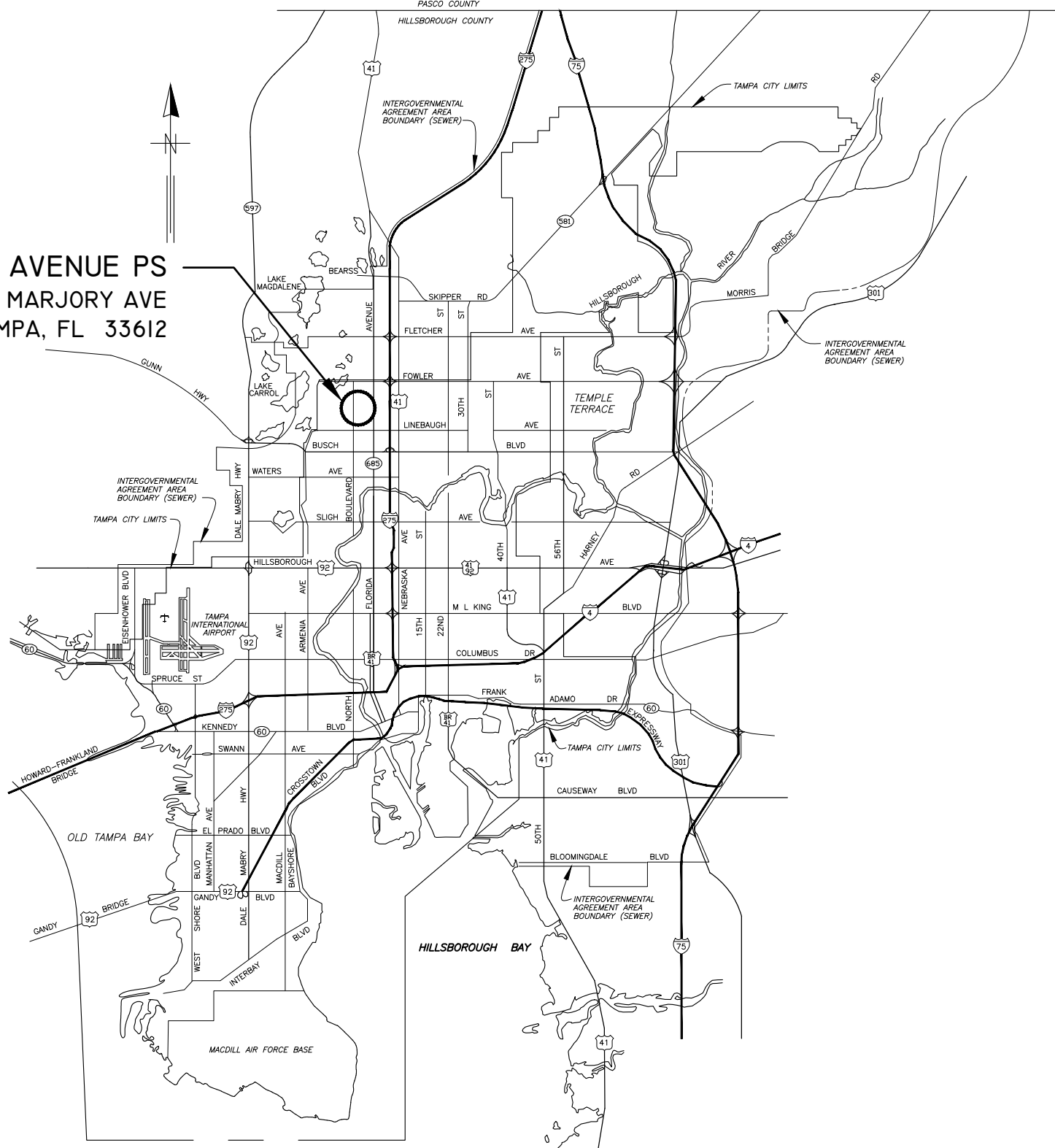


LOCATION MAP

109TH AVENUE PS
10902 MARJORY AVE
TAMPA, FL 33612



NOTE:
ATTENTION IS DIRECTED TO THE FACT THAT
THESE PLANS MAY HAVE BEEN REDUCED IN
SIZE BY REPRODUCTION. THIS MUST BE
CONSIDERED WHEN OBTAINING SCALED DATA.

CITY of TAMPA



WASTEWATER DEPARTMENT

PLANS FOR

109TH AVENUE PUMP STATION
REHABILITATION

CONTRACT No.
23-C-00001

PLOTTED BY: Sonnenberg, Terence; DRAWING FILE: L:\DCS\Projects\WTR\60651648_Tampa_WWPS\Rehab\900_CAD_GIS\912_CAD_109th_Sheets\1 COVER SHEET.dwg; PLOT DATE: Monday, April 17, 2023 10:06:52 AM; LAST SAVED BY: Terence.Sonnenberg; CTB: AECOM-11X17.ctb

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7650 West Courtney Campbell Causeway
Waterford Plaza, Suite 700
Tampa, Florida 33607 813.286.1711 tel
Certificate of Authorization No. 8115

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FL. P.E. LICENSE NO. 67573

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DATE: 04/14/2023

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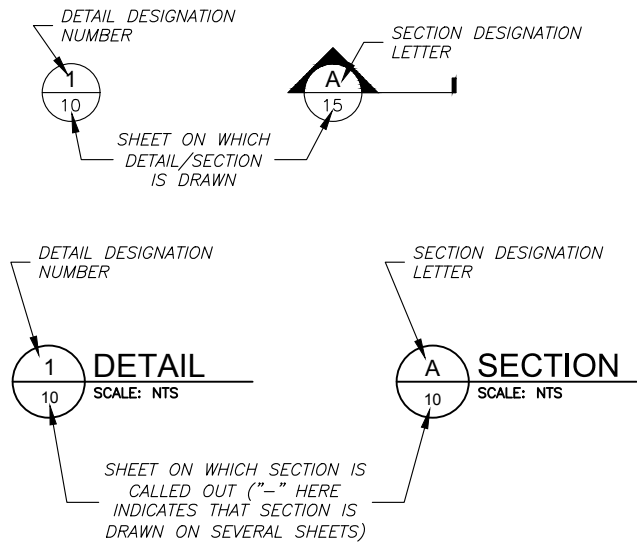
109TH AVENUE PUMP STATION REHABILITATION
COVER SHEET

SHEET
1

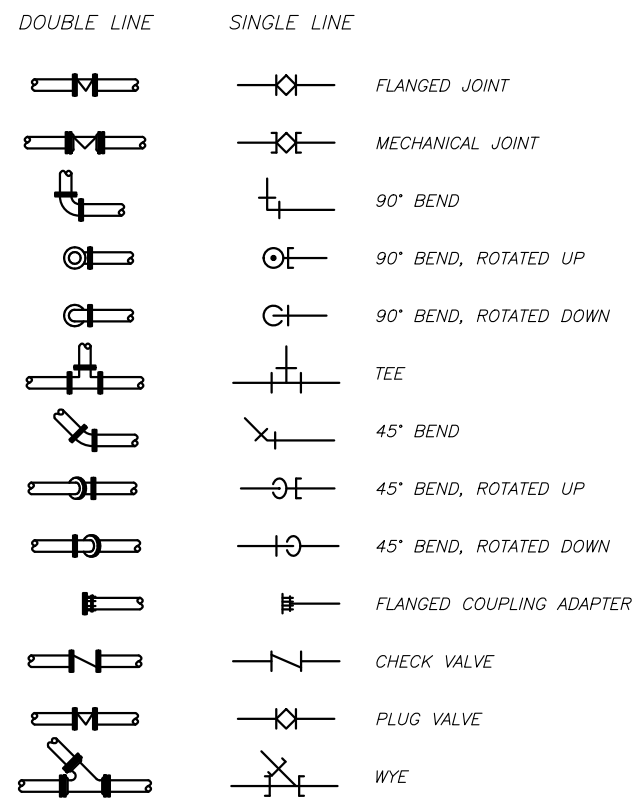
ABBREVIATIONS:

#	NUMBER	LF	LINEAR FEET
AC	ASBESTOS CEMENT PIPE	MAX	MAXIMUM
ADPT	ADAPTER	MH	MANHOLE
APPROX	APPROXIMATE (LY)	MIN	MINIMUM
ARV	AIR RELEASE VALVE	MISC	MISCELLANEOUS
ASPH	ASPHALT	MJ	MECHANICAL JOINT
ASSY	ASSEMBLY	MM	MILLIMETER
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	N	NORTH
AVG	AVERAGE	NAVD	NORTH AMERICAN VERTICAL DATUM
AWWA	AMERICAN WATER WORKS ASSOCIATION	NO	NORMALLY OPENED/NUMBER
		NPT	NATIONAL PIPE THREAD
		NTS	NOT TO SCALE
BFP	BACKFLOW PREVENTER	OC	ON CENTER
BV	BALL VALVE	OD	OUTSIDE DIAMETER
BFV	BUTTERFLY VALVE	O/E	OR EQUAL
BLDG	BUILDING	OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
CKD	CHECKED	PDF	PORTABLE DOCUMENT FORMAT
CI	CAST IRON	PE	PLAIN END
CLR	CLEAR (ANCE)	PL	PROPERTY LINE
CONC	CONCRETE	PP	POWER POLE
CPLG	COUPLING	PROP	PROPOSED
CPP	CONCRETE POLYMER COATING	PS	PUMP STATION
CTR	CENTER (ED)	PSI	POUNDS PER SQUARE INCH
CV	CHECK VALVE	PSF	POUNDS PER SQUARE FOOT
		PV	PLUG VALVE
D	DRAIN	PVC	POLYVINYL CHLORIDE PIPE
DEMO	DEMOLITION	PVMT	PAVEMENT
DES	DESIGN BY	PW	POTABLE WATER
DI	DUCTILE IRON (PIPE)		
DIA	DIAMETER	R/W	RIGHT-OF-WAY
DIPS	DUCTILE IRON PIPE SIZE	R	RADIUS
DR	DIMENSION RATIO	RCP	REINFORCED CONCRETE PIPE
DRN	DRAWN BY	REQ'D	REQUIRED
		RJ	RESTRAINED JOINT
E	EAST OR EASTING	S	SOUTH OR SANITARY
EA	EACH	SAN	SANITARY
ECC	ECCENTRIC	SB	SOIL BORING
EFF	EFFLUENT	SCH	SCHEDULE
EL	ELEVATION	SDR	STANDARD DIMENSION RATIO
ELEV	ELEVATION	SF	SQUARE FOOT
ELL	ELBOW	SFM	SANITARY FORCE MAIN
EOP	EDGE OF PAVEMENT	SHT	SHEET
EPDM	ETHYLENE PROPYLENE DIENE MONOMER	SQR	SQUARE
EQ	EQUAL (LY)	SST	STAINLESS STEEL
ESMT	EASEMENT	STA	STATION
ETC	ETCETERA	STD	STANDARD
EW	EACH WAY	T&B	TOP AND BOTTOM
EX	EXISTING	TDH	TOTAL DYNAMIC HEAD
EXP	EXPANSION	THK	THICK (NESS)
		TOP	TOP OF PIPE
FAC	FLORIDA ADMINISTRATIVE CODE	TYP	TYPICAL
FDOT	FLORIDA DEPARTMENT OF TRANSPORTATION	UV	ULTRAVIOLET
FIN	FINISH (ED)	V	VOLT(S)
FL	FLANGE	VCP	VITRIFIED CLAY PIPE
FLR	FLOOR	W	WEST
FM	FORCE MAIN/FLOW METER	W/	WITH
FRP	FIBERGLASS REINFORCED PLASTIC	WM	WATERMAIN OR WATER METER
FT	FOOT OR FEET	WW	WETWELL
		WWF	WOVEN WIRE FABRIC
GALV	GALVANIZED	XFMR	TRANSFORMER
GPM	GALLONS PER MINUTE		
GV	GATE VALVE		
HB	HOSE BIBB		
HDD	HORIZONTAL DIRECTIONAL DRILL		
HDPE	HIGH DENSITY POLYETHYLENE		
HP	HORSEPOWER		
HZ	HERTZ		
ID	INSIDE DIAMETER		
IE	INVERT ELEVATION		
INF	INFLUENT		
INV	INVERT		

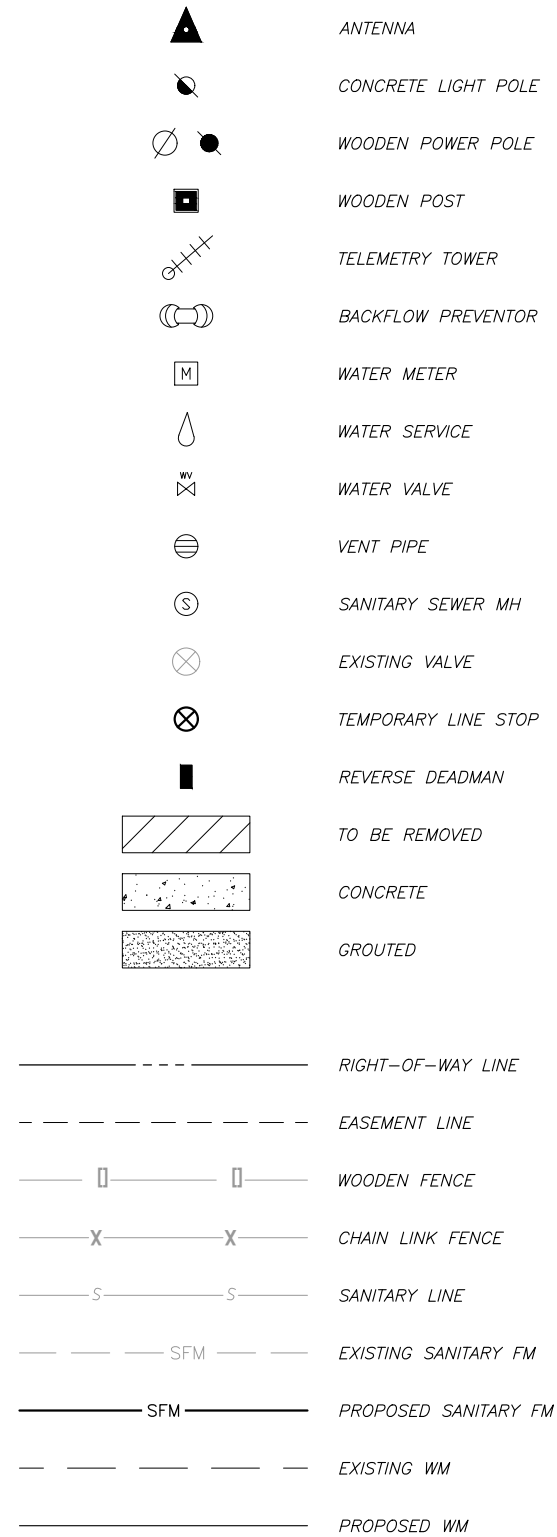
DETAIL & SECTION DESIGNATION



PIPE AND FITTING SYMBOLS



LEGEND OF SYMBOLS



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DEMOLITION NOTES

1. SALVAGEABLE MATERIAL, AS DETERMINED BY CITY PERSONNEL, SHALL BE DELIVERED TO THE CITY OF TAMPA'S HOWARD F. CURREN AWWP AT 2700 MARITIME BOULEVARD. NON-SALVAGEABLE MATERIALS ARE TO BE REMOVED FROM THE SITE AND PROPERLY DISPOSED OF AT THE CONTRACTOR'S EXPENSE.
2. THE CONSTRUCTION SITE SHALL BE MAINTAINED IN AS NEAT AND ORDERLY CONDITION AS POSSIBLE DURING CONSTRUCTION OPERATIONS. SITE SHALL BE SECURED WITH TEMPORARY FENCING AND STRUCTURES DURING HOURS WHEN CONTRACTOR IS NOT PRESENT TO ENSURE SAFETY OF CITY EMPLOYEES AND THE PUBLIC.
3. CONTRACTOR SHALL RESTORE ALL LANDSCAPING, SODDING, SPRINKLER SYSTEM PIPING AND PAVEMENT THAT MAY HAVE BEEN DAMAGED DURING CONSTRUCTION TO ITS ORIGINAL CONDITION OR BETTER. CONTRACTOR SHALL SOD ALL UNPAVED AREAS.

GENERAL NOTES

1. ELEVATION INFORMATION SHOWN ON THESE PLANS IS REFERENCED TO NAVD 1988 UNLESS OTHERWISE STATED.
2. EXISTING DIMENSIONS ARE BASED ON THE BEST INFORMATION AVAILABLE. TRUE DIMENSIONS SHALL BE DETERMINED IN THE FIELD BY THE CONTRACTOR.
3. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL NECESSARY RIGHT-OF-WAY PERMITS FOR THE PUMPING STATION WORK.
4. THE CITY WILL OBTAIN ALL NECESSARY BUILDING PERMITS AND FDEP WASTEWATER PERMITS.
5. CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION ACTIVITIES WITH THE CITY.
6. CONTRACTOR SHALL CALL SUNSHINE (1-800-432-4770) AT LEAST 48 HOURS PRIOR TO ANY CONSTRUCTION ACTIVITY.
7. NORMAL WORKING HOURS SHALL BE WEEKDAYS FROM 7:30 AM TO 4:00 PM UNLESS OTHERWISE APPROVED BY THE CITY.
8. THREE NEW SUBMERSIBLE PUMPS SHALL BE SUPPLIED FOR THIS PROJECT. PROPOSED PUMPS ARE (3) FLYGT PUMPS, MODEL NP 3171.185 MT, 25 HP (234 MM IMPELLER OPERATING AT 900 GPM @ 61'). PUMPS SHALL BE SUPPLIED WITH FLYGT MIX-FLUSH VALVES AND EXTENDED STAINLESS STEEL LIFTING HANDLES AS SHOWN. ALL PROPOSED PUMP BASES SHALL BE 6-INCH DIAMETER DISCHARGE ELBOWS. THIS EQUIPMENT IS A STANDARDIZED ITEM AT THIS FACILITY AND NO "OR EQUAL" SUBMITTALS WILL BE CONSIDERED.
9. REMOVAL OF EXISTING PAVEMENT AND BASE MATERIAL, POLES, UNDERGROUND PIPES, STRUCTURES, AND OTHER MISCELLANEOUS ITEMS AS SHOWN ON PLANS SHALL BE INCLUDED IN THE LUMP SUM PRICE AND NO SEPARATE PAYMENT WILL BE MADE.
10. CONTRACTOR SHALL VERIFY QUANTITIES OF ALL NECESSARY PIPES, REDUCERS, FITTINGS, SUPPORTS, AND ANY MISCELLANEOUS BRACKETS.
11. PUMP DISCHARGE PIPING IN WET WELL SHALL BE 8-INCH DIAMETER 316L SCH 40 SST.
12. DIMENSIONS SHOWN ARE NOT NECESSARILY ACCURATE TO THE DEGREE REQUIRED FOR FABRICATION. EXISTING DIMENSIONS AND VIEWS ARE SHOWN BASED ON THE BEST INFORMATION AVAILABLE. CONTRACTOR SHALL FIELD VERIFY ALL PERTINENT DIMENSIONS AND REFLECT THEM ON DETAILED SHOP DRAWINGS FOR APPROVAL BEFORE ANY FABRICATION.
13. SHOP DRAWINGS SHALL BE SUBMITTED AND APPROVED FOR ALL PROPOSED ITEMS. ALL SUBMITTALS AND SHOP DRAWINGS SHALL BE ORIGINALS OR HIGH QUALITY COPIES (CLEARLY LEGIBLE). NO FAXED SHEETS OR POOR QUALITY COPIES WILL BE ACCEPTED FOR SUBMITTAL REVIEW.
14. PLUG VALVES SHALL BE DEZURIK, PEF 100% PORT, ECCENTRIC PLUG VALVES. THIS EQUIPMENT IS A STANDARDIZED ITEM AT THIS FACILITY AND NO "OR EQUAL" SUBMITTALS WILL BE CONSIDERED. ALL ABOVE GROUND PLUG VALVES SHALL BE PROVIDED WITH 2" NUTS AND NO HANDWHEELS.
15. CHECK VALVES SHALL BE APCO RUBBER FLAPPER SWING CHECK VALVES, SERIES 100 EQUIPPED WITH HOLD OPEN DEVICES. THIS EQUIPMENT IS A STANDARDIZED ITEM AT THIS FACILITY AND NO "OR EQUAL" SUBMITTALS WILL BE CONSIDERED.
16. ALL HARDWARE SHALL BE TYPE 316 STAINLESS STEEL.
17. PIPE SUPPORTS SHALL BE CONSTRUCTED AS SHOWN IN THE PIPE SUPPORT DETAIL.
18. ALL CEMENTITIOUS CONCRETE AND GROUT, UNLESS OTHERWISE NOTED, SHALL BE CLASS "B", 4000 PSI COMPRESSIVE STRENGTH AT 28 DAYS. ALL REINFORCING STEEL SHALL BE GRADE 60.
19. ALL EXPOSED NON-SST OR NON-HDPE PIPE, FITTINGS, VALVES, ETC. SHALL RECEIVE:
 - A. SHOP COAT - ONE COAT, 3-5 MILS (DRY) TNEMEC N140-1211 EPOXY PRIMER.
 - B. FIELD COAT - ONE COAT, 3-5 MILS (DRY) TNEMEC N69.
 - C. FIELD COAT:
 1. ABOVE GRADE : ONE COAT, 4-6 MILS (DRY) TNEMEC 1074U ENDURASHIELD (WITH FACTORY ADDED UV BLOCKER)
 2. BELOW GRADE : ONE COAT, 5-7 MILS (DRY) TNEMEC SERIES 446 PERMA-SHIELD MCU
20. ALL STAINLESS STEEL PARTS TO BE WELDED SHALL BE THE LOW-CARBON VERSION OF THE GRADE OF STAINLESS STEEL THAT IS CALLED FOR, SUCH AS: T-316L OR T-304L.
21. CONTRACTOR SHALL POUR A NEW CONCRETE FILLET, AT THE BOTTOM OF THE WET WELL, AS SHOWN IN THE PLANS WITH CLASS "D" (2,000 PSI @ 28-DAYS) CONCRETE.
22. HATCHES SHALL BE SUPPLIED BY THE FRP WET WELL MANUFACTURER. ALUMINUM ACCESS COVERS SHALL BE DESIGNED FOR A PEDESTRIAN LIVE LOADING OF 300 PSF WITH 316 STAINLESS STEEL HARDWARE, HINGES AND AUTOMATIC HOLD-OPEN ARM AS MANUFACTURED BY US FOUNDRY AND MANUFACTURING CORPORATION OR APPROVED EQUAL. THE PUMP ACCESS COVER SHALL BE A TRIPLE DOOR ARRANGEMENT WITH AN ANGLE FRAME. EACH DOOR SHALL HAVE CLEAR OPENING DIMENSIONS OF 2'-8" BY 3'-0" AND OPEN/CLOSE INDEPENDENTLY TO THE OTHER DOORS. THE ACCESS DOORS SHALL ALSO BE EQUIPPED WITH A FLUSH LIFTING HANDLE, TAMPERPROOF FASTENERS AND EXPOSED PADLOCK STAPLES. ACCESS COVER DOORS SHALL NOT BE EQUIPPED WITH SLAM-LOCK OR SIMILAR LATCHING DEVICE.
23. THE ACCESS COVER SHALL CLOSE FLUSH WITH THE FRAME. ALL ALUMINUM SURFACES THAT CONTACT CONCRETE SHALL BE COATED WITH TWO COATS OF COAL TAR EPOXY OR BITUMINOUS COATING OR EQUAL. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS DETAILING THE INSTALLATION AND CONFIGURATION OF THE ACCESS COVERS.

24. ALL DI PIPE AND FITTING SHALL BE CLASS 53 WITH PROTECTO 401 INTERIOR COATING. ALL ABOVE GRADE DI PIPE, FITTINGS, AND VALVES SHALL BE PAINTED BLACK. ALL DISCHARGE PIPE FLANGE CONNECTIONS SHALL UTILIZE NYLOC NUTS.
25. BACKFILL (NO CLAY OR CLAYEY MATERIAL) SHALL BE COMPACTED IN 6-INCH LAYERS (MAX) TO 98% MAXIMUM DRY DENSITY OF MODIFIED PROCTOR IN CONFORMANCE WITH AASHTO T-180, METHOD A.
26. PVC GRAVITY PIPE AND FITTINGS SHALL BE SDR-26 (HEAVY WALL) IN COMPLIANCE TO ASTM D3034. PVC FM PIPE AND FITTINGS SHALL BE C-900 (DR-18).
27. ALL CONCRETE PAVEMENT, UNLESS OTHERWISE NOTED, SHALL BE MINIMUM 6" THICK CONCRETE WITH 4X4 W6XW6 WWR. CONCRETE SHALL BE CONSTRUCTED ON COMPACTED SUB-BASE (MINIMUM 98% MODIFIED PROCTOR) WITH 1.5" DEEP CONTROL JOINTS SAW-CUT AT 15' MAX, CUT WITHIN 12 HOURS OF CONCRETE PLACEMENT.
28. CONTRACTOR SHALL PROTECT ALL TREES IN THE VICINITY OF THE PROPOSED CONSTRUCTION IN ACCORDANCE WITH CHAPTER 13 OF THE CITY OF TAMPA CODE. NO TREES SHALL BE PRUNED WITHOUT PRIOR APPROVAL FROM THE CITY OF TAMPA PARKS AND RECREATION DEPARTMENT, NATURAL RESOURCES DIVISION, AND SHALL BE COMPLETED BY A CERTIFIED ARBORIST. ROOT PRUNING MAY BE REQUIRED AT CERTAIN LOCATIONS AND COMPLETED IN ACCORDANCE WITH CHAPTER 13 TECHNICAL MANUAL SPECIFICATIONS.
29. PLANS ARE DESIGNED IN ACCORDANCE WITH THE 7TH EDITION 2020 OF THE FLORIDA BUILDING CODE, THE 2017 EDITION OF THE NATIONAL ELECTRICAL CODE AND CHAPTER 5 OF THE CITY OF TAMPA CODE AND SHALL BE INSPECTED BY CITY OF TAMPA ELECTRICAL INSPECTORS AS APPLICABLE. CONTRACTOR SHALL ENSURE THAT ALL ELECTRICAL WORK PERFORMED SHALL ADHERE TO THE SAME ACCORDANCE AND ALL APPLICABLE LOCAL ORDINANCES.
30. CONTRACTOR SHALL PROVIDE A REDUCED PRESSURE BACKFLOW-PREVENTION DEVICE IN WATER SERVICE LINE, AS SHOWN IN DETAILS, AT A PLACE TO BE SPECIFIED DURING CONSTRUCTION. BACKFLOW PREVENTION DEVICE SHALL BE 3/4" WILKINS, MODEL #975 XL, OR EQUAL. PIPING SHALL BE 1" IN DIAMETER UNLESS SHOWN OTHERWISE IN THE PLANS.

BYPASS NOTES

1. SEWER SERVICE TO CUSTOMERS SHALL NOT BE DISRUPTED DURING CONSTRUCTION. CONTRACTOR SHALL SUBMIT DETAILED PROPOSAL FOR PUMPING STRATEGY.
2. THE BYPASS PUMPS SHALL BE THE SELF PRIMING QUIET FLOW TYPE PUMP. BYPASS PUMPS NOISE SHALL STRICTLY COMPLY TO ALL LOCAL REGULATIONS AND ORDINANCES COVERING NOISE CONTROL. PUMPS SHALL BE SUPPLIED WITH SOUND ATTENUATION ENCLOSURES.
3. CONTRACTOR SHALL SUPPLY (2) SOUND ATTENUATED DIESEL BY-PASS PUMPS (1-PRIMARY AND 1-BACKUP) EACH CAPABLE OF DELIVERING 1,800 GPM AT 63' TDH PLUS ANY LOSSES PRODUCED IN THE TEMPORARY BYPASS PIPING. THE PUMPS SHALL SUCTION FROM THE UPSTREAM MANHOLE IN THE STREET, THROUGH THE PROPOSED BURIED SUCTION PIPES, AND DISCHARGE INTO THE EXISTING BYPASS ASSEMBLY. CONTRACTOR SHALL SUBMIT BYPASS PUMPING PLAN TO THE ENGINEER FOR APPROVAL.
4. ONLY CITY PERSONNEL SHALL OPERATE EXISTING VALVES. NOTIFY CITY A MINIMUM OF TWO WEEKS BEFORE COMMENCEMENT OF THIS WORK.
5. THE CONTRACTOR SHALL HAVE ALL NEW EQUIPMENT ON-SITE BEFORE PLACING THE PUMPING STATION ON BYPASS.

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AECOM
 7650 West Courtney Campbell Causeway
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 Tampa, Florida 33607 813.286.1711 tel
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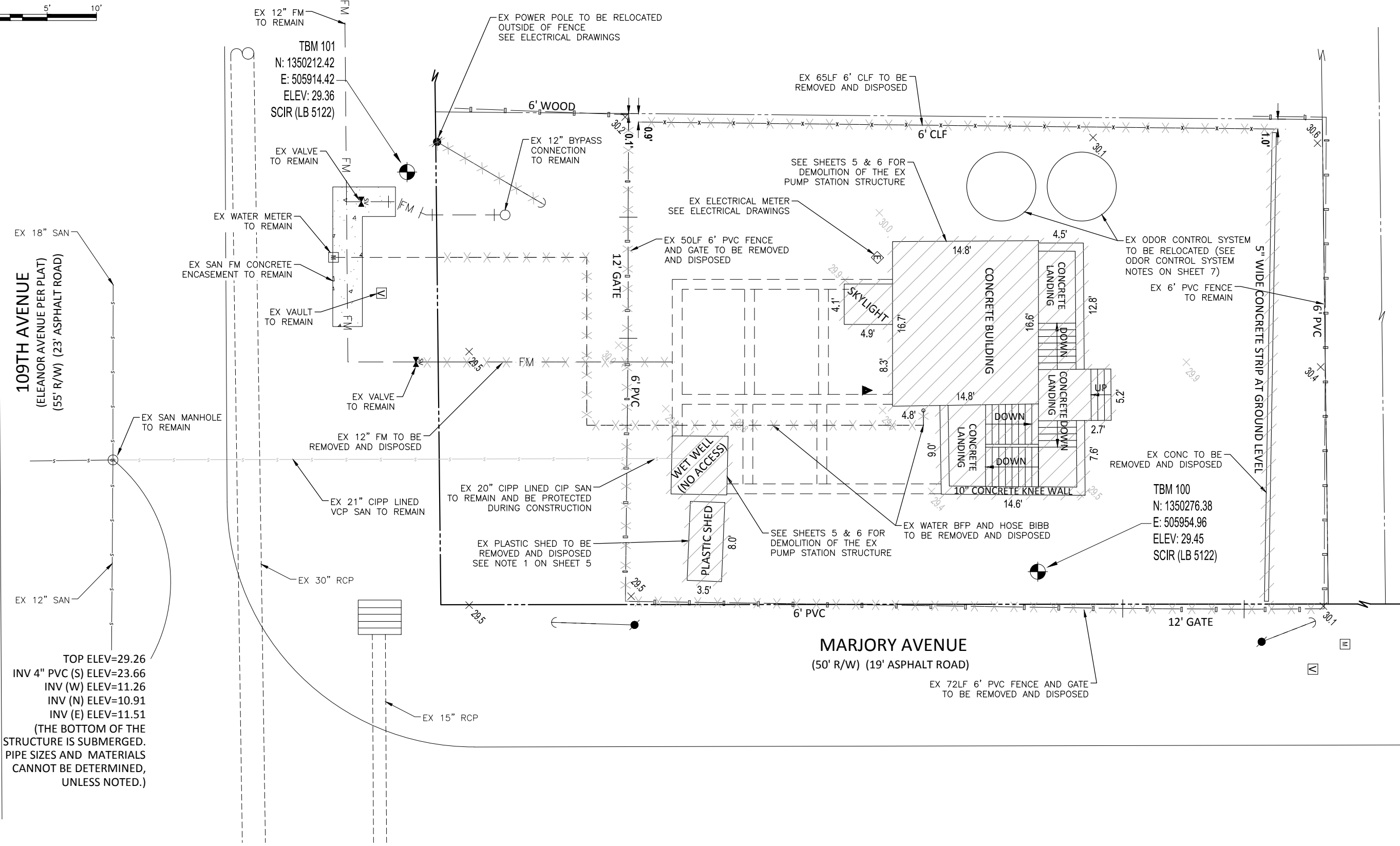
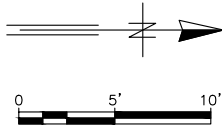
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CITY of TAMPA
 WASTEWATER DEPARTMENT

109TH AVENUE PUMP STATION REHABILITATION
 GENERAL NOTES

SHEET
3



109TH AVENUE
(ELEANOR AVENUE PER PLAT)
(55' R/W) (23' ASPHALT ROAD)

MARJORY AVENUE
(50' R/W) (19' ASPHALT ROAD)

TOP ELEV=29.26
INV 4" PVC (S) ELEV=23.66
INV (W) ELEV=11.26
INV (N) ELEV=10.91
INV (E) ELEV=11.51
(THE BOTTOM OF THE
STRUCTURE IS SUBMERGED.
PIPE SIZES AND MATERIALS
CANNOT BE DETERMINED,
UNLESS NOTED.)

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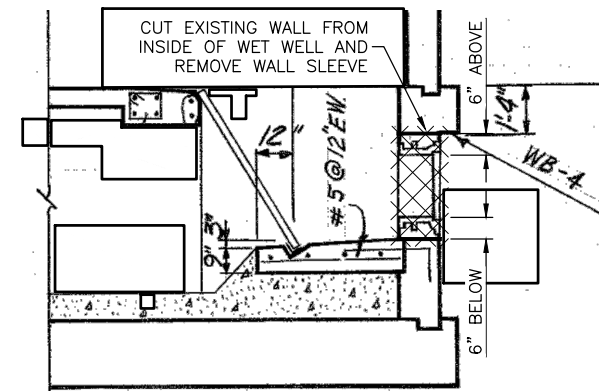
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WASTEWATER DEPARTMENT

109TH AVENUE PUMP STATION REHABILITATION
DEMOLITION SITE PLAN

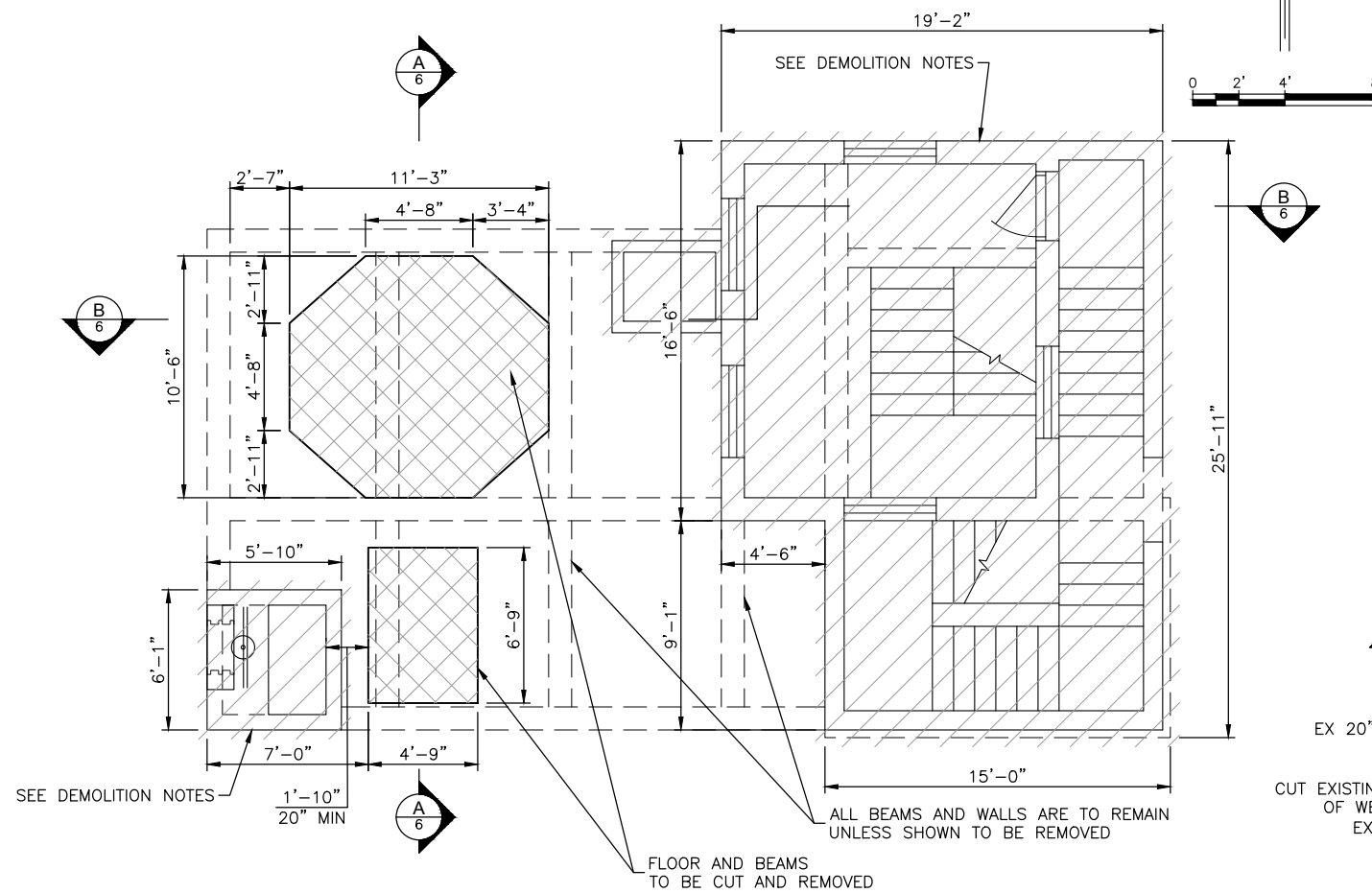
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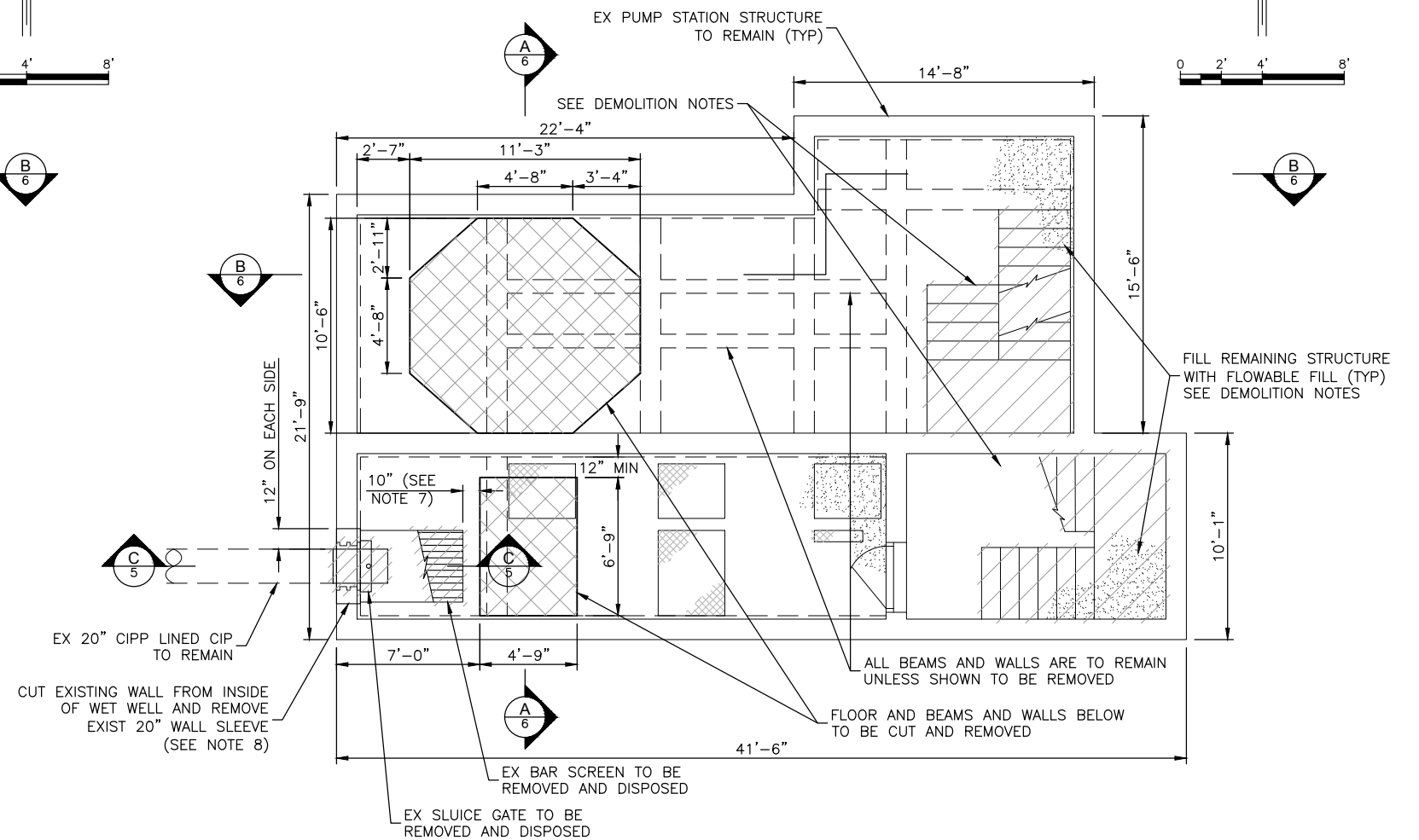
- BEFORE START OF DEMOLITION, CONTRACTOR SHALL MEET WITH THE CITY TO DETERMINE WHAT IS SALVAGEABLE EQUIPMENT AT THE EXISTING PUMP STATION.
- REMOVE & DISPOSE ALL PIPING, VALVES, PUMPS & EQUIPMENT.
- DEMOLISH ALL ITEMS DOWN TO EL 26.2 (TOP OF MOTOR ROOM), 3.5 FEET (±) BELOW EXISTING GROUND ELEVATION.
- AFTER INSTALLATION OF PROPOSED WET WELL, MANHOLE, AND PIPING, FILL REMAINING STRUCTURE WITH FDOT FLOWABLE FILL.
- USE CONCRETE, MASONRY, METAL OR OTHER NON-DEGRADABLE MATERIAL AS A FILLER IN THE FLOWABLE FILL IS ACCEPTABLE EXCEPT IN THE VICINITY OF PROPOSED STRUCTURES AND PIPING.
- BACKFILL WITH CLEAN, COMPACTED EARTH FILL TO MATCH EXISTING GROUND ELEVATIONS.
- CONTRACTOR SHALL CUT MANHOLE OPENING IN SCREENING ROOM FLOOR WITH A MINIMUM OF 10" CONCRETE TO REMAIN.
- PROVIDE WELLPOINT DEWATERING OUTSIDE OF EXISTING STRUCTURE AS NEEDED TO PREVENT GROUNDWATER SEEPAGE INTO EXISTING WET WELL PRIOR TO CUTTING THE WALL TO REMOVE EXISTING PIPE SLEEVE.
- SOIL ABOVE STRUCTURE TO BE REMOVED PRIOR TO DEMO (CUTTING CONCRETE SLAB BELOW). ONLY REPLACE SOIL AFTER FLOWABLE CONCRETE FILL HAS BEEN POURED AROUND TANK AND PROVIDES SUPPORT FOR UNDERSIDE OF CUT CONCRETE SLAB.



SECTION C-C
SCALE: N.T.S.



PLAN VIEW - TOP
SCALE: 1/8" = 1'-0"



PLAN VIEW - MOTOR ROOM
SCALE: 3/16" = 1'-0"

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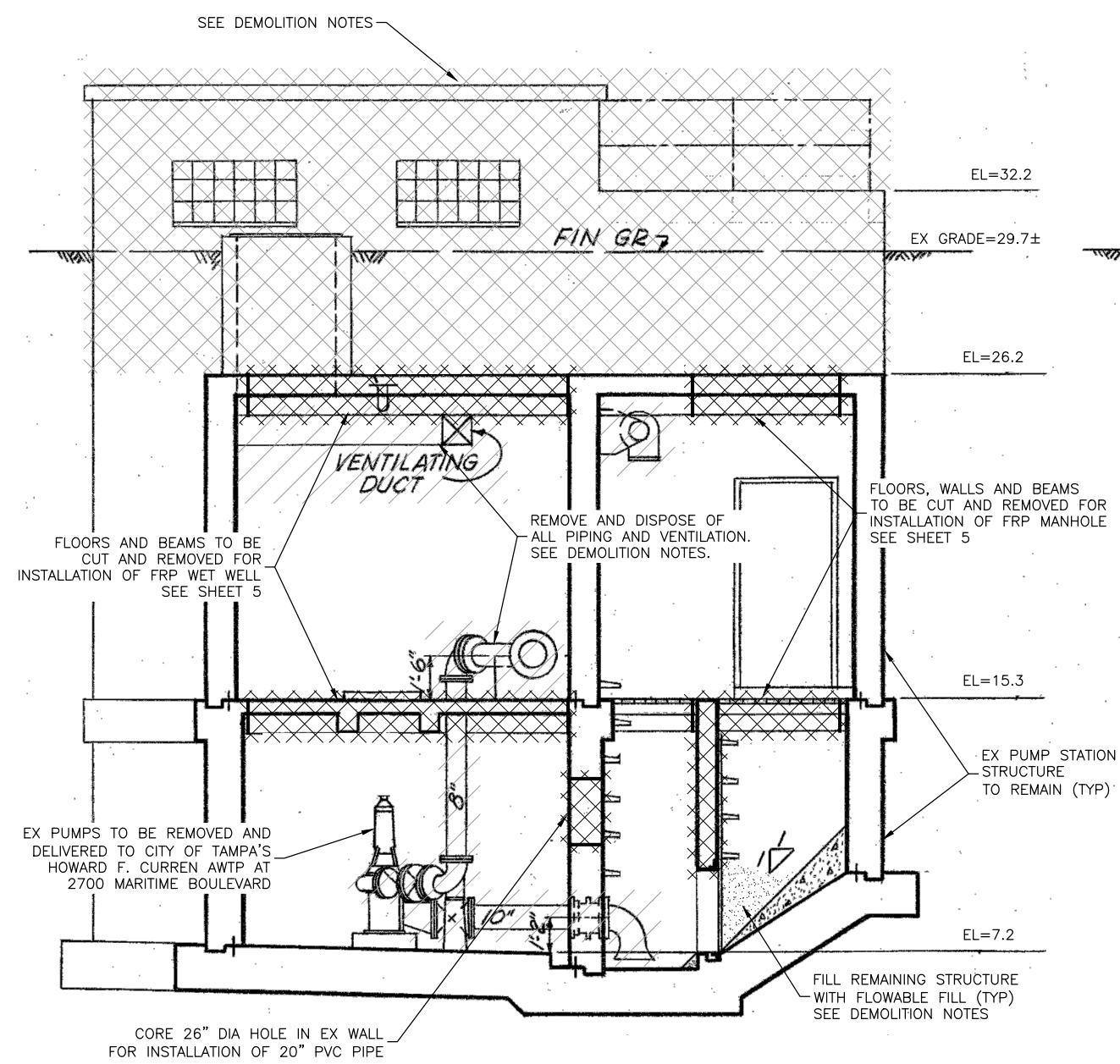
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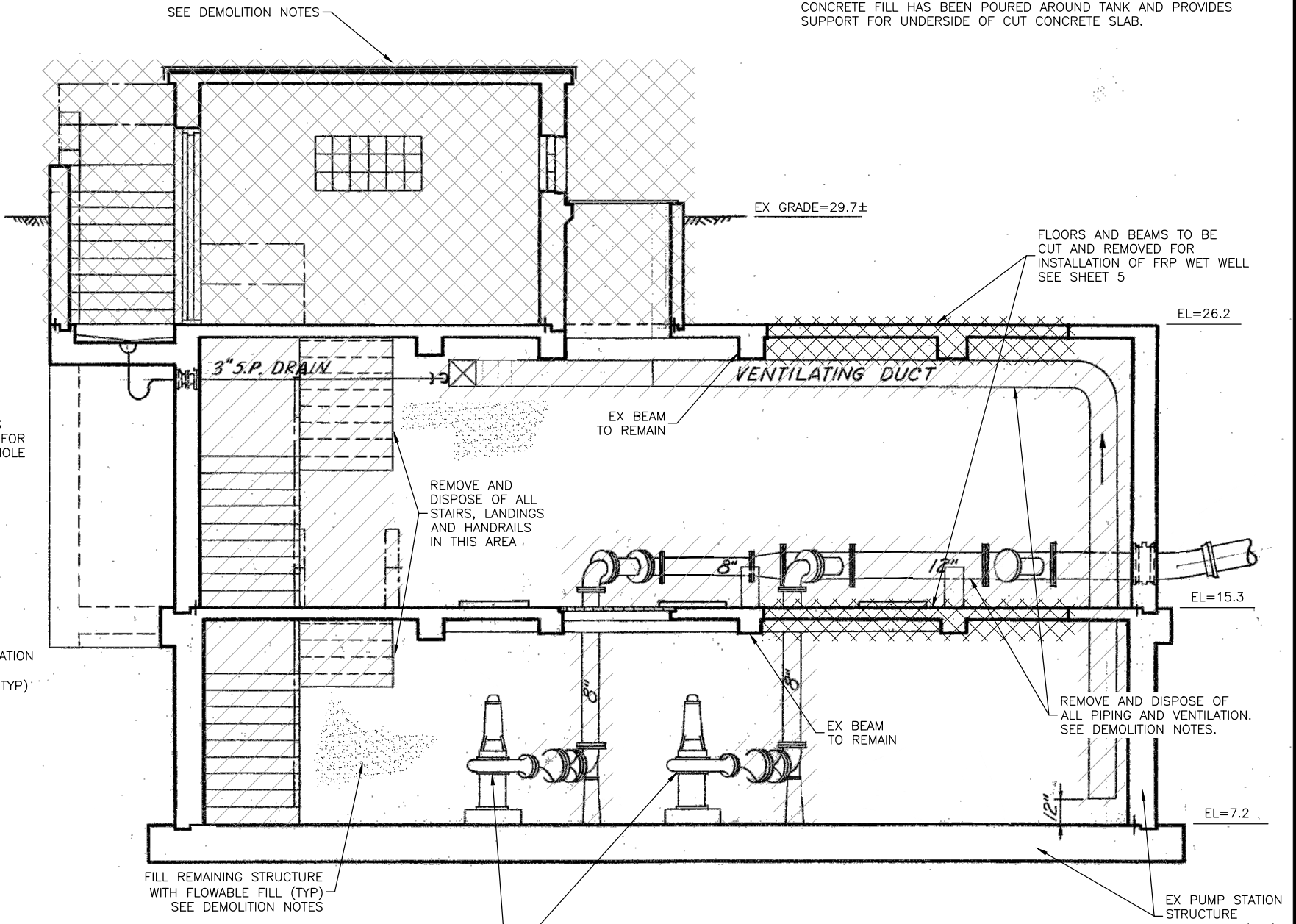
109TH AVENUE PUMP STATION REHABILITATION
DEMOLITION DETAIL PLANS

SHEET
5

- DEMOLITION NOTES:**
- BEFORE START OF DEMOLITION, CONTRACTOR SHALL MEET WITH THE CITY TO DETERMINE WHAT IS SALVAGEABLE EQUIPMENT AT THE EXISTING PUMP STATION.
 - REMOVE & DISPOSE ALL PIPING, VALVES & EQUIPMENT.
 - DEMOLISH ALL ITEMS DOWN TO EL 26.2 (TOP OF MOTOR ROOM), 3.5 FEET (±) BELOW EXISTING GROUND ELEVATION.
 - AFTER INSTALLATION OF PROPOSED WET WELL, MANHOLE AND PIPING, FILL REMAINING STRUCTURE WITH FDOT FLOWABLE FILL.
 - USE CONCRETE, MASONRY, METAL OR OTHER NON-DEGRADABLE MATERIAL AS A FILLER IN THE FLOWABLE FILL IS ACCEPTABLE EXCEPT IN THE VICINITY OF PROPOSED STRUCTURES AND PIPING.
 - BACKFILL WITH CLEAN, COMPACTED EARTH TO MATCH EXISTING GROUND ELEVATIONS.
 - SOIL ABOVE STRUCTURE TO BE REMOVED PRIOR TO DEMO (CUTTING CONCRETE SLAB BELOW). ONLY REPLACE SOIL AFTER FLOWABLE CONCRETE FILL HAS BEEN POURED AROUND TANK AND PROVIDES SUPPORT FOR UNDERSIDE OF CUT CONCRETE SLAB.



SECTION A-A
SCALE: 3/16" = 1'-0"
0 2' 4' 6'



SECTION B-B
SCALE: 3/16" = 1'-0"
0 2' 4' 6'

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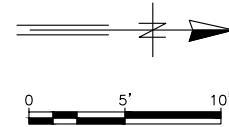
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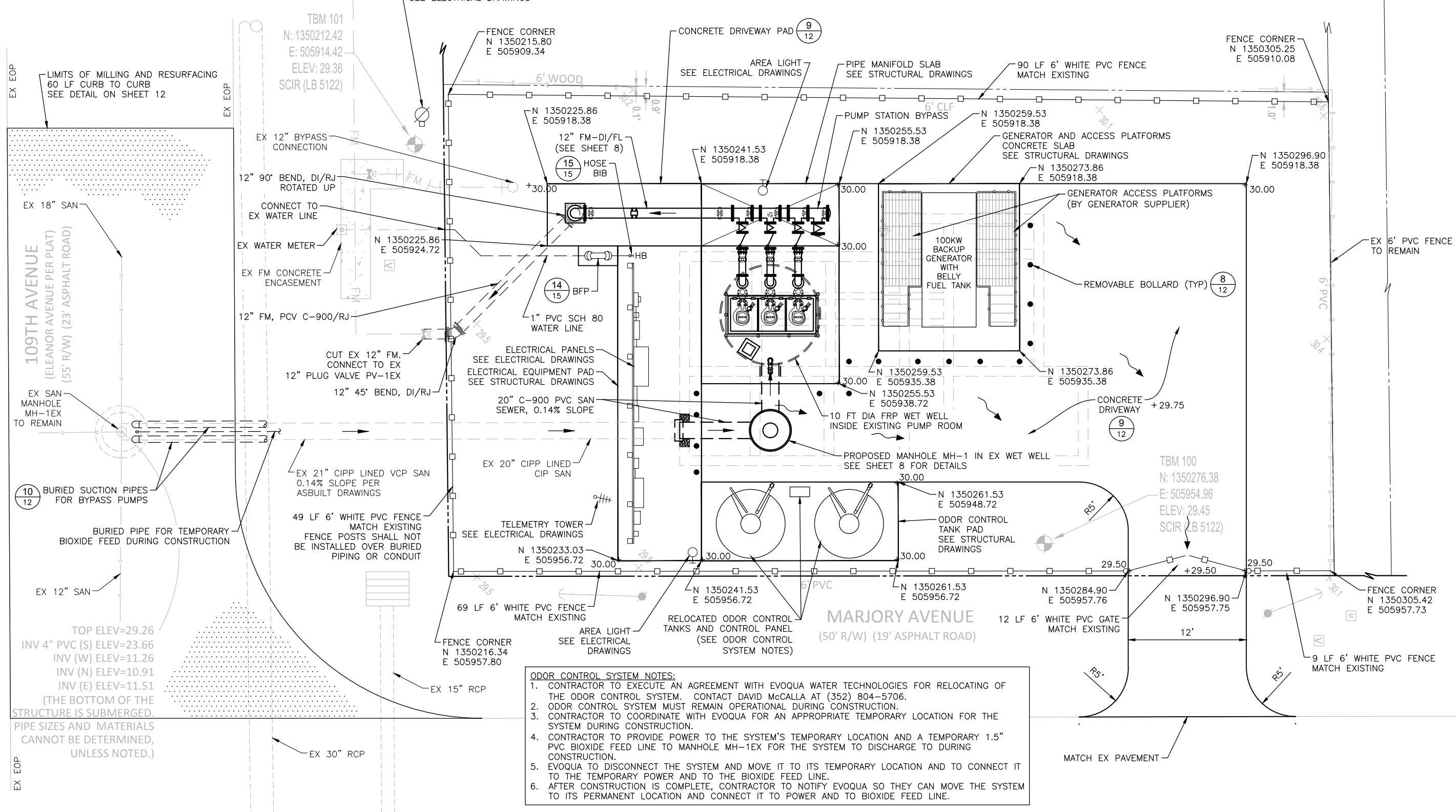
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109TH AVENUE PUMP STATION REHABILITATION
DEMOLITION DETAIL SECTIONS

SHEET
6



- PROPOSED BYPASS PUMPING SEQUENCE:**
1. SETTING UP BYPASS PUMPING FROM EXISTING MANHOLE MH-1EX WILL REQUIRE BURYING OF THE BYPASS PUMPS' SUCTION LINES UNDER 109TH AVENUE PAVEMENT.
 2. START BYPASS PUMPING OF FLOW FROM EXISTING MANHOLE MH-1EX TO EXISTING 12" EMERGENCY BYPASS CONNECTION.
 3. CLOSE EXISTING PLUG VALVE PV-1EX.
 4. PLUG EXISTING 21" SAN SEWER PIPE BETWEEN EXISTING MANHOLE MH-1EX AND EXISTING WET WELL.
 5. BEGIN PUMP STATION REHABILITATION WORK.
 6. AFTER CONSTRUCTION OF PROPOSED MANHOLE MH-1 AND CONNECTION TO EXISTING GRAVITY PIPE ARE COMPLETE, BYPASS PUMPING SUCTION PIPING CAN BE TRANSFERRED FROM EXISTING MANHOLE MH-1EX TO PROPOSED MANHOLE MH-1.



- ODOR CONTROL SYSTEM NOTES:**
1. CONTRACTOR TO EXECUTE AN AGREEMENT WITH EVOQUA WATER TECHNOLOGIES FOR RELOCATING OF THE ODOR CONTROL SYSTEM. CONTACT DAVID McCALLA AT (352) 804-5706.
 2. ODOR CONTROL SYSTEM MUST REMAIN OPERATIONAL DURING CONSTRUCTION.
 3. CONTRACTOR TO COORDINATE WITH EVOQUA FOR AN APPROPRIATE TEMPORARY LOCATION FOR THE SYSTEM DURING CONSTRUCTION.
 4. CONTRACTOR TO PROVIDE POWER TO THE SYSTEM'S TEMPORARY LOCATION AND A TEMPORARY 1.5" PVC BIOXIDE FEED LINE TO MANHOLE MH-1EX FOR THE SYSTEM TO DISCHARGE TO DURING CONSTRUCTION.
 5. EVOQUA TO DISCONNECT THE SYSTEM AND MOVE IT TO ITS TEMPORARY LOCATION AND TO CONNECT IT TO THE TEMPORARY POWER AND TO THE BIOXIDE FEED LINE.
 6. AFTER CONSTRUCTION IS COMPLETE, CONTRACTOR TO NOTIFY EVOQUA SO THEY CAN MOVE THE SYSTEM TO ITS PERMANENT LOCATION AND CONNECT IT TO POWER AND TO BIOXIDE FEED LINE.

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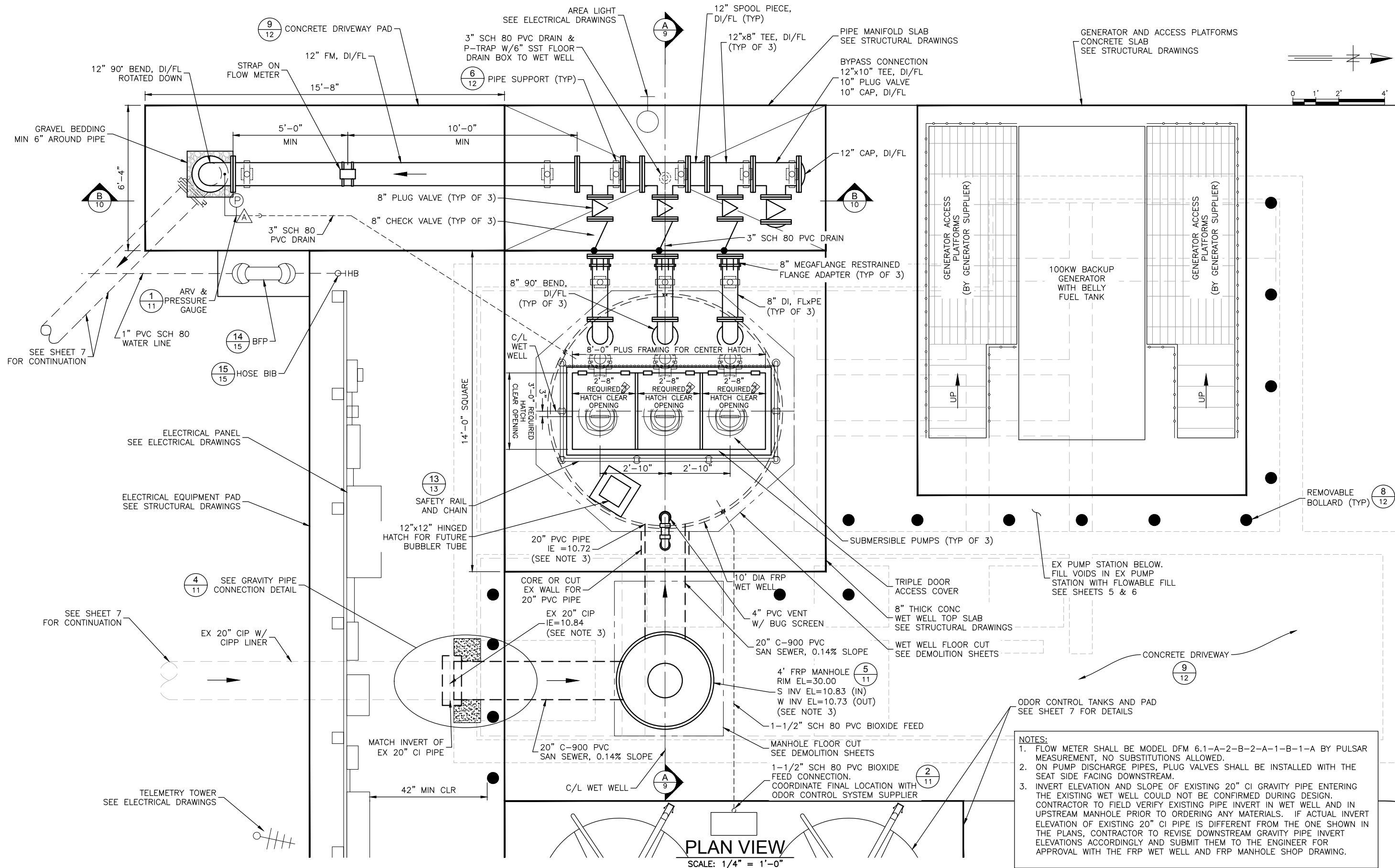
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109TH AVENUE PUMP STATION REHABILITATION
PROPOSED SITE PLAN

SHEET
7



NOTES:

1. FLOW METER SHALL BE MODEL DFM 6.1-A-2-B-2-A-1-B-1-A BY PULSAR MEASUREMENT, NO SUBSTITUTIONS ALLOWED.
2. ON PUMP DISCHARGE PIPES, PLUG VALVES SHALL BE INSTALLED WITH THE SEAT SIDE FACING DOWNSTREAM.
3. INVERT ELEVATION AND SLOPE OF EXISTING 20" CI GRAVITY PIPE ENTERING THE EXISTING WET WELL COULD NOT BE CONFIRMED DURING DESIGN. CONTRACTOR TO FIELD VERIFY EXISTING PIPE INVERT IN WET WELL AND IN UPSTREAM MANHOLE PRIOR TO ORDERING ANY MATERIALS. IF ACTUAL INVERT ELEVATION OF EXISTING 20" CI PIPE IS DIFFERENT FROM THE ONE SHOWN IN THE PLANS, CONTRACTOR TO REVISE DOWNSTREAM GRAVITY PIPE INVERT ELEVATIONS ACCORDINGLY AND SUBMIT THEM TO THE ENGINEER FOR APPROVAL WITH THE FRP WET WELL AND FRP MANHOLE SHOP DRAWING.

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

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109TH AVENUE PUMP STATION REHABILITATION
PROPOSED DETAIL PLAN

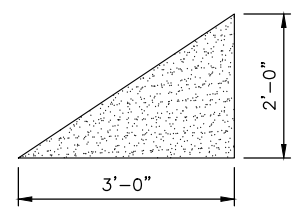
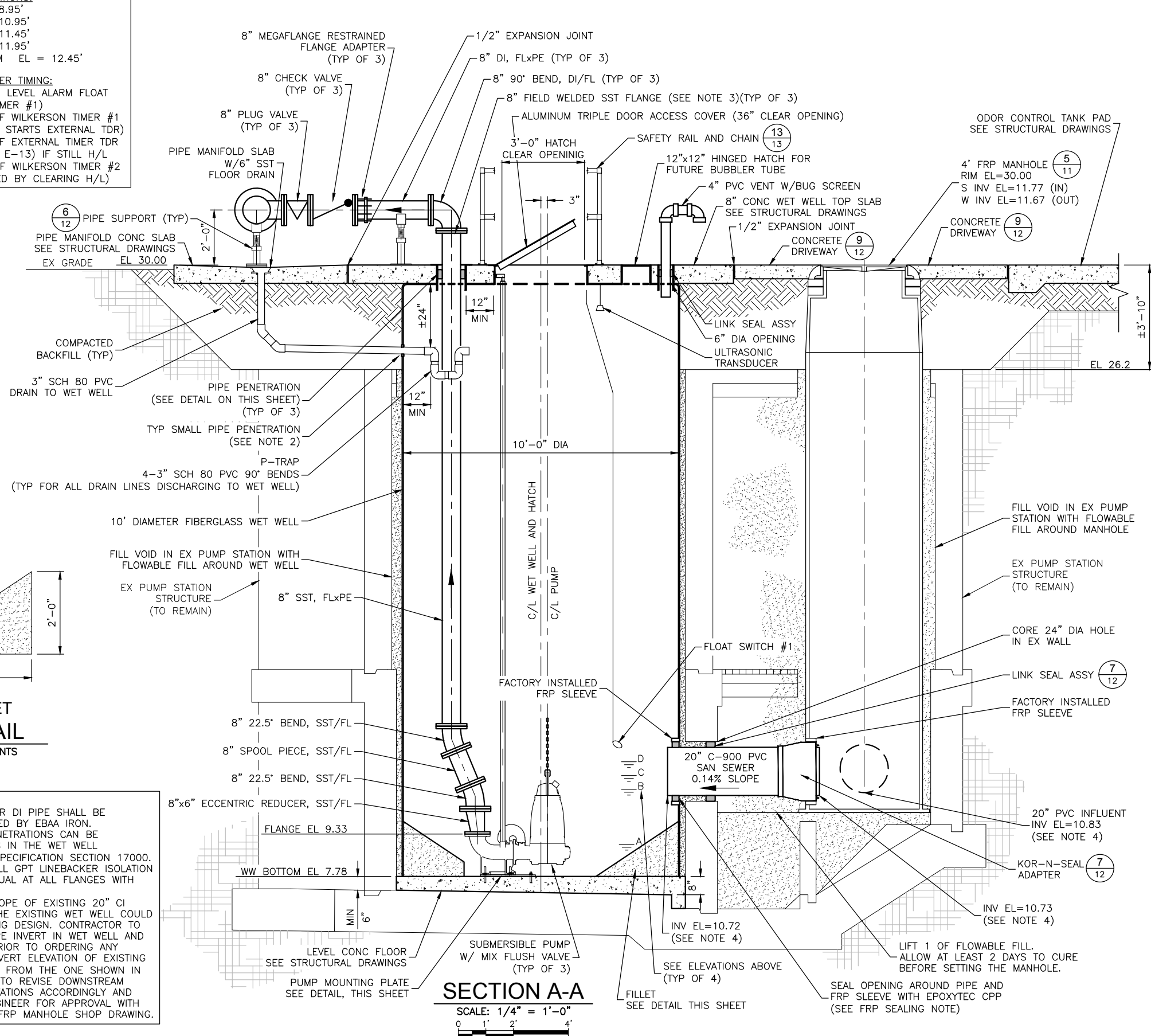
SHEET
8

RECOMMENDED OPERATING ELEVATIONS:

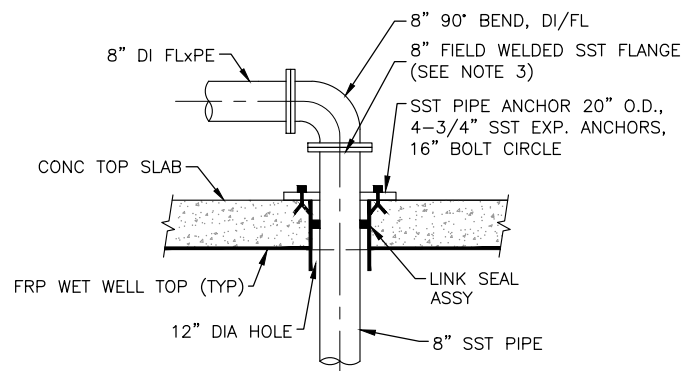
- A PUMPS OFF EL = 8.95'
- B PUMP #1 ON EL = 10.95'
- C PUMP #2 ON EL = 11.45'
- D PUMP #3 ON EL = 11.95'
- E FLOAT #1 HIGH LEVEL ALARM EL = 12.45'

WILKERSON BACK-UP CONTROLLER TIMING:

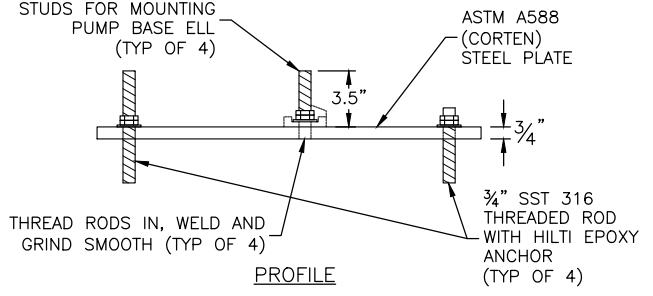
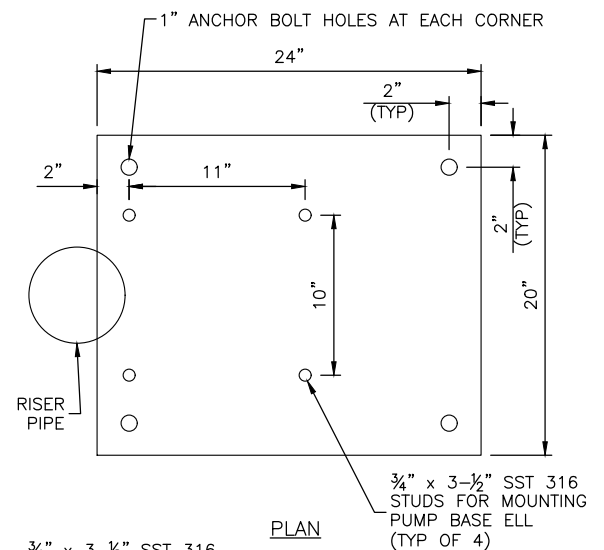
1. PUMP #1 STARTS WITH HIGH LEVEL ALARM FLOAT (ALSO STARTS WILKERSON TIMER #1)
2. PUMP #2 STARTS AT END OF WILKERSON TIMER #1 (1 MIN) IF STILL H/L (ALSO STARTS EXTERNAL TDR)
3. PUMP #3 STARTS AT END OF EXTERNAL TIMER TDR (30 SEC) (SHOWN ON SHT E-13) IF STILL H/L
4. ALL PUMPS STOP AT END OF WILKERSON TIMER #2 (2.3 MIN) (TIMER #2 STARTED BY CLEARING H/L)



**FILLET
DETAIL**
SCALE: NTS



**PIPE PENETRATION
DETAIL**
SCALE: NTS



- NOTES:**
1. INSTALL DOUBLE NUTS ON ALL EIGHT (8) THREADED RODS.
 2. THE PLATE EDGES AND ALL HOLES SHALL BE GROUND SMOOTH TO REMOVE ALL BURRS.
 3. ALIGNMENT OF ANCHOR BOLTS SHALL BE AS RECOMMENDED BY PUMP MANUFACTURER.

**MOUNTING PLATE
DETAIL**
SCALE: NTS

- NOTES:**
1. ALL FLANGE ADAPTERS FOR DI PIPE SHALL BE MEGAFLANGE MANUFACTURED BY EBAA IRON.
 2. SMALL DIAMETER PIPE PENETRATIONS CAN BE INSTALLED USING CUTOUTS IN THE WET WELL WALLS/TOP. REFER TO SPECIFICATION SECTION 17000.
 3. CONTRACTOR SHALL INSTALL GPT LINEBACKER ISOLATION GASKET OR APPROVED EQUAL AT ALL FLANGES WITH DISSIMILAR METALS.
 4. INVERT ELEVATION AND SLOPE OF EXISTING 20\"/>

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



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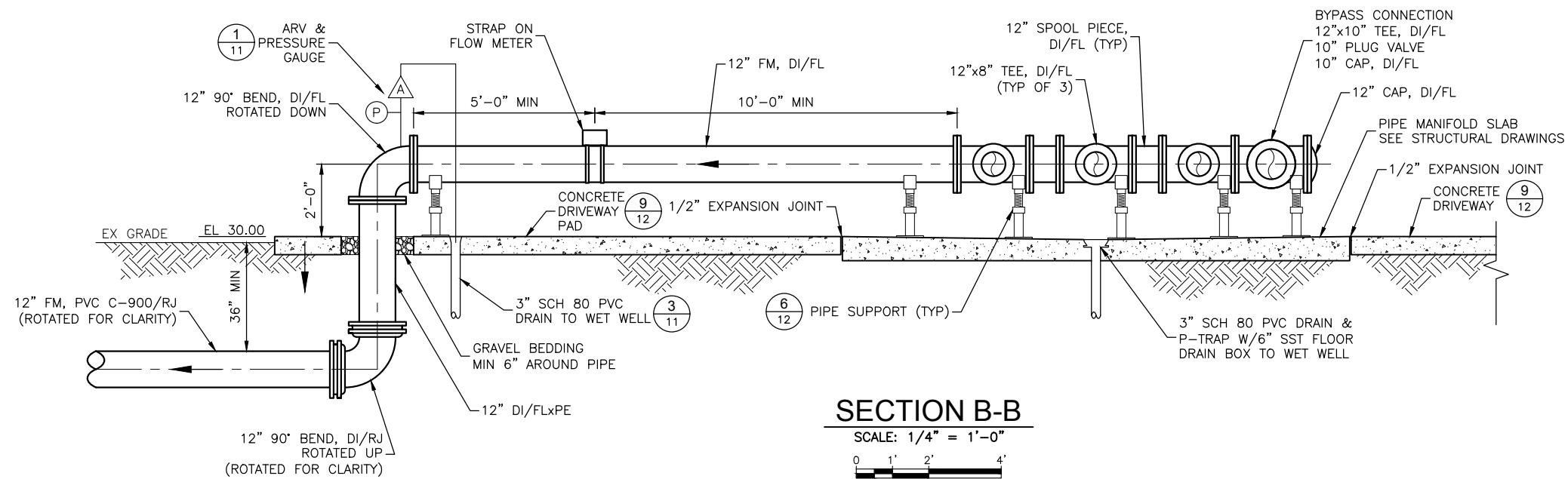
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109TH AVENUE PUMP STATION REHABILITATION
PROPOSED DETAIL SECTION - I

SHEET
9

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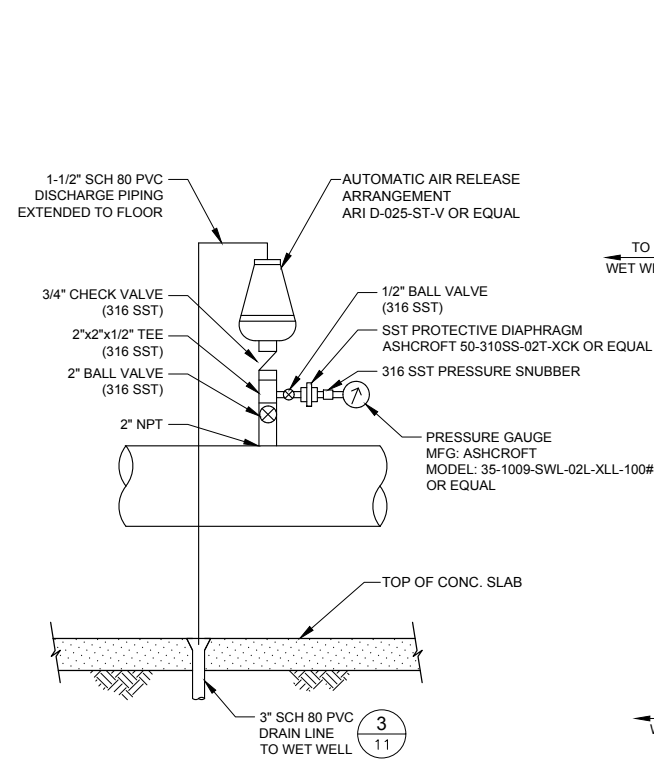
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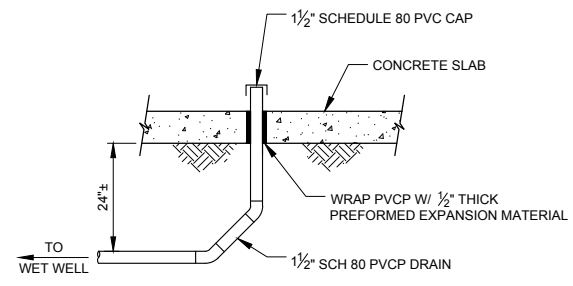
109TH AVENUE PUMP STATION REHABILITATION
 PROPOSED DETAIL SECTION - 2

SHEET
 10

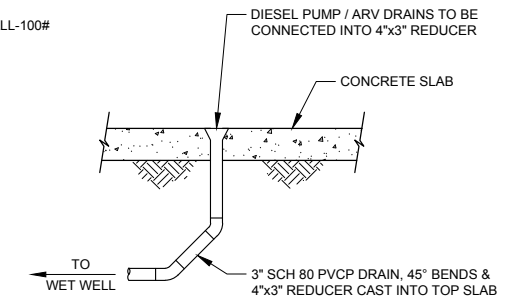
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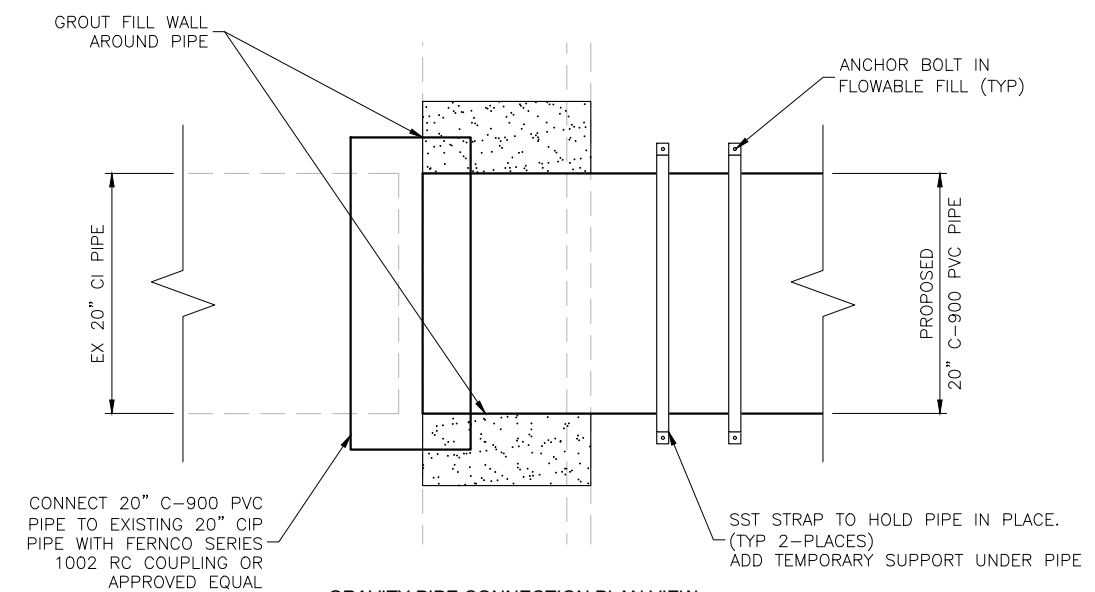
1 DETAIL
SCALE: NTS



2 DETAIL
SCALE: NTS

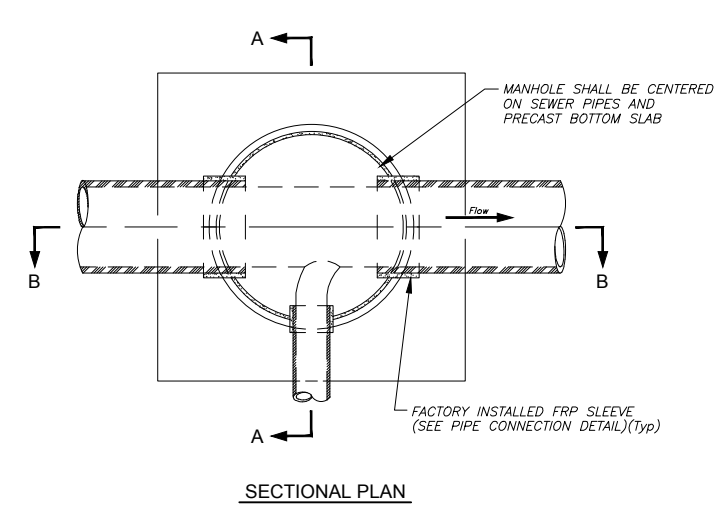


3 DETAIL
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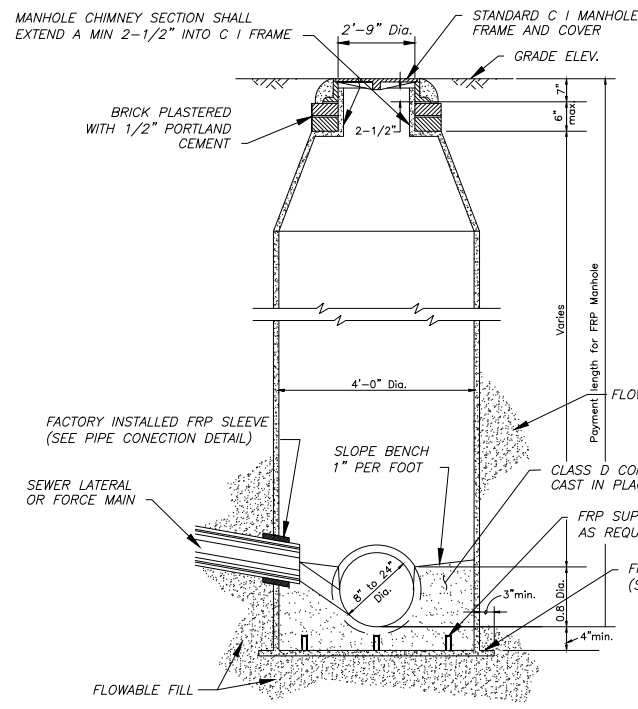


4 DETAIL
SCALE: NTS

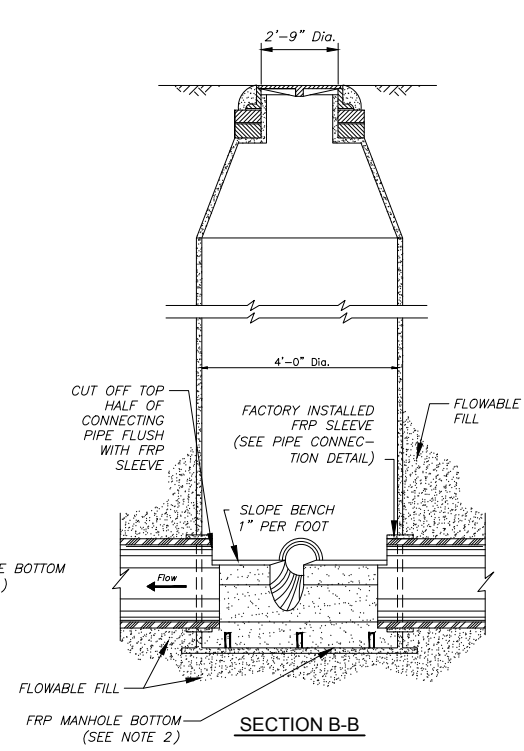
- NOTES:
- POUR ONE LIFT OF FLOWABLE FILL TO THE BOTTOM OF THE NEW GRAVITY PIPE. WAIT TO CURE FOR A MINIMUM OF TWO DAYS.
 - FROM INSIDE OF EXISTING STRUCTURE, CONNECT 20" C-900 PVC PIPE TO EXISTING 20" CI PIPE WITH FERNCO SERIES 1002 RC COUPLING OR APPROVED EQUAL. CONNECT GRAVITY PIPE TO MH-1 WITH KOR-N-SEAL BOOT. ANCHOR PIPE IN PLACE AT EXISTING WALL SLEEVE WITH TWO STEEL STRAPS BEFORE POURING REMAINING FLOWABLE FILL.



SECTIONAL PLAN



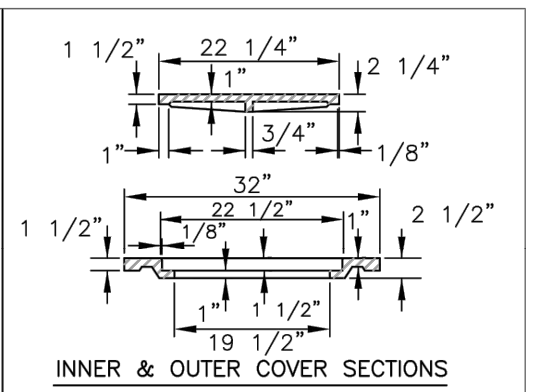
SECTION A-A



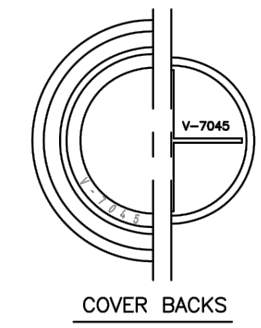
SECTION B-B

- NOTES
- FIBERGLASS REINFORCED POLYESTER (FRP) MANHOLES SHALL CONFORM TO ASTM D-3753 LATEST EDITION.
 - THE MANHOLE BOTTOM SHALL BE INTEGRALLY JOINED TO THE BARREL SECTION AND SHALL BE A MINIMUM OF 1/2" THICK.
 - SEE SPECIFICATIONS FOR MATERIALS REQUIREMENTS AND PLACEMENTS AND COMPACTION OF PIPE AND STRUCTURE BEDDING.
 - ALL PIPE STUBS FROM MANHOLES FOR FUTURE CONNECTIONS OR OTHER CONTRACT DIVISIONS SHALL BE PROVIDED WITH WATERTIGHT PLUGS PLACED FROM WITHIN THE MANHOLE.

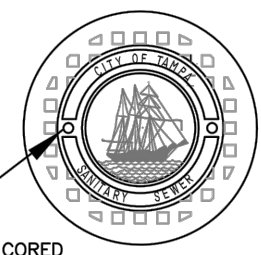
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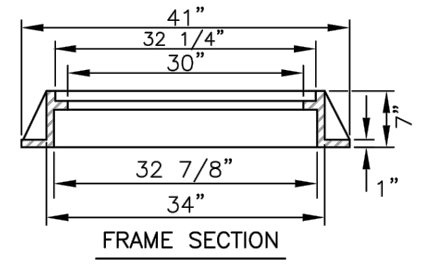
INNER & OUTER COVER SECTIONS



COVER BACKS



COVER FACES



FRAME SECTION

EJ SERIES 1670 (PART#00167029A01)
U.S. FOUNDRY NO. 230-AB-M, OR EQUAL

**HEAVY DUTY CAST IRON MANHOLE
FRAME & COVER DETAILS
N.T.S.**



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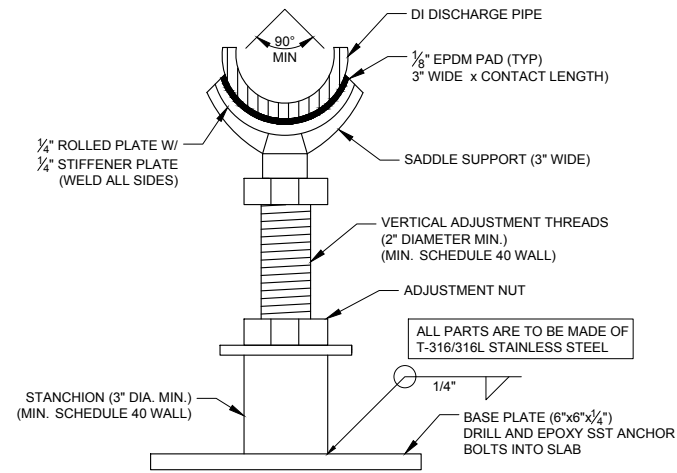
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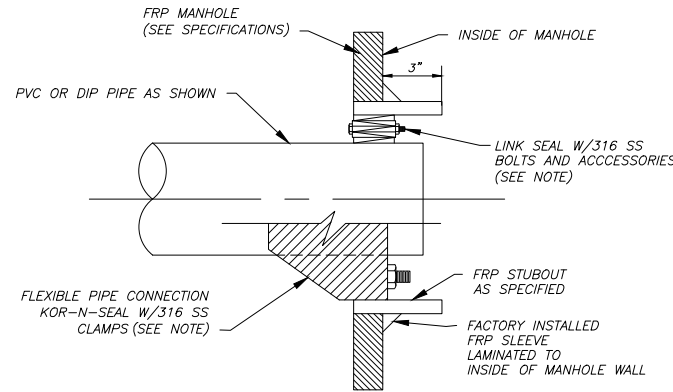
109TH AVENUE PUMP STATION REHABILITATION
PUMP STATION DETAILS - I

SHEET
11



STAINLESS STEEL STANCHION SADDLE SUPPORT

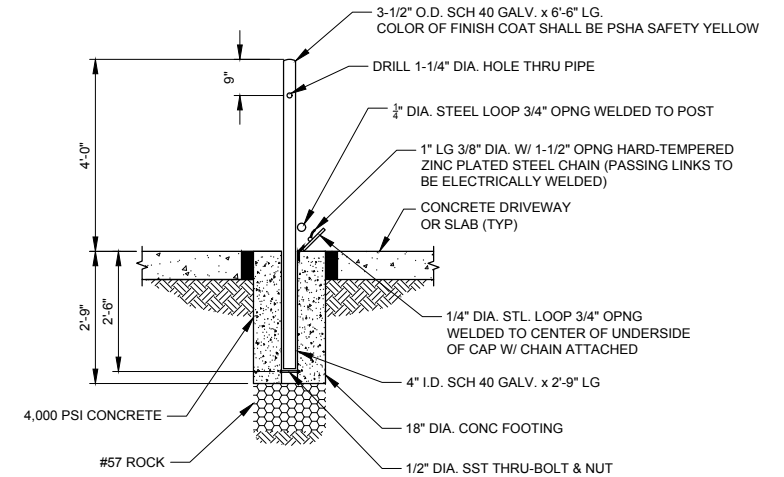
6 DETAIL
SCALE: NTS



NOTE:
FORCE MAIN PIPE CONNECTIONS TO FRP MANHOLES SHALL BE MADE WITH "LINK SEAL."
GRAVITY SEWER PIPE CONNECTIONS SHALL BE MADE WITH "KOR-N-SEAL."

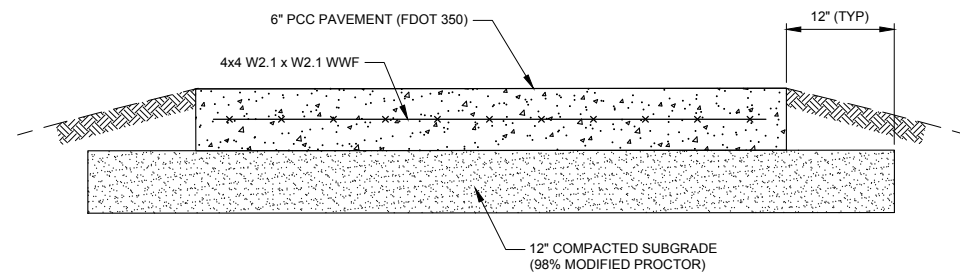
FRP PIPE CONNECTION

7 DETAIL
SCALE: NTS



REMOVABLE BOLLARD

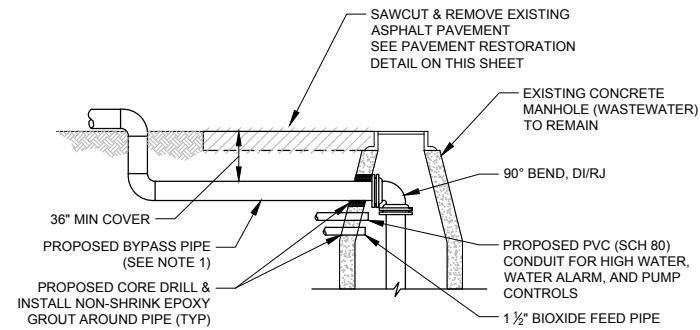
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NOTE:
1. SEE NOTE 18 ON SHEET 3 FOR MORE INFORMATION.

PUMP STATION CONCRETE DRIVEWAY

9 DETAIL
SCALE: NTS

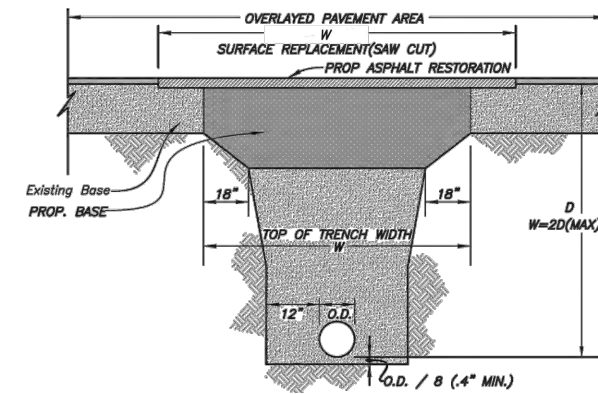


NOTES:

1. BYPASS PIPE AND FITTINGS UNDER THE ROADWAY AND INSIDE THE MANHOLE SHALL BE HDPE C-906, MIN. DR-17 PIPE. ALL JOINTS SHALL BE BUTT-FUSED. ALTERNATE PIPE MATERIALS CAPABLE OF WITHSTANDING A H-20 LIVE LOAD MAY BE SUBMITTED FOR CONSIDERATION.
2. BYPASS PIPE SHALL BE EXTENDED TO THE MANHOLE BOTTOM AND SECURED TO THE MANHOLE. CONTRACTOR SHALL SUBMIT SHOP DRAWING ON PROPOSED INSTALLATION METHOD FOR APPROVAL.
3. UPON COMPLETION OF THE BYPASS OPERATION, CONTRACTOR SHALL COMPLETELY REMOVE BYPASS PIPE AND CONDUIT FROM INSIDE MANHOLE, AND CUT PIPE AT FACE OF WALL. PIPE UNDER ROADWAY SHALL REMAIN AND BE PLUGGED AT ENDS.
4. CONTRACTOR SHALL CALL SUNSHINE TO LOCATE UTILITIES IN EXCAVATION AREA.
5. EXISTING MANHOLE IS A CONCRETE MANHOLE.

BURIED BYPASS PIPE DETAIL

10 DETAIL
SCALE: NTS



STANDARD DETAILS FOR ROADWAY RESTORATION FOR A PERPENDICULAR UTILITY CROSSING

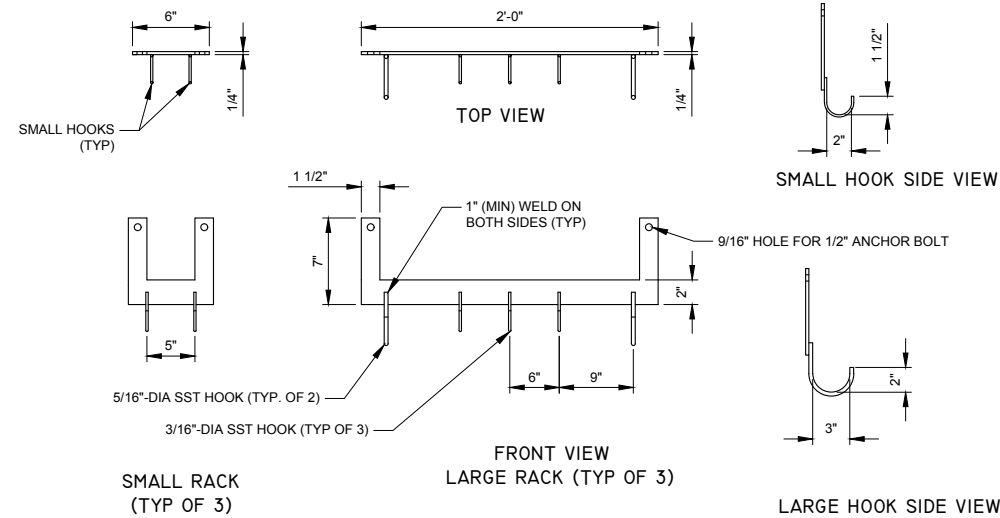
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PAVEMENT RESTORATION NOTES

1. BACKFILL FOR PAVED AND NON-PAVED AREAS SHALL BE COMPACTED TO 98% OF MAXIMUM DRY DENSITY AS DETERMINED BY A.A.S.H.T.O. T-180-57.
2. PROPOSED CRUSHED CONCRETE BASE SHOULD BE TWICE THE THICKNESS OF EXISTING BASE OR 8" (WHICHEVER IS GREATER).
3. SURFACE COURSE SHALL BE F.D.O.T. SUPERPAVE ASPHALT SP 9.5 WITH A THICKNESS EQUAL TO THE EXISTING COURSE OR 2" (WHICHEVER IS GREATER WITHIN TRENCH LIMITS).
4. MILL AND OVERLAY WITH 1.5" OF SUPERPAVE ASPHALT SP 9.5. MILL AND OVERLAY LIMITS SHALL INCLUDE THE FOLLOWING:
- LOCAL ROADS MILL AND OVERLAY FULL CURB TO CURB WIDTH 100' OR AS SHOWN ON THE PLANS WITH 1.5" OF SUPERPAVE ASPHALT SP 9.5 WITHIN DIRECT BURY PORTIONS OF THE PROJECT.
5. REPLACE DISTURBED CURB AND SIDEWALK IN KIND AFTER CONSTRUCTION.

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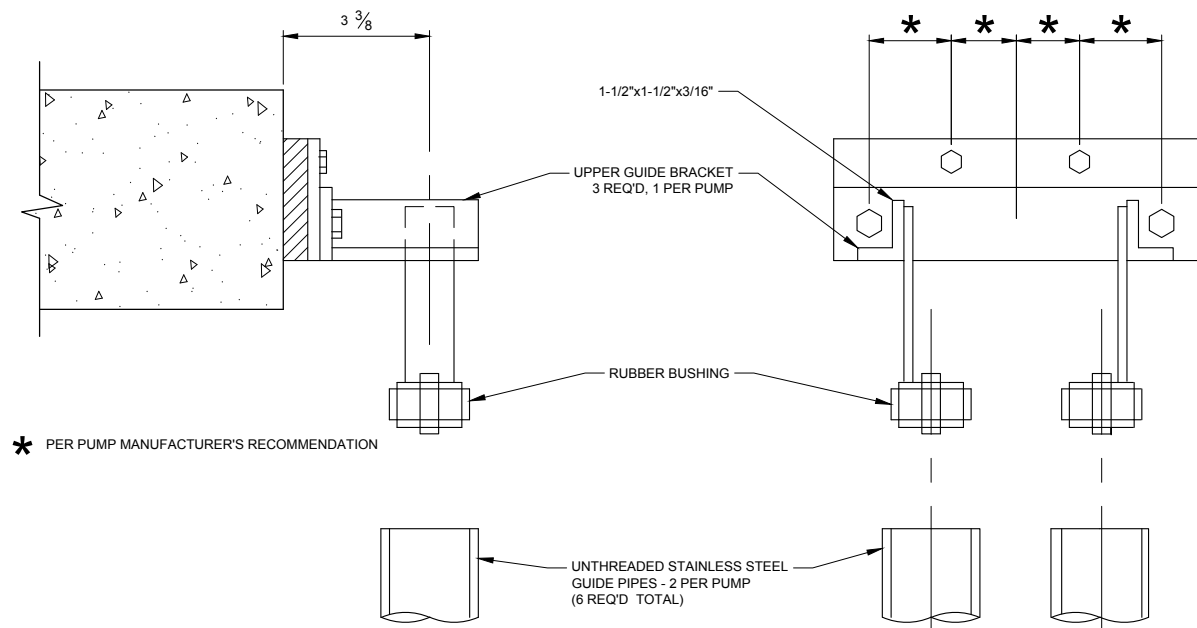
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NOTE:
INSTALL FLOATS IN A MANNER TO MAINTAIN PROPER
OPERATIONAL CLEARANCE AND TO REDUCE TANGLING.

STAINLESS STEEL HOOK RACKS

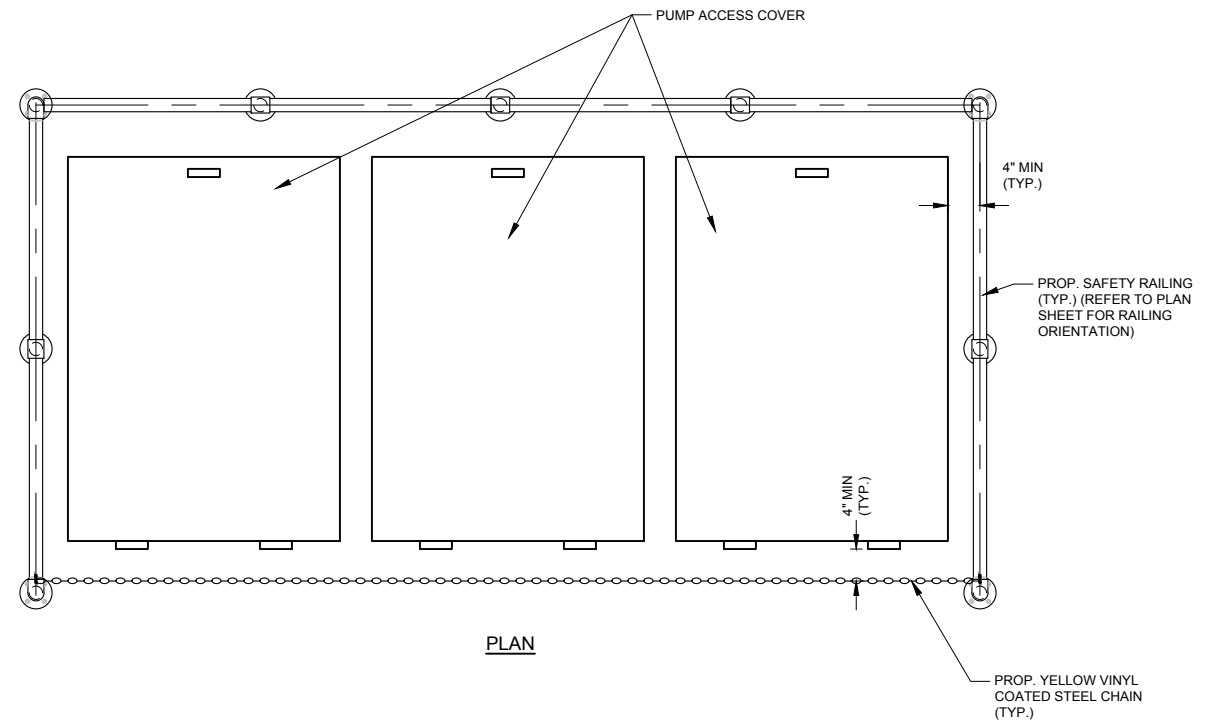
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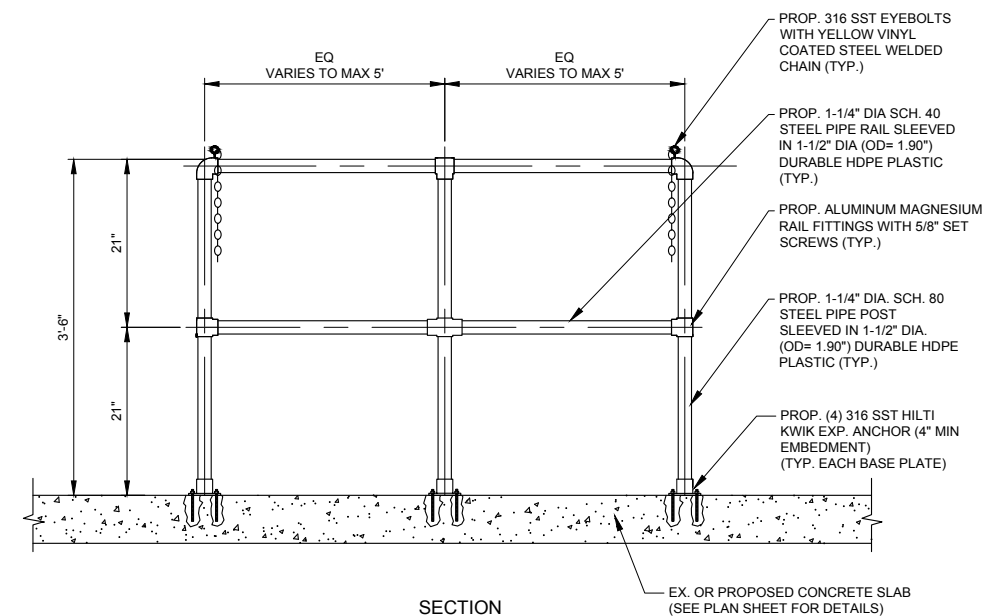
* PER PUMP MANUFACTURER'S RECOMMENDATION

GUIDE BRACKET (SUPPLIED WITH PUMPS)

12 DETAIL
SCALE: NTS



PLAN



SECTION

NOTES:

- SAFETY RAILS AND PARTS SHALL BE STANDARD YELLOW, ULTRAVIOLET RESISTANT AND MANUFACTURED BY IDEAL SHIELD OR APPROVED EQUAL.
- SAFETY CHAINS SHALL BE 1/4" DIAMETER WELDED YELLOW, ULTRAVIOLET RESISTANT, VINYL COATED STEEL WITH WORKING LOAD LIMIT OF 1,300 LBS WITH TWO 316 SST SPRING LOADED END SNAPHOOKS.
- FINAL ARRANGEMENT SHALL BE DETERMINED IN THE FIELD AND SUBMITTED AND APPROVED BY THE CITY.

SAFETY RAIL & CHAIN

13 DETAIL
SCALE: NTS

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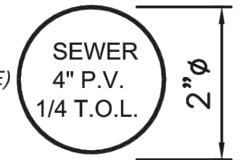
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109TH AVENUE PUMP STATION REHABILITATION
PUMP STATION DETAILS - 3

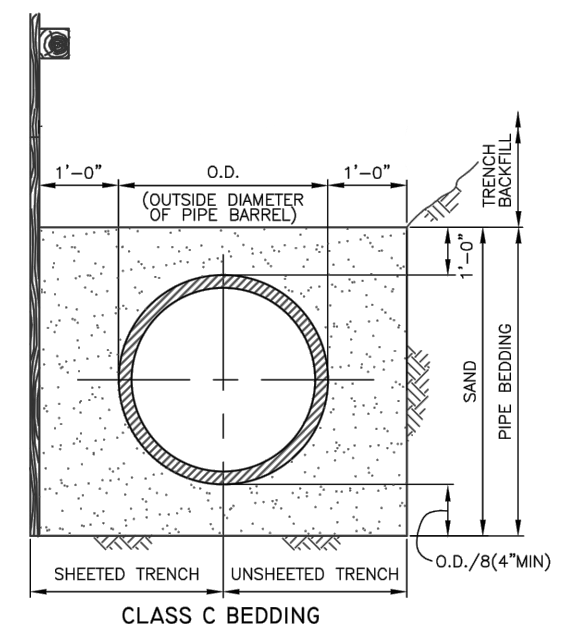
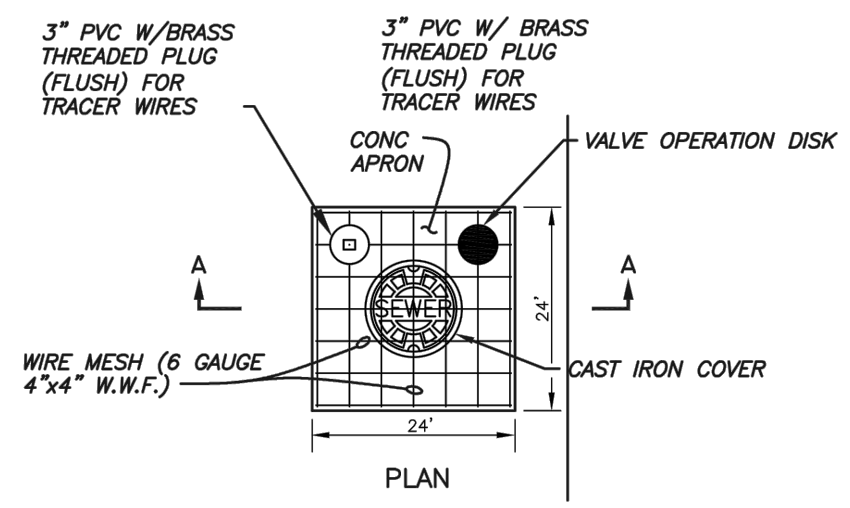
SHEET
13

IMPORTANT - FOR EACH OPERABLE VALVE:
 PROVIDE A BRASS IDENTIFICATION TAG ANCHORED TO THE CONCRETE APRON THAT IS A MINIMUM 2" IN DIAMETER AND 1/8-INCH THICK. THE TAG SHALL BE ENGRAVED WITH "SEWER", SIZE OF VALVE, TYPE OF VALVE, AND DIRECTION AND NUMBER OF TURNS TO OPEN.

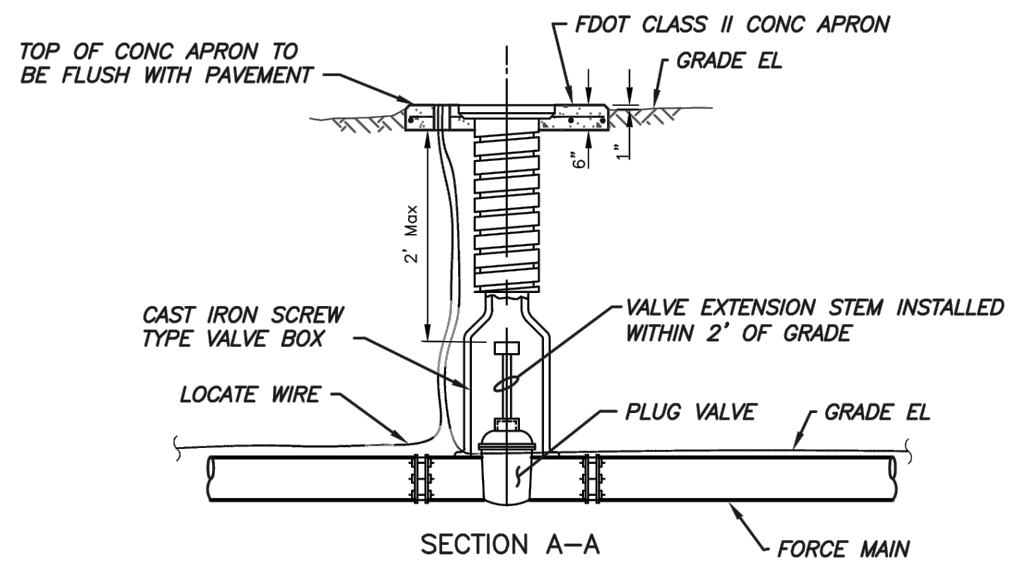
FOR EXAMPLE, A 4-INCH PLUG VALVE ON A WASTEWATER FORCE MAIN THAT REQUIRES 1/4 TURNS TO THE LEFT (COUNTERCLOCKWISE) TO BE FULLY OPEN WOULD REQUIRE THE FOLLOWING ON AN IDENTIFICATION TAG:



VALVE OPERATION DISK
 Not To Scale



PIPE BEDDING FOR GRAVITY AND FM PIPE INSTALLATION
DETAIL
 SCALE: NTS



VALVE BOX DETAIL
 Not To Scale

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 LAST DATE: Monday, April 17, 2023 10:07:53 AM
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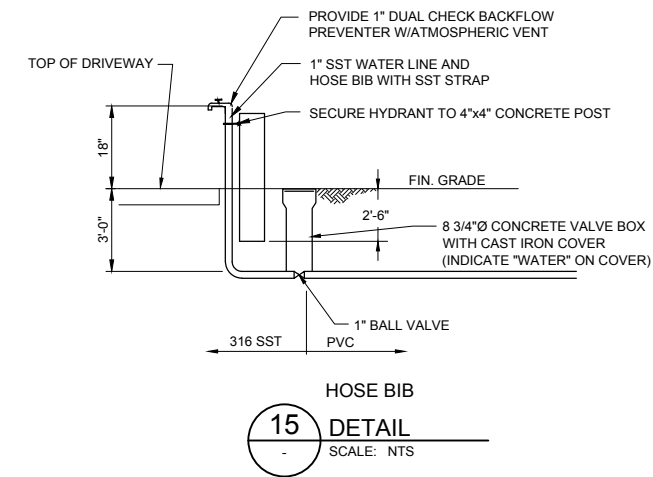
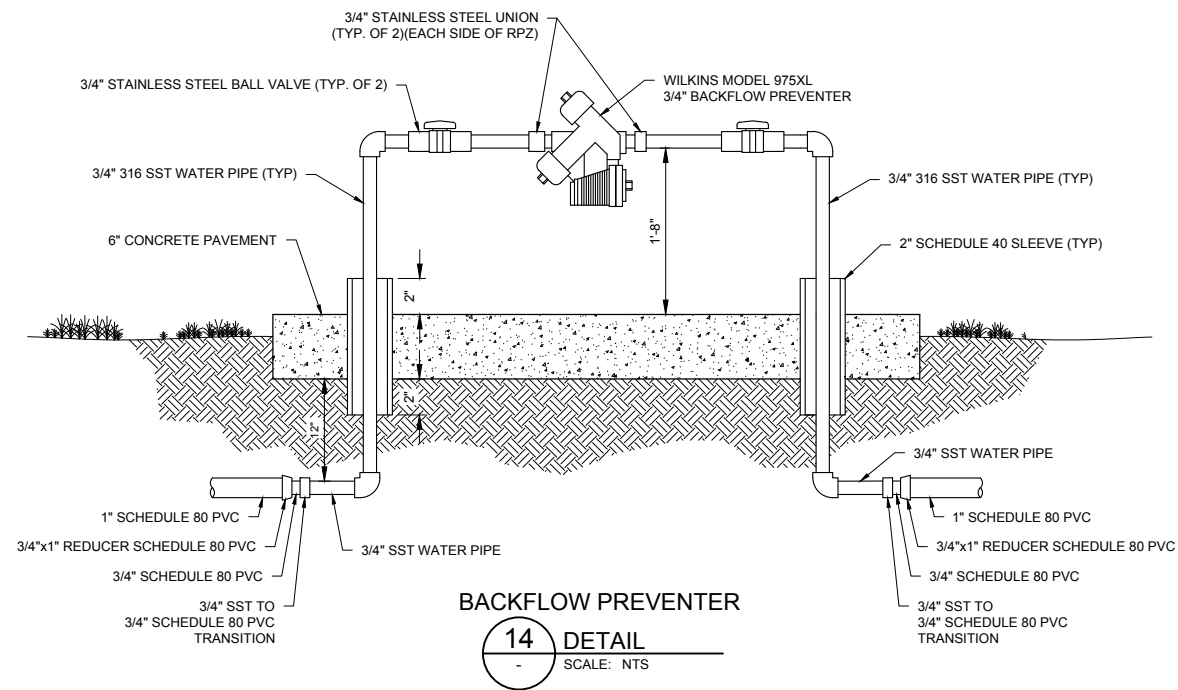
DES: BVH
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109TH AVENUE PUMP STATION REHABILITATION
PUMP STATION DETAILS - 4

SHEET
14

PLOTTED BY: Sonnenberg, Terence - DRAWING FILE L:\DCS\Projects\WTR\60651648_Tampa_WWP\Sheets\900_CAD_GIS\912_CAD_109th_Sheets\15 POTABLE WATER DETAILS.dwg
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CITY of TAMPA
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109TH AVENUE PUMP STATION REHABILITATION

POTABLE WATER DETAILS

SHEET

15

STRUCTURAL ABBREVIATIONS

A.B.	ANCHOR BOLT	K	KIP/ 1000 POUNDS
ACI	AMERICAN CONCRETE INSTITUTE	L	ANGLE
ADD'L	ADDITIONAL	LB	POUND/ POUNDS
AFF	ABOVE FINISHED FLOOR	LLH	LONG LEG HORIZONTAL
AFG	ABOVE FINISHED GRADE	LLV	LONG LEG VERTICAL
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	LOC	LOCATION
AISI	AMERICAN IRON AND STEEL INSTITUTE	LP	LOW POINT
ALUM	ALUMINIUM		
ALT	ALTERNATE		
APPROX	APPROXIMATE	MAT'L	MATERIAL
ARCH	ARCHITECTURE/ ARCHITECTURAL	MAX	MAXIMUM
ASTM	AMERICAN SOCIETY OF TESTING MATERIALS	MCJ	MASONRY CONTROL JOINT
AWS	AMERICAN WELDING SOCIETY	MECH	MECHANICAL
		MFR	MANUFACTURER
B/	BOTTOM OF	MID	MIDDLE
BLDG	BUILDING	MIN	MINIMUM
BM	BENCH MARK	MISC	MISCELLANEOUS
BOT	BOTTOM	MO	MASONRY OPENING
BP	BASE PLATE, BEARING PLATE	MPH	MILES PER HOUR
BRG	BEARING	MWFRS	MAIN WIND FORCE RESISTING SYSTEM
C	CHANNEL	NIC	NOT IN CONTRACT
C&C	COMPONENTS AND CLADDING	NO	NUMBER
CF	CUBIC FOOT/ CUBIC FEET	NS	NEAR SIDE
CHKD	CHECKED	NTS	NOT TO SCALE
CIP	CAST-IN-PLACE		
CJ	CONTRACTION JOINT	OC	ON CENTER
CLR	CLEAR/ CLEARANCE	OD	OUTSIDE DIAMETER
CLSM	CONTROLLED LOW STRENGTH MATERIAL	OF	OUTSIDE FACE
CMU	CONCRETE MASONRY UNIT	OP	OPPOSITE HAND
COEFF	COEFFICIENT	OPNG	OPENING
CONC	CONCRETE		
CONT	CONTINUOUS	PCF	POUNDS PER CUBIC FOOT
COORD	COORDINATE	PEN	PENETRATION
CSJ	CONSTRUCTION JOINT	PJF	PREMOLDED BITUMINOUS JOINT FILLER
CY	CUBIC YARD	PLF	POUNDS PER LINEAR FOOT
		PREFAB	PREFABRICATED
DIA	DIAMETER	PROJ	PROJECTION
DIAG	DIAGONAL	PSF	POUNDS PER SQUARE FOOT
DIM	DIMENSION	PSI	POUNDS PER SQUARE INCH
DWG	DRAWING	PVC	POLYVINYL CHLORIDE
DWL	DOWEL		
		RC	REINFORCED CONCRETE
EA	EACH	RCP	REINFORCED CONCRETE PIPE
EE	EACH END	REINF	REINFORCEMENT
EF	EACH FACE	REQ'D	REQUIRED
EL	ELEVATION		
ELEC	ELECTRIC/ ELECTRICAL	SCH	SCHEDULE
EQ SP	EQUAL SPACING	SCJ	SAW CUT JOINT
ES	EACH SIDE	SIM	SIMILAR
EW	EACH WAY	SOG	SLAB ON GRADE
EXJ	EXPANSION JOINT	SPEC	SPECIFICATION
EXP	EXPANSION	SQ	SQUARE
EXT	EXTERIOR	SS	STAINLESS STEEL
		STD	STANDARD
FCJ	FULL CONTRACTION JOINT	STRUCT	STRUCTURAL
FD	FLOOR DRAIN	SYM	SYMMETRIC
FDN	FOUNDATION		
FF	FINISH FLOOR	T/	TOP OF
FG	FINISH GRADE	T&B	TOP AND BOTTOM
FP	FULL PENETRATION WELD	TEMP	TEMPERATURE, TEMPORARY
FS	FAR SIDE	TOL	TOLERANCE
FT	FOOT/ FEET	TYP	TYPICAL
FTG	FOOTING		
		UON	UNLESS OTHERWISE NOTED
GA	GAGE/ GAUGE		
GALV	GALVANIZED	VERT	VERTICAL
GC	GENERAL CONTRACTOR	VOL	VOLUME
HORIZ	HORIZONTAL	W	WIDE FLANGE
HP	HIGH POINT	W/	WITH
HSS	HOLLOW STRUCTURAL SECTION	W/O	WITH OUT
		WP	WORKING POINT
ID	INSIDE DIAMETER	WS	WATERSTOP
IF	INSIDE FACE	WT	WEIGHT, STRUCTURAL TEE SECTION
IN	INCH/ INCHES	WWR	WELDED WIRE REINFORCEMENT
INT	INTERIOR		
INV	INVERT		

STRUCTURAL NOTES

A. DESIGN CRITERIA

1. FLORIDA BUILDING CODE: FBC 2020, 7th EDITION.
2. ASCE 7-16 MINIMUM DESIGN LOADS FOR BUILDINGS, AND OTHER STRUCTURES.
3. ACI 318-14, BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE.

B. LOADINGS

1. LIVE LOADS:
 - 1.1. FLOOR ACCESS HATCH 300 PSF
 - 1.2. WET WELL TOP SLAB 200 PSF
2. WIND LOADS:
 - 2.1. ULTIMATE WIND VELOCITY, V_{ULT} 151 MPH
 - 2.2. NOMINAL WIND VELOCITY, V_{ASD} 117 MPH
 - 2.3. EXPOSURE CATEGORY C
 - 2.4. RISK CATEGORY III

C. GENERAL REQUIREMENTS

1. ALL DETAILS ARE TYPICAL. INCORPORATE INTO PROJECT AT APPROPRIATE LOCATIONS WHERE CONDITIONS ARE SIMILAR.
2. DO NOT SCALE DRAWINGS. DIMENSIONS NOT SHOWN ON THE DRAWINGS SHALL BE VERIFIED WITH THE ENGINEER.
3. SHORING REQUIRED FOR THE STABILITY OF THE UNCOMPLETED STRUCTURE OR FOR INSTALLATION OR MODIFICATION OF STRUCTURAL MEMBERS SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
4. CONTRACTOR TO SUBMIT DOCUMENTS SHOWING METHOD OF SHORING TO THE ENGINEER.
5. CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS, DIMENSIONS AND ELEVATIONS PRIOR TO START OF CONSTRUCTION. NOTIFY ENGINEER OF ANY DISCREPANCIES OR CONFLICTS FOUND IN CONTRACT DOCUMENTS AND/OR FIELD CONDITIONS.
6. COORDINATE FINAL SIZE AND LOCATION OF ALL OPENINGS WITH THE ACTUAL EQUIPMENT SUPPLIED, PROJECT REQUIREMENTS, AND FIELD CONDITIONS.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FOUNDATIONS UNDER MECHANICAL EQUIPMENT AND SHALL COORDINATE SIZE AND LOCATION OF FOUNDATIONS.
8. PROCESS EQUIPMENT SHOWN ON STRUCTURAL DRAWINGS IS FOR VISUAL REFERENCE ONLY.
9. NET ALLOWABLE FOUNDATION SOIL BEARING CAPACITY SHALL BE 2000 PSF AS SET FORTH IN THE GEOTECHNICAL REPORT PREPARED BY TIERRA, INC., DATED JANUARY 5, 2022. CONTRACTOR TO VERIFY SOIL CAPACITY WITH ENGINEER PRIOR TO PLACING FOUNDATIONS. STRENGTHEN SOIL AS REQUIRED TO ACHIEVE STATED BEARING CAPACITY.

D. CAST IN PLACE CONCRETE

1. CONCRETE FOR ALL STRUCTURES, CONCRETE FLOOR TOPPING AND CONCRETE NOT OTHERWISE SPECIFIED SHALL BE 4,000 PSI CONCRETE, UNLESS OTHERWISE NOTED.
2. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615 GRADE 60.
3. ALL SPLICES SHALL BE CLASS B, TENSION LAP SPLICES, UON.
4. DO NOT WELD OR TACK WELD REINFORCING STEEL.
5. WELDED WIRE REINFORCEMENT SHALL CONFORM TO ASTM A1064.
6. PROVIDE WELDED WIRE REINFORCEMENT HEAVIER THAN W2.9 IN FLAT SHEETS.
7. REBAR COVER SHALL BE AS FOLLOWS UNLESS OTHERWISE NOTED:
 - 7.1. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"
 - 7.2. CONCRETE EXPOSED TO EARTH AND/OR WEATHER 2"
 - 7.3. CONCRETE NOT EXPOSED TO EARTH OF WEATHER (#11 OR SMALLER) 3/4"

E. FLOWABLE FILL

1. PROVIDE FLOWABLE FILL MIX DESIGN PER PROJECT SPECIFICATIONS. EXCAVATABLE OR NON-EXCAVATABLE MIX DESIGNS ARE ACCEPTABLE.
2. SUBMIT MIX DESIGNS TO THE ENGINEER FOR APPROVAL.
3. POUR FLOWABLE FILL IN LIFTS TO PREVENT BUOYANCY OF TANK. FILL TANK WITH WATER AS REQUIRED TO PREVENT BUOYANCY.

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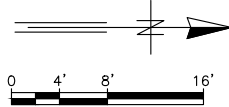
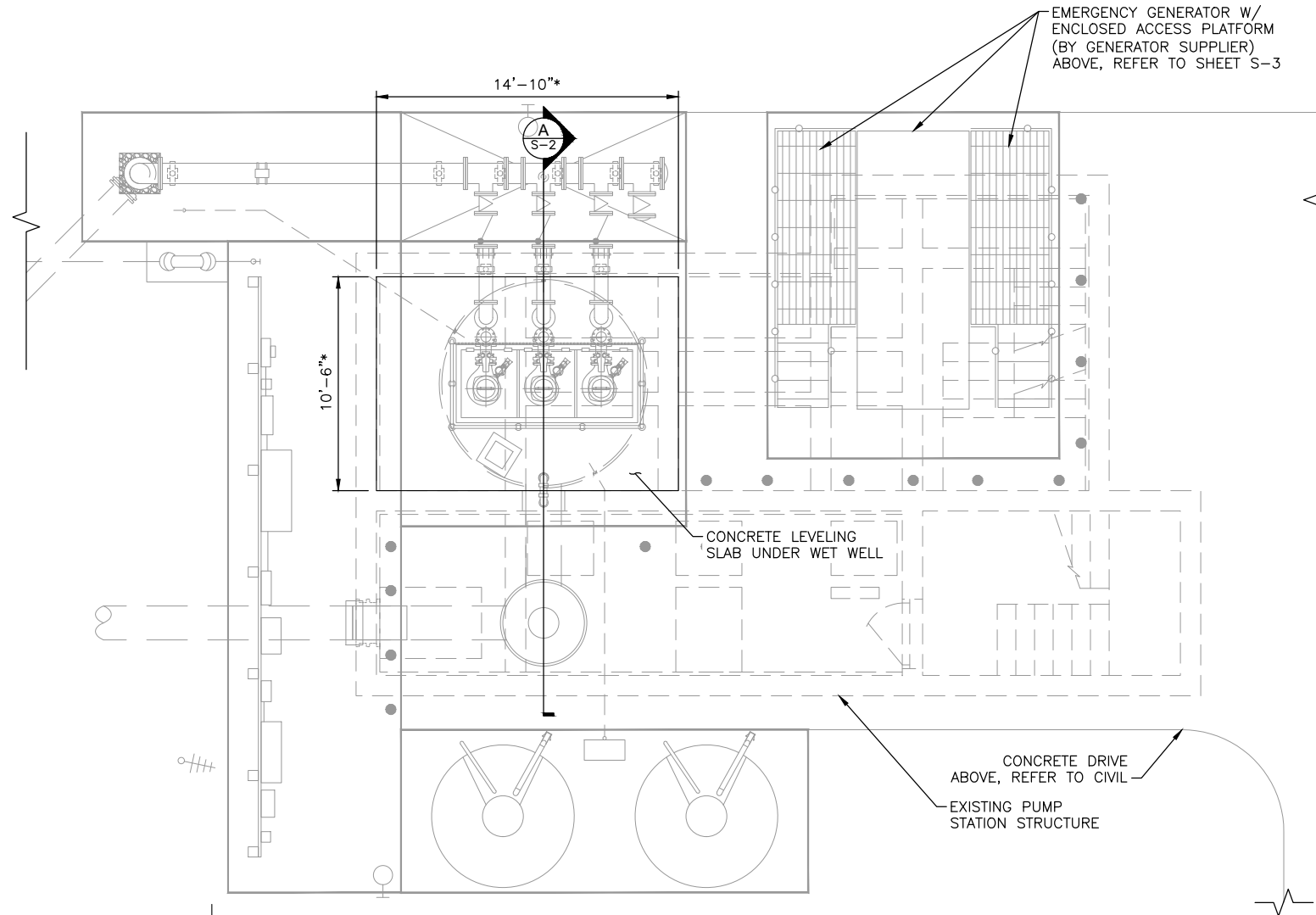
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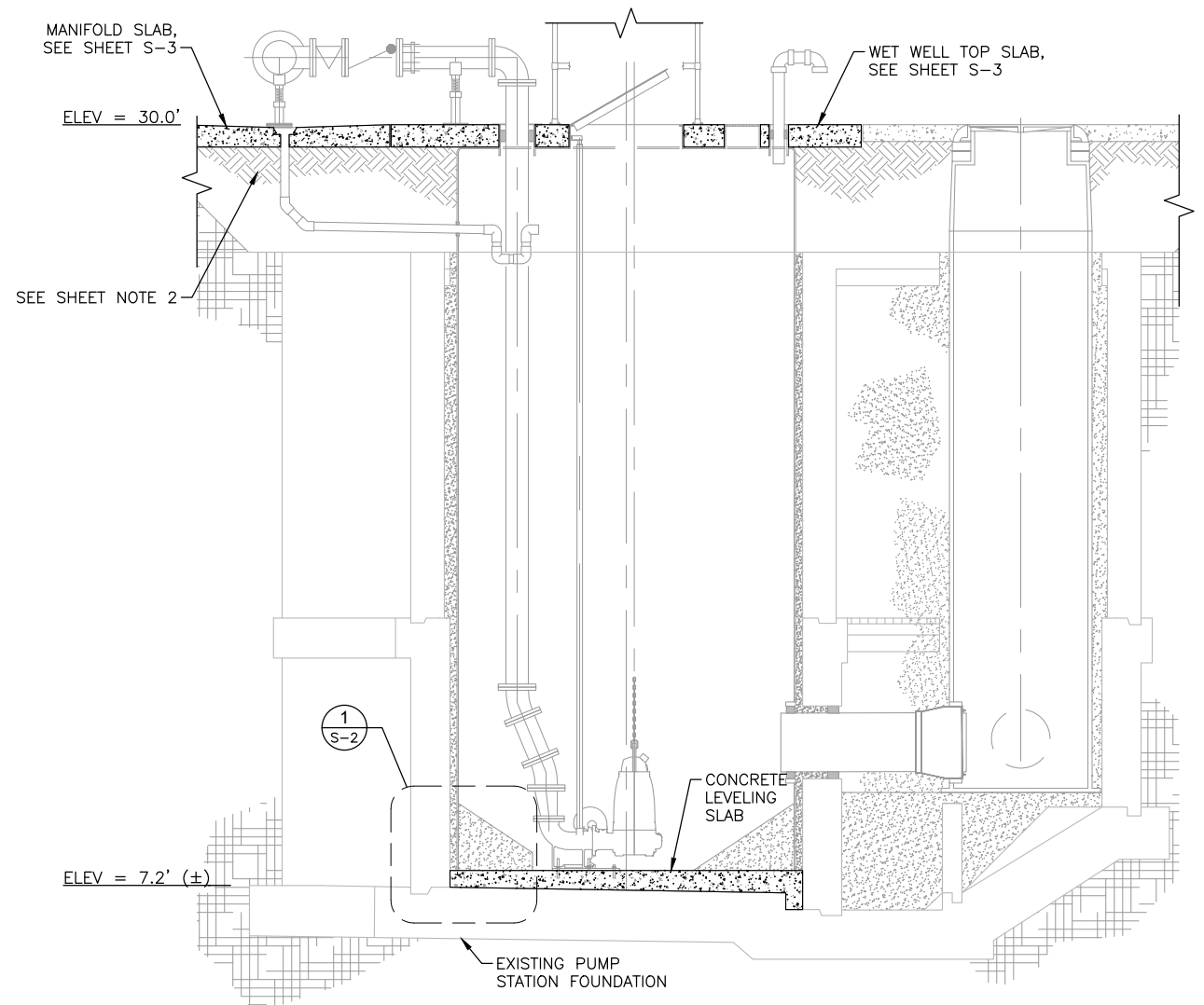
109TH AVENUE PUMP STATION REHABILITATION
 STRUCTURAL NOTES AND ABBREVIATIONS

SHEET
S-1

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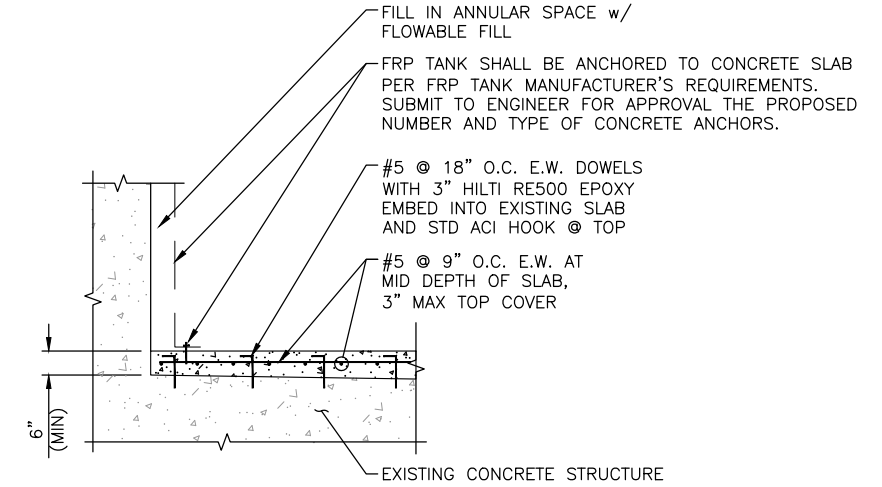
PLAN VIEW
SCALE: 1/8" = 1'-0"



SECTION A-A
SCALE: 3/16" = 1'-0"

SHEET NOTES:

1. THE * SYMBOL INDICATES THAT THE CONTRACTOR SHALL VERIFY SIZE REQUIREMENTS WITH THE FINAL EQUIPMENT PURCHASED PRIOR TO CONSTRUCTION.
2. SOIL ABOVE STRUCTURE TO BE REMOVED PRIOR TO DEMO (CUTTING CONCRETE SLAB BELOW). ONLY REPLACE SOIL AFTER FLOWABLE CONCRETE FILL HAS BEEN POURED AROUND TANK AND PROVIDES SUPPORT FOR UNDERSIDE OF CUT CONCRETE SLAB.



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



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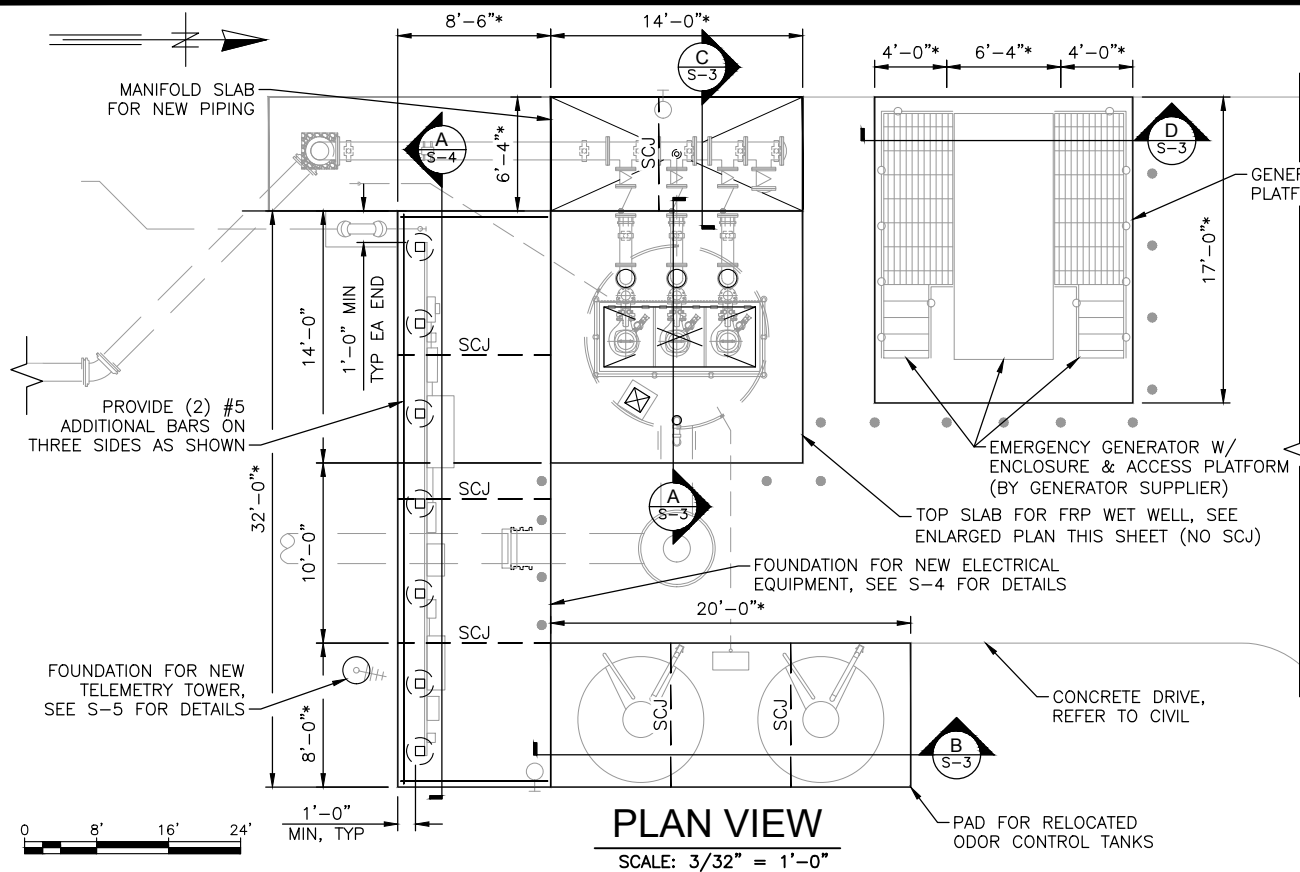
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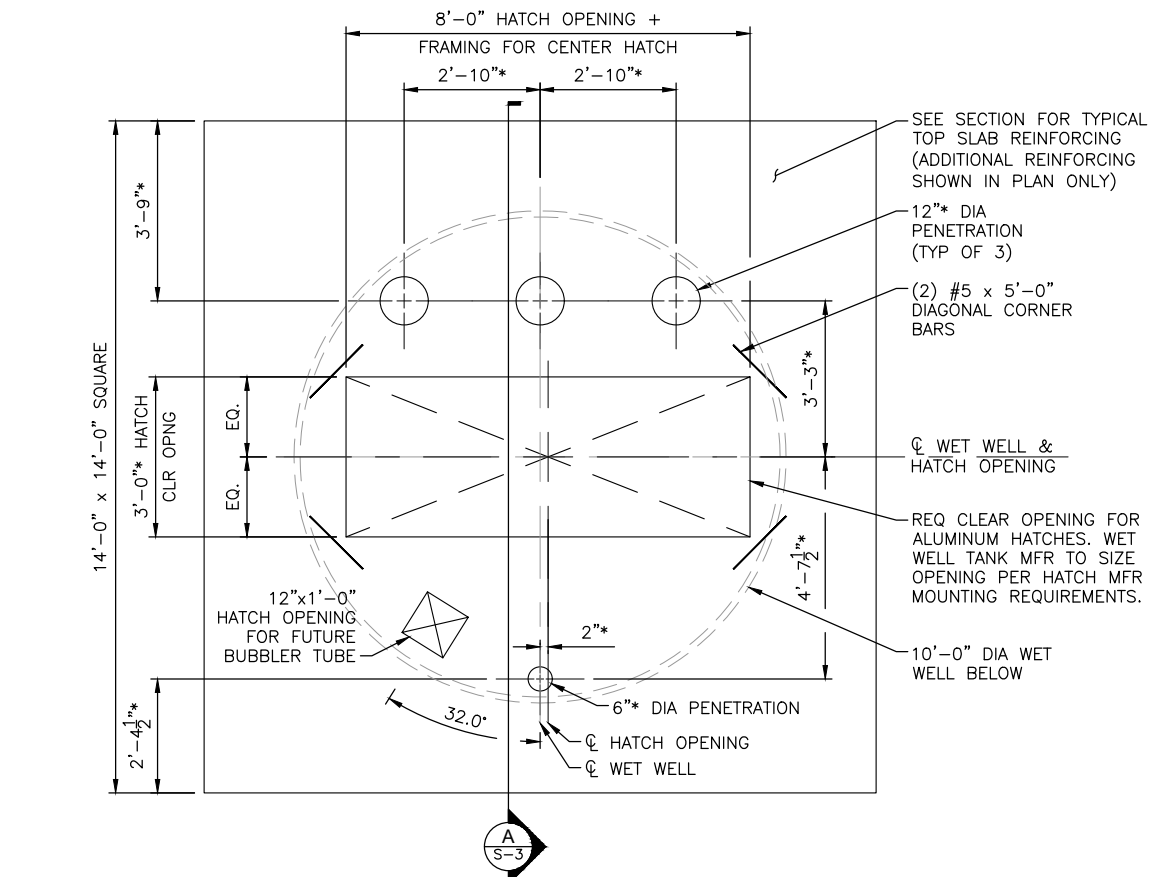
109TH AVENUE PUMP STATION REHABILITATION
STRUCTURAL DETAILS - I

SHEET
S-2

PLOTTED BY: Sonenberg, Terence DRAWING FILE L:\DCS\Projects\WTR\60651648_Tampa_WWP\Sheets\109th\Structural_Sheets\S-3 STRUCTURAL DETAILS - 2.dwg
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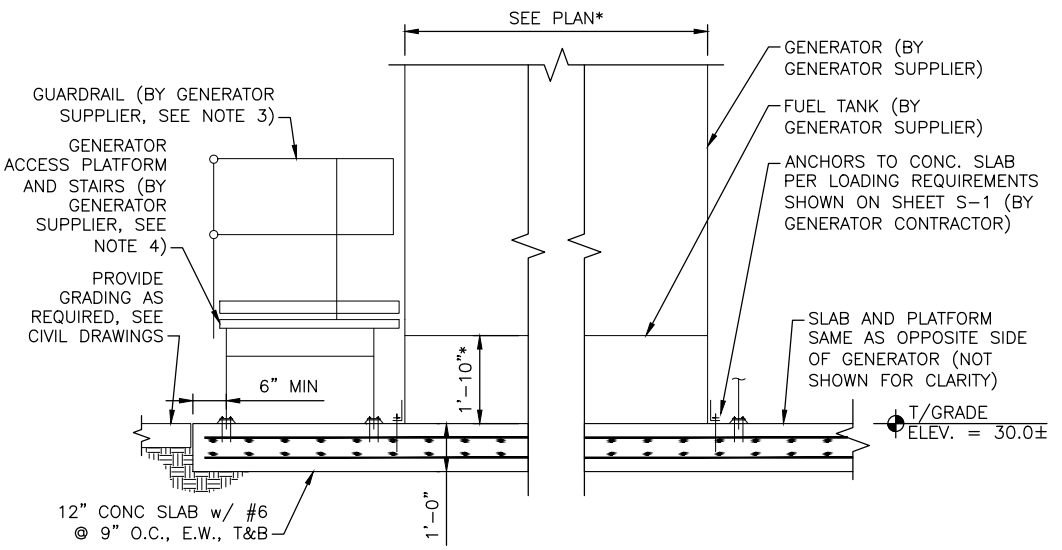


PLAN VIEW
SCALE: 3/32" = 1'-0"



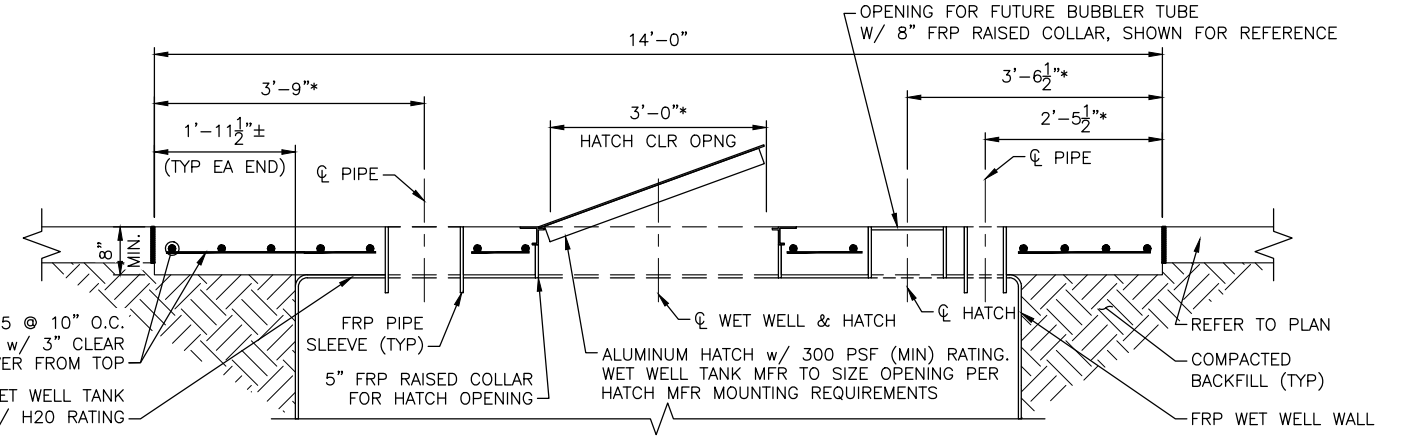
WET WELL TOP SLAB PLAN
SCALE: 1/4" = 1'-0"

SHEET NOTES:
 1. THE * SYMBOL INDICATES THAT THE CONTRACTOR SHALL VERIFY SIZE REQUIREMENTS WITH THE FINAL EQUIPMENT PURCHASED PRIOR TO CONSTRUCTION

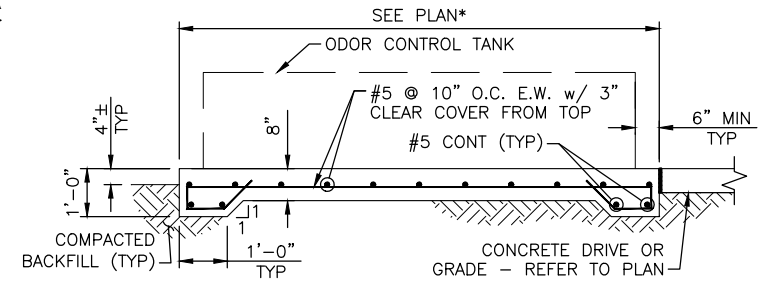


SECTION D-D
SCALE: 1/4" = 1'-0"

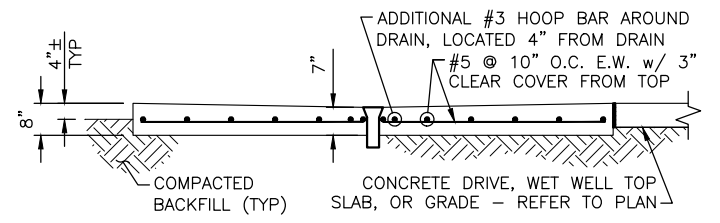
EMERGENCY GENERATOR NOTES:
 1. ALL COMPONENTS SHALL BE MADE OF MATERIALS RATED FOR EXTERIOR USE.
 2. CONCRETE SHALL BE PLACED ON IN SITU SOIL AND/OR AS REQUIRED BY ENGINEER OR PLACED ON STRUCTURAL FILL PLACED IN 6" LIFTS COMPACTED TO 95% MODIFIED PROCTOR.
 3. GUARDRAIL SHALL BE DESIGNED FOR 50 PLF AND 200 LBS LOAD IN ANY DIRECTION (NON-CONCURRENT).
 4. GENERATOR ACCESS PLATFORM SHALL BE MADE OF ALUMINUM AND SHALL BE DESIGNED FOR 60 PSF DISTRIBUTED LOAD AND 300 LBS POINT LOAD (LOADS DO NOT NEED TO BE APPLIED CONCURRENT). STAIR SHALL BE DESIGNED FOR 100 PSF & 300 LBS (NON-CONCURRENT). PROVIDE SIGNED AND SEALED CALCULATIONS WITH SHOP DRAWINGS FOR REVIEW.
 5. COORDINATE PLAN DIMENSIONS OF CONCRETE SLAB WITH FINAL GENERATOR EQUIPMENT PURCHASED.



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



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



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

SAW-CUT JOINTING NOTES:
 1. JOINT DEPTH SHALL BE 0.25xSLAB DEPTH, OR 1-1/2" MAX.
 2. JOINT SPACING SHALL BE 8'-0" O.C. MAX. UNLESS NOTED OTHERWISE ON PLAN.
 3. FILL WITH EPOXY JOINT SEALANT FOR JOINTS EXPOSED TO TRAFFIC. FILL WITH ELASTOMERIC JOINT SEALANT FOR ALL OTHER JOINTS.
 4. JOINTS SHALL BE CUT WITHIN (1) TO (4) HOURS OF FINISHING SLAB (1 HOUR IN HOT WEATHER, 4 HOURS IN COLD WEATHER). JOINTS SHALL BE CUT WITH EARLY ENTRY SAWS.
 5. SAW-CUT JOINTS ARE NOTED AS "SCJ" ON PLANS.

SAW-CUT CONSTRUCTION JOINT
 1 DETAIL
 S-3 SCALE: 3/4"=1'-0"



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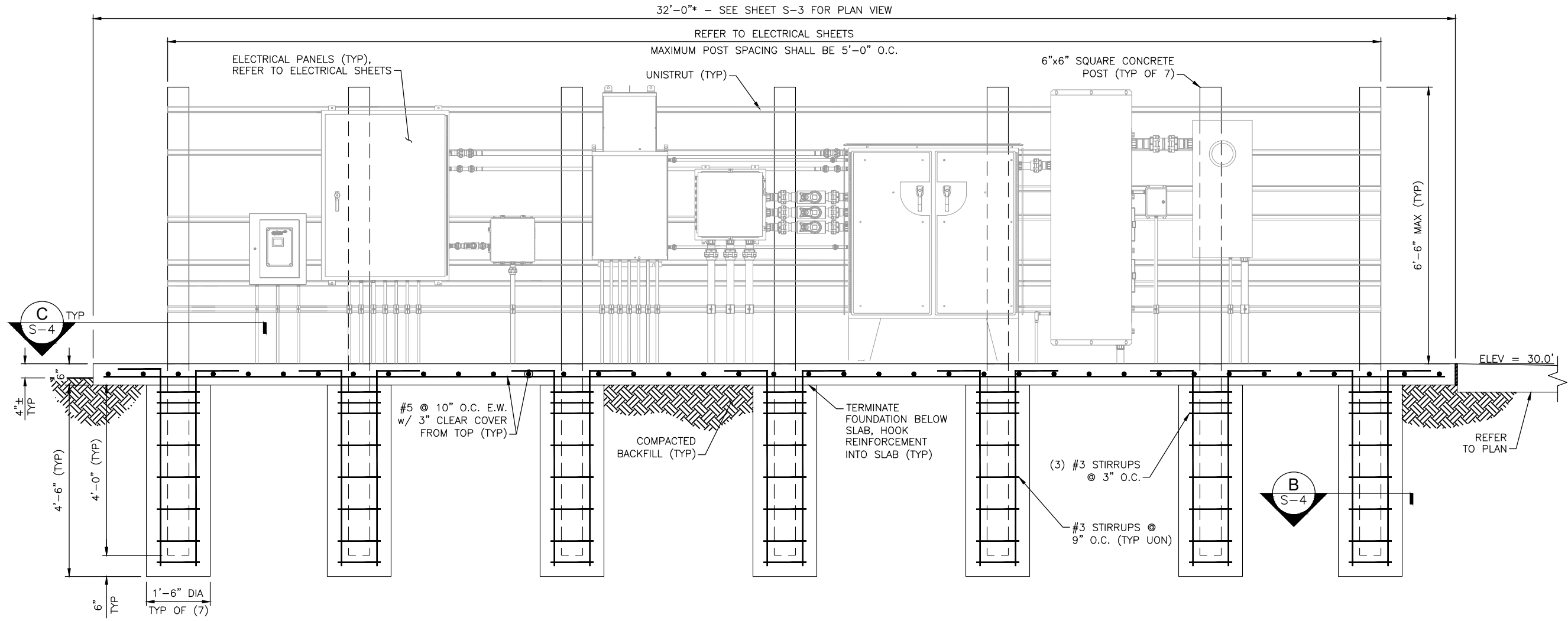
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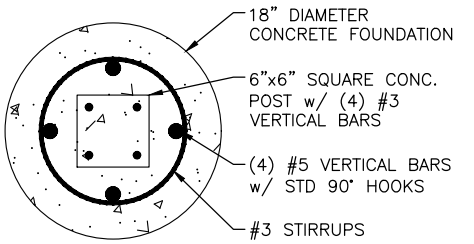
109TH AVENUE PUMP STATION REHABILITATION
 STRUCTURAL DETAILS - 2

SHEET
S-3

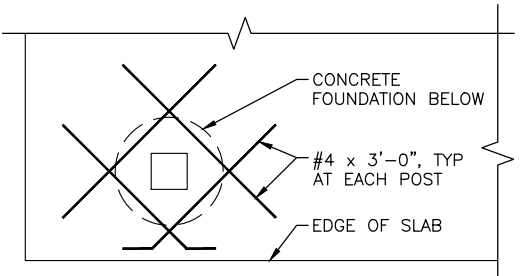
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SECTION A-A
SCALE: 3/8" = 1'-0"



SECTION B-B
SCALE: 3/4" = 1'-0"



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

- SHEET NOTES:**
1. THE * SYMBOL INDICATES THAT THE CONTRACTOR SHALL VERIFY SIZE REQUIREMENTS WITH THE FINAL EQUIPMENT PURCHASED PRIOR TO CONSTRUCTION.
 2. SEE SHEET S-1 FOR GENERAL NOTES AND DESIGN CRITERIA.
 3. THE DETAILING, BENDING, AND PLACING OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ACI STANDARD 318 CODE (LATEST EDITION) AND ACI DETAILING MANUAL, SP-66 (94). FIELD BENDING WILL NOT BE PERMITTED UNLESS APPROVED BY THE DESIGN BUILDER.
 4. ALL STIRRUPS AND TIES SHALL BE CLOSED TYPE WITH 135 DEGREE HOOKS, UNLESS NOTED OTHERWISE.
 5. POST FOUNDATIONS WERE DESIGNED USING CONSTRAINED CRITERIA.
 6. CONTRACTOR TO VERIFY UNISTRUT SIZING AND FASTENER CAPACITY BASED ON FINAL EQUIPMENT SIZE AND WEIGHT SELECTED.

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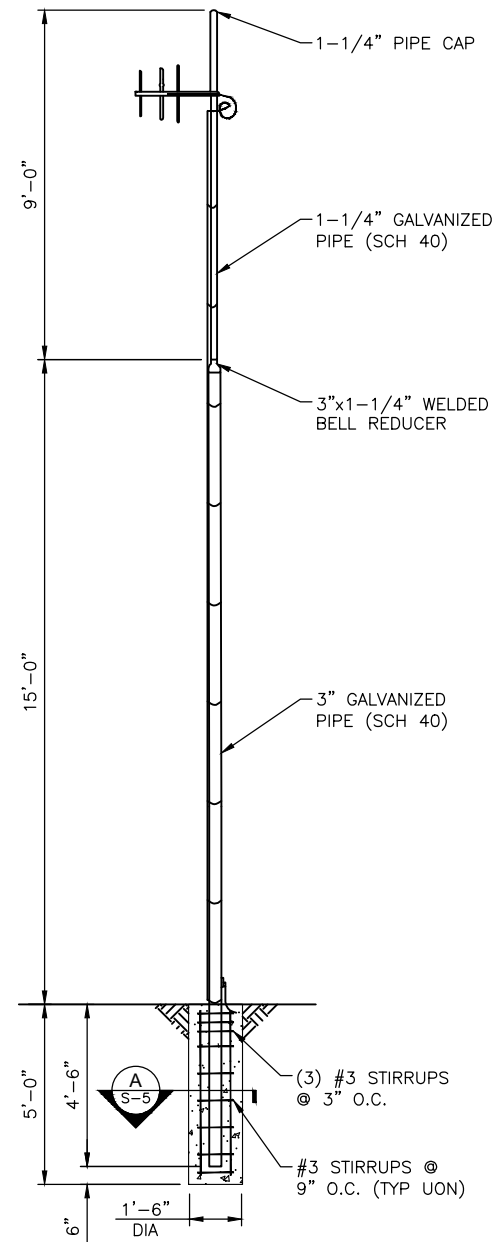
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CKD: KM
DATE: 04/14/2023

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109TH AVENUE PUMP STATION REHABILITATION
ELECTRICAL PANEL STRUCTURAL DETAILS

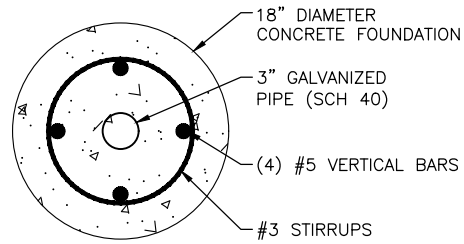
SHEET
S-4

PLOTTED BY: Sonenberg, Terence - DRAWING FILE: L:\DCS\Projects\WTR\60651648_Tampa_WWP\Sheets\900_CAD_GIS\912_CAD_109th_Structural\Sheets\S-5 TELEMETRY TOWER STRUCTURAL DETAILS.dwg
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ANTENNA POLE & FOUNDATION

1 **DETAIL**
 S-5 SCALE: NTS

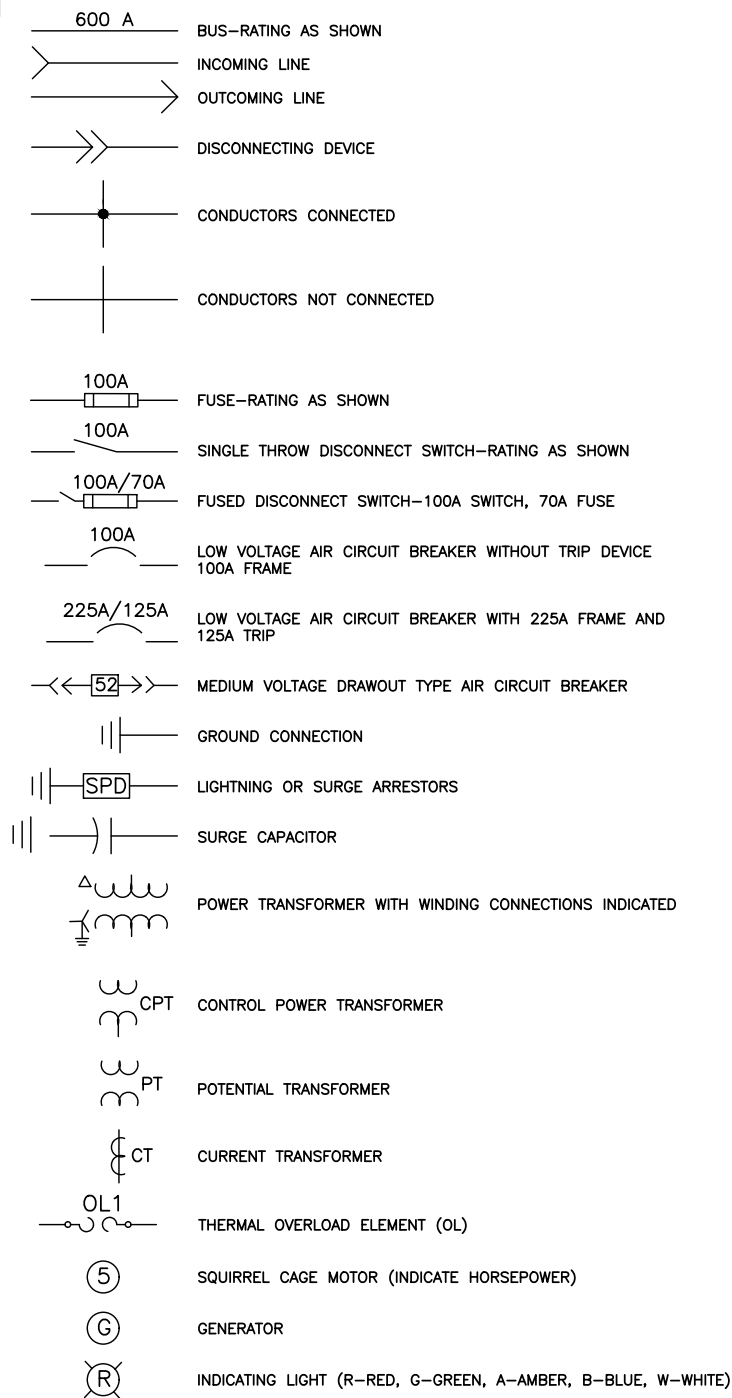


SECTION A-A
 SCALE: 3/4" = 1'-0"

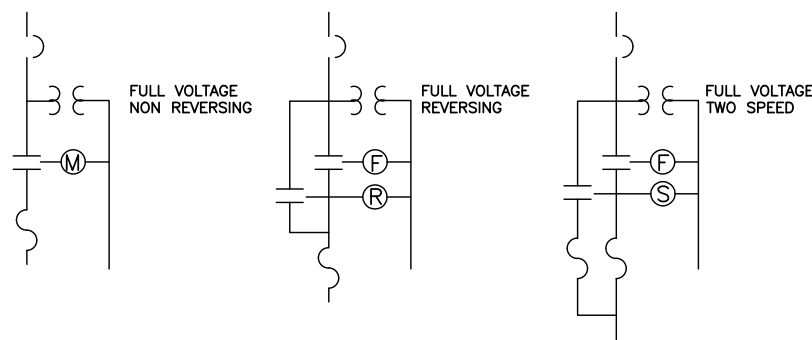
- SHEET NOTES:**
1. REFER TO SHEET S-1 FOR STRUCTURAL DESIGN CRITERIA AND NOTES.
 2. TELEMETRY TOWER DESIGNED PER ASCE 7-16 §30.12.
 - 2.1. ANTENNA DESIGN EPA = 40 SQ. IN. (MAX)
 - 2.2. ANTENNA DESIGN WEIGHT = 5 LBS. (MAX)

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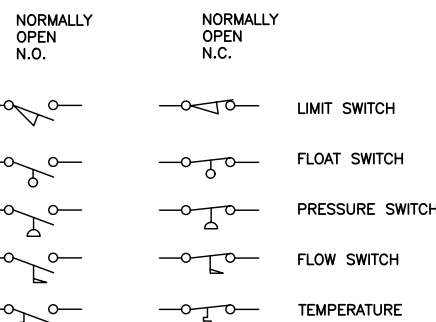
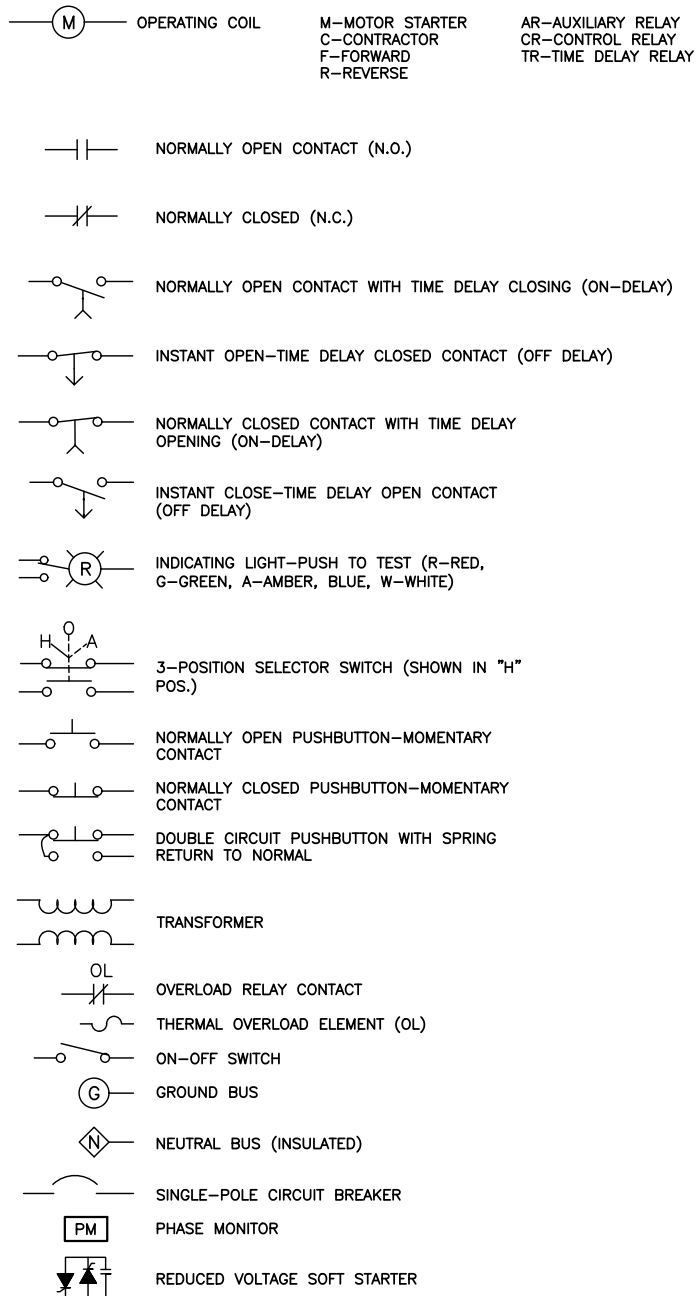
ONE LINE DIAGRAM SYMBOLS



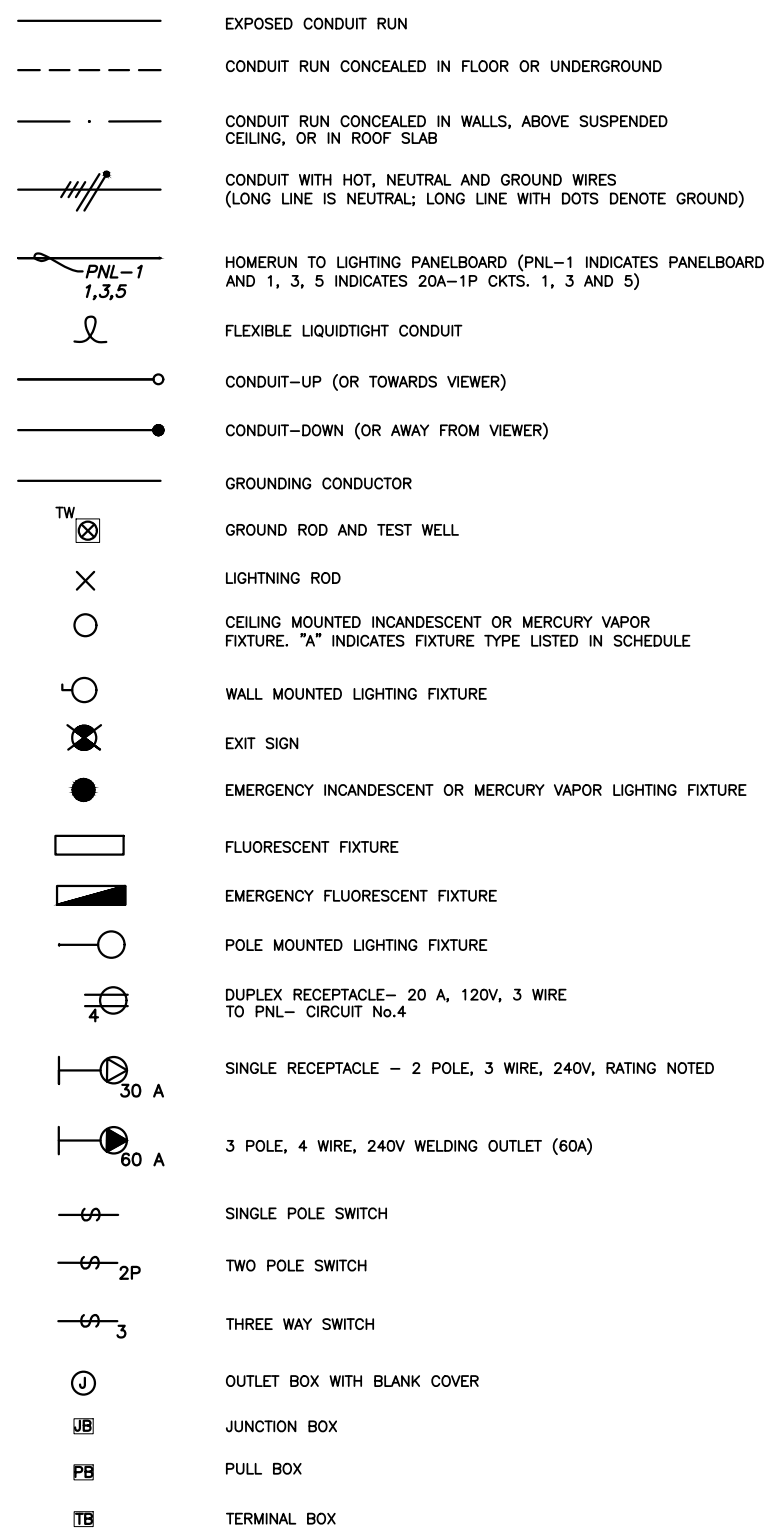
COMBINATION STARTER WITH CONTROL TRANSFORMERS AND OVERLOAD RELAYS AND MOTOR CIRCUIT PROTECTOR



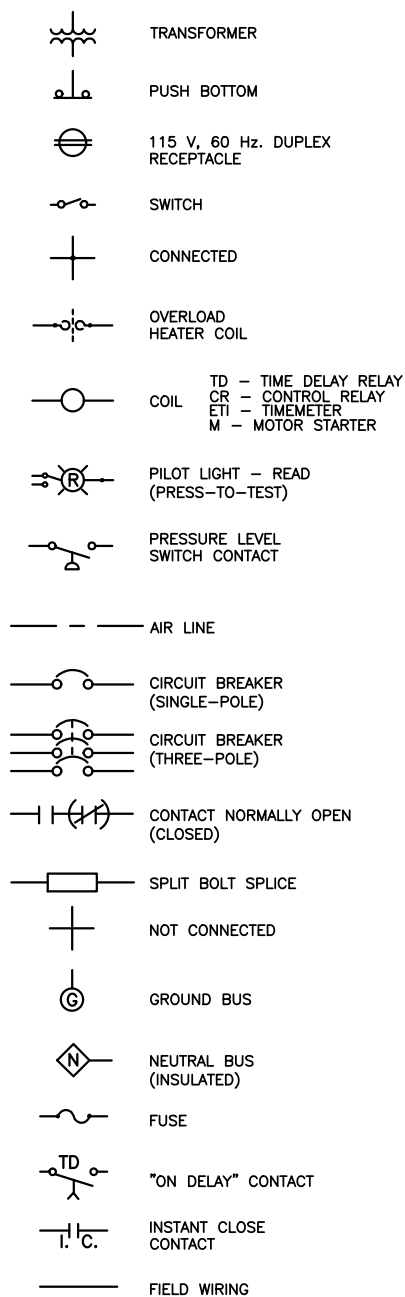
SCHEMATIC AND WIRING DIAGRAM SYMBOLS



POWER AND LIGHTING SYMBOLS



CONTROL SCHEMATIC SYMBOLS



NOTES:

THE SYMBOLS SHOWN COMPRISE A GENERAL LEGEND TO FACILITATE THE USE OF PLANS. REFER TO THE PLANS AND SPECIFICATIONS FOR ITEMS REQUIRED.

EDA
Electrical Design Associates
3001 N. ROCKY POINT DRIVE, STE. #200
TAMPA, FLORIDA 33607
PHONE: (813) 367-3536
FAX: (813) 819-5557
C.O.A. No. 8879
MICHAEL J. CAHILL, P.E.
Florida P.E. No. 70837

AECOM
7650 West Courtney Campbell Causeway
Waterford Plaza, Suite 700
Tampa, Florida 33607 813.286.1711 tel
Certificate of Authorization No. 8115

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DES: MJC
DRN: SDV
CKD: WCN
DATE: 04/14/2023

CITY of TAMPA
WASTEWATER DEPARTMENT


















109TH AVENUE PUMP STATION REHABILITATION
ELECTRICAL SYMBOLS & ABBREVIATION

SHEET
E-1

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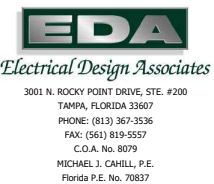
GENERAL SYMBOLS

-  START-STOP PUSHBUTTON
-  ON/OFF/L
ON-OFF MAINTAINED CONTACT
PUSHBUTTON WITH LOCK
ATTACHMENT
-  S/L
INDICATING LIGHT AND
START-STOP PUSHBUTTON
WITH LOCK ATTACHMENT ON
STOP
-  RESUME
STOP/L
PUSH/PULL BUTTON WITH STOP LOCK.
(PULL TO RESUME- PUSH TO STOP)
-  SELECTOR SWITCH ("HOA" INDICATES HAND, OFF, AND
AUTO; "MOR" INDICATES MANUAL, OFF, AND REMOTE; ETC.)
-  ON-OFF SWITCH WITH LOCK
ATTACHMENT ON OFF POSITION
-  FLOW SWITCH
-  LIMIT SWITCH
-  PRESSURE SWITCH
-  SOLENOID OPERATED VALVE
-  TEMPERATURE SWITCH
-  FLOAT SWITCH
-  L
LEVEL TRANSMITTER
(PRESSURE ANALOG TYPE)
-  LC
LEVEL TRANSMITTER
(FLOAT TYPE)
-  T
TEMPERATURE TRANSMITTER
-  FT
FLOW TRANSMITTER
- MH DESIGNATES MOUNTING HEIGHT
- WP DESIGNATES WATERPROOF EQUIPMENT
- XP DESIGNATES EXPLOSIONPROOF EQUIPMENT
- MOV DESIGNATES MOTOR OPERATED VALVE
- EX. DESIGNATES EXISTING EQUIPMENT
- PROP. DESIGNATES PROPOSED EQUIPMENT
- MCP MOTOR CONTROL PANEL
- PCP PUMP CONTROL PANEL
- PCSR PUMP CONTROLLER/SCADA/RADIO
- LA LIGHTING ARRESTER
- PDB POWER DISTRIBUTION BLOCK
-  FM
FLOW METER

NOTE:
THE SYMBOLS SHOWN COMPRISE A GENERAL LEGEND
TO FACILITATE THE USE OF PLANS. REFER TO THE
PLANS AND SPECIFICATIONS FOR ITEMS REQUIRED.

GENERAL NOTES

1. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL PRIOR TO PURCHASING EQUIPMENT OR COMMENCING CONSTRUCTION.
2. ALL POWER CONDUCTORS SHALL BE STRANDED COPPER, #12 AWG MIN. W/XHHW-2 INSULATION, UNLESS OTHERWISE NOTED.
3. ALL WIRING SHALL BE IDENTIFIED W/ NUMBERS AT ALL TERMINALS AND ON WIRING DIAGRAMS.
4. VERIFY ALL MECHANICAL EQUIPMENT SIZES AND RATING PRIOR TO CONNECTING.
5. FIELD VERIFY ALL MECHANICAL EQUIPMENT LOCATIONS AND CONNECTIONS PRIOR TO COMMENCING CONSTRUCTION.
6. PLANS ARE DESIGNED IN ACCORDANCE WITH THE 7TH EDITION 2020 OF THE FLORIDA BUILDING CODE AND THE 2017 EDITION OF THE NATIONAL ELECTRICAL CODE. CONTRACTOR SHALL ENSURE THAT ALL ELECTRICAL WORK PERFORMED SHALL ADHERE TO THE SAME ACCORDANCE AND ALL APPLICABLE LOCAL ORDINANCES.
7. ALL THREADED CONNECTIONS SHALL BE COATED W/ ALUMA-SHIELD ANTI-SEIZE COMPOUND MANUFACTURED BY THOMAS AND BETTS (T & B) OR EQUAL.
8. ALL PANELS, DISCONNECTS, SWITCHES, AND EQUIPMENT COVERPLATES SHALL BE LABELED W/ NAMEPLATES. NAMEPLATES SHALL BE THREE-PLY PHENOLIC BLACK-WHITE-BLACK ENGRAVED THROUGH THE FIRST BLACK LAYER. LETTERING SHALL BE 0.5 CM (3/16") MIN. EDGE OF NAMEPLATE SHALL BE BEVELED 45 DEG.
9. ALL CONDUIT SHALL BE SUPPORTED AT MAXIMUM 5'-0" INTERVALS.
10. ALL CIRCUITS SHALL HAVE A PROPERLY SIZED GROUNDING CONDUCTOR ROUTED INSIDE EACH CONDUIT W/ POWER CONDUCTORS.
11. ALL CONDUCTOR LENGTHS SHALL BE CONTINUOUS, NO SPLICES OR CONDUCTOR TERMINATIONS SHALL BE PERMITTED UNLESS SPECIFICALLY DESIGNED IN THE DRAWINGS.
12. NEATLY COIL ALL SPARE CONDUCTORS & TAPE W/ VINYL ELECTRICAL TAPE (SCOTCH 33+)
13. PROVIDE A MINIMUM OF 3'-6" CLEARANCE IN FRONT OF ALL ELECTRICAL EQUIPMENT IN ACCORDANCE W/ ARTICLE 110 OF THE NEC.
14. ALL FASTENING HARDWARE (SCREW, BOLTS, NUTS, ETC.) SHALL BE 316-STAINLESS STEEL. FASTENING HARDWARE CONSTRUCTED OF FERROUS MATERIAL ARE NOT ACCEPTABLE.
15. EXPOSED CONDUITS SHALL BE NON-COATED RIGID ALUMINUM CONDUIT, UNLESS OTHERWISE NOTED (UON). INSTALL PVC COATED RIGID ALUMINUM CONDUIT TO THE WET WELL, UNLESS OTHERWISE NOTED (UON).
16. DIRECT BURIED AND CONCRETE ENCASED CONDUIT SHALL BE SCHEDULE 80 PVC, UNLESS OTHERWISE NOTED, TRANSITIONS FROM ABOVE-GRADE RIGID ALUMINUM CONDUIT TO NONMETALLIC CONDUIT SHALL BE ACCOMPLISHED WITH A THREADED ADAPTER. RIGID ALUMINUM CONDUIT INSTALLED ABOVE GRADE AND EXTENDING BELOW GRADE SHALL INCLUDE THE FIRST 90° ELBOW. ALL RIGID ALUMINUM CONDUITS EXTENDING BELOW GRADE SHALL BE COATED WITH TWO COATS OF ASPHALTUM-TYPE PAINT ALONG ITS ENTIRE LENGTH BELOW GRADE AND EXTENDING 6" ABOVE GRADE OR ABOVE THE TOP OF THE FINISHED SLAB.
17. ABOVE GRADE INDOOR, AND NON-WASHDOWN AREAS, RIGID ALUMINUM CONDUIT CONNECTIONS TO CONTROL BOXES, ETC. SHALL BE MADE WITH ALUMINUM DOUBLE LOCKNUTS AND BUSHINGS. TURN DOWN ON THREADS TO SOLIDLY CONNECT RACEWAY TO BOX OR ENCLOSURE.
18. ALUMINUM WATERTIGHT HUBS (MYERS HUBS) SHALL BE USED FOR CONNECTIONS TO CONTROL BOXES, ETC. MOUNTED OUTDOORS, FLOOR(S) BELOW GRADE, OR WASHDOWN AREAS.
19. A 316-STAINLESS STEEL CHANNEL ERECTOR SYSTEM SHALL BE USED TO SUPPORT ALL CONDUITS, BOXES, ETC. USE 316-STAINLESS STEEL MOUNTING HARDWARE.
20. THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND MAKE ADJUSTMENTS AS NECESSARY TO EXECUTE THE PROPOSED INSTALLATIONS.
21. ALL EXISTING INSTALLATIONS DENOTED ON THE DRAWINGS ARE FOR THE CONTRACTOR'S REFERENCE ONLY. ALL EXISTING INSTALLATIONS SHALL BE FIELD VERIFIED PRIOR TO SUBMITTING A BID AND PRIOR TO COMMENCING CONSTRUCTION.
22. PULL BOXES SHALL BE INSTALLED AS NECESSARY TO FACILITATE WIRE PULLS AND AVOID EXCESSIVE PULLING TENSION ON WIRING. IN NO CASE SHALL CONDUIT LENGTHS EXCEED 150' OR THE EQUIVALENT OF FOUR QUARTER BENDS (360 DEGREES TOTAL) WITHOUT A PULL BOX. PULL BOXES SHALL BE SIZED IN ACCORDANCE WITH ARTICLE 314 OF THE NEC.
23. THE WET WELL CLASSIFICATION IS CLASS 1, DIVISION 2, GROUP D (HAZARDOUS AREA), NEC CHAPTER 5 IS APPLICABLE FOR INTERFACING WET WELL AND THE CONTROL ENCLOSURE.
24. CONTRACTOR SHALL ENSURE THAT ALL ELECTRICAL WORK SHALL BE PERFORMED WITHIN 2017 NEC, ALL APPLICABLE LOCAL ORDINANCES, AND SHALL BE INSPECTED BY CITY OF TAMPA ELECTRICAL INSPECTORS, AS APPLICABLE.
25. ALL ELECTRICAL COMPONENTS SHALL BE UL LISTED AND AS SPECIFIED, OR AS APPROVED BY THE CITY. THE PANEL BUILDER SHALL BE UL-508A CERTIFIED AND A UL LABEL SHALL BE ATTACHED TO THE INSIDE OF THE ENCLOSURE. THE STAINLESS STEEL DOUBLE THROW DISCONNECT MUST BE LABELED "SUITABLE FOR USE AS SERVICE EQUIPMENT."
26. THE ENCLOSURES SHALL BE NEMA 4X, THEY SHALL BE CONSTRUCTED OF MINIMUM 14 GAUGE 316SS, THEY SHALL HAVE RAL 9003 WHITE POWDER COAT AND THE CLOSING SURFACES SHALL HAVE ROLLED LIPS, PROVIDE HINGED DOORS WITH 3-POINT LATCHED AND LOCKABLE HANDLES.
27. ALL COMPONENTS TO BE MOUNTED ON PANEL USING TAPPED HOLES.
28. ALL CONTROL WIRING SHALL BE STRANDED XHHW-2 COPPER, MINIMUM AWG #14. INSTALL FERRULES FOR ALL WIRE TERMINATIONS SMALLER THAN #8 AWG.
29. ALARM FLOAT SWITCH WILL BE FURNISHED AND INSTALLED BY THE CONTRACTOR.
30. DIMENSIONS, ITEMS, OR ELEVATIONS MARKED "*" TO BE DETERMINED AFTER EQUIPMENT SELECTION.
31. ALL MECHANICAL CONNECTORS SHALL BE TORQUED PER NEC, UL OR MANUFACTURER'S SPECIFICATIONS.
32. INSTALL LAMINATED SCHEMATIC, LAMINATED DATA SHEET AND LAMINATED SOFT STARTER SETUP PARAMETERS ON BACK FACE OF THE DOOR INSIDE THE ENCLOSURE.
33. ENSURE THAT LINE CONNECTIONS TO METER SOCKET PROVIDE CORRECT MOTOR ROTATION.
34. CONDUCTORS WITHIN THE ENCLOSURE AND NOT ROUTED IN WIREWAYS, SHALL BE SECURED TO THE BACK PANEL WITH MECHANICAL FASTENERS, FASTENERS SECURED WITH ADHESIVE ARE NOT ACCEPTABLE.
35. ALL HINGED SURFACES SHALL BE GROUNDED WITH A BONDING JUMPER SECURED TO THE ENCLOSURE OR BACKPANEL.
36. THE PUMP CONTROL PANEL ENCLOSURE SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. THE PANEL SHALL BE MOTOROLA ACE 3600 PACKAGE AS DISTRIBUTED BY STAR CONTROLS, AUTOMATED CONTROLS, CURRY CONTROLS, ROCHA CONTROLS, OR CAYZO CONSULTING INC. THE CONTRACTOR SHALL COORDINATE HIS EFFORTS WITH STAR CONTROLS, AUTOMATED CONTROLS, CURRY CONTROLS, ROCHA CONTROLS, OR CAYZO CONSULTING INC. TO ENSURE SYSTEM COMPATIBILITY.
37. THE CONTRACTOR SHALL SCHEDULE A PUMP STATION PRE-STARTUP DATE AND PUMP STATION STARTUP DATE. THE SCADA PROGRAMMER SHALL PROVIDE TEMPORARY POWER TO THE CONTROL PANEL PLC. PLACE THE NEW PLC ON LINE WITH THE CITY'S VT SCADA SYSTEM, AND PERFORM ANY NEEDED TROUBLESHOOTING OR DEBUGGING. THE CONTRACTOR SHALL PROVIDE REQUIRED ADDRESSING FOR TESTING. AFTER THE SCADA PROGRAMMER DETERMINES THAT THE NEW PLC AND THE VT SCADA ARE PROPERLY COMMUNICATING WITHOUT ISSUE, THE CONTRACTOR SHALL SCHEDULE AN ONSITE PLC WITNESS TEST BETWEEN THE CITY, SCADA PROGRAMMER, AND ANY OTHER REQUIRED PARTIES. DURING THE PLC WITNESS TEST, THE SCADA PROGRAMMER MUST DEMONSTRATE THAT THE NEW PLC IS ONLINE, COMMUNICATING WITH VT SCADA, AND ALL LEVEL AND STATUS INDICATIONS ARE FREE FROM ERROR. ONCE THE SCADA TESTING HAS BEEN WITNESSED AND APPROVED, THE CONTRACTOR SHALL SCHEDULE A PRE-STARTUP AND START UP DATE. THE CITY RESERVES THE RIGHT TO CANCEL THE PRE-STARTUP DATE, IF IT DEEMS THE PRE-STARTUP DATE IS NOT NECESSARY. THE CONTRACTOR SHALL PROVIDE THE REQUIRED MANPOWER AND HARDWARE TO SUPPORT STARTUP AND TESTING OF PUMP STATION.
38. THE CONTROL PANELS SHALL BE FACTORY TESTED. THE PANEL BUILDER SHALL PROVIDE A CERTIFIED TESTING REPORT DETAILING ALL I/O POINTS, CONNECTION AND EQUIPMENT ARE IN WORKING ORDER. A COPY OF THE REPORT SHALL BE PROVIDED TO THE CITY PRIOR TO DELIVERY AND A COPY SHALL BE INCLUDED WITH THE CONTROL PANELS AT THE TIME OF THE DELIVERY. CONTRACTOR WILL ASSIST IN THE DELIVERY.
39. A WET WELL LEVEL DETECTION SYSTEM SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. THE OUTPUT SHALL BE A LINEAR 4-20mA SIGNAL WITH RANGE AND CALIBRATION SUITABLE FOR THIS APPLICATION. THE SYSTEM SHALL BE OF THE ULTRASONIC TYPE-PULSAR, INC. MODEL dB10 W/ ULTRA 4 TRANSMITTER. THE CITY WILL ASSIST THE CONTRACTOR WITH SPECIFYING THE TRANSDUCER MOUNTING LOCATION AND CALIBRATION. THE dB10 TRANSDUCER SHALL BE MOUNTED USING A 2 1/2" x 1/4" S.S. BRACKET, SEE dB10 MOUNTING BRACKET DETAIL.
40. PROVIDE FINGER-SAFE POWER DISTRIBUTION BLOCKS.
41. XHHW-2 CONDUCTORS SHALL EXTEND FROM THE JUNCTION BOX. PROVIDE SEAL-OFF BETWEEN MOTOR CONTROL PANEL TO PUMP MOTOR CONNECTION AND JUNCTION BOX AS INDICATED. THE SHOWN SEAL-OFFS SHALL BE ALUMINUM BODY, CROUSE-HINDS, OR EQUIVALENT.
42. ALUMINUM CONDUIT SURFACES THAT ARE IN CONTACT WITH SOIL OR CONCRETE SHALL BE COATED WITH TWO COATS ASPHALT VARNISH (FED. SPEC. TT-V-51) EXTENDING 4" BEYOND FINAL CONTACT POINT.
43. STAINLESS STEEL HANGERS TO SUPPORT THE EXCESS LENGTH OF MOTOR CABLES SHALL BE INSTALLED IN THE WET WELL. THESE HANGERS SHALL BE LOCATED IN A SEPARATE AREA FROM THE HANGERS SUPPORTING THE PUMP CHAINS.



MICHAEL J. CAHILL, P.E.
FL. P.E. LICENSE NO. 70837

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CKD: WCN
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CITY of TAMPA
WASTEWATER DEPARTMENT

109TH AVENUE PUMP STATION REHABILITATION
GENERAL NOTES AND SYMBOLS

SHEET
E-2

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109TH AVE PS ELECTRICAL SERVICE LOAD SUMMARY

480 VAC, 3Ø, 4W

LOAD	CONNECTED	DEMAND	APPROX. PHASE CURRENTS		
			L1	L2	L3
PUMP #1	24.94 KVA	24.94 KVA	30.0 A	30.0 A	30.0 A
PUMP #2	24.94 KVA	24.94 KVA	30.0 A	30.0 A	30.0 A
PUMP #3	24.94 KVA	24.94 KVA	30.0 A	30.0 A	30.0 A
MINI POWER ZONE LP	7.5 KVA	4.6 KVA	15.63 A	0 A	15.63 A
TOTAL	82.32 KVA	79.42 KVA	105.63 A	90 A	105.63 A

SERVICE ENTRANCE MINIMUM: 105.63 + (.25)(30) = 113.13 AMPS

109TH AVE PS PUMP MOTOR DATA

MAKE: FLYGT

MODEL: NP 3171 MT 3~436

HP: 25 HP

460V, 3-PHASE, 30 FLA

TOTAL PUMP LOAD: 90 AMPS, 74.8 KVA

109TH AVE PS SHORT CIRCUIT CALCULATIONS

UTILITY SERVICE: 480/277 VOLT, 3 PHASE
SERVICE ADDRESS: 109TH ST AND MARJORY
METER NUMBER: 1000811589 (NEW METER REQUIRED)
TECO CONTACT: JODI MAXWELL (813) 228-4808

POINT-TO-POINT SHORT CIRCUIT CALCULATION METHOD
AVAILABLE SHORT CIRCUIT CURRENT AT UTILITY SERVICE: 6,766 AMPS
SERVICE CONDUCTOR LENGTH: 100 FEET, PVC RACEWAY
SERVICE CONDUCTORS: #3/0, XHHW-2 COPPER
PHASE CONDUCTOR CONSTANT: 13,923

SHORT CIRCUIT CURRENT AVAILABLE AT THE LINE SIDE OF THE
AUTOMATIC TRANSFER SWITCH: 5,757 AMPS

$$1 + \left[\frac{1}{\frac{(1.732)(100)(6,766)}{(13,923)(480)}} \right] * 6,766 = 5,757$$

SCOPE OF WORK:

1. EXISTING AND NEW SERVICE VOLTAGE FOR THE FACILITY:
-109TH AVE PS EXISTING SERVICE: 240V, 3-PHASE, HIGH LEG
-109TH AVE PS NEW SERVICE: 480/277V, 3-PHASE, 4-WIRE
2. REMOVE ALL EXISTING ELECTRICAL EQUIPMENT AND APPURTENANCES INCLUDING BUT NOT LIMITED TO BOXES, GROUNDING, METER SOCKET, LIGHTNING ARRESTOR, CONTROL PANELS, CONCRETE PEDESTAL, EQUIPMENT RACKS, AND ALL ASSOCIATED CONDUIT AND CONDUCTORS. COORDINATE WITH THE LOCAL UTILITY (TECO) THE REMOVAL OF EXISTING ELECTRICAL HARDWARE AT THE NEAREST UTILITY POLE TO THE SITE. REQUEST NEW POLE MOUNTED DISTRIBUTION EQUIPMENT INCLUDING NEW FEEDERS TO PROPOSED TECO HAND HOLE AT BASE OF POLE.
3. CONTRACTOR TO CAREFULLY REMOVE THE EXISTING DCR SCADA RTU CABINET MOUNTED ON THE EXISTING SCADA ANTENNA. DELIVER THIS RTU PACKAGE TO THE CITY FOR MAINTENANCE INVENTORY.
4. ANY SALVAGEABLE MATERIALS, AS DETERMINED BY THE CITY, SHALL BE DELIVERED, BY THE CONTRACTOR, TO THE HOWARD F. CURREN AWTP. THE CONTRACTOR SHALL PROPERLY DISPOSE OF ALL OTHER REMOVED EQUIPMENT.
5. CONTRACTOR SHALL PROVIDE AND INSTALL A NEW ELECTRICAL METER SOCKET, LIGHTNING ARRESTOR AND GROUNDING, AS SHOWN ON PLANS.
6. CONTRACTOR TO PREPARE THE SITE FOR THE INSTALLATION OF THE PROPOSED CONTROL EQUIPMENT.
7. CONTRACTOR SHALL PROVIDE AND INSTALL TRIPLEX PUMP CONTROL PANEL. THE PUMP CONTROL PANEL WILL CONTAIN CONTROL COMPONENTS, INDICATOR LIGHTS, AND SCADA RTU AS SHOWN ON THE PLANS AND DETAILED IN THE SPECIFICATIONS
8. CONTRACTOR SHALL PROVIDE AND INSTALL NEMA 4X 316 SS WET WELL ISOLATION JUNCTION BOX FOR PUMP MOTOR CONNECTIONS.
9. CONTRACTOR SHALL PROVIDE AND INSTALL TRIPLEX MOTOR CONTROL PANEL. THE MOTOR CONTROL PANEL SHALL CONTAIN CIRCUIT BREAKERS AND MOTOR STARTERS, AS SHOWN ON PLANS AND DETAILED IN SPECIFICATIONS.
10. CONTRACTOR SHALL PROVIDE AND INSTALL A NEMA 4X 316 SS WET WELL ISOLATION BOX FOR INSTRUMENTATION AND CONTROL CONNECTIONS.
11. CONTRACTOR SHALL PROVIDE AND INSTALL A NEMA 4X, SERVICE ENTRANCE RATED, AUTOMATIC TRANSFER SWITCH AND STANDBY GENERATOR, AS SHOWN ON PLANS.
12. CONTRACTOR SHALL PROVIDE AND INSTALL NEW SCADA ANTENNA MAST AS SHOWN ON THE PLANS.
13. CONTRACTOR SHALL PROVIDE AND INSTALL RADIO ANTENNA AND WET WELL LEVEL SENSING DEVICES.
14. CONTRACTOR SHALL PROVIDE AND INSTALL AREA LIGHT, AS SHOWN ON PLANS.
15. CONTRACTOR SHALL ASSIST PUMP AND CONTROL SYSTEM SUPPLIER IN THE CALIBRATION, START UP, AND ADJUSTMENT OF EQUIPMENT. CALIBRATION AND SETPOINTS SHALL BE PROVIDED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
16. CONTRACTOR SHALL PROVIDE AND INSTALL PROPER GROUNDING AS SHOWN, SPECIFIED, AND REQUIRED.
17. CONTRACTOR SHALL PROVIDE AND INSTALL ALL NECESSARY CONDUITS AND CONDUCTORS, AS SHOWN, SPECIFIED AND REQUIRED.
18. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE 2020 FLORIDA BUILDING CODE AND 2017 EDITION OF THE NATIONAL ELECTRIC CODE AND CHAPTER 5 OF THE CITY OF TAMPA CODE.
19. REFER TO CIVIL/MECHANICAL SHEETS FOR BYPASS PUMPING REQUIREMENTS. IF ELECTRICALLY DRIVEN BYPASS PUMPS ARE UTILIZED, THE CONTRACTOR SHALL COORDINATE ALL TEMPORARY ELECTRICAL SERVICE REQUIREMENTS WITH TAMPA ELECTRIC COMPANY (TECO). ANY COSTS ASSOCIATED WITH TEMPORARY ELECTRIC POWER ARE TO BE INCLUDED IN THE LUMP SUM PRICE.
20. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING TEMPORARY POWER TO THE SITE. CONTRACTOR SHALL ALSO PROVIDE TEMPORARY POWER TO THE ODOR CONTROL SYSTEM DURING CONSTRUCTION.



3001 N. ROCKY POINT DRIVE, STE. #200
TAMPA, FLORIDA 33607
PHONE: (813) 367-3536
FAX: (813) 819-5557
C.O.A. No. 8879
MICHAEL J. CAHILL, P.E.
Florida P.E. No. 70837



7650 West Courtney Campbell Causeway
Waterford Plaza, Suite 700
Tampa, Florida 33607 813.286.1711 tel
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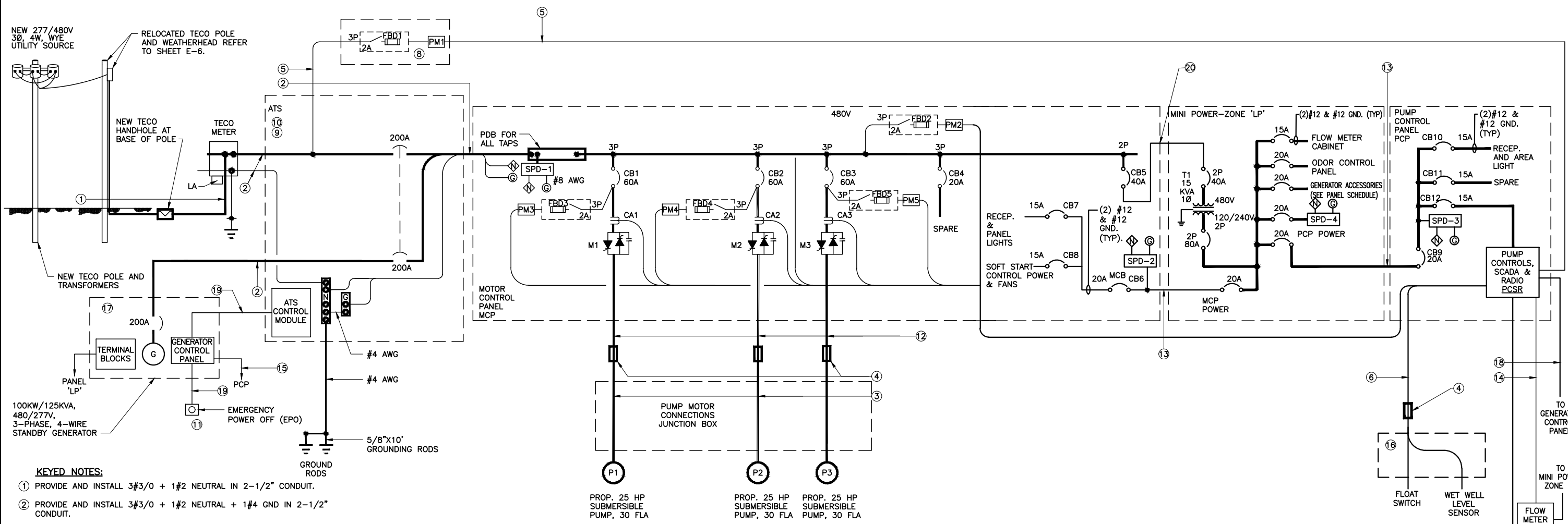
CITY of TAMPA
WASTEWATER DEPARTMENT

109TH AVENUE PUMP STATION REHABILITATION
SCOPE OF WORK
LOAD SUMMARY, DATA & CALCULATIONS

SHEET
E-3

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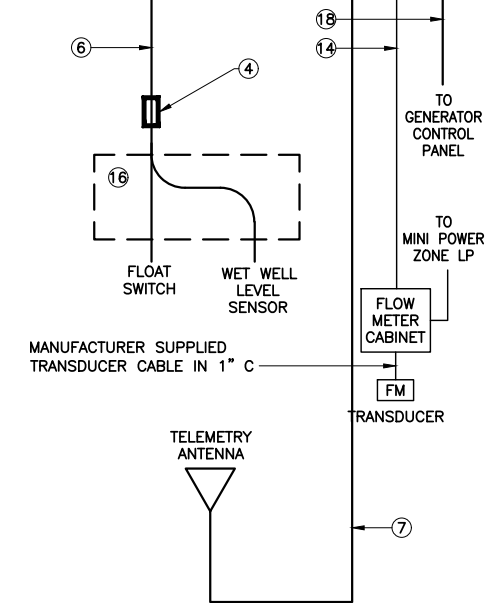
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SINGLE LINE DIAGRAM
SCALE: N.T.S.

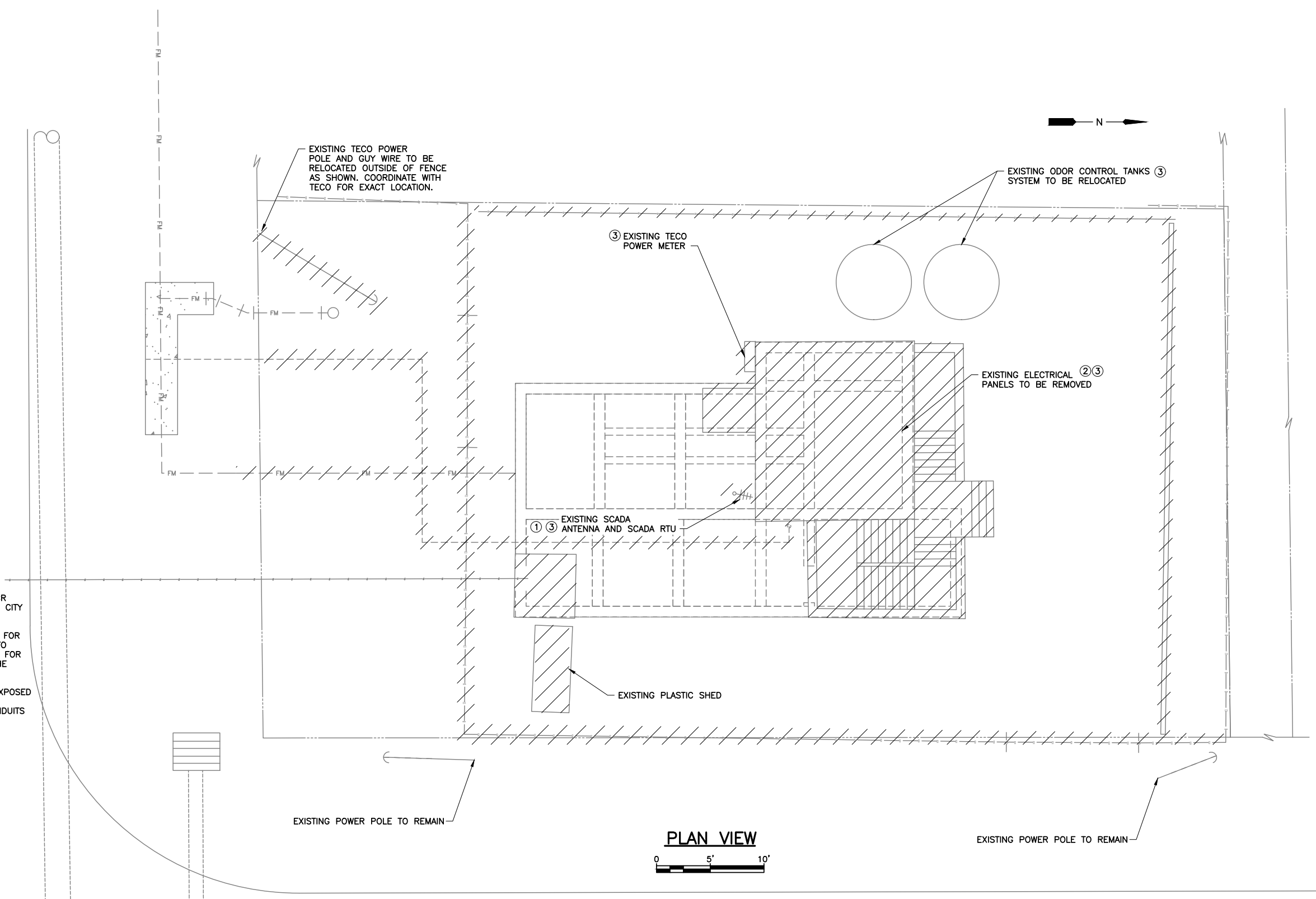
- KEYED NOTES:**
- PROVIDE AND INSTALL 3#3/0 + 1#2 NEUTRAL IN 2-1/2" CONDUIT.
 - PROVIDE AND INSTALL 3#3/0 + 1#2 NEUTRAL + 1#4 GND IN 2-1/2" CONDUIT.
 - PROPOSED SUBMERSIBLE PUMP POWER CABLE IN PROPOSED 2" CONDUIT.
 - PROVIDE CONDUIT SEAL OFF FITTING.
 - PROVIDE AND INSTALL 3#12 + 1#12 GND. IN 3/4" CONDUIT.
 - PROVIDE 1" CONDUIT FROM NEW PUMP CONTROL CABINET TO I&C JUNCTION BOX FOR FLOAT SWITCH AND LEVEL SENSOR CABLES.
 - PROVIDE 1" CONDUIT FROM NEW PUMP CONTROL CABINET TO ANTENNA MAST FOR NEW COAX CABLE.
 - PM1 JUNCTION BOX. REFER TO DETAIL ON SHEET E-23.
 - SERVICE ENTRANCE RATED, CIRCUIT BREAKER BASED AUTOMATIC TRANSFER SWITCH.
 - AVAILABLE FAULT CURRENT AT THE SECONDARY LUGS FOR THE POLE-MOUNTED TRANSFORMER BANK IS SHOWN ON THE SCOPE OF WORK. THE INTERRUPTING RATING, IR, OF THE AUTOMATIC TRANSFER SWITCH IS 65KA RMS.
 - PROVIDE PLACARD: GENERATOR EMERGENCY POWER OFF.
 - PROVIDE AND INSTALL 3#6 + 1#8 GND + 2#12 (LEAK/TEMP) IN 1-1/2" CONDUIT.
 - PROVIDE AND INSTALL 2#12 + 1#12 GND IN 3/4" CONDUIT.
 - PROVIDE AND INSTALL 4-20mA SIGNAL CABLE (BELDEN 8719) IN 3/4" CONDUIT.
 - PROVIDE AND INSTALL 10#14 + 1#14 GND IN 1" CONDUIT.
 - PUMP CONTROL PANEL JUNCTION BOX (PCP-JB).
 - 480 VOLT, 100KW STANDBY GENERATOR IN LEVEL 2 SOUND ATTENUATED ENCLOSURE WITH 72 HOUR SUB-BASE FUEL TANK.
 - PROVIDE AND INSTALL 2#10 (BATTERY CHARGER), 2#10 (BLOCK HEATER), 2#10 (ALTERNATOR HEATER), 2#12 (GENERATOR LIGHTS) 1#12 GND IN 1-1/2" CONDUIT.
 - PROVIDE AND INSTALL 2#14, 1#14 GND IN 3/4" CONDUIT.
 - PROVIDE AND INSTALL 2#8, 1#10 GND IN 1" CONDUIT.

PROPOSED PANEL SCHEDULE													
PANEL 'LP'	SQUARE D CO.				80A, 120/240 VOLTS, 1Ø, 3W				SURFACE ENCLOSURE				
	MINI POWER-ZONE				PROVIDE EQUIPMENT GROUND BAR				TOP AT 5'-6" AFF				
EQUIPMENT SERVED	CIRCUIT BREAKER			KVA/PHASE		CIRC. NO.	CIRC. NO.	KVA/PHASE		CIRCUIT BREAKER		EQUIPMENT SERVED	
	POLE	AMPS	FRAME	A	B			A	B	POLE	AMPS		FRAME
MOTOR CONTROL PANEL	1	20	QOB	0.6		1	2	0.1		1	15	QOB	FLOW METER
PUMP CONTROL PANEL	1	20	QOB		0.9	3	4		1.8	1	20	QOB	ODOR CONTROL SYSTEM
GENERATOR BATTERY CHARGER 18	1	20	QOB	1.2		5	6	0.5		1	20	QOB	GENERATOR LIGHTS 18
GENERATOR ALT HEATER 18	1	20	QOB		1.0	7	8						SPACE
GENERATOR BLOCK HEATER 18	2	20	QOB	1.44		9	10						SPACE
					1.44	11	12						SPACE
SPACE						13	14						SPACE
SPACE						15	16						SPACE
SPACE						17	18						SPACE
SPACE						19	20						SPACE
SPACE						21	22			2	30	QOB	SURGE PROTECTIVE DEVICE
SPACE						23	24						SPACE
SUB-TOTAL KVA				3.24	3.34			0.6	1.8				
TOTAL CONNECTED LOAD = 8.98 KVA								TOTAL DEMAND LOAD = 8.98 KVA					



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- KEYED NOTES:**
- ① THE EXISTING SCADA ANTENNA AND DCR SCADA RTU CABINET SHALL REVERT TO CITY OF TAMPA FOR MAINTENANCE.
 - ② COORDINATE ALL EQUIPMENT INTENDED FOR SALVAGE WITH CITY OF TAMPA PRIOR TO DEMOLITION. ANY ITEMS NOT REQUIRED FOR SALVAGE SHALL BE DEMOLISHED BY THE CONTRACTOR.
 - ③ REMOVE ALL ELECTRICAL EQUIPMENT EXPOSED CONDUIT, CABLES, BOXES, AND APPURTENANCES. CUT CONCEALED CONDUITS 6" BELOW GRADE AND CAP.



MICHAEL J. CAHILL, P.E.
 FL. P.E. LICENSE NO. 70837

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CITY of TAMPA
WASTEWATER DEPARTMENT

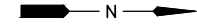
109TH AVENUE PUMP STATION REHABILITATION
ELECTRICAL DEMOLITION PLAN

SHEET
E-5



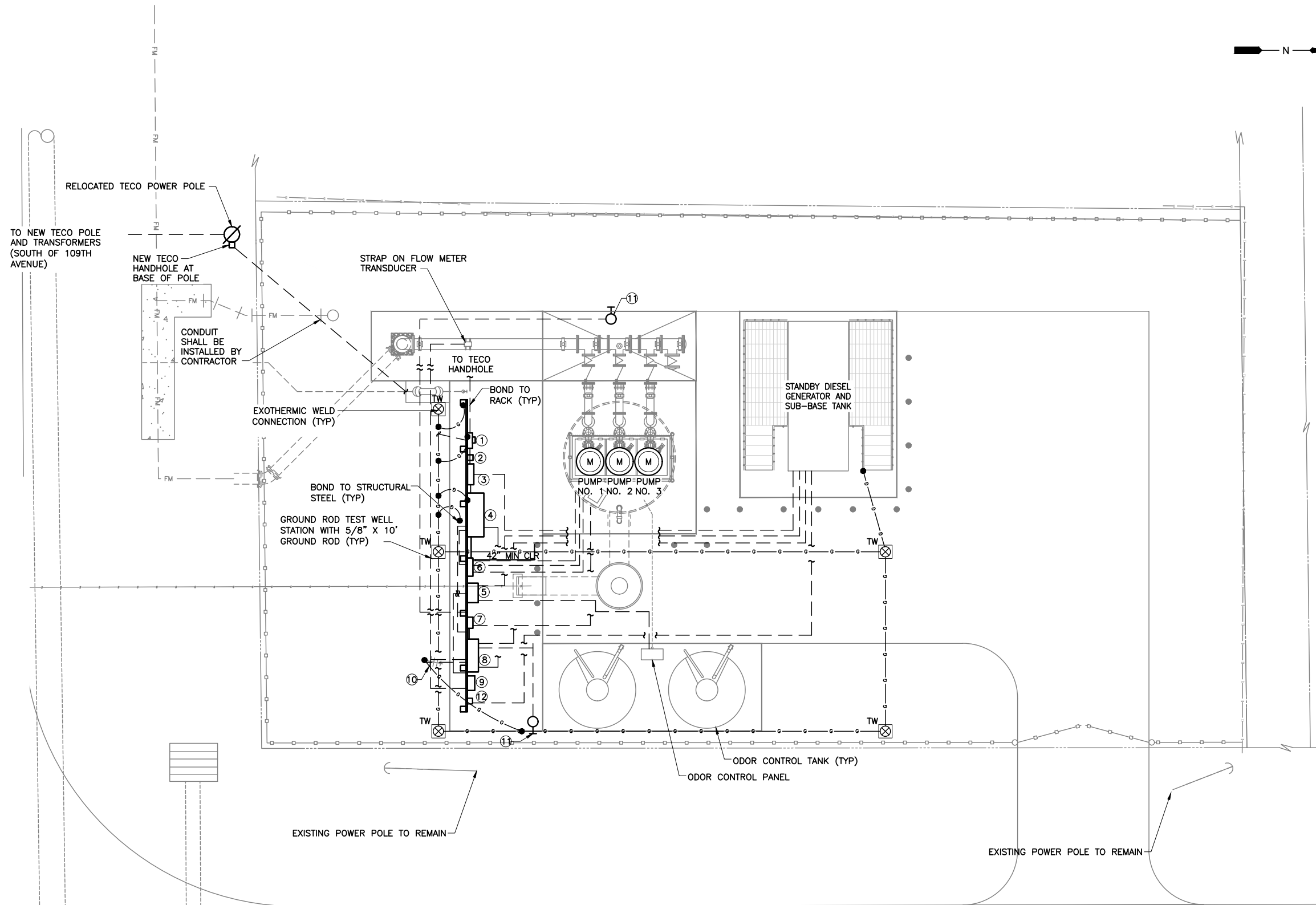
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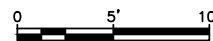


KEYED NOTES:

- ① TECO METER
- ② POWER MONITOR RELAY (PM1)
- ③ AUTOMATIC TRANSFER SWITCH
- ④ MOTOR CONTROL PANEL (MCP)
- ⑤ MINI POWER ZONE LP
- ⑥ MOTOR CONTROL PANEL JUNCTION BOX (MCP-JB)
- ⑦ PUMP CONTROL PANEL JUNCTION BOX (PCP-JB)
- ⑧ PUMP CONTROL PANEL (PCP)
- ⑨ FLOW METER CONTROLLER
- ⑩ TELEMETRY TOWER
- ⑪ AREA LIGHT
- ⑫ EMERGENCY POWER OFF



PLAN VIEW



7650 West Courtney Campbell Causeway
Waterford Plaza, Suite 700
Tampa, Florida 33607 813.286.1711 tel
Certificate of Authorization No. 8115

MICHAEL J. CAHILL, P.E.
FL. P.E. LICENSE NO. 70837

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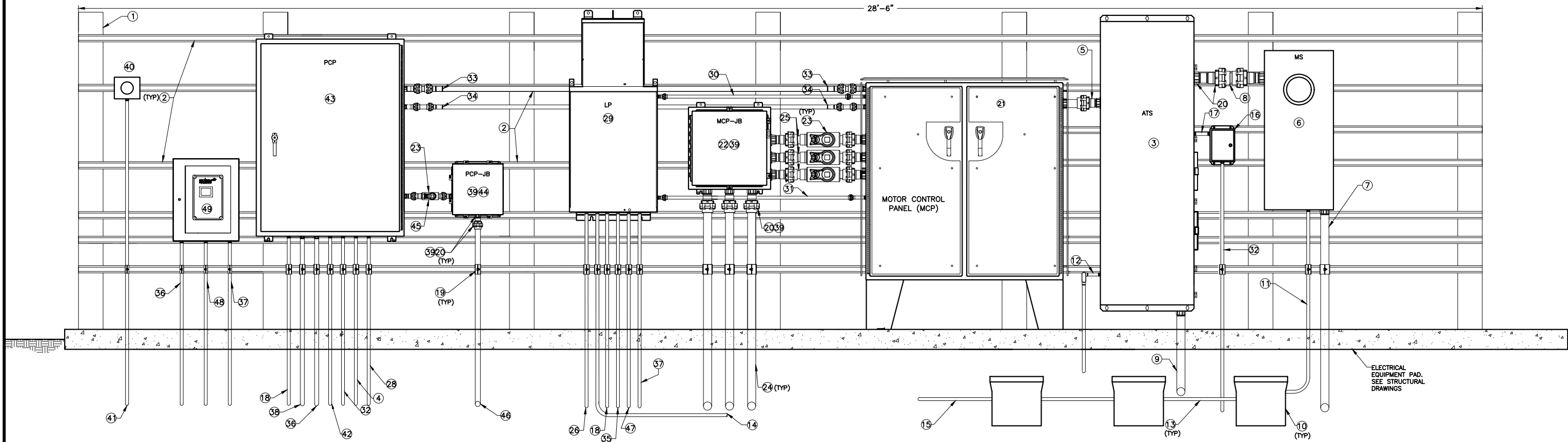
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109TH AVENUE PUMP STATION REHABILITATION
PROPOSED ELECTRICAL SITE PLAN

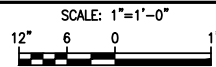
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E-6



Electrical Design Associates
3001 N. ROCKY POINT DRIVE, STE. #200
TAMPA, FLORIDA 33607
PHONE: (813) 367-3536
FAX: (813) 819-5557
C.O.A. No. 8879
MICHAEL J. CAHILL, P.E.
Florida P.E. No. 70837



EQUIPMENT RACK ELEVATION



- ① PROVIDE AND INSTALL POSTS PER STRUCTURAL.
- ② PROVIDE AND INSTALL 1-5/8" x 1-5/8" 316 STAINLESS STEEL UNISTRUT WITH 316 STAINLESS STEEL HARDWARE. NOTE: INSTALL ALL BOLTS FOR UNISTRUT COMPLETELY THROUGH CONCRETE POSTS.
- ③ EATON AUTOMATIC TRANSFER SWITCH. REFER TO PARTS SCHEDULE ON SHEET E-18.
- ④ PROVIDE AND INSTALL 10#14 XHHW-2 CU + 1#12 XHHW-2 CU BETWEEN GENERATOR CONTROL PANEL AND PUMP CONTROL PANEL.
- ⑤ PROVIDE AND INSTALL 3#3/0 XHHW-2 CU + 1#2 XHHW-2 CU NEUTRAL + 1#4 XHHW-2 CU GND IN 2-1/2" C. FROM AUTOMATIC TRANSFER SWITCH TO MOTOR CONTROL PANEL FOR MOTOR CONTROL PANEL 480V FEEDER.
- ⑥ PROVIDE AND INSTALL TECO METER SOCKET IN ALUMINUM ENCLOSURE. ELEVATION TO THE CENTER OF THE METER SHALL NOT EXCEED 5'-0" PER TECO STANDARDS. PROVIDE SURGE PROTECTION DEVICE PER TECO STANDARDS.
- ⑦ PROVIDE AND INSTALL 3#3/0 XHHW-2 CU + 1#2 XHHW-2 CU NEUTRAL IN 2-1/2" C. FROM TECO POLE MOUNTED TRANSFORMERS TO METER.
- ⑧ PROVIDE AND INSTALL 3#3/0 XHHW-2 CU + 1#2 XHHW-2 CU NEUTRAL, IN 2-1/2" C. FROM METER TO AUTOMATIC TRANSFER SWITCH.
- ⑨ PROVIDE AND INSTALL 3#3/0 XHHW-2 CU + 1#2 XHHW-2 CU NEUTRAL + 1#4 XHHW-2 CU GND IN 2-1/2" C. FROM AUTOMATIC TRANSFER SWITCH TO GENERATOR.
- ⑩ PROVIDE AND INSTALL GROUND ROD TEST WELL, OLDCASTLE PRECAST ENCLOSURE SOLUTIONS #F08 BOX WITH #F08C CAST IRON LID MARKED "GROUND". MINIMUM SPACING BETWEEN GROUND ROD TEST WELLS/GROUND RODS SHALL BE 6'-0". PROVIDE AND INSTALL APPROVED GROUNDING ROD AND ATTACH BARE COPPER GROUND CONDUCTOR (AWG #4 MINIMUM) UTILIZING APPROVED GROUND CLAMPS. REFER TO SHEET E-20 FOR GROUND TEST WELL DETAIL.
- ⑪ PROVIDE AND INSTALL #4 TINNED COPPER GROUNDING ELECTRODE CONDUCTOR IN 1" SCHEDULE 80 PVC CONDUIT FROM METER TO GROUND ROD TEST WELL. CONFIRM CONDUCTOR SIZE WITH TECO.
- ⑫ PROVIDE AND INSTALL #4 TINNED COPPER GROUNDING ELECTRODE CONDUCTOR IN 1" SCHEDULE 80 PVC CONDUIT FROM AUTOMATIC TRANSFER SWITCH TO GROUND ROD TEST WELL.
- ⑬ PROVIDE AND INSTALL #2 TINNED COPPER GROUNDING ELECTRODE CONDUCTOR IN BETWEEN GROUND ROD TEST WELLS.
- ⑭ PROVIDE AND INSTALL #10 TINNED COPPER GROUNDING ELECTRODE CONDUCTOR IN 3/4" SCHEDULE 80 PVC CONDUIT FROM MINI POWER-ZONE 'LP' TO GROUND ROD TEST WELL.
- ⑮ PROVIDE AND INSTALL #4 TINNED COPPER GROUNDING ELECTRODE CONDUCTOR IN 3/4" SCHEDULE 80 PVC CONDUIT FROM ANTENNA POLE TO GROUND ROD TEST WELL. REFER ALSO TO ANTENNA POLE DETAIL ON SHEET E-22 AND LOCATION ON SHEET E-6.
- ⑯ PROVIDE AND INSTALL A 3Ø, POWER MONITOR RELAY 'PM1' JUNCTION BOX WITH 480 VAC LINE INPUT - ALARM ON PHASE LOSS, UNDERVOLTAGE, OR WRONG ROTATION. PANEL MOUNT, ATC DIVERSIFIED MODEL SUA-440-ASA, FUSE BOX DISCONNECT (FBD1) - ALLEN BRADLEY 1492-FB3630-L WITH BUSSMAN KTK-R-2 FUSES IN NEMA 4X STAINLESS STEEL 8" X 6" X 6" ENCLOSURE WITH CONTINUOUS HINGE - HAMMOND MANUFACTURING EJ863S16. REFER TO DETAIL ON SHEET E-23.
- ⑰ PROVIDE AND INSTALL 3#12 XHHW-2 CU + 1#12 XHHW-2 CU GND. IN 3/4" C.
- ⑱ PROVIDE AND INSTALL 2#12 XHHW-2 CU + 1#12 XHHW-2 CU GND. IN 3/4" C. FROM 120V FROM MINI POWER ZONE TO PUMP CONTROL PANEL.
- ⑲ PROVIDE AND INSTALL ALUMINUM CONDUIT STRAPS (TYPICAL).
- ⑳ PROVIDE AND INSTALL WATER-TIGHT / DUST-TIGHT MYERS HUB AND UNION (TYP.).
- ㉑ PROVIDE AND INSTALL MOTOR CONTROL PANEL. REFER TO DETAIL ON SHEETS E-8 AND E-9.
- ㉒ ISOLATION MOTOR CONNECTIONS J.B.-USED AS A DEMARCATION BOX TO PROVIDE ISOLATION BETWEEN THE WET WELL AND PUMP CONTROLS. PROVIDE AND INSTALL A 20"X20"X6" NEMA 4X, STAINLESS STEEL JUNCTION BOX WITH HINGED DOOR, HAMMOND #1418N4SSD6. INSTALL A STAINLESS STEEL LOUVER PLATE KIT (4.75"X 4.5") ON SIDE OF BOX TO PROVIDE NATURAL ASPIRATION, WIEGMANN #WAVK0304SSA. TERMINATIONS SHALL BE MADE USING POWER DISTRIBUTION BLOCKS. SEE SHEET E-20 FOR J.B. DETAILS.
- ㉓ PROVIDE AND INSTALL CROUSE-HINDS EYS TYPE SEALS W/CHICO COMPOUNDS
- ㉔ PROVIDE AND INSTALL NEW 2" CONDUITS WITH NEW MANUFACTURER SUPPLIED SUBMERSIBLE PUMP POWER CABLES TO WET WELL. INSTALL PVC COATED RIGID ALUMINUM CONDUIT TO THE WET WELL.
- ㉕ PROVIDE AND INSTALL (3) #6 XHHW-2 CU + (1) #8 XHHW-2 CU GND + (2) #12 XHHW-2 CU (LEAK/TEMP) IN 1.5" CONDUIT FOR SUBMERSIBLE PUMP POWER.
- ㉖ PROVIDE AND INSTALL 2#10 (BATTERY CHARGER), 2#10 (BLOCK HEATER), 2#10 (ALTERNATOR HEATER), 2#12 (GENERATOR LIGHTS), 1#12 GND IN 1-1/2" CONDUIT TO STANDBY DIESEL GENERATOR.
- ㉗ NOT USED.
- ㉘ PROVIDE AND INSTALL 2#14 XHHW-2 CU + 1#14 XHHW-2 CU GND IN 3/4" CONDUIT TO GENERATOR CONTROL PANEL.
- ㉙ PROVIDE AND INSTALL MINI POWER-ZONE 'LP' IN NEMA 3R STAINLESS STEEL ENCLOSURE. REFER TO PARTS SCHEDULE ON SHEET E-19.
- ㉚ PROVIDE AND INSTALL (2) #8 XHHW-2 CU + (1) #10 XHHW-2 CU GND IN 1" C. FOR MINI POWER-ZONE 480V FEEDER FROM MOTOR CONTROL PANEL.
- ㉛ PROVIDE AND INSTALL (2) #12 XHHW-2 CU + (1) #12 XHHW-2 CU GND IN 3/4" C. FOR MOTOR CONTROL PANEL (MCP) 120V CONTROL CIRCUIT.
- ㉜ PROVIDE AND INSTALL (2) #12 XHHW-2 CU + (1) #12 XHHW-2 CU GND. IN 3/4" C. TO PHASE MONITOR JUNCTION BOX.
- ㉝ PROVIDE AND INSTALL (38) #12 XHHW-2 CU + (1) #12 XHHW-2 CU GND. IN 1-1/2" C. FOR 120VAC CONTROL SIGNALS (COUNT INCLUDES SPARES). REFER TO MCP TO PCP INTERCONNECTIONS WIRING DIAGRAM ON SHEET E-16.
- ㉞ PROVIDE AND INSTALL (24) #14 XHHW-2 CU + (1) #14 XHHW-2 CU GND. IN 1" C. FOR 24V DC CONTROL SIGNALS (COUNT INCLUDES SPARES). REFER TO MCP TO PCP INTERCONNECTION WIRING DIAGRAM ON SHEET E-16.
- ㉟ PROVIDE AND INSTALL 2#10 (BATTERY CHARGER), 2#10 (BLOCK HEATER), 2#10 (ALTERNATOR HEATER), 2#12 (GENERATOR LIGHTS), 1#12 GND IN 1-1/2" CONDUIT.
- ㊱ PROVIDE AND INSTALL NEW FLOW METER TRANSMITTER 4-20MA SIGNAL CABLE (BELDEN 8719) IN 3/4" CONDUIT BETWEEN NEW FLOW TRANSMITTER CABINET AND PUMP CONTROL PANEL. REFER TO SHEET E-25 FOR CONTINUATION.
- ㊲ PROVIDE AND INSTALL (2) #12 XHHW-2 CU + (1) #12 XHHW-2 CU GND. IN 3/4" CONDUIT FROM MINI POWER-ZONE 'LP' TO FLOW METER TRANSMITTER CABINET FOR 120V POWER CIRCUIT.
- ㊳ PROVIDE AND INSTALL 1" CONDUIT FOR ANTENNA COAXIAL CABLE REFER TO SHEET E-6 FOR CONTINUATION.
- ㊴ PROVIDE DUCT SEALING COMPOUND IN ALL CONDUITS EXTENDING TO THE WET WELL.
- ㊵ STANDBY GENERATOR EMERGENCY STOP/EMERGENCY POWER OFF.
- ㊶ PROVIDE AND INSTALL 2#14 XHHW-2 CU + 1#14 XHHW-2 CU GND IN 3/4" CONDUIT TO GENERATOR CONTROL PANEL.
- ㊷ PROVIDE AND INSTALL (2) #12 XHHW-2 CU + (1) #12 XHHW-2 CU GND. IN 3/4" CONDUIT FROM PUMP CONTROL PANEL TO AREA LIGHTS FOR 120V POWER CIRCUITS.
- ㊸ PROVIDE AND INSTALL PUMP CONTROL PANEL. REFER TO DETAIL ON SHEET E-12. REFER TO PARTS SCHEDULE ON SHEET E-19.
- ㊹ INSTRUMENTATION AND CONTROLS J.B.-USED AS DEMARCATION BOX TO PROVIDE ISOLATION BETWEEN THE WET WELL AND PUMP CONTROLS. PROVIDE AND INSTALL A 12"X12"X6" NEMA 4X, STAINLESS STEEL JUNCTION BOX WITH HINGED DOOR, WIEGMANN #BN4121208CHSS. INSTALL A STAINLESS STEEL LOUVER PLATE KIT (4.75"X4.5") ON SIDE OF BOX TO PROVIDE NATURAL ASPIRATION, WIEGMANN #WAVK0304SSA. TERMINATIONS SHALL BE MADE WITH PHOENIX CONTACT UK-5N TERMINAL BLOCKS, SEE SHEET E-20 FOR JB DETAILS.
- ㊺ PROVIDE AND INSTALL (3)-#14 XHHW-2 CU + (1)-#14 XHHW-2 CU GND + (1)-3/C-#16 TWISTED SHIELDED CABLE IN 1" CONDUIT FOR FLOAT AND WET WELL LEVEL TRANSMITTER.
- ㊻ MANUFACTURER SUPPLIED CABLES FOR FLOAT SWITCH AND WET WELL LEVEL TRANSMITTER INSTALL IN 2" CONDUIT TO WET WELL FROM JUNCTION BOX. INSTALL PVC COATED RIGID ALUMINUM CONDUIT TO THE WET WELL.
- ㊼ PROVIDE AND INSTALL 2#12 XHHW-2 CU + 1#12 XHHW-2 CU GND. IN 3/4" CONDUIT FOR 120V ODOR CONTROL CIRCUIT.
- ㊽ PROVIDE AND INSTALL 1" CONDUIT WITH TRANSDUCER SIGNAL CABLE PROVIDE BY FLOW METER MANUFACTURER.
- ㊾ FLOW TRANSMITTER AND ENCLOSURE. REFER TO SHEETS E-24 AND E-25.

ELECTRICAL EQUIPMENT PAD. SEE STRUCTURAL DRAWINGS

AECOM
7650 West Courtney Campbell Causeway
Waterford Plaza, Suite 700
Tampa, Florida 33607 813.286.1711 tel
Certificate of Authorization No. 8115

MICHAEL J. CAHILL, P.E.
FL. P.E. LICENSE NO. 70837

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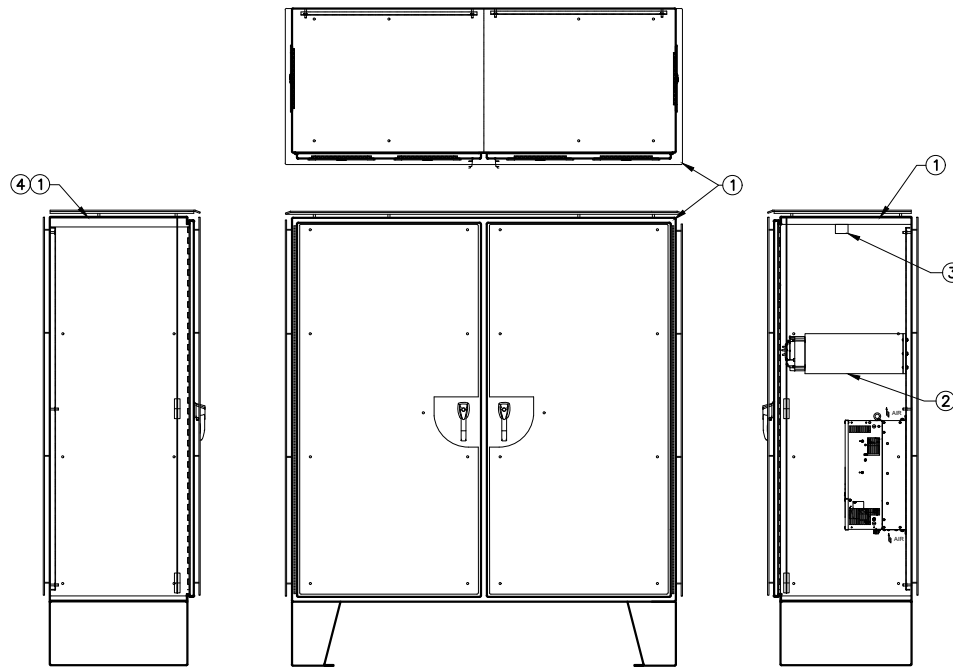
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109TH AVENUE PUMP STATION REHABILITATION
PUMP STATION RACK ELEVATION

SHEET
E-7

EDA
Electrical Design Associates
3001 N. ROCKY POINT DRIVE, STE. #200
TAMPA, FLORIDA 33607
PHONE: (813) 367-3536
FAX: (813) 819-5557
C.O.A. No. 6879
MICHAEL J. CAHILL, P.E.
Florida P.E. No. 70837

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MOTOR CONTROL PANEL EXTERIOR ELEVATIONS

SCALE: NTS

KEYED NOTES:

- ① MOTOR CONTROL PANEL ENCLOSURE "MCP". 48" X 48" X 12", TWO-DOOR, NEMA 4X, 304 STAINLESS STEEL, 3-PT LATCHES, POWDER COAT WHITE. FINAL DIMENSIONS TO BE COORDINATED WITH SOFT STARTERS LAYOUT.
- ② PROVIDE AND INSTALL STAND-OFF BRACKETS AS REQUIRED TO EXTEND CIRCUIT BREAKERS TO INNER DOOR.
- ③ PROVIDE LED FIXTURE INSIDE ENCLOSURE INNER DOOR WITH OPEN DOORS SWITCH CONTROL.
- ④ THE MCP ENCLOSURE SHALL BE SIZED TO COMPLY WITH UL-508A REQUIREMENTS. BEST PRACTICES SHALL BE USED TO AVOID EXCESSIVE OVERSIZING.

GENERAL NOTE:

- ① THE MCP ENCLOSURE SHALL BE SIZED TO COMPLY WITH UL-508A REQUIREMENTS. BEST PRACTICES SHALL BE USED TO AVOID EXCESSIVE OVERSIZING.



3001 N. ROCKY POINT DRIVE, STE. #200
TAMPA, FLORIDA 33607
PHONE: (813) 367-3536
FAX: (813) 819-5557
C.O.A. No. 8879
MICHAEL J. CAHILL, P.E.
Florida P.E. No. 70837



7650 West Courtney Campbell Causeway
Waterford Plaza, Suite 700
Tampa, Florida 33607 813.286.1711 tel
Certificate of Authorization No. 8115

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FL. P.E. LICENSE NO. 70837

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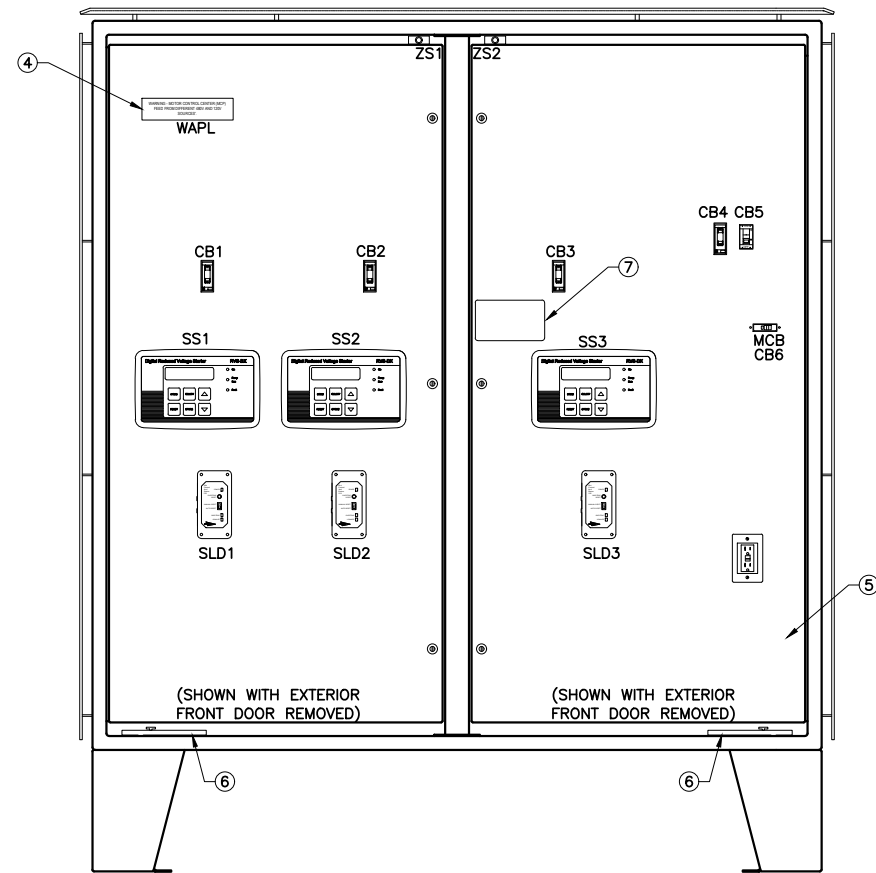
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109TH AVENUE PUMP STATION REHABILITATION
MOTOR CONTROL PANEL
EXTERIOR ELEVATION

SHEET
E-8

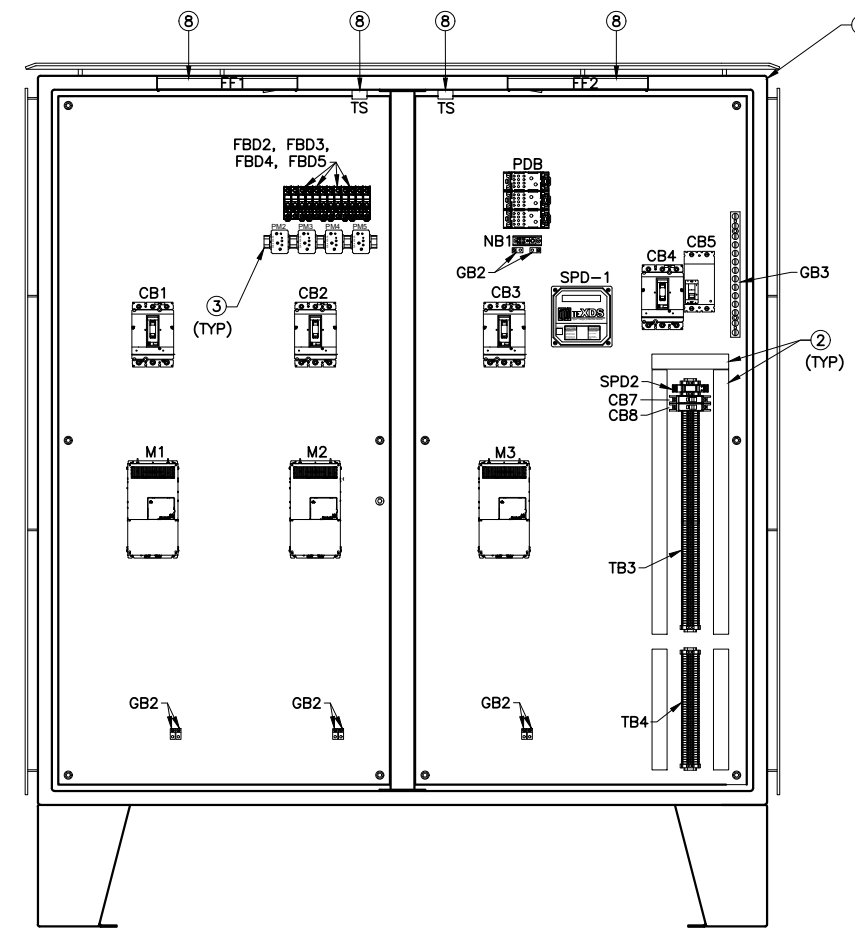
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MOTOR CONTROL PANEL INTERIOR DOOR ELEVATION

SCALE: NTS



MOTOR CONTROL PANEL INTERIOR DOOR ELEVATION

SCALE: NTS

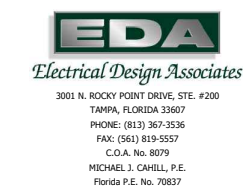
KEYED NOTES:

- ① MOTOR CONTROL PANEL 'MCP'. 48" X 48" X 12" NEMA 4X SS, POWDER COAT WHITE.
- ② PROVIDE AND INSTALL PANDUIT WIRING DUCT. SIZE AS REQUIRED.
- ③ PROVIDE AND INSTALL ALUMINUM DIN RAIL WHERE REQUIRED.
- ④ PROVIDE AND INSTALL WARNING LABEL. LABEL TO READ: 'WARNING - MOTOR CONTROL CENTER FEED FROM DIFFERENT 480V AND 120V SOURCES'.
- ⑤ PROVIDE AND INSTALL ALUMINUM DEADFRONT DOOR.
- ⑥ PROVIDE AND INSTALL DOOR STOP KIT.
- ⑦ PROVIDE ARC FLASH LABEL AS PER NEC 110.16
- ⑧ PROVIDE LED FIXTURE INSIDE ENCLOSURE INNER DOOR WITH OPEN DOORS SWITCH CONTROL.

GENERAL NOTES:

1. ALL HINGED SURFACES SHALL BE GROUNDED WITH A #12 COPPER BOND CONDUCTOR (WITH GREEN INSULATION) SECURED TO THE ENCLOSURE OR BACKPANEL. THIS SHALL INCLUDE THE OUTER DOOR AND INNER DOOR.

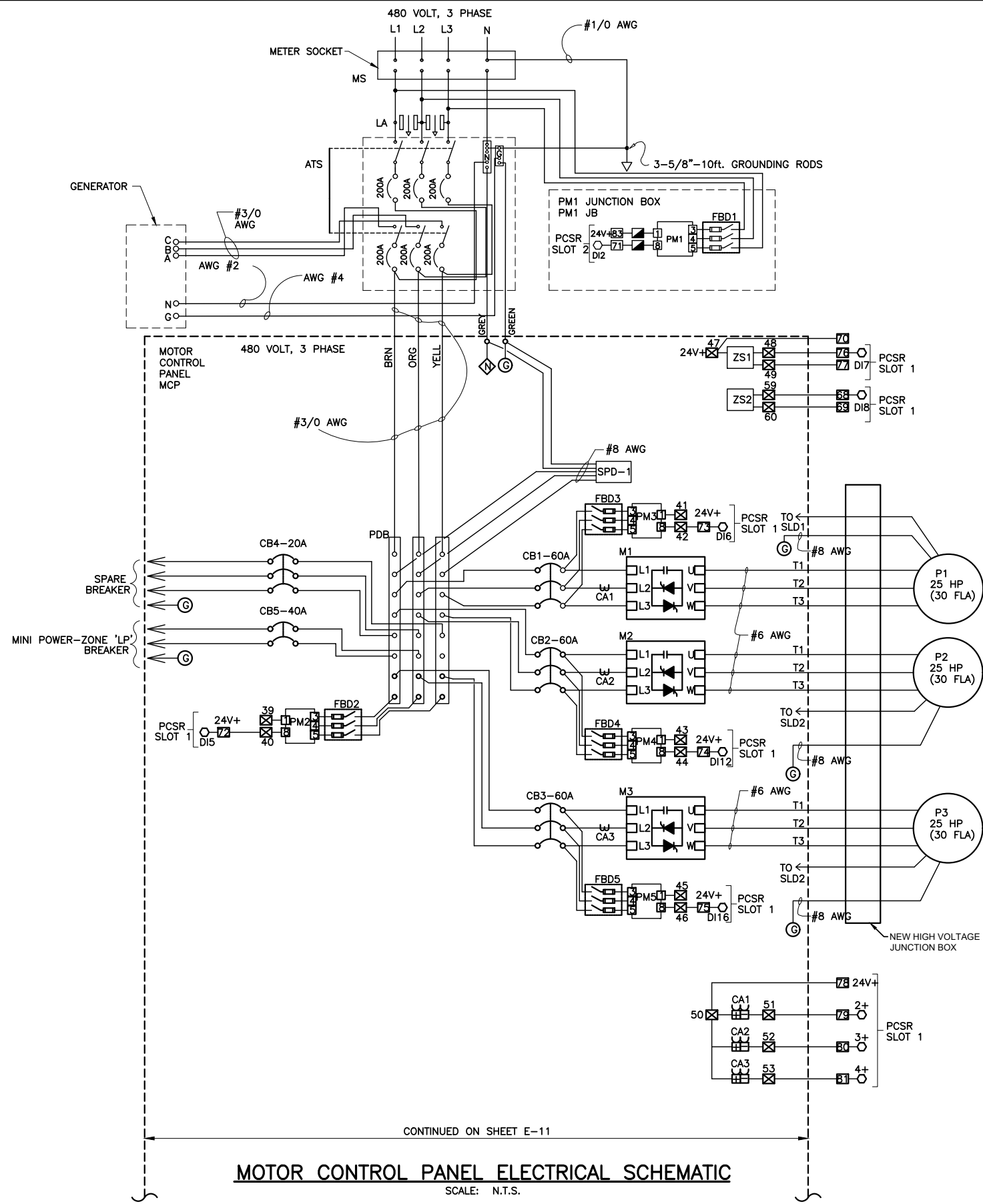
LEGEND PLATE SCHEDULE		
SYMBOL	DEVICE	LEGEND
CB1	CIRCUIT BREAKER	PUMP NO. 1 CIRCUIT BREAKER
CB2	CIRCUIT BREAKER	PUMP NO. 2 CIRCUIT BREAKER
CB3	CIRCUIT BREAKER	PUMP NO. 3 CIRCUIT BREAKER
CB4	CIRCUIT BREAKER	SPARE
CB5	CIRCUIT BREAKER	MINI POWER-ZONE 'LP' 480V FEEDER
CB6/MCB	CIRCUIT BREAKER	CONTROL POWER MAIN CIRCUIT BREAKER
CB7	CIRCUIT BREAKER	RECEPT. & PANEL LIGHTS
CB8	CIRCUIT BREAKER	SOFT START CONTROL POWER & FANS
SS1	SOFT START NO. 1 REMOTE KEYPAD	SOFT START NO. 1
SS2	SOFT START NO. 2 REMOTE KEYPAD	SOFT START NO. 2
SS3	SOFT START NO. 3 REMOTE KEYPAD	SOFT START NO. 3
SLD1	SEAL LEAK DETECTOR	PUMP NO. 1 SEAL LEAK DETECTOR
SLD2	SEAL LEAK DETECTOR	PUMP NO. 2 SEAL LEAK DETECTOR
SLD3	SEAL LEAK DETECTOR	PUMP NO. 3 SEAL LEAK DETECTOR
MCB	MOTOR CONTROL PANEL CONTROL POWER MAIN CIRCUIT BREAKER	120V AC CONTROL POWER MAIN CIRCUIT BREAKER (CB6)
WAPL	WARNING PLACARD	REFER TO NOTE 4 FOR VERBIAGE



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MOTOR CONTROL PANEL ELECTRICAL SCHEMATIC

SCALE: N.T.S.

- TERMINALS ON ACE I/O MODULE (GENERAL)
- TERMINALS IN PUMP CONTROL PANEL
- ⊗ TERMINALS IN MOTOR CONTROL PANEL
- TERMINALS IN PM1 JUNCTION BOX



3001 N. ROCKY POINT DRIVE, STE. #200
TAMPA, FLORIDA 33607
PHONE: (813) 367-3536
FAX: (813) 819-5557
C.O.A. No. 8879
MICHAEL J. CAHILL, P.E.
Florida P.E. No. 70837



7650 West Courtney Campbell Causeway
Waterford Plaza, Suite 700
Tampa, Florida 33607 813.286.1711 tel
Certificate of Authorization No. 8115

MICHAEL J. CAHILL, P.E.
FL. P.E. LICENSE NO. 70837

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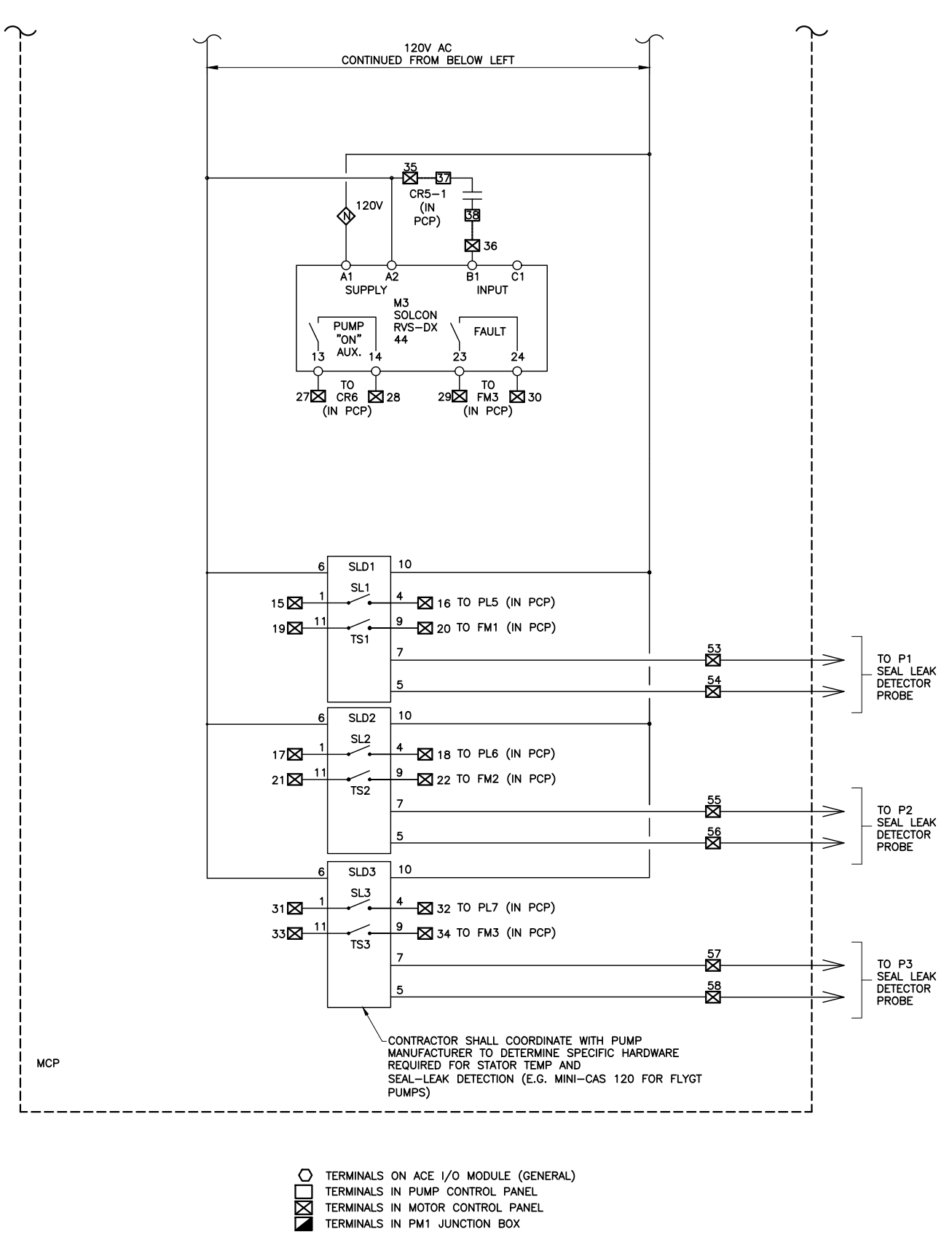
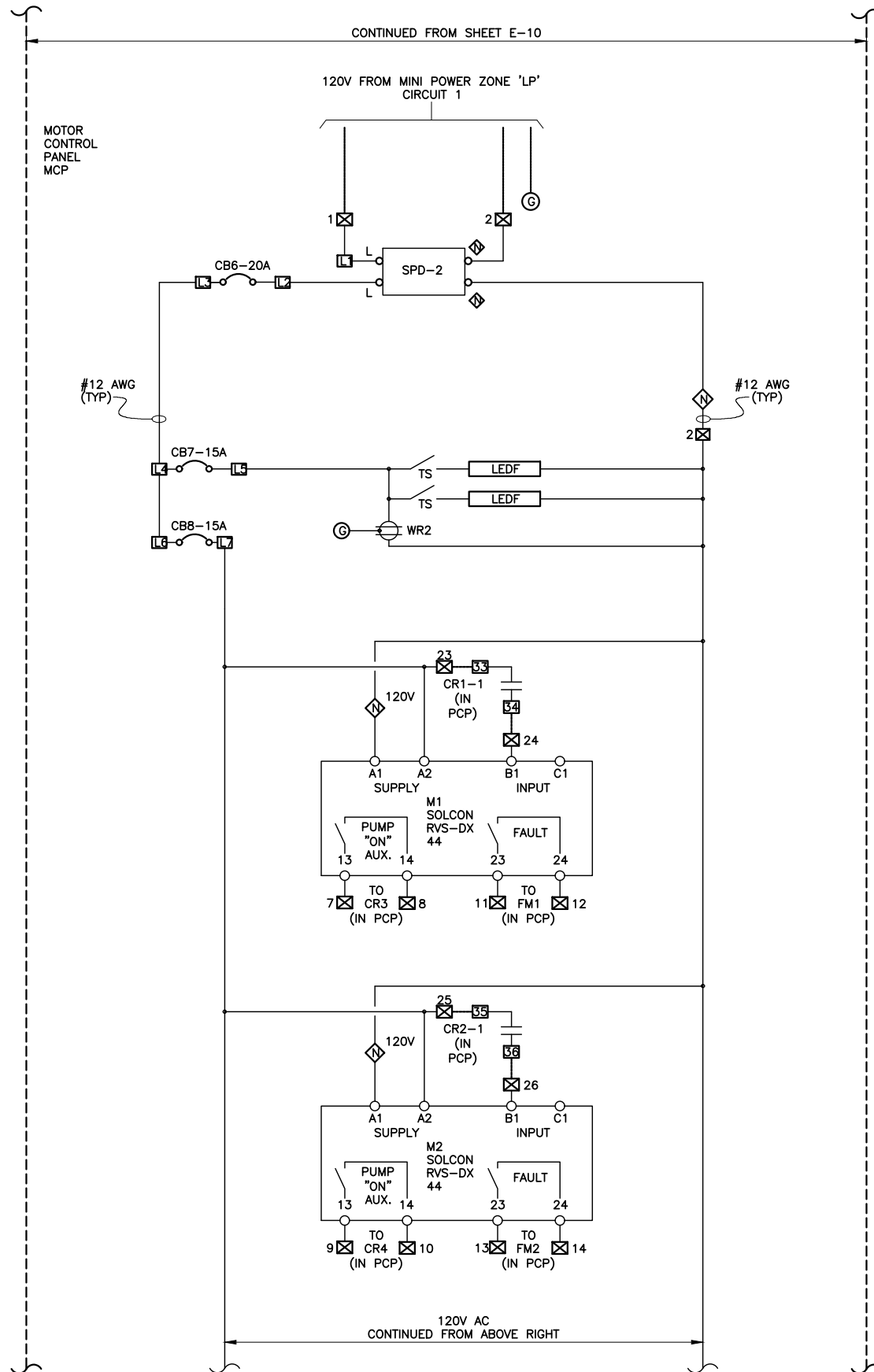
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CITY of TAMPA
WASTEWATER DEPARTMENT

109TH AVENUE PUMP STATION REHABILITATION
MOTOR CONTROL PANEL
ELECTRICAL SCHEMATIC (I)

SHEET
E-10

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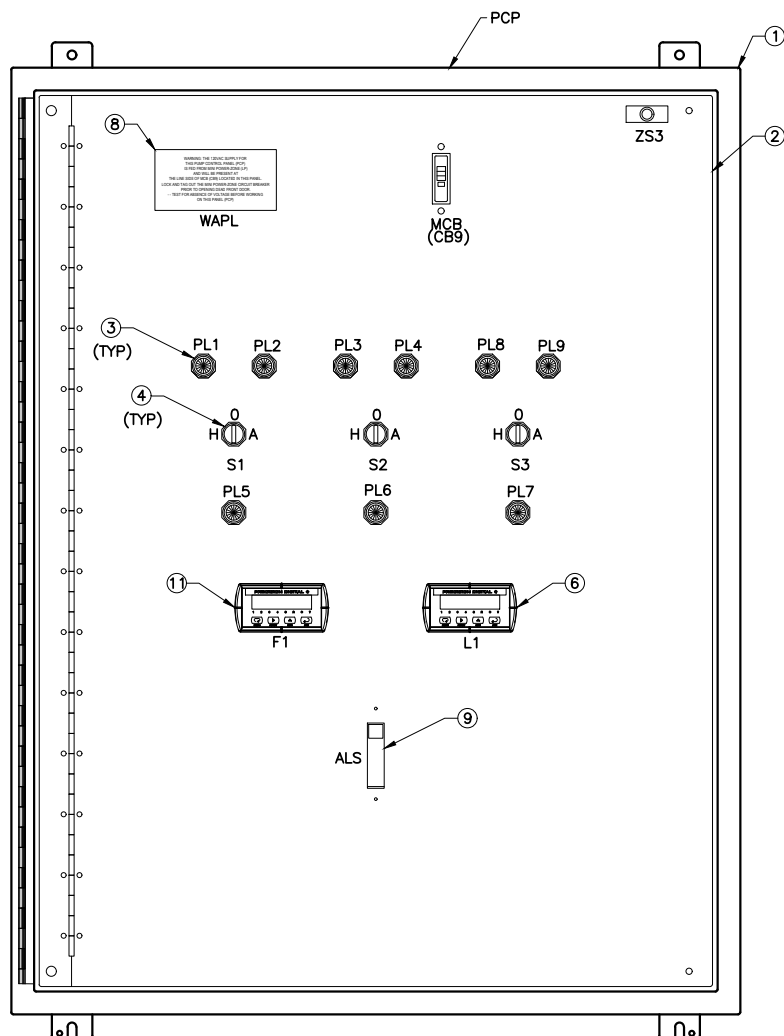


MOTOR CONTROL PANEL ELECTRICAL SCHEMATIC
SCALE: N.T.S.



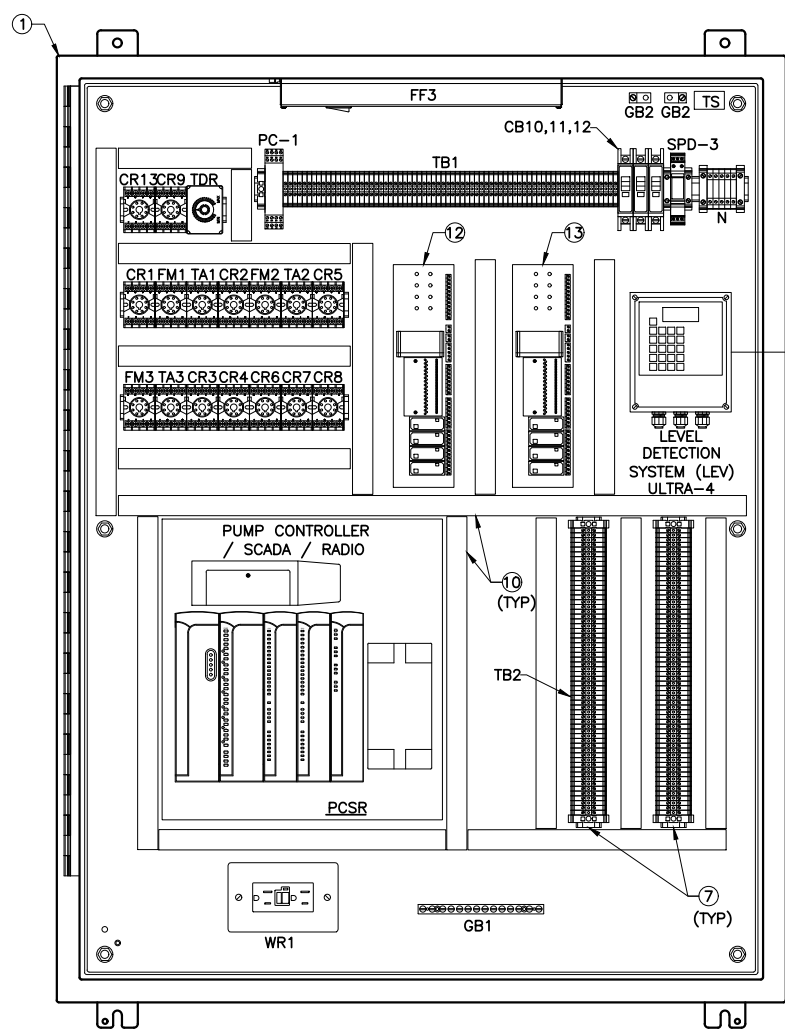
<p>7650 West Courtney Campbell Causeway Waterford Plaza, Suite 700 Tampa, Florida 33607 813.286.1711 tel Certificate of Authorization No. 8115</p>	<p>MICHAEL J. CAHILL, P.E. FL. P.E. LICENSE NO. 70837</p>	No.	DATE	REVISIONS	DES: MJC DRN: SDV CKD: WCN DATE: 04/14/2023		109TH AVENUE PUMP STATION REHABILITATION MOTOR CONTROL PANEL ELECTRICAL SCHEMATIC (2)	SHEET	
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**PUMP CONTROL PANEL
 INTERIOR DOOR ELEVATION**
 SCALE: N.T.S.

NOTE: FRONT ENCLOSURE DOOR NOT SHOWN FOR CLARITY



**PUMP CONTROL PANEL
 INTERIOR ELEVATION**
 SCALE: N.T.S.

GENERAL NOTES:

1. ALL HINGED SURFACES SHALL BE GROUNDED WITH A #12 COPPER BOND CONDUCTOR (WITH GREEN INSULATION) SECURED TO THE ENCLOSURE OR BACKPANEL. THIS SHALL INCLUDE THE OUTER DOOR AND INNER DOOR.

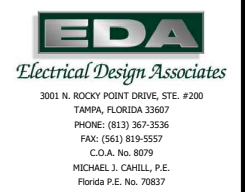
TO dB10
 ULTRASONIC SENSOR (VIA
 LOW VOLTAGE JUNCTION
 BOX)

LEGEND PLATE SCHEDULE

SYMBOL	DEVICE	LEGEND
PL1	YELLOW PILOT LIGHT	PUMP NO. 1 ON
PL2	RED ILLUMINATED PUSH BUTTON	PUMP NO. 1 TEMP. ALARM
PL3	YELLOW PILOT LIGHT	PUMP NO. 2 ON
PL4	RED ILLUMINATED PUSH BUTTON	PUMP NO. 2 TEMP. ALARM
PL5	RED PILOT LIGHT	PUMP NO. 1 SEAL LEAK ALARM
PL6	RED PILOT LIGHT	PUMP NO. 2 SEAL LEAK ALARM
PL7	RED PILOT LIGHT	PUMP NO. 3 SEAL LEAK ALARM
PL8	YELLOW PILOT LIGHT	PUMP NO. 3 ON
PL9	RED ILLUMINATED PUSH BUTTON	PUMP NO. 3 TEMP. ALARM
S1	3 POSITION SWITCH	PUMP NO. 1 HAND-OFF-AUTO
S2	3 POSITION SWITCH	PUMP NO. 2 HAND-OFF-AUTO
S3	3 POSITION SWITCH	PUMP NO. 3 HAND-OFF-AUTO
MCB	PUMP CONTROL PANEL MAIN CIRCUIT BREAKER	MAIN CIRCUIT BREAKER (CB9)
L1	DIGITAL PROCESS METER	WET WELL LEVEL
F1	DIGITAL PROCESS METER	FLOW METER
WAPL	WARNING PLACARD	REFER TO NOTE 8 FOR VERBIAGE

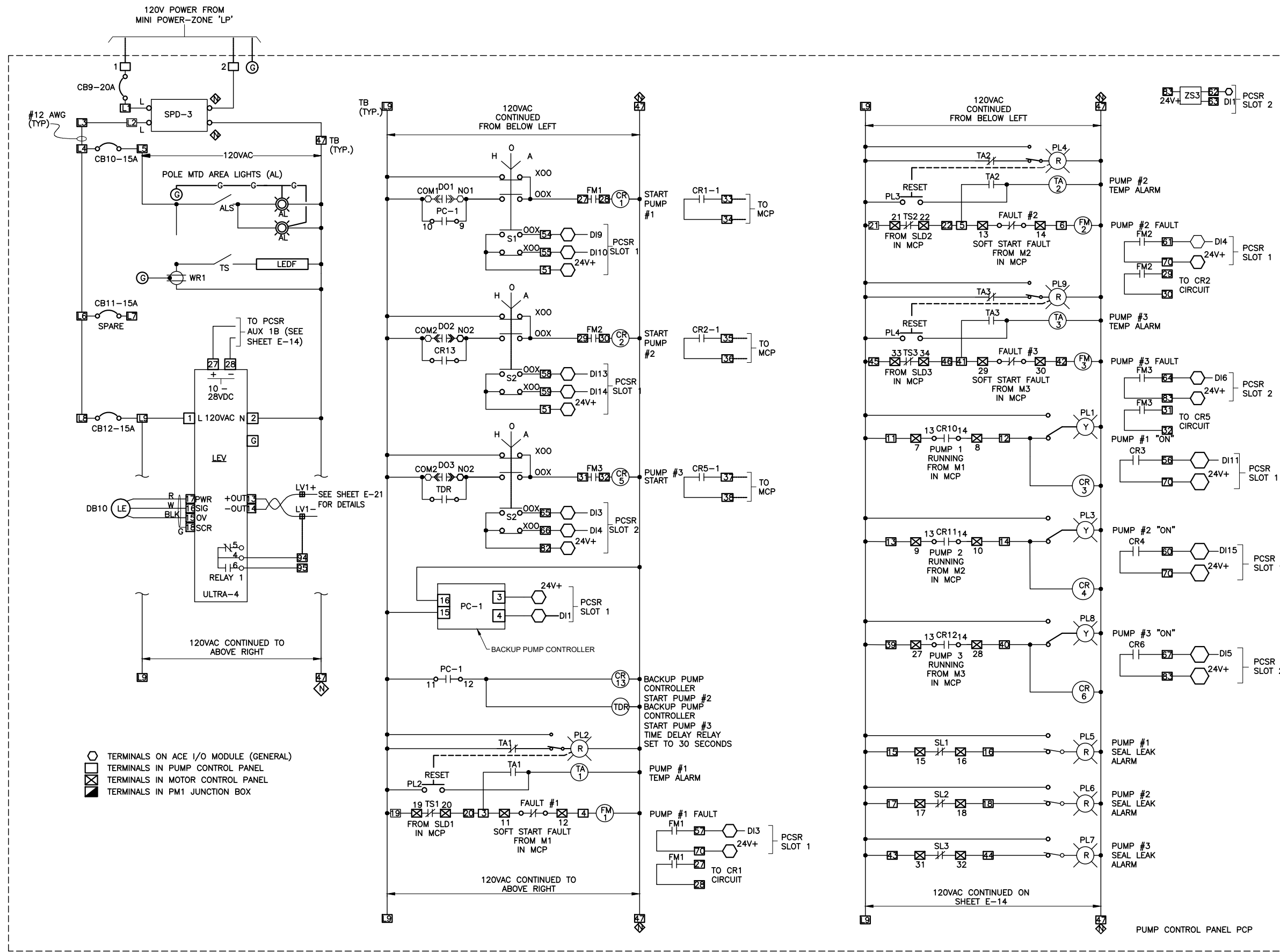
KEYED NOTES:

- ① PUMP CONTROL PANEL. 48" X 36 X 12" NEMA 4X SS, PAINTED WHITE.
- ② PROVIDE AND INSTALL ALUMINUM DEADFRONT DOOR WITH STOP KIT.
- ③ PROVIDE AND INSTALL NEW PILOT LIGHT. REFER ALSO TO PARTS SCHEDULE ON SHEETS E-18 AND E-19.
- ④ PROVIDE AND INSTALL NEW SELECTOR SWITCH. REFER ALSO TO PARTS SCHEDULE ON SHEETS E-18 AND E-19.
- ⑤ NOT USED
- ⑥ PROVIDE AND INSTALL PRECISION DIGITAL PROCESS METER, MODEL PD765-6X3-00 WITH 4-20mA OUTPUT (WET WELL LEVEL). REFER ALSO TO PARTS SCHEDULE ON SHEET E-18 AND E-19.
- ⑦ PROVIDE AND INSTALL ALUMINUM DIN RAIL WHERE REQUIRED.
- ⑧ PROVIDE AND INSTALL WARNING PLACARD WHICH STATES: "WARNING: THE 120VAC SUPPLY FOR THIS PUMP CONTROL PANEL (PCP) IS FED FROM MINI POWER-ZONE 'LP' AND WILL BE PRESENT AT THE LINE SIDE OF MCB (CB9) LOCATED IN THIS PANEL. LOCK AND TAG OUT THE MINI POWER-ZONE CIRCUIT BREAKER PRIOR TO OPENING DEAD FRONT DOOR-- TEST FOR ABSENCE OF VOLTAGE, BEFORE WORKING ON THIS PANEL (PCP)."
- ⑨ PROVIDE AND INSTALL NEW SINGLE-POLE 120V, 20A LIGHT SWITCH TO CONTROL AREA LIGHTS. REFER ALSO TO PARTS SCHEDULE ON SHEETS E-18 AND E-19.
- ⑩ PROVIDE AND INSTALL PANDUIT WIRING DUCT. SIZE AS REQUIRED.
- ⑪ PROVIDE AND INSTALL PRECISION DIGITAL PROCESS METER, MODEL PD765-6X3-00 WITH 4-20mA OUTPUT (FLOW METER). REFER ALSO TO PARTS SCHEDULE ON SHEETS E-18 AND E-19.
- ⑫ PROVIDE AND INSTALL MIXED I/O AUXILIARY INTERFACE #1. WILKERSON BOARD PART #SIB V245/V453. REFER ALSO TO PARTS SCHEDULE ON SHEETS E-18 AND E-19.
- ⑬ PROVIDE AND INSTALL MIXED I/O AUXILIARY INTERFACE #2. WILKERSON BOARD PART #SIB V245/V453. REFER ALSO TO PARTS SCHEDULE ON SHEETS E-18 AND E-19.



 7650 West Courtney Campbell Causeway Waterford Plaza, Suite 700 Tampa, Florida 33607 813.286.1711 tel Certificate of Authorization No. 8115	MICHAEL J. CAHILL, P.E. FL. P.E. LICENSE NO. 70837	No.	DATE	REVISIONS	DES: MJC DRN: SDV CKD: WCN DATE: 04/14/2023	CITY of TAMPA WASTEWATER DEPARTMENT	109TH AVENUE PUMP STATION REHABILITATION PUMP CONTROL PANEL DETAILS	SHEET
		3						E-12
		2						
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- TERMINALS ON ACE I/O MODULE (GENERAL)
- TERMINALS IN PUMP CONTROL PANEL
- ▣ TERMINALS IN MOTOR CONTROL PANEL
- TERMINALS IN PM1 JUNCTION BOX

PUMP CONTROL PANEL ELECTRICAL SCHEMATIC
 SCALE: N.T.S.



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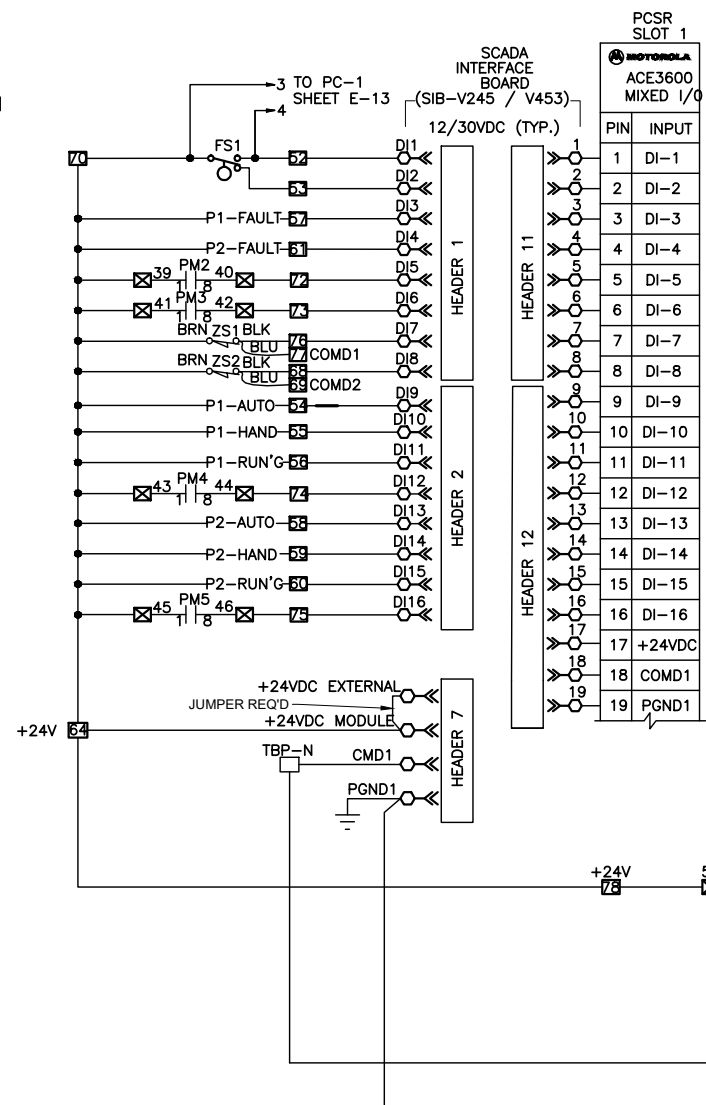
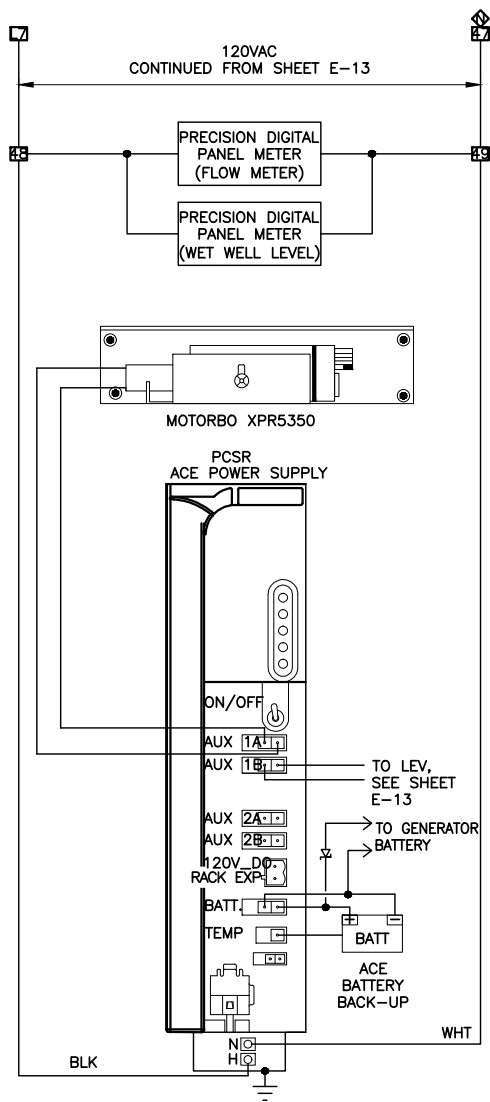
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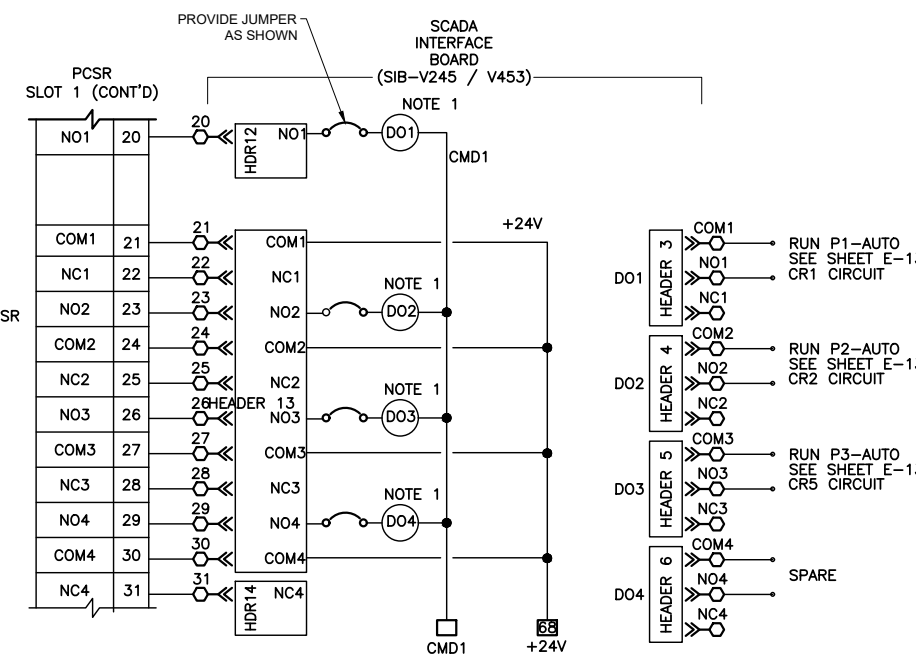
CITY of TAMPA
WASTEWATER DEPARTMENT

109TH AVENUE PUMP STATION REHABILITATION
PUMP CONTROL PANEL
ELECTRICAL SCHEMATIC (I)

SHEET
E-13



- | PIN | INPUT | DESCRIPTION |
|-----|--------|--|
| 1 | DI-1 | WET WELL HIGH |
| 2 | DI-2 | WET WELL NOT HIGH |
| 3 | DI-3 | PUMP 1 FAULT |
| 4 | DI-4 | PUMP 2 FAULT |
| 5 | DI-5 | MOTOR CONTROL PANEL PHASE LOSS (PM2) TO PCSR |
| 6 | DI-6 | PUMP 1 MCP STATUS (PM3) TO PCSR |
| 7 | DI-7 | MOTOR CONTROL PANEL INTRUSION #1 TO PCSR |
| 8 | DI-8 | MOTOR CONTROL PANEL INTRUSION #2 TO PCSR |
| 9 | DI-9 | PUMP 1 SS IN AUTO |
| 10 | DI-10 | PUMP 1 SS IN HAND |
| 11 | DI-11 | PUMP 1 RUNNING |
| 12 | DI-12 | PUMP 2 MCP STATUS (PM4) TO PCSR |
| 13 | DI-13 | PUMP 2 SS IN AUTO |
| 14 | DI-14 | PUMP 2 SS IN HAND |
| 15 | DI-15 | PUMP 2 RUNNING |
| 16 | DI-16 | PUMP 3 MCP STATUS (PM5) TO PCSR |
| 17 | +24VDC | 24 V PLUG-IN FLOATING SUPPLY PART # FPN1653A |
| 18 | COMD1 | |
| 19 | PGND1 | |



NOTE 1:
OUTPUT RELAYS (DO) ARE INTEGRAL TO THE WILKERSON MIXED I/O AUXILIARY INTERFACE BOARD

NOTE 2:
PROVIDE AND INSTALL 5 AMP SCHOTTKY DIODE

- TERMINALS ON ACE I/O MODULE (GENERAL)
- TERMINALS IN PUMP CONTROL PANEL
- ⊗ TERMINALS IN MOTOR CONTROL PANEL
- TERMINALS IN PM1 JUNCTION BOX

PUMP CONTROL PANEL ELECTRICAL SCHEMATIC
SCALE: N.T.S.



NO. DATE REVISIONS

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CITY of TAMPA
WASTEWATER DEPARTMENT

109TH AVENUE PUMP STATION REHABILITATION
PUMP CONTROL PANEL
ELECTRICAL SCHEMATIC (2)

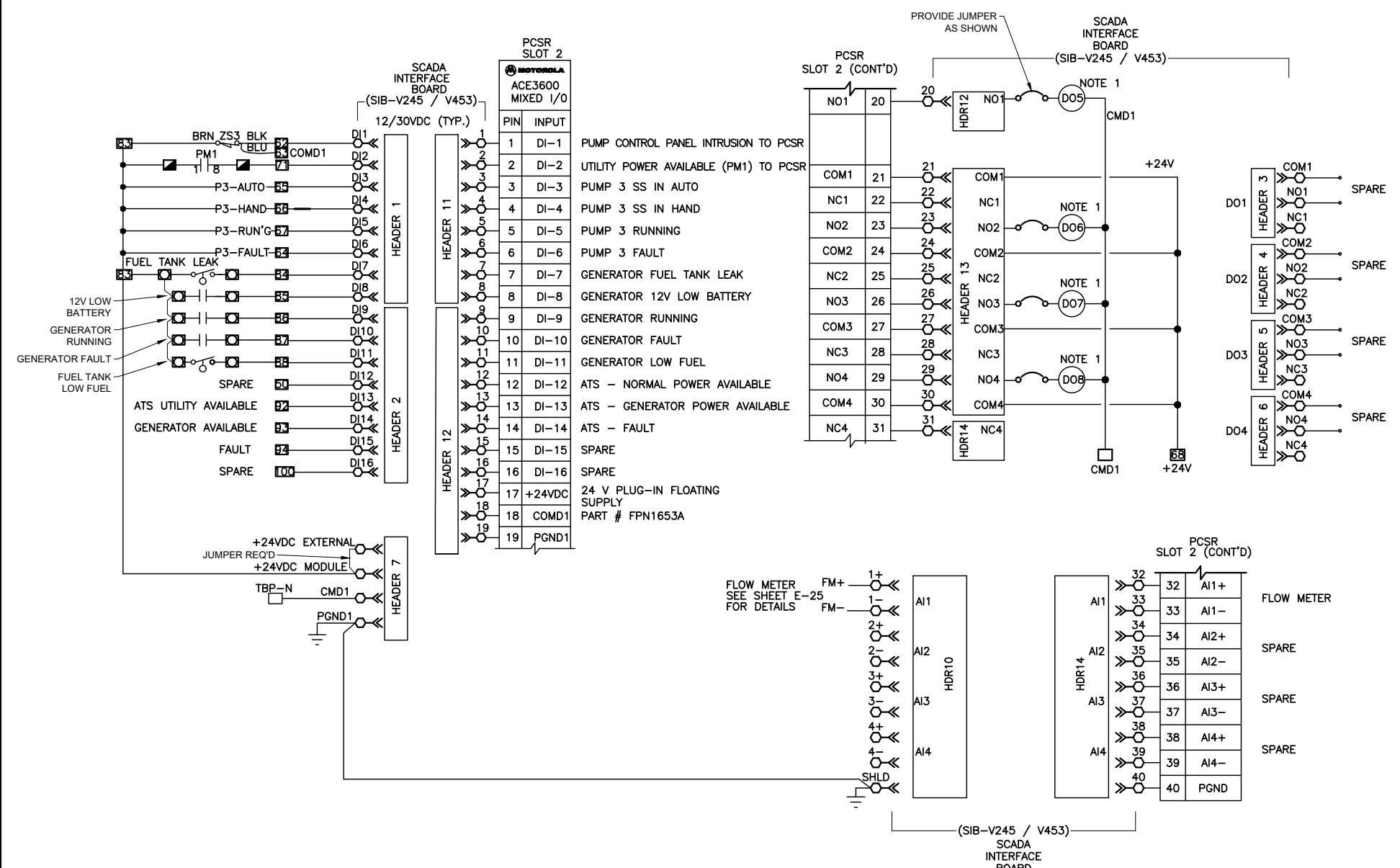
SHEET
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PUMP CONTROL PANEL ELECTRICAL SCHEMATIC

SCALE: N.T.S.

NOTE 1:
OUTPUT RELAYS (DO) ARE INTEGRAL TO THE WILKERSON MIXED I/O AUXILIARY INTERFACE BOARD

- TERMINALS ON ACE I/O MODULE (GENERAL)
- TERMINALS IN PUMP CONTROL PANEL
- ▣ TERMINALS IN MOTOR CONTROL PANEL
- ▤ TERMINALS IN PM1 JUNCTION BOX
- ◻ TERMINALS IN DIESEL BACKUP PUMP CONTROLLER



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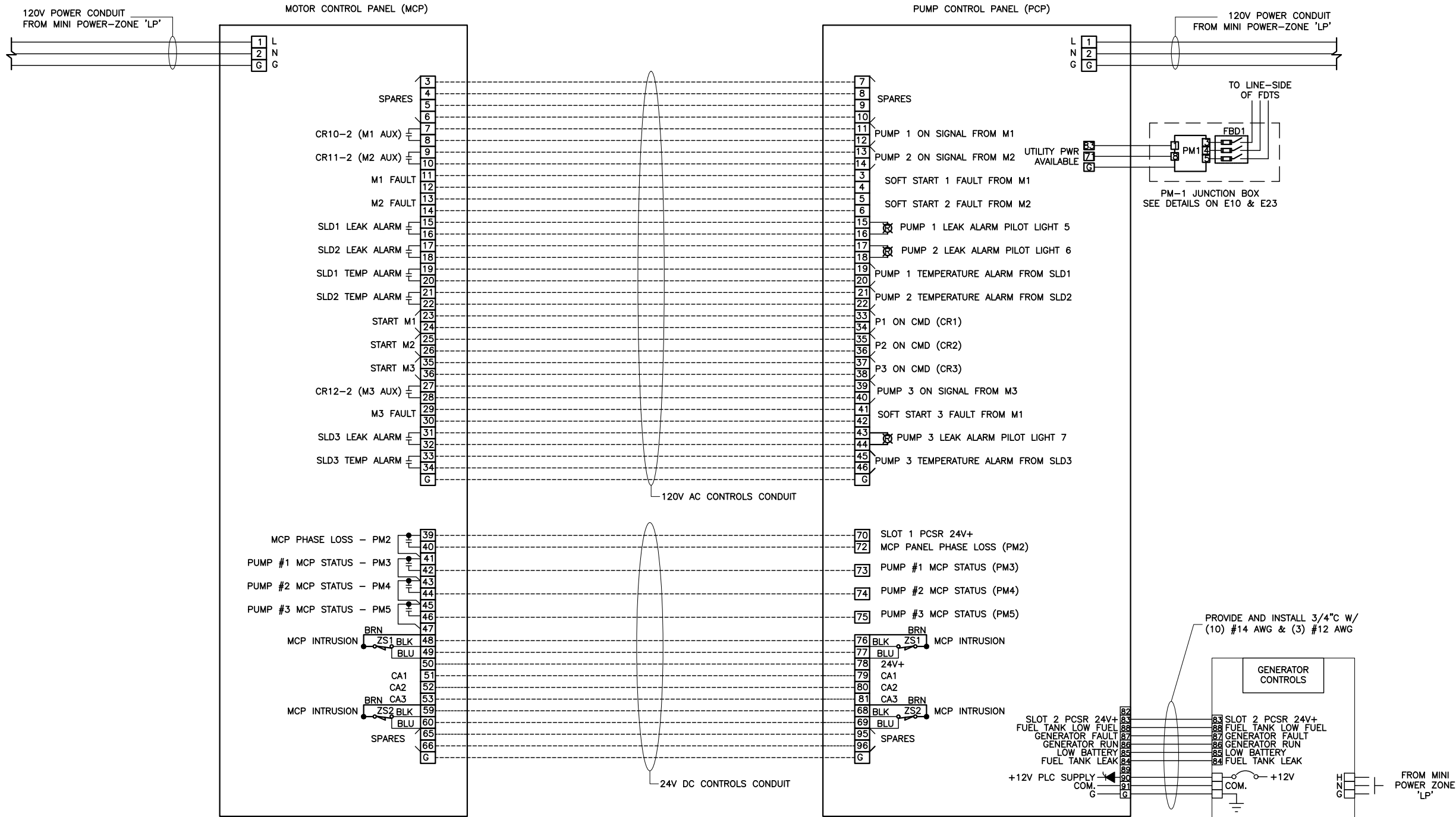
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CITY of TAMPA
WASTEWATER DEPARTMENT

109TH AVENUE PUMP STATION REHABILITATION
PUMP CONTROL PANEL
ELECTRICAL SCHEMATIC (3)

SHEET
E-15



PUMP STATION ELECTRICAL MCP TO PCP
PUMP ELECTRICAL MCP TO PCP
 SCALE: N.T.S.



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CITY of TAMPA
WASTEWATER DEPARTMENT

109TH AVENUE PUMP STATION REHABILITATION
INTERCONNECTION
WIRING DIAGRAM

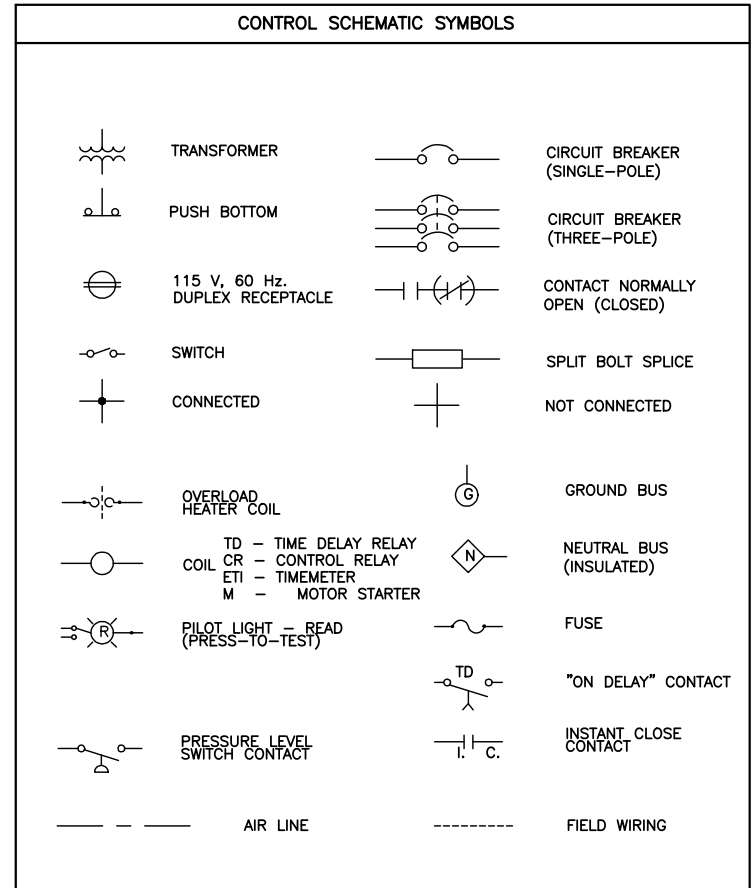
SHEET
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TB1 (□) (120V AC) MOUNTED ON PUMP CONTROL PANEL (PCP)	
TERM.	DESCRIPTION
1	120V FROM MOTOR CONTROL PANEL
2	NEUTRAL FROM MOTOR CONTROL PANEL
3	SOFT START NO. 1 FAULT
4	SOFT START NO. 1 FAULT
5	SOFT START NO. 2 FAULT
6	SOFT START NO. 2 FAULT
7-10	SPARES
11	P1 "ON" SIGNAL FROM M1 (IN MCP)
12	P1 "ON" SIGNAL FROM M1 (IN MCP)
13	P2 "ON" SIGNAL FROM M2 (IN MCP)
14	P2 "ON" SIGNAL FROM M2 (IN MCP)
15	PUMP 1 LEAK ALARM FROM MCP
16	PUMP 1 LEAK ALARM FROM MCP
17	PUMP 2 LEAK ALARM FROM MCP
18	PUMP 2 LEAK ALARM FROM MCP
19	PUMP 1 TEMPERATURE ALARM FROM MCP
20	PUMP 1 TEMPERATURE ALARM FROM MCP
21	PUMP 2 TEMPERATURE ALARM FROM MCP
22	PUMP 2 TEMPERATURE ALARM FROM MCP
23	SPARE
24	SPARE
25-26	SPARE
51	SPARE
27	PUMP 1 FAULT RELAY CONTACT
28	PUMP 1 FAULT RELAY CONTACT
29	PUMP 2 FAULT RELAY CONTACT
30	PUMP 2 FAULT RELAY CONTACT
31	PUMP 3 FAULT RELAY CONTACT
32	PUMP 3 FAULT RELAY CONTACT
33	M1 START CMD (CR-1)
34	M1 START CMD (CR-1)
35	M2 START CMD (CR-2)
36	M2 START CMD (CR-2)
37	M3 START CMD (CR-5)
38	M3 START CMD (CR-5)
39	P3 "ON" SIGNAL FROM M2 (IN MCP)
40	P3 "ON" SIGNAL FROM M2 (IN MCP)
41	SOFT START NO. 3 FAULT
42	SOFT START NO. 3 FAULT
43	PUMP 3 LEAK ALARM FROM MCP
44	PUMP 3 LEAK ALARM FROM MCP
45	PUMP 3 TEMPERATURE ALARM FROM MCP
46	PUMP 3 TEMPERATURE ALARM FROM MCP
47	SPD-3 NEUTRAL OUT
48	FLOW AND LEVEL PRECISION DIGITAL LINE
49	FLOW AND LEVEL PRECISION DIGITAL NEUTRAL
50-51	SPARES
L1	SPD-3 LINE
L2	CB9 (MCB) LINE
L3	CB9 (MCB) LOAD
L4	CB10 LINE
L5	CB10 LOAD
L6	CB11 LINE
L7	CB11 LOAD
L8	CB12 LINE
L9	CB12 LOAD

TB2 (□) (24V DC) MOUNTED ON PUMP CONTROL PANEL (PCP)	
TERM.	DESCRIPTION
51	SLOT 1 PCSR 24V+
52	WET WELL HIGH
53	WET WELL NOT HIGH
54	PUMP 1 "AUTO" TO PCSR
55	PUMP 1 "HAND" TO PCSR
56	PUMP 1 "ON" TO PCSR
57	PUMP 1 "FAULT" TO PCSR
58	PUMP 2 "AUTO" TO PCSR
59	PUMP 2 "HAND" TO PCSR
60	PUMP 2 "ON" TO PCSR
61	PUMP 2 "FAULT" TO PCSR
62	PUMP CONTROL PANEL INTRUSION - ZS3
63	
64	PUMP 3 "FAULT" TO PCSR
65	PUMP 3 "AUTO" TO PCSR
66	PUMP 3 "HAND" TO PCSR
67	PUMP 3 "ON" TO PCSR
68	MOTOR CONTROL PANEL INTRUSION - ZS2
69	
70	SLOT 1 PCSR 24V+
71	UTIL. POWER AVAILABLE (PM1) TO PCSR
72	MOTOR CONTROL PANEL PHASE LOSS (PM2) TO PCSR
73	PUMP #1 MCP STATUS (PM3) TO PCSR
74	PUMP #2 MCP STATUS (PM4) TO PCSR
75	PUMP #3 MCP STATUS (PM5) TO PCSR
76	MOTOR CONTROL PANEL INTRUSION - ZS1
77	
78	24V+
79	PUMP 1 AMPS
80	PUMP 2 AMPS
81	PUMP 3 AMPS
82	SPARE
83	SLOT 2 PCSR 24V+ TO DIESEL BACKUP PUMP
84	GENERATOR FUEL LEAK
85	GENERATOR 12V LOW BATTERY
86	GENERATOR RUNNING
87	GENERATOR FAULT
88	GENERATOR LOW FUEL
89	SPARE
90-91	+12V PLC SUPPLY
92	ATS NORMAL POWER AVAILABLE
93	ATS GENERATOR POWER AVAILABLE
94	ATS FAULT
95	SPARE
96-101	SPARE
	TERMINAL POINT MOUNTED ON PCP (INTERFACE TO PCSR)
	TERMINAL POINT ON PCSR
	TERMINAL POINT IN PUMP CONTROL PANEL (PCP)
	TERMINAL POINT IN MOTOR CONTROL PANEL (MCP)

TB3 (☒) (120V AC) MOUNTED ON MOTOR CONTROL PANEL (MCP)	
TERM.	DESCRIPTION
1	120V TO PUMP CONTROL PANEL
2	NEUTRAL (CONTINUED TO MINI POWER-ZONE 'LP')
3-6	SPARES
7	PUMP 1 'ON' SIGNAL TO CR-3 (IN PCP)
8	PUMP 1 'ON' SIGNAL TO CR-3 (IN PCP)
9	PUMP 2 'ON' SIGNAL TO CR-4 (IN PCP)
10	PUMP 2 'ON' SIGNAL TO CR-4 (IN PCP)
11	SOFT START #1 FAULT SIGNAL TO PCP
12	SOFT START #1 FAULT SIGNAL TO PCP
13	SOFT START #2 FAULT SIGNAL TO PCP
14	SOFT START #2 FAULT SIGNAL TO PCP
15	PUMP 1 LEAK DETECTED TO PILOT LIGHT 5 (IN PCP)
16	PUMP 1 LEAK DETECTED TO PILOT LIGHT 5 (IN PCP)
17	PUMP 2 LEAK DETECTED TO PILOT LIGHT 6 (IN PCP)
18	PUMP 2 LEAK DETECTED TO PILOT LIGHT 6 (IN PCP)
19	PUMP 1 TEMPERATURE ALARM TO FM1 (IN PCP)
20	PUMP 1 TEMPERATURE ALARM TO FM1 (IN PCP)
21	PUMP 2 TEMPERATURE ALARM TO FM2 (IN PCP)
22	PUMP 2 TEMPERATURE ALARM TO FM2 (IN PCP)
23	M1 START CMD (CR-1)
24	M1 START CMD (CR-1)
25	M2 START CMD (CR-2)
26	M2 START CMD (CR-2)
27	PUMP 3 'ON' SIGNAL TO CR-6 (IN PCP)
28	PUMP 3 'ON' SIGNAL TO CR-6 (IN PCP)
29	SOFT START #3 FAULT SIGNAL TO PCP
30	SOFT START #3 FAULT SIGNAL TO PCP
31	PUMP 3 LEAK DETECTED TO PILOT LIGHT 7 (IN PCP)
32	PUMP 3 LEAK DETECTED TO PILOT LIGHT 7 (IN PCP)
33	PUMP 3 TEMPERATURE ALARM TO FM3 (IN PCP)
34	PUMP 3 TEMPERATURE ALARM TO FM3 (IN PCP)
35	M3 START CMD (CR-5)
36	M3 START CMD (CR-5)
37	SPARE
38	SPARE
L1	SPD-2 LINE
L2	CB6 (MCB) LINE
L3	CB6 (MCB) LOAD
L4	CB7 LINE
L5	CB7 LOAD
L6	CB8 LINE
L7	CB8 LOAD

TB4 (☒) (24V DC) MOUNTED ON MOTOR CONTROL PANEL (MCP)	
TERM.	DESCRIPTION
39	SLOT 1 PCSR 24V+
40	MOTOR CONTROL PANEL PHASE LOSS (PM2) TO PCSR
41	SLOT 1 PCSR 24V+
42	PUMP #1 MCP STATUS PHASE LOSS (PM3) TO PCSR
43	SLOT 1 PCSR 24V+
44	PUMP #2 MCP STATUS PHASE LOSS (PM4) TO PCSR
45	SLOT 1 PCSR 24V+
46	PUMP #3 MCP STATUS PHASE LOSS (PM5) TO PCSR
47	SLOT 1 PCSR 24V+
48	MOTOR CONTROL PANEL INTRUSION - ZS1
49	
50	PCSR 24V+
51	CA1
52	CA2
53	CA3
53	PUMP 1 SEAL LEAK DETECTOR PROBE
54	PUMP 1 SEAL LEAK DETECTOR PROBE
55	PUMP 2 SEAL LEAK DETECTOR PROBE
56	PUMP 2 SEAL LEAK DETECTOR PROBE
57	PUMP 3 SEAL LEAK DETECTOR PROBE
58	PUMP 3 SEAL LEAK DETECTOR PROBE
59	MOTOR CONTROL PANEL INTRUSION - ZS2
60	
61	SPARE
62	SPARE
63	SPARE
64	SPARE
65	SPARE
66	SPARE
X-Y	TERMINAL POINT MOUNTED ON PCP (INTERFACE TO PCSR)
	TERMINAL POINT ON PCSR
	TERMINAL POINT IN PUMP CONTROL PANEL (PCP)
	TERMINAL POINT IN MOTOR CONTROL PANEL (MCP)



MICHAEL J. CAHILL, P.E.
FL. P.E. LICENSE NO. 70837

No.	DATE	REVISIONS
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CITY of TAMPA
WASTEWATER DEPARTMENT

109TH AVENUE PUMP STATION REHABILITATION
ELECTRICAL SCHEMATIC LEGEND

SHEET
E-17



109TH MOTOR CONTROL PARTS SCHEDULE

SYMBOL	NAME	PART			RATING	REMARKS
		MAKE	TYPE	MODEL OR CAT. #		
CB1, CB2, CB3	CIRCUIT BREAKER	SQUARE D	THREE POLE	HDL 36060	600 V, 60A	18KAIC @ 480V
CB4	CIRCUIT BREAKER	SQUARE D	THREE POLE	HDL 36020	600 V, 20A	18KAIC @ 480V
CB5	CIRCUIT BREAKER	SQUARE D	TWO POLE	HGL 26040	600 V, 40A	18KAIC @ 480V
M1, M2, M3	MOTOR SOFT STARTER	SOLCON	SOFT STARTER	RVS-DX-44-480-115V-115V-8-US	480V, 44A, 120V CONTROLS	PROVIDE REMOTE KEYPAD
CB7, CB8	CIRCUIT BREAKER	SQUARE D	SINGLE POLE	QOU-115	120 V, 15A	
CB6	CIRCUIT BREAKER	SQUARE D	SINGLE POLE	QOU-120	120 V, 20A	
CA1, CA2, CA3	CIRCUIT SENSOR	ENERCORP INSTRUMENTS	4-20mA OUTPUT	SC200-2	0-10A, 0-20A, 0-50A	SELECTABLE RANGE
T1	TRANSFORMER	SQUARE D	OPEN TYPE	9070T2000D31	480V PRI, 120/240 V SEC.	2KVA
ZS1, ZS2	CONTROL PNL INTRUSION SENSOR	OMRON	CYLINDRICAL, SHORT BARREL	E2F-X5F1 (GRAINGER-1EA77)	12-24VDC, 3-WIRE PNP	W/ TELEMECANIQUE MTG. BRACKET (GRAINGER - 5B233)
LED F & TS	LED LIGHTING FIXTURE	HOFFMAN	LED	LEDA1S35	120 V, 5W	
WR1, WR2	WALL RECEPTACLE	HUBBELL	DUPLEX W/GFI	GF5262	120V AC, 15A GFI	W/ALUMINUM OUTLET BOX AND COVER
SPD-1	SURGE PROTECTIVE DEVICE TYPE 1	ASCO	MOTOR CONTROL PANEL SPD	TE04XDS104X	480/277 V, 3Ø, 4W	
SPD-2	SURGE PROTECTIVE DEVICE TYPE 3	PHOENIX CONTACT	3 CONDUCTOR SYSTEM (L, N, G)	2856812	120 V, 25A	
TB-1, TB-2, TB-3, TB-4	TERMINALS	PHOENIX CONTACT		UK5N TERMINALS	30 A W/ ALUM. DIN RAIL	50 CONTACTS (MIN)
ITS	INSULATED TERMINAL STRIP	ALLEN-BRADLEY	STYLE AA	1492-15-T	600 V AC NEUTRAL BLOCK	4 CONTACTS (MIN) W/ SHORTING BARS
MCP	MOTOR CONTROL PANEL ENCLOSURE	HOFFMAN	NEMA 4X, 3P LATCH, 48"x48"x12"	48"x48"x12", SS	304 SS, POWDER COATED WHITE	3P LATCH W/STOP KIT. EXTERNAL FINISH DURABLE RAL 9003 WHITE POWER COAT.
MP	ENCLOSURE PANEL	HOFFMAN	42"x42", STEEL	A42P42	STEEL, 12 GAUGE	
PM2, PM3, PM4, PM5	3-PHASE POWER MONITOR	ATC DIVERSIFIED ELECTRONICS	8 PIN PLUG-IN	SUA-440-ASA	480 VAC	W/ OPTIONAL 5-SEC RELEASE AND DIN RAIL SOCKET-RB08PC
PDB	PWR DIST. BLOCK	BUSSMANN/EATON	THREE POLE	PDBFS220	600 V, 175 AMP	FINGER-SAFE TERMINAL BLOCKS
FBD 2, 3, 4, 5	FUSE BLOCK / DISCONNECT	ALLEN BRADLEY	THREE PHASE- HIGH INTER. CAP.	1492-FB3C30-L	600 VAC, 200KAIC	W/ BUSSMANN KTK-R-2 FAST ACTING, REJECTION FUSES
FTB2	FUSED TERMINAL BLOCKS	PHOENIX CONTACT		UK 5-HESI	PROVIDE 1, 2, & 5A FUSES	PROVIDE COOPER BUSSMAN GDB SERIES FUSES
SLD1, SLD2, SLD3	PUMP MONITORING UNIT	XYLEM		MINI-CAS 120	10A AT 240V AC	
GB2	GROUNDING BLOCK	ILSCO	AS REQUIRED	AS REQUIRED		
NB2	NEUTRAL DISTRIBUTION BLOCK	BUSSMAN	SINGLE POLE	16220-1	600V, 175A	

PARTS SCHEDULE (MISCELLANEOUS)

PM1- JUNCTION BOX

SYMBOL	NAME	PART			RATING	REMARKS
		MAKE	TYPE	MODEL OR CAT. #		
PM1	3-PHASE POWER MONITOR	ATC DIVERSIFIED ELECTRONICS	8 PIN PLUG-IN	SUA-440-ASA	480 VAC	W/ OPTIONAL 5-SEC RELEASE AND DIN RAIL SOCKET-RB08PC
FBD1	FUSE BLOCK / DISCONNECT	ALLEN BRADLEY	THREE PHASE- HIGH INTER. CAP.	1492-FB3C30-L	600 VAC, 200KAIC	W/ BUSSMANN KTK-R-2 FAST ACTING, REJECTION FUSES
PM1-JB	PHASE MONITOR JUNCTION BOX	HAMMOND MANUFACTURING	NEMA 4X, 12"x10"x8"	EJ12108S12	316 S.S.	INSTALL DIN RAILS TO MOUNT PM1 AND FBD1
TB5	TERMINALS	PHOENIX CONTACT		UK5N TERMINALS	30 A W/ ALUM. DIN RAIL	5 CONTACTS (MIN)

EXTERNAL ELECTRICAL

SYMBOL	NAME	PART			RATING	REMARKS
		MAKE	TYPE	MODEL OR CAT. #		
MS	METER SOCKET	MILBANK	7 TERMINAL	UAP9701-X-QG-HSP	600 VAC, 200 AMP	ALUMINUM CONSTRUCTION
EPO	EMERGENCY POWER OFF	CATERPILLAR	GENERATOR EMERGENCY SHUT DOWN PUSH BUTTON	MAINTAINED 2 POSITION SWITCH W/1-5/8" DIA. OPERATOR, 1 N.O. AND 1 N.C. CONTACT MOUNTED IN NEMA 4X SS ENCLOSURE		FURNISHED WITH GENERATOR
MCP-JB	MOTOR CONTROL PANEL JUNCTION BOX	WIEGMANN	NEMA 4X, 20"x20"x6"	1418N4SSD6	304 S.S.	INSTALL S.S. LOUVER PLATE KIT WIEGMANN #WAVK0304SSA
PCP-JB	PUMP CONTROL PANEL JUNCTION BOX	WIEGMANN	NEMA 4X, 12"x12"x6"	BN4121206CHSS	304 S.S.	INSTALL S.S. LOUVER PLATE KIT WIEGMANN #WAVK0304SSA
PDB	PWR DIST. BLOCK	BUSSMANN/EATON	THREE POLE	PDBFS220	600 V, 175 AMP	FINGER-SAFE TERMINAL BLOCKS
	SEAL FITTING	CROUSE-HINDS	COPPER-FREE ALUMINUM	AS REQUIRED		
FT/FLOW METER	FLOW METER	PULSAR	FLOW METER	DFM 6.1-A-2-B-2-A-1-B-1-A		25" CABLE MOUNT ON EQUIPMENT RACK ADJACENT TO PIPE
ATS	AUTOMATIC TRANSFER SWITCH	EATON	SERVICE ENTRANCE RATED. AUTOMATIC TRANSFER SWITCH.	CATALOG NO ATV9LDB30400XDU DESIGNATION 200A STANDARD FEATURES: 1B, 1C, 1D, 2A, 3B, 3C, 3D, 4B, 5H, 5J, 5K, 5L, 5M, 6B, 7A, 8E, 10B, 10D, 12C, 12D, 12G 12H, 14C, 14D, 15E, 15F, 23M, 26H, 26J, 26K, 26L, 26M, 32A, 42, 48F, 48U, 49C, 51F1, 54B, 61F, 80D	PRODUCT FAMILY: RACK MOUNT SWITCH TYPE: 30A THRU 1000A 480/277V,60HZ 3 PHASE, 4 WIRE, 3 POLES TRANSITION MODE: OPEN CONTROLLER TYPE: ATC-900 CONTINUOUS CURRENT: 200 AMPS WITHSTAND: 65KA NORMAL SOURCE TERMINALS: (1) 4/0-600 CU/AL EMERGENCY SOURCE TERMINALS: (1) 4/0-600 CU/AL LOAD SIDE TERMINALS: (2) #1-500 CU/AL NEUTRAL TERMINALS: (6) 250-350 CU/AL	SEE SPECIFICATION SECTION W16216
GENERATOR	GENERATOR	CATERPILLAR	STANDBY DIESEL GENERATOR	SEE SPECIFICATION SECTION W16216	100KW/125KVA, 480/277 VOLT, 3-PHASE, 4-WIRE	SOUND ATTENUATED ENCLOSURE 72 HOUR SUB BASE FUEL TANK SEE SECTION 16216 FOR REQUIREMENTS
LP	MINI POWER ZONE PANEL 'LP'	SCHNEIDER	NEMA 3R SS	MPZB15S40FSS	480-120/240V, 15KVA	INTERRUPT RATING
FL, FL1, FL2	FLOAT SWITCHES	ANCHOR SCIENTIFIC	SPDT	S20NONC	10 A @ 120 V	
SPD-4	SURGE PROTECTIVE DEVICE TYPE 3	PHOENIX CONTACT	3 CONDUCTOR SYSTEM (L, N, G)	2856812	120 V, 25A	



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Waterford Plaza, Suite 700
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DES: MJC	<p align="center">CITY of TAMPA WASTEWATER DEPARTMENT</p>
DRN: SDV	
CKD: WCN	
DATE: 04/14/2023	

109TH AVENUE PUMP STATION REHABILITATION
ELECTRICAL
PARTS SCHEDULE (I)

SHEET
E-18

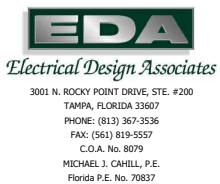
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PARTS SCHEDULE (PUMP CONTROL PANEL)

SYMBOL	NAME	PART				REMARKS
		PCSR PARTS LIST				
		MAKE	TYPE	MODEL OR CAT. #	RATING	
PCSR	PLC BASED PUMP CONTROLLER, SCADA, AND RADIO SYSTEM	MOTOROLA CORP.	DUPLEX PUMP CONTROLLER BASED ON ACE 3600 PROGRAM CONTROLLER	PART #7509	BASIC MODEL	PROVIDE (1) SPARE
		MOTOROLA CORP.	MOTORBO ANALOG RADIO INSTALLATION KIT	VA00194 (PART #FLN1059)		
		MOTOROLA CORP.	MOTORBO XPR5350 RADIO	VA00161 (PART #UE1078A)	UHF RI: 403-470MHZ	
		MOTOROLA CORP.	METAL CHASIS	PART #V214	MEDIUM 14" x 14"	
		MOTOROLA CORP.	AC POWER SUPPLY 85-264V	PART #V261	100-240 VAC W/ 12V SMART CHARGER	PROVIDE (1) SPARE
		MOTOROLA CORP.	BACKUP BATTERY	PART #V328	10.0 Ah SEALED LEAD-ACID	FITS IN SEPARATE LOCATION FROM METAL CHASSIS; INCLUDE: FKN8376 BATTERY POWER CABLE, FHN601 MOUNTING BRACKET, AND FNN7898 10 AH BACKUP BATTERY
		MOTOROLA CORP.	3-1/0 SLOT FRAME	PART #V103		
		MOTOROLA CORP.	20 PIN TB HOLDER KIT	PART #V158		
		MOTOROLA CORP.	I/O SLOT COVER	PART #V20	BLANK MODULE	UTILIZE WHERE NEEDED
		MOTOROLA CORP.	16 DI + 4 DO (EE) + (4)± 20 mA AI	PART #V245	PART #V245	MIXED I/O, PROVIDE (2) SPARES
		MOTOROLA CORP.	24 VDC PLUG-IN POWER SUPPLY	PART #V260 (FPN1653A)	24V FLOATING MAX, 150 mA OUTPUT	FLOATING POWER SUPPLY
		WILKERSON	SCADA INTERFACE BOARD	PART #SIB-V 245/V453		PROVIDE (2) SPARES

SYMBOL	NAME	PART				REMARKS
		REMAINING PARTS LIST				
		MAKE	TYPE	MODEL OR CAT. #	RATING	
PC-1	BACKUP PUMP CONTROLLER	WILKERSON	DUPLEX LIFT STATION	DR1920	10 AMP CONTACTS	DIN RAIL MOUNTING
FTB1, FTB2	FUSED TERMINAL BLOCKS	PHOENIX CONTACT		UK 5-HESI	PROVIDE 1, 2, & 5A FUSES	PROVIDE COOPER BUSSMAN GDB SERIES FUSES
F1, L1	PROCESS METER	PRECISION DIGITAL	4 DIGIT, 1.2" DISPLAY	PD765-6R3-10		PROVIDE 4-20 mA OUTPUT
CB9	CIRCUIT BREAKER	SQUARE D	SINGLE POLE	QOU-120	120 V, 20A	
CB10, CB11, CB12	CIRCUIT BREAKER	SQUARE D	SINGLE POLE	QOU-115	120 V, 15A	PROVIDE BY THE CITY, INSTALLED BY CONTRACTOR
PL1, PL3, PL8	INDICATOR LIGHT	SQUARE D	CLASS 9001	SKT - 38LYA9	120 V, LED TYPE	YELLOW LENS & PRESS TEST
PL2, PL4, PL9	INDICATOR LIGHT	SQUARE D	CLASS 9001	SKT - 38LRR9	120 V, LED TYPE	RED LENS & 1 N.O., 1 N.C.
PL5, PL6, PL7	INDICATOR LIGHT	SQUARE D	CLASS 9001	SKT - 38LRR9	120 V, LED TYPE	RED LENS & PRESS TEST
S1, S2, S3	HOA SWITCH ASSEMBLY	SQUARE D	OIL-TIGHT CLASS 9001	SKS - 43B H2	10A @ 120V	
ZS3	CONTROL PNL INTRUSION SENSOR	OMRON	CYLINDRICAL, SHORT BARREL	E2F-X5F1 (GRAINGER-1EA77)	12-24VDC, 3-WIRE PNP	W/ TELEMECANIQUE MTG. BRACKET (GRAINGER - 5B233)
FF3	LED LIGHTING FIXTURE	HOFFMAN	LED	LEDA1S35	120 V, 5W	W/TOGGLE SWITCH-TS
WR1	WALL RECEPTACLE	HUBBELL	DUPLEX W/GFI	GF5262	120V AC, 15A GFI	W/ALUMINUM OUTLET BOX AND COVER
TB1, TB2	TERMINALS	PHOENIX CONTACT		UK5N TERMINALS	30 A W/ ALUM. DIN RAIL	50 CONTACTS (MIN)
ITS	INSULATED TERMINAL STRIP	ALLEN-BRADLEY	STYLE AA	1492-15-T	600 V AC NEUTRAL BLOCK	4 CONTACTS (MIN) W/ SHORTING BARS
GB3	GROUND BAR SYSTEM	PANDUIT	12 PORT WITH MAIN LUG	UGB2/0-414-12		COPPER CONSTRUCTION
NB1	NEUTRAL DISTRIBUTION BLOCK	BUSSMAN	SINGLE POLE	16220-1	600V, 200A	COPPER CONSTRUCTION
TA1, TA2, TA3, CR1, CR2, CR5, CR13	CONTROL RELAY	POTTER & BRUMFIELD	8 PIN PLUG-IN	KRPA-11AG-120	120V AC COIL, 10A CONTACTS	DPDT W/ SOCKET AND HOLD DOWN SPRING
FM1, FM2, FM3, CR3, CR4, CR6, CR7, CR8, CR9, CR10, CR11, CR12	CONTROL RELAY	POTTER & BRUMFIELD	8 PIN PLUG-IN	KRPA-14AG-120	120V AC COIL, 10A CONTACTS	3PDT W/ SOCKET AND HOLD DOWN SPRING
LEV	WET WELL LEVEL SENSOR	PULSAR, INC.	ULTRASONIC	dB10 TRANSDUCER W/ ULTRA 4 TRANSMITTER	1 TD 32.8 FT RANGE 115VAC/24VDC POWERED W/ 4-20MA AND (2) RELAY OUT W/ KEY PAD, DISPLAY, AND TROPICALIZATION	CITY FORCES WILL PROVIDE ASSISTANCE WITH MOUNTING AND CALIBRATION
PCP	PUMP CONTROL PANEL ENCLOSURE	HOFFMAN	NEMA 4X, 3P LATCH, 48"x36"x12"	48"x36"x12", SS	304 SS, POWDER COATED WHITE	3P LATCH W/STOP KIT. EXTERNAL FINISH DURABLE RAL 9003 WHITE POWER COAT.
PP	ENCLOSURE PANEL	HOFFMAN	39" X 33", STEEL	A42P36	STEEL, 12 GAUGE	
NB1	NEUTRAL DISTRIBUTION BLOCK	BUSSMAN	SINGLE POLE	16220-1	600V, 175A	
ALS	AREA LIGHT SWITCH	HUBBELL	SINGLE POLE	HBL1221	277V, 20A	
SPD-3	SURGE PROTECTION DEVICE TYPE 3	PHOENIX CONTACT	3 CONDUCTOR SYSTEM (L, N, G)	2856812	120V, 25A	



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CKD: WCN	
DATE: 04/14/2023	

109TH AVENUE PUMP STATION REHABILITATION	SHEET E-19
ELECTRICAL PARTS SCHEDULE (2)	

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DRN: SDV	
CKD: WCN	
DATE: 04/14/2023	

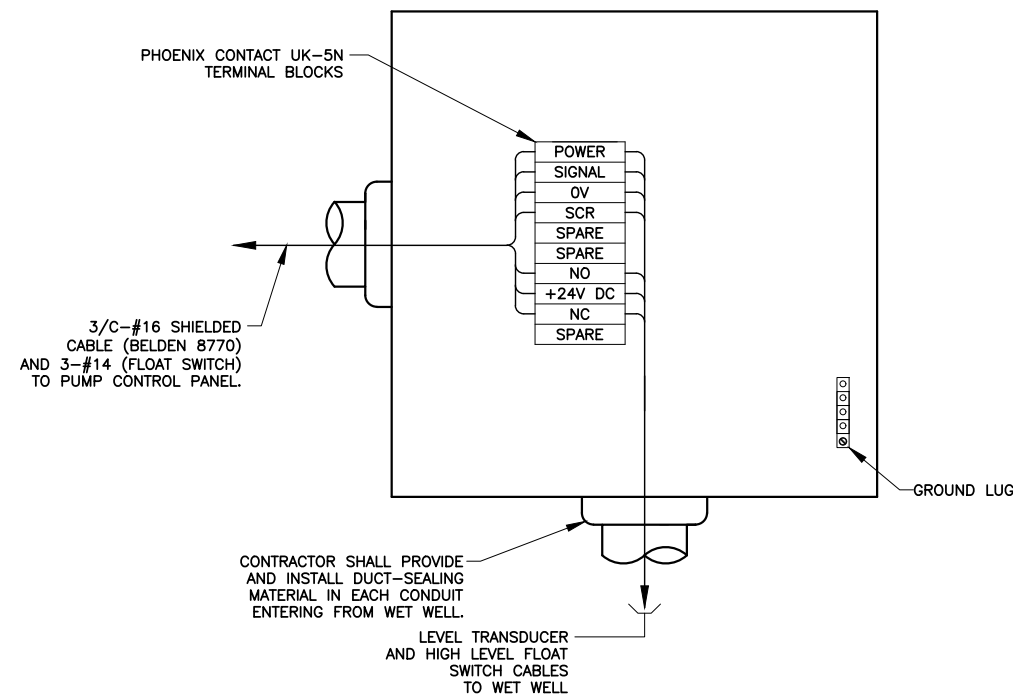
109TH AVENUE PUMP STATION REHABILITATION	SHEET E-19
ELECTRICAL PARTS SCHEDULE (2)	

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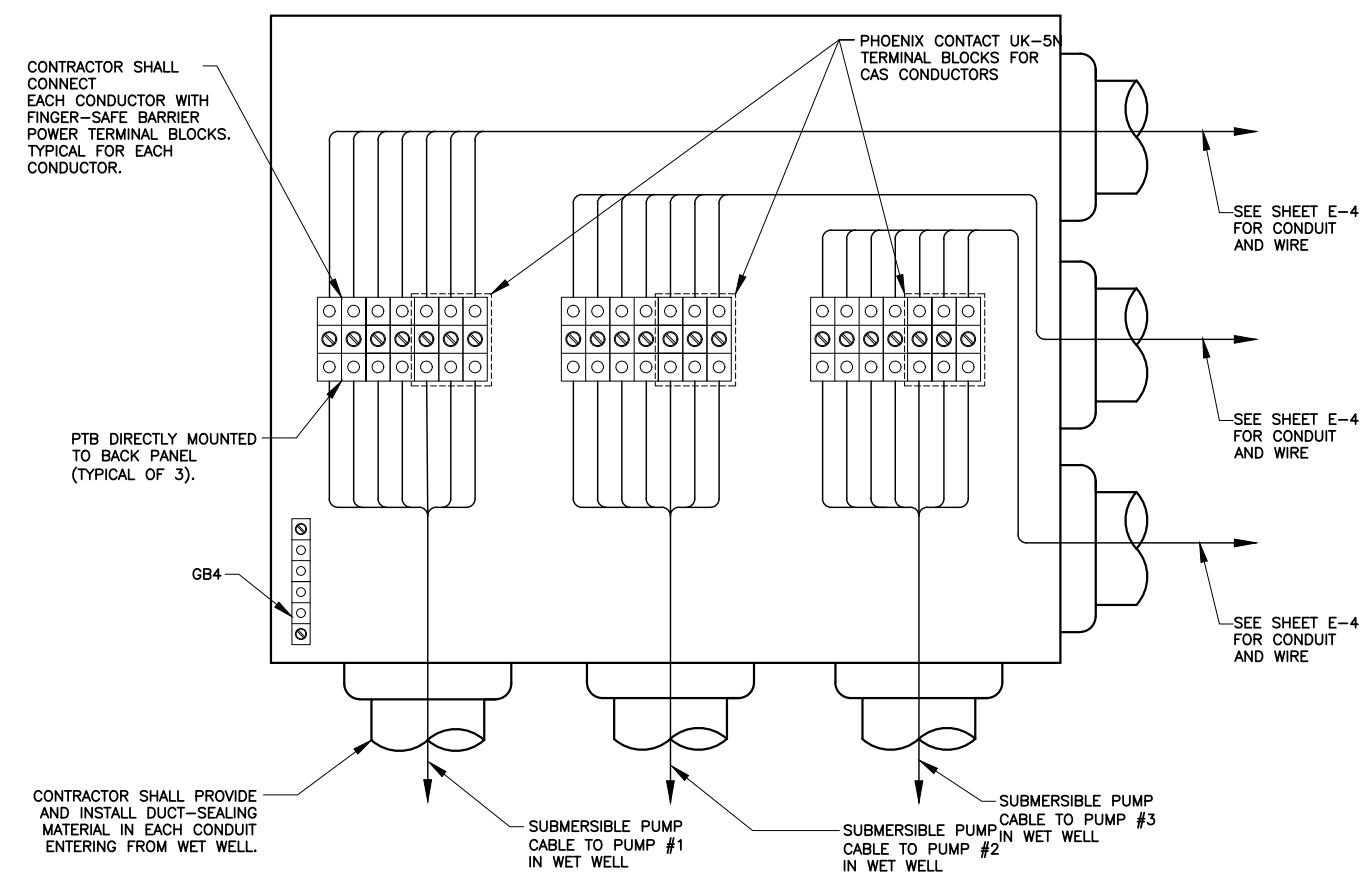
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INSTRUMENTATION AND CONTROLS JUNCTION BOX DETAIL
SCALE: N.T.S.

- NOTES:**
- COVER NOT SHOWN FOR CLARITY
 - BOND GROUNDING CONDUCTORS TO ENCLOSURE BACK PANEL.
 - CONNECTION TO GROUND LUGS NOT SHOWN FOR CLARITY.
 - CONTRACTOR SHALL PROVIDE FEED-THROUGH TERMINAL BLOCKS (PHOENIX CONTACT UK5N) ON ALUMINUM DIN RAIL. STRANDED COPPER WIRE FOR TERMINAL BLOCK CONNECTIONS SHALL BE MADE WITH A FERRULE TO WIRE TERMINATION. THE FERRULE SHALL BE INSULATED AND EXTEND FROM THE STRIPPED INSULATION, THEN COMPRESSED WITH PHOENIX CONTACT CRIMPFOX CENTRUS OR APPROVED EQUAL). THE FERRULE SHALL BE MANUFACTURED BY PHOENIX CONTACT, OR EQUAL.

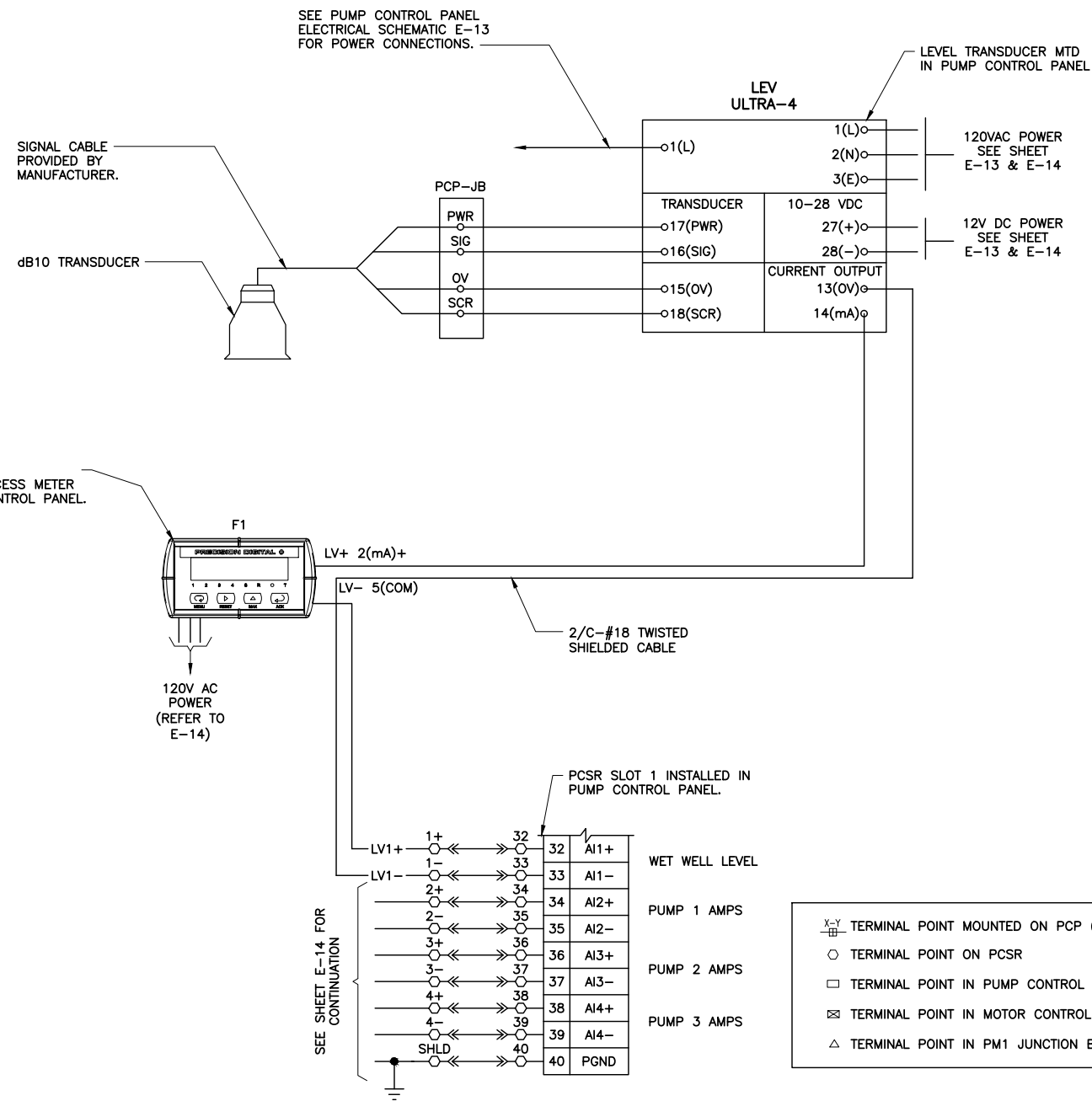


PUMP MOTOR CONNECTIONS JUNCTION BOX DETAIL
SCALE: N.T.S.

- NOTES:**
- COVER NOT SHOWN FOR CLARITY
 - BOND GROUNDING CONDUCTORS TO ENCLOSURE BACK PANEL.
 - CONNECTION TO GROUND LUGS NOT SHOWN FOR CLARITY.
 - CONTRACTOR SHALL PROVIDE FEED-THROUGH TERMINAL BLOCKS (PHOENIX CONTACT UK5N) ON ALUMINUM DIN RAIL. STRANDED COPPER WIRE FOR TERMINAL BLOCK CONNECTIONS SHALL BE MADE WITH A FERRULE TO WIRE TERMINATION. THE FERRULE SHALL BE INSULATED AND EXTEND FROM THE STRIPPED INSULATION, THEN COMPRESSED WITH PHOENIX CONTACT CRIMPFOX CENTRUS OR APPROVED EQUAL). THE FERRULE SHALL BE MANUFACTURED BY PHOENIX CONTACT, OR EQUAL.

EDA
Electrical Design Associates
3001 N. ROCKY POINT DRIVE, STE. #200
TAMPA, FLORIDA 33607
PHONE: (813) 367-3536
FAX: (813) 819-5557
C.O.A. No. 8879
MICHAEL J. CAHILL, P.E.
Florida P.E. No. 70837

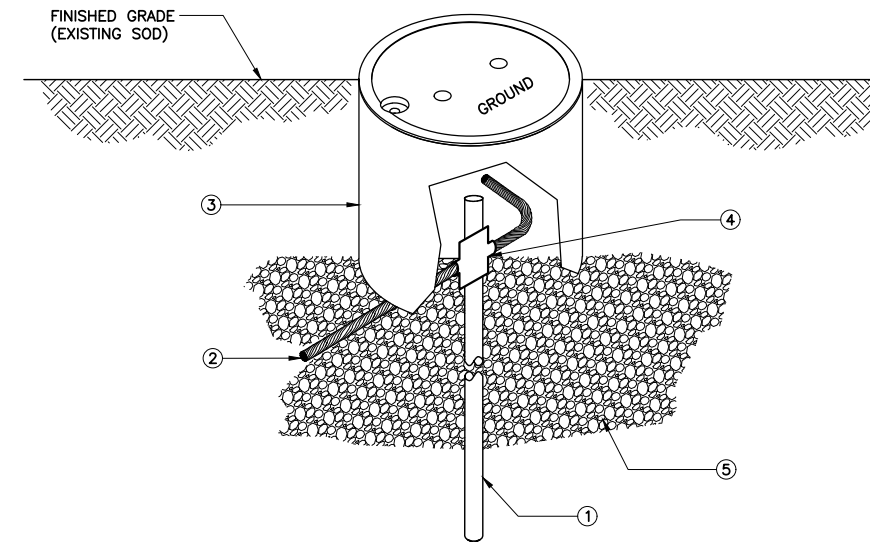
<p>7650 West Courtney Campbell Causeway Waterford Plaza, Suite 700 Tampa, Florida 33607 813.286.1711 tel Certificate of Authorization No. 8115</p>	<p>MICHAEL J. CAHILL, P.E. FL. P.E. LICENSE NO. 70837</p>	No.	DATE	REVISIONS	<p>DES: MJC DRN: SDV CKD: WCN DATE: 04/14/2023</p>	<p>CITY of TAMPA WASTEWATER DEPARTMENT</p>	<p>109TH AVENUE PUMP STATION REHABILITATION ELECTRICAL DETAILS (SHT. 1 OF 6)</p>	SHEET	
		3							<p>E-20</p>
		2							
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LEVEL TRANSDUCER WIRING SCHEMATIC

ALL WIRING TO BE VERIFIED/CONFIRMED WITH MANUFACTURER PRIOR TO INSTALLATION

- X-Y TERMINAL POINT MOUNTED ON PCP (INTERFACE TO PCSR)
- TERMINAL POINT ON PCSR
- TERMINAL POINT IN PUMP CONTROL PANEL (PCP)
- ⊗ TERMINAL POINT IN MOTOR CONTROL PANEL (MCP)
- △ TERMINAL POINT IN PM1 JUNCTION BOX (PM1-JB)



GROUND TEST WELL DETAIL KEYED NOTES:

- ① NEW GROUND ROD, STAINLESS STEEL, 5/8" X 10'-0" (TYP).
- ② #4 BARE STRANDED COPPER GROUNDING ELECTRODE CONDUCTOR (TYP).
- ③ PROVIDE AND INSTALL OLDCASTLE PRECAST ENCLOSURE SOLUTIONS #F08 BOX WITH #F08C CAST IRON LID MARKED "GROUND".
- ④ EXOTHERMIC WELD.
- ⑤ PROVIDE 6" MINIMUM OF CRUSHED STONE.

GROUNDING TEST WELL DETAIL

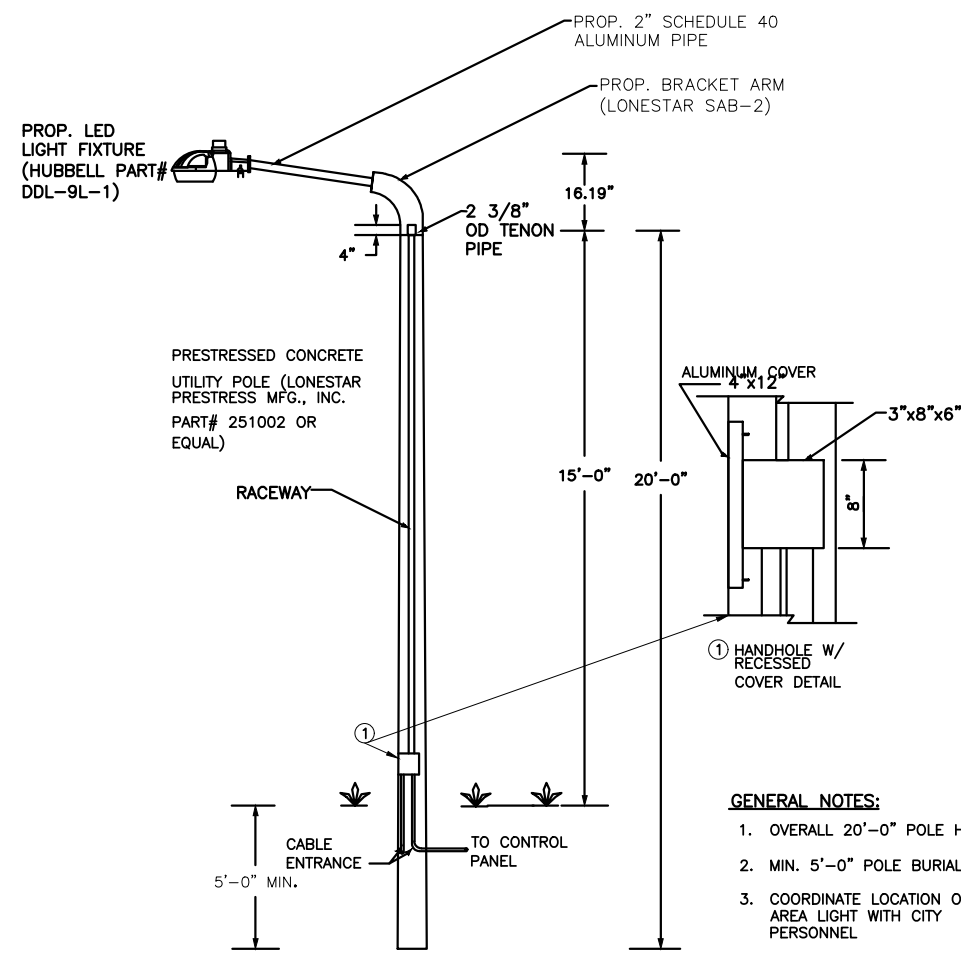
SCALE: N.T.S.

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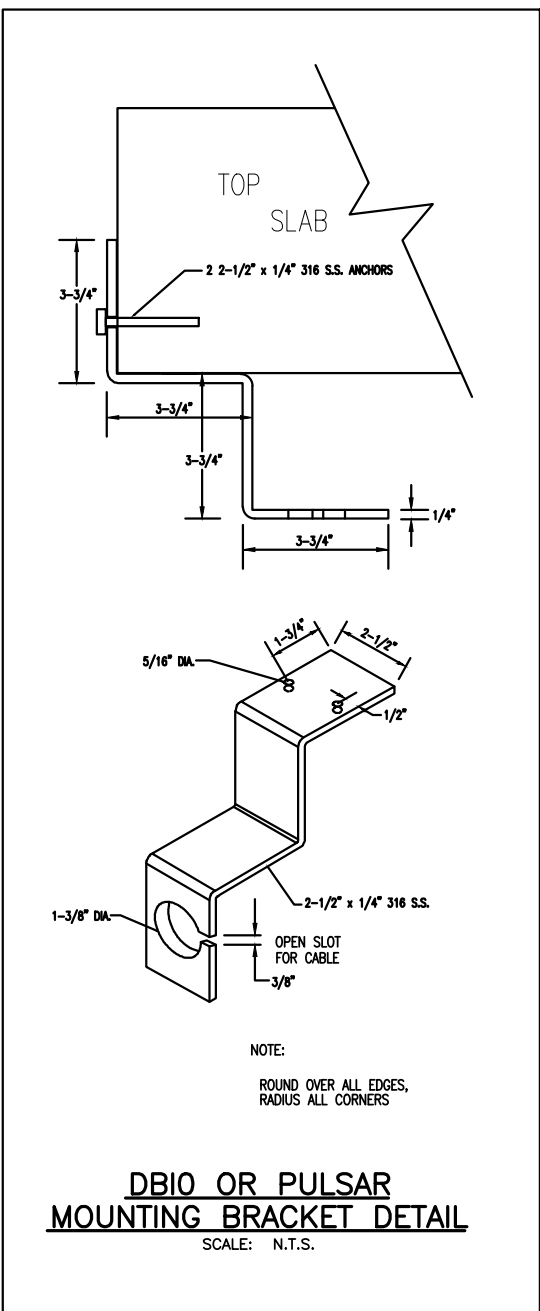


AREA LIGHT (AL) DETAIL
SCALE: N.T.S.

- GENERAL NOTES:**
1. OVERALL 20'-0" POLE HEIGHT
 2. MIN. 5'-0" POLE BURIAL
 3. COORDINATE LOCATION OF THE AREA LIGHT WITH CITY PERSONNEL
 4. USE STAINLESS STEEL PIPE STRAPS SPACED 2'-0" APART TO MOUNT CONDUIT
 5. THE LIGHT POLE SHALL BE DESIGNED TO MEET THE SPECIFIED WIND LOAD CRITERIA AND THE LIGHT POLE SUBMITTAL SHALL INCLUDE THE LIGHT POLE CALCULATIONS MEETING THE WIND LOAD CRITERIA AND SHALL BE SIGNED AND SEALED BY A LICENSED PROFESSIONAL ENGINEER.

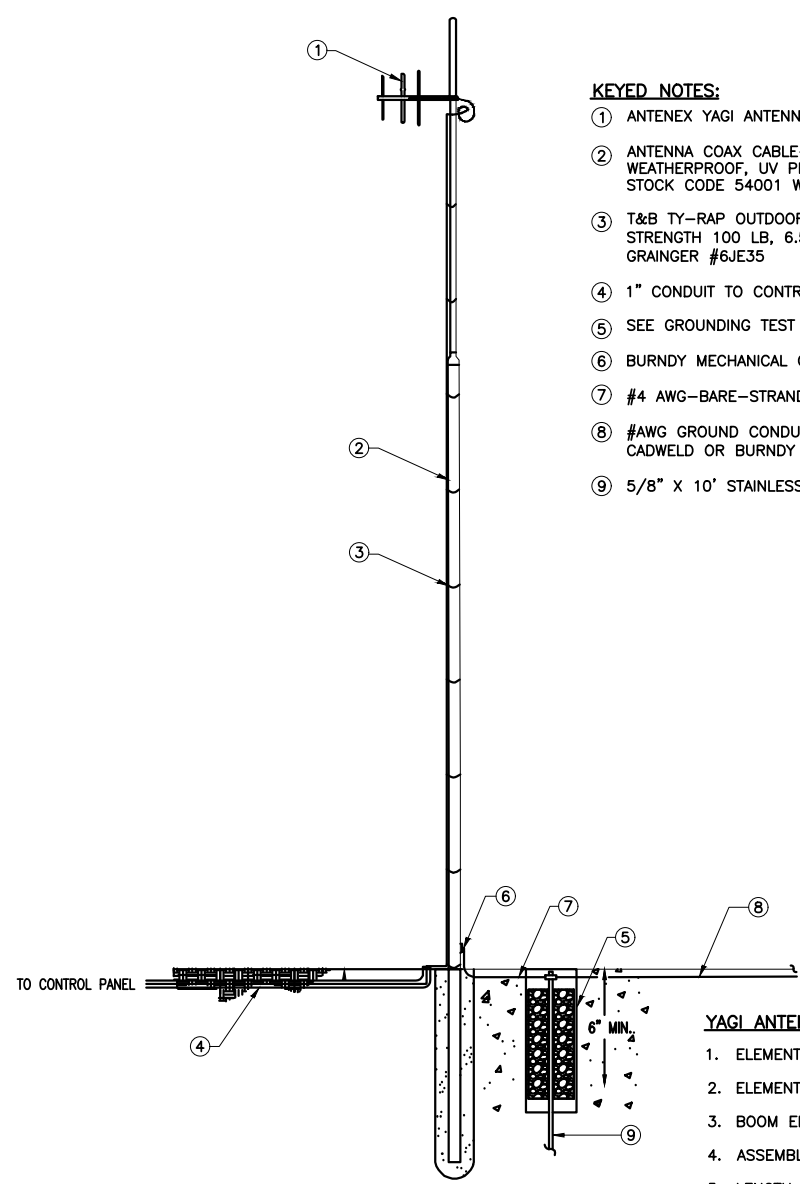
WIND DESIGN DATA:
 CODE: FLORIDA BUILDING CODE 2020, 7TH EDITION AND ASCE/SEI 7-16

BASIC WIND SPEED(V _{ult})	151 MPH
NOMINAL WIND SPEED(V _{asd})	117 MPH
CATEGORY (RISK)	III
WIND EXPOSURE	C
DESIGN WIND PRESSURE (PSF)	55.7 PSF



DBIO OR PULSAR MOUNTING BRACKET DETAIL
SCALE: N.T.S.

NOTE:
ROUND OVER ALL EDGES, RADIUS ALL CORNERS



ANTENNA DETAIL
SCALE: N.T.S.

KEYED NOTES:

- 1 ANTENEX YAGI ANTENNA MODEL Y4503 (DIRECTIONS POINT UP, AS SHOWN)
- 2 ANTENNA COAX CABLE-RG-8/9913; AIR-DIELECTRIC TYPE, LOW LOSS, WEATHERPROOF, UV PROTECTED. TIMES MICROWAVE SYSTEMS LMR-400 STOCK CODE 54001 WITH REQUIRED CONNECTORS.
- 3 T&B TY-RAP OUTDOOR CABLE TIES, 304 STAINLESS STEEL, TENSILE STRENGTH 100 LB, 6.5" LONG, UL LISTED- MODEL SS7-180-10 GRAINGER #6JE35
- 4 1" CONDUIT TO CONTROL PANEL
- 5 SEE GROUNDING TEST WELL DETAIL, SHEET E-20
- 6 BURNDY MECHANICAL CONNECTOR #KA25-4-1/0
- 7 #4 AWG-BARE-STRANDED GROUNDED CONDUCTOR
- 8 #8 AWG GROUND CONDUCTOR TO CONTROL PANEL GROUNDING SYSTEM, USE CADWELD OR BURNDY MECHANICAL CONNECTOR #VT2525
- 9 5/8" X 10' STAINLESS STEEL GROUND ROD

YAGI ANTENNA SPECIFICATIONS

1. ELEMENTS:	3
2. ELEMENT MATERIAL	3/8" DIAMETER SOLID 6061-T6 ALUMINUM ROD
3. BOOM ELEMENT:	HEAT TREATED 6061-T6 ALUMINUM
4. ASSEMBLY:	FULLY WELDED
5. LENGTH:	20 3/16 INCHES
6. WEIGHT:	5 LBS.
7. SHIPPING:	ALL MODELS ARE UPS SHIPPABLE
8. MOUNTING:	UP TO 2 INCH MAST
9. HARDWARE:	STAINLESS STEEL
10. TERMINATION TYPE:	N FEMALE
11. LIGHTING PROTECTION:	DC GROUNDED
12. RATE WIND VELOCITY:	151 MPH
13. LATERAL THRUST:	12.2 LBS

EDA
 Electrical Design Associates
 3001 N. ROCKY POINT DRIVE, STE. #200
 TAMPA, FLORIDA 33607
 PHONE: (813) 367-3536
 FAX: (813) 819-5557
 C.O.A. No. 8879
 MICHAEL J. CAHILL, P.E.
 Florida P.E. No. 70837

AECOM
 7650 West Courtney Campbell Causeway
 Waterford Plaza, Suite 700
 Tampa, Florida 33607 813.286.1711 tel
 Certificate of Authorization No. 8115

MICHAEL J. CAHILL, P.E.
 FL. P.E. LICENSE NO. 70837

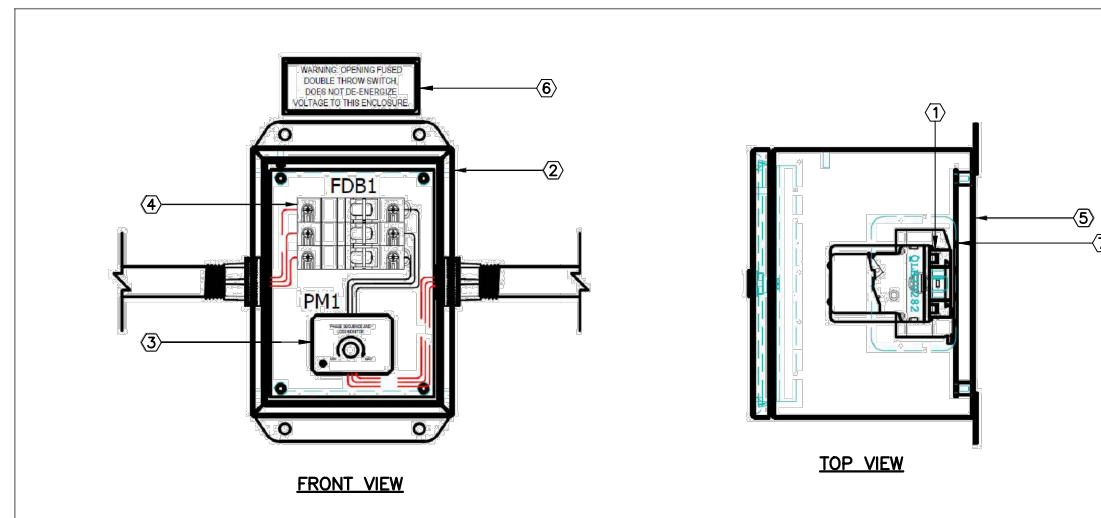
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DES: MJC
 DRN: SDV
 CKD: WCN
 DATE: 04/14/2023

CITY of TAMPA
WASTEWATER DEPARTMENT

109TH AVENUE PUMP STATION REHABILITATION
ELECTRICAL DETAILS
 (SHT. 3 OF 6)

SHEET
E-22



PHASE MONITOR (PM1) JUNCTION BOX

SCALE: N.T.S.

- KEYED NOTES:**
- ① 8 PIN OCTAL SOCKET, DIN RAIL MOUNTED OT08.
 - ② NEMA 4X 316 STAINLESS STEEL ENCLOSURE.
 - ③ 3-PHASE POWER MONITOR, PM1.
 - ④ FUSE DISTRIBUTION BLOCK, FDB1.
 - ⑤ BACK OF ENCLOSURE.
 - ⑥ PROVIDE WARNING LABEL ON ENCLOSURE DOOR.
LABEL TO READ:
"WARNING - OPENING FUSED DOUBLE THROW SWITCH DOES NOT DE-ENERGIZE VOLTAGE TO THIS ENCLOSURE."
 - ⑦ BACK PLATE PROVIDED WITH ENCLOSURE

109TH

PM1 JUNCTION BOX		
EJ12108S12	ENCLOSURE, NEMA 4X, 316SS 12"x10"x8"	HAMMOND
RB08-PC	RELAY SOCKET, 8-PIN, 600V	MPE
SUA-440-ASA	PHASE MONITOR RELAY, 480V, SPDT,	ATC-DIVERSIFIED
1492-FB3C30-L	FUSE BLOCK/DISCONNECT	ALLEN BRADLEY
KTK-R-2	FUSES	BUSSMAN



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Tampa, Florida 33607 813.286.1711 tel
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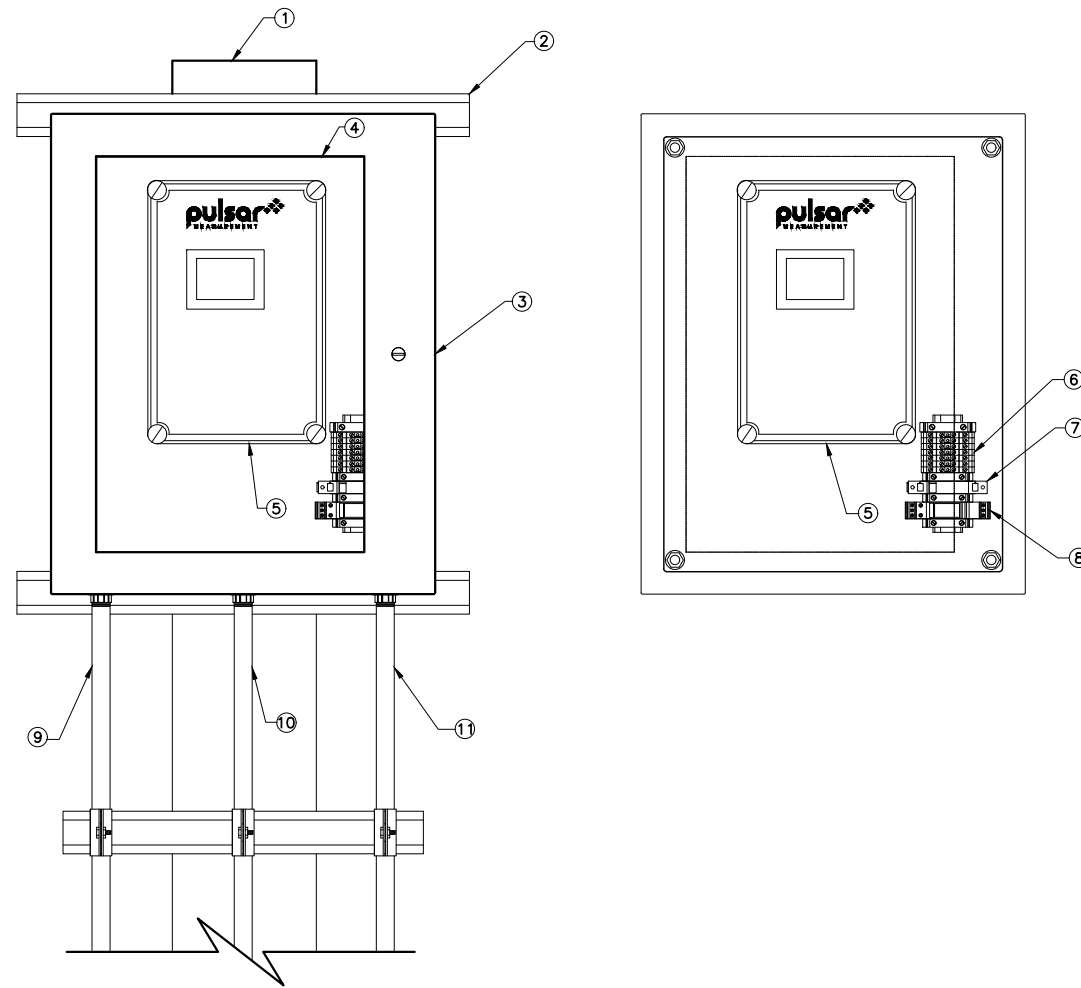
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WASTEWATER DEPARTMENT

109TH AVENUE PUMP STATION REHABILITATION
ELECTRICAL DETAILS
(SHT. 4 OF 6)

SHEET
E-23

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PLotted BY: Sandy Reyes DRAWING FILE: C:\Users\sreyes\Electrical Design Associates\ACTIVE-ORL - Documents\AECOM\Tampa\Year 1 - Prescott & 109th\05a_IFC 109th GENVE-23.dwg
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FLOW TRANSMITTER CABINET DETAILS

SCALE: N.T.S.

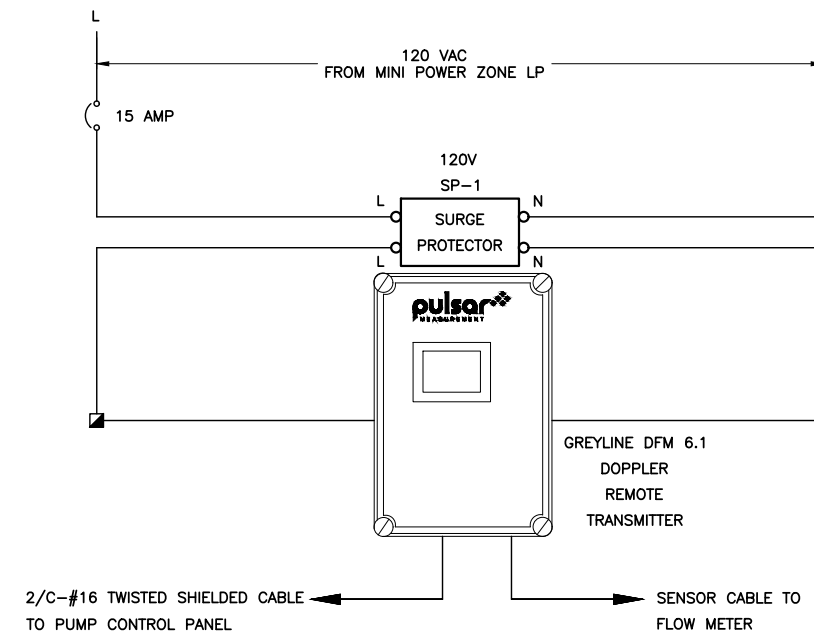
NOTE: FRONT ENCLOSURE DOOR NOT SHOWN FOR CLARITY.

GENERAL NOTES:

- REFER TO SHEET E-25 FOR TRANSMITTER WIRING SCHEMATIC WHICH INCLUDES CONNECTIONS TO FLOW METER ELEMENT, PROCESS METER AND PCSR (IN PUMP CONTROL PANEL).

KEYED NOTES:

- FLOW METER TRANSMITTER TO BE INSTALLED ON ELECTRICAL SERVICE ENTRANCE RACK. SEE SHEET E-7 FOR DETAILS
- PROVIDE AND INSTALL 1-5/8" X 1-5/8" STAINLESS STEEL UNISTRUT WITH STAINLESS STEEL HARDWARE. NOTE: INSTALL ALL BOLTS FOR UNISTRUT COMPLETELY THROUGH CONCRETE POSTS. SEE SHEET E-7 FOR DETAILS.
- PROVIDE AND INSTALL NEW FLOW TRANSMITTER CABINET. 20" X 16" X 8" NEMA 4X STAINLESS STEEL WITH STAINLESS STEEL STOP KIT AND WINDOW. HOFFMAN CSD201608SS6.
- PROVIDE AND INSTALL HOFFMAN CP2016G BACKPLATE.
- TRANSMITTER TO BE LOCATED IN FLOW TRANSMITTER CABINET. DFM 6.1-A-2-B-2-A-1-B-1-A
- PROVIDE AND INSTALL TERMINAL BLOCKS WITH ALUMINUM DIN RAIL. PHOENIX CONTACT UK5N.
- PROVIDE AND INSTALL SINGLE-POLE CIRCUIT BREAKER. 120V, 15A. SQUARE D QOU-115.
- PROVIDE AND INSTALL INCOMING 120V POWER SURGE PROTECTION DEVICES. PHOENIX CONTACT #2905228.
- PROVIDE AND INSTALL (2) #12 XHHW-2 CU + (1) #12 XHHW-2 CU GND IN 3/4" CONDUIT FROM MINI POWER-ZONE 'LP' TO FLOW TRANSMITTER FOR 120V POWER. CIRCUIT LP-2. REFER TO SHEET E-4 FOR MINI POWER-ZONE LOCATION.
- PROVIDE AND INSTALL NEW FLOW METER TRANSMITTER 4-20 mA SIGNAL CABLE (BELDEN 8719) IN 3/4" CONDUIT. TO PUMP CONTROL PANEL FOR FLOW METER REMOTE TRANSMITTER 4-20mA SIGNAL. REFER TO SHEET E-6 & E-7 FOR PUMP CONTROL PANEL LOCATION.
- CONTRACTOR SHALL PROVIDE AND INSTALL 3/4" CONDUIT FOR MANUFACTURER SUPPLIED SENSOR CABLE (CONTRACTOR TO VERIFY CONDUIT SIZE REQUIREMENTS WITH MANUFACTURER). PROVIDE NON-METALLIC, WEATHERPROOF, FLEXIBLE CONNECTION TO THE FLOW METER SENSOR. INSTALL CONDUIT/CABLE FROM FLOW METER SENSOR TO TRANSMITTER. REFER TO SHEET E-6 AND E-7 FOR TRANSMITTER LOCATION.



FLOW TRANSMITTER CABINET WIRING CHEMATIC

SCALE: N.T.S.



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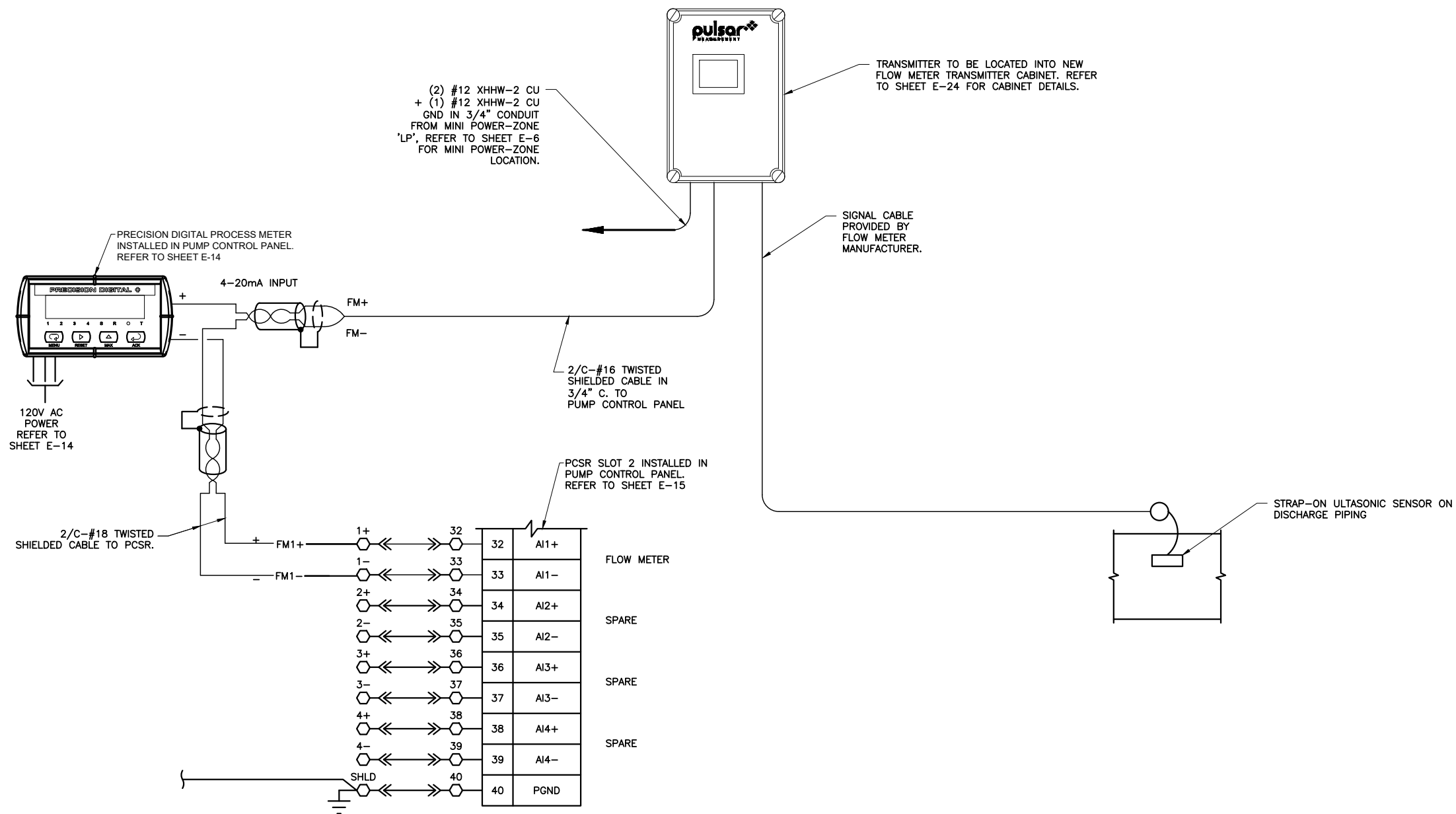
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109TH AVENUE PUMP STATION REHABILITATION
ELECTRICAL DETAILS
 (SHT. 5 OF 6)

SHEET
E-24



FLOW TRANSMITTER WIRING SCHEMATIC

ALL WIRING TO BE VERIFIED/CONFIRMED WITH MANUFACTURER PRIOR TO INSTALLATION

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