APPENDIX E WATER QUALITY CALCULATIONS

Home2Suites_Proposed WQ Calculations

Manual Basin: Home2Suites WQ cntrl					
Scena	io: Scenario 1				
No	de: Outfall				
Hydrograph Meth	od: NRCS Unit Hydro	graph			
Infiltration Meth	od: Curve Number				
Time of Concentrati	on: 5.0000 min				
Max Allowable	Q: 0.00 cfs	0.00 cfs			
Time Sh	ift: 0.0000 hr	0.0000 hr			
Unit Hydrogra	oh: UH484	UH484			
Peaking Fac	or: 484.0	484.0			
Ar	ea: 1.3955 ac				
Area [ac] Land Co	ver Zone	Soil Zone	Rainfall Name		
1.2098 Impervi	ous	1			
0.1857 Grass_p	ost-dev	3			
Comment:					

Manual Basin Runoff Summary [Scenario 1]

Basin Name	Sim Name	Max Flow [cfs]	Time to Max Flow [hrs]	Total Rainfall [in]	Total Runoff [in]	Area [ac]	Equivalent Curve Number	% Imperv	% DCIA
Home2Sui tes WQ cntrl	1inch 24hr	1.41	12.0000	1.00	0.87	1.3955	98.8	86.69	86.69

Node: Outfall

Scenario:	Scenario 1
Type:	Time/Stage
Base Flow:	0.00 cfs
Initial Stage:	0.00 ft
Warning Stage:	5.00 ft
Boundary Stage:	

Year	Month	Day	Hour	Stage [ft]
0	0	0	0.0000	0.00
0	0	0	2.0000	0.00
0	0	0	3.0000	0.00
0	0	0	6.0000	0.00
0	0	0	12.0000	0.00
0	0	0	24.0000	0.00
0	0	0	48.0000	0.00

Comment:

C:\Users\jkelly\Desktop\2020-04-29_Home2Suites_WQ calcs\

1

Node Max Conditions [Scenario 1]

Max Stage	Min/Max	Max Total	Max Total	Max Surface

Node Name	Sim Name	Warning Stage [ft]	Max Stage [ft]	Min/Max Delta Stage	Max Total Inflow [cfs]		Max Surface Area [ft2]
		0		[ft]			
Outfall	1inch 24hr	5.00	0.00	0.0000	1.41	0.00	0

(Check

http://www.indy.gov/eGov/City/DPW/Business/Specs/Pages/UpdatedStormWaterManual.aspx for current Selection Guide)

Performance Matrix for Manufactured SQUs that are approved for use as post-construction water quality units in the City of Indianapolis and in compliance with the Stormwater Design and Construction Specifications Manual

PLEASE NOTE: All SQUs shall be configured as off-line units unless approved for on-line use. On-line units must document the peak 10-year flow (per the Stormwater Design and Construction Specification Manual) is less than the approved maximum10-yr flow rate.

Rate Based SQUs - Table 1							
Manufactured SQU	SQU System Model	Max Treatment Flow (cfs)	Max 10-yr On-Line Flow Rate (cfs)	Cleanout Depth (Inches)			
	SC-3	0.39	N/A	9			
	SC-4	0.70	N/A	9			
	SC-5	1.09	N/A	9			
	SC-6	1.57	N/A	9			
SciClone ¹	SC-7	2.14	N/A	9			
SciClone	SC-8	2.80	N/A	9			
	SC-9	3.54	N/A	9			
	SC-10	4.37	N/A	9			
	SC-11	5.29	N/A	9			
	SC-12	6.30	N/A	9			
	CDS-3	0.52	1.04	9			
-	CDS-4	0.93	1.86	9			
	CDS-5	1.5	3.00	9			
CDS	CDS-6	2.1	4.2	9			
Technologies ¹	CDS-7	2.8	5.60	9			
	CDS-8	3.7	7.4	9			
	CDS-10	5.8	11.6	9			
	CDS-12	8.4	16.8	9			
	DVS-36C	0.56	1.12	9			
-	DVS-48C	1.00	2.00	9			
	DVS-60C	1.56	3.12	9			
DVS ¹	DVS-72C	2.25	4.50	9			
DV5-	DVS-84C	3.06	6.12	9			
	DVS-96C	4.00	8.00	9			
	DVS-120C	6.25	12.50	9			
	DVS-144C	9.00	18.00	9			

Rate Based SQUs - Table 1

Manufactured SQU	SQU System Model	Max Treatment Flow (cfs)	Max 10-yr On-Line Flow Rate (cfs)	Cleanout Depth (Inches)
	4-ft	1.12	2.95	9
Hydro International	6-ft	2.52	6.63	12
Downstream —	8-ft	4.49	11.81	15
Defender ¹	10-ft	7.00	18.40	18
	12 ft	10.08	26.51	21
	3-ft	0.85	1.84	9
Hydro	4-ft	1.5	3.24	9
International	5-ft	2.35	5.08	9
First Defense	6-ft	3.38	7.30	9
High Capacity ¹	7-ft	4.60	9.94	9
	8-ft	6.00	12.96	9
	HS-3	0.50	1.00	6
	HS-4	0.88	1.76	6
	HS-5	1.37	2.74	6
	HS-6	1.98	3.96	6
HydroStorm by	HS-7	2.69	5.38	6
Hydroworks, — LLC ¹ —	HS-8	3.52	7.04	6
	HS-9	4.45	8.9	6
	HS-10	5.49	10.98	6
	HS-11	6.65	13.3	6
	HS-12	7.91	15.82	6
	XC-2	0.57	1.16	6
	XC-3	1.13	2.30	6
	XC-4	1.86	3.79	6
	XC-5	2.30	4.68	6
	XC-6	3.31	6.74	6
AquaShield	XC-7	4.50	9.16	6
Aqua-Swirl — Xcelerator ¹ —	XC-8	5.88	11.97	6
	XC-9	7.44	15.14	6
	XC-10	9.19	18.70	6
	XC-11	11.12	22.63	6
	XC-12	13.23	26.92	6
	XC-13	15.53	31.60	6

¹ Installed in the configuration as reviewed by NJCAT only

Appendix I

Design Treatment Flow Rate Determination

For

Table 1 SQUs

Stormwater Quality Flow Rate Determination – Table 1 SQUs

The design flow rate for manufactured stormwater quality units (SQUs) shall be determined using the SCS runoff methodology as outlined below.

- 1. Delineate the watershed basin(s) to be served by the proposed SQU(s). Tabulate the total impervious and pervious areas. *Please note impervious and pervious area runoff rates MUST be calculated as separate basins. The sizing calculation assumes the impervious area is connected directly to the SQU and the Tc calculation must be adjusted for this assumption (i.e. no flow over grass) for the impervious basin. This can be accomplished by creating two basins, one with an area equivalent to the total impervious area and the other with an area equivalent to the total pervious area of the delineated watershed to be served by the SQU.*
- **2.** Determine the time-of-concentration (Tc) using the TR-55 methodology (Worksheet 3, Chapter 200 Appendix of the City of Indianapolis Stormwater Specifications Manual) for each basin. A minimum 5-minute Tc may be assumed for the impervious basin.
- 3. Calculate the curve numbers (CN) for each basin, using CN=98 for the impervious basin.
- **4.** Determine the peak discharge from the 0.3-inch storm using the appropriate Huff, 50% rainfall distribution (Storm duration 0 up to and including 6 hrs 1st Quartile, 6.1 to 12 hrs 2nd Quartile, 12.1 to 24 hrs 3rd Quartile. See Table below for Huff ordinates.). A single hydrograph for each basin should be determined and all basin hydrographs added to determine the peak flow. Storm durations of 15-, 30- and 45 minutes as well as 1-, 2-, 3- 6-12- and 24- hours should be checked to determine the peak SQU flow.

Huff Ordinates Table IA							
	Indianapolis Huff Quartile						
% Storm Time	1 st Quartile	2 nd Quartile	3 rd Quartile	4 th Quartile			
0	0.00	0.00	0.00	0.00			
10	20.00	6.50	5.26	6.67			
20	40.80	18.13	11.55	14.25			
30	54.95	35.85	17.06	20.00			
40	62.50	52.94	24.24	26.09			
50	68.75	67.86	37.78	33.33			
60	76.67	76.52	58.33	40.00			
70	83.05	83.81	78.03	50.00			
80	89.70	90.67	88.68	68.57			
90	95.00	95.89	95.29	88.37			
100	100.00	100.00	100.00	100.00			

Appendix II

O&M Manual Checklist

In addition to the requirements listed in Section 102.06 of the Stormwater Specifications Manual, the following notes / maintenance items should be included in the Operations and Maintenance Manual (**O & M Manual**):

- 1. Owner name, address, business phone number, home phone number, email address, cellular phone number.
- 2. Site drawings (8¹/₂" by 11" or 11" by 17"), showing both plan and cross-section views, showing the infrastructure and applicable features, including dimensions, easements, outlet works, forebays, all water quality and quantity features, inspection and maintenance features (ports, access drives, etc.), signage, etc., as well as an overall site map of the development showing all structures.
- _____3. A stormwater management easement is required for each facility. The easement must include the BMP, all outlet structures and access to the BMP.
- 4. Requirement of owner to perform periodic inspections and maintenance, annually at minimum and as necessary to confirm the system is functioning as designed and permitted;
- _____5. Frequency of required inspection and maintenance for each BMP;
- 6. Requirement of owner to keep records of inspections and maintenance activities;
- 7. Requirement of owner to self-certify when requested by the City that inspections and maintenance was performed according to the O&M Manual;
- 8. Requirement of the owner to remove and replace filter media as need, determined by infiltration rate, drain down time, percolation test, etc.
- 9. The maximum sediment depth should be clearly specified, e.g. 8" based on the table above.
- 10. Graphical and written description of sediment measuring procedure. This should include the use of a dipstick tube equipped with a ball valve (e.g. Sludge Judge®).
- 11. Oil and other floatable materials removal procedure during routine cleanout.
- 12. The O & M Manual should specify if entry into the SQU should be considered an OSHA confined space and guidelines followed.

- _____13. A minimum inspection and maintenance frequency of annually should be specified in the narrative and the tabular inspection schedule.
 - 14. Off-line configurations must include inspection and maintenance of connecting manhole and diversion weir.
- 15. Detail drawing of proposed SQU, including floating debris capture device where applicable, should be included.
- _____16. Note in the manual to clean unit immediately if there is a hydrocarbon spill (e.g. gasoline or oil).
- _____17. The use of adsorbents should be addressed as appropriate.
- 18. A note should be provided indicating disposal of all sediment must be in accordance with all federal, state and local requirements and should NOT be dumped into the storm sewer or a sanitary sewer.
- 19. Other specific requirements per the manufacturer's recommendations.

Plan Checklist

The following items should be specified on all **plans** referencing a SQU submitted for approval by the City of Indianapolis:

- 1. The minimum cover requirement as specified by the Stormwater Specifications Manual should be shown on the details for all connecting pipes.
- 2. A minimum 6" stone base should be shown on the detail.
- 3. The backfill should be specified as required by the manufacturer.
- 4. Detail drawing of each SQU model, including floating debris capture device as applicable, per the manufacturer should be included on plans.
- _____5. Detail of connecting structures and diversion for off-line configurations should be included.
- _____6. A minimum 24" access opening must be shown.
- 7. All construction plans shall show the SQUs installed with one inlet and one outlet pipe approximately 180 degrees apart unless the design report includes documentation the unit was tested by NJCAT and certified by NJDEP for the proposed layout. The inclusion of surface inlets must also include the testing and certification documentation.

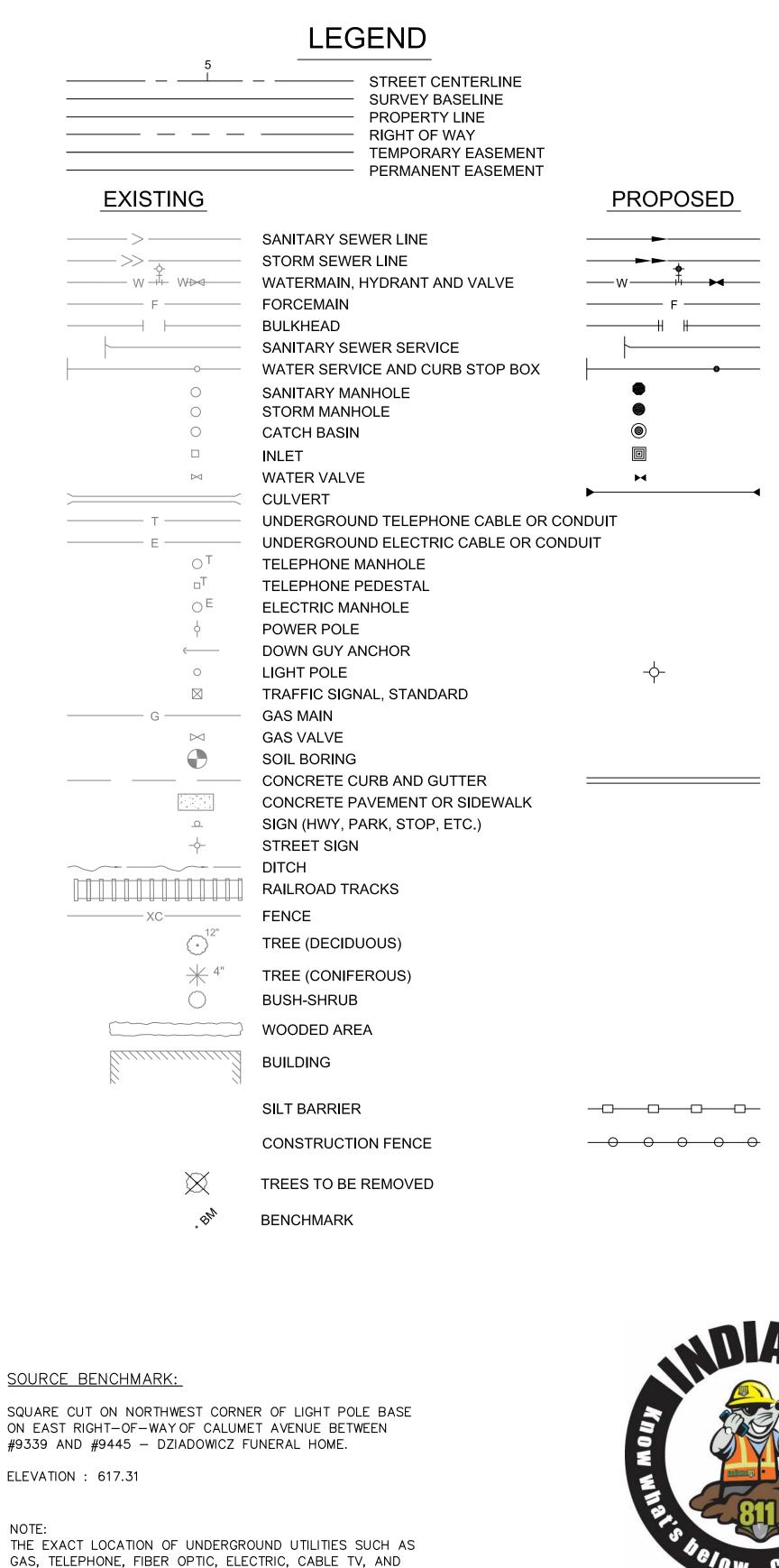
Drainage Report Checklist

The following requirements should be addressed in drainage design **reports**:

- 1. The design storm must not create a hydraulic tailwater condition on the SQU. A first flush hydraulic gradeline evaluation should be included in the report.
 - 2. The design storm should be the peak runoff for a 0.3-inch rainfall depth using the appropriate Huff, 50% rainfall distribution. The contributing watershed should be modeled with the pervious and impervious areas inputted as separate areas (i.e. not combined using a single curve number.)
- 3. The 10-yr pipe capacity up- and downstream of all water quality structures should be documented with calculations to demonstrate the water surface for the 10-yr storm is below the crown of the pipe as required by the Stormwater Specifications Manual.
- 4. Diversion structure design should be documented with calculations as appropriate.
- 5. Buoyancy shall be addressed in the report.
- 6. Traffic loading requirements should be addressed in the report.

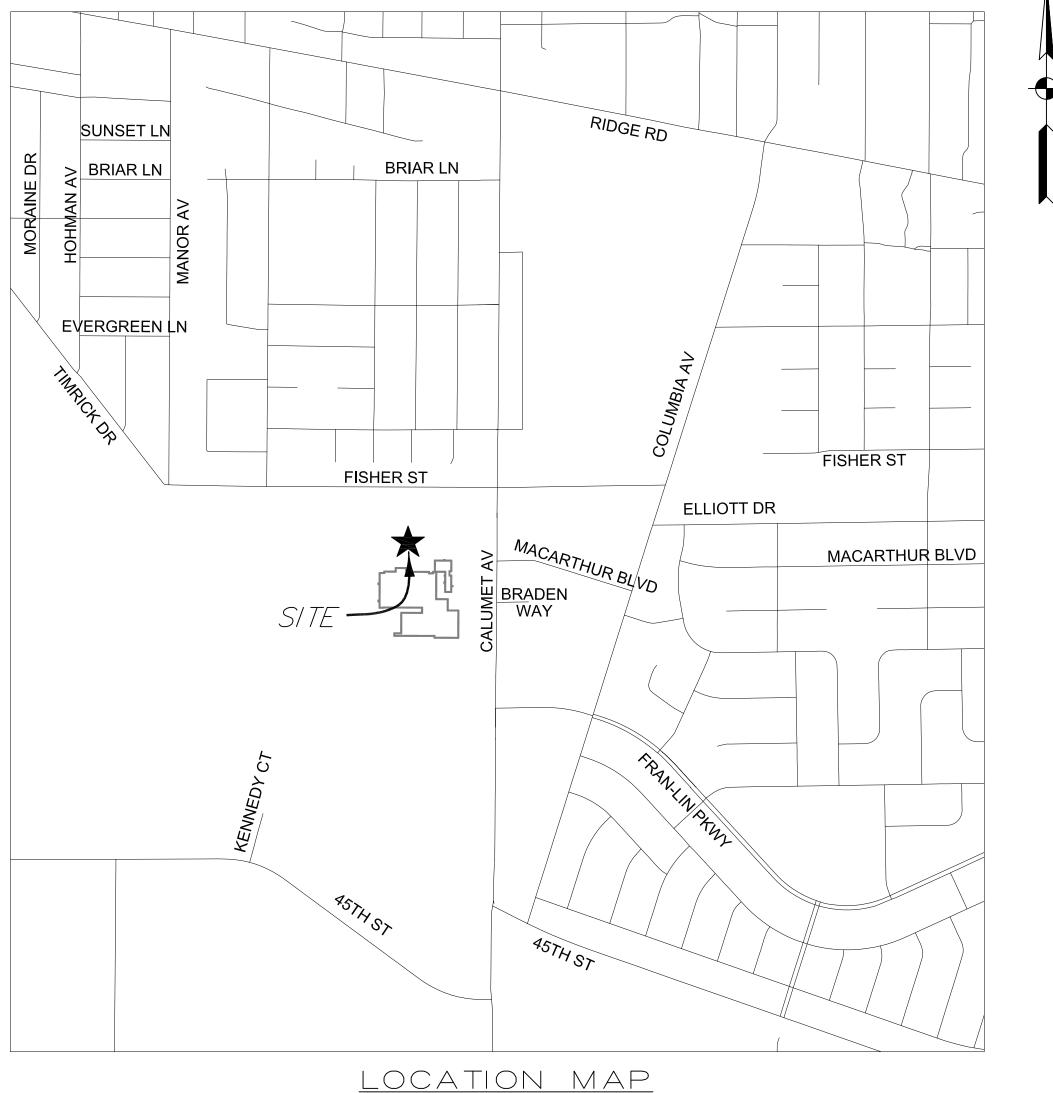
APPENDIX F LAKE BUSINESS CENTER – HOTEL SITE – SIMBORG DEVELOPMENT, INC – 2012 FINAL ENGINEERING IMPROVEMENT PLANS

FINAL ENGINEERING IMPROVEMENT PLANS FOR LAKE BUSINESS CENTER - HOTEL SITE SIMBORG DEVELOPMENT, INC. TOWN OF MUNSTER, INDIANA



PIPE LINES ARE UNKNOWN. THE CONTRACTOR SHALL CONTACT

"HOLEY MOLEY" AND ALL OTHER UTILITY OWNERS WHICH ARE WITHIN PROJECT LIMITS BEFORE COMMENCING EXCAVATION.



NOT TO SCALE

UTILITY CONTACTS

GAS	&	EL	E	CTRI	С	
NIPS	СО					
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GAR	Ý,	IN 4	46	6402	2	
(219) 8	886.	.5	510		

CABLE TV COMCAST 844 169TH STREET HAMMOND, IN 46324

PUBLIC WORKS DEPT. OF PUBLIC WORKS 1005 RIDGE ROAD MUNSTER, IN 46321 (219) 836.6970

TELEPHONE AT&T 302 SOUTH EAST ST. CROWN POINT, IN 46307 (219) 662.4418

SHEET INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	PROJECT SPECIFICATIONS
3	OVERALL SITE / MASTER UTILITY PLAN
4-6	DIMENSIONAL SITE AND PAVING PLAN
7-9	DEMOLITION AND EROSION CONTROL PLAN
10-12	GRADING AND UTILITY PLAN
13	SANITARY SEWER PROFILE
14-15	CONSTRUCTION DETAILS
16	UNDERGROUND DETENTION CONSTRUCTION DETAILS
L1-L5	LANDSCAPE PLANS AND DETAILS

GENERAL NOTES

1. THE TOWN OF MUNSTER ENGINEERING AND PUBLIC WORKS DEPARTMENTS SHALL BE NOTIFIED AT LEAST TWO (2) WORKING DAYS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION (PHONE NO. 219.836.6970)

2. THE HAMMOND SANITARY DISTRICT SHALL BE NOTIFIED AT LEAST TWO (2) WORKING DAYS PRIOR TO THE COMMENCEMENT OF SEWER CONSTRUCTION. (PHONE NO. 219.853.6413

3. ALL CONTRACTORS INSTALLING PUBLIC IMPROVEMENTS IN THE TOWN OF MUNSTER SHALL BE REQUIRED TO ATTEND A PRE-CONSTRUCTION MEETING WITH THE TOWN OF MUNSTER ENGINEERING AND PUBLIC WORKS DEPARTMENT PRIOR TO BEGINNING WORK.

4. ALL UTILITY COMPANIES SHALL BE CONTACTED AND THEIR FACILITIES SHALL BE LOCATED PRIOR TO ANY WORK IN ANY EASEMENT, RIGHT-OF-WAY, OR SUSPECTED UTILITY LOCATION. REPAIR OF ANY DAMAGE TO EXISTING FACILITIES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. UTILITY LOCATIONS SHOWN HEREIN ARE FOR GRAPHIC ILLUSTRATION ONLY AND ARE NOT TO BE RELIED UPON.

5. PRIOR TO COMMENCEMENT OF ANY OFFSITE CONSTRUCTION, THE CONTRACTOR SHALL SECURE WRITTEN AUTHORIZATION THAT ALL OFFSITE EASEMENTS HAVE BEEN SECURED, AND THAT PERMISSION HAS BEEN GRANTED TO ENTER ONTO PRIVATE PROPERTY.

6. ALL ELEVATIONS SHOWN HEREON REFLECT THE VERTICAL DATUM USED ON THE CALUMET AVENUE INDOT PLANS PREPARED BY ROBINSON ENGINEERING, DATED APRIL 17, 2009.

7. CONSTRUCTION SHALL NOT BLOCK OFFSITE DRAINAGE.

8. EXCEPT WHERE MODIFIED BY THE CONTRACT DOCUMENTS, ALL WORK PROPOSED HEREON SHALL BE IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS, WHICH ARE HEREBY MADE A PART HEREOF: A. "STANDARD SPECIFICATIONS" AS PREPARED BY INDOT, 2012 EDITION.

B. "MODEL SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN INDIANA", 1998 EDITION.

C. "RECOMMENDED STANDARDS FOR WATER WORKS", 2007 EDITION AND "RECOMMENDED STANDARDS FOR WASTEWATER FACILITIES", 2004 EDITION AS PREPARED BY GREAT LAKES – UPPER MISSISSIPPI RIVER BOARD, AKA THE TEN STATES STANDARDS.

D. THE SUBDIVISION AND DEVELOPMENT CODES AND STANDARDS OF THE TOWN OF MUNSTER, AS PUBLISHED BY THE MUNICIPALITY.

E. THE STANDARD SPECIFICATIONS OF THE HAMMOND SANITARY DISTRICT.

F. THE NATIONAL ELECTRIC CODE.

G. "INDIANA STORM WATER QUALITY MANUAL", AS PREPARED BY THE INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT.

H. THE CONTRACT DOCUMENTS, GENERAL CONDITIONS, SPECIAL PROVISIONS AND SUPPLEMENTAL CONDITIONS OF THE PROJECT AS PREPARED BY SHORT ELLIOT HENDRICKSON, INC.

9. IN THE EVENT OF CONFLICTING SPECIFICATIONS WITH REGARD TO SITE WORK ISSUES DESIGNED BY THE ENGINEER, THE DECISION OF THE ENGINEER SHALL BE FINAL AND CONCLUSIVE.

10. PRIOR TO COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR SHALL OBTAIN A COPY OF THE NOTIFICATION OF COVERAGE LETTER AND THE INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (IDEM) NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMIT FROM THE OWNER. THE CONTRACTOR SHALL CONFORM TO ALL REQUIREMENTS OF THIS GENERAL PERMIT INCLUDING MAINTENANCE AND INSPECTION OF EROSION CONTROL MEASURES AND FILING OF APPLICABLE CERTIFICATIONS AND REPORTS. A COPY OF THE NOTIFICATION OF COVERAGE LETTER SHALL BE POSTED AT THE SITE IN A PROMINENT PLACE FOR PUBLIC VIEWING.

08/28/12 TOWN AND CLIENT REVIEW 11/26/12 SANITARY SEWER REVISIONS MJF MJF

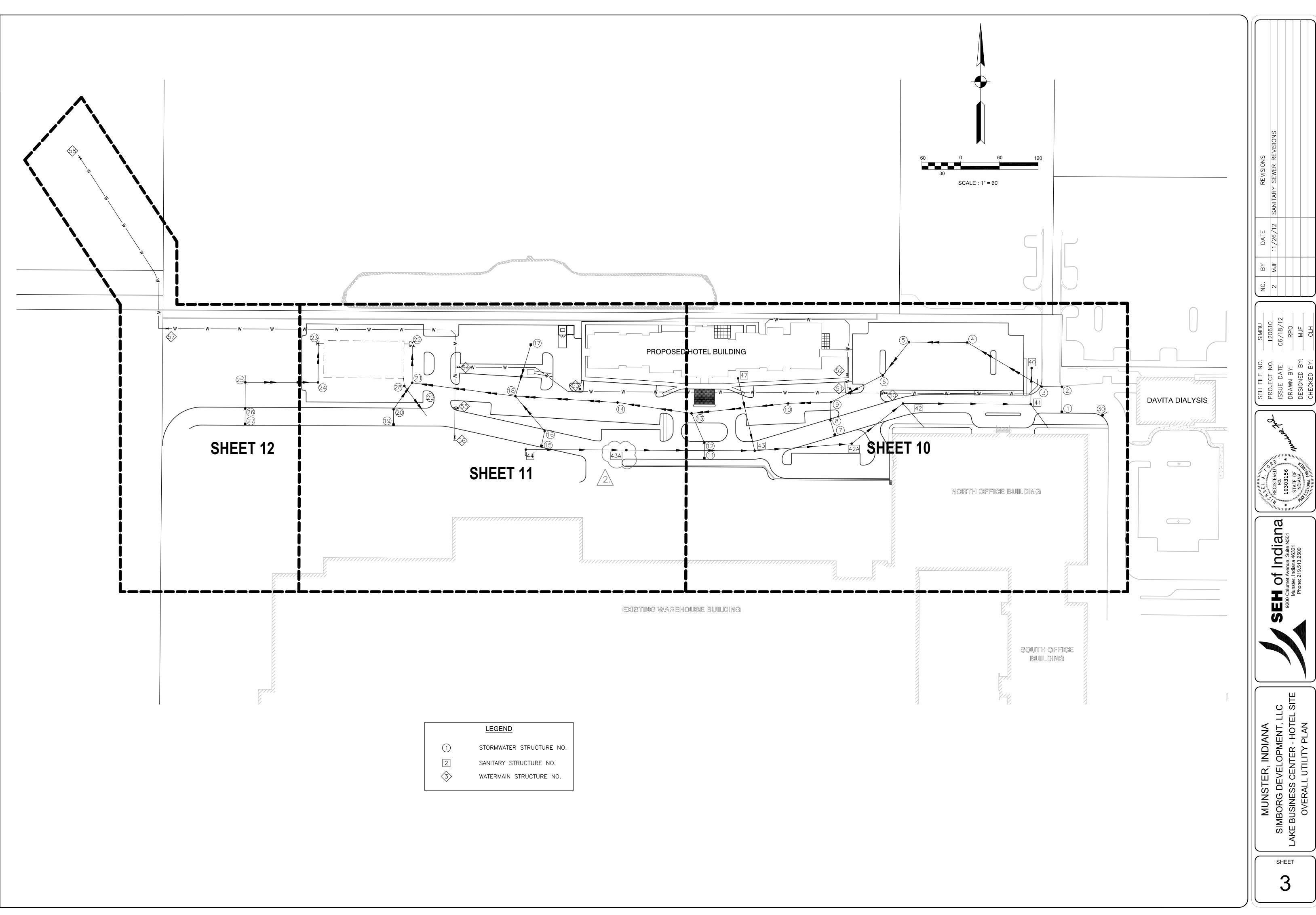


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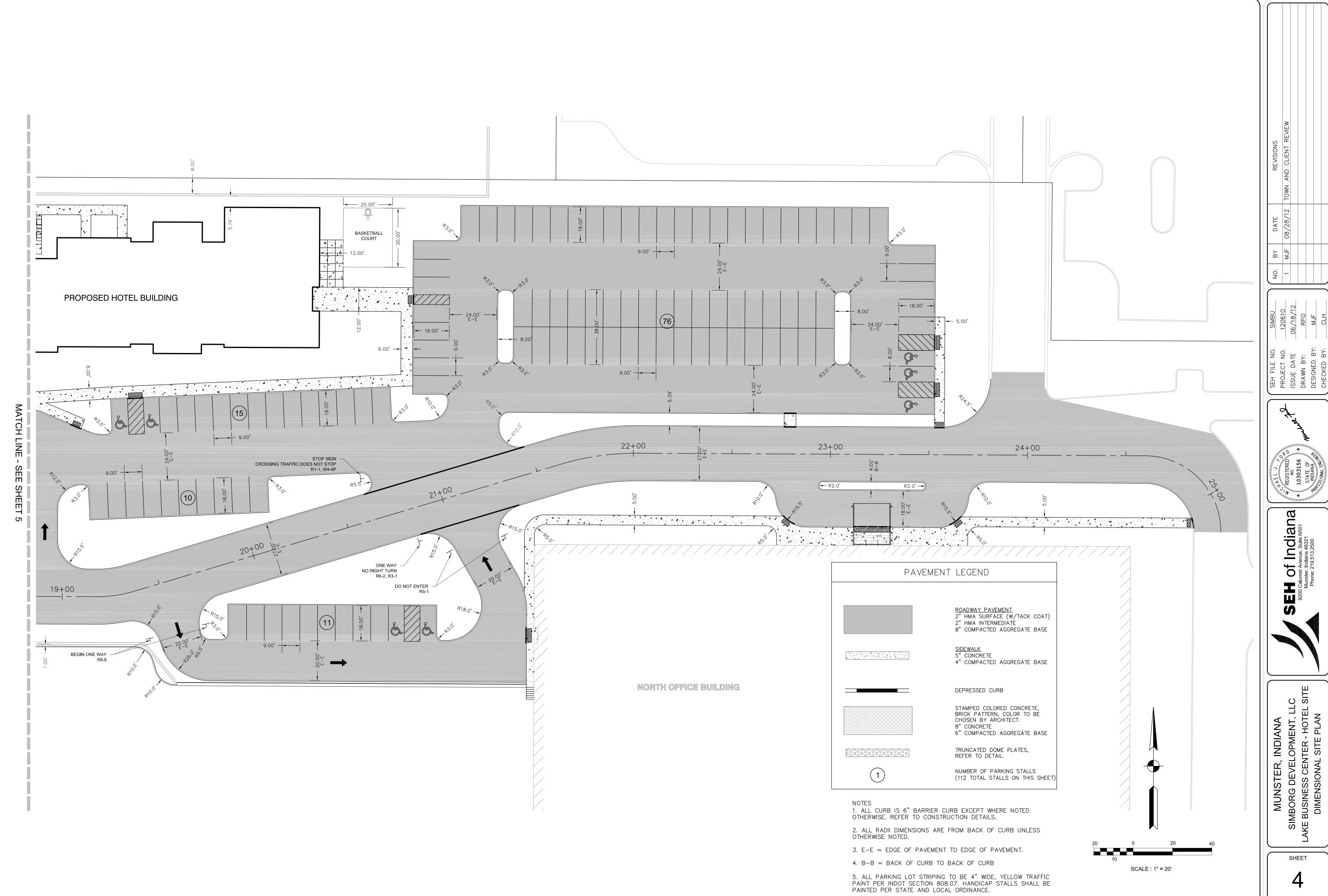
FOR REVIEW ONLY NOT FOR CONSTRUCTION

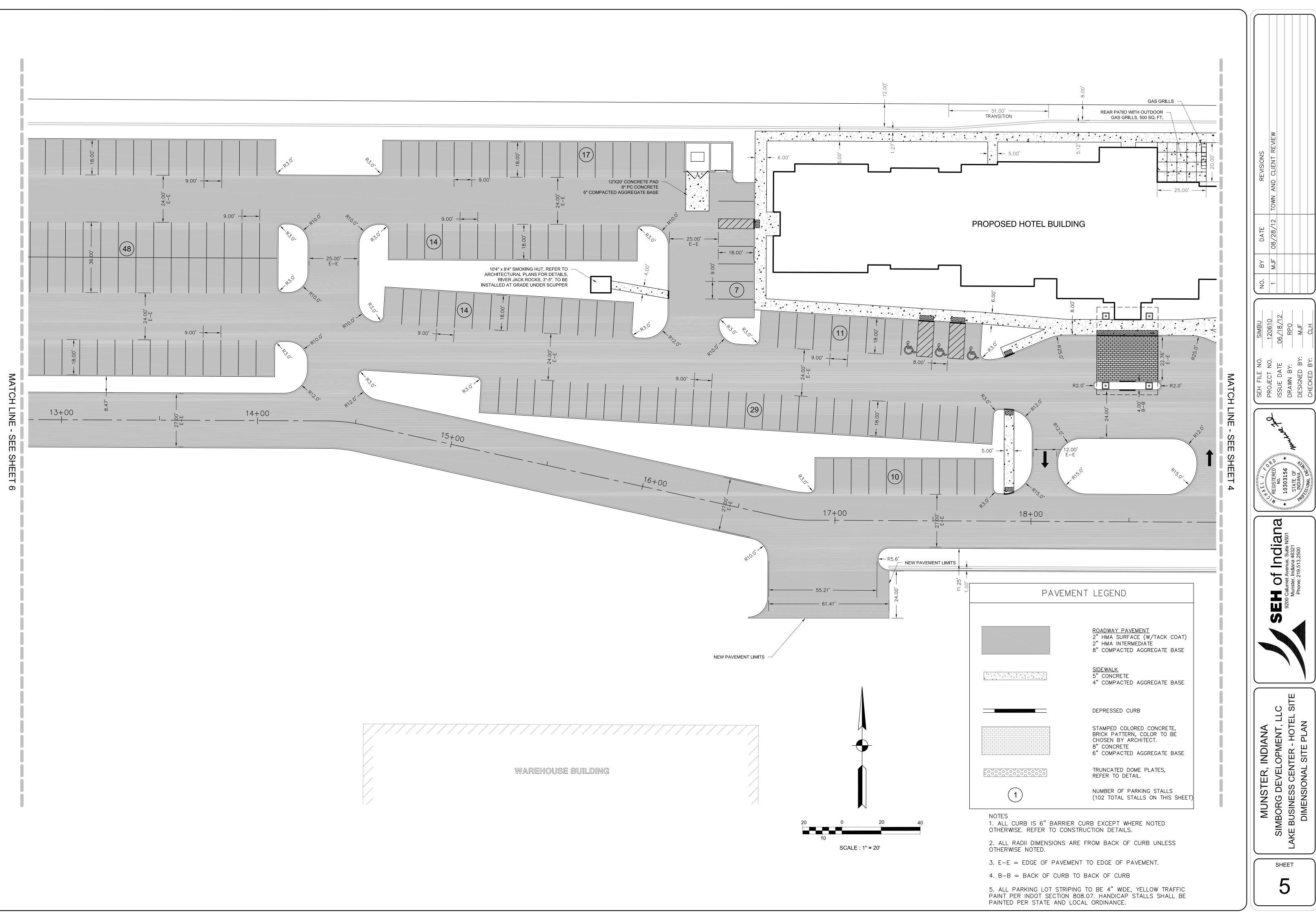
GENERAL NOTES	EARTHWORK	PAVING, CURBS AND WALKS (CONT'D)	UNDERGROUND UTILITIES (C
 THE STANDARD SPECIFICATIONS LISTED ON THE COVER SHEET, THESE CONSTRUCTION PLANS, THE SPECIAL PROVISIONS, GENERAL CONDITIONS AND SUBSEQUENT DETAILS ARE ALL TO BE CONSIDERED AS PART OF THE CONTRACT DOCUMENTS. INCIDENTAL ITEMS OR ACCESSORIES NECESSARY TO COMPLETE THIS WORK MAY NOT BE SPECIFICALLY NOTED BUT ARE TO BE CONSIDERED A PART OF THE CONTRACT. 	 WORK UNDER THIS SECTION SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING: A. CLEARING AND REMOVAL OF ALL UNDESIRABLE TREES AND OTHER VEGETATIVE GROWTH WITHIN THE CONSTRUCTION AREA. TREE REMOVAL SHALL BE AS DESIGNATED BY THE OWNER AND SHALL BE KEPT TO A MINIMUM. WHERE FEASIBLE AND WHEN PERMITTED BY OWNER, TREES AND BRUSH REMOVED MAY BE BURIED ONSITE IN FUTURE YARD AND OPEN SPACE AREAS. IF ADEQUATE AND 	6. BITUMINOUS CONCRETE BINDER COURSE SHALL BE PLACED ONLY WHEN THE AMBIENT AIR TEMPERATURE IS AT LEAST 40 DEGREES FAHRENHEIT AND THE FORECAST CALLS FOR RISING TEMPERATURES. BITUMINOUS CONCRETE SURFACE COURSE SHALL BE PLACED ONLY WHEN THE AMBIENT AIR TEMPERATURE IS AT LEAST 45 DEGREES FAHRENHEIT AND THE FORECAST CALLS FOR RISING TEMPERATURES.	13. STORM SEWER MANHOLES SHALL BE PRECAST STRUCTURES, WITH THE PIPE SIZE AND WITH APPROPRIATE FRAME AND LIDS (SEE C NOTED ON CONSTRUCTION STANDARDS, MANHOLES SHALL INCORF ALL PIPE PENETRATIONS.
2. NO CONSTRUCTION PLANS SHALL BE USED FOR CONSTRUCTION UNLESS SPECIFICALLY MARKED 'FOR CONSTRUCTION'. PRIOR TO COMMENCEMENT OF CONSTRUCTION, THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS AFFECTING THEIR WORK WITH THE ACTUAL CONDITIONS AT THE JOB SITE. IF THERE ARE ANY DISCREPANCIES FROM WHAT IS SHOWN ON THE CONSTRUCTION PLANS, HE MUST IMMEDIATELY REPORT SAME TO THE ENGINEER BEFORE DOING ANY WORK, OTHERWISE THE CONTRACTOR ASSUMES FULL RESPONSIBILITY. IN THE EVENT OF DISAGREEMENT BETWEEN THE	 APPROPRIATE SPACE IS NOT AVAILABLE FOR ONSITE BURIAL, THE TREES AND BRUSH SHALL BE DISPOSED OF OFFSITE. B. STRIPPING OF TOPSOIL FROM ALL STREET, DRIVEWAY, PARKING AREA, RIGHT-OF-WAY, BUILDING PAD, AND OTHER DESIGNATED STRUCTURAL AREAS. C. STOCKPILING OF TOPSOIL AT LOCATIONS AS DIRECTED BY THE OWNER. TOPSOIL STOCKPILED FOR FUTURE USE SHALL BE RELATIVELY FREE FROM LARGE ROOTS, STICKS, WEEDS, BRUSH, STONES LARGER THAN ONE (1) INCH DIAMETER, OR OTHER LITTER AND WASTE PRODUCTS INCLUDING 	7. WHEN PLACING THE BASE MATERIAL BETWEEN CURBS, THE CONTRACTOR SHALL EITHER MARK (WITH PAINT) ON THE FACE OF THE CURB FLAG THE SURFACE LEVEL OF THE BASE MATERIAL AT 50' (FT.) INTERVALS, OR USE A GUIDE SHOW ON THE GRADER. THE PURPOSE FOR THIS IS TO PROVIDE A CONTROLLABLE GUIDE FOR THE SURFACE ELEVATION OF THE BASE MATERIAL AND TO INSURE SUFFICIENT DEPTH ALONG FACE OF CURB FLAG FOR THE REQUIRED WEARING SURFACE THICKNESS.	14. WATER MAIN SHALL BE DUCTILE IRON PIPE, CLASS 52 CONFORMI C-151. GASKETS AND CAST IRON FITTINGS SHALL CONFORM TO AND C-111. WATER MAIN SHALL BE CEMENT LINED IN CONFORMA C-104. PROTECTIVE WRAPPING OF THE WATER MAIN IS TO BE P WRAPPING SHALL CONFORM TO AWWA C105-99 AND BE A MINI POLYETHYLENE TUBE SUCH AS CLOW TYPE F-191 OR EQUAL AN SEAL THE WATER MAIN, FITTINGS, AND ACCESSORIES IN ACCORD
CONSTRUCTION PLANS, STANDARD SPECIFICATIONS AND/OR SPECIAL DETAILS, THE CONTRACTOR SHALL SECURE WRITTEN INSTRUCTIONS FROM THE ENGINEER PRIOR TO PROCEEDING WITH ANY PART OF THE WORK AFFECTED BY OMISSIONS OR DISCREPANCIES. FAILING TO SECURE SUCH INSTRUCTION, THE CONTRACTOR WILL BE CONSIDERED TO HAVE PROCEEDED AT HIS OWN RISK AND EXPENSE. IN THE EVENT OF ANY DOUBT OR QUESTION ARISING WITH RESPECT TO THE TRUE MEANING OF THE CONSTRUCTION PLANS OR SPECIFICATIONS, THE DECISION OF THE ENGINEER SHALL BE FINAL AND	EXTRANEOUS MATERIALS NOT CONDUCIVE TO PLANT GROWTH. TOPSOIL SHALL BE STOCKPILED IN SEQUENCE TO ELIMINATE ANY REHANDLING OR DOUBLE MOVEMENTS BY THE CONTRACTOR. FAILURE TO PROPERLY SEQUENCE THE STOCKPILING OPERATIONS SHALL NOT CONSTITUTE A CLAIM FOR ADDITIONAL COMPENSATION. NO MATERIAL SHALL BE STOCKPILED IN FRONT YARDS, OVERLAND DRAINAGE SWALES (FLOOD ROUTING AREAS), PROPOSED UTILITY LOCATIONS, UTILITY EASEMENTS, OR IN THE RIGHT-OF-WAY.	8. AFTER THE INSTALLATION OF THE BASE COURSE, ALL TRAFFIC SHALL BE KEPT OFF THE BASE UNTIL THE BINDER COURSE IS LAID. AFTER INSTALLATION OF THE BINDER COURSE AND UPON THE COMPLETION OF INSPECTION OF SAME AND APPROVAL BY THE TOWN OF MUNSTER AND OWNER, THE PAVEMENT SHALL BE CLEANED, PRIMED AND THE SURFACE COURSE LAID. ALL DAMAGED AREAS IN THE BINDER, BASE OR CURB AND GUTTER SHALL BE REPAIRED TO THE SATISFACTION OF THE TOWN OF MUNSTER AND OWNER, PRIOR TO LAYING THE SURFACE COURSE. THE PAVING	DIRECTIONS FOR THE USE OF THE ENCASEMENT TUBE. MINIMUL TOP OF WATER MAIN SHALL BE 5.5 FEET. 15. WATER MAIN FITTINGS (BENDS, ELBOWS, TEES, INCREASES, REDU- SPECIFICALLY REFERENCED ON THE CONSTRUCTION PLANS, HOWE AS INCIDENTAL AND INCLUDED IN THE LINEAL FOOTAGE COST OF
CONCLUSIVE. 3. ALL WORK PERFORMED UNDER THIS CONTRACT SHALL BE GUARANTEED AGAINST ALL DEFECTS IN MATERIALS AND WORKMANSHIP OF WHATEVER NATURE BY THE CONTRACTOR AND HIS SURETY FOR A PERIOD OF 12 MONTHS FROM THE DATE OF FINAL ACCEPTANCE OF THE WORK BY THE TOWN OF MUNSTER OTHER APPLICABLE GOVERNMENTAL AGENCIES, AND THE OWNER.	 D. REMOVING UNSUITABLE MATERIALS AS SPECIFIED FROM ROADWAY, DRIVEWAY/PARKING, BUILDING PAD, AND OTHER DESIGNATED AREAS. E. DEMOLITION AND REMOVAL OF EXISTING BUILDINGS AND/OR PAVEMENTS INCLUDING OFFSITE DISPOSAL OF SAME, AT A DUMP SITE AS SELECTED BY THE CONTRACTOR. ONSITE DISPOSAL MAY BE ALLOWED IF APPROVED BY THE OWNER. F. CLAY CUT AND CLAY FILL WITH COMPACTION WITHIN ROADWAY, DRIVEWAY/PARKING, BUILDING PAD, AND OTHER DESIGNATED AREAS. 	CONTRACTOR SHALL PROVIDE WHATEVER EQUIPMENT AND MANPOWER IS NECESSARY, INCLUDING THE USE OF POWER BROOMS, TO PREPARE THE PAVEMENT FOR APPLICATION OF THE SURFACE COURSE. EQUIPMENT AND MANPOWER FOR CLEANING SHALL BE CONSIDERED AS INCIDENTAL TO THE COST OF THE CONTRACT. 9. REINFORCED CONCRETE PAVEMENT (WHEN REQUIRED) SHALL BE OF THE THICKNESS AND DIMENSIONS AS SHOWN IN THE PLANS. ALL REINFORCED CONCRETE PAVEMENT SHALL CONFORM TO (UNLESS NOTED OTHERWISE, GATE VALVES IN ACCORDANCE WITH SHALL BE USED WHEREVER VALVES ARE CALLED FOR. VALVES S MOUNTED, PARALLEL RESILIENT SEAT VALVES PER AWWA C-509 FOR 300 PSI TEST PRESSURE AND 200 PSI WORKING PRESSURE. HYDRANTS SHALL BE OF THE MANUFACTURE AND EQUIPPED WITH
 4. BEFORE ACCEPTANCE BY THE OWNER AND FINAL PAYMENT, ALL WORK SHALL BE INSPECTED AND APPROVED BY THE OWNER OR HIS REPRESENTATIVE. FINAL PAYMENT WILL BE MADE AFTER ALL OF THE CONTRACTORS' WORK HAS BEEN APPROVED AND ACCEPTED, AND IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. 5. UPON AWARD OF THE CONTRACT AND WHEN REQUIRED BY THE OWNER, THE CONTRACTOR SHALL 	 G. EXCAVATION AND GRADING OF THE OPEN SPACE AND/OR YARD AREAS PER PLAN INCLUDING DESIGNATED DETENTION BASIN GRADING, CONSTRUCTION OF BERMS, ETC. H. PLACEMENT AND COMPACTION OF CLAY TO THE DESIGN SUBGRADE ELEVATIONS AS REQUIRED BY THE STANDARDS AND DETAILS ON THE CONSTRUCTION PLANS. THE CONTRACTOR WILL NOTE THAT THE ELEVATIONS SHOWN ON THE CONSTRUCTION PLANS ARE FINISHED GRADE ELEVATIONS AND THAT PAVEMENT AND/OR TOPSOIL REPLACEMENT THICKNESS MUST BE SUBTRACTED TO DETERMINE 	 10. COMBINATION CURB AND GUTTER (WHEN REQUIRED) SHALL BE OF THE TYPE AS DETAILED IN THE CONSTRUCTION PLANS. ALL CURB AND GUTTER SHALL CONFORM TO INDOT STANDARD SPECIFICATION SECTION 605 UNLESS OTHERWISE NOTED ON THE PLANS. THE CONTRACTOR IS CAUTIONED TO REFER TO THE CONSTRUCTION STANDARDS AND THE PAVEMENT CROSS-SECTION TO 	BOXES IN ACCORDANCE WITH THE MUNICIPALITY'S STANDARD. EA WITH TWO 2 1/2" INCH HOSE NOZZLE AND ONE 4 1/2" PUMPER HOSE THREADS SHALL BE THE STANDARD OF THE MUNICIPALITY. (COUNTER-CLOCKWISE). ALL FIRE HYDRANTS SHALL BE SET 3 FI 18. WATER SERVICES SHALL BE LAID NOT LESS THAN 5 FEET BELOW
 FURNISH A LABOR, MATERIAL AND PERFORMANCE BOND IN THE PENAL SUM OF 100 PERCENT OF THE CONTRACT GUARANTEEING COMPLETION OF THE WORK. THE UNDERWRITER SHALL BE APPROVED BY THE OWNER. 6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS FOR CONSTRUCTION ALONG OR ACROSS EXISTING STREETS OR HIGHWAYS INCLUDING THE USE AND ACCESS OF EXISTING STREETS. HE SHALL MAKE ARRANGEMENTS FOR THE PROPER BRACING. 	SUBGRADE ELEVATIONS. I. PLACEMENT AND COMPACTION OF NON-STRUCTURAL FILLS. J. IF REQUIRED, REMOVAL FROM SITE AND DISPOSAL OF ANY EXCESS OR UNSUITABLE MATERIAL UPON COMPLETION OF MASS GRADING. K. MOVEMENT AND COMPACTION OF SPOIL MATERIAL FROM THE CONSTRUCTION OF UNDERGROUND UTILITIES.	DETERMINE THE GUTTER FLAG THICKNESS AND THE AGGREGATE BASE COURSE THICKNESS BENEATH THE CURB AND GUTTER. (THE AGGREGATE BENEATH THE CURB AND GUTTER SHALL BE INCLUDED IN THE UNIT PRICE OF THE CURB AND GUTTER. 11. 3/4" THICK REMOLDED FIBRE EXPANSION JOINTS WITH 3/4"X18" PLAIN ROUND STEEL DOWEL BARS SHALL BE INSTALLED AT SIXTY (60) FOOT INTERVALS AND AT ALL P.C.'S, P.T.'S, CURB RETURNS,	 THRUST BLOCKING SHALL BE INSTALLED ON WATER MAINS AT AL COST SHALL BE MERGED WITH UNIT PRICE FOR INSTALLED PIPE. ALL WATER MAINS SHALL HAVE COMPACTED (NO. 53) GRANULAR (4) INCHES BELOW THE BOTTOM OF THE PIPE FOR THE FULL LE
 ACCESS OF EXISTING STREETS. HE SHALL MAKE ARRANGEMENTS FOR THE PROPER BRACING, SHORING AND OTHER REQUIRED PROTECTION OF ALL ROADWAYS BEFORE CONSTRUCTION BEGINS. HE SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE STREETS OR ROADWAYS AND ASSOCIATED STRUCTURES AND SHALL MAKE REPAIRS AS NECESSARY TO THE SATISFACTION OF THE ENGINEER. INE AND GRADE STAKES WILL BE SET ONE TIME AND ONE TIME ONLY BY THE SURVEYOR AT THE OWNER'S EXPENSE. CONTRACTORS SHALL NOTIFY THE SURVEYOR THAT STAKES WILL BE NEEDED AT 	 L. BACKFILLING OF CURBS AND/OR PAVEMENT AND SIDEWALK AFTER INSTALLATION OF SAME IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. M. FINAL SHAPING AND TRIMMING TO THE LINES, GRADES, AND CROSS-SECTIONS SHOWN IN THESE PLANS; AND TOPSOIL PLACEMENT TO DESIGN FINISHED GRADE ELEVATIONS AT LOCATIONS DESIGNATED IN THE CONTRACT DOCUMENTS. N. SOIL EROSION CONTROL MEASURES IN ACCORDANCE WITH THE SOIL EROSION CONTROL SECONDATIONS INCLINEED WITH THE CONTRACT DOCUMENTS. 	AND AT THE END OF EACH POUR. ALTERNATE ENDS OF THE DOWEL BARS SHALL BE GREASED AND FITTED WITH METAL EXPANSION TUBES. 3/4" THICK FIBRE EXPANSION JOINTS SHALL BE USED IN EVERY CASE WHERE THE SIDEWALK COINCIDES WITH THE CURB AND GUTTER. CONTRACTION JOINTS SHALL BE PROVIDED AT TWENTY (20) FOOT (MAXIMUM) INTERVALS IN THE CURB. THE COST OF THESE JOINTS SHALL BE CONSIDERED AS INCIDENTAL TO THE COST OF THE CONTRACT. ALL POURED IN PLACE CONCRETE CURB AND GUTTER SHALL INCORPORATE TWO (2) NO. 4_REINFORCING	 BÉ MERGED WITH THE UNIT PRICE BID FOR THE WATER MAIN. 21. WHENEVER POSSIBLE, A WATER MAIN MUST BE LAID AT LEAST T EXISTING OR PROPOSED DRAIN OR SEWER LINE. SHOULD LOCAL PREVENT A LATERAL SEPARATION OF TEN FEET, A WATER MAIN FEET TO A STORM OR SANITARY SEWER PROVIDED THAT THE WA FOUNTER MOVES ADOUT THE OPONYL OF THE SEWER AND AS FULLY
LEAST 3 WORKING DAYS IN ADVANCE OF STARTING THEIR WORK. (ADDITIONAL NOTIFICATION SHALL BE PROVIDED PRIOR TO THE START OF INITIAL PROJECT CONSTRUCTION OPERATIONS.) ANY AND ALL REQUIRED RESTAKING WILL BE PERFORMED BY THE SURVEYOR AT THE EXPENSE OF THAT CONTRACTOR REQUIRING THE RESTAKING. IT SHALL BE THE RESPONSIBILITY OF EACH CONTRACTOR TO PROTECT STAKES PROVIDED FOR HIS USE AND TO REPORT TO THE OWNER'S SUPERINTENDENT ANY SPECIFIC INSTANCES OF DAMAGED OR ALTERED STAKES AND/OR MONUMENTS PROVIDED. LOT	 SPECIFICATIONS INCLUDED WITHIN THE CONTRACT DOCUMENTS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ALL MATERIAL QUANTITIES AND APPRISE HIMSELF OF ALL SITE CONDITIONS. THE CONTRACT PRICE SUBMITTED BY THE CONTRACTOR SHALL BE CONSIDERED AS LUMP SUM FOR THE COMPLETE PROJECT. NO CLAIMS FOR EXTRA WORK WILL BE RECOGNIZED UNLESS ORDERED IN WRITING BY THE OWNER. 	 BARS TEN (10) FEET LONG INSTALLED WHEREVER THE CURB AND GUTTER CROSSES UTILITY TRENCHES OR SERVICE LINES, THE COST OF WHICH SHALL BE CONSIDERED INCIDENTAL TO THE COST OF CONCRETE CURB AND GUTTER. 12. CURING AND PROTECTION OF ALL EXPOSED CONCRETE SURFACES SHALL BE IN ACCORDANCE WITH THE INDOT STANDARD SPECIFICATIONS. NO HONEY-COMBING OF THE CURB AND GUTTER WILL BE 	EIGHTEEN INCHES ABOVE THE CROWN OF THE SEWER, AND IS EI IN THE SAME TRENCH ON AN UNDISTURBED EARTH SHELF LOCAT IF IT IS IMPOSSIBLE TO OBTAIN PROPER HORIZONTAL OR VERTIC, ABOVE, THEN THE SEWER MUST ALSO BE CONSTRUCTED OF WAT PRESSURE TESTED TO THE MAXIMUM EXPECTED SURCHARGE HEA BEFORE BACKFILLING.
 CORNER IRONS ARE TO BE CONSIDERED AS CONTROL STAKES. 8. EASEMENTS FOR THE EXISTING UTILITIES, BOTH PUBLIC AND PRIVATE, AND UTILITIES WITHIN PUBLIC RIGHTS-OF-WAY ARE SHOWN ON THE PLANS ACCORDING TO AVAILABLE RECORDS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION IN THE FIELD OF THESE UTILITY LINES AND THEIR PROTECTION FROM DAMAGE DUE TO CONSTRUCTION OPERATIONS. IF 	3. PRIOR TO ONSET OF MASS GRADING OPERATIONS THE EARTHWORK CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE SOIL EROSION CONTROL SPECIFICATIONS. THE INITIAL ESTABLISHMENT OF EROSION CONTROL PROCEDURES AND THE PLACEMENT OF FILTER FENCING, ETC. TO PROTECT ADJACENT PROPERTY SHALL OCCUR BEFORE MASS GRADING BEGINS, AND IN ACCORDANCE WITH THE SOIL EROSION CONTROL PLAN.	ACCEPTED. 13. CURBS SHALL BE DEPRESSED AT LOCATIONS WHERE PUBLIC WALKS/PEDESTRIAN PATHS INTERSECT CURB LINES AT STREET INTERSECTIONS AND OTHER LOCATIONS AS DIRECTED, FOR THE PURPOSE OF PROVIDING ACCESS FOR THE HANDICAPPED. (SEE CONSTRUCTION STANDARDS FOR DETAIL).	22. WHENEVER WATER MAINS MUST CROSS HOUSE SEWERS, STORM S WATER MAIN SHALL BE LAID AT SUCH AN ELEVATION THAT THE EIGHTEEN INCHES ABOVE THE CROWN OF THE DRAIN OR SEWER. BE MAINTAINED FOR THAT PORTION OF THE WATER MAIN LOCATE OF ANY SEWER OR DRAIN CROSSED. THIS MUST BE MEASURED A THE WATER MAIN TO THE DRAIN OR SEWER. IF IT IS IMPOSSIBLE
 EXISTING UTILITY LINES OF ANY NATURE ARE ENCOUNTERED WHICH CONFLICT IN LOCATION WITH NEW CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY SO THAT THE CONFLICT MAY BE RESOLVED. 9. THE CONTRACTOR SHALL REVIEW AND DETERMINE ALL REQUIRED IMPROVEMENTS AND SHALL VERIFY ALL QUANTITIES AS PROVIDED BY THE ENGINEER OR OWNER FOR BIDDING PURPOSES. THE CONTRACTOR SHALL REPORT ANY DISCREPANCIES TO THE ENGINEER. THE CONTRACT PRICE 	 THE GRADING OPERATIONS ARE TO BE CLOSELY SUPERVISED AND INSPECTED, PARTICULARLY DURING THE REMOVAL OF UNSUITABLE MATERIAL AND THE CONSTRUCTION OF EMBANKMENTS OR BUILDING PADS, BY THE SOILS ENGINEER OR HIS REPRESENTATIVE. ALL TESTING, INSPECTION AND SUPERVISION OF SOIL QUALITY, UNSUITABLE REMOVAL AND ITS REPLACEMENT AND OTHER SOILS RELATED OPERATIONS SHALL BE ENTIRELY THE RESPONSIBILITY OF THE SOILS ENGINEER. THE GRADING AND CONSTRUCTION OF THE SITE IMPROVEMENTS SHALL NOT CAUSE PONDING OF 	14. SIDEWALKS (WHERE REQUIRED) SHALL BE OF THE THICKNESS AND DIMENSIONS AS SHOWN ON THE CONSTRUCTION PLANS. ALL SIDEWALKS SHALL CONFORM TO INDOT STANDARD SPECIFICATION SECTION 604 UNLESS OTHERWISE NOTED ON THE PLANS. ALL SIDEWALKS CONSTRUCTED OVER UTILITY TRENCHES SHALL BE REINFORCED WITH THREE (3) NO. 4 REINFORCING BARS (10' MINIMUM LENGTH). ALL SIDEWALKS CROSSING DRIVEWAYS SHALL BE REINFORCED WITH 6X6 #6 WELDED WIRE MESH.	SEPARATION AS DESCRIBED ABOVE OR IF IT IS NECESSARY FOR A SEWER OR DRAIN, THEN THE SEWER MUST BE CONSTRUCTED O THIS CONSTRUCTION MUST EXTEND ON EACH SIDE OF THE CROS FROM THE WATER MAIN TO THE SEWER OR DRAIN LINE IS AT LE CROSSINGS, CENTER A LENGTH OF WATER MAIN PIPE OVER/UNDI THAT THE JOINTS WILL BE EQUIDISTANT FROM THE SEWER AND POSSIBLE, WHERE A WATER MAIN MUST CROSS UNDER A SEWER.
 10. WHENEVER THE PERFORMANCE OF WORK IS INDICATED ON THE PLANS, AND NO ITEM IS INCLUDED IN THE CONTRACT FOR PAYMENT, THE WORK SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT, AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED. 	 THE GRADING AND CONSTRUCTION OF THE SITE IMPROVEMENTS SHALL NOT CAUSE PONDING OF STORM WATER. ALL AREAS ADJACENT TO THESE IMPROVEMENTS SHALL BE GRADED TO ALLOW POSITIVE DRAINAGE. THE PROPOSED GRADING ELEVATIONS SHOWN ON THE PLANS ARE FINISHED GRADE. A MINIMUM OF 6" (INCHES) OF TOPSOIL IS TO BE PLACED BEFORE FINISHED GRADE ELEVATIONS ARE ACHIEVED. 	 15. BACKFILLING OF CURBS OR PAVEMENT SHALL BE THE RESPONSIBILITY OF THE EARTHWORK CONTRACTOR. 16. IT SHALL BE THE RESPONSIBILITY OF THE PAVING CONTRACTOR TO REMOVE FROM THE SITE ANY AND ALL MATERIALS AND DEBRIS WHICH RESULT FROM HIS CONSTRUCTION OPERATIONS AT NO ADDITIONAL EXPENSE TO THE OWNERS. 	 POSSIBLE. WHERE A WATER MAIN MOST CROSS ONDER A SEWER, EIGHTEEN INCHES BETWEEN THE INVERT OF THE SEWER AND THE SHALL BE MAINTAINED, ALONG WITH MEANS TO SUPPORT THE LA PREVENT THEIR SETTLING AND BREAKING THE WATER MAIN. 23. THE UNDERGROUND CONTRACTOR SHALL PLACE AND MOUND EXC ADJACENT TO THE TRENCHES IN AN ORDERLY FASHION SO AS N
11. WHENEVER, DURING CONSTRUCTION OPERATIONS, ANY LOOSE MATERIAL IS DEPOSITED IN THE FLOW LINE OF GUTTERS, DRAINAGE STRUCTURES, DITCHES, ETC. SUCH THAT THE NATURAL FLOW LINE OF WATER IS OBSTRUCTED, THIS LOOSE MATERIAL SHALL BE REMOVED AT THE CLOSE OF EACH WORKING DAY BY THE RESPONSIBLE PARTY. AT THE CONCLUSION OF CONSTRUCTION OPERATIONS, ALL DRAINAGE STRUCTURES AND FLOW LINES SHALL BE FREE FROM DIRT AND DEBRIS. THIS WORK	7. THE SELECTED STRUCTURAL FILL MATERIAL SHALL BE PLACED IN LEVEL UNIFORM LAYERS SO THAT THE COMPACTED THICKNESS IS APPROXIMATELY SIX INCHES (6"); IF COMPACTION EQUIPMENT DEMONSTRATES THE ABILITY TO COMPACT GREATER THICKNESS', THEN A GREATER THICKNESS MAY BE ALLOWED. EACH LAYER SHALL BE THOROUGHLY MIXED DURING SPREADING TO INSURE UNIFORMITY.	17. TESTING OF THE SUB-BASE, BASE COURSE, BINDER COURSE, SURFACE COURSE, AND CONCRETE WORK SHALL BE REQUIRED IN ACCORDANCE WITH THE INDOT STANDARD SPECIFICATIONS AND (FOR PUBLIC IMPROVEMENTS) IN ACCORDANCE WITH THE SPECIFIC REQUIREMENTS OF THE TOWN OF MUNSTER. A QUALIFIED TESTING FIRM SHALL BE EMPLOYED BY THE OWNER TO PERFORM THE REQUIRED TESTS AND PROVIDE THE RESULTS TO THE CONSULTING ENGINEER, THE OWNER AND	OBSTRUCTION, AND TO MAINTAIN THE SITE IN A WORKABLE CONI PLACEMENT OF ALL EXCESS TRENCH MATERIAL SHALL BE THE R EXCAVATING CONTRACTOR. 24. THE UNDERGROUND CONTRACTOR SHALL BE RESPONSIBLE FOR D THE INSTALLATION OF THE SEWER OR WATER SYSTEMS. ANY DEV INCIDENTAL TO THE RESPECTIVE UNDERGROUND UTILITY.
 SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT. 12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ADEQUATE SIGNS, TRAFFIC CONTROL DEVICES, AND WARNING DEVICES TO INFORM AND PROTECT THE PUBLIC DURING ALL PHASES OF CONSTRUCTION. BARRICADES AND WARNING SIGNS SHALL BE PROVIDED IN ACCORDANCE WITH THE INDOT STANDARD SPECIFICATIONS. ADEQUATE LIGHTING SHALL BE MAINTAINED FROM DUSK TO DAWN AT ALL LOCATIONS WHERE CONSTRUCTION OPERATIONS 	8. EMBANKMENT MATERIAL WITHIN ROADWAY, DRIVEWAY, PARKING AREAS, AND OTHER STRUCTURAL CLAY FILL AREAS SHALL BE COMPACTED TO A MINIMUM OF NINETY PERCENT (90%) OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM SPECIFICATION D-1557 (MODIFIED PROCTOR METHOD), OR TO SUCH OTHER DENSITY AS MAY BE DETERMINED APPROPRIATE BY THE SOILS ENGINEER. EMBANKMENT MATERIAL FOR BUILDING PADS SHALL BE COMPACTED TO A MINIMUM OF NINETY FIVE PERCENT (95%) OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM DESIGNATION D-1557 (MODIFIED	TOWN OF MUNSTER ENGINEER. 18. THERMOPLASTIC PAVEMENT MARKINGS AND SYMBOLS, OF THE TYPE AND COLOR AS NOTED ON THE CONSTRUCTION PLANS, SHALL BE INSTALLED ON PUBLIC ROADWAYS IN ACCORDANCE WITH SECTION 808 OF THE INDOT STANDARD SPECIFICATIONS. THERMOPLASTIC PAVEMENT MARKINGS SHALL ONLY BE APPLIED WHEN THE PAVEMENT TEMPERATURE IS 55 DEGREES FAHRENHEIT OR GREATER, AND NO LATER THAN NOVEMBER 1ST NOR EARLIER THAN APRIL 15TH.	 25. ANY ANTICIPATED COST OF SHEETING SHALL BE REFLECTED IN T ADDITIONAL COST WILL BE ALLOWED FOR SHEETING OR BRACING. 26. STRUCTURES FOR SANITARY AND STORM SEWERS AND VALVE VA IN ACCORDANCE WITH THESE IMPROVEMENT PLANS AND THE APP
 WARRANT, OR AS DESIGNATED BY THE ENGINEER OR TOWN OF MUNSTER. ALL TRAFFIC CONTROL WORK SHALL BE DONE IN ACCORDANCE WITH THE INDOT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES. 13. ALL PERMANENT TYPE PAVEMENTS OR OTHER PERMANENT IMPROVEMENTS WHICH ABUT THE PROPOSED IMPROVEMENT AND MUST BE REMOVED, SHALL BE SAWED AS DIRECTED PRIOR TO 	 PROCTOR METHOD) OR TO SUCH OTHER DENSITY AS MAY BE DETERMINED APPROPRIATE BY THE SOILS ENGINEER. 9. EMBANKMENT MATERIAL (RANDOM FILL) WITHIN NON-STRUCTURAL FILL AREAS SHALL BE COMPACTED TO A MINIMUM OF EIGHTY-FIVE PERCENT (85%) OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM SPECIFICATION D-1557 (MODIFIED PROCTOR METHOD) OR TO SUCH OTHER DENSITY AS 	19. PAINTED PAVEMENT MARKINGS AND SYMBOLS, OF THE TYPE AND COLOR AS NOTED ON THE CONSTRUCTION PLANS, SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 808 OF THE INDOT STANDARD SPECIFICATIONS. PAINTED PAVEMENT MARKINGS SHALL ONLY BE APPLIED WHEN THE AIR TEMPERATURE IS 50 DEGREES FAHRENHEIT OR ABOVE.	 SPECIFICATIONS. WHERE GRANULAR TRENCH BACKFILL IS REQUIRE THE COST SHALL BE CONSIDERED AS INCIDENTAL AND SHALL BE PRICE FOR THE STRUCTURE. 27. FRAMES AND LIDS (OR GRATES) FOR SANITARY, WATER MAIN AN SHALL BE AS INDICATED WITHIN THESE IMPROVEMENT PLANS. (SI
REMOVAL. ALL ITEMS SO REMOVED SHALL BE REPLACED WITH SIMILAR CONSTRUCTION MATERIALS TO THEIR ORIGINAL CONDITION OR BETTER. PAYMENT FOR SAWING SHALL BE INCLUDED IN THE COST FOR REMOVAL OF EACH ITEM AND REPLACEMENT WILL BE PAID UNDER THE RESPECTIVE ITEMS IN THE CONTRACT, UNLESS OTHERWISE INDICATED.	MAY BE DETERMINED APPROPRIATE BY THE SOILS ENGINEER. 10. THE SURFACE VEGETATION, TOPSOIL, AND ANY OBVIOUSLY SOFT UNDERLYING SOIL SHOULD BE STRIPPED FROM ALL AREAS TO RECEIVE CLAY FILL, IF THE UNDERLYING SUBGRADE SOILS RUT	UNDERGROUND UTILITIES	28. ALL STRUCTURES SHALL HAVE A MINIMUM OF 3" (IN.) OF ADJUS (IN).
 REMOVED PAVEMENT, SIDEWALK, CURB AND GUTTER, ETC. SHALL BE DISPOSED OF BY THE CONTRACTOR AT HIS OWN EXPENSE AT LOCATIONS APPROVED BY THE OWNER. IF ONSITE DISPOSAL IS NOT FEASIBLE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AN OFFSITE DUMP SITE AT HIS OWN EXPENSE. 	DEEPER THAN ONE INCH UNDER THE CONSTRUCTION EQUIPMENT OR IF THE MOISTURE CONTENT EXCEEDS THAT NEEDED FOR PROPER COMPACTION, THE SOIL SHALL BE SCARIFIED, DRIED AND RECOMPACTED TO THE REQUIRED SPECIFICATION (SEE SECTIONS 203 & 207 OF THE INDOT SPECIFICATIONS). 11. ALL PAVEMENT SUBGRADE SHALL HAVE A MINIMUM CBR OF 3.0 AS DETERMINED BY THE SOILS	1. WORK UNDER THIS SECTION SHALL INCLUDE TRENCHING, AUGERING AND INSTALLATION OF PIPE, CASTINGS, STRUCTURES, BACKFILLING OF TRENCHES AND COMPACTION, AND TESTING AS SHOWN ON THE CONSTRUCTION PLANS. FITTINGS AND ACCESSORIES NECESSARY TO COMPLETE THE WORK MAY NOT BE SPECIFIED BUT SHALL BE CONSIDERED AS INCIDENTAL TO THE COST OF THE CONTRACT.	29. ALL TOP OF FRAMES FOR STORM AND SANITARY SEWERS AND V B-BOXES ARE TO BE ADJUSTED TO MEET FINAL FINISHED GRADE GRADING AND FINAL INSPECTIONS. THIS ADJUSTMENT IS TO BE N CONTRACTOR AND THE COST IS TO BE CONSIDERED INCIDENTAL. SHALL INSURE THAT ALL ROAD AND PAVEMENT INLETS OR STRU
15. WHERE OVERHANGING BRANCHES INTERFERE WITH OPERATIONS OF CONSTRUCTION, SAID BRANCHES SHALL BE TRIMMED AND SEALED IN ACCORDANCE WITH INDOT STANDARD SPECIFICATIONS, AND THE COST OF SAME SHALL BE INCIDENTAL TO THE CONTRACT. TREES SHALL BE REMOVED ONLY AFTER RECEIVING APPROVAL OF THE OWNER. THE OWNER SHALL DESIGNATE THOSE TREES WHICH ARE TO BE REMOVED. THE CONTRACTOR SHALL ALTER THE ALIGNMENT OF SEWERS, WATER MAINS, PATHWAYS, SIDEWALKS, AND DRIVEWAYS AS DIRECTED BY THE OWNER TO PRESERVE TREES. A	ENGINEER. THE PROPOSED PAVEMENT DESIGN HAS BEEN BASED ON A MINIMUM CBR OF 3.0, THEREFORE IF AREAS OF PAVEMENT SUBGRADE ARE ENCOUNTERED WHICH DO NOT PROVIDE A MINIMUM OF CBR 3.0, SUB-GRADE REPLACEMENT OR PAVEMENT DESIGN REVISIONS SHALL BE PROVIDED WHICH ARE ADEQUATE TO OBTAIN EQUIVALENT PAVEMENT STRENGTH, AS DETERMINED BY THE SOILS ENGINEER AND THE ENGINEER.	 ROUGH GRADING TO WITHIN ONE FOOT (1.0') OF FINISHED SUBGRADE SHALL BE COMPLETED BY THE EARTHWORK CONTRACTOR PRIOR TO COMMENCEMENT OF UNDERGROUND UTILITY INSTALLATION. ALL UTILITY TRENCHES BENEATH PROPOSED OR EXISTING UTILITIES, PROPOSED OR EXISTING PAVEMENT, EXISTING DRIVEWAYS AND SIDEWALKS, PROPOSED DRIVEWAYS AND SIDEWALKS WHERE DESIGNATED BY THE OWNER OR ENGINEER AND FOR A DISTANCE OF TWO FEET ON EITHER SIDE OF SAME, AND/OR WHEREVER ELSE SHOWN ON THE CONSTRUCTION PLAN SHALL BE BACKFILLED WITH 	 ARE AT FINISHED GRADE. ANY ADJUSTMENTS NECESSITATED BY TO ACHIEVE FINAL RIM GRADE, RESULTING IN AN EXTRA FOR SA CHARGED TO THE UNDERGROUND CONTRACTOR. 30. THE CONTRACTOR SHALL INSTALL A 2" (IN.) X 4" (IN.) X 8' (FT TERMINUS OF THE SANITARY SERVICE, STORM SERVICE, AND WAT SANITARY MANHOLES, STORM MANHOLES, CATCH BASINS, INLETS
 CONTRACTOR REMOVING TREES WITHOUT OWNER'S APPROVAL WILL BE RESPONSIBLE FOR REPLACEMENT OF SAID TREE(S) AS DIRECTED BY OWNER AT CONTRACTOR'S EXPENSE. IF TREES OR SHRUBS MUST BE REMOVED, THEY WILL BE PAID FOR IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. 16. ALL EXISTING TRAFFIC SIGNS, STREET SIGNS, ETC., WHICH INTERFERE WITH CONSTRUCTION 	 PRIOR TO UTILITY CONSTRUCTION; PROPOSED PAVEMENT AREAS, BUILDING PADS, DRIVEWAYS AND SIDEWALKS, AND YARD/OPEN SPACE AREAS SHALL BE ROUGH EXCAVATED OR FILLED TO PLUS OR MINUS ONE FOOT (1.0') OF DESIGN SUBGRADE ELEVATIONS BY THE CONTRACTOR. COMPLETED GRADING FOR PROPOSED BUILDING PADS, AS WELL AS PROPOSED SUBGRADE AREAS FOR PAVEMENT, DRIVEWAYS AND SIDEWALKS, AND YARD/OPEN SPACE AREAS SHALL BE WITHIN A 	 4. 'BAND-SEAL' OR SIMILAR FLEXIBLE TYPE COUPLINGS SHALL BE USED WHEN CONNECTING SEWER PIPES OF DIS-SIMILAR MATERIALS. WHEN CONNECTING TO AN EXISTING SEWER MAIN BY MEANS OTHER THAN AN EXISTING WYE, TEE, OR AN EXISTING MANHOLE, ONE OF THE FOLLOWING METHODS SHALL BE USED: 	 AREAS. THE POST SHALL EXTEND A MINIMUM OF 4' (FT.) ABOVE OF SAID POST SHALL BE PAINTED AS FOLLOWS: SANITARY - REGREEN. 31. ALL SANITARY SEWERS INCLUDING SERVICE LINES SHALL BE SUB TEST OR AIR TEST, AND APPLICABLE DEFLECTION TEST BY THE
OPERATIONS AND ARE NOT NOTED FOR REMOVAL OR DISPOSAL SHALL BE REMOVED AND RESET BY THE CONTRACTOR IN ACCORDANCE WITH INDOT STANDARD SPECIFICATIONS AT LOCATIONS AS DESIGNATED BY THE ENGINEER. THIS SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT AND NO ADDITIONAL COMPENSATION SHALL BE ALLOWED. DAMAGE TO THESE ITEMS SHALL BE REPAIRED BY THE CONTRACTOR AT HIS OWN EXPENSE. ALL SIGNS NOT REQUIRED TO BE RESET SHALL BE DELIVERED TO THE TOWN OF MUNSTER AS APPROPRIATE.	TOLERANCE OF PLUS OR MINUS ONE TENTH OF A FOOT (0.1') OF DESIGN SUBGRADE ELEVATIONS. 14. THE SUBGRADE FOR PROPOSED STREET AND PAVEMENT AREAS SHALL BE PROOF- ROLLED BY THE CONTRACTOR AND ANY UNSTABLE AREAS ENCOUNTERED SHALL BE REMOVED AND REPLACED AS DIRECTED BY THE SOILS ENGINEER.	 A. CIRCULAR SAW-CUT OF SEWER MAIN BY PROPER TOOLS ("SEWER-TAP" MACHINE OR SIMILAR) AND PROPER INSTALLATION OF HUB-WYE SADDLE OR HUB-TEE SADDLE. B. REMOVE AN ENTIRE SECTION OF PIPE (BREAKING ONLY THE TOP OF ONE BELL) AND REPLACE WITH A WYE OR TEE BRANCH SECTION. C. WITH THE PIPE CUTTER, NEATLY AND ACCURATELY CUT OUT DESIRED LENGTH OF PIPE FOR INSERTION OF PROPER FITTING, USING "BAND-SEAL" OR SIMILAR COUPLINGS TO HOLD IT FIRMLY 	INFILTRATION SHALL NOT EXCEED 200 GALLONS PER INCH DIAME THE CONTRACTOR SHALL COORDINATE ALL TESTING SO THAT IT OF MUNSTER ENGINEER, TOWN OF MUNSTER PUBLIC WORKS DEPA DISTRICT AS APPROPRIATE. TESTING PROCEDURES SHALL BE IN 32. THE MAIN LINE SANITARY SEWER SHALL BE TELEVISED PRIOR TO
17. ALL FIELD TILE ENCOUNTERED DURING CONSTRUCTION OPERATIONS SHALL BE CONNECTED TO THE PROPOSED STORM SEWER OR EXTENDED TO OUTLET INTO A PROPOSED DRAINAGE WAY. IF THIS CANNOT BE ACCOMPLISHED, THEN IT SHALL BE REPAIRED WITH NEW PIPE OF SIMILAR SIZE AND MATERIAL TO THE ORIGINAL LINE AND PUT IN ACCEPTABLE OPERATING CONDITION. A RECORD OF THE LOCATION OF ALL FIELD TILE OR ON-SITE DRAIN PIPE ENCOUNTERED SHALL BE KEPT BY THE CONTRACTOR AND TURNED OVER TO THE ENGINEER UPON COMPLETION OF THE PROJECT. THE COST	15. UPON COMPLETION OF THE SURFACE IMPROVEMENTS, THE EXCAVATION CONTRACTOR SHALL RESPREAD A 6" (INCH) LAYER OF TOPSOIL ON ALL DESIGNATED OPEN SPACE, PARKWAY, LANDSCAPE AREAS AND OTHER NONSTRUCTURAL AREAS PER PLAN. SAID DESIGNATED AREAS TO BE RESPREAD BY THE EXCAVATION CONTRACTOR SHALL BE AS INDICATED WITHIN THE CONTRACT DOCUMENTS. TOPSOIL SHALL BE RESPREAD ON THE REMAINING AREAS BY THE LANDSCAPE CONTRACTOR.	 5. ALL FLOOR DRAINS AND FLOOR DRAIN SUMP PUMPS SHALL DISCHARGE INTO THE SANITARY SEWER. ALL DOWNSPOUTS, FOOTING DRAINS AND SUBSURFACE STORM WATERS SHALL DISCHARGE INTO THE STORM SEWER OR ONTO THE GROUND BUT NOT INTO THE SANITARY SEWER. 	BE PROVIDED TO THE OWNER ALL NECESSARY CORRECTIVE WORK CONTRACTOR WITHOUT DELAY. COST FOR TELEVISING AND FURNIS SHALL BE INCIDENTAL TO THE CONTRACT (MERGED INTO UNIT PF SANITARY MANHOLES SHALL BE TESTED ACCORDING TO ASTM C1 33. IF PVC SEWER PIPE IS USED FOR SANITARY SEWERS, A DEFLECT
 OF THIS WORK SHALL BE CONSIDERED AS INCIDENTAL TO THE CONTRACT AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED. 18. DURING CONSTRUCTION OPERATIONS THE CONTRACTOR SHALL INSURE POSITIVE SITE DRAINAGE AT THE CONCLUSION OF EACH DAY. SITE DRAINAGE MAY BE ACHIEVED BY DITCHING, PUMPING OR ANY OTHER ACCEPTABLE METHOD. THE CONTRACTOR'S FAILURE TO PROVIDE THE ABOVE WILL PRECLUDE 	 RIP RAP MATERIAL TO BE PROVIDED IN CONJUNCTION WITH THE EARTHWORK IMPROVEMENTS SHALL CONFORM TO SECTION 616 OF THE INDOT SPECIFICATIONS. SOIL BORING REPORTS, AVAILABLE AT THE OFFICE OF THE ENGINEER AND THE OWNER, ARE SOLELY FOR THE INFORMATION AND GUIDANCE OF THE CONTRACTORS. THE OWNER AND ENGINEER MAKE NO REPRESENTATION OR WARRANTY REGARDING THE INFORMATION CONTAINED IN THE BORING LOGS. 	 SANITARY SEWER SHALL BE CONSTRUCTED OF THE FOLLOWING MATERIALS UNLESS SPECIFIED OTHERWISE ON THE PLANS: A. POLYVINYL CHLORIDE PLASTIC GRAVITY SEWER PIPE (PVC) CONFORMING TO ASTM DESIGNATION D-3034 WITH AN SDR OF 26, WITH ELASTOMETRIC GASKET JOINTS CONFORMING TO ASTM DESIGNATION D-3212. 	 ALL FLEXIBLE PIPE AFTER THE FINAL BACKFILL HAS BEEN IN PL. SHALL EXCEED A VERTICAL DEFLECTION OF 5%. DEFLECTION TES' WITH INFILTRATION AND EXFILTRATION TEST RESULTS. 34. ALL WATER MAINS SHALL BE SUBJECTED TO A PRESSURE TEST ACCORDANCE WITH SECTION 2–2.10 OF THE TOWN OF MUNSTER C600. WATER MAINS SHALL BE CHLORINATED IN ACCORDANCE W
ANY POSSIBLE ADDED COMPENSATION REQUESTED DUE TO DELAYS OR UNSUITABLE MATERIALS CREATED AS A RESULT THEREOF. 19. IT SHALL BE THE RESPONSIBILITY OF EACH RESPECTIVE CONTRACTOR TO REMOVE FROM THE SITE ANY AND ALL MATERIALS AND DEBRIS WHICH RESULT FROM HIS CONSTRUCTION OPERATIONS AT NO ADDITIONAL EXPENSE TO THE OWNER.	 THE CONTRACTOR SHALL MAKE HIS OWN INVESTIGATIONS AND SHALL PLAN HIS WORK ACCORDINGLY. ARRANGEMENTS TO ENTER THE PROPERTY DURING THE BIDDING PHASE MAY BE MADE UPON REQUEST OF THE OWNER. THERE WILL BE NO ADDITIONAL PAYMENT FOR EXPENSES INCURRED BY THE CONTRACTOR RESULTING FROM ADVERSE SOIL OR GROUND WATER CONDITIONS. 18. IT SHALL BE THE RESPONSIBILITY OF THE EXCAVATION CONTRACTOR TO REMOVE FROM THE SITE 	7. ALL SANITARY SEWER MANHOLES SHALL HAVE ECCENTRIC CONES. CONE OPENINGS SHALL BE CENTERED PARALLEL TO THE MAINLINE FLOW. ALL STRUCTURE SECTIONS AND ADJUSTING RINGS SHALL BE SECURELY SEALED TO EACH OTHER OR TO THE CONE SECTION OR TOP BARREL SECTION OF THE MANHOLE USING RESILIENT, FLEXIBLE, NON-HARDENING, PREFORMED, BITUMINOUS MASTIC (RAM-NEK, OR APPROVED EQUAL). THIS MASTIC SHALL BE APPLIED IN SUCH A MANNER THAT NO SURFACE WATER OR GROUND WATER INFLOW CAN ENTER THE MANHOLE THROUGH GAPS BETWEEN	STANDARD SPECIFICATIONS, (2.2–11) AND/OR AWWA C651. 35. THE UNDERGROUND CONTRACTOR SHALL CONSIDER INCIDENTAL T CHLORINATION AND TESTING OF EXISTING WATER MAIN WHERE CO SUCH MAINS IS INDICATED ON THE DRAWINGS. IN THE EVENT TH INVOLVING EXISTING MAINS FAIL, AND SUCH FAILURES ARE ATTR
20. THE CONTRACTOR SHALL COMPLY WITH AND OBSERVE THE RULES AND REGULATIONS OF O.S.H.A. AND APPROPRIATE AUTHORITIES REGARDING SAFETY PROVISIONS. 21. THE ENGINEER AND OWNER ARE NOT RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS,	ANY AND ALL MATERIALS AND DEBRIS WHICH RESULT FROM THEIR CONSTRUCTION OPERATIONS AT NO ADDITIONAL EXPENSE TO THE OWNER.	BARREL SECTIONS OR CONE SECTIONS AND ADJUSTING RINGS. SANITARY SEWER MANHOLES SHALL BE 4'0" DIAMETER PRECAST STRUCTURES, WITH APPROPRIATE FRAME AND LIDS (SEE CONSTRUCTION STANDARDS SHEET), ALL SANITARY SEWER MANHOLES SHALL INCORPORATE THE USE OF EXTERNAL CHIMNEY SEALS (SEE CONSTRUCTION STANDARDS).	WORKMANSHIP AND MATERIAL, THEN THE CONTRACTOR SHALL BE PAYMENT FOR CORRECTING THE DEFICIENCIES. 36. THE CONTRACTOR SHALL MAINTAIN A LEGIBLE RECORD ON A SE
TECHNIQUES, SEQUENCES OR PROCEDURES, TIME OF PERFORMANCE, PROGRAMS OR FOR ANY SAFETY PRECAUTIONS USED BY THE CONTRACTOR. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR EXECUTION OF HIS WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND SPECIFICATIONS.	PAVING, CURBS AND WALKS 1. WORK UNDER THIS SECTION SHALL INCLUDE FINAL SUB GRADE SHAPING AND PREPARATION; FORMING, JOINTING, PLACEMENT OF ROADWAY AND PAVEMENT BASE COURSE MATERIALS AND	8. ALL SANITARY SEWERS, STORM SEWERS, AND SEWER SERVICES SHALL BE INSTALLED_ON GRANULAR CRUSHED STONE BEDDING, 1/4" TO 3/4" IN SIZE INDOT GRADATION NO. 53 WITH A MINIMUM THICKNESS EQUAL TO 1/4TH OF THE OUTSIDE DIAMETER OF THE SEWER PIPE, BUT NOT LESS THAN	THAT ALL MANHOLES, WYES AND SERVICES, VALVE BOXES, CURE THE FIELD IN A MANNER ACCEPTABLE TO THE APPLICABLE GOVE CONTRACT PAYMENT SHALL NOT COME DUE UNTIL THIS INFORMA ENGINEER.
OVERHEAD SERVICE FACILITIES IN THE VICINITY OF THE PROPOSED WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HAVING THE UTILITY COMPANIES LOCATE THEIR FACILITIES IN THE FIELD PRIOR TO CONSTRUCTION AND SHALL ALSO BE RESPONSIBLE FOR THE MAINTENANCE AND PRESERVATION OF THESE FACILITIES. THE CONTRACTOR SHALL CALL HOLEY MOLEY AT 800–382–5544 FOR UTILITY LOCATIONS. 23. SPECIAL ATTENTION IS DRAWN TO THE FACT THAT SECTION 105.05 OF THE INDOT STANDARD	 SUBSEQUENT BINDER AND/OR SURFACE COURSES; PLACEMENT, FINISHING AND CURING OF CONCRETE; FINAL CLEAN-UP; AND ALL RELATED WORK. ALL PAVING, SIDEWALK, AND CURB AND GUTTER WORK SHALL BE DONE IN ACCORDANCE WITH THE INDOT STANDARD SPECIFICATIONS AND PER THE TOWN OF MUNSTER, CONSTRUCTION STANDARDS & DETAILS. 	4" NOR MORE THAN 8". BEDDING SHALL EXTEND TO THE SPRING LINE OF THE PIPE FOR STORM SEWERS AND STORM SERVICES, AND TO 1.0' (FT.) OVER THE TOP OF THE PIPE FOR SANITARY SEWERS AND SANITARY SERVICES. (UNLESS INDICATED OTHERWISE ON THE CONSTRUCTION DETAILS). BEDDING MATERIAL SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-33 FOR SOUNDNESS AND ASTM C-67 FOR GRADATION. COST FOR BEDDING SHALL BE MERGED WITH THE UNIT PRICE BID FOR THE SEWER, WATER MAIN, ETC. REFER TO CONSTRUCTION STANDARDS SHEET FOR DETAILS OF BEDDING AND BACKFILL.	38. IT SHALL BE THE RESPONSIBILITY OF THE UNDERGROUND CONTR.
SPECIFICATIONS REQUIRES THE CONTRACTOR TO HAVE A COMPETENT SUPERINTENDENT ON THE PROJECT SITE AT ALL TIMES IRRESPECTIVE OF THE AMOUNT OF WORK SUBLET. THE SUPERINTENDENT SHALL BE CAPABLE OF READING AND UNDERSTANDING THE PLANS AND SPECIFICATIONS, SHALL HAVE FULL AUTHORITY TO EXECUTE ORDERS TO EXPEDITE THE PROJECT, AND SHALL BE RESPONSIBLE FOR SCHEDULING AND HAVE CONTROL OF ALL WORK AS THE AGENT	3. SUBGRADE FOR PROPOSED PAVEMENT SHALL BE FINISHED BY THE EXCAVATION CONTRACTOR TO WITHIN 0.1' (FT.), PLUS OR MINUS, OF PLAN ELEVATION. THE PAVING CONTRACTOR SHALL SATISFY HIMSELF THAT THE SUBGRADE HAS BEEN PROPERLY PREPARED AND THAT THE FINISH TOP OF SUBGRADE ELEVATION HAS BEEN GRADED WITHIN TOLERANCES ALLOWED IN THESE SPECIFICATIONS.	9. UNLESS AN ALTERNATE METHOD IS APPROVED, SANITARY SEWER MANHOLE CONNECTIONS SHALL BE MADE WITH A FLEXIBLE WATER-TIGHT MATERIAL TYPE AND MANUFACTURE AS SHOWN ON THE CONSTRUCTION STANDARDS.	ANY AND ALL MATERIALS AND DEBRIS WHICH RESULT FROM HIS ADDITIONAL EXPENSE TO THE OWNER.
 OF THE CONTRACTOR. FAILURE TO COMPLY WITH THIS PROVISION WILL RESULT IN A SUSPENSION OF WORK. 24. THE CONTRACTOR SHALL KEEP A SET OF "APPROVED" CONSTRUCTION PLANS ON THE JOB SITE, AND SHALL MAINTAIN (AS INDICATED HEREIN AND ELSEWHERE WITHIN THESE CONSTRUCTION NOTES, 	UNLESS THE PAVING CONTRACTOR ADVISES THE OWNER AND ENGINEER IN WRITING PRIOR TO FINE GRADING FOR BASE COURSE CONSTRUCTION, IT IS UNDERSTOOD THAT HE HAS APPROVED AND ACCEPTS THE RESPONSIBILITY FOR THE SUBGRADE. PRIOR TO PLACEMENT OF PAVEMENT BASE MATERIALS, THE PAVING CONTRACTOR SHALL FINE GRADE THE SUB-GRADE SO AS TO INSURE THE PROPER THICKNESS OF PAVEMENT COURSES. NO CLAIMS FOR EXCESS TONNAGE OF BASE MATERIALS DUE TO IMPROPER SUBGRADE PREPARATION WILL BE HONORED.	 ALL SANITARY SERVICE CONNECTIONS TO MAINLINE SEWER SHALL BE MADE WITH PRECAST WYES OR TEES MANUFACTURED SPECIFICALLY FOR THAT PURPOSE. SANITARY SEWER SERVICE MATERIAL TO BE SAME AS MAINLINE SEWER UNLESS SPECIFICALLY INDICATED OTHERWISE. SANITARY SERVICES SHALL BE LAID TO A MINIMUM GRADE OF 1.00%. THE END OF EACH SERVICE SHALL BE SEALED WITH A MANUFACTURER'S WATERTIGHT PLUG. SANITARY SERVICE STUBS SHALL 	 WORK UNDER THIS SECTION SHALL INCLUDE DISTRIBUTION OF TOF OF PLANTING BEDS, INSTALLATION OF ALL PLANT MATERIALS AND UNDER THIS SECTION SHALL INCLUDE DESIGN AND INSTALLATION THIS SECTION SHALL INCLUDE FABRICATION AND INSTALLATION OF
SPECIFICATIONS, AND PLANS) A LEGIBLE RECORD ON SAID PLANS OF ANY FIELD TILE ENCOUNTERED, ANY MODIFICATIONS/ALTERATIONS TO ALIGNMENT AND/OR TO PLANS AND SPECIFICATIONS OF PROPOSED IMPROVEMENTS, ETC. UPON COMPLETION OF THE CONTRACTORS' WORK, SAID PLANS AND INFORMATION SHALL BE PROVIDED TO ENGINEER. FINAL CONTRACT PAYMENT SHALL NOT COME DUE UNTIL THIS INFORMATION IS RECEIVED BY THE ENGINEER.	4. THE PROPOSED PAVEMENT SHALL CONSIST OF THE SUB-BASE COURSE, BASE COURSE, BITUMINOUS CONCRETE BINDER COURSE, AND BITUMINOUS CONCRETE SURFACE COURSE, CLASS I, OF THE THICKNESS AND MATERIALS AS SPECIFIED ON THE CONSTRUCTION PLANS.	 BE MARKED IN ACCORDANCE WITH THESE CONSTRUCTION NOTES. 12. UNLESS OTHERWISE INDICATED ON THE PLANS, STORM SEWER PIPE SHALL BE REINFORCED CONCRETE CULVERT PIPE OF THE CLASS AS INDICATED ON THE PLANS, AND CONFORMING TO ASTM DESIGNATION C-76. JOINTS FOR STORM SEWERS SHALL TYPICALLY BE RUBBER "O"-RING GASKET 	2. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR REVIEW BY LA MANUFACTURE AND INSTALLATION OF METAL FENCE. ALL METAL BLACK POWDERCOAT FINISH.
IBU\\120610	5. THE MAXIMUM SIZED AGGREGATE FOR THE BITUMINOUS CONCRETE SURFACE COURSE MIXTURE SHALL BE 3/8" (IN.). THE BITUMINOUS CONCRETE BINDER COURSE SHALL BE AS SPECIFIED IN SECTION 403 OF THE INDOT STANDARD SPECIFICATIONS. THE CONTRACTOR SHALL SUBMIT A BITUMINOUS MIX DESIGN TO THE ENGINEER PRIOR TO THE INSTALLATION OF THE BITUMINOUS MIX.	JOINTS CONFORMING TO ASTM C-443), EXCEPT WHERE DESIGNATED OTHERWISE ON THE PLANS. AT LOCATIONS WHERE THE STORM SEWER CROSSES WATER MAINS, AN "0"-RING JOINT IN ACCORDANCE WITH ASTM C-443 OR C-361 SHALL BE USED.	3. CONTRACTOR SHALL SUBMIT IRRIGATION PLAN FOR REVIEW BY LA INSTALLATION. ALL TURF AREAS SHALL BE IRRIGATED USING PO PLANTING BEDS SHALL BE IRRIGATED USING DRIP IRRIGATION. NO ANY PAVED SURFACES OR BUILDING SURFACES.
P: \PT\S\SIN			4. IN THE EVENT OF A DISCREPANCY BETWEEN QUANTITIES LISTED O COMPARED TO QUANTITIES SHOWN ON PLANS, PLANS SHALL GOV FORM AND PLANT SCHEDULE ARE FOR REFERENCE ONLY AND IT RESPONSIBILITY TO VERIFY ACTUAL QUANTITIES REQUIRED TO COM PLAN.

UTILITIES (CONT'D)	LANDSCAPING (CONT'D)	
ST STRUCTURES, WITH THE DIAMETER DEPENDENT ON ME AND LIDS (SEE CONSTRUCTION STANDARDS). WHERE HOLES SHALL INCORPORATE WATERSTOP GASKETS AT CLASS 52 CONFORMING TO ANSI A-21.51 OR AWWA SHALL CONFORM TO ANSI A-21.11 OR AWWA C-110 T LINED IN CONFORMANCE WITH ANSI A-21.4 OR AWWA ER MAIN IS TO BE PROVIDED, THE PROTECTIVE 5-99 AND BE A MINIMUM OF 8 MIL THICKNESS F-191 OR EQUAL AND SHALL COMPLETELY ENCASE AND ESSORIES IN ACCORDANCE WITH THE MANUFACTURER'S MENT TUBE. MINIMUM COVER FROM FINISHED GRADE TO	 CONTRACTOR SHALL VISIT SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING AND PROPOSED SITE CONDITIONS. CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT PRIOR TO BIDDING IF ANY SITE CONDITIONS ARE NOT ACCURATELY REPRESENTED BY PLANS. CONTRACTOR SHALL CONDUCT SOIL TEST TO DETERMINE NUTRIENT LEVELS IN EXISTING SITE SOILS. ADJUST PLANTING MIX COMPOSITION TO PROVIDE A CONSISTENTLY GOOD GROWING MEDIUM FOR ALL PLANTS SPECIFIED, INCLUDING PROPER PH LEVELS, MOISTURE RETENTION, AND ORGANIC CONTENT LEVELS. CONTRACTOR SHALL PLACE TOPSOIL, EITHER FROM STOCKPILE ON SITE OR IMPORTED, AT A MINIMUM DEPTH OF 3" IN ALL AREAS TO BE PLANTED WITH SOD. TOPSOIL QUANTITIES LISTED ON BID FORM AND PLANT SCHEDULE ARE ESTIMATED BASED ON A 3" DEPTH IN ALL AREAS PLANTED WITH SOD. CONTRACTOR TO VERIFY ACTUAL QUANTITIES REQUIRED TO COMPLETE PLANTINGS AS SHOWN ON PLAN. 	
ES, INCREASES, REDUCERS, ETC.) MAY OR MAY NOT BE UCTION PLANS, HOWEVER THEY ARE TO BE CONSIDERED AL FOOTAGE COST OF THE WATER MAIN. N ACCORDANCE WITH TOWN OF MUNSTER STANDARDS NALED FOR. VALVES SHALL BE IRON BODY, BRONZE IS PER AWWA C-509. ALL VALVES SHALL BE RATED WORKING PRESSURE. E AND EQUIPPED WITH AUXILIARY VALVES AND VALVE LITY'S STANDARD. EACH HYDRANT SHALL BE EQUIPPED ONE 4 1/2" PUMPER PORT WITH A STORZ CONNECTION. OF THE MUNICIPALITY. ALL HYDRANTS SHALL OPEN LEFT S SHALL BE SET 3 FEET BACK OF CURB (MIN.). THAN 5 FEET BELOW GRADE. WATER MAINS AT ALL BENDS, TEES, ELBOWS, ETC. FOR INSTALLED PIPE. O (NO. 53) GRANULAR BEDDING, A MINIMUM OF FOUR PE FOR THE FULL LENGTH. COST FOR BEDDING SHALL THE WATER MAIN. BE LAID AT LEAST TEN FEET HORIZONTALLY FROM ANY INE. SHOULD LOCAL CONDITIONS EXIST WHICH WOULD TEET, A WATER MAIN MAY BE LAID CLOSER THAN TEN OVIDED THAT THE WATER MAIN INVERT IS AT LEAST HE SEWER, AND IS EITHER IN A SEPARATE TRENCH OR EARTH SHELF LOCATED TO ONE SIDE OF THE SEWER. RIZONTAL OR VERTICAL SEPARATION AS DESCRIBED ONSTRUCTED OF WATER MAIN TYPE MATERIAL AND TED SURCHARGE HEAD TO ASSURE WATERTIGHTNESS SE SEWERS, STORM SEWERS OR SANITARY SEWERS, THE ELEVATION THAT THE INVERT OF THE WATER MAIN IS HE DRAIN OR SEWER. OR SANITARY SEWERS, THE CLEVATION THAT THE INVERT OF THE WATER MAIN S HE DRAIN OR SEWERS OR SANITARY SEWERS, THE CLEVATION THAT THE INVERT OF THE WATER MAIN S HE DRAIN OR SEWERS OR SANITARY SEWERS, THE CLEVATION THAT THE INVERT OF THE WATER THAN IS HE DRAIN OR SEWERS OR SANITARY SEWERS, THE CLEVATION THAT THE INVERT OF THE WATER MAIN S HE DRAIN OR SEWERS OR SANITARY SEWERS, THE CLEVATION THAT THE INVERT OF THE WATER THAN IS HE DRAIN OR SEWER. THIS VERTICAL SEPARATION MUST WATER MAIN LOCATED WITHIN TEN FEET HORIZONTALLY MUST BE MEASURED AS THE NORMAL DISTANCE FROM . IF IT IS IMPOSSIBLE TO OBTAIN THE PROPER VERTICAL IS NECESSAPY FOR THE WATER MAIN DRASS WATER TICAL IS NECESSAPY FOR THE WATER MAIN DRASS WATER TICAL IS NECESSAPY FOR THE WATER MAIN DRASS WATER TICAL	 ALL PLANTER BEDS SHALL RECEIVE 12" DEPTH OF PREPARED PLANTING SOIL, CONSISTING OF EQUAL PARTS TOPSOIL, SAND AND COMPOST. CONTRACTOR SHALL PLACE PLANTING MIX CONSISTING OF SAND, COMPOST, AND EXISTING SOIL IN ALL TREE PLANTING PITS, SHRUB PLANTINGS, AND PERENNIAL PLANTING BEDS. COMPOSITION OF PLANTING MIX SHALL BE DETERMINED BASED ON RESULTS OF SOIL TEST AND REQUIREMENTS OF PLANTING MIX SHALL BE DETERMINED BASED ON RESULTS OF PLANTING MIX PLANTING SHALL BESTED ON 0.5 CY OF PLANTING MIX PER TREE AND 0.25 CY OF PLANTING MIX PER SHRUB AND PERENNIAL. CONTRACTOR TO VERIFY ACTUAL QUANTITIES REQUIRED TO COMPLETE PLANTINGS SHALL BE MULCHED WITH 4" DEEP SHREDDED HARDWOOD MULCH WITHOUT FILTER FABRIC. MULCH SHALL BE INCIDENTAL TO PLANT MATERIALS. CONTRACTOR IS RESPONSIBLE FOR ON-GOING MAINTENANCE OF ALL NEWLY INSTALLED MATERIALS UNTIL TIME OF OWNER ACCEPTANCE. ANY ACTS OF VANDALISM OR DAMAGE WHICH MAY OCCUR PRIOR TO OWNER ACCEPTANCE SHALL BE THE RESPONSIBILTY OF THE CONTRACTOR. NO PLANT MATERIAL SUBSTITUTIONS WILL BE ACCEPTED UNLESS PRIOR APPROVAL IS REQUESTED OF THE LANDSCAPE ARCHITECT BY THE LANDSCAPE CONTRACTOR PRIOR TO THE SUBMISSION OF A BID AND/OR QUOTATION. ALL PLANT BEDS AT BUILDING FOUNDATION SHALL BE EDGED USING STEEL EDGING; ALL OTHER PLANTING BEDS SHALL BE EDCED USING A SPADED GARDEN EDGE UNLESS OTHERWISE NOTED ON PLANS. SOD DISTURBED AREAS ALONG THE BACK OF THE NEW ROAD AND DRIVEWAY CURBING UP TO THE NEW EDGE OF PLANTING BEDS OR TO EXTING UNDISTURBED GROUNDCOVER. CONTRACTOR SHALL READ AND BECOME FAMILIAR WITH TOWN OF MUNSTER'S LANDSCAPE ORDINANCE AND CONTRACTOR SHALL READ AND BECOME FAMILIAR WITH TOWN OF MUNSTER'S LANDSCAPE ORDINANCE AND CONTRACTOR SHALL INCLUDE THE COMPLETE SYSTEM OF STREET LIGHTING AS SHOWN, IN AN OPERATING CONDITION ACCEPTABLE TO THE OWNER ANJO/OR MUNORALITY. WORK SHALL INCLUDE THE INSECTION SHALL INCLUDE THE COMPLETE SYSTEM OF STREET LIGHTING AS SHOWN, IN AN OPERATING CONTROL ACCEPTABLE TO THE OWNER AND/OR MUNORAL	NO. BY DATE REVISIONS 1 MJF 08/28/12 TOWN AND CLIENT REVIEW
IS NECESSARY FOR THE WATER MAIN TO PASS UNDER T BE CONSTRUCTED OF WATER MAIN TYPE MATERIAL. + SIDE OF THE CROSSING UNTIL THE NORMAL DISTANCE DRAIN LINE IS AT LEAST TEN FEET. IN MAKING SUCH MAIN PIPE OVER/UNDER THE SEWER TO BE CROSSED SO OM THE SEWER AND AS REMOTE THEREFROM AS DSS UNDER A SEWER, A VERTICAL SEPARATION OF THE SEWER AND THE CROWN OF THE WATER MAIN TO SUPPORT THE LARGER SIZED SEWER LINES TO HE WATER MAIN. ACE AND MOUND EXCESS EXCAVATED TRENCH MATERIAL LY FASHION SO AS NOT TO CREATE A HAZARD OR IN A WORKABLE CONDITION. THE DISPOSAL AND HAL SHALL BE THE RESPONSIBILITY OF THE EARTH RESPONSIBLE FOR DEWATERING ANY EXCAVATION FOR R SYSTEMS. ANY DEWATERING ENCOUNTERED SHALL BE JND UTILITY. L BE REFLECTED IN THE CONTRACT AMOUNTS. NO HEETING OR BRACING. WERS AND VALVE VAULTS FOR WATER MAINS SHALL BE PLANS AND THE APPLICABLE STANDARD BACKFILL IS REQUIRED AROUND THESE STRUCTURES, ENTAL AND SHALL BE INCLUDED IN THE CONTRACT UNIT ARY, WATER MAIN AND STORM SEWER STRUCTURES, ENTAL AND SHALL BE INCLUDED IN THE CONTRACT UNIT ARY, WATER MAIN AND STORM SEWER STRUCTURES, COVEMENT PLANS. (SEE CONSTRUCTION STANDARDS). OF 3" (IN.) OF ADJUSTING RINGS AND A MAXIMUM 9" TARY SEWERS AND VALVE VAULT COVERS AND INAL FINISHED GRADE UPON COMPLETION OF FINISHED JUSTMENT IS TO BE MADE BY THE UNDERGROUND SIDERED INCIDENTAL. THE UNDERGROUND CONTRACTOR ENT INLETS OR STRUCTURES (FRAMES AND GRATES) S NECESSITATED BY THE CURB OR PAVING CONTRACTOR ENT INLETS OR STRUCTURES (FRAMES AND GRATES) S NECESSITATED BY THE CURB OR PAVING CONTRACTOR ENT INLETS OR SAID ADJUSTMENTS, WILL BE TOR.	 AND ACCESSORIES NECESSARY TO COMPLETE THE WORK MAY NOT BE SPECIFIED BUT SHALL BE CONSIDERED AS INCIDENTAL TO THE COST OF THE CONTRACT. ALL WORK DONE AND MATERIAL USED IN CONNECTION WITH THE INSTALLATION OF STREET LIGHTING SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS OF THE NATIONAL ELECTRICAL CODE, APPROPRIATE IES NEMA STANDARDS, UNDERWRITERS LABORATORY APPROVALS, AASHTO CRITERIA, AND THE SPECIFICATIONS OF THE MUNICIPALITY. ALL COMMERCIAL DRIVEWAY, STREET AND SIDEWALK CROSSINGS SHALL BE PROVIDED WITH A CABLE DUCT RACEWAY FOR UNDERGROUND CABLE CONSISTING OF 2" (IN.) DIAMETER PVC SCHEDULE 40. REFER TO CONSTRUCTION STANDARDS SHEET/STREET LIGHTING PLAN FOR DETAILS OF LIGHT STANDARDS, LUMINAIRES, LAMPS, ETC. CABLE DUCT SHALL BE INSTALLED IN TRENCHES 6" (IN.) WIDE, 24" (IN.) DEEP AND BACKFILLED WITH COMPACTED SUITABLE FILL MATERIAL. GENERALLY, THE TRENCH SHALL BE LOCATED ONE I' (FT.) BACK OF CURB. ALL LIGHTING STANDARDS SHALL BE LOCATED WITH THE CENTERLINE 3' (FT.) BACK OF THE CURB LINE, UNLESS NOTED OTHERWISE ON THE DRAWINGS. (SEE PLANS AND CONSTRUCTION STANDARDS). THE CONTRACTOR SHALL BE ADVISED THAT NIPSCO SERVICE LOCATIONS AND THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE THE INSTALLATION OF THESE ITEMS WITH THE ENGINEER AND NIPSCO. UPON COMPLETION OF INSTALLATION, AND AT A TIME CONVENIENT TO THE OWNER AND/OR THE MUNICIPALITY. THE CONTRACTOR SHALL CONDUCT ALL OPERATING TESTS REQUIRED BY THE OWNER AND/OR THE MUNICIPALITY. THE CONTRACTOR SHALL OND WATERING THE INSTALLED. AND WORKMANSHIP, REGARDLESS OF THE MANUFACTURER SHALL FOR A PERIOD OF 1 YEAR FROM THE DATE OF FINAL ACCEPTANCE SATISFACTORILY SERVE THE PURPOSE FOR WHICH THEY WERE INSTALLED. AND DEFECTION ATER THE INSTALLATION OF THE MUNICIPALITY. THE CONTRACTOR SHALL OPDERATION ESTS REQUIRED BY THE OWNER AND/OR THE MUNICIPALITY. THE CONTRACTOR SHALL OPDERATION TO THE OWNER AND/OR THE MUNICIPALITY. THE CONTRACTOR SHALL OPDERATION TO THE OWNER AND OR THE PURPOSE FOR WHICH THEY WER INSTALL	A Appendix Figure 1 and
) X 4" (IN.) X 8' (FT.) POST ADJACENT TO THE M SERVICE, AND WATER MAIN SERVICE, AS WELL AS ATCH BASINS, INLETS, AND VALVE VAULTS WITHIN TURF M OF 4' (FT.) ABOVE THE GROUND. THE TOP 12" (IN.)	SOIL AND EROSION CONTROL	Soo
OWS: SANITARY – RED; WATER MAIN – BLUE; STORM – LINES SHALL BE SUBJECTED TO EITHER AN INFILTRATION CTION TEST BY THE CONTRACTOR. ALLOWABLE ONS PER INCH DIAMETER OF PIPE PER MILE PER DAY. TESTING SO THAT IT CAN BE WITNESSED BY THE TOWN PUBLIC WORKS DEPARTMENT AND/OR SANITARY DURES SHALL BE IN ACCORDANCE WITH ASTM F1417–92. TELEVISED PRIOR TO ACCEPTANCE AND A DVD SHALL RY CORRECTIVE WORK SHALL BE PERFORMED BY THE ELEVISING AND FURNISHING DVD AND CORRECTIVE WORK WERGED INTO UNIT PRICE OF THE SEWER PIPE). THE CORDING TO ASTM C1244–05 AE1. T SEWERS, A DEFLECTION TEST MUST BE PERFORMED ON FILL HAS BEEN IN PLACE AT LEAST 30 DAYS. NO PIPE 5%. DEFLECTION TEST RESULTS SHALL BE SUBMITTED RESULTS. D A PRESSURE TEST BY THE CONTRACTOR IN C TOWN OF MUNSTER SPECIFICATIONS AND/OR AWWA D IN ACCORDANCE WITH THE TOWN OF MUNSTER OR AWWA C651.	 SOIL EROSION CONTROL MEASURES IN ACCORDANCE WITH THE 'INDIANA STORM WATER QUALITY MANUAL" & NPDES GENERAL PERMIT SHALL BE FOLLOWED. ANY SOIL EROSION CONTROL MEASURES, IN ADDITION TO THOSE OUTLINED IN THESE PLANS AND WHICH ARE DEEMED NECESSARY BY THE OWNER, ENGINEER AND/OR TOWN OF MUNSTER ENGINEER, SHALL BE IMPLEMENTED IMMEDIATELY BY THE CONTRACTOR. STREETS ADJACENT TO THE SITE SHALL BE KEPT FREE OF DIRT, MUD AND DEBRIS. NO SEDIMENT SHALL BE ALLOWED TO ENTER THE EXISTING STORM SEWER SYSTEM. IN ACCORDANCE WITH THESE CONSTRUCTION PLANS, EROSION CONTROL MEASURES SHALL BE INSTALLED AND MAINTAINED AROUND STORM SEWER STRUCTURES, IN SWALE AREAS OR ALONG PROPERTY LINES UNTIL VEGETATION IS ESTABLISHED AND/OR CONSTRUCTION IS COMPLETE. TOPSOIL STOCKPILES SHALL BE LOCATED TO AVOID EROSION OF SAID STOCKPILE ONTO OFFSITE AREAS, I.E. THE STOCKPILE SHALL BE LOCATED TO AVOID EROSION OF SAID STOCKPILE ONTO OFFSITE AREAS, I.E. THE STOCKPILE SHALL BE LOCATED TO AVOID EROSION OF SAID STOCKPILE IS TO REMAIN IN PLACE FOR MORE THAN 45 DAYS, IT IS REQUIRED THAT THE STOCKPILE BE SEEDED SO AS TO MINIMIZE SOIL EROSION BY BOTH WIND AND WATER. ALL STORM SEWER, CATCH BASINS, SUMPS AND/OR DETENTION BASINS PROVIDED WITHIN THIS PROJECT ARE TO BE CLEANED AT THE END OF CONSTRUCTION OF THE PROJECT AND PRIOR TO FINAL ACCEPTANCE. CLEANING MAY ALSO BE REQUIRED DURING THE COURSE OF THE CONSTRUCTION OF THE PROJECT IF IT IS DETERMINED THAT THE SILT AND DEBRIS TRAPS ARE NOT PROPERLY FUNCTIONING AND THEIR PERFORMANCE IS IMPAIRED. 	SEH OF IN 9200 Calumet Avenue, S Munster, Indiana 44 Phone: 219.513.24
ATER MAIN WHERE CONNECTIONS TO AND INCLUSION OF SS. IN THE EVENT THAT THE PRESSURE TESTS FAILURES ARE ATTRIBUTABLE TO DEFECTIVE ORIGINAL ONTRACTOR SHALL BE ENTITLED TO ADDITIONAL SS.	7. A STABILIZED CONSTRUCTION ENTRANCE FOR MUD AND DUST CONTROL SHALL BE ESTABLISHED AT THE ONSET OF CONSTRUCTION ACTIVITY AND SHALL BE MAINTAINED THROUGHOUT THE COURSE OF THE PROJECT. THE CONSTRUCTION ENTRANCE SHALL BE LOCATED GENERALLY WHERE SHOWN ON THE PLAN, AND AT ANY OTHER POINTS WHERE CONSTRUCTION TRAFFIC FREQUENTLY LEAVES THE	SITE
LE RECORD ON A SET OF CONSTRUCTION PLANS SO VALVE BOXES, CURB BOXES, ETC. CAN BE LOCATED IN HE APPLICABLE GOVERNMENTAL AGENCY. FINAL UNTIL THIS INFORMATION IS RECEIVED BY THE SINS AND OTHER AREAS ACCUMULATING SEDIMENT UND CONTRACTOR ARE TO BE CLEANED AT THE END OF C. CLEANING MAY ALSO BE REQUIRED DURING THE OJECT IF IT IS DETERMINED THAT THE SILT AND DEBRIS	 PUBLIC ROADWAY TO ENTER THE SITE. REFER TO THE CONSTRUCTION ENTRANCE DETAIL. 8. UNLESS SOIL EROSION CONTROL ITEMS ARE SPECIFICALLY REFERRED TO AS BID ITEMS (SUCH AS TOPSOIL RESPREAD, SEEDING, ETC.), THEY ARE TO BE CONSIDERED AS INCIDENTAL TO THE COST OF THE CONTRACT. 9. UPON COMPLETION OF TOPSOIL RESPREAD OPERATIONS, ALL DISTURBED AREAS SHALL BE SEEDED, SODDED, OR LANDSCAPED AS NOTED ON THE PLAN. 10. SEEDING AND MULCHING SHALL BE IN ACCORDANCE WITH SECTIONS 250 AND 251 OF THE INDOT STANDARD SPECIFICATIONS. 11. SODDING SHALL BE IN ACCORDANCE WITH SECTION 252 OF THE INDOT STANDARD SPECIFICATIONS. 	R, INDIANA /ELOPMENT, LL ENTER - HOTEL PECIFICATIONS
INDERGROUND CONTRACTOR TO REMOVE FROM THE SITE CH RESULT FROM HIS CONSTRUCTION OPERATIONS AT NO	 SODDING SHALL BE IN ACCORDANCE WITH SECTION 252 OF THE INDOT STANDARD SPECIFICATIONS. ALL DISTURBED GROUND WITHIN THE EXISTING INDOT/COUNTY RIGHT-OF-WAY SHALL BE RESTORED WITH 4" MIN. OF TOPSOIL AND SODDING. SEQUENCE FOR SOME FRANCING CONTROL LIENS. 	STEI DEV SS C ST SF
DISTRIBUTION OF TOPSOIL, FINE GRADING, PREPARATION LANT MATERIALS AND INCIDENTAL ACCESSORIES. WORK N AND INSTALLATION OF IRRIGATION. WORK UNDER AND INSTALLATION OF ORNAMENTAL FENCES. S FOR REVIEW BY LANDSCAPE ARCHITECT PRIOR TO FENCE. ALL METAL FENCE TO BE FINISHED WITH A	 13. SEQUENCE FOR SOIL EROSION CONTROL ITEMS: EACH RESPECTIVE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION, MAINTENANCE, AND ANY NECESSARY CORRECTIVE ACTION ASSOCIATED WITH THE EROSION CONTROL MEASURES SO DESIGNATED FOR THAT CONTRACTOR. THE FOLLOWING ITEMS ARE TO BE PROVIDED BY THE DESIGNATED CONTRACTOR AT THE TIME AND IN THE GENERAL SEQUENCE INDICATED BELOW. I. MASS GRADING/EARTHWORK CONTRACTOR A. PROVIDE CONSTRUCTION ENTRANCE AND SILT FENCE PRIOR TO THE START OF CONSTRUCTION. II. UNDERGROUND CONTRACTOR 	MUNS SIMBORG LAKE BUSINE PROJEC
N FOR REVIEW BY LANDSCAPE ARCHITECT PRIOR TO IRRIGATED USING POP UP SPRAY HEADS AND ALL DRIP IRRIGATION. NO WATER SHALL BE THROWN ON ES.	 II. UNDERGROUND CONTRACTOR A. PROVIDE SYNTHETIC FILTER FABRIC, AROUND ALL YARD/ DETENTION BASIN INLETS IMMEDIATELY UPON INSTALLATION OF SAID INLET(S). 	SHEET
QUANTITIES LISTED ON BID FORM OR PLANT SCHEDULE S, PLANS SHALL GOVERN. QUANTITIES LISTED IN BID RENCE ONLY AND IT IS THE CONTRACTOR'S ES REQUIRED TO COMPLETE PLANTINGS AS SHOWN ON	 B. PROVIDE CLEANING OF STORM SEWER SYSTEM, CATCH BASINS, AND STORM SEWER STRUCTURES IN ACCORDANCE WITH THESE SOIL EROSION CONTROL SPECIFICATIONS. C. THE "BLOCK AND GRAVEL" METHOD SHALL BE INSTALLED PER THE DETAIL INCLUDED IN THIS PLAN SET AT ALL CURB INLETS DURING CONSTRUCTION. 	2

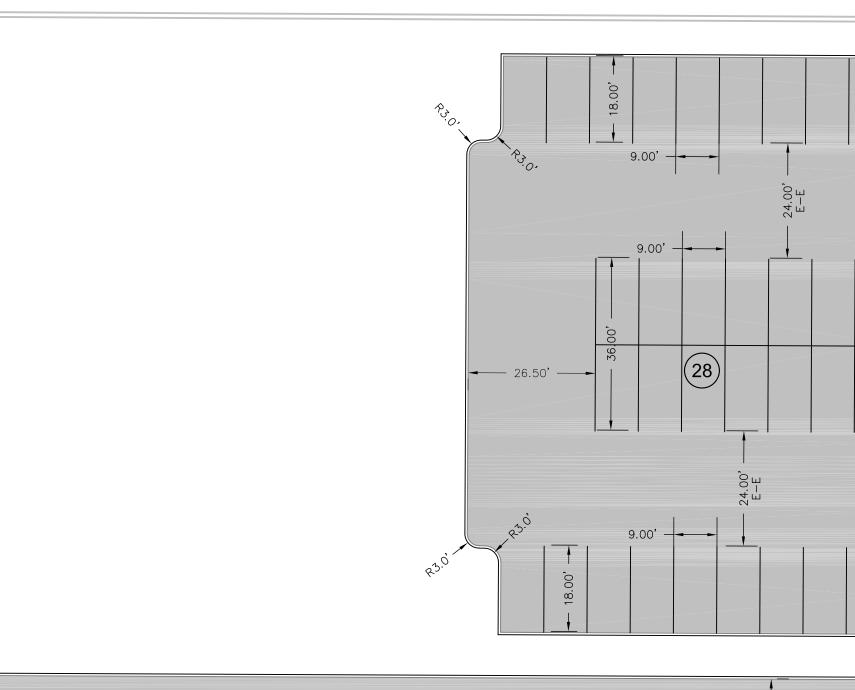


	LEGEND
1	STORMWATER STRUCTURE NO.
2	SANITARY STRUCTURE NO.
3	WATERMAIN STRUCTURE NO.







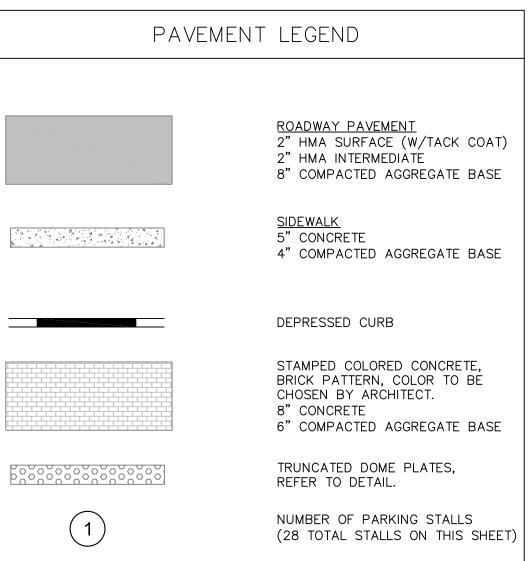


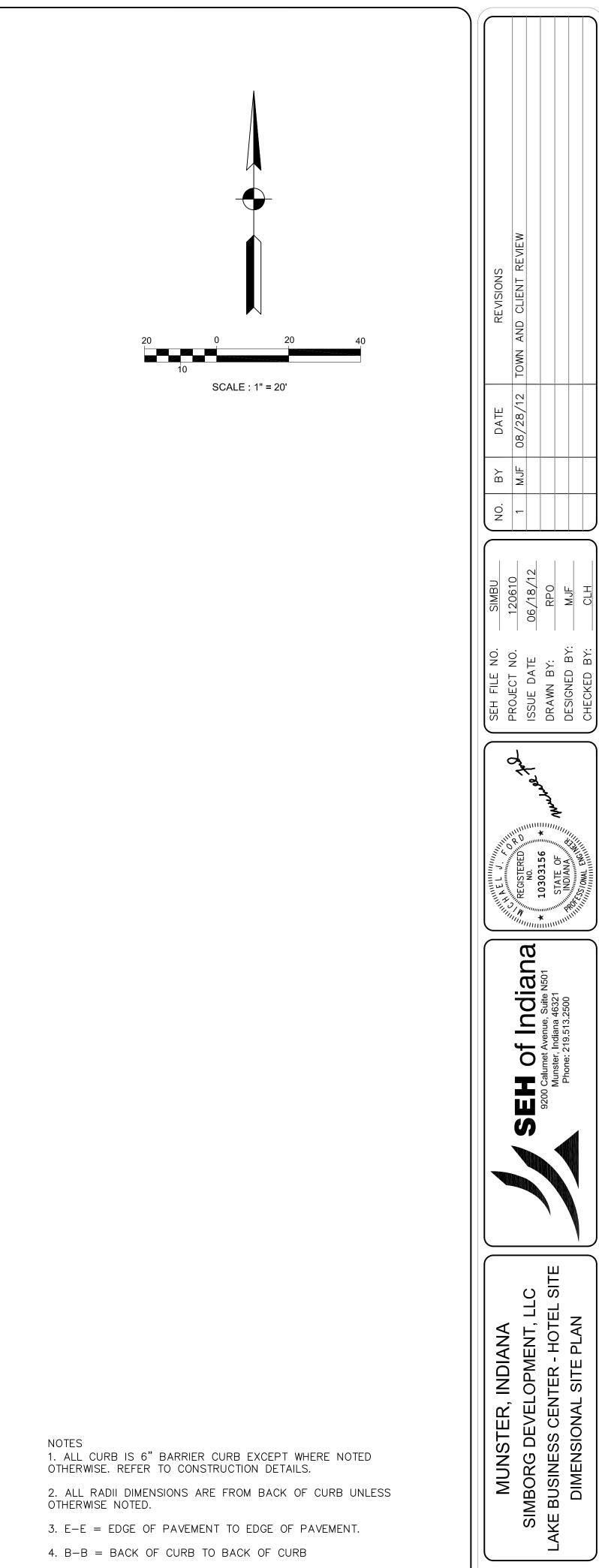
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- END OF PROJECT MATCH EXISTING PAVEMENT

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3. E-E = EDGE OF PAVEMENT TO EDGE OF PAVEMENT.

4. B-B = BACK OF CURB TO BACK OF CURB

5. ALL PARKING LOT STRIPING TO BE 4" WIDE, YELLOW TRAFFIC PAINT PER INDOT SECTION 808.07. HANDICAP STALLS SHALL BE PAINTED PER STATE AND LOCAL ORDINANCE.

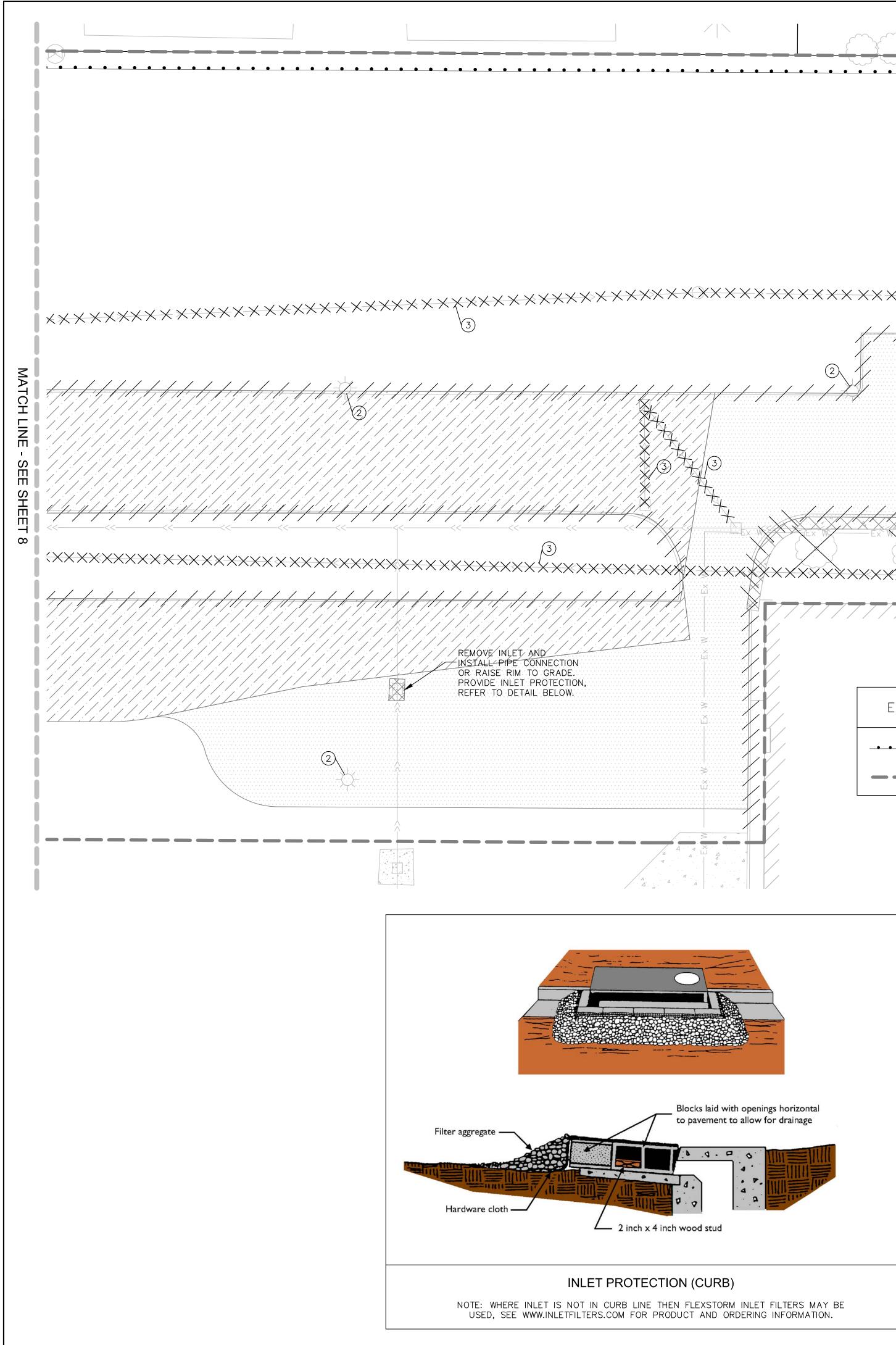
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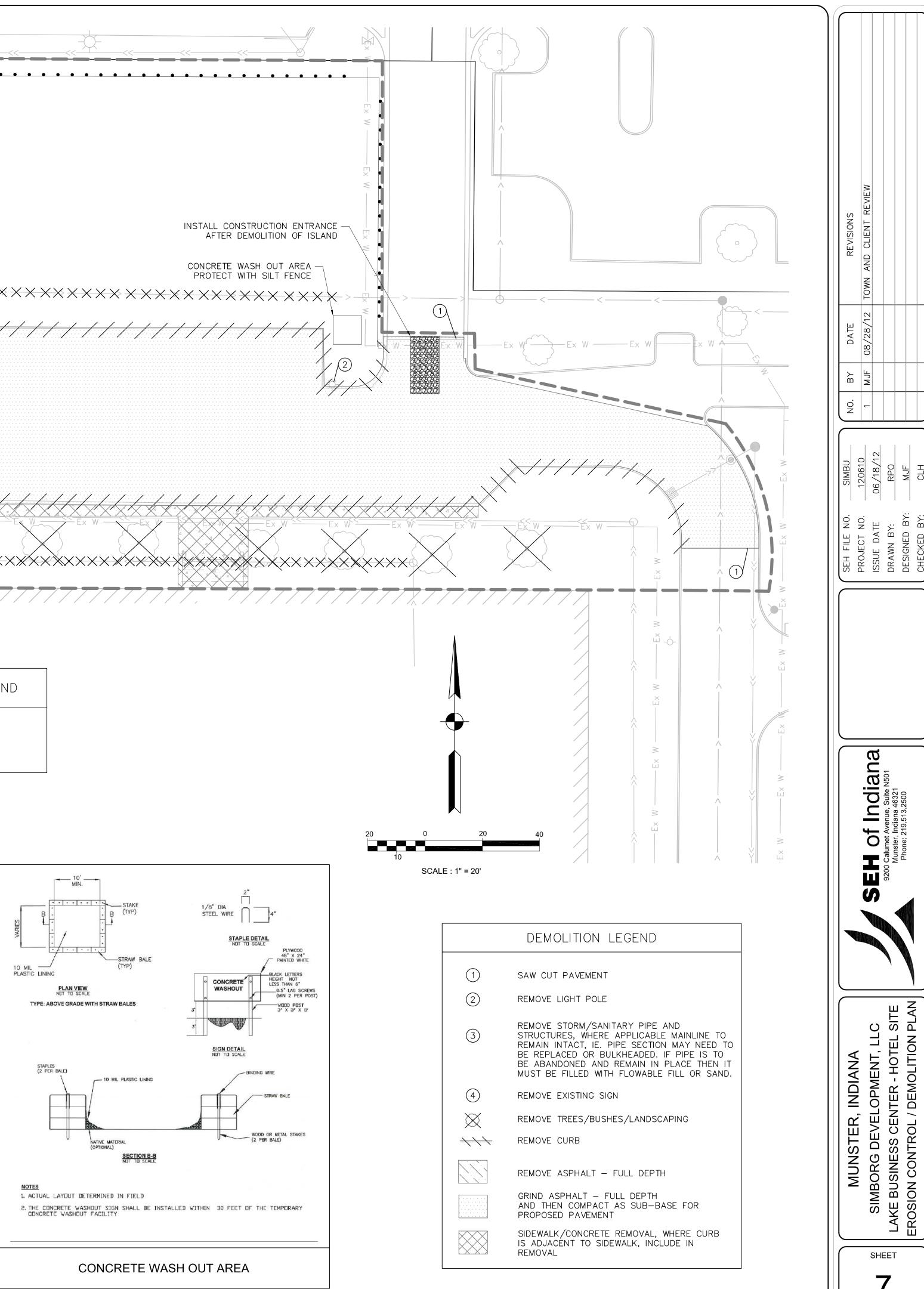


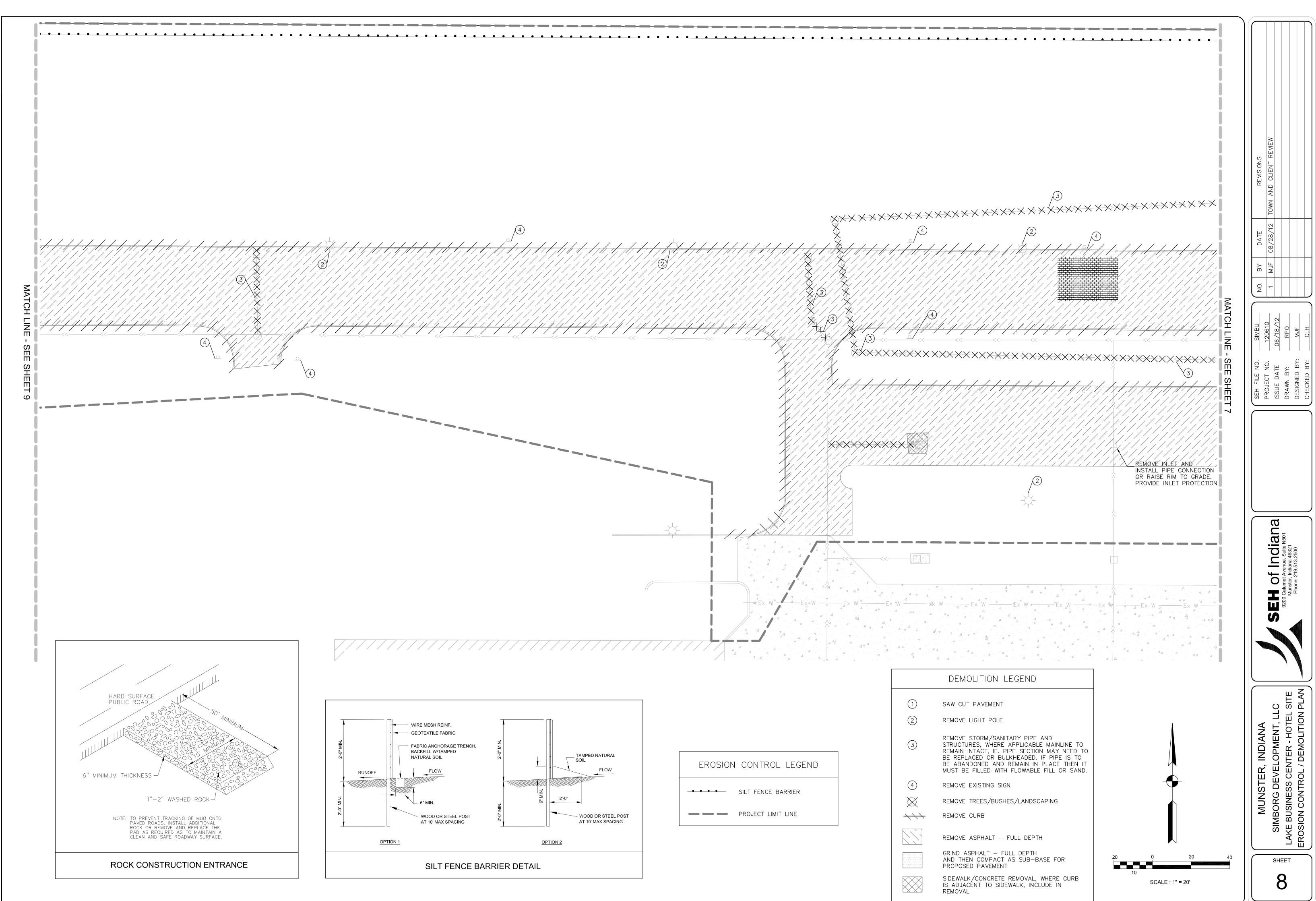
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				INSTALL CONSTRUCT AFTER DEMOLIT	
××××××××	×××××××××××××	*****	\times	CONCRETE WASH O PROTECT WITH SIL	_T FENCE
					\

EROSION CONTROL LEGEND

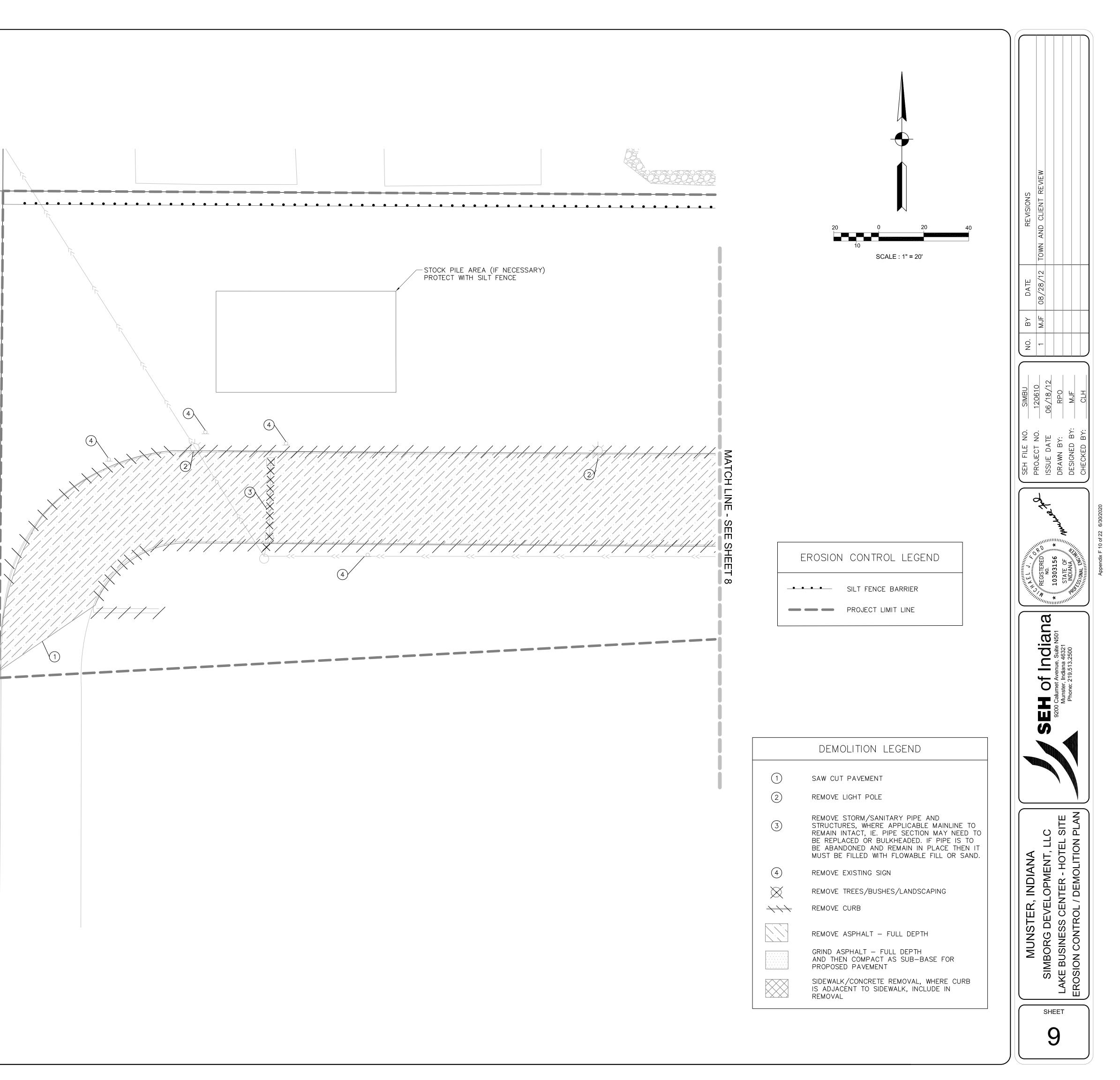
------ SILT FENCE BARRIER

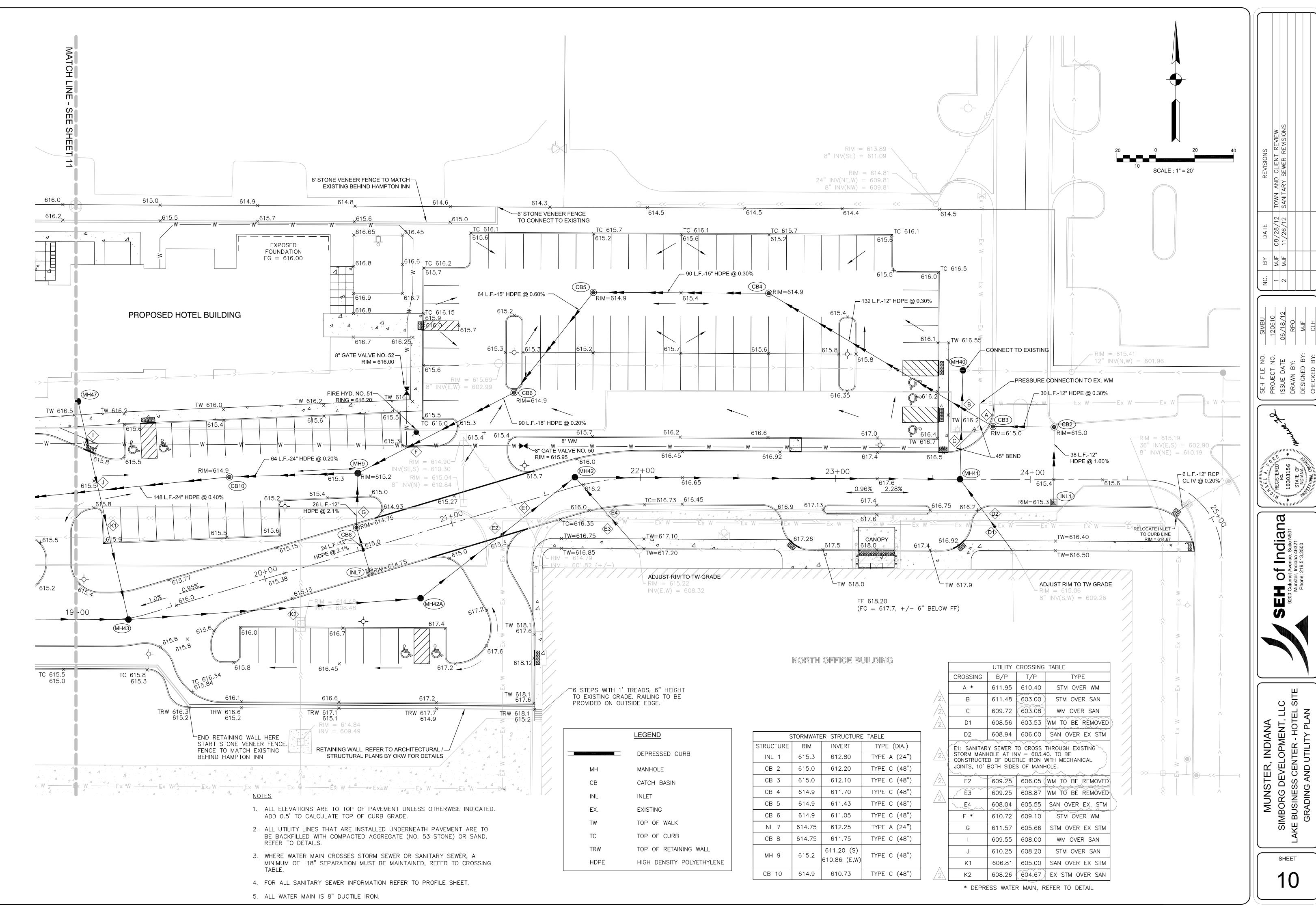
PROJECT LIMIT LINE



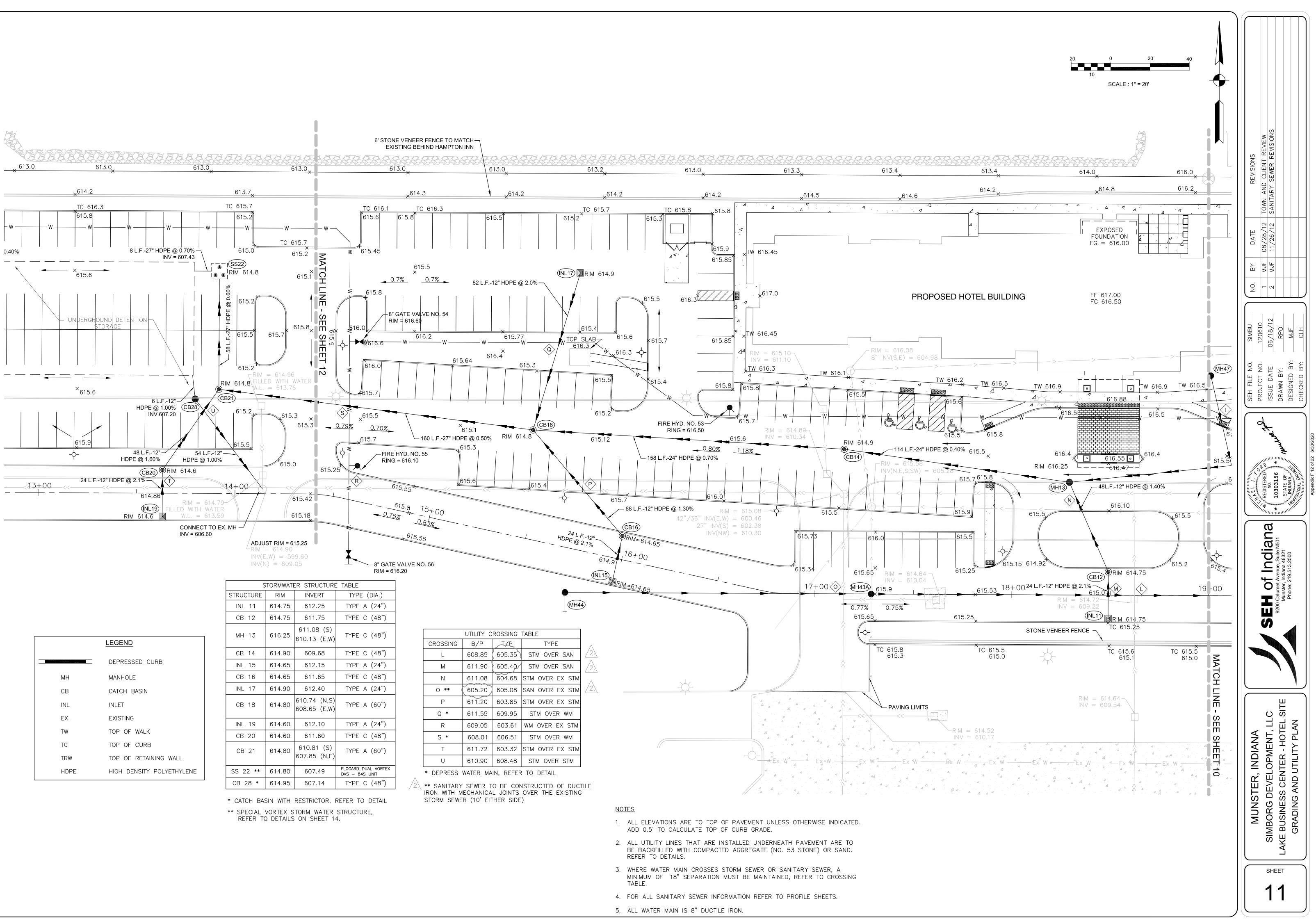


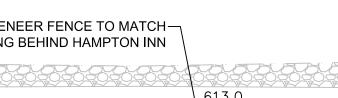
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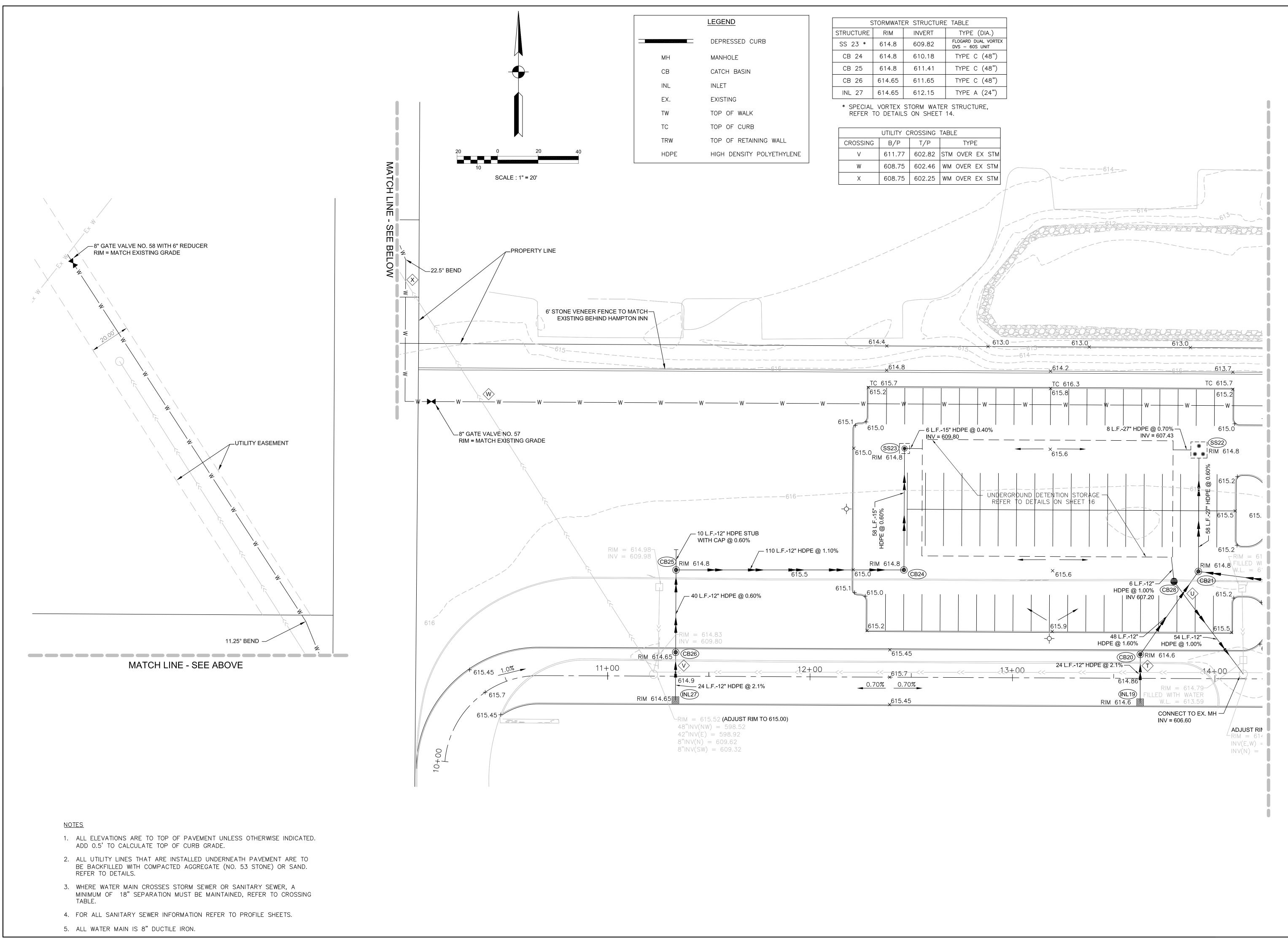


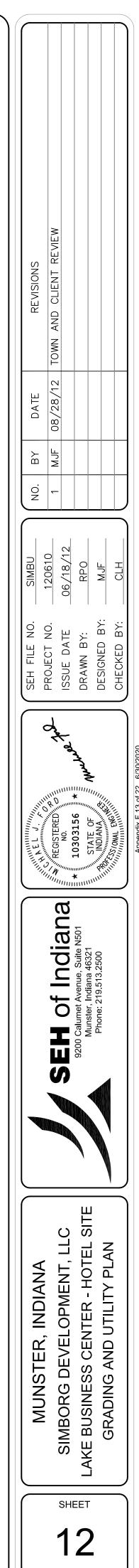


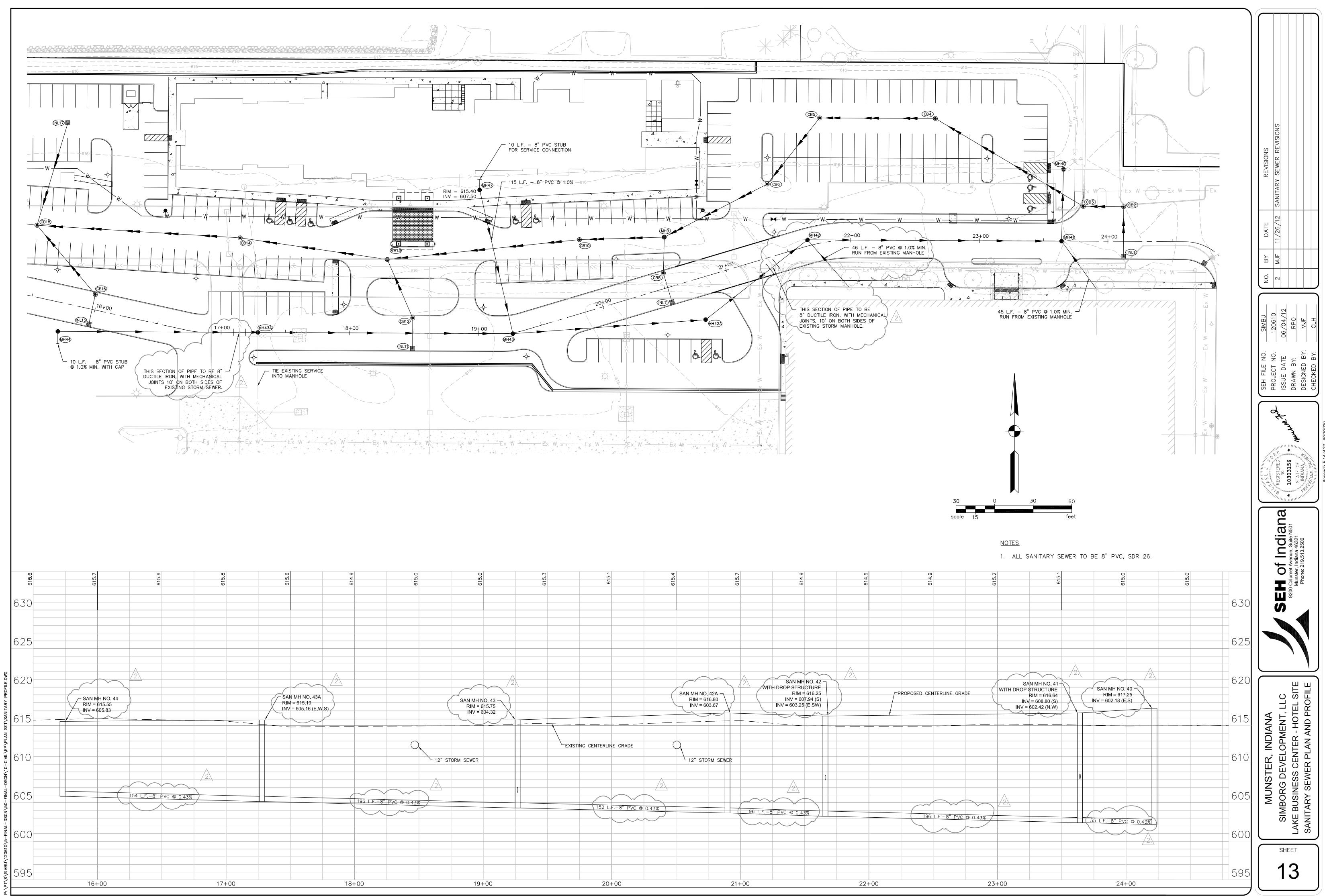




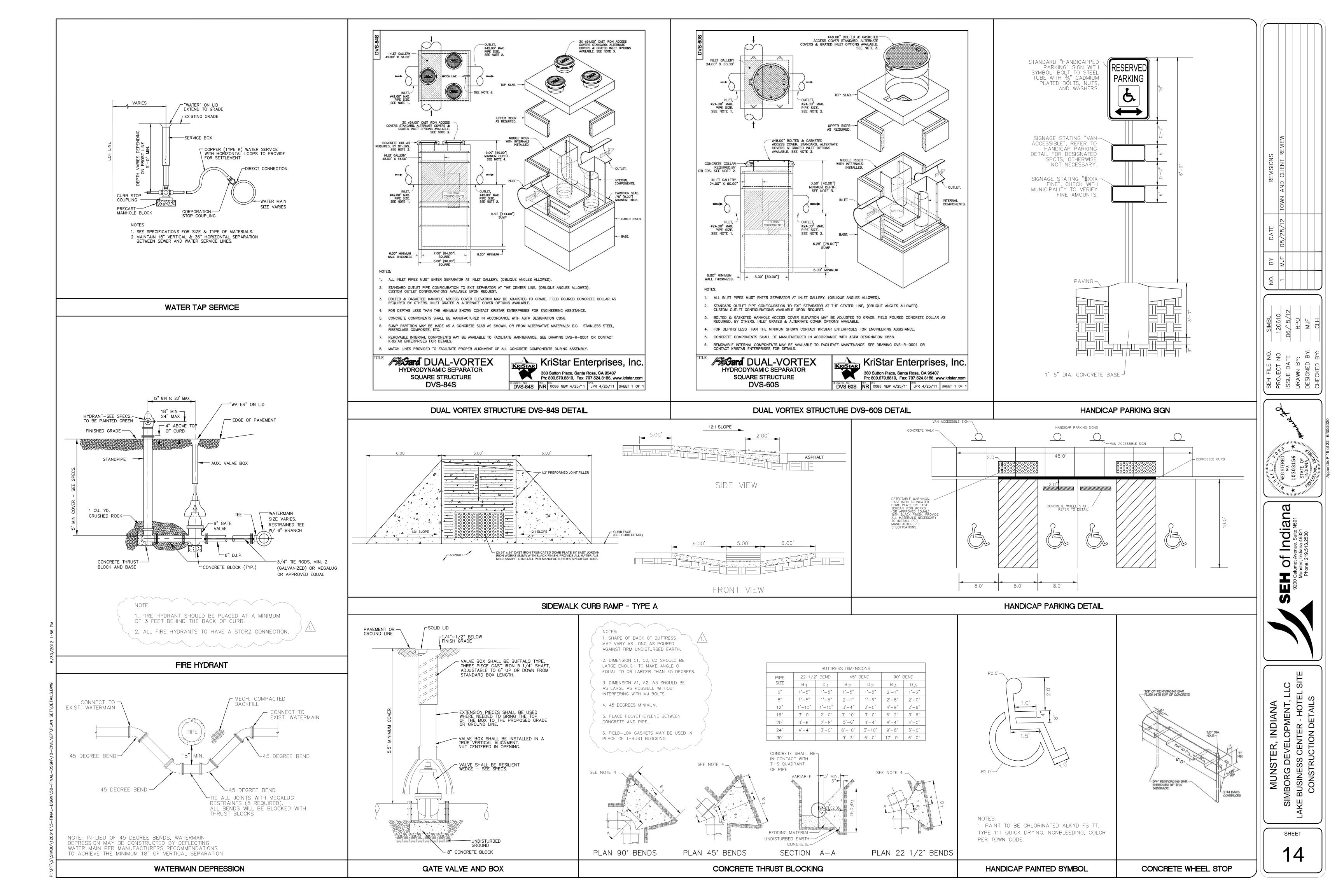


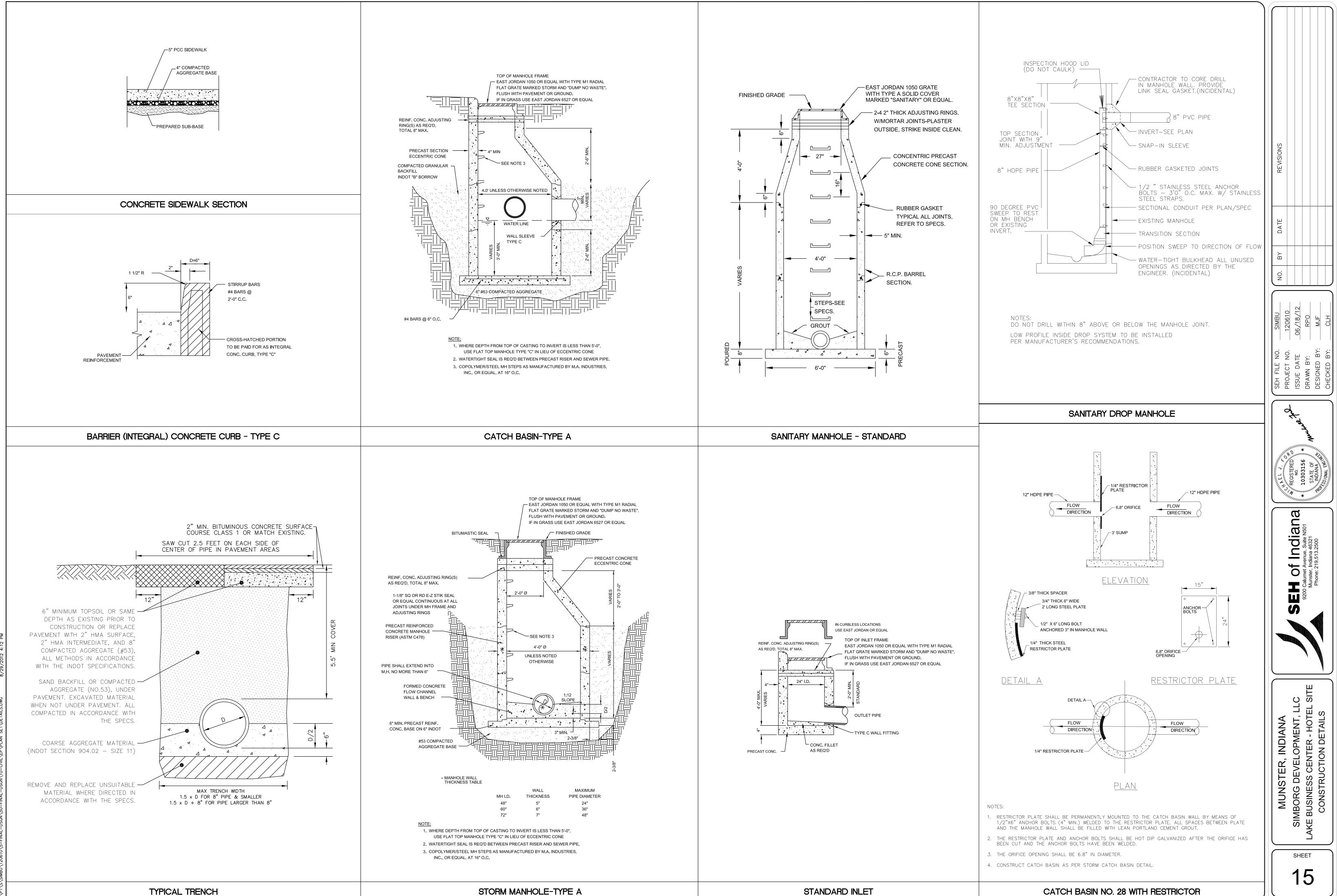






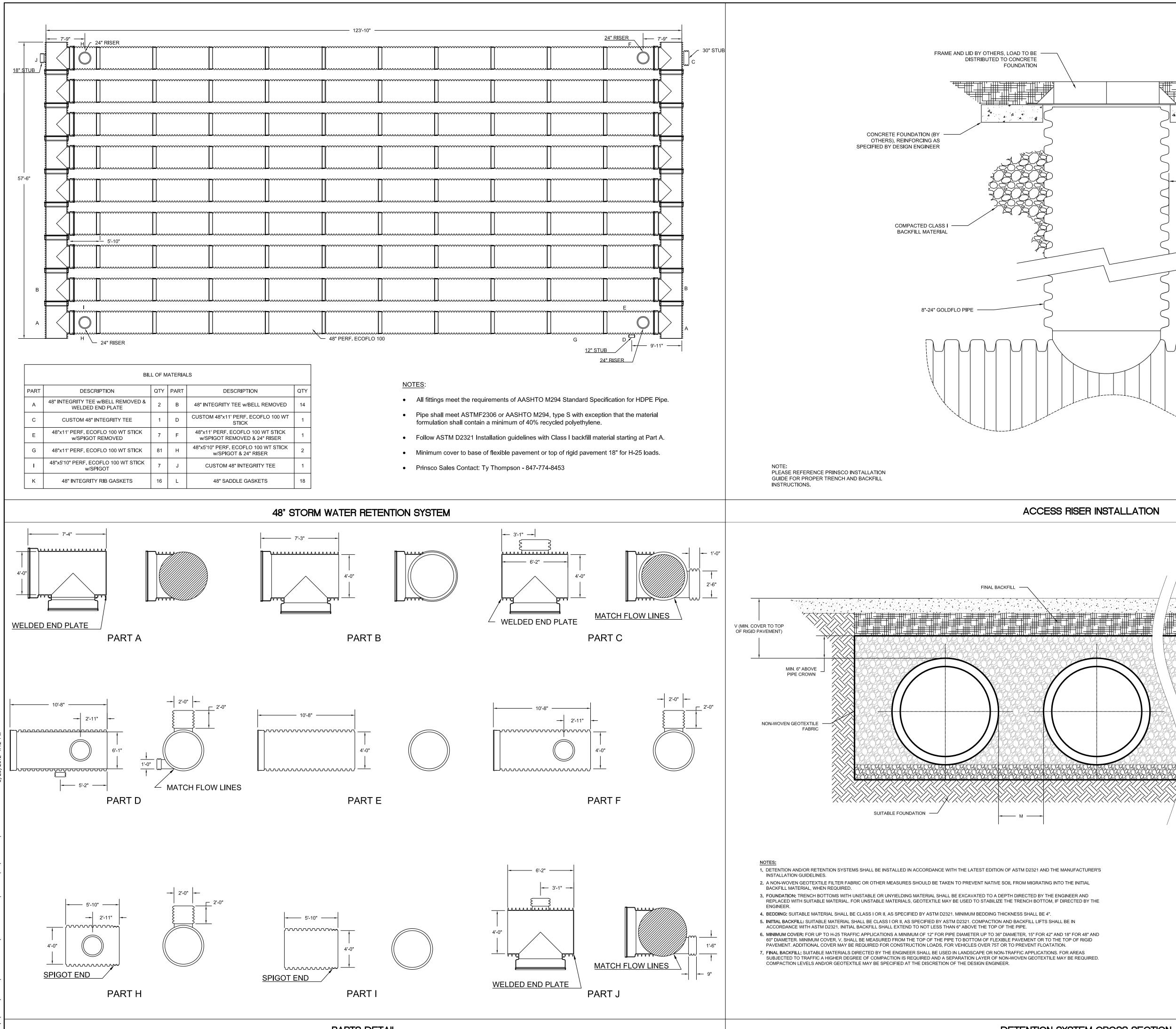
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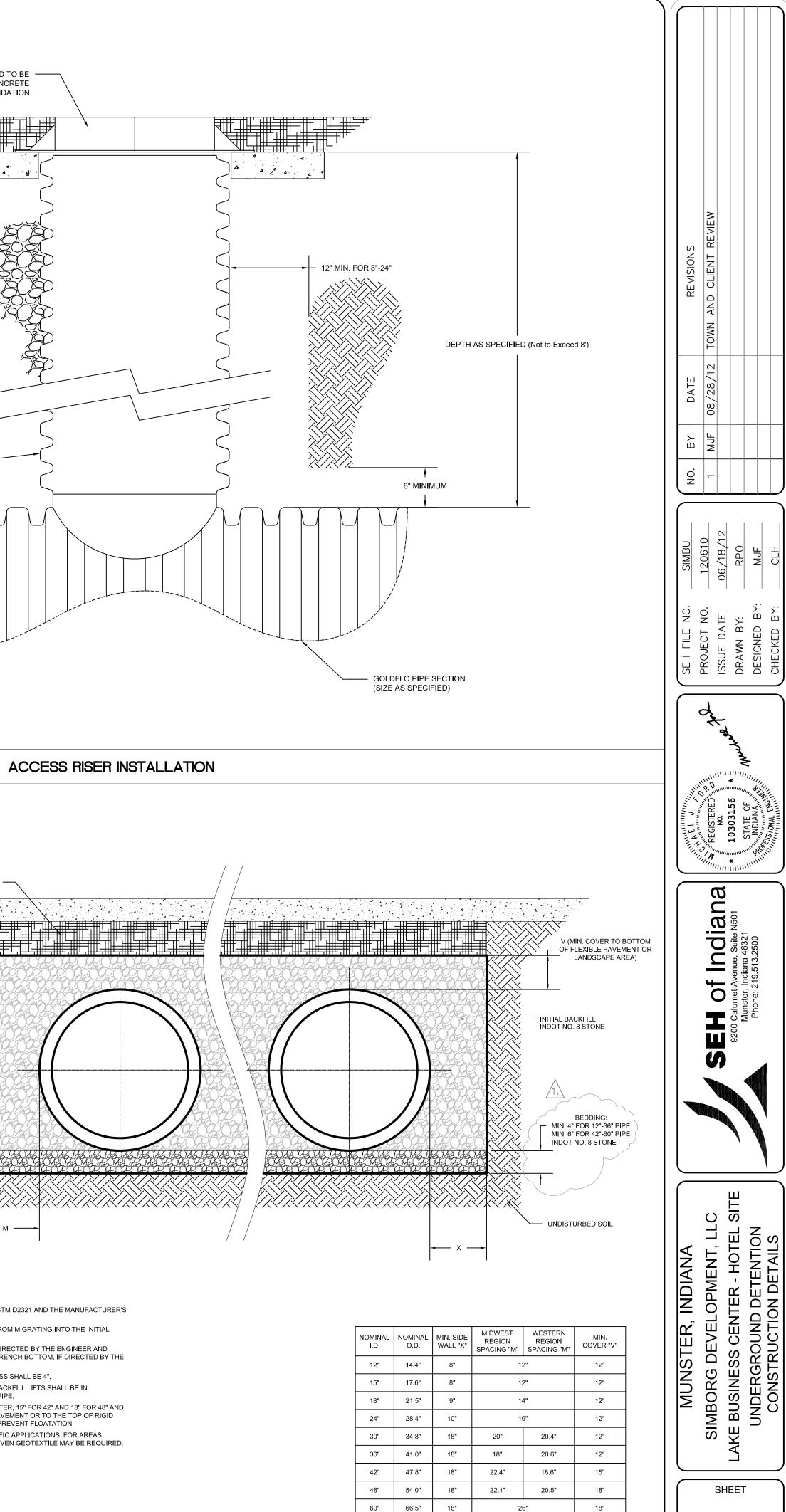


TYPICAL TRENCH

CATCH BASIN NO. 28 WITH RESTRICTOR



PARTS DETAIL

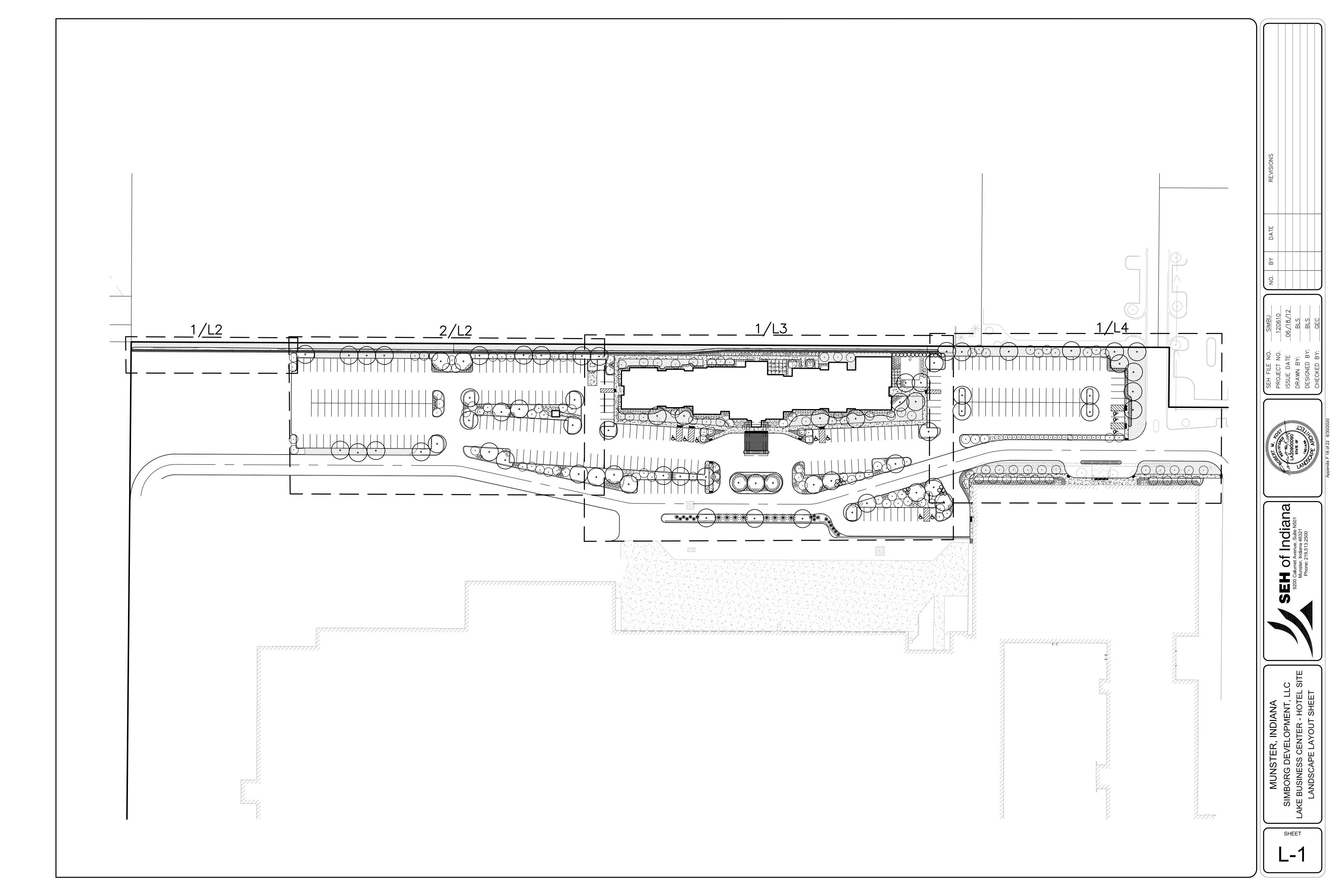


*MINIMUM SPACING "M" MEASURED FROM OUTSIDE DIAMETERS

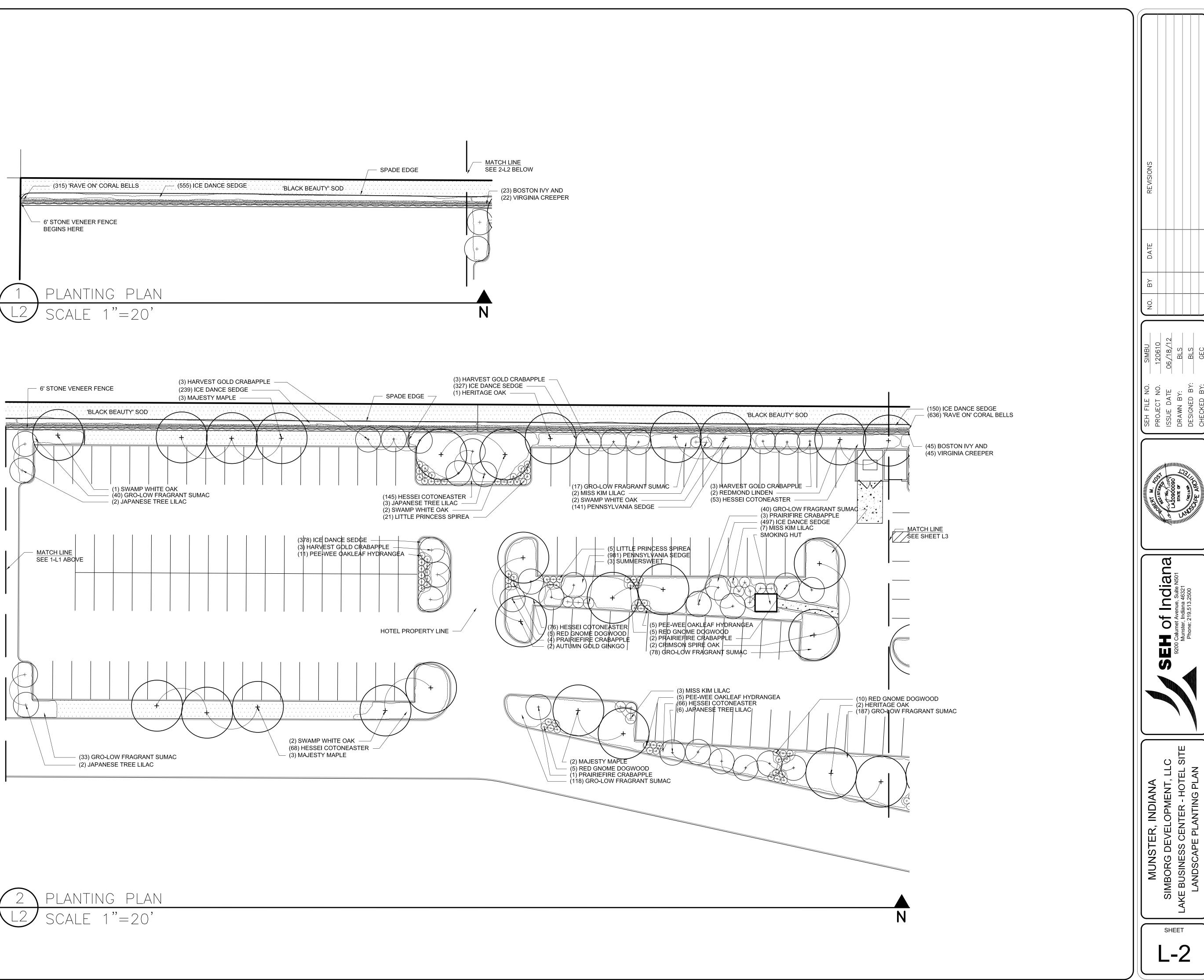
DETENTION SYSTEM CROSS SECTION

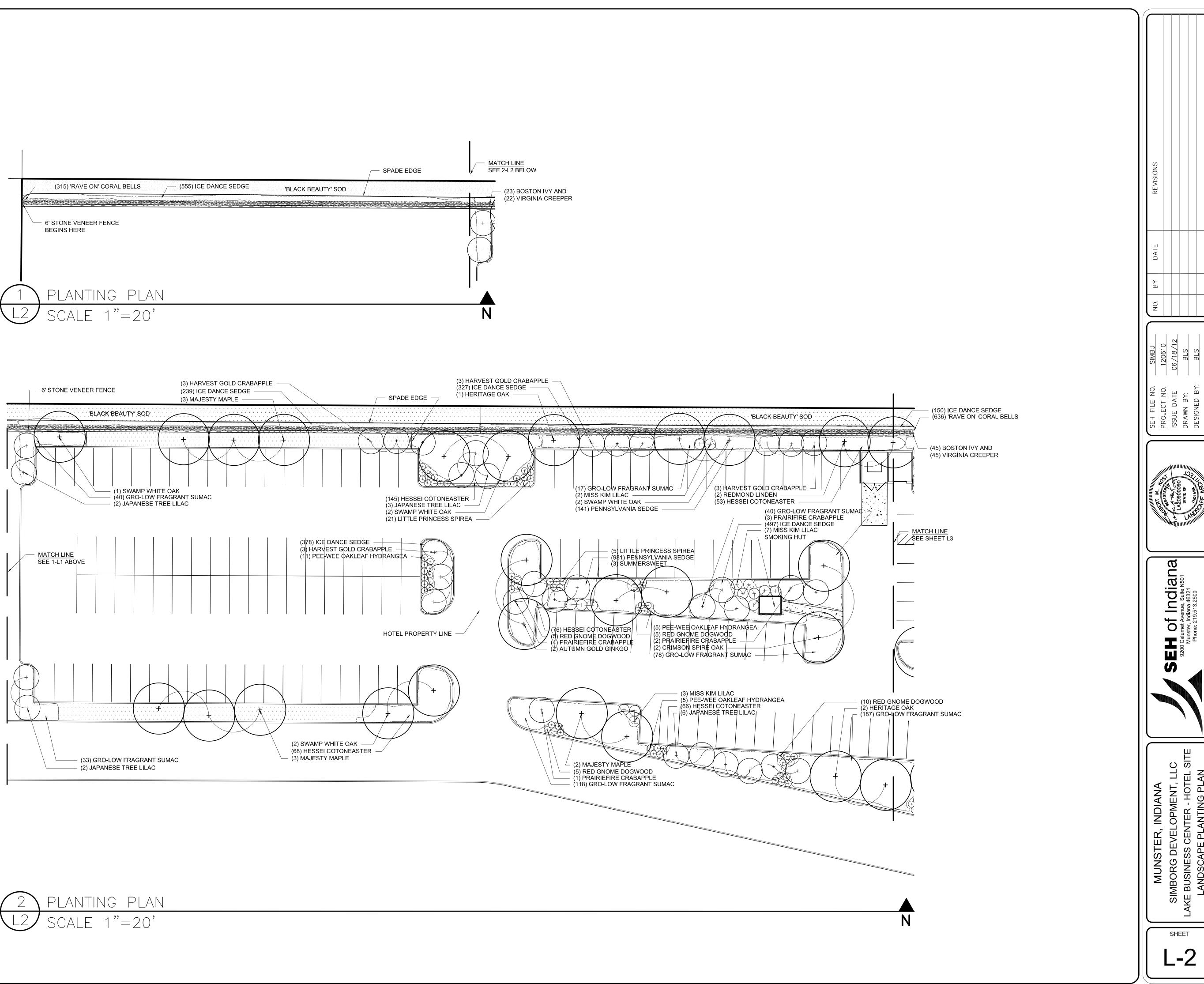
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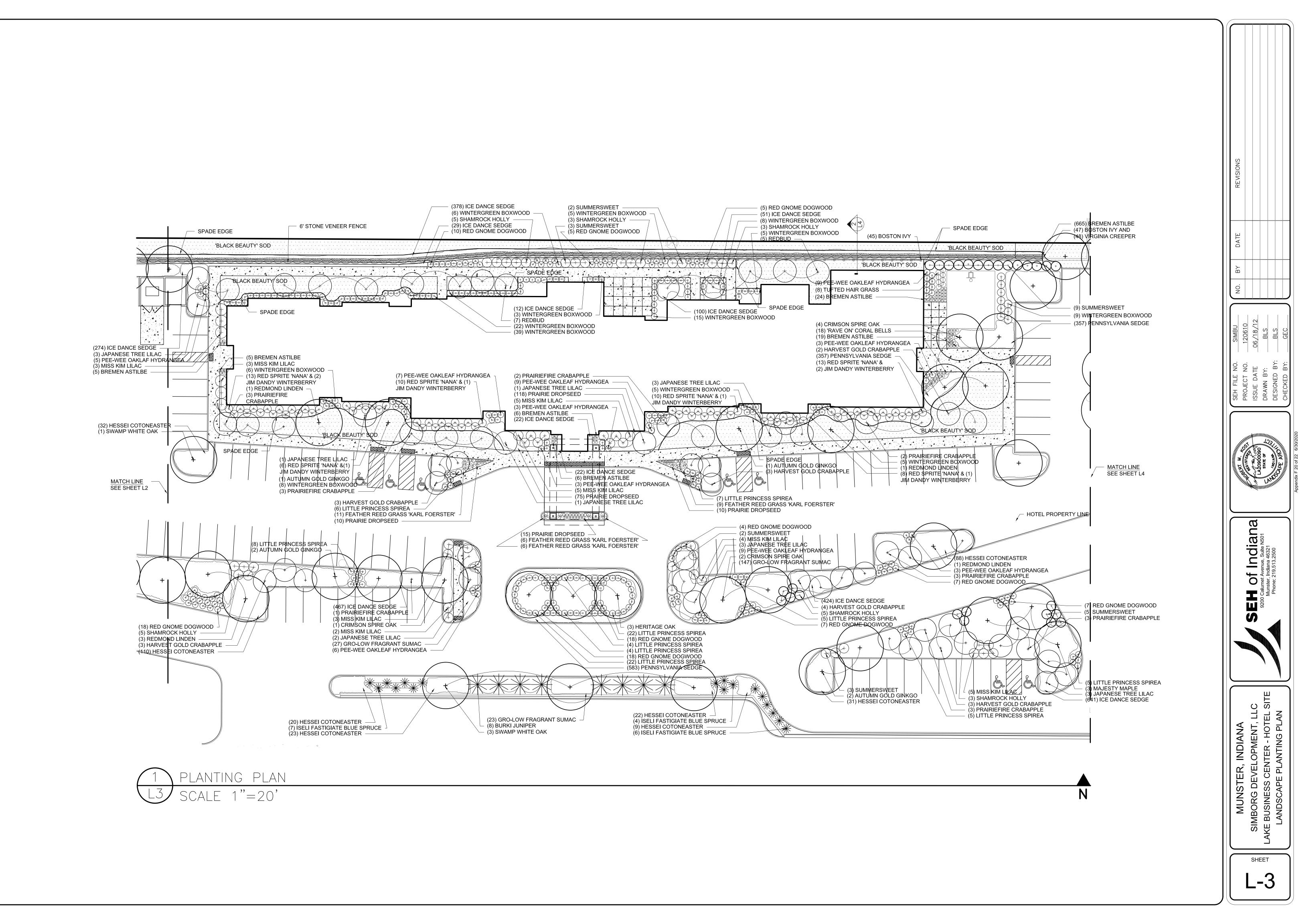
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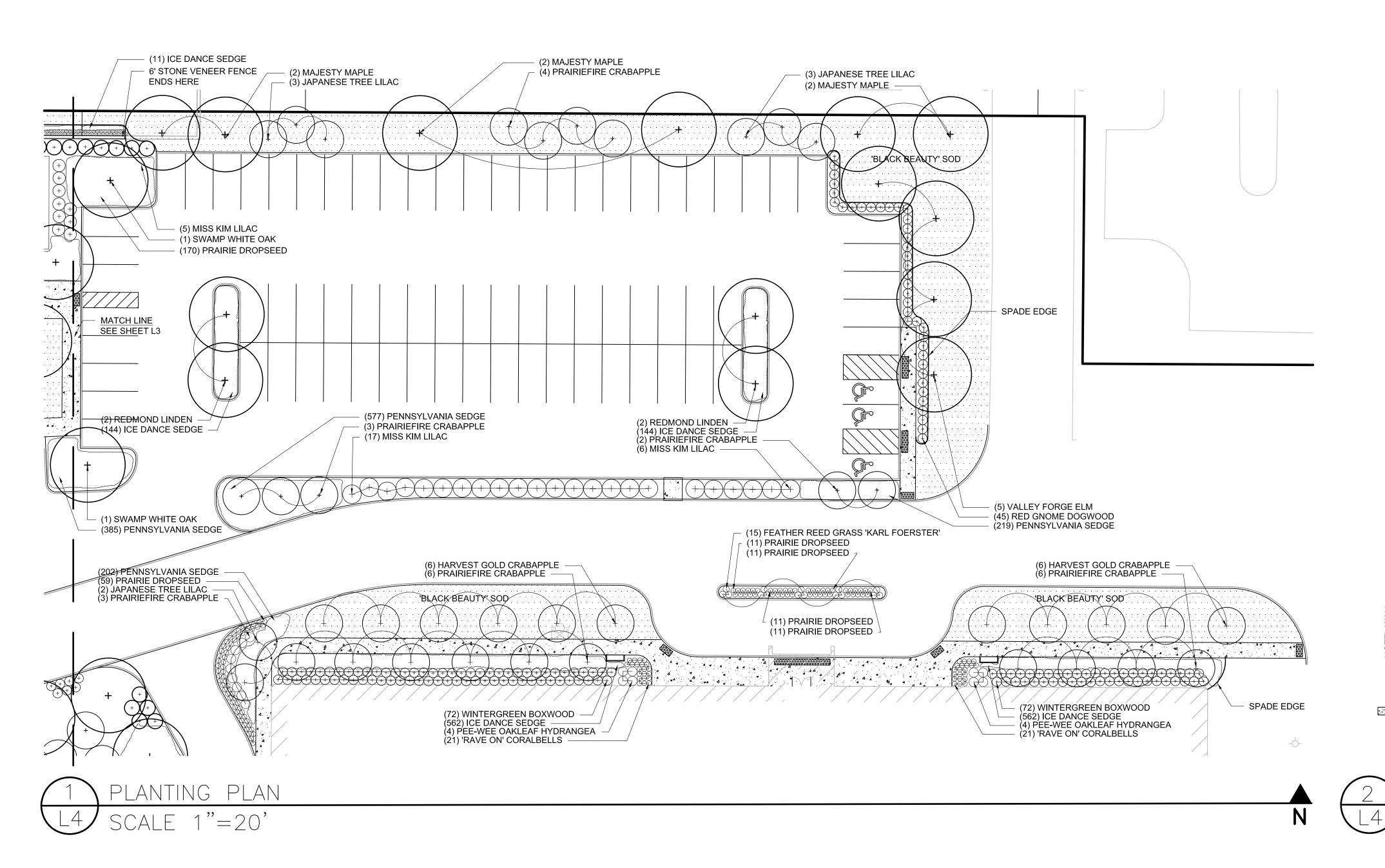


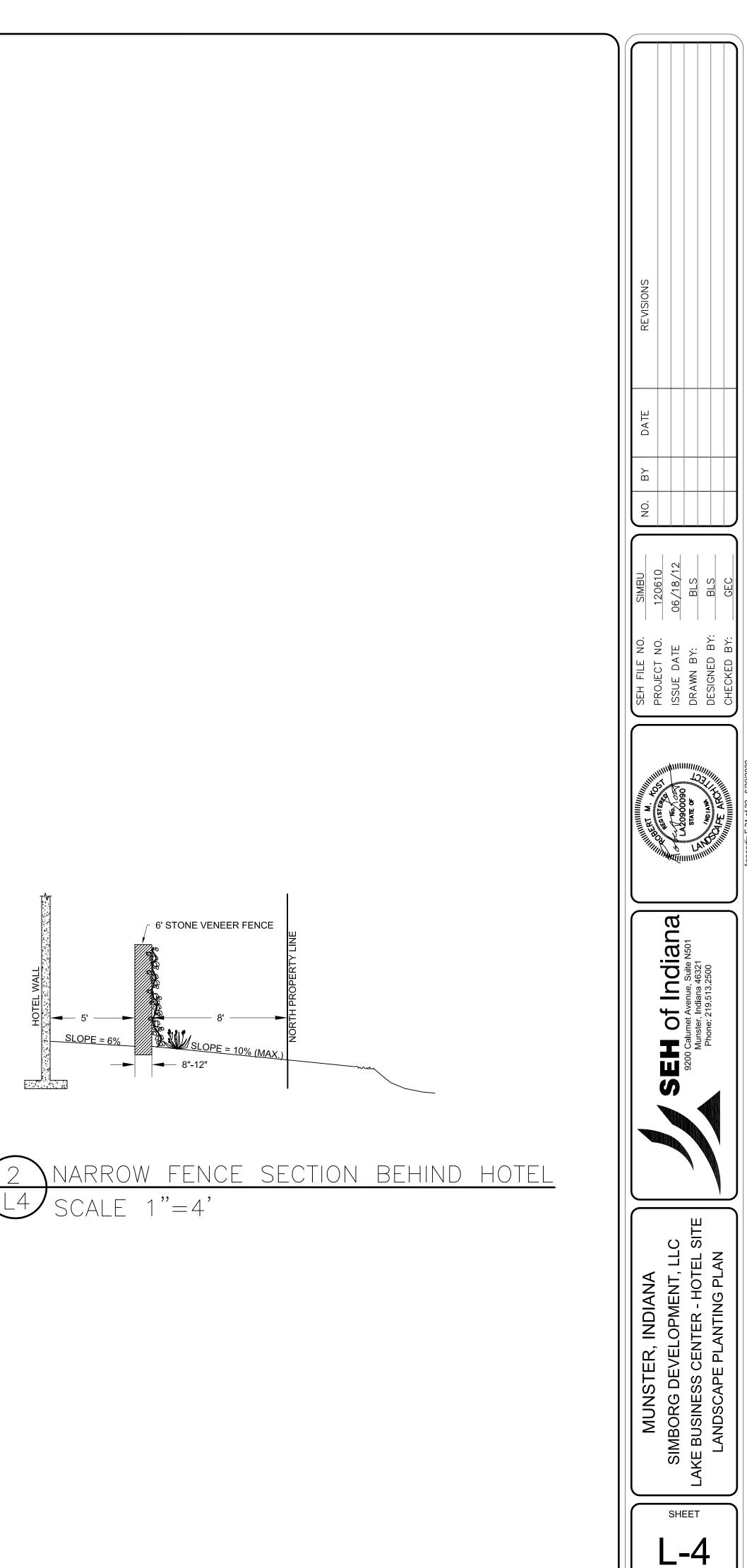


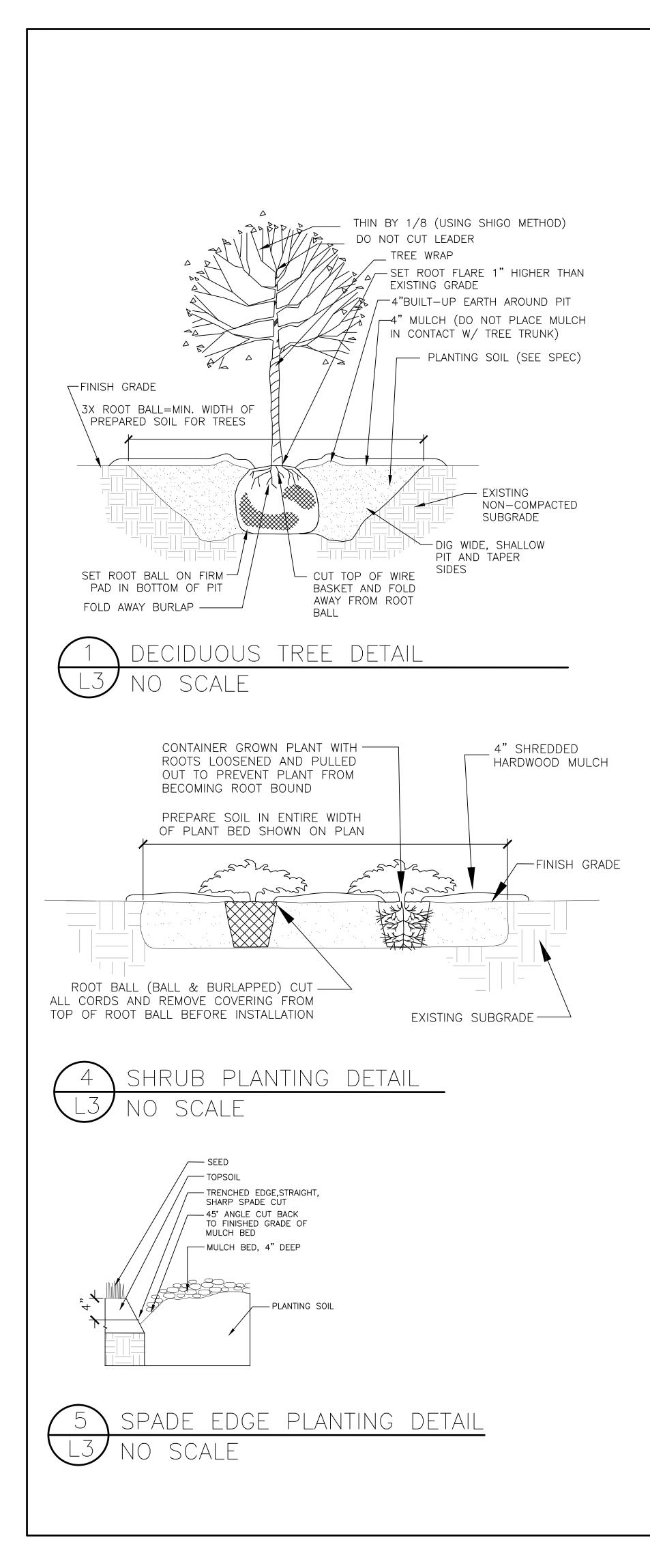


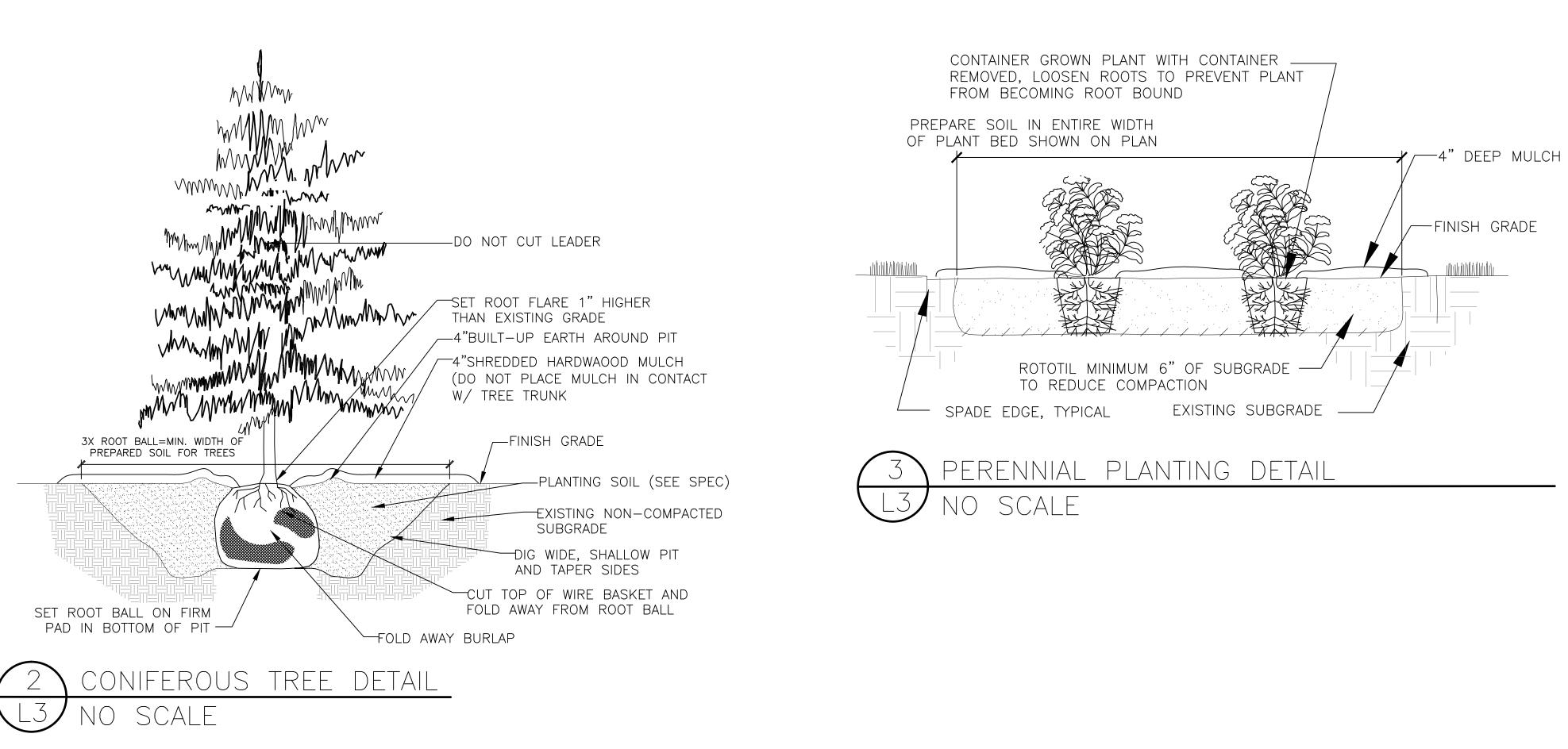






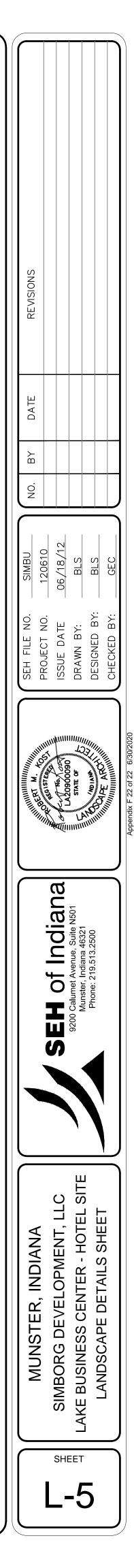






PLANTING SCHEDULE

Quantity	Common Name	Botanical Name	Size	Root	Spacing	Notes
SHADE TF						
9	Crimson Spire Oak	Quercus robur X Q. alba 'Crimschmidt'	2" cal.	B&B	per plan	Trunk free of branches 6-7'
5	Elm, Valley Forge	Ulmus americana 'Valley Forge'	2" cal.	B&B	per plan	Trunk free of branches $6-7$
4	Ginkgo, Autumn Gold	Ginkgo biloba 'Autumn Gold'	2" cal.	B&B	per plan	Trunk free of branches 6-7'
6	Heritage Oak	Quercus X macdanielli 'Clemons'	2" cal.	B&B	per plan	Trunk free of branches 6-7'
12	Linden, Redmond	Tilia americana 'Redmond'	2" cal.	B&B	per plan	Trunk free of branches 6-7'
17	Maple, Majesty	Acer saccharum 'Flax Mill'	2" cal.	B&B	per plan	Trunk free of branches 6-7'
15	Swamp White Oak	Quercus bicolor	2" cal.	B&B	per plan	Trunk free of branches 6-7'
ORNAMEN	TAL TREES					
44	Crabapple, Harvest Gold	Malus 'Hargozam'	2" cal.	B&B	per plan	
54	Crabapple, Prairiefire	Malus 'Prairiefire'	2" cal.	B&B	per plan	
12	Eastern Redbud	Cercis canadensis	2" cal.	B&B	per plan	
38	Lilac, Japanese Tree	Syringa reticulata	2" cal.	B&B	per plan	-
EVERGREE						
LVERGREE 17		Piece purcere "lecti fecticiste"	6'			
8	Blue Spruce, Iseli Fastigiate	Picea pungens 'Iseli fastigiate'	12'	B&B	per plan	
	Juniper, Burki	Juniperus virginiana 'Burkii'		B&B	per plan	
SHRUBS			0.0			
280	Wintergreen boxwood	Buxus microphylla	#5	CONT.	per plan	
169	Dogwood, Red Gnome	Cornus alba sibirica 'Red Gnome'	#5	CONT.	per plan	
775	Hessei Cotoneaster	Cotoneaster horizontalis x adpressus	#5	CONT.	3'0.C.	
27	Holly, Shamrock	llex glabra 'Shamrock'	#5	CONT.	per plan	
78	Hydrangea, Oakleaf Pee Wee	Hydrangea quercifolia 'Pee Wee'	#5	CONT.		
8	Jim Dandy Winterberry	llex verticillata 'Jim Dandy'	#5	CONT.	per plan	
70	Lilac, Miss Kim	Syringa patula 'Miss Kim'	#5	CONT.	per plan	
115	Little Princess Spirea	Spirea japonica alpina	#5	CONT.	· · · · · · · · · · · · · · · · · · ·	
60	Red Sprite Winterberry	llex verticillata 'Red Sprite'	#5	CONT.	per plan	
27	Summersweet	Clethra alnifolia	#5	CONT.	per plan	
688	Sumac, Gro-Low Fragrant	Rhus aromatica 'Gro-Low'	#5	CONT.	3'0.C.	
VINE						
160	Boston Ivy	Parthenocissus tricuspidata 'Robusta'	# 1	CONT.		Alternate Boston Ivy and
115	Virginia Creeper	Parthenocissus quinquefolia	# 1	CONT.	5' O.C.	Virginia creeper every 5'
HERBACE	OUS PERENNIALS					
730	Bremen Astilbe	Astilbe japonica 'Bremen'	#1	CONT.	18"o.c.	
	Coral Bells, 'Rave On'	Heuchera 'Rave On'	# 1	CONT.		
	TAL GRASSES					
47	Feather Reed Grass 'Karl Foerster'	Calamagrostis x acutiflora 'Karl Foerster'	# 1	CONT.		
501	Prairie Dropseed	Sporobolous heterolepis	# 1 # 1	CONT.	per plan 12"0.C.	
5499	Sedge, Ice Dance	Carex morrowii	# 1 # 1	CONT.		
3802	Sedge, Pennsylvania	Carex pennsylvanica	# 1	CONT.	12 0.C. 12" 0.C.	
8	Tufted Hair Grass	Dechampsia cespitosa	# 1	CONT.	per plan	
		beenampara ceapitosa	π^{-1}	UUNI.	per plut	I





Home2 Suites Munster, Indiana - Perspective Approaching Entry, 2020/06/18



Home2 Suites Munster, Indiana - East Perspective, 2020/06/18



Home2 Suites Munster, Indiana - East Perspective at Cross Walk, 2020/06/18



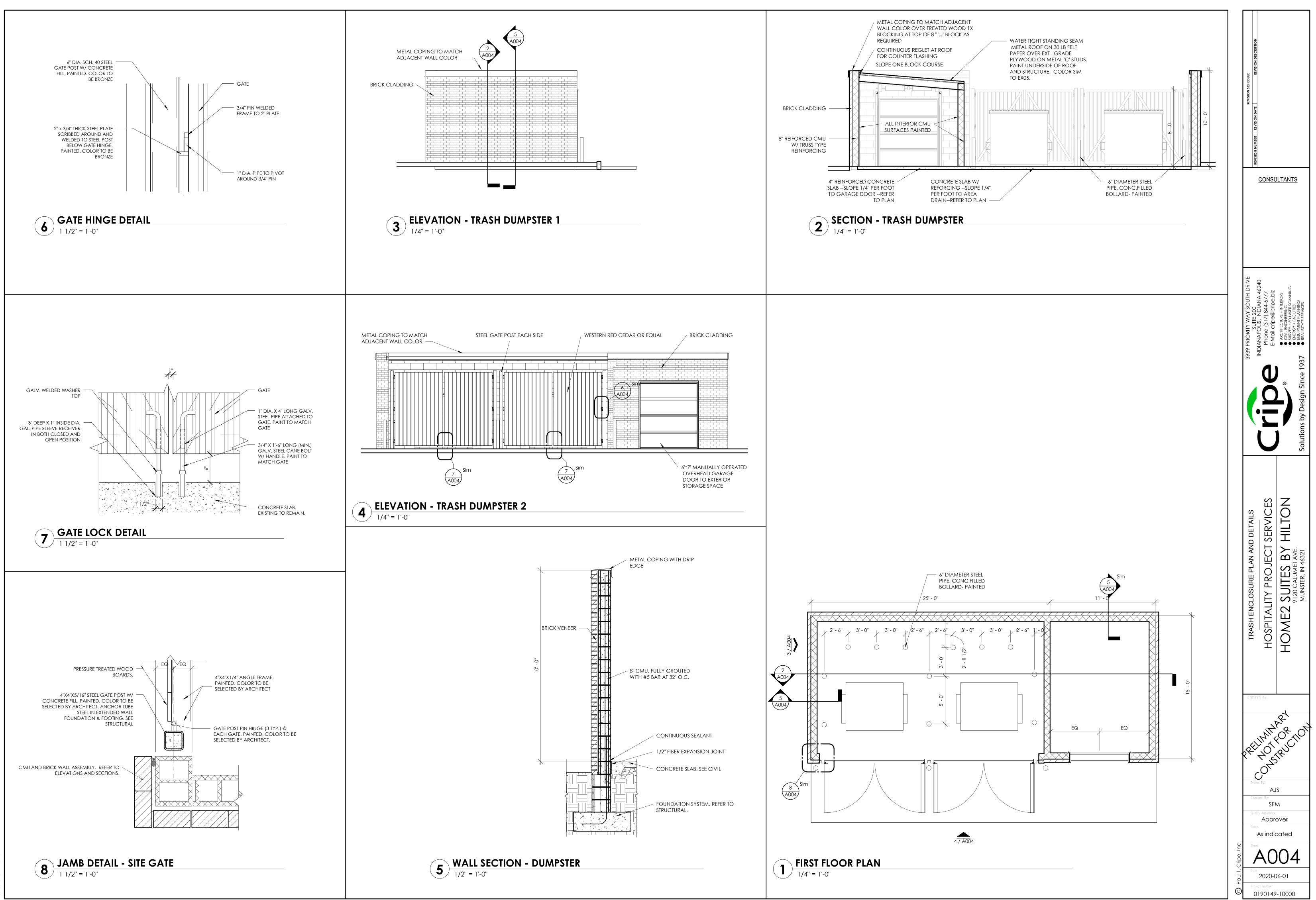
Home2 Suites Munster, Indiana - North Perspective, 2020/06/18



Home2 Suites Munster, Indiana - West Elevation Perspective, 2020/06/26

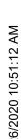


Home2 Suites Munster, Indiana - South Perspective, 2020/06/18



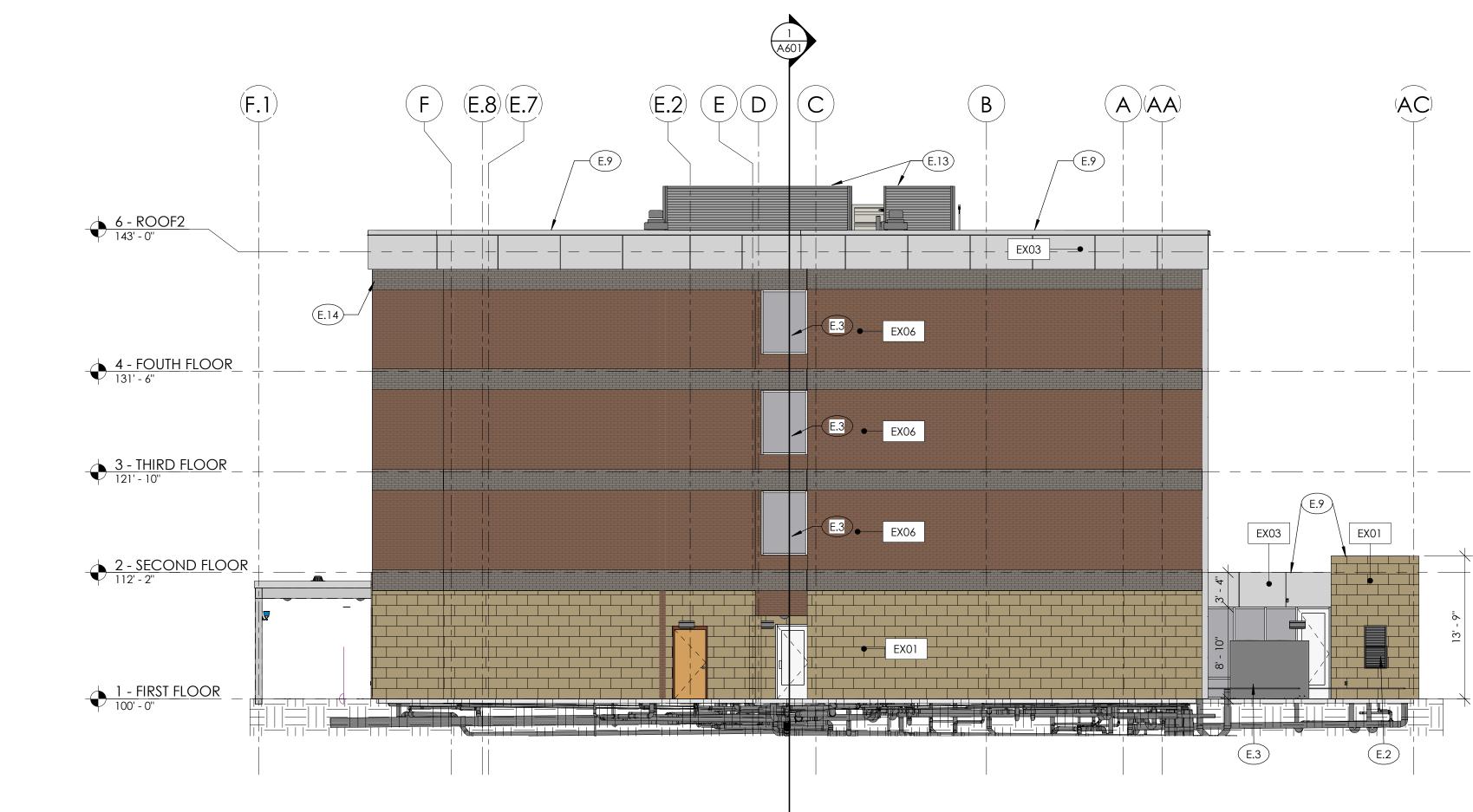
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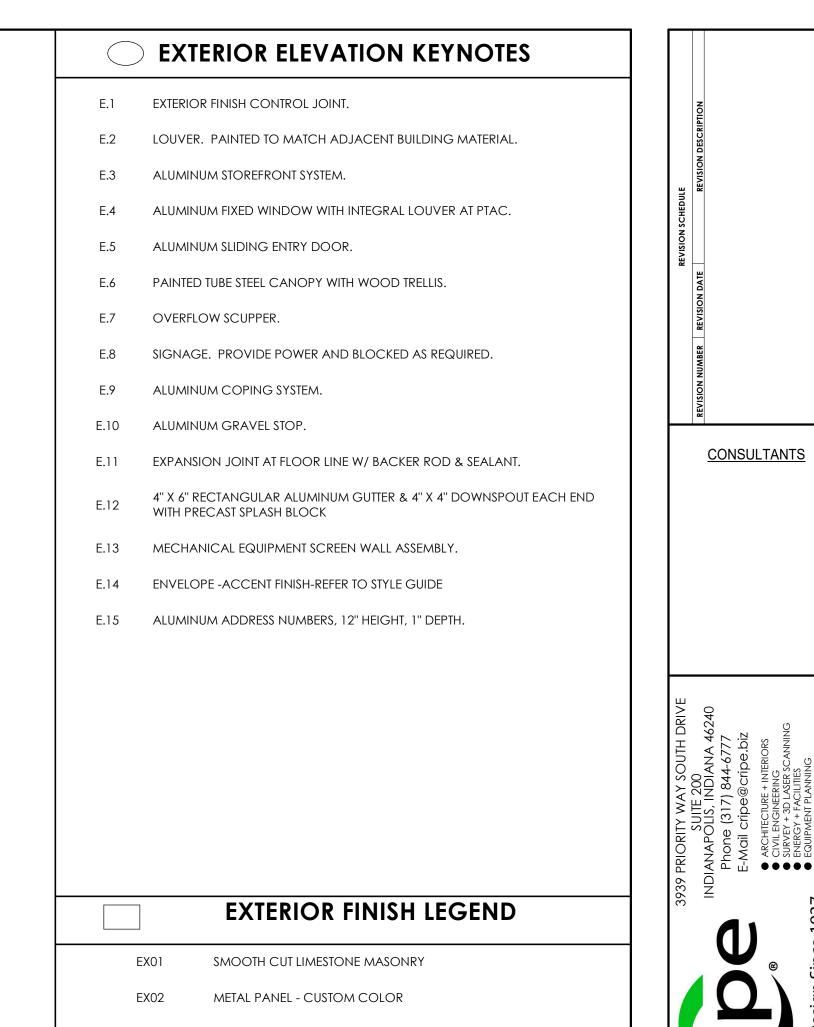


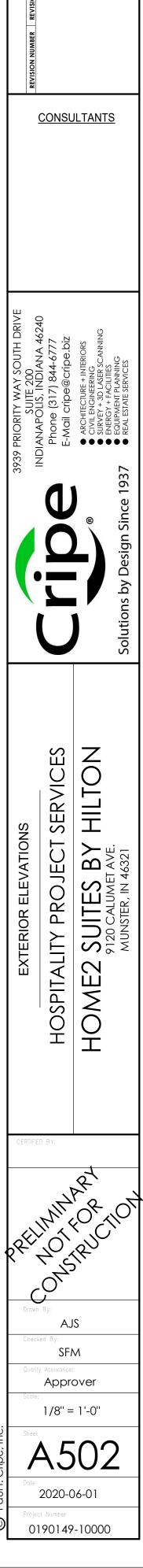


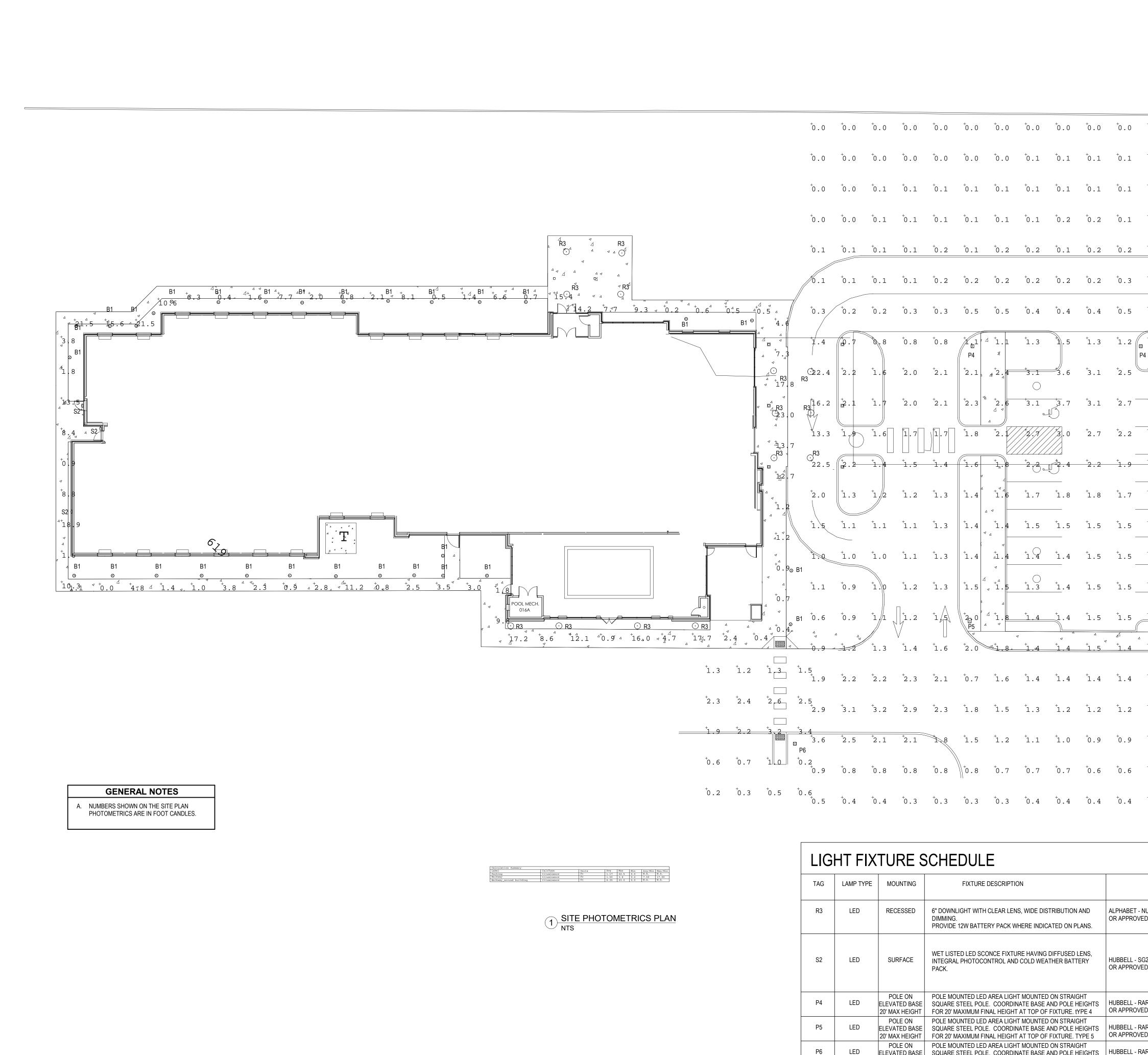






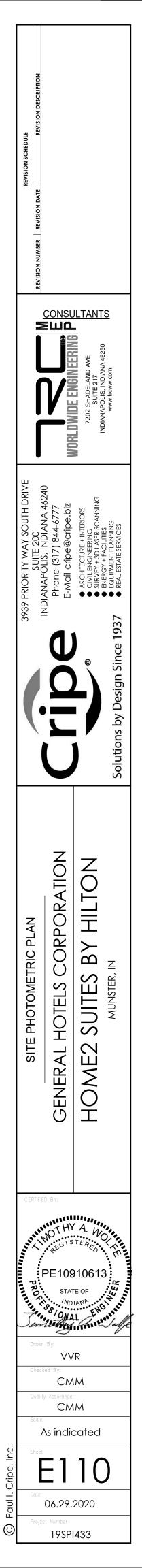


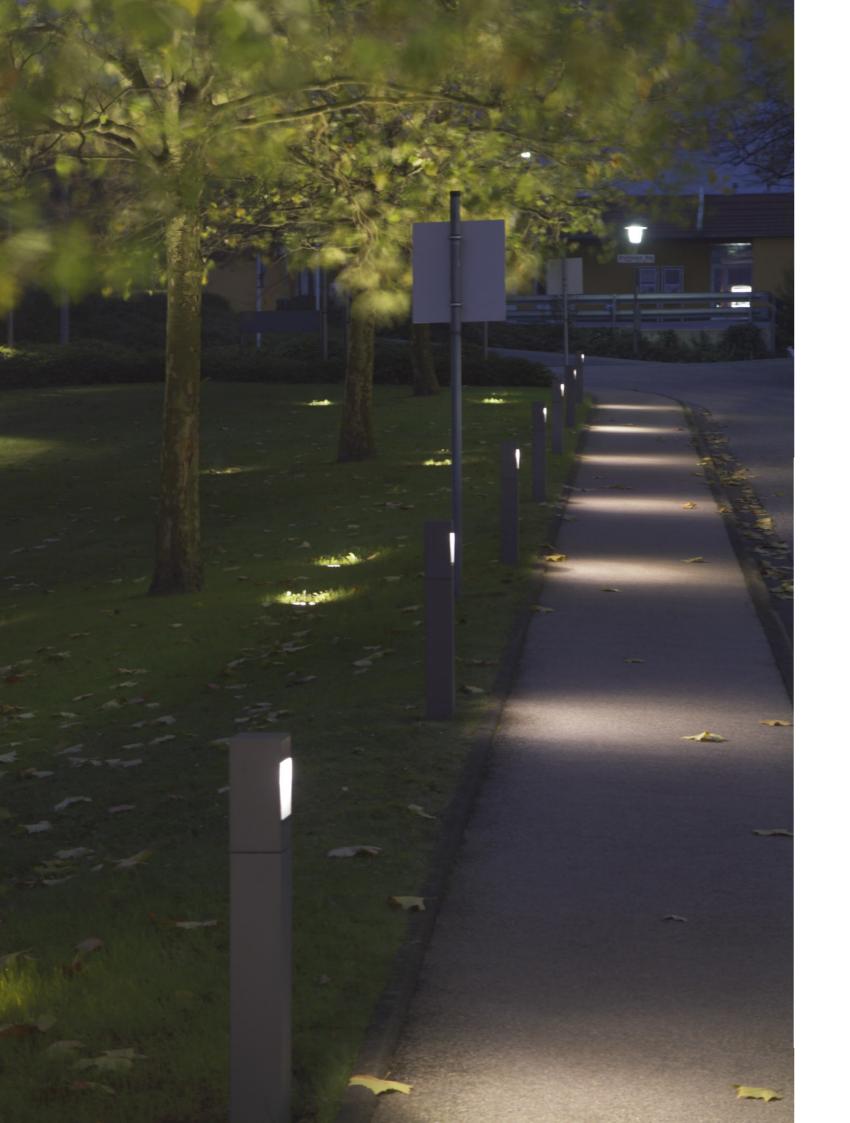




TAG	LAMP TYPE	MOUNTING	FIXTURE DESCRIPTION	PRODUCT REFERENCE	LAMPS	VOLTAGE	WATTAGE	MOUNTING HEIGH
R3	LED	RECESSED	6" DOWNLIGHT WITH CLEAR LENS, WIDE DISTRIBUTION AND DIMMING. PROVIDE 12W BATTERY PACK WHERE INDICATED ON PLANS.	ALPHABET - NU6-RD-SW-40LM-35K-80-D60-120-10V-NC-WH-WH OR APPROVED EQUIVALENT	3200 LUMENS, 3500K, >80CRI	120V	32W	SEE ARCH. DWGS
S2	LED	SURFACE	WET LISTED LED SCONCE FIXTURE HAVING DIFFUSED LENS, INTEGRAL PHOTOCONTROL AND COLD WEATHER BATTERY PACK.	HUBBELL - SG2-50-3K7-FT-120-XX-PCU-CS-EH OR APPROVED EQUIVALENT	1800 LUMENS, 4000K, >80CRI	120V	51W	SEE ARCH. DWGS
P4	LED	POLE ON ELEVATED BASE 20' MAX HEIGHT	POLE MOUNTED LED AREA LIGHT MOUNTED ON STRAIGHT SQUARE STEEL POLE. COORDINATE BASE AND POLE HEIGHTS FOR 20' MAXIMUM FINAL HEIGHT AT TOP OF FIXTURE. tYPE 4	HUBBELL - RAR1-160L70-3K7-4W-UNV-ASQ-XX-BC OR APPROVED EQUIVALENT	22,000 LUMENS, 3000K, >80CRI	120V	154W	20'
P5	LED	POLE ON ELEVATED BASE 20' MAX HEIGHT	POLE MOUNTED LED AREA LIGHT MOUNTED ON STRAIGHT SQUARE STEEL POLE. COORDINATE BASE AND POLE HEIGHTS FOR 20' MAXIMUM FINAL HEIGHT AT TOP OF FIXTURE. TYPE 5	HUBBELL - RAR1-160L70-3K7-5QW-UNV-ASQ-XX-BC OR APPROVED EQUIVALENT	22,000 LUMENS, 3000K, >80CRI	120V	154W	20'
P6	LED	POLE ON ELEVATED BASE 20' MAX HEIGHT	POLE MOUNTED LED AREA LIGHT MOUNTED ON STRAIGHT SQUARE STEEL POLE. COORDINATE BASE AND POLE HEIGHTS FOR 20' MAXIMUM FINAL HEIGHT AT TOP OF FIXTURE. TYPE 2	HUBBELL - RAR1-160L70-3K7-2W-UNV-ASQ-XX-BC OR APPROVED EQUIVALENT	22,000 LUMENS, 3000K, >80CRI	120V	154W	20'
B1	LED	BASE MOUNTED BOLLARD	FLOOR WASH LED BOLLARD HAVING WIDE DISTRIBUTION.	ERCO - LIGHTMARK SERIES OR APPROVED EQUIVALENT	825 LUMENS 3000K	120V	7.5W	3'

⁺ 0.0	⁺ 0.0	⁺ 0.0	⁺ 0.0	⁺ 0.0	+0.0	+ 0.0	+ 0.0	⁺ 0.0	⁺ 0.0	
⁺ 0.1	⁺ 0.0	⁺ 0.0	⁺ 0.0	⁺ 0.1	⁺ 0.1	⁺ 0.1	⁺ 0.1	⁺ 0.1	⁺ 0.1	
⁺ 0.1	⁺ 0.0	⁺ 0.1	⁺ 0.1	⁺ 0.1	⁺ 0.1	⁺ 0.1	⁺ 0.1	⁺ 0.1	⁺ 0.1	
⁺ 0.1	⁺ 0.1	⁺ 0.1	⁺ 0.1	⁺ 0.0	⁺ 0.0	⁺ 0.0	⁺ 0.0	⁺ 0.3	⁺ 0.2	
⁺ 0.2	⁺ 0.3	⁺ 0.1	⁺ 0.1	+0.0	+0.0	⁺ 0.0	+0.0	⁺ 0.5	⁺ 0.4	
⁺ 0.4	⁺ 0.4	⁺ 0.5	⁺ 0.1	P	D		x	⁺ 0.7	⁺ 0.6	
⁺ 0.6	+0.7	⁺ 0.8	0.9	⁺ 1.3				+ <u>0.9</u>	⁺ 0.8	
1.3 4	1.2	⁺ 1.4	⁺ 1.6	⁺ 1.6	⁺ 1.4	⁺ 1.3	+1.2	⁺ 1.1	⁺ 0.9	
2.3		+2.7						⁺ 1.2		
2.5	2.5	⁴ ⁺ 2 7	[‡] 2.6	⁺ 2.0	⁺ 1.8	• P4		⁺ 1.2		
⁺ 2.1	⁺ 2.1	⁴ ⁺ 2 7 ⁴ ⁺ 2 4	2.4	⁺ 2.0	⁺ 1.7	- ⁺ 1.8	⁺ 1.5	⁺ 1.2	⁺ 1.1	
+1.8	⁺ 1.9 ⁴	⁺ _√ 2₄ 1	2.2	⁺ 2.0	⁺ 1.8	1.6	1.4	⁺ 1.2	⁺ 1.0	
+1 6	+	⁷ + 8	* 1 Q	+ 1 Ω	+ 1 8	+1 6	+14	+1 1	+ 0 0	
⁺ 1.5	+1.6	⁺₫ . 7	1.7	⁺ 1.8	⁺ 1.7	⁺ 1.5	⁺ 1.3	⁺ 1.0	⁺ 0.8	
, 1.5	⁺ 1.5	±.0 ⁺ 1.7 ⊴ / [±] 1.6	1.6	⁺ 1.6	⁺ 1.5	⁺ 1.3	⁺ 1.1	⁺ 0.8	⁺ 0.6	
) 1.4	+1.4	4 1.6	1.6	⁺ 1.4	⁺ 1.3	⁺ 1.2	⁺ 0.9	⁺ 0.6	⁺ 0.4	
) 1.4	<u>+</u> 1.4	4 4 1.6 7 1.9 P5	2.d	⁺ 1.4	/+1.2	⁺ 1.0 ⊡ ₽5	+0.8	0.5	⁺ 0.3	
⊴ ₄ 1.4	+ ⁴ 1.3 ⁴	4 + 1.7	√ ⁺ 1.7	⁺ 1.2	⊥ ⁺1.1	+1.0	+0.7	⁺ 0.4	⁺ 0.3	
⁺ 1.3	⁺ 1.2	⁺ 1.2	⁺ 1.2	⁺ 1.1	⁺ 1.0	⁺ 0.9	⁺ 0.7	⁺ 0.4	⁺ 0.2	
⁺ 1.1	⁺ 1.1	⁺ 1.1	⁺ 1.1	⁺ 1.0	⁺ 0.9	⁺ 0.7	⁺ 0.5	⁺ 0.3	⁺ 0.2	
⁺ 0.9	⁺ 0.9	⁺ 0.9	⁺ 0.9	⁺ 0.8	⁺ 0.7	⁺ 0.6	⁺ 0.4	⁺ 0.3	⁺ 0.2	
⁺ 0.6	⁺ 0.6	⁺ 0.6	⁺ 0.6	⁺ 0.5	⁺ 0.5	⁺ 0.4	⁺ 0.3	⁺ 0.2	0.1	
⁺ 0.4	⁺ 0.3	0.6 ⁺0.3	⁺ 0.3	⁺ 0.3	⁺ 0.3	⁺ 0.2	⁺ 0.2	⁺ 0.1	⁺ 0.1	





Lightmark – Precise light of minimalist elegance

The efficient bollard luminaire with good visual comfort for the illumination of pathways and open areas Lightmark bollard luminaires focus the attention very naturally on any architectural setting. Using the wide light distribution, Lightmark illuminates pathways along walls or buildings evenly over an area wide enough to require a minimum number of luminaires. Their deep-beam version effectively lights squares or terraces. With their low-maintenance and smooth surface, Lightmark is a robust yet elegant bollard luminaire for the outdoor area. The light





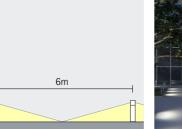
 Technical Region:
 Edition: 27.11.2019

 220V-240V/50Hz-60Hz
 Current version under

 We reserve the right to make technical
 www.erco.com/lightmark
 and design changes.



Lightmark Bollard luminaires



Large luminaire spacing ERCO's efficient photometrics enable selected luminaires to be spaced particularly far apart, thereby minimising the number of luminaires required.

Different light distributions: wide or deep

The wide or deep beam distribution Spherolit lenses allow the light distribution to be matched to the lighting task at hand.

Structure and characteristics The features described here are typical of products in this range. Special versions may offer additional or varying features. A comprehensive description of the features of individual products can be found on our website.



2



- 1 ERCO Spherolit lens Light distributions: wide beam or deep beam
- 2 ERCO LED-module High-power LED: warm white (3000K) or neutral white (4000K)
- Collimating lens made of optical
- polymer
- 3 Luminaire
- Graphit m
- Corrosion-resistant cast aluminium, No-Rinse surface treatment
 Double powder-coated
- Optimised surface for reduced accumulation of dirt - Non-reflective safety glass

4 Bollard

- Corrosion-resistant aluminium profile, No-Rinse surface treatment
- Graphit m, double powder-coated
- Tamper-proof screws
- 5 Control gear Switchable
- 6 Base plate
- For mounting on concrete plinth or accessories
- Protection mode IP65

Dust-tight and water jet-proof

- Variants on request High-power LEDs: 3000K CRI 97 or 2700K, 3500K, 4000K with CRI 92
- Housing: 10,000 further colours
- Please contact your ERCO consultant.



ERCC

Design and application: www.erco.com/lightmark

Technical Region: 220V-240V/50Hz-60Hz We reserve the right to make technical and design changes.

Edition: 27.11.2019 Current version under www.erco.com/lightmark



ERCO

Different light distributions:

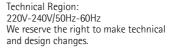
Large luminaire spacing

wide or deep

possible

Special characteristics

⊢ d



ERCO high-power LEDs

Efficient Spherolit techno-

Dark Sky technology

Different light colours

 $\downarrow \downarrow \downarrow \downarrow$

logy





Excellent thermal management



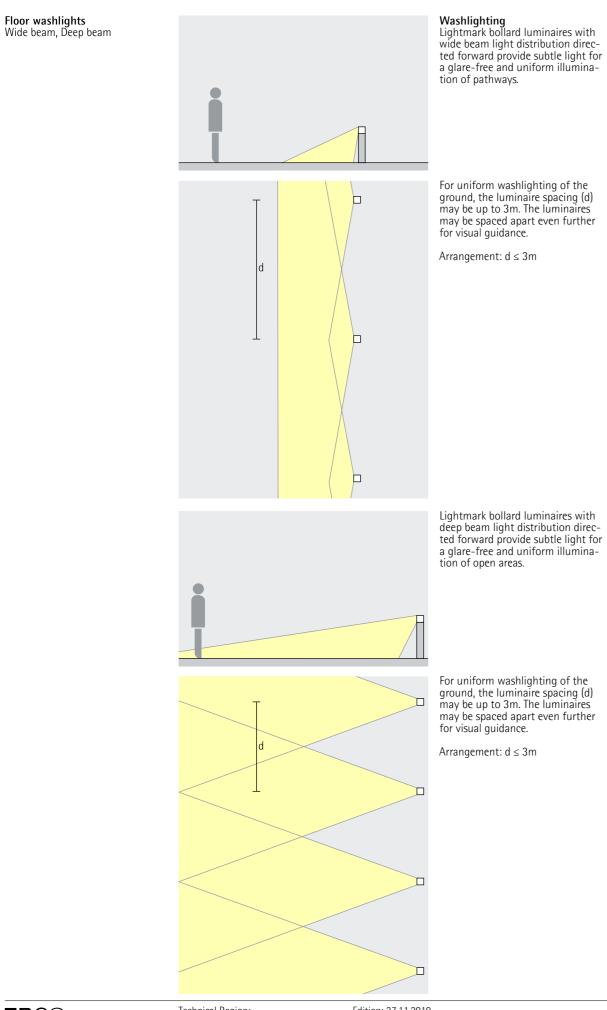
Switchable



WA

Protection mode IP65

Lightmark Bollard luminaires – Luminaire arrangement





ERCO

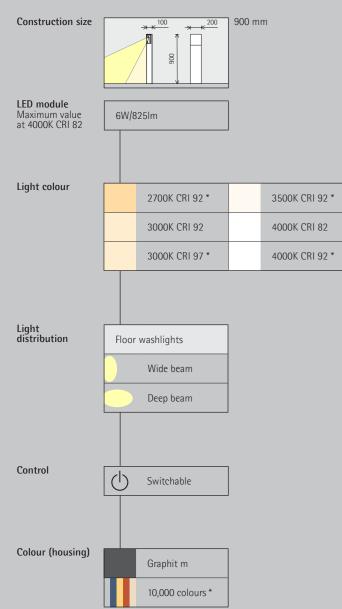
Technical Region:Edition: 27.11.2019220V-240V/50Hz-60HzCurrent version underWe reserve the right to make technical
and design changes.www.erco.com/lightmark

5/8

ERCO

Technical Region: 220V-240V/50Hz-60Hz We reserve the right to make technical and design changes.

Lightmark Bollard luminaires





Accessories

Distribution box	Ĵ∭	
Anchorage unit		

ERCO

Concrete anchor

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* available on request

Technical Region:Edition: 27.11.2019220V-240V/50Hz-60HzCurrent version underWe reserve the right to make technicalwww.erco.com/lightmark and design changes.

Article numbers and planning data: www.erco.com/011960

Design and application: www.erco.com/lightmark





ATIO Series

FEATURES

- · Low profile LED area/site luminaire with a variety of IES distributions for lighting applications such as retail, commercial and campus parking lots
- · Featuring Micro Strike Optics which maximizes target zone illumination with minimal losses at the house-side, reducing light trespass issues
- · Visual comfort standard
- · Compact and lightweight design with low EPA
- 3G rated for high vibration applications including bridges and overpasses
- · Control options including photo control, occupancy sensing, NX Distributed Intelligence[™] and 7-Pin with networked controls
- · Best in class surge protection available



CONTROL TECHNOLOGY



SPECIFICATIONS

CONSTRUCTION

- · Rectilinear form mimics the traditional shoebox form factor keeping a similar but updated style and appearance, ideal for retrofit applications
- · Die-cast housing with hidden vertical heat fins that are optimal for heat dissipation while keeping a clean smooth outer surface
- · Corrosion resistant, die-cast aluminum housing with powder coat paint finish

OPTICS

- Entire optical aperture illuminates to create a larger luminous surface area resulting in a low glare appearance without sacrificing optical performance
- 80, 160, 320 or 480 midpower LEDs
- 3000K, 4000K or 5000K (70 CRI) CCT
- Zero uplight at 0 degrees of tilt
- · Field rotatable optics

INSTALLATION

- Standard square arm mount, compatible with B3 drill pattern
- Optional universal mounting block for ease of installation during retrofit applications. Available as an option or accessory for square and round poles.
- Knuckle arm fitter option available for 2-3/8" OD tenon. Max tilt of 60 degrees with 4 degree adjustable increments. (Restrictions apply for 7-pin options)

	EC	TD	ICA
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- Universal 120-277 VAC or 347-480 VAC input voltage, 50/60 Hz
- Ambient operating temperature -40°C to 40°C
- Drivers have greater than 90% power factor and less than 20% THD
- · LED drivers have output power over-voltage, over-current protection and short circuit protection with auto recovery
- Field replaceable surge protection device provides 20kA protection meeting ANSI/ IEEE C62.41.2 Category C High and Surge Location Category C3; Automatically takes fixture off-line for protection when device is compromised

CONTROLS

- Photo control, occupancy sensor and wireless available for complete on/off and dimming control
- 7-pin ANSI C136.41-2013 photocontrol receptacle option available for twist lock photocontrols or wireless control modules (control accessories sold separately)
- 0-10V dimming leads available for use with control devices (provided by others, must specify lead length)
- SiteSync™ wireless control system is available via 7-pin See ordering information and details at: www.hubbelllighting.com/sitesync
- NX Distributed Intelligence[™] available with in fixture wireless control module, features dimming and occupancy sensor

DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	



RELATED PRODUCTS 8 Airo 8 Cimarron LED 8 Ratio Family

CONTROLS (CONT'D)

 wiSCAPE[®] available with in fixture wireless control module, features dimming and occupancy sensor via 7-pin

CERTIFICATIONS

- DLC® (DesignLights Consortium Qualified), with some Premium Qualified configurations. Please refer to the DLC website for specific product qualifications at www.designlights.org
- Listed to UL1598 and CSA C22.2#250.0-24 for wet locations and 40°C ambient temperatures
- 3G rated for ANSI C136.31 high vibration applications
- Fixture is IP66 rated
- Meets IDA recommendations using 3K CCT configuration at 0 degrees of tilt

WARRANTY

- 5 year limited warranty
- See <u>HLI Standard Warranty</u> for additional information

KEY DATA					
Lumen Range	3,000–48,000				
Wattage Range	25–340				
Efficacy Range (LPW)	118–155				
Fixture Projected Life (Hours)	L70>60K				
Weights lbs. (kg)	13.5–24 (6.1–10.9)				

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PHOTOMETRY

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RATIO BROCHURE

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RAR1/RAR2 PSG PAGE

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DATE: LOCATION: TYPE: PROJECT: CATALOG #:

ORDERING GUIDE

Example: RAR1-80L-25-3K7-2-UNV-ASQ-BL-NXWE-BC CATALOG #

ORDERING INFORMATION

					-								-		
Series		# LEDs - W	Vattage		CCT/0	RI	Dis	tribution	Op	otics Rot	ation		Voltage	<u>j</u>	
RAR1	Ratio Area	80L-25	25W - 3,0	000 Lumens	3K7	3000K, 70 CRI	2	IES TYPE II] [E	Blank for	no rotati	on	UNV	Universa	al 120-277V
	Size 1	80L-39	39W -5,2	00 Lumens	4K7	4000K, 70 CRI	3	IES TYPE III	L	Optic	rotation	left	120	120V	
		801-50	50W-60	00 Lumens	5K7	5000K, 70 CRI	4 W	IES TYPE IV	R	Optic	rotation	right	208	208V	
		160L-70	70W - 9.0	00 Lumens			5Q	W IES TYPE V					240	240V	
		160L-100	100W - 12	,000 Lumens									277	277V	
		160L-115	115W - 15,	000 Lumens									347	347V	
		160L-135	135W - 18	,000 Lumens									480	480V	
					·										
RAR2	Ratio Area Size 2	320L-110		000 Lumens											
	JIZE Z	320L-140		,000 Lumens											
		320L-165		,000 Lumens											
		480L-185		1,000 Lumens											
		480L-210		7,000 Lumens											
		480L-240		0,000 Lumens											
		480L-255		6,000 Lumens											
		480L-295		2,000 Lumens											
		480L-340	340W - 4	8,000 Lumens											
		4002-340	5-000												
]_			_					-				
Mountir	ng		Color			- Contro	l Option	s Network		_	Optio	ns			
			- Color		extured				abled	-			t control		
Mountir ASQ	ng Arm mount fo pole/flat surfa	r square	- Color BLT	Black Matte T		– Contro NXWE		s Network NX Wireless Ena (module + radio)		-	BC	Backligh		ng	
	Arm mount fo pole/flat surfa Universal arm	r square ce 1 mount for	- Color	Black Matte T	mooth	NXWE		NX Wireless Ena (module + radio) NX Wireless, PIR	Occ.	-	BC	Backligh Continue	ous dimmii	0	
ASQ	Arm mount fo pole/flat surfa	r square ce 1 mount for	Color BLT BLS	Black Matte T Black Gloss S	imooth Matte Textu	nxwe red NXSP	N_F	NX Wireless Ena (module + radio) NX Wireless, PIR Sensor, Daylight	Occ. Harves		BC CD	Backligh Continue	ous dimmii nust speci	ng ify voltage)	
ASQ ASQU	Arm mount fo pole/flat surfa Universal arm	r square ce 1 mount for lat surface	Color BLT BLS DBT	Black Matte T Black Gloss S Dark Bronze I	imooth Matte Textu iloss Smoot	red NXWE	N_F	NX Wireless Ena (module + radio) NX Wireless, PIR Sensor, Daylight NX, PIR Occ. Sen	Occ. Harves		BC CD F TB	Backligh Continue Fusing (r Terminal	ous dimmii nust speci block	ify voltage)	
ASQ ASQU	Arm mount fo pole/flat surfa Universal arm square pole/fl	r square ce mount for lat surface s	Color BLT BLS DBT DBS	Black Matte T Black Gloss S Dark Bronze I Dark Brone G	imooth Matte Textu iloss Smoot ie Textured	nxwe red NXSP	N_F _F	NX Wireless Ena (module + radio) NX Wireless, PIR Sensor, Daylight NX, PIR Occ. Sen Harvesting ²	Occ. Harves		BC CD F TB	Backligh Continue Fusing (r Terminal	ous dimmii nust speci block	0	
ASQ ASQU Mountin	Arm mount fo pole/flat surfa Universal arm square pole/fl ng Round Poles Arm mount fo Universal arm	r square ce mount for lat surface s r round pole ¹	Color BLT BLS DBT DBS GTT	Black Matte T Black Gloss S Dark Bronze I Dark Brone G Graphite Matt	imooth Matte Textu iloss Smoot ie Textured oss Smooth	h NXSP	N_F _F ol Option	NX Wireless Ena (module + radio) NX Wireless, PIR Sensor, Daylight NX, PIR Occ. Sen Harvesting ² s Other	Cocc. Harves nsor, Da	ylight	BC CD F TB	Backligh Continue Fusing (r Terminal	ous dimmii nust speci block	ify voltage)	
ASQ ASQU Mountin A_ A_U	Arm mount fo pole/flat surfa Universal arm square pole/fl ng Round Poles Arm mount fo Universal arm round pole ¹	r square ce mount for lat surface s r round pole ¹	Color BLT BLS DBT DBS GTT LGS	Black Matte T Black Gloss S Dark Bronze I Dark Brone G Graphite Matt Light Grey Glo	imooth Matte Textu iloss Smoot ae Textured ass Smooth ar Smooth	nxwe red NXSP	N_F _F ol Option	NX Wireless Ena (module + radio) NX Wireless, PIR Sensor, Daylight NX, PIR Occ. Sen Harvesting ²	Cocc. Harves nsor, Da	ylight	BC CD F TB	Backligh Continue Fusing (r Terminal	ous dimmii nust speci block	ify voltage)	
ASQ ASQU Mountin A_ A_U	Arm mount fo pole/flat surfa Universal arm square pole/fl ng Round Poles Arm mount fo Universal arm	r square ce mount for lat surface s r round pole ¹	Color BLT BLS DBT DBS GTT LGS PSS	Black Matte T Black Gloss S Dark Bronze I Dark Brone G Graphite Matt Light Grey Glo Platinum Silve	imooth Matte Textu iloss Smoot re Textured oss Smooth er Smooth Textured	h NXSP	N_F _F ol Option	NX Wireless Ena (module + radio) NX Wireless, PIR Sensor, Daylight NX, PIR Occ. Sei Harvesting ² s Other Programmable o	R Occ. Harves nsor, Da	licy	BC CD F TB	Backligh Continue Fusing (r Terminal	ous dimmii nust speci block	ify voltage)	
ASQ ASQU Mountin A_ A_U	Arm mount fo pole/flat surfa Universal arm square pole/fl ng Round Poles Arm mount fo Universal arm round pole ¹	r square ce mount for lat surface s r round pole ¹	Color BLT BLS DBT DBS GTT LGS PSS WHT	Black Matte T Black Gloss S Dark Bronze I Dark Brone G Graphite Matt Light Grey Glo Platinum Silve White Matte T	imooth Matte Textu iloss Smoot er Textured oss Smooth er Smooth Textured Smooth	h NXWE NXSP NXSP Contro SCP-4	N_F F Option DF	NX Wireless Ena (module + radio) NX Wireless, PIR Sensor, Daylight NX, PIR Occ. Sei Harvesting ² s Other Programmable of sensor ⁴	COcc. Harves nsor, Da occupan	iylight icy cle	BC CD F TB	Backligh Continue Fusing (r Terminal	ous dimmii nust speci block	ify voltage)	
ASQ ASQU Mountin A_ A_U Mountin	Arm mount fo pole/flat surfa Universal arm square pole/fl ng Round Poles Arm mount fo Universal arm round pole ¹ ng Other Wall bracket Mast arm fitte	r square ce mount for lat surface s r round pole ¹ n mount for r for 2-3/8"	Color BLT BLS DBT DBS GTT LGS PSS WHT WHS	Black Matte T Black Gloss S Dark Bronze I Dark Brone G Graphite Matt Light Grey Glo Platinum Silve White Matte T White Gloss S Verde Green	imooth Matte Textu iloss Smoot er Textured oss Smooth er Smooth Textured Smooth	h NXWE NXSP NXSP NXSP Contro SCP-4 7PR	N_F F Option DF	NX Wireless Ena (module + radio) NX Wireless, PIR Sensor, Daylight NX, PIR Occ. Sei Harvesting ² s Other Programmable c sensor ⁴ 7-Pin twist lock re	COcc. Harves nsor, Da	iylight icy cle	BC CD F TB	Backligh Continue Fusing (r Terminal	ous dimmii nust speci block	ify voltage)	
ASQ ASQU A_ A_ A_U Mountin WB	Arm mount fo pole/flat surfa Universal arm square pole/fl ng Round Poles Arm mount fo Universal arm round pole ¹ ng Other Wall bracket	r square ce mount for lat surface s r round pole ¹ n mount for r for 2-3/8"	Color BLT BLS DBT DBS GTT LGS PSS WHT WHS VGT	Black Matte T Black Gloss S Dark Bronze I Dark Brone G Graphite Matt Light Grey Glo Platinum Silve White Matte T White Gloss S Verde Green	imooth Matte Textu iloss Smoot er Textured oss Smooth er Smooth Textured Smooth Textured	h NXWE NXSP NXSP NXSP Contro SCP-4 7PR	N_F F O Option DF	NX Wireless Ena (module + radio) NX Wireless, PIR Sensor, Daylight NX, PIR Occ. Ser Harvesting ² s Other Programmable of sensor ⁴ 7-Pin twist lock m 7-Pin receptacle	Cocc. Harves nsor, Da occupan eceptac with sh	ylight Icy cle orting	BC CD F TB	Backligh Continue Fusing (r Terminal	ous dimmii nust speci block	ify voltage)	

Notes:

1 Replace "_" with "3" for 3.5"-4.13" OD pole, "4" for 4.18"-5.25" OD pole, "5" for 5.5"-6.5" OD pole

2 Replace "_" with "14" for up to 14' mounting height, "30F" for 15-30' mounting height

Not available with 25, 50, 255, 295 & 340W configurations 3

4 At least one SCPREMOTE required to program SCP motion sensor

STOCK ORDERING INFORMATION

Catalog Number	Lumens	Wattage	LED Count	CCT/CRI	Voltage	Distribution	Mounting	Finish
RAR1-100-4K-3	12,000	100W	160L	4000K/70CRI	120-277V	Type 3	Square Arm	Bronze
RAR1-100-4K-4W	12,000	100W	160L	4000K/70CRI	120-277V	Type 4W	Square Arm	Bronze
RAR1-135-4K-3	18,000	135W	160L	4000K/70CRI	120-277V	Type 3	Square Arm	Bronze
RAR1-135-4K-4W	18,000	135W	160L	4000K/70CRI	120-277V	Type 4W	Square Arm	Bronze
RAR2-165-4K-3	21,000	165W	320L	4000K/70CRI	120-277V	Type 3	Square Arm	Bronze
RAR2-165-4K-4W	21,000	165W	320L	4000K/70CRI	120-277V	Type 4W	Square Arm	Bronze





DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	

OPTIONS AND ACCESSORIES - STOCK (ORDERED SEPARATELY)

Catalog Number	Description
RARRPA3DB	Round pole adapter 3.5" to 4.13" for ASQ arm, 3.5" to 4.13" OD pole, dark bronze finish
RARA3UDB	Universal mount for square pole or round pole 3.5" to 4.13", dark bronze finish
RARBC80L	Ratio blacklight control 80L
RARBC160L	Ratio blacklight control 160L
RARBC320L	Ratio blacklight control 320L
RARBC480L	Ratio blacklight control 480L

ACCESSORIES AND REPLACEMENT PARTS - MADE TO ORDER

Catalog Number	Description
RAR-ASQU-XX	Universal arm mount for square pole/flat surface ²
RAR-A_U-XX	Universal arm mount for round poles ¹²
RAR-RPAXX	Round pole adapter ^{1,2}
SETAVP-XX	4" square pole top tenon adapter, 2 3/8" OD slipfitter ²
RETAVP-XX	4" round pole top tenon adapter; 2 3/8" OD slipfitter for max. Four fixtures (90o); order 4" round pole adapters separately ²
BIRD-SPIKE-3	Ratio size 1 bird deterrent/spikes
BIRD-SPIKE-4	Ratio size 2 bird deterrent/spikes
RARWB-XX	Wall bracket - use with Mast Arm Fitter or Knuckle ²

1 Replace "_" with "3" for 3.5"-4.13" OD pole, "4" for 4.18"-5.25" OD pole, "5" for 5.5"-6.5" OD pole

2 Replace "XX" with desired color/paint finish

CONTROLS

Control Options	
<u>Standalone</u>	
SW7PR	SiteSync™ on fixture module via 7PR
SWUSB	SiteSync™ Software on USB
SWTAB	SiteSync™ Windows Tablet
SWBRG	SiteSync™ Wireless Bridge Node
SWFC	SiteSync™ Field Commission Serve
SCPREMOTE	Order at least one per project location to program and control
Networked – Wireless	
WIR-RME-L	wiSCAPE External Fixture Module ^{1,2}
NX Networked – Wireless	
NXOFM-1R1D-UNV	NX Wireless, Daylight Harvesting, BLE, 7 pin twisted lock

Notes: 1 Works with external networked photosensor

2 wiSCAPE Gateway required for system programming

Page 3/9 Rev. 06/25/20 RARLED-SPEC





DATE: LOCATION: PROJECT:

TYPE:

CATALOG #:

PERFORMANCE DATA

Description	Nominal	System	Dist.	5K (500	OK NO	MINA	L 70 C	:RI)	4K (400	OK NOI	MINAI	_ 70 C	RI)	3K (3000K NOMINAL 80 CRI)				
Description	Wattage	Ŵatts	Туре	Lumens	LPW	В	U	G	Lumens	LPW	В	U	G	Lumens	LPW	В	U	G
			2	3438	135	1	0	1	3445	136	1	0	1	3240	128	1	0	1
	25		3	3460	136	1	0	1	3467	136	1	0	1	3260	128	1	0	1
	25	25.4	4W	3406	134	1	0	1	3412	134	1	0	1	3209	126	1	0	1
			5QW	3483	137	2	0	1	3490	137	2	0	1	3282	129	2	0	1
			2	5263	139	1	0	2	5273	139	1	0	2	4960	131	1	0	2
	39	39	3	5297	139	1	0	2	5308	140	1	0	2	4991	131	1	0	2
	29	29	4W	5200	137	1	0	2	5210	137	1	0	2	4900	129	1	0	2
			5QW	5333	140	3	0	1	5344	141	3	0	1	5025	132	3	0	1
			2	6310	127	1	0	2	6323	127	1	0	2	5946	120	1	0	2
	50	40.0	3	6349	128	1	0	2	6362	128	1	0	2	5983	120	1	0	2
	50	49.8	4W	6233	125	1	0	2	6245	126	1	0	2	5873	118	1	0	2
			5QW	6392	129	3	0	1	6405	129	3	0	1	6023	121	3	0	1
			2	9486	139	1	0	2	9505	139	1	0	2	8938	131	1	0	2
D 4 D 4	70 68.4	60.4	3	9544	140	1	0	2	9563	140	1	0	2	8993	131	1	0	2
RAR1	70	68.4	4W	9395	137	1	0	2	9414	138	1	0	2	8853	129	1	0	2
			5QW	9608	140	4	0	2	9628	141	4	0	2	9054	132	4	0	2
			2	11976	133	2	0	2	12000	133	2	0	2	11285	125	2	0	2
	100	00.0	3	12050	134	2	0	2	12074	134	2	0	2	11354	126	2	0	2
	100	100 90.0 115 109.7	4W	11861	132	2	0	2	11885	132	2	0	2	11177	124	2	0	2
			5QW	12131	135	4	0	2	12155	135	4	0	2	11431	127	4	0	2
			2	15572	142	2	0	2	15494	141	2	0	2	14871	136	2	0	2
	11		3	15833	144	2	0	2	15754	144	2	0	2	15121	138	2	0	2
	115 1		4W	15281	139	2	0	3	15205	139	2	0	3	14623	133	2	0	3
			5QW	15732	143	4	0	2	15653	143	4	0	2	15024	137	4	0	2
			2	17971	135	3	0	3	17881	134	3	0	3	17163	129	3	0	3
	125	122.2	3	18272	137	2	0	2	18181	136	2	0	2	17450	131	2	0	2
	135	133.3	4W	17635	132	2	0	3	17547	132	2	0	3	16876	127	2	0	3
			5QW	18156	136	4	0	2	18065	136	4	0	2	17339	130	4	0	2
				RA	R2 Perf	ormar	nce Da	ata on	next page									

Lumen values are from photometric test performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown. Actual performance may differ as a result of end-user environment and application.

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DATE: LOCATION: TYPE: PROJECT:

CATALOG #:

PERFORMANCE DATA

D	Nominal	System	Dist.	5K (500	OK NO	MINAI	_ 70 C	RI)	4K (400	OK NO	MINAI	_ 70 C	RI)	3K (300	OK NO	MINAI	_ 80 C	:RI)	
Description	Wattage	Watts	Туре	Lumens	LPW	В	U	G	Lumens	LPW	В	U	G	Lumens	LPW	В	U	G	
			2	15326	153	2	0	3	15357	153	2	0	3	14442	144	2	0	3	
		1000	3	15421	154	2	0	3	15452	154	2	0	3	14531	145	2	0	3	
	110	100.3	4W	15180	151	2	0	2	15210	152	2	0	2	14304	143	2	0	2	
			5QW	15525	155	4	0	2	15556	155	4	0	2	14629	146	4	0	2	
			2	19395	146	2	0	3	19434	146	2	0	3	18276	137	2	0	3	
	140	400.0	3	19515	147	2	0	3	19554	147	2	0	3	18389	138	2	0	3	
	140	133.2	4W	19210	144	2	0	3	19248	145	2	0	3	18101	136	2	0	3	
			5QW	19647	148	5	0	3	19686	148	5	0	3	18513	139	5	0	3	
			2	21651	141	3	0	3	21695	141	3	0	3	20402	133	3	0	3	
	105	450.0	3	21785	142	3	0	3	21828	142	3	0	3	20527	134	3	0	3	
	165	153.6	4W	21444	140	3	0	3	21487	140	3	0	3	20206	132	3	0	3	
			5QW	21932	143	5	0	3	21976	143	5	0	3	20666	135	5	0	3	
			2	26046	149	3	0	3	26098	150	3	0	3	24543	141	3	0	3	
	105	474 5	3	26207	150	3	0	3	26259	150	3	0	3	24694	142	3	0	3	
	100	182	185 174.5	4W	25797	148	3	0	4	25849	148	3	0	4	24308	139	3	0	4
			5QW	26384	151	5	0	3	26437	152	5	0	3	24861	143	5	0	3	
		210 198.2	2	28848	145	3	0	4	28906	146	3	0	4	27184	137	3	0	4	
RAR2	210		3	29027	146	3	0	4	29085	147	3	0	4	27351	138	3	0	4	
KAR2	210		4W	28572	144	3	0	4	28630	144	3	0	4	26924	136	3	0	4	
			5QW	29222	147	5	0	4	29281	148	5	0	4	27536	139	5	0	4	
			2	32087	141	3	0	4	32151	142	3	0	4	30235	133	3	0	4	
	240	226.9	3	32285	142	3	0	4	32350	143	3	0	4	30422	134	3	0	4	
	240		4W	31780	140	3	0	4	31844	140	3	0	4	29946	132	3	0	4	
			5QW	32503	143	5	0	4	32568	144	5	0	4	30627	135	5	0	4	
			2	37040	144	3	0	4	36854	143	3	0	4	35373	138	3	0	4	
	255	255 257.0	3	37660	147	3	0	4	37472	146	3	0	4	35966	140	3	0	4	
	255		4W	36347	141	3	0	5	36166	140	3	0	5	34782	135	3	0	5	
			5QW	37420	146	5	0	4	37233	145	5	0	4	35736	139	5	0	4	
	295 294.0	2	41733	142	3	0	4	41524	141	3	0	4	39855	136	3	0	4		
			3	42432	144	3	0	4	42220	144	3	0	4	40523	138	3	0	4	
		294.0	4W	40953	139	3	0	5	40748	139	3	0	5	39190	133	3	0	5	
			5QW	42162	143	5	0	4	41951	143	5	0	4	40264	137	5	0	4	
			2	48392	139	4	0	5	48150	139	4	0	5	46215	133	4	0	5	
	240	2474	3	49203	142	3	0	4	48957	141	3	0	4	46989	135	3	0	4	
	340	347.1	4W	47488	137	4	0	5	47261	136	4	0	5	45443	131	4	0	5	
			5QW	48889	141	5	0	5	48645	140	5	0	5	46689	135	5	0	5	

Lumen values are from photometric test performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown. Actual performance may differ as a result of end-user environment and application.

*





ELECTRICAL DATA

# OF LEDS	Nominal Wattage	Input Voltage	Oper. Current (Amps)	System Power (Watts)	
		120	0.21		
	25	208	0.12	25.4	
	25	240	0.11	25.4	
		277	0.09		
	20	120	0.32		
		208	0.18		
		240	0.16	20.0	
	39	277	0.14	38.0	
		347	0.11	1	
		480	0.08		
		120	0.42		
	50	208	0.24	100	
	50	240	0.21	49.8	
		277	0.18		
		120	0.57		
	70	208	0.33		
DADA		240	0.29	68.4	
RAR1		277	0.25		
	100	100	120	0.75	
			208	0.43	
		240	0.38	90.0	
		277	0.32		
		120	0.91		
		208	0.53	1	
	445	240	0.46	1007	
	115	277	0.40	109.7	
		347	0.32	1	
		480	0.23		
		120	1.11		
		208	0.64		
	135	240	0.56	122.2	
	135	277	0.48	133.3	
		347	0.38		
		480	0.28		

LUMINAIRE AMBIENT **TEMPERATURE FACTOR (LATF)**

Ambient Te	Ambient Temperature			
0° C	32° F	1.03		
10° C	50° F	1.01		
20° C	68° F	1.00		
25° C	77° F	1.00		
30° C	86° F	0.99		
40° C	104° F	0.98		
50° C	122° F	0.97		

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

PROJECTED LUMEN MAINTENANCE

Ameliant			OPERATIN	IG HOURS	5	
Ambient Temperature	0	25,000	TM-21-11 L90 36,000	50,000	100,000	L70 (Hours)
25°C / 77°F	1.00	0.97	0.95	0.93	0.86	238,000
40°C / 104°F	0.99	0.96	0.95	0.93	0.85	225,000

DATE:	LOCATION:	
TYPE:	PROJECT:	
CATALOG #:		

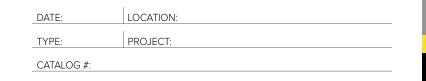
Into Into <thinto< th=""> Into Into <thi< th=""><th># OF LEDS</th><th>Nominal Wattage</th><th>Input Voltage</th><th>Oper. Current (Amps)</th><th>System Power (Watts)</th></thi<></thinto<>	# OF LEDS	Nominal Wattage	Input Voltage	Oper. Current (Amps)	System Power (Watts)		
$\begin{tabular}{ c c c c c c } \hline RAR2 & 100 & 0.42 & 0.42 & 0.03 & 0.03 & 0.42 & 0.03 & 0.0$			120	0.84			
$\begin{tabular}{ c c c c c c c } \hline $240 & $0.42 \\ \hline $277 & $0.36 \\ \hline $120 & $111 \\ \hline $208 & $0.64 \\ \hline $240 & $0.56 \\ \hline $277 & $0.48 \\ \hline $240 & $0.64 \\ \hline $240 & $0.64 \\ \hline $277 & $0.55 \\ \hline $240 & $0.64 \\ \hline $240 & $0.64 \\ \hline $277 & $0.55 \\ \hline $240 & $0.64 \\ \hline $277 & $0.55 \\ \hline $240 & $0.64 \\ \hline $277 & $0.55 \\ \hline $240 & $0.73 \\ \hline $277 & $0.63 \\ \hline $240 & $0.73 \\ \hline $240 & $0.73 \\ \hline $240 & $0.83 \\ \hline $277 & $0.63 \\ \hline $240 & $0.83 \\ \hline $277 & $0.63 \\ \hline $240 & $0.83 \\ \hline $277 & $0.72 \\ \hline $208 & $0.95 \\ \hline $277 & $0.72 \\ \hline $208 & $1.98 \\ \hline $240 & $0.95 \\ \hline $277 & $0.82 \\ \hline $277 & $0.93 \\ \hline $347 & $0.74 \\ \hline $480 & $0.54 \\ \hline $120 & $2.45 \\ \hline $208 & $1.41 \\ \hline $208 & $1.41 \\ \hline $208 & $1.41 \\ \hline $295 & $240 & $123 \\ \hline \hline \hline $240 & $123 \\ \hline $		110	208	0.48	100.0		
277 0.36 120 111 208 0.64 240 0.56 277 0.48 120 1.28 165 208 0.74 165 208 0.74 165 208 0.74 165 240 0.64 277 0.55 153.6 185 208 0.84 210 1.45 208 210 1.65 208 210 208 0.95 210 208 0.95 210 208 109 240 0.83 198.3 277 0.72 198.3 210 120 1.89 2240 1.09 226.9 277 0.82 208 240 1.07 257.0 255 208 1.24 240 1.07 257.0 347 0.74 208		ΠŪ	240	0.42	100.3		
Image: Rarger larger							
I40 240 0.56 133.2 277 0.48 120 1.28 208 0.74 240 0.64 277 0.55 153.6 165 208 0.74 153.6 277 0.55 153.6 153.6 185 208 0.84 153.6 277 0.55 174.5 208 185 208 0.84 174.5 210 165 208 0.95 210 165 208 0.95 210 120 1.65 208 240 0.83 198.3 277 0.72 198.3 240 208 109 226.9 277 0.82 120 2.14 208 1.24 240 107 257.0 337 0.74 257.0 347 0.74 208 1.41 208 1.41 2040 123 <td></td> <td></td> <td></td> <td>1.11</td> <td></td>				1.11			
$RAR2 \begin{array}{ c c c c c } & 240 & 0.56 \\ \hline 277 & 0.48 \\ \hline 120 & 1.28 \\ \hline 208 & 0.74 \\ \hline 240 & 0.64 \\ \hline 277 & 0.55 \\ \hline 120 & 1.45 \\ \hline 240 & 0.73 \\ \hline 277 & 0.55 \\ \hline 120 & 1.45 \\ \hline 208 & 0.84 \\ \hline 240 & 0.73 \\ \hline 277 & 0.63 \\ \hline 120 & 1.65 \\ \hline 208 & 0.95 \\ \hline 240 & 0.83 \\ \hline 277 & 0.72 \\ \hline 240 & 0.83 \\ \hline 277 & 0.72 \\ \hline 240 & 0.83 \\ \hline 277 & 0.72 \\ \hline 240 & 0.95 \\ \hline 277 & 0.82 \\ \hline 120 & 2.14 \\ \hline 208 & 1.24 \\ \hline 208 & 1.24 \\ \hline 255 & \hline 120 & 2.14 \\ \hline 208 & 1.24 \\ \hline 240 & 1.07 \\ \hline 277 & 0.93 \\ \hline 347 & 0.74 \\ \hline 480 & 0.54 \\ \hline 120 & 2.45 \\ \hline 208 & 1.41 \\ \hline 204 & 1.23 \\ \hline 291 & 0 \\ \hline \end{array}$		140	208	0.64	122.2		
$\begin{tabular}{ c c c c c c } \hline 120 & 1.28 \\ \hline 208 & 0.74 \\ \hline 240 & 0.64 \\ \hline 277 & 0.55 \\ \hline 120 & 1.45 \\ \hline 208 & 0.84 \\ \hline 240 & 0.73 \\ \hline 240 & 0.73 \\ \hline 240 & 0.65 \\ \hline 208 & 0.95 \\ \hline 240 & 0.83 \\ \hline 277 & 0.63 \\ \hline 208 & 0.95 \\ \hline 240 & 0.83 \\ \hline 277 & 0.72 \\ \hline 208 & 0.95 \\ \hline 240 & 0.83 \\ \hline 277 & 0.72 \\ \hline 208 & 1.09 \\ \hline 277 & 0.72 \\ \hline 208 & 1.09 \\ \hline 277 & 0.82 \\ \hline 240 & 1.09 \\ \hline 277 & 0.82 \\ \hline 277 & 0.93 \\ \hline 347 & 0.74 \\ \hline 480 & 0.54 \\ \hline 120 & 2.45 \\ \hline 208 & 1.41 \\ \hline 205 & 1.41 \\ \hline 240 & 1.23 \\ \hline 240 & 1.23 \\ \hline 2910 \\ \hline \end{tabular}$		140	240	0.56	133.2		
$\begin{tabular}{ c c c c c c } \hline $208 & 0.74 \\ $240 & 0.64 \\ $277 & 0.55 \\ \hline $277 & 0.55 \\ \hline $120 & 1.45 \\ $208 & 0.84 \\ $240 & 0.73 \\ \hline $240 & 0.73 \\ $277 & 0.63 \\ \hline $277 & 0.63 \\ \hline $208 & 0.95 \\ $240 & 0.83 \\ \hline $277 & 0.72 \\ \hline $208 & 0.95 \\ \hline $240 & 0.83 \\ \hline $277 & 0.72 \\ \hline $240 & 0.83 \\ \hline $277 & 0.72 \\ \hline $208 & 1.09 \\ \hline $240 & 0.95 \\ \hline $208 & 1.09 \\ \hline $240 & 0.95 \\ \hline $277 & 0.82 \\ \hline $208 & 1.24 \\ \hline $240 & 1.07 \\ \hline $277 & 0.93 \\ \hline $347 & 0.74 \\ \hline $480 & 0.54 \\ \hline $120 & 2.45 \\ \hline $208 & 1.41 \\ \hline $240 & 1.23 \\ \hline $2910 \hline $2910 \\ \hline $2910 \hline $201 \\ \hline $2010 \hline $201 \hline $201 \\ \hline $2010 \hline $201 \hline $201 \hline $201 \\ \hline $2010 \hline $201 \hline 20			277	0.48			
165 240 0.64 153.6 277 0.55 120 1.45 185 208 0.84 240 0.73 185 2008 0.84 240 0.73 240 0.73 277 0.63 210 165 208 0.95 210 208 0.95 198.3 277 0.72 120 1.89 240 2.89 109 226.9 240 0.95 277 0.82 277 0.82 208 1.24 208 1.24 240 1.07 255 277 0.93 257.0 347 0.74 480 0.54 480 0.54 141 240 208 1.41 240 1.23 294.0			120				
165 240 0.64 153.6 277 0.55 120 1.45 185 208 0.84 240 0.73 185 2008 0.84 240 0.73 240 0.73 277 0.63 210 165 208 0.95 210 208 0.95 198.3 277 0.72 120 1.89 240 2.89 109 226.9 240 0.95 277 0.82 277 0.82 208 1.24 208 1.24 240 1.07 255 277 0.93 257.0 347 0.74 480 0.54 480 0.54 141 240 208 1.41 240 1.23 294.0		105			150.0		
277 0.55 120 1.45 208 0.84 240 0.73 277 0.63 277 0.63 120 1.65 208 0.95 120 1.65 200 208 210 240 240 0.83 277 0.72 198.3 198.3 277 0.72 240 0.83 277 0.72 198.3 208 240 1.89 240 0.95 277 0.82 277 0.82 277 0.82 277 0.82 255 208 1.24 240 1.07 257.0 257.0 347 0.74 480 0.54 120 2.45 208 1.41 240 1.23 240		165			153.6		
$\begin{tabular}{ c c c c c } \hline 120 & 1.45 \\ \hline 208 & 0.84 \\ \hline 240 & 0.73 \\ \hline 277 & 0.63 \\ \hline 277 & 0.63 \\ \hline 120 & 1.65 \\ \hline 208 & 0.95 \\ \hline 240 & 0.83 \\ \hline 277 & 0.72 \\ \hline 240 & 0.83 \\ \hline 277 & 0.72 \\ \hline 240 & 0.95 \\ \hline 277 & 0.82 \\ \hline 208 & 1.24 \\ \hline 208 & 1.24 \\ \hline 240 & 1.07 \\ \hline 277 & 0.93 \\ \hline 347 & 0.74 \\ \hline 480 & 0.54 \\ \hline 120 & 2.45 \\ \hline 208 & 1.41 \\ \hline 208 & 1.41 \\ \hline 240 & 1.23 \\ \hline 2910 \\ \hline \end{tabular}$							
$\begin{tabular}{ c c c c c c } \hline 185 & $\frac{208 & 0.84}{240 & 0.73}$ \\ \hline $240 & 0.73$ \\ \hline $277 & 0.63$ \\ \hline $277 & 0.63$ \\ \hline $208 & 0.95$ \\ \hline $208 & 0.95$ \\ \hline $240 & 0.83$ \\ \hline $277 & 0.72$ \\ \hline $277 & 0.72$ \\ \hline $277 & 0.72$ \\ \hline $208 & 1.09$ \\ \hline $277 & 0.82$ \\ \hline $208 & 1.24$ \\ \hline $240 & 1.07$ \\ \hline $277 & 0.93$ \\ \hline $347 & 0.74$ \\ \hline $480 & 0.54$ \\ \hline $120 & 2.45$ \\ \hline $208 & 1.41$ \\ \hline $208 & 1.41$ \\ \hline $208 & 1.41$ \\ \hline $240 & 1.23$ \\ \hline 2910 \\ \hline \end{tabular}$							
183 240 0.73 $1/4.5$ 277 0.63 277 0.63 210 120 1.65 208 0.95 210 240 0.83 198.3 277 0.72 120 1.89 240 208 1.09 226.9 240 208 1.09 226.9 277 0.82 120 2.14 255 240 107 257.0 255 240 107 257.0 240 107 257.0 240 107 257.0 240 1.24 240 107 255 240 107 257.0 240 2.45 208 1.41 208 1.41 240 123		105					
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RAR2 120 1.89 208 1.09 226.9 240 208 1.09 226.9 226.9 277 0.82 120 2.14 255 277 0.93 257.0 240 107 257.0 257.0 240 107 257.0 257.0 347 0.74 480 0.54 120 2.45 208 1.41 240 1.23 294.0							
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480 0.54 120 2.45 208 1.41 240 1.23 294.0							
120 2.45 208 1.41 240 1.23 294.0			-				
<u>208 1.41</u> 240 1.23 294.0							
295 240 1.23 294.0							
		295			294.0		
347 0.85							
480 0.61							
120 2.89							
208 1.67							
240 1.45 2474							
340 277 1.25 347.1		340			347.1		
347 1.00							
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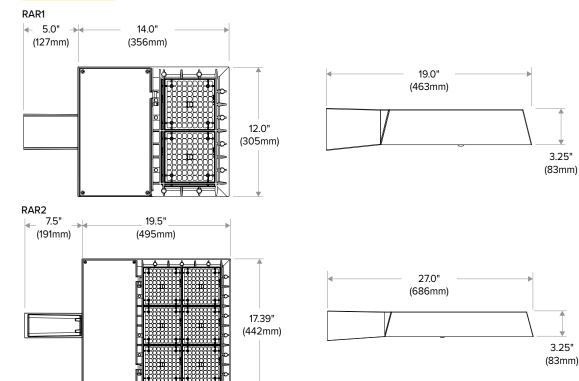




AREA/SITE LIGHTER

DIMENSIONS





ADDITIONAL INFORMATION

MOUNTING



Arm Mount – Fixture ships with integral arm for ease of installation. Compatible with Hubbell Outdoor B3 drill pattern.



MAF – Fits 2-3/8" OD arms Roadway applications.



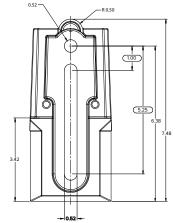
Knuckle – Knuckle mount 15° aiming angle increments for precise aiming and control, fits 2-3/8" tenons or pipes.



Wall Mount – Wall mount bracket designed for building mount applications.



Universal Mounting – Universal mounting block for ease of installation. Compatible with drill patterns from 2.5" to 4.5"





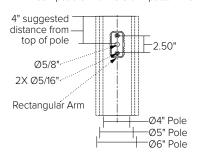




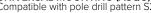
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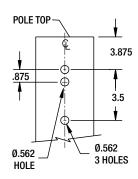
ADDITIONAL INFORMATION (CONT'D)

ARM MOUNT (ASQ) Compatible with Pole drill pattern B3



UNIVERSAL MOUNTING (ASQU) Compatible with pole drill pattern S2





SITESYNC 7-PIN MODULE



SW7PR



- SiteSync features in a new form
- Available as an accessory for new construction or retrofit applications (with existing 7-Pin receptacle)



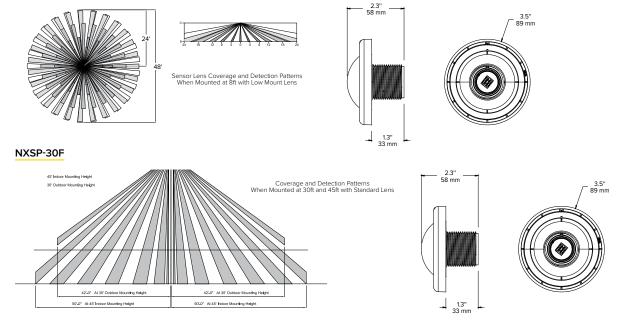


RATIO SERIES

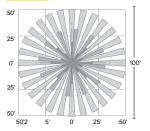
DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	

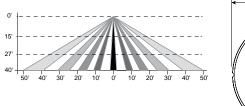
ADDITIONAL INFORMATION (CONT'D)

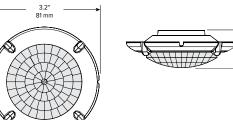
NXSP-14F



SCP-40F







RAR1 EPA

RA	R-1
EPA at 0°	EPA at 30°
.45ft. ² .13m ²	.56ft. ² .17m ²

RAR2 EPA

RA	R-2
EPA at 0°	EPA at 30°
.55ft. ² .17m ²	1.48ft. ² .45m ²

SHIPPING

Catalog		C	Carton Dimension	s
Catalog Number	G.W(kg)/ CTN	Length Inch (cm)	Width Inch (cm)	Height Inch (cm)
RAR1	15 (6.8)	20.75 (52.7)	15.125 (38.4)	6.9375 (17.6)
RAR2	19 (8.6)	25 (63.5)	15.125 (38.4)	6.9375 (17.6)

USE OF TRADEMARKS AND TRADE NAMES

All product and company names, logos and product identifies are trademarks ^w or registered trademarks [®] of Hubbell Lighting, Inc. or their respective owners. Use of them does not necessarily imply any affiliation with or endorsement by such respective owners.



1.04" 26 mm

	SL-Spectrum			ob Na	amo.			Catalog I		M-35K-80-D60	Тур				
ECI /	SPECT	DIIN		ilton - H	ome 2 H		ering (Springfield)	120-10V-				R	.3		
EJL/		CONTROLS / DE		ngineer.	INCE	ngine	ening (Springheid)	Notes:				20-80667			
		-							1	1		1			
		s					Alphab	pet by Ledra Brands, Ir	nc. 15774 G Tustin, C	ateway Circle PH: 714. A 92780 FAX: 714	259.9959 .259.9969	Alphat	etLighting.com		
– JOB NAME –															
								ORDERING C	ODE		S.	made in the USA	LM-79		
- CONTACT								SERIES	NU6						
- ORDERING CO	DE							TYPE	RD SW	static white					
									07LM	660 lm					
° NI		R	oun	d Do	wn	DELIVERED LUMENS (3000K 80CRI HE60)	10LM 13LM 15LM 20LM 40LM	880 lm 1080 lm 1200 lm 1660 lm Calculated Delive [Delivered Lumer 3180 lm 4223 lll			x [Reflector Multipli				
	СОВ		LUTRON		eld	OLE	dduct <i>aur drive</i>	сст	22K 27K 30K 30K 40K 50K	2200K CCT 2700K CRI 3000K CRI 3000K CCT MULTIPLIER FOR 5000K LUMEN OUTPUT	2200K 2700K 80+ 90+ 80+ 90 0.85 N/A 0.96 0.8	3000K 35 + 80+ 90+ 80+ 11 1.00 0.84 1.01	00K 4000K 5000K 90+ 80+ 90+ 80+ 90+ 0.85 1.03 0.87 1.04 N/A		
				14				CR	80	80CRI		<u> </u>			
		ļ	6					REFLECTOR & LM MULTIPLIER	HE40 HE60 HE70 SS30 SS40 SS60	40° high efficiency diffused lens (0.99) 60° high efficiency diffused lens (1.00) 70° high efficiency diffused lens (0.96) 30° semi-specular with clear lens (0.89) 40° semi-specular with clear lens (0.90) 60° semi-specular with clear lens (0.92)					
		10							D60 WH70	60° diffused with clear lens 70° oniliant write with clear					
		I.	L					NO LENS OPTION	NL ³	no lens					
			-					VOLTAGE	120 277 See Electrical	120V 277V ADVISE Options for 347V.					
DESCRIPTION The EcoNU6RD is an economical and highly efficient spec grade 6" recessed downlight with thoughtful construction and pleasing aesthetics. Standard with premium dimming using EldoLED 1% flicker free drivers in 120V, 277V, and step down transformer for 347V. A minimalistic look is achieved with an ultrathin 1/16" trim that is only 5/16" wide. Color choices of both trim and bezel are offered for a customized look. Several beam angles available, plus an optional high-efficiency BrightView diffused lens for smooth light distribution and obscured LED image. HOUSING								DIMMING	10V* DIM104 DIM1024 DALI4 DALI24 DMXZ LTE7 LUT7 LUTP* ELV5 ELV15	110 ⁴ standard driver with flicker free 0-10V dimming to 1% 1102 ⁴ flicker free 0-11V dimming to 0% Lf flicker free DALI dimming to 1% LZ ⁴ flicker free DALI dimming to 0% XZ flicker free DALI dimming to 0% Y ⁷ Lutron Hi-lume 2-Wire (Triac) dimming to 1%, Soft-on & Fade-to-Black TP ⁸ Lutron Hi-lume Premier EcoSystem dimming to 0.1%, Soft-on & Fade-to-Black Y ⁶ Isading & Trailing edge (Triac/ELV) dimming to 71%					
prevention. Superi the frame and reg and is tested for U	ior, UL-certified ressed bezel tri V resistance an	, injection m. Lexan d water e	n-molded n provide exposure	l commer s unmato in outdoo	cial-grad hed dura or applica	e Lexa ability a tions. T	orcement and rust n™ (PC) is used for ind impact resistance, The thermally-advanced,	MOUNTING OPTIONS	NC IC ² ICAT ² CP ² RET	new construction with ceiling insulation contact housing insulation contact / airtight h chicago plenum housing retrofit, no ceiling fitting plat	ousing				
constant-power IO MOUNTING An advanced mou serviceability from	TA emergency Inting system al below the ceili	battery b llows for ng. The l	ackup is quick and _ED asse	available d secure embly use	installatio	on with st alum	tandard. A 90-minute LED and driver ninum mounting clamp grated rubber feet on	TRIM COLOR	BK black						
each MCG provide from below ceiling cup or a screwdriv	e a non-slip vibr by removing the vibre of the second	ation-res ne snap-i rated bar	istant ins n lens/be hangers	stallation. ezel asse s feature i	The hidd mbly with ntegral to	en MC either oothed	G system is accessible the included suction nails, T-bar mounting	BEZEL COLOR	WH MC BK BZ WT	white matte chrome black bronze wheat					
from below ceiling	by use of com are installed du	pact drive	er box. N	lo risk da	maging L	ED or	Illows for installation bezel assembly during y removed for servicing	ELECTRICAL OPTIONS	EM7 ⁶ EM12 ⁶ FOR 347V OPTION	emergency battery backup, emergency battery backup, order separate "347V to 277 p/n: P70489	90 minutes at	12 watts to	LED		
MOUNTING DIMENSIONS	CEILING THICKNESS	CEILIN			Construction gers (include	d)	Mounting Length: 14-3/4" to 26"								
Trim	1/8" to 2"	6-3/8" dia	meter	(ordere	Kit p/n: K202 d separately		tends a pair of Bar Hangers Total Mounting Length:	Follow the steps to spec							
10711-05				1 ре	er fixture)		29" to 48"		1	0 - 120 - DIM10 - NC - WH - W	H - EM7				
LISTINGS - ETLus Listed to	UL1598, cETL	Listed to	CSA C2	2.2 #250	.0			SW (LED)	POWER W (80/90 CRI))					
	Suitable for wet	location	s with ler			amp lo	cations without lens	660	8	·					
				e Buy Am	ierican pi	ovisio	n within the ARRA	880 1080	9 11						
RATINGS / CER		NC	RET	IC	ICAT	CP		1200 1660	14 17						
Type no		~	~				1	2500 3180	27 32						
Chicago Blogu				~	~	/	4	4225 Power Factor ≥ 0.9	43						
Chicago Plenu						1	-	NOTES	22001/ 50001						
Suitable for air har					1	/	-		ble in 50LM ble for SS30, SS40	0, SS60, D40, D60, or WH70 and					
Reduced airflow (with		~			· .	/]	 Driver uses logarithmic Triac/ELV dimming available For integrated test switt fixture. 	e dimming curve as ailable in 120V only tch add "ITS" after o	standard. For linear dimming cur	ve add "LIN" afl	er dimming c			
40 CRI SDCM -	 2-step MacAd 							7 LTE/LUT not available 8 LUTP not available in 3	30LM, 40LM, or 501						
· 80 CRI: SDCM =	3-step MacAd	am Ellips	se, Lume	n iviaintei	nance: L,	_{'0} > 49,	500 hrs	9 10V dimming only avai	ilable in 15LM and :	20LM.					



SLING Series

SLENDER WALLPACK

FEATURES

- · Two sizes for a variety of applications
- Ranges from 21W to 80W with up to 8000 lumens
- SG1 Series replaces from 100W-150W HID; SG2 Series replaces from 150W-250W HID
- · Comfort lens available as an option or accessory provides glare control and enhanced uniformity
- Knuckle and trunnion accessory mounting kits available for flood applications
- IP65 and certified to UL 1598 for use in wet locations up to 40°C ambient
- DLC (DesignLights Consortium Qualified see www.designlights.org



Rugged die-cast aluminum housing with

corrosion resistant powder coat finish

• Impact resistant tempered glass offers

• Comfort lens available as an option or

accessory to reduce glare (7-10% lumen

reduction) and provide better uniformity

• 3000K, 4000K and 5000K CCT nominal

· Side hinge allows for easy installation

• Smaller SG1 housing has 2 LEDs, larger SG2

· Side movement avoids damage to the lens

and helps prevent injury common in drop

gasket to help seal electrical connections • Four 1/2" threaded conduits hubs for surface conduit provided

· Mounts to 4" junction box and includes a

SPECIFICATIONS

the electronic components

HOUSING

zero uplight

with 70 CRI

INSTALLATION

and wiring

housing has 3 LEDs

down hinge designs

OPTICS



- 120-277V, 50/60Hz electronic drivers
- 347V and 480V available in large SG2 housing
- 10KA surge protection included
- · Button photocontrol for dusk to dawn energy savings. Stock versions include 120V-277V PC with a cover which provides a choice to engage photocontrol or not. PC is installed in top hub
- Occupancy sensor available for on/off and dimming control in larger SG2 housing
- flexible control strategies for reducing power consumption and minimizing maintenance costs while delivering the right light levels with a simple and affordable wireless solution. See ordering information or visit www.hubbelllighting.com/sitesync for more details
- SG2 housing rated for either 0° C or -30° C. Performance exceeds NEC requirement providing 1 fc minimum over 10'x10' at 11' mounting height

CERTIFICATIONS

- DesignLights Consortium® (DLC) qualified. Please refer to the DLC website for specific product qualifications at www.designlights.org
- · Listed to UL1598 for use in wet location, listed for -40°C to 40°C applications
- IDA approved with zero uplight for 3000K and warmer CCTs

• IP65

- WARRANTY 5 year limited warranty
- · See HLI Standard Warranty for additional information

KEY DATA	A
Lumen Range	2263-8079
Wattage Range	21-80
Efficacy Range (LPW)	101-113
Fixture Projected Life (Hours)	L70>50K
Weights lbs. (kg)	4.3-11 (2.0-5.0)

tradeSELECT

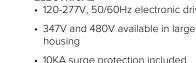
Page 1/8 Rev. 05/07/20 WGHLED-SPEC

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- SiteSync[™] wireless lighting control delivers
- Battery backup options available in larger

OPTIONS/CONTROLS



· Heating dissipating fins provide superior thermal performance extending the life of



LOCATION:

PROJECT:

DATE:

TYPE:

CATALOG #:

F	RELATED PRODUC	TS
8 LNC Litepak	8 LNC2 Litepak	8 LNC3 Lite
8 LNC4 Litepak	8 GeoPak	8 GeoPak2



SLING SERIES

SLENDER WALLPACK

ORDERING GUIDE

DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	

Example: SG1-20-3K7-FT-UNV-DBT-PCU-CS

CATALOG #

ORDERING INFORMATION

		Distribution Voltage	- Color/Einich	- Control Options	- Options
Housing SG1-10 Size 1, 10W SG1-20 Size 1, 20W SG1-30 Size 1, 30W SG1-40 Size 1, 40W SG2-50 Size 2, 50W SG2-80 Size 2, 80W	CCT/CRI 3K7 3000K, 70 CRI 4K7 4000K, 70 CRI 5K7 5000K, 70 CRI	Distribution Voltage FT Fwd Throw UNV 120V-277V 120 120V 277 277V UHV 347V-480V UHV 347V-480V	Color/Finish BLT Black Matte Textured BLS Black Gloss Smooth DBT Dark Bronze Matte Textured DBS Dark Bronze Matte Textured DBS Dark Brone Gloss Smooth GTT Graphite Matte Textured LGS Light Grey Gloss Smooth PSS Platinum Silver Smooth WHT White Matte Textured WHS White Gloss Smooth VGT Verde Green Textured Color Option CC CC Custom Color	(120-277V) SCP ¹²³ Occupancy Sensor Programmable (Dim) SWP ¹² SiteSync Pre-commission SWPM ¹² SiteSync Pre-commission w/ Sensor Specify MTG HT for SCO/SCP & SWPM 8F Up to 8' 20F Up to 20'	Options CS Comfort Lens E ¹² Battery 0°C EH ¹² Battery w/ heater -20°

Notes:

1 Available in SG2 only, UHV available in SG2-50 only

2 Sensor controls & battery backup can not be used with flood accessory or kit or for inverted/up mounting, 120-227V only for SCO/SCP, 120 or 277 only for SWP, SWPM, E & EH

3 Must order minimum of one remote control to program dimming settlings, 0-10V fully adjustable dimming with automatic daylight calibration and different time delay settings, 120-277V only

STOCK ORDERING INFORMATION

Catalog Number	CCT/CRI	Wattage	Mounting Height	Color	Color	Delivered Lumens	LPW	Weight lbs. (kg)
SG1-10-PCU	5000K/70	11W	8–12ft	120–277V	Dark Bronze	1349	122	4.3 (2.0)
SG1-10-4K-PCU	4000K/70	11W	8–12ft	120–277V	Dark Bronze	1424	129	4.3 (2.0)
SG1-20-PCU	5000K/70	21W	8–12ft	120-277V	Dark Bronze	2263	108	4.3 (2.0)
SG1-20-4K-PCU	4000K/70	21W	8–12ft	120-277V	Dark Bronze	2310	110	4.3 (2.0)
SG1-30-PCU	5000K/70	29W	10–15ft	120-277V	Dark Bronze	3270	113	4.3 (2.0)
SG1-30-4K-PCU	4000K/70	29W	10–15ft	120-277V	Dark Bronze	3060	105	4.3 (2.0)
SG1-40-PCU	5000K/70	38W	10–15ft	120-277V	Dark Bronze	4008	105	4.3 (2.0)
SG1-40-4K-PCU	4000K/70	38W	10–15ft	120-277V	Dark Bronze	4070	106	4.3 (2.0)
SG2-50-PCU	5000K/70	51W	12–18ft	120–277V	Dark Bronze	5548	110	11 (5.0)
SG2-50-4K-PCU	4000K/70	51W	12–18ft	120-277V	Dark Bronze	5526	109	11 (5.0)
SG2-80-PCU	5000K/70	80W	15–25ft	120–277V	Dark Bronze	8061	101	11 (5.0)
SG2-80-4K-PCU	4000K/70	80W	15–25ft	120-277V	Dark Bronze	8079	101	11 (5.0)





SLING SERIES

TYPE: PROJECT: CATALOG #:

LOCATION:

DATE:

ORDERING GUIDE

OPTIONS AND ACCESSORIES

Catalog Number	Description	Weight lbs. (kg)
SG1-CS	Acrylic comfort lens for SG1	1 (.45)
SG2-CS	Acrylic comfort lens for SG2	1 (.45)
SG1-YOKE	SG1 Series Yoke/Floodlight mount kit, includes visor	2.0 (1.0)
SG1-KNUCKLE	SG1 Series Knuckle/Floodlight mount kit, includes visor	2.0 (1.0)
SG2-YOKE	SG2 Series Yoke/Floodlight mount kit, includes visor	2.0 (1.0)
SG2-KNUCKLE	SG2 Series Knuckle/Floodlight mount kit, includes visor	2.0 (1.0)
SCP-REMOTE*	Remote control for SCP option. Order at least one per project to program and control fixtures	1 (.45)
SG2-PMA-3-XX	3" Pole Mount adapter for SG2, both square and round, XX= finish	7 (3.5)
SG2-PMA-4-XX	4" Pole Mount adapter for SG2, both square and round, XX= finish	7 (3.5)
SG2-PMA-5-XX	5" Pole Mount adapter for SG2, both square and round, XX= finish	7 (3.5)
SG2-PMA-6-XX	6" Pole Mount adapter for SG2, both square and round, XX= finish	7 (3.5)
SG1-SPC	Vandal Resistant Lens (shield polycarbonate), SG1	3 (1.5)
SG2-SPC	Vandal Resistant Lens (shield polycarbonate), SG2	3 (1.5)
SG1-WCP	Universal Wall Cover Plate, Dark Bronze, SG1	10 (5)
SG2-WCP-H	Horizontal Mount Wall Cover Plate, Dark Bronze, SG2	10 (5)
SG2-WCP-V	Vertical Mount Wall Cover Plate, Dark Bronze, SG2	10 (5)
SG2XL-WCP-H	Horizontal Mount Wall Cover Plate, DB, SG2 with battery or sensor	10 (5)
SG2XL-WCP-V	Vertical Mount Wall Cover Plate, DB, SG2 with battery or sensor	10 (5)

ACCESSORIES AND SERVICES (ORDERED SEPARATELY)

Control Options								
SWUSB ¹	SiteSync [™] interface software loaded on USB flash drive for use with owner supplied PC (Windows based only). Includes SiteSync [™] license, software and USB radio bridge node.							
SWTAB ¹	Windows tablet and SiteSync™ interface software. Includes tablet with preloaded software, SiteSync™ license and USB radio bridge node.							
SWBRG ²	SiteSync [™] USB radio bridge node only. Order if a replacement is required or if an extra bridge node is requested.							

Notes:

1~ When ordering SiteSync $^{\bowtie}$ at least one of these two interface options must be ordered per project.

2 If needed, an additional Bridge Node can be ordered.

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SLING SERIES

SLENDER WALLPACK

DATE:	LOCATION:
TYPE:	PROJECT:

PERFORMANCE DATA

Description	# of	Drive	System	5K (500	OK NO	MINAI	L 70 C	0 CRI) 4K (4000K NOMINAL 70 CRI)					3K (3000K NOMINAL 80 CRI)					
Description SG1-10	LEDs	Current	Watts	Lumens	LPW	В	U	G	Lumens	LPW	В	U	G	Lumens	LPW	В	U	G
SG1-10	2	140mA	11	1349	122	1	0	0	1424	129	1	0	0	1003	91	1	0	0
SG1-20	2	250mA	21	2449	115	1	0	0	2310	110	1	0	0	2054	95	1	0	0
SG1-30	2	350mA	29	3332	117	2	0	0	3060	106	1	0	0	2913	100	1	0	0
SG-40	2	450mA	38	4008	105	2	0	0	4070	106	2	0	0	3845	100	2	0	0
SG2-50-UHV	3	350mA	44	4633	106	2	0	0	4609	105	2	0	0	3895	90	2	0	0
SG2-50	3	415mA	51	5548	109	2	0	0	5526	107	2	0	0	4700	92	2	0	0
SG2-80	3	650mA	80	7851	98	2	0	1	8079	103	2	0	1	6721	86	2	0	1

CATALOG #:

*347 and 480 VAC input Lumen values are from photometric test performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown. Actual performance may differ as a result of end-user environment application and inherent performance balances of the electrical components.

ELECTRICAL DATA

Catalog number	# of Drivers	Input Voltage	Current (AMPS)	System Power
56140	1	120	0.09	11.0
SG1-10	1	277	0.04	11.0
SG1-20	1	120	0.18	21.0
SGI-20	1	277	0.08	21.0
SG1-30	1	120	0.24	28.9
561-30	1	277	0.10	28.9
562.40	1	120	0.32	38.3
SG2-40	1	277	0.14	38.3
SG-50-UHV	1	347	0.13	43.5
3G-50-0HV	1	480	0.18	43.5
SG2-50	1	120	0.42	50.6
562-50	1	277	0.18	50.6
502.80	1	120	0.68	79.8
SG2-80	1	277	0.29	79.8

PROJECTED LUMEN MAINTENANCE

Amphiant			OPERAT	ING HOURS		
Ambient Temperature	0	25,000	50,000	TM-21-11 ¹ L96 60,000	100,000	L70 (Hours)
25°C / 77°F	1.00	0.98	0.97	0.96	0.95	>791,000
40°C / 104°F	0.99	0.98	0.96	0.96	0.94	>635,000

1. Projected per IESNA TM-21-11 * (Nichia 219B, 700mA, 85°C Ts, 10,000hrs) Data references the extrapolated performance projections for the base model in a 40°C ambient, based on 10,000 hours of LED testing per IESNA LM-80-08





SLI	N	G S	E	RI	ES
SLEND	ER WA	ALLPA	АСК		

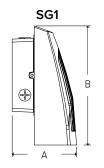
DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	

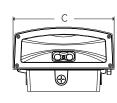
LUMINAIRE AMBIENT TEMPERATURE FACTOR (LATF)

Ambient Te	Ambient Temperature	
0° C	32° F	1.02
10° C	50° F	1.01
20° C	68° F	1.00
25° C	77° F	1.00
30° C	86° F	1.00
40° C	104° F	0.99
50° C	122° F	0.96

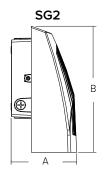
Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

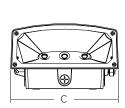
DIMENSIONS





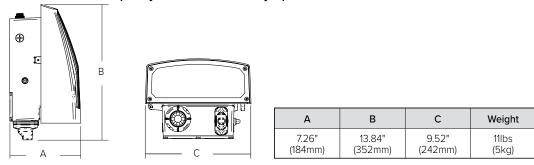
А	В	с	Weight
4.19"	7.80"	6.61"	4.4lbs
(107mm)	(198mm)	(168mm)	(2kg)





А	В	С	Weight
5.80" (147mm)	11.14" (283mm)	9.52" (242mm)	11lbs (5kg)

SG2 with occupancy sensor and battery options



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SLING SERIES SLENDER WALLPACK

PHOTOMETRY

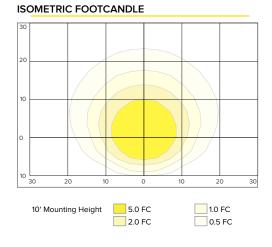
SG1-10-4K7

LUMINAIRE DATA

Description	4000 Kelvin, 70 CRI
Distribution Type	Forward Throw
Delivered Lumens	1424
Watts	11.4
Efficacy	125
Mounting	Wall

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	996.6	70.0
Downward House Side	427.8	30.0
Downward Total	1424.4	100.0
Upward Street Side	0.0	0.0
Upward House Side	0.0	0.0
Upward Total	0.0	0.0
Total Flux	1424.4	100.0



SG1-20-4K7

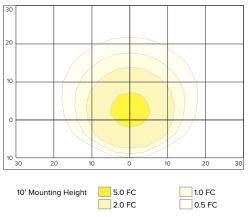
LUMINAIRE DATA

Description	4000 Kelvin, 70 CRI
Distribution Type	Foward Throw
Delivered Lumens	2310
Watts	20.9
Efficacy	111
Mounting	Wall

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	1618	70.0
Downward House Side	692.1	30
Downward Total	2310	100.0
Upward Street Side	0.0	0.0
Upward House Side	0.0	0.0
Upward Total	0.0	0.0
Total Flux	2310.3	100.0

ISOMETRIC FOOTCANDLE



SG1-30

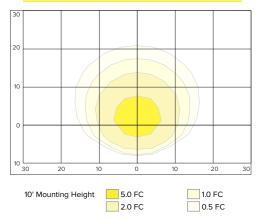
LUMINAIRE DATA

Description	4000 Kelvin, 70 CRI
Distribution Type	Forward Throw
Delivered Lumens	3060
Watts	29.1
Efficacy	105
Mounting	Wall

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	2619.4	70.9
Downward House Side	890.4	29.1
Downward Total	3059.8	100.0
Upward Street Side	0.0	0.0
Upward House Side	0.0	0.0
Upward Total	0.0	0.0
Total Flux	3059.8	100.0

ISOMETRIC FOOTCANDLE



DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	





SLING SERIES SLENDER WALLPACK

PHOTOMETRY

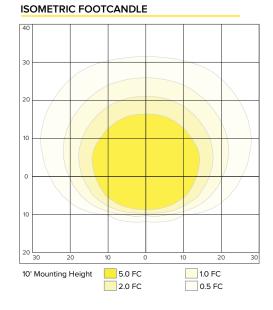
SG1-40-4K7

LUMINAIRE DATA

Description	4000 Kelvin, 70 CRI
Distribution Type	Foward Throw
Delivered Lumens	4070
Watts	38.1
Efficacy	107
Mounting	Wall

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	2857.7	70.2
Downward House Side	1215.5	29.8
Downward Total	4070.2	100.0
Upward Street Side	0.0	0.0
Upward House Side	0.0	0.0
Upward Total	0.0	0.0
Total Flux	4070.2	100.0



SG2-50-4K7

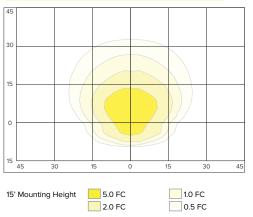
LUMINAIRE DATA

Description	4000 Kabita 70 CDI
Description	4000 Kelvin, 70 CRI
Distribution Type	Foward Throw
Delivered Lumens	5525.7
Watts	51.7
Efficacy	107
Mounting	Wall

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire
Downward Street Side	4611.8	83.5
Downward House Side	913.9	16.5
Downward Total	5525.7	100.0
Upward Street Side	0.0	0.0
Upward House Side	0.0	0.0
Upward Total	0.0	0.0
Total Flux	5525.7	100.0

ISOMETRIC FOOTCANDLE



SG2-80-4K7

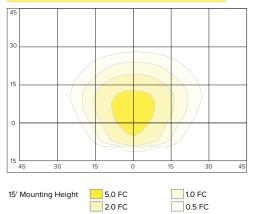
LUMINAIRE DATA

Description	4000 Kelvin, 70 CRI
Distribution Type	Foward Throw
Delivered Lumens	8453
Watts	78.5
Efficacy	108
Mounting	Wall

ZONAL LUMEN SUMMARY

Zone	Lumens	% Luminaire		
Downward Street Side	6677.7	79.0		
Downward House Side	1775.5	21.0		
Downward Total	8453.2	100.0		
Upward Street Side	0.0	0.0		
Upward House Side	0.0	0.0		
Upward Total	0.0	0.0		
Total Flux	8453.2	100.0		

ISOMETRIC FOOTCANDLE



DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	

Page 7/8 Rev. 05/07/20 AIROLED-SPEC

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SLING SERIES SLENDER WALLPACK

DATE:	LOCATION:
TYPE:	PROJECT:
CATALOG #:	

ADDITIONAL INFORMATION

Shipping Information

Catalog Number	G W//kg)/	Carton Dimensions			Carton Qty.	
	G.W(kg)/ CTN	Length Inch (cm)	Width Inch (cm)	Height Inch (cm)	per Master Pack	Pallet Qty.
SG1	4.35lbs (2kg)	9.5 (24)	8.25 (21)	5.25 (13)	6	98
SG2	11lbs (5kg)	14 (36)	11.5 (29)	8 (20)	2	64

Accessories and Services



Acrylic comfort lens

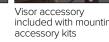
provides glare control,

and better uniformity

improved visual comfort



Visor





Mounting Options

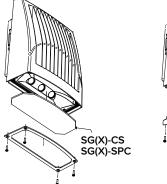


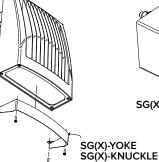
Photocontrol option available for energysaving dusk-to-dawn operation

Hinged Housing Door

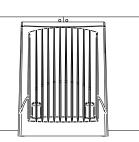


Side hinged for easy installation and wiring access, single screw secures housing closure

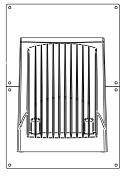








SG(X)-WCP-H



SG(X)-WCP-V

Features



Battery back up feature with side indicator.

Exceeds Life Safety Code average illuminance of 1.0 fc. at 12' mounting height. Assumes open space with no obstructions. Battery backup units consume 6W when charging a dead battery and 2W during maintenance charging. EH (units with a heater) consume up to an additional 8W when charging if the battery temp is lower than 10°C

Diagrams for illustration purposes only, please consult factory for application layout.

Wireless and Occupancy Controls

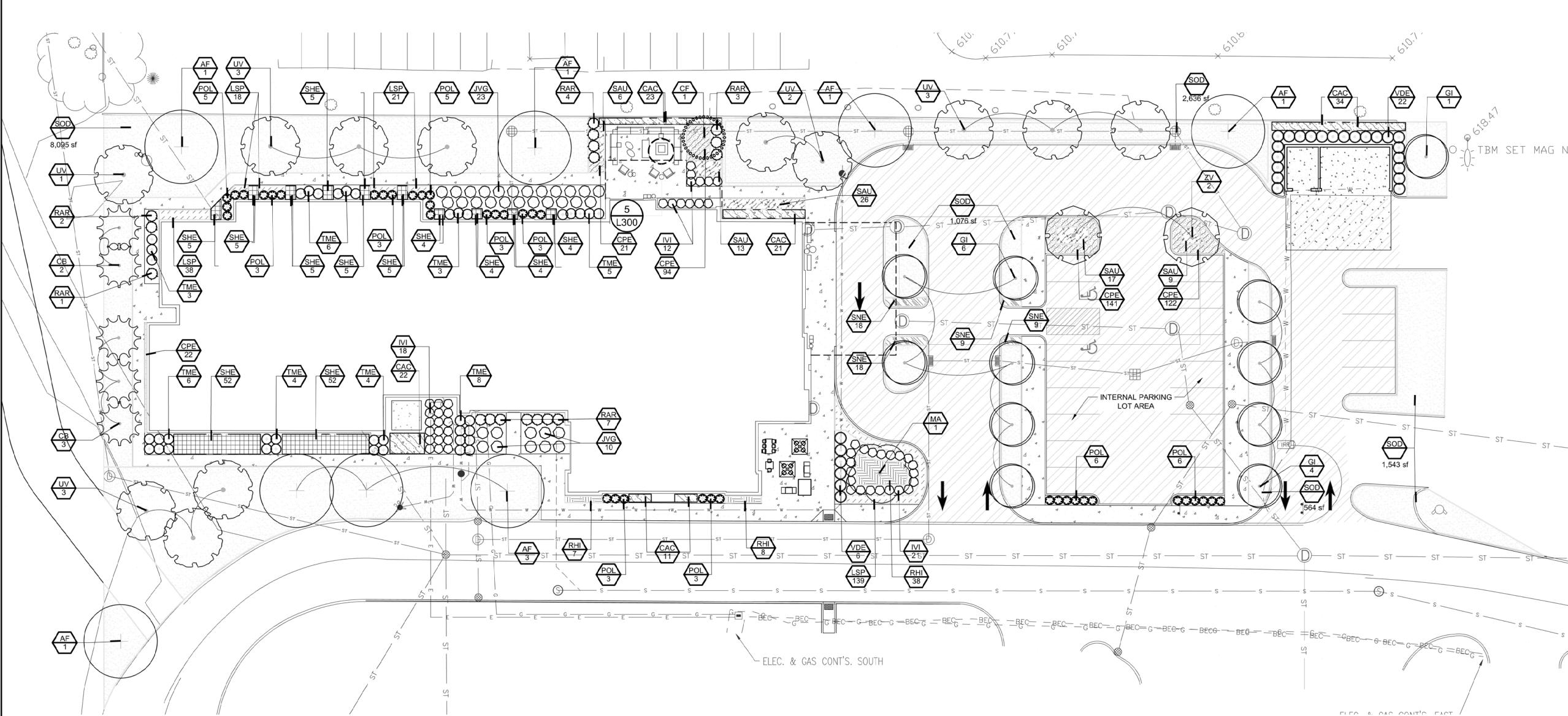


SiteSync[™] Lighting Control delivers flexible control strategies for reducing power consumption and minimizing maintenance costs while delivering the right light levels with a simple and affordable wireless solution.



Page 8/8 Rev. 05/07/20 AIROLED-SPEC





PLANT SCHEDULE

TREES AF	QTY 8	BOTANICAL NAME ACER FREEMANII `ARMSTRONG`	COMMON NAME FREEMAN MAPLE	<u>CONT</u> B&B, 2.5" CAL.	
СВ	5	CARPINUS BETULUS `FASTIGIATA` BRANCHING TO BEGIN 3` FROM GROUND	PYRAMIDAL EUROPEAN HORNBEAN	B&B, 2.5" CAL.	
CF	1	CORNUS FLORIDA	EASTERN DOGWOOD	B&B, 2" CAL.	
GI	11	GLEDITSIA TRIACANTHOS INERMIS	THORNLESS COMMON HONEYLOCUST	B&B, 2" CAL.	
1A	1	MAGNOLIA X `ANN`	ANN MAGNOLIA	B&B, 2.5" CAL.	
IV	12	ULMUS AMERICANA `VALLEY FORGE`	AMERICAN ELM	B&B, 2.5" CAL.	
V	2	ZELKOVA SERRATA `VILLAGE GREEN`	SAWLEAF ZELKOVA	B&B, 2.5" CAL.	
HRUBS /I	<u>QTY</u> 51	BOTANICAL NAME ITEA VIRGINICA `HENRY`S GARNET`	<u>COMMON NAME</u> HENRY`S GARNET SWEETSPIRE	CONT 3 GAL	
VG	33	JUNIPERUS VIRGINIANA `GREY OWL`	EASTERN REDCEDAR	3 GAL	
OL	40	PHYSOCARPUS OPULIFOLIUS `LITTLE DEVIL`	DWARF NINEBARK	3 GAL	
AR	17	RHUS AROMATICA `GRO-LOW`	GRO-LOW FRAGRANT SUMAC	3 GAL	
ME	39	TAXUS X MEDIA `DENSIFORMIS`	DENSE YEW	3 GAL	
/DE	28	VIBURNUM DENTATUM `BLUE MUFFIN`	BLUE MUFFIN VIBURNUM	3 GAL	
RNAMENTAL GRASSES	<u>QTY</u> 111	BOTANICAL NAME CALAMAGROSTIS X ACUTIFLORA `KARL FOERSTER`	COMMON NAME FEATHER REED GRASS	CONT 1 GAL.	SPACING 24" o.c.
HE	150	SPOROBOLUS HETEROLEPIS	PRAIRIE DROPSEED	1 GAL	24" o.c.
ROUND COVERS PE	<u>QTY</u> 400	BOTANICAL NAME CAREX PENSYLVANICA	COMMON NAME PENNSYLVANIA SEDGE	CONT 1 GAL.	SPACING 12" o.c.
SP	216	LIRIOPE SPICATA	CREEPING LILY TURF	1 GAL.	15" o.c.
OD	13,915 SF	SODDED LAWN		SOD	
ERENNIALS HI	QTY 53	BOTANICAL NAME RUDBECKIA HIRTA	COMMON NAME BLACK-EYED SUSAN	CONT 1 GAL.	SPACING 24" o.c.
NE	54	SALVIA NEMOROSA `MAY NIGHT`	MAY NIGHT SAGE	1 GAL.	18" o.c.
AU	71	SEDUM X `AUTUMN JOY`	AUTUMN JOY SEDUM	1 GAL.	24" o.c.

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PLANTING NOTES

- Seed/Sod limit line is approximate. Seed/Sod to limits of grading and disturbance. Contractor responsible for restoration of any unauthorized disruption outside of designated construction area.
- Contractor responsible for erosion control in all seeded/sodded areas.
- Tree mulch rings in turf areas are 5 foot diameter, typical. Contractor shall provide a mulch ring around all existing trees within the limit of work. Remove all existing grass from area to be mulched and provide a typical v-trench edge.
- Bedlines are to be spade cut to a minimum depth of 3 inches unless otherwise shown on the plans. Curved bedlines are to be smooth and not segmented.
- Do not locate plants within 10' of utility structures, or within 5' horizontally of underground utility lines unless otherwise shown on the plans. Consult with Landscape Architect if these conditions exist.
- 6. FOR LUMP SUM CONTRACTS, Plants and other materials are quantified and summarized for the convenience of the Owner and jurisdictional agencies only. Confirm and install sufficient quantities to complete the work as drawn and specified. No additional payments will be made for materials required to complete the work as drawn and specified.
- FOR UNIT PRICE CONTRACTS, Payments will be made based on actual quantities installed as measured in place by the Owners Representative.
- 8. Refer to specifications for additional conditions, standards and notes.

SLEEVING NOTES

1. Sleeving shall be schedule 40 PVC pipe unless otherwise noted. Where possible sleeving should be stacked or ganged to minimize space requirements.

2. Contractor to provide a sleeving diagram for approval by the Landscape Architect prior to installation.

 Contractor shall provide at least two (2) sleeves for irrigation and electrical service to to each planting area and /or raised, surrounded or isolated by paving.

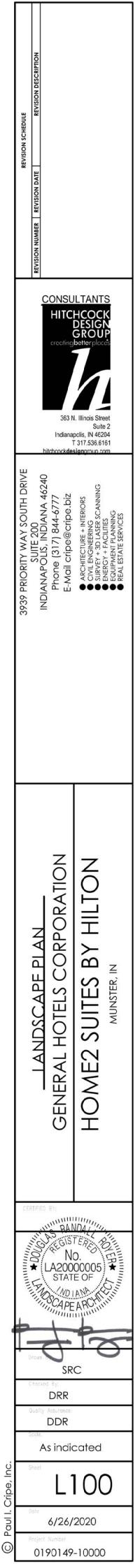
 Locate sleeves in accessible corners or along edges of pavement. Avoid directing sleeves toward or through the center of planting areas where large rootballs are intended.

FURNITURE LAYOUT NOTES

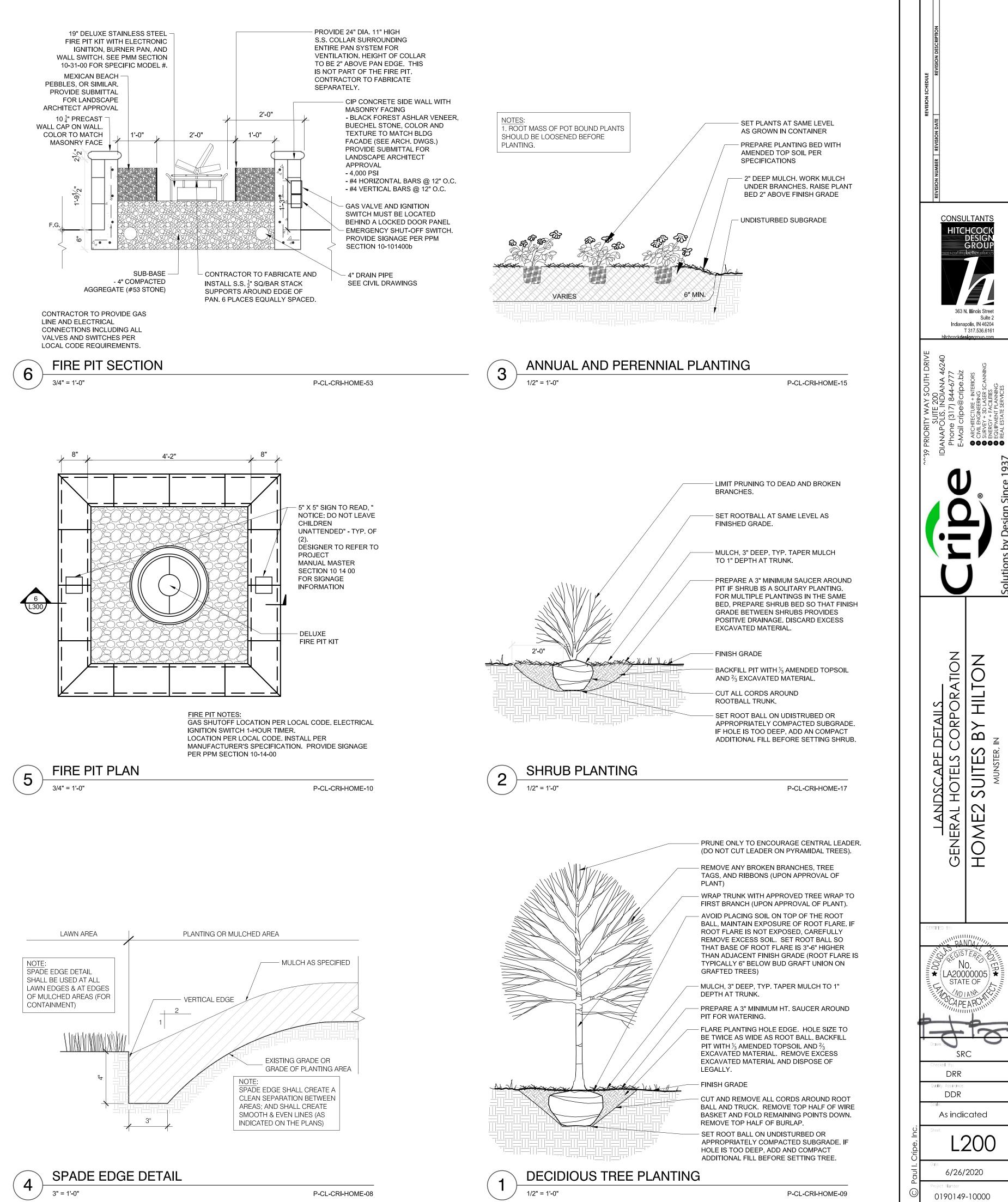
 See Architecture Drawings for specification and location of outdoor furniture.

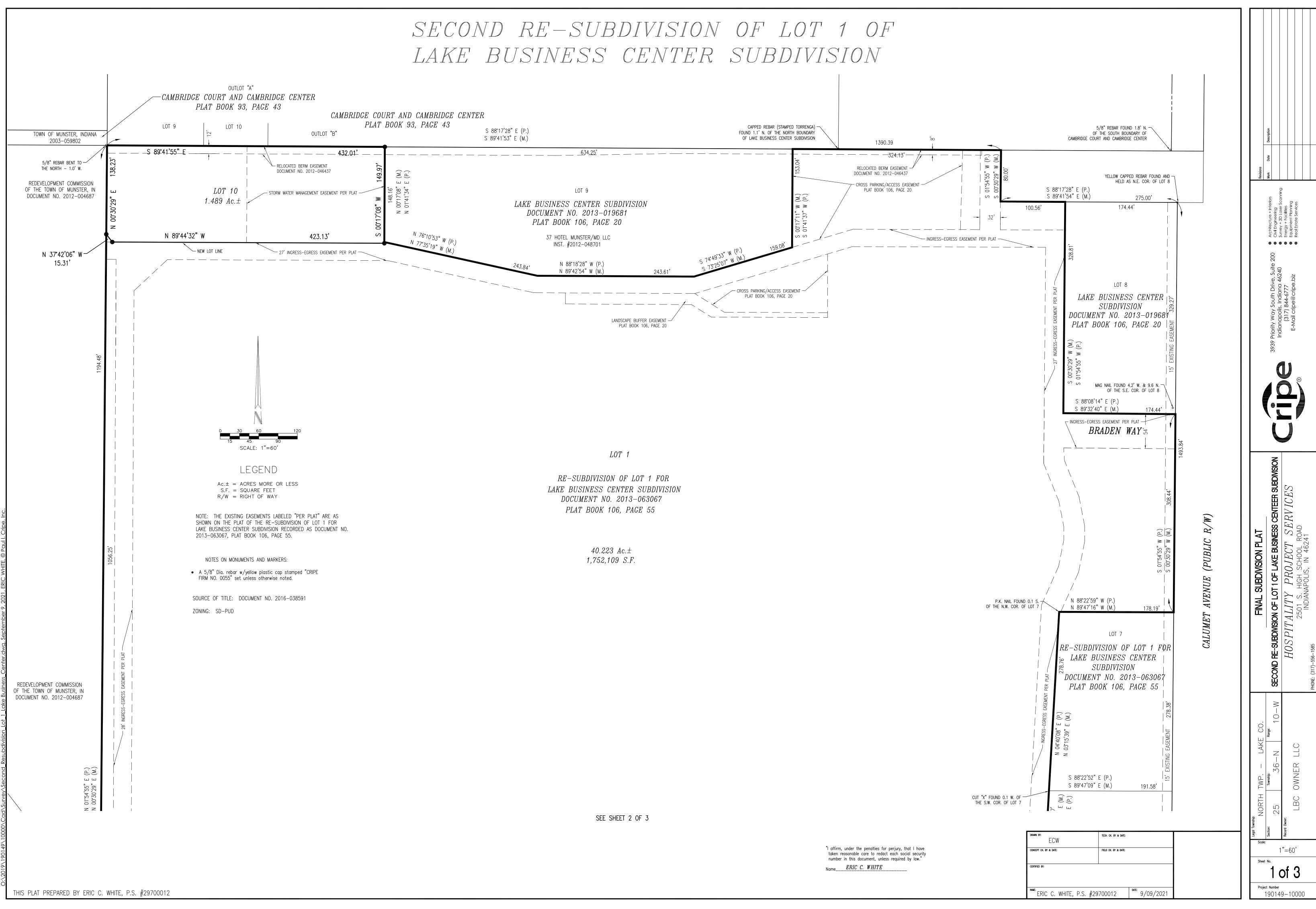
REQUIRED F	PLANT MATERIALS		
ZONING ORDINANCE SECTION		REQUIRED	PROPOSEI
26-1303.2	PERIMETER SCREENING = SHADE TREES = 1/30 LF	NORTH 455 LF = 15 TREES WEST 200 LF = 7 TREES SOUTH 180 LF = 6 TREES	15 TREES 7 TREES 6 TREES
26-1303.1	INTERNAL PLANTING = 16,845 SF LANDSCAPE AREA = 7.5% SHADE TREES = 1/125 SF TOTAL SITE PLANTING AREA LANDSCAPE BEDS SODDED LAWN TREES	1263.4 SF 10 TREES	4355 SF 12 TREES 4350 SF 10,730 SF 40 TREES

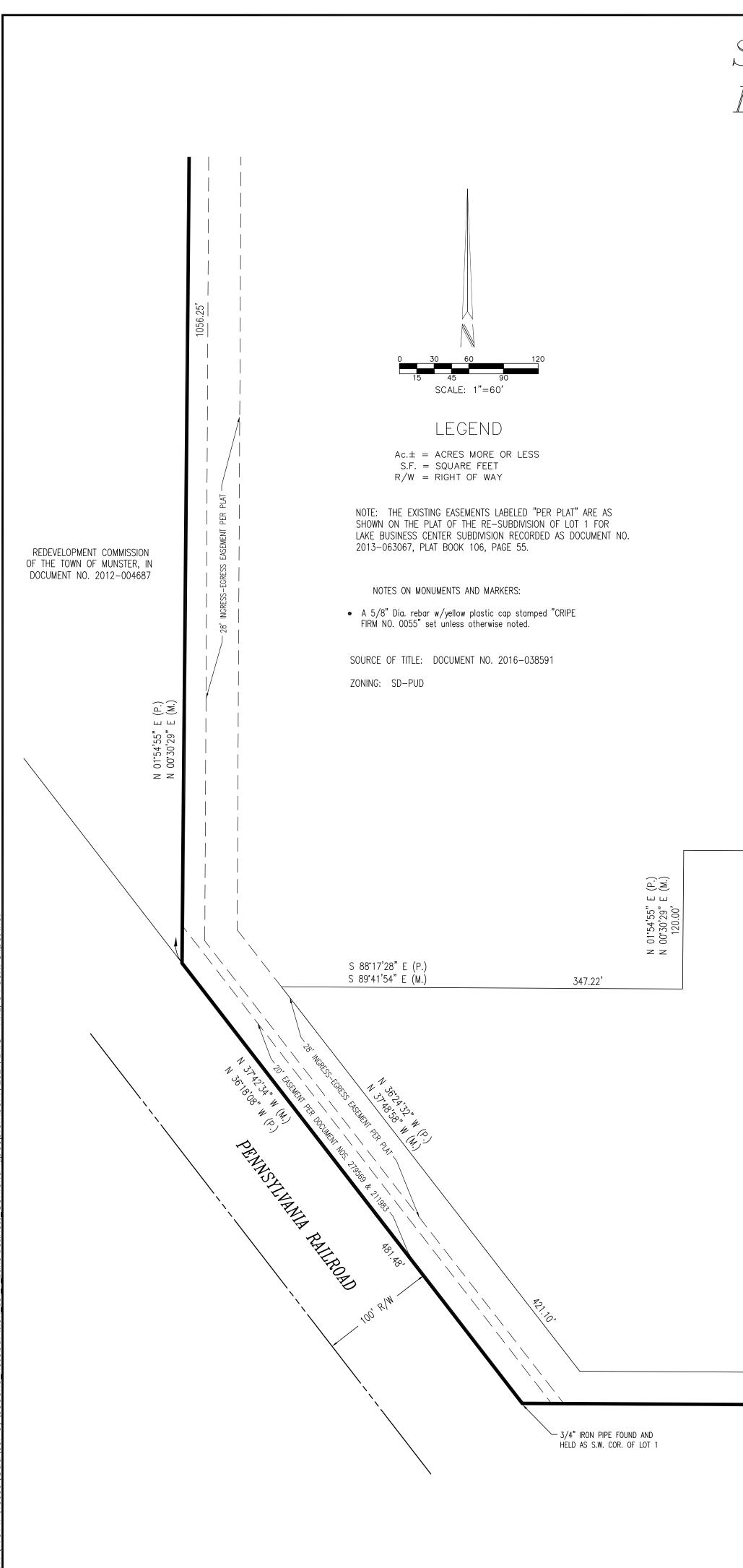




SCALE: 1" = 20' SCALE IN FEET 0' 5' 10' 20' 30'







SECOND RE-SUBDIVISION OF LOT 1 OF LAKE BUSINESS CENTER SUBDIVISION

SEE SHEET 1 OF 3

RE-SUBDIVISION OF LOT 1 FOR LAKE BUSINESS CENTER SUBDIVISION DOCUMENT NO. 2013-063067 PLAT BOOK 106, PAGE 55

> 40.223 Ac.± 1,752,109 S.F.

S 88°17'28" E (P.) S 89°41'54" E (M.)

740.41'

LOT 2 LAKE BUSINESS CENTER SUBDIVISION DOCUMENT NO. 2013-019681 PLAT BOOK 106, PAGE 200

> $9.319~Ac.\pm$ 405,922 S.F.

> > N 89°41'54"W (M.) N 88°17'28"W (P.)

N 88°17'28"W (P.) N 89°41'54"W (M.)

826.50'

1367.52'(PLAT DESC. & M.) 1367.55'(P.)

(P.) (M.)

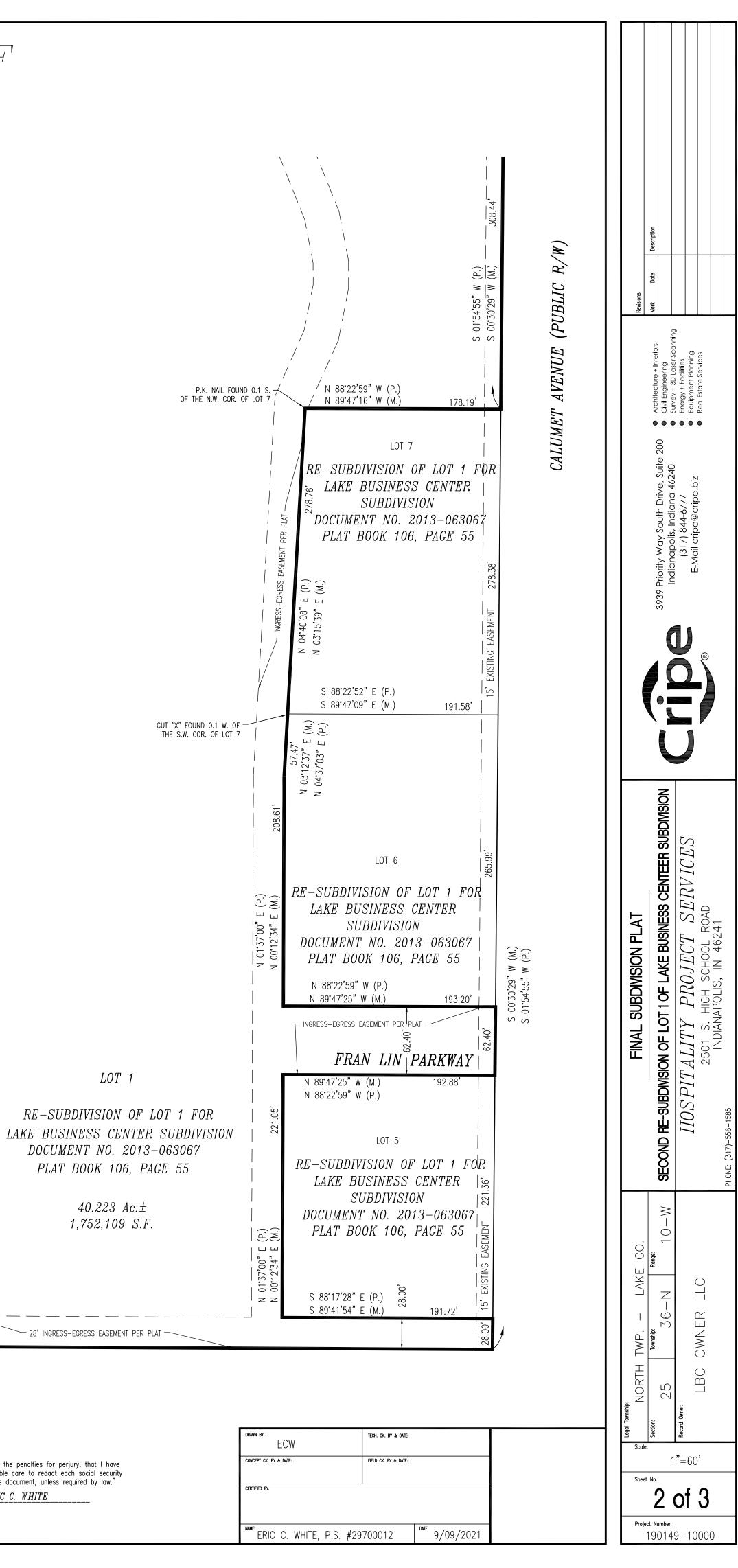
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"I affirm, under the penalties for perjury, that I have taken reasonable care to redact each social security number in this document, unless required by law." Name____*ERIC_C._WHITE_____*



LAND DESCRIPTION

Lot 1 of the Re-subdivision of Lot 1 for Lake Business Center Subdivision, an addition to the Town of Munster, Lake County, Indiana, as per plat thereof, recorded as Document No. 2013-063067, Plat Book 106, page 55 in the Office of the Recorder of Lake County, Indiana, containing 41.712 acres, more or less.

This subdivision consists of two (2) lots numbered 1 and 10. The size of the lots and easements are shown in feet and decimal parts thereof.

This plat is based upon an ALTA/NSPS Land Title Survey of the above described real estate prepared by Cripe dated _____, 2021 and recorded as Document No.______ in the Office of the Recorder of Lake County, Indiana.

Witness my signature this ____ day of ____, 2021.

Eric C. White, P.S. #29700012



DEED OF DEDICATION

We, the undersigned, LBC Owner LLC, owner(s) of the real estate shown and described herein, do hereby certify that we have laid off, platted and subdivided, and do hereby lay off, plat and subdivide, said real estate in accordance with the within plat.

The subdivision shall be known and designated as the "SECOND RE-SUBDIVISION OF LOT 1 OF LAKE BUSINESS CENTER SUBDIVISION", an addition to the Town of Munster, Lake County, Indiana. All streets shown and not hereto dedicated, are dedicated to the City of Indianapolis as public right of way.

Witness our Hand and Seal this day of _____, 2021.

LBC Owner LLC

Name:

Title:

STATE OF INDIANA)) SS:

COUNTY OF _____)

Before me the undersigned Notary Public in and for said County and State, personally appeared ______, President of LBC Owner LLC, who acknowledged the execution of the forgoing instrument as his voluntary act and deed, for the purposes herein expressed.

Witness my hand and notary seal this day of _____, 2021.

Notary Public

My Commission expires:_____

I am a resident of County_____

PLAN COMMISSION CERTIFICATE

Submitted to, approved and accepted by the Plan Commission of the Town of Munster, Lake County, Indiana, this ____ day of _____, 2021.

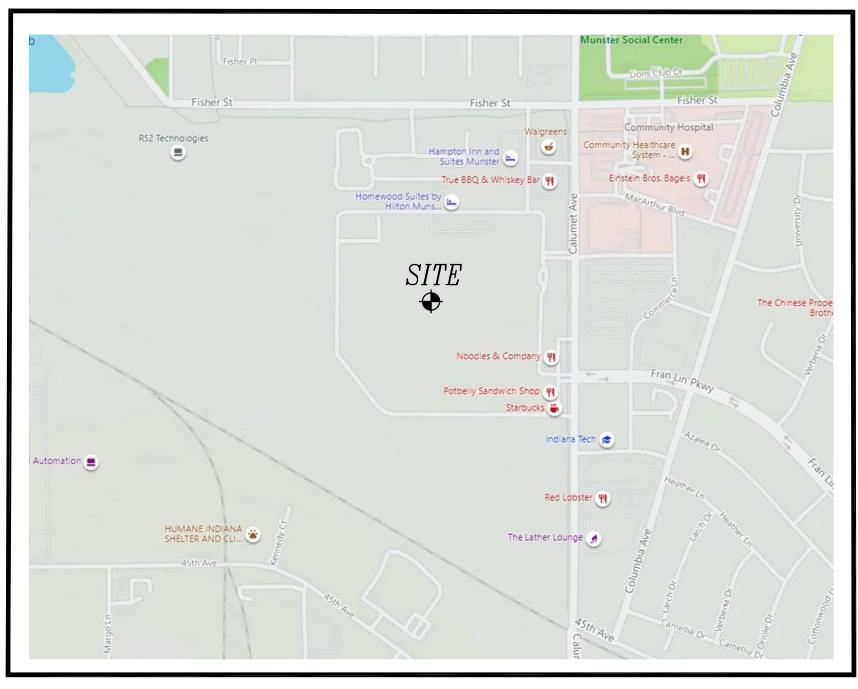
PLAN COMMISSION OF THE TOWN OF MUNSTER, LAKE COUNTY, INDIANA

ATTEST:_____ Executive Secretary BY: _____ Chairman:

(Printed Name)

(Printed Name)

SECOND RE-SUBDIVISION OF LOT 1 OF LAKE BUSINESS CENTER SUBDIVISION



FLOOD STATEMENT:

The subject property is located within an unshaded Flood Zone X (areas determined to be outside the 0.2% annual chance floodplain) as plotted by scale from "FIRM", Flood Insurance Rate Map, Community Panel Number 180139 0117 E, Town of Munster, Lake County, Indiana, effective date, January 18, 2012, as prepared by the Federal Emergency Management Agency. The accuracy of any flood hazard data shown on this report is subject to map scale uncertainty and to any other uncertainty in location or elevation on the referenced Flood Insurance Rate Map.

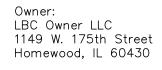
UTILITY EASEMENTS:

An easement is hereby granted to the Town of Munster, Indiana, SBC. AT&T, Northern Indiana Public Service Company and other companies identified by the Munster Town Board as supplying public service needs severally and their respective successors and assigns to install, lay, erect, construct, renew, operate, repair, replace and maintain sewers, water mains, gas mains, conduits, cables, poles and wires, underground with all necessary braces, guys, anchors and other appliances, in, upon, along and marked "easements for public utilities" for the purpose of serving the public in general with sewer, water, gas, electric, telephone and television service, including aerial right as to streets where necessary with aerial service wires to adjacent lots, together with the right to enter upon the said easements for public utilities at all times for any and all of the purposes aforesaid and to trim and keep trimmed any trees, shrubs, or saplings that interfere with any such utility equipment. Any fences, trees, black toppings, vegetation improvements or other potential obstacles to the use of easements shown upon the subdivision plat shall be placed at the risk of the property owner and may be subject to removal in the event of any interference with the use of said easements or drainage of other lots. Changes of yard elevations in easements from those established upon the subdivision plat or noted on plats submitted and approved when building permits owner's expense. All designated utility easements are also hereby dedicated as drainage easements.

VICINITY MAP (NO SCALE)

"I affirm, under the penalties for perjury, that I have taken reasonable care to redact each social security number in this document, unless required by law." Name____ERIC C. WHITE

drawn by: ECW	TECH. CK. BY & DATE:	
CONCEPT CK. BY & DATE:	FIELD CK. BY & DATE:	
Certified by:		
ERIC C. WHITE, P.S. #29	700012	date: 9/09/2021



NORTH TWP LAK CO. 25 Tommer Fame Finance 3339 Priority Way South Drive, Suite 200 25 36 - N 10 - W SECOND RE-SUBDINSION 3339 Priority Way South Drive, Suite 200 25 36 - N 10 - W SECOND RE-SUBDINSION CONST 2339 Priority Way South Drive, Suite 200 25 30.0 FID PROVIER 2501 S. HIGH SCHOOL ROAD 317) B44.677 2501 S. HIGH SCHOOL ROAD INDIANAPOLIS, IN 46241 2501 S. HIGH SCHOOL ROAD 317) B4.677 E-Mail Gripe@cripe.biz PHONE: (317)-556-1585 INDIANAPOLIS, IN 46241 2501 S. HIGH SCHOOL ROAD 317) B4.677 E-Mail Gripe@cripe.biz	Revisions	Mark Date Description			
VORTH TWP LAKE CO. 25 36-N Rome: 25 36-N 10-W 26 NONER 10-W 27 26-N NONER 28 26-N PROPERSIDENTIAL 29 26-N PROPERSIDENTIAL 29 2501 S. HIGH SCHOOL ROAD NONER 201 S. HIGH SCHOOL ROAD INDIANAPOLIS, IN 46241	Suite 200 Architecture + Interiors 240 Civil Engineering 8 urvey + 3D Laser Scanning Energy + Facilities Equipment Planning z Real Estate Services				
VORTH TWP LAKE CO. 25 Township: 36-N Range: LBC OWNER LLC			2)		
VORTH TWP. – LAKE CO 25 Township: 25 36–N Ronge: LBC OWNER LLC	FINAL SUBDIVISION PLAT	SECOND RE-SUBDIVISION OF LOT 1 OF LAKE BUSINESS CENT	HOSPITALITY PROJECT SERV 2501 S. HIGH SCHOOL ROAD INDIANAPOLIS, IN 46241 INDIANAPOLIS, IN 46241		
vy I ■ ¥	Ι	Township: 36-N			

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Project Number