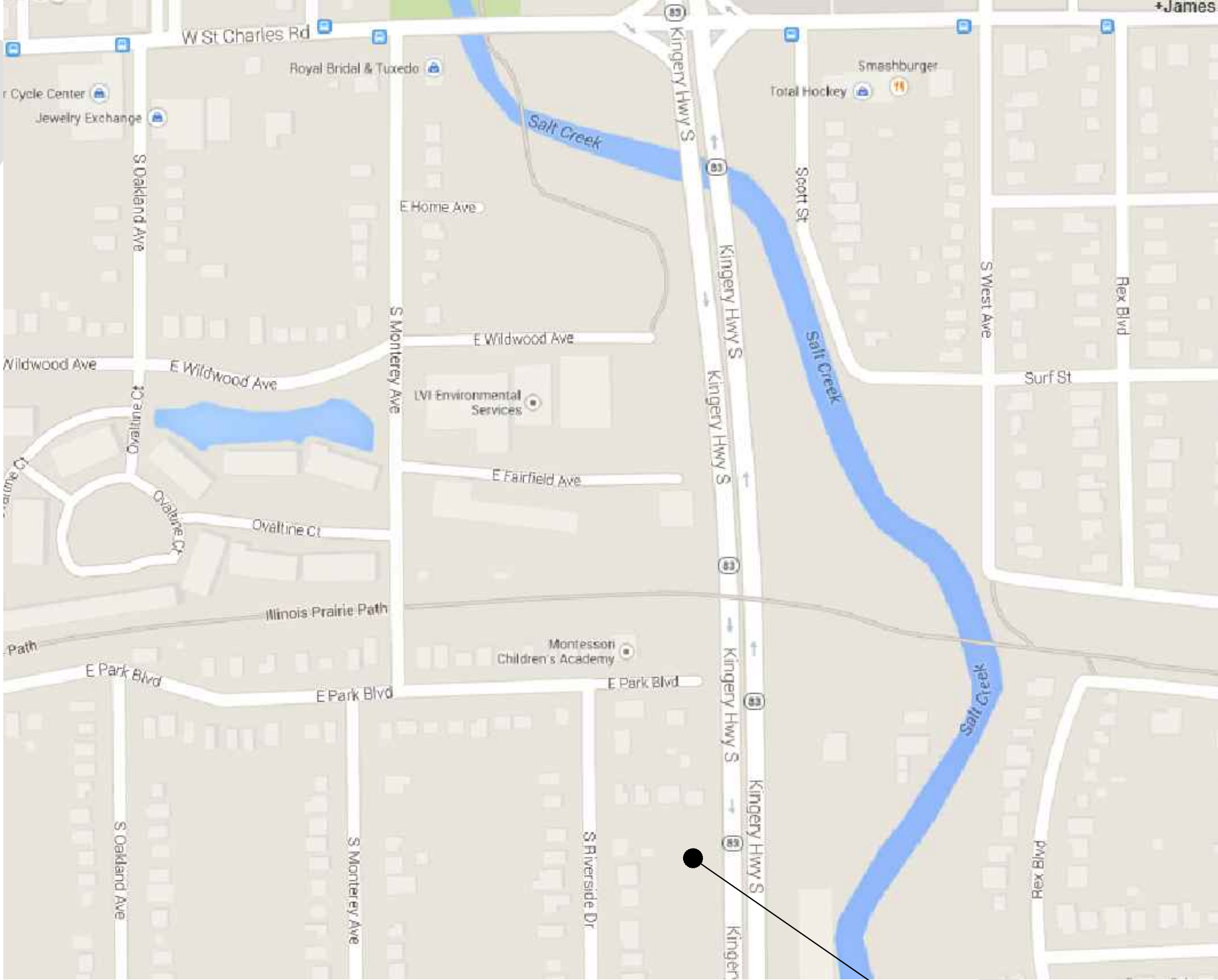


Village of Villa Park Route 83 Lift Station

October 2014

BMcD Project No: 66500



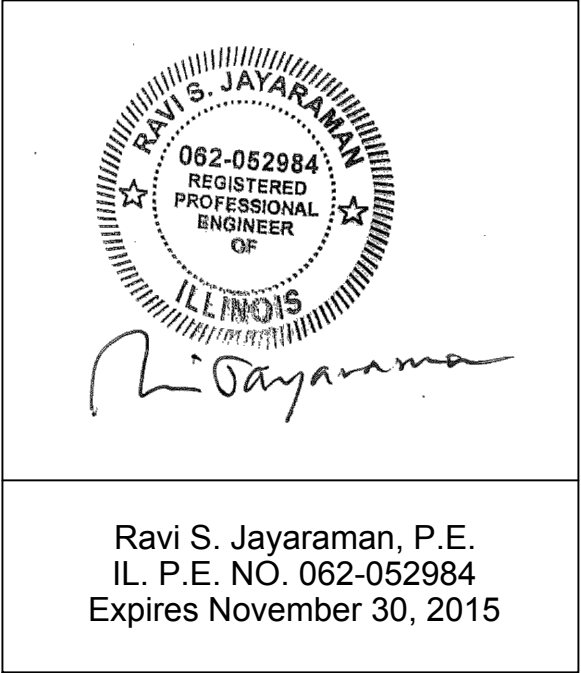
Location Map

Project Location

Contract Drawings

Drawing Index

DWG. NO.	TITLE
G001	Cover-Index
G002	General Notes & Legend
C001	Site Plan & Lift Station Improvements
E001	Electrical Specifications
E002	Electrical Site Plan - Demolition
E003	Electrical Site Plan - New Work
E004	Electrical Details
E005	Electrical Details

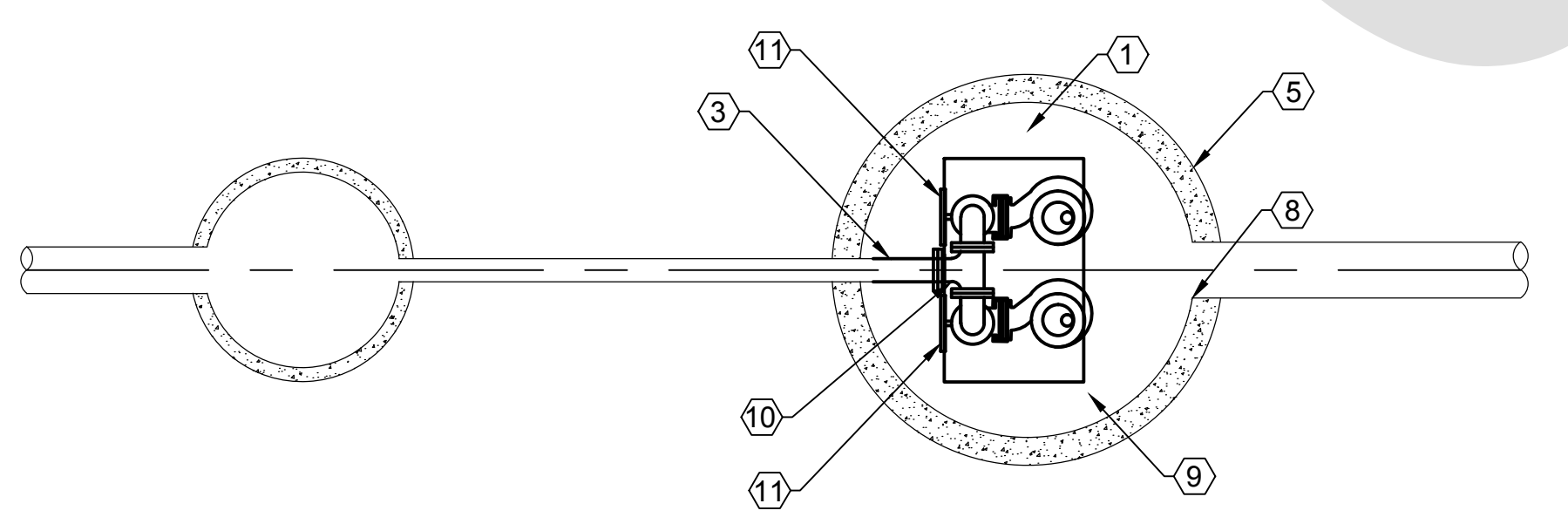
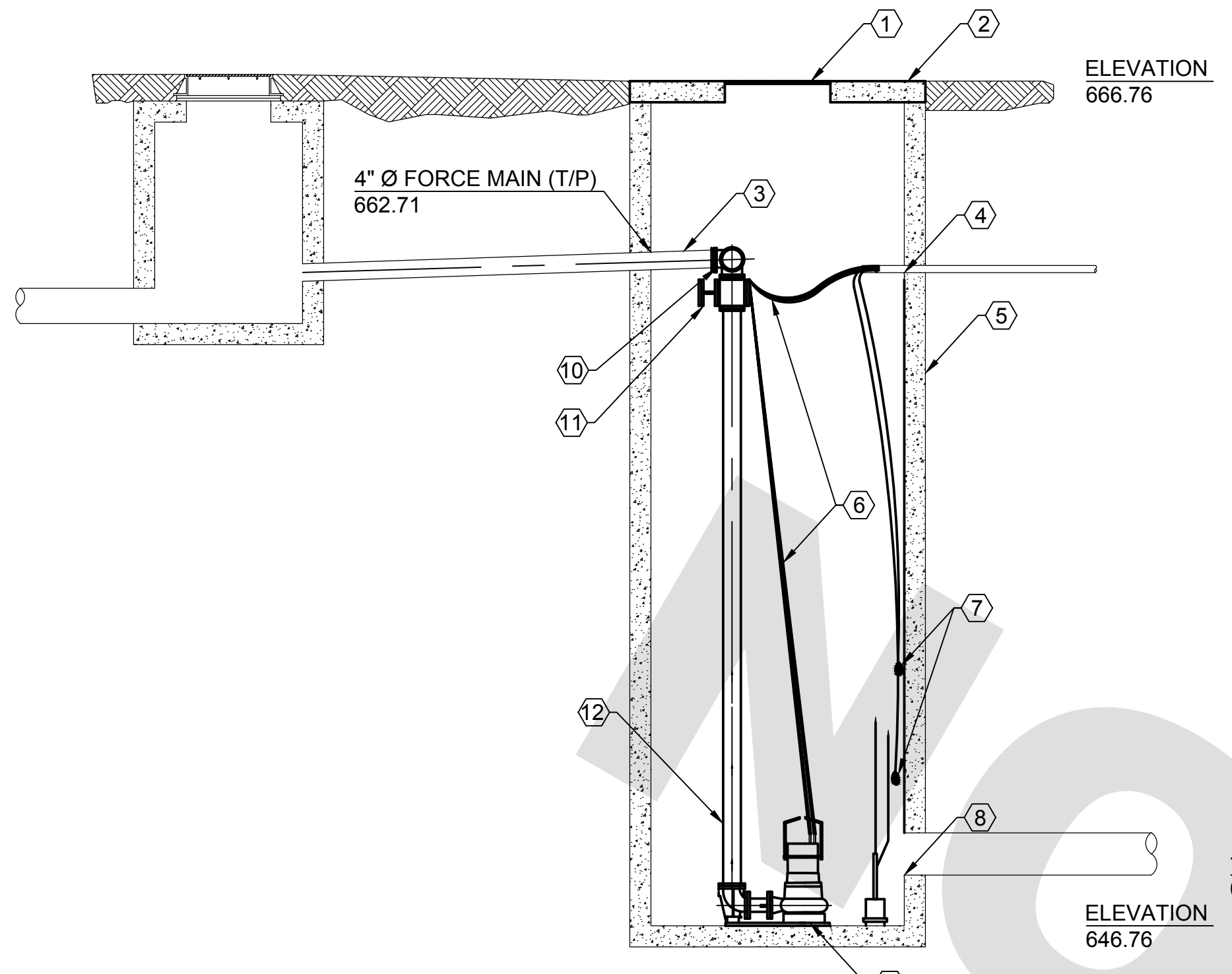


Ravi S. Jayaraman, P.E.
IL, P.E. NO. 062-052984
Expires November 30, 2015

Cover-Index

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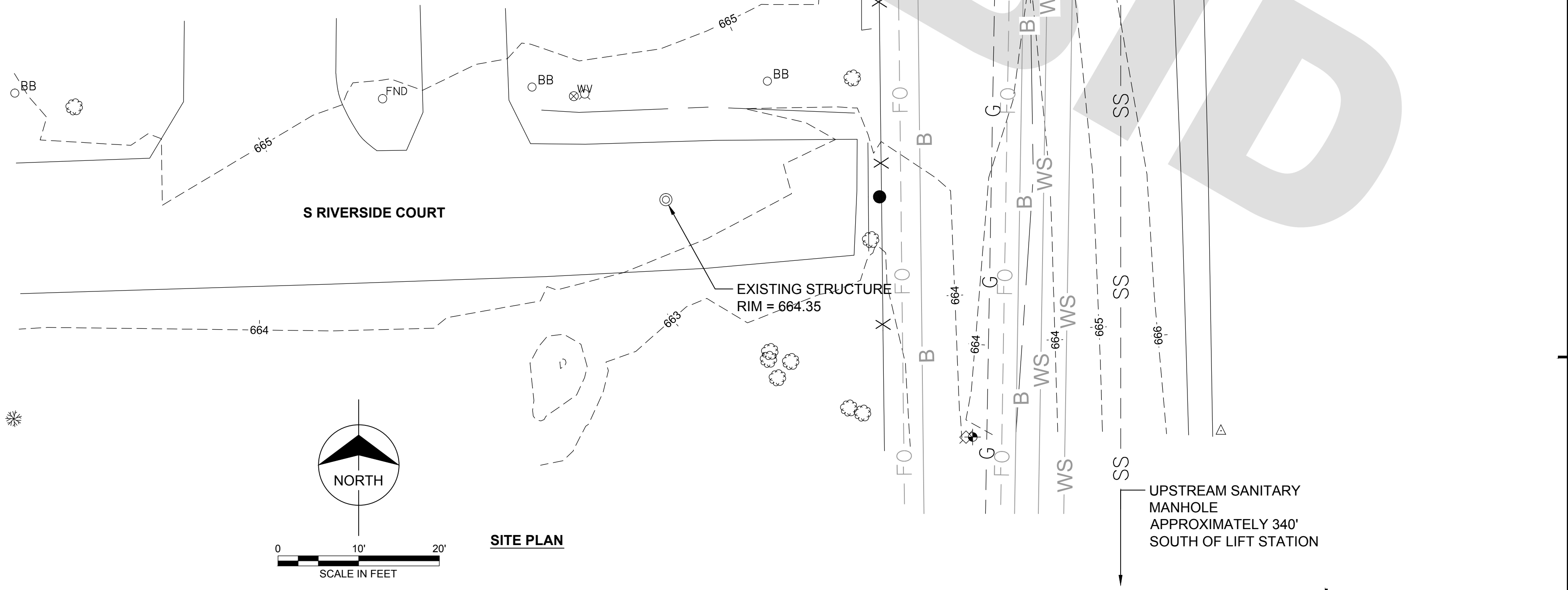




**PLAN & SECTION
LIFT STATION AND DISCHARGE MANHOLE**
SCALE IN FEET

- KEYNOTES:**
- ① ACCESS COVER TO BE REMOVED AND REPLACED WITH COVER RATED TO H-20 LOADING, HALLIDAY PRODUCTS H1W SERIES OR EQUAL. COVER SHALL PROVIDE ADEQUATE CLEARANCE FOR PUMP MAINTENANCE AND/OR REMOVAL AND ACCESS TO MULTI-PORT PLUG VALVE WITH MANUAL OPERATOR.
 - ② LIFT STATION STRUCTURE TOP TO BE REMOVED AND REPLACED. TOP SECTION SHALL BE PRECAST CONCRETE AND INCLUDE OPENING FOR ACCESS HATCH.
 - ③ EXISTING 4" Ø STEEL FORCE MAIN TO REMAIN.
 - ④ EXISTING 2" Ø CONDUIT TO REMAIN.
 - ⑤ EXISTING STRUCTURE TO REMAIN.
 - ⑥ POWER AND CONTROL CABLES TO BE REMOVED AND REPLACED.
 - ⑦ FLOAT SWITCHES TO BE REMOVED AND REPLACED. SEE TABLE BELOW.
 - ⑧ EXISTING 12" Ø INVERT TO REMAIN.
 - ⑨ SUBMERSIBLE PUMPS TO BE REMOVED AND REPLACED WITH 275 GPM SUBMERSIBLE PUMPS, SULZER XFP100C-CB1 OR EQUAL.
 - ⑩ 4" Ø TEE TO BE REMOVED AND REPLACED WITH 4" 3-WAY MULTI-PORT PLUG VALVE, HENRY PRATT COMPANY STYLE G OR EQUAL.
 - ⑪ GATE VALVES TO BE REMOVED AND REPLACED WITH 4" Ø RUBBER FLAPPER SWING CHECK VALVES, APCO COMPANY SERIES 100 OR EQUAL.
 - ⑫ 4" Ø PIPING TO BE REMOVED AND REPLACED.

PROPOSED FLOAT SCHEDULE	
DESCRIPTION	ELEVATION
INFLUENT GRAVITY SEWER	647.96
HIGH WATER ALARM "ON"	650.25
LAG PUMP "ON"	649.75
LEAD PUMP "ON"	649.00
LAG PUMP "OFF"	648.00
LEAD PUMP "OFF"	648.25
LOW WATER ALARM "ON"	647.50
WET WELL INVERT	646.76



- EXISTING SANITARY MANHOLE
RIM = 666.92
S INV = 662.02
N INV = 661.02
- EXISTING SANITARY LIFT STATION
RIM = 666.76
S INV = 647.96
N FM = 662.71 (T/P)
- EXISTING STRUCTURE
RIM = 667.44
- REMOVE PUMP, VALVES, FLOATS, CHAINS, CABLES, ACCESS HATCH, AND STRUCTURE TOP
- EXISTING STRUCTURE TO REMAIN
- EXISTING CONTROL PANEL

- NOTES:**
1. CONTRACTOR SHALL INSTALL TEMPORARY CONSTRUCTION FENCING AROUND THE LIMITS OF EXCAVATION.
 2. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
 3. PRIOR TO WORKING WITH OR AROUND EXISTING UTILITIES, CONTRACTOR SHALL CONTACT THE APPLICABLE UTILITY COMPANY.
 4. EXISTING STRUCTURES SHALL BE PROTECTED FROM OVERLOADING DUE TO CONSTRUCTION TRAFFIC.
 5. DAMAGE TO ADJACENT FACILITIES DURING CONSTRUCTION SHALL BE REPAIRED AT NO ADDITIONAL COST TO THE OWNER.
 6. THE CONTRACTOR SHALL PROVIDE BYPASS PUMPING TO MAINTAIN EFFECTIVE OPERATION OF THE SANITARY SEWER SYSTEM WHEN THE LIFT STATION IS TAKEN OUT OF SERVICE.
 7. ALL DISTURBED AREAS MUST BE RESTORED TO EXISTING CONDITIONS OR BETTER AT THE COMPLETION OF THE PROJECT TO THE SATISFACTION OF THE ENGINEER.
 8. CONTRACTOR SHALL BE AWARE THAT FUEL PIPING EXISTS BETWEEN ROUTE 83 AND THE RESIDENTIAL FENCE LINE. EXACT ROUTING IS UNKNOWN. TYPICAL DEPTH IS ASSUMED TO BE DEEPER THAN PROPOSED UNDERGROUND CONDUIT. CAUTION SHALL BE TAKEN WHEN EXCAVATING. COORDINATE WITH BUCKEYE PIPE LINE (708-473-9889) AND WEST SHORE PIPE LINE (847-878-3428).

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checked		R. JAYARAMAN		
SITE PLAN & LIFT STATION IMPROVEMENTS				
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Scale For Microfitting
Millimeters
Inches

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BASIC ELECTRICAL REQUIREMENTS

1. GENERAL:
 - A. CONTRACTOR SHALL VISIT THE SITE OF THE PROPOSED WORK AND SHALL GATHER ALL NECESSARY INFORMATION REGARDING THE FACILITIES. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED FOR WORK OR MATERIALS OMITTED FROM CONTRACTOR'S PROPOSAL DUE TO A FAILURE TO PERFORM SUCH AN INVESTIGATION.
 - B. PROVIDE A MINIMUM ONE YEAR WARRANTY ON ALL ELECTRICAL WORK AND NEW ELECTRICAL PRODUCTS PROVIDED BY CONTRACTOR. WARRANTY PERIOD SHALL BEGIN UPON OWNERS ACCEPTANCE OF AREA AND EQUIPMENT FOR BENEFICIAL USE.
 - C. CODES: ALL ELECTRICAL SYSTEMS AND THEIR COMPONENT PARTS SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH THE 2005 EDITION OF THE NATIONAL ELECTRICAL CODE, THE LATEST NFPA EDITIONS AND GOVERNING LOCAL CODES.
 - D. ALL EXTERIOR MATERIALS, EQUIPMENT, AND INSTALLATIONS SHALL BE WEATHERPROOF.
 - E. ALL ELECTRICAL PRODUCTS SHALL BE LISTED AND LABELED AS DEFINED BY THE NEC. ALL EQUIPMENT AND DEVICES SHALL HAVE LUGS RATED FOR 75 DEGREES C.
 - F. EACH SYSTEM SHALL BE COMPLETE INCLUDING EQUIPMENT, FIXTURES, CONDUITS, WIRING DEVICES, CONNECTIONS TO ALL NEW OR RELOCATED MOTORIZED MECHANICAL EQUIPMENT, AND NECESSARY ACCESSORIES. ALL WORK SHALL BE COORDINATED FOR SCHEDULING, CONNECTIONS, CLEARANCES, CONFLICTS, ETC.
 - G. ALL SIMILAR PRODUCTS SHALL BE OF ONE MANUFACTURER.
 - H. PROVIDE EQUIPMENT FROM THE SAME MANUFACTURER OF EXISTING SIMILAR EQUIPMENT AT A FACILITY.
 - I. CORE DRILLING: PROTECT ALL FINISHES AROUND AND BELOW CORE DRILL. PROVIDE MEANS TO PROTECT AREA BELOW CORE DRILL FROM FALLING DEBRIS. VERIFY STRUCTURE IS SUFFICIENT FOR CORE DRILLING ACTIVITY BEFORE COMMENCING.
2. SCOPE OF SERVICES:
 - A. PROVIDE NECESSARY LABOR, MATERIALS, EQUIPMENT, ACCESSORIES, TRANSPORTATION, TEMPORARY UTILITIES AND SERVICES REQUIRED FOR THE DEMOLITION, RENOVATION AND INSTALLATION OF ELECTRICAL SYSTEMS FOR THE FACILITIES SHOWN AND THE SYSTEMS DEFINED.
 - B. SUBMITTALS AS REQUIRED WITHIN EACH ELECTRICAL SPECIFICATION SECTION. PROVIDE THREE COPIES OF EACH SUBMITTAL TO THE ENGINEER. ONE REVIEWED COPY WILL BE RETURNED TO THE CONTRACTOR.
3. CORING AND PATCHING:
 - A. PERFORM CORING AND PATCHING IN EXISTING STRUCTURES AS REQUIRED FOR INSTALLATION OF NEW ELECTRICAL EQUIPMENT AND MATERIALS. CONTRACTOR SHALL REMOVE AND DISPOSE OF SELECTED ELECTRICAL EQUIPMENT, COMPONENTS AND MATERIALS INDICATED TO BE REMOVED. PROTECT THE EXISTING STRUCTURE, FINISHES, AND ADJACENT MATERIALS.
 - B. PATCH, REPAIR, AND PAINT FINISHED SURFACES AND BUILDING COMPONENTS TO MATCH EXISTING FINISHES DAMAGED BY THE CONSTRUCTION OF THE NEW SYSTEM.
 - C. PROVIDE CONDUIT SEALS FOR ALL CONDUIT PENETRATIONS BELOW GRADE.
4. IDENTIFICATION AND LABELING:
 - A. CONTRACTOR SHALL TAG ALL ELECTRICAL EQUIPMENT AS INDICATED, AND LABEL ALL ELECTRICAL EQUIPMENT, DISCONNECT SWITCHES, AND WIRING DEVICES WITH POWER SOURCE INFORMATION.
 - B. EQUIPMENT TAGS AND DISCONNECT LABELS SHALL BE PHENOLIC TYPE NAMEPLATES WITH BLACK LETTERS ON WHITE FACE. LETTERS SHALL BE STANDARD BLOCK STYLE, 1/4" TALL.
 - C. WIRING DEVICE LABELS SHALL BE CLEAR ADHESIVE TAPE WITH 1/4" TALL, BLACK, BLOCK STYLE LETTERS STAMPED ON TAPE.
 - D. ALL APPLICABLE SAFETY AND DANGER SIGNS SHALL BE AFFIXED TO EQUIPMENT AS NECESSARY AND SHALL BE COORDINATED WITH THE VILLAGE.

RACEWAYS AND CONDUCTORS

1. CONDUITS:
 - A. CONDUITS SHALL BE COMPLETE WITH ALL REQUIRED FITTINGS AS FOLLOWS:
 - a. GALVANIZED RIGID STEEL CONDUITS SHALL BE USED FOR ALL ELECTRICAL CIRCUITS. ALL FIELD CUT THREADED CONDUIT SHALL HAVE NEW THREADS CLEANED AND TREATED WITH COLD GALVANIZING SPRAY.
 - b. LIQUID-TIGHT, FLEXIBLE METAL CONDUIT: CONSTRUCT OF SINGLE STRIP, FLEXIBLE, CONTINUOUS, INTERLOCKED, AND DOUBLE-WRAPPED STEEL; GALVANIZED INSIDE AND OUTSIDE; COAT WITH (OIL-RESISTANT,) LIQUID-TIGHT THERMOPLASTIC JACKET.
 - c. LIQUID-TIGHT FLEXIBLE METAL CONDUIT FITTINGS: PROVIDE CADMIUM PLATED, MALLEABLE-IRON FITTINGS WITH COMPRESSION TYPE STEEL FERRULE AND NEOPRENE GASKET SEALING RINGS, WITH INSULATED OR NON-INSULATED THROAT.
2. CONDUCTORS:
 - A. COPPER CONDUCTORS SHALL BE COMPLETE WITH ALL CONNECTIONS AND ACCESSORIES UL LISTED FOR 75 DEGREES C CONDUCTORS AS FOLLOWS:
 - a. POWER WIRING: 600-VOLT CABLE, TYPE THHN/THWN-2, STRANDED, 75 DEGREES C INSULATION.
 - b. GROUNDING: 600-VOLT CABLE, GREEN INSULATED, STRANDED CONDUCTOR.
 - c. PROVIDE WIRENUT SPLICES FOR CIRCUITS WITH #10 AWG AND SMALLER CONDUCTORS.
 - d. PROVIDE BOLTED CONNECTORS FOR CIRCUITS WITH #8 AWG AND LARGER CONDUCTORS
 - e. WIRE SIZING: MINIMUM WIRE SIZE FOR POWER CIRCUITS SHALL BE NO. 12 AWG, UON. MINIMUM WIRE SIZE FOR CONTROL CIRCUITS SHALL BE NO. 16 AWG, UON.
 - f. ALL POWER AND CONTROL CIRCUITS SHALL BE INSTALLED IN CONDUIT.

WIRING DEVICES AND ELECTRICAL BOXES

1. GENERAL:
 - A. OUTLET BOXES AND J-BOXES: BOXES SHALL BE GALVANIZED, PRESSED STEEL BOXES WITH KNOCKOUTS AND SHALL BE A MINIMUM 1 1/2" DEEP. BOXES FOR USE WITH RECEPTACLES AND TELEPHONE/DATA OUTLETS SHALL BE A NOMINAL 4" BY 2" OR 4" BY 4" UNLESS NOTED OTHERWISE. BOXES SHALL UTILIZE SCREW ON COVERS.
2. ACCEPTABLE WIRING DEVICE MANUFACTURERS:
 - A. GENERAL ELECTRIC.
 - B. BRYANT.
 - C. PASS & SEYMOUR.
 - D. LEVITON.
 - E. HUBBELL.
 - F. WALKER.
3. SHOP DRAWINGS:
 - A. PROVIDE SHOP DRAWINGS FOR ALL ELECTRICAL EQUIPMENT AND COMPONENTS PROPOSED.
4. SUPPORTING DEVICES AND SEALS
 - A. PROVIDE SUPPORTING DEVICES WHICH COMPLY WITH MANUFACTURER'S STANDARD MATERIALS AS REQUIRED FOR COMPLETE INSTALLATION. DO NOT USE PERFORATED METAL STRAPS FOR SUPPORTS. SELECTION OF SPECIFIC SUPPORTING DEVICE IS CONTRACTOR'S CODE COMPLIANT OPTION.

GROUNDING

1. GENERAL:
 - A. GROUND THE SEPARATELY DERIVED SYSTEM NEUTRAL TO THE MAIN SERVICE ENTRANCE GROUND SYSTEM.
 - B. PROVIDE INSULATED GROUNDING CONDUCTOR IN ALL CONDUITS WITH POWER CIRCUITS. SIZE PER NEC TABLE 250.122.
 - C. CONNECTIONS: PROVIDE GROUND CLAMPS AND ELECTRICAL TAPE FOR ALL EXPOSED GROUNDING CONNECTIONS. PROVIDE COATED OR WRAPPED EXOTHERMIC WELDS FOR ALL UNDERGROUND CONNECTIONS. TERMINATE GROUNDING CONDUCTOR AT EQUIPMENT GROUNDING LUG.

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date	08/14/14	detailed	K. POULSEN
designed	B. HAAS	checked	E. ESSOF



ELECTRICAL SPECIFICATIONS	
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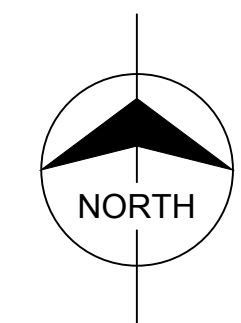
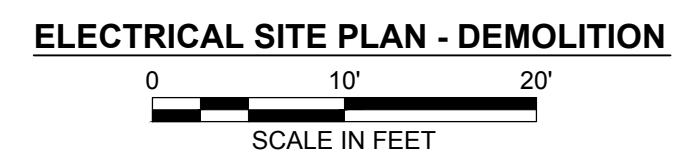
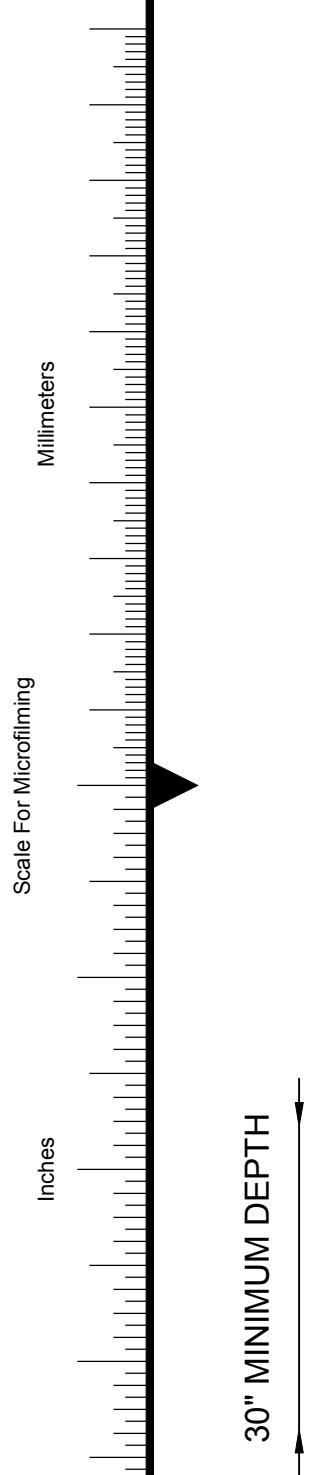
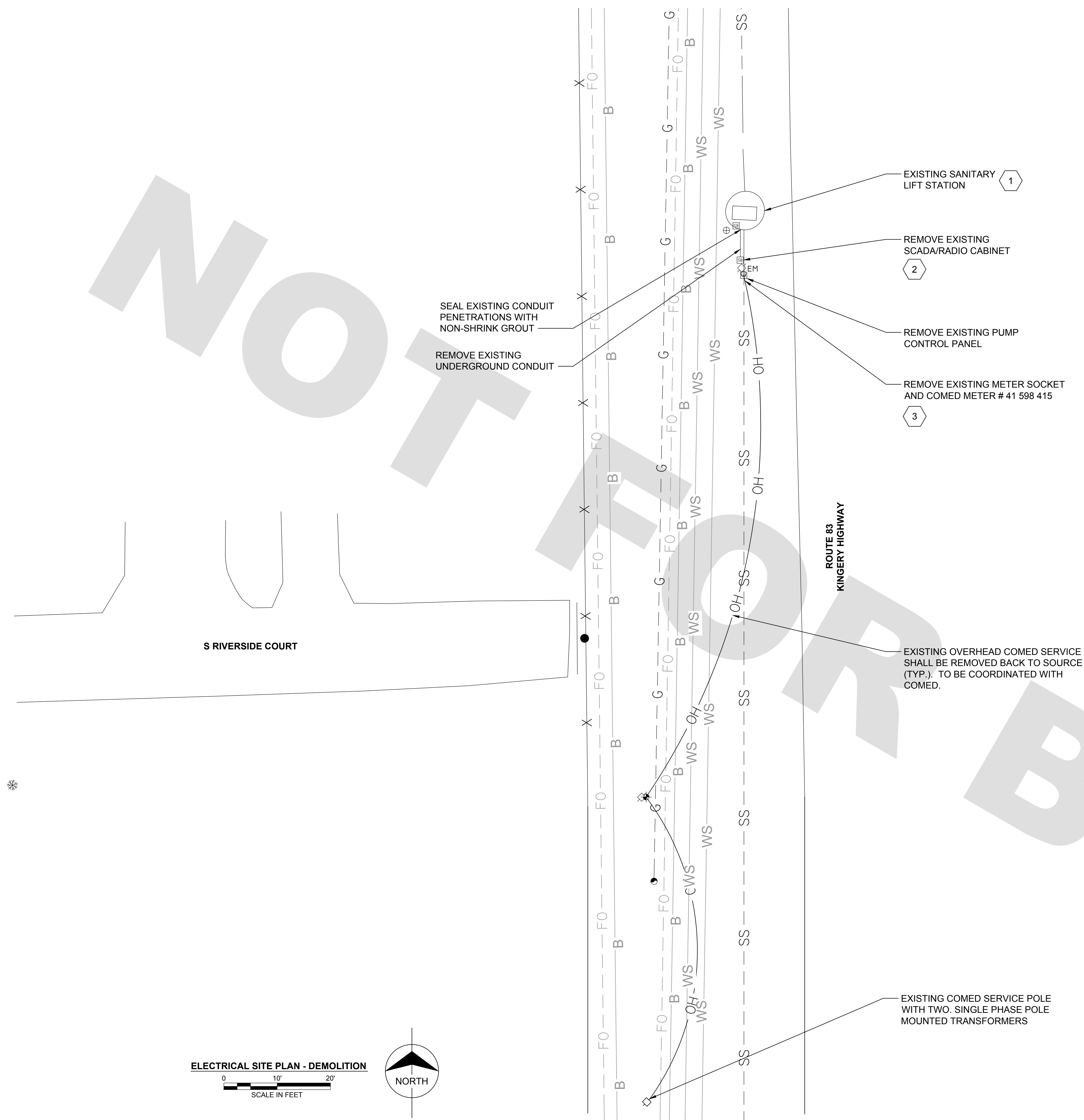
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GENERAL NOTES:

- COORDINATE ALL DEMOLITION WITH THE VILLAGE PRIOR TO ANY WORK.
- THE PROPOSED WORK SHALL BE IN PLACE PRIOR TO ANY DEMOLITION TO MINIMIZE DOWNTIME NEEDED TO SWITCH OVER THE SERVICE.

KEYNOTES:

- 1 REMOVE ALL EXISTING CONTROL WIRING, SENSORS AND CONDUIT STUBS FROM THE WET WELL.
- 2 ALL COMPONENTS WITHIN THE CABINET SHALL BE TURNED OVER TO THE VILLAGE.
- 3 COORDINATE REMOVAL OF METER WITH COMED.



date 08/14/14	detailed K. POULSEN
designed B. HAAS	checked E. ESSOF



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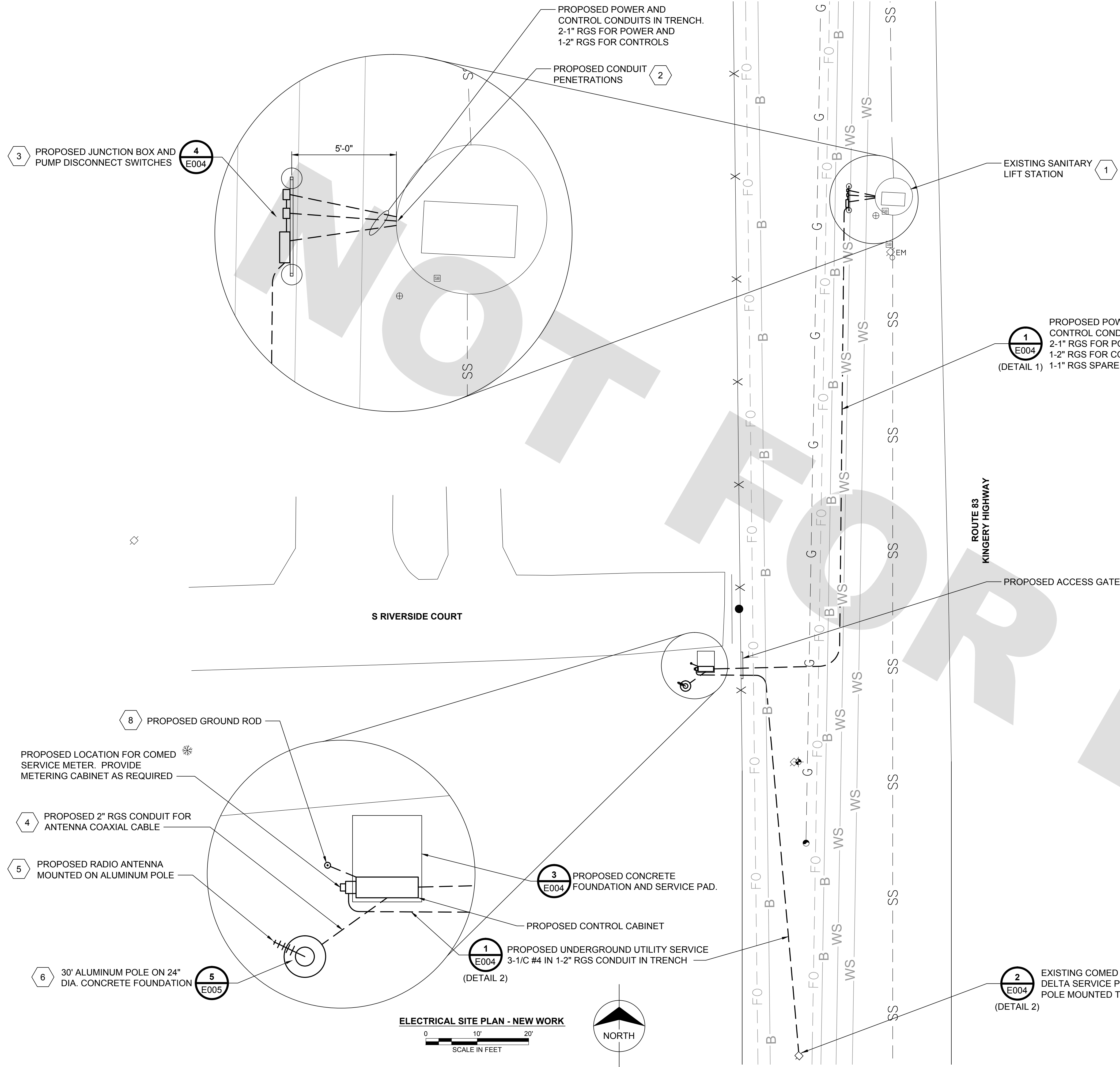
- COORDINATE ALL PROPOSED WORK WITH THE VILLAGE PRIOR TO COMMENCEMENT.
- THE PROPOSED WORK SHALL BE IN PLACE PRIOR TO ANY DEMOLITION TO MINIMIZE DOWNTIME NEEDED TO SWITCH OVER THE SERVICE.
- CONTRACTOR SHALL BE AWARE THAT FUEL PIPING EXISTS BETWEEN ROUTE 83 AND THE RESIDENTIAL FENCE LINE. EXACT ROUTING IS UNKNOWN. TYPICAL DEPTH IS ASSUMED TO BE DEEPER THAN PROPOSED UNDERGROUND CONDUIT. CAUTION SHALL BE TAKEN WHEN EXCAVATING. COORDINATE WITH J.U.L.I.E., BUCKEYE PIPE LINE (708-473-9889) AND WEST SHORE PIPE LINE (847-878-3428).

KEYNOTES:

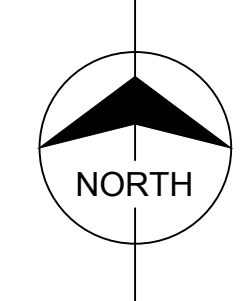
- ALL PROPOSED POWER AND CONTROL WIRING, AND SENSORS SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S GUIDELINES.
- DEPTH OF CONDUIT PENETRATIONS SHALL BE SLIGHTLY LOWER THAN UNDERGROUND ROUTING TO ALLOW FOR DRAINAGE INTO THE WET WELL. CORES SHALL MATCH NUMBER AND SIZE OF UNDERGROUND CONDUITS SHOWN. PROVIDE CONDUIT SEALS AT EACH PENETRATION.
- PROVIDE A NEMA 7, 18" X 18" X 6" JUNCTION BOX AND TWO NEMA 7, 30 AMP DISCONNECTS MOUNTED ON STEEL CHANNEL. PROVIDE A TERMINATION BLOCK AND TERMINATE PROPOSED SENSOR CABLES FROM CONTROLLER IN THE JUNCTION BOX. TERMINATE PUMP POWER CABLES IN THE DISCONNECT SWITCH ENCLOSURES. PUMP AND SENSOR MANUFACTURER TO SUPPLY CABLES FROM JUNCTION BOX AND DISCONNECTS TO WET WELL AND PUMPS. 1" RGS SPARE SHALL BE CAPPED AT GRADE FOR FUTURE USE.
- PROVIDE COAXIAL CABLE, TIMES MICROWAVE SYSTEMS, LMR-400 TYPE (STOCK CODE 54001), WITH A TC-400-NMC TYPE CONNECTOR (STOCK CODE 3190-277), OR APPROVED EQUAL.
- PROVIDE ANTENNA, MAXRAD, BMOY8905 YAGI TYPE WITH A BOOM LENGTH OF 20.5". OR APPROVED EQUAL. THE ANTENNA SHALL BE AIMED AT THE MASTER ANTENNA ON THE PAINTER'S RING OF THE HOME AVENUE WATER TOWER. ANTENNA ORIENTATION AND MOUNTING HEIGHT SHALL BE COORDINATED AND APPROVED BY THE VILLAGE. SIGNAL STRENGTH SHALL BE TESTED PRIOR TO ACCEPTANCE. A SIGNAL SURVEY WAS NOT PERFORMED.
- PROVIDE AN ALUMINUM POLE, LITHONIA LIGHTING RTA-30E-PT-BA, OR APPROVED EQUAL. POLE SHALL BE MOUNTED ON A 24" DIAMETER, 6 FOOT DEEP CONCRETE FOUNDATION.
- PROVIDE SECONDARY CABLE FROM UTILITY POLE TO METER BOX. PROVIDE 20 FT OF COILED CABLE FOR SERVICE CONNECTION AT POLE. COMED TO MAKE CONNECTIONS AT BOTH THE POLE AND METER BOXES.
- PROVIDE A 3/4" X 10 FT LONG COPPER CLAD GROUND ROD AND #2 BARE COPPER WIRE FOR THE GROUNDING AT THE SERVICE ENTRANCE. NEUTRAL AND GROUND WIRING SHALL BE BONDED AT THE CABINET.

ABBREVIATIONS:

RGS RIGID GALVANIZED STEEL CONDUIT



ELECTRICAL SITE PLAN - NEW WORK
 0 10' 20'
 SCALE IN FEET



Scale For Microfitting
 Millimeters
 Inches

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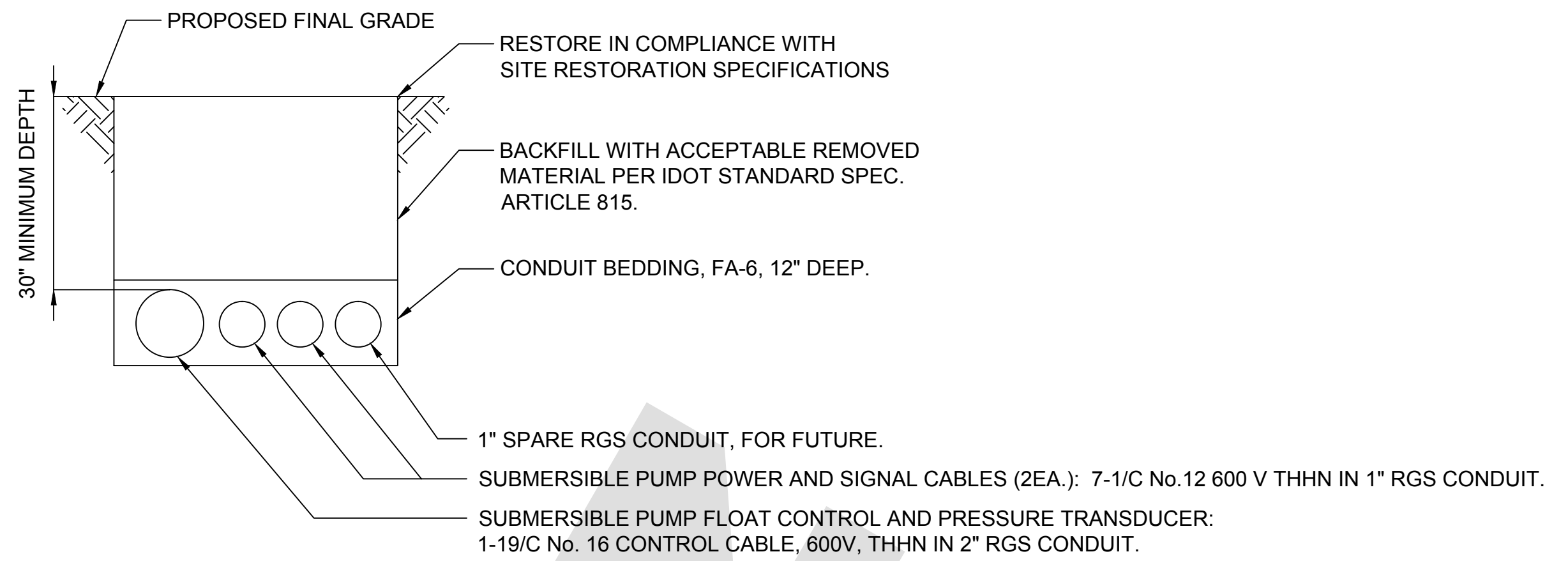


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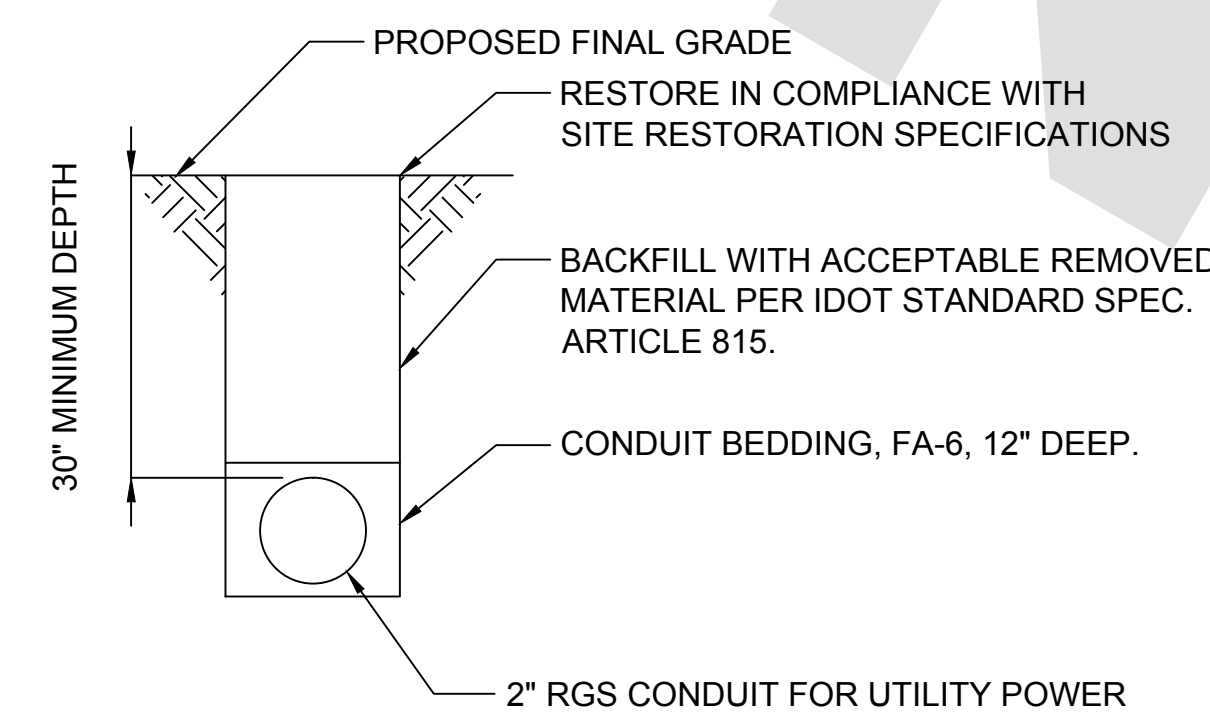


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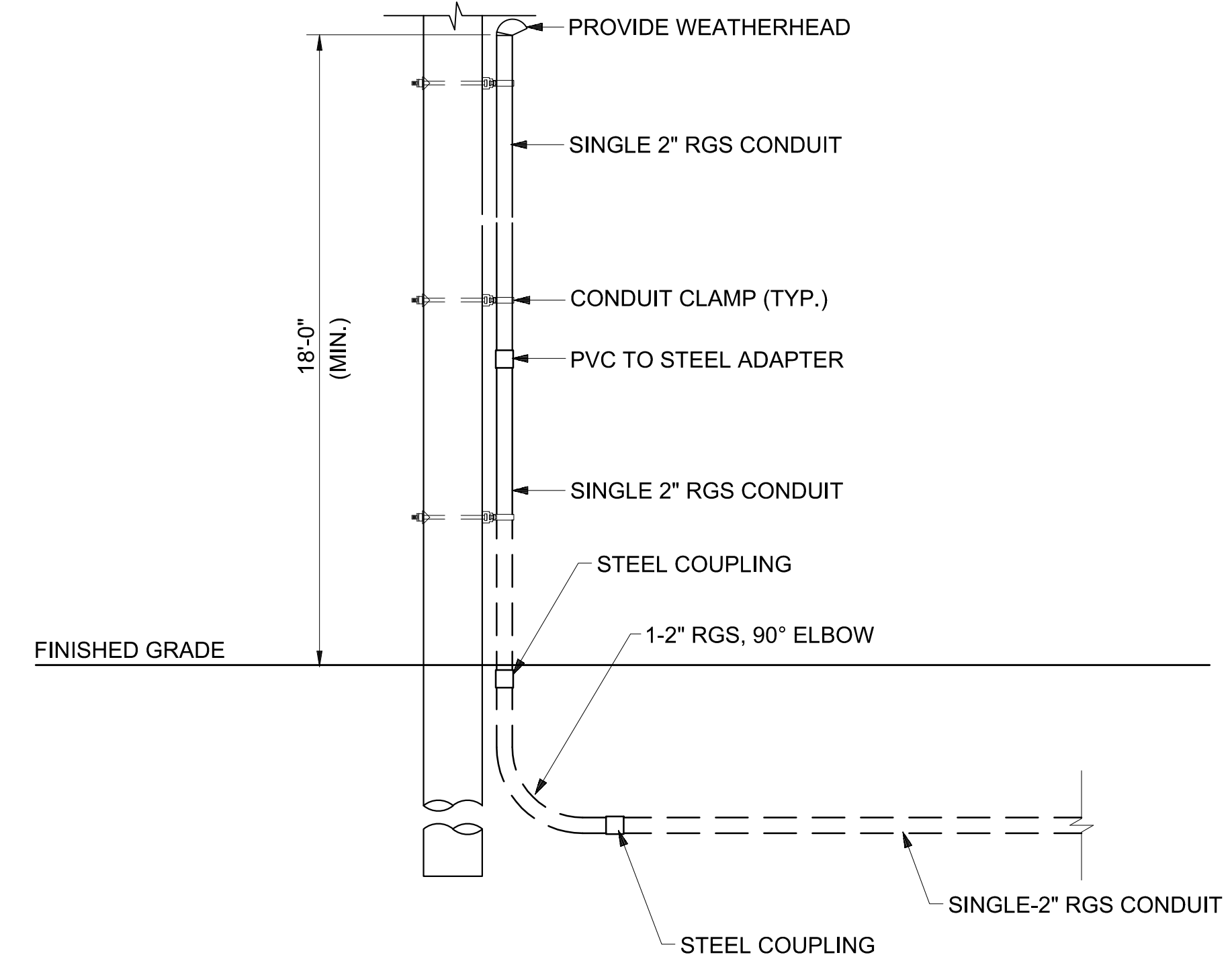
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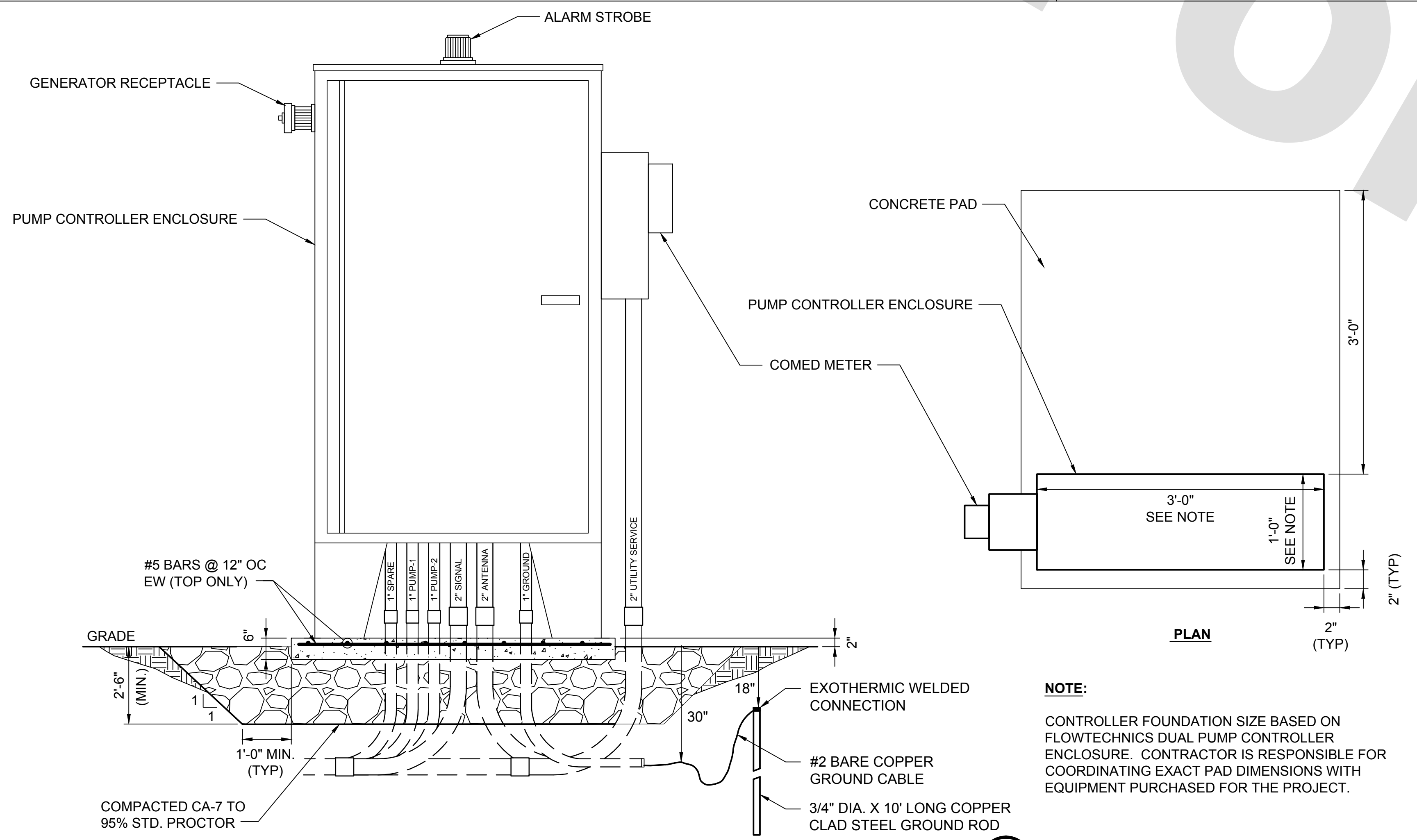
CONDUIT DETAIL 2

NOTES:
1. WHERE APPLICABLE CONDUITS CAN BE GROUPED TOGETHER IN COMMON DUCTBANK

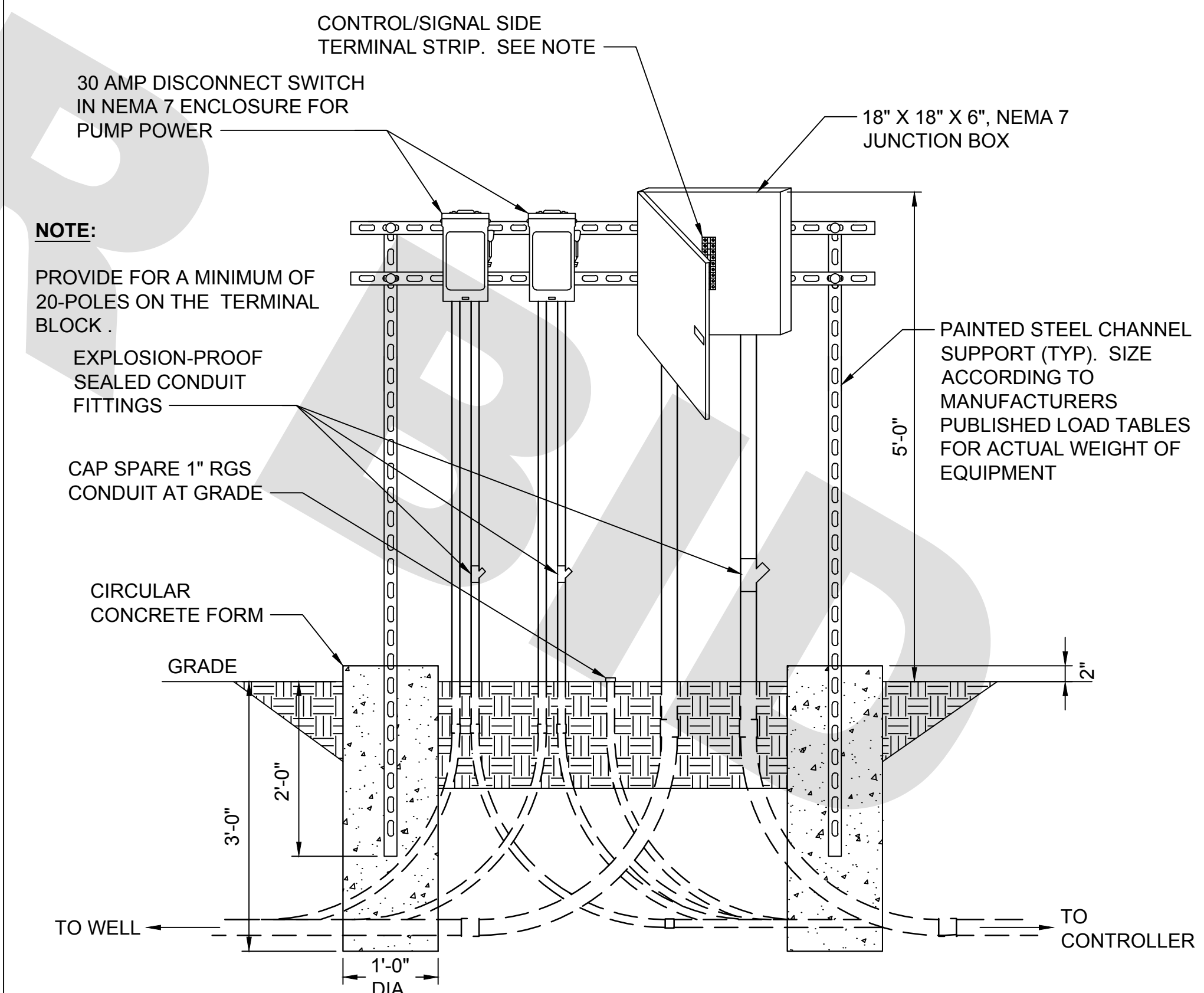
CONDUIT DETAIL 1
NOT TO SCALE
E003



TYPICAL UTILITY POLE STUB-UP DETAIL
NOT TO SCALE
E003



CONROLLER CONCRETE FOUNDATION AND SERVICE PAD DETAIL
NOT TO SCALE
E003



NOTE:
PROVIDE FOR A MINIMUM OF 20-POLES ON THE TERMINAL BLOCK.

NEMA 3R JUNCTION BOX DETAIL
NOT TO SCALE
E003

NOTE:
CONTROLLER FOUNDATION SIZE BASED ON FLOWTECHNICS DUAL PUMP CONTROLLER ENCLOSURE. CONTRACTOR IS RESPONSIBLE FOR COORDINATING EXACT PAD DIMENSIONS WITH EQUIPMENT PURCHASED FOR THE PROJECT.

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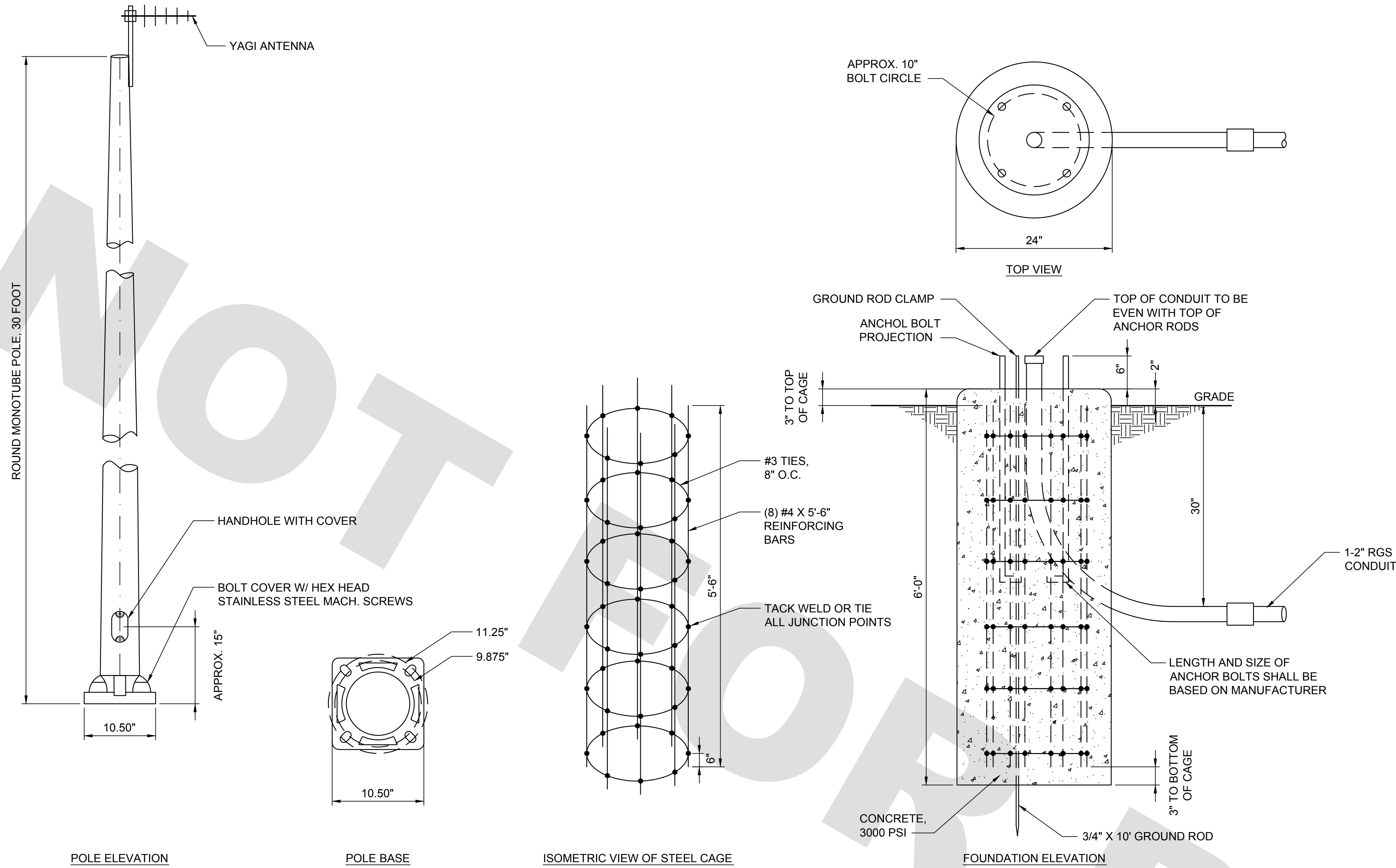
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villa park
THE GARDEN VILLAGE

ELECTRICAL DETAILS

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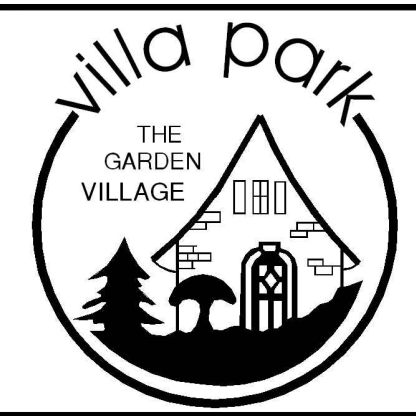
ALUMINUM POLE AND CONCRETE FOUNDATION
 NOT TO SCALE 5
E003

Scale For Microminor
 Millimeters
 Scale For Major
 Inches

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ELECTRICAL DETAILS

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