

CITY OF LAKELAND

WATER UTILITIES ENGINEERING

SEWER PUMP STATION DETAILS & SPECIFICATIONS

09/30/2025

THE CITY OF LAKELAND WATER UTILITIES ENGINEERING DEPARTMENT PROVIDES STANDARD DETAILS & SPECIFICATIONS FOR 3 VERSIONS OF PUMP STATIONS.
PLEASE SELECT THE CORRECT FIT BASED ON STATION SIZE AND NUMBER OF PUMPS.

Pump Station Versions		
Version	Structure & Piping Details Page	Electric Details Page
Duplex Stations Max 40HP and Max 100,000GPD	D1	E1
Not Included (reserved for future use)	D2	E2
Duplex Stations Over 40HP and 100,000GPD	D3	E3
Triplex Stations Over 40HP and 100,000GPD	D4	E4

PREPARED BY

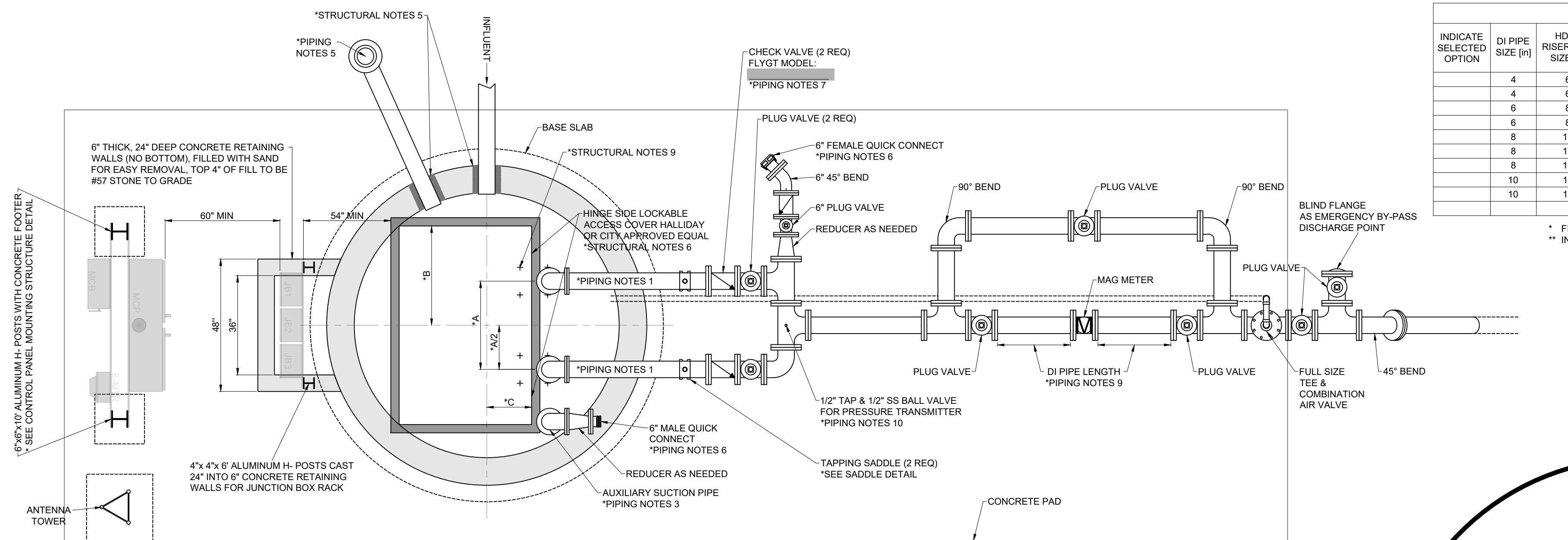


ENGINEERING DIVISION

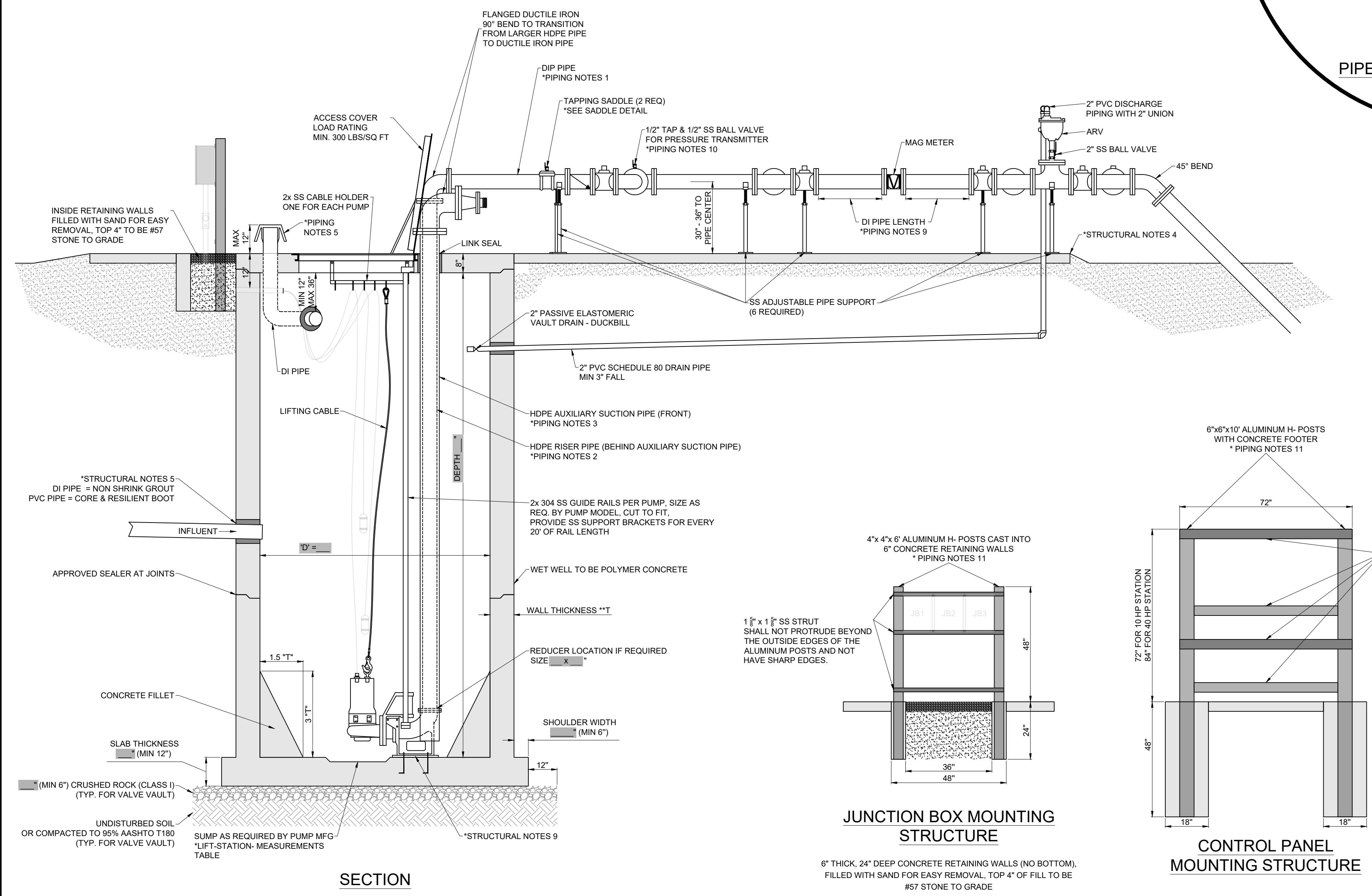
501 E LEMON ST, MAIL CODE W-ADMIN/ENG

LAKELAND, FLORIDA 33801-5050

PHONE (863) 834-8316



DO NOT FORCE- OR GRAVITY-MAIN SHALL
NOT PASS UNDER ELECTRICAL PANELS,
VALVE VAULT, GENERATOR PAD, OR
BYPASS PUMP PAD



UNCTION BOX MOUNTING STRUCTURE

CONTROL PANEL MOUNTING STRUCTURE

LIFT-STATION MEASUREMENTS									
CATE C E CTED TION	DI PIPE SIZE [in]	HDPE RISER PIPE SIZE [in]	AUX SUCTION PIPE SIZE [in]	WET WELL			DIMENSIONS [in]		
				D [ft]	T** [in]	ACCESS COVER	A	B	C
	4	6	*	6	7	*	26	*	*
	4	6	*	8	9	*	26	*	*
	6	8	*	6	7	*	32	*	*
	6	8	*	8	9	*	32	*	*
	8	10	*	8	9	*	45	*	*
	8	10	*	9	10	*	45	*	*
	8	10	*	10	11	*	45	*	*
	10	12	*	9	10	*	48	*	*
	10	12	*	10	11	*	48	*	*

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GENERAL NOTES:
THIS DRAWING PROVIDES DETAILS FOR CONSTRUCTION OF PUMP STATIONS TO BE OWNED AND MAINTAINED BY THE CITY OF LAKELAND. LAYOUT AND ORIENTATION OF FEATURES, SITE DIMENSIONS, TOPOGRAPHY, AND DRAINAGE SHALL BE PROVIDED ON A SEPARATE PUMP STATION SITE PLAN SCALED NOT SMALLER THAN 1"=5'.
REFER TO CITY OF LAKELAND "WASTEWATER MATERIALS SPECIFICATION" FOR APPROVED BRANDS, MODELS, AND VENDORS.
SITE CONDITIONS ARE INTENDED TO SHOW TYPICAL LAYOUT.

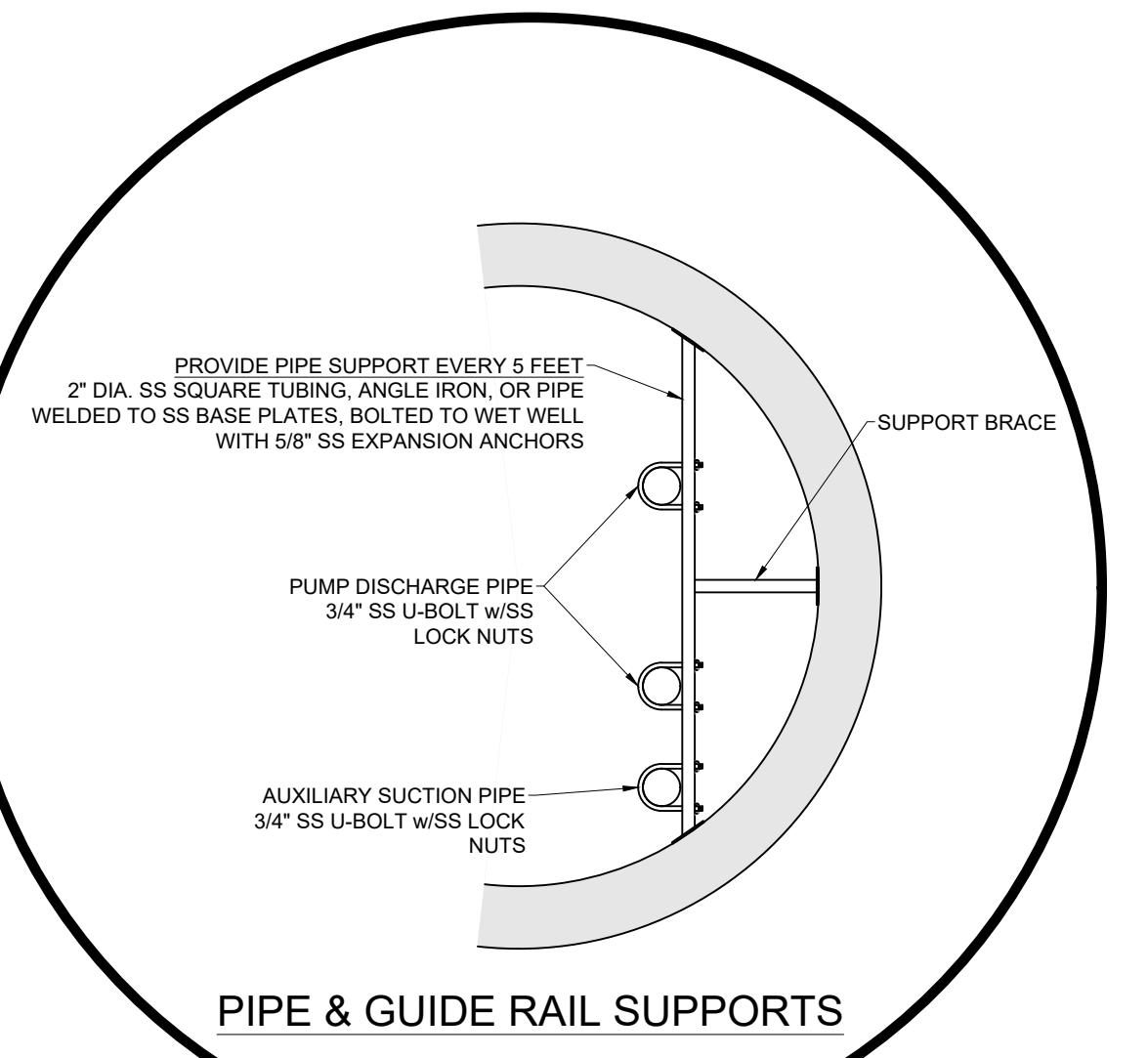
STRUCTURAL NOTES:
PRECAST WET WELL STRUCTURE SHOP DRAWING SHALL BE SUBMITTED FOR REVIEW.
WET WELL AND KING PIN MANHOLE SHALL BE PRECAST POLYMER CONCRETE IN ACCORDANCE WITH ASTM C 478, ASTM C 857, AND ACI 350-06.
NO LIFTING HOLES ARE PERMITTED THROUGH PRECAST STRUCTURES.
REINFORCEMENT SHALL USE ACID RESISTANT REINFORCEMENT (FRP BAR) IN ACCORDANCE WITH ACI 440.1R-06 AS APPLICABLE FOR POLYMER CONCRETE DESIGN.
WET WELL LOWER SLAB SHALL BE POSITIVELY JOINTED TO WET WELL WALL. USEABLE WET WELL VOLUME SHALL CONFORM TO THE REQUIREMENTS OF THE PUMP MANUFACTURER AND CITY DESIGN STANDARDS.
TOP OF SLAB TO BE A MINIMUM OF 4" ABOVE FINISHED GRADE, SITE PLAN SHALL DEPICT DRAINAGE TO BE AWAY FROM THE STATION.
NON-SHRINK GROUT SHALL SEAL AROUND ALL PIPE UNLESS SPECIFIED OTHERWISE BY THE CITY.
FOR DUPLEX STATIONS, HINGES SHALL BE ON LONG SIDE OF OPENING OPPOSITE OF PANEL SIDE
ALL NUTS, BOLTS, AND WASHERS LOCATED IN WET WELL AND VALVE VAULT SHALL BE 304 SS.
ALL ANCHORS SHALL BE HILTI TYPE 316 SS OR APPROVED EQUAL WITH TYPE 316 SS FASTENERS.
 $\frac{1}{2}$ SS PUMP BASE PLATE & SS ANCHOR BOLT LOCATION AND SIZE SHALL BE PER MANUFACTURER'S SHOP DRAWING.

PIPEING NOTES:
GENERAL PIPING MUST BE DUCTILE IRON PIPE 401 LINED.
RISER PIPES IN WET WELL FROM PUMP TO FIRST BEND ABOVE WET WELL SHALL BE HDPE SDR-11 AND MUST BE ONE PIPE SIZES LARGER THAN CALCULATED DI PIPE SIZE PIPES.
AUXILIARY SUCTION PIPE IN WET WELL TO FIRST BEND ABOVE WET WELL SHALL BE HDPE SDR-11 AND MUST BE TWO PIPE SIZES LARGER THAN CALCULATED DI PIPE SIZE RISER PIPES.
ALL HDPE AND DI PIPING CAN BE SUBSTITUTED BY STAINLESS STEEL 316 SS, NO UPSIZING REQUIRED EXCEPT AUXILIARY SUCTION PIPE MUST BE ONE PIPE SIZE LARGER THAN RISER PIPES.
4" - 6" = SCHEDULE 40; > 6" = SCHEDULE 10
VANDAL-PROOF HOODED VENT CAP, LOCATED NEAR CLOSEST FENCE SIDE OR CORNER. UNDERGROUND PIPING TO BE PVC. RISER PIPING ABOVE GROUND TO BE DIP, PROTECTO 401 LINED, PAINTED ORANGE PER SPEC.
(SEE SITE PLAN FOR TRUE ORIENTATION)
BY-PASS CONNECTION TO BE BRASS QUICK-DISCONNECT TYPE, COUPLER AND PLUG.
CHECK VALVES:

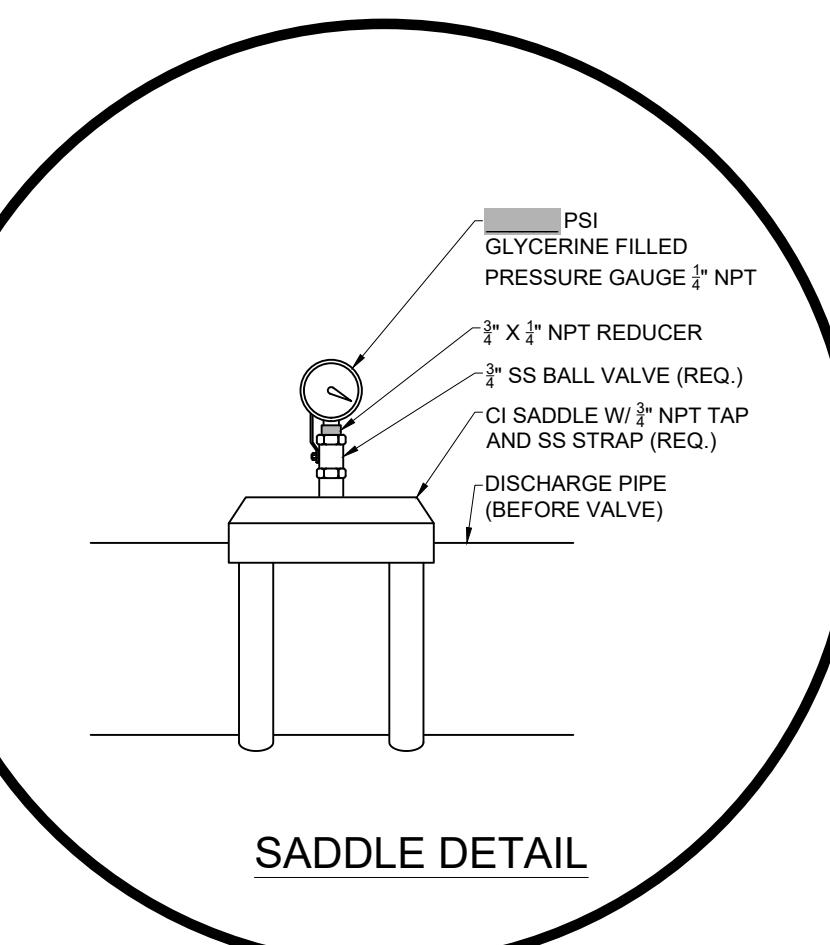
- SWING CHECK VALVE SHALL BE DEZURIK, MUELLER, OR KENNEDY
- BALL CHECK VALVE SHALL BE FLYGT (MINIMUM 10 FEET OF STATIC HEAD REQUIRED)

PUMP SHALL PASS MINIMUM 3" DEFORMABLE SOLIDS.
DUCTILE IRON PIPE LENGTH ON EACH SIDE OF MAG METER PER MANUFACTURER'S RECOMMENDATION. MINIMUM 30" FOR CALIBRATION.
1/2" TAP & 1/2" SS BALL VALVE INSTALLED ON ALL STATIONS. PRESSURE TRANSMITTER ONLY INSTALLED ON STATIONS WITH FORCE-MAIN MANIFOLDS.
. COAT ALL ALUMINUM POSTS AND ALUMINUM CONDUIT BELOW GRADE WITH BITUMASTIC PAINT.

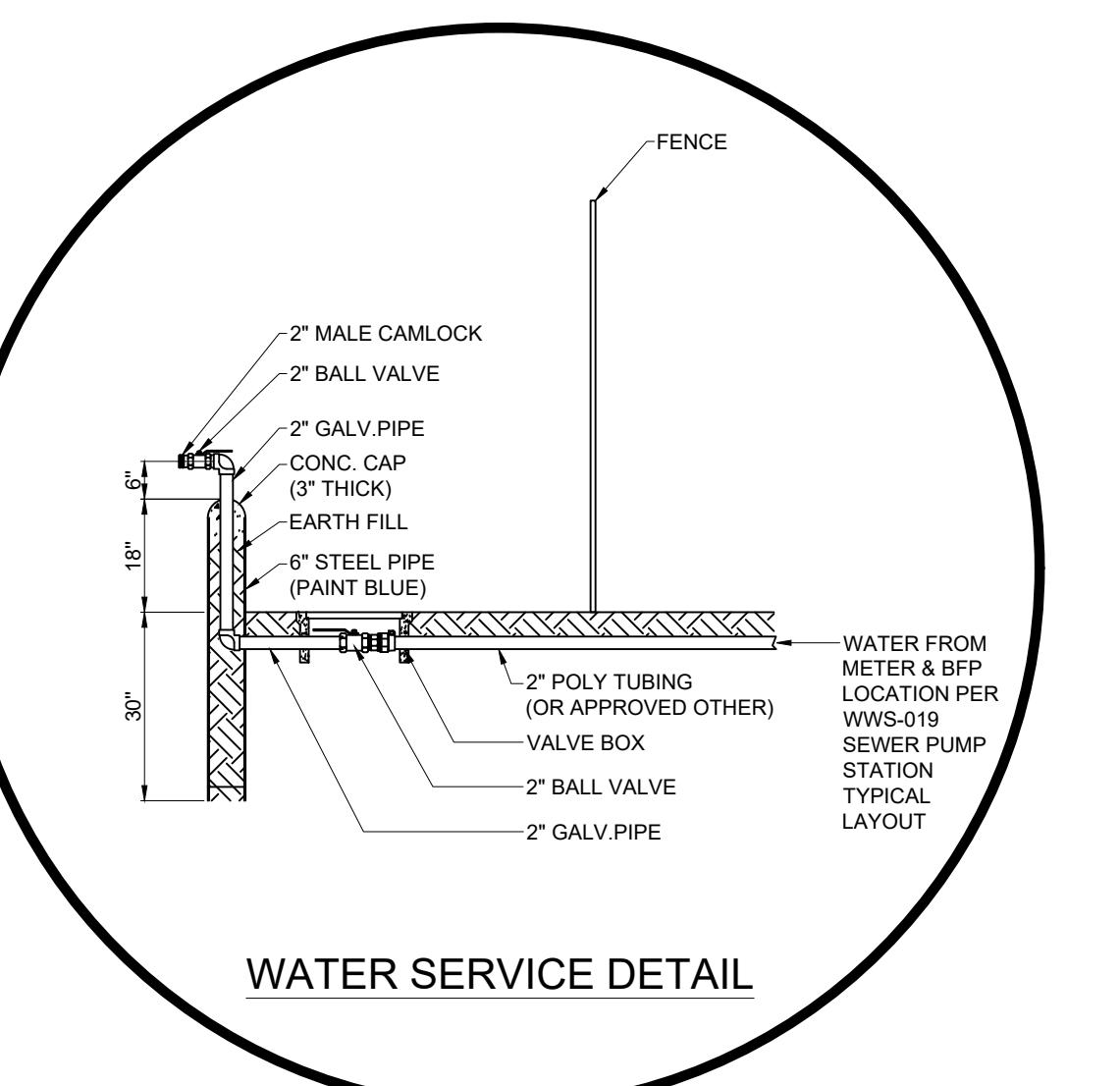
PE & GUIDE RAIL SUPPORTS



SADDLE DETAIL



WATER SERVICE DETAIL

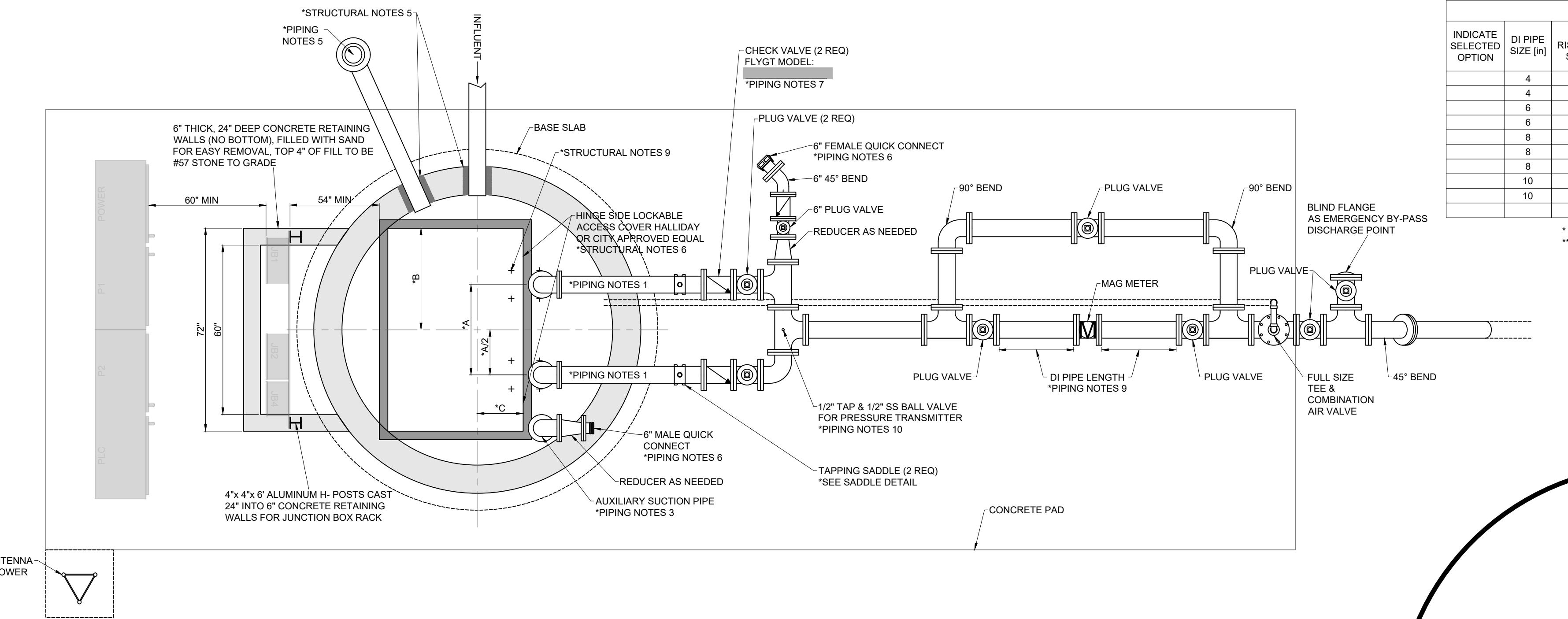


SEWER PUMP STATION DETAILS & SPECIFICATIONS

DUPLEX STATION MAX 40HP & 100,000 GPD STRUCTURE & PIPING DETAILS

REVISION	DESCRIPTION
---	SEPERATED ELECTRICAL SHEET FROM PIPING & STRUCTURAL COMP
---	ADDED NFPA CLASSIFICATIONS
---	ADDED EYES HAND HOLE
---	CHANGED SHEET NAMES, ADDED EXOTHERMIC CONNECTIONS TO GROUP
---	ADDED 1" CONDUIT FROM MCP/PLC TO FLOWMETER; ADDED BY-PASS DISCHARGE
---	CHANGED CONCRETE TYPE TO POLYMER CONCRETE
---	ADDED PANEL & SCADA VENDOR TABLE

100



FILL IN MANUFACTURER'S REQUIRED VALUE
INDICATE IF OTHER WALL THICKNESS

LIFT-STATION MEASUREMENTS									
CATE CTED ION	DI PIPE SIZE [in]	HDPE RISER PIPE SIZE [in]	AUX SUCTION PIPE SIZE [in]	WET WELL			DIMENSIONS [in]		
				D [ft]	T** [in]	ACCESS COVER	A	B	C
4	6	*	*	6	7	*	26	*	*
4	6	*	*	8	9	*	26	*	*
6	8	*	*	6	7	*	32	*	*
6	8	*	*	8	9	*	32	*	*
8	10	*	*	8	9	*	45	*	*
8	10	*	*	9	10	*	45	*	*
8	10	*	*	10	11	*	45	*	*
10	12	*	*	9	10	*	48	*	*
10	12	*	*	10	11	*	48	*	*

GENERAL NOTES:

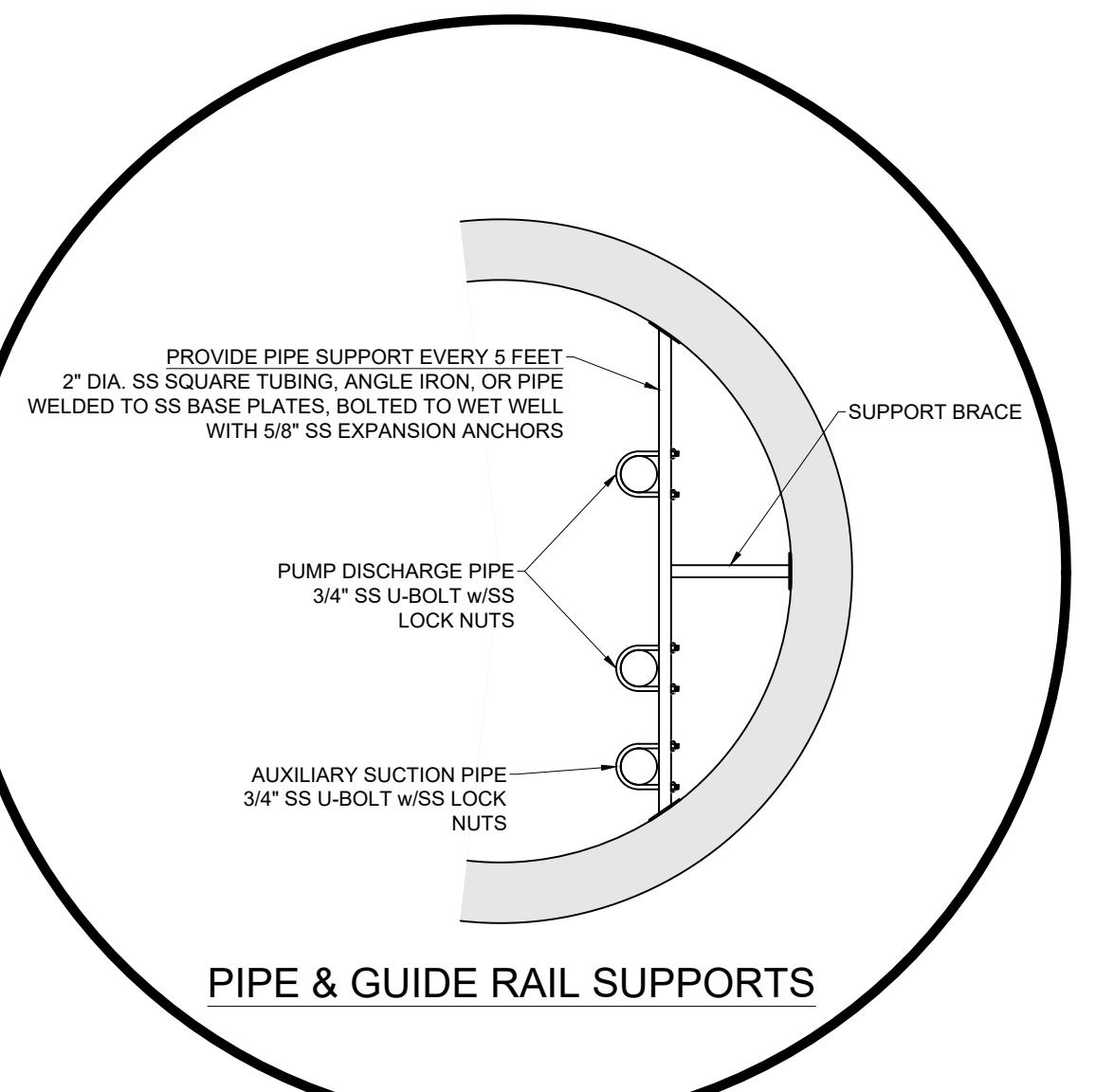
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2. REFER TO CITY OF LAKELAND "WASTEWATER MATERIALS SPECIFICATION" FOR APPROVED BRANDS, MODELS, AND VENDORS.
3. SITE CONDITIONS ARE INTENDED TO SHOW TYPICAL LAYOUT.

STRUCTURAL NOTES:

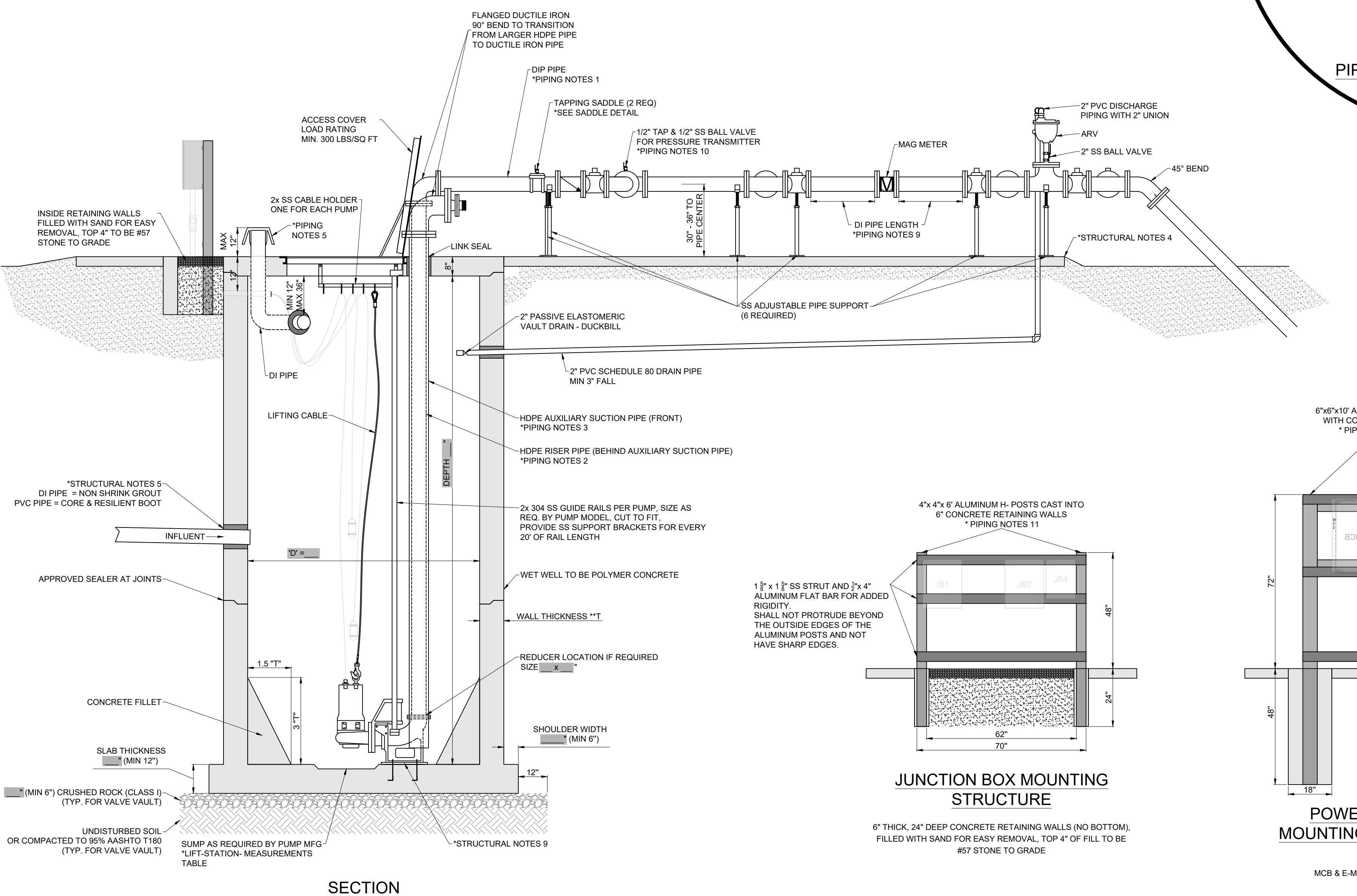
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REINFORCEMENT SHALL USE ACID RESISTANT REINFORCEMENT (FRP BAR) IN ACCORDANCE WITH ACI 440.1R-06 AS APPLICABLE FOR POLYMER CONCRETE DESIGN.
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4. TOP OF SLAB TO BE A MINIMUM OF 4" ABOVE FINISHED GRADE, SITE PLAN SHALL DEPICT DRAINAGE TO BE AWAY FROM THE STATION.
5. NON-SHRINK GROUT SHALL SEAL AROUND ALL PIPE UNLESS SPECIFIED OTHERWISE BY THE CITY.
6. FOR DUPLEX STATIONS, HINGES SHALL BE ON LONG SIDE OF OPENING OPPOSITE OF PANEL SIDE
7. ALL NUTS, BOLTS, AND WASHERS LOCATED IN WET WELL AND VALVE VAULT SHALL BE 304 SS.
8. ALL ANCHORS SHALL BE HILTI TYPE 316 SS OR APPROVED EQUAL WITH TYPE 316 SS FASTENERS.
9. $\frac{1}{2}$ " SS PUMP BASE PLATE & SS ANCHOR BOLT LOCATION AND SIZE SHALL BE PER MANUFACTURER'S SHOP DRAWING.

PIPING NOTES:

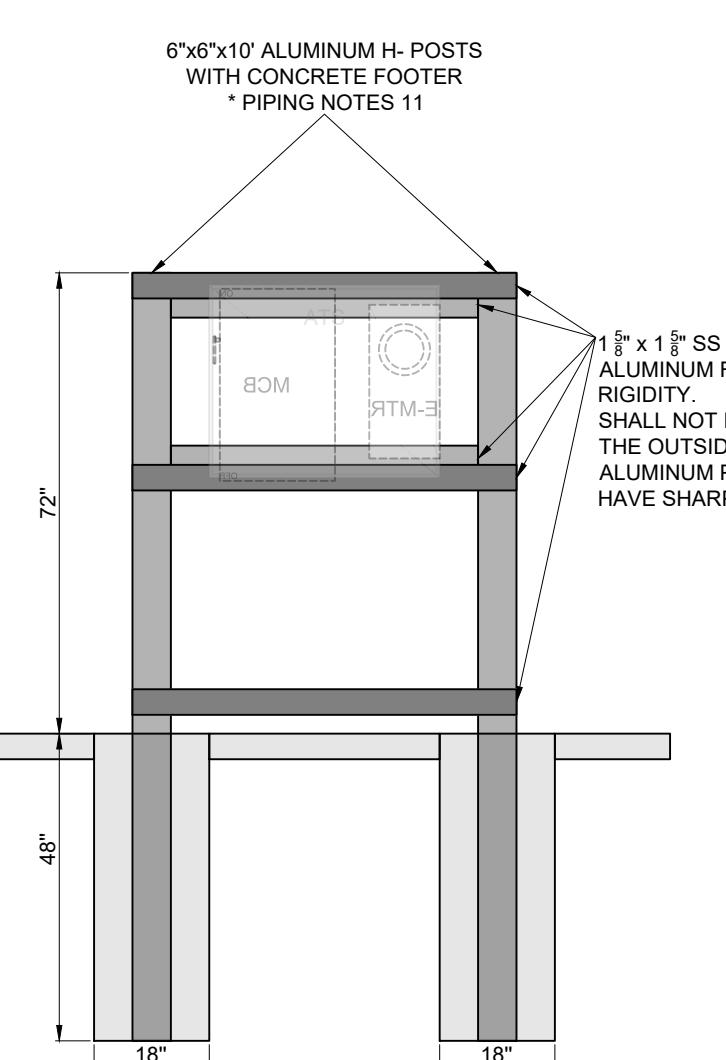
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(SEE SITE PLAN FOR TRUE ORIENTATION)
6. BY-PASS CONNECTION TO BE BRASS QUICK-DISCONNECT TYPE, COUPLER AND PLUG.
7. CHECK VALVES:
 - SWING CHECK VALVE SHALL BE DEZURIK, MUELLER, OR KENNEDY
 - BALL CHECK VALVE SHALL BE FLYGT (MINIMUM 10 FEET OF STATIC HEAD REQUIRED)
8. PUMP SHALL PASS MINIMUM 3" DEFORMABLE SOLIDS.
9. DUCTILE IRON PIPE LENGTH ON EACH SIDE OF MAG METER PER MANUFACTURER'S RECOMMENDATION. MINIMUM 30" FOR CALIBRATION.
10. 1/2" TAP & 1/2" SS BALL VALVE INSTALLED ON ALL STATIONS. PRESSURE TRANSMITTER ONLY INSTALLED ON STATIONS WITH FORCE-MAIN MANIFOLDS.
11. COAT ALL ALUMINUM POSTS AND ALUMINUM CONDUIT BELOW GRADE WITH BITUMASTIC PAINT.



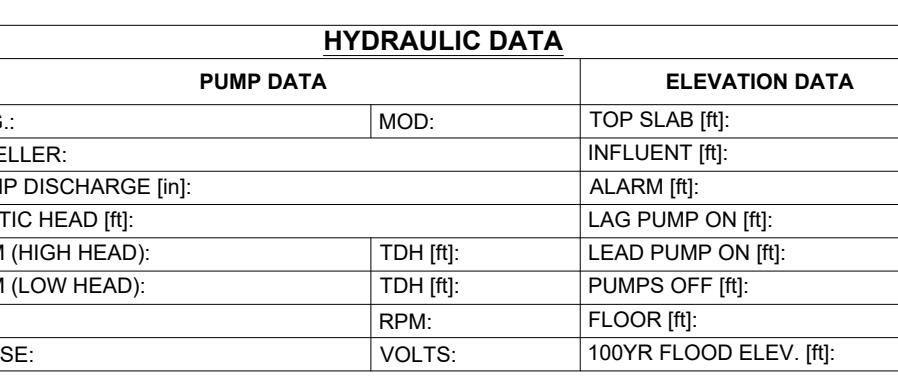
PE & GUIDE RAIL SUPPORTS



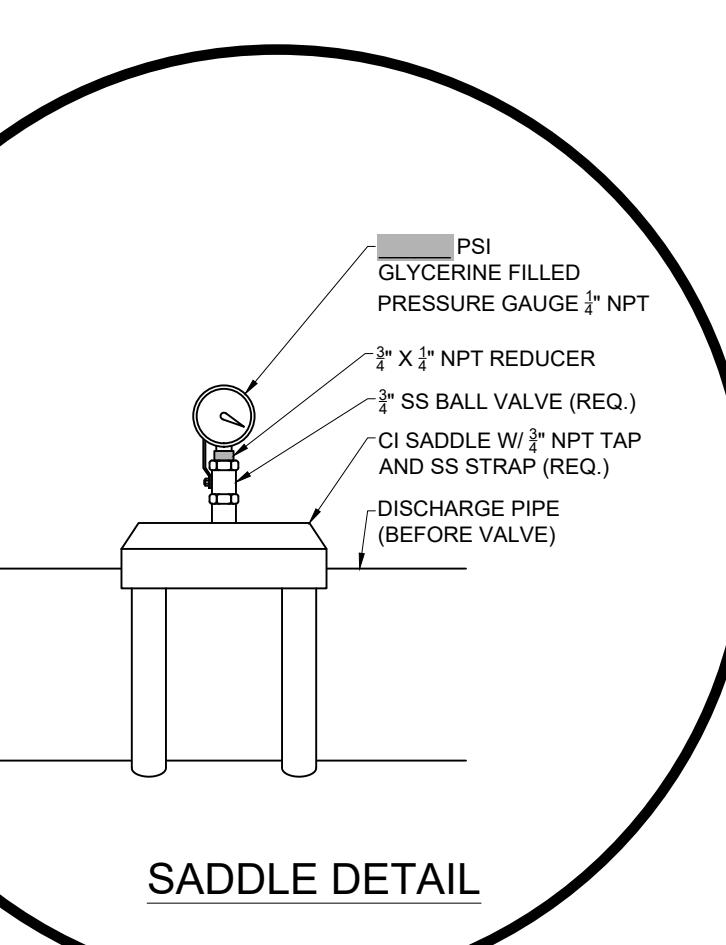
JUNCTION BOX MOUNTING STRUCTURE



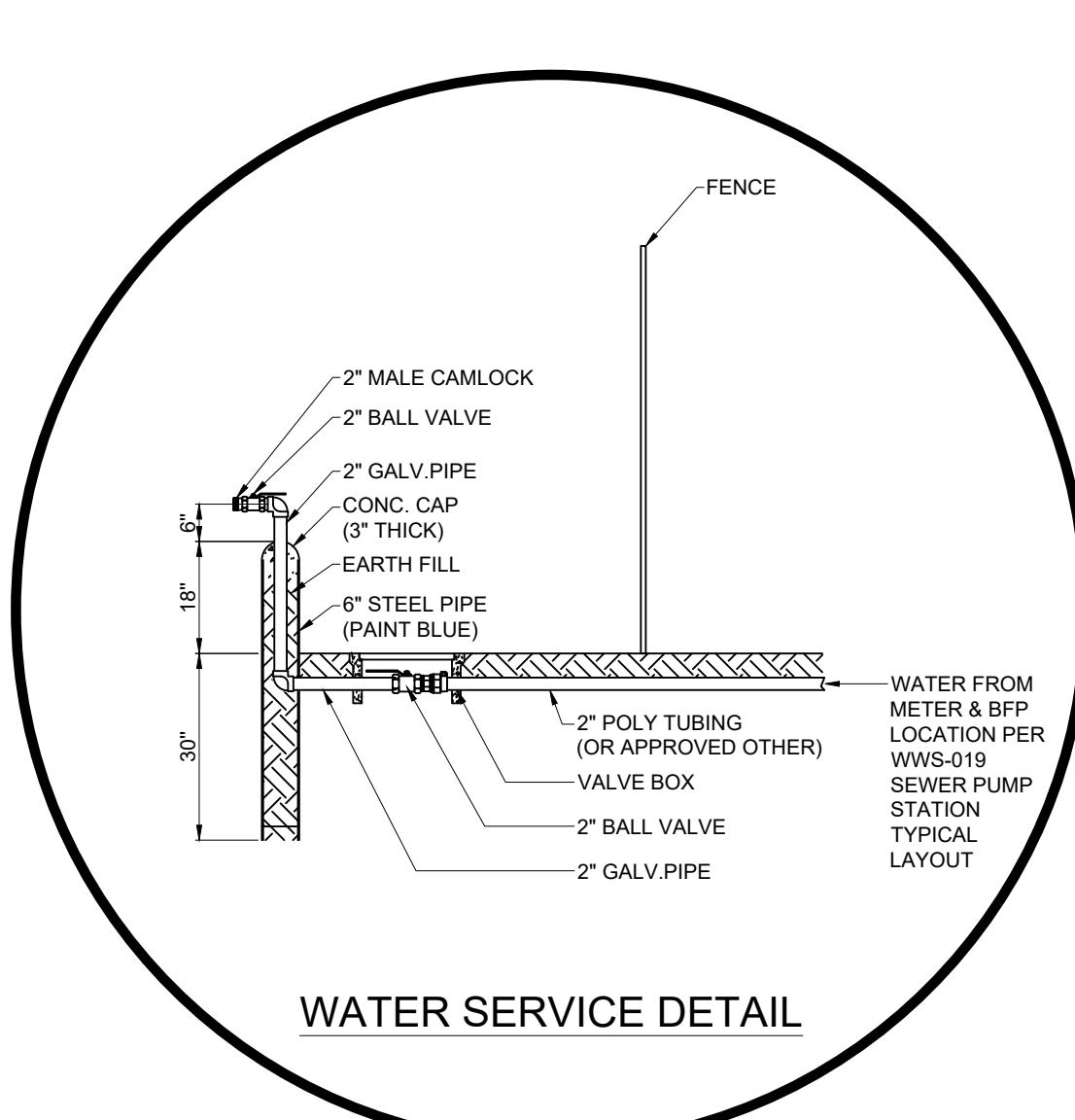
POWER SUPPLY MOUNTING STRUCTURE



VARIABLE FREQUENCY DRIVE



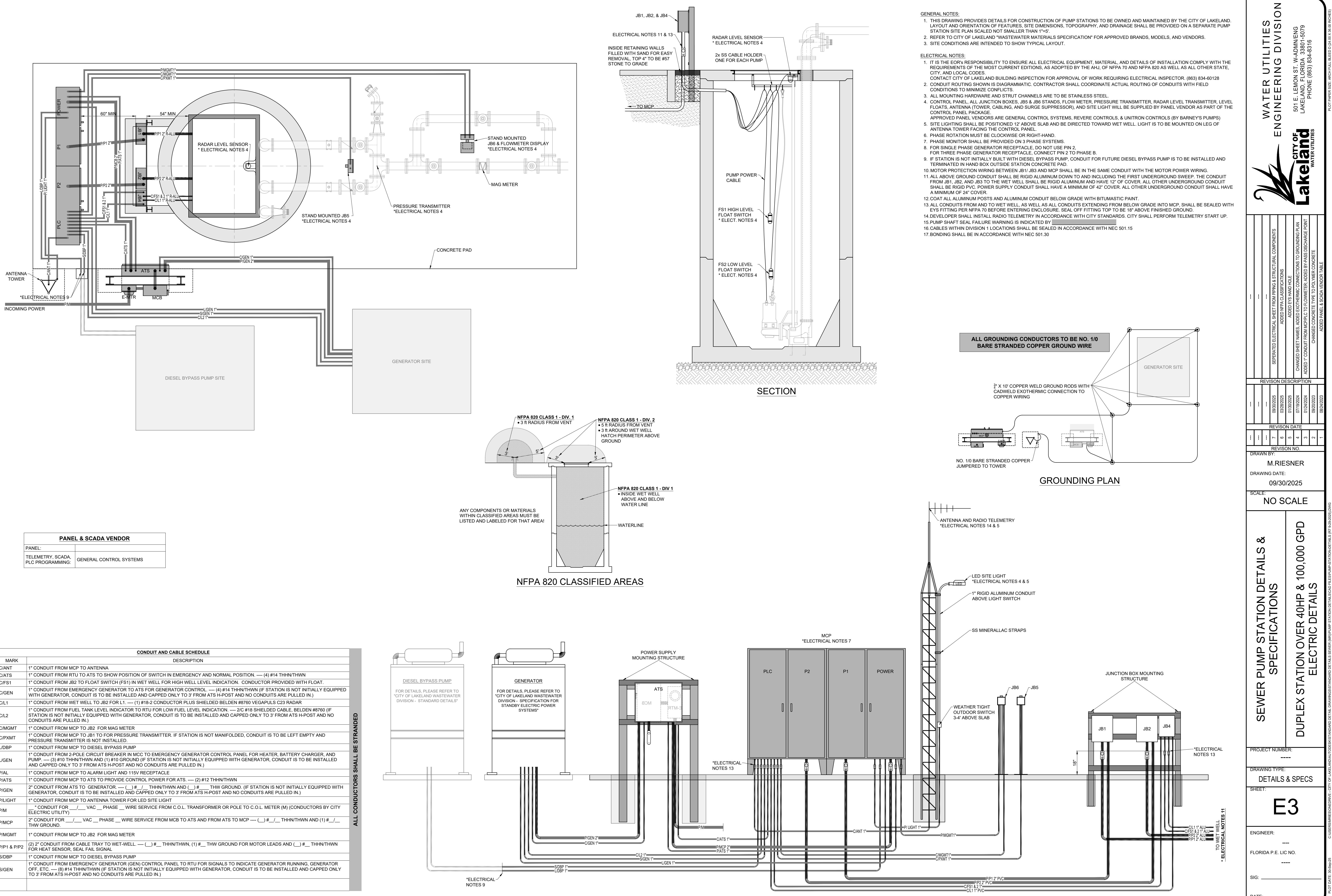
SADDLE DETAIL

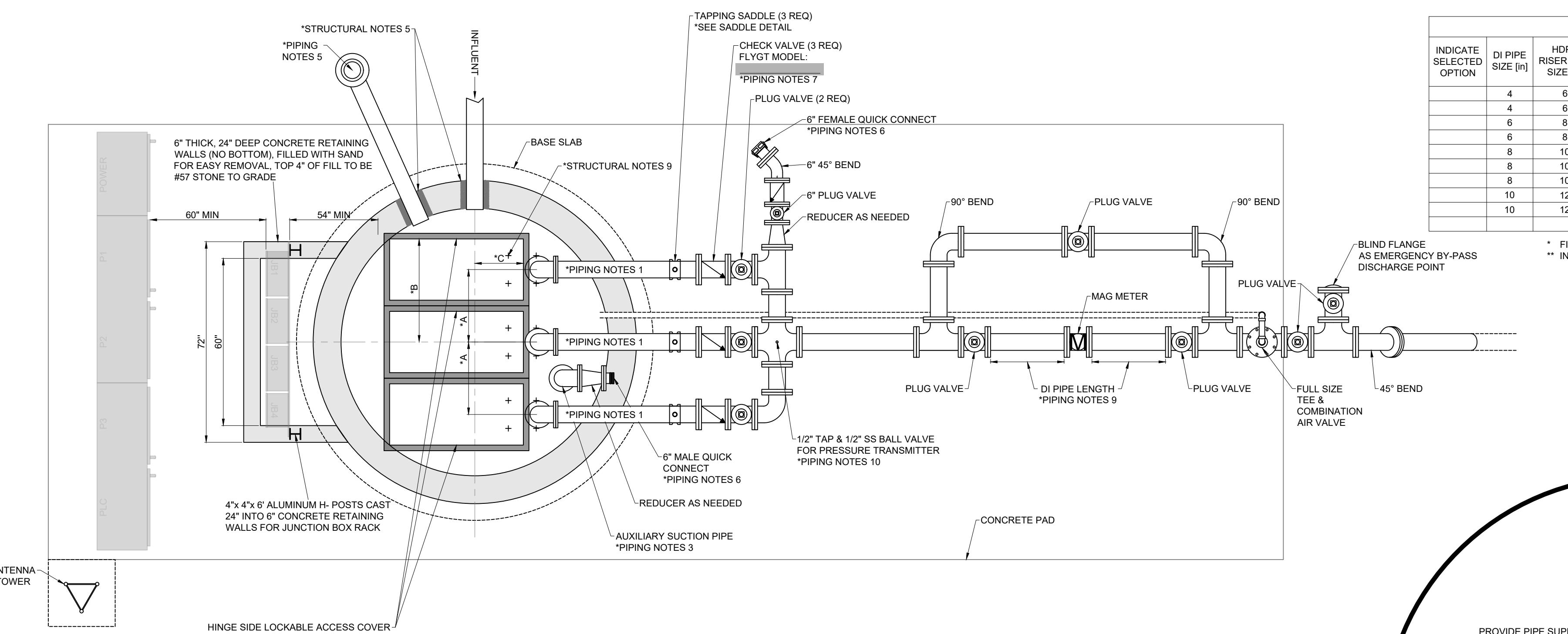


WATER SERVICE DETAIL

SEWER PUMP STATION DETAILS & SPECIFICATIONS

DUPLEX STATION OVER 40HP & 100,000 GPD STRUCTURE & PIPING DETAILS





LIFT-STATION MEASUREMENTS						
INDICATE SELECTED OPTION	DI PIPE SIZE [in]	HDPE RISER PIPE SIZE [in]	AUX SUCTION PIPE SIZE [in]	WET WELL		DIMENSIONS [in] SUMP [in]
				D [in]	T** [in]	
4	6	•	•	6	7	• 26 • • •
4	6	•	•	8	9	• 26 • • •
6	8	•	•	6	7	• 32 • • •
6	8	•	•	8	9	• 32 • • •
8	10	•	•	8	9	• 45 • • •
8	10	•	•	9	10	• 45 • • •
8	10	•	•	10	11	• 45 • • •
10	12	•	•	9	10	• 48 • • •
10	12	•	•	10	11	• 48 • • •

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5. WET WELL LOWER SLAB SHALL BE POSITIVELY JOINTED TO WET WELL WALL. USEABLE WET WELL VOLUME SHALL CONFORM TO THE DESIGN OF THE PUMP STATION.
6. FOR TRIPLEX STATIONS HINGES SHALL BE ON LONG SIDE OF OPENINGS, BOTH EXTERIOR HINGE LOCATIONS ON OUTSIDE.
7. ALL NUTS, BOLTS, AND WASHERS LOCATED IN WET WELL AND VALVE VAULT SHALL BE 304 SS.
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11. COAT ALL ALUMINUM POSTS AND ALUMINUM CONDUIT BELOW GRADE WITH BITUMASTIC PAINT.

HYDRAULIC DATA		ELEVATION DATA	
PUMP DATA	MOD:	TOP SLAB [ft]:	INFLUENT [ft]:
MFG:	IMPELLER:	ALARM [ft]:	STATIC HEAD [ft]:
SEPERATED ELECTRICAL SHEET FROM PIPING & STRUCTURAL COMPONENTS	ADDITIONAL CLASSIFICATIONS	LAG PUMP ON [ft]:	LAG PUMP OFF [ft]:
ADDED EXOTHERMIC CONNECTIONS TO GROUNDING PLATE	ADDED CONCRETE TYPE TO PUMP/VALVE CONCRETE	LEAD PUMP ON [ft]:	LEAD PUMP OFF [ft]:
ADDED 1 CONDUIT FROM MAMPIRC TO FLOWMETER, RODDED BY-PASS DISCHARGE POINT	CHANGED CONCRETE TYPE TO POLYMER CONCRETE	PUMPS OFF [ft]:	FLOOR [ft]:
ADDED PANEL & SCADA ENDORSE TABLE	CHANGED SHEET NAMES: ADDED EXOTHERMIC CONNECTIONS TO GROUNDING PLATE	VOLTS:	100YR FLOOD ELEV. [ft]:

VARIABLE FREQUENCY DRIVE	
MFG:	
MODEL:	
ACCELERATION/DECELERATION TIME	

REVISION NO.	REVISION DATE
1	09/30/2025
2	03/28/2025
3	07/19/2024
4	01/24/2024
5	09/26/2023
6	09/24/2023

DRAWN BY:	M.RIESNER
DRAWING DATE:	09/30/2025
SCALE:	NO SCALE
PROJECT NUMBER:	---

SEWER PUMP STATION DETAILS & SPECIFICATIONS	
TRIPLEX STATION OVER 40HP or > 100,000 GPD	SECTION

