ASTOR & FRANKLIN LIFT STATIONS REPLACEMENT PROJECT

CITY OF ANN ARBOR PUBLIC SERVICES UNIT / WASTEWATER TREATMENT PLANT

WASHTENAW COUNTY, MICHIGAN

OCTOBER 25, 2019
ISSUED FOR BIDS
HRC JOB NO. 20181019

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INCORPORATED 1851
MICHIGAN

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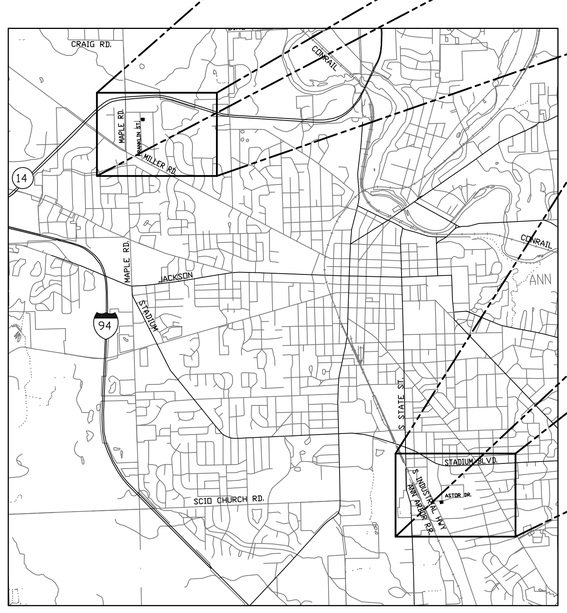
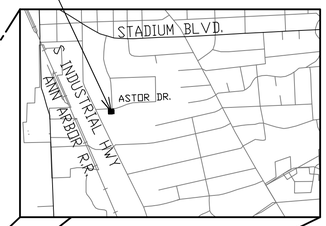
ANN ARBOR, MI



ASTOR LIFT STATION
1150 ASTOR DRIVE
ANN ARBOR, MI



LOCATION MAP

NOT TO SCALE

N
W E
S

HRC Job No. 20181019 ASTOR DR. & FRANKLIN ST. LIFT STATIONS REPLACEMENT PROJECT

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Paredes Eduardo

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. TREES SHALL BE NEATLY TRIMMED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT AND MAINTAIN EXISTING SERVICES TO EXISTING HOMES, INCLUDING SANITARY, WATER, GAS, CABLE 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, AND LAND OWNER(S) 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.

THE CONTRACTOR MUST REPAIR OR REPLACE ANY SPRINKLER HEADS, LINES, ETC. THAT HE MAY DAMAGE DURING THE COURSE OF CONSTRUCTION.

UNDER CONSTRUCTION

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

ALL SEWER TRENCHES SHALL BE BACKFILLED OR OTHERWISE PROTECTED OVERNIGHT AS DIRECTED BY THE ENGINEER. 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 THE PLANS. SOIL BORINGS AND THE GEOTECHNICAL INVESTIGATION IS BY: PROFESSIONAL SERVICE INDUSTRIES, INC. FARMINTON HILLS, MICH. SOIL BORING LOCATIONS ARE SHOWN ON THE LIFT STATION SPECIFIC CIVIL SHEET AND 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 ABOVE AGENCIES, 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 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 THE PROPOSAL 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 ON PLAN 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.

PAVING

ALL PAVING OPERATIONS SHALL BE COMPLETED IN ACCORDANCE WITH THE SPECIFICATIONS AND AS NOTED ON THE PLANS.

BITUMINOUS BOND COAT WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF THE PROJECT.

THE CONSTRUCTION OF ALL LONGITUDINAL JOINTS IN THE BITUMINOUS LEVELING AND WEARING COURSES SHALL BE CONSTRUCTED WITH THE USE OF A JOINT MATCHING SHOE.

ANY RANDOM, IRREGULARLY CRACKED NEW CONCRETE CURB & GUTTER THAT OCCURS BEFORE THE PAVEMENT IS OPENED TO TRAFFIC SHALL BE REMOVED AND REPLACED PRIOR TO OPENING THE PAVEMENT TO TRAFFIC AT THE SOLE EXPENSE OF THE CONTRACTOR.

SAWING FOR PAVEMENT REMOVAL AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER, TO THE DEPTH REQUIRED FOR CLEAN REMOVAL OF PAVEMENTS OR CURBS, SHALL BE INCLUDED IN THE COST OF THE PROJECT. SAWING DEPTH SHALL BE ADEQUATE TO PREVENT SPALLING, CHIPPING, OR DAMAGE TO EXISTING PAVEMENT EDGES LEFT IN PLACE AS DIRECTED BY THE ENGINEER.

MISCELLANEOUS

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

WHEN THE FOLLOWING ITEMS OF WORK ARE SPECIFIED ON THE PLANS OR REQUIRED BY THE ENGINEER IN THE CONSTRUCTION OF THE PROJECT, THE ITEM WILL NOT BE PAID FOR SEPARATELY, UNLESS A PAY ITEM FOR THESE ITEMS IS PROVIDED.

- HMA BOND COAT
- ROCK EXCAVATION
- SWEEPING PAVEMENT
- SAWING, FOR PAVEMENT AND CURB REMOVAL
- CONCRETE ADMIXTURES
- REMOVING EDGEDRAIN, UNDERDRAIN, FRENCHDRAINS, OR DRAIN TILE

THE FOLLOWING ITEMS OF WORK SHALL BE DONE AS THEY APPLY THROUGHOUT THE PROJECT OR AS DIRECTED BY THE ENGINEER. THESE ITEMS ARE NOT DETAILED OR INCLUDED ON THE PLAN AND PROFILE SHEETS:

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

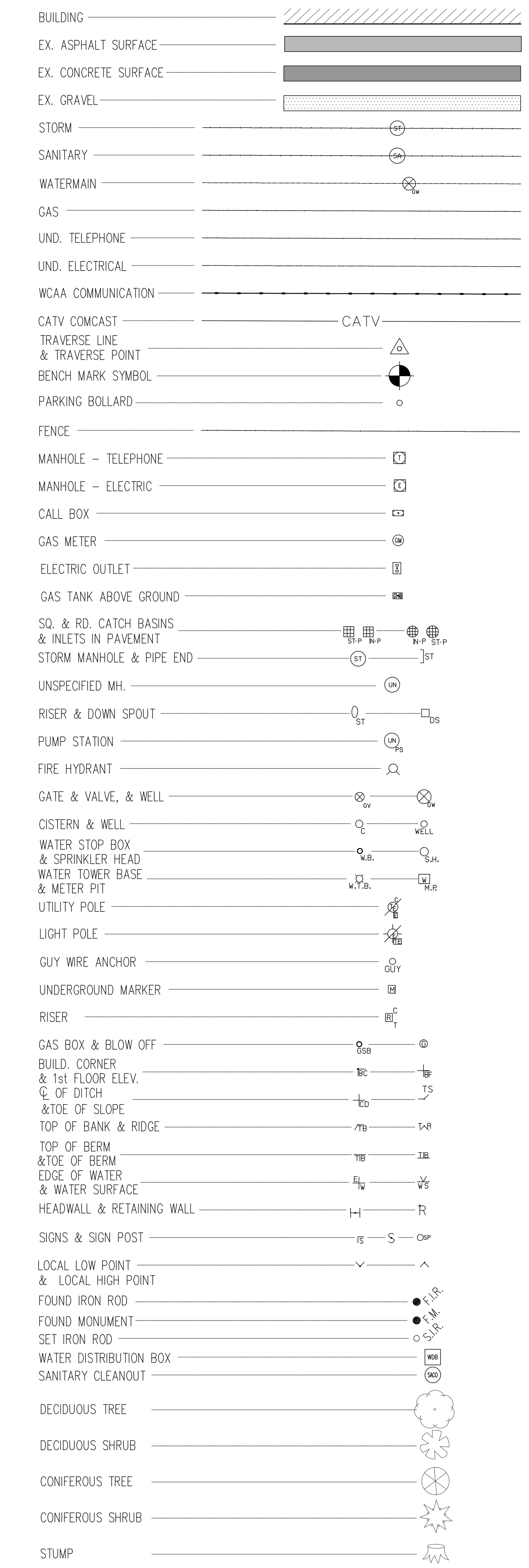
VERTICAL CURVES

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
BVCE	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/BC	BACK–OF–CURB TO BACK–OF–CURB
B.M.	BENCH MARK
C.I.	CAST IRON
C.I.P.	COMPACTED IN PLACE
℄	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.C.A.A.	WAYNE COUNTY AIRPORT AUTHORITY
W.M.	WATER MAIN

LEGEND



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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
	ISSUED FOR BIDS	OCT. 25, 2019		AAU
	ISSUED FOR 90% REVIEW	SEPT. 27, 2019		AAU
	ISSUED FOR 50% REVIEW	AUGUST 30, 2019		AAU

CITY OF ANN ARBOR MICHIGAN

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

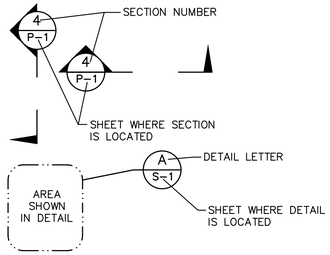
PROJECT MANAGEMENT – PUBLIC SERVICES – CITY OF ANN ARBOR

CIVIL LEGEND, NOTES AND ABBREVIATIONS

SCALE NO SCALE

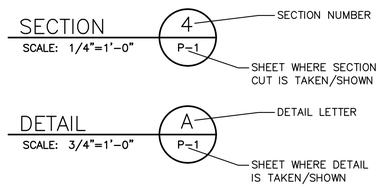
DRAWING No. GC–01

SHEET No.



DRAWING, SECTION & DETAIL TITLES

SCALE: 1/4"=1'-0"



VALVE/GATE OPPERATORS

SYMBOL	TYPE
M S P	MOTOR/SOLENOID/PNUMATIC ACTUATOR
	HANDWHEEL/LEVER OPERATOR

MISCELLANEOUS

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

GATE DESIGNATION

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

VALVE DESIGNATIONS

SYMBOLS: 6"ø PIPE & LARGER	SYMBOLS: 4"ø PIPE & SMALLER	ABBREV.	TYPE
		GV	GATE VALVE
		BV	BALL VALVE
		CV	CHECK VALVE
		PV	PLUG VALVE W/HW OPERATOR
		BFV	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
M	M	FLOW METER
		CONCENTRIC REDUCER
e		ECCENTRIC REDUCER
		BRAIDED METAL FLEX CONNECTION
BF	BF	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
BFV	BUTTERFLY VALVE
BOTT	BOTTOM
CMU	CONCRETE MASONRY UNIT
℄	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
ML	MIXED LIQUOR
OF	OVERFLOW
PEW	PRESSURIZED EFFLUENT WATER
POL	POLYMER
POS	POLYMER SOULTION
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

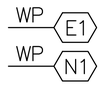
1. THE AREA AROUND EQUIPMENT SHALL BE ACCESSIBLE FOR OPERATION AND MAINTENANCE. THE CONTRACTOR SHALL NOT INSTALL CONDUIT, SEAL OR FLUSHING WATER, NATURAL GAS PIPING, LIGHTING OR OTHER UTILITIES IN AREAS REQUIRED FOR EQUIPMENT OPERATION, MAINTENANCE OR REPLACEMENT.
2. VICTAULIC OR DRESSER STYLE CONNECTIONS 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

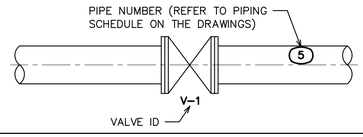
(SEE DETAILS)



EXISTING WALL

NEW WALL

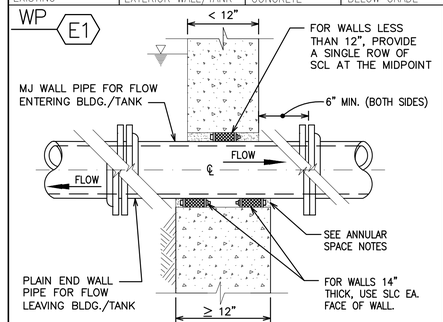
VALVE & PIPE IDENTIFICATION



NOTES:
1. COORDINATE ALL CORES WITH ℄ ELEV., PIPE O.D. & *SCL THICKNESS. CORE OPENING PER SECTION 01045.
2. HARDWARE AND SLEEVE MATERIALS SHALL BE COMPATIBLE TO THE TO THE ENVIRONMENT, PER SECTION 15000.
3. WHEREVER POSSIBLE, PLACE SEALS TO TIGHTEN FROM BUILDING INTERIOR. TIGHTEN *SCL SEQUENTIALLY, PER MANUFACTURER'S RECOMMENDATIONS.
   *SCL – SEGMENTED COMPRESSIBLE LINKS

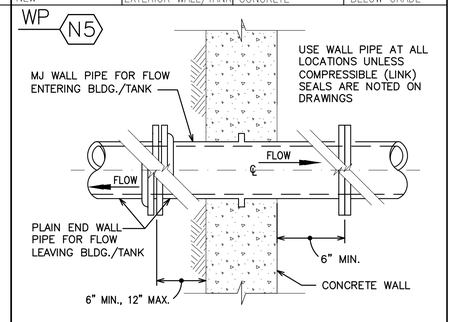
ANNULAR SPACE NOTES:
1. ANNULAR RING INSIDE BUILDINGS SHALL BE FINISHED TO MATCH INTERIOR WALLS, CEILING OR SLAB. (PAINT WHEN SURFACE IS PAINTED OR ESCUTCHEON PLATE WHERE SURFACE IS TILED).
2. FOR MASONRY WALLS, CAULK AND PAINT ANNULAR SPACE WHEN MASONRY IS PAINTED. (MATCH COLOR PAINT). OTHERWISE GROUT.
3. FOR CONCRETE WALLS, CAULK & PAINT TO MATCH NATURAL CONCRETE. FOR CONCRETE WALLS IN WET WELLS OR PIPE GALLERIES, NO ANNULAR SPACE TREATMENT IS REQUIRED.
4. WHEN WALL IS TILED, PROVIDE ESCUTCHEON PLATE SUITABLE TO ENGINEER OR OWNER.

CONDITION	TYPE	CONSTRUCTION	GRADE	CONDITION	TYPE	CONSTRUCTION	GRADE
EXISTING	EXTERIOR WALL/TANK	CONCRETE	BELOW GRADE	NEW	EXTERIOR WALL/TANK	CONCRETE	BELOW GRADE



PIPE THROUGH EXTERIOR WALL/TANK

NO SCALE



WALL PIPE IN EXTERIOR WALL/TANK

NO SCALE

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
	ISSUED FOR BIDS	OCT. 25, 2019	AAU	AAU
	ISSUED FOR 90% REVIEW	SEPT. 27, 2019	AAU	
	ISSUED FOR 50% REVIEW	AUGUST 30, 2019	AAU	

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ENGINEERING
301 EAST HURON STREET
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CITY OF ANN ARBOR MICHIGAN

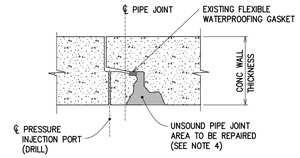
PROJECT MANAGEMENT – PUBLIC SERVICES – CITY OF ANN ARBOR

PROCESS LEGEND

SCALE NO SCALE

DRAWING No. GP-01

SHEET No.

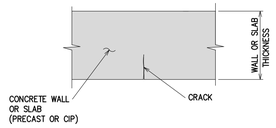


PRECAST PIPE JOINT

NOTES: JOINT REPAIR & SEAL – ⟨1⟩

1. A MANDATORY PRECONSTRUCTION MEETING W/FIELD ENGINEER WILL BE REQUIRED TO DETERMINE EXACT LOCATION AND QUANTITY OF REPAIRS.
2. REMOVE ALL UNSOUND AND DETERIORATED CONCRETE ALONG THE EXISTING PIPE JOINTS TO THE LIMITS AS DETERMINED BY THE ENGINEER.
3. SURFACE PREPARATION PER MANUFACTURER'S RECOMMENDATIONS. MECHANICAL REMOVAL OF BUILD UP AT JOINTS MAY BE NECESSARY.
4. 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.
5. 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 SAUEREISEN OR APPROVED EQUAL.
6. 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 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
7. THE PATCHING AND PRESSURE INJECTION MATERIAL SHALL BE COMPATIBLE WITH PROTECTIVE CONCRETE COATING SYSTEM (REPAIR TYPE ⟨4⟩).

JOINT REPAIR & SEAL – REPAIR TYPE ⟨1⟩

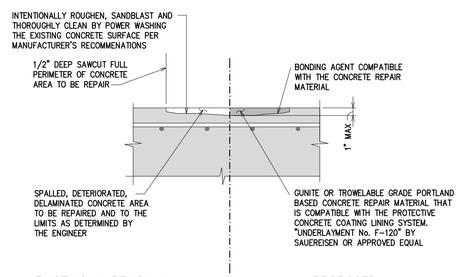


WALL OR SLAB CRACK

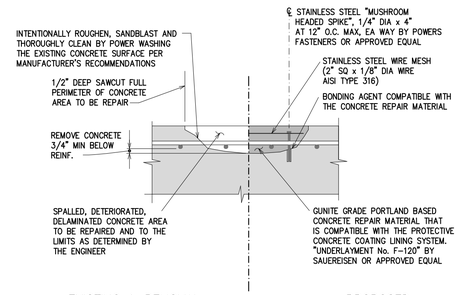
NOTES: CRACKS, REPAIR & SEAL – ⟨2⟩

1. A MANDATORY PRECONSTRUCTION MEETING W/FIELD ENGINEER WILL BE REQUIRED TO DETERMINE EXACT LOCATION AND QUANTITY OF REPAIRS.
2. CONTRACTOR SHALL PREPARE AND THOROUGHLY CLEAN THE CONCRETE SURFACE ALONG THE CRACK TO BE REPAIRED PER MANUFACTURER'S RECOMMENDATIONS.
3. 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.
4. 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 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⟩



DEPTH: LESS THAN OR EQUAL TO 1"
SHALLOW REPAIR



DEPTH: GREATER THAN 1"
DEEP REPAIR

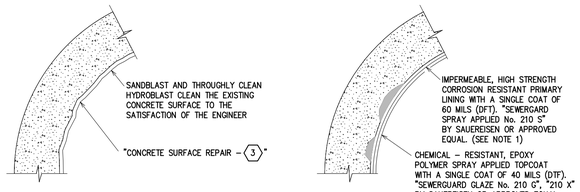
NOTES: CONCRETE SURFACE REPAIR – ⟨3⟩

1. A MANDATORY PRECONSTRUCTION MEETING W/FIELD ENGINEER WILL BE REQUIRED TO DETERMINE EXACT LOCATION AND QUANTITY OF REPAIRS.
2. 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.
3. 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.
4. THE CONCRETE SURFACE REPAIR MATERIALS AND THE PROTECTIVE CONCRETE COATING SYSTEM SHALL BE COMPATIBLE AND MANUFACTURED BY THE SAME COMPANY. DIFFERENT MANUFACTURE'S OF INDIVIDUAL COMPONENTS SHALL NOT BE ACCEPTABLE.

CONCRETE SURFACE REPAIR – REPAIR TYPE ⟨3⟩

FRP LADDER & LADDER UP NOTES:

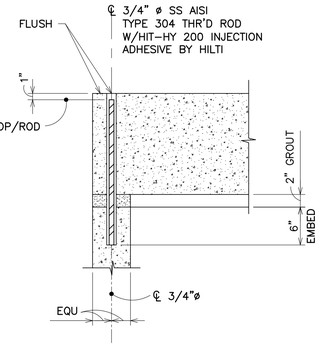
1. CONTRACTOR SHALL FIELD VERIFY ALL NECESSARY DIMENSIONS FOR PROPER FIT OF THE FRP LADDER AND STAINLESS STEEL LADDER UP WITH EXISTING RISER SECTIONS AND COORDINATE WITH PROPOSED TOP SLAB AND ACCESS HATCH.
2. CONTRACTOR SHALL PREPARE, SUBMIT AND SEAL BY A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF 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.
3. THE LADDER UP, LADDER STAND-OFF BRACKETS AND ALL CONNECTIONS HARDWARE SHALL BE STAINLESS STEEL – TYPE 316 OR APPROVED EQUAL.



NOTES: SURFACE PREP & INSTALL PROTECTIVE CONCRETE COATING – ⟨4⟩

1. 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.
2. THE ENTIRE INTERIOR CONCRETE SURFACES OF THE WET WELL SHALL RECEIVE THE PROTECTIVE COATING TO THE LIMITS AS SHOWN.
3. 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
4. DFT – DRY FILM THICKNESS

SURFACE PREP & INSTALL PROTECTIVE CONCRETE COATING REPAIR TYPE ⟨4⟩



TOP SLAB CONNECTION
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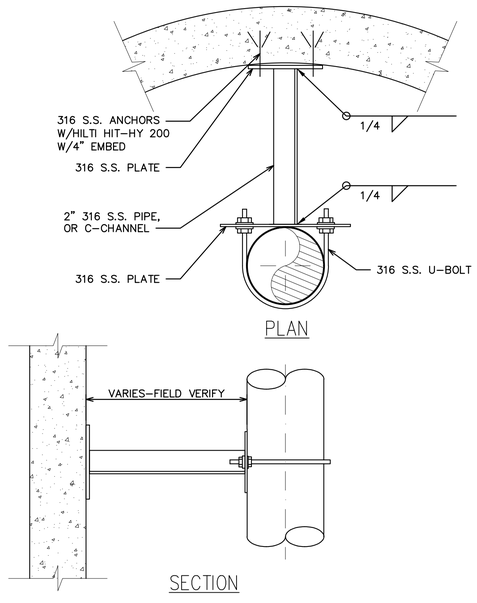

VERTICAL PIPE SUPPORT DETAIL
NO SCALE

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	ISSUED FOR BIDS	OCT. 25, 2019	AAU	AAU
	ISSUED FOR 90% REVIEW	SEPT. 27, 2019	AAU	AAU
	ISSUED FOR 50% REVIEW	AUGUST 30, 2019	AAU	AAU

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CITY OF ANN ARBOR, MICHIGAN

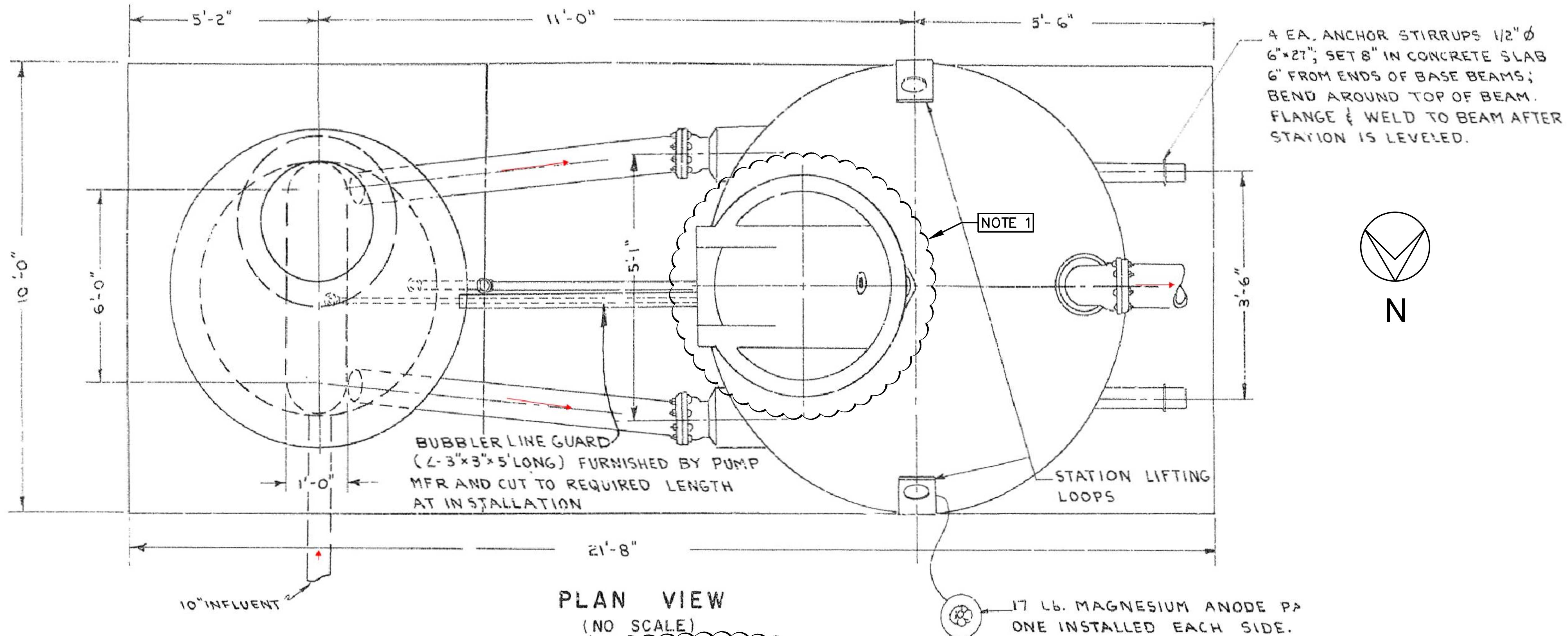
PROJECT MANAGEMENT – PUBLIC SERVICES – CITY OF ANN ARBOR

GENERAL STRUCTURAL DETAILS

SCALE N.T.S.

DRAWING No. GS-01

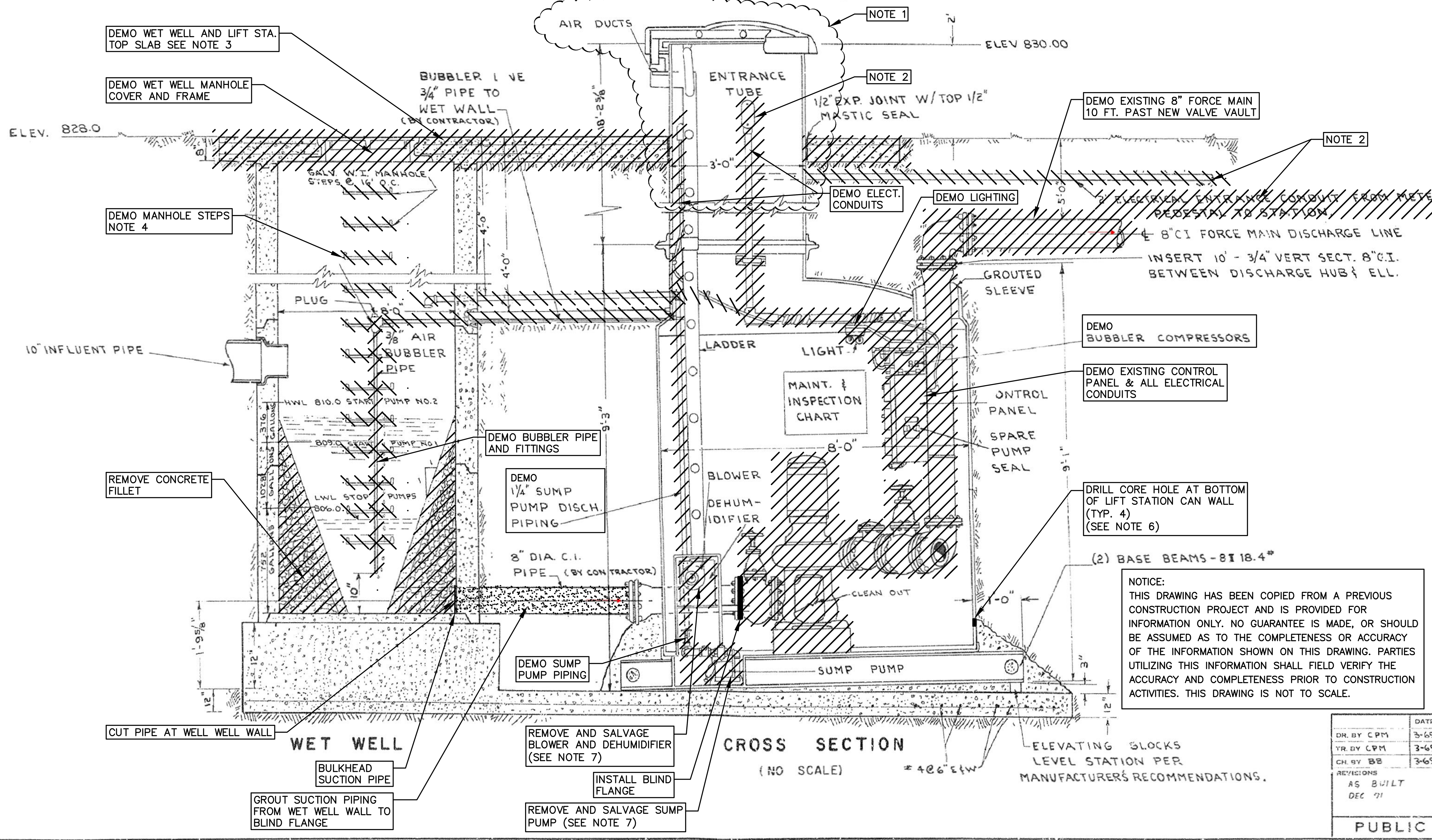
SHEET No.



PLAN VIEW
(NO SCALE)

DEMOLITION NOTES:

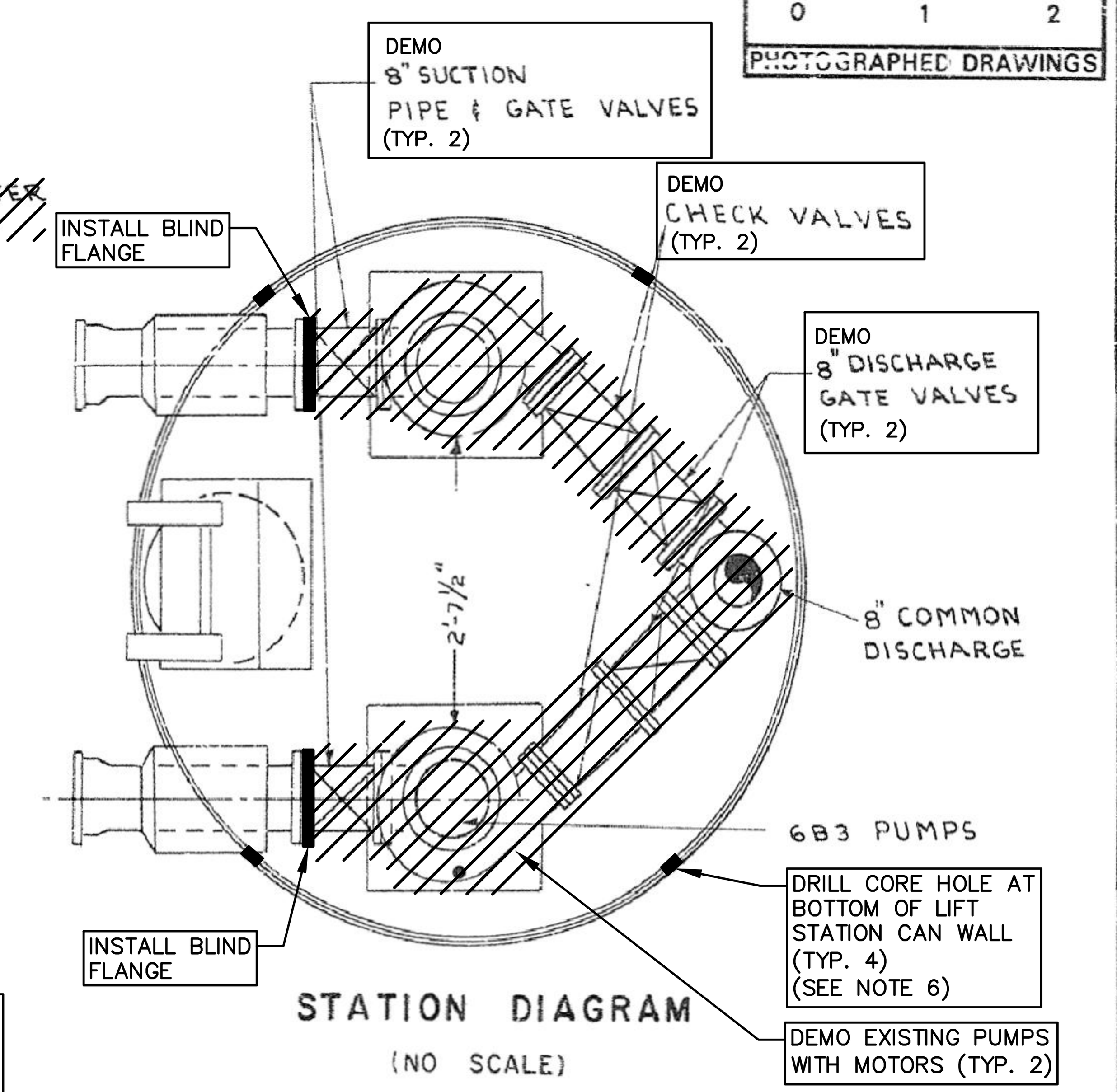
1. REMOVE ENTRANCE TUBE AND ACCESS LADDER TO 9' BELOW GRADE AND FILL LIFT STATION WITH PEA STONE. (CONFORMING TO MDOT 34R).
2. FOR CONTINUATION OF ELECTRICAL DEMOLITION, SEE SHEET AE-01.
3. REMOVE WET WELL TOP SLAB ONLY WHEN NEW TOP SLAB IS ON SITE, OR COVER AND PROTECT WITH ROAD PLATE OR SUITABLE MEANS.
4. THE EXISTING MANHOLE ACCESS RUNGS SHALL BE CUT FLUSH AND GROUND SMOOTH WITH 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 FOUR (4) CORE HOLES EVENLY SPACED ALONG THE BOTTOM OF THE LIFT STATION CAN WALL FOR GROUNDWATER DRAINAGE. HOLES MUST BE THREE INCHES IN DIAMETER AND THREE INCHES ABOVE LIFT STATION CAN FLOOR.
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.



CROSS SECTION
(NO SCALE)

NOTICE:
THIS DRAWING HAS BEEN COPIED FROM A PREVIOUS CONSTRUCTION PROJECT AND IS PROVIDED FOR INFORMATION ONLY. NO GUARANTEE IS MADE, OR SHOULD BE ASSUMED AS TO THE COMPLETENESS OR ACCURACY OF THE INFORMATION SHOWN ON THIS DRAWING. PARTIES UTILIZING THIS INFORMATION SHALL FIELD VERIFY THE ACCURACY AND COMPLETENESS PRIOR TO CONSTRUCTION ACTIVITIES. THIS DRAWING IS NOT TO SCALE.

REFERENCE LINE FOR TWO INCHES
0 1 2
PHOTOGRAPHED DRAWINGS



STATION DIAGRAM
(NO SCALE)

MATERIALS: ALL MATERIALS USED ARE TO CONFORM TO CITY OF ANN ARBOR, PUBLIC WORKS DEPARTMENT, TECHNICAL SPECIFICATIONS FOR CONSTRUCTION MATERIALS.

	DATE	
DR. BY CPM	3-69	SHEET NO.
TR. BY CPM	3-69	INDEX NO. 6704 / SHELF NO.
CH. BY BB	3-69	6-C-4398
REVISIONS: AS BUILT DEC '71		SCALE: HORIZONTAL NONE VERTICAL

SANITARY SEWER
PUMP STATION FOR BOTANICAL PARK
FREDRICK A. MAMMEL — SUPERINTENDENT OF PUBLIC WORKS

PUBLIC WORKS DEPARTMENT – ANN ARBOR, MICHIGAN

JOB 3737S — DIST. PRIVATE
JOB — DIST.
JOB — DIST.
JOB — DIST.

PREPARED BY ATWELL-HICKS, INC.
APPROVED BY

LEGEND: UNDERGROUND UTILITIES — EXISTING SANITARY, PROPOSED SANITARY, EXISTING STORM, PROPOSED STORM, G EXISTING GAS, W EXISTING WATER; PROFILES — CENTER LINE, LEFT PROPERTY LINE, RIGHT PROPERTY LINE

REFERENCES: BENCH MARK US C&GS 11-1 ELEV 838.06 — PROFILES BY — DRAWINGS — FIELD BOOK

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	ISSUED FOR 50% REVIEW	AUGUST 30, 2019		AAU

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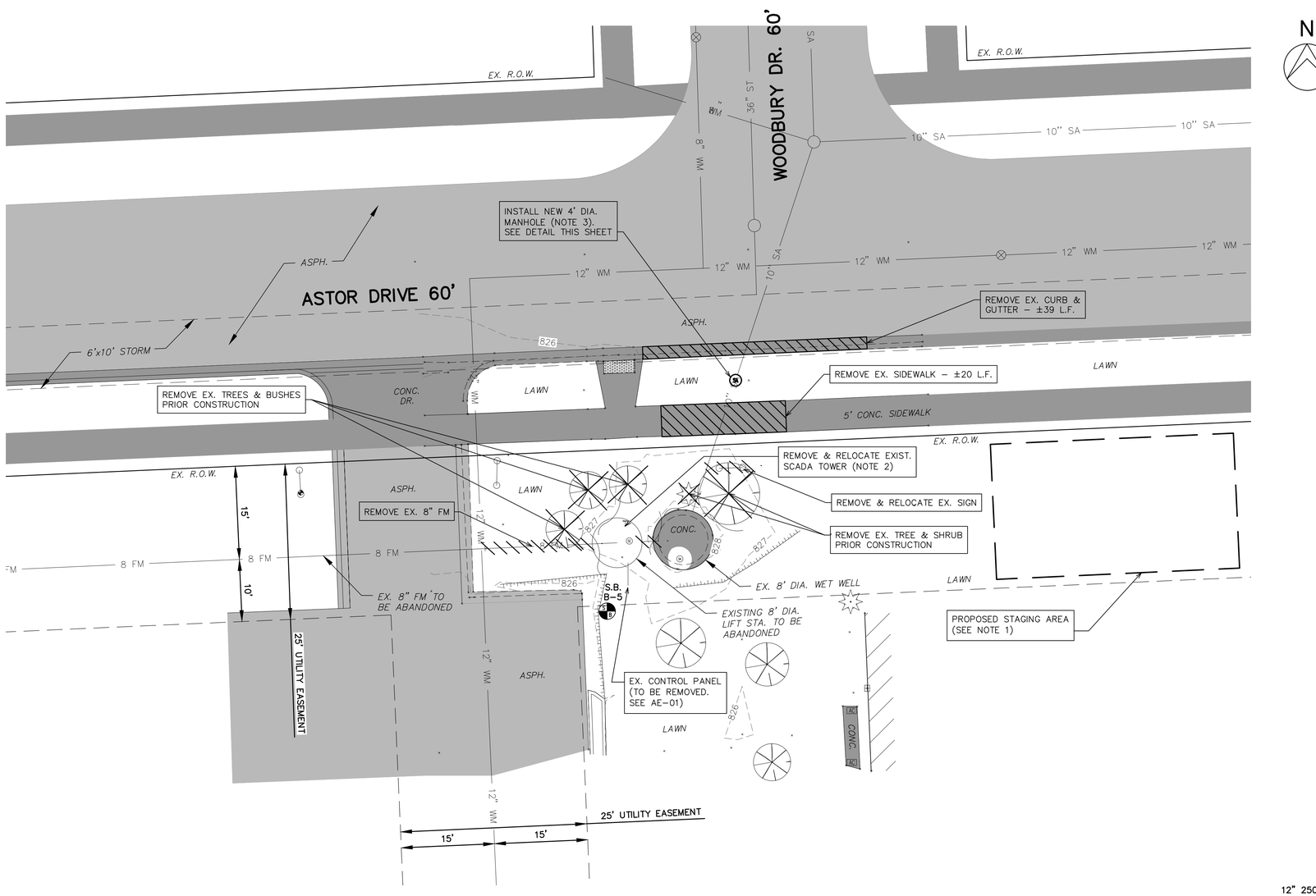
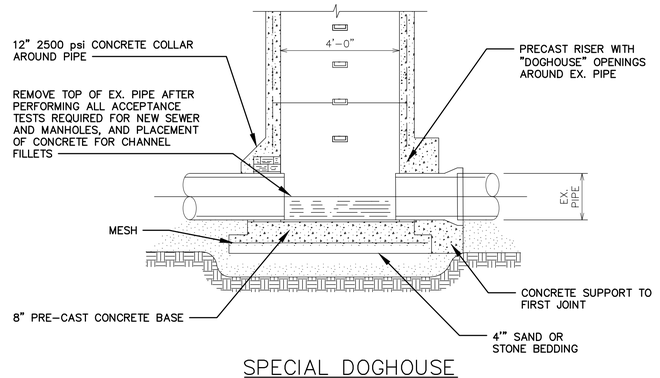
PROJECT MANAGEMENT – PUBLIC SERVICES – CITY OF ANN ARBOR
ASTOR LIFT STATION
DEMOLITION

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



GENERAL NOTES

1. CONTRACTOR TO CONFINE HIS OPERATIONS TO WITHIN THE UTILITY EASEMENT AND OUTSIDE OF THE RIGHT OF WAY WHENEVER POSSIBLE.
2. TEMPORARILY RELOCATE EXISTING SCADA TOWER TO STAGING AREA DURING CONSTRUCTION.
3. NEW MANHOLE IS TO FACILITATE TEMPORARY BYPASS PUMPING. MANHOLE RIM ELEVATION SHALL MATCH NEW ACCESS DRIVE GRADE (SEE SHEET AC-02).



SPECIAL DOGHOUSE MANHOLE DETAIL
NOT TO SCALE

Know what's below. Call before you dig.

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	ISSUED FOR 90% REVIEW	SEPT. 27, 2019	AAU	
	ISSUED FOR 50% REVIEW	AUGUST 30, 2019	AAU	

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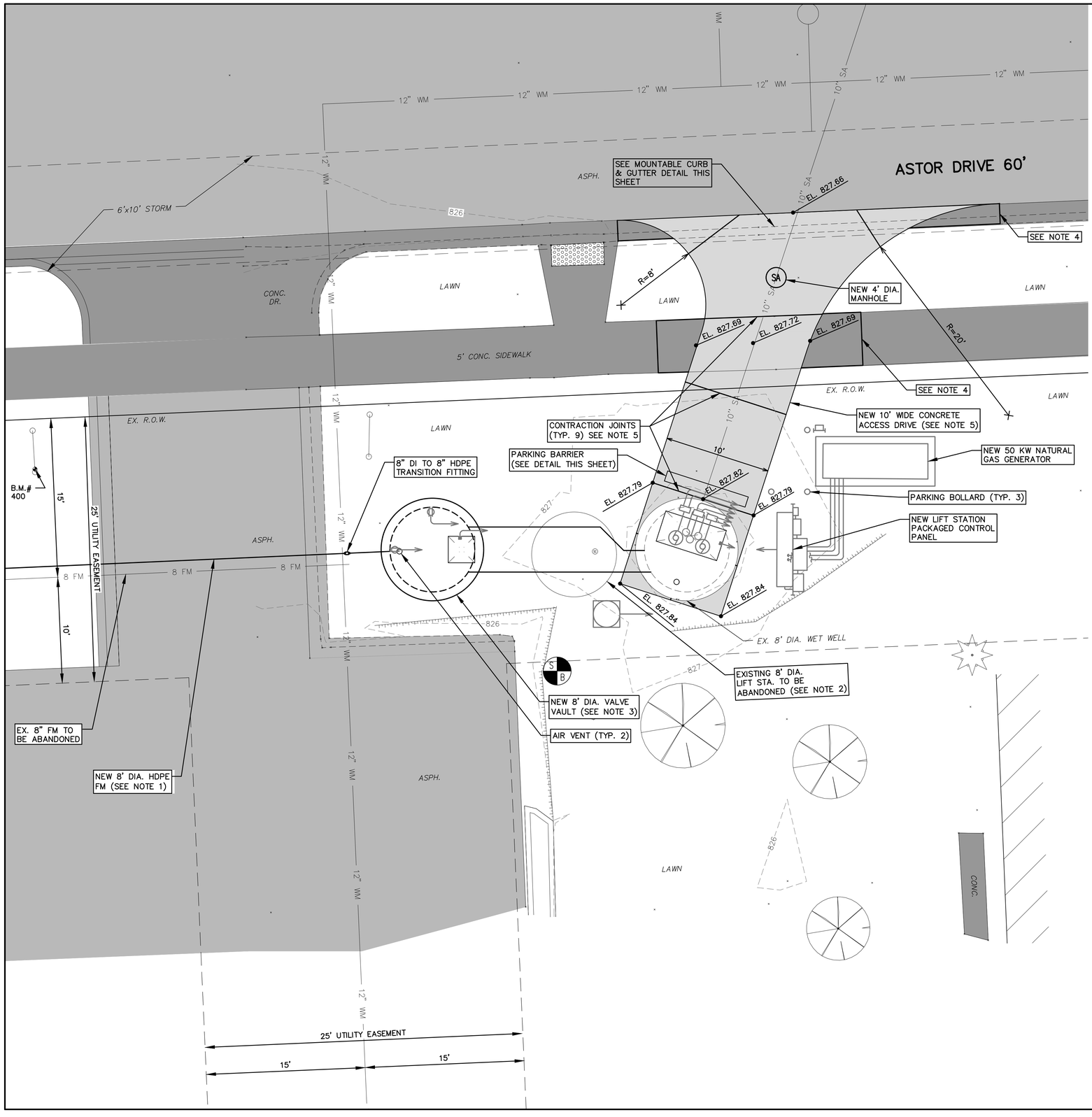
PROJECT MANAGEMENT – PUBLIC SERVICES – CITY OF ANN ARBOR

ASTOR LIFT STATION
EXISTING SITE PLAN

SCALE PLAN: 1"=10'

DRAWING No. AC-01

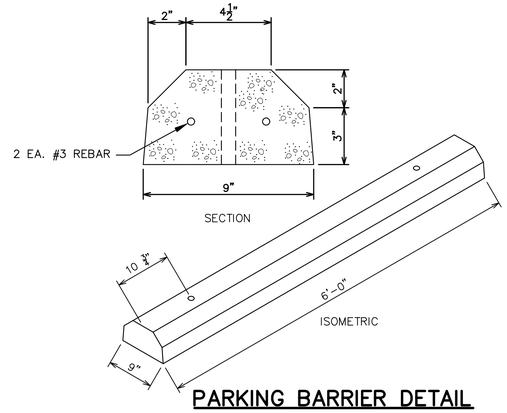
SHEET No.



N

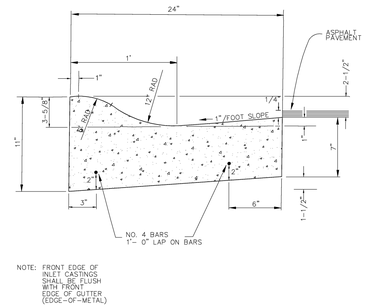
GENERAL NOTES:

1. EXISTING 8" CI FM TO BE ABANDONED IN PLACE. NEW 8" HDPE FM TO BE DIRECTIONALLY DRILLED PARALLEL TO THE EXISTING FM LINE. SEE SPECIFICATION 02035 "HORIZONTAL DIRECTIONAL DRILLING" FOR MORE INFORMATION.
2. EXISTING LIFT STATION CAN TO BE ABANDONED IN PLACE. ALL ELECTRICAL AND MECHANICAL EQUIPMENT IS TO BE DEMOLISHED (SEE SHEET AE-01). AFTER DEMOLITION AND LIFT STATION CAN DRAINAGE CORING ARE COMPLETE THE LIFT STATION CAN IS TO BE CUT OFF 9' BELOW GRADE & FILLED WITH PEA STONE.
3. TREES AND VEGETATION SURROUNDING THE NEW VALVE VAULT AND EXISTING WET WELL MUST BE REMOVED PRIOR TO CONSTRUCTION.
4. CONTRACTOR TO TRANSITION EXISTING SIDEWALK AND CURB & GUTTER TO NEW ACCESS DRIVE.
5. INSTALL ACCESS DRIVE JOINTS PER MDOT STANDARDS.
6. CONTRACTOR TO COORDINATE GAS UTILITY WORK AND METER AS INDICATED ON SHEET AE-01.
7. CONTRACTOR TO RELOCATE EXISTING SCADA TOWER TO ORIGINAL LOCATION AT THE END OF CONSTRUCTION.



PARKING BARRIER DETAIL

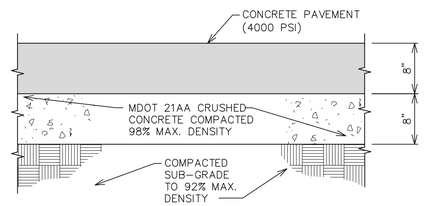
NOT TO SCALE



NOTE: FRONT EDGE OF INLET CASTINGS SHALL BE FLUSH WITH FRONT EDGE OF GUTTER (EDGE-OF-METAL)

MOUNTABLE CURB & GUTTER (SD-R-2)

NOT TO SCALE



TYPICAL CONCRETE PAVEMENT

NOT TO SCALE

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
	ISSUED FOR BIDS	OCT. 25, 2019	AAU	
	ISSUED FOR 90% REVIEW	SEPT. 27, 2019	AAU	
	ISSUED FOR 50% REVIEW	AUGUST 30, 2019	AAU	

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PUBLIC SERVICES
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ANN ARBOR, MICHIGAN 48107-8647
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PROJECT MANAGEMENT – PUBLIC SERVICES – CITY OF ANN ARBOR

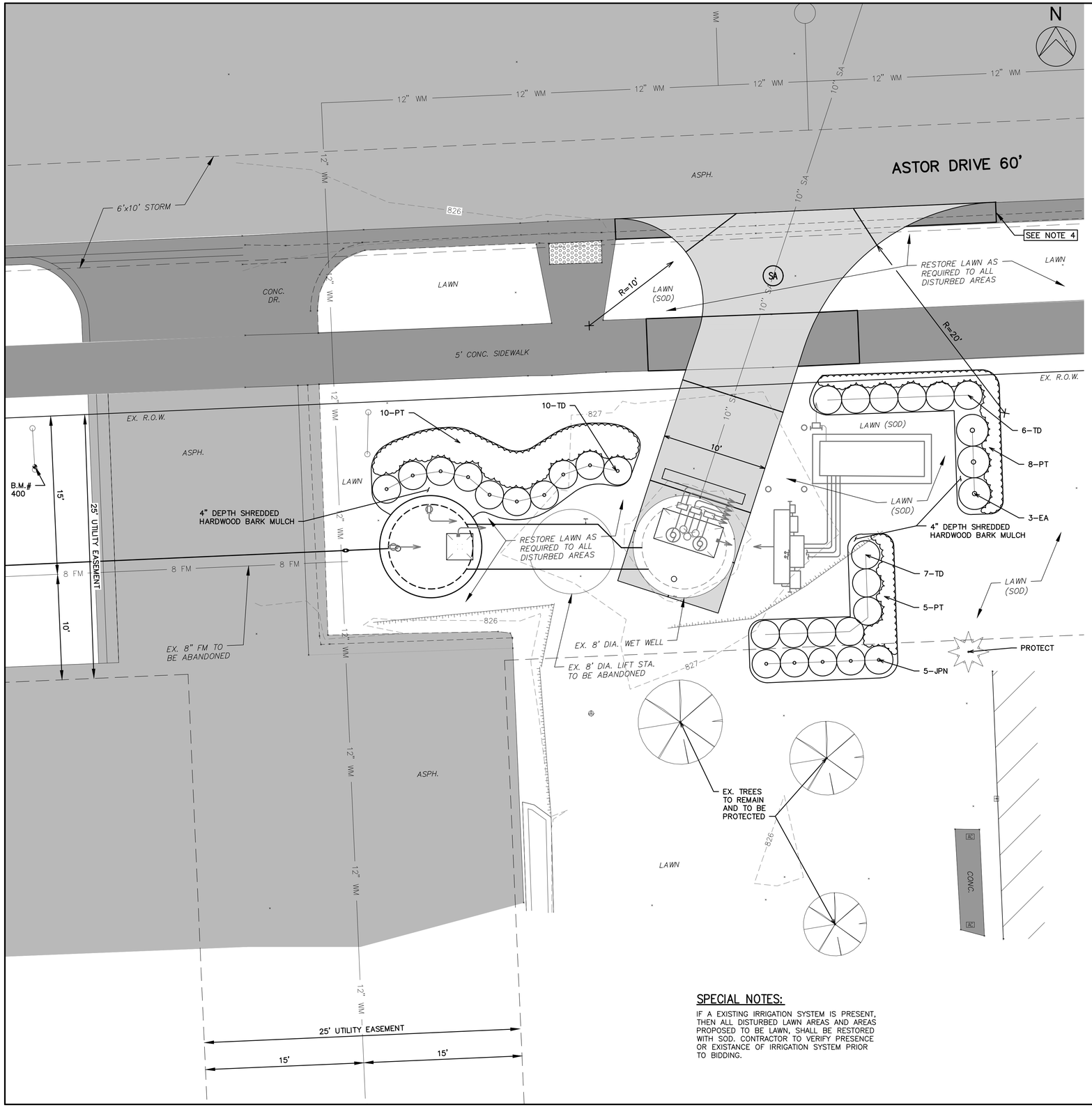
ASTOR LIFT STATION

PROPOSED SITE PLAN

SCALE PLAN: 1" = 5'

DRAWING No. AC-02

SHEET No.



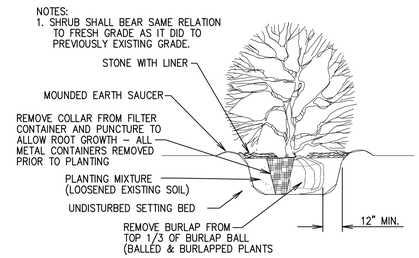
SPECIAL NOTES:

IF A EXISTING IRRIGATION SYSTEM IS PRESENT, THEN ALL DISTURBED LAWN AREAS AND AREAS PROPOSED TO BE LAWN, SHALL BE RESTORED WITH SOD. CONTRACTOR TO VERIFY PRESENCE OR EXISTANCE OF IRRIGATION SYSTEM PRIOR TO BIDDING.

PLANT LIST/QUANTITY

KEY	QT.	BOTANIC NAME	COMMON NAME	SIZE	NOTES
EA	3	EUONYMUS ALA. COMPACTA	DWARF BURNING BUSH	30" HT.	B & B
JPN	5	JUNIPERUS PRO. NANA	DWARF SPRENOING JUNIPER	24" SPD.	CONT.
PT	23	PACHYSANDRA TERMINALIS	PACHYSANDRA	FLATS	30 PLANTS/FLAT
TD	23	TAXUS DENSIFORMUS	DENSE YEW	24 HT.	CONT.

4" DEPTH HARDWOOD BARK MULCH – ALL BEDS



TYPICAL SHRUB PLANTING

(NOT TO SCALE)

LANDSCAPE NOTES

1. VERIFY ALL CONDITIONS ON SITE PRIOR TO COMMENCING CONSTRUCTION AND REPORT ANY DISCREPANCIES IMMEDIATELY TO ENGINEER OR OWNER.
2. VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES AND SERVICES PRIOR TO COMMENCING WORK. CONTRACTOR IS RESPONSIBLE FOR ANY COST INCURRED DUE TO DAMAGED UTILITIES.
3. 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.
4. 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.
5. 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.
6. 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.
7. 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.
8. ANY RAISED EARTH BERMS SHOWN ON THE PLANS SHALL BE MADE ENTIRELY OF LIGHT ORGANIC SOILS AND SHALL BLEND SMOOTHLY INTO EXISTING TOPOGRAPHY
9. WATER-IN ALL PLANT MATERIAL IMMEDIATELY AFTER INSTALLATION.
10. MULCH CIRCLES FOR ALL TREES SHALL COVER ENTIRE PLANTING PIT. IF SOIL HAS HEAVY CLAY CONTENT, PLANTING THE TREE 6" HIGH IS ACCEPTABLE. ADVISE ENGINEER PRIOR TO PLANTING.
11. SUBMIT SAMPLES OF MULCH, TOPSOIL, PRE-EMERGENT, STONE, ETC., AS REQUIRED BY THE PROJECT.
12. LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR SUPPLY AND PLACEMENT OF TOPSOIL PER SPECIFICATIONS.
13. ALL TREES SHALL HAVE CLAY LOAM ROOT BALLS – NO SAND BALLS ACCEPTED.
14. SNOW/TREE PROTECTION FENCING NEEDS TO BE INSTALLED AROUND PERIMETER OF WORK AREA TO PROTECT EXISTING TREES AND PROPERTY.
15. 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.
16. PLANT TREES AND SHRUBS NO CLOSER THAN THE FOLLOWING MINIMUM DISTANCES FROM SIDEWALKS, CURBS AND PARKING STALLS UNLESS AS SHOWN ON THE PLANS:

    A. SHADE/CANOPY TREES 5 FEET
    B. ORNAMENTAL/FLOWERING TREES 5 FEET
    C. EVERGREEN TREES 10 FEET
    D. EVERGREEN/FLOWERING SHRUBS 4 FEET

17. 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.
18. 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.
19. 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.
20. 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 TRANSPLANTING. ALL CUTS SHALL BE MADE FLUSH, LEAVING NO STUBS. PAINT ALL CUTS OVER 1"DIA. WITH TREE PAINT.
21. 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:

    A. 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.

22. BACKFILL DIRECTLY BEHIND ALL CURBS AND SIDEWALKS AND COMPACT TO THE TOP OF CURB OR WALK TO SUPPORT VEHICLE AND PEDESTRIAN WEIGHT WITHOUT SETTLING.
23. 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.
24. PLANT MATERIAL WITH 25% OR GREATER DIE BACK, AS DETERMINED BY THE OWNER'S REPRESENTATIVE, SHALL BE REPLACED AS STIPULATED ABOVE.
25. 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.
26. SOD SHALL BE A MIX OF THE FOLLOWING TYPES IN THE PORTIONS SHOWN. APPLY SEED AT A RATE OF 250LBS./ACRE(6LBS./1000 SF)

    KENTUCKY BLUEGRASS 'BARON/CHERI/ADELPI'.....20%
    CHEWING FESCUE.....15%
    TURF TYPE TALL FESCUE (K-31).....40%
    PERENNIAL RYE GRASS (MANHATTAN).....40%

WEED CONTENT SHALL NOT EXCEED 0.30 OF 1%

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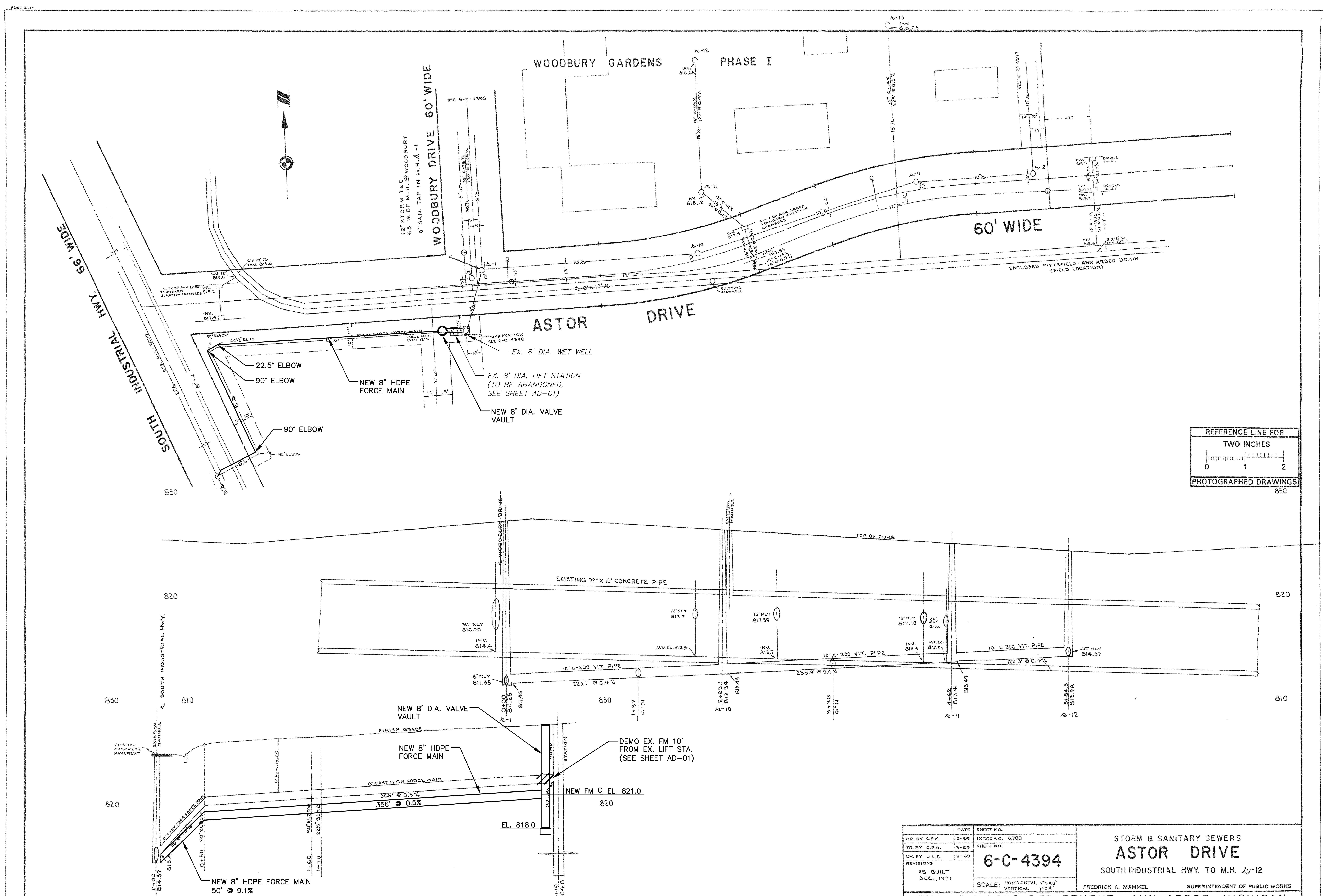
PROJECT MANAGEMENT – PUBLIC SERVICES – CITY OF ANN ARBOR

ASTOR LIFT STATION
LANDSCAPING PLAN

SCALE PLAN: 1" = 5'

DRAWING No. AC-03

SHEET No.



	DATE	SHEET NO.
DR. BY C.P.M.	3-69	INDEX NO. 6700
TR. BY C.P.M.	3-69	SHELF NO.
CH. BY J.L.S.	3-69	6-C-4394
REVISIONS AS BUILT DEC., 1971		SCALE: HORIZONTAL 1"=40' VERTICAL 1"=4'

STORM & SANITARY SEWERS

ASTOR DRIVE

SOUTH INDUSTRIAL HWY. TO M.H. A-12

FREDRICK A. MAMMEL — SUPERINTENDENT OF PUBLIC WORKS

PUBLIC WORKS DEPARTMENT — ANN ARBOR, MICHIGAN

JOB 3737 S DIST. PRIVATE
JOB 3738 R DIST. PRIVATE
JOB DIST.
JOB DIST.

PREPARED BY ATWELL-HICKS, INC.

APPROVED BY

LEGEND: UNDERGROUND UTILITIES — EXISTING SANITARY; PROPOSED SANITARY; EXISTING STORM; PROPOSED STORM; G EXISTING GAS; W EXISTING WATER
PROFILES — CENTER LINE; RIGHT PROPERTY LINE; LEFT PROPERTY LINE

REFERENCES: BENCH MARK US C&GS 11-1 ELEV 838.06 — PROFILES BY ATWELL-HICKS, INC
DRAWINGS — FIELD BOOK 179 & X262
M.D.P.H. PERMIT NO. 690202 4/10/69

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CITY OF ANN ARBOR MICHIGAN

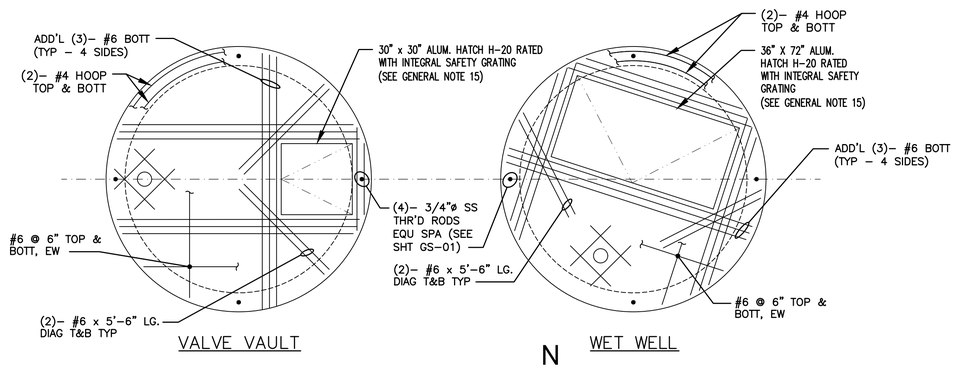
PROJECT MANAGEMENT — PUBLIC SERVICES — CITY OF ANN ARBOR

ASTOR LIFT STATION
DIRECTIONAL DRILLING PLAN

SCALE NO SCALE

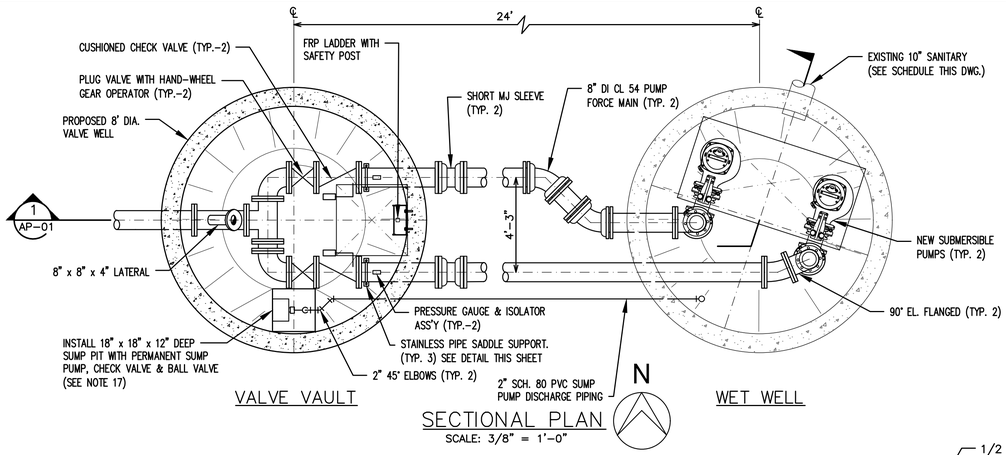
DRAWING No. AC-04

SHEET No.



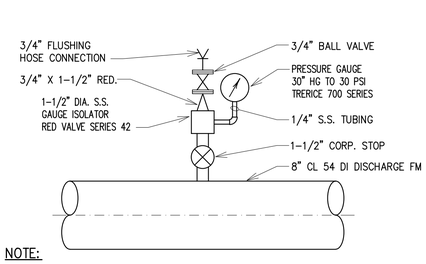
PRECAST TOP SLAB PLAN

SCALE: 3/8" = 1'–0"



SECTIONAL PLAN

SCALE: 3/8" = 1'–0"

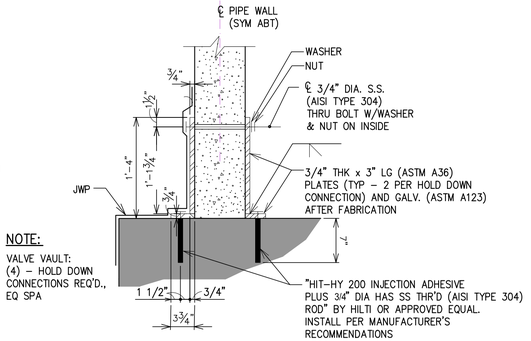


NOTE:

GAUGE ISOLATOR & PRESSURE GAUGE MUST BE FILLED WITH GLYCERIN AND ASSEMBLED IN FACTORY BY ISOLATOR MFR.

TYPICAL PRESSURE GAUGE

NO SCALE

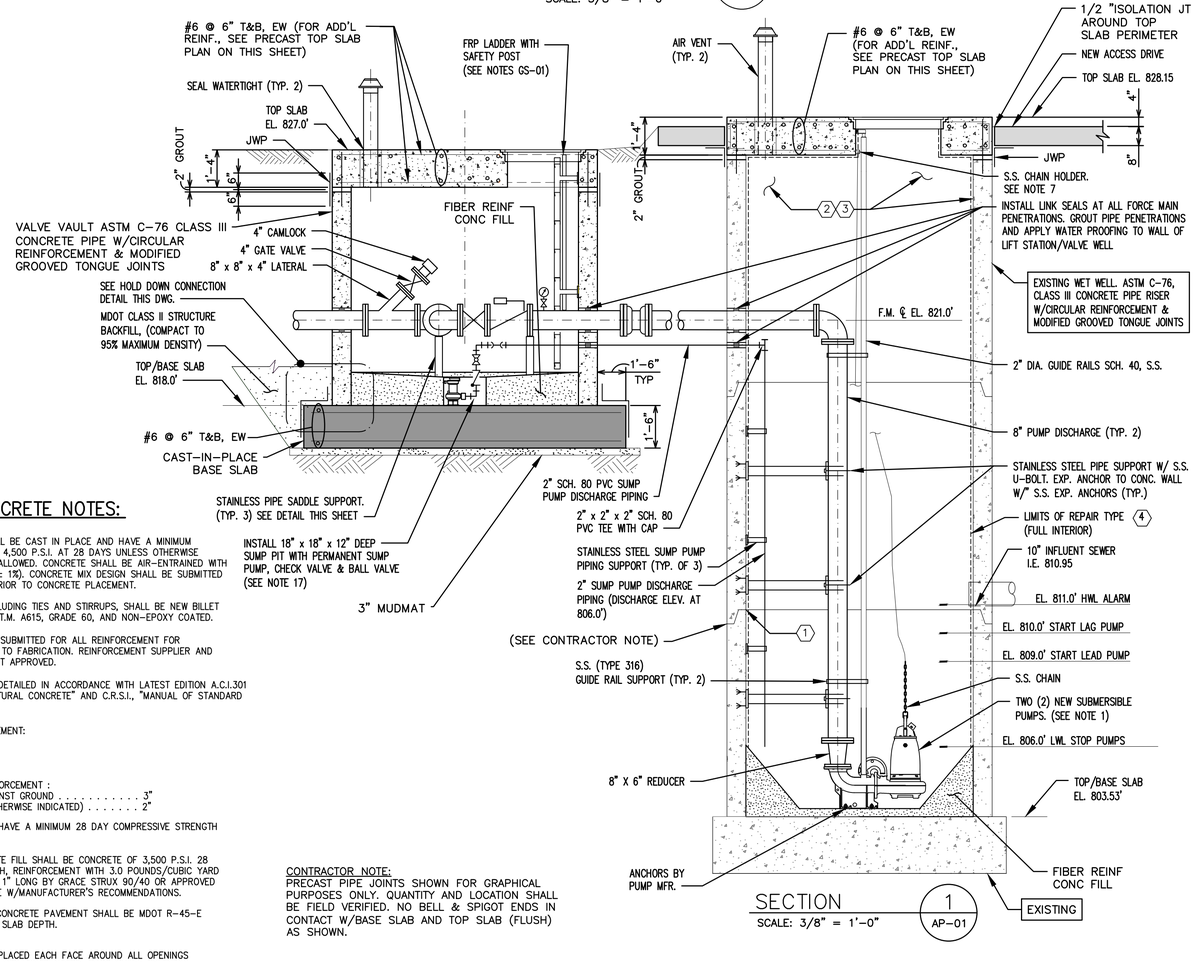


NOTE:

VALVE VAULT: (4) – HOLD DOWN CONNECTIONS REQ'D., EQ SPA

HOLD DOWN CONNECTION

SCALE: 1" = 1'–0"



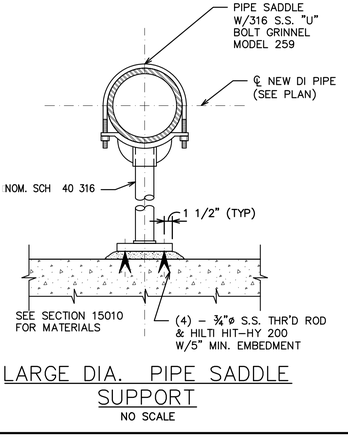
SECTION 1 / AP–01

SCALE: 3/8" = 1'–0"

CONTRACTOR NOTE:
PRECAST PIPE JOINTS SHOWN FOR GRAPHICAL PURPOSES ONLY. QUANTITY AND LOCATION SHALL BE FIELD VERIFIED. NO BELL & SPIGOT ENDS IN CONTACT W/BASE SLAB AND TOP SLAB (FLUSH) AS SHOWN.

PRECAST CONCRETE TOP SLAB NOTES:

1. SEE "REINFORCED CONCRETE NOTES" 1 THRU 6.
2. MINIMUM CONCRETE COVER TO REINFORCEMENT SHALL BE 2".
3. 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"
4. 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.



LARGE DIA. PIPE SADDLE SUPPORT

NO SCALE

GENERAL NOTES:

1. PROVIDE (2) SUBMERSIBLE PUMPS WITH AN OPERATING CONDITION OF 1021 GPM AT 41 TDH. SHOP DRAWINGS SHALL BE SUBMITTED FOR ALL PUMPING & FORCE MAIN EQUIPMENT FOR OWNER APPROVAL PRIOR TO FABRICATION.
2. GENERAL CONTRACTOR NOTE – THE VALVE VAULT MUDMAT SHALL BE CONSTRUCTED ON UNDISTURBED IN SITU MATERIAL.
3. 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 FLOWABLE FILL.
4. EXCAVATION, BACKFILLING AND JOINT WATERPROOFING, UNLESS OTHERWISE NOTED, SHALL BE IN ACCORDANCE WITH THE "2012 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 THEN 95% OF MAXIMUM DENSITY AT OPTIMUM MOISTURE.
5. 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.
6. 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.
7. 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.
8. FOR BURIED FORCE MAIN PIPING, PROVIDE RESTRAINED JOINTS AT ALL LATERALS AND ELBOWS.
9. 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)
10. SOIL BORING INFORMATION IS APPENDED TO THE SPECIFICATIONS.
11. BACKFILL SUMP PUMP PIPING TRENCH BELOW VALVE CHAMBER WITH MDOT CL II "BACKFILL, STRUCTURE, CIP" GRANULAR MATERIAL AND COMPACTED TO 95% OF MAX. DENSITY.
12. J.W.P. – JOINT WATERPROOFING. REFER TO "2012 STANDARD SPECIFICATION FOR CONSTRUCTION", SECTION 710 AS ISSUED BY MICHIGAN DEPARTMENT OF TRANSPORTATION.
13. 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.
14. ALL PUMP DISCHARGE PIPE AND FITTINGS, EXCEPT S.S. 316 AND PVC PIPING, WITHIN THE LIFT STATION WET WELL SHALL RECEIVE AFTER INSTALLATION, A EPOXY COATINGS SYSTEM.
15. 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.
16. SEE SPECIFICATION SECTION 11390 "PUMPING STATION EQUIPMENT" FOR ADDITIONAL INFORMATION ON THE ITEMS SHOWN ON THIS SHEET.
17. PROVIDE ONE (1) ZOELLER MODEL 95 SUMP PUMP WITH 2" PVC ADAPTOR WITH BUILT IN FLOAT.
18. ALL HARDWARE AND MISC. METALS IN WET WELL SHALL BE 316 S.S.

REINFORCED CONCRETE NOTES:

1. 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.
2. STEEL REINFORCEMENT, INCLUDING TIES AND STIRRUPS, SHALL BE NEW BILLET STEEL CONFORMING TO A.S.T.M. A615, GRADE 60, AND NON–EPOXY COATED.
3. SHOP DRAWINGS SHALL BE SUBMITTED FOR ALL REINFORCEMENT FOR OWNER'S APPROVAL, PRIOR TO FABRICATION. REINFORCEMENT SUPPLIER AND FABRICATOR SHALL BE MDOT APPROVED.
4. 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.
5. MINIMUM LAP OF REINFORCEMENT:
   #4. . . . . 24"
   #5. . . . . 30"
   #6. . . . . 37"
6. CONCRETE COVER TO REINFORCEMENT :
   CONCRETE PLACED AGAINST GROUND . . . . . 3"
   ALL OTHER (UNLESS OTHERWISE INDICATED) . . . . . 2"
7. MUDMAT CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3500 PSI.
8. 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. MIX IN ACCORDANCE W/MANUFACTURER'S RECOMMENDATIONS.
9. WELDED WIRE FABRIC FOR CONCRETE PAVEMENT SHALL BE MDOT R–45–E INSTALLED AT MIDPOINT OF SLAB DEPTH.
10. (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.
11. A 3/4" x 45° CHAMFER SHALL BE PROVIDED AT EXPOSED EDGES OF ALL CONCRETE SLABS.
12. EXPOSED FACE OF ROOF SLABS SHALL BE BROOMED FOR CAST–IN–PLACE CONCRETE WITH NO VISIBLE SURFACE IMPERFECTIONS.
13. JWP – MEL ROL BY W.R. MEADOWS.

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
ASTOR LIFT STATION	8'–0"	828.15'	810.95'	8'–0"	827.0'	818.0'	821.0'	8"

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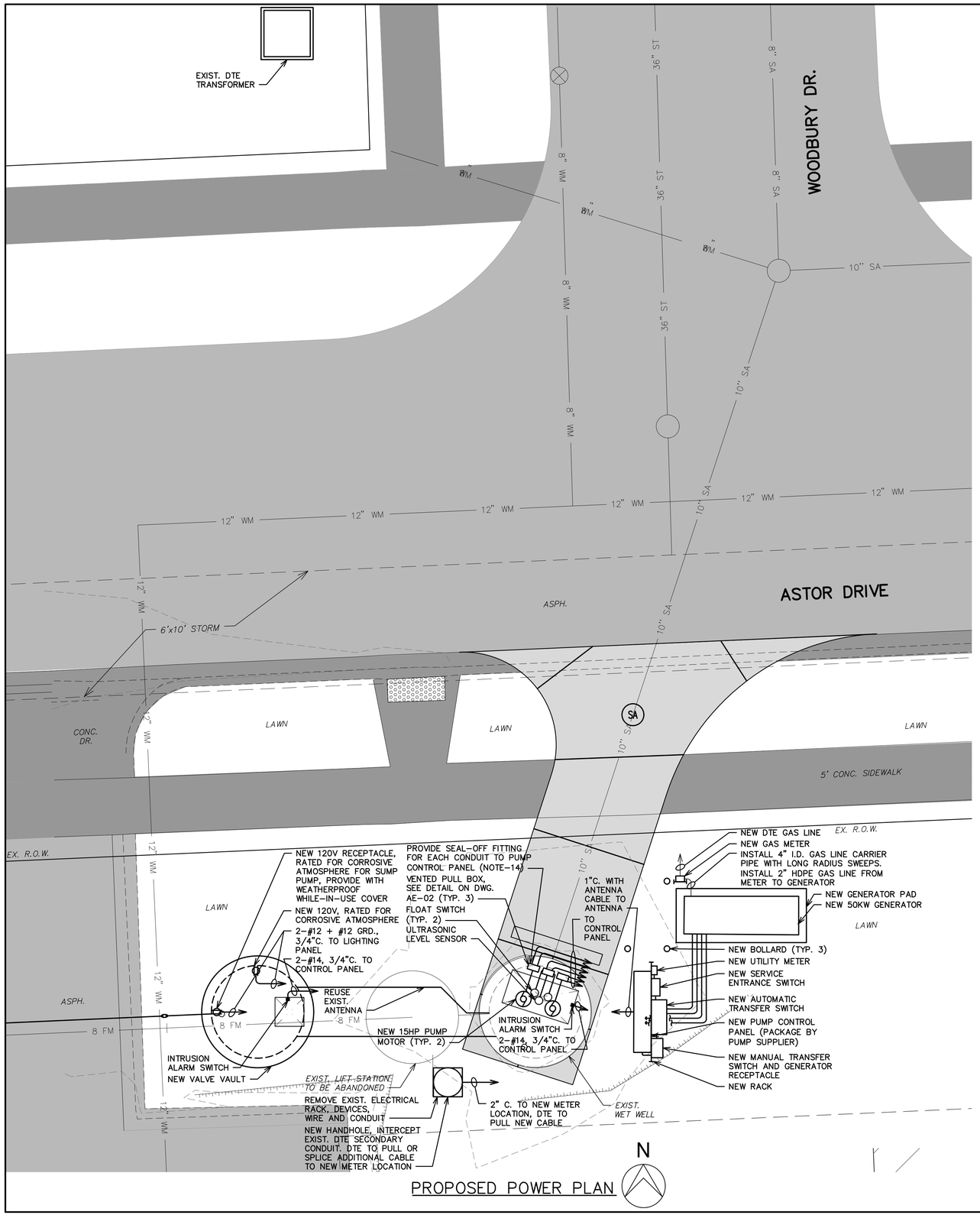
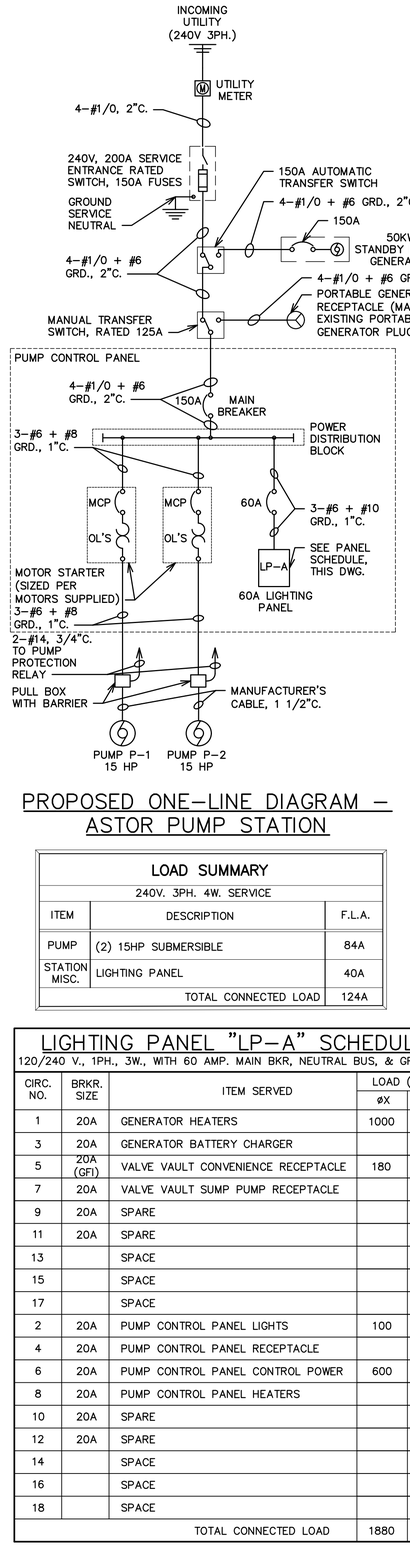
PROJECT MANAGEMENT – PUBLIC SERVICES – CITY OF ANN ARBOR

ASTOR LIFT STATION
PLAN AND SECTIONS

SCALE AS SHOWN
DRAWING No. AP–01
SHEET No.



PROPOSED POWER PLAN



PROPOSED ONE-LINE DIAGRAM - ASTOR PUMP STATION

LOAD SUMMARY		
240V. 3PH. 4W. SERVICE		
ITEM	DESCRIPTION	F.L.A.
PUMP	(2) 15HP SUBMERSIBLE	84A
STATION MISC.	LIGHTING PANEL	40A
	TOTAL CONNECTED LOAD	124A

LIGHTING PANEL "LP-A" SCHEDULE

120/240 V., 1PH., 3W., WITH 60 AMP. MAIN BKR, NEUTRAL BUS, & GRD. BUS

CIRC. NO.	BRKR. SIZE	ITEM SERVED	LOAD (WATTS) øX	LOAD (WATTS) øY
1	20A	GENERATOR HEATERS	1000	
3	20A	GENERATOR BATTERY CHARGER		360
5	20A (GFI)	VALVE VAULT CONVENIENCE RECEPTACLE	180	
7	20A	VALVE VAULT SUMP PUMP RECEPTACLE		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 RECEPTACLE		180
6	20A	PUMP CONTROL PANEL CONTROL POWER	600	
8	20A	PUMP CONTROL PANEL HEATERS		500
10	20A	SPARE		
12	20A	SPARE		
14		SPACE		
16		SPACE		
18		SPACE		
		TOTAL CONNECTED LOAD	1880	2240

GENERAL ELECTRICAL NOTES:

(APPLIES TO AE-01 AND AE-02)

1. THE CONTRACTOR SHALL VISIT THE JOB SITE AND THOROUGHLY CHECK THE EXISTING FIELD CONDITIONS PRIOR TO SUBMITTING A BID.
2. ALL WORK SHALL BE COORDINATED WITH THE OWNER.
3. THE CONTRACTOR SHALL PAY ALL UTILITY COMPANY COSTS AND FEES FOR INSTALLATION OF THE NEW NATURAL GAS SERIVCE AND MODIFICATIONS TO THE EXISTING ELECTRICAL SERVICE.

   DTE ENERGY COMPANY
   W.O. #55317243
   734-544-7844
4. SITE ADDRESS IS 1150 ASTOR AVENUE, ANN ARBOR, MI 48104.
5. 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.
6. THE SECONDARY UNDERGROUND CONDUIT AND WIRE SHALL MEET THE REQUIREMENTS OF THE DTE ENERGY COMPANY.
7. ALL CONDUIT FROM WETWELL TO PULL BOX SHALL BE SCHEDULE 80 PVC. ALL OTHER 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.
8. ALL EXPOSED CONDUIT SHALL BE RIGID GALVANIZED STEEL, INSTALLED WITH WATER-TIGHT CONDUIT FITTINGS. EXPANSION FITTINGS SHALL BE PROVIDED AT ALL TRANSITIONS FROM UNDERGROUND TO EXPOSED CONDUIT.
9. PROVIDE A PANEL DRAIN AND BREATHER, CROUSE-HINDS "ECD" UNIVERSAL SERIES OF EQUAL, MOUNTED TO THE TOP AND BOTTOM OF ALL NEMA 4 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.
10. 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.
11. ALL EXPOSED, METALLIC ELECTRICAL CONDUIT, SUPPORTS, BRACKETS, HANGERS, ETC., LOCATED WITHIN THE WET WELL SHALL BE P.V.C. COATED WITH 40 MILS (MINIMUM) COVERING. WHERE FACTORY P.V.C. COATING IS NOT AVAILABLE, FACTORY OR FIELD COATING WITH A CORROSION-RESISTANT EPOXY PAINT SHALL BE PROVIDED.
12. FOR ALL EQUIPMENT MOUNTED WITHIN THE WET WELL, USE 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.
13. ALL CONDUITS AND/OR SLEEVES THAT PASS THROUGH WALLS OR FLOORS SEPARATING HAZARDOUS AREAS FROM NON-HAZARDOUS AREAS SHALL BE SEALED GAS-TIGHT WITH NON-SHRINK GROUT AFTER CONDUIT IS INSTALLED.
14. PUMP POWER CABLES, PUMP CONTROL CABLES, AND FLOAT SWITCH CONTROL CABLES SHALL BE SPLICED TO PANEL WIRING WITHIN A J-BOX. PROVIDE SEAL-OFF FITTING BETWEEN THE PULL BOX AND THE PUMP CONTROL PANEL.
15. ALL THREADED ELECTRICAL EQUIPMENT (CONDUIT, FITTINGS, BOLTS, SCREWS, ETC.) INSTALLED OUTDOORS SHALL BE COATED WITH ANTI-SEIZE COMPOUND PRIOR TO INSTALLATION.
16. 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.
17. SUPPORT RACK TO HAVE EDGES, ABRASIONS, ETC. CLEANED AND TOUCHED UP WIH A HOT GALVANIZED COMPOUND, SUCH AS GALVAWELD, IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
18. 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.
19. ALL ELECTRICAL WORK SHALL COMPLY WITH THE N.E.C., AND THE LOCAL CODES, ORDINANCES, AND REGULATIONS INCLUDING MIOSHA.
20. CONTRACTOR SHALL PROVIDE 1 1/4" HIGH X 3" WIDE (MINIMUM) NAMEPLATES ON ALL DEVICES ON THE SERVICE ENTRANCE EQUIPMENT RACK. NAMEPLATES SHALL BE WHITE LAMINATED PLASTIC WITH 1/8" HIGH (MINIMUM) BLOCK LETTERS ENGRAVED TO A BLACKCORE, AN SHALL BE ATTACHED WITH CORROSION-RESISTANT SCREWS.
21. ALL EXISTING EQUIPMENT ASSOCIATED WITH THE SCADA SYSTEM SHALL BE DISCONNECTED AND REUSED. ALL SCADA SYSTEM COMPONENTS ARE TO BE SUBPLATE MOUNTED INSIDE THE PUMP CONTROL PANEL. ADDITIONAL SPACE SHALL BE PROVIDED IN THE PUMP CONTROL PANEL FOR MOUNTING OF THE EQUIPMENT. SCADA INTEGRATION WILL BE BY UIS AND WILL BE PAID FOR DIRECTLY BY THE OWNER. SEE DRAWING AE-02 FOR I/O LIST.
22. RECONNECT EXISTING SCADA EQUIPMENT TO EXISTING ANTENNA. PROVIDE NEW ANTENNA CABLE IN CONDUIT FROM PUMP CONTROL PANEL TO ANTENNA LOCATION AS REQUIRED.
23. IN AREA 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.
24. PROVIDE BACKFILL PER SPECIFICATION. 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.

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
	ISSUED FOR BIDS	OCT. 25, 2019	MJR	AAU
	ISSUED FOR 90% REVIEW	SEPT. 27, 2019	MJR	AAU
	ISSUED FOR 50% REVIEW	AUGUST 30, 2019	MJR	AAU

CITY OF ANN ARBOR
PUBLIC SERVICES
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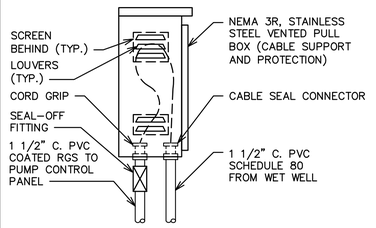
PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
ASTOR LIFT STATION
PROPOSED SITE PLAN

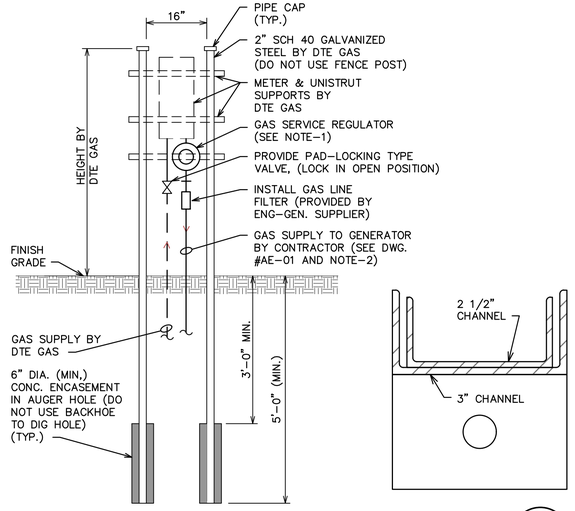
SCALE PLAN: 1" = 5'
DRAWING No. AE-01
SHEET No.

GAS METER NOTES:

1. CONTRACTOR SHALL SUPPLY FINAL REGULATOR AND SHALL BE AS REQUIRED TO DELIVER GAS AT 11" W.C. TO THE GENERATOR. REGULATOR SHALL BE FISHER MODEL TYPE HSR OR EQUAL.
2. BELOW GRADE GAS PIPING SHALL BE ASTM D2513 POLYETHELYNE PIPE (PE). TRANSITION TO ABOVE GRADE ASTM A53 STEEL PIPING SHALL BE PROVIDED
3. PROVIDE REDUCER, IF REQUIRED FROM SUPPLY GAS PIPING FOR CONNECTION TO GENERATOR.
4. COORDINATE ALL WORK WITH DTE GAS.

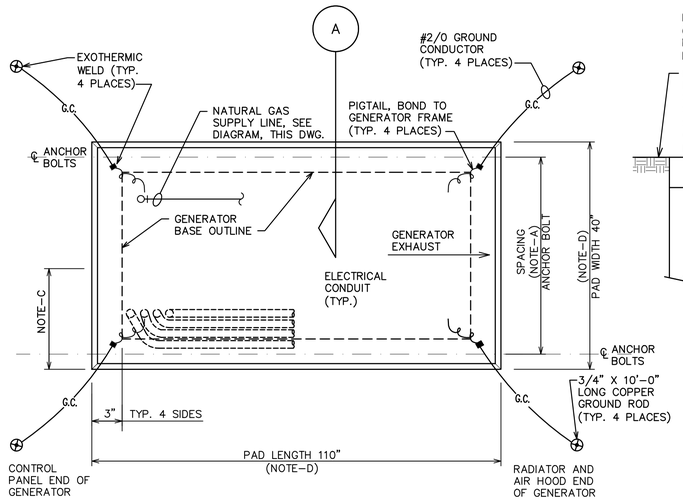


PULL BOX DETAIL
N.T.S.



GAS METER SUPPORT DETAIL
N.T.S.

SECTION B
NO SCALE



PLAN – PROPOSED GENERATOR PAD
NO SCALE

NOTES:

A. BASIS OF DESIGN IS CUMMINS, MODEL C50 D6 WITH LEVEL 2 SOUND ATTENUATED ENCLOSURE. DIMENSIONS AND STUB-UP LOCATIONS MUST BE ADJUSTED FOR THE SUPPLIED GENERATOR. SUBMIT SHOP DRAWING SHOWING FINAL PLAN OF FOUNDATION FOR ENGINEER REVIEW.

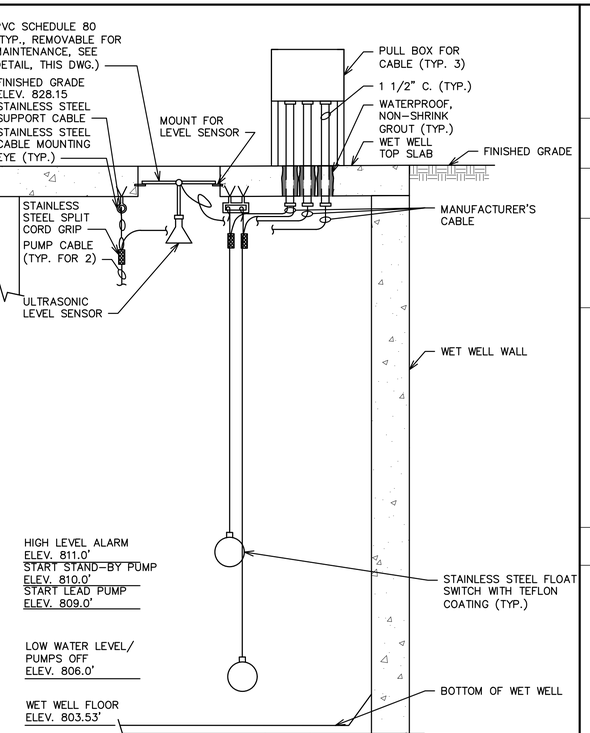
B. REFER TO MANUFACTURER SHOP DRAWINGS FOR ANCHOR BOLTS LOCATIONS. ANCHORS SHALL BE SUPPLIED BY THE CONTRACTOR AND SHALL BE 12" LONG 3/8" DIA. HOOK BOLTS CAST IN PLACE.

C. REFER TO GENERATOR SHOP DRAWINGS FOR LOCATION AND DIMENSIONS OF STUB UP AREA. PROVIDE SLEEVES FOR RUNNING CONDUIT THROUGH FOUNDATIONS. ORIENT EXIT FROM PAD AS REQUIRED TO COORDINATE WITH SITE PLAN.

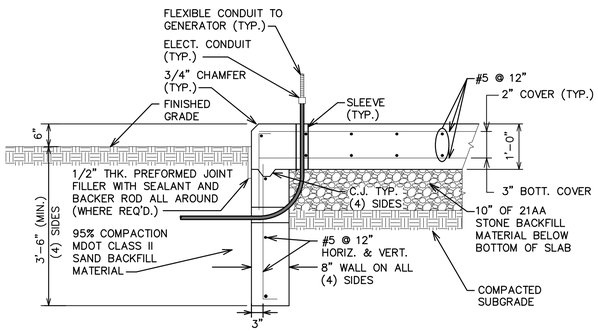
D. PROVIDE MIN. 6" CONCRETE ENCASEMENT FOR FUEL SUPPLY PIPING. REFER TO GENERATOR SHOP DRAWINGS FOR FUEL STUB UP LOCATIONS FOR EACH GENERATOR. ORIENT EXIT FROM PAD AS REQUIRED TO COORDINATE WITH SITE PLAN.

E. DIMENSIONS SHOWN ARE ASSOCIATED WITH THE BASIS OF DESIGN. CONTRACTOR TO COORDINATE PAD SIZE AND STUB UP LOCATIONS WITH PROVIDED GENERATOR PER MANUFACTURER SHOP DRAWINGS.

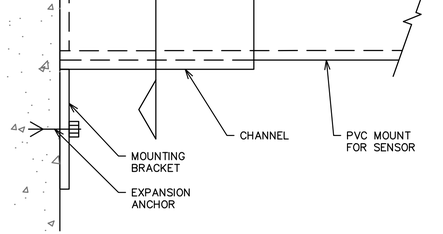
F. APPROXIMATE WEIGHT FOR ENGINE-GENERATOR SET: 50 KW: 1626 lbs. (WET)



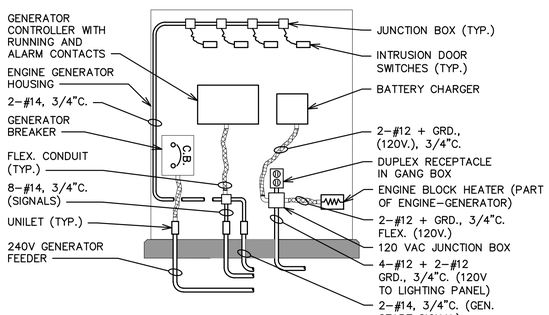
WET WELL FLOAT SWITCH, LEVEL TRANSDUCER AND PUMP CABLE MOUNTING
N.T.S.
(ALL HARDWARE IN WET WELL SHALL BE 316 S.S.)



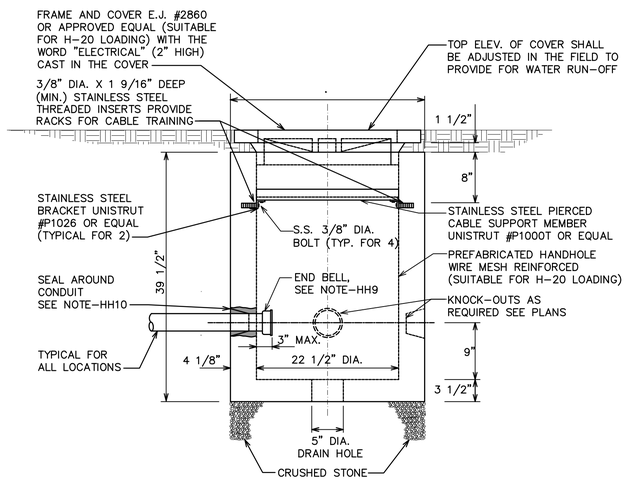
SECTION A
NO SCALE



ULTRASONIC LEVEL SENSOR SUPPORT DETAIL
NO SCALE



ENGINE-GENERATOR TYPICAL CONNECTIONS
(CONTRACTOR SHALL COORDINATE ACTUAL GENERATOR CONNECTION LOCATIONS WITH EQUIPMENT SUPPLIED)



PRECAST HANDHOLE WITH FLOOR

PRECAST HANDHOLE NOTES:

HH1. ALL CONCRETE SHALL BE GRADE 30M.

HH2. THE INNER SURFACE OF THE HANDHOLE SHALL BE SMOOTH.

HH3. HEAVY DUTY COVERS SHALL BE CASTINGS WHICH MEET THE REQUIREMENTS OF THE CURRENT SPECIFICATIONS FOR GRAY IRON CASTINGS ASTM DESIGNATION A48 AND SHALL HAVE A MINIMUM STRENGTH AS PROVIDED FOR CLASS NO. 30 GRAY IRON CASTINGS.

HH4. THE SEATING FACE OF THE GROUND COVER AND THE SEAT FOR THE SAME ON THE FRAME IF REQUIRED, SHALL BE GROUND OR MACHINED SO THAT THE COVER SHALL HAVE AN EVEN BEARING ON IT'S SEAT TO PREVENT ROCKING OR TILTING.

HH5. THE CASTING SHALL BE FREE OF POURING FAULTS, BLOW HOLES, CRACKS, AND OTHER IMPERFECTIONS. THEY SHALL BE SOUND, TRUE TO FORM AND THICKNESS, CLEAN AND NEATLY FINISHED AND SHALL BE COATED WITH TAR PITCH VARNISH.

HH6. THE HEAVY DUTY COVER & FRAME SHALL BE EAST JORDAN IRON WORKS #2860 TYPE "A" NEENAH FOUNDRY #R-1740-D FOR CIRCULAR COVER OR AN APPROVED EQUAL.

HH7. HANDHOLE SHALL BE EQUIPPED WITH STAINLESS STEEL CABLE RACK AND HOOKS TO TRAIN CABLE.

HH8. SEAL AROUND CONDUIT ENTRIES WATERTIGHT WITH NON-SHRINK GROUT.

HH9. PROVIDE END BELLS FOR ALL CONDUITS PRIOR TO INSTALLATION OF FISH LINE AND WIRE.

HH10. PROVIDE SUFFICIENT SLACK CABLE AT ALL SPLICES FOR COMPLETE REMOVAL FROM HANDHOLE FOR FUTURE MAINTENANCE.

HH11. THE PRECAST HANDHOLE SHALL BE ADVANCED CONCRETE OR APPROVED EQUAL.

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. COMMUNICATION BETWEEN PUMP CONTROL PANEL AND SCADA PLC TO BE OVER MODBUS)

DISCRETE INPUTS

1. PUMP 1 RUNNING (SIGNAL FROM PUMP CONTROL PANEL VIA MODBUS)
2. PUMP 2 RUNNING (SIGNAL FROM PUMP CONTROL PANEL VIA MODBUS)
3. WET WELL LEVEL HIGH (SIGNAL FROM FLOAT SWITCH VIA INTERPOSING RELAY)
4. WET WELL LEVEL LOW (SIGNAL FROM FLOAT SWITCH VIA INTERPOSING RELAY)
5. STATION INTRUSION (SIGNAL FROM INTRUSION SWITCHES)
6. GENERATOR RUNNING (SIGNAL FROM GENERATOR CONTROL PANEL)
7. GENERATOR ALARM (SIGNAL FROM GENERATOR CONTROL PANEL)
8. GENERATOR SUPPLYING POWER (SIGNAL FROM AUTO. TRANSFER SWITCH)
9. SPARE
10. SPARE
11. SPARE
12. SPARE
13. SPARE
14. SPARE
15. SPARE
16. SPARE

DISCRETE OUTPUTS

1. START PUMP 1 (DRY CONTACT OUTPUT)
2. START PUMP 2 (DRY CONTACT OUTPUT)
3. SPARE
4. SPARE

ANALOG INPUTS

1. WETWELL LEVEL (SIGNAL FROM PUMP CONTROL PANEL VIA MODBUS)
2. SPARE
3. SPARE
4. SPARE

MISCELLANEOUS VALUES

1. AC POWER FAIL (PUMP CONTROL PANEL VIA MODBUS)
2. COMMS FAIL (PUMP CONTROL PANEL VIA MODBUS)
3. PUMP 1 HOURS DAILY (PUMP CONTROL PANEL VIA MODBUS)
4. PUMP 1 HOURS TOTAL (PUMP CONTROL PANEL VIA MODBUS)
5. PUMP 1 STARTS DAILY (PUMP CONTROL PANEL VIA MODBUS)
6. PUMP 1 STARTS TOTAL (PUMP CONTROL PANEL VIA MODBUS)
7. PUMP 2 HOURS DAILY (PUMP CONTROL PANEL VIA MODBUS)
8. PUMP 2 HOURS TOTAL (PUMP CONTROL PANEL VIA MODBUS)
9. PUMP 2 START DAILY (PUMP CONTROL PANEL VIA MODBUS)
10. PUMP 2 STARTS TOTAL (PUMP CONTROL PANEL VIA MODBUS)
11. INTERROGATE STATION (PUMP CONTROL PANEL VIA MODBUS)
12. UPDATE STATION (PUMP CONTROL PANEL VIA MODBUS)
13. PUMP 1 RELAY BACK (PUMP CONTROL PANEL VIA MODBUS)
14. PUMP 2 RELAY BACK (PUMP CONTROL PANEL VIA MODBUS)

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REV.	DESCRIPTION	DATE	DRAWN	CHECKED
	ISSUED FOR BIDS	OCT. 25, 2019	MJR	AAU
	ISSUED FOR 90% REVIEW	SEPT. 27, 2019	MJR	AAU
	ISSUED FOR 50% REVIEW	AUGUST 30, 2019	MJR	AAU

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CITY OF ANN ARBOR MICHIGAN

PROJECT MANAGEMENT – PUBLIC SERVICES – CITY OF ANN ARBOR

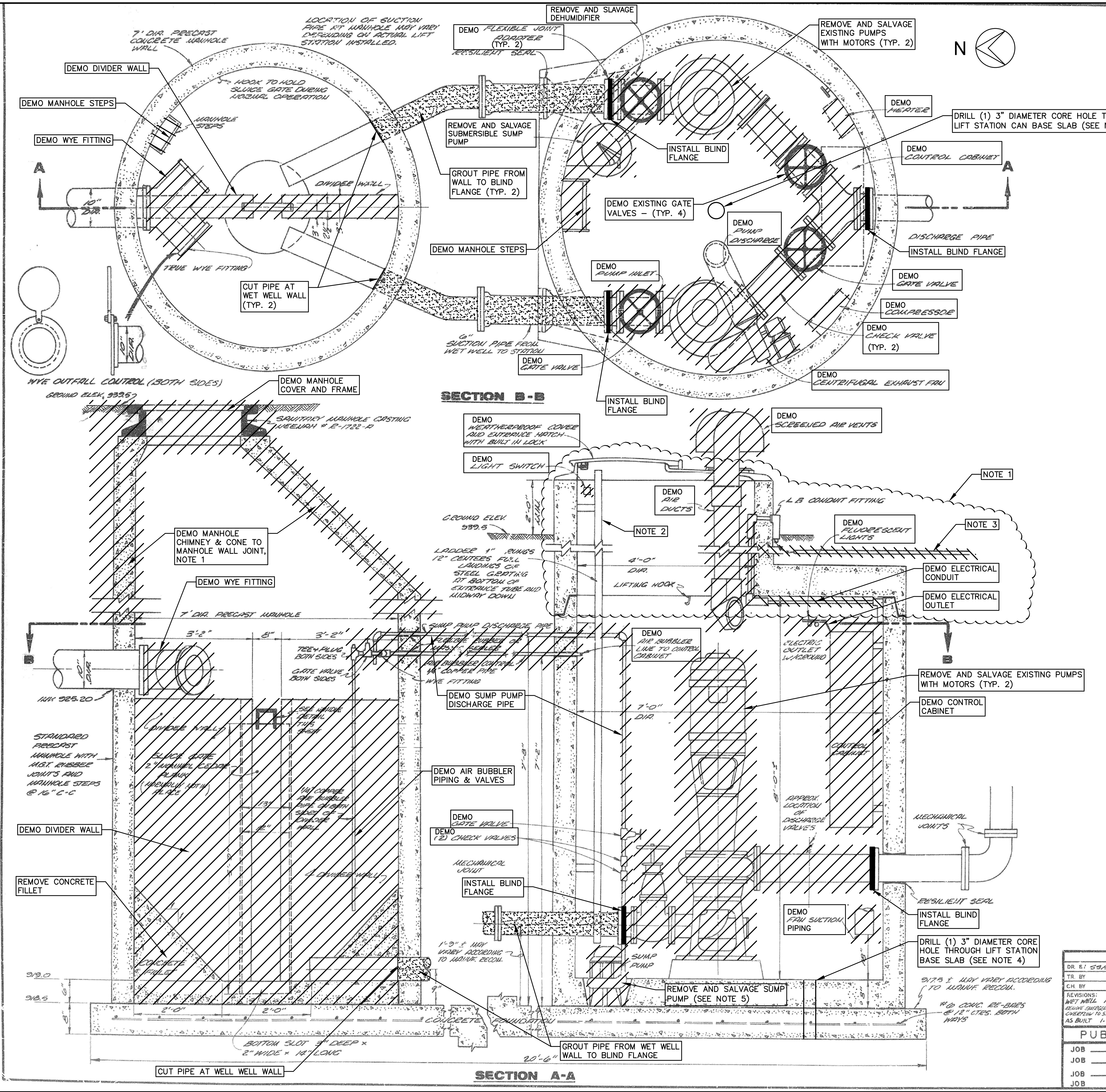
ASTOR LIFT STATION

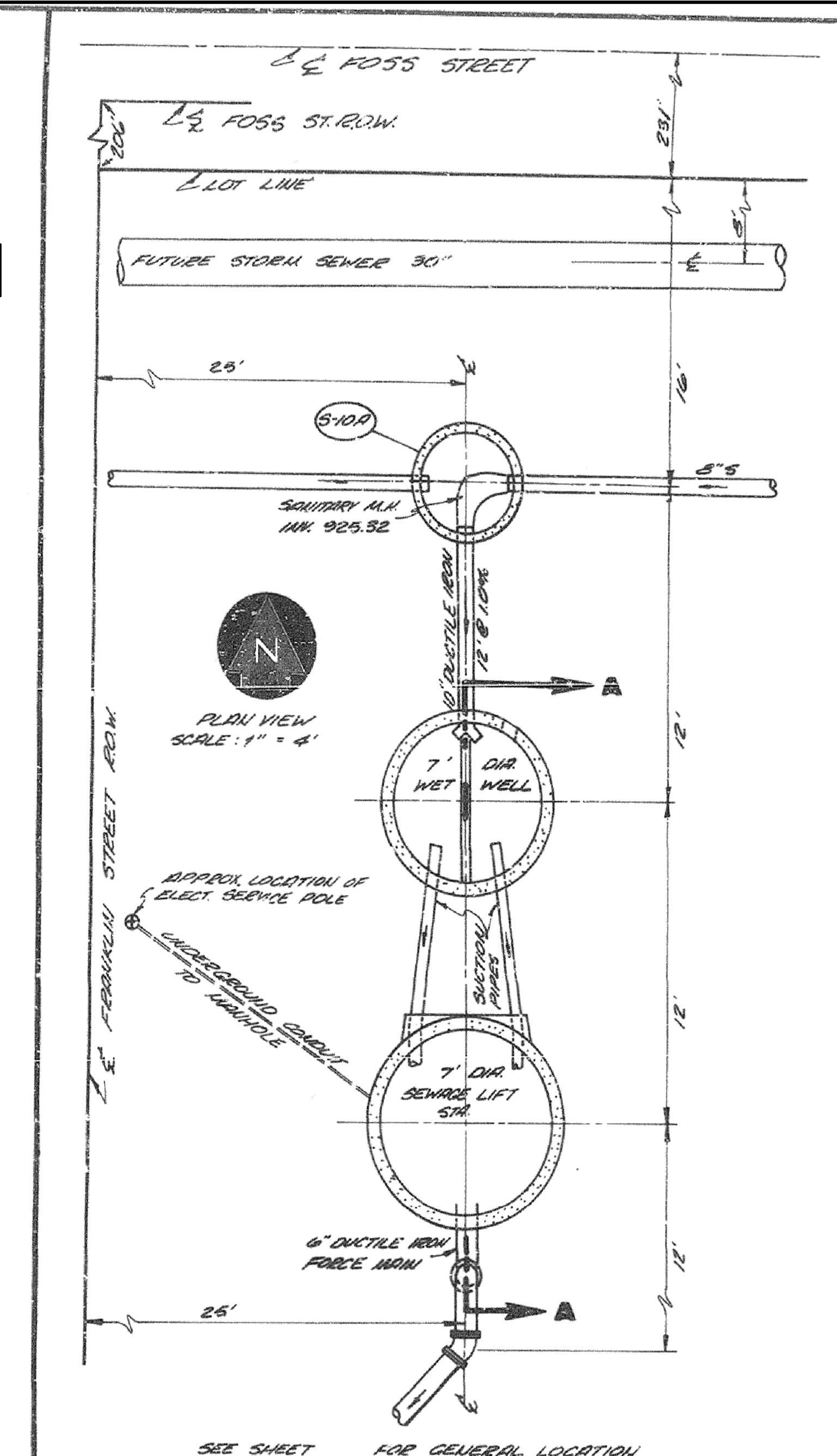
ELECTRICAL DETAILS

SCALE: NO SCALE

DRAWING No.: AE-02

SHEET No.





DEMOLITION NOTES:

1. REMOVE ENTRANCE TUBE AND ACCESS LADDER TO 5' MIN. BELOW GRADE AND FILL LIFT STATION WITH PEA STONE. (CONFORMING TO MDOT 34R).
2. FOR CONTINUATION OF ELECTRICAL DEMOLITION, SEE SHEET FE-01.
3. REMOVE TOP SLAB ONLY WHEN NEW TOP SLAB IS ON SITE, OR COVER AND PROTECT WITH ROAD PLATE OR SUITABLE MEANS.
4. DRILL ONE (1) CORE HOLE IN THE LIFT STATION BASE SLAB FOR GROUNDWATER DRAINAGE. DRAINAGE HOLE MUST BE 3 INCHES IN DIAMETER.
5. 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.

NOTICE:
THIS DRAWING HAS BEEN COPIED FROM A PREVIOUS CONSTRUCTION PROJECT AND IS PROVIDED FOR INFORMATION ONLY. NO GUARANTEE IS MADE, OR SHOULD BE ASSUMED AS TO THE COMPLETENESS OR ACCURACY OF THE INFORMATION SHOWN ON THIS DRAWING. PARTIES UTILIZING THIS INFORMATION SHALL FIELD VERIFY THE ACCURACY AND COMPLETENESS PRIOR TO CONSTRUCTION ACTIVITIES. THIS DRAWING IS NOT TO SCALE.

	DATE	SHEET Nº 12 of 12
DR. BY SGP	9-72	INDEX Nº 7398
TR. BY		SHELF Nº
CH. BY		6-C-4916
REVISIONS: WET WELL 11-21-72; AS BUILT 1-84 JRM.		SCALE: HORIZONTAL 1" = 1'; VERTICAL 1" = 1'

SANITARY SEWER
SEWAGE LIFT STATION DETAILS
GARDEN HOMES AREA
FREDRICK A. MAMMEL, SUPERINTENDENT OF PUBLIC WORKS

PUBLIC WORKS DEPARTMENT – ANN ARBOR, MICHIGAN

JOB ______ DIST. ______
JOB ______ DIST. ______
JOB ______ DIST. ______
JOB ______ DIST. ______

PREPARED BY H. CHARLES CREMIN Nº 13662, MIDWESTERN CONSULTING INC.
APPROVED BY

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
	ISSUED FOR 50% REVIEW	AUGUST 30, 2019	AAU	
	ISSUED FOR 90% REVIEW	SEPT. 27, 2019	AAU	
	ISSUED FOR BIDS	OCT. 25, 2019	AAU	

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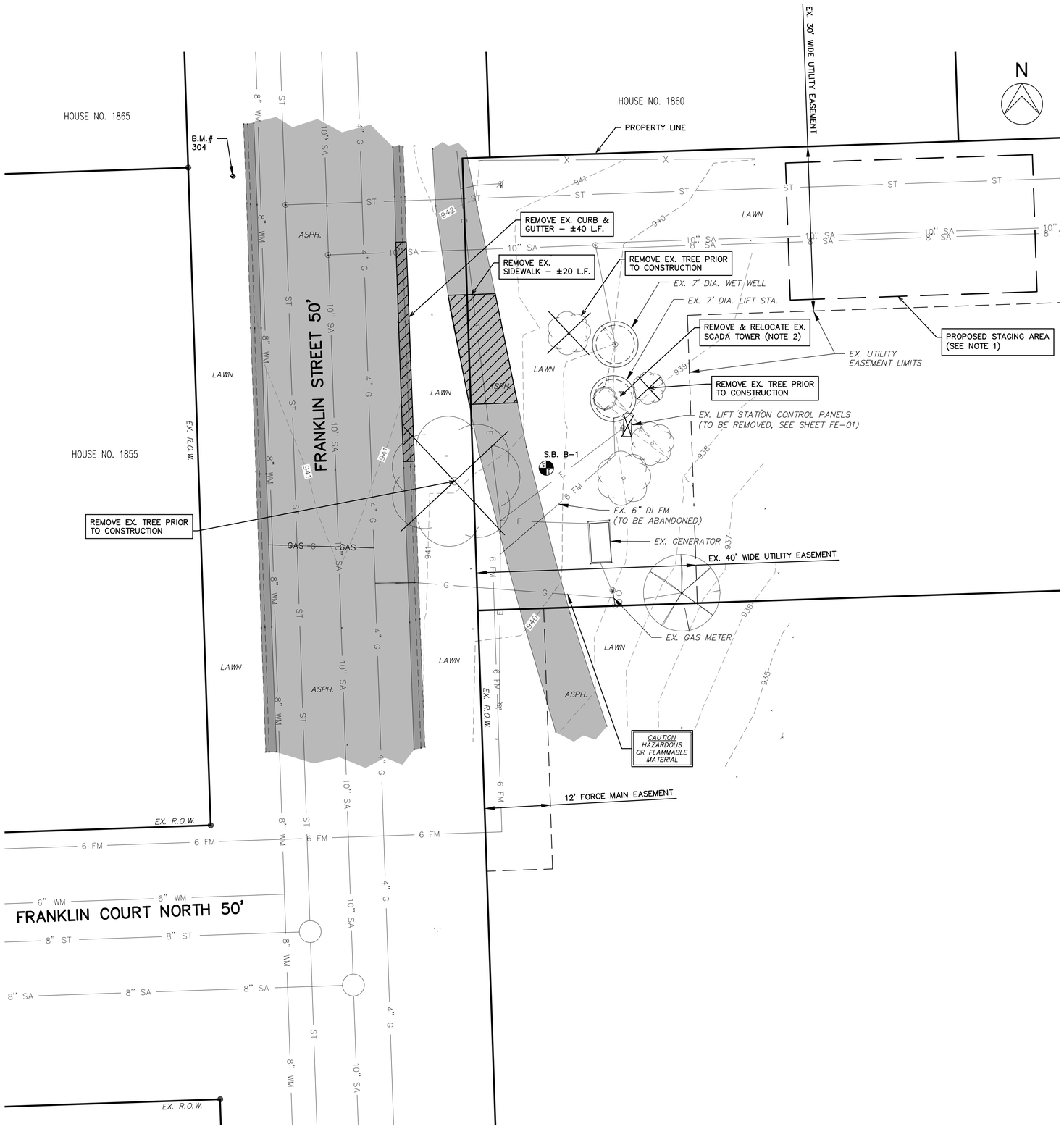
PROJECT MANAGEMENT – PUBLIC SERVICES – CITY OF ANN ARBOR
FRANKLIN LIFT STATION
DEMOLITION

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



GENERAL NOTES

1. CONTRACTOR TO CONFINE HIS OPERATIONS TO WITHIN THE UTILITY EASEMENT AREA AND OUTSIDE OF THE RIGHT OF WAY WHENEVER POSSIBLE.
2. TEMPORARILY RELOCATE SCADA TOWER TO STAGING AREA DURING CONSTRUCTION.

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
	ISSUED FOR BIDS	OCT. 25, 2019	AAU	
	ISSUED FOR 90% REVIEW	SEPT. 27, 2019	AAU	
	ISSUED FOR 50% REVIEW	AUGUST 30, 2019	AAU	

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CITY OF ANN ARBOR MICHIGAN

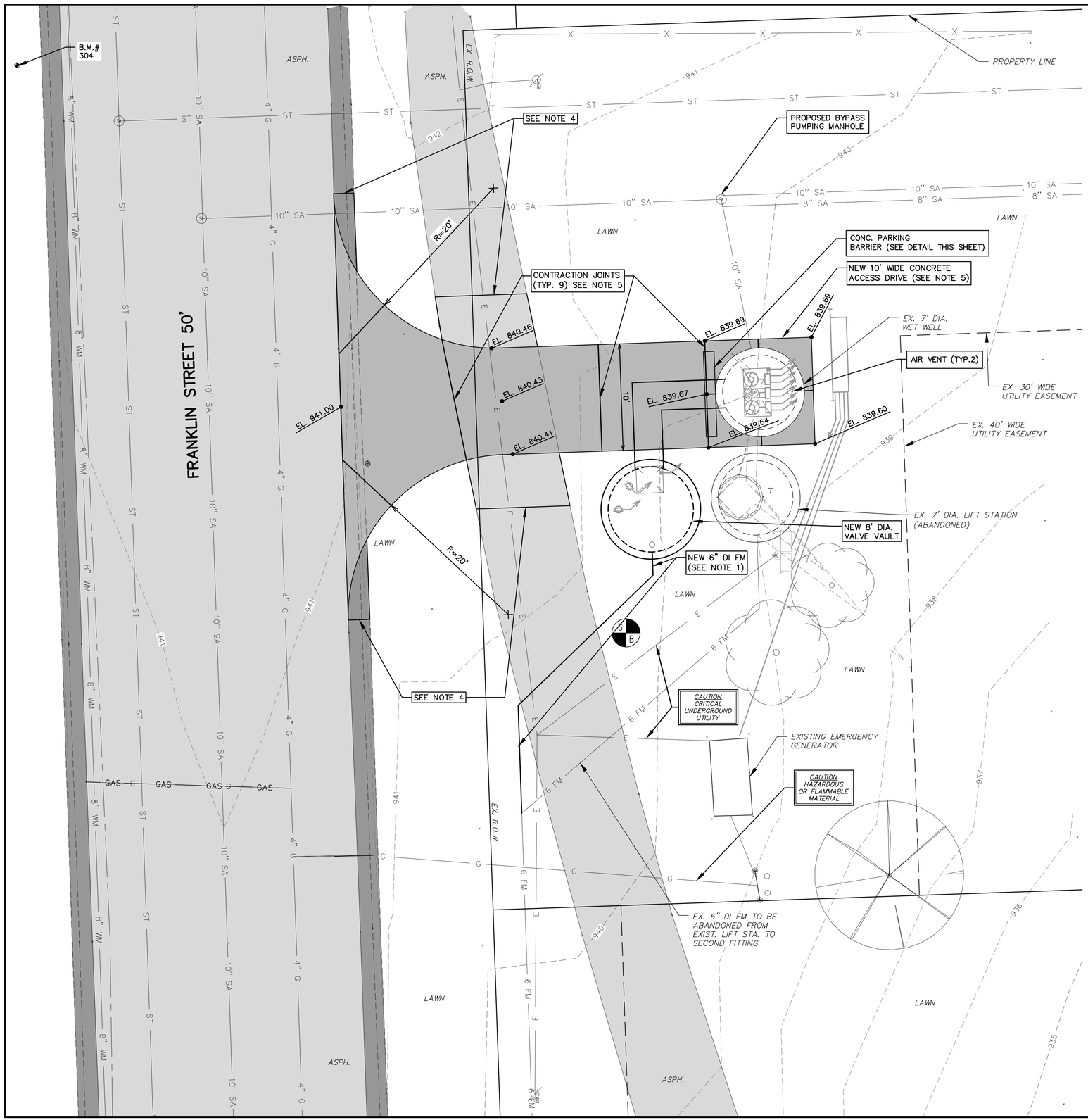
PROJECT MANAGEMENT – PUBLIC SERVICES – CITY OF ANN ARBOR

FRANKLIN LIFT STATION
EXISTING SITE PLAN

SCALE PLAN: 1"=10'

DRAWING No. FC–01

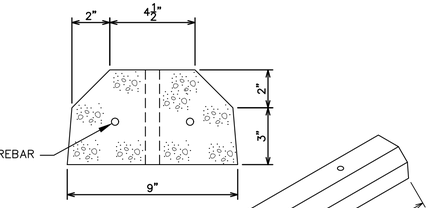
SHEET No.



N

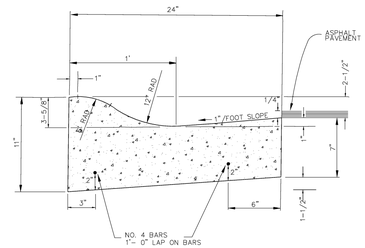
GENERAL NOTES:

1. EXISTING 6" DI FORCE MAIN TO BE ABANDONED FROM EXISTING PUMP STATION TO SECOND FITTING. NEW 6" DI FORCE MAIN TO CONNECT TO EXISTING FORCE MAIN AT SECOND EXISTING FORCE MAIN FITTING.
2. IF 45° FITTING IS ECASED IN CONCRETE THRUST BLOCK, REMOVE THRUST BLOCK, AND CONNECT TO EXISTING PIPE WHERE ACCESSIBLE WITH MECHANICAL THRUST RESTRAINING FITTING.
3. EXISTING LIFT STATION CAN TO BE ABANDONED IN PLACE. ALL ELECTRICAL AND MECHANICAL EQUIPMENT IS TO BE DEMOLISHED (SEE SHEET FE-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.
4. CONTRACTOR TO TRANSITION EXISTING SIDEWALK AND CURB & GUTTER TO NEW ACCESS DRIVE.
5. INSTALL ACCESS DRIVE JOINTS PER MDOT STANDARDS.
6. CONTRACTOR TO COORDINATE GAS UTILITY WORK AND METER AS INDICATED ON SHEET FE-01.



PARKING BARRIER DETAIL

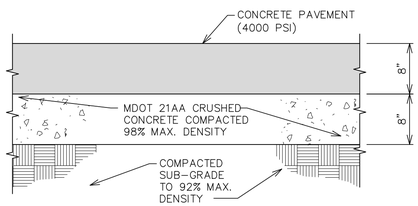
NOT TO SCALE



NOTE: FRONT EDGE OF INLET CASTINGS SHALL BE FLUSH WITH FRONT EDGE OF GUTTER (EDGE-OF-METAL)

MOUNTABLE CURB & GUTTER (SD-R-2)

NOT TO SCALE



TYPICAL CONCRETE PAVEMENT

NOT TO SCALE

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
	ISSUED FOR BIDS	OCT. 25, 2019	AAU	
	ISSUED FOR 90% REVIEW	SEPT. 27, 2019	AAU	
	ISSUED FOR 50% REVIEW	AUGUST 30, 2019	AAU	

CITY OF ANN ARBOR
PUBLIC SERVICES
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ANN ARBOR, MI 48107-8647
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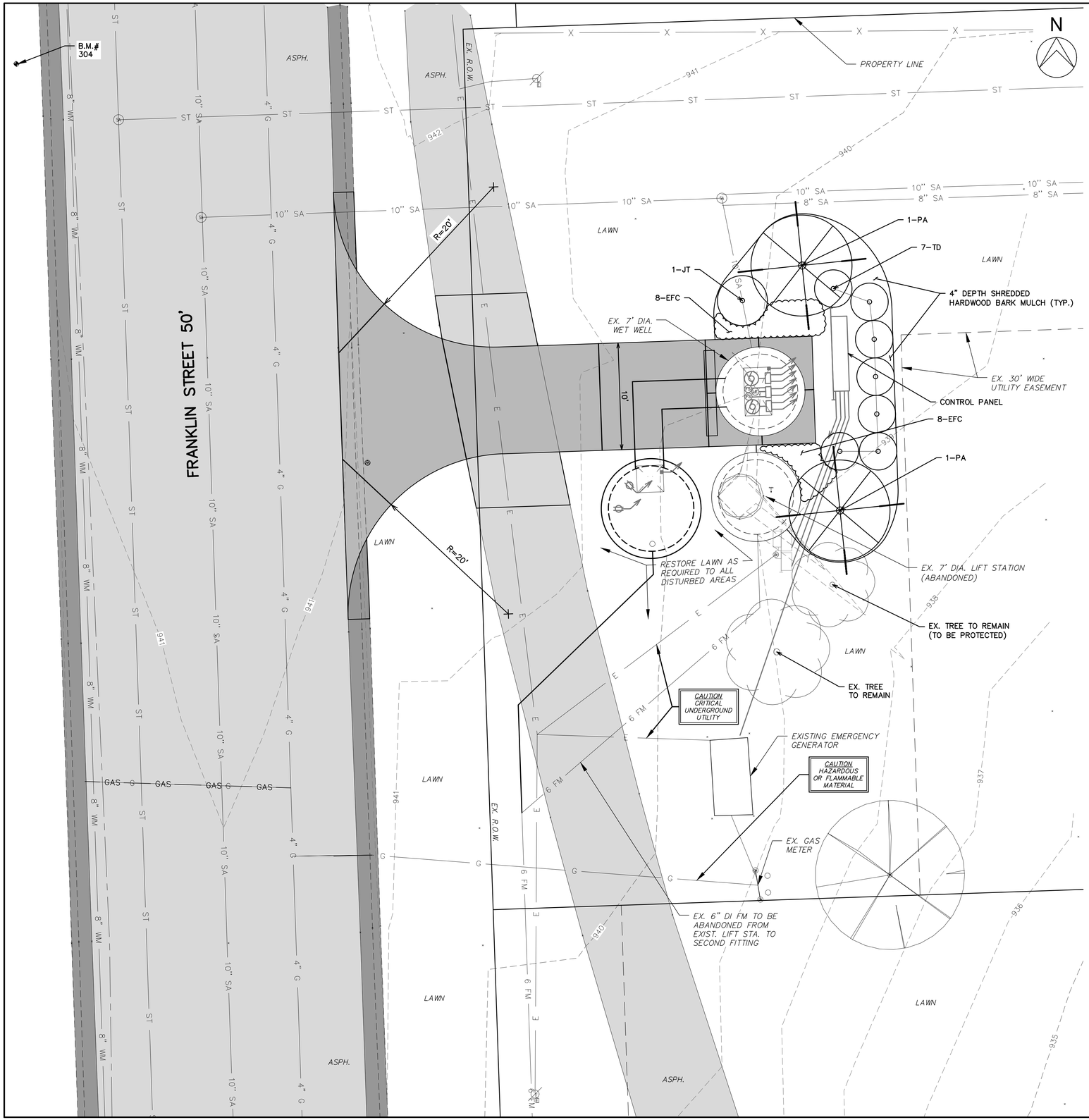
PROJECT MANAGEMENT – PUBLIC SERVICES – CITY OF ANN ARBOR

FRANKLIN LIFT STATION
PROPOSED SITE PLAN

SCALE PLAN: 1" = 5'

DRAWING No. FC-02

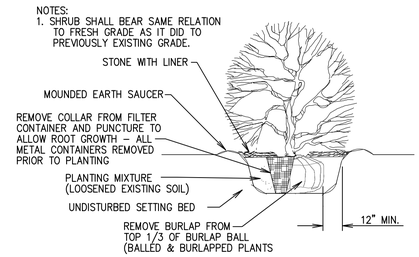
SHEET No.



PLANT LIST/QUANTITY

KEY	QT.	BOTANIC NAME	COMMON NAME	SIZE	NOTES
PA	2	PICEA ABIES	NORWAY SPRUCE	8' HT.	B & B
TD	7	TAXUS DENSIFORMUS	DENSE YEW	24" HT.	B & B
JT	1	JUNIPERUS TAMISERIFOLIA	TAMMY JUNIPER	24" SPD.	B & B
EFC	16	EVONYMUS FORTUNEI COLORATUS	WINTER CREEPER	1 GAL.	POTS

4" DEPTH HARDWOOD BARK MULCH – ALL BEDS



TYPICAL SHRUB PLANTING

(NOT TO SCALE)

LANDSCAPE NOTES

1. VERIFY ALL CONDITIONS ON SITE PRIOR TO COMMENCING CONSTRUCTION AND REPORT ANY DISCREPANCIES IMMEDIATELY TO ENGINEER OR OWNER.
2. VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES AND SERVICES PRIOR TO COMMENCING WORK. CONTRACTOR IS RESPONSIBLE FOR ANY COST INCURRED DUE TO DAMAGED UTILITIES.
3. 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.
4. 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.
5. 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.
6. 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.
7. 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.
8. ANY RAISED EARTH BERMS SHOWN ON THE PLANS SHALL BE MADE ENTIRELY OF LIGHT ORGANIC SOILS AND SHALL BLEND SMOOTHLY INTO EXISTING TOPOGRAPHY
9. WATER-IN ALL PLANT MATERIAL IMMEDIATELY AFTER INSTALLATION.
10. MULCH CIRCLES FOR ALL TREES SHALL COVER ENTIRE PLANTING PIT. IF SOIL HAS HEAVY CLAY CONTENT, PLANTING THE TREE 6" HIGH IS ACCEPTABLE. ADVISE ENGINEER PRIOR TO PLANTING.
11. SUBMIT SAMPLES OF MULCH, TOPSOIL, PRE-EMERGENT, STONE, ETC., AS REQUIRED BY THE PROJECT.
12. LANDSCAPE CONTRACTOR IS RESPONSIBLE FOR SUPPLY AND PLACEMENT OF TOPSOIL PER SPECIFICATIONS.
13. ALL TREES SHALL HAVE CLAY LOAM ROOT BALLS – NO SAND BALLS ACCEPTED.
14. SNOW/TREE PROTECTION FENCING NEEDS TO BE INSTALLED AROUND PERIMETER OF WORK AREA TO PROTECT EXISTING TREES AND PROPERTY.
15. 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.
16. PLANT TREES AND SHRUBS NO CLOSER THAN THE FOLLOWING MINIMUM DISTANCES FROM SIDEWALKS, CURBS AND PARKING STALLS UNLESS AS SHOWN ON THE PLANS:

A. SHADE/CANOPY TREES	5 FEET
B. ORNAMENTAL/FLOWERING TREES	5 FEET
C. EVERGREEN TREES	10 FEET
D. EVERGREEN/FLOWERING SHRUBS	4 FEET

17. 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.
18. 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.
19. 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.
20. 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 TRANSPLANTING. ALL CUTS SHALL BE MADE FLUSH, LEAVING NO STUBS. PAINT ALL CUTS OVER 1"DIA. WITH TREE PAINT.
21. 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:
    A. 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.
22. BACKFILL DIRECTLY BEHIND ALL CURBS AND SIDEWALKS AND COMPACT TO THE TOP OF CURB OR WALK TO SUPPORT VEHICLE AND PEDESTRIAN WEIGHT WITHOUT SETTLING.
23. 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.
24. PLANT MATERIAL WITH 25% OR GREATER DIE BACK, AS DETERMINED BY THE OWNER'S REPRESENTATIVE, SHALL BE REPLACED AS STIPULATED ABOVE.
25. 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.
26. SOD SHALL BE A MIX OF THE FOLLOWING TYPES IN THE PORTIONS SHOWN. APPLY SEED AT A RATE OF 250LBS./ACRE(6LBS./1000 SF)
    KENTUCKY BLUEGRASS 'BARON/CHERI/ADELPI'.....20%
    CHEWING FESCUE.....15%
    TURF TYPE TALL FESCUE (K-31).....40%
    PERENNIAL RYE GRASS (MANHATTAN).....40%

WEED CONTENT SHALL NOT EXCEED 0.30 OF 1%

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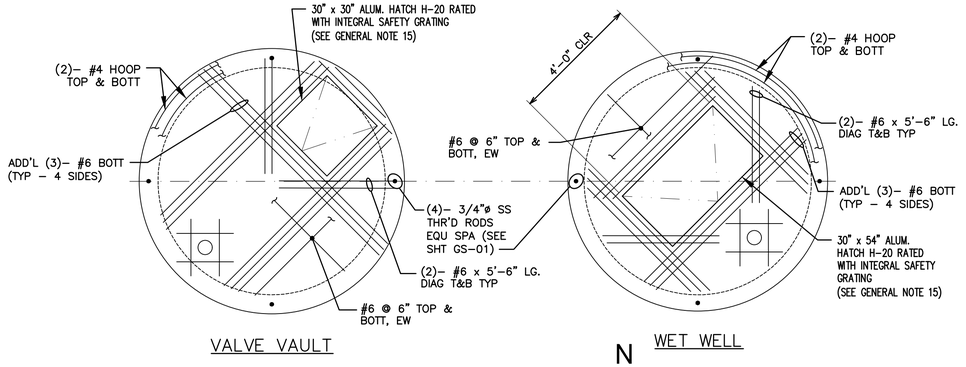
PROJECT MANAGEMENT – PUBLIC SERVICES – CITY OF ANN ARBOR

FRANKLIN LIFT STATION
LANDSCAPING PLAN

SCALE PLAN: 1" = 5'

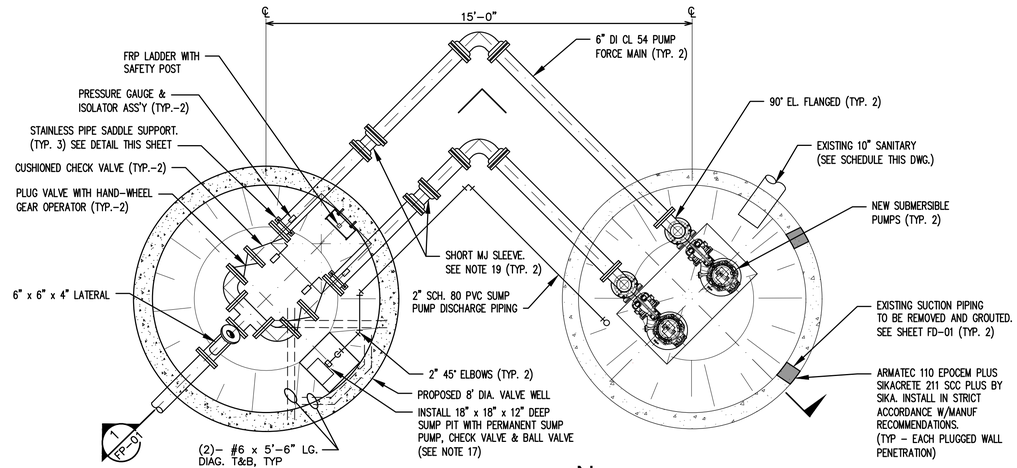
DRAWING No. FC-03

SHEET No.



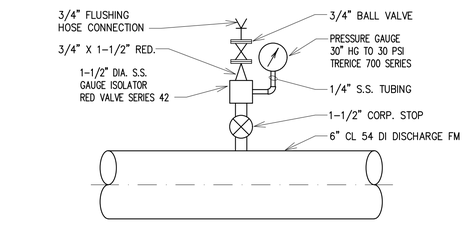
PRECAST TOP SLAB PLAN

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



SECTIONAL PLAN

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

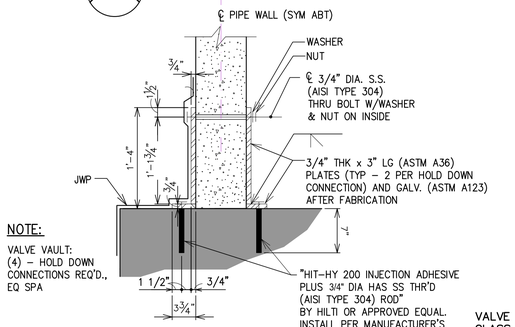


NOTE:

GAUGE ISOLATOR & PRESSURE GAUGE MUST BE FILLED WITH GLYCERIN AND ASSEMBLED IN FACTORY BY ISOLATOR MFR.

TYPICAL PRESSURE GAUGE

NO SCALE

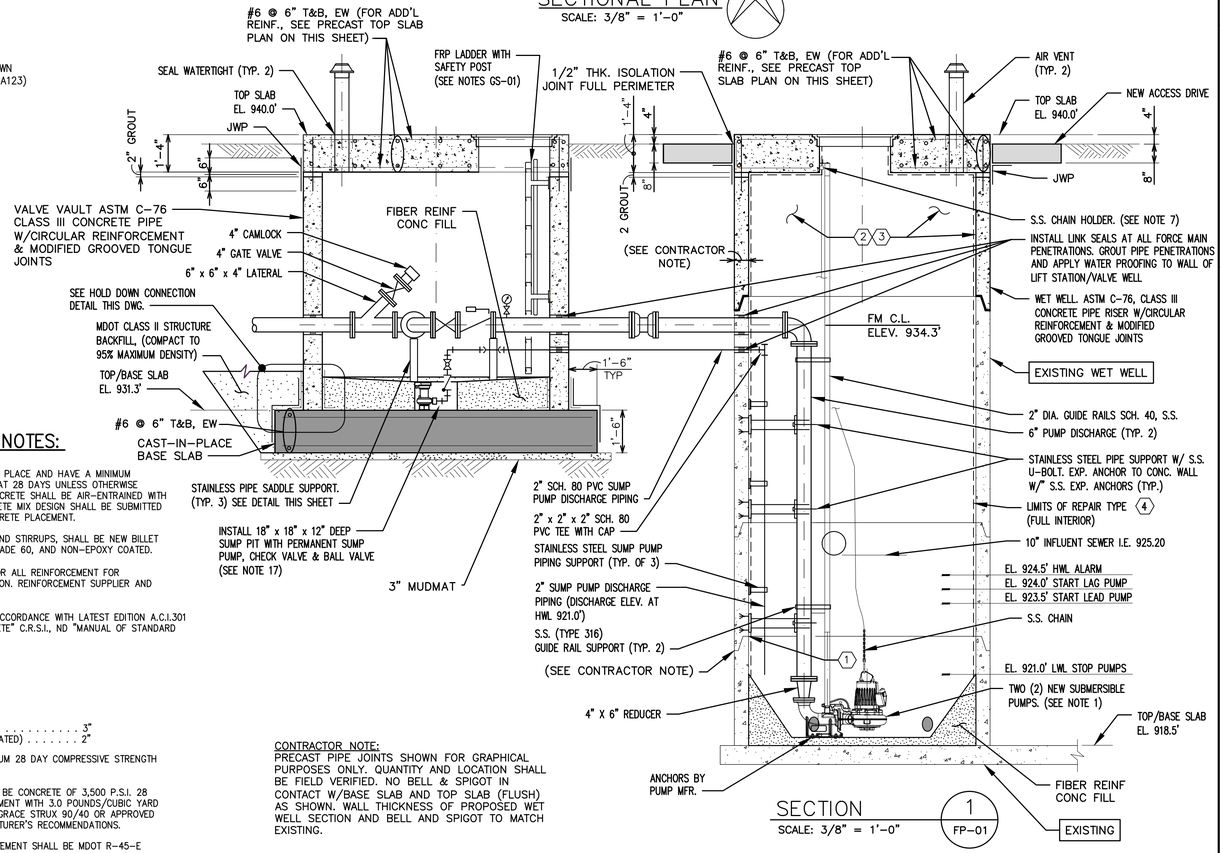


NOTE:

VALVE VAULT:
(4) - HOLD DOWN CONNECTIONS REQ'D., EQ SPA

HOLD DOWN CONNECTION

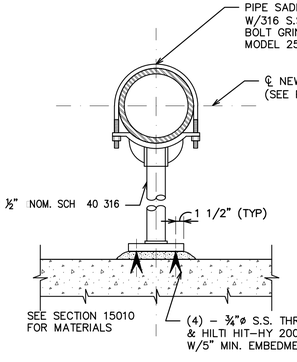
SCALE: 1" = 1'-0"



CONTRACTOR NOTE:
PRECAST PIPE JOINTS SHOWN FOR GRAPHICAL PURPOSES ONLY. QUANTITY AND LOCATION SHALL BE FIELD VERIFIED. NO BELL & SPIGOT IN CONTACT W/BASE SLAB AND TOP SLAB (FLUSH) AS SHOWN. WALL THICKNESS OF PROPOSED WET WELL SECTION AND BELL AND SPIGOT TO MATCH EXISTING.

SECTION 1

SCALE: 3/8" = 1'-0" FP-01



LARGE DIA. PIPE SADDLE SUPPORT

NO SCALE

PRECAST CONCRETE TOP SLAB NOTES:

1. SEE "REINFORCED CONCRETE NOTES" 1 THRU 6.
2. MINIMUM CONCRETE COVER TO REINFORCEMENT SHALL BE 2".
3. 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"
4. 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.

GENERAL NOTES:

1. PROVIDE (2) SUBMERSIBLE PUMPS WITH AN OPERATING CONDITION OF 325 GPM AT 50 TDH. SHOP DRAWINGS SHALL BE SUBMITTED FOR ALL PUMPING & FORCE MAIN EQUIPMENT FOR OWNER APPROVAL PRIOR TO FABRICATION.
2. GENERAL CONTRACTOR NOTE - THE VALVE VAULT MUDMAT SHALL BE CONSTRUCTED ON UNDISTURBED IN SITU MATERIAL.
3. 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 FLOWABLE FILL.
4. EXCAVATION, BACKFILLING AND JOINT WATERPROOFING, UNLESS OTHERWISE NOTED, SHALL BE IN ACCORDANCE WITH THE "2012 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 THEN 95% OF MAXIMUM DENSITY AT OPTIMUM MOISTURE.
5. 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.
6. 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.
7. 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.
8. FOR BURIED FORCE MAIN PIPING, PROVIDE RESTRAINED JOINTS AT ALL LATERALS AND ELBOWS.
9. 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)
10. SOIL BORING INFORMATION IS APPENDED TO THE SPECIFICATIONS.
11. BACKFILL SUMP PUMP PIPING TRENCH BELOW VALVE CHAMBER WITH MDOT CL II "BACKFILL, STRUCTURE, CIP" GRANULAR MATERIAL AND COMPACTED TO 95% OF MAX. DENSITY.
12. J.W.P. - JOINT WATERPROOFING. REFER TO "2012 STANDARD SPECIFICATION FOR CONSTRUCTION", SECTION 710 AS ISSUED BY MICHIGAN DEPARTMENT OF TRANSPORTATION.
13. 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.
14. ALL PUMP DISCHARGE PIPE AND FITTINGS, EXCEPT S.S. 316 AND PVC PIPING, WITHIN THE LIFT STATION WET WELL SHALL RECEIVE AFTER INSTALLATION, A EPOXY COATINGS SYSTEM.
15. 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.
16. SEE SPECIFICATION SECTION 11390 "PUMPING STATION EQUIPMENT" FOR ADDITIONAL INFORMATION ON THE ITEMS SHOWN ON THIS SHEET.
17. PROVIDE ONE (1) ZOELLER MODEL 95 SUMP PUMP WITH 2" PVC ADAPTOR WITH BUILT IN FLOAT.
18. ALL HARDWARE AND MISC. METALS IN WET WELL SHALL BE 316 S.S.
19. ALL MECHANICAL JOINT FITTINGS SHALL BE RESTRAINED.

REINFORCED CONCRETE NOTES:

1. 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.
2. STEEL REINFORCEMENT, INCLUDING TIES AND STIRRUPS, SHALL BE NEW BILLET STEEL CONFORMING TO A.S.T.M. A615, GRADE 60, AND NON-EPOXY COATED.
3. SHOP DRAWINGS SHALL BE SUBMITTED FOR ALL REINFORCEMENT FOR OWNER'S APPROVAL, PRIOR TO FABRICATION. REINFORCEMENT SUPPLIER AND FABRICATOR SHALL BE MDOT APPROVED.
4. REINFORCEMENT SHALL BE DETAILED IN ACCORDANCE WITH LATEST EDITION A.C.I.301 "SPECIFICATION FOR STRUCTURAL CONCRETE" C.R.S.I., ND "MANUAL OF STANDARD PRACTICE", LATEST EDITION.
5. MINIMUM LAP OF REINFORCEMENT:
   #4. . . . . 24"
   #5. . . . . 30"
   #6. . . . . 37"
6. CONCRETE COVER TO REINFORCEMENT :
   CONCRETE PLACED AGAINST GROUND . . . . . 3"
   ALL OTHER (UNLESS OTHERWISE INDICATED) . . . . . 2"
7. MUDMAT CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3500 PSI.
8. 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. MIX IN ACCORDANCE W/MANUFACTURER'S RECOMMENDATIONS.
9. WELDED WIRE FABRIC FOR CONCRETE PAVEMENT SHALL BE MDOT R-45-E INSTALLED AT MIDPOINT OF SLAB DEPTH.
10. (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.
11. A 3/4" x 45° CHAMFER SHALL BE PROVIDED AT EXPOSED EDGES OF ALL CONCRETE SLABS.
12. EXPOSED FACE OF ROOF SLABS SHALL BE BROOMED FOR CAST-IN-PLACE CONCRETE WITH NO VISIBLE SURFACE IMPERFECTIONS.
13. JWP - MEL ROL BY W.R. MEADOWS.

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
FRANKLIN LIFT STATION	8'-0"	940.0'	925.2'	8'-0"	940.0'	931.3'	933.3'	6"

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	ISSUED FOR 90% REVIEW	SEPT. 27, 2019	AAU	
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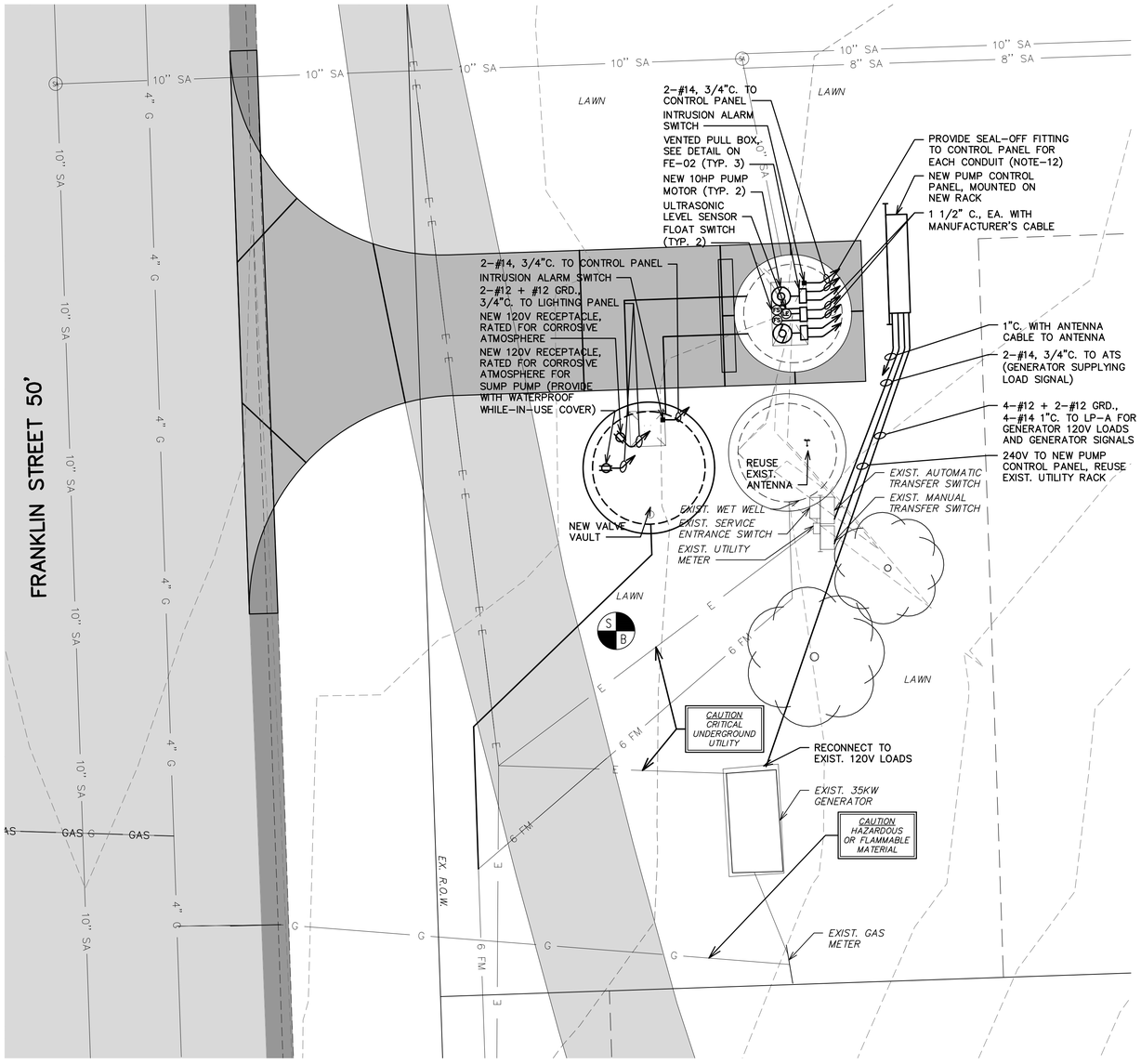
PROJECT MANAGEMENT - PUBLIC SERVICES - CITY OF ANN ARBOR
FRANKLIN LIFT STATION
PLAN AND SECTIONS

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

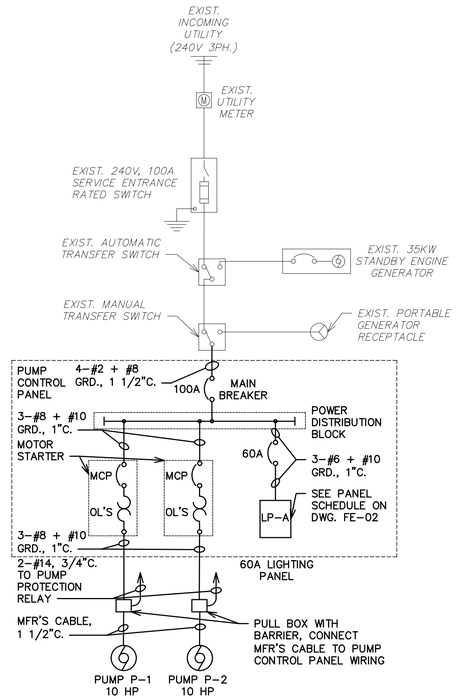


FRANKLIN LIFT STATION – POWER PLAN

1" = 5'- 0"

0 5 10 20

N



REVISED ONE-LINE DIAGRAM – FRANKLIN PUMP STATION

LOAD SUMMARY		
240V. 3PH. 4W. SERVICE		
ITEM	DESCRIPTION	F.L.A.
PUMP	(2) 10HP SUBMERSIBLE	56A
STATION MISC.	LIGHTING PANEL	40A
	TOTAL CONNECTED LOAD	96A

GENERAL ELECTRICAL NOTES:

1. THE CONTRACTOR SHALL VISIT THE JOB SITE AND THOROUGHLY CHECK THE EXISTING FIELD CONDITIONS PRIOR TO SUBMITTING A BID.
2. ALL WORK SHALL BE COORDINATED WITH THE OWNER.
3. 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.
4. SITE ADDRESS IS 1800 FRANKLIN STREET, ANN ARBOR, MI 48103
5. ALL CONDUIT FROM WETWELL TO PULL BOX SHALL BE SCHEDULE 80 PVC. ALL OTHER 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.
6. EXPANSION FITTINGS SHALL BE PROVIDED AT ALL TRANSITIONS FROM UNDERGROUND TO EXPOSED CONDUIT.
7. PROVIDE A PANEL DRAIN AND BREATHER, CROUSE-HINDS "ECD" UNIVERSAL SERIES OF EQUAL, MOUNTED TO THE TOP AND BOTTOM OF ALL NEMA 4 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.
8. 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.
9. ALL EXPOSED, METALLIC SUPPORTS, BRACKETS, HANGERS, ETC., LOCATED WITHIN THE WET WELL SHALL BE P.V.C. COATED WITH 40 MILS (MINIMUM) COVERING. WHERE FACTORY P.V.C. COATING IS NOT AVAILABLE, FACTORY OR FIELD COATING WITH A CORROSION-RESISTANT EPOXY PAINT SHALL BE PROVIDED.
10. FOR ALL EQUIPMENT MOUNTED WITHIN THE WET WELL, USE 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.
11. ALL CONDUITS AND/OR SLEEVES THAT PASS THROUGH WALLS OR FLOORS SEPARATING HAZARDOUS AREAS FROM NON-HAZARDOUS AREAS SHALL BE SEALED GAS-TIGHT WITH NON-SHRINK GROUT AFTER CONDUIT IS INSTALLED.
12. PUMP POWER CABLES, PUMP CONTROL CABLES, AND FLOAT SWITCH CONTROL CABLES SHALL BE SPLICED TO PANEL WIRING WITHIN A PULL BOX. PROVIDE SEAL-OFF FITTING BETWEEN THE PULL BOX AND THE PUMP CONTROL PANEL.
13. ALL THREADED ELECTRICAL EQUIPMENT (CONDUIT, FITTINGS, BOLTS, SCREWS, ETC.) INSTALLED OUTDOORS SHALL BE COATED WITH ANTI-SEIZE COMPOUND PRIOR TO INSTALLATION.
14. 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.
15. SUPPORT RACK TO HAVE EDGES, ABRASIONS, ETC. CLEANED AND TOUCHED UP WIH A HOT GALVANIZED COMPOUND, SUCH AS GALVAWELD, IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
16. 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.
17. ALL ELECTRICAL WORK SHALL COMPLY WITH THE N.E.C., AND THE LOCAL CODES, ORDINANCES, AND REGULATIONS INCLUDING MIOSHA.
18. ALL EXISTING EQUIPMENT ASSOCIATED WITH THE SCADA SYSTEM SHALL BE DISCONNECTED AND REUSED. ALL SCADA SYSTEM COMPONENTS ARE TO BE SUPLATE MOUNTED INSIDE THE PUMP CONTROL PANEL. ADDITIONAL SPACE SHALL BE PROVIDED IN PUMP CONTROL PANEL FOR MOUNTING OF THE EQUIPMENT. SCADA INTEGRATION WILL BE BY UIS AND WILL BE PAID FOR DIRECTLY BY THE OWNER. SEE DRAWING FE-02 FOR I/O LIST.
19. RECONNECT EXISTING SCADA EQUIPMENT TO EXISTING ANTENNA. PROVIDE NEW ANTENNA CABLE IN CONDUIT FROM PUMP CONTROL PANEL TO ANTENNA LOCATION AS REQUIRED.
20. IN AREA 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.
21. PROVIDE BACKFILL PER SPECIFICATION. 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.

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

REV.	DESCRIPTION	DATE	DRAWN	CHECKED
	ISSUED FOR BIDS	OCT. 25, 2019	MJR	AAU
	ISSUED FOR 90% REVIEW	SEPT. 27, 2019	MJR	AAU
	ISSUED FOR 50% REVIEW	AUGUST 30, 2019	MJR	AAU

CITY OF ANN ARBOR
PUBLIC SERVICES
301 EAST HURON STREET
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ANN ARBOR, MI 48107-8647
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PROJECT MANAGEMENT – PUBLIC SERVICES – CITY OF ANN ARBOR

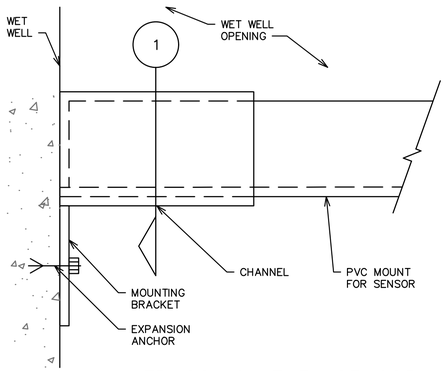
FRANKLIN LIFT STATION

GENERAL NOTES, POWER PLAN & ONE-LINE DIAGRAM

SCALE PLAN: 1" = 5'

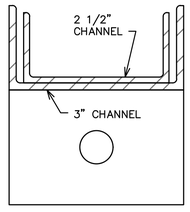
DRAWING No. FE-01

SHEET No.



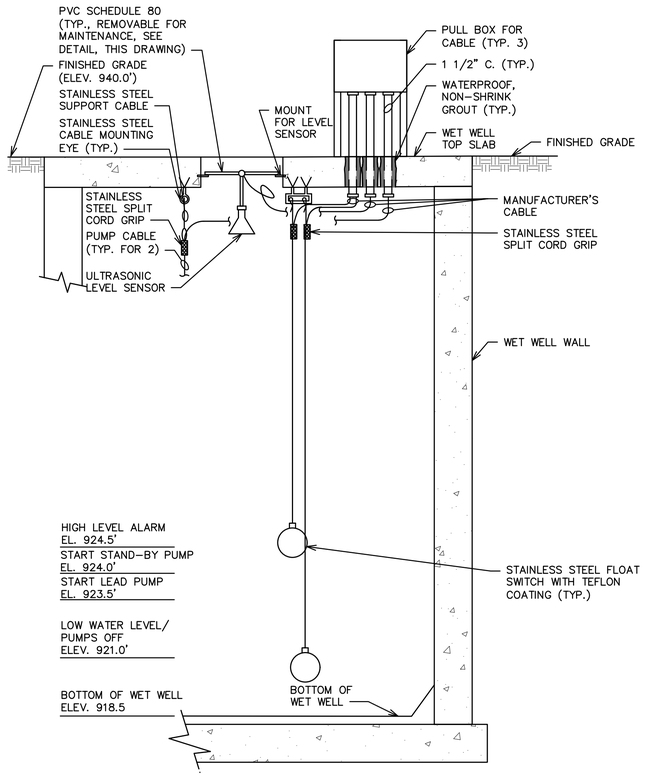
ULTRASONIC LEVEL SENSOR SUPPORT DETAIL

NO SCALE



SECTION 1

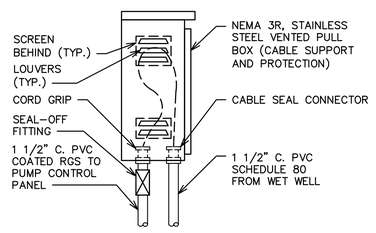
NO SCALE



WET WELL FLOAT SWITCH, LEVEL TRANSDUCER AND PUMP CABLE MOUNTING

N.T.S.

(ALL HARDWARE IN WET WELL SHALL BE 316 S.S.)



PULL BOX DETAIL

N.T.S.

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. COMMUNICATION BETWEEN PUMP CONTROL PANEL AND SCADA PLC TO BE OVER MODBUS)

DISCRETE INPUTS

1. PUMP 1 RUNNING (SIGNAL FROM PUMP CONTROL PANEL VIA MODBUS)
2. PUMP 2 RUNNING (SIGNAL FROM PUMP CONTROL PANEL VIA MODBUS)
3. WET WELL LEVEL HIGH (SIGNAL FROM FLOAT SWITCH VIA INTERPOSING RELAY)
4. STATION INTRUSION (SIGNAL FROM INTRUSION SWITCHES)
5. WET WELL LEVEL LOW (SIGNAL FROM FLOAT SWITCH VIA INTERPOSING RELAY)
6. GENERATOR RUNNING (SIGNAL FROM GENERATOR CONTROL PANEL)
7. GENERATOR FAULT (SIGNAL FROM GENERATOR CONTROL PANEL)
8. GENERATOR SUPPLYING POWER (SIGNAL FROM ATS)
9. SPARE
10. SPARE
11. SPARE
12. SPARE
13. SPARE
14. SPARE
15. SPARE
16. SPARE

DISCRETE OUTPUTS

1. START PUMP 1 (DRY CONTACT OUTPUT)
2. START PUMP 2 (DRY CONTACT OUTPUT)
3. SPARE
4. SPARE

ANALOG INPUTS

1. WETWELL LEVEL (SIGNAL FROM PUMP CONTROL PANEL VIA MODBUS)
2. SPARE
3. SPARE
4. SPARE

MISCELLANEOUS VALUES

1. AC POWER FAIL (PUMP CONTROL PANEL VIA MODBUS)
2. COMMS FAIL (PUMP CONTROL PANEL VIA MODBUS)
3. PUMP 1 HOURS DAILY (PUMP CONTROL PANEL VIA MODBUS)
4. PUMP 1 HOURS TOTAL (PUMP CONTROL PANEL VIA MODBUS)
5. PUMP 1 STARTS DAILY (PUMP CONTROL PANEL VIA MODBUS)
6. PUMP 1 STARTS TOTAL (PUMP CONTROL PANEL VIA MODBUS)
7. PUMP 2 HOURS DAILY (PUMP CONTROL PANEL VIA MODBUS)
8. PUMP 2 HOURS TOTAL (PUMP CONTROL PANEL VIA MODBUS)
9. PUMP 2 START DAILY (PUMP CONTROL PANEL VIA MODBUS)
10. PUMP 2 STARTS TOTAL (PUMP CONTROL PANEL VIA MODBUS)
11. INTERROGATE STATION (PUMP CONTROL PANEL VIA MODBUS)
12. UPDATE STATION (PUMP CONTROL PANEL VIA MODBUS)
13. START PUMP 1 (PUMP CONTROL PANEL VIA MODBUS)
14. STOP PUMP 1 (PUMP CONTROL PANEL VIA MODBUS)
15. START PUMP 2 (PUMP CONTROL PANEL VIA MODBUS)
16. STOP PUMP 2 (PUMP CONTROL PANEL VIA MODBUS)
17. PUMP 1 RELAY BACK (PUMP CONTROL PANEL VIA MODBUS)
18. PUMP 2 RELAY BACK (PUMP CONTROL PANEL VIA MODBUS)
19. START LEAD SETPOINT (PUMP CONTROL PANEL VIA MODBUS)
20. START LAG SETPOINT (PUMP CONTROL PANEL VIA MODBUS)
21. STOP ALL PUMPS (PUMP CONTROL PANEL VIA MODBUS)

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	LOAD (WATTS) 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		500
10	20A	SPARE		
12	20A	SPARE		
14		SPACE		
16		SPACE		
18		SPACE		
		TOTAL CONNECTED LOAD	1880	2240

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REV.	DESCRIPTION	DATE	DRAWN	CHECKED
	ISSUED FOR BIDS	OCT. 25, 2019	MJR	AAU
	ISSUED FOR 90% REVIEW	SEPT. 27, 2019	MJR	AAU
	ISSUED FOR 50% REVIEW	AUGUST 30, 2019	MJR	AAU

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CITY OF ANN ARBOR MICHIGAN

PROJECT MANAGEMENT – PUBLIC SERVICES – CITY OF ANN ARBOR

FRANKLIN LIFT STATION

ELECTRICAL DETAILS

SCALE: NO SCALE

DRAWING No.: FE-02

SHEET No.