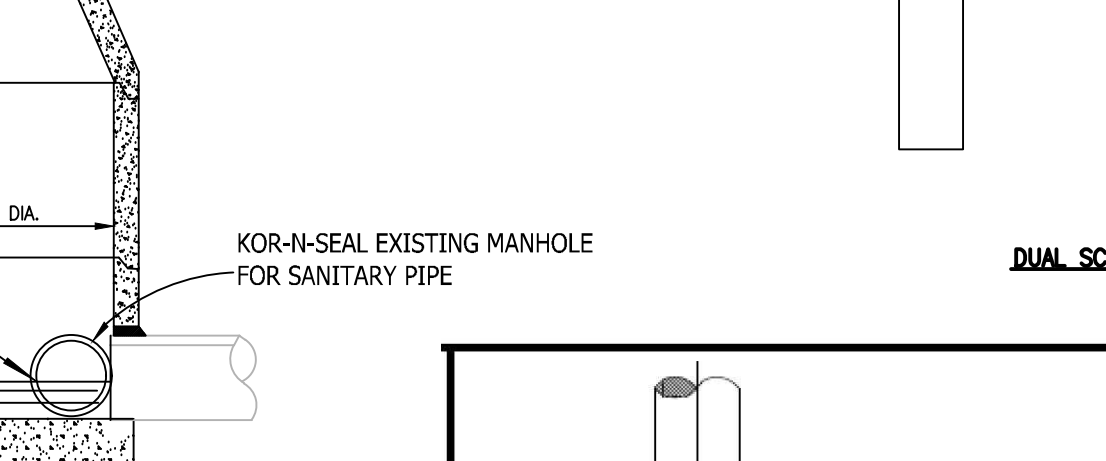
**PLAN VIEW**  
NO SCALE



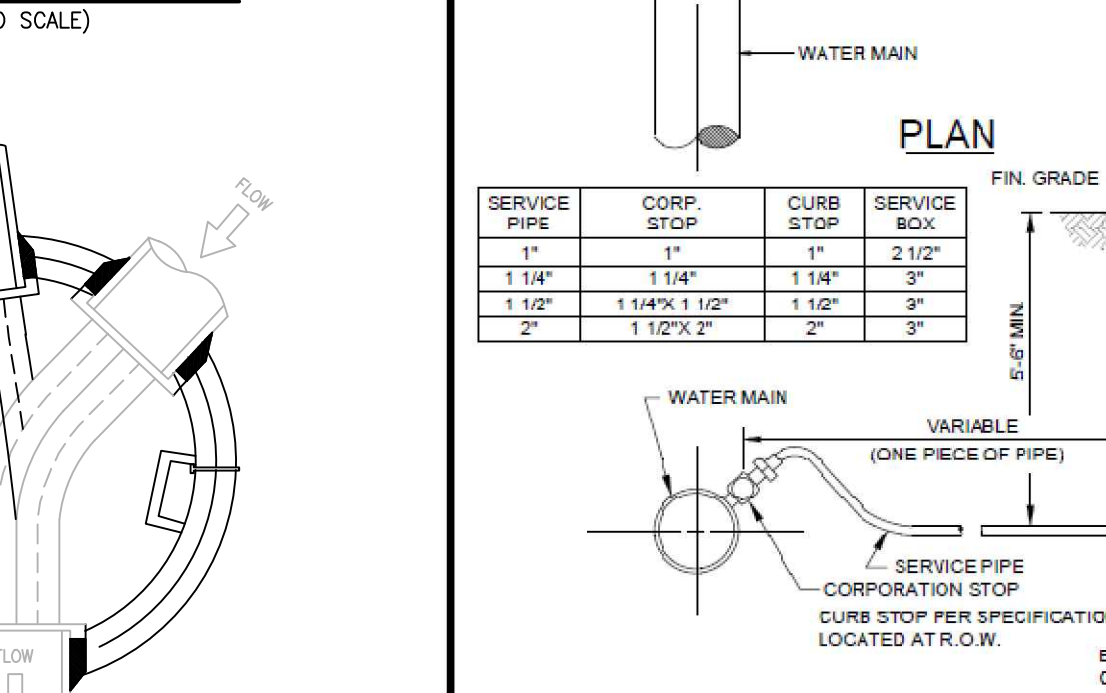
**PROFILE VIEW**  
NO SCALE



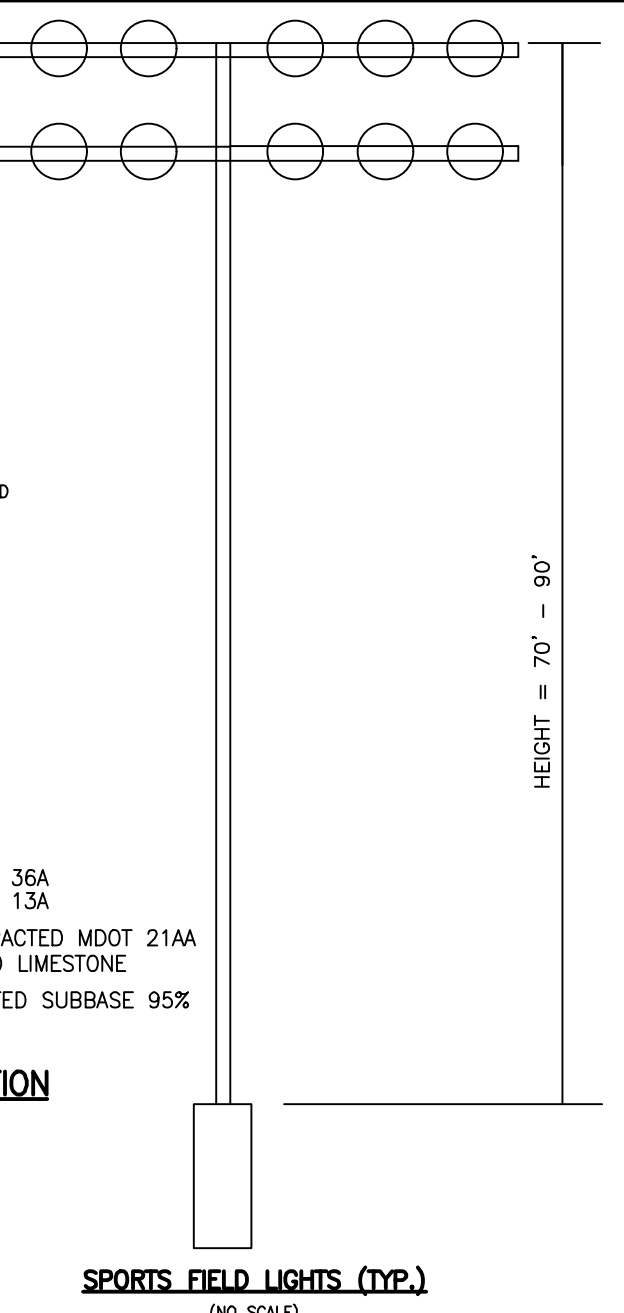
**SECTION WATER SERVICE LATERAL**  
(NO SCALE)



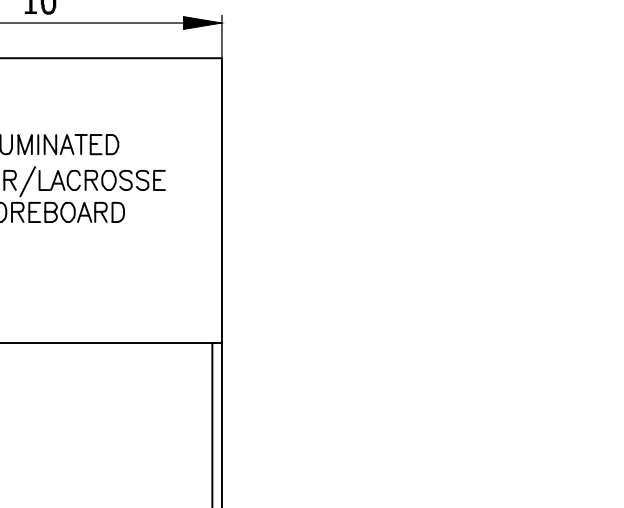
**SECTION WATER SERVICE LATERAL**  
(NO SCALE)



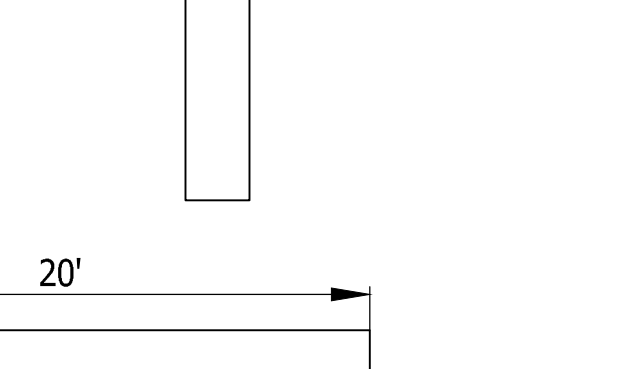
**SECTION WATER SERVICE LATERAL**  
(NO SCALE)



**SPORTS FIELD LIGHTS (TYP.)**  
(NO SCALE)



**ILLUMINATED SOCCER/LACROSSE SCOREBOARD**  
(NO SCALE)



**ILLUMINATED BASEBALL/SOFTBALL SCOREBOARD**  
(NO SCALE)

BEFORE YOU BEGIN ANY CONSTRUCTION WORK, YOU MUST CALL MISS DIG TO LOCATE ALL UTILITIES. MISS DIG IS A FREE SERVICE PROVIDED BY THE LIVINGSTON COUNTY DRAIN COMMISSIONER'S OFFICE. CALL MISS DIG AT 800-448-0725. MISS DIG IS A SERVICE PROVIDED BY THE LIVINGSTON COUNTY DRAIN COMMISSIONER'S OFFICE. CALL MISS DIG AT 800-448-0725.

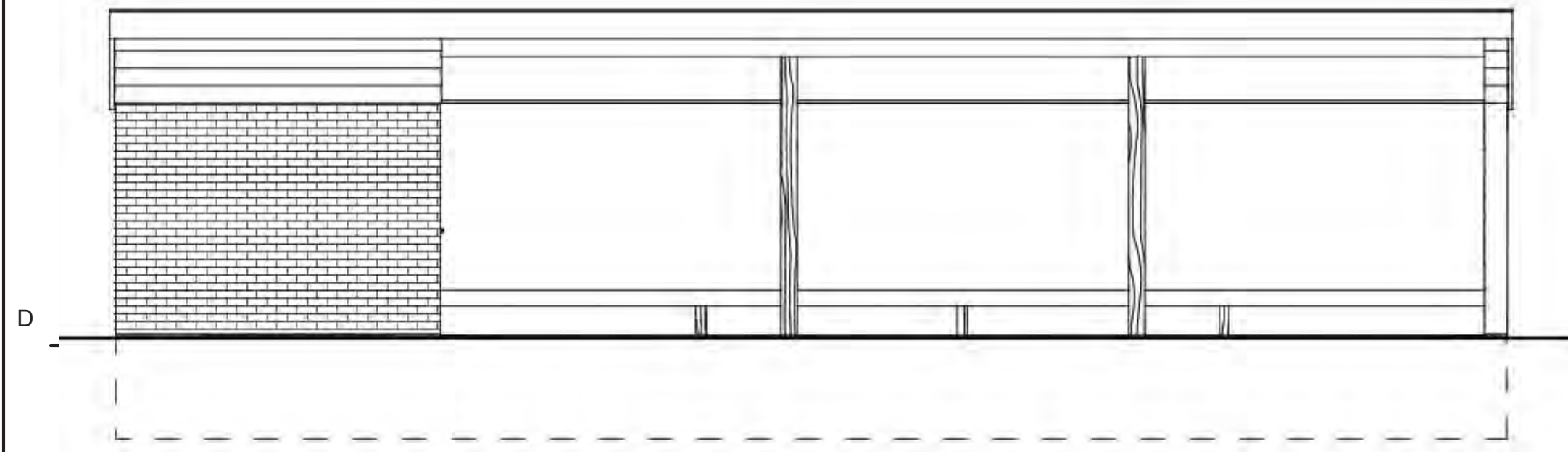
**BEBOSS Engineering**  
Engineers Surveyors Planners Landscape Architects  
3100 HOWELL MI 48843  
800.448.0725 FAX 517.438.1070

**CLEARY UNIVERSITY ATHLETIC COMPLEX**  
CLEARY UNIVERSITY  
3750 CLEARY DRIVE  
HOWELL, MI 48843  
517-338-3014

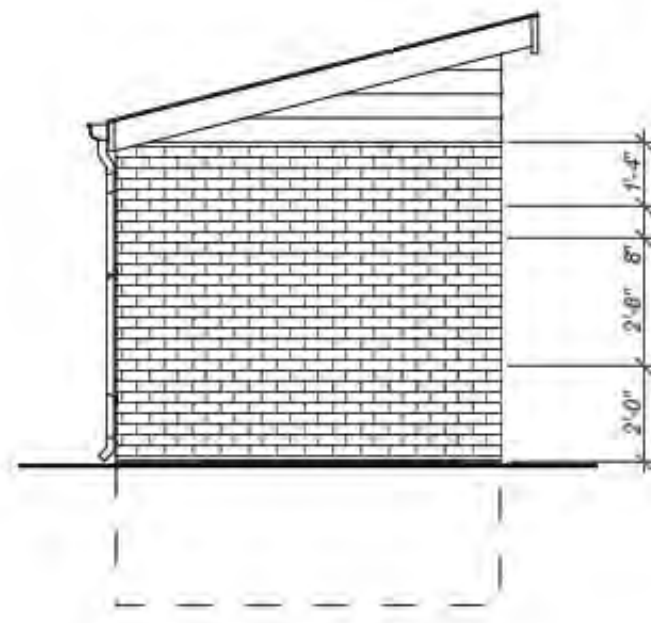
PROJECT: CLEARY UNIVERSITY ATHLETIC COMPLEX  
PREPARED FOR: CLEARY UNIVERSITY  
DESIGNED BY: ST  
DRAWN BY: ST  
CHECKED BY: ST  
SCALE: NTS  
JOB NO. 17-393  
DATE: 10-4-17  
SHEET NO. 9

NO	BY	DATE	REVISION
1	ST	10-25-17	PER RFP REVIEW

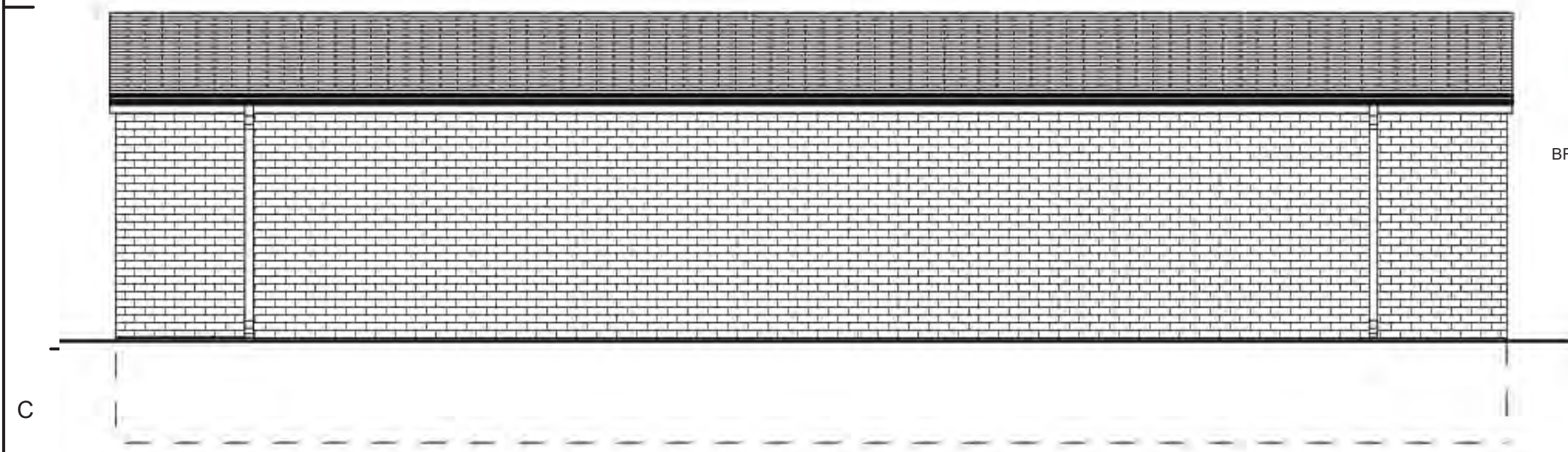
CONSULTANTS



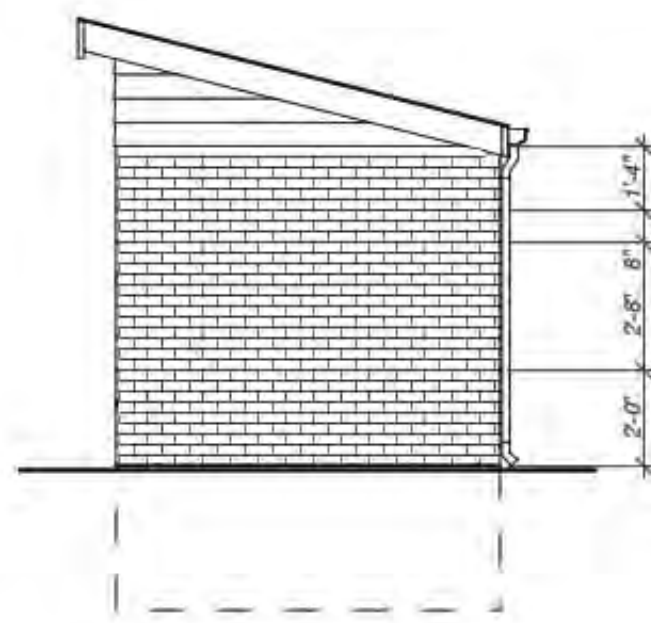
**D1 ELEVATION**  
A-101 SCALE: 1/4" = 1'-0"



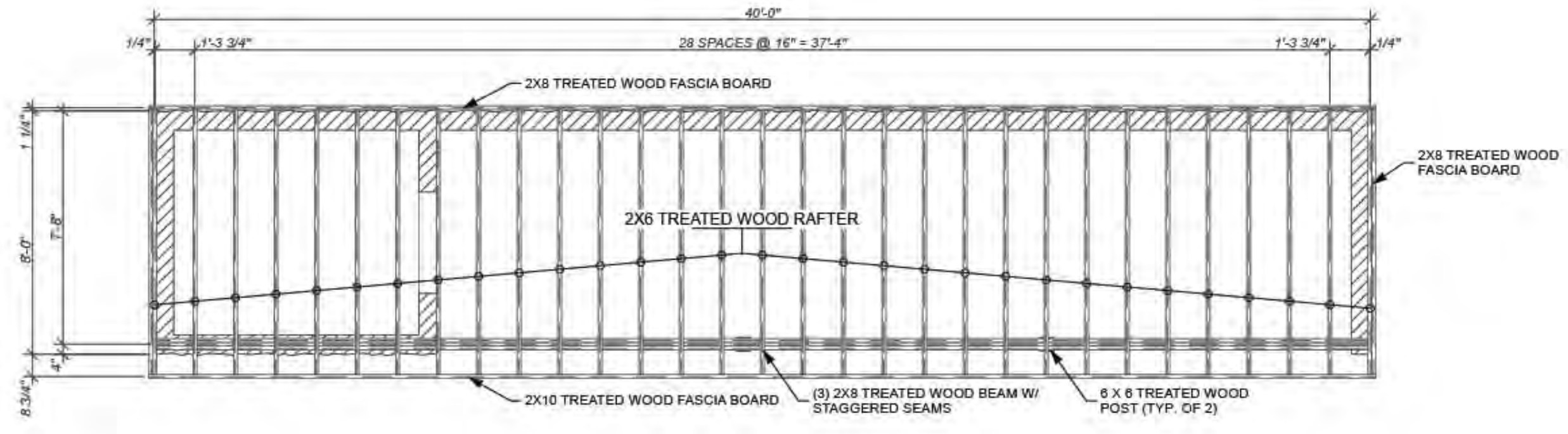
**D2 ELEVATION**  
A-101 SCALE: 1/4" = 1'-0"



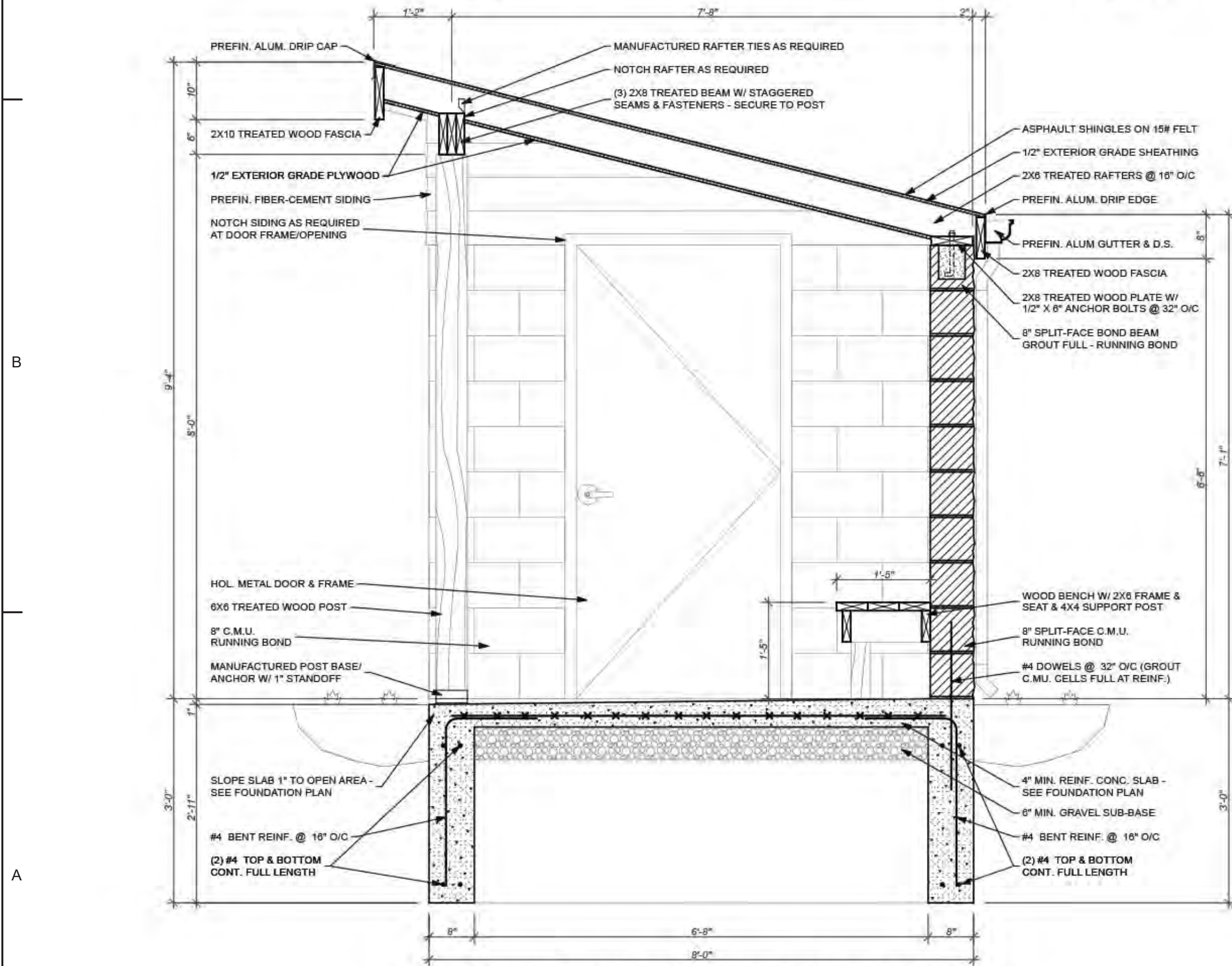
**C1 ELEVATION**  
A-101 SCALE: 1/4" = 1'-0"



**C2 ELEVATION**  
A-101 SCALE: 1/4" = 1'-0"

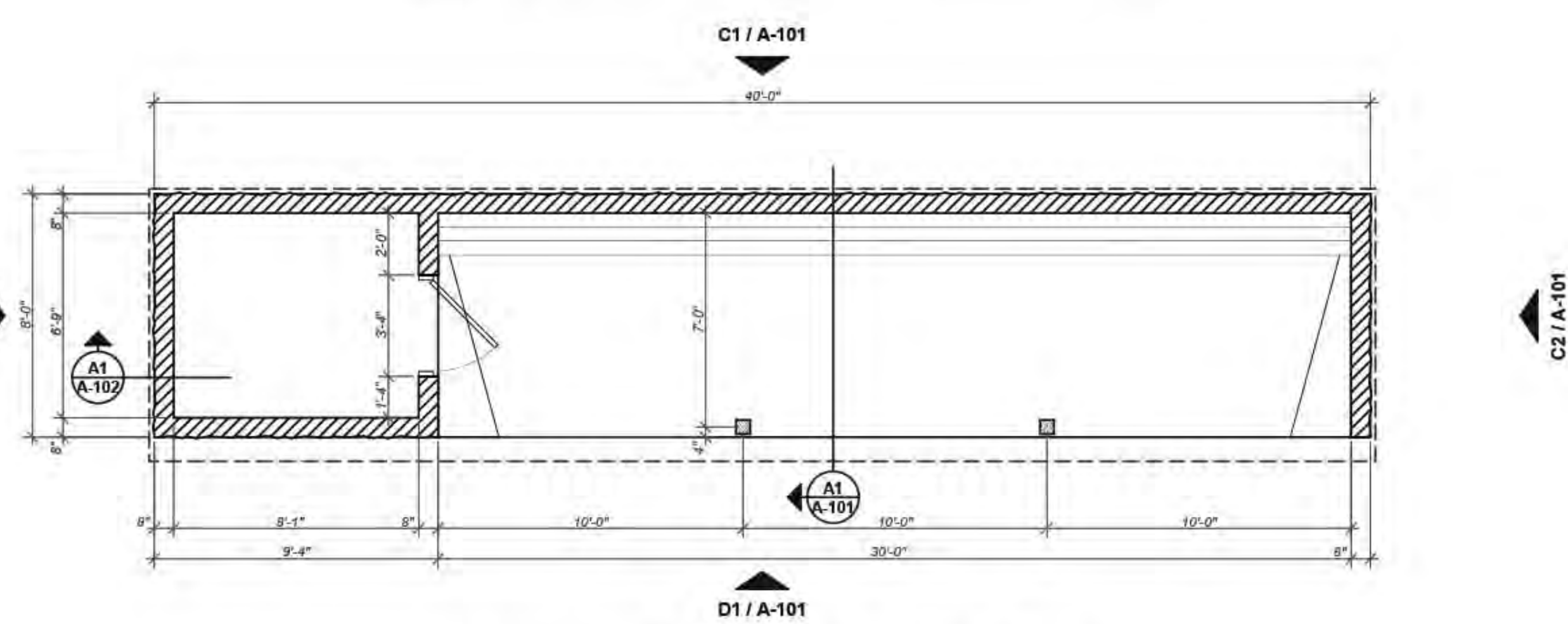


**HOME DUGOUT ROOF FRAMING PLAN**  
SCALE: 1/4" = 1'-0"

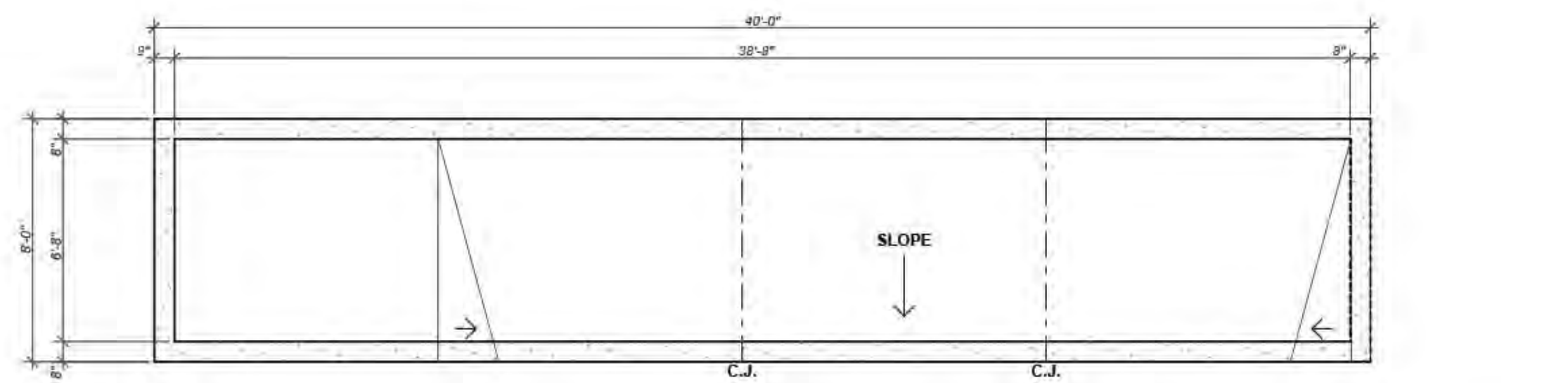


**A1 SECTION**  
A-101 SCALE: 3/4" = 1'-0"

ALL DIMENSIONAL LUMBER SHALL BE PRESSURE TREATED AND ALL NAILS, BOLTS, CONNECTORS / TIES, ETC. SHALL BE GALVANIZED OR ZINC COATED



**HOME DUGOUT FLOOR PLAN**  
SCALE: 1/4" = 1'-0"



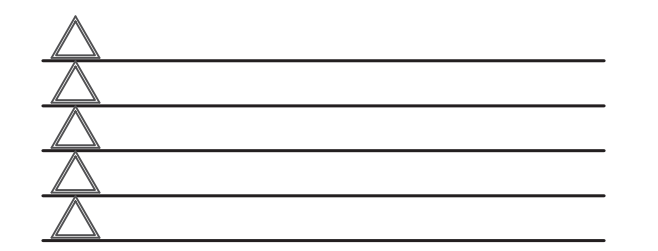
**HOME DUGOUT FOUNDATION PLAN**  
SCALE: 1/4" = 1'-0"

4" MIN. POURED IN PLACE CONC. SLAB W/ 6X6 W/ 4XW/4 W.W.M. REINF. (USE CHAIRS TO HOLD W.W.M. 2" CLEAR BELOW FIN. FLOOR) WITH 6" WIDE CONC. TURN DOWN TO 3"-0" BELOW FIN. GRADE MIN. W/ TOP AND BOTTOM (2) #4 CONT. FIL AND DOWELLED TO WALLS AT ENDS ON 6" GRAVEL SUB-BASE ON WELL COMPACTED SOIL OR VIRGIN SOIL W/ FIRM BRG. PROVIDE CONTROL JOINTS AS SHOWN

NEW DUGOUT

CLEARY UNIVERSITY

SUBMITTED: 10/25/2017



**A-101**

HOME DUGOUT PLANS, ELEVATIONS, AND DETAILS

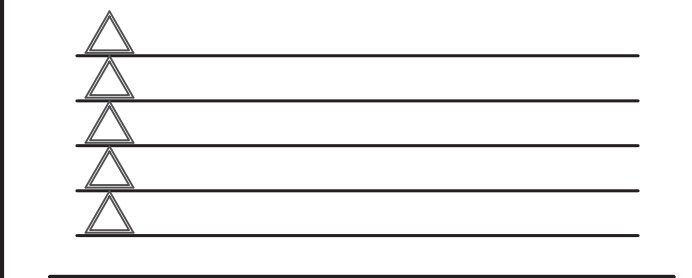
MKC JOB #: 13-ED1-032

PROJECT STATUS: CONSTRUCTION DRAWINGS

CONSULTANTS

NEW DUGOUT  
CLEARY UNIVERSITY

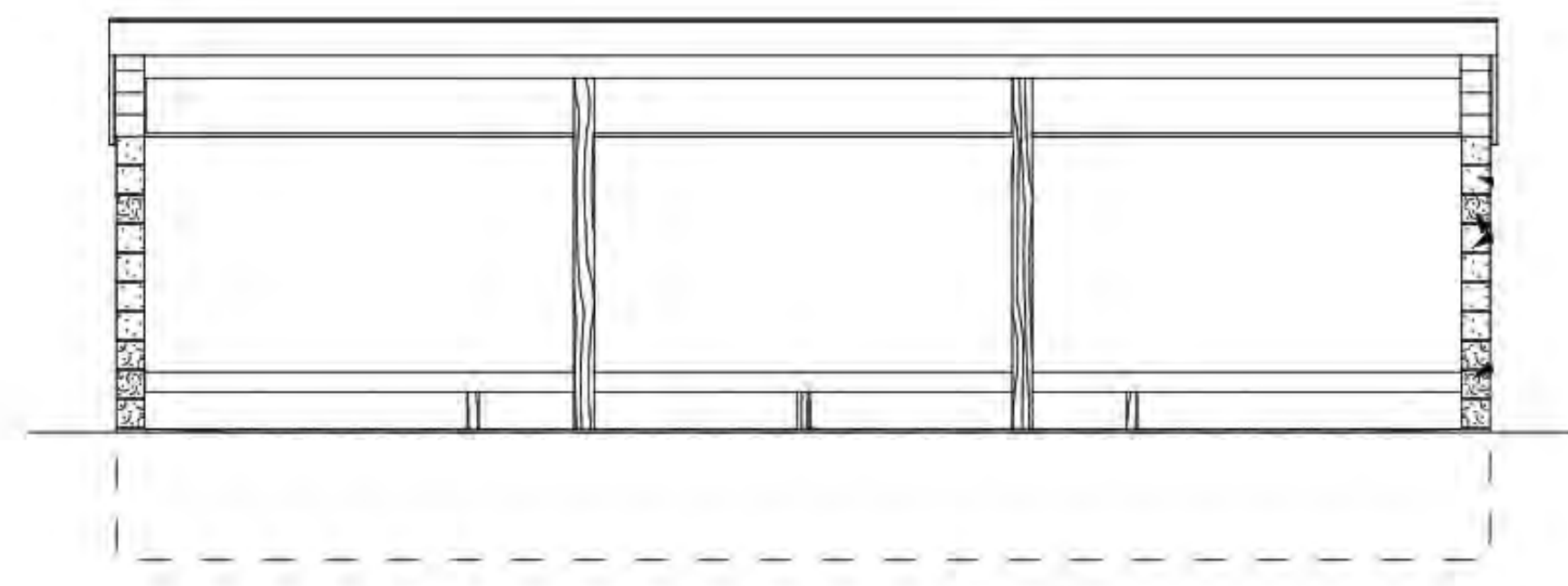
SUBMITTED: 10/25/2017



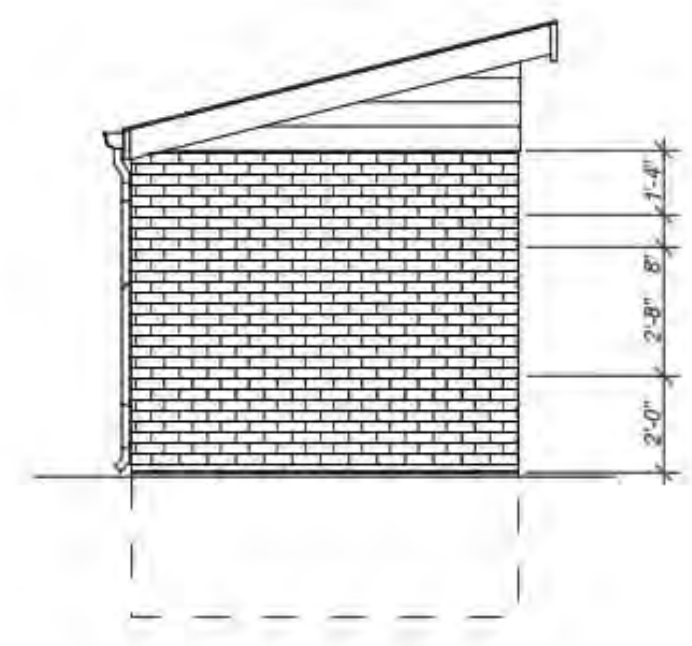
**A-102**

VISITOR DUGOUT PLANS,  
ELEVATIONS, AND DETAILS

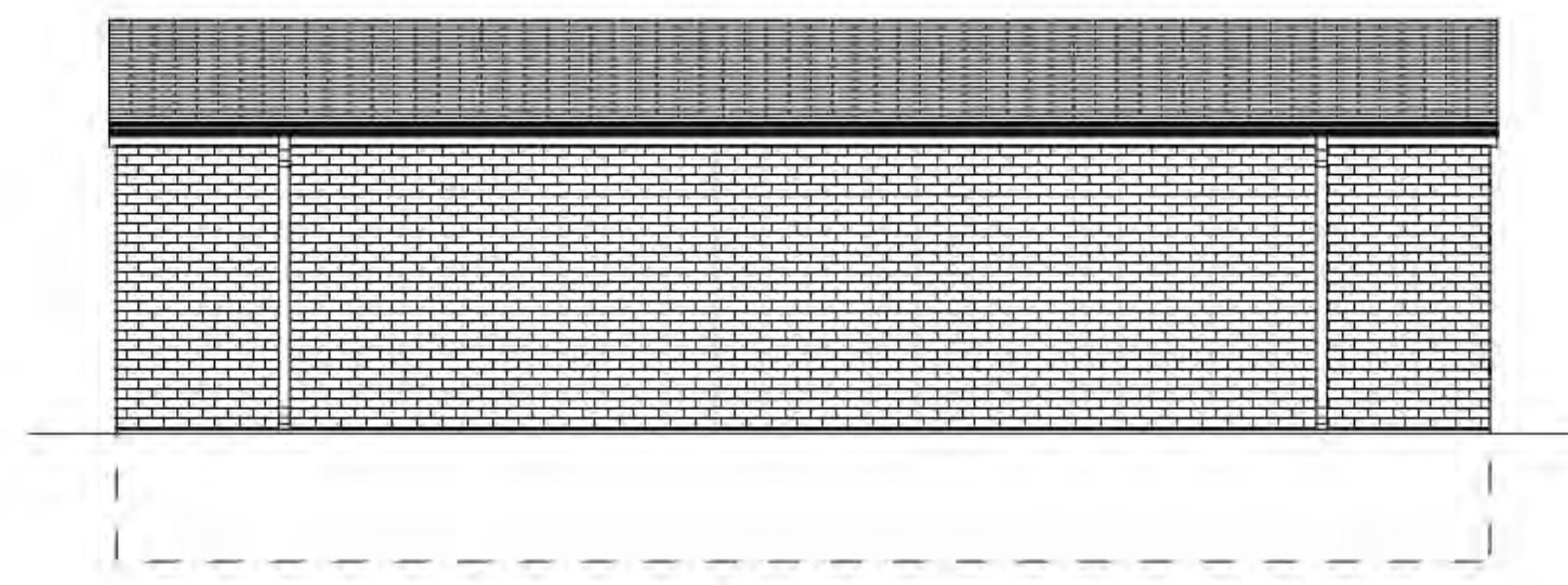
MKC JOB #: 13-ED1-032



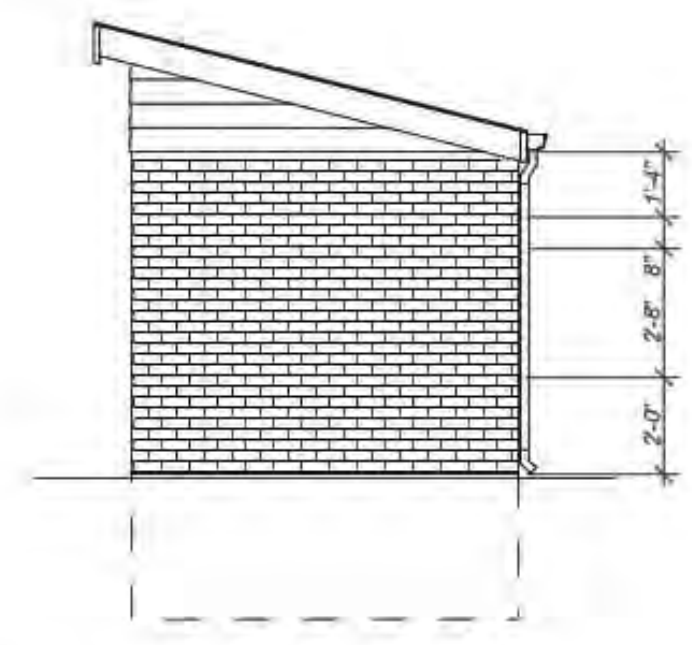
**D1 ELEVATION**  
A-102 SCALE: 1/4" = 1'-0"



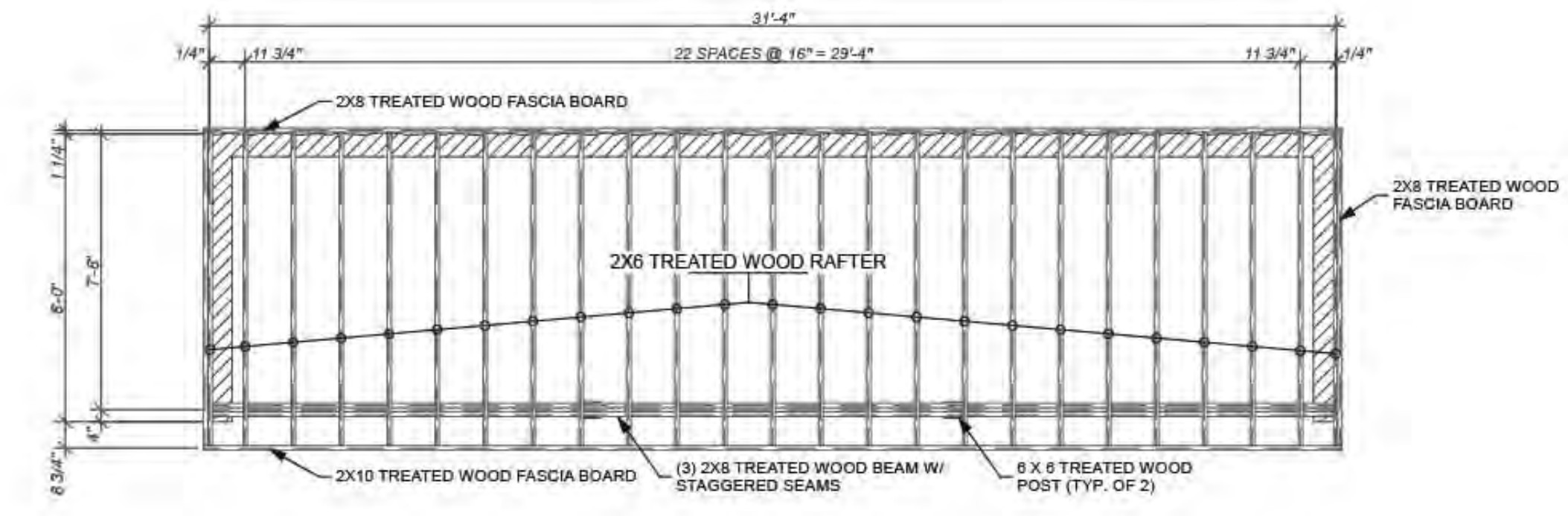
**D2 ELEVATION**  
A-102 SCALE: 1/4" = 1'-0"



**C1 ELEVATION**  
A-102 SCALE: 1/4" = 1'-0"

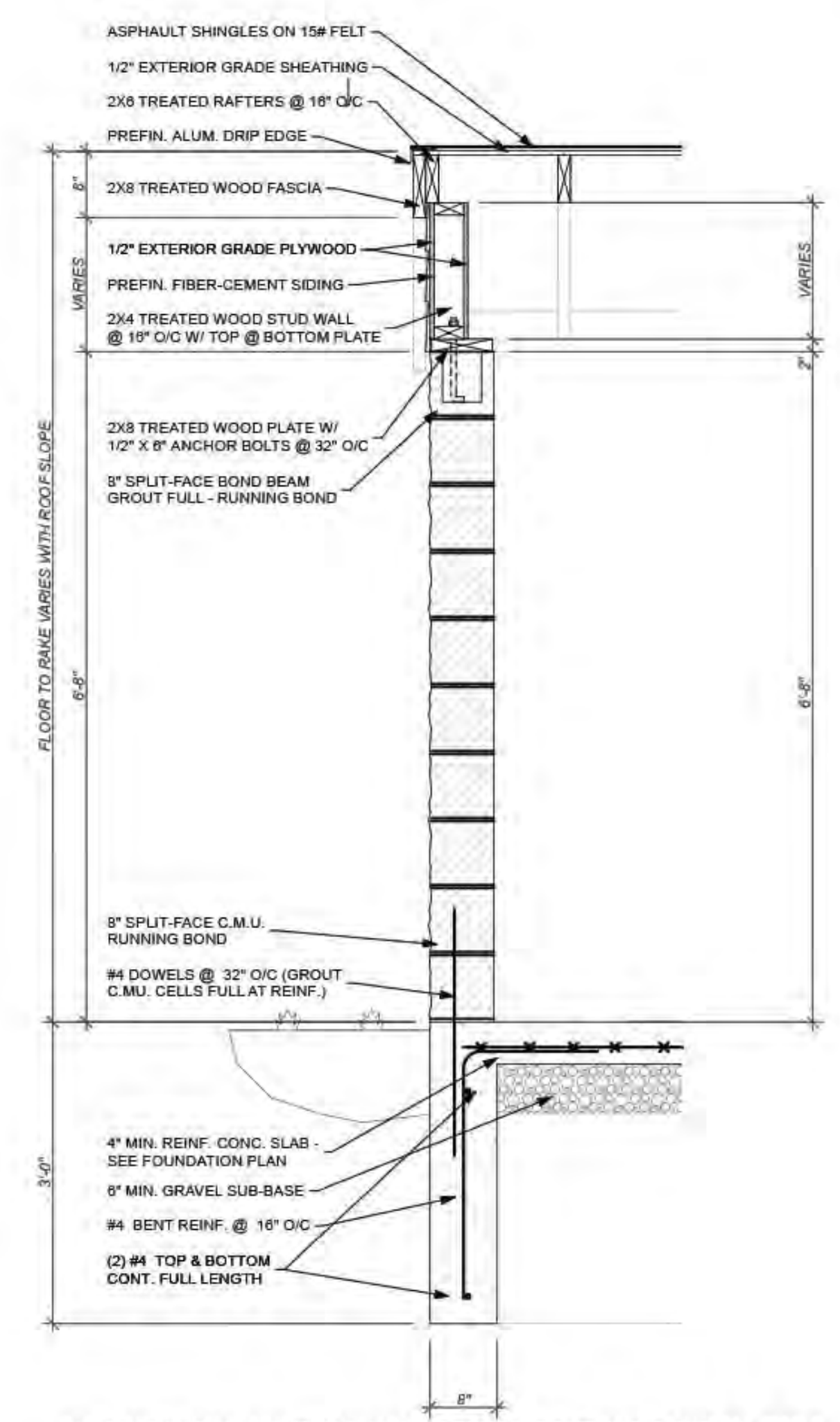


**C2 ELEVATION**  
A-102 SCALE: 1/4" = 1'-0"



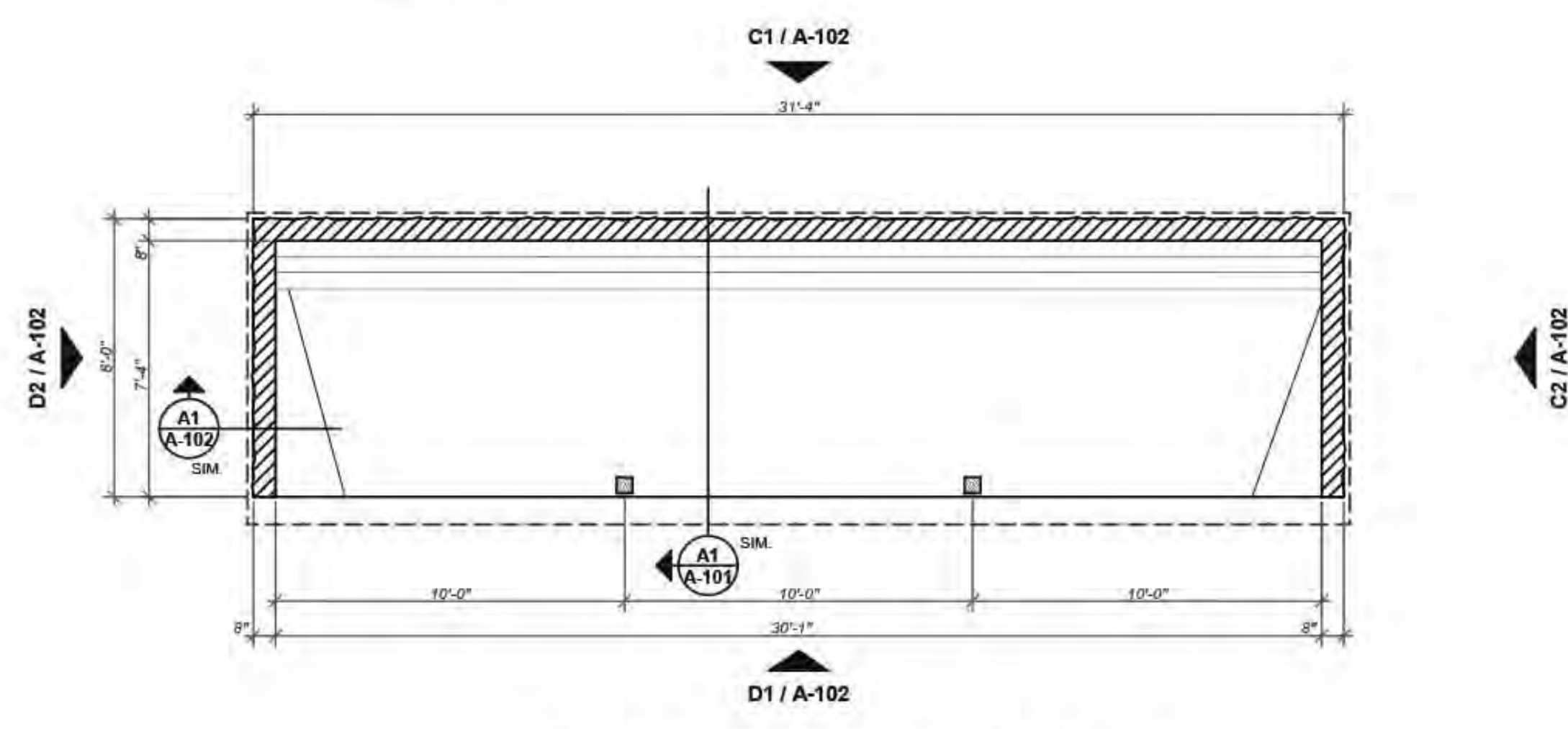
**VISITOR DUGOUT ROOF FRAMING PLAN**

SCALE: 1/4" = 1'-0"



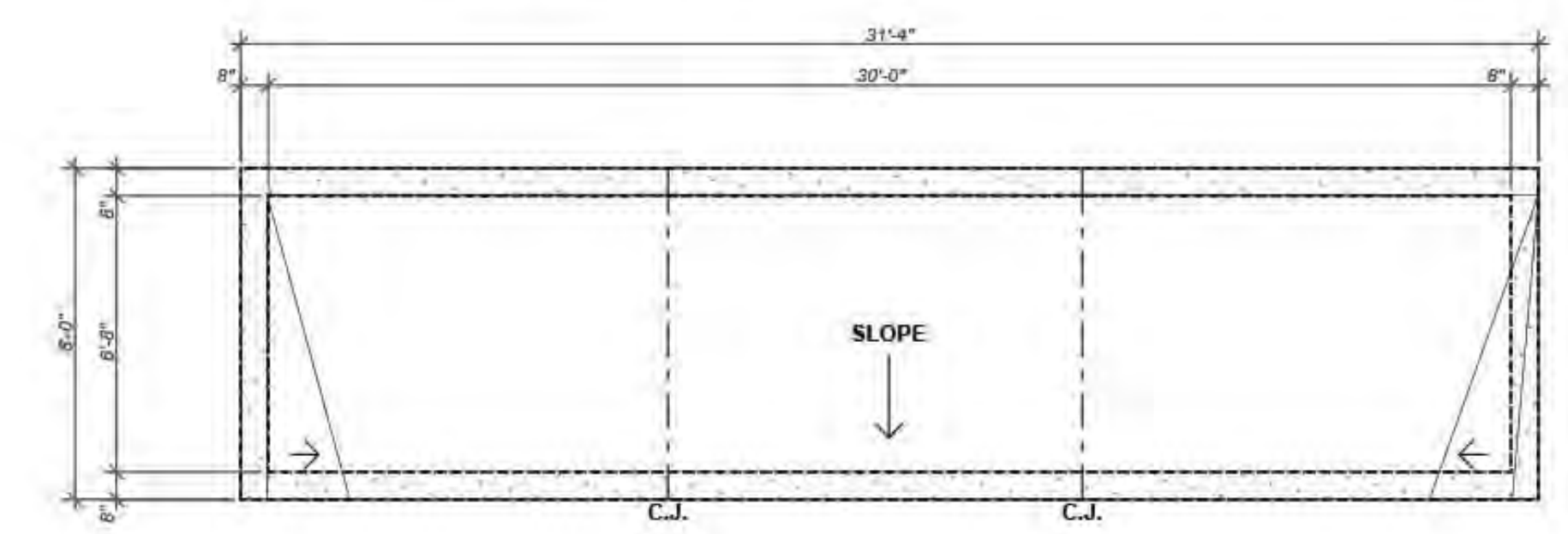
**A1 SECTION**  
A-102 SCALE: 3/4" = 1'-0"

ALL DIMENSIONAL LUMBER SHALL BE PRESSURE TREATED AND ALL NAILS, BOLTS, CONNECTORS / TIES, ETC. SHALL BE GALVANIZED OR ZINC COATED



**VISITOR DUGOUT FLOOR PLAN**

SCALE: 1/4" = 1'-0"



**VISITOR DUGOUT FOUNDATION PLAN**

SCALE: 1/4" = 1'-0"

4" MIN. POURED IN PLACE CONC. SLAB W/ 6X6 W1.4XW1.4 W.W.M. REINF. (USE CHAIRS TO HOLD W.W.M. 2" CLEAR BELOW FIN. FLOOR) WITH 8" WIDE CONC. TURN DOWN TO 3'-0" BELOW FIN. GRADE MIN. W/ TOP AND BOTTOM (2) #4 CONT. FL. AND DOWELED TO WALLS AT ENDS ON 6" GRAVEL SUB-BASE ON WELL COMPACTED SOIL OR VIRGIN SOIL W/ FIRM BRG. PROVIDE CONTROL JOINTS AS SHOWN

10/10/2016 8:54 AM

ARCHITECT OF RECORD  
TODD R. WROBLESKI  
NO. 1215713  
REGISTERED ARCHITECT  
EXPIRATION: 12/31/2013

**mkc**  
**ASSOCIATES, INC.**

**ARCHITECTURE**  
**ENGINEERING**  
**PLANNING**

40 W. 4th STREET  
MANSFIELD, OHIO 44902

PHONE : 419-525-1102  
FAX : 419-525-1428

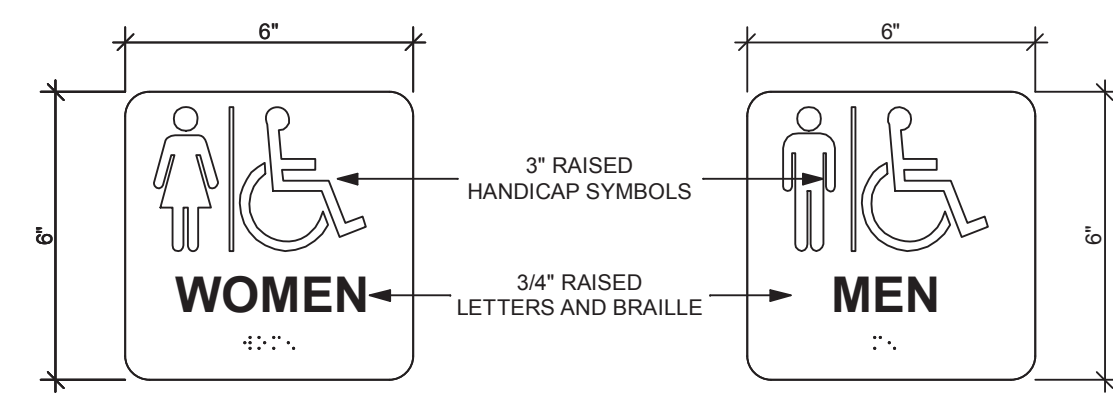
COLUMBUS  
MANSFIELD  
NEW PHILADELPHIA

www.mkcinc.com

CONSULTANTS

**OSBORN**  
**ENGINEERING**  
1300 E 9th St., Suite 1500  
Cleveland, OH 44114  
PH: 216-861-2020

ROOM FINISH SCHEDULE						
NO.	ROOM	WALLS		CEILING		REMARKS
		MAT	FINISH	MAT.	FINISH	
01	CONCESSION	CMU	EPOXY	WOOD	PAINT	
02	EQUIPMENT	CMU	EPOXY	EXP. STRUCT.	PAINT	
03	JAN.	CMU	EPOXY	EXP. STRUCT.	PAINT	
04	ELEC.	CMU	EPOXY	EXP. STRUCT.	PAINT	
05	STAIRS	CMU / WOOD	EPOXY	WOOD	PAINT	
06	WOMEN	CMU	EPOXY	WOOD	PAINT	
07	MEN	CMU	EPOXY	WOOD	PAINT	
08	PRESSBOX	WOOD	PAINT	WOOD	PAINT	
09	PRESSBOX	WOOD	PAINT	WOOD	PAINT	

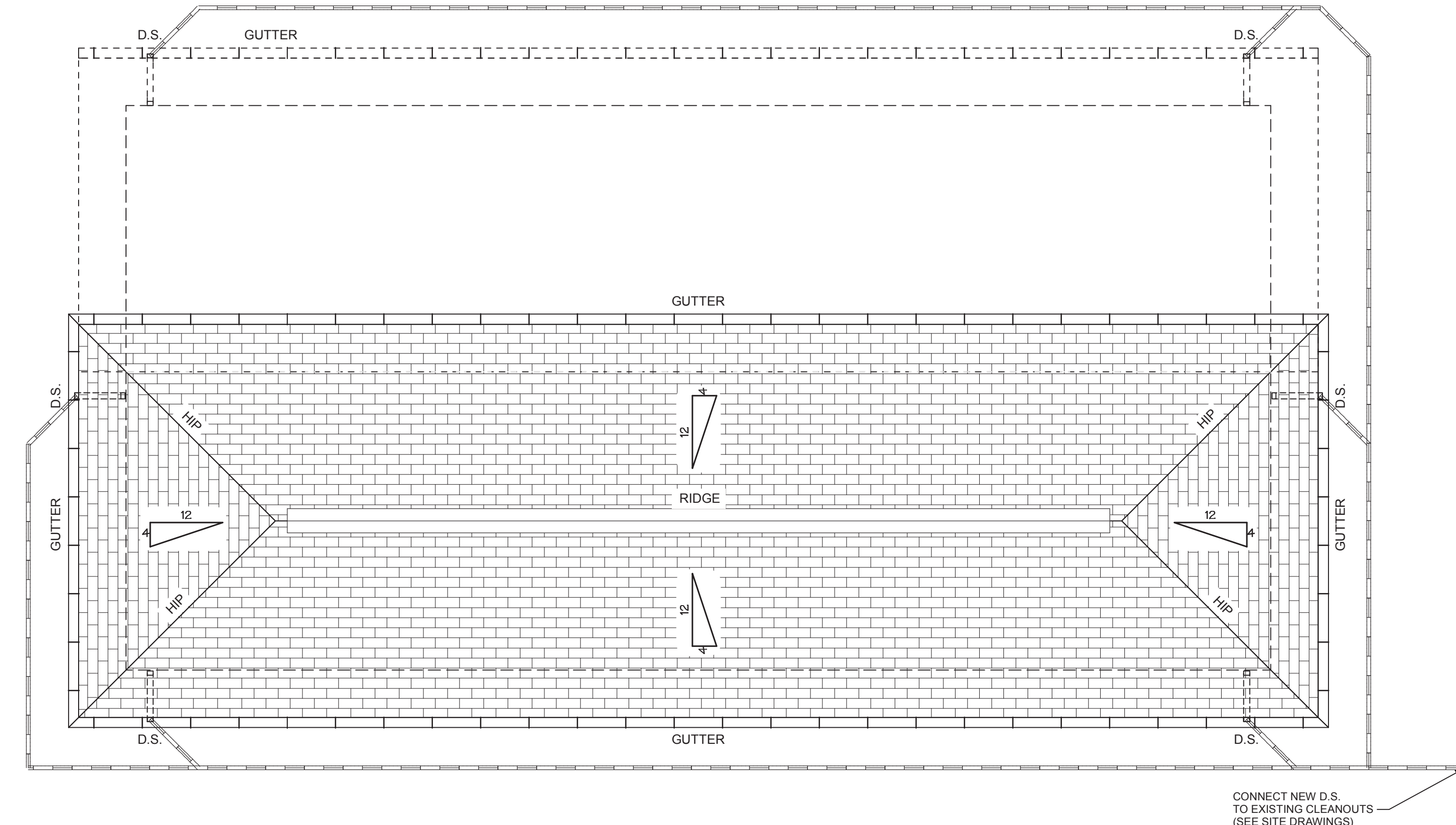


RESTROOM SIGNAGE

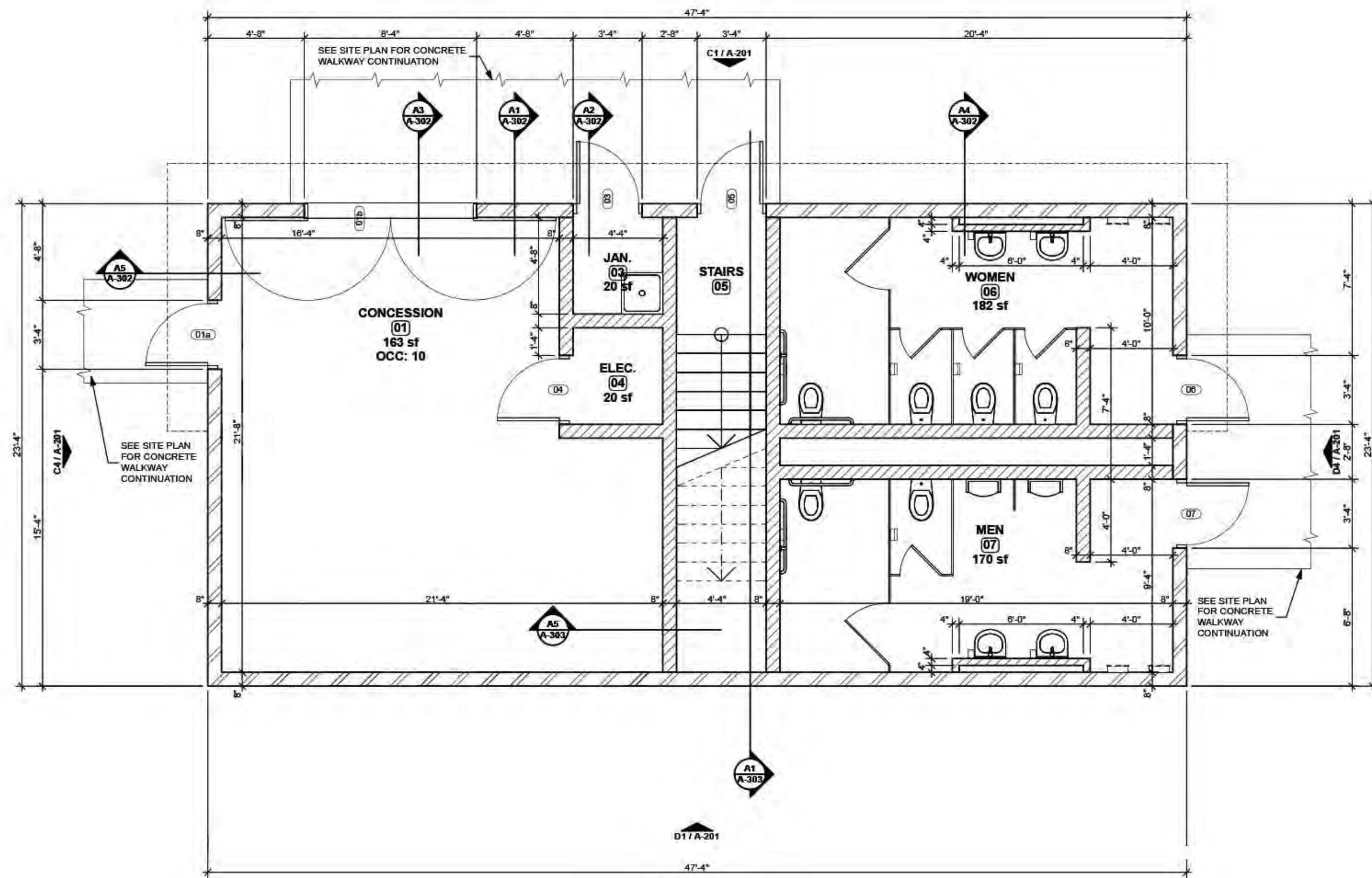
**FLOOR PLAN LEGEND**

- SPLIT FACE CONCRETE BLOCK WALL
- CONCRETE BLOCK WALL
- STUD WALL

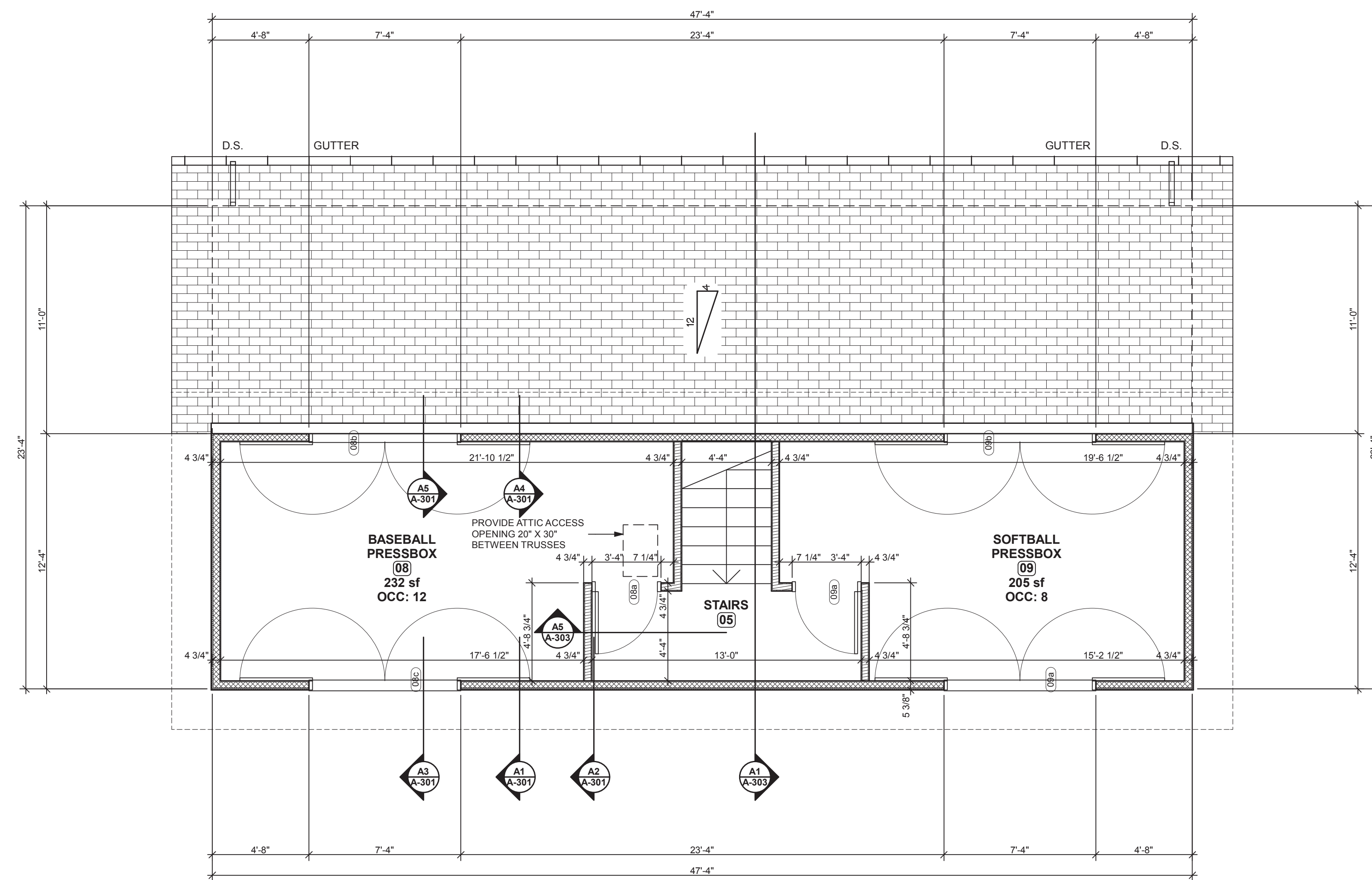
BULLNOSE ALL INTERIOR BLOCK OUTSIDE CORNERS



**UPPER ROOF PLAN**  
SCALE: 1/4" = 1'-0"



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



**SECOND FLOOR PLAN**  
SCALE: 1/4" = 1'-0"

**NEW PRESSBOX / CONCESSION BUILDING**

FOR

**CLEARY UNIVERSITY**

SUBMITTED: 12/12/2012

REVISIONS		
MARK	DATE	DESCRIPTION

DRAWN BY: PROJ. MGR:

**SHEET CONTENT**  
ARCHITECTURAL FLOOR PLANS  
ROOF PLANS  
ROOF FINISH SCHEDULE

JOB NO. 11-ED1-029A SHEET A-101

PRELIMINARY: NOT FOR CONSTRUCTION



ARCHITECTURE  
ENGINEERING  
PLANNING

40 W. 4th STREET  
MANSFIELD, OHIO 44902

PHONE: 419-525-1102  
FAX: 419-525-1428

COLUMBUS  
MANSFIELD  
NEW PHILADELPHIA

www.mkcinc.com

CONSULTANTS



1300 E 9th St., Suite 1500  
Cleveland, OH 44114  
PH: 216-861-2020

NEW PRESSBOX / CONCESSION BUILDING

FOR

CLEARY UNIVERSITY

SUBMITTED: 10/25/2017

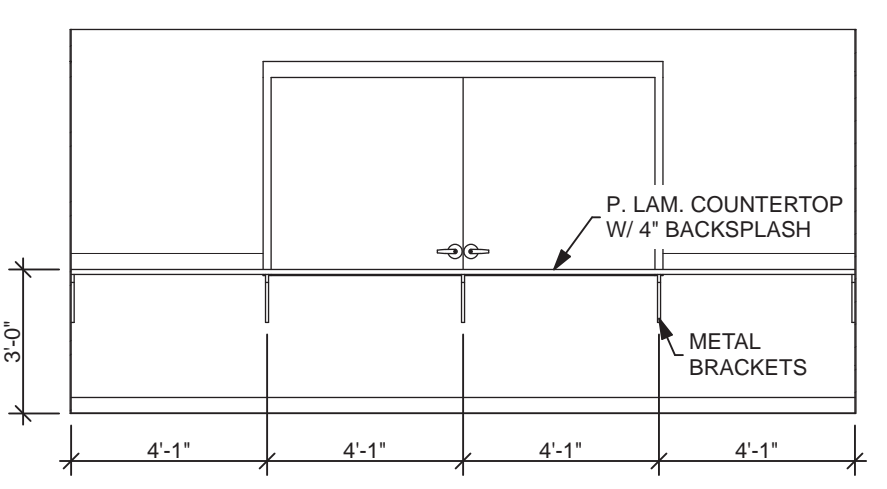
REVISIONS		
MARK	DATE	DESCRIPTION
△		
△		
△		
△		

DRAWN BY: PROJ. MGR:

SHEET CONTENT

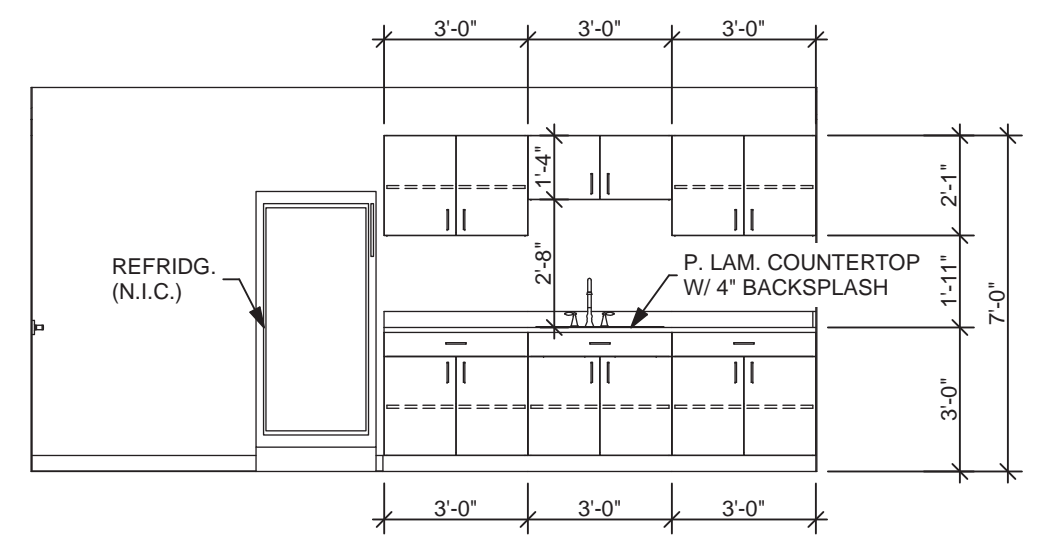
EQUIPMENT FLOOR PLANS  
INTERIOR ELEVATIONS

JOB NO. 11-ED1-029A SHEET A-102



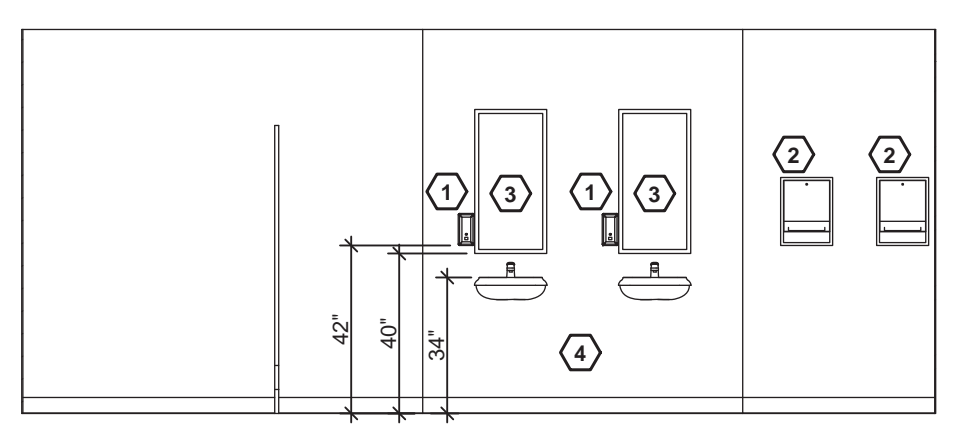
CONCESSION 01  
(COUNTERTOP & BRACKETS BY OWNER)

E1 INTERIOR ELEVATION  
SCALE: 1/4" = 1'-0"



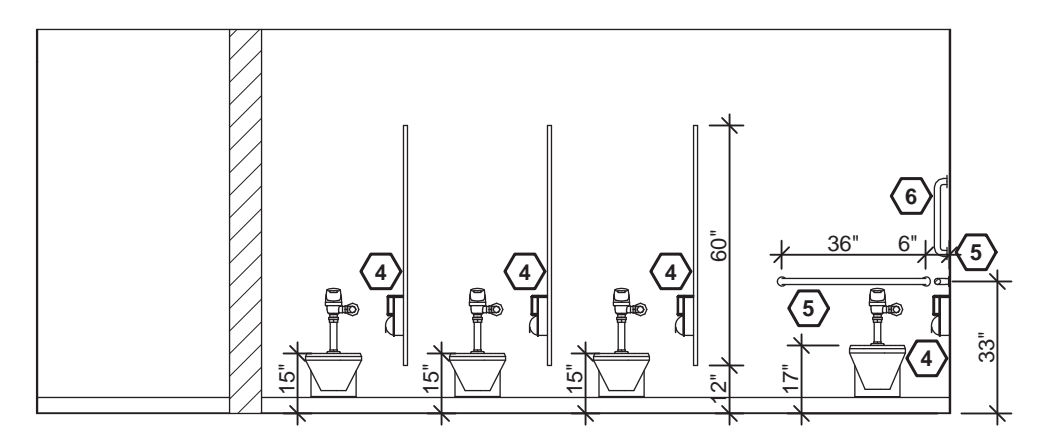
CONCESSION 01  
CASEWORK, COUNTERTOP, & SINK BY OWNER

E2 INTERIOR ELEVATION  
SCALE: 1/4" = 1'-0"



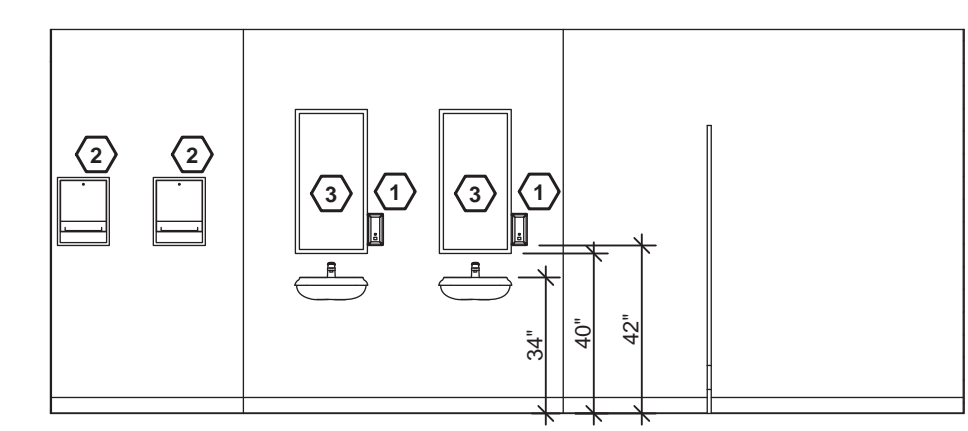
WOMEN 06

E3 INTERIOR ELEVATION  
SCALE: 1/4" = 1'-0"



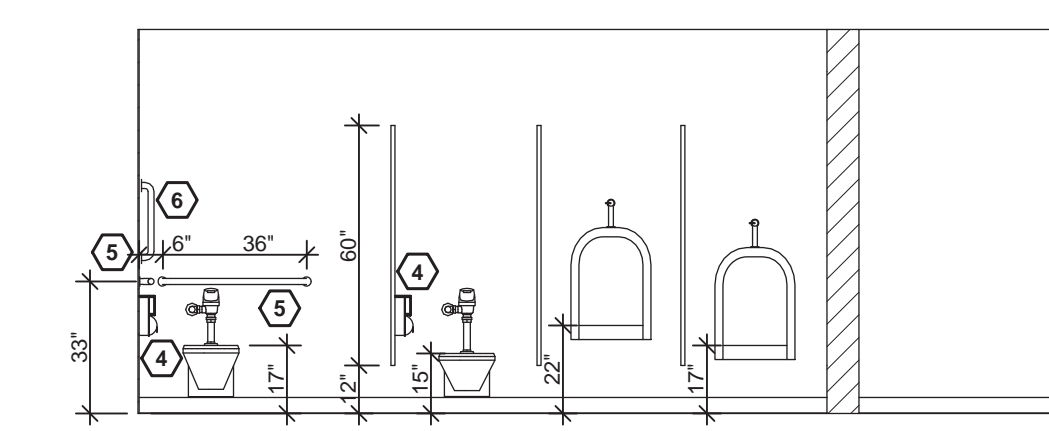
WOMEN 06

E4 INTERIOR ELEVATION  
SCALE: 1/4" = 1'-0"



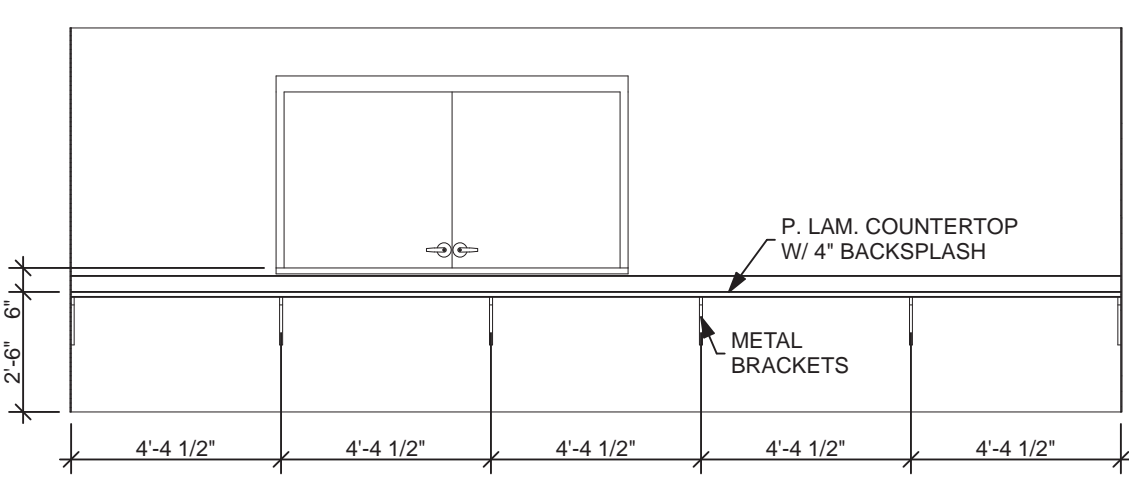
MEN 07

E5 INTERIOR ELEVATION  
SCALE: 1/4" = 1'-0"



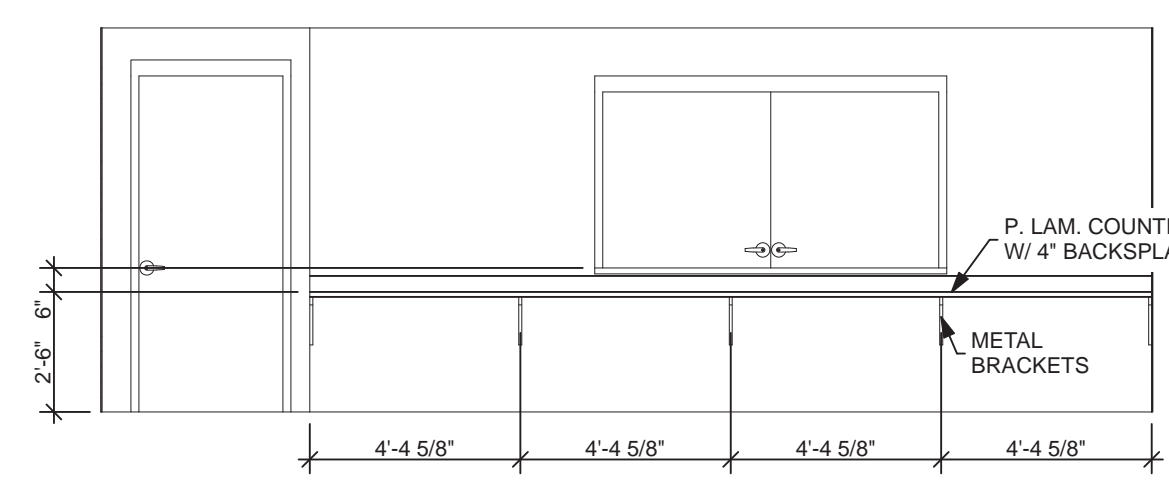
MEN 07

E6 INTERIOR ELEVATION  
SCALE: 1/4" = 1'-0"



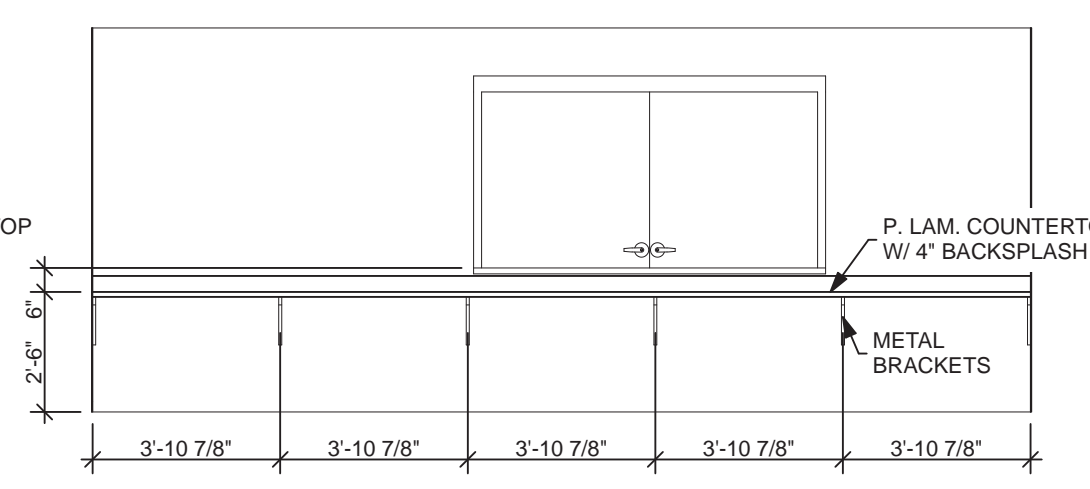
PRESSBOX 08

D1 INTERIOR ELEVATION  
SCALE: 1/4" = 1'-0"



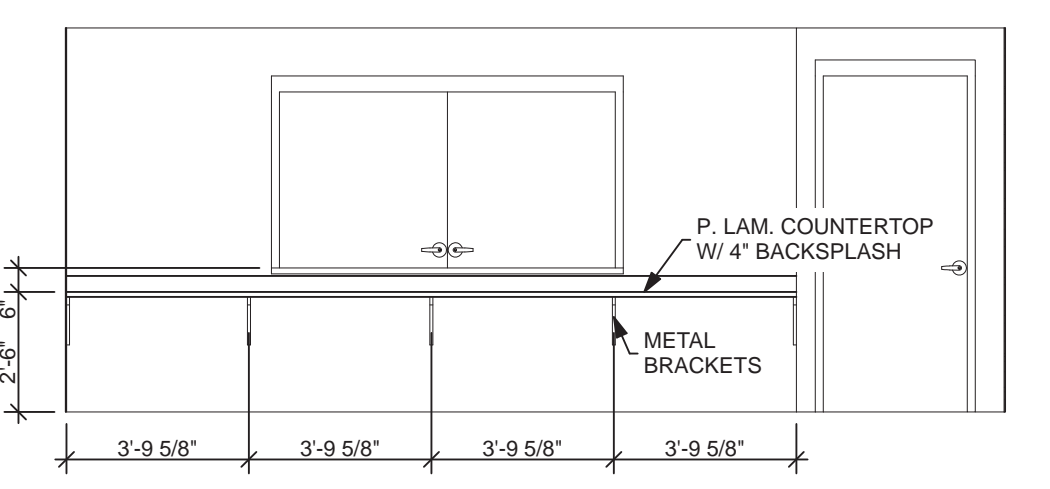
PRESSBOX 08

D2 INTERIOR ELEVATION  
SCALE: 1/4" = 1'-0"



PRESSBOX 09

D3 INTERIOR ELEVATION  
SCALE: 1/4" = 1'-0"



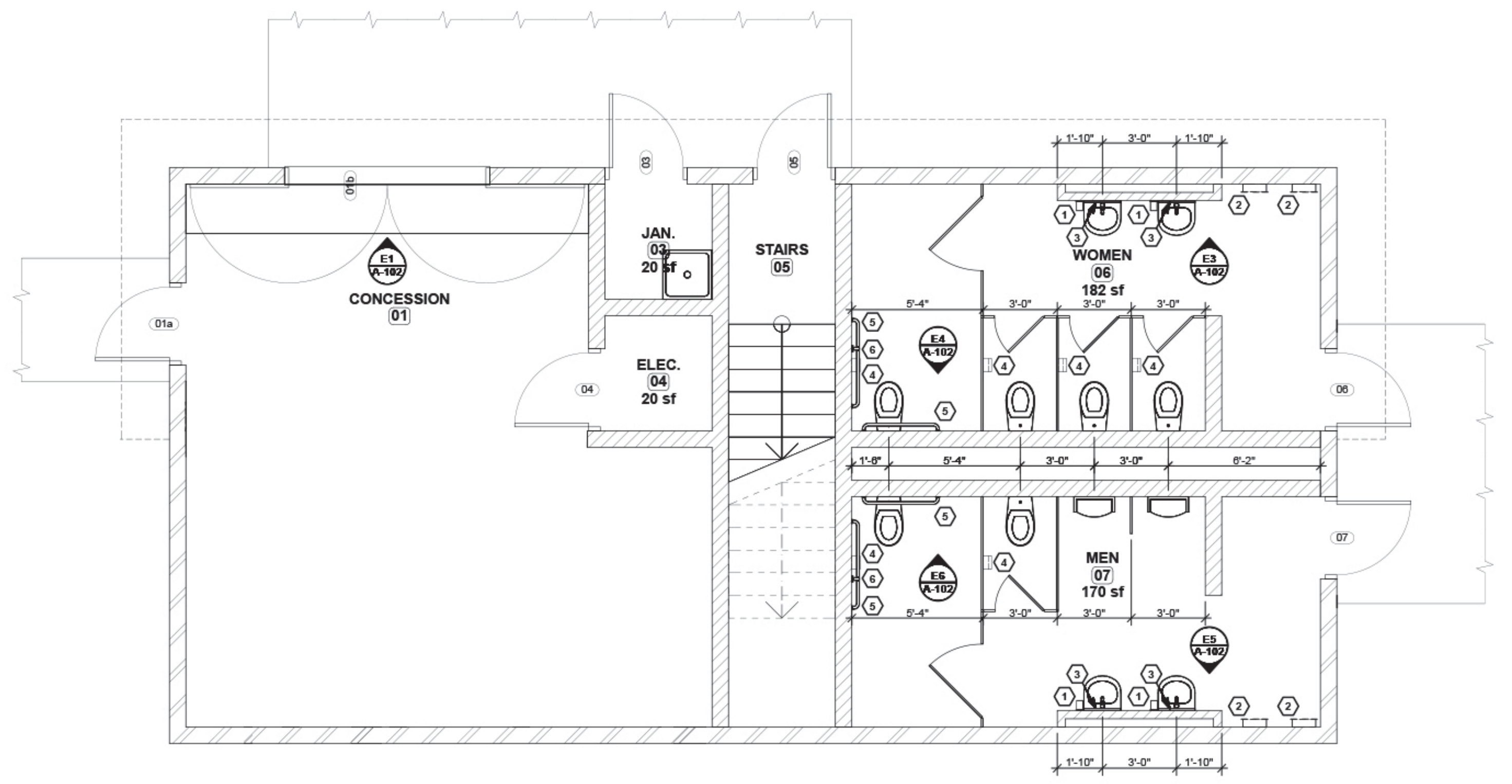
PRESSBOX 09

D4 INTERIOR ELEVATION  
SCALE: 1/4" = 1'-0"

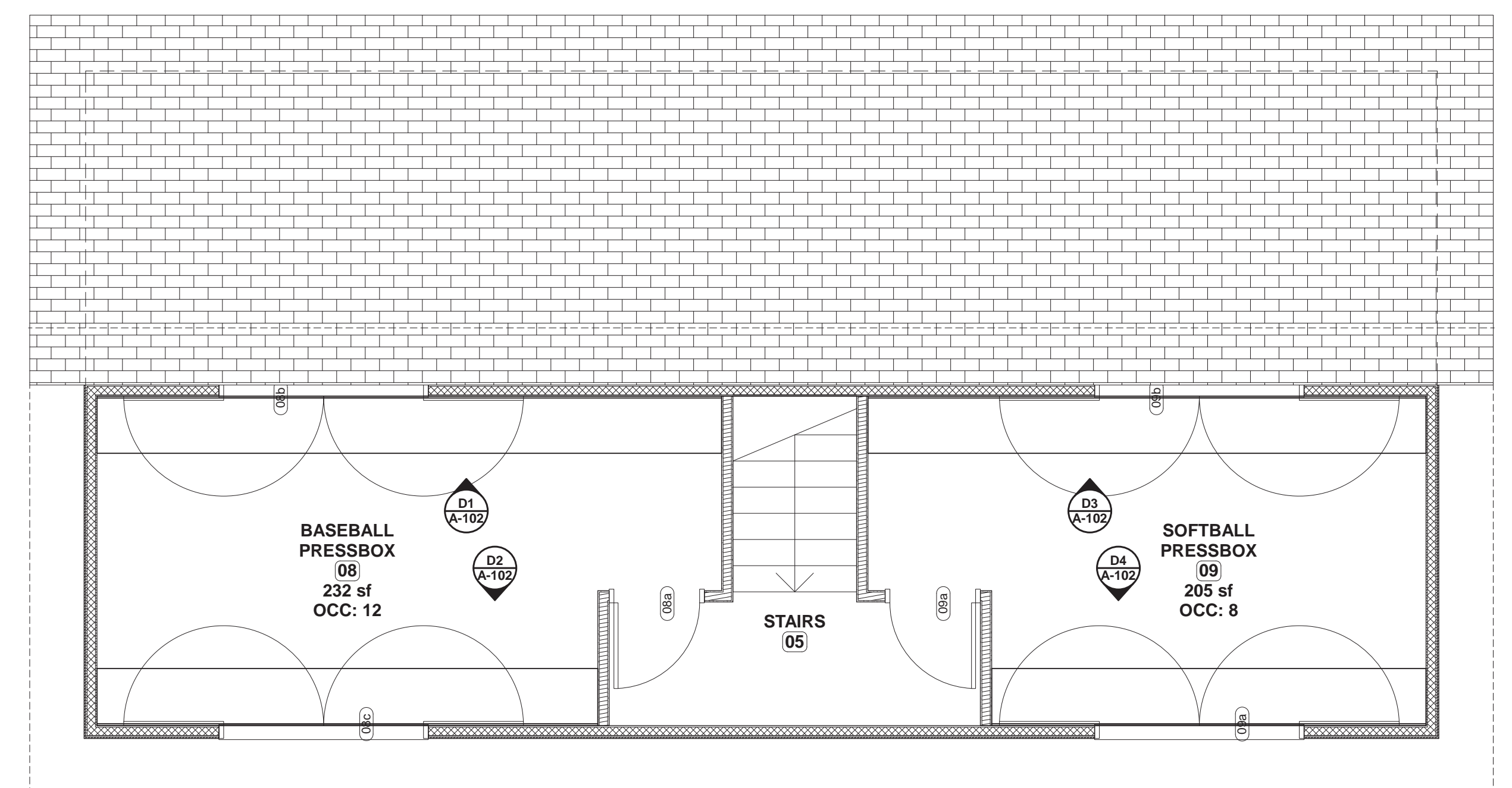
TOILET ACCESSORIES LEGEND

1. SOAP DISPENSER (BY OWNER)
2. PAPER TOWEL DISPENSER (BY OWNER)
3. MIRROR 18" X 36" (B-293)  
MTG. HT. AS INDICATED
4. TOILET TISSUE DISPENSER (BY OWNER)
5. GRAB BARS (B-5806)  
MTG. HT. 33" TO CENTER
6. GRAB BARS (B-5806-18")  
MTG. HT. 40" TO CENTER OF LOW END  
MOUNT 40" FROM BACK WALL OF STALL

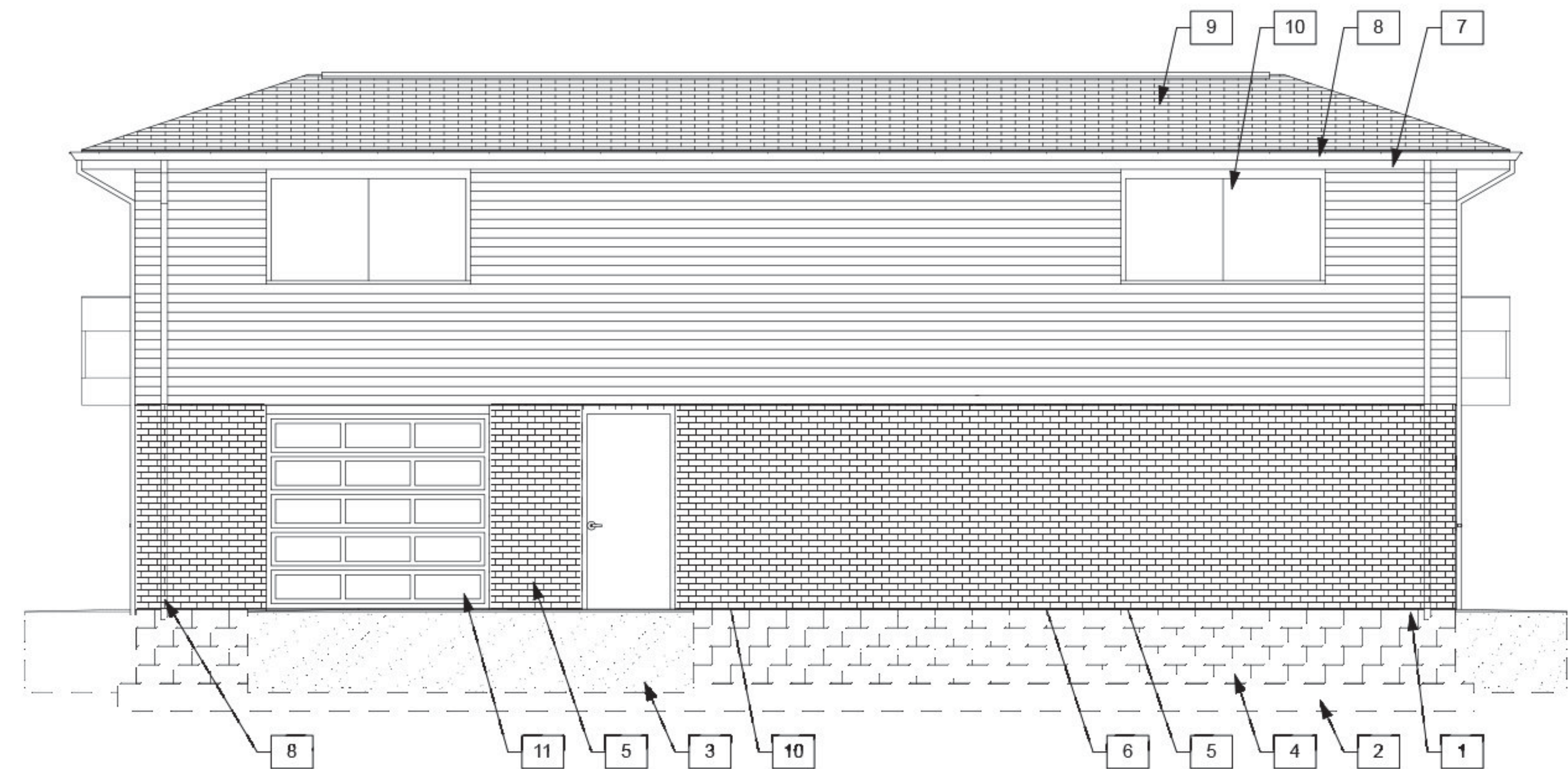
NOTE: ALL MODEL NUMBERS LISTED REFER TO BOBRICK WASHROOM EQUIPMENT BRAND NUMBERS UNLESS OTHERWISE NOTED



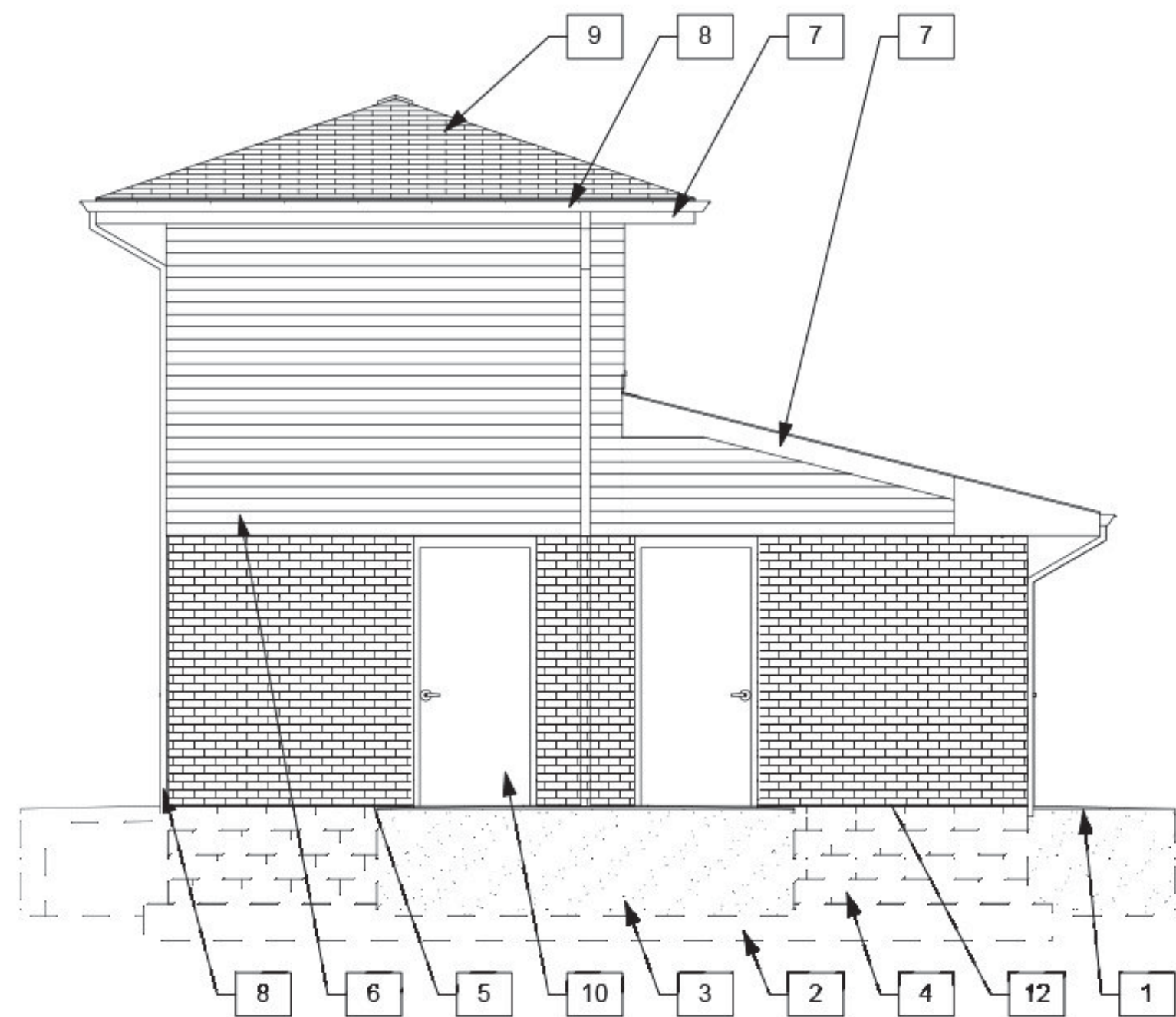
FIRST FLOOR EQUIPMENT PLAN  
SCALE: 1/4" = 1'-0"



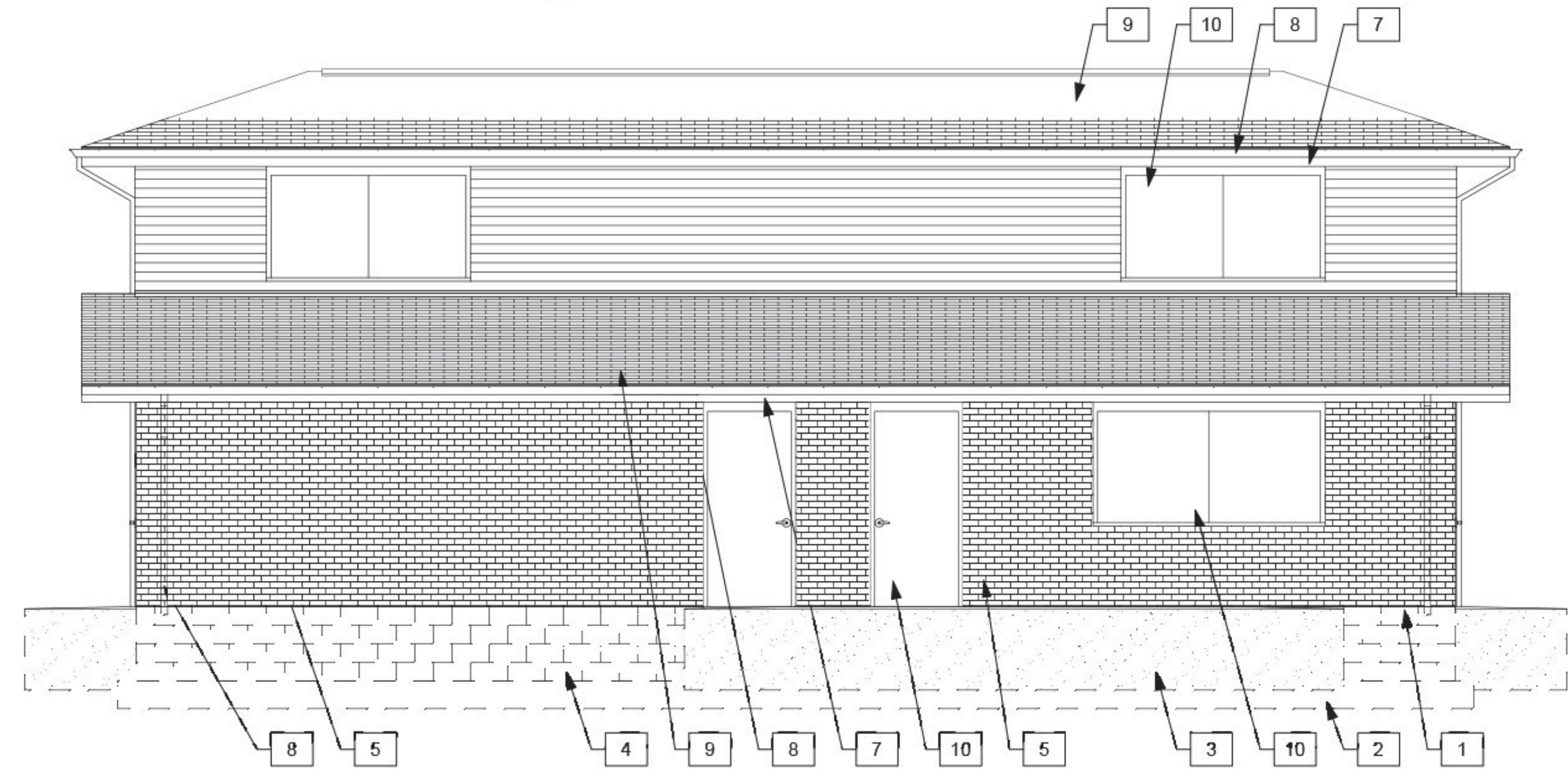
SECOND FLOOR EQUIPMENT PLAN  
SCALE: 1/4" = 1'-0"



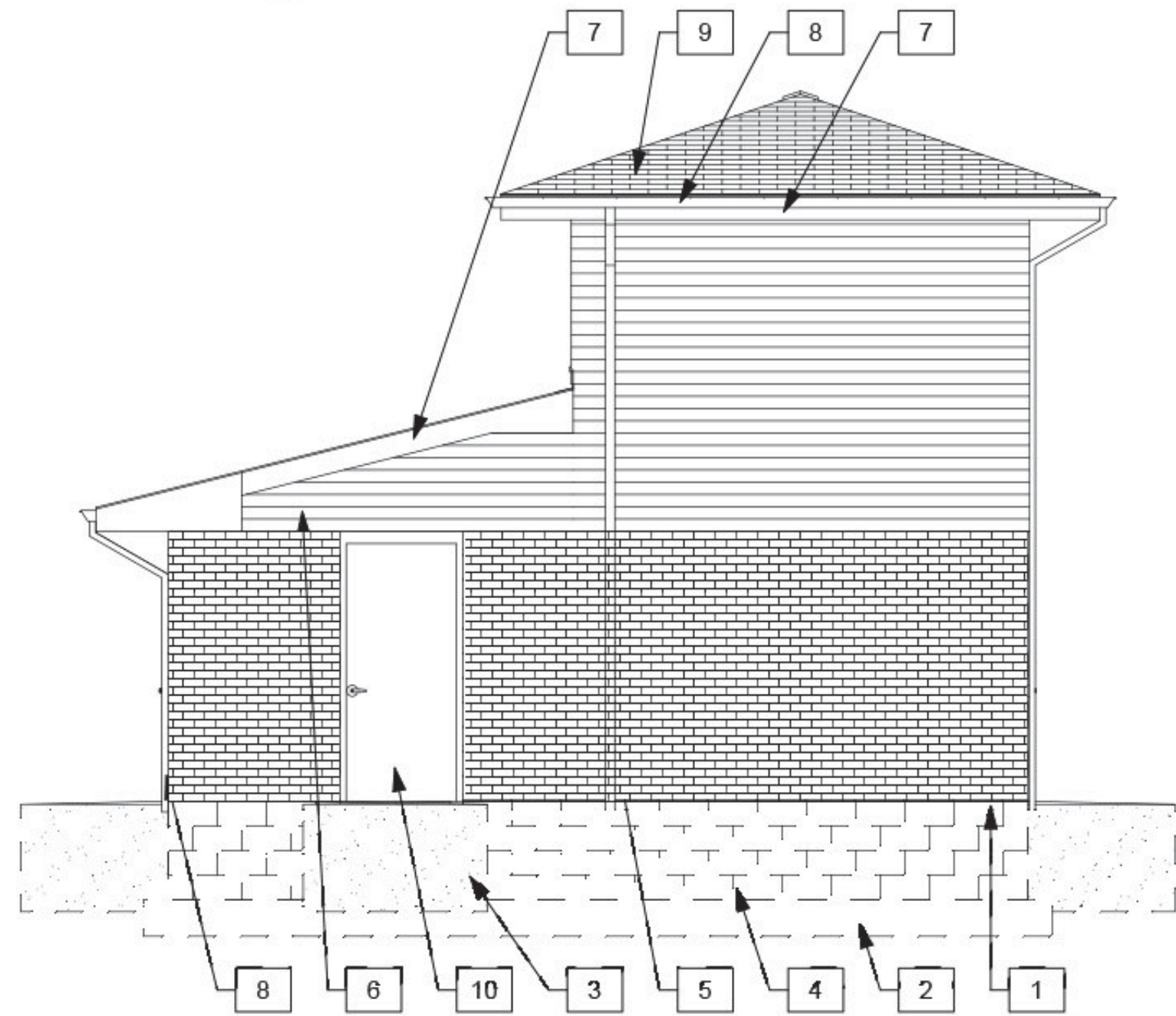
**D1 EXTERIOR ELEVATION**  
SCALE: 1/4" = 1'-0"



**D4 EXTERIOR ELEVATION**  
SCALE: 1/4" = 1'-0"



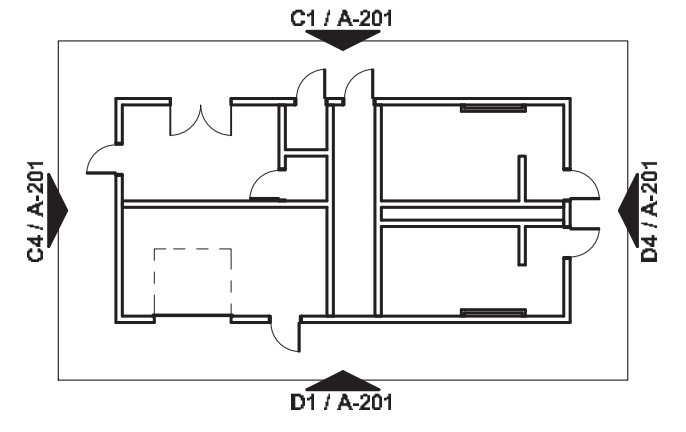
**C1 EXTERIOR ELEVATION**  
SCALE: 1/4" = 1'-0"



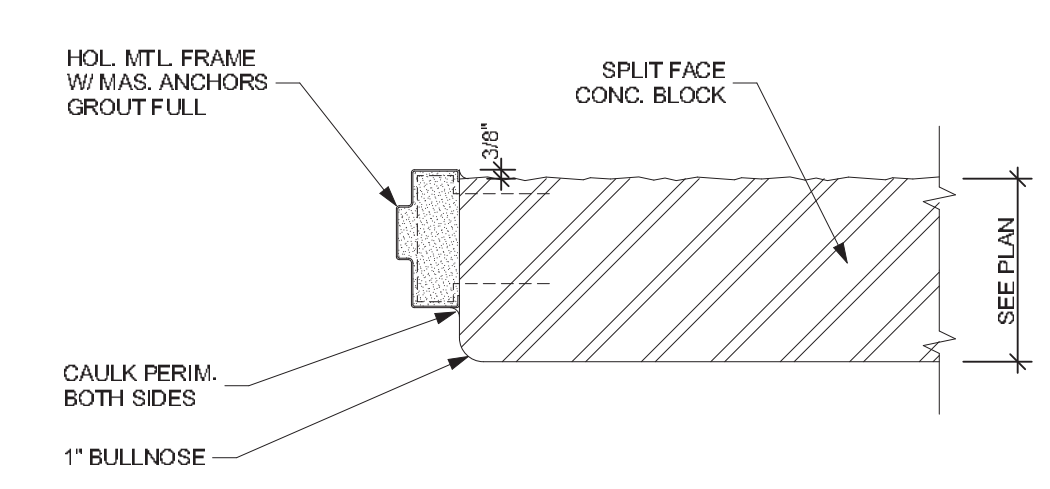
**C4 EXTERIOR ELEVATION**  
SCALE: 1/4" = 1'-0"

**EXTERIOR ELEVATIONS LEGEND**

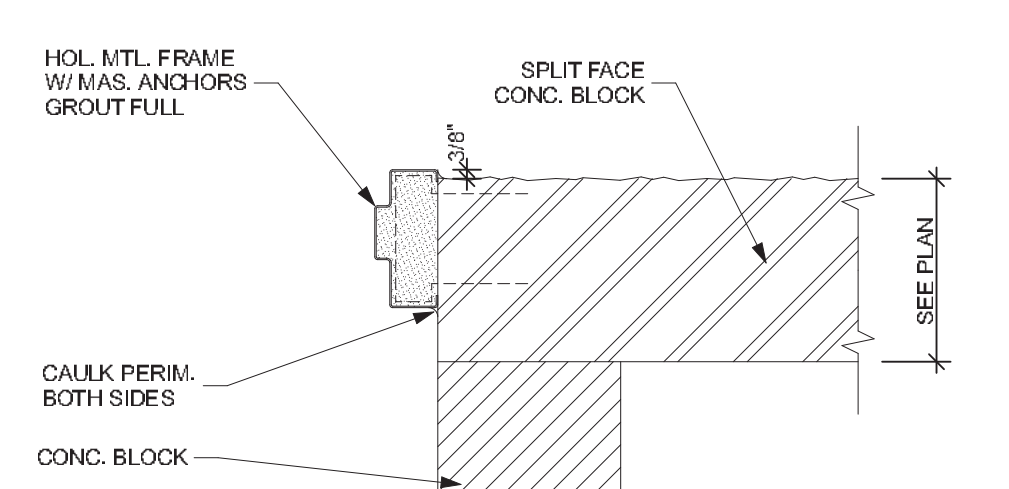
1. FINISH GRADE
2. REINFORCED CONCRETE FOOTING
3. REINFORCED CONCRETE FROST WALL
4. CONCRETE BLOCK (C.M.U.)
5. BRICK VENEER
6. EXTERIOR SIDING MATERIAL W/ TRIM AND ACCESSORIES
7. PREFIN. METAL FASCIA / SOFFIT CLOSURE
8. PREFIN. METAL GUTTER & DOWNSPOUT
9. ASPHALT SHINGLES W/ VENTED RIDGE
10. METAL DOOR AND FRAME
11. METAL SECTIONAL OVERHEAD DOOR PER MRF.
12. BUILDING SIGNAGE



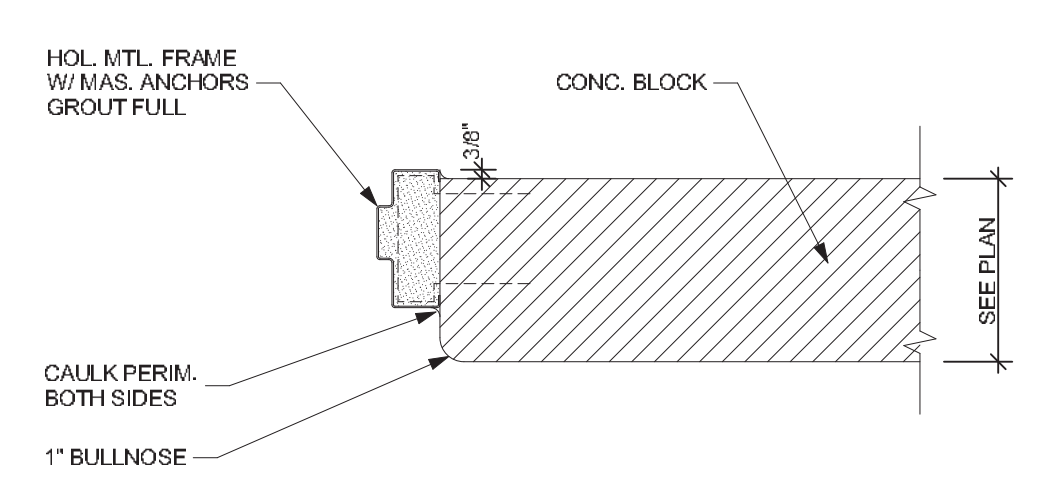
**ELEVATION KEY PLAN**  
SCALE: 1" = 20'



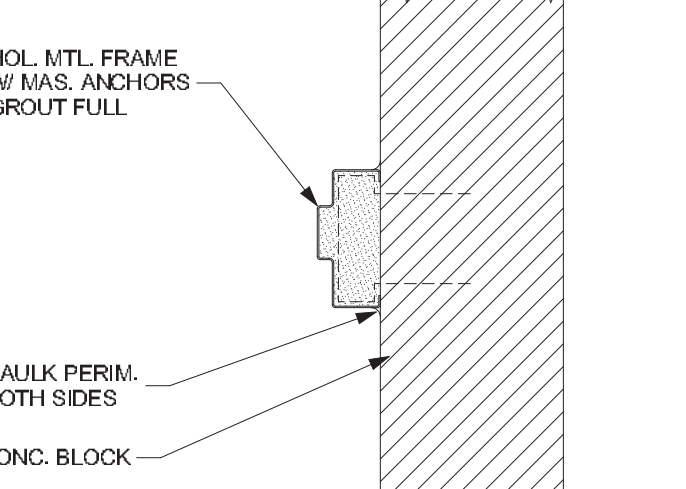
**A JAMB DETAIL**  
SCALE: 1 1/2" = 1'-0"



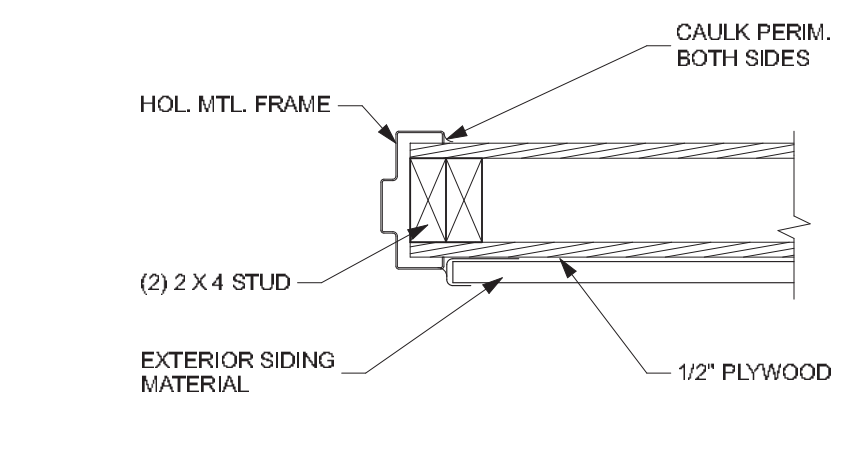
**B JAMB DETAIL**  
SCALE: 1 1/2" = 1'-0"



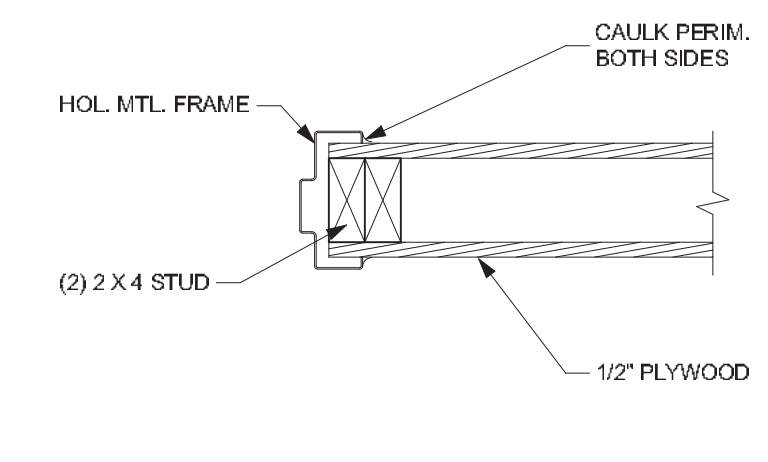
**C JAMB DETAIL**  
SCALE: 1 1/2" = 1'-0"



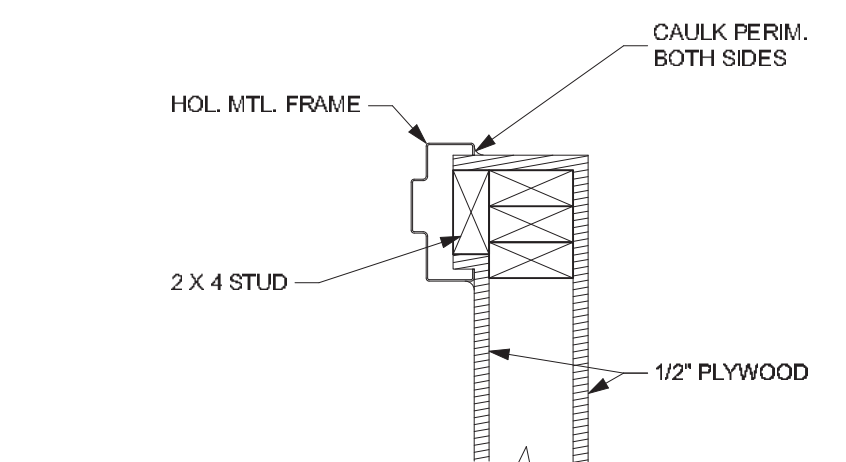
**D JAMB DETAIL**  
SCALE: 1 1/2" = 1'-0"



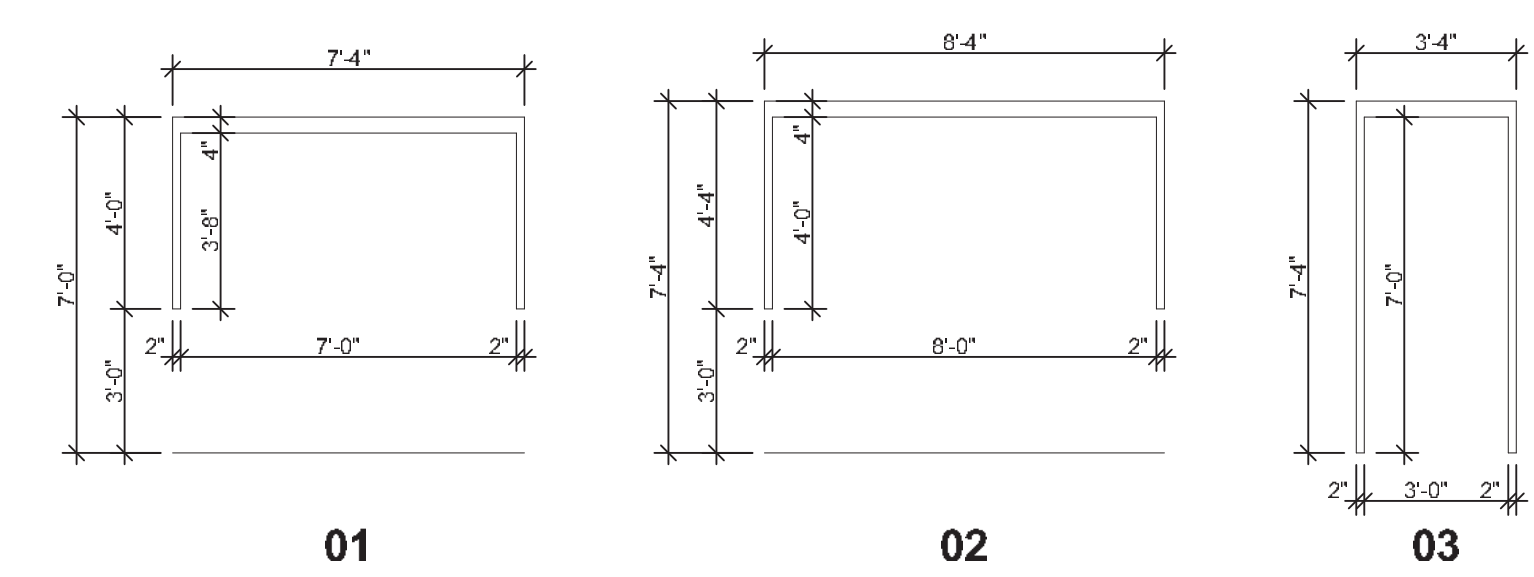
**E JAMB DETAIL**  
SCALE: 1 1/2" = 1'-0"



**F JAMB DETAIL**  
SCALE: 1 1/2" = 1'-0"



**G JAMB DETAIL**  
SCALE: 1 1/2" = 1'-0"



**FRAME ELEVATIONS**  
SCALE: 1/4" = 1'-0"

DOOR AND FRAME SCHEDULE				
MARK	DOOR SIZE	FRAME	JAMB	NOTES / REMARKS
01a	3'-0" W X 7'-2" H X 1 3/4" T	03	A, A	
01b	4'-0" W X 4'-0" H X 1 3/4" T (PAIR)	02	A, A	
02a	3'-0" W X 7'-2" H X 1 3/4" T	03	A, A	
02b	8'-0" W X 7'-4" H X 1" T	-	-	SECTIONAL DOOR
03	3'-0" W X 7'-2" H X 1 3/4" T	03	A, B	
04	3'-0" W X 7'-2" H X 1 3/4" T	03	C, D	
05	3'-0" W X 7'-2" H X 1 3/4" T	03	A, B	
06	3'-0" W X 7'-2" H X 1 3/4" T	03	A, B	
07	3'-0" W X 7'-2" H X 1 3/4" T	03	A, B	
08a	3'-0" W X 7'-2" H X 1 3/4" T	03	F, G	
08b	3'-6" W X 3/8" H X 1 3/4" T (PAIR)	01	E, E	
08c	3'-6" W X 3/8" H X 1 3/4" T (PAIR)	01	E, E	
09a	3'-0" W X 7'-2" H X 1 3/4" T	03	F, G	
09a	3'-6" W X 3/8" H X 1 3/4" T (PAIR)	01	E, E	
09b	3'-6" W X 3/8" H X 1 3/4" T (PAIR)	01	E, E	



**ARCHITECTURE  
ENGINEERING  
PLANNING**

40 W. 4th STREET  
MANSFIELD, OHIO 44902

PHONE: 419-525-1102  
FAX: 419-525-1428

COLUMBUS  
MANSFIELD  
NEW PHILADELPHIA

www.mkcin.com

CONSULTANTS



1300 E 9th St., Suite 1500  
Cleveland, OH 44114  
PH: 216-861-2020

**NEW PRESSBOX /  
CONCESSION BUILDING**

FOR

**CLEARY  
UNIVERSITY**

SUBMITTED: 10/25/2017

REVISIONS		
MARK	DATE	DESCRIPTION
△		
△		
△		
△		
△		

DRAWN BY: \_\_\_\_\_ PROJ. MGR: \_\_\_\_\_  
**SHEET CONTENT**

EXTERIOR ELEVATIONS  
OPENING SCHEDULE & INFORMATION

JOB NO. 11-ED1-029A SHEET A-201

# Cleary University Athletic Fields

Howell, MI

NOTES: -r1:Added Spill Scans  
Verify all pole locations

## Lighting System

Pole / Fixture Summary						
Pole ID	Pole Height	Mtg Height	Fixture Qty	Luminaire Type	Load	Group
A1-A2	80'	15'	1	TLC-BT-675	0.68 kW	A
		80'	7	TLC-LED-1150	8.05 kW	A
		65'	1	TLC-LED-1150	1.15 kW	A
B1-B2	90'	15'	2	TLC-BT-675	1.35 kW	B
		90'	13	TLC-LED-1150	14.95 kW	B
D1-D2	70'	15'	2	TLC-BT-675	1.35 kW	B
		70'	13	TLC-LED-1150	14.95 kW	B
<b>6</b>			<b>78</b>		<b>84.95 kW</b>	

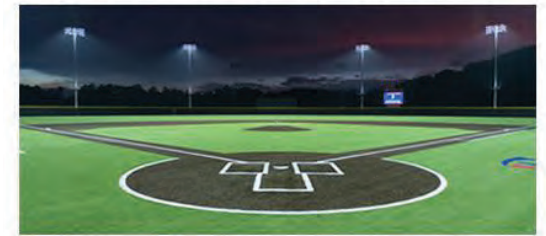
Group Summary				
Group	Description	Avg Load	Max Load	Fixture Qty
A	Baseball	19.75 kW	19.75 kW	18
B	Soccer / Baseball	65.2 kW	65.2 kW	60

Fixture Type Summary							
Type	Source	Wattage	Lumens	L90	L80	L70	Quantity
TLC-LED-1150	LED 5700K - 75 CRI	1150W	121,000	>51,000	>51,000	>51,000	68
TLC-BT-675	LED 5700K - 75 CRI	675W	48,000	>51,000	>51,000	>51,000	10

## Light Level Summary

Calculation Grid Summary							
Grid Name	Calculation Metric	Illumination				Groups	Fixture Qty
		Ave	Min	Max	Max/Min		
Baseball (Infield)	Horizontal Illuminance	50.4	45	57	1.26	A,B	78
Baseball (Outfield)	Horizontal Illuminance	50.6	38	68	1.78	A,B	78
Blanket Grid	Horizontal	19.6	0	70	3263159.00	A,B	78
East-Spill	Horizontal	0	0	0	6.83	A,B	78
East-Spill	Max Candela (by Fixture)	1589	620	2957	4.77	A,B	78
East-Spill	Max Vertical Illuminance Metric	0.01	0	0.01	5.44	A,B	78
L-Bullp. Batting	Horizontal	32.1	25	41	1.66	A,B	78
North-Spill	Horizontal	0.41	0	2.72	3424.31	A,B	78
North-Spill	Max Candela (by Fixture)	39050	1105	108651	98.28	A,B	78
North-Spill	Max Vertical Illuminance Metric	1.13	0.01	5.61	954.40	A,B	78
R-Bullp. Batting	Horizontal	31.7	24	40	1.65	A,B	78
Soccer	Horizontal Illuminance	50.2	36	69	1.92	B	60
West-Spill	Horizontal	0.90	0.02	2.24	102.90	A,B	78
West-Spill	Max Candela (by Fixture)	63986	1564	132596	84.79	A,B	78
West-Spill	Max Vertical Illuminance Metric	2.07	0.06	4.88	76.92	A,B	78

## From Hometown to Professional



**We Make It Happen.**

Not to be reproduced in whole or part without the written consent of Musco Sports Lighting, LLC. ©1981, 2017 Musco Sports Lighting, LLC.



EQUIPMENT LIST FOR AREAS SHOWN								
Pole			Luminaires					
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	A1-A2	80'	-	15'	TLC-BT-675	1	1	0
				65'	TLC-LED-1150	1	1	0
				80'	TLC-LED-1150	7	7	0
2	B1-B2	90'	-	15'	TLC-BT-675	2	2	0
				90'	TLC-LED-1150	13	13	0
				70'	TLC-LED-1150	13	13	0
2	D1-D2	70'	-	15'	TLC-BT-675	2	2	0
				70'	TLC-LED-1150	13	13	0
				TOTALS		78	78	0

GRID SUMMARY	
Name:	Baseball
Size:	Irregular 315' / 375' / 331'
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

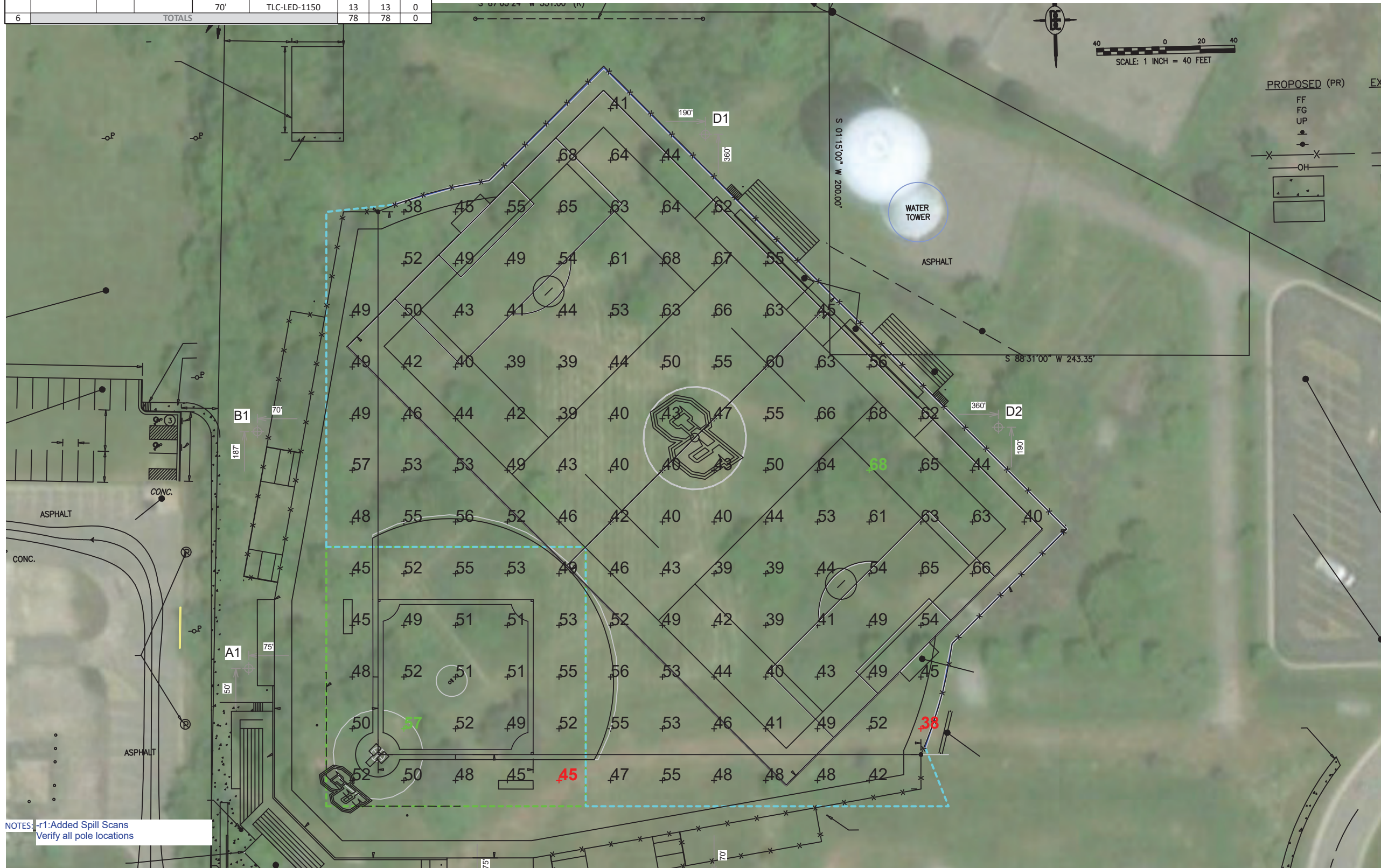
ILLUMINATION SUMMARY			
MAINTAINED HORIZONTAL FOOTCANDLES			
	Infield	Outfield	
Guaranteed Average:	50	50	
Scan Average:	50.4	50.6	
Maximum:	57	68	
Minimum:	45	38	
Avg / Min:	1.12	1.32	
Guaranteed Max / Min:	1.5	2	
Max / Min:	1.26	1.78	
UG (adjacent pts):	1.16	1.57	
CU:	0.72		
No. of Points:	25	114	
LUMINAIRE INFORMATION			
Color / CRI:	5700K - 75 CRI		
Luminaire Output:	121,000 / 48,000 lumens		
No. of Luminaires:	78		
Total Load:	84.95 kW		
Lumen Maintenance			
Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1150	>51,000	>51,000	>51,000
TLC-BT-675	>51,000	>51,000	>51,000
Reported per TM-21-11. See luminaire datasheet for details.			

**Guaranteed Performance:** The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

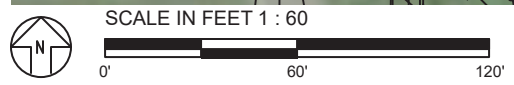
**Field Measurements:** Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

**Electrical System Requirements:** Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

**Installation Requirements:** Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



NOTES: r1: Added Spill Scans  
Verify all pole locations



Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



We Make It Happen.

Not to be reproduced in whole or part without the written consent of Musco Sports Lighting, LLC. ©1981, 2017 Musco Sports Lighting, LLC.

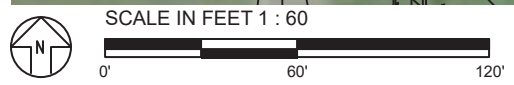
EQUIPMENT LIST FOR AREAS SHOWN								
Pole				Luminaires				
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	B1-B2	90'	-	15'	TLC-BT-675	2	2	0
				90'	TLC-LED-1150	13	13	0
2	D1-D2	70'	-	15'	TLC-BT-675	2	2	0
				70'	TLC-LED-1150	13	13	0
4	TOTALS					60	60	0

GRID SUMMARY	
Name:	Soccer
Size:	360' x 210'
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY			
MAINTAINED HORIZONTAL FOOTCANDLES			
Entire Grid			
Guaranteed Average:	50		
Scan Average:	50.2		
Maximum:	69		
Minimum:	36		
Avg / Min:	1.39		
Guaranteed Max / Min:	2		
Max / Min:	1.92		
UG (adjacent pts):	1.33		
CU:	0.57		
No. of Points:	84		
LUMINAIRE INFORMATION			
Color / CRI:	5700K - 75 CRI		
Luminaire Output:	121,000 / 48,000 lumens		
No. of Luminaires:	60		
Total Load:	65.2 kW		
Lumen Maintenance			
Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1150	>51,000	>51,000	>51,000
TLC-BT-675	>51,000	>51,000	>51,000
Reported per TM-21-11. See luminaire datasheet for details.			



NOTES: r1: Added Spill Scans  
Verify all pole locations



Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

**Guaranteed Performance:** The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

**Field Measurements:** Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

**Electrical System Requirements:** Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

**Installation Requirements:** Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



EQUIPMENT LIST FOR AREAS SHOWN							
Pole				Luminaires			
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID
2	A1-A2	80'	-	15'	TLC-BT-675	1	1
				65'	TLC-LED-1150	1	1
				80'	TLC-LED-1150	7	7
2	B1-B2	90'	-	15'	TLC-BT-675	2	2
				90'	TLC-LED-1150	13	13
				15'	TLC-BT-675	2	2
2	D1-D2	70'	-	15'	TLC-BT-675	2	2
				70'	TLC-LED-1150	13	13
				70'	TLC-LED-1150	13	13
6	TOTALS					78	78

GRID SUMMARY	
Name:	R-Bullp. Batting
Size:	Irregular 315' / 375' / 331'
Spacing:	10.0' x 10.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY			
MAINTAINED HORIZONTAL FOOTCANDLES			
Entire Grid			
Scan Average:	31.7		
Maximum:	40		
Minimum:	24		
Avg / Min:	1.31		
Max / Min:	1.65		
UG (adjacent pts):	1.34		
CU:	0.01		
No. of Points:	32		
LUMINAIRE INFORMATION			
Color / CRI:	5700K - 75 CRI		
Luminaire Output:	121,000 / 48,000 lumens		
No. of Luminaires:	78		
Total Load:	84.95 kW		
Lumen Maintenance			
Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1150	>51,000	>51,000	>51,000
TLC-BT-675	>51,000	>51,000	>51,000

Reported per TM-21-11. See luminaire datasheet for details.



**Guaranteed Performance:** The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

**Field Measurements:** Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

**Electrical System Requirements:** Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

**Installation Requirements:** Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

NOTES: r1: Added Spill Scans  
Verify all pole locations



Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



Not to be reproduced in whole or part without the written consent of Musco Sports Lighting, LLC. ©1981, 2017 Musco Sports Lighting, LLC.

EQUIPMENT LIST FOR AREAS SHOWN							
Pole				Luminaires			
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID / OTHER GRIDS
2	A1-A2	80'	-	15'	TLC-BT-675	1	1 0
				65'	TLC-LED-1150	1	1 0
				80'	TLC-LED-1150	7	7 0
2	B1-B2	90'	-	15'	TLC-BT-675	2	2 0
				90'	TLC-LED-1150	13	13 0
				15'	TLC-BT-675	2	2 0
2	D1-D2	70'	-	15'	TLC-BT-675	2	2 0
				70'	TLC-LED-1150	13	13 0
				TOTALS		78	78 0

GRID SUMMARY	
Name:	L-Bullp. Batting
Size:	Irregular 315' / 375' / 331'
Spacing:	10.0' x 10.0'
Height:	3.0' above grade

ILLUMINATION SUMMARY			
MAINTAINED HORIZONTAL FOOTCANDLES			
Entire Grid			
Scan Average:	32.1		
Maximum:	41		
Minimum:	25		
Avg / Min:	1.29		
Max / Min:	1.66		
UG (adjacent pts):	1.35		
CU:	0.01		
No. of Points:	32		
LUMINAIRE INFORMATION			
Color / CRI:	5700K - 75 CRI		
Luminaire Output:	121,000 / 48,000 lumens		
No. of Luminaires:	78		
Total Load:	84.95 kW		
Lumen Maintenance			
Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1150	>51,000	>51,000	>51,000
TLC-BT-675	>51,000	>51,000	>51,000
Reported per TM-21-11. See luminaire datasheet for details.			



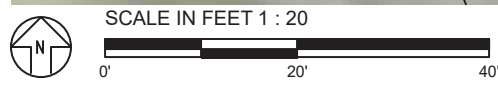
**Guaranteed Performance:** The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

**Field Measurements:** Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

**Electrical System Requirements:** Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

**Installation Requirements:** Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

NOTES: r1: Added Spill Scans  
Verify all pole locations



Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



EQUIPMENT LIST FOR AREAS SHOWN								
Pole			Luminaires					
QTY	LOCATION	SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LUMINAIRE TYPE	QTY / POLE	THIS GRID	OTHER GRIDS
2	A1-A2	80'	-	15'	TLC-BT-675	1	1	0
				65'	TLC-LED-1150	1	1	0
				80'	TLC-LED-1150	7	7	0
2	B1-B2	90'	-	15'	TLC-BT-675	2	2	0
				90'	TLC-LED-1150	13	13	0
				15'	TLC-BT-675	2	2	0
2	D1-D2	70'	-	15'	TLC-BT-675	2	2	0
				70'	TLC-LED-1150	13	13	0
				TOTALS		78	78	0

GRID SUMMARY	
Name:	Blanket Grid
Spacing:	30.0' x 30.0'
Height:	3.0' above grade

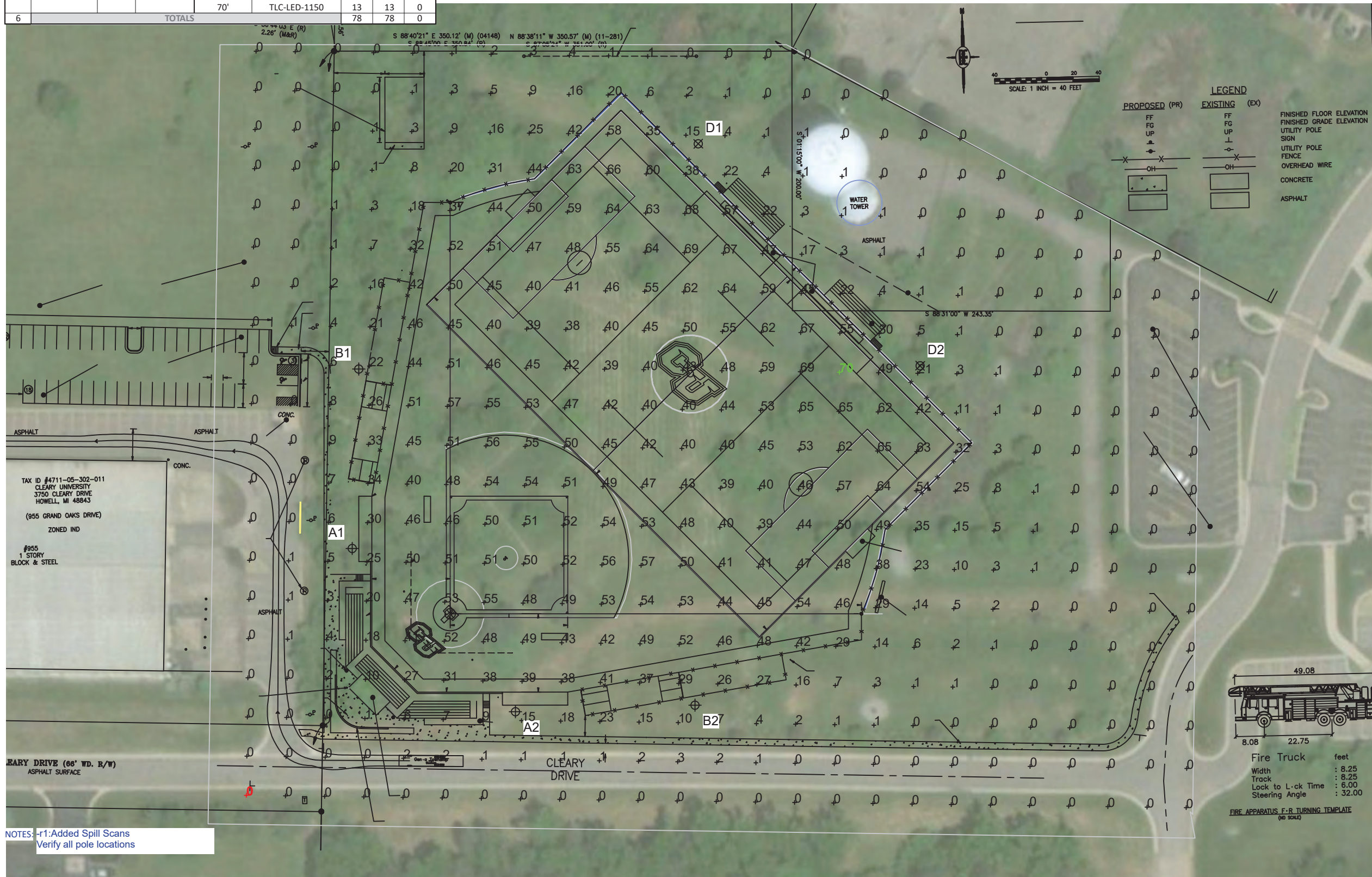
ILLUMINATION SUMMARY			
MAINTAINED HORIZONTAL FOOTCANDLES			
Entire Grid			
Scan Average:	19.6		
Maximum:	70		
Minimum:	0		
Avg / Min:	913340.44		
Max / Min:	3263158.75		
UG (adjacent pts):	66.05		
CU:	0.94		
No. of Points:	467		
LUMINAIRE INFORMATION			
Color / CRI:	5700K - 75 CRI		
Luminaire Output:	121,000 / 48,000 lumens		
No. of Luminaires:	78		
Total Load:	84.95 kW		
Lumen Maintenance			
Luminaire Type	L90 hrs	L80 hrs	L70 hrs
TLC-LED-1150	>51,000	>51,000	>51,000
TLC-BT-675	>51,000	>51,000	>51,000
Reported per TM-21-11. See luminaire datasheet for details.			

**Guaranteed Performance:** The ILLUMINATION described above is guaranteed per your Musco Warranty document and includes a 0.95 dirt depreciation factor.

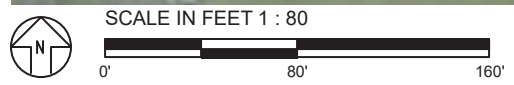
**Field Measurements:** Individual field measurements may vary from computer-calculated predictions and should be taken in accordance with IESNA RP-6-15.

**Electrical System Requirements:** Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

**Installation Requirements:** Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.



NOTES: +1: Added Spill Scans  
Verify all pole locations



Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗



NOTES: r1: Added Spill Scans  
Verify all pole locations

# Cleary University Athletic Fields

Howell, MI

## EQUIPMENT LAYOUT

### INCLUDES:

- Baseball
- Soccer

**Electrical System Requirements:** Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.

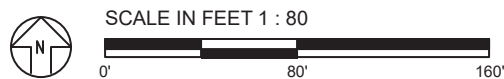
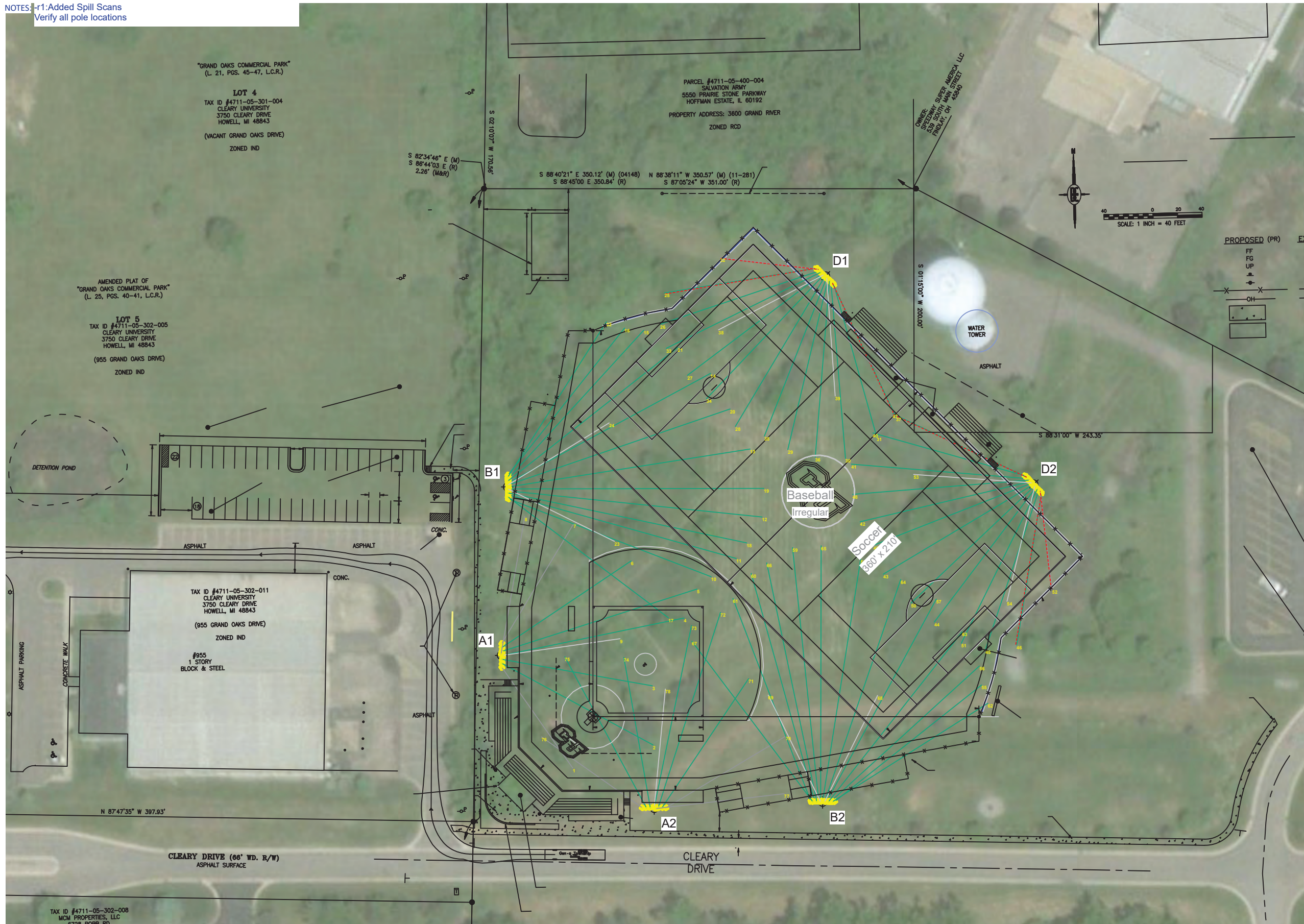
**Installation Requirements:** Results assume ± 3% nominal voltage at line side of the driver and structures located within 3 feet (1m) of design locations.

## EQUIPMENT LIST FOR AREAS SHOWN

QTY	LOCATION	POLE SIZE	GRADE ELEVATION	Luminaires		QTY / POLE
				MOUNTING HEIGHT	LUMINAIRE TYPE	
2	A1-A2	80'	-	15'	TLC-BT-675	1
				65'	TLC-LED-1150	1
				80'	TLC-LED-1150	7
2	B1-B2	90'	-	15'	TLC-BT-675	2
2	D1-D2	70'	-	90'	TLC-LED-1150	13
				15'	TLC-BT-675	2
2				15'	TLC-BT-675	13
				70'	TLC-LED-1150	13
TOTALS						78

## SINGLE LUMINAIRE AMPERAGE DRAW CHART

Ballast Specifications (.90 min power factor)	Line Amperage Per Luminaire (max draw)						
	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)
Single Phase Voltage	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)
TLC-LED-1150	6.8	6.5	5.9	5.1	4.1	3.7	3.0
TLC-BT-675	4.0	3.8	3.5	3.0	2.4	2.2	1.8



Pole location(s) ⚡ dimensions are relative to 0,0 reference point(s) ⊗



Not to be reproduced in whole or part without the written consent of Musco Sports Lighting, LLC. ©1981, 2017 Musco Sports Lighting, LLC.