

ARBOR LANDING LIFT STATION REPLACEMENT PROJECT

RFP #22-32

CITY OF ANN ARBOR PUBLIC SERVICES UNIT / WASTEWATER TREATMENT PLANT

WASHTENAW COUNTY, MICHIGAN

MARCH 23, 2022
ISSUED FOR BID
HRC JOB NO. 20181019

LIST OF DRAWINGS

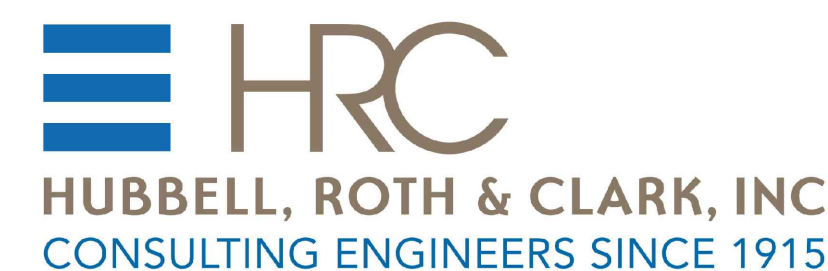
COVER SHEET

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- G P-01 GENERAL PROCESS DETAILS
- G S-01 GENERAL STRUCTURAL DETAILS

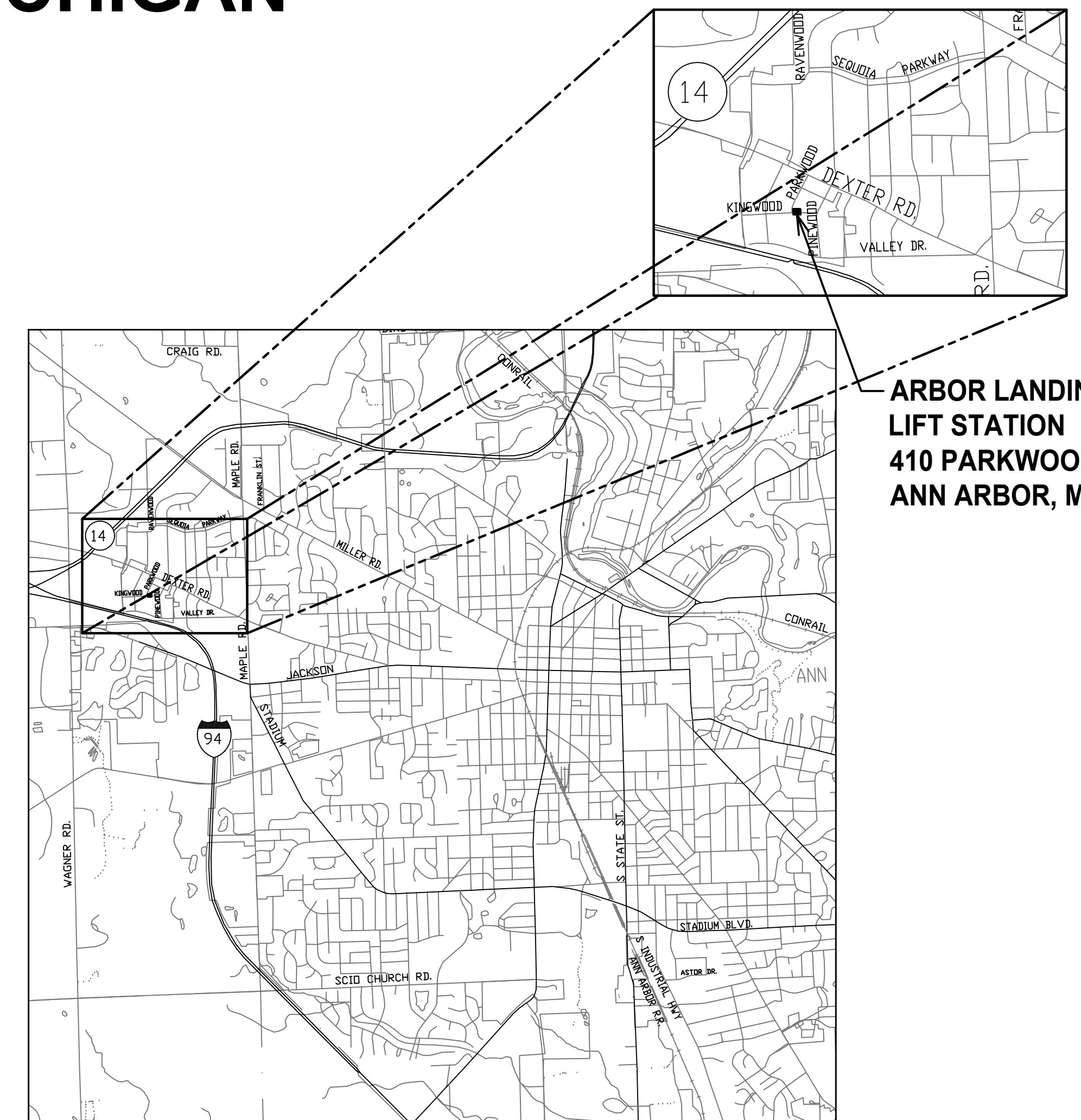
ARBOR LANDING LIFT STATION

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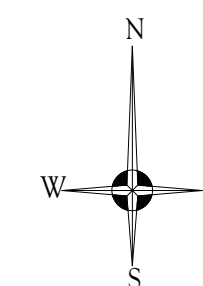
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ARBOR LANDING
LIFT STATION
410 PARKWOOD
ANN ARBOR, MI

LOCATION MAP
NOT TO SCALE



GENERAL

THIS PROJECT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE M.D.O.T. 2012 STANDARD SPECIFICATIONS FOR CONSTRUCTION EXCEPT AS NOTED HEREIN AND IN THE SPECIFICATIONS.

THE CONTRACTOR SHALL BE REQUIRED TO NOTIFY THE LOCAL FIRE AND POLICE DEPARTMENTS 24 HOURS IN ADVANCE OF PROPOSED ROAD CLOSURES.

THE CONTRACTOR AND/OR HIS SUBCONTRACTOR SHALL NOTIFY "MISS DIG", (1-800-482-7171 OR 811).

CONTRACTOR TO PROTECT EXISTING ABOVE GROUND AND BELOW GROUND FACILITIES INCLUDING: UTILITIES, POLES, TREES, SHRUBS AND OTHER VEGETATION UNLESS NOTED FOR REMOVAL ON THE PLANS; AND SHALL REPAIR OR REPLACE DAMAGED FACILITIES AT NO COST TO THE OWNER. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT AND MAINTAIN EXISTING SERVICES TO EXISTING HOMES, INCLUDING SANITARY, WATER, GAS, CABLE, SPRINKLER SYSTEMS AND OTHER UTILITIES.

CONTRACTOR SHALL PROTECT ALL OTHER SITE FEATURES SUCH AS PLANTERS, MAIL BOXES, FENCES, LANDSCAPING, WALLS, WALKS, PORCHES, ETC. AND RESTORE TO ORIGINAL CONDITION IF DAMAGED EXCEPT AS NOTED. NO ADDITIONAL PAYMENT WILL BE ALLOWED FOR THIS WORK.

ALL CONSTRUCTION STAGING AREAS SHALL BE APPROVED BY THE CITY OF ANN ARBOR PRIOR TO START OF CONSTRUCTION. ANY AREAS BEYOND CONSTRUCTION RIGHTS-OF-WAY SECURED BY THE CONTRACTOR FOR USE AS CONSTRUCTION STAGING SHALL BE AT HIS OWN EXPENSE. THE RESTORATION OF ALL STAGING AREAS SHALL BE COMPLETED PRIOR TO FINAL ACCEPTANCE OF THE WORK OF THIS PROJECT. NO ADDITIONAL PAYMENT WILL BE ALLOWED FOR THIS WORK.

UNDER CONSTRUCTION

WHEN EXCAVATING FOR CONSTRUCTION, THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO IDENTIFY AND PROTECT THE EXISTING UTILITIES.

ALL SEWER TRENCHES SHALL BE BACKFILLED OR OTHERWISE PROTECTED OVERNIGHT. PAYMENT IS INCLUDED IN THE LUMP SUM COST FOR CONSTRUCTION.

SOIL BORINGS

THE SOIL BORING LOGS DEPICT POINT LOCATIONS AND DO NOT INFER THAT THE SURFACE CONDITIONS ARE THE SAME IN OTHER AREAS. BORINGS AND PAVEMENT CORE LOCATIONS ARE SHOWN ON SHEET LC-01. SOIL BORINGS AND THE GEOTECHNICAL INVESTIGATION IS BY: PROFESSIONAL SERVICE INDUSTRIES, INC. FARMINGTON HILLS, MICH. THE SOIL BORING LOGS ARE APPENDED TO THE SPECIFICATIONS.

UTILITIES

THE EXISTING UTILITIES LISTED BELOW AND SHOWN ON THESE PLANS REPRESENT THE BEST INFORMATION AVAILABLE AS OBTAINED FROM SURVEYS AND FROM UTILITY RECORD MAPS. THIS INFORMATION DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO NOTIFY THE PROPER UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR IS RESPONSIBLE TO VERIFY ALL EXISTING UTILITIES AND THEIR LOCATIONS AS PART OF THE CONSTRUCTION OF THIS PROJECT. ANY OMISSION OR VARIATION FROM THE LOCATIONS SHOWN, PURSUANT TO ACT 53 OF THE PA OF 1974 AS A CONDITION OF THIS CONTRACT NOTICE SHALL BE GIVEN TO MISS DIG PRIOR TO UNDERGROUND WORK TO BE PERFORMED.

THE CONTRACTOR SHALL, BEFORE EACH DAYS WORK, OR WHEN MOVING TO A NEW AREA OF WORK, DETERMINE AND EVALUATE THE LOCATION OF ALL UNDERGROUND FACILITIES IN THE AREA. IF LOCATION STAKES HAVE BEEN MOVED OR DO NOT APPEAR CORRECT, THE CONTRACTOR SHALL NOT EXCAVATE UNTIL ALL UTILITIES HAVE HAD AN OPPORTUNITY TO CHECK OR RESTAKE THEIR LOCATIONS. ANY DELAYS INCURRED DUE TO CHECKING OR RESTAKING OF UTILITIES SHALL NOT BE A BASIS FOR ADDITIONAL COMPENSATION.

ALL GAS FACILITIES SHALL BE PROTECTED AND SUPPORTED PER DISTRIBUTION STANDARDS AND REQUIREMENTS.

PRIOR TO WORK ON FACILITIES BELONGING TO THE AGENCIES LISTED UNDER THE GENERAL SECTION, A MINIMUM OF 72 HOURS NOTICE MUST BE GIVEN IN ORDER TO INSURE PROPER INSPECTION BY THE RESPECTIVE AGENCIES.

THE CONTRACTOR SHALL LOCATE ALL ACTIVE UNDERGROUND UTILITIES PRIOR TO STARTING WORK, AND SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER AS TO INSURE THAT THOSE UTILITIES NOT REQUIRING RELOCATION WILL NOT BE DISTURBED.

FOR PROTECTION OF UNDERGROUND UTILITIES, THE CONTRACTOR SHALL DIAL (800) 482-7171, OR 811 A MINIMUM OF 3 FULL WORKING DAYS, EXCLUDING SATURDAY, SUNDAY AND HOLIDAYS, PRIOR TO EXCAVATING IN THE VICINITY OF UTILITY LINES. ALL "MISS DIG" PARTICIPATING MEMBERS WILL BE THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.

RESTORATION

RESTORE AND STABILIZE ALL SLOPES IN ACCORDANCE WITH THE PLANS AND AS DESCRIBED IN THE SPECIFICATIONS.

ALL FINAL GRADES SHALL SLOPE TO DRAIN TOWARD CATCH BASINS, DITCHES, SWALES, CURBS, AND DRAINAGEWAYS UNLESS OTHERWISE NOTED.

THE CONTRACTOR SHALL NOT PERFORM ANY SIDE WORK CONTRACTED PRIVATELY WITHIN THE CONSTRUCTION AREA.

MAINTAINING TRAFFIC

TRAFFIC/PARKING SHALL BE MAINTAINED AS SHOWN ON THE PLANS AND AS DETAILED IN THE SPECIAL PROJECT REQUIREMENTS AND SEQUENCE OF CONSTRUCTION SPECIFICATION. ALL WORK THAT HAS NOT BEEN ACCOUNTED FOR IN A PARTICULAR BID ITEM SHALL BE INCLUDED IN THE COST OF THE PROJECT.

ALL EXCAVATED AREAS SHALL BE DELINEATED BY PLASTIC DRUMS AT THE CLOSE OF EACH DAY ALONG THE ENTIRE LENGTH OF ANY EXCAVATION. PLASTIC DRUMS TO BE PLACED OVER ALL EXPOSED CASTINGS IN ROADWAY AT CLOSE OF EACH DAY. TYPE II'S ON THE PROJECT TO BE PLASTIC DRUMS, HIGH INTENSITY FURNISHED AND MAINTAINED BY THE CONTRACTOR.

CONTRACTOR SHALL MAINTAIN SAFE, DUST FREE CONDITIONS ON EXISTING STREETS WHICH SHALL REQUIRE DAILY REMOVAL OF EARTH TRACKED OR SPILLED ON ROAD SURFACE, AND OTHER DUST CONTROL MEASURES AS REQUIRED BY THE PROJECT ENGINEER. EXCESSIVE DUST WILL NOT BE TOLERATED AT ANY TIME DURING CONSTRUCTION. PAYMENT FOR DUST CONTROL SHALL BE INCLUDED IN THE COST OF THE PROJECT.

EARTHWORK AND GRADING

ALL SLOPES SHALL BE FINISHED AS CLASS 'A' SLOPES.

SOIL EROSION AND SEDIMENTATION CONTROL: IN ADDITION TO THE GENERAL SOIL EROSION AND SEDIMENTATION CONTROL REQUIREMENTS IN SPECIFICATION SECTION 02221 - SOIL EROSION AND SEDIMENT CONTROL, THE FOLLOWING MEASURES SHALL BE INCORPORATED INTO THIS PROJECT:

- 1. THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER AS TO MINIMIZE THE AREAS LEFT BARREN DURING CONSTRUCTION AND TO DISTURB ONLY THOSE AREAS ABSOLUTELY REQUIRED FOR THE CONSTRUCTION OF THE PROJECT.
- 2. EROSION CONTROL ITEMS (CB INSERTS, SILT FENCE, ETC.) AS CALLED OUT IN SPECIFICATION SECTION 02221 - SOIL EROSION AND SEDIMENT CONTROL AND/OR AS DIRECTED BY THE ENGINEER SHALL BE INSTALLED AND MAINTAINED ACCORDING TO THE SPECIFICATIONS, AND SHALL BE REMOVED WHEN THEY ARE NO LONGER EFFECTIVE AS DETERMINED BY THE ENGINEER. NO SEPARATE PAYMENT SHALL BE ALLOWED FOR EITHER MAINTENANCE OR REMOVAL OF THE EROSION CONTROL ITEMS.
- 3. THE CONTRACTOR SHALL REMOVE SEDIMENT COLLECTED IN CATCH BASINS. THE ENGINEER WILL INSPECT CATCH BASINS AFTER STORMS AND DIRECT THE CONTRACTOR TO CLEANOUT CATCH BASINS TO PROVIDE SEDIMENTATION CONTROL. SEDIMENT COLLECTIONS CLEARING SUMPS AND CULVERTS FOR SEDIMENTATION CONTROL SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF THE PROJECT.
- 4. THE CONTRACTOR SHALL FOLLOW LOCAL RULES AND REGULATIONS FOR SOIL EROSION AND SEDIMENTATION CONTROL FOR ALL MATERIALS THAT ARE DISPOSED OF OFF THE PROJECT SITE.

MISCELLANEOUS

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE PROPERTY BEYOND THE SLOPE STAKE LINE, INCLUDING EXISTING LAWN, TREES AND SHRUBBING.

ABBREVIATIONS

HORIZONTAL CURVES

- D DEGREE OF CURVATURE
- R/RAD. RADIUS
- Δ CENTRAL ANGLE
- T/TAN. TANGENT
- L ARC LENGTH
- CH. BRG. CHORD BEARING (LONG CHORD)
- L.C. CHORD LENGTH
- P.C. POINT OF CURVATURE
- P.C.C. POINT OF COMPOUND CURVATURE
- P.I. POINT OF INTERSECTION
- P.T. POINT OF TANGENCY
- P.O.C. POINT ON CURVE
- P.R.C. POINT OF REVERSE CURVATURE

VERTICAL CURVES

- P.V.C. POINT OF VERTICAL CURVE
- P.V.I. POINT OF VERTICAL INTERSECTION
- P.V.T. POINT OF VERTICAL TANGENCY
- L.V.C. LENGTH OF VERTICAL CURVE
- H.C.P. HORIZONTAL CONTROL POINT
- BVCS BEGINNING, VERTICAL TANGENT-CURVE INTERSECTION STATION
- EVCS BEGINNING, VERTICAL TANGENT-CURVE INTERSECTION ELEVATION
- EVCS END, VERTICAL TANGENT-CURVE INTERSECTION STATION
- EVCE END, VERTICAL TANGENT-CURVE INTERSECTION ELEVATION

GENERAL

- ADA AMERICAN DISABILITIES ACT
- ASPH. ASPHALT
- AVG. AVERAGE
- BC/B.C. BACK-OF-CURB TO BACK-OF-CURB
- B.M. BENCH MARK
- C.I. CAST IRON
- C.I.P. COMPACTED IN PLACE
- C.L. CENTERLINE
- CMP CORRUGATED METAL PIPE
- CONC. CONCRETE
- CONST. CONSTRUCTION
- C.S.B. COMPACTED SAND BACKFILL
- D.I. DUCTILE IRON
- ELEV. ELEVATION
- ESMT. EASEMENT
- EST. ESTIMATE
- EX./EXIST. EXISTING
- F.F. FIRST FLOOR
- F.G. FINISHED GRADE
- F.J. HYDRANT FROST JACKET ELEVATION
- F.O. FIBER OPTIC
- G. GUTTER
- GRVL. GRAVEL
- H.D.D. HORIZONTAL DIRECTIONAL DRILLING
- H.D.P.E. HIGH DENSITY POLYETHYLENE PIPE
- M.S.E. MECHANICALLY STABILIZED EMBANKMENT
- P-MP PLASTIC - MEDIUM PRESSURE
- P.C. PAVEMENT CORE
- P.G. PLAN GRADE
- P.O.B. POINT OF BEGINNING
- P.O.E. POINT OF ENDING
- P.O.R. POINT OF ROTATION
- PROP. PROPOSED
- PT. POINT
- REM. REMOVE
- R.O.W. RIGHT-OF-WAY
- S-MP STEEL - MEDIUM PRESSURE
- S-HP STEEL - HIGH PRESSURE
- SAN. SWR. SANITARY SEWER
- S.B. SOIL BORING
- S.E. SOMAT ENGINEERING, INC. (SOIL BORINGS)
- S.S.L. SLOPE STAKE LINE
- STA. STATION
- STM. SWR. STORM SEWER
- T. TOP OF CURB
- T.C. TOP OF STRUCTURE COVER
- T.R. TOP OF RAIL
- T.W. TOP OF WALL
- TYP. TYPICAL
- U.G. UNDERGROUND
- W.M. WATER MAIN

LEGEND

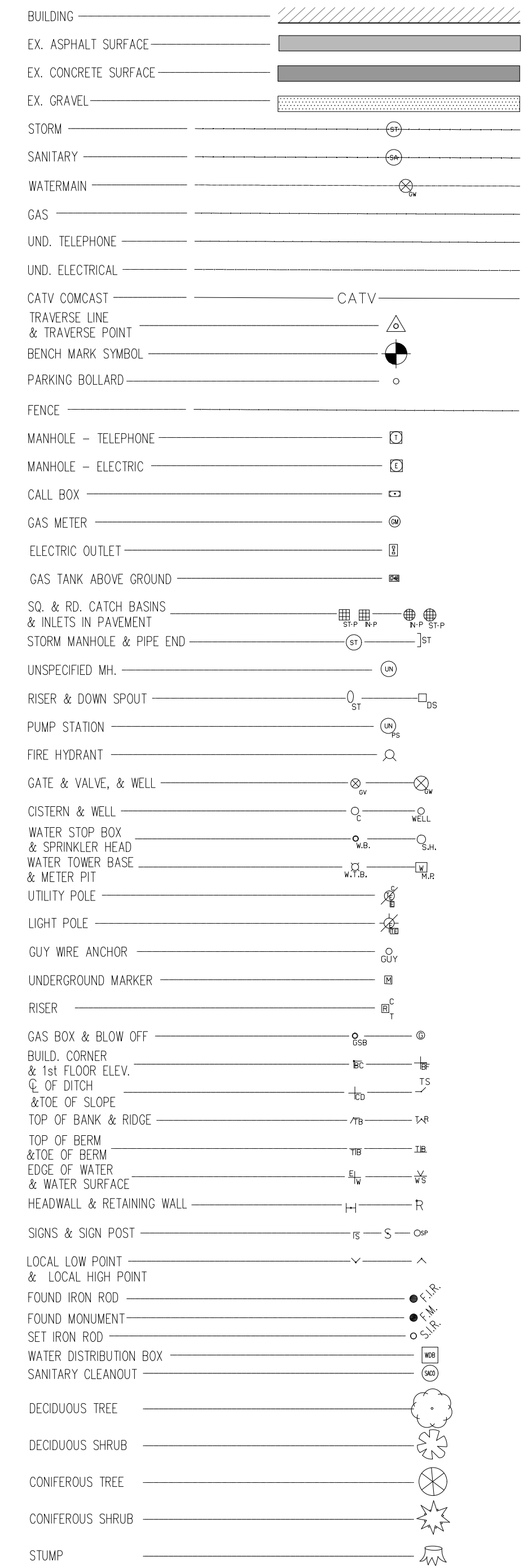
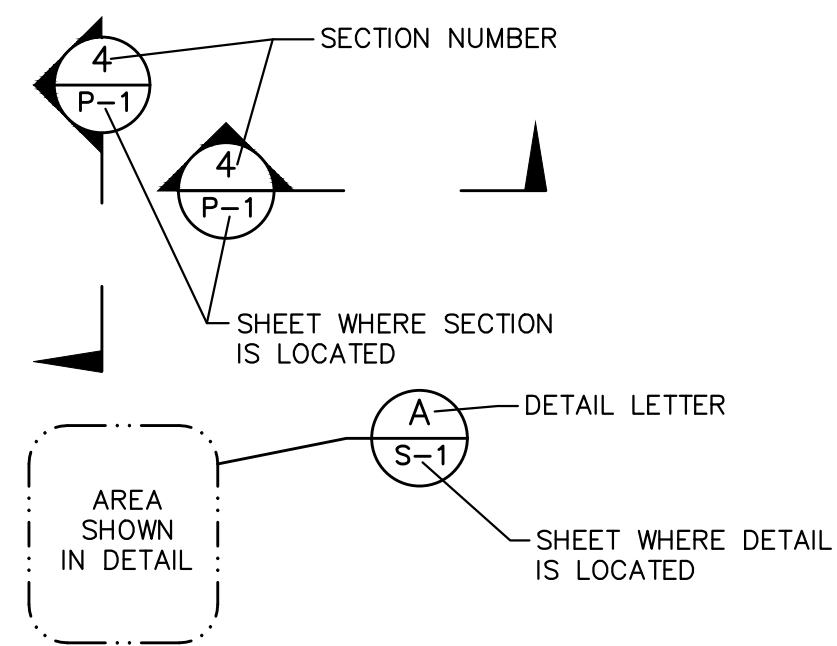


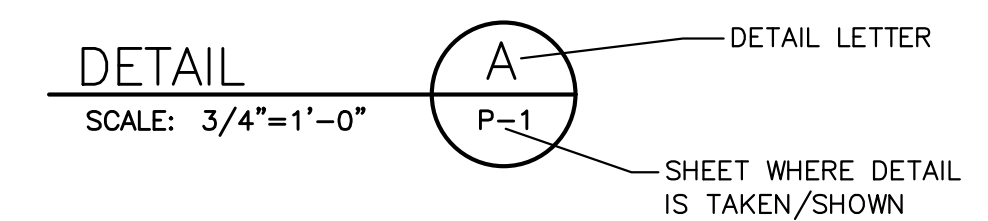
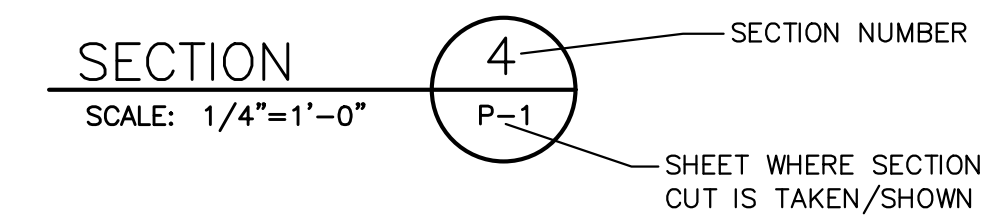
Table with columns for P.E.H., M.J.H., DATE, ISSUED FOR BID, and REV. DESCRIPTION.

CITY OF ANN ARBOR PUBLIC SERVICES 301 EAST HURON STREET ANN ARBOR, MI 48107-8647 734-794-6410 www.a2gov.org





DRAWING, SECTION & DETAIL TITLES
SCALE: 1/4"=1'-0"



VALVE/GATE OPERATORS

SYMBOL TYPE
 MOTOR/SOLENOID/PNEUMATIC ACTUATOR
 HANDWHEEL/LEVER OPERATOR

MISCELLANEOUS

SYMBOL TYPE
 CENTRIFUGAL PUMP
 ROTARY PUMP
 MIXER
 FLUSHING CONNECTION
 FLOOR DRAIN
 CONNECTION TO EXISTING PIPING
 PULSATION DAMPER
 PRESSURE/COMPOUND PRESSURE GAUGES
 SAMPLE TAP
 SEAL WATER, SEE DETAIL
 SLUDGE GRINDER
 STEM FOR PRESSURE GAUGE

GATE DESIGNATION

SYMBOL TYPE
 SLUICE GATE/FLUSHMOUNTED
 SLUICE GATE/THIMBLE MOUNTED (E/F)
 SLIDE GATE
 SLIDE PLATE

VALVE DESIGNATIONS

SYMBOLS TYPE
 6"Ø PIPE & LARGER 4"Ø PIPE & SMALLER ABBREV.
 GV GATE VALVE
 BV BALL VALVE
 CV CHECK VALVE
 PV PLUG VALVE W/HW OPERATOR
 BVF BUTTERFLY VALVE
 GLV GLOBE VALVE
 KV KNIFE VALVE
 BACKFLOW PREVENTOR
 PRESSURE RELIEF VALVE
 ANGLE VALVE
 3 WAY PLUG VALVE
 PRESSURE REDUCING VALVE

MISCELLANEOUS DESIGNATIONS

6"Ø PIPE & LARGER 4"Ø PIPE & SMALLER
 BFC/BOLTED FLEXIBLE COUPLING
 TR-BFC/THRUST RESTRAINED BOLTED FLEXIBLE COUPLING
 GC/GROOVED COUPLING
 UNION
 FC/FLEXIBLE CONNECTION
 TR-FC/THRUST RESTRAINED FLEXIBLE CONNECTION
 FLOW METER
 CONCENTRIC REDUCER
 ECCENTRIC REDUCER
 BRAIDED METAL FLEX CONNECTION
 BF/BLIND FLANGE
 CAP
 DIAPHRAGM-TYPE EXPANSION TANK
 STRAINER

JOINT CONNECTIONS

FLANGED
 MECHANICAL
 FUSED/SOLVENT
 WELDED

PROCESS ABBREVIATION

GENERAL
 (A) ABANDONED UTILITY
 AFF ABOVE FINISHED FLOOR
 ALUM ALUMINUM
 APPROX APPROXIMATELY
 ARCH ARCHITECTURAL
 ARV AIR RELEASE VALVE
 ASTM AMERICAN SOCIETY FOR TESTING MATERIALS
 BF BLIND FLANGE
 BFP BELT FILTER PRESS OR BACKFLOW PREVENTOR
 BVF BUTTERFLY VALVE
 BOTT BOTTOM
 CMU CONCRETE MASONRY UNIT
 CL CENTER LINE
 CMMS COMPUTERIZED MAINTENANCE MANAGEMENT SYSTEM
 CO CLEANOUT
 CONC CONCRETE
 CONN CONNECTION
 CONT CONTINUATION
 CP CONTROL PANEL
 CPLG COUPLING
 CTR CENTER
 FD FLOOR DRAIN
 HW HANDWHEEL VALVE OPERATOR
 HWL HIGH WATER LEVEL
 LWL LOW WATER LEVEL
 N/O NORMALLY OPEN
 N/C NORMALLY CLOSED
 VFD VARIABLE FREQUENCY DRIVE
 YH YARD HYDRANT

SERVICE
 CA COMPRESSED AIR
 A PROCESS AIR
 CE CHLORINATED EFFLUENT
 CLG CHLORINE GAS
 CLS CHLORINE SOLUTION
 CW CITY WATER
 D DRAIN
 DS DIGESTED SLUDGE
 E ELECTRICAL CONDUIT
 FO FIBER OPTIC (DIRECT BURY)
 FOC FIBER OPTIC CONDUIT
 F FILTRATE
 FC FLUSHING CONNECTION
 GRT GRIT
 IW INDUSTRIAL WATER
 LPA LOW PRESSURE AIR
 M MIXED LIQUOR
 OF OVERFLOW
 PEW PRESSURIZED EFFLUENT WATER
 POL POLYMER
 POS POLYMER SOLUTION
 PS PRIMARY SLUDGE
 RS RAW SEWAGE
 RW RAW WATER
 PW PLANT WATER
 RAS RETURN ACTIVATED SLUDGE
 RC RECYCLE
 SC SCUM
 SE SECONDARY EFFLUENT
 SFE SCREENED FINAL EFFLUENT
 SN SUPERNATANT
 SS STORED SLUDGE
 ST SAMPLE TAP
 STORM STORM SEWER
 TO THICKENER OVERFLOW
 TS THICKENED SLUDGE
 TWAS THICKENED WASTE ACTIVATED SLUDGE
 VT VENT
 WAS WASTE ACTIVATED SLUDGE
 WM WATER MAIN

PIPE MATERIAL
 CI CAST IRON
 CPVC CHLORINATED POLYVINYL CHLORIDE
 CU COPPER
 DI DUCTILE IRON
 HDPE HIGH DENSITY POLYETHYLENE
 MDPE MEDIUM DENSITY POLYETHYLENE
 PVC POLYVINYL CHLORIDE
 ST STEEL
 SS STAINLESS STEEL

NOTES:

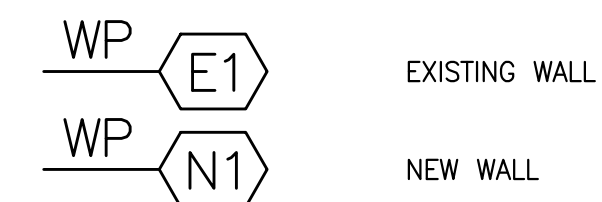
GENERAL
 1. THE EQUIPMENT, PUMPS AND/OR ANCILLARY EQUIPMENT SHOWN ARE GENERALLY REPRESENTATIVE OF A SPECIFIED MANUFACTURER, AND MAY NOT MATCH DIMENSIONS, CONNECTIONS, DIAMETERS, ETC. OF OTHER ACCEPTABLE MFRS. IT IS INCUMBENT UPON CONTRACTORS TO PROVIDE DETAILED LAYOUT SHOP DRAWINGS FOR THE SYSTEM - EQUIPMENT, PUMPS, PIPING SYSTEM, VALVES AND CONNECTIONS - FOR THE PROVIDED EQUIPMENT.
 2. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER TEMPORARY SHUTDOWN OF PROCESS PIPING, WATER, NATURAL GAS, ELECTRICAL, SCADA, OR ANY OTHER UTILITY, COMPLY WITH THE SHUTDOWN PROCEDURES IN SPECIFICATION SECTION 01950 - SPECIAL PROJECT REQUIREMENTS AND SEQUENCE OF CONSTRUCTION.

PIPING AND VALVES
 1. PIPE SYSTEM SHOP DRAWINGS ARE REQUIRED TO SHOW PIPE, FITTINGS, REDUCERS, BASE-ELBOWS, VALVES AND VALVE OPERATORS (PRINCIPALLY PLUG VALVE HANDWHEELS), ACTUATORS, SUPPORTS, COUPLINGS, GAUGES, FLUSHING CONNECTIONS, SAMPLE COCKS, PIPE ELEVATIONS, WALL PENETRATIONS, AND CONNECTIONS TO EXISTING PIPE OR EQUIPMENT.
 2. CONCRETE PIPE SUPPORT LOCATIONS ARE SHOWN ON THE DRAWINGS, WHEREAS FABRICATED SUPPORTS ARE GENERALLY NOT SHOWN BUT ARE SPECIFIED IN DIVISION 15. THE CONTRACTOR SHALL SHOW ALL PIPE SUPPORTS ON THE PIPE SYSTEM SHOP DRAWINGS.
 3. VALVES ARE LOCATED ON THE PLANS & SECTIONS, AND / OR SCHEMATICS, IDENTIFIED ON THE VALVES SCHEDULE, AND SPECIFIED IN SECTION 15100. WHERE CONFLICT ARISE BETWEEN THE PLANS & SECTIONS AND VALVE SCHEDULE, THE PLANS & SECTIONS SHALL TAKE PRECEDENCE.
 4. VALVES 4 INCHES AND SMALLER WHICH ARE NOT IDENTIFIED ON THE VALVE SCHEDULE, SHALL BE COMPATIBLE WITH THE PIPE AND/OR PROCESS SYSTEM (I.E. COPPER PIPE SHALL HAVE BRASS/BRONZE, STAINLESS STEEL PIPING SHALL HAVE STAINLESS STEEL VALVES, ETC.)
 5. WHERE VALVES ARE SHOWN ON THE PROCESS SCHEMATICS AND NOT ON THE PLANS & SECTIONS, THE INSTALLED LOCATIONS SHALL BE COORDINATED WITH THE OWNER/ENGINEER.
 6. ALL VALVES 4 INCHES OR LESS SHALL BE PLACED AT AN ACCESSIBLE LOCATION WITH THE OPERATOR EASILY ACCESSIBLE.

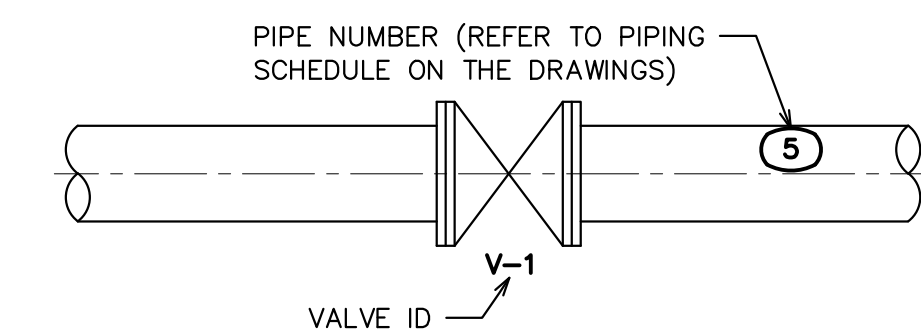
PUMPS AND EQUIPMENT
 1. THE AREA AROUND EQUIPMENT SHALL BE ACCESSIBLE FOR OPERATION AND MAINTENANCE. THE CONTRACTOR SHALL NOT INSTALL CONDUIT, SEAL OR FLUSHING WATER, NATURAL GAS PIPING, LIGHTING OR OTHER UTILITIES IN AREAS REQUIRED FOR EQUIPMENT OPERATION, MAINTENANCE OR REPLACEMENT.
 2. VICTAULIC OR DRESSER STYLE CONNECTIONS OR COUPLINGS ARE REQUIRED AT EQUIPMENT FOR EASE OF MAINTENANCE, WHETHER SHOWN ON THE DRAWINGS OR NOT. PIPE SYSTEM LAYOUT DRAWINGS ARE REQUIRED TO SHOW THESE COUPLINGS.
 3. ANY EQUIPMENT DRAIN PIPING SHALL BE CLEARLY SHOWN ON THE PIPE SYSTEM DRAWINGS.
 4. PACKING AND SEAL WATER, FLUSHING, OR OTHER WATER SHALL BE PIPED DIRECTLY TO A HUB OUTLET OR FLOOR DRAIN.
 5. EQUIPMENT ANCHORS AND HARDWARE SHALL BE PROVIDED BY THE EQUIPMENT MANUFACTURER FOR THE INSTALLED CONDITIONS.
 6. WHERE PRESSURE GAUGES ARE SHOWN ON THE PROCESS SCHEMATICS AND NOT ON THE DRAWINGS, THE INSTALLED GAUGE LOCATION SHALL BE COORDINATED WITH OWNER/ENGINEER.
 7. GREASE FITTINGS ON EQUIPMENT THAT ARE NOT EASILY ACCESSIBLE SHALL HAVE SS PILOT LINES INSTALLED FOR EASE OF GREASE MAINTENANCE. THE LINES SHALL BE FILLED WITH GREASE AND PURGED OF AIR PRIOR TO FINAL CONNECTION AT EQUIPMENT.
 8. GEAR BOXES OR OTHER OIL LUBRICATED EQUIPMENT SHALL BE SUPPLIED WITH SYNTHETIC OIL, AND OIL DRAIN PORTS SHALL BE FITTED WITH PIPING AND STOP-COCK TO DRAIN TO A SPENT OIL CONTAINER.

ELECTRICAL / I&C / OTHER
 4. COORDINATE OR CONFIRM THE INSTALLED LOCATIONS OF DISCONNECTS, PUSH-BUTTON STATIONS, PANELS, FLOW AND LEVEL INDICATORS AND OTHER ELECTRICAL DEVICES WITH THE OWNER PRIOR TO INSTALLATION.
 5. WHEN NEW LIGHTING IS REQUIRED, TEMPORARY LIGHTING SHALL BE PROVIDED SUITABLE TO MEET THE OWNER'S OPERATIONAL AND SAFETY NEEDS UNTIL THE NEW LIGHTING IS OPERATIONAL.
 6. WHEN THE EXISTING CONTROLS, SCADA SYSTEM OR ALARMS ARE TEMPORARILY DISABLED, THE CONTRACTOR SHALL PROVIDE TEMPORARY I&C ALARMS AND INTERLOCKS.
 7. PAINT ALL NEW WORK AND EX. SLUDGE PIPE IN ACCORDANCE WITH SECTION 09900.

WALL PIPE PENETRATIONS
(SEE DETAILS)



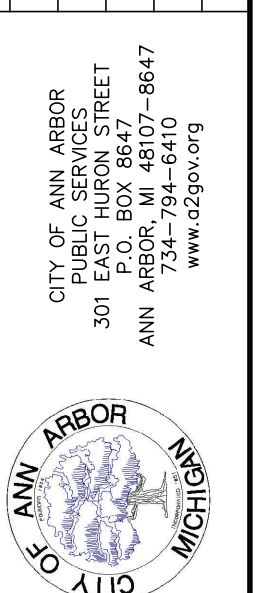
VALVE & PIPE IDENTIFICATION

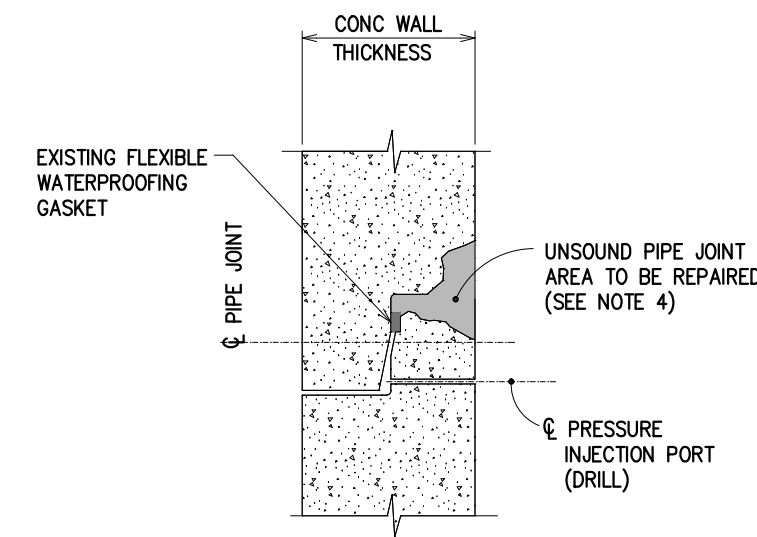


Level 1	Level 2	Level 3	City of Ann Arbor W/WTP CMMS Entry Data											
Building Name	Process Area Name	Process Unit Name	Asset Type	Manufacturer	Model Number	Serial Number	Acceptance Date	Warranty Period	Attribute 1	Attribute 2	Attribute 3	Attribute 4	Replace Cost	ASSETID
ARBOR LANDING	PUMPS	PUMP #1	Pump	Manufacturer	Model Number	Serial Number	Acceptance Date	Warranty Period	motor hp	flow	head	Centrifugal	Cost	TBD
ARBOR LANDING	PUMPS	PUMP #2	Pump	Manufacturer	Model Number	Serial Number	Acceptance Date	Warranty Period	motor hp	flow	head	Centrifugal	Cost	TBD
ARBOR LANDING	PIPING	PIPING AND VALVES	Piping	n/a	n/a	n/a	Acceptance Date	Warranty Period	n/a	n/a	n/a	n/a	Cost	TBD
ARBOR LANDING	STRUCTURES	VALVE VAULT	Structure	n/a	n/a	n/a	Acceptance Date	Warranty Period	8' diameter	Concrete	n/a	n/a	Cost	TBD
ARBOR LANDING	STRUCTURES	WET WELL	Structure	Existing	Existing	Existing	Existing	Existing	8' diameter	Concrete	Existing	Existing	Existing	TBD
ARBOR LANDING	INSTRUMENTATION	TRANSDUCER	Pump	Manufacturer	Model Number	Serial Number	Acceptance Date	Warranty Period	n/a	n/a	n/a	n/a	Cost	TBD
ARBOR LANDING	INSTRUMENTATION	RADIO	Communication	Manufacturer	n/a	n/a	Acceptance Date	Warranty Period	n/a	n/a	n/a	n/a	Cost	TBD
ARBOR LANDING	INSTRUMENTATION	DISPLAY	Display	Manufacturer	n/a	n/a	Acceptance Date	Warranty Period	n/a	n/a	n/a	n/a	Cost	TBD
ARBOR LANDING	ELECTRICAL	PANEL	Panel	Manufacturer	n/a	n/a	Acceptance Date	Warranty Period	n/a	n/a	n/a	n/a	Cost	TBD
ARBOR LANDING	ELECTRICAL	GENERAL ELECTRICAL	Electrical	Manufacturer	n/a	n/a	Acceptance Date	Warranty Period	n/a	n/a	n/a	n/a	Cost	TBD
ARBOR LANDING	ELECTRICAL	Generator	Generator	Existing	Existing	Existing	Existing	Existing	Existing	Existing	Existing	Existing	Existing	TBD
ARBOR LANDING	ELECTRICAL	ATS	Transfer Switch	Existing	Existing	Existing	Existing	Existing	Existing	Existing	Existing	Existing	Existing	TBD
ARBOR LANDING	GROUNDINGS	SITWORK	Grounds	Existing	Existing	Existing	Existing	Existing	Existing	Existing	Existing	Existing	Existing	TBD
Data = CONTRACTOR SHALL UPDATE TABLE TO PROVIDE DATA INDICATED AFTER APPROVAL OF SHOP DRAWINGS														



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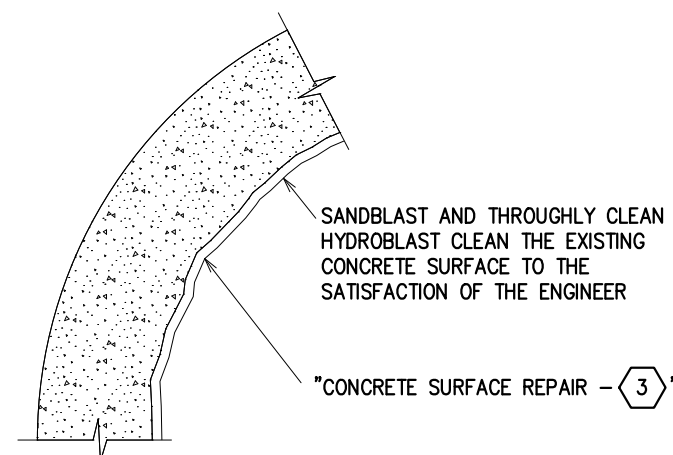


PRECAST PIPE JOINT

NOTES: JOINT REPAIR & SEAL - (1)

- A MANDATORY PRECONSTRUCTION MEETING W/FIELD ENGINEER WILL BE REQUIRED TO DETERMINE EXACT LOCATION AND QUANTITY OF REPAIRS.
- REMOVE ALL UNSOUND AND DETERIORATED CONCRETE ALONG THE EXISTING PIPE JOINTS TO THE LIMITS AS DETERMINED BY THE ENGINEER.
- SURFACE PREPARATION PER MANUFACTURER'S RECOMMENDATIONS. MECHANICAL REMOVAL OF BUILD UP AT JOINTS MAY BE NECESSARY.
- INSTALL BRIDGING EPOXY, DRILL SMALL PORT HOLES AS NECESSARY, INSTALL PRESSURE INJECTION PORTS AND PRESSURE INJECT THE PIPE JOINT WITH A SELF EXPANDING HYDROPHILIC POLYURETHANE RESIN THAT IS SPECIFICALLY DESIGNED TO STOP THE INFILTRATION OF GROUND WATER. AFTER PRESSURE INJECTION HAS BEEN COMPLETED, REMOVE PORTS AND BRIDGING EPOXY.
- FURNISH, INSTALL, FINISH AND CURE A TROWELABLE FAST SETTING HIGH EARLY STRENGTH PORTLAND BASED PATCHING MATERIAL WITH A 28 DAY CONCRETE COMPRESSIBLE STRENGTH OF AT LEAST 6000 PSI IN THE PIPE JOINT AREA TO BE REPAIRED. INSTALL IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. ACCEPTABLE PRODUCT: UNDERLAYMENT No. F-120 BY SAUERREISEN OR APPROVED EQUAL.
- INCLUDES THE FURNISHING OF ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY TO PERFORM ALL WORK ASSOCIATED WITH THE REMOVAL OF UNSOUND CONCRETE ALONG THE PIPE JOINTS, OFF-SITE DISPOSAL AND PRESSURE INJECTION AND JOINT REPAIR AS NOTED. CONTRACTOR SHALL BE PAID IN FULL FOR ALL COSTS ASSOCIATED WITH THE INDIVIDUAL PAY ITEM AFTER COMPLETION OF THE WORK. ITEMS INCLUDED (NOT PAID FOR SEPARATELY):
 - FURNISHING OF ALL ACCESS LADDERS, CONFINED SPACE ENTRY EQUIPMENT, SCAFFOLDING VENTILATION AND TIME NECESSARY FOR ENGINEER'S DETERMINATION OF LIMITS OF UNSOUND CONCRETE AREAS.
 - REMOVING UNSOUND CONCRETE ALONG THE PIPE JOINT TO THE LIMITS AS DETERMINED BY THE ENGINEER.
 - SURFACE PREPARATION PER MANUFACTURER'S RECOMMENDATIONS.
 - MECHANICAL REMOVAL OF BUILD UP AT JOINTS.
 - PRESSURE INJECT THE PIPE JOINT PERIMETER
 - REPAIR THE UNSOUND CONCRETE SURFACE AT THE PIPE JOINT
 - REMOVAL AND OFF-SITE DISPOSAL OF UNSOUND PIPE JOINT MATERIAL
 - REMOVING THE INJECTION PORTS AND BRIDGING EPOXY
- THE PATCHING AND PRESSURE INJECTION MATERIAL SHALL BE COMPATIBLE WITH PROTECTIVE CONCRETE COATING SYSTEM (REPAIR TYPE (4)).

JOINT REPAIR & SEAL - REPAIR TYPE (1)

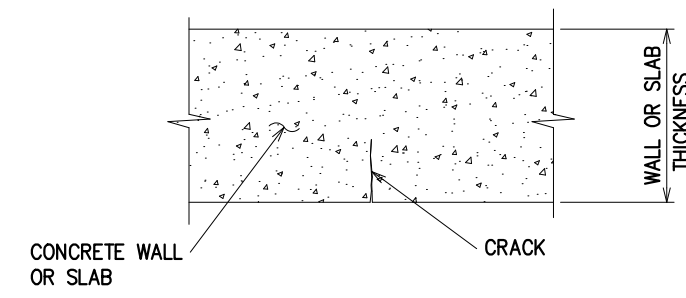


NOTES: SURFACE PREP & INSTALL PROTECTIVE CONCRETE COATING - (3)

- PRIMARY LINER AND TOPCOAT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. APPLICATIONS SHALL BE INSTALLED BY PRODUCT MANUFACTURER'S CERTIFIED INSTALLERS. CONTRACTOR SHALL PROVIDE SUPPORTIVE CERTIFICATION DOCUMENTATION FOR OWNER'S REVIEW PRIOR TO SURFACE PREPARATION WORK.
- THE ENTIRE INTERIOR CONCRETE SURFACES (WALLS, BOTTOM OF TOP SLAB AND TOP OF BASE SLAB) OF THE WET WELL SHALL RECEIVE THE PROTECTIVE COATING TO THE LIMITS AS SHOWN ON SHT LP-01.
- INCLUDED IS THE FURNISHING OF ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY TO PERFORM ALL WORK ASSOCIATED WITH THE SURFACE PREPARATION OF THE CONCRETE SURFACES AND THE INSTALLATION OF THE PROTECTIVE CONCRETE COATING. CONTRACTOR SHALL BE PAID FOR ALL COSTS ASSOCIATED WITH THIS WORK AFTER COMPLETION OF WORK. ITEMS INCLUDED (NOT PAID FOR SEPARATELY):
 - SURFACE PREPARATION PER MANUFACTURER'S RECOMMENDATIONS
 - FURNISHING AND INSTALLATION OF PRIMARY LINER IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS
 - FURNISHING AND INSTALLATION OF TOPCOAT LINER IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS
 - BY-PASS PUMPING AS NECESSARY DURING THE PROTECTIVE COATING PROCESS.
- DFT - DRY FILM THICKNESS

SURFACE PREP & INSTALL PROTECTIVE CONCRETE COATING

REPAIR TYPE (4)



WALL OR SLAB CRACK

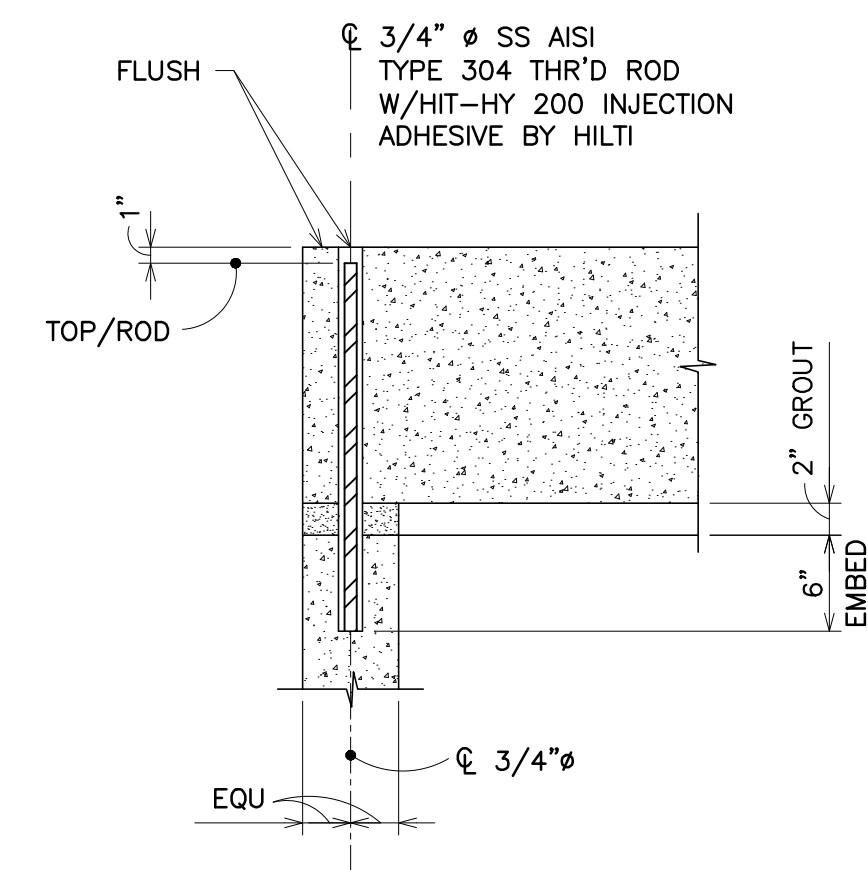
NOTES: CRACKS, REPAIR & SEAL - (2)

- A MANDATORY PRECONSTRUCTION MEETING W/FIELD ENGINEER WILL BE REQUIRED TO DETERMINE EXACT LOCATION AND QUANTITY OF REPAIRS. THIS MEETING WILL OCCUR AFTER CONTRACTOR HAS THOROUGHLY POWER WASHED AND CLEANED ALL INTERIOR SURFACES.
- CONTRACTOR SHALL PREPARE AND THOROUGHLY CLEAN THE CONCRETE SURFACE ALONG THE CRACK TO BE REPAIRED PER MANUFACTURER'S RECOMMENDATIONS.
- INSTALL BRIDGING EPOXY, DRILL SMALL PORT HOLES AS NECESSARY, INSTALL PRESSURE INJECTION PORTS AND PRESSURE INJECT THE PIPE JOINT WITH AN EPOXY RESIN THAT IS SPECIFICALLY DESIGNED TO STRUCTALLY BOND THE CRACK CLOSED. AFTER PRESSURE INJECTION HAS BEEN COMPLETED, REMOVE PORTS AND BRIDGING EPOXY.
- INCLUDES THE FURNISHING OF ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY TO PERFORM ALL WORK ASSOCIATED WITH PRESSURE INJECTION OF THE WALL AND SLAB CRACKS WITH AN EPOXY RESIN. CONTRACTOR SHALL BE PAID IN FULL FOR ALL COSTS ASSOCIATED WITH THIS INDIVIDUAL PAY ITEM AFTER COMPLETION OF THE WORK. ITEMS INCLUDED (NOT PAID FOR SEPARATELY):
 - FURNISHING OF ALL ACCESS LADDERS, CONFINED SPACE ENTRY EQUIPMENT, SCAFFOLDING, VENTILATION, AND TIME NECESSARY FOR ENGINEER'S DETERMINATION OF LIMITS OF UNSOUND CONCRETE AREAS
 - SURFACE PREPARATION AND THOROUGHLY CLEANING THE CONCRETE SURFACE ALONG THE CRACK
 - TO BE REPAIRED PER MANUFACTURER'S RECOMMENDATIONS
 - PRESSURE INJECTION OF WALL OR SLAB CRACKS
 - REMOVING THE INJECTION PORTS AND BRIDGING EPOXY

CRACKS, REPAIR & SEAL - REPAIR TYPE (2)

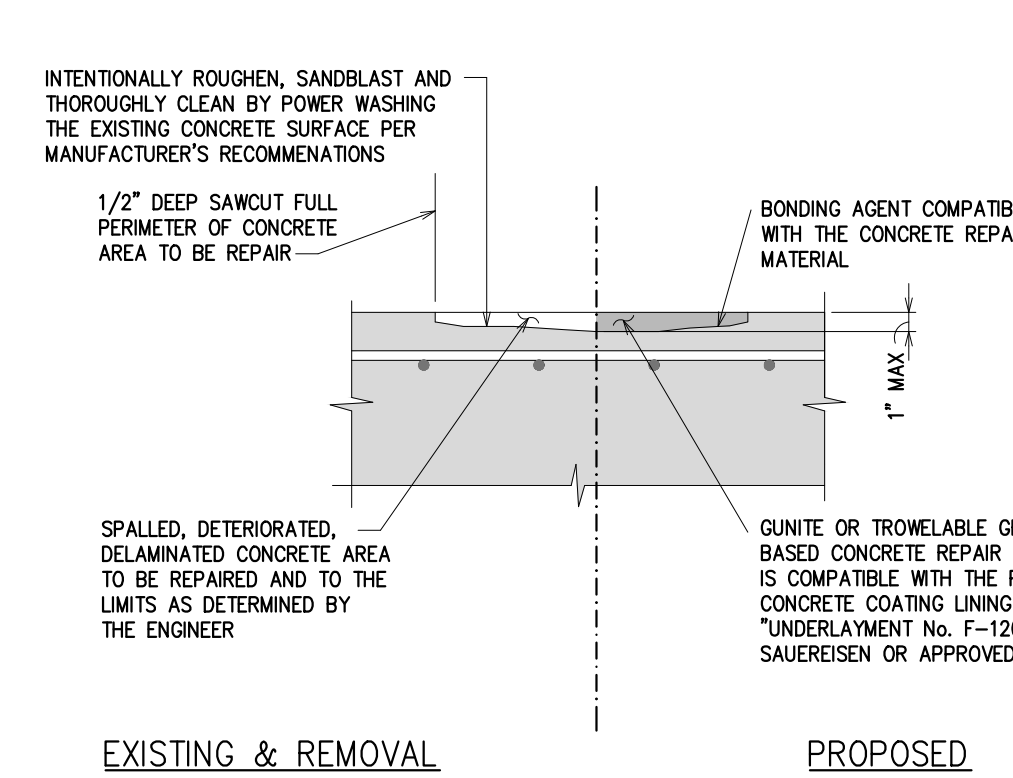
FRP LADDER & LADDER UP NOTES:

- CONTRACTOR SHALL FIELD VERIFY ALL NECESSARY DIMENSIONS FOR PROPER FIT OF THE FRP LADDER AND STAINLESS STEEL LADDER UP WITH EXISTING RISER SECTIONS AND COORDINATE WITH PROPOSED TOP SLAB AND ACCESS HATCH.
- CONTRACTOR SHALL PREPARE, SUBMIT AND SEAL BY A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF MICHIGAN, DETAILED FRP LADDER & LADDER UP SHOP DRAWINGS AND CALCULATIONS FOR OWNER'S REVIEW. THE DESIGN, FABRICATION, MATERIAL THICKNESS, APPROVED FABRICATORS, ETC OF THE FRP LADDER SHALL BE IN ACCORDANCE WITH SPECIFICATIONS SECTION 06610.
- THE LADDER UP, LADDER STAND-OFF BRACKETS AND ALL CONNECTIONS HARDWARE SHALL BE STAINLESS STEEL - TYPE 316 OR APPROVED EQUAL.



PRECAST TOP SLAB CONNECTION

NO SCALE

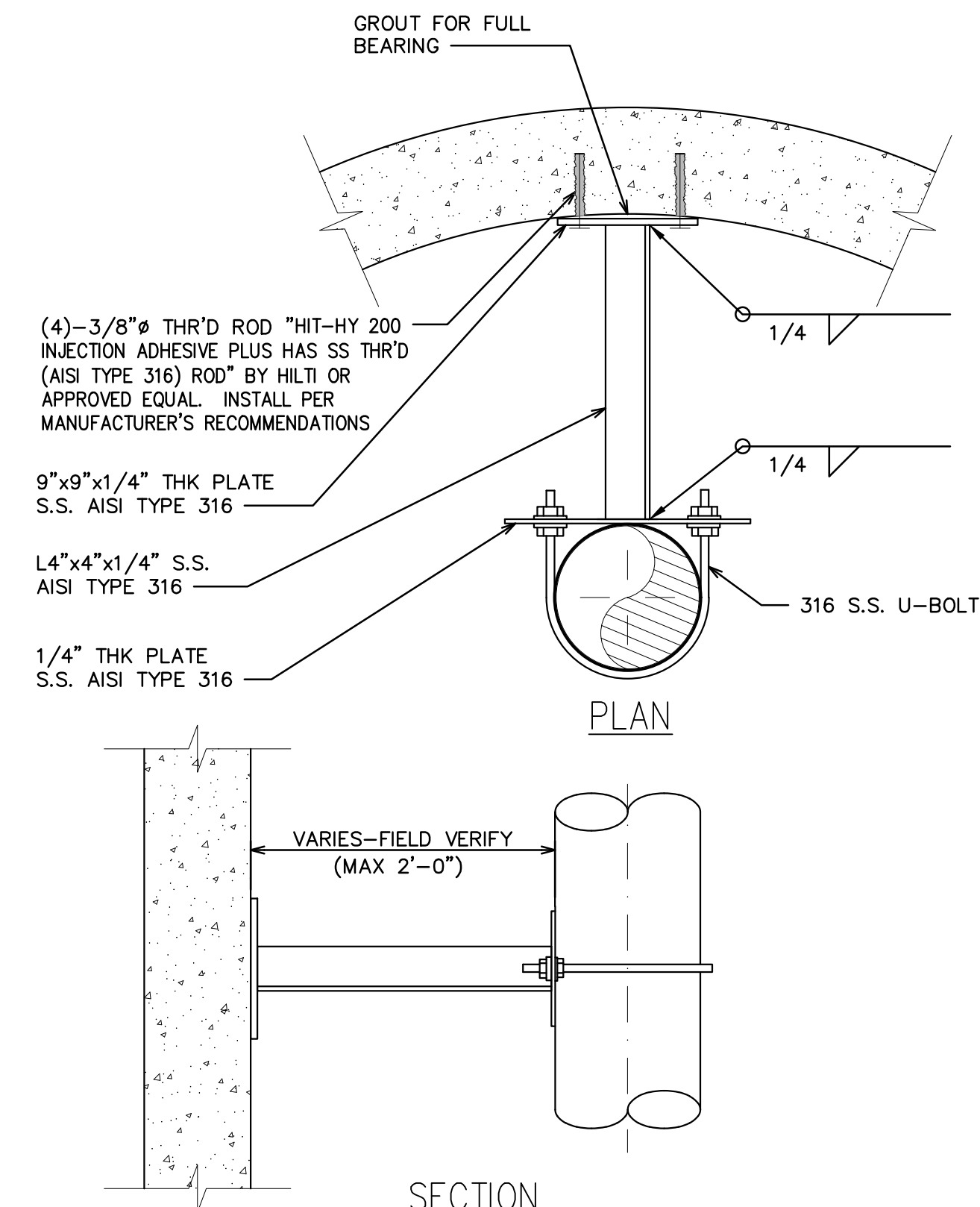


DEPTH: LESS THAN OR EQUAL TO 1" SHALLOW REPAIR

NOTES: CONCRETE SURFACE REPAIR - (3)

- A MANDATORY PRECONSTRUCTION MEETING W/FIELD ENGINEER WILL BE REQUIRED TO DETERMINE EXACT LOCATION AND QUANTITY OF REPAIRS. THIS MEETING WILL OCCUR AFTER CONTRACTOR HAS THOROUGHLY POWER WASHED AND CLEANED ALL INTERIOR SURFACES.
- THE BONDING AGENT SHALL BE A ONE OR TWO COMPONENT BONDING AGENT THAT IS COMPATIBLE WITH THE CONCRETE REPAIR MATERIAL. THE BONDING AGENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- INCLUDES THE FURNISHING OF ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY TO PERFORM ALL WORK ASSOCIATED WITH THE REMOVAL AND OFF-SITE DISPOSAL OF UNSOUND CONCRETE AND THE FURNISHING, INSTALLATION, FINISHING AND CURING OF THE REPAIR MATERIALS AND ALL ASSOCIATED REPAIR ITEMS AS NOTED ABOVE. CONTRACTOR SHALL BE PAID IN FULL FOR ALL COSTS ASSOCIATED WITH THIS INDIVIDUAL PAY ITEM AFTER COMPLETION OF THE WORK. ITEMS INDIVIDUAL (NOT PAID FOR SEPARATELY):
 - FURNISHING OF ALL ACCESS LADDERS, CONFINED SPACE ENTRY EQUIPMENT, SCAFFOLDING AND TIME NECESSARY FOR ENGINEER'S DETERMINATION OF LIMITS OF UNSOUND CONCRETE AREAS
 - REMOVAL AND OFF-SITE DISPOSAL OF ALL UNSOUND, SPALLED, DETERIORATED AND DELAMINATED CONCRETE AREAS.
 - SURFACE PREPARATION PER MANUFACTURER'S RECOMMENDATIONS.
 - FURNISHING, INSTALLATION, FINISHING AND CURING OF ALL PATCHING REPAIR MATERIALS AND METHODS AS INDICATED ABOVE.
- THE CONCRETE SURFACE REPAIR MATERIALS AND THE PROTECTIVE CONCRETE COATING SYSTEM SHALL BE COMPATIBLE AND MANUFACTURED BY THE SAME COMPANY. DIFFERENT MANUFACTURER'S OF INDIVIDUAL COMPONENTS SHALL NOT BE ACCEPTABLE.

CONCRETE SURFACE REPAIR - REPAIR TYPE (3)



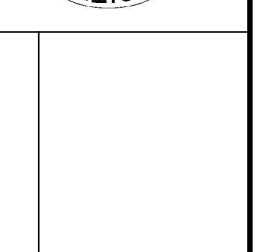
VERTICAL PIPE SUPPORT DETAIL

NO SCALE



ISSUED FOR BID	DESCRIPTION	REV.
MARCH 23, 2022	DATE	
M.J.H.	DRAWN	
P.E.H.	CHECKED	

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PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
GENERAL STRUCTURAL DETAILS
SCALE N.T.S.
DRAWING No. GS-01
SHEET No.



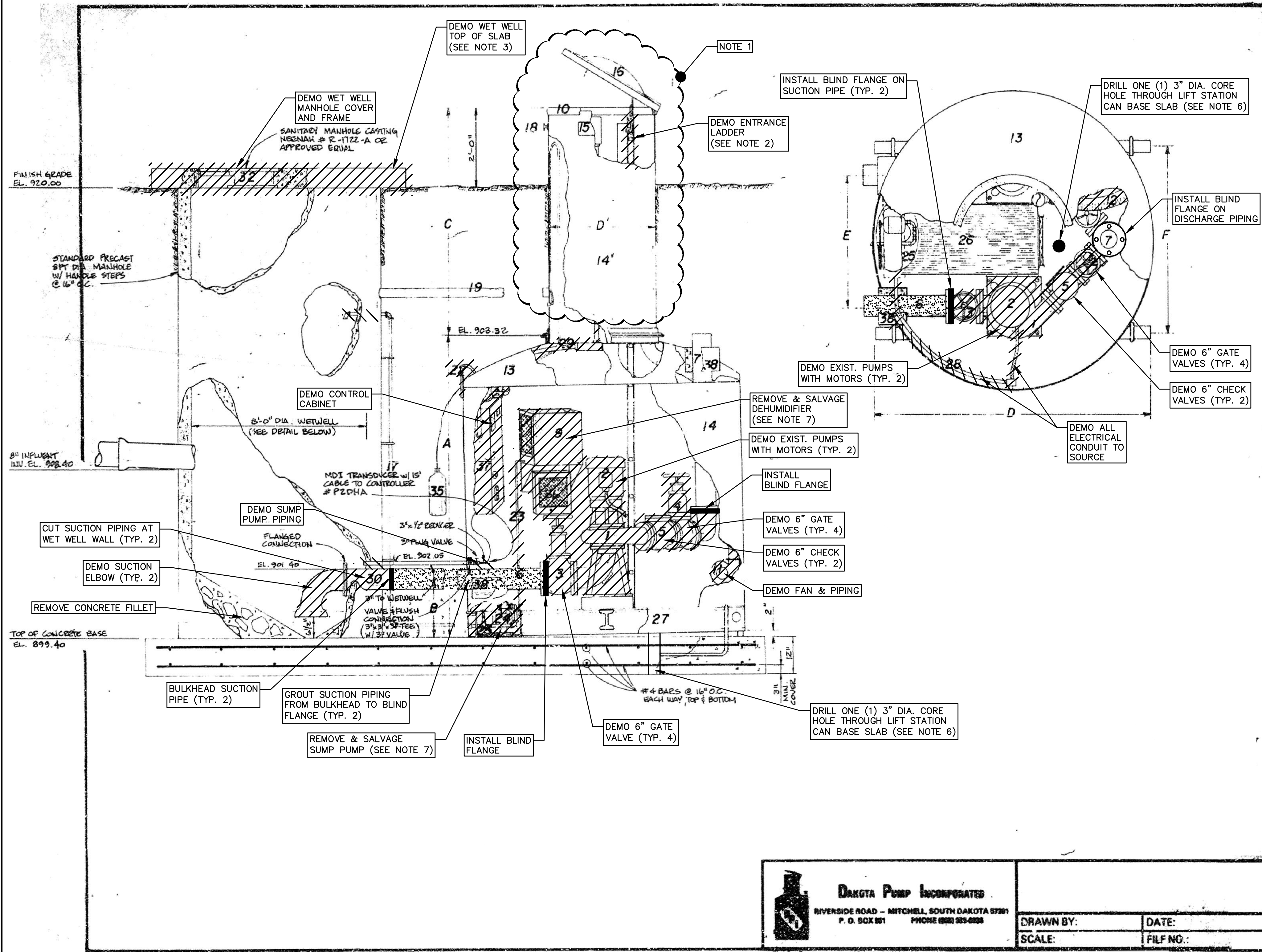
ISSUED FOR BID	DATE	DRAWN	CHECKED
ISSUED FOR BID	MARCH 23, 2022	M.J.H.	P.E.H.

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CITY OF ANN ARBOR
PUBLIC SERVICES
ARBOR LANDINGS LIFT STATION
DEMOLITION

PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR

SCALE N.T.S.
DRAWING No. LD-01
SHEET No.



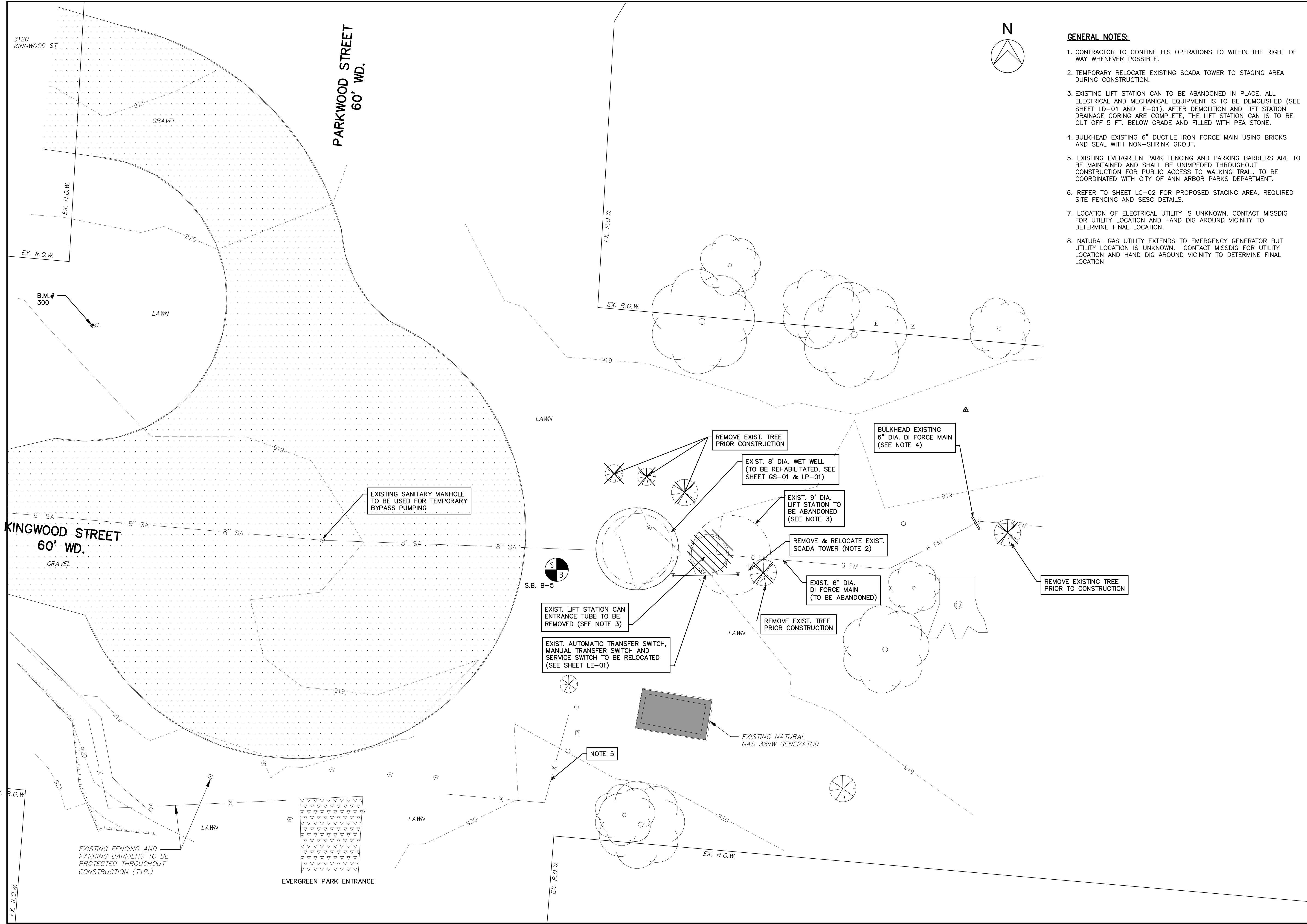
DEMOLITION NOTES:

1. REMOVE ENTRANCE TUBE AND ACCESS LADDER TO 5' BELOW GRADE AND FILL LIFT STATION WITH PEA STONE. (CONFORMING TO MDOT 34R).
2. FOR CONTINUATION OF ELECTRICAL DEMOLITION, SEE SHEET LE-01.
3. REMOVE WET WELL TOP SLAB ONLY WHEN NEW TOP SLAB IS ON SITE, OR COVER AND PROTECT WITH ROAD PLATE OR SUITABLE MEANS.
4. THE EXISTING MANHOLE ACCESS RUNGS, SUMP PUMP PIPING, AND ALL MISCELLANEOUS PIPING IN THE WET WELL SHALL BE CUT FLUSH, GROUND SMOOTH, AND GROUTED AT THE INSIDE FACE OF RISER AND STRUCTURE CONCRETE. CONTRACTOR SHALL NOT DAMAGE EXISTING CONCRETE.
5. DEMO ALL OTHER EQUIPMENT WITHIN WET WELL AND DRY WELL THAT IS NOT SHOWN ON THESE PLANS AND SECTION.
6. DRILL ONE (1) CORE HOLE THROUGH THE BASE SLAB OF THE LIFT STATION CAN FOR GROUNDWATER DRAINAGE. HOLE MUST BE THREE INCHES IN DIAMETER.
7. SALVAGED ITEMS SHALL BE CLEANED, STORED, AND PROTECTED AT A LOCATION APPROVED BY THE ENGINEER. SALVAGE ITEMS IN ACCORDANCE WITH SPECIFICATION SECTION 02050 - DEMOLITION WORK.

<p>DAKOTA PUMP INCORPORATED RIVERSIDE ROAD - MITCHELL, SOUTH DAKOTA 57201 P. O. BOX 101 PHONE (605) 523-6258</p>	DRAWN BY:	DATE:
	SCALE:	FILE NO.:

REVISED 4/1/05
REVISED 11/30/05 - PER CITY REVIEW
REVISED 9/16/06 - PER CITY REVIEW
REVISED 6/2/18B

CLIENT NELSON ROSS COMPANIES	SECTION 24 TOWN 2 SOUTH RANGE 15 EAST	ATWELL-HICKS, INC.
OFF-SITE PUMP STATION DETAILS	CITY OF ANN ARBOR	CIVIL ENGINEERS, SURVEYORS, PLANNERS
ARBOR LANDINGS	WASHTENAW COUNTY, MICHIGAN	ANN ARBOR 313-994-4000
DR. J.M.H. CH. H.C.	DATE 6/13/18B	BOOK: FILE NUMBER
SCALE 1 INCH = FEET	DIMENSIONS IN FEET	JOB: 37127 88034-10



- GENERAL NOTES:**
- CONTRACTOR TO CONFINE HIS OPERATIONS TO WITHIN THE RIGHT OF WAY WHENEVER POSSIBLE.
 - TEMPORARY RELOCATE EXISTING SCADA TOWER TO STAGING AREA DURING CONSTRUCTION.
 - EXISTING LIFT STATION CAN TO BE ABANDONED IN PLACE. ALL ELECTRICAL AND MECHANICAL EQUIPMENT IS TO BE DEMOLISHED (SEE SHEET LD-01 AND LE-01). AFTER DEMOLITION AND LIFT STATION DRAINAGE CORING ARE COMPLETE, THE LIFT STATION CAN IS TO BE CUT OFF 5 FT. BELOW GRADE AND FILLED WITH PEA STONE.
 - BULKHEAD EXISTING 6" DUCTILE IRON FORCE MAIN USING BRICKS AND SEAL WITH NON-SHRINK GROUT.
 - EXISTING EVERGREEN PARK FENCING AND PARKING BARRIERS ARE TO BE MAINTAINED AND SHALL BE UNIMPEDED THROUGHOUT CONSTRUCTION FOR PUBLIC ACCESS TO WALKING TRAIL. TO BE COORDINATED WITH CITY OF ANN ARBOR PARKS DEPARTMENT.
 - REFER TO SHEET LC-02 FOR PROPOSED STAGING AREA, REQUIRED SITE FENCING AND SESC DETAILS.
 - LOCATION OF ELECTRICAL UTILITY IS UNKNOWN. CONTACT MISSDIG FOR UTILITY LOCATION AND HAND DIG AROUND VICINITY TO DETERMINE FINAL LOCATION.
 - NATURAL GAS UTILITY EXTENDS TO EMERGENCY GENERATOR BUT UTILITY LOCATION IS UNKNOWN. CONTACT MISSDIG FOR UTILITY LOCATION AND HAND DIG AROUND VICINITY TO DETERMINE FINAL LOCATION

REV.	DESCRIPTION	ISSUED FOR BID	DATE	DRAWN	CHECKED

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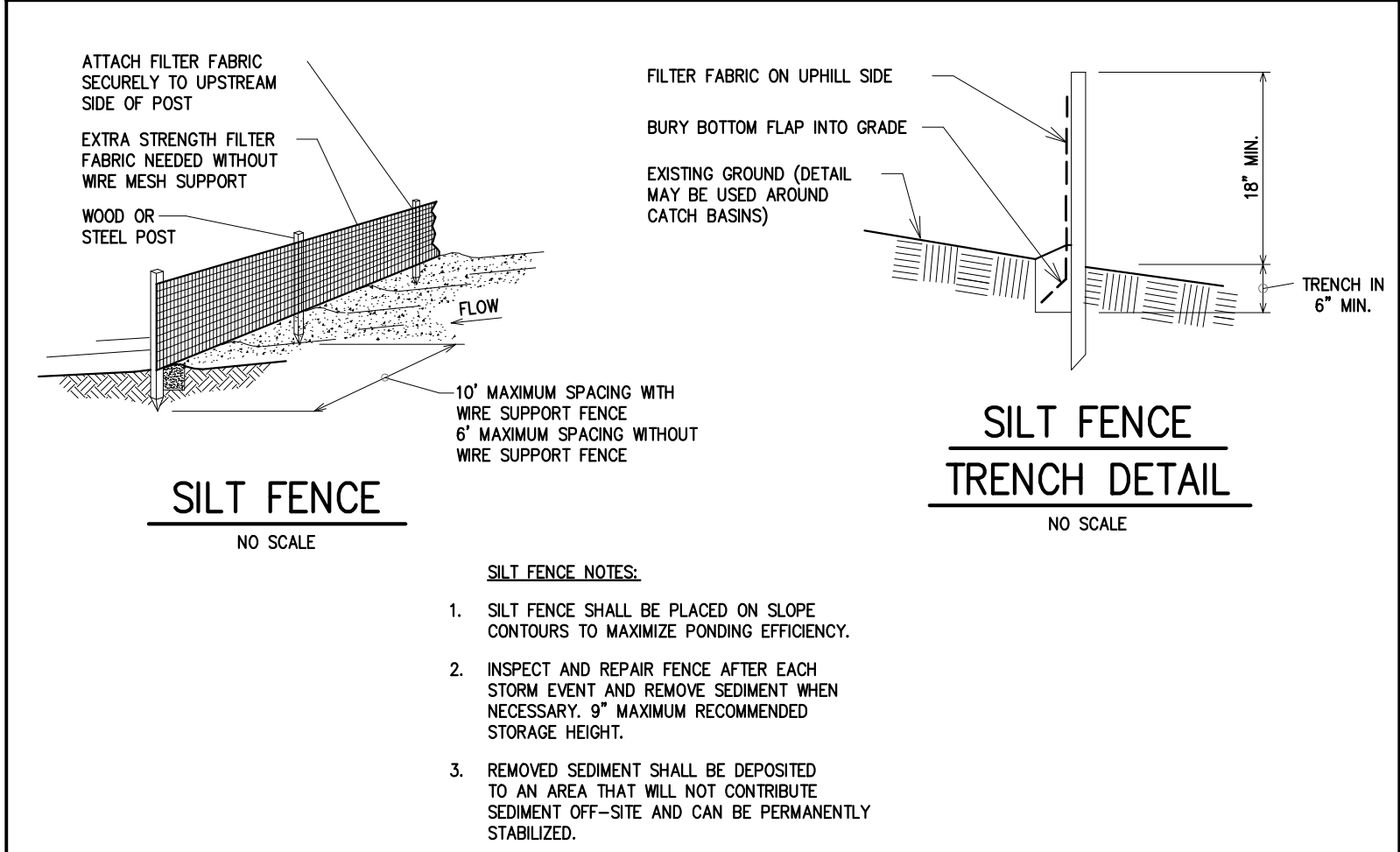
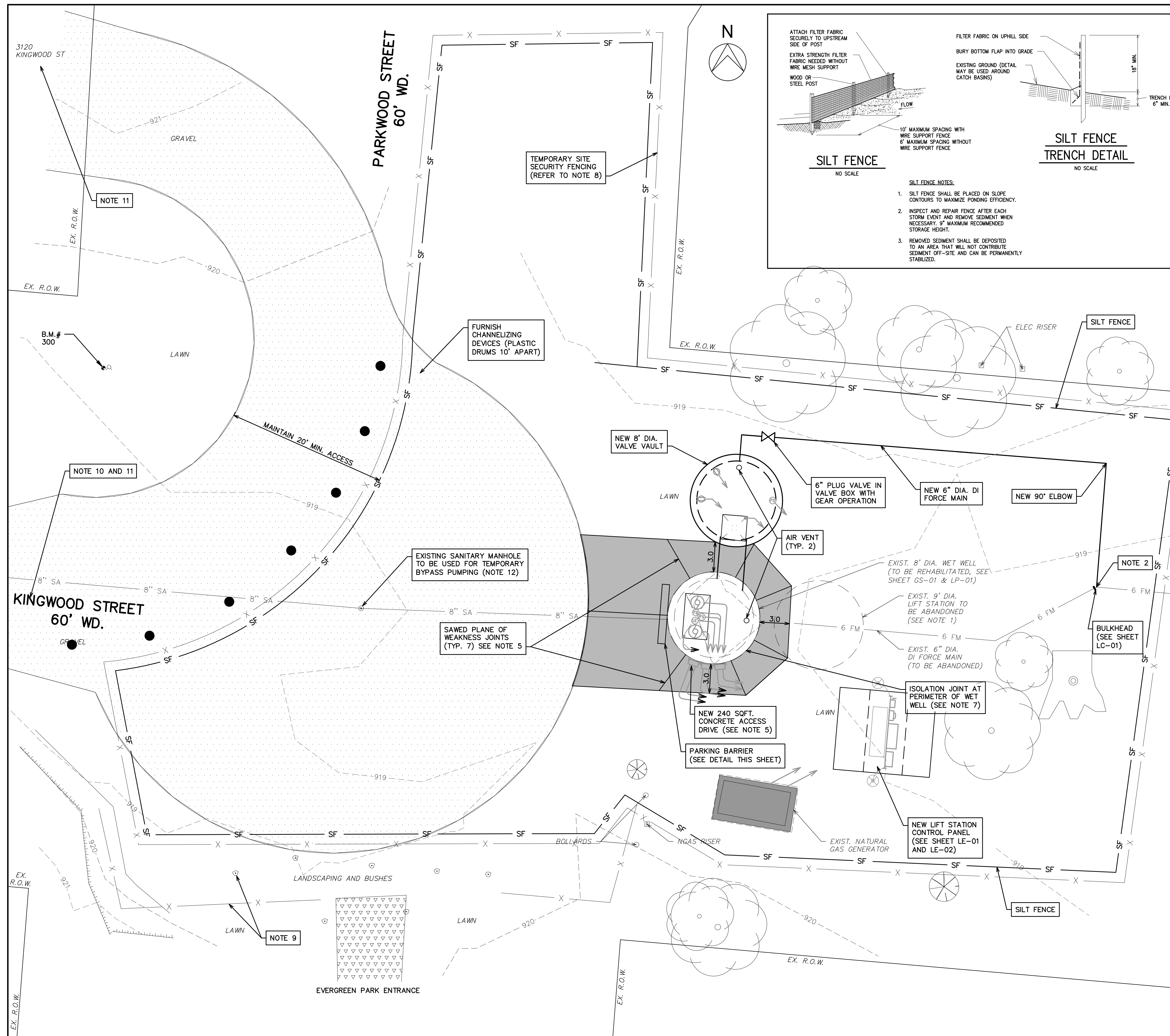
PROJECT MANAGEMENT – PUBLIC SERVICES – CITY OF ANN ARBOR

ARBOR LANDINGS LIFT STATION
EXISTING SITE PLAN

SCALE PLAN: 1"=5'

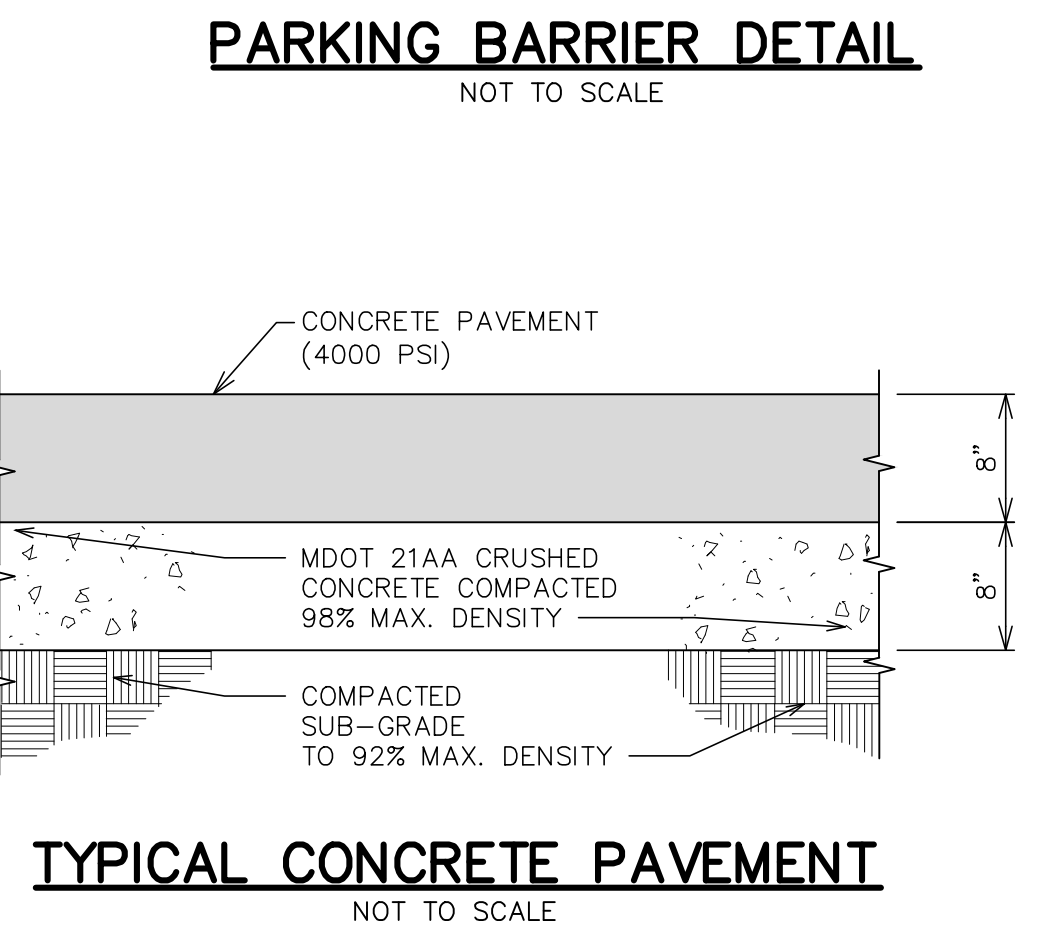
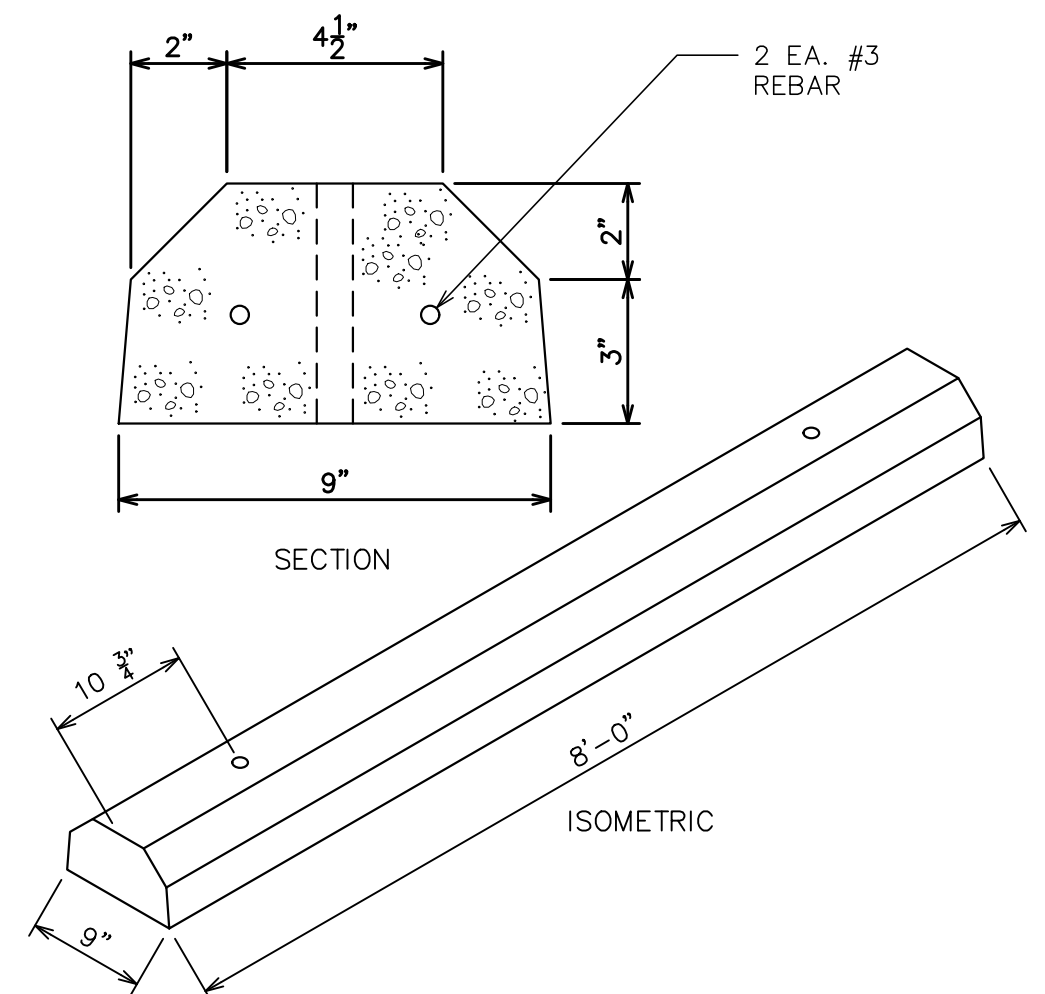
DRAWING No. LC-01


SHEET No.




- SILT FENCE NOTES:**
- SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.
 - INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY. 9\"/>
 - REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.

- GENERAL NOTES:**
- EXISTING 6" DI FORCE MAIN TO BE ABANDONED FROM EXISTING PUMP STATION TO SECOND FITTING (SEE SHEET LC-01). NEW 6" DI FORCE MAIN TO CONNECT TO EXISTING FORCE MAIN AT SECOND EXISTING FORCE MAIN FITTING.
 - IF 90° ELBOW IS ENCASED IN CONCRETE THRUST BLOCK, REMOVE THRUST BLOCK, AND CONNECT TO EXISTING PIPE WHERE ACCESSIBLE WITH MECHANICAL THRUST RESTRAINING FITTING.
 - EXISTING LIFT STATION CAN BE ABANDONED IN PLACE. ALL ELECTRICAL AND MECHANICAL EQUIPMENT IS TO BE DEMOLISHED (SEE SHEET LE-01). AFTER DEMOLITION AND LIFT STATION CAN DRAINAGE CORING ARE COMPLETE THE LIFT STATION CAN IS TO BE CUT OFF 5' BELOW GRADE & FILLED WITH PEA STONE.
 - CONTRACTOR TO TRANSITION EXISTING GRAVEL ROAD TO NEW ACCESS DRIVE. CONTRACTOR TO RESTORE EXISTING GRAVEL ROAD TO EXISTING CONDITION FOLLOWING CONSTRUCTION COMPLETION.
 - INSTALL ACCESS DRIVE JOINTS PER MDOT STANDARDS.
 - CONTRACTOR TO COORDINATE GAS UTILITY WORK AND METER AS INDICATED ON SHEET LE-01.
 - INSTALL AN ISOLATION JOINT A PERIMETER OF WET WELL AND VALVE VAULT (MDOT R-37-B)
 - CONTRACTOR EMPLOYEE PARKING AND EQUIPMENT STAGING MUST BE CONFINED WITHIN THE LIMITS OF THE TEMPORARY SITE FENCING PLAN SHOWN. EXTENT OF SITE SECURITY FENCING IS APPROXIMATE AND SHOULD BE FINALIZED BY THE CONTRACTOR BASED ON THE EXTENT OF PROJECTED CONSTRUCTION ACTIVITIES AND STAGING REQUIREMENTS AND IS SUBJECT TO APPROVAL BY THE CITY OF ANN ARBOR PARKS DEPARTMENT. ALL CONSTRUCTION EQUIPMENT, TEMPORARY BYPASS PUMPS AND GENERATORS, ETC. MUST BE ENCLOSED WITHIN 6' CHAINLINK SITE SECURITY FENCING. SITE FENCING SHALL BE SECURED WITH PADLOCK AND KEY WITH AN ADDITIONAL KEY TO BE PROVIDED TO THE OWNER FOR ACCESS TO THE LS SITE FOR ROUTINE MAINTENANCE.
 - EXISTING EVERGREEN PARK FENCING AND PARKING BARRIERS ARE TO BE MAINTAINED AND SHALL BE UNIMPEDED THROUGHOUT CONSTRUCTION FOR PUBLIC ACCESS TO WALKING TRAIL. TO BE COORDINATED WITH CITY OF ANN ARBOR PARKS DEPARTMENT.
 - CONTRACTOR TO COORDINATE ANY REQUIRED SIGNAGE AND TRAFFIC CONTROL DEVICES WITH THE CITY OF ANN ARBOR.
 - CONTRACTOR MUST MAINTAIN ACCESS TO ADJACENT PROPERTY OWNER AT ALL TIMES. STREET PARKING ALONG KINGWOOD STREET BY CONTRACTOR EMPLOYEES IS PROHIBITED.
 - CONFIRM ACTIVE INFLUENT SEWERS AND SEWER LEADS INTO THE TEMPORARY BYPASS MANHOLE PRIOR TO DEVELOPING BYPASS PUMPING PLAN.

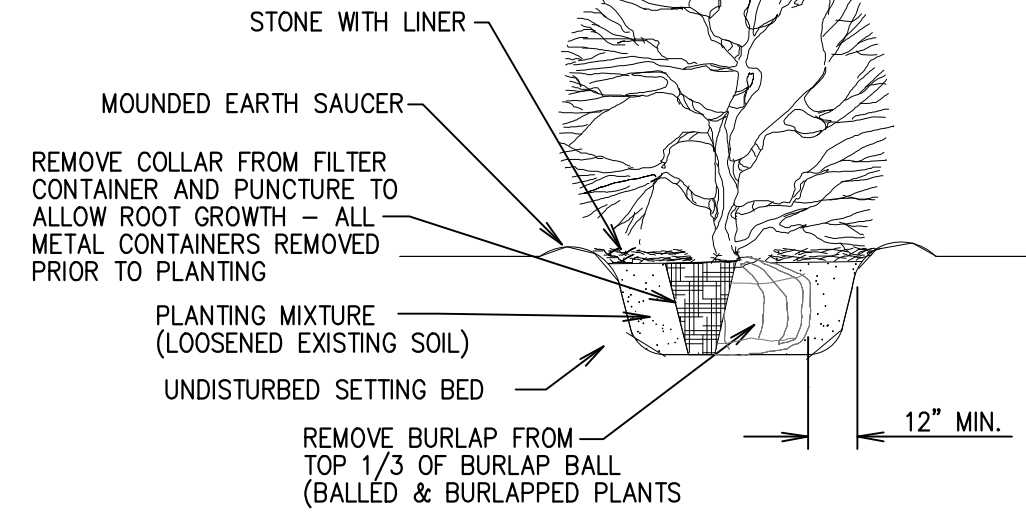




Know what's below.
Call before you dig.

	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;"></td> <td style="width: 20%; text-align: center;">AAU</td> <td style="width: 20%; text-align: center;">AAU</td> <td style="width: 20%; text-align: center;">CHECKED</td> </tr> <tr> <td style="width: 20%;"></td> <td style="width: 20%; text-align: center;">JAN. 17, 2020</td> <td style="width: 20%; text-align: center;">DEC. 18, 2019</td> <td style="width: 20%; text-align: center;">DATE</td> </tr> <tr> <td style="width: 20%;"></td> <td style="width: 20%; text-align: center;">90% REVISED</td> <td style="width: 20%; text-align: center;">ISSUED FOR 90% REVIEW</td> <td style="width: 20%; text-align: center;">DRAWN</td> </tr> <tr> <td style="width: 20%;"></td> <td style="width: 20%; text-align: center;">REV. DESCRIPTION</td> <td style="width: 20%;"></td> <td style="width: 20%;"></td> </tr> </table>		AAU	AAU	CHECKED		JAN. 17, 2020	DEC. 18, 2019	DATE		90% REVISED	ISSUED FOR 90% REVIEW	DRAWN		REV. DESCRIPTION		
	AAU	AAU	CHECKED														
	JAN. 17, 2020	DEC. 18, 2019	DATE														
	90% REVISED	ISSUED FOR 90% REVIEW	DRAWN														
	REV. DESCRIPTION																
	<p style="font-size: small;">CITY OF ANN ARBOR PUBLIC SERVICES 301 EAST HURON STREET ANN ARBOR, MI 48107-8647 www.a2gov.org</p> 																
	<p>PROJECT MANAGEMENT – PUBLIC SERVICES – CITY OF ANN ARBOR ARBOR LANDINGS LIFT STATION PROPOSED SITE PLAN</p>																
	<p>SCALE PLAN: 1"=5' DRAWING No. LC-02 SHEET No.</p>																

NOTES:
1. SHRUB SHALL BEAR SAME RELATION TO FRESH GRADE AS IT DID TO PREVIOUSLY EXISTING GRADE.



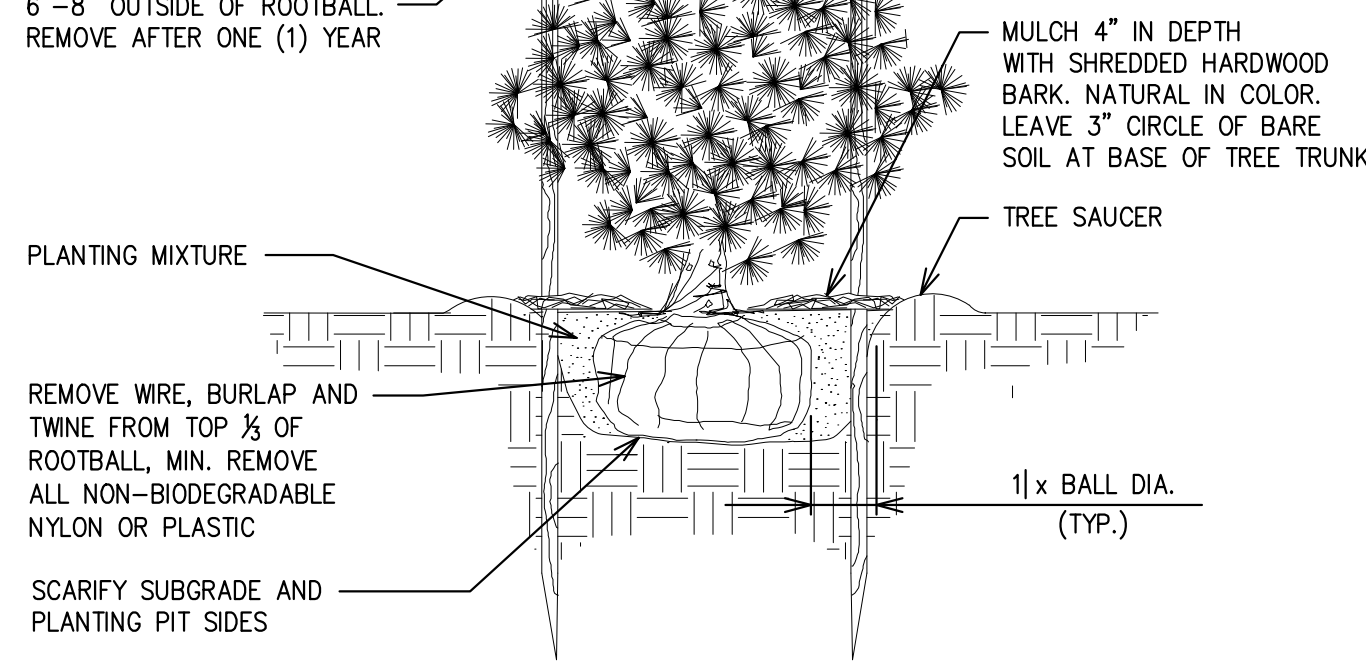
TYPICAL SHRUB PLANTING
(NOT TO SCALE)

2"-3" WIDE BELT-LIKE NYLON OR PLASTIC STRAP. CONNECT FROM TREE TO STAKE OPPOSITE AND ALLOW FOR SOME FLEXING OF THE TREE. REMOVE AFTER ONE (1) YEAR

CEDAR STAKES - 3 PER TREE
2" x 2" x 30" STAKES. DRIVE STAKES INTO UNDISTURBED SOIL 6"-8" OUTSIDE OF ROOTBALL. REMOVE AFTER ONE (1) YEAR

PLANTING MIXTURE
REMOVE WIRE, BURLAP AND TWINE FROM TOP 1/3 OF ROOTBALL, MIN. REMOVE ALL NON-BIODEGRADABLE NYLON OR PLASTIC
SCARIFY SUBGRADE AND PLANTING PIT SIDES

NOTES:
1. TREE SHALL BE PLANTED SLIGHTLY HIGHER THAN FINISH GRADE AS DIRECTED BY THE LANDSCAPE ARCHITECT.
2. DO NOT PRUNE TERMINAL LEADER. PRUNE ONLY DEAD OR BROKEN BRANCHES.



EVERGREEN TREE PLANTING
(NOT TO SCALE)

PLANT LIST/QUANTITY

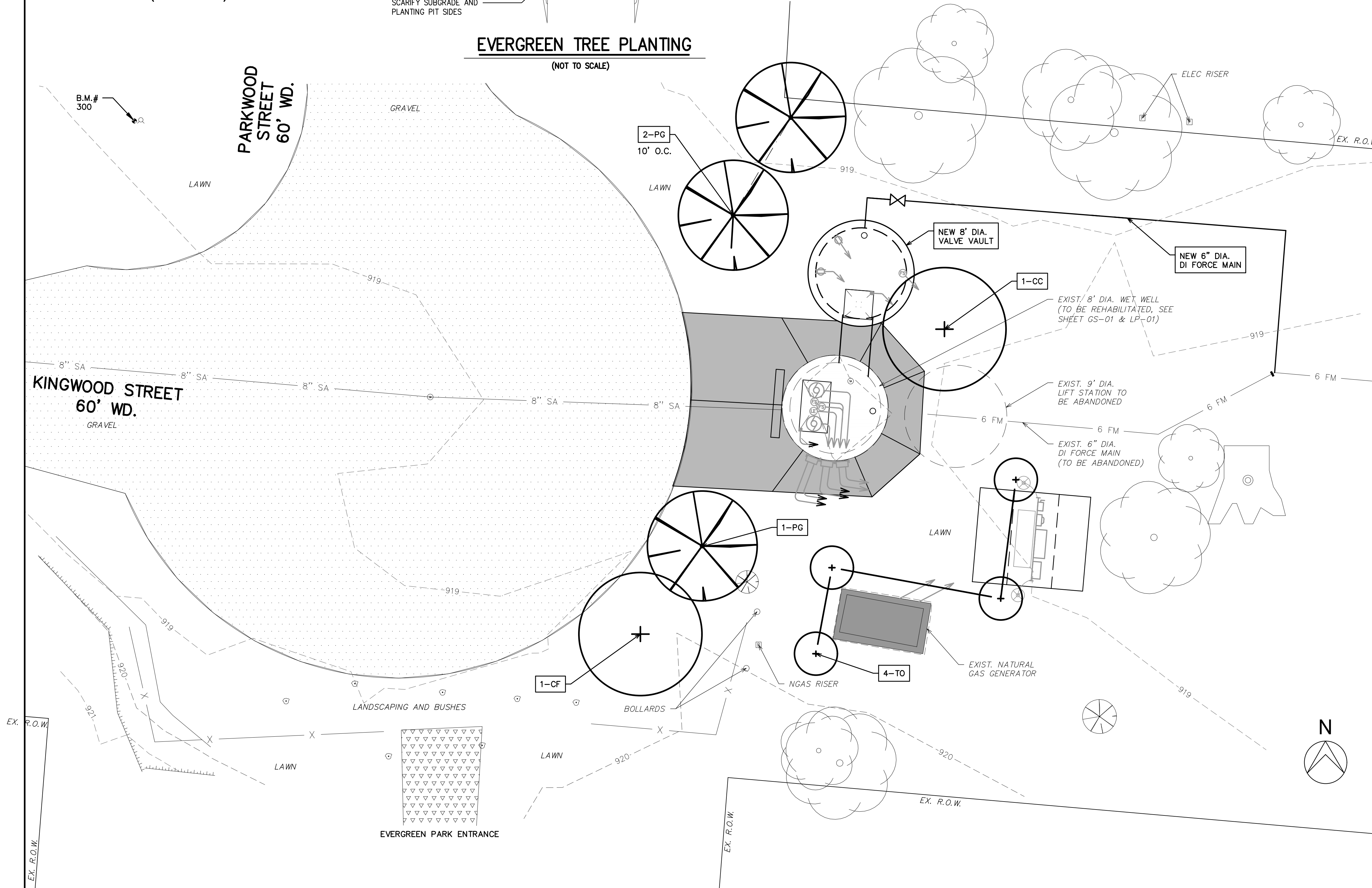
KEY	QT.	BOTANIC NAME	COMMON NAME	SIZE	NOTES
CC	1	<i>Cercis canadensis</i> 'Forest Pansy'	RED BUD	1.5" CAL.	B & B
CF	1	<i>Cornus florida</i> 'Cloud Nine'	WHITE DOGWOOD	1.5" CAL.	B & B
PG	3	<i>Picea glauca</i>	WHITE SPRUCE	8' HT.	B & B
TO	4	<i>Thuja occidentalis</i> 'Techny'	TECHNY ARBORVITAE	6' HT.	B & B

NOTE:

RESTORE ALL DISTURBED AREAS WITH:
• MICHIGAN WILDFLOWER FARM, SHORT WOODLAND MIX (OR APPROVED EQUAL) PLUS COVER CROP.

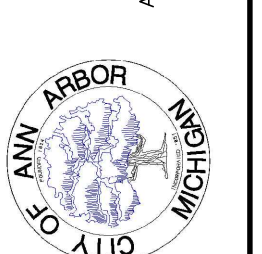
LANDSCAPE NOTES

- VERIFY ALL CONDITIONS ON SITE PRIOR TO COMMENCING CONSTRUCTION AND REPORT ANY DISCREPANCIES IMMEDIATELY TO ENGINEER OR OWNER.
- VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES AND SERVICES PRIOR TO COMMENCING WORK. CONTRACTOR IS RESPONSIBLE FOR ANY COST INCURRED DUE TO DAMAGED UTILITIES.
- THE LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL QUANTITIES REFLECTED ON THE PLANT LIST. IF A DISCREPANCY EXISTS BETWEEN THE LIST AND THE PLAN, THE PLAN SHALL BE HELD VALID.
- INSTALLATION AND SIZE OF ALL PLANT MATERIAL SHALL BE IN ACCORDANCE WITH THE STANDARDS SET FORTH BY THE AMERICAN ASSOCIATION OF NURSERY MEN OR AS SPECIFIED IN THE WRITTEN SPECIFICATIONS.
- THE LANDSCAPE CONTRACTOR SHALL CONTACT THE ENGINEER OR OWNER'S REPRESENTATIVE PRIOR TO BEGINNING CONSTRUCTION. DISCREPANCIES BETWEEN THE PLANS AND ACTUAL SITE CONDITIONS, OR OTHER PROBLEM AREAS, SHALL BE RESOLVED AT THIS TIME.
- THE LOCATION OF ALL PLANTS SHALL BE SCALED FROM THE DRAWINGS OR INTERPRETED FROM THE PLANT LIST. PRIOR TO PLANT INSTALLATION THE LANDSCAPE CONTRACTOR SHALL CONTACT THE OWNER'S REP. 2 WORKING DAYS BEFORE INSTALLATION TO ALLOW THE OWNER'S REP. THE OPTION TO REVIEW PLANT LOCATIONS.
- IF ROUGH GRADE IS DONE BY OTHERS, CONTRACTOR SHOULD REVIEW THAT GRADE AND ADDRESS ANY PROBLEMS WITH THE OWNER. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR FINAL GRADING AND SITE SURFACE DRAINAGE, DRAIN TO PAVING, CATCH BASIN ETC. NO LOW SPOTS THAT HOLD STANDING WATER WILL BE ACCEPTED.
- ANY RAISED EARTH BERMS SHOWN ON THE PLANS SHALL BE MADE ENTIRELY OF LIGHT ORGANIC SOILS AND SHALL BLEND SMOOTHLY INTO EXISTING TOPOGRAPHY.
- WATER-IN ALL PLANT MATERIAL IMMEDIATELY AFTER INSTALLATION.
- PRIOR TO ANY LAND CLEARING OR CONSTRUCTION, TREE PROTECTION FENCING IS TO BE INSTALLED BY THE CONTRACTOR AND INSPECTED BY THE OWNER. THIS FENCING SHALL BE INSTALLED AT THE DRIP LINE OF ALL TREES AND SHRUBS, IN ACCORDANCE WITH THE OWNER'S TREE PROTECTION DETAIL, AND MUST BE MAINTAINED AS APPROVED FOR THE DURATION OF THE PROJECT. NO CUTTING, FILLING OR TRESPASSING SHALL OCCUR INSIDE THE FENCED AREAS WITHOUT PRIOR APPROVAL FROM THE OWNER.
- DIG SHRUB PIT A MINIMUM OF 1" LARGER THAN SHRUB ROOT BALLS AND TREE PITS 2" LARGER THAN ROOT BALLS. BACKFILL WITH TWO PARTS TOP SOIL, TWO PARTS SOIL FROM EXCAVATED PLANTING HOLE AND ONE PART PEAT. PLANT TREES AND SHRUBS AT THE SAME GRADE LEVEL AT WHICH THEY WERE PLANTED AT THE NURSERY. IF WET CLAY SOILS ARE EVIDENT, PLANT TREES AND SHRUBS HIGHER.
- REMOVE ALL TWINE, WIRE AND BURLAP FROM THE TOP 1/3 OF TREE AND SHRUB EARTH BALLS AND FROM TREE TRUNKS. REMOVE ALL NON-BIODEGRADABLE MATERIAL SUCH AS PLASTIC OR NYLON COMPLETELY.
- SHRUB BEDS ARE TO BE MULCHED WITH SHREDDED HARDWOOD BARK MULCH TO A MINIMUM DEPTH OF 4". ONLY NATURAL-COLORED SHREDDED HARDWOOD BARK MULCH WILL BE ACCEPTED.
- UPON FINAL COMPLETION, ALL PLANT MATERIALS MUST BE PRUNED AND INJURIES REPAIRED. THE AMOUNT OF PRUNING SHALL BE LIMITED TO THE MINIMUM NECESSARY TO REMOVE DEAD OR INJURED TWIGS AND BRANCHES AND TO COMPENSATE FOR THE LOSS OF ROOTS FROM TRANSPANTING. ALL CUTS SHALL BE MADE FLUSH, LEAVING NO STUBS. PAINT ALL CUTS OVER 1" DIA. WITH TREE PAINT.
- EXISTING LAWN THAT THE OWNER INTENDS TO SAVE AND AREAS THAT ARE DAMAGED DURING CONSTRUCTION MUST BE INSPECTED BY THE OWNER'S REP. TO DETERMINE VIABILITY. IF THE EXISTING LAWN IS FOUND TO BE LEVEL, HEALTHY, DENSE & FREE FROM WEEDS, LAWN MAY NOT REQUIRE REPLACEMENT OR RENOVATION. IF RENOVATION IS REQUIRED OR IS PART OF THE APPROVED PLAN, THEN THE FOLLOWING REQUIREMENTS WILL APPLY: EXISTING LAWN FOUND TO BE GENERALLY IN GOOD CONDITION BUT WITH BARE, SPARSE OR WEEDY AREAS MUST BE RENOVATED BY FILLING IN LOW AREAS, RAKING, OVERSEEDING AND TOP DRESSING ALL SPARSE AND BARE SPOTS AND BY INITIATING A WEED AND FEED PROGRAM. SEED SPEC. SECTION 02929 SEEDING.
- BACKFILL DIRECTLY BEHIND ALL CURBS AND SIDEWALKS AND COMPACT TO THE TOP OF CURB OR WALK TO SUPPORT VEHICLE AND PEDESTRIAN WEIGHT WITHOUT SETTLING.
- THE CONTRACTOR AGREES TO GUARANTEE ALL PLANTS FOR ONE YEAR FROM THE TIME OF PLANTING AND FINAL APPROVAL & INSPECTION BY THE OWNER'S REPRESENTATIVE. THIS GUARANTEE INCLUDES FURNISHING NEW PLANTS AS WELL AS THE LABOR AND MATERIALS FOR THE INSTALLATION OF REPLACEMENTS. ALL REPLACEMENT PLANTS SHALL BE GUARANTEED FOR AN ADDITIONAL PERIOD OF ONE YEAR.
- PLANT MATERIAL WITH 25% OR GREATER DIE BACK, AS DETERMINED BY THE OWNER'S REPRESENTATIVE, SHALL BE REPLACED AS STIPULATED ABOVE.
- TOPSOIL SHALL BE FERTILE, FRIABLE NATURAL TOPSOIL OF CLAY LOAM CHARACTER CONTAINING AT LEAST 5% BUT NOT MORE THAN 20% BY WEIGHT OF ORGANIC MATTER WITH A PH RANGE FROM 6.0 TO 7.0. SOIL SHALL BE FREE OF CLAY LUMPS, COURSE SAND, STONES, PLANT ROOTS, STICKS OR OTHER FOREIGN MATERIAL.
- RESTORE ALL DISTURBED AREAS WITH: MICHIGAN WILDFLOWER FARM, SHORT WOODLAND MIX (OR APPROVED EQUAL) PLUS COVER CROP.
- APPLY SEED AT A RATE OF 250LBS./ACRE(6LBS./1000 SF)

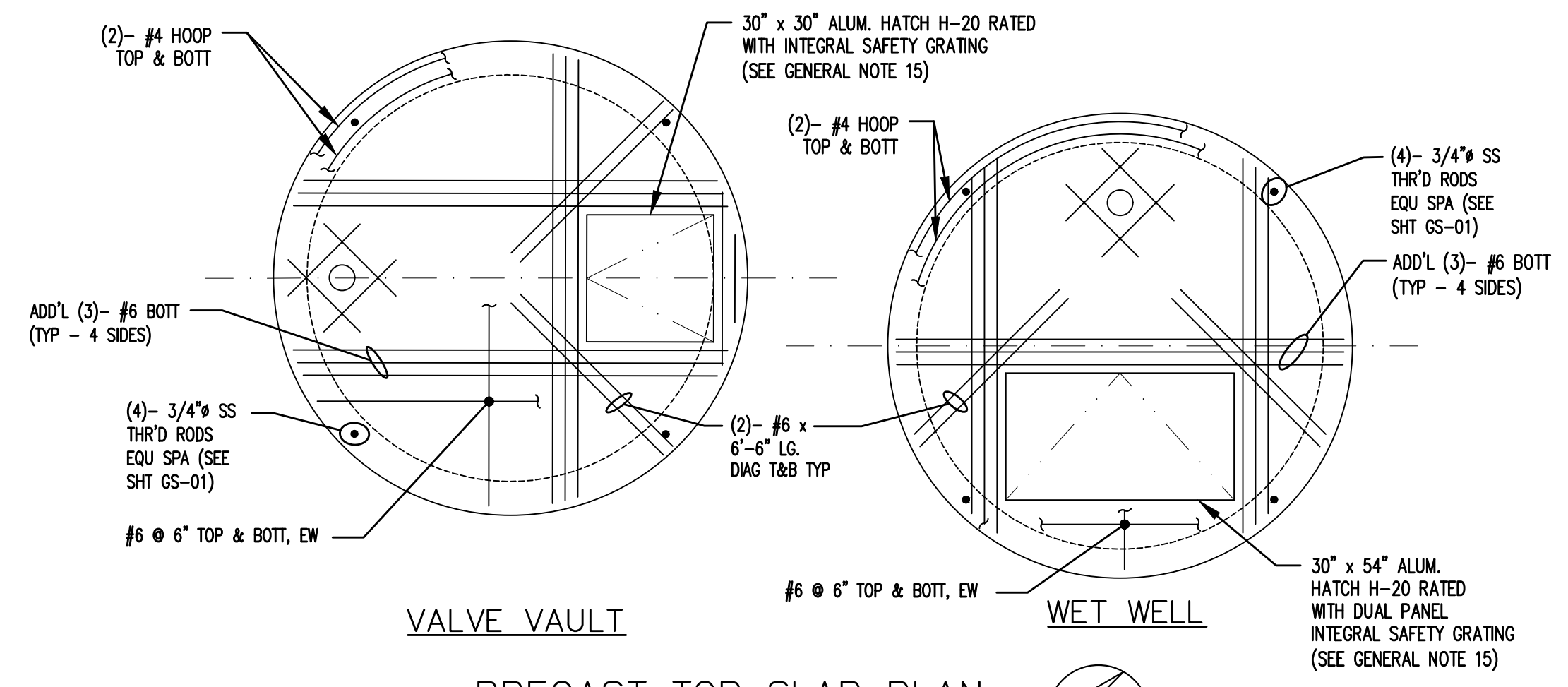


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	ISSUED FOR BID	MARCH 23, 2022	M.J.H.	P.E.H.

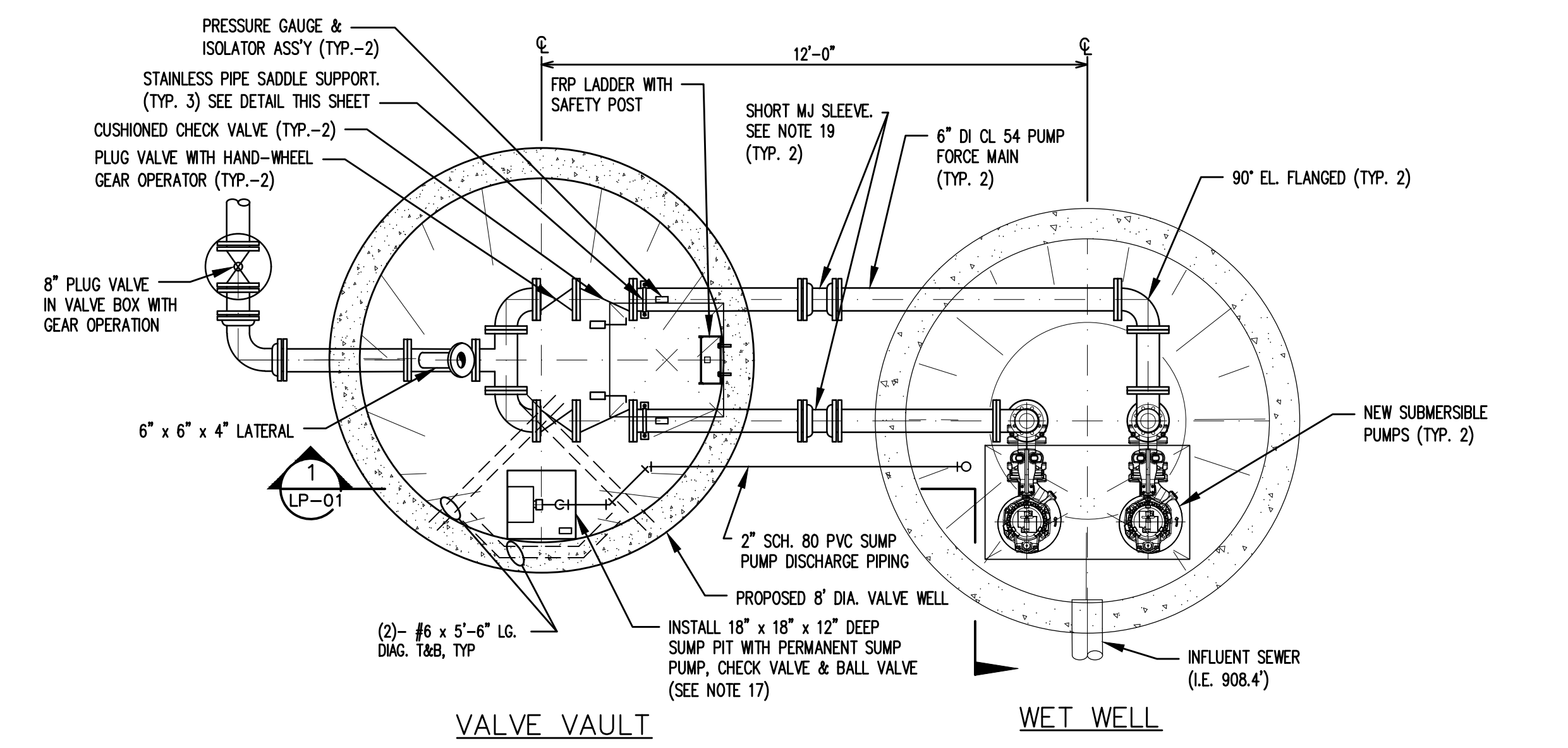
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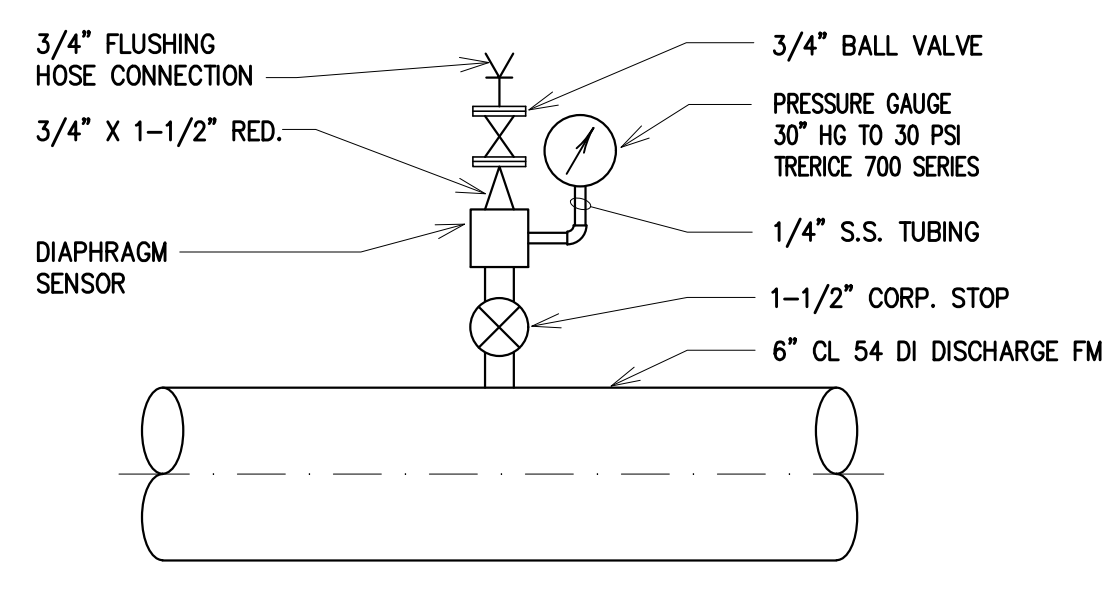
PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
ARBOR LANDINGS LIFT STATION
LANDSCAPING PLAN
SCALE PLAN: 1"=5'
DRAWING No. LC-03
SHEET No.



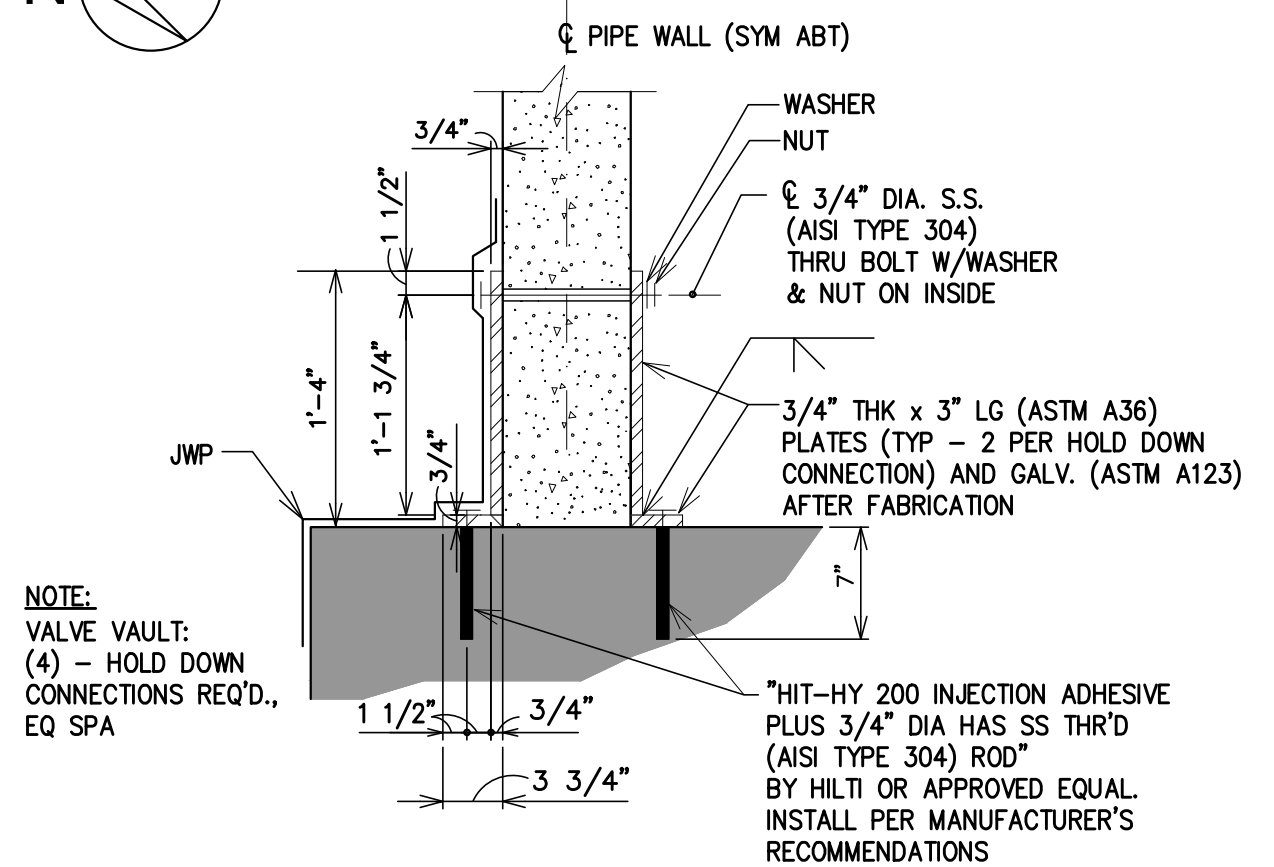
VALVE VAULT
WET WELL
PRECAST TOP SLAB PLAN
SCALE: 3/8" = 1'-0"



SECTIONAL PLAN
SCALE: 3/8" = 1'-0"



TYPICAL PRESSURE GAUGE
NO SCALE



HOLD DOWN CONNECTION
SCALE: 1" = 1'-0"

PRECAST CONCRETE TOP SLAB NOTES:

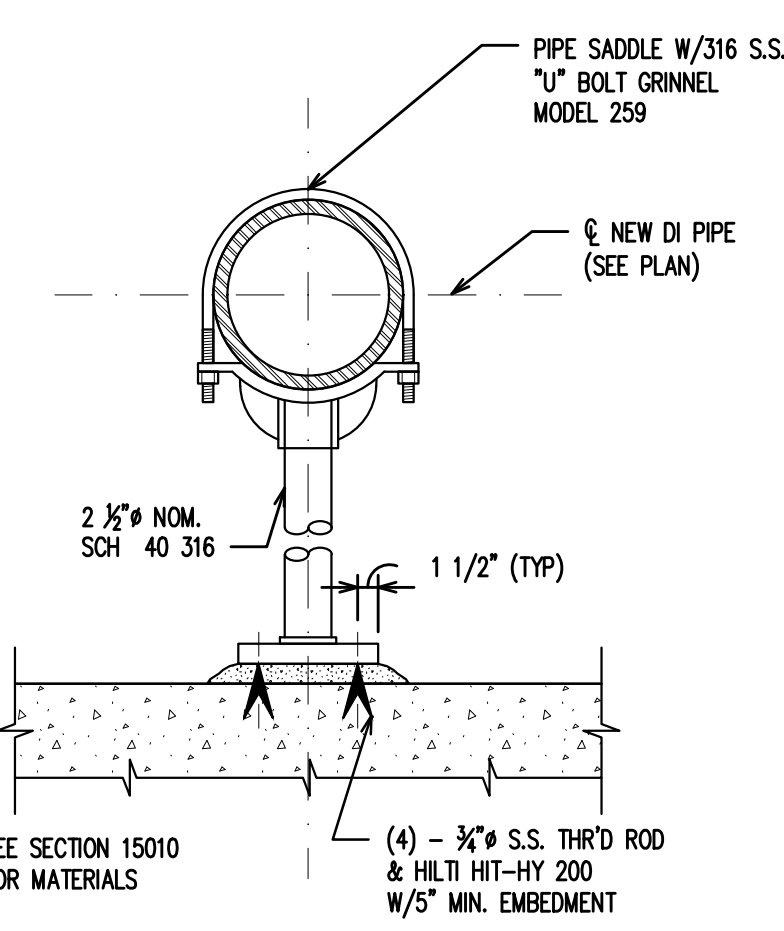
- SEE "REINFORCED CONCRETE NOTES" 1 THRU 6.
- MINIMUM CONCRETE COVER TO REINFORCEMENT SHALL BE 2".
- NON-SHRINK GROUT SHALL BE PREMIXED NON-METALLIC, NON-STAINING, DIMENSIONALLY STABLE, INORGANIC GROUT AS MANUFACTURED BY:
 - BASF/MASTER BUILDERS... "MASTERFLOW 100"
 - THE EUCLID CHEMICAL CO... "NS GROUT"
- LIFTING INSERTS LOCATION, SIZE AND TYPE SHALL BE THE CONTRACTOR'S RESPONSIBILITY AND SHALL BE SHOWN ON THE STEEL REINFORCEMENT SHOP DRAWINGS. INSERTS TO REMAIN IN THE TOP SLAB SHALL BE STAINLESS STEEL. RECESS POCKETS SHALL BE FILLED FLUSH W/GROUT.
- PRECAST TOP SLAB DIMENSIONS AS SHOWN ARE REQUIRED. DIMENSIONAL CHANGES SHALL NOT BE ACCEPTABLE.

GENERAL NOTES:

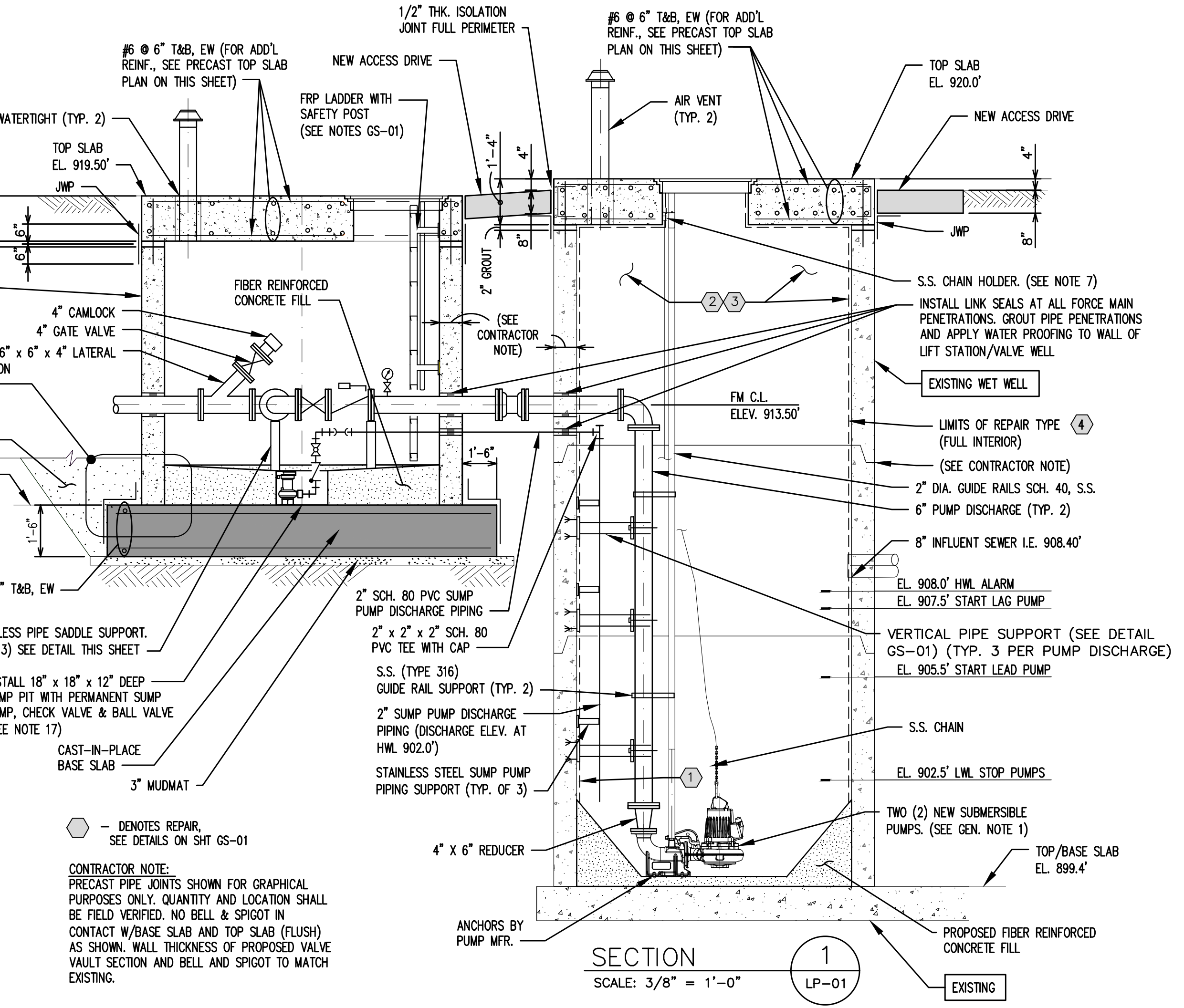
- PROVIDE (2) SUBMERSIBLE PUMPS WITH AN OPERATING CONDITION OF 445 gpm AT 31 FT. SHOP DRAWINGS SHALL BE SUBMITTED FOR ALL PUMPING & FORCE MAIN EQUIPMENT FOR OWNER APPROVAL PRIOR TO FABRICATION.
- GENERAL CONTRACTOR NOTE - THE VALVE VAULT MUDMAT SHALL BE CONSTRUCTED ON UNDISTURBED IN SITU MATERIAL.
- OPEN CUT/BRACED EXCAVATION CONSTRUCTION METHODS - THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR HIS MEANS AND METHODS OF CONSTRUCTION; HOWEVER DETAILED SHOP DRAWINGS AND CALCULATIONS SHALL BE SUBMITTED FOR THE ENGINEER'S REVIEW PRIOR TO THE START OF CONSTRUCTION. MEANS AND METHODS SHALL INCLUDE BRACED EXCAVATION AND OPEN CUTTING AND BACKFILLING WITH MDOT CL II "BACKFILL STRUCTURE, CIP" GRANULAR MATERIAL AND COMPACTED TO 95% OF MAX. DENSITY.
- EXCAVATION, BACKFILLING AND JOINT WATERPROOFING, UNLESS OTHERWISE NOTED, SHALL BE IN ACCORDANCE WITH THE "2020 STANDARD SPECIFICATIONS FOR CONSTRUCTION" AS ISSUED BY THE MICHIGAN DEPARTMENT OF TRANSPORTATION (MDOT). BACKFILL LAYERS SHALL NOT EXCEED 12" IN HEIGHT MEASURED LOOSE AND SHALL BE COMPACTED TO NOT LESS THAN 95% OF MAXIMUM DENSITY AT OPTIMUM MOISTURE.
- DEWATERING - MEANS AND METHODS FOR DEWATERING DURING CONSTRUCTION SHALL BE THE RESPONSIBILITY OF GENERAL CONTRACTOR. GROUND WATER LEVEL IS SUBJECT TO CHANGE. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATION OF WATER LEVELS THAT WILL EXIST DURING CONSTRUCTION.
- THE CONTRACTOR SHALL LOCATE ALL ACTIVE UNDERGROUND UTILITIES PRIOR TO STARTING WORK, AND SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER AS TO INSURE THAT UTILITIES WILL NOT BE DISTURBED.
- MOUNT EACH CHAIN HOLDER TO INSIDE OF HATCH OPENING WITH 2 - 3/8" 316 S.S. KWIK BOLT II EXPANSION ANCHORS BY HILTI OR APPROVED EQUAL.
- FOR BURIED FORCE MAIN PIPING, PROVIDE RESTRAINED JOINTS AT ALL LATERALS AND ELBOWS.
- HORIZONTAL PIPE PENETRATIONS THROUGH RISERS SHALL BE CORE DRILLED WITH THE RESULTING ANNULAR SPACES SEALED W/NON-SHRINK, NON-METALLIC GROUT, UNLESS OTHERWISE NOTED. (SEE PRECAST CONCRETE NOTE 3)
- SOIL BORING INFORMATION IS APPENDED TO THE SPECIFICATIONS.
- BACKFILL SUMP PUMP PIPING TRENCH BELOW VALVE CHAMBER WITH MDOT CL II "BACKFILL STRUCTURE, CIP" GRANULAR MATERIAL AND COMPACTED TO 95% OF MAX. DENSITY.
- EXCAVATION SHALL BE IN ACCORDANCE WITH ITEM 3.04 - SLOPES, SHEETING, AND BRACING, OF SECTION 02200 OF THE SPECIFICATIONS - EARTHWORK, AS WELL AS ALL OTHER APPLICABLE ITEMS LISTED IN THIS SECTION, AND IN SECTION 02140 - DEWATERING.
- ALL PUMP DISCHARGE PIPE AND FITTINGS, EXCEPT S.S. 316 AND PVC PIPING, WITHIN THE LIFT STATION WET WELL SHALL RECEIVE AFTER INSTALLATION, AN EPOXY COATINGS SYSTEM. SEE SPECIFICATION SECTION 09900 - PAINTING FOR MORE DETAILED INFORMATION.
- PUMP STATION WET WELL ACCESS HATCH SHALL BE MANUFACTURED BY BILCO, HALLIDAY OR APPROVED ALTERNATE. HATCH SHALL HAVE FRP SAFETY GRATING, A RECESSED SLAM LOCK AND 90 DEGREE OPEN HOLDING LATCH WITH A HEAVY GRADE LOCKING DEVICE. SEE SPECIFICATION SECTION 08305 "ACCESS HATCHES" FOR ADDITIONAL INFORMATION.
- SEE SPECIFICATION SECTION 11390 "PUMPING STATION EQUIPMENT" FOR ADDITIONAL INFORMATION ON THE ITEMS SHOWN ON THIS SHEET.
- PROVIDE ONE (1) ZOELLER MODEL 95 SUMP PUMP WITH 2" PVC ADAPTOR WITH BUILT IN FLOAT.
- INSTALL NEW 120V RECEPTACLE RATED FOR CORROSIVE ATMOSPHERE WITHIN NEW 8' DIA. VALVE VAULT PER SHEET LE-01.
- ALL HARDWARE AND MISC. METALS IN WET WELL SHALL BE 316 S.S.
- ALL MECHANICAL JOINT FITTINGS SHALL BE RESTRAINED.
- VALVE VAULT AND WET WELL AIR VENTS SHALL INCLUDE A BIRD SCREEN AND BE MADE OF 304 SS.
- JWP - MEL ROL BY W.R. MEADOWS OR APPROVED EQUAL.

REINFORCED CONCRETE NOTES:

- BASE SLAB CONCRETE SHALL BE CAST IN PLACE AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4,500 P.S.I. AT 28 DAYS UNLESS OTHERWISE NOTED. NO SUBSTITUTIONS ALLOWED. CONCRETE SHALL BE AIR-ENTRAINED WITH AN AIR CONTENT OF 6% (± 1%). CONCRETE MIX DESIGN SHALL BE SUBMITTED FOR OWNER'S APPROVAL, PRIOR TO CONCRETE PLACEMENT.
- STEEL REINFORCEMENT, INCLUDING TIES AND STIRRUPS, SHALL BE NEW BILLET STEEL CONFORMING TO A.S.T.M. A615, GRADE 60, AND NON-EPOXY COATED.
- SHOP DRAWINGS SHALL BE SUBMITTED FOR ALL REINFORCEMENT FOR OWNER'S APPROVAL, PRIOR TO FABRICATION. REINFORCEMENT SUPPLIER AND FABRICATOR SHALL BE MDOT APPROVED.
- REINFORCEMENT SHALL BE DETAILED IN ACCORDANCE WITH LATEST EDITION A.C.I.301 "SPECIFICATION FOR STRUCTURAL CONCRETE" AND C.R.S.I., "MANUAL OF STANDARD PRACTICE", LATEST EDITION.
- MINIMUM LAP OF REINFORCEMENT:
 - #4 24"
 - #5 30"
 - #6 37"
- CONCRETE COVER TO REINFORCEMENT:
 - CONCRETE PLACED AGAINST GROUND 3"
 - ALL OTHER (UNLESS OTHERWISE INDICATED) 2"
- MUDMAT CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 2000 PSI.
- FIBER REINFORCED CONCRETE FILL SHALL BE CONCRETE OF 3,500 P.S.I. 28 DAY COMPRESSIVE STRENGTH, REINFORCEMENT WITH 3.0 POUNDS/CUBIC YARD OF POLYPROPYLENE FIBERS 1" LONG BY GRACE STRUX 90/40 OR APPROVED EQUAL. SURFACE PREP, MIX, PLACE, FINISH AND CURE IN ACCORDANCE W/MANUFACTURER'S RECOMMENDATIONS.
- WELDED WIRE FABRIC FOR ACCESS DRIVE (CONCRETE PAVEMENT) SHALL BE MDOT R-45-E INSTALLED AT MIDPOINT OF SLAB DEPTH.
- (2) - #6 BARS SHALL BE PLACED EACH FACE AROUND ALL OPENINGS IN WALLS & SLABS UNLESS OTHERWISE NOTED. BARS SHALL EXTEND 2'-0" PAST OPENING UNLESS OTHERWISE NOTED. (1) - #6 DIAGONAL x 3'-0" LONG TOP & BOTTOM BAR SHALL BE PROVIDED AT EACH CORNER OF OPENINGS.
- A 3/4" x 45" CHAMFER SHALL BE PROVIDED AT EXPOSED EDGES OF ALL CONCRETE SLABS.
- TOP SURFACE OF PRECAST TOP SLABS SHALL BE BROOMED FINISHED.
- JWP - MEL ROL BY W.R. MEADOWS OR APPROVED EQUAL.



STAINLESS STEEL PIPE
SADDLE SUPPORT
NO SCALE



SECTION 1
SCALE: 3/8" = 1'-0"

PUMP STATION SCHEDULE

LIFT STATION	WET WELL INTERNAL DIAMETER	WET WELL TOP OF TOP SLAB ELEV.	WET WELL INFLUENT SEWER INV. ELEV.	VALVE VAULT INTERNAL DIAMETER	VALVE VAULT TOP OF TOP SLAB ELEV.	VALVE VAULT TOP OF BASE SLAB ELEV.	FORCE MAIN & ELEV.	FORCE MAIN DIAMETER
ARBOR LANDING LIFT STATION	8'-0"	920.0'	908.4'	8'-0"	919.50'	910.50'	913.5'	6"

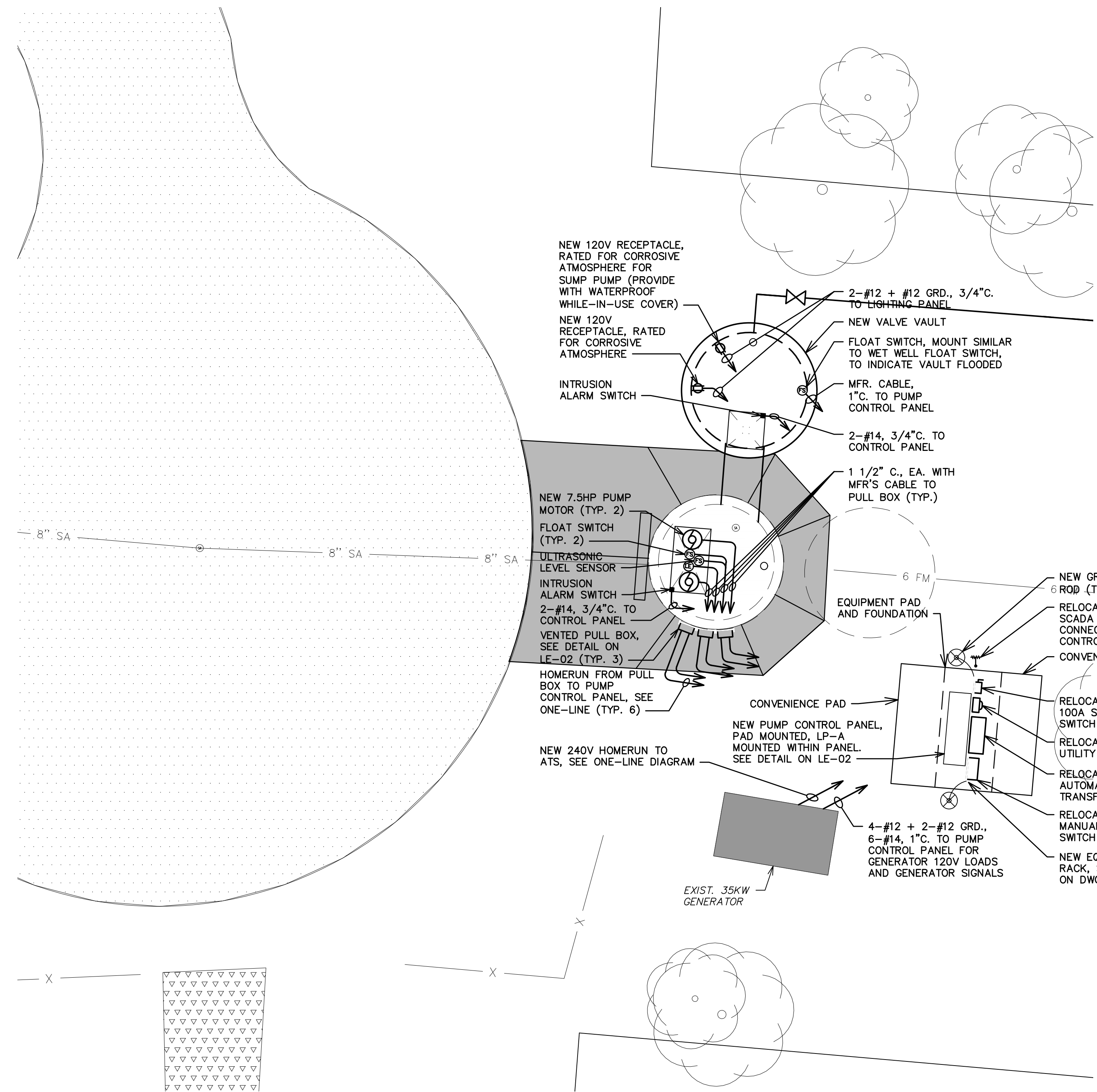
811 Know what's below. Call before you dig.

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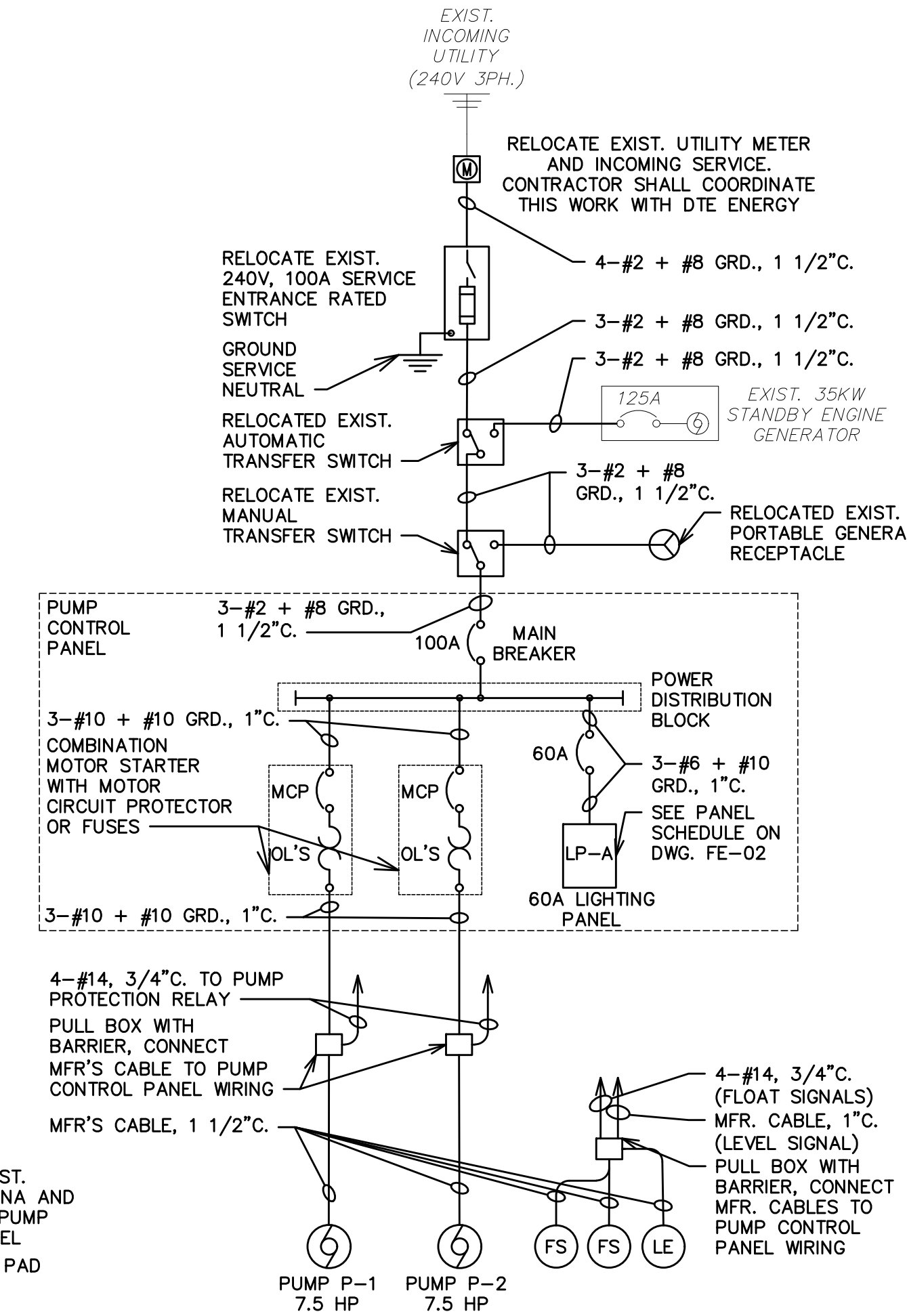
PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
ARBOR LANDINGS LIFT STATION
PLAN AND SECTIONS

SCALE AS SHOWN
DRAWING No. LP-01
SHEET No.

ISSUED FOR BID
DESCRIPTION
DATE
DRAWN
CHECKED
P.E.H.
M.J.H.
MARCH 23, 2022



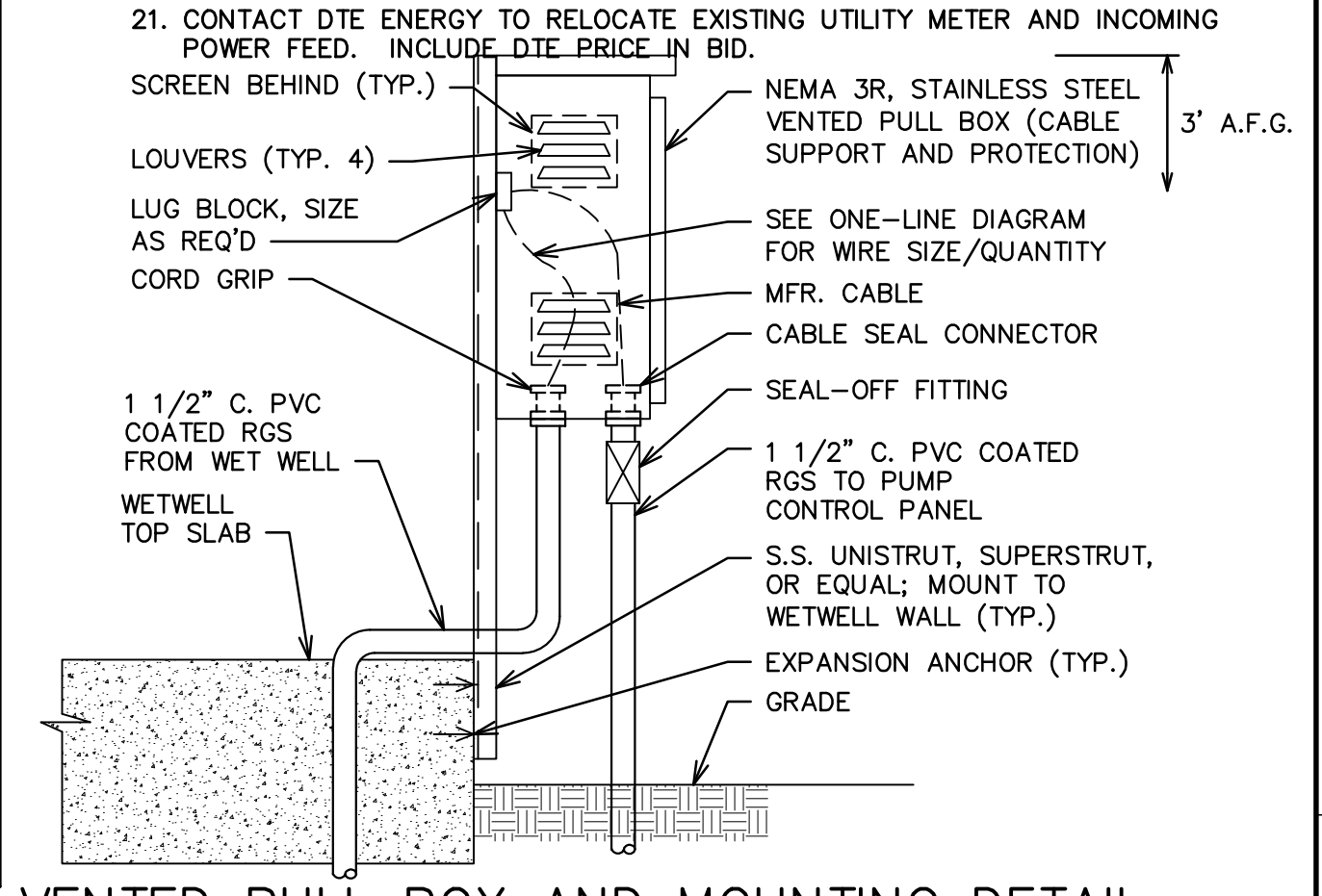
**ARBOR LANDINGS LIFT STATION
POWER PLAN**
1" = 5'-0"



**REVISED ONE-LINE DIAGRAM —
ARBOR LANDINGS PUMP STATION**

LOAD SUMMARY		
240V. 3PH. 4W. SERVICE		
ITEM	DESCRIPTION	F.L.A.
PUMP	(2) 7.5HP SUBMERSIBLE	38A
STATION MISC.	LIGHTING PANEL	40A
TOTAL CONNECTED LOAD		78A

LIGHTING PANEL "LP-A" SCHEDULE				
120/240 V., 1PH., 3W., WITH 60 AMP. MAIN BREAKER, NEUTRAL BUS, & GRD. BUS				
CIRC. NO.	BRKR. SIZE	ITEM SERVED	LOAD (WATTS)	
			ØX	ØY
1	20A	GENERATOR HEATERS	1000	
3	20A	GENERATOR 120V LOADS		360
5	20A (GFI)	VALVE VAULT CONVENIENCE RECEPTACLE	180	
7	20A	VALVE VAULT SUMP PUMP		1200
9	20A	SPARE		
11	20A	SPARE		
13		SPACE		
15		SPACE		
17		SPACE		
2	20A	PUMP CONTROL PANEL LIGHTS	100	
4	20A	PUMP CONTROL PANEL CONVENIENCE RECEPTACLE	180	
6	20A	PUMP CONTROL PANEL CONTROL POWER	600	
8	20A	PUMP CONTROL PANEL HEATERS/FAN	500	
10	20A	SPARE		
12	20A	SPARE		
14		SPACE		
16		SPACE		
18		SPACE		
TOTAL CONNECTED LOAD			1880	2240



VENTED PULL BOX AND MOUNTING DETAIL
N.T.S.

GENERAL ELECTRICAL NOTES:

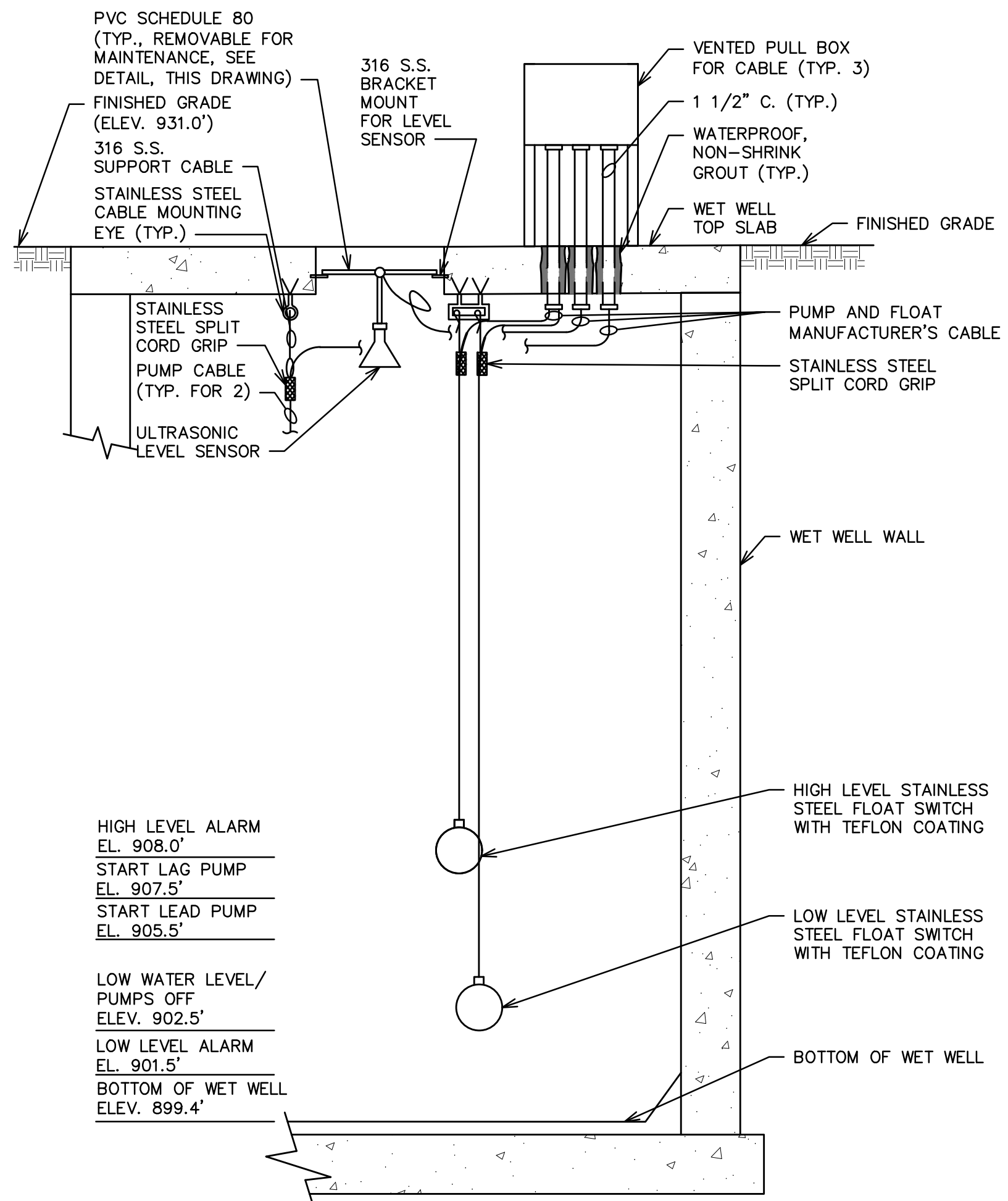
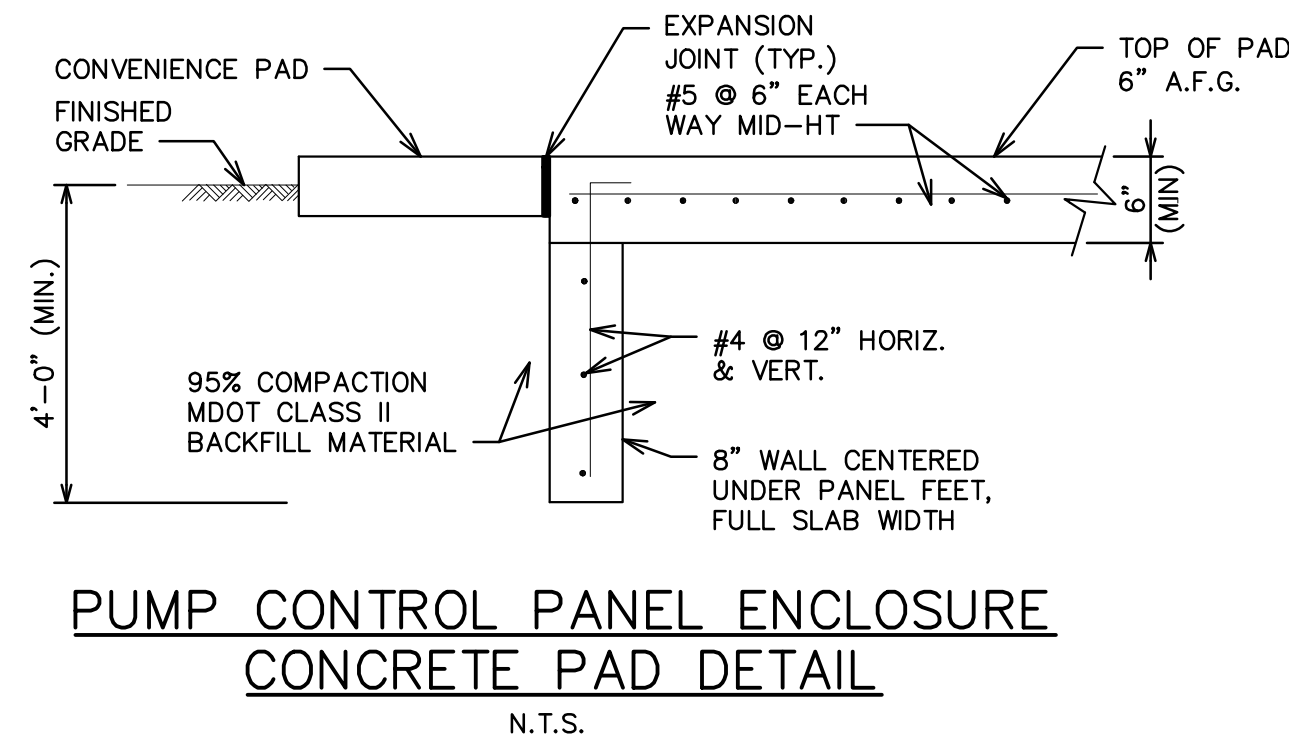
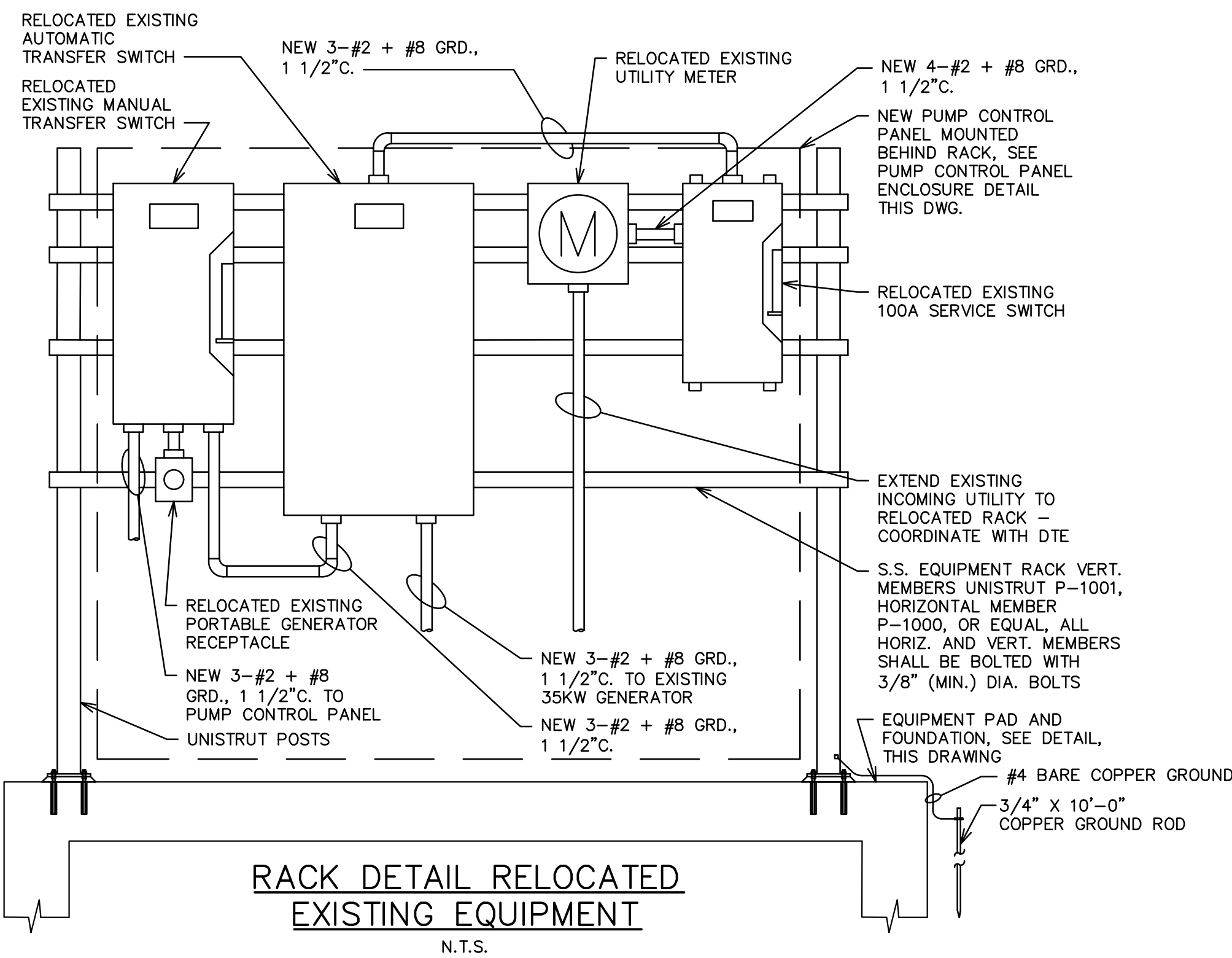
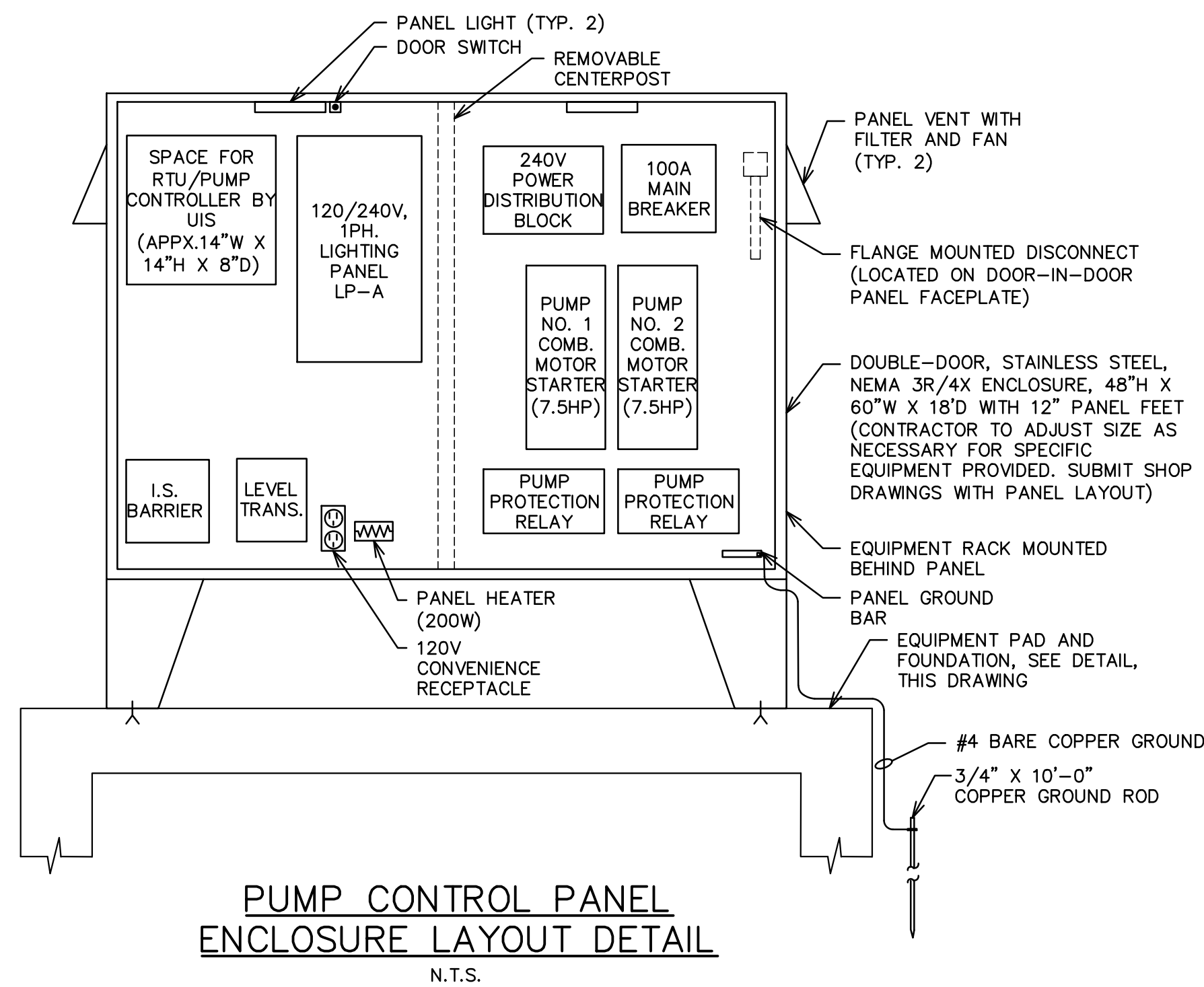
- THE CONTRACTOR SHALL VISIT THE JOB SITE AND THOROUGHLY CHECK THE EXISTING FIELD CONDITIONS PRIOR TO SUBMITTING A BID.
- ALL WORK SHALL BE COORDINATED WITH THE OWNER.
- COORDINATE ALL UNDERGROUND WORK WITH NEW AND EXISTING UNDERGROUND UTILITIES BEFORE INSTALLATION. CALL MISS DIG 1-800-482-7171, 72 HOURS BEFORE ANY UNDERGROUND WORK IS DONE.
- SITE ADDRESS IS 410 PARKWOOD STREET, ANN ARBOR, MI 48103
- ALL CONDUIT SHALL BE PVC COATED RIGID GALVANIZED STEEL UNLESS OTHERWISE NOTED. CONDUIT INSTALLED UNDERGROUND SHALL BE 30" BELOW FINISH GRADE (MINIMUM). CONTRACTOR SHALL PROVIDE A 1/4" DIAMETER POLYETHYLENE PULL ROPE IN ALL EMPTY CONDUITS. CONTRACTOR SHALL INSTALL DETECTABLE UNDERGROUND ELECTRICAL WARNING TAPE 18" BELOW GRADE.
- EXPANSION FITTINGS SHALL BE PROVIDED AT ALL TRANSITIONS FROM UNDERGROUND TO EXPOSED CONDUIT.
- PROVIDE A PANEL DRAIN AND BREATHER, CROUSE-HINDS "ECD" UNIVERSAL SERIES OF EQUAL, MOUNTED TO THE TOP AND BOTTOM OF ALL NEMA 4/4X ENCLOSURES. THE BREATHER SHALL BE MOUNTED TO THE TOP OF THE PANEL ON A WATER-TIGHT HUB AND THE DRAIN SHALL BE MOUNTED TO THE BOTTOM OF THE PANEL ON A BOLT-ON TYPE HUB, SEALED WATER-TIGHT.
- ALL ELECTRICAL EQUIPMENT, CONDUIT, AND WIRING WITHIN THE WET WELL SHALL BE INSTALLED IN ACCORDANCE WITH THE N.E.C. REQUIREMENTS FOR CLASS I, DIVISION I, GROUP D HAZARDOUS LOCATIONS.
- ALL EXPOSED, METALLIC SUPPORTS, BRACKETS, ANCHORS, HARDWARE, HANGERS, ETC., LOCATED WITHIN THE WET WELL SHALL BE 316 STAINLESS STEEL.
- FOR ALL EQUIPMENT MOUNTED WITHIN THE WET WELL, USE 316 STAINLESS STEEL AND 1/2" STAINLESS STEEL SPACERS ON STAINLESS STEEL BOLTS IN ORDER TO PROVIDE A 1/2" AIR SPACE BETWEEN EQUIPMENT AND WALL.
- PUMP POWER CABLES, PUMP CONTROL CABLES, AND FLOAT SWITCH CONTROL CABLES SHALL BE SPLICED TO PANEL WIRING WITHIN A VENTED PULL BOX. PROVIDE SEAL-OFF FITTING BETWEEN THE PULL BOX AND THE PUMP CONTROL PANEL.
- ALL THREADED ELECTRICAL EQUIPMENT (CONDUIT, FITTINGS, BOLTS, SCREWS, ETC.) INSTALLED OUTDOORS SHALL BE COATED WITH ANTI-SEIZE COMPOUND PRIOR TO INSTALLATION.
- THE EXACT HEIGHT, WIDTH, AND DEPTH OF THE SERVICE ENTRANCE EQUIPMENT SUPPORT BACK SHALL BE DETERMINED BY SIZE AND NUMBER OF ELECTRICAL DEVICES MOUNTED UPON IT.
- FOR EACH INTRINSICALLY SAFE CIRCUIT, RUN 2-#14 AWG (MINIMUM), OR 1 PAIR-#18 FOIL SHIELDED, IN 3/4" R.G.S. (MINIMUM). INTRINSICALLY SAFE (I.S.) CIRCUITS MAY BE RUN WITH OTHER I.S. CIRCUITS IN THE I.S. CONDUIT SYSTEM, BUT SHALL NOT BE RUN IN THE SAME CONDUIT, RACEWAY, WIRE DUCT, ETC., WITH ANY NON-INTRINSICALLY SAFE CIRCUITS, NOR SHALL I.S. CONDUCTORS COME IN CONTACT IN ANY FASHION WITH NON-INTRINSICALLY SAFE CONDUCTORS. I.S. CIRCUIT INSTALLATION SHALL MEET ALL REQUIREMENTS OF THE LATEST REVISIONS OF N.E.C. ARTICLE 504, ANSI/ISA RP-12.06, AND ANSI/UL 913.
- ALL ELECTRICAL WORK SHALL COMPLY WITH THE N.E.C., AND THE LOCAL CODES, ORDINANCES, AND REGULATIONS INCLUDING MIOSHA.
- ALL EXISTING EQUIPMENT ASSOCIATED WITH THE SCADA SYSTEM, INCLUDING RTU AND RADIO, SHALL BE DISCONNECTED AND REUSED. ALL SCADA SYSTEM COMPONENTS ARE TO BE SUBPLATE MOUNTED INSIDE THE PUMP CONTROL PANEL. SPACE SHALL BE PROVIDED IN PUMP CONTROL PANEL FOR MOUNTING OF THE EQUIPMENT.
- RECONNECT EXISTING SCADA EQUIPMENT TO EXISTING ANTENNA. PROVIDE NEW ANTENNA CABLE IN CONDUIT FROM PUMP CONTROL PANEL TO ANTENNA LOCATION AS REQUIRED.
- SALVAGE THE EXISTING MILLTRONICS LEVEL SENSOR, CABLE, TRANSDUCER, DEHUMIDIFIER, AND SUMP PUMP FROM THE EXISTING STATION AND TURN OVER TO THE OWNER.
- IN AREAS WITH EXISTING TREES, THE CONTRACTOR SHALL CAREFULLY EXCAVATE THE CONDUIT RUNS SO AS NOT TO DAMAGE MAIN ROOTS OF TREES. DO NOT CUT OR REMOVE MAIN ROOTS OF TREES, BUT RUN CONDUIT AROUND ROOTS AS MAY BE REQUIRED BY FIELD CONDITIONS.
- PROVIDE BACKFILL PER CIVIL SPECIFICATIONS. PROVIDE COMPACTED SAND BACKFILL UNDER PAVED AREAS. THE CONTRACTOR IS REQUIRED TO REPAIR ANY DAMAGE TO EXISTING PAVING TO THE SATISFACTION OF THE RESPONSIBLE AUTHORITY.
- CONTACT DTE ENERGY TO RELOCATE EXISTING UTILITY METER AND INCOMING POWER FEED. INCLUDE DTE PRICE IN BID.



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MARCH 23, 2022		M.J.H.	P.E.H.

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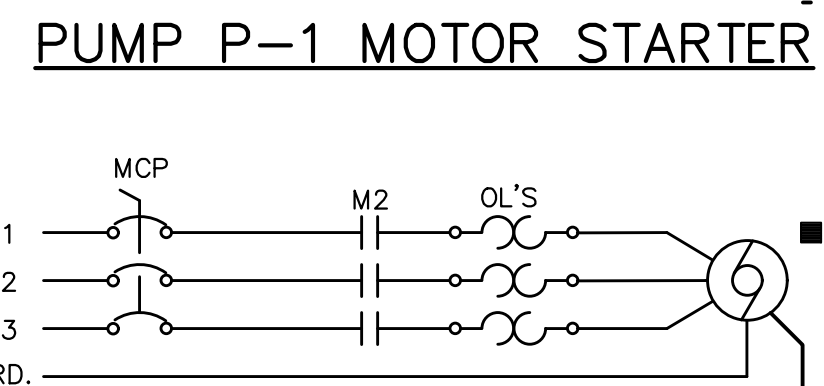
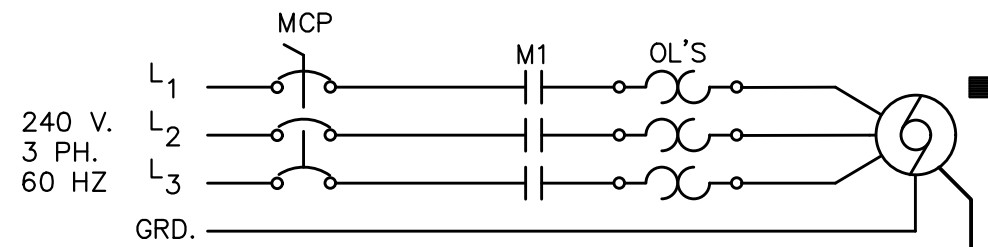


HIGH LEVEL ALARM
EL. 908.0'
START LAG PUMP
EL. 907.5'
START LEAD PUMP
EL. 905.5'

LOW WATER LEVEL/
PUMPS OFF
ELEV. 902.5'
LOW LEVEL ALARM
EL. 901.5'
BOTTOM OF WET WELL
ELEV. 899.4'

**WET WELL FLOAT SWITCH,
LEVEL TRANSDUCER AND
PUMP CABLE MOUNTING**

N.T.S.
(ALL HARDWARE IN WET WELL SHALL BE 316 S.S.)
(FLOAT SWITCHES ARE SET AT HIGH LEVEL ALARM
AND LOW LEVEL ALARM)



PUMP CONTROL PANEL NOTES:

- THIS CONTROL CABINET IS SHOWN WITHOUT DOORS FOR CLARITY. THE CONTROL CABINET HAS TWO SETS OF DOUBLE OVERLAPPING DOORS. DOORS OF PANELS MOUNTED INSIDE SHALL OPEN 90 DEGREES MINIMUM AND EQUIPMENT MUST CENTER BEHIND DOORS AND SHALL BE FULLY ACCESSIBLE.
- CABINET RATING SHALL BE STAINLESS STEEL, NEMA TYPE 3R/4X. DOORS SHALL BE GASKETED. PROVIDE 3-POINT LATCH WITH 90 DEGREE DOOR HANDLE. PROVIDE DOOR-IN-DOOR OPTION WITH PILOT LIGHTS, PUSHBUTTONS AND MAIN DISCONNECT LOCATED ON THE DOOR-IN-DOOR FACE.
- PROVIDE BARRIER TO ISOLATE LOW ENERGY WIRING AND TERMINALS OF INTRINSICALLY SAFE RELAYS FROM ALL OTHER EQUIPMENT AND WIRING WITHIN THE PUMP CONTROL PANEL. LOCATION AND ARRANGEMENT OF DEVICES IN PANEL SHALL BE IN ACCORDANCE WITH N.E.C. AND N.F.P.A. #493, LATEST STANDARDS FOR INTRINSICALLY SAFE INSTALLATIONS.
- ALL SCADA COMPONENTS ARE TO BE SUBPLATE MOUNTED IN THE PUMP STATION CONTROL CABINET. SCADA WORK TO BE PERFORMED BY UIS. THE CONTRACTOR SHALL INCLUDE ALL COSTS AND FEES TO INSTALL THE SCADA EQUIPMENT AND CONNECT THE I/O.

RTU PANEL INPUTS AND OUTPUTS LIST

(THIS LIST PROVIDED TO INDICATE WHAT SIGNALS FROM STATION AND CONTROL PANEL ARE TO BE CONNECTED TO THE SCADA SYSTEM. CONTRACTOR TO SALVAGE ALL EXISTING EQUIPMENT ASSOCIATED WITH THE SCADA SYSTEM, INCLUDING MOSCAD PLC, RADIO, POWER SUPPLY, AND ASSOCIATED DEVICES AND WIRING. ANTENNA FOR COMMUNICATION TO BE REUSED. UIS TO PROVIDE ALL PROGRAMMING OF SCADA PLC.)

DISCRETE INPUTS

- PUMP 1 RUNNING (SIGNAL FROM PUMP MOTOR STARTER)
- PUMP 2 RUNNING (SIGNAL FROM PUMP MOTOR STARTER)
- WET WELL LEVEL HIGH (SIGNAL FROM FLOAT SWITCH VIA I.S. RELAY)
- STATION INTRUSION (SIGNAL FROM INTRUSION SWITCHES)
- WET WELL LEVEL LOW (SIGNAL FROM FLOAT SWITCH VIA I.S. RELAY)
- GENERATOR RUNNING (SIGNAL FROM GENERATOR CONTROL PANEL)
- GENERATOR FAULT (SIGNAL FROM GENERATOR CONTROL PANEL)
- ON GENERATOR (SIGNAL FROM ATS)
- PUMP 1 SEAL FAILURE (SIGNAL FROM PUMP PROTECTION RELAY)
- PUMP 2 SEAL FAILURE (SIGNAL FROM PUMP PROTECTION RELAY)
- PUMP 1 OVERTEMPERATURE (SIGNAL FROM PUMP PROTECTION RELAY)
- PUMP 2 OVERTEMPERATURE (SIGNAL FROM PUMP PROTECTION RELAY)
- VALVE VAULT FLOODED (SIGNAL FROM FLOAT SWITCH VIA I.S. RELAY)
- SPARE
- SPARE
- SPARE

DISCRETE OUTPUTS

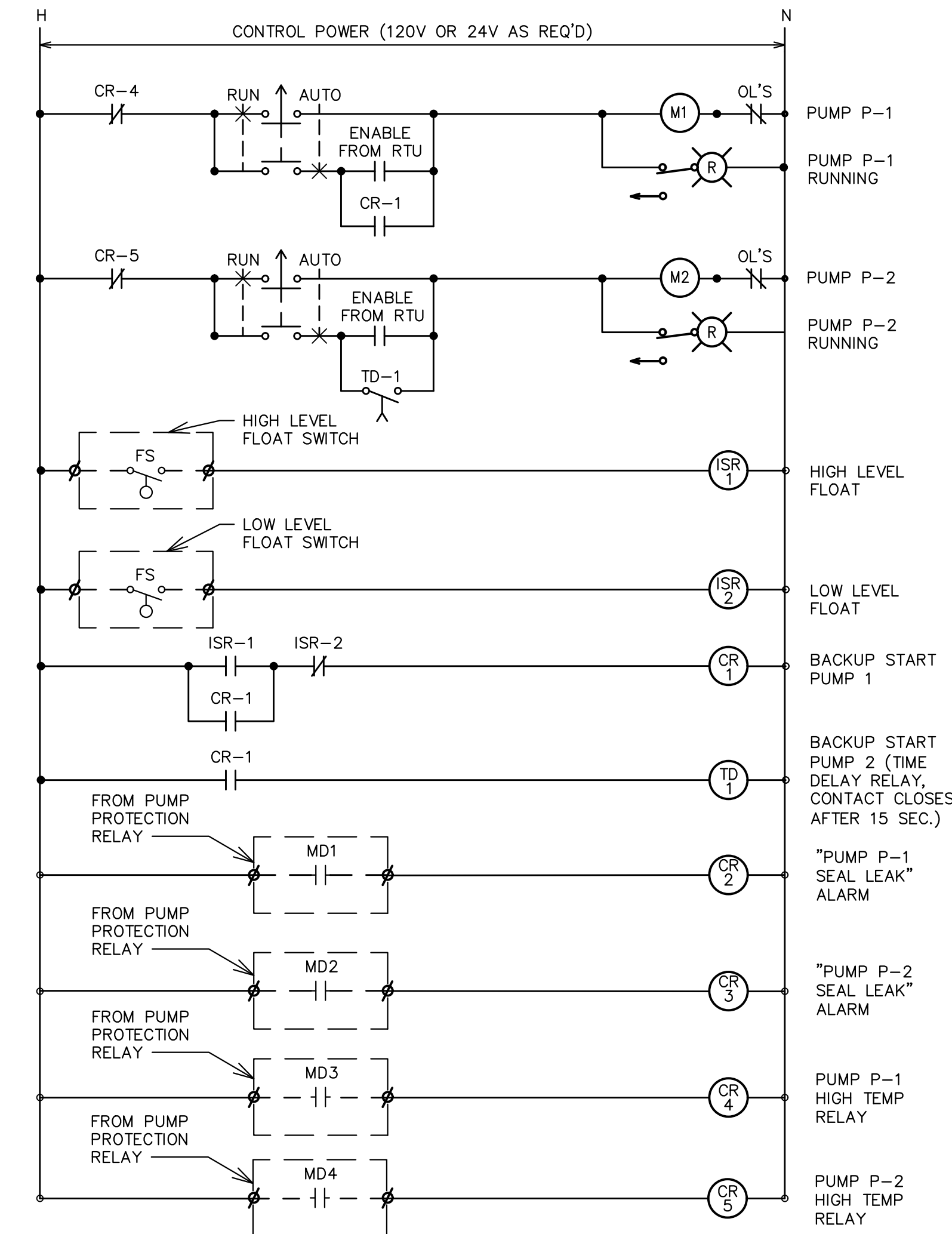
- START PUMP 1 (DRY CONTACT OUTPUT)
- START PUMP 2 (DRY CONTACT OUTPUT)
- STOP PUMP 1 (DRY CONTACT OUTPUT)
- STOP PUMP 2 (DRY CONTACT OUTPUT)

ANALOG INPUTS

- WETWELL LEVEL (SIGNAL FROM LEVEL TRANSMITTER)
- SPARE
- SPARE
- SPARE

MISCELLANEOUS OR STATUS VALUES

- AC POWER FAIL
- COMMS FAIL
- PUMP 1 HOURS DAILY
- PUMP 1 HOURS TOTAL
- PUMP 1 STARTS DAILY
- PUMP 1 STARTS TOTAL
- PUMP 2 HOURS DAILY
- PUMP 2 HOURS TOTAL
- PUMP 2 STARTS DAILY
- PUMP 2 STARTS TOTAL
- INTERROGATE STATION
- UPDATE STATION
- PUMP 1 RELAY BACK
- PUMP 2 RELAY BACK
- START LEAD SETPOINT
- START LAG SETPOINT

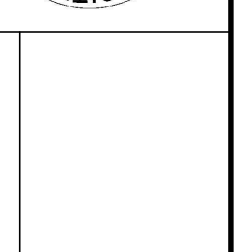


PUMP CONTROL WIRING DIAGRAM



REV.	DESCRIPTION	ISSUED FOR BID	DATE	DRAWN	CHECKED
			MARCH 23, 2022	M.J.H.	P.E.H.

CITY OF ANN ARBOR
PUBLIC SERVICES
301 EAST HURON STREET
ANN ARBOR, MI 48107-8647
www.a2gov.org



PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
ARBOR LANDINGS LIFT STATION
ELECTRICAL DETAILS
SCALE: NO SCALE
DRAWING No.: LE-02
SHEET No.: