

FINAL ENGINEERING PLANS FOR SUBSTATION No. 9 CIVIL PLANS for CITY OF ST. CHARLES

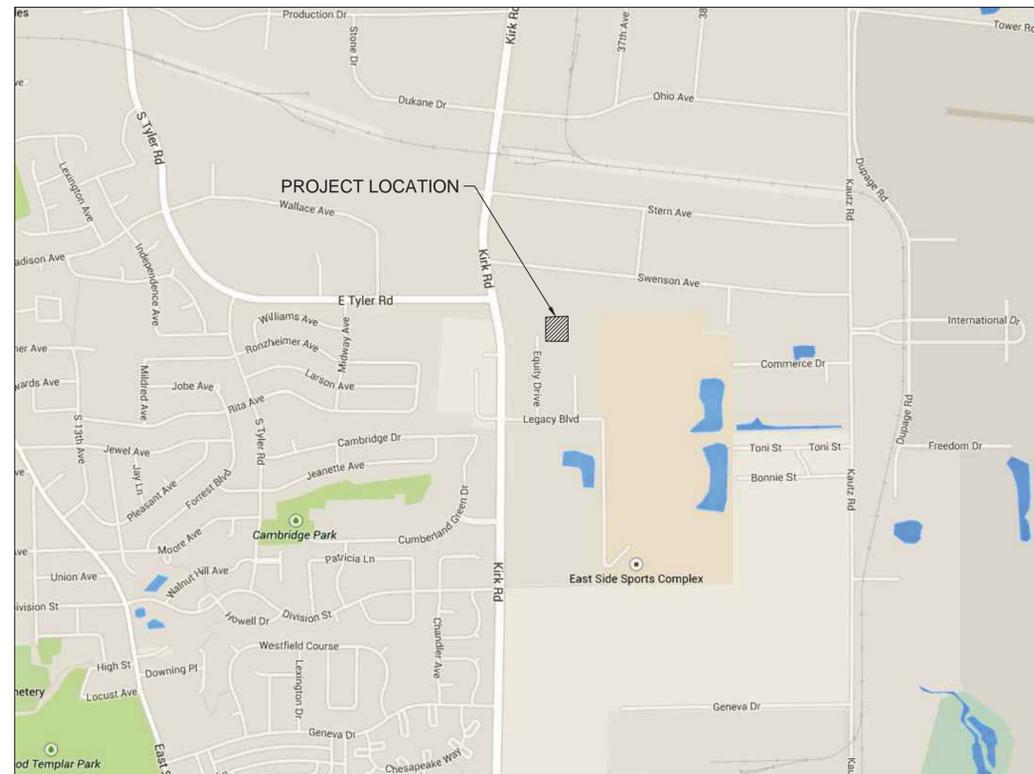
CITY OF ST. CHARLES, KANE COUNTY, ILLINOIS SECTION 36, TOWNSHIP 40 NORTH, RANGE 8 EAST

ESI CONSULTANTS PROJECT NO: 15-590

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LOCATION MAP
NOT TO SCALE

BENCHMARKS

ARROW BOLT OF FIRE HYDRANT LOCATED ON THE EAST SIDE OF EQUITY DRIVE (AS SHOWN). ELEVATION=786.02'(NAVD88)

OWNER
CITY OF ST. CHARLES
2 EAST MAIN STREET
ST. CHARLES, IL 60174
TEL: 630.377.4407 | FAX: 630.377.7009

ENGINEER
ESI CONSULTANTS, LTD
1979 NORTH MILL STREET, SUITE 100
NAPERVILLE, IL 60563
TEL: 630.420.1700 | FAX: 630.420.1733

ENGINEERING PLAN SUBMITTAL

THESE ENGINEERING PLANS AND SUPPORTING DOCUMENTS ARE ISSUED FOR THE FOLLOWING PURPOSE ONLY

	PRELIMINARY PLAN REVIEW NO.
	FINAL PLAN REVIEW NO.
	PERMIT APPLICATION NO.
X	BIDDING
	CONSTRUCTION

PROFESSIONAL ENGINEER'S CERTIFICATION

I HEREBY CERTIFY THAT THE "FINAL ENGINEERING PLANS FOR SUBSTATION No. 9 CIVIL PLANS", SHEET 1 - 17 WAS PREPARED UNDER MY PERSONAL DIRECTION. THIS TECHNICAL SUBMISSION IS INTENDED TO BE USED AS AN INTEGRAL PART OF AND IN CONJUNCTION WITH THE PROJECT SPECIFICATIONS AND CONTRACT DOCUMENTS.

DATED THIS _____ DAY OF _____, _____

ANTHONY MALONE
ILLINOIS REG. PROF. ENGINEER NO. 062-049869 EXPIRATION DATE 11-30-2017



NO.	DATE	DESCRIPTION OF REVISIONS	NO.	DATE	DESCRIPTION OF REVISIONS
1	03-12-15	REVISED PER CITY			
2	01-15-16	REVISED PER CITY			

ESI PROJECT NO. 15-590	ENGR. AGM
FILE:	TECH. SH
DATE: 01/04/16	QAQC:

GENERAL CONSTRUCTION NOTES

ALL EARTHWORK AND STREET CONSTRUCTION WITHIN THE LIMITS OF THE PROJECT SHALL BE DONE IN ACCORDANCE WITH THE (SSRBC) STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION IN ILLINOIS, CURRENT EDITION, AND ALL SUPPLEMENTS AND REVISIONS THERETO, THE "SPECIAL PROVISIONS", THESE "CONSTRUCTION NOTES" AND THE STANDARD SPECIFICATIONS OF THE CITY OF ST. CHARLES

ALL SANITARY SEWER AND WATER MAIN CONSTRUCTION WITHIN THE LIMITS OF THIS PROJECT SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS, CURRENT EDITION, CITY OF ST. CHARLES ENGINEERING DESIGN AND INSPECTION POLICY MANUAL AND ALL SUPPLEMENTS AND REVISIONS THERETO, WITH THE "SPECIAL PROVISIONS", THESE "CONSTRUCTION NOTES" AND THE STANDARD SPECIFICATIONS OF THE AGENCY HAVING JURISDICTION OVER THE PROJECT.

ALL SEWER AND WATER MAIN CONSTRUCTION WITHIN THE LIMITS OF THIS PROJECT SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS, CURRENT EDITION, CITY OF ST. CHARLES ENGINEERING DESIGN AND INSPECTION POLICY MANUAL AND ALL SUPPLEMENTS AND REVISIONS THERETO, WITH THE "SPECIAL PROVISIONS", THESE "CONSTRUCTION NOTES" AND THE STANDARD SPECIFICATIONS OF THE AGENCY HAVING JURISDICTION OVER THE PROJECT.

A COPY OF THE ABOVE SPECIFICATIONS SHALL BE IN THE POSSESSION OF THE CONTRACTOR OF THIS PROJECT AT ALL TIMES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS FOR CONSTRUCTION ALONG OR ACROSS EXISTING STREETS OR HIGHWAYS. CONTRACTOR SHALL MAKE ARRANGEMENTS FOR THE PROPER BRACING, SHORING, AND OTHER REQUIRED PROTECTION OF ALL ROADWAYS BEFORE CONSTRUCTION BEGINS. CONTRACTOR 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. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ADEQUATE SIGNS AND WARNING DEVICES TO INFORM AND PROTECT THE PUBLIC.

EXISTING UTILITIES AND UTILITY EASEMENTS, BOTH PUBLIC AND PRIVATE, ARE SHOWN ON THE PLANS ACCORDING TO INFORMATION AVAILABLE TO THE ENGINEER AND ARE ONLY INCLUDED FOR THE CONVENIENCE OF THE BIDDER. THE OWNER AND ENGINEER ASSUME NO RESPONSIBILITY WHATSOEVER IN RESPECT TO THE SUFFICIENCY OR ACCURACY OF THE INFORMATION SHOWN ON THE PLANS RELATIVE TO THE LOCATION OF UNDERGROUND UTILITY FACILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION IN THE FIELD OF ALL UTILITY LINES AND FOR THEIR PROTECTION FROM DAMAGE DUE TO CONSTRUCTION OPERATIONS. IF EXISTING UTILITY LINES OF ANY NATURE ARE ENCOUNTERED WHICH CONFLICT IN LOCATION WITH NEW CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT SAID CONFLICT MAY BE RESOLVED.

BEFORE FINAL APPROVAL BY THE OWNER AND THE CITY OF ST. CHARLES, ALL WORK SHALL BE INSPECTED BY A REPRESENTATIVE OF THE AGENCY HAVING JURISDICTION OVER THE PROJECT. THE FINAL PAYMENT WILL BE MADE AFTER ALL OF THE CONTRACTORS WORK HAS BEEN APPROVED AND CERTIFIED TO BE COMPLETE. THE CONTRACTOR SHALL GUARANTEE THE WORK PERFORMED FOR A PERIOD OF ONE YEAR FROM THE DATE ON THE CERTIFICATE OF COMPLETION AND SHALL BE HELD RESPONSIBLE FOR ANY DEFECTS IN MATERIAL OR WORKMANSHIP OF THIS WORK DURING THAT PERIOD.

PUBLIC WATER MAIN FACILITIES MAY BE OPERATED ONLY BY CITY PERSONNEL. THE CONTRACTOR IS NOT PERMITTED TO OPEN, CLOSE OR ADJUST ANY PUBLIC WATER VALVE FOR ANY REASON. CONTRACTOR SHALL PROVIDE 72 HOUR NOTICE FOR ANY SERVICES REQUIRED BY VILLAGE. IF AN EMERGENCY SITUATION ARISES, THE CONTRACTOR SHALL CONTACT THE CITY OF ST. CHARLES PUBLIC WORKS DEPARTMENT IMMEDIATELY.

SAWING OF EXISTING SURFACES WHEN REQUIRED FOR REMOVAL OR CONSTRUCTION WILL NOT BE PAID FOR SEPARATELY BUT WILL BE CONSIDERED INCIDENTAL TO THE VARIOUS REMOVAL PAY ITEMS.

STORM SEWER

ALL STORM SEWER CONSTRUCTION WITHIN THE LIMITS OF THIS PROJECT SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS, CURRENT EDITION, AND ALL SUPPLEMENTS AND REVISIONS THERETO, THE "SPECIAL PROVISIONS", THESE "CONSTRUCTION NOTES" AND THE STANDARD SPECIFICATIONS OF THE CITY OF ST. CHARLES.

STRUCTURES FOR STORM SEWERS SHALL BE IN ACCORDANCE WITH THESE IMPROVEMENT PLANS AND THE APPLICABLE STANDARD SPECIFICATIONS. ALL JOINT SECTIONS SHALL BE SEALED WITH CONTINUOUS BUTYL MASTIC ROPE & MORTARED WITH NON-SHRINK MORTAR WHICH SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE VARIOUS SEWER PAY ITEMS.

EXCEPT WHERE INDICATED OTHERWISE IN THE PLANS, ALL MANHOLES SHALL HAVE A FRAME CONFORMING TO NEENAH R-1712 OR R-1510.

ALL LIDS SHALL BE NEENAH R-1712 OR R-1510 TYPE "B" SELF SEALING WITH A CONCEALED PICK HOLE AND "CITY OF ST. CHARLES" AND "STORM" CAST INTO THE TOP SURFACE TO IDENTIFY THE LINE.

ALL TOPS OF FRAMES FOR STORM SEWER ARE TO BE ADJUSTED TO MEET FINISH GRADE. THIS ADJUSTMENT IS TO BE MADE BY THE SEWER CONTRACTOR AND SHALL NOT EXCEED 12 INCHES.

STEPS SHALL BE INSTALLED IN ALL STORM MANHOLES ON 16" CENTERS (NEENAH R-1981-1 CAST IRON OR EAST JORDAN 8533).

THE CONTRACTOR SHALL MARK THE END OF ALL SUMP PUMP SERVICE LINES WITH A 4"x4" YELLOW PINE WOOD POST AT LEAST SIX (6) FEET IN LENGTH. THE POST SHALL BE BURIED WITH THE LOWER END AT THE INVERT OF THE SEWER. THE EXPOSED PORTION SHALL BE PAINTED ORANGE. THE CONTRACTOR WILL TIE IN THE LOCATION OF THE END OF ALL SUMP PUMP SERVICE LINES BY MEASUREMENTS TO LOT CORNERS AND WILL FURNISH A COPY OF SUCH MEASUREMENTS TO THE ENGINEER.

UNLESS OTHERWISE INDICATED ON THE PLANS, STORM SEWER PIPE AND CULVERT PIPE 12" IN DIAMETER AND LARGER SHALL BE REINFORCED CONCRETE PIPE, ASTM C-76, CLASS IV.

ALL STORM SEWER SHALL HAVE GASKETED JOINTS MEETING THE REQUIREMENTS OF WATER QUALITY PIPE. RUBBER GASKETS SHALL BE ACCORDING TO AASHTO M315 / ASTM C443.05A.

ALL CONNECTIONS TO EXISTING MANHOLES SHALL BE MADE BY CORING OR SAWCUTTING THE EXISTING STRUCTURE. BREAKING INTO STRUCTURES WILL NOT BE ALLOWED.

IN LINE CURB STRUCTURES MAY NOT INCLUDE THE USE OF SHIMS. ALL FRAMES SHALL SIT DIRECTLY ABOVE THE ADJACENT RINGS OR FLAT TOP. OFFSET FRAMES WILL NOT BE ACCEPTED.

LIDS AND GRATES, WHERE PRACTICAL, SHALL COMPLY WITH NPDES PHASE II BEST MANAGEMENT PRACTICES THROUGH APPROPRIATE FACIAL MARKINGS.

PROVIDE TRENCH BACKFILL FOR ALL UTILITY LINES UNDER OR WITHIN 2 FEET OF PAVED AREAS.

STAKING

THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL SECTION OR SUBSECTION MONUMENTS, PROPERTY CORNERS, AND REFERENCE MARKERS UNTIL THE OWNER, HIS AGENT, OR A PROFESSIONAL LAND SURVEYOR HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATIONS.

STRUCTURE OFFSET LOCATIONS GIVEN ON THE DETAILED PLANS ARE TO THE FOLLOWING POINTS:
 A.) FOR STRUCTURES FALLING IN THE CURB LINE--TO THE BACK OF CURB
 B.) FOR ALL OTHER STRUCTURES--TO THE CENTER OF THE STRUCTURE.

ALL ELEVATIONS ARE ON U.S.G.S. DATUM. ALL OFFSET LOCATIONS GIVEN ON THE DETAILED PLANS FOR STRUCTURES, BACK OF CURB, ETC., ARE FROM THE BASELINE AS SHOWN ON THE PLANS.

TRENCHING / EARTHWORK / EXCAVATED / GRADING

ALL SURPLUS EXCAVATED MATERIALS SHALL BE PROPERLY DISPOSED OF BY THE CONTRACTOR.

ALL CONSTRUCTION AND DEMOLITION DEBRIS OR WASTE, INCLUDING EXCESS OR UNSUITABLE MATERIAL, SHALL BE DISPOSED OF IN A LICENSED LANDFILL, RECYCLED, REUSED OR OTHERWISE DISPOSED OF AS ALLOWED BY STATE OR FEDERAL SOLID WASTE DISPOSAL LAWS AND REGULATIONS AND SOLID WASTE DETERMINATIONS OF THE IEPA.

GRANULAR FOUNDATION AND BACKFILL TRENCH SECTIONS FOR SANITARY SEWER, STORM SEWER AND WATER MAIN ARE TO BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS. THE COST OF BEDDING, HAUNCHING AND INITIAL BACKFILL SHALL BE MERGED WITH THE COST FOR SEWERS AND WATER MAIN AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

ALL SURPLUS EXCAVATED MATERIAL FROM THE TRENCH WILL BE PROPERLY DISPOSED OF BY THE CONTRACTOR. SEE NOTES UNDER "EXCAVATED MATERIALS" FOR ADDITIONAL INFORMATION.

CONTRACTOR SHALL EXCAVATE AN EXPLORATORY TRENCH TO DETERMINE EXACT LOCATIONS AND ELEVATIONS AT UTILITY CROSSINGS AND CONNECTIONS TO EXISTING.

CONTRACTOR SHALL REFER TO THE GEOTECHNICAL ENGINEERING SERVICE REPORT, AS PREPARED BY RUBINO ENGINEERING INC, DATE JUNE 31, 2014, REPORT No. 614.029

ALL CLAY EMBALMENT / FILL AREAS SUBBASE BENEATH AGGREGATE AREA, AND SUBBASE PAVED AREAS SHALL BE COMPACTED TO 95% MODIFIED PROCTOR IN DENSITY.

PAVEMENT / ROADWAYS / TRAFFIC CONTROL

THE CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF ALL REQUIRED PERMITS FOR CONSTRUCTION ALONG OR ACROSS EXISTING STREETS OR HIGHWAYS. ARRANGEMENTS SHALL BE MADE FOR PROPER SHORING, BRACING AND OTHER REQUIRED PROTECTION OF ALL ROADWAYS BEFORE CONSTRUCTION BEGINS. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO ROADWAYS AND ASSOCIATED STRUCTURES AND SHALL MAKE REPAIRS AS NECESSARY TO THE SATISFACTION OF THE CITY OF ST. CHARLES.

CONTRACTOR SHALL BE RESPONSIBLE FOR THE INSTALLATION AND MAINTENANCE OF ADEQUATE SIGNS AND WARNING DEVICES TO INFORM AND PROTECT THE GENERAL PUBLIC DURING CONSTRUCTION OPERATIONS.

CONTRACTOR SHALL NOTIFY THE VILLAGE, ENGINEER AND EMERGENCY DISPATCHER OF ANY ROAD OR LANE CLOSURE A MINIMUM OF 48 HOURS IN ADVANCE OF CLOSURE.

WATERMAIN

ALL WATER MAIN CONSTRUCTION WITHIN THE LIMITS OF THIS PROJECT SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS, CURRENT EDITION, CITY OF ST. CHARLES ENGINEERING DESIGN AND INSPECTION POLICY MANUAL AND ALL SUPPLEMENTS AND REVISIONS THERETO, WITH THE "SPECIAL PROVISIONS", THESE "CONSTRUCTION NOTES" AND THE STANDARD SPECIFICATIONS OF THE AGENCY HAVING JURISDICTION OVER THE PROJECT.

GRANULAR FOUNDATION AND BACKFILL TRENCH SECTIONS FOR WATER MAINS ARE TO BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS. GRANULAR BEDDING TYPE 5 SHALL BE PROVIDED FOR THE ENTIRE LENGTH OF THE WATER MAIN. THE COST OF THE BEDDING SHALL BE MERGED WITH THE COST FOR THE WATER MAIN AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

ALL WATER MAINS SHALL HAVE A MINIMUM COVER OF 5.0' (UNLESS WEATHERED/ FRACTURE ROCK OR BOULDERS ARE ENCOUNTERED) FROM THE PROPOSED FINAL GRADE. IF EXISTING VALVES ARE TO BE USED DURING PRESSURE TESTING, THE CONTRACTOR IS RESPONSIBLE FOR PASSING TESTS. IF ROCK IS ENCOUNTERED SEE DETAIL ON SHEET DTL-2.

ALL WATER MAINS SHALL BE DUCTILE CAST IRON, CLASS 52, IN ACCORDANCE WITH ANSI/AWWA C-151/A21.51 AND ANSI/AWWA C-117/A21.11 STANDARDS. FITTINGS SHALL BE DUCTILE IRON MECHANICAL JOINT CONFORMING TO THE LATEST ANSI SPECIFICATION A21.10 AND AWWA C-100. ALL PIPE AND FITTINGS SHALL BE CEMENT LINED IN ACCORDANCE WITH AWWA C-104. JOINTS SHALL BE PUSH-ON OR MECHANICAL. ELECTRICAL CONDUCTIVITY SHALL BE PROVIDED WITH BRASS WEDGES. CORROSION PROTECTION OF THE WATER MAIN SHALL BE PROVIDED THROUGH THE USE OF A PROPERLY INSTALLED POLYETHYLENE, DOUBLE WRAPPED ENCASUREMENT WITH TAPED JOINTS. PROVIDE JOINT RESTRAINTS IN ACCORDANCE WITH CITY STANDARDS.

VALVE VAULT STRUCTURES FOR WATER MAIN SHALL BE IN ACCORDANCE WITH THESE IMPROVEMENT PLANS AND THE APPLICABLE STANDARD SPECIFICATIONS. WHERE GRANULAR TRENCH BACKFILL IS REQUIRED AROUND THESE STRUCTURES, THE COST SHALL BE CONSIDERED INCIDENTAL AND SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR THE STRUCTURES.

EXCEPT WHERE INDICATED OTHERWISE IN THE PLANS, ALL VALVE VAULTS SHALL HAVE A FRAME CONFORMING TO NEENAH R-1530.

ALL LIDS SHALL BE NEENAH R-1712 WITH A CONCEALED PICK HOLE AND "WATER" AND "CITY OF ST. CHARLES" CAST INTO THE TOP SURFACE TO IDENTIFY THE LINE. (SEE SPECIAL DETAIL ON SHEET DTL-2)

ALL TOPS OF FRAMES FOR VALVE VAULT COVERS ARE TO BE ADJUSTED TO MEET FINISH GRADE. THIS ADJUSTMENT IS TO BE MADE BY THE WATER AND SEWER CONTRACTOR AND THE COST IS TO BE CONSIDERED INCIDENTAL. THE ADJUSTMENT SHALL NOT EXCEED 12 INCHES.

WATER SERVICES: THIS ITEM SHALL INCLUDE ALL EXCAVATION, THE FURNISHING AND PLACING 2" SOFT TEMPERED TYPE K, COPPER WATER SERVICE LINES INSTALLED IN ONE PIECE.

SELECT GRANULAR BACKFILL (CA-7 OR CA-11) SHALL BE PROVIDED FOR ALL WATER SERVICES UNDER AND WITHIN 2 FEET OF EXISTING OR PROPOSED PAVEMENT, AS SPECIFIED IN THE STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS, CURRENT EDITION.

SERVICE CONNECTIONS: THIS ITEM SHALL INCLUDE FURNISHING AND INSTALLING ALL FITTINGS, SUCH AS CORPORATION STOPS AND CURB STOPS WITH A BOX, ALL AS REQUIRED FOR A COMPLETE WATER SERVICE CONNECTION. THIS WORK SHALL ALSO INCLUDE THE TAPPING OF THE WATER MAIN TO INSTALL THE CORPORATION STOP. THE CONTRACTOR WILL TIE IN THE LOCATION OF ALL SERVICE BOXES BY MEASUREMENTS TO LOT CORNERS AND WILL FURNISH A COPY OF SUCH MEASUREMENTS TO THE ENGINEER. ALL REQUIRED TRENCH BACKFILL SHALL BE CONSIDERED INCIDENTAL AND SHALL BE INCLUDED IN THE COST FOR THE SERVICE.

STEPS SHALL BE INSTALLED IN ALL VALVE VAULTS (NEENAH R-1981-1 CAST IRON OR EAST JORDAN 8533 ON 16" CENTERS) HAVING A WATER MAIN BURY DEPTH GREATER THAN 6 FEET.

TAPPING SLEEVES SHALL BE ROMAC SST-945 STAINLESS STEEL (4"-8" DIA.) AND MUELLER MECHANICAL JOINT TAPPING SLEEVE MODEL H615 CAST IRON (10" AND LARGER PIPE). ALL HARDWARE SHALL BE STAINLESS STEEL.

PROVIDE EAST JORDAN 98725 VALVE BOX STABILIZER AND TYLER 6850 SERIES AUXILIARY VALVE AND AUXILIARY VAULT WITH STAINLESS STEEL TRIM AT ALL FIRE HYDRANTS.

ALL WATER MAINS SHALL BE SEPARATED FROM SANITARY SEWERS AND STORM SEWERS A MINIMUM OF 10' HORIZONTALLY (WHEN RUNNING PARALLEL) OR 18" VERTICALLY WHEN CROSSING EACH OTHER. IN ADDITION, IF THE WATER MAIN LIES BELOW THE SEWER LINE, THE WATER MAIN SHALL BE ENCASED IN A WATER TIGHT SLEEVE SUCH THAT NEITHER END OF THE SLEEVE IS CLOSER THAN 10' AS MEASURED PERPENDICULAR FROM THE SEWER. WATER MAIN PROTECTION FOR CROSSING SEWER LINES SHALL BE CONSIDERED AS INCIDENTAL TO THE CONTRACT UNIT PRICE FOR WATER MAIN.

CONTRACTOR SHALL TEST WATER MAINS FOR ACCEPTANCE BY PRESSURE TESTING IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS, CURRENT EDITION. IF EXISTING VALVES ARE USED FOR PRESSURE TESTS, THE CONTRACTOR REMAINS RESPONSIBLE FOR PASSING THE TESTS. TESTING SHALL BE WITNESSED BY A REPRESENTATIVE OF THE CITY OF ST. CHARLES. COST OF TESTING SHALL BE INCLUDED IN THE UNIT PRICE FOR WATER MAIN CONSTRUCTION AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

ALL SURPLUS EXCAVATED MATERIAL FROM THE TRENCH WILL BE PROPERLY DISPOSED OF BY THE CONTRACTOR AT HIS EXPENSE, UNLESS MATERIAL IS CONSIDERED SPECIAL WASTE.

THE CITY OF ST. CHARLES WATER DEPARTMENT SHOULD BE CONTACTED AT LEAST 48 HOURS IN ADVANCE OF ANY CONNECTIONS TO THE WATER SYSTEM OR ANY SHUT DOWN REQUIRED TO CONSTRUCT THE WATER SYSTEM. ALL SHUT DOWNS SHALL BE ACCOMPLISHED UNDER THE DIRECTION OF THE WATER DEPARTMENT.

THE CONTRACTOR SHALL MARK THE END OF ALL SERVICES INSTALLED WITH A 4"x4" YELLOW PINE WOOD POST AT LEAST EIGHT (8) FEET IN LENGTH. THE POST SHALL BE BURIED WITH THE LOWER END AT THE SAME ELEVATION AS THE WATER SERVICE PIPE. THE EXPOSED PORTION SHALL BE PAINTED BLUE.

THE CONTRACTOR WILL TIE IN THE LOCATION OF THE END OF ALL SERVICE BOXES BY MEASUREMENT TO LOT CORNERS AND WILL FURNISH A COPY OF SUCH MEASUREMENTS TO THE ENGINEER.

ALL CONNECTIONS TO EXISTING MANHOLES SHALL BE MADE BY CORING / SAWCUTTING THE EXISTING STRUCTURE. BREAKING INTO STRUCTURES WILL NOT BE ALLOWED.

PROVIDE 18" MINIMUM SPACING BETWEEN ALL WATER MAIN FITTINGS (AS MEASURED BETWEEN THE TWO CLOSEST POINTS OF ADJACENT FITTINGS).

ELECTRIC NOTES

TRENCH BACKFILL MUST BE FREE OF ANY LARGE STONES AND ROCKS.

ALL CONDUIT SHALL HAVE A 3" MINIMUM CONCRETE ENCASUREMENT COMPLETELY AROUND THE PIPE. SPACERS MUST BE USED AT REGULAR INTERVALS TO MAINTAIN SEPARATION BETWEEN PIPES.

CONCRETE SHOULD BE CLASS SI IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTIONS. PRIOR TO POURING CONCRETE ON AN CONDUIT SECTION, CONTACT ST. CHARLES ELECTRIC, FOR INSPECTION PRIOR TO POUR AT (630) 377-4474.

NO ELECTRIC DUCT RUN SHALL BE LESS THEN 30" BELOW GRADE TO TOP OF DUCT OR CONCRETE ENCASEMENT.

ALL BENDS GREATER THAN 22 DEGREES IN 6" EB SHALL BE RIGID GALVANIZED STEEL OR FIBERGLASS WITH A 36" MINIMUM BENDING RADIUS, ALL OTHER CONDUITS SHALL HAVE A MINIMUM BENDING RADIUS OF 24". SPACERS SHALL BE USED TO SEPARATE PVC CONDUITS APPROXIMATELY 3" APART.

WORK IN EXISTING MANHOLES SHALL BE PERFORMED ONLY WITH A PERMIT ISSUED BY THE CITY OF ST. CHARLES ELECTRIC LINE FOREMAN. A CERTIFIED JOURNEYMAN LINEMAN MUST PERFORM ANY WORK IN ENERGIZED CABINETS, TRANSFORMERS, SWITCHGEARS OR MANHOLES.

STUBBED PIPES SHALL ALL BE CAPPED WITH EITHER A GLUED ON OR SCREW ON CAP.

ALL PIPES STUBBED OUT OF CONCRETE ENCASEMENT SHALL HAVE AT LEAST 5 FEET OF BARE PIPE EXTENDING BEYOND THE END OF CONCRETE FOR CONTINUATION. PIPE STUBBED AT RIGHT OF WAY SHALL ACTUALLY EXTEND 5' BEYOND, WITH CONCRETE ENCASEMENT.

ALL ELECTRIC DUCT SHALL BE VARIFIED CONTINUOUS BY INSTALLATION OF MULE TAPE FROM END TO END FOR PIPE STUBBED, THE MULE TAPE SHOULD BE BLOWN IN AND THEN ATTACHED TO THE CAP.

ALL CONDUIT DUCTS ARE CONCRETE ENCASED UNLESS OTHERWISE SHOWN. CONCRETE ENCASEMENT SHALL END 2' FROM END OF CONDUIT STUB-OUT'S. CONCRETE ENCASEMENT SHALL BE CLASS SI CONCRETE.

ALL CONDUIT DUCTS ARE EB 20 GRAY CONDUITS, UNLESS OTHERWISE SHOWN.

ALL STUB-OUT'S AND STUB-UP'S SHALL BE CONSIDERED INCIDENTAL AND INCLUDED IN THE UNIT PRICING FOR CONDUIT.

ALL PORTLAND CEMENT CONCRETE FOR EQUIPMENT PADS AND FOOTINGS SHALL BE CLASS SI CONCRETE. CONCRETE SLABS SHALL HAVE A SMOOTH FINISH, EPOXY COATED REBAR, AND SHALL BE IN ACCORDANCE WITH IDOT SPEC 1020.13(o).

EXISTING	LEGEND	PROPOSED
---	PROPERTY LINE	---
---	RIGHT-OF-WAY	---
---	EASEMENT	---
---	BUILDING SETBACK	---
---	TEMPORARY EASEMENT	---
---ELEV---	MAJOR CONTOUR (5')	---ELEV---
---ELEV---	MINOR CONTOUR (1')	---ELEV---
---	STORM SEWER	---
---	UNDERDRAIN PIPE	---
---	STORM MANHOLE	---
---	CATCH BASIN	---
---	INLET	---
---	FLARED END SECTION	---
---	STORM CLEANOUT	---
---	DOWNSPOUT	---
---	SANITARY SEWER	---
---	SANITARY SERVICE	---
---	SANITARY MANHOLE	---
---	SANITARY CLEANOUT	---
---	WATERMAIN	---
---	WATER SERVICE / FIRE	---
---	VALVE VAULT	---
---	FIRE HYDRANT	---
---	VALVE BOX	---
---	BUFFALO BOX	---
---	MONITORING WELL	---
---	OVERHEAD ELECTRIC	---
---	UNDERGROUND ELECTRIC	---
---	POWER POLE	---
---	POWER POLE W/ LIGHT	---
---	ELECTRIC MANHOLE	---
---	ELECTRIC METER	---
---	ELECTRIC SPLICE BOX	---
---	TELEPHONE	---
---	TELEPHONE POLE	---
---	TELEPHONE VAULT	---
---	TELEPHONE SPLICE BOX	---
---	CABLE TELEVISION	---
---	FIBER OPTIC CABLE	---
---	CABLE SPLICE BOX	---
---	GAS	---
---	GAS METER	---
---	GAS VALVE	---
---	GAS REGULATOR	---
---	GAS PUMP	---
---	OIL	---
---	TRAFFIC SIGNAL	---
---	TRAFFIC SIGNAL ARM	---
---	STREET SIGN	---
---	SIGN AND POST	---
---	FENCE	---
---	GUARDRAIL	---
---	PAVEMENT ELEVATION	PXXX.XX
---	TOP OF CURB ELEVATION	TCXXX.XX
---	FLOW OF LINE ELEVATION	FLXXX.XX
---	TOP OF WALL ELEVATION	TWXXX.XX
---	GRADE ELEVATION	GXXX.XX
---	TOP OF RIM ELEVATION	RXXX.XX
---	FINISH FLOOR ELEVATION	FFE=XXX.XX

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NO.	DATE	DESCRIPTION OF REVISIONS	NO.	DATE	DESCRIPTION OF REVISIONS
1	03-12-15	REVISED PER CITY			
2	01-15-16	REVISED PER CITY			

ESI PROJECT NO. 15-690	ENGR. AGM
FILE:	TECH. SH
DATE: 01/04/16	QAQC:

**SUBSTATION No. 9 CIVIL PLANS
for
CITY OF ST. CHARLES**

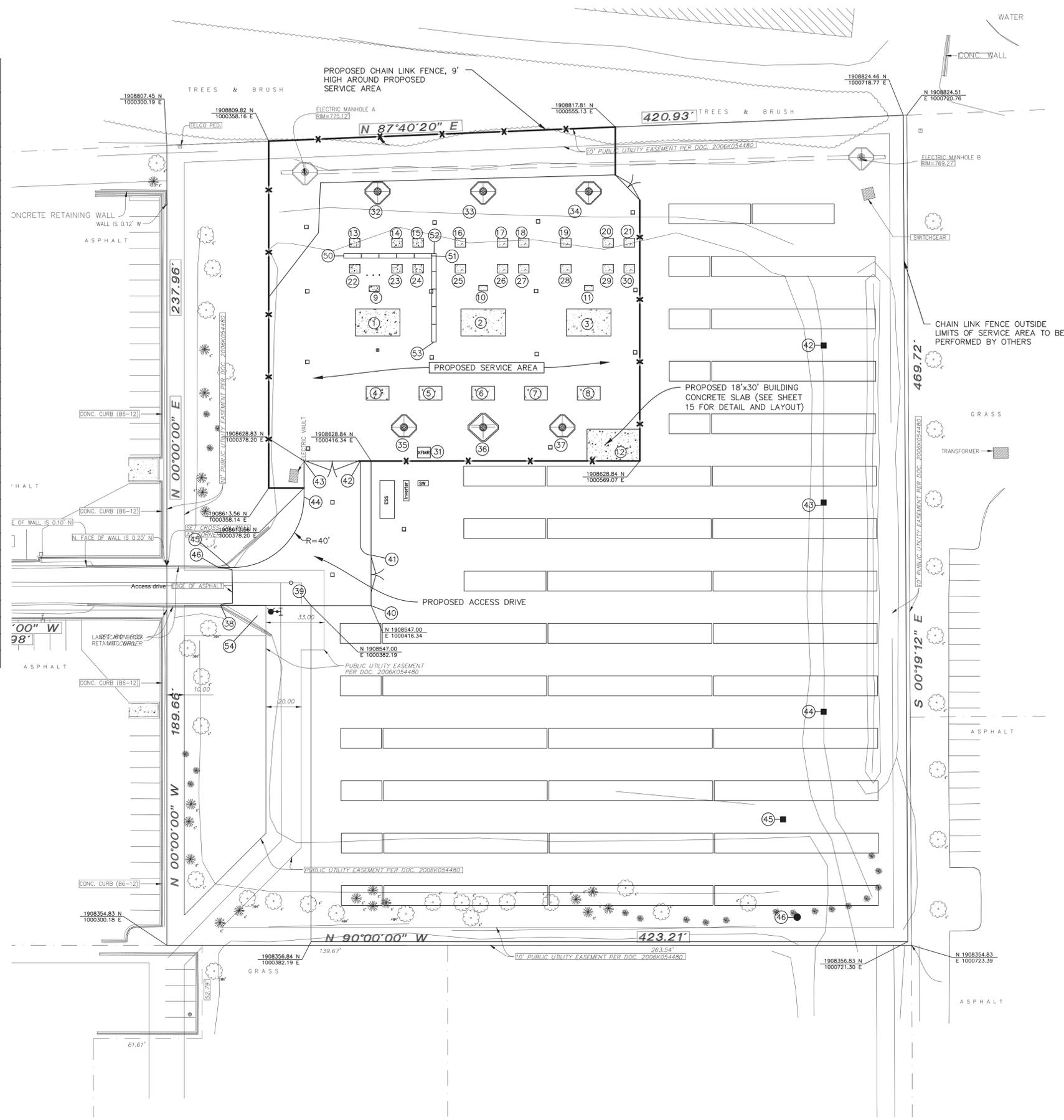
GENERAL NOTES AND LEGEND

CONCRETE PAD / FOUNDATION LOCATIONS

POINT NO.	NORTHWEST CORNER		SOUTHEAST CORNER	
	NORTHING	EASTING	NORTHING	EASTING
1	1908714.92	1000407.39	1908699.59	1000432.72
2	1908714.92	1000467.39	1908699.59	1000492.72
3	1908714.93	1000527.39	1908699.59	1000552.72
4	1908671.07	1000413.56	1908663.32	1000426.56
5	1908671.07	1000443.56	1908663.32	1000456.56
6	1908671.07	1000473.56	1908663.32	1000486.56
7	1908671.07	1000503.56	1908663.32	1000516.56
8	1908671.07	1000533.56	1908663.32	1000546.56
9	1908728.17	1000417.56	1908725.17	1000422.56
10	1908728.17	1000477.56	1908725.17	1000482.56
11	1908728.17	1000537.56	1908725.17	1000542.56
12	1908646.83	1000539.05	1908628.83	1000569.05
13	1908754.84	1000404.06	1908749.84	1000410.06
14	1908754.84	1000428.06	1908749.84	1000434.06
15	1908754.84	1000440.06	1908749.84	1000446.06
16	1908754.84	1000464.06	1908749.84	1000470.06
17	1908754.84	1000488.06	1908749.84	1000494.06
18	1908754.84	1000500.06	1908749.84	1000506.06
19	1908754.84	1000524.06	1908749.84	1000530.06
20	1908754.84	1000548.06	1908749.84	1000554.06
21	1908754.84	1000560.06	1908749.84	1000566.06
22	1908740.17	1000404.06	1908735.17	1000410.06
23	1908740.17	1000428.06	1908735.17	1000434.06
24	1908740.17	1000440.06	1908735.17	1000446.06
25	1908740.17	1000464.06	1908735.17	1000470.06
26	1908740.17	1000488.06	1908735.17	1000494.06
27	1908740.17	1000500.06	1908735.17	1000506.06
28	1908740.17	1000524.06	1908735.17	1000530.06
29	1908740.17	1000548.06	1908735.74	1000554.06
30	1908740.17	1000560.06	1908735.17	1000566.06
31	1908636.59	1000442.62	1908630.59	1000450.00

ACCESS DRIVE, MANHOLE, HYDRANT, CLEAN-OUT, TRENCH LOCATIONS CENTER OF STRUCTURE

POINT NO.	NORTHING	EASTING
32	1908780.95	1000416.195
33	1908782.62	1000476.17
34	1908784.29	1000536.15
35	1908647.94	1000434.90
36	1908649.19	1000479.88
37	1908650.45	1000524.87
38	1908744.92	1000400.81
40	1908746.17	1000452.06
41	1908696.17	1000452.06
42	1908694.25	1000673.50
43	1908605.25	1000673.50
44	1908486.90	1000673.50
45	1908426.00	1000650.20
46	1908370.60	1000658.25
47	1908546.99	1000382.17
48	1908546.99	1000416.33
49	1908575.63	1000416.33
50	1908628.83	1000408.20
51	1908628.83	1000376.20
52	1908608.55	1000376.20
53	1908568.55	1000338.00
54	1908541.15	100351.69



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 QAQC:

**SUBSTATION No. 9 CIVIL PLANS
 for
 CITY OF ST. CHARLES**

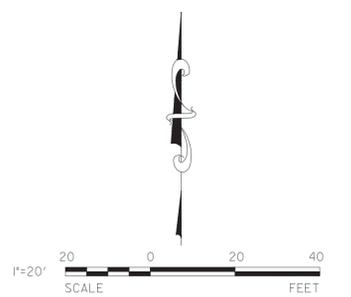
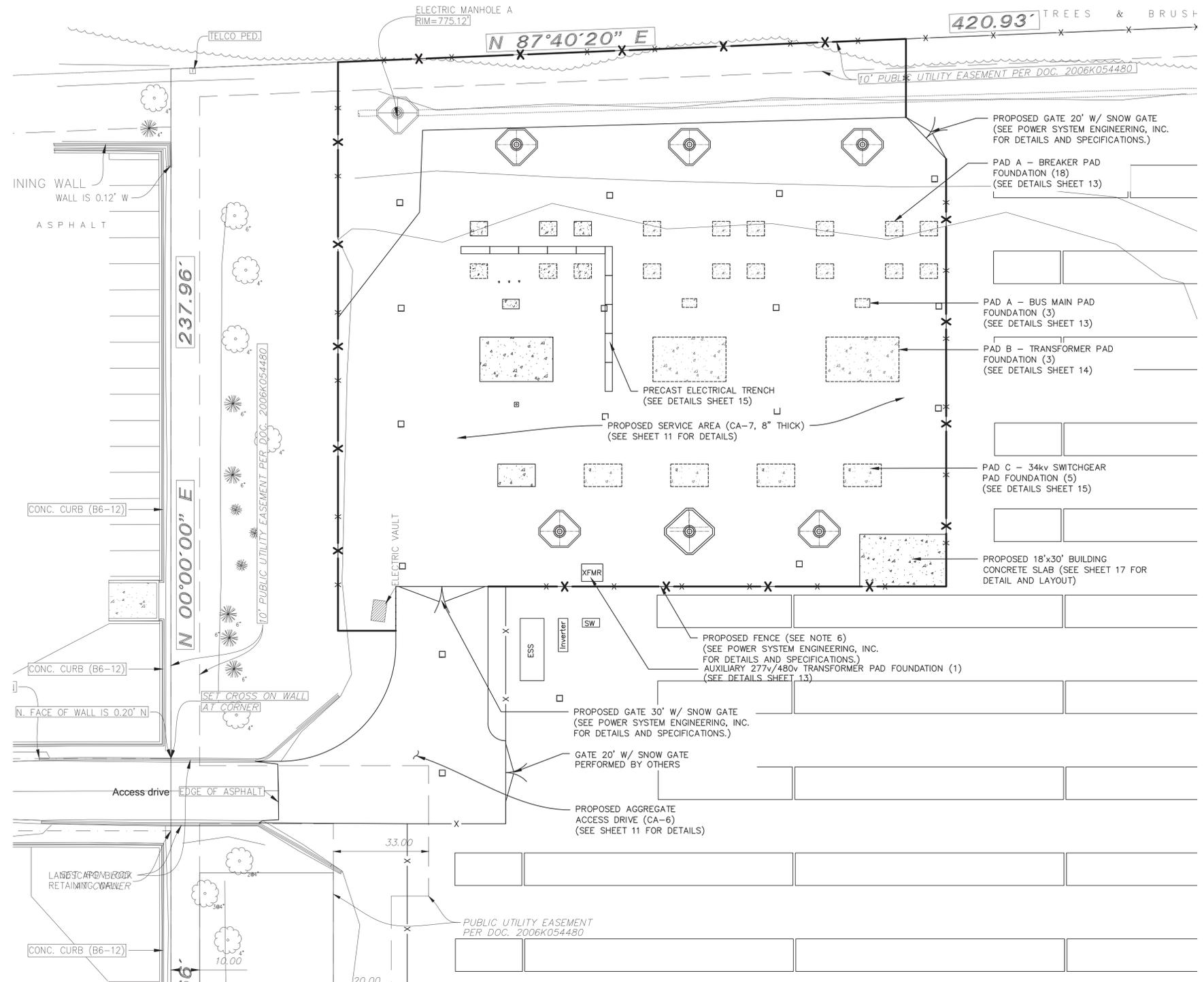
LAYOUT SITE PLAN

LEGEND

-  PROPOSED AGGREGATE, SERVICE AREA
-  PROPOSED AGGREGATE ACCESS DRIVE
-  FUTURE EQUIPMENT PAD FOUNDATION (NOT IN CONTRACT)

NOTES:

1. ALL DIMENSIONS ARE TO THE EDGE OF PAVEMENT (UNLESS NOTED OTHERWISE).
2. SURVEY/SITE DATA PROVIDED BY
W-T LAND SURVEYING, INC.
2675 PRATUM AVE.
HOFFMAN ESTATES, IL 60192
PH# 224-293-6333
3. ACCESS DRIVE AND ALL ROADWAY ITEMS TO FOLLOW ILLINOIS DEPARTMENT OF TRANSPORTATION AND CITY OF ST. CHARLES STANDARDS.
4. SEE SHEET COVER FOR BENCHMARK LOCATIONS.
5. SEE INCLUDED POWER SYSTEM ENGINEERING, INC. PLAN SHEETS FOR EQUIPMENT FOUNDATION AND CONCRETE, FENCE AND GATE DETAILS.
6. ONLY FENCE AROUND PERIMETER OF SERVICE AREA IS INCLUDED IN THIS CONTRACT.



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SUBSTATION No. 9 CIVIL PLANS
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SITE PLAN

NOTES:

1. ALL PROPOSED ELEVATIONS ARE TO FINISHED GRADE.
2. CONTRACTOR TO COORDINATE ANY AND ALL UTILITY LOCATIONS PRIOR TO GRADING/EXCAVATION.
3. MAXIMUM SLOPES NOT TO BE EXCEEDED WITHOUT PERMISSION BY THE ENGINEER.
4. ALL PROPOSED WALKING PATHS SHALL HAVE A MAXIMUM CROSS SLOPE OF 2.0%.
5. ELECTRIC CONDUITS FROM MANHOLES TO EQUIPMENT AND STUBS ARE SHOWN ON THE INCLUDED POWER SYSTEM ENGINEERING, INC. PLAN SHEETS, UNLESS SHOWN ON THIS SHEET
6. SEE DETAIL SHEETS FOR PAD AGGREGATE DEPTHS.
7. ALL FUTURE PAD FOUNDATIONS SHALL BE CONSTRUCTED AND BROUGHT TO FINAL GRADE AS PROPOSED.

ELECTRICAL STRUCTURE #

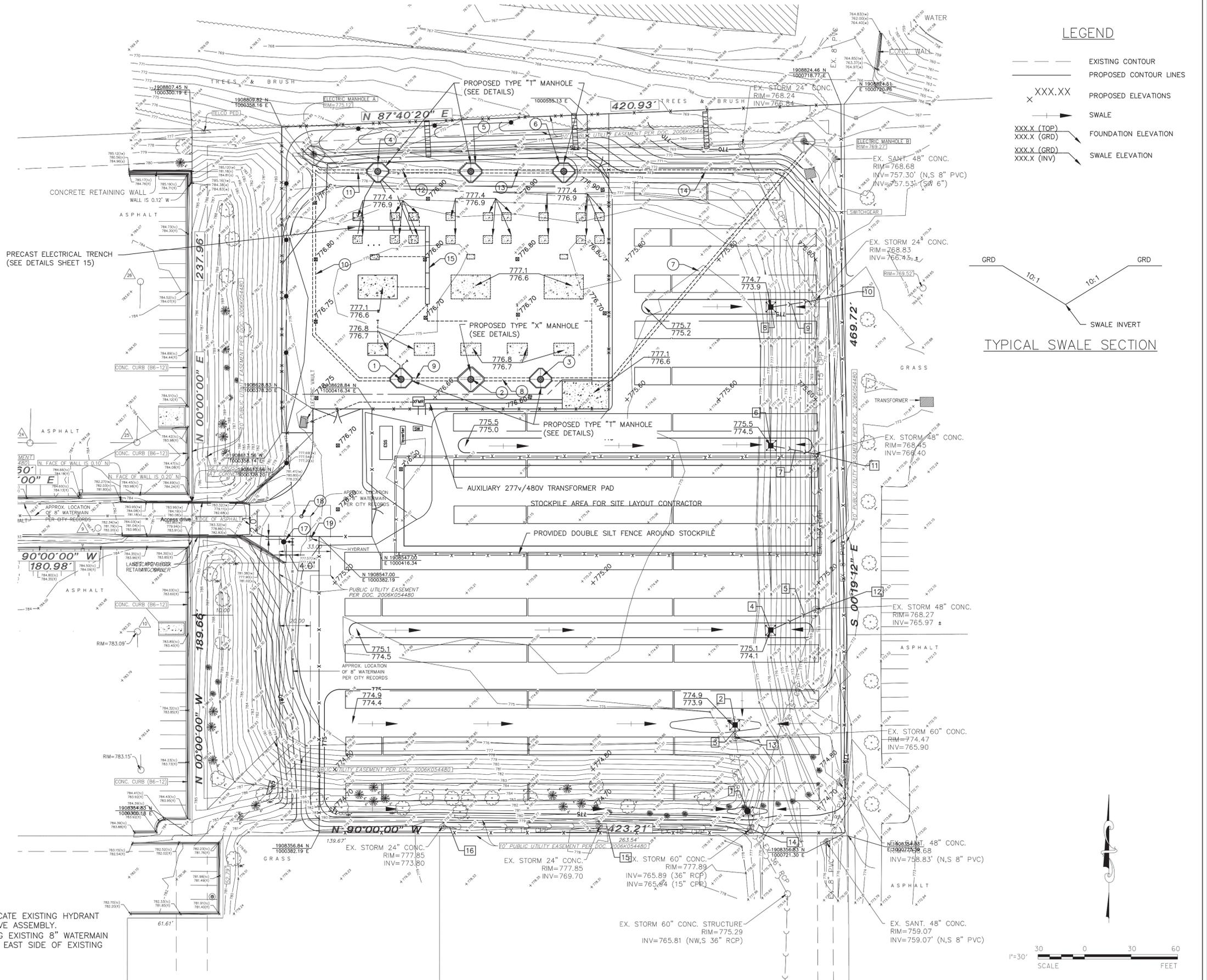
1. PROPOSED TYPE "T" MANHOLE RIM ELEV.=776.71.
 2. PROPOSED TYPE "X" MANHOLE RIM ELEV.=776.71.
 3. PROPOSED TYPE "T" MANHOLE RIM ELEV.=776.71.
 4. PROPOSED TYPE "T" MANHOLE RIM ELEV.=777.10.
 5. PROPOSED TYPE "T" MANHOLE RIM ELEV.=777.10.
 6. PROPOSED TYPE "T" MANHOLE RIM ELEV.=777.10.
 7. 227 L.F. OF (6) - 6" DUCTS (SEE DETAILS A, SHEET 16)
 8. 45 L.F. OF (18) - 6" DUCTS (SEE DETAILS B, SHEET 16)
 9. 45 L.F. OF (18) - 6" DUCTS (SEE DETAILS C, SHEET 16)
 10. 170 L.F. OF (9) - 6" DUCTS (SEE DETAILS C, SHEET 16)
 11. 40 L.F. OF (9) - 6" DUCTS (SEE DETAILS D, SHEET 16)
 12. 60 L.F. OF (18) - 6" DUCTS (SEE DETAILS D, SHEET 16)
 13. 50 L.F. OF (18) - 6" DUCTS (SEE DETAILS D, SHEET 16)
 14. 130 L.F. OF (12) - 6" DUCTS (SEE DETAILS D, SHEET 16)
 15. 100 L.F. OF PRECAST ELECTRICAL TRENCH (TRENWA, INC.) (SEE DETAILS, SHEET 15)
- * ALL 2" CONDUIT SHALL BE SCH 40 PVC

STORM SEWER STRUCTURE # (PERFORMED BY OTHERS)

1. MANHOLE TYPE A, 4' DIA. W/ TYPE D GRATE
RIM=774.50
INV=MEET EXISTING (?765.89)
2. INLET TYPE A, 3' DIA.
RIM=773.90
INV=769.30 (E)
3. 5 L.F. OF 36" RCP CL I @1.0%.
4. INLET TYPE A, 2' DIA.
RIM=774.10
INV=771.10 (E)
5. 30 L.F. OF 12" RCP CL I @1.0%.
6. INLET TYPE A, 2' DIA.
RIM=774.50
INV=771.50 (E)
7. 30 L.F. OF 12" RCP CL I @1.0%.
8. INLET TYPE A, 2' DIA.
RIM=774.90
INV=771.90 (E)
9. 30 L.F. OF 12" RCP CL I @1.0%.
10. EXIST. MANHOLE ADJUST
RIM=775.70
INV=771.60 (W)
INV=EXIST. (N,S)
11. EXIST. MANHOLE ADJUST
RIM=775.50
INV=771.20 (W)
INV=EXIST. (N,S)
12. EXIST. MANHOLE ADJUST
RIM=775.20
INV=770.80 (W)
INV=EXIST. (N,S)
13. EXIST. MANHOLE ADJUST
RIM=774.90
INV=769.25 (N)
INV=EXIST. (S)
14. EXIST. MANHOLE ADJUST RIM=776.70.
15. EXIST. MANHOLE ADJUST RIM=777.55.
16. EXIST. MANHOLE ADJUST RIM=778.00.

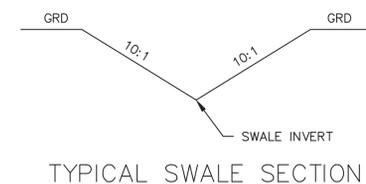
WATER MAIN #

17. VALVE ASSEMBLY (SEE DETAIL ON SHEET 11 FOR INSTALL 8"x6" TEE, 8" CUT IN SLEEVE, THRUST BLOCK AND RELOCATED EXISTING FIRE HYDRANT AND AUXILIARY DIMENSIONS ONLY).
18. PR 8" VALVE IN VALVE VAULT
TYPE A, 5' DIAMETER
TYPE 1 FRAME, CLOSED LID
RIM=776.95
CONTRACTOR TO VERIFY EXISTING WATERMAIN DEPTH PRIOR TO VALVE VAULT FABRICATION
19. REMOVE AND RELOCATE EXISTING HYDRANT AND AUXILIARY VALVE ASSEMBLY.
MECHANICALLY PLUG EXISTING 8" WATERMAIN THRUST BLOCK ON EAST SIDE OF EXISTING TEE.



LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR LINES
- XXX.XX X PROPOSED ELEVATIONS
- SWALE
- XXX.X (TOP) FOUNDATION ELEVATION
- XXX.X (GRD) SWALE ELEVATION
- XXX.X (INV)

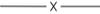


TYPICAL SWALE SECTION

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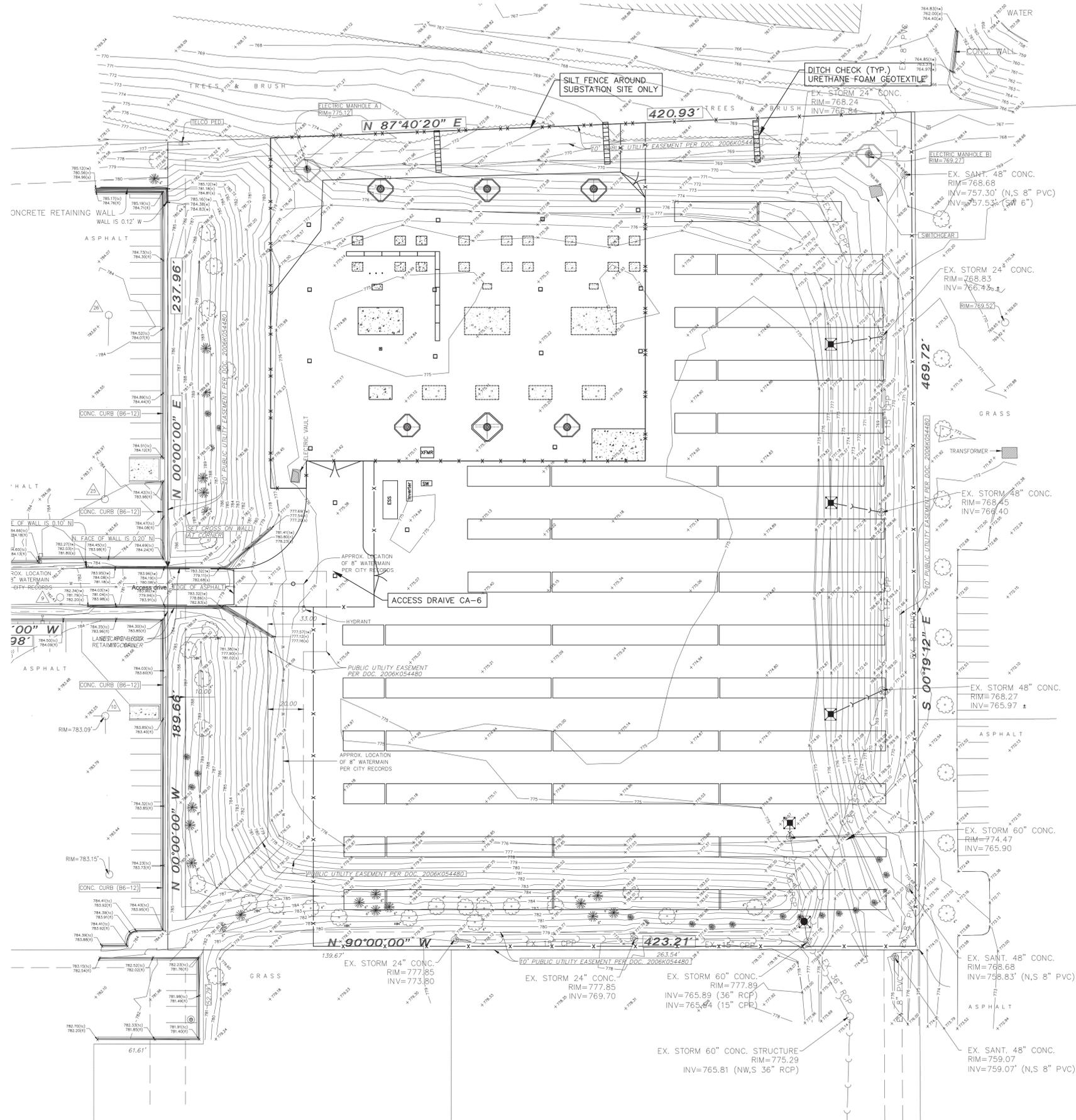
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LEGEND

-  INLET & PIPE PROTECTION / TEMPORARY SILTATION BASKET
-  DITCH CHECK
-  SILT FENCE
-  FLOW DIRECTION

NOTES:

1. INSTALL SILT FENCING PRIOR TO ANY CONSTRUCTION ACTIVITIES.
2. FOLLOW DETAILS AND SCHEDULES FOR ALL EROSION & SEDIMENT CONTROL ITEMS.
3. KEEP PAVEMENT CLEAN DURING CONSTRUCTION OPERATIONS.
4. MAINTAIN ALL APPURTENANCES TO AVOID SILT/SEDIMENT FROM LEAVING THE SITE.
5. TOTAL DISTURBED AREA = 1.0 ACRES
6. PROVIDE IDOT SEED MIX CLASS 3 (NORTHERN ILLINOIS SLOPE MIXTURE) AND EROSION CONTROL BLANKET ON ALL DISTURBED AREAS (0.20 ACRES).



CONTRACTOR WILL BE RESPONSIBLE FOR COMPLIANCE WITH ALL REQUIREMENTS OF THE GENERAL NPDES PERMIT AND COMPILATION OF THE COMPLETE SWPPP. THE COMPLETE SWPPP, LOG BOOK, AND PLANS WILL BE KEPT UP TO DATE ON-SITE AND INCLUDE THE FOLLOWING INFORMATION: CONTACT LIST, ENVIRONMENTAL SECTION OF THE SPECIAL CONDITIONS, STORMWATER CONTRACTOR CERTIFICATION OF PRECONSTRUCTION MEETING, CONTRACTOR'S SIGNED NOTICE OF INTENT, STORMWATER PERMIT AUTHORIZATION, SUB CONTRACTOR'S LIST, CONTRACTOR'S CERTIFICATIONS, GENERAL CONTRACTOR'S DAILY INSPECTION REPORTS, PROJECT SUPERINTENDANT'S WEEKLY STORMWATER INSPECTION SUMMARY, SPILL REPORTS FORMS, RECORD OF SITE STABILIZATION, EPA, STATE OR LOCAL STORMWATER INSPECTOR'S LOG, GENERAL CONTRACTOR'S FINAL INSPECTION FORM, AND GENERAL CONTRACTOR'S NOTICE OF TERMINATION.

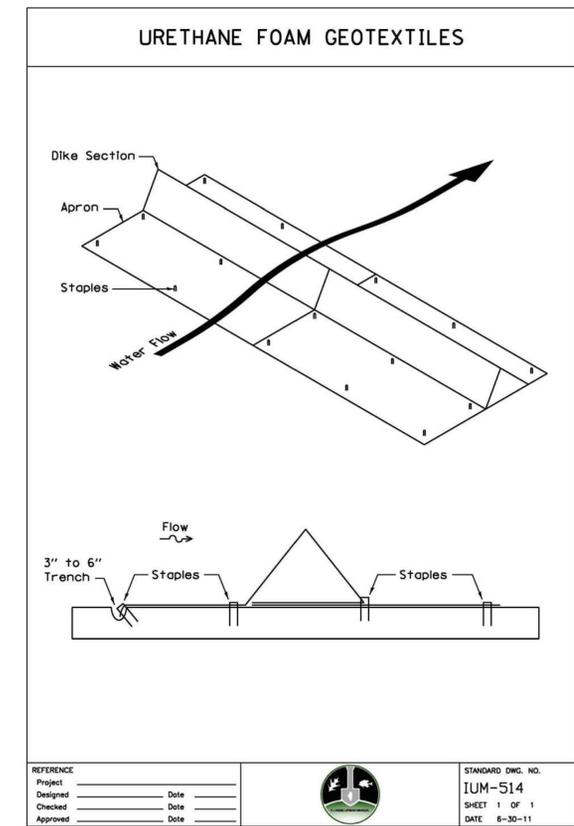
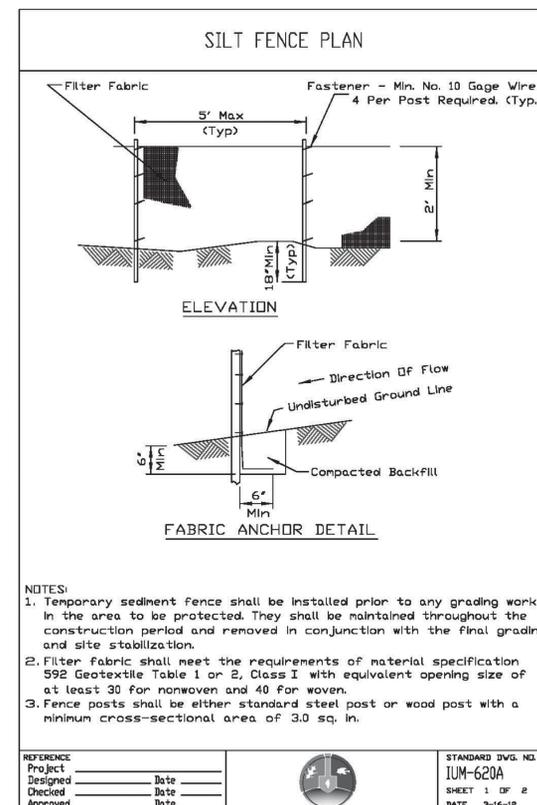
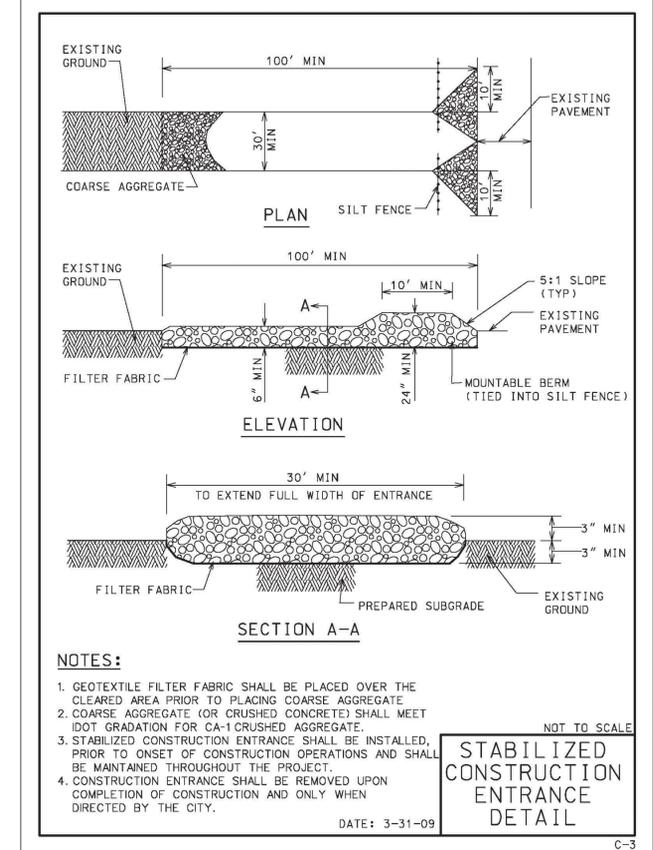
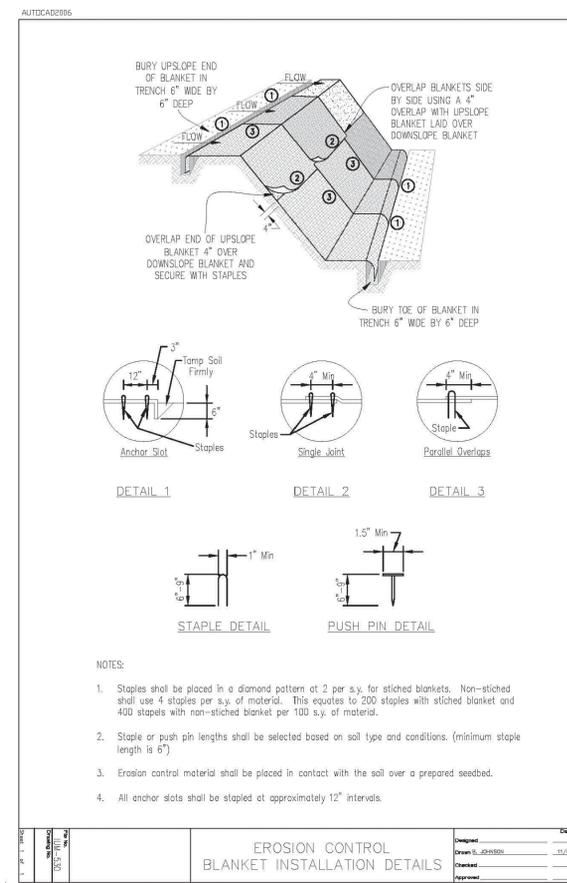
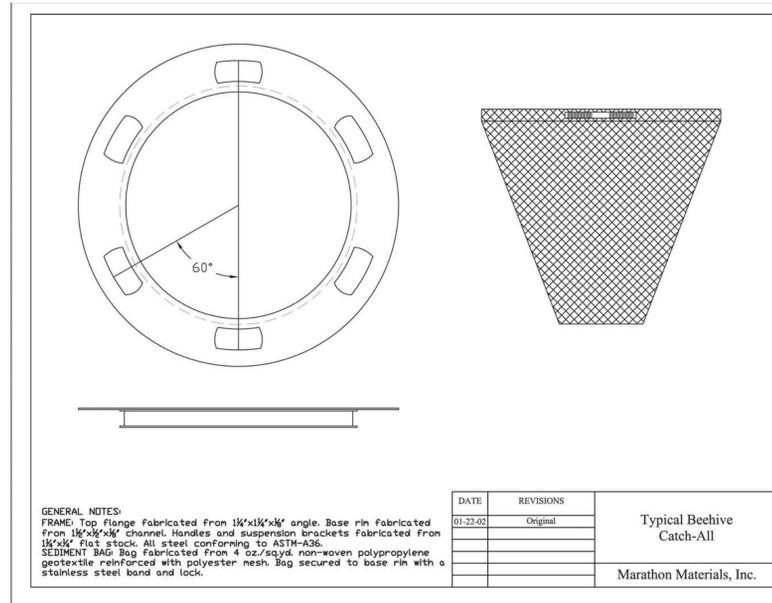


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**SUBSTATION No. 9 CIVIL PLANS
 for
 CITY OF ST. CHARLES**

EROSION CONTROL PLAN



CONTRACTOR'S CERTIFICATION

I HEREBY CERTIFY, UNDER PENALTY OF LAW, THAT I UNDERSTAND THE TERMS AND CONDITIONS OF THE GENERAL NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT (ILR10) THAT AUTHORIZES THE STORMWATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITY FROM THE CONSTRUCTION SITE IDENTIFIED AS PART OF THIS CERTIFICATION

CONTRACTOR'S CERTIFICATION

SIGNATURE _____ TITLE _____ DATE _____

COMPANY _____

WITNESSED BY OWNER

SIGNATURE _____ TITLE _____ DATE _____

COMPANY _____

SUB-CONTRACTOR

SIGNATURE _____ TITLE _____ DATE _____

COMPANY _____

SUB-CONTRACTOR

SIGNATURE _____ TITLE _____ DATE _____

COMPANY _____

STORMWATER POLLUTION PREVENTION NOTES:

1. UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS IN THE ILLINOIS URBAN MANUAL REVISED FEBRUARY 2002.
2. A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON SITE AT ALL TIMES.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION.
4. ADDITIONAL PERIMETER SILT FENCE MAY BE NEEDED IN AREAS NOT SHOWN ON PLANS. CONTRACTOR SHALL MONITOR LIMITS OF PROJECT ON A REGULAR BASIS TO DETERMINE IF SUCH AREAS EXIST AND INSTALL ADDITIONAL SILT FENCE AS NEEDED.
5. RUNOFF FROM DISTURBED AREAS SHALL NOT LEAVE THE SITE WITHOUT FIRST PASSING THROUGH STORMWATER POLLUTION PREVENTION MEASURES OR DEVICES.
6. ALL STORMWATER POLLUTION PREVENTION MEASURES ARE TO BE IN PLACE BEFORE ANY WORK BEGINS ON THE SITE.
7. ALL STORMWATER POLLUTION PREVENTION MEASURES AND DEVICES SHALL BE INSPECTED OR AFTER ONE-HALF INCH OR MORE OF RAINFALL AND REPAIRED OR REPLACED TO KEEP THE MEASURES AND DEVICES FUNCTIONING PROPERLY.
8. SOIL STABILIZATION
 - A. CONTRACTOR SHALL MINIMIZE DISTURBED AREA DURING CONSTRUCTION.
 - B. TEMPORARY SEEDING -- PROVIDE WITHIN 7 DAY IF SITE IS LEFT DORMANT FOR MORE THAN 14 DAYS.
 - C. PERMANENT SEEDING -- ALL DISTURBED AREAS SHALL BE STABILIZED WITHIN 7 DAYS OF FINAL GRADING.
 - D. WINTER SHUTDOWN SHALL BE ADDRESSED EARLY IN THE FALL GROWING SEASON SO THAT SLOPES AND OTHER BARE EARTH AREAS MAY BE STABILIZED WITH TEMPORARY AND/OR PERMANENT VEGETATIVE COVER FOR PROPER EROSION AND SEDIMENT CONTROL.
9. CONTRACTOR SHALL PROTECT SLOPES WITH SEEDING AND STRAW MULCH WITH NETTING OR EROSION CONTROL BLANKETS
10. ALL STORM SEWER INLETS SHALL BE PROTECTED WITH SEDIMENT TRAPPING OR FILTERING DEVICES DURING CONSTRUCTION.
11. STABILIZED CONSTRUCTION ENTRANCES SHALL BE PROVIDED TO PREVENT SOIL FROM BEING TRACKED ONTO PUBLIC OR PRIVATE ROADWAYS. ANY SOIL TRACKED ONTO PUBLIC OR PRIVATE ROADWAYS SHALL BE REMOVED BEFORE THE END OF EACH WORKDAY. IF CONDITIONS ARE SUCH THAT THE MAJORITY OF SOIL IS NOT REMOVED WHEN VEHICLES TRAVEL OVER THE COARSE AGGREGATE, VEHICLE WASH DOWN FACILITIES SHALL BE PROVIDED.
12. IT IS THE RESPONSIBILITY OF THE LANDOWNER AND/OR CONTRACTOR TO INFORM ANY SUBCONTRACTOR(S) WHO MAY PERFORM WORK ON THIS PROJECT, OF THE REQUIREMENTS IN IMPLEMENTING AND MAINTAINING THERE EROSION CONTROL PLANS AND THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT REQUIREMENTS SET FORTH BY THE ILLINOIS EPA.
13. ALL ADJACENTS STREETS AND PARKING LOTS SHALL BE KEPT CLEAR OF DEBRIS, INSPECTED DAILY, AND CLEANED WHEN NECESSARY.
14. ANY STOCKPILED MATERIAL REMAINING IN PLACE FOR MORE THAN THREE (3) DAYS MUST BE PROTECTED FROM EROSION WITH, AT MINIMUM, SILT FENCE AROUND THE OUTSIDE OF THE PILE.

CONSTRUCTION SEQUENCING / SCHEDULE OF IMPLEMENTATION

1. INSTALLATION OF SILT FENCE, STABILIZED CONSTRUCTION ENTRANCE, DITCH CHECK AND FILTER FABRIC INLET PROTECTION
2. HERBICIDE APPLICATION
3. UTILITY CONSTRUCTION / INSTALLATION
4. EARTHWORK -- FOUNDATION EXCAVATION, SITE GRADING
5. PAVING AND AGGREGATE INSTALLATION
6. LANDSCAPING AND PERMANENT SEEDING

IT IS ANTICIPATED THAT WORK WILL BEGIN AND BE COMPLETED PRIOR TO SUMMER 2012.

STABILIZATION TYPE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
TEMPORARY SEEDING									▶			
EROSION CONTROL BLANKET												▶
PERMANENT SEEDING									▶			
DORMANT SEEDING		▶										

EACH PRACTICE SHALL BE APPLIED AT A MINIMUM RATE OF 90 LF/LBS

SEEDING AND MULCHING APPLICATION RATES AND APPLICATION TIME OF YEAR AS WELL AS SEEDING SPECIES SHALL BE IN ACCORDANCE WITH THE ILLINOIS URBAN MANUAL, LATEST EDITION AND IDOT STANDARD SPECIFICATION

TABLE ONE.

SEED MIXTURES FOR TEMPORARY SEEDING REMAINING IN PLACE FOR LESS THAN ONE YEAR

Seed	Rate pounds/acre	*ED	Soil Drainage WD	SP	PD	Planting Period
Timothy	5		X	X	X	Spring
Kentucky Blue Grass	5		X	X		Spring/Fall

With one of the following:

Oats	90					Early spring - July 1st.
Cereal rye	90					Early spring - October 15th.
Spring or winter wheat	90					Early spring - October 15th.

Spring planting - early Spring to June 15th
 Fall planting - August 1st to October 15th

*ED = excessively drained; WD = well drained; SP = somewhat poorly drained; PD = poorly drained



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EROSION CONTROL NOTES

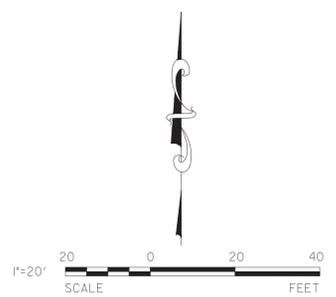
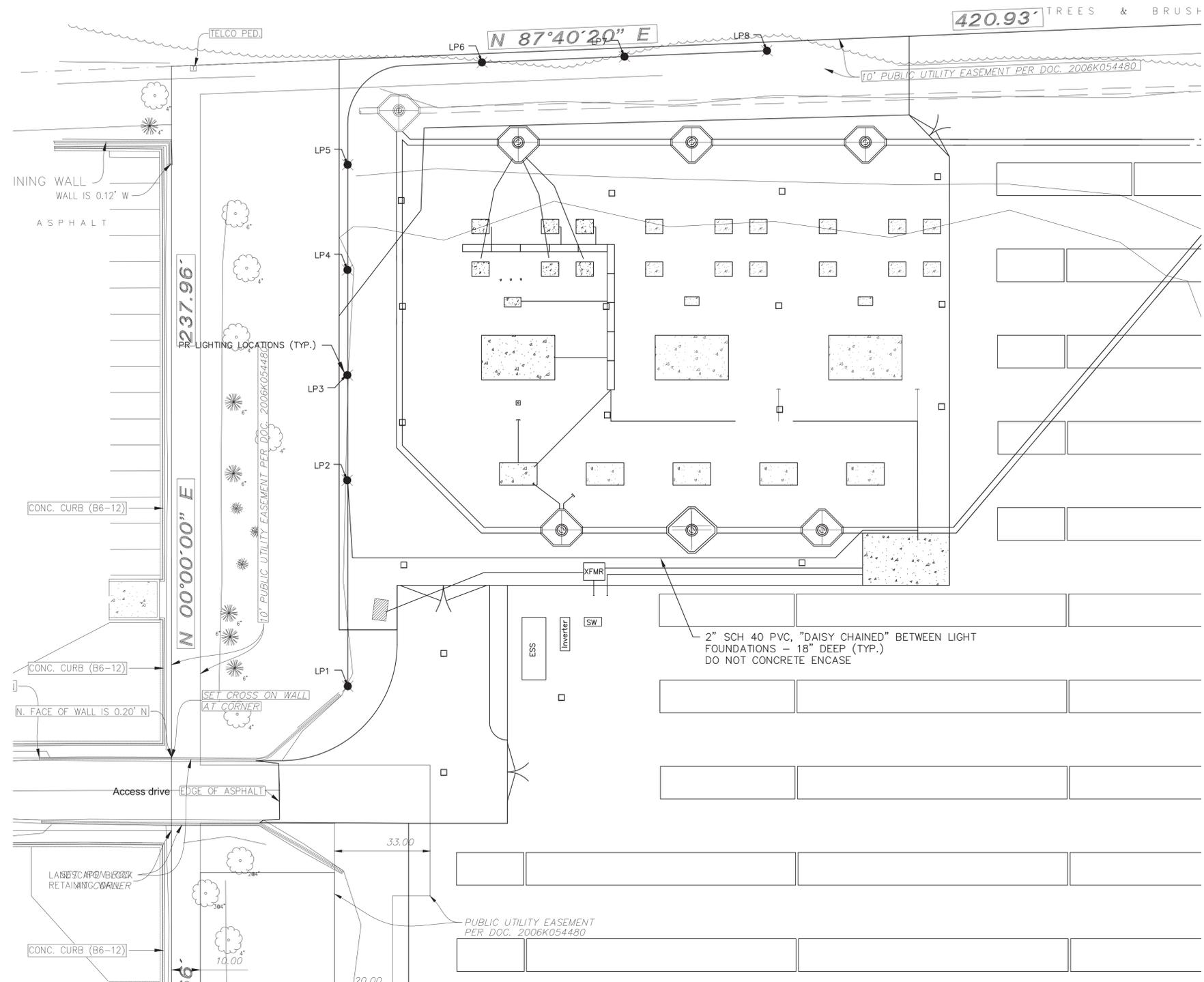
NOTES:

1. CITY WILL INSTALL POLES AND WIRING. CONTRACTOR TO PROVIDE CONDUIT AND LIGHT POLE FOUNDATIONS.
2. 1 1/4" PVC, SCHEDULE 40 NOT CONCRETE ENCASED. WHERE PARALLEL WITH OTHER DUCT RUNS, LAY 1 1/4" ON TOP OF CONCRETE ENCASMENT.
3. TIE FOUNDATIONS GROUNDS INTO GROUND GRID, PROVIDE #4 TAIL UP TO TOP OF FOUNDATIONS.

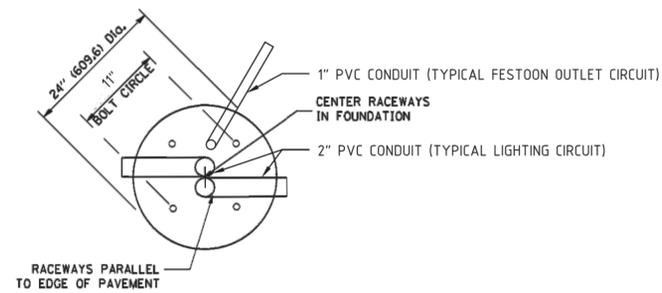
LIGHT POST LOCATIONS (CENTER)

- LP1 = N 1908594.1622, E 1000361.1383
- LP2 = N 1908665.1858, E 1000360.9236
- LP3 = N 1908701.2104, E 1000360.9773
- LP4 = N 1908737.4051, E 1000361.0309
- LP5 = N 1908773.5998, E 1000361.0846
- LP6 = N 1908808.8062, E 1000407.5080
- LP7 = N 1908810.8081, E 1000456.7558
- LP8 = N 1908812.8100, E 1000506.0037

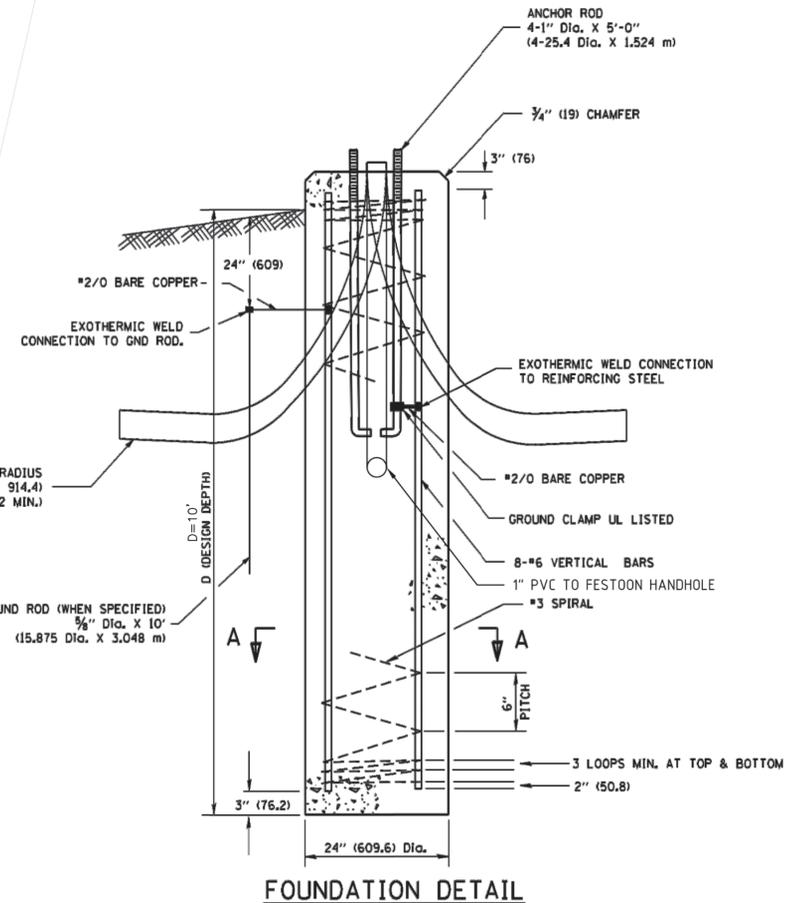
LIGHT POLE FOUNDATIONS TO BE APPROXIMATELY TWO FEET INSIDE FENCE.



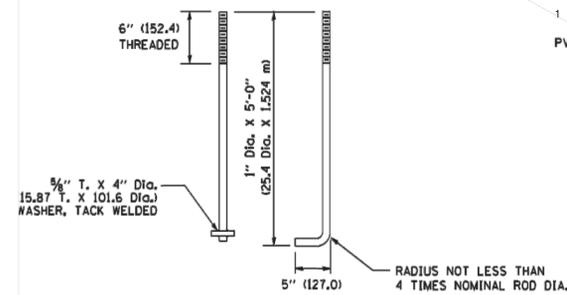
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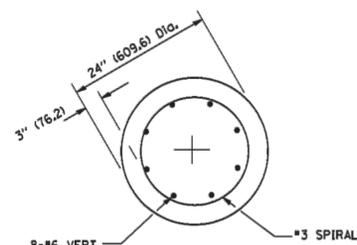
TOP VIEW



FOUNDATION DETAIL



ANCHOR ROD DETAIL



SECTION A-A

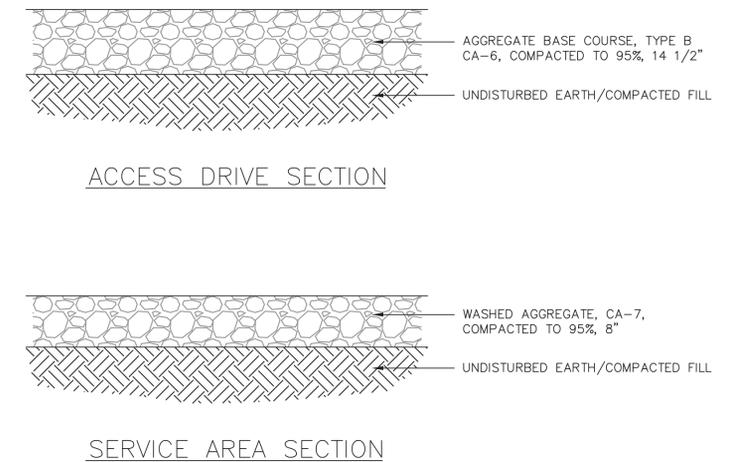
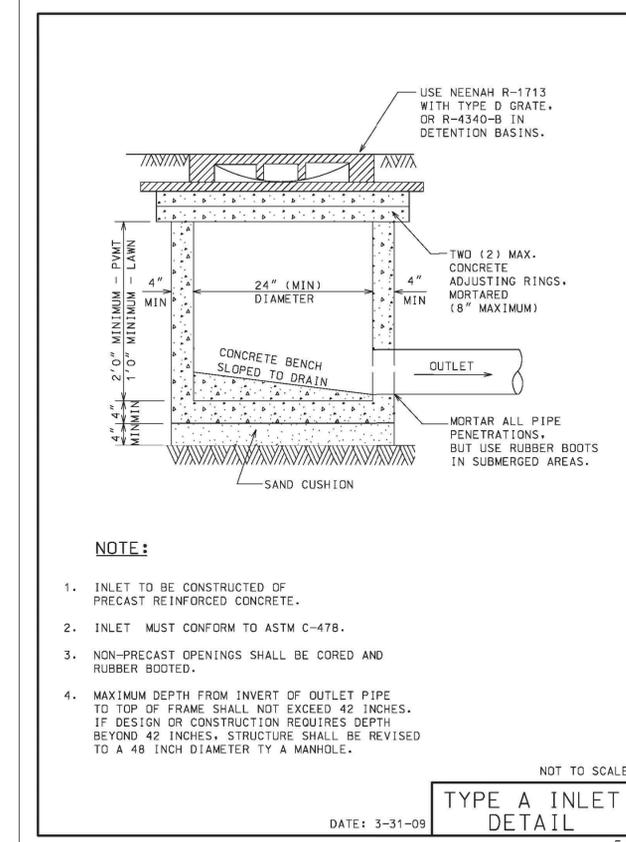
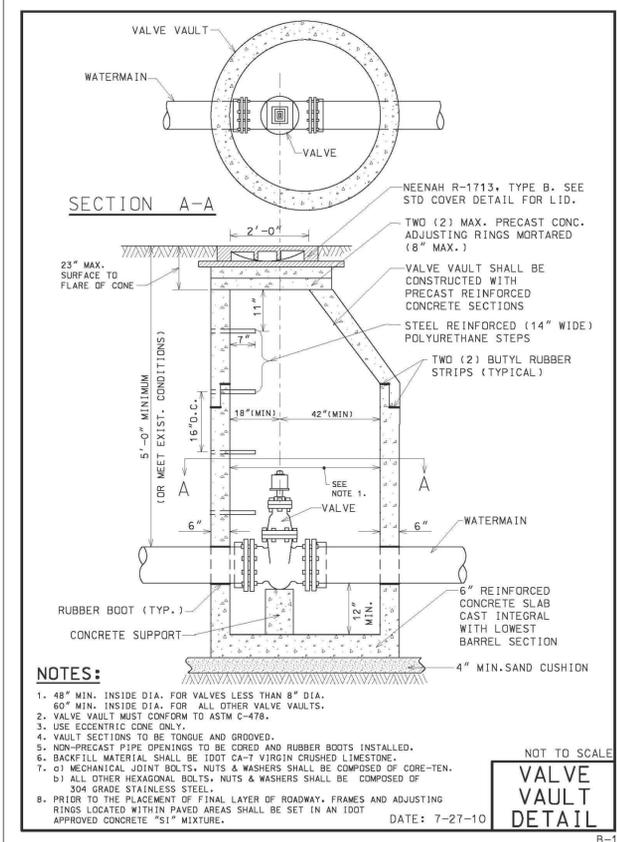
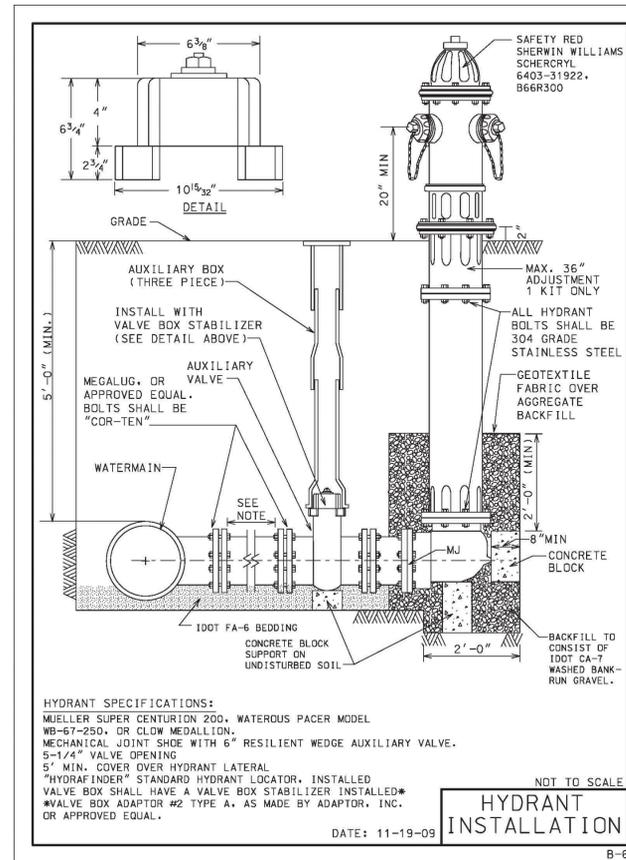
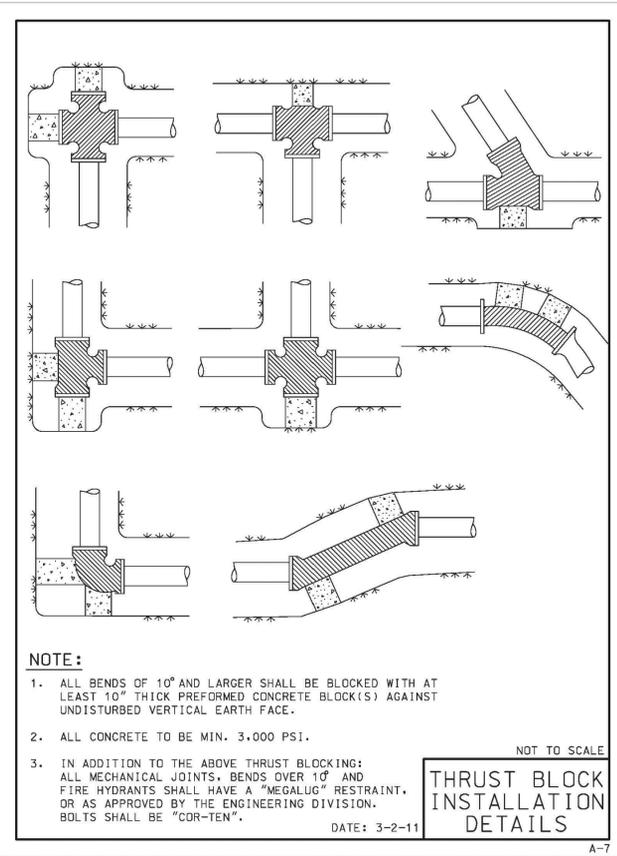
NOTES

1. ALL DIMENSIONS ARE IN INCHES (MILLIMETERS) UNLESS OTHERWISE SHOWN.
2. THE ANCHOR RODS AND RACEWAYS SHALL BE PROPERLY SECURED IN PLACE BEFORE THE CONCRETE IS PLACED.
3. THE FOUNDATION SHALL NOT PROTRUDE MORE THAN 100MM (4 IN.) ABOVE THE FINISHED GRADE WITHIN A 60 IN. (1.5 m) CHORD ACROSS THE FOUNDATION, WITH ANCHOR RODS INCLUDED, IN ACCORDANCE WITH AASHTO GUIDELINES. IF THE FOUNDATION HEIGHT, INCLUDING ANCHOR RODS, EXTENDS BEYOND THESE SPECIFIED LIMITS, THE FOUNDATION SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE. SEE FOUNDATION EXTENSION DETAIL.
4. THE HOLE FOR THE FOUNDATION SHALL BE MADE BY DRILLING WITH AN AUGER, OF THE SAME DIAMETER AS THE FOUNDATION. IF SOIL CONDITIONS REQUIRE THE USE OF A LINER TO FORM THE HOLE, THE LINER SHALL BE WITHDRAWN AS THE CONCRETE IS DEPOSITED.
5. THE TOP OF THE FOUNDATION SHALL BE CONSTRUCTED LEVEL. A LINER OR FORM SHALL BE USED TO PRODUCE A UNIFORM SMOOTH SIDE TO THE TOP OF THE FOUNDATION. FOUNDATION TOP SHALL BE CHAMFERED 3/4-IN. (20 mm).
6. THE CONCRETE SHALL BE CLASS SI. CONCRETE SHALL CURE ACCORDING TO ARTICLE 1020.13 BEFORE LIGHT POLES ARE INSTALLED.
7. THE ANCHOR ROD SHALL BE A HOOK ROD TYPE. COLD BENDING OF THE ANCHOR ROD WILL NOT BE ALLOWED. THE RADIUS OF THE HOOK BEND SHALL NOT BE LESS THAN 4 TIMES THE NOMINAL DIAMETER OF THE ANCHOR ROD. A TACK WELDED ANCHOR ROD MAY BE SUBSTITUTED WITH THE APPROVAL OF THE ENGINEER.
8. THE ANCHOR RODS SHALL BE ACCORDING TO ASTM F1554 GRADE 725 (GRADE 105). NUTS SHALL BE HEXAGON NUTS ACCORDING TO ASTM A 194 2H OR ASTM A 563 DH, AND WASHERS SHALL BE ACCORDING TO ASTM F 436.
9. ANCHOR RODS, NUTS AND WASHERS SHALL BE COMPLETELY GALVANIZED BY EITHER THE HOT-DIPPED PROCESS CONFORMING WITH AASHTO M 232, THE MECHANICAL PLATING METHOD CONFORMING TO AASHTO M 298, CLASS 50 WITH A MAXIMUM COATING THICKNESS OF 150 UM (6 MILS) OR THE ELECTROLYTIC PROCESS ACCORDING TO ASTM F 1136.
10. THE ANCHOR RODS SHALL BE THREADED A MINIMUM OF 6 INCHES (150 mm) WITH A MINIMUM OF 3 INCHES (75 mm) OF THREADED ANCHOR ROD EMBEDDED IN THE FOUNDATION.
11. ANCHOR RODS SHALL PROJECT 2 3/4" (69.9 mm) ABOVE THE TOP OF THE FOUNDATION. IF BREAKAWAY COUPLINGS ARE SPECIFIED, THE CONTRACTOR SHALL CAREFULLY COORDINATE THE ANCHOR ROD PROJECTION WITH THE INSTALLATION REQUIREMENTS OF THE BREAKAWAY COUPLINGS.
12. THE CONTRACTOR SHALL USE #3 SPIRAL AT 6" (152.4 mm) PITCH OR MAY SUBSTITUTE #3 TIES AT 12" (304.8 mm) O.C. WITH THE APPROVAL OF THE ENGINEER.
13. THE CABLE TRENCHES AND FOUNDATION SHALL BE BACK FILLED AND COMPACTED AS SPECIFIED BEFORE THE LIGHT POLE IS ERECTED.
14. THE RACEWAYS SHALL PROJECT 1" (25.4 mm) ABOVE THE TOP OF THE FOUNDATION.

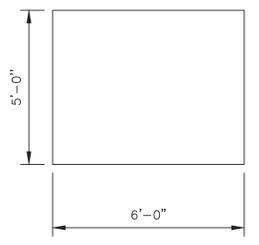
1 LIGHT POLE FOUNDATION DETAIL
E-202 NTS

NO.	DATE	DESCRIPTION OF REVISIONS	NO.	DATE	DESCRIPTION OF REVISIONS
1	03-12-15	REVISED PER CITY			
2	01-15-16	REVISED PER CITY			

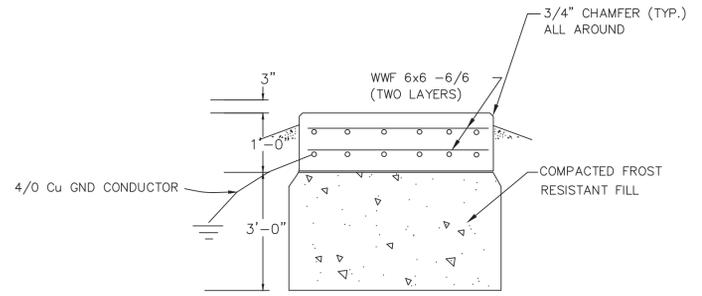
ESI PROJECT NO. 15-590	ENGR. AGM
FILE:	TECH. SH
DATE: 01/04/16	QAQC:



NO.	DATE	DESCRIPTION OF REVISIONS	NO.	DATE	DESCRIPTION OF REVISIONS
1	03-12-15	REVISED PER CITY			
2	01-15-16	REVISED PER CITY			



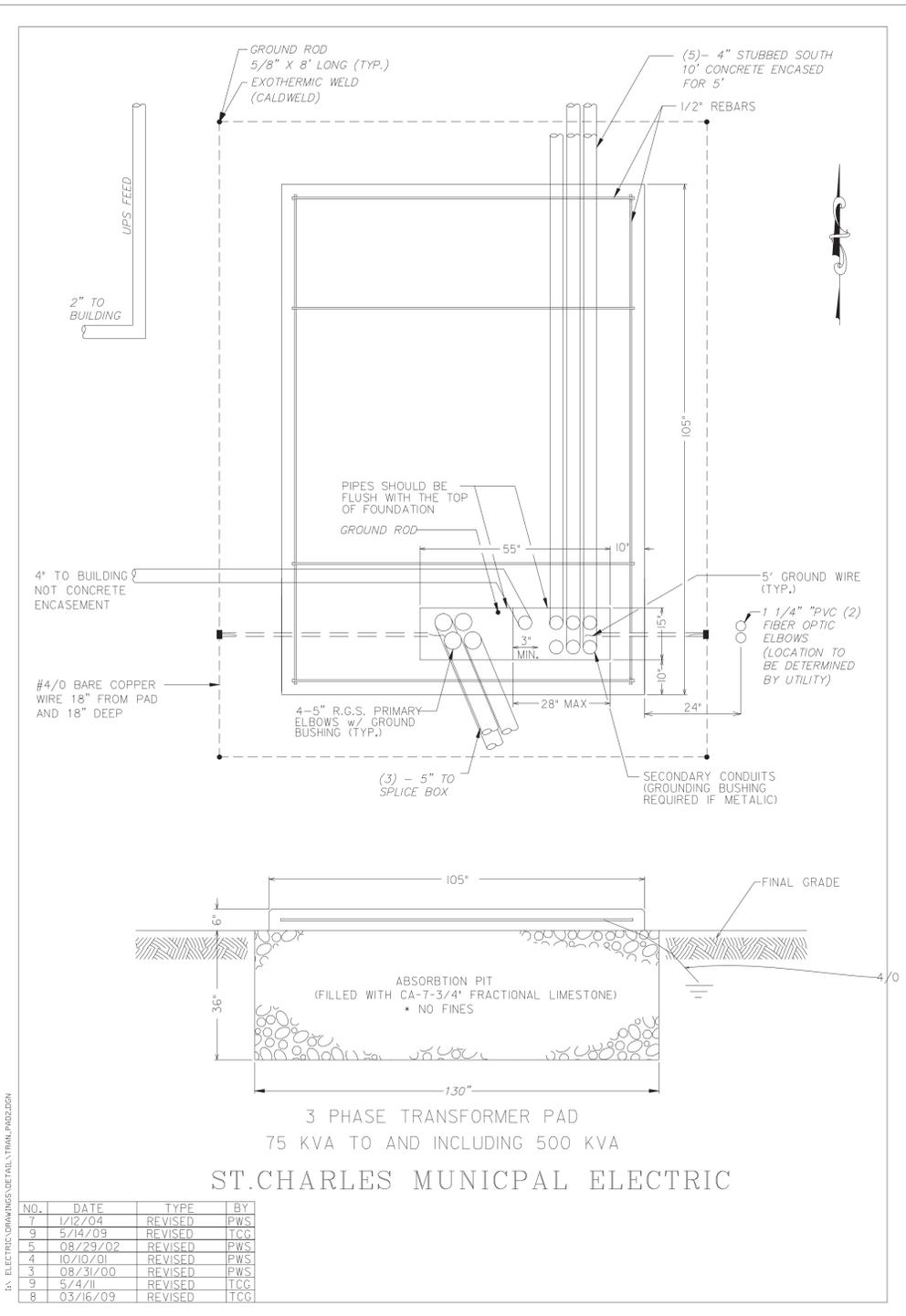
DETAIL A1
BREAKER AND BUS MAIN
FOUNDATION PLAN



BREAKER AND BUS MAIN FOUNDATION
CROSS SECTION DETAIL

- NOTES FOR PIER RISER DETAIL B:
1. USE 8-#5 REBARS AND 9-#3 TIES FOR REINFORCEMENT
 2. TOP OF PIER TO BE LEVELED, SMOOTH AND 6" ABOVE FINISHED GRADE
 3. EXTEND A 4/0 Cu CONDUCTOR FROM PIER ATTACHED TO REBAR FOR GROUNDING PURPOSES
 4. THE MINIMUM STRENGTH OF THE CONCRETE AT 28 DAYS SHALL BE 4000PSI
 5. USE EPOXY COATED 60KSI REBARS

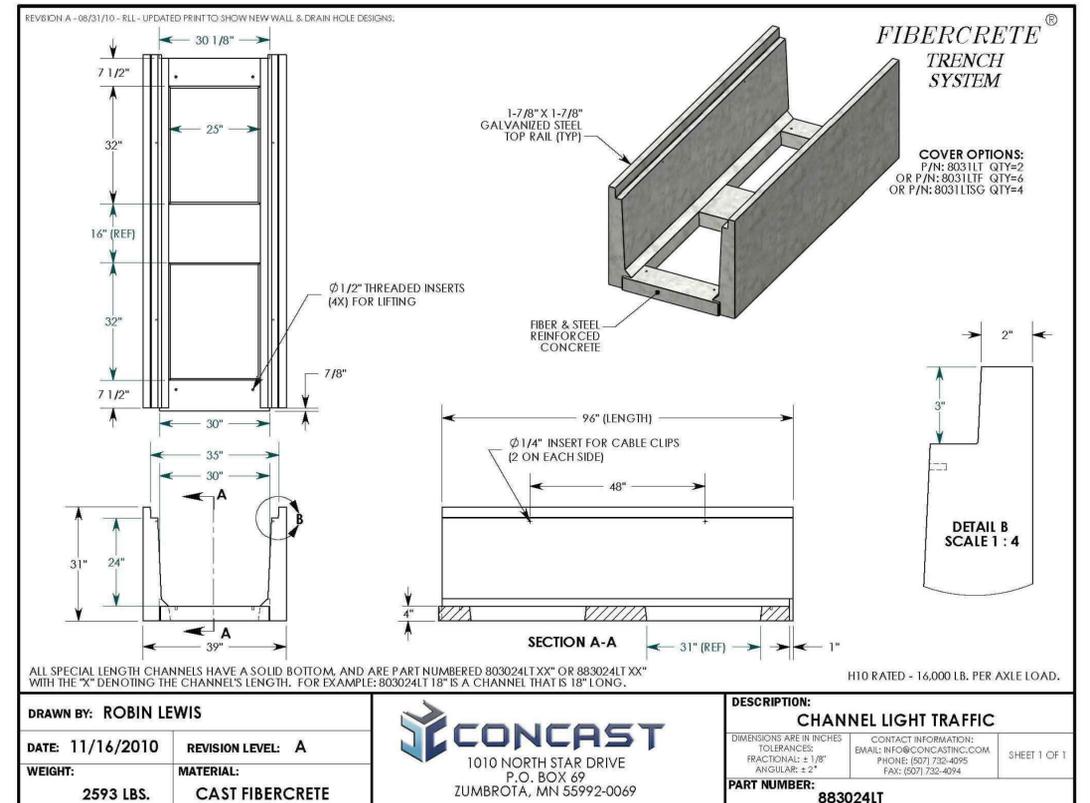
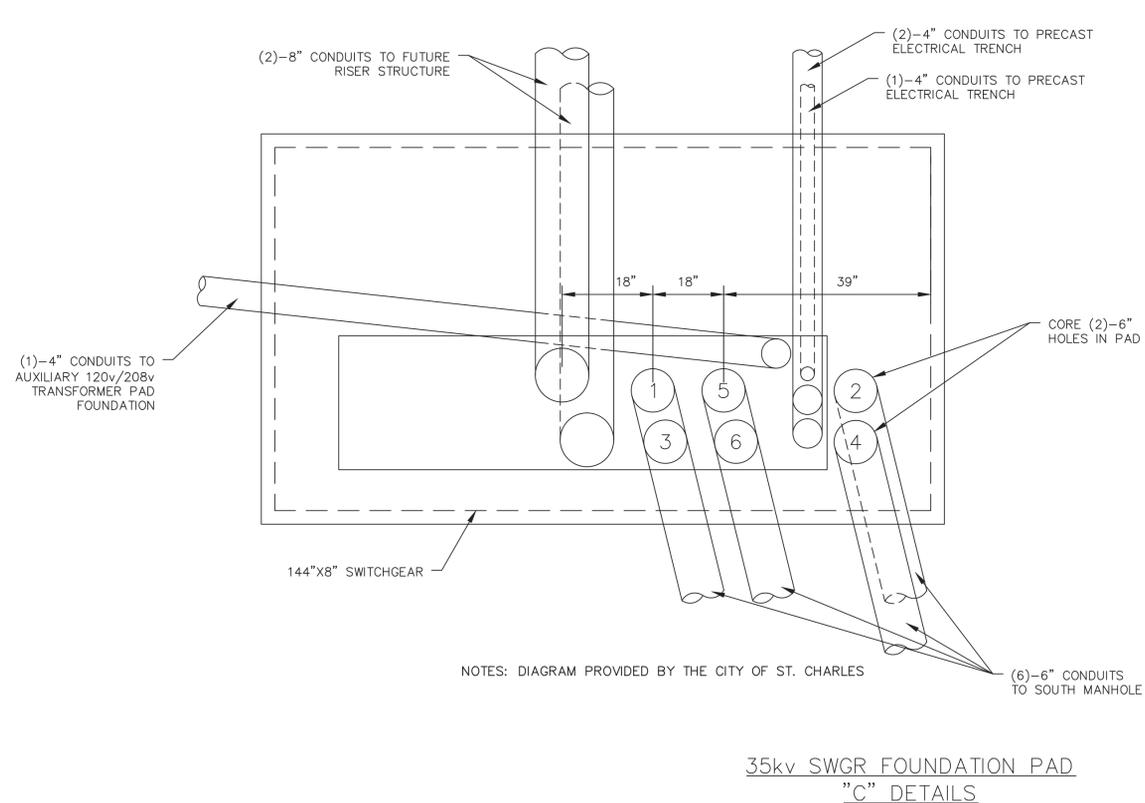
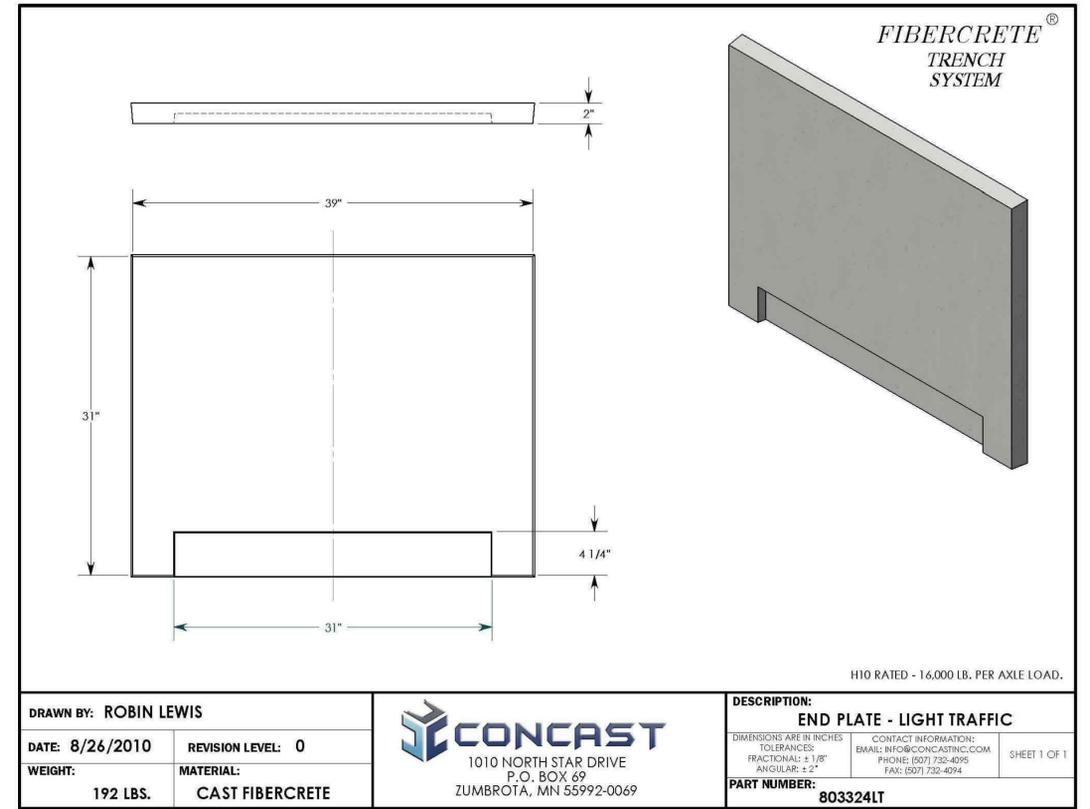
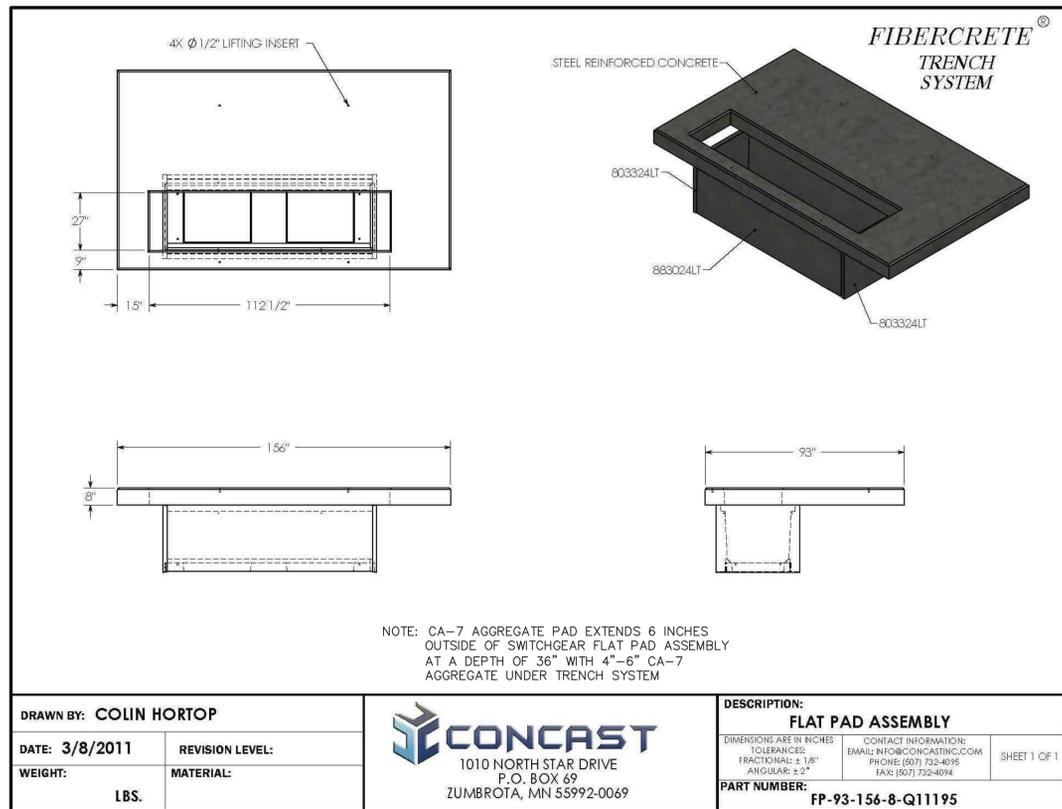
BREAKER AND BUS MAIN FOUNDATION PAD "A" DETAIL

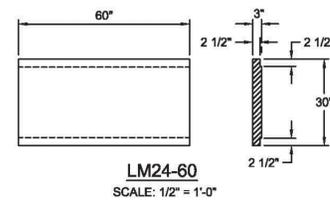


3 PHASE TRANSFORMER PAD
75 KVA TO AND INCLUDING 500 KVA
ST.CHARLES MUNICIPAL ELECTRIC

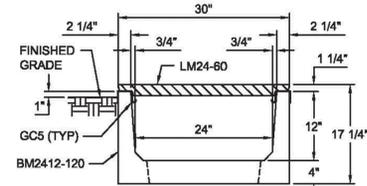
NO.	DATE	TYPE	BY
7	1/12/04	REVISED	PWS
6	5/14/09	REVISED	TCC
5	08/29/02	REVISED	PWS
4	10/10/01	REVISED	PWS
3	08/31/00	REVISED	PWS
2	5/4/11	REVISED	TCC
1	03/16/09	REVISED	TCC

AUXILIARY TRANSFORMER FOUNDATION PAD DETAIL



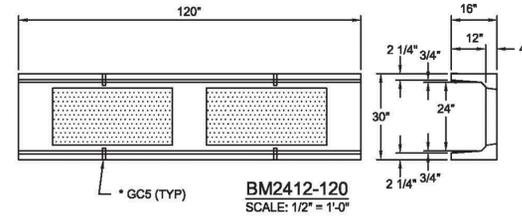


LM24-60
SCALE: 1/2" = 1'-0"



TYPICAL MEDIUM VEHICLE SECTION 24"W x 12"D
SCALE: 1" = 1'-0"

IF TRENCH IS BEING INSTALLED IN POOR DRAINAGE SOIL, A PERFORATED DRAIN IS RECOMMENDED.



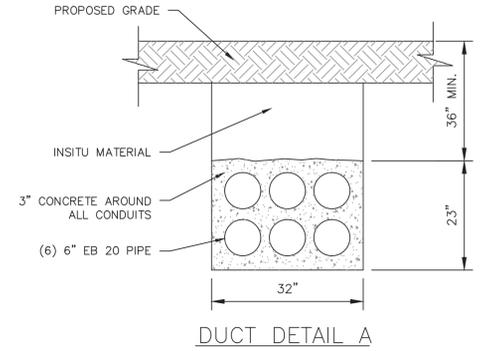
BM2412-120
SCALE: 1/2" = 1'-0"

NOTE: 4"-6" OF CA-7 AGGREGATE SHALL BE PROVIDED AS BEDDING. CA-7 AGGREGATE SHALL BE USED TO BACKFILL TRENCH. ALL EXCAVATED MATERIAL SHALL BE REMOVED.

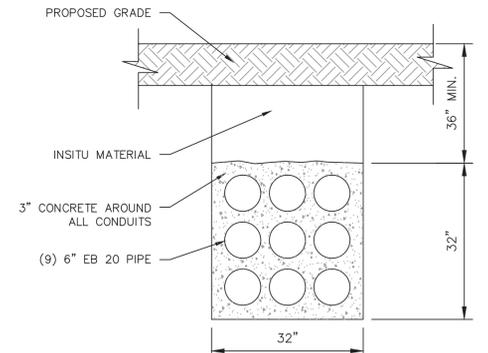
*GC5 (GROUND CLIPS) OPTIONAL

9,000# GVW. RATED

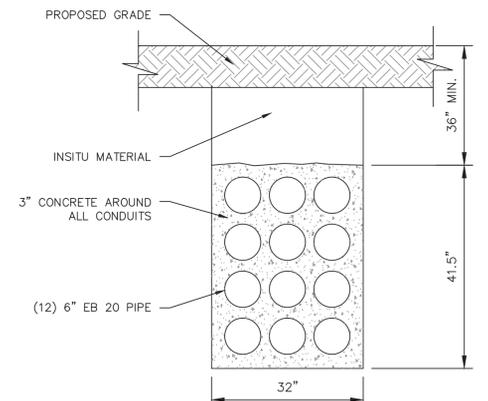
Trenwa Inc.
1418 ALEXANDRIA PIKE FORT THOMAS, KY 41075 859-781-0831
TYPICAL MEDIUM VEHICLE BASE, LID & SECTION FOR 24" WIDE x 12" DEEP TRENCH
Date: 8/28/2008 Draw. No. BM2412-120 STD



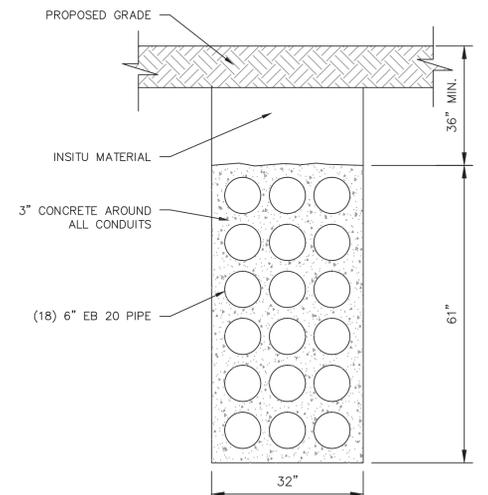
DUCT DETAIL A



DUCT DETAIL B



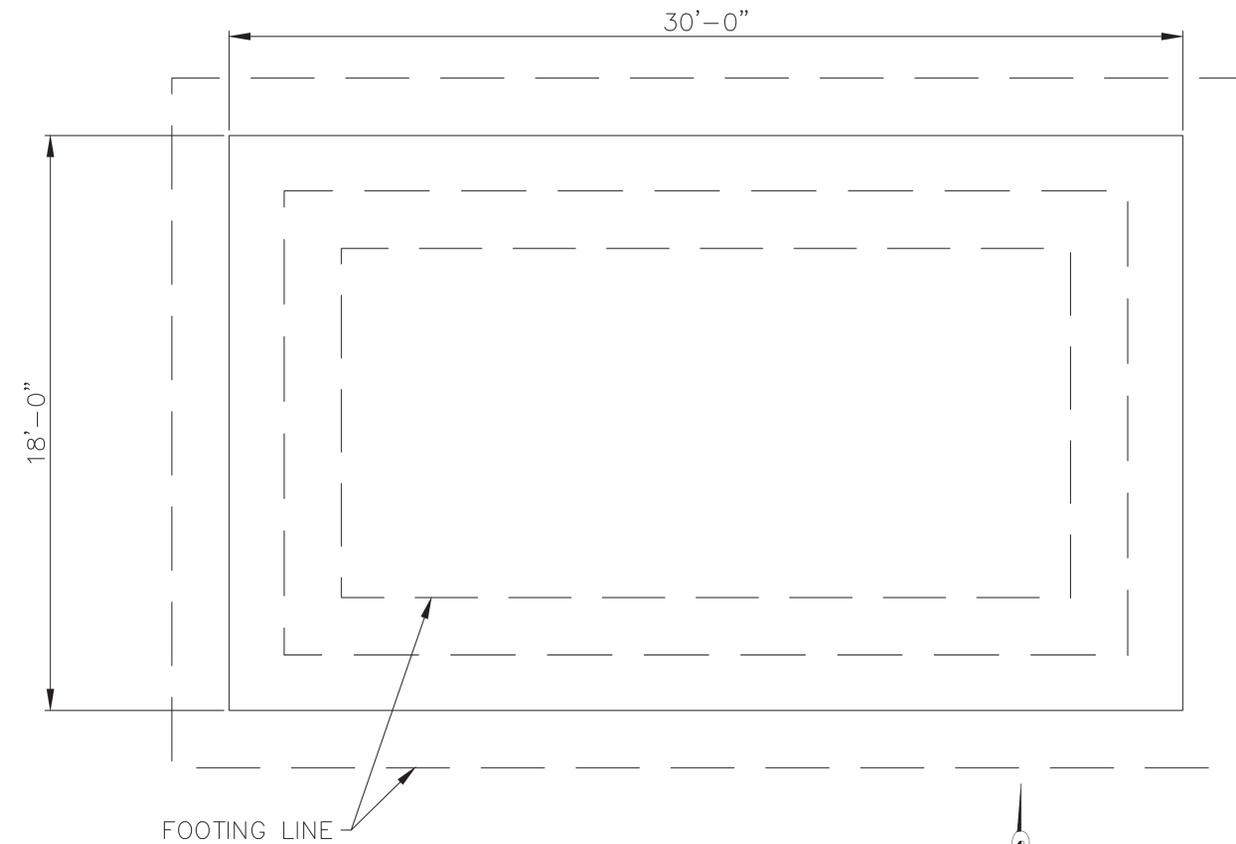
DUCT DETAIL C



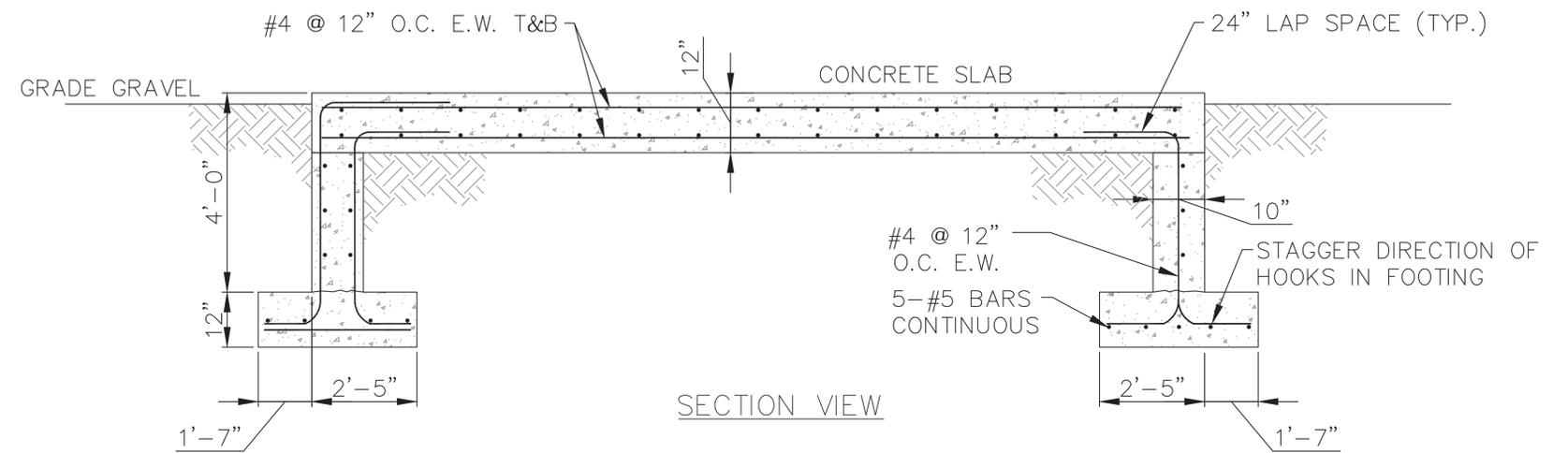
DUCT DETAIL D

NO.	DATE	DESCRIPTION OF REVISIONS	NO.	DATE	DESCRIPTION OF REVISIONS
1	03-12-15	REVISED PER CITY			
2	01-15-16	REVISED PER CITY			

ESI PROJECT NO. 15-590	ENGR. AGM
FILE:	TECH. SH
DATE: 01/04/16	QAQC:

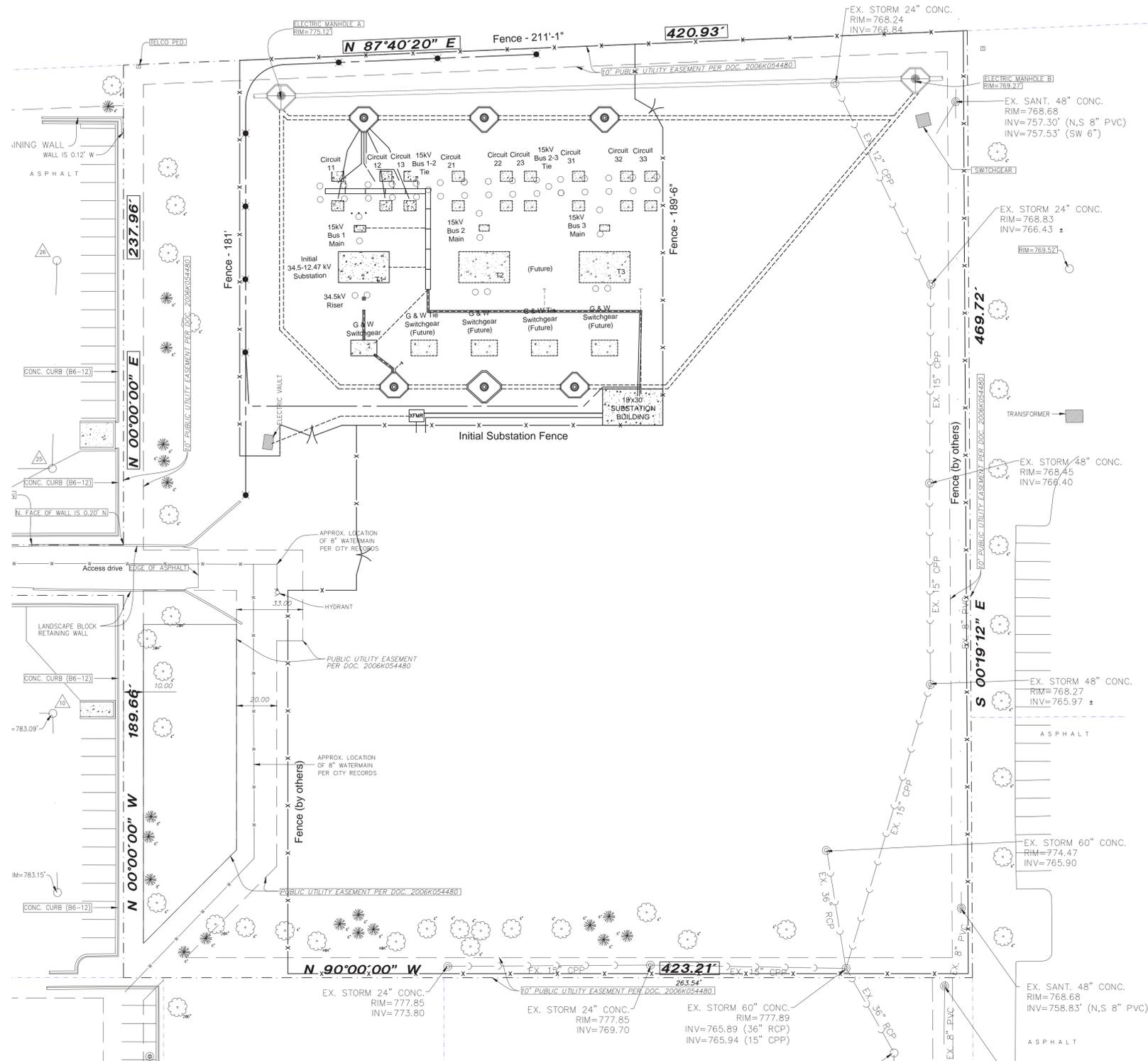


PLAN - CONTROL BUILDING FOUNDATION



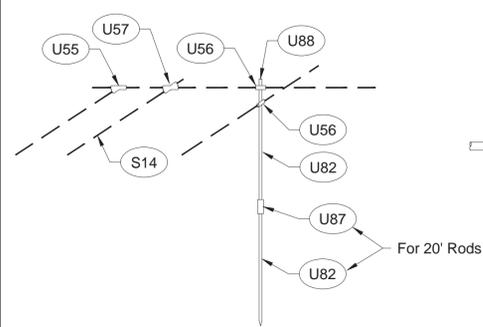
SECTION VIEW

NO.	DATE	DESCRIPTION OF REVISIONS	NO.	DATE	DESCRIPTION OF REVISIONS
1	03-12-15	REVISED PER CITY			
2	01-15-16	REVISED PER CITY			

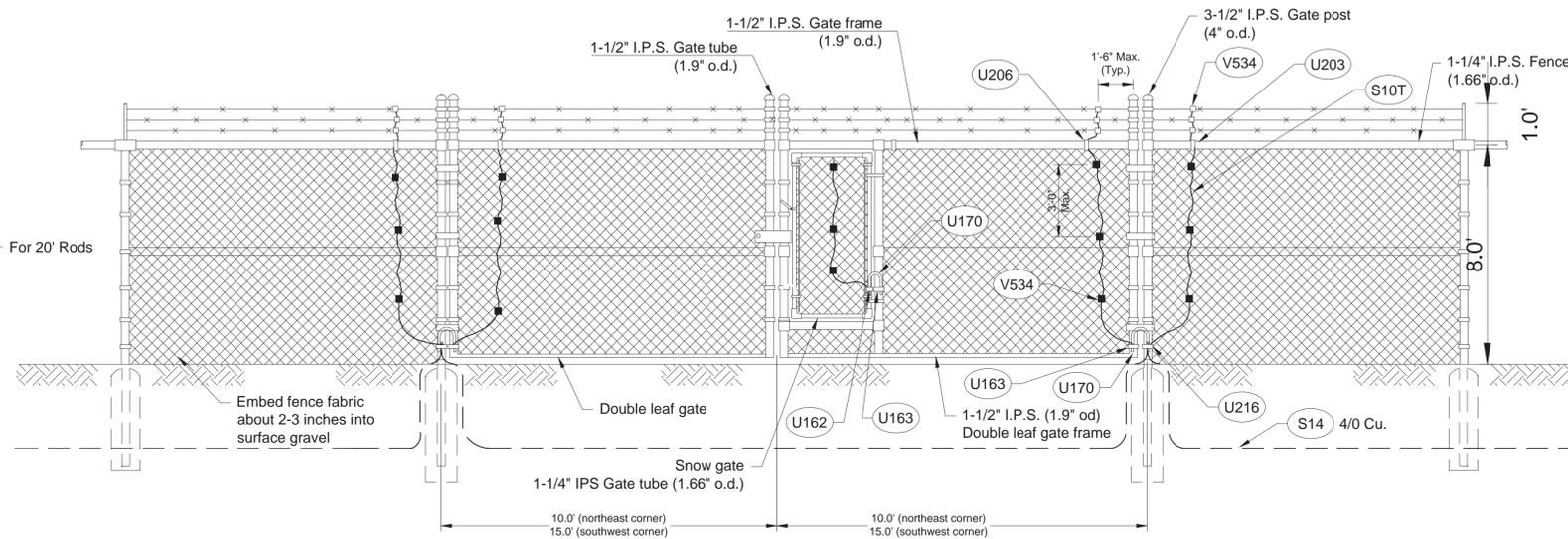


NOTE: THIS PLAN SHEET HAS BEEN MODIFIED BY ESI CONSULTANTS, LTD. TO INCLUDE REVISIONS REQUESTED BY THE CITY OF ST. CHARLES.

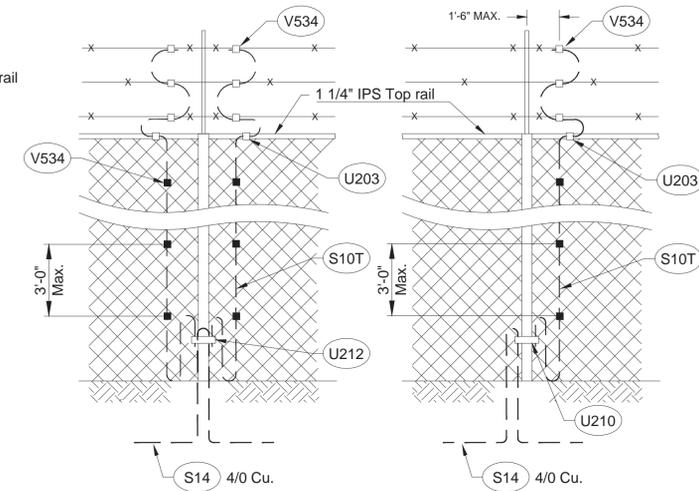
								SITE PLAN SUB NO. 9 ST. CHARLES, IL.	
3	CLIENT COMMENTS - FINAL	GB	DES	9/22/2014	www.powersystem.org		1532 W Broadway Madison, WI 53713 Tel: 866.825.8895		
2	FINAL	GB	DES	9/11/2014					
1	REVISED PER CLIENT REVIEW	GB	DES	7/18/2014	ENGR	D. E. STARK	CHKD/APPD	---	SCALE 1" = 30'
NO.	REVISION AND RECORD OF ISSUE	BY	ENGR	DATE	DWN BY	G. BODENSTEIN	DATE	7/2/2014	PROJECT NO. IL0451406
									DRAWING NO. 050



DETAIL G1
(Ground rod & ground conductor connection)



DETAIL G11
(Gate grounding)
(4" OD)

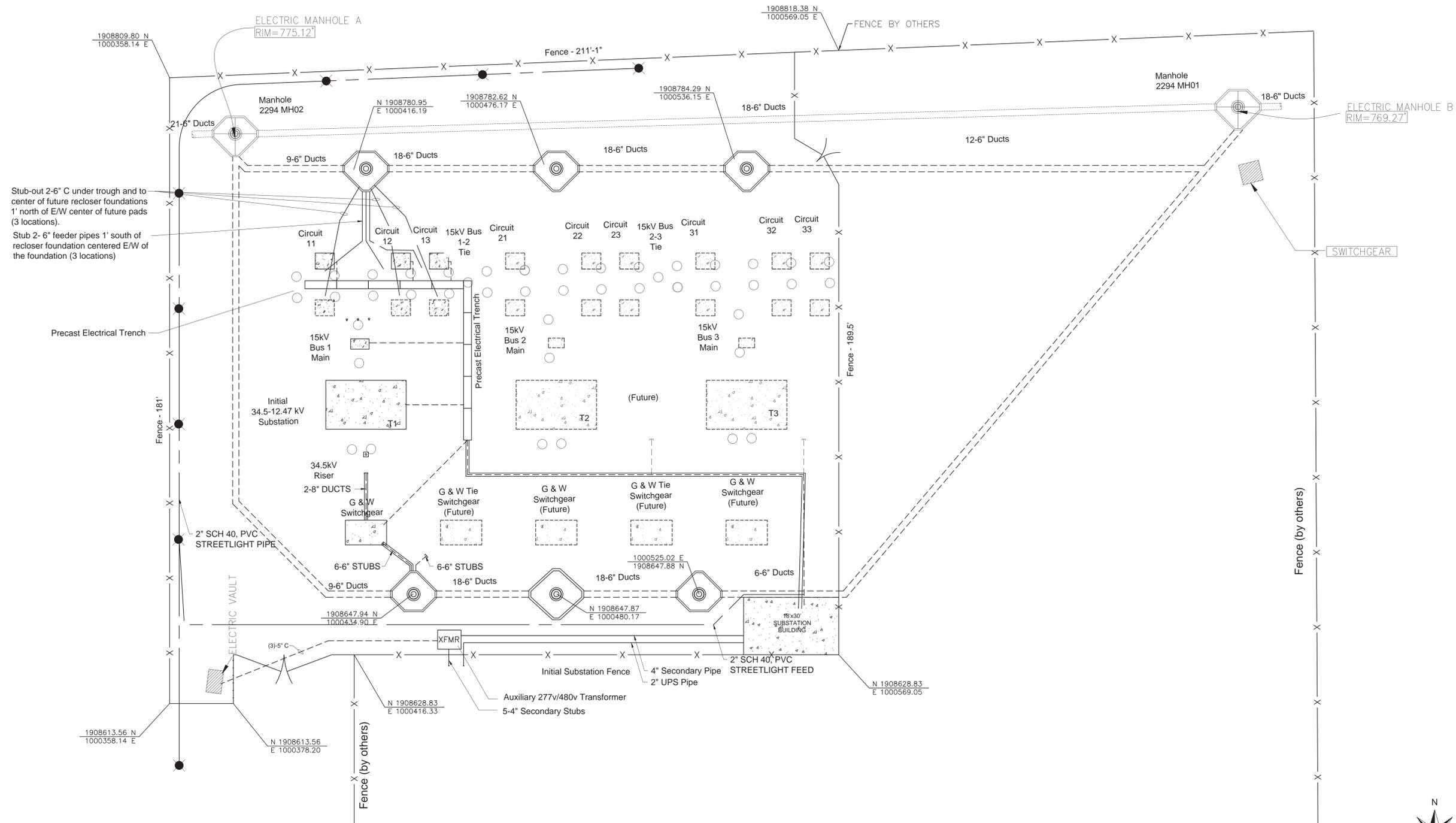


DETAIL G12
(Corner grounding)
(2-1/2" IPS, 3" O.D.)

DETAIL G13
(Running fence grounding)
(2" IPS, 2-1/2" O.D.)

NOTE: THIS PLAN SHEET HAS BEEN MODIFIED BY ESI CONSULTANTS, LTD. TO INCLUDE REVISIONS REQUESTED BY THE CITY OF ST. CHARLES.

								GROUNDING DETAILS INITIAL 34.5-12.47KV SUBSTATION SUB NO. 9 ST. CHARLES, IL	
				www.powersystem.org		1532 W Broadway Madison, WI 53713 Tel: 866.825.8895			
1	FINAL	GB	DES	9/11/2014	ENGR D.E. STARK	CHKD/ APPD ---	SCALE NONE	PROJECT NO.	DRAWING NO.
NO.	REVISION AND RECORD OF ISSUE	BY	ENGR	DATE	DWN BY G. BODENSTEIN	DATE 8/29/2014	FILE NAME SCS9-071-GRD	IL0451406	071

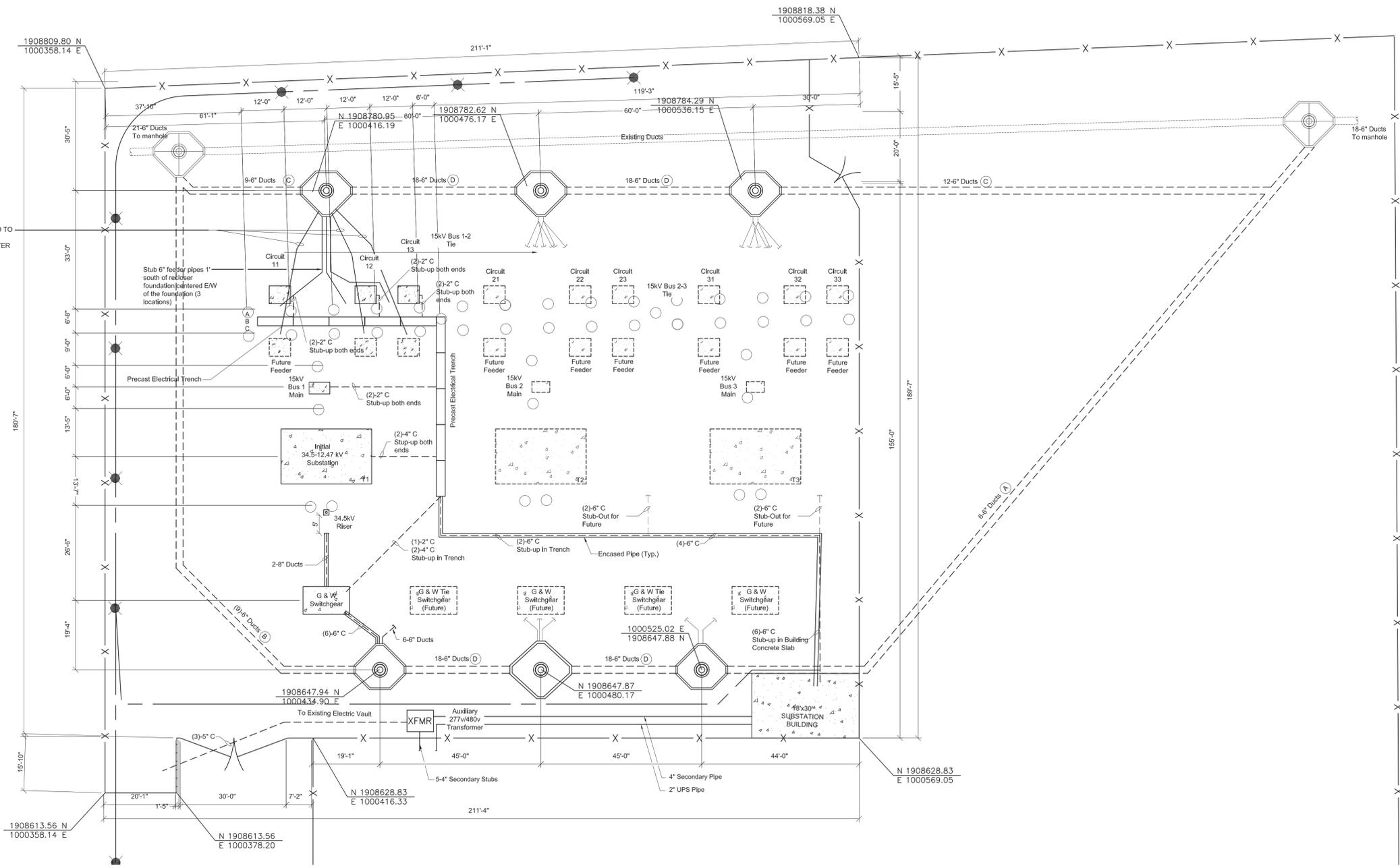


Stub-out 2-6" C under trough and to center of future recloser foundations 1' north of E/W center of future pads (3 locations).
 Stub 2-6" feeder pipes 1' south of recloser foundation centered E/W of the foundation (3 locations)

NOTE: THIS PLAN SHEET HAS BEEN MODIFIED BY ESI CONSULTANTS, LTD. TO INCLUDE REVISIONS REQUESTED BY THE CITY OF ST. CHARLES.



								PLAN VIEW SUB NO. 9 ST. CHARLES, IL	
						www.powersystem.org 1532 W Broadway Madison, WI 53713 Tel: 866.825.8895		SCALE 3/4" = 1'-0" PROJECT NO. ILO451406	
						ENGR D.E. STARK DWN BY G. BODENSTEIN		DRAWING NO. 210	
						CHKD/APPD --- DATE 6/30/2014		FILE NAME SCS9-210-PLV	
						REVISION AND RECORD OF ISSUE			
NO.	REVISION AND RECORD OF ISSUE	BY	ENGR.	DATE	DATE	DATE	DATE	DATE	DATE
3	CLIENT COMMENTS - FINAL	GB	DES	9/22/2014					
2	FINAL	GB	DES	9/11/2014					
1	REVISED PER CLIENT REVIEW	GB	DES	7/18/2014					



STUB-OUT 2-6" C UNDER TROUGH AND TO CENTER OF FUTURE RECLOSER FOUNDATIONS 1' NORTH OF EW CENTER OF FUTURE PADS (3 LOCATIONS).

- NOTES:**
1. Stub-out's shall consist of a long sweep 90° elbow (galvanize or fiberglass), stub up out of the ground 12", mule tape pulled and capped at both ends.
 2. Stub-out's shall be in position as indicated on the plans and capped. Mule tape shall be pulled if stub is greater than 10' in length.
 3. All 5", 6" and 8" conduits shall be encased in concrete.
 4. See sheet 14 for Duct Details.

NOTE: THIS PLAN SHEET HAS BEEN MODIFIED BY ESI CONSULTANTS, LTD. TO INCLUDE REVISIONS REQUESTED BY THE CITY OF ST. CHARLES.



				PSE Power System Engineering, Inc.		1532 W Broadway Madison, WI 53713 Tel: 866.825.8895		PLAN VIEW INITIAL 34.5-12.47kV SUBSTATION SUB NO. 9 ST. CHARLES, IL	
3	CLIENT COMMENTS - FINAL	GB	DES	9/22/2014	www.powersystem.org	ENGR	D.E. STARK	CHKD/ APPD	---
2	FINAL	GB	DES	9/11/2014		DWN	G. BODENSTEIN	DATE	6/30/2014
1	REVISED PER CLIENT REVIEW	GB	DES	7/18/2014		SCALE	3/4" = 1'-0"	PROJECT NO.	IL0451406
NO.	REVISION AND RECORD OF ISSUE	BY	ENGR.	DATE		FILE NAME	SCS9-211-PLV	DRAWING NO.	211

FENCE & GATE GROUNDING MATERIALS

ITEM	DESCRIPTION	QUANTITY	MANUFACTURER	CATALOG NO.
S10T	Conductor, #2 AWG Tin plated copper, 7 strand S.D. bare	300' As req'd		
S14	4/0 AWG copper, 19 strand, S.D. bare	7000' As req'd	By owner	
U55	Cadweld powder cartridge, size #150, type TA #4/0 AWG tee	50 As req'd	Erico	
U56	Cadweld powder cartridge, size #150, type GY #4/0 AWG cable to 5/8" rod	33 As req'd	Erico	
U57	Cadweld powder cartridge, size #250, type XB #4/0 AWG cross	90 As req'd	Erico	
U82	Ground rod, 5/8" diameter x 10', 13mm copper clad steel	30 As req'd	Erico	615803
U88	Ground rod driving stud, 5/8" diameter	10 As req'd	Erico	B137-16
U170	Flexible copper braid (24" long), 200 Amp	3	Sefcor	XBG-146-B-24
U203	Grounding clamp, bronze, #2 AWG Str. - 250 MCM ground wire to a 1-1/4" IPS pipe	30 As req'd	Sefcor	GU1-4912
U206	Grounding clamp, bronze, #2 AWG Str. - 250 MCM ground wire to a 1-1/2" IPS pipe	2 As req'd	Sefcor	GU1-5412
U210	Grounding clamp, bronze, 2/0 AWG Str. - 250 MCM ground wire to a 2" IPS pipe	70 As req'd	Sefcor	GU1-5812
U212	Grounding clamp, bronze, #2 AWG STR.-250 MCM ground wire to a 2-1/2" IPS pipe	5 As req'd	Sefcor	GU1-6012
U216	Grounding clamp, bronze, #4 AWG STR.-250 MCM ground wire to a 3-1/2" IPS pipe	3 As req'd	Sefcor	GU1-6312
V534	Bronze split bolt connector, tinned #2 solid copper ground conductor to barbed wire	200 As req'd	Burndy Alternate: Anderson	KSU25 SBS2

								BILL OF MATERIALS INITIAL 34.5-12.47KV SUBSTATION SUB NO. 9 ST. CHARLES, IL	
				www.powersystem.org 1532 W Broadway Madison, WI 53713 Tel: 866.825.8895					
1	FINAL	GB	DES	9/11/2014	ENGR D. E. STARK	CHKD/ APPD ---	SCALE NONE	PROJECT NO. IL0451406	DRAWING NO. 400
NO.	REVISION AND RECORD OF ISSUE	BY	ENGR	DATE	DWN BY G. BODENSTEIN	DATE 8/29/2014	FILE NAME SCS9-400-BOM		