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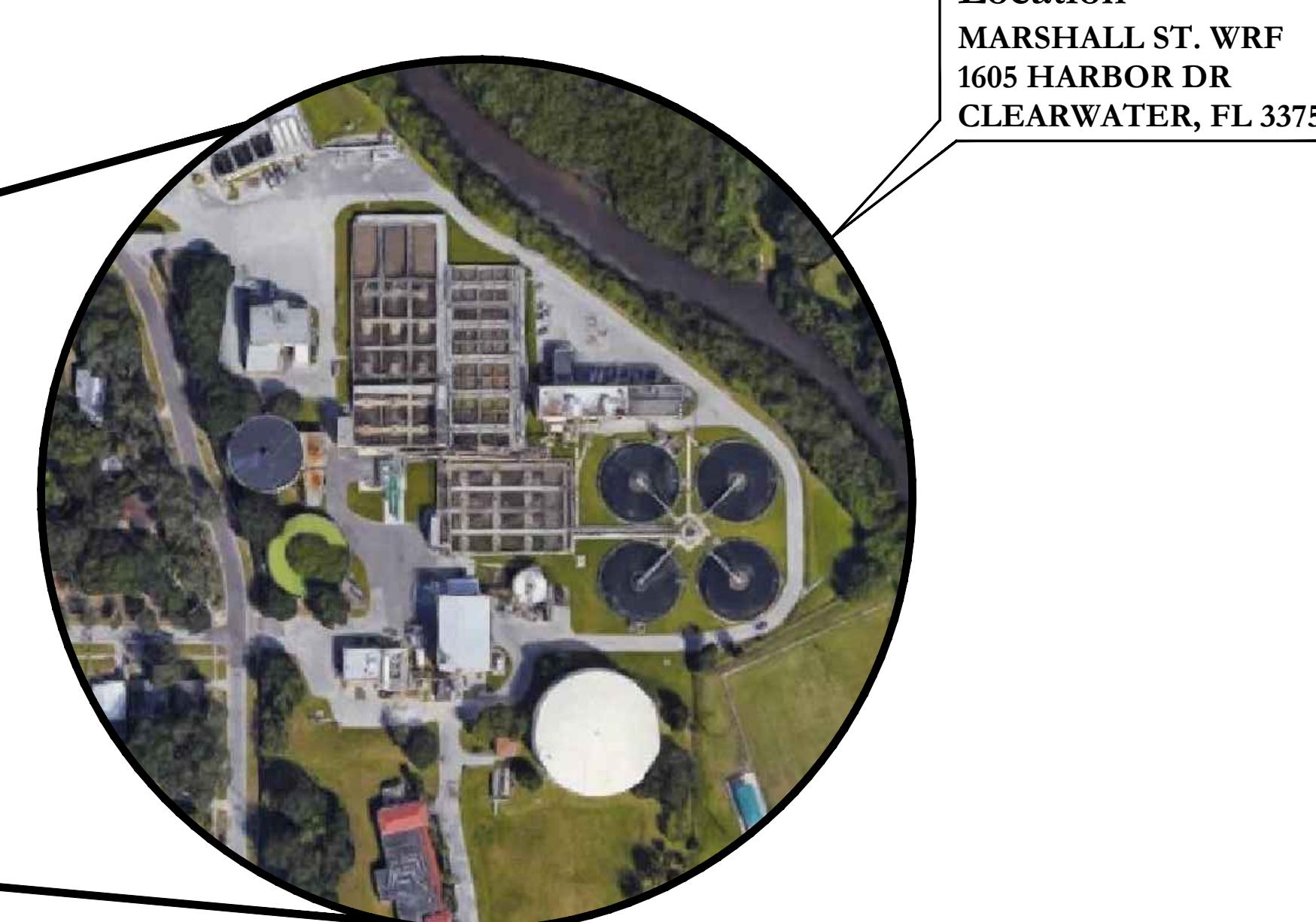
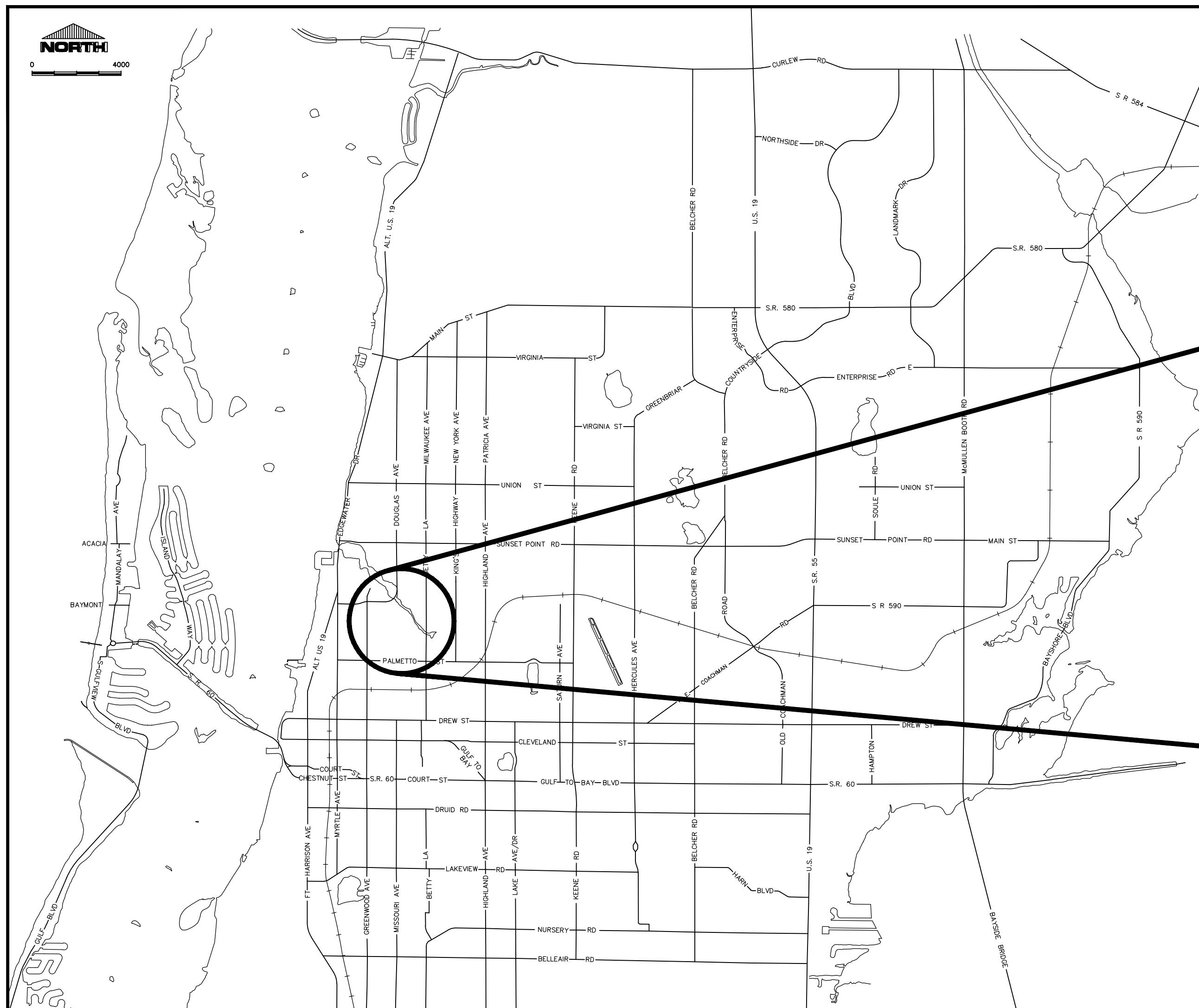
**CLEARWATER**  
BRIGHT AND BEAUTIFUL • BAY TO BEACH

## MARSHALL ST. WRF PROCESS CONTROL GATES REPAIRS (FDEP)

### BID SUBMITTAL



**Brown AND  
Caldwell**



Project Location  
MARSHALL ST. WRF  
1605 HARBOR DR  
CLEARWATER, FL 33755

### CITY OFFICIALS

Frank Hibbard	Mayor
Mark Bunker	Councilmember
Kathleen Beckman	Councilmember
David Allbritton	Councilmember
Hoyt Hamilton	Councilmember
Micah Maxwell	Interim City Manager

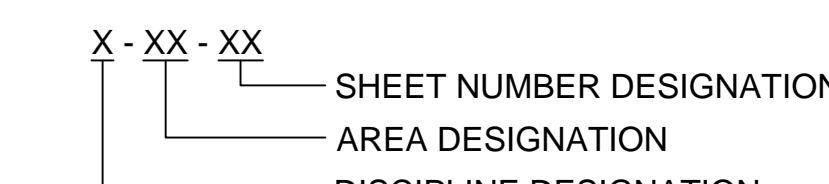
**TARA KIVETT, P.E.**  
City Engineer

Approved For  
Construction

CITY ENGINEER TARA KIVETT, P.E. #86611

Date Approved

**BID PLANS**  
PROJECT NO. 18-0047-UT  
CITY PROJECT # 2019036

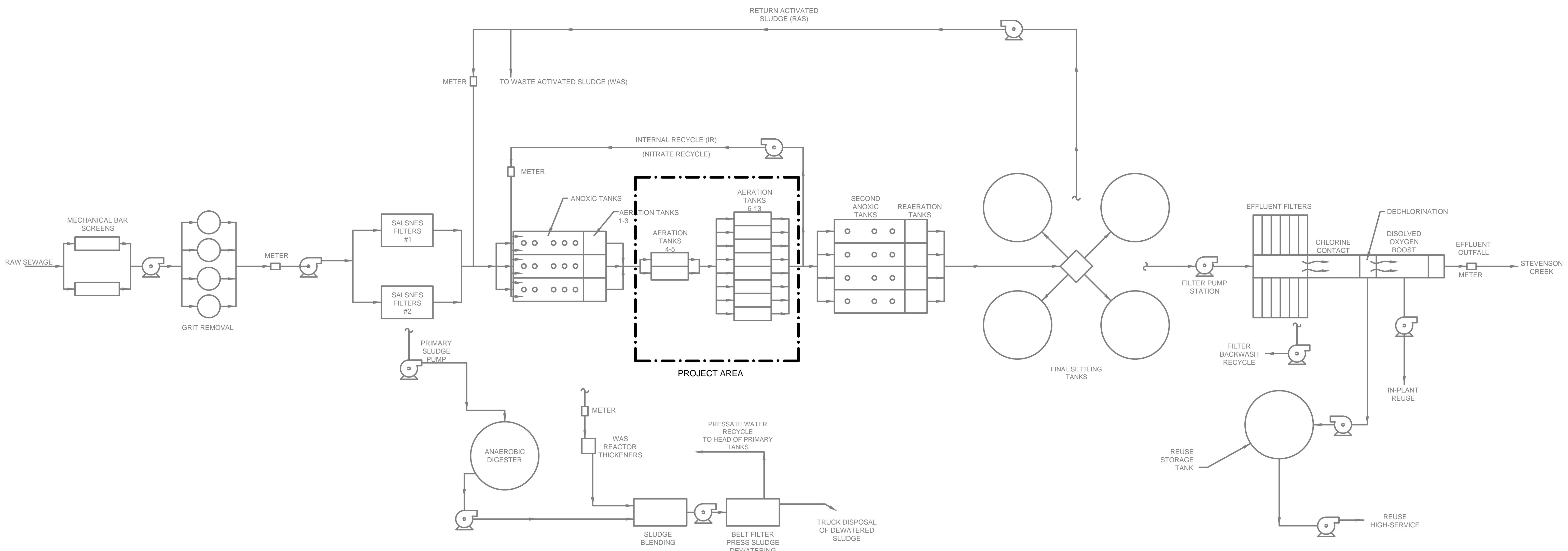
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GENERAL NOTES				SHEET NUMBERING STRATEGY				CROSS REFERENCING SYSTEM				PIPING IDENTIFICATION SYSTEM																																								
11	1. CONTRACTOR SHALL HAVE A COMPLETE SET OF CONTRACT DOCUMENTS ON THE JOB SITE AT ALL TIMES INCLUDING A COMPLETE RECORD OF ALL CONSTRUCTION CHANGES AND SHALL MAKE INFORMATION AVAILABLE TO THE OWNER FOR PREPARATION OF RECORD DRAWINGS. 2. CONTRACTOR MAY NOT STORE CONSTRUCTION EQUIPMENT ON SITE OVERNIGHT THAT MAY INHIBIT REGULAR ACTIVITIES AT THE WRF OR IMPEDE NORMAL ACTIVITIES ON THE SITE. 3. CONTRACTOR SHALL RESTRICT PERSONNEL, THE USE OF EQUIPMENT, AND THE STORAGE OF MATERIALS TO AREAS WITHIN THE LIMITS OF CONSTRUCTION AND DESIGNATED LAYDOWN AREAS AS SHOWN ON G-00-06. 4. ACCESS TO WATER AND SEWER VALVES, SANITARY MANHOLES, AND OTHER CONTROL MECHANISM MUST BE MAINTAINED THROUGHOUT CONSTRUCTION. COVERING VALVE BOXES OR MANHOLES CAN BE CONSIDERED OBSTRUCTION AND TAMPERING WITH PLANT UTILITIES. 5. CONTRACTOR SHALL NOT OPERATE ANY EXISTING WRF VALVES WITHOUT AUTHORIZATION FROM THE OWNER'S REPRESENTATIVE. CONTRACTOR SHALL COORDINATE VALVE OPERATION WITH THE OWNER'S REPRESENTATIVE A MINIMUM OF ONE WEEK IN ADVANCE. 6. CONTRACTOR SHALL SUBMIT ALL REQUIRED SHOP DRAWINGS FOR ACCEPTANCE PRIOR TO ORDERING OF MATERIALS AND/OR INSTALLATION. 7. CONTRACTOR PROPOSING SUBSTITUTION OF MATERIALS SPECIFIED AFTER AWARD OF BID SHALL PROVIDE MANUFACTURER'S DRAWINGS, SPECIFICATION AND PERTINENT DATA TO ESTABLISH EQUIVALENCE OF THE PROPOSED SUBSTITUTION TO THE OWNER OR OWNER'S REPRESENTATIVE'S SATISFACTION. AT THE OWNER'S OPTION, A SIGNED AND SEALED CERTIFICATION BY A FLORIDA LICENSED ENGINEER MAY BE REQUIRED TO BE SUBMITTED BY THE CONTRACTOR. THERE IS NO GUARANTEE THAT APPROVAL OF SUBSTITUTE MATERIALS PROPOSED WILL BE GRANTED. 8. ANY KNOWN OR SUSPECTED HAZARDOUS MATERIAL ENCOUNTERED SHALL BE IMMEDIATELY REPORTED TO THE OWNER, WHO SHALL DIRECT THE CONTRACTOR TO PROTECT THE AREA OF KNOWN OR SUSPECTED CONTAMINATION FROM FURTHER ACCESS. THE OWNER WILL ARRANGE FOR INVESTIGATION, IDENTIFICATION, AND REMEDIATION OF THE HAZARDOUS MATERIAL. CONTRACTOR WILL NOT RETURN TO THE AREA OF CONTAMINATION UNTIL APPROVAL IS PROVIDED BY THE OWNER. 10. THE INFORMATION PROVIDED IN THESE DRAWINGS IS SOLELY TO ASSIST THE CONTRACTOR IN ASSESSING THE NATURE AND EXTENT OF CONDITIONS WHICH MAY BE ENCOUNTERED DURING THE COURSE OF THE WORK. THE CONTRACTORS ARE DIRECTED, PRIOR TO BIDDING, TO CONDUCT WHATEVER INVESTIGATIONS THEY DEEM NECESSARY TO ARRIVE AT THEIR OWN CONCLUSIONS REGARDING THE ACTUAL CONDITIONS THAT WILL BE ENCOUNTERED, AND UPON WHICH BIDS WILL BE BASED. 11. ABBREVIATIONS FOR THE ENTIRE PROJECT ARE PROVIDED IN THESE GENERAL SHEETS. 12. ALL MECHANICAL SYMBOLS ARE IDENTIFIED IN THESE GENERAL SHEETS. GENERAL SHEETS DO NOT PROVIDE SYMBOLS NOR DETAILS FOR ANY DISCIPLINE OTHER THAN MECHANICAL SYMBOLS. REFERENCE THE INDIVIDUAL DISCIPLINE SHEETS FOR ADDITIONAL DISCIPLINE-SPECIFIC SYMBOLS. 13. THE ARRANGEMENT OF EQUIPMENT SHOWN IS NOT INTENDED TO SHOW DIMENSIONS PARTICULAR TO A SPECIFIC EQUIPMENT MANUFACTURER. THE DRAWINGS ARE IN PART DIAGRAMMATIC AND SOME FEATURES OF EQUIPMENT MAY REQUIRE REVISION TO MEET ACTUAL FIELD REQUIREMENTS. THE CONTRACTOR SHALL COORDINATE AND CONFIRM ALL CRITICAL DIMENSIONS FOR ACTUAL EQUIPMENT PROVIDED AND SHALL PROVIDE ALL REVISIONS NECESSARY TO THE EQUIPMENT AND EQUIPMENT PADS AS REQUIRED. 14. MECHANICAL DRAWINGS SHOW EXISTING EQUIPMENT, PIPING AND STRUCTURES IN ACCORDANCE WITH THE BEST AVAILABLE INFORMATION. HOWEVER, CONTRACTOR SHALL BE RESPONSIBLE FOR CONFIRMING ALL EXISTING CONDITIONS PRIOR TO COMMENCEMENT OF WORK. 15. BACKGROUND RECORD DRAWINGS USED FOR THIS PLAN SET INCLUDES: MARSHALL ST. POLLUTION CONTROL FACILITY EXPANSION - 10/1980 MARSHALL ST. ADVANCED POLLUTION CONTROL FACILITY - 4/1992 HEADWORKS SCREENING AND Grit REMOVAL IMPROVEMENTS - 1/2008 MARSHALL ST. APCF PROCESS AIR SYSTEM UPGRADE - 8/2010 16. KEY RECORD DRAWINGS AND CONCEPTUAL BYPASS INFORMATION IS INCLUDED IN ATTACHMENTS TO THE SPECIFICATIONS.				 <p>DISCIPLINE DESIGNATION (SINGLE CHARACTER)</p> <ul style="list-style-type: none"> <li>G - GENERAL</li> <li>C - CIVIL</li> <li>S - STRUCTURAL</li> <li>I - INSTRUMENTATION</li> <li>M - PROCESS/MECHANICAL</li> <li>MD - PROCESS/MECHANICAL DEMOLITION</li> <li>E - ELECTRICAL</li> <li>ED - ELECTRICAL DEMOLITION</li> </ul>				<p><b>VIEW TITLES</b></p> <p>1. PLAN TITLES</p> <p><b>PLAN TITLE</b> SCALE: 1/4" = 1'-0"</p> <p>2. ENLARGED PLAN TITLES:</p> <p><b>ENLARGED PLAN TITLE</b> X-00-001 SCALE: 1/2" = 1'-0"</p> <p>DRAWING WHERE ENLARGED VIEW IS REFERENCED</p> <p>3. SECTION TITLES:</p> <p><b>SECTION TITLE</b> X-00-003 SCALE: 1/4" = 1'-0"</p> <p>DRAWING WHERE SECTION IS CUT</p> <p>4. DETAIL TITLES:</p> <p><b>DETAIL TITLE</b> A X-00-003 SCALE: 1/4" = 1'-0"</p> <p>DRAWING WHERE DETAIL IS CALLED</p> <p>5. TYPICAL DETAIL TITLES</p> <p><b>TYPICAL DETAIL TITLE</b> S0321 NTS</p> <p>6. VIEW REFERENCES/CALLOUTS</p> <p>1. SECTION CUTS</p> <p>SECTION NUMBER</p> <p>DRAWING WHERE SECTION IS FOUND</p> <p>2. DETAIL CALLOUT:</p> <p>A: BY CALLOUT:</p> <p>B: BY NOTE: "SEE DETAIL B/D-01-105" B IS DETAIL REFERENCE LETTER D-01-105 IS DRAWING WHERE DETAIL IS SHOWN</p> <p>DRAWING WHERE DETAIL IS FOUND</p> <p>3. TYPICAL DETAIL REFERENCE</p>				<p><b>6" DS</b> NEW/PROPOSED PIPING</p> <p><b>6" DS</b> EXISTING PIPING</p> <p><b>MISCELLANEOUS</b></p> <p><b>MATCH LINE</b> SEE XX/XX-XXX</p> <p><b>NEW/PROPOSED LINELINE</b></p> <p><b>EXISTING LINELINE</b></p> <p><b>FUTURE LINELINE</b></p> <p><b>EL XXXX.XX LOCATION</b></p> <p><b>EL XXXX.XX CL EL</b></p> <p><b>PIPE CENTERLINE ELEVATION CALL OUT IN SECTION</b></p> <p><b>LIQUID SURFACE ELEVATION</b></p> <p><b>DEMOLITION</b></p> <p><b>EXISTING</b></p>				11																																			
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<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">RECORD DRAWINGS</td> <td style="padding: 2px;">DRAWN BY:</td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;">SURVEYED BY:</td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;">REVIEWED BY:</td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> <td style="padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;">APPROVED BY:</td> <td style="padding: 2px;">PROJECT ENGINEER</td> <td style="padding: 2px;">DATE</td> <td style="padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;">ENGINEER</td> <td style="padding: 2px;">DATE</td> <td style="padding: 2px;">REVISION</td> <td style="padding: 2px;">BY DATE</td> </tr> </table>				RECORD DRAWINGS	DRAWN BY:			SURVEYED BY:				REVIEWED BY:				APPROVED BY:	PROJECT ENGINEER	DATE		ENGINEER	DATE	REVISION	BY DATE	<p style="text-align: center;"><b>CITY OF CLEARWATER, FLORIDA</b> ENGINEERING DEPARTMENT 100 S. MYRTLE AVE. CLEARWATER, FL 33756</p>				 <p style="text-align: center;"><b>MARSHALL STREET WRF PROCESS CONTROL GATES REPAIRS (FDEP)</b> <b>GENERAL</b></p> <p style="text-align: center;"><b>GENERAL NOTES, LEGENDS AND SYMBOLS</b></p>				<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">DWG NAME: G-00-02</td> <td style="padding: 2px;">FIELD BOOK:</td> <td style="padding: 2px;">SURVEYED BY:</td> <td style="padding: 2px;">SCALE: VERT. N/A</td> </tr> <tr> <td style="padding: 2px;">PROJECT NO.: 18-0047-UT</td> <td style="padding: 2px;">DRAWN BY: MRC</td> <td style="padding: 2px;">DRAWN BY: HORIZ. N/A</td> <td style="padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;">JOB NO.: 153328</td> <td style="padding: 2px;">DESIGNED BY: PMW</td> <td style="padding: 2px;">CHECKED BY: AJM</td> <td style="padding: 2px;">SHEET NO.: 2 OF 15</td> </tr> <tr> <td colspan="4" style="text-align: center; padding: 2px;">APPROVED BY:</td> </tr> </table>				DWG NAME: G-00-02	FIELD BOOK:	SURVEYED BY:	SCALE: VERT. N/A	PROJECT NO.: 18-0047-UT	DRAWN BY: MRC	DRAWN BY: HORIZ. N/A		JOB NO.: 153328	DESIGNED BY: PMW	CHECKED BY: AJM	SHEET NO.: 2 OF 15	APPROVED BY:				
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A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	
PIPING SYSTEM ABBREVIATIONS		GENERAL ABBREVIATIONS										STANDARD SYMBOLS					
FLOW STREAM ABBREVIATIONS		VALVES										MECHANICAL PIPE AND FITTINGS					
11	ABE	AMP AMPERE	F	FAHRENHEIT	OA	OUTSIDE AIR										11	
	ABI	AERATION BASIN EFFLUENT	AB	AERATION BASIN	FC	FAIL CLOSED	O.C.	ON CENTER									
	BAW	AERATION BASIN INFLUENT	ADJ	ADJUSTABLE	FBC	FLORIDA BUILDING CODES	OD	OUTSIDE DIAMETER									
	BWA	BACKWASH AIR	AFD	ADJUSTABLE FREQUENCY DRIVE	FDOT	FLORIDA DEPARTMENT OF TRANSPORTATION	ODT	OUTSIDE DIAMETER TUBING									
	COAG	COAGULANT	AFF	ABOVE FINISHED FLOOR	FFPS	FILTER FEED PUMP STATION	OH	OVERHEAD									
	D	GRAVITY PROCESS DRAIN	ALG	ALUMINUM	FLEX	FIRE HYDRANT	OHP	OVERHEAD POWER									
	DEF	DIESEL EXHAUST FLUID	ASPH	ASPHALT	FLG	FLANGED	OPNG	OPENING									
	EFF	FINAL PLANT EFFLUENT	ASSOC	AMERICAN SOCIETY OF TESTING MATERIALS	FLR	FLOOR	OSHA	OCCUPATIONAL SAFETY AND									
	EOF	EMERGENCY OVERFLOW	ASTM	AMERICAN SOCIETY OF TESTING MATERIALS	FM	FORCEMAIN	HAZARD	ADMINISTRATION									
	FA	FOUL AIR	ATS	AUTOMATIC TRANSFER SWITCH	FNTP	FEMALE NATIONAL PIPE THREAD	P	POWER									
	FE	FILTER EFFLUENT	AUTO	AUTOMATIC	FO	FAIL OPEN	PAR	PARALLEL									
	FI	FILTER INFILTRANT	AUX	AUXILIARY	FP&L	FLORIDA POWER & LIGHT	PE	PLAIN END									
	FOR	FUEL OIL RETURN	AVG	AVERAGE	FPM	FEET PER MINUTE	PH	PHASE									
	FOS	FUEL OIL SUPPLY	AWG	AMERICAN WIRE GAGE	FT	FEET / FOOT	PL	PLATE									
	GR	GRIT	BEL	BELOW	FURN	FURNISHED	PLT	PLANT									
	NAOCL	SODIUM HYPOCHLORITE	BF	BLIND FLANGE	GBV	GLOBE VALVE	PLYWD	PLYWOOD									
	HP	HYDROGEN PEROXIDE	BFP	BACKFLOW PREVENTER	GFI	GROUND FAULT INTERRUPTER	PNL	PANEL									
	HPA	HIGH PRESSURE AIR	BFV	BUTTERFLY VALVE	GPD	GALLONS PER DAY	POI	POINT OF INTERSECTION									
	IA	INSTRUMENT AIR	BHP	BRAKE HORSEPOWER	GPM	GALLONS PER MINUTE	POT	POINT OF TANGENCY									
	MC	MEMBRANE CONCENTRATE	BLDG	BUILDING	GR	GRADE	PP	POWER POLE									
	OA	OUTSIDE AIR	BM	BENCH MARK	GRT	GROUT	PS	PUMP STATION									
	OF	OVERFLOW	BOT	BOTTOM	GSKT	GASKET	PSF	POUNDS PER SQUARE FOOT									
	PD	PUMPED PROCESS DRAINAGE	BV	BALL VALVE	GV	GATE VALVE	PSI	POUNDS PER SQUARE INCH									
	PLW	PLANT REUSE WATER (ON-SITE RECLAIMED SYSTEM)	C	CELSIUS	H	HIGH	PT	POINT									
	PS	PRIMARY SLUDGE	CAB	CABINET	HB	HOSE BIB	PTS	PRELIMINARY TREATMENT									
	PW	POTABLE WATER	CATV	CABLE TELEVISION	HGL	HYDRAULIC GRADE LINE	PV	PLUG VALVE									
	RAS	RETURN ACTIVATED SLUDGE	CB	CATCH BASIN	HGR	HANGER	Q	FLOW									
	RD	ROOF DRAIN	CF	CUBIC FOOT	HOA	HAND-OFF-AUTO	QTY	QUANTITY									
	REJ	REJECT FILTER EFFLUENT	CHAN	CHANNEL	HOR	HORIZONTAL	R	RADIUS									
	RS	RAW SEWAGE	CI	CAST IRON	HZ	HERTZ	R/W	RIGHT OF WAY									
	RW	RECLAIMED WATER	CIR	CIRCLE	ID	INSIDE DIAMETER	RE	RIM ELEVATION									
	SA	SAMPLE	CL	CENTERLINE	IE	INVERT ELEVATION	REF	REFERENCE									
	SD	SANITARY DRAIN	CLG	CEILING	IN	INCH	REINF	REINFORCE / REINFORCED /									
	SE	SECONDARY EFFLUENT	CLR	CLEAR	INSUL	INSULATION	REQD	REQUIRED									
	SLW	SEAL WATER	CMU	CONCRETE MASONRY UNITS	INV	INVERT	REV	REVISION									
	SPW	SPRAY WATER	CO	CLEANOUT	JB	JUNCTION BOX	XXIP	RECOMMENDED MAIN ANCHOR POINT WITH ALLOWABLE FORCE ON STRUCTURE									
	SRS	SCREENED RAW SEWAGE	COL	COLUMN	JT FLR	JOINT FILLER	XCO	CLEANOUT; X=DESIGNATION IF ANY									
	SS	SANITARY SEWAGE	CONC	CONCRETE / CONCENTRIC	KW	KILOWATT	XXIP	RECOMMENDED MAIN ANCHOR POINT WITH ALLOWABLE FORCE ON STRUCTURE									
	STD	STORM DRAIN	CPLG	COUPLING	L	LENGTH	DE	DENSITY ELEMENT									
	TD	TANK DRAIN (PROCESS UNIT TANK DRAIN)	CT	CURRENT TRANSFORMER	LB	POUND	FE	FLOW ELEMENT									
	TE	TERTIAL (FILTER) EFFLUENT	CTG	COATING	LBR	LOAD BEARING RATIO	LE	LEVEL ELEMENT									
	V	VENT	DB	DUCT BANK	LF	LINEAR FEET	PE	PRESSURE ELEMENT									
	VA	VACUUM AIR	DC	DIRECT CURRENT	LPNG	LIGHT POLE / LIGHTING PANEL	PI	PRESSURE INDICATOR (GAUGE)									
	WAS	WASTE ACTIVATED SLUDGE	DEMO	DEMOLITION / DEMOLISH	LS	LIMIT SWITCH	TE	TEMPERATURE ELEMENT									
	WBW	FILTER BACKWASH WASTE	DEPT	DEPARTMENT	MAS	MASONRY	TI	TEMPERATURE INDICATOR									
	WM	WATER MAIN - PROTECTED POTABLE WATER	DIA	DIAMETER	MATL	MATERIAL											
	WWB	FILTER BACKWASH WASTE	DIM	DIMENSION	MAX	MAXIMUM											
6	PIPE TYPE ABBREVIATIONS																6
	304SS	304 STAINLESS STEEL	EA	EAST	MFR	MANUFACTURER	SUE	SUBSURFACE UTILITY EXPLORATION									
	316SS	316 STAINLESS STEEL	EAH	EACH	MGD	MILLION GALLONS PER DAY	SV	SOLENOID VALVE									
	CI	CAST IRON	ECC	ECCENTRIC	MH	MAINTENANCE ACCESS STRUCTURE	SW	SOUTHWEST									
	CIS	CAST IRON SOIL PIPE	ECF	EQUIPMENT CONNECTION	MIN	MINIMUM / MINUTE	SWGR	SWITCHGEAR									
	CMLS	CEMENT LINED STEEL	FITTING		MJ	MECHANICAL JOINT	SVK	SIDEWALK									
	CMP	CORRUGATED METAL PIPE	EF	EACH FACE	MNTP	MALE NATIONAL PIPE THREAD	SYM	SYMMETRICAL									
	CPVC	CHLORINATED POLYVINYL CHLORIDE	EL	ELEVATION	MOV	MOTOR OPERATED VALVE	TEL	TELEPHONE									
	CPP	CONCRETE PRESSURE PIPE	ELEC	ELECTRICAL / ELECTRIC	MPH	MILES PER HOUR	TEMP	TEMPORARY / TEMPERATURE									
	CU	COPPER PIPE	EMH	ELECTRICAL MAINTENANCE ACCESS	N	NORTH	THK	THICK / THICKNESS									
	CUK	COPPER PIPE - TYPE K	EOP	EDGE OF PAVEMENT	N.C.	NORMALLY CLOSED	TS	TEMPERATURE SWITCH									
	CUL	COPPER PIPE - TYPE L	EPDM	ETHYLENE PROPYLENE DIENE	NE	NORTHEAST	TURB	TURBIDITY									
	DI	DUCTILE IRON	EQ	EQUAL	NEC	NATIONAL ELECTRICAL CODE	TYP	TYPICAL									
	ELO	EPoxy LINED STEEL	EQUIP	EQUIPMENT	NEUT	NEUTRAL	US	UTILITY STATION									
	FPR	FIBER REINFORCED POLYETHYLENE	ES	ELECTRICAL SERVICE	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION	VAC	VACUUM / VOLT ALTERNATING CURRENT									
	GSP	GALVANIZED STEEL PIPE	ESMT	EASEMENT	NGVD	NATIONAL GEODETIC VERTICAL DATUM	VAR	VARIABLE / VARIES									
	HDPE	HIGH DENSITY POLYETHYLENE	EST	ESTIMATE / ESTIMATED	N.O.	NORMALLY OPEN	VCP	VENDOR CONTROL PANEL									
	PCCP	PRESTRESSED CONCRETE CYLINDER PIPE	EW	EACH WAY	NOM	NOMINAL	VEL	VELOCITY									
	PVC	POLYVINYL CHLORIDE	EXIST	EXISTING	NTS	NOT TO SCALE	VERT	VERTICAL									
	RCF	REINFORCED CONCRETE PIPE	EXP	EXPANSION	NW	NORTHWEST	VOL	VOLUME									
	ST	STEEL	EXT	EXTERIOR			W	WEST									
	SS4	410 STAINLESS STEEL					W/	WIDTH									
	SST	STAINLESS STEEL					W/O	WITHOUT									
4	EQUIPMENT ABBREVIATIONS																4
	ACCU	AIR CONDITIONER	AIH	AIR HANDLING UNIT	CHCT	CHLORINE CONTACT TANK	DPR	DAMPER	EF	EXHAUST FAN	F	FAN	GEN	GENERATOR	LVR	LOUVER	
	CT	CLOTH	CNT	CONTACT TANK	DP	DRYER	EF	EXHAUST FAN	F	FAN	GEN	GENERATOR	LVR	LOUVER	M	MOTOR	

A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q

### GENERAL NOTES

- EXISTING FLOW DIAGRAM BASED ON THE AUGUST 2010 MARSHALL ST. APCF PROCESS AIR SYSTEM UPGRADE RECORD DRAWING SET, MODIFIED TO REFLECT SALSNES FILTER INSTALLATION.



**Brown and Caldwell**

TAMPA, FLORIDA

Sept 09, 2021 3000ft  
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RECORD DRAWINGS	
SURVEYED BY:	DRAWN BY:
REVIEWED BY:	
APPROVED BY:	
PROJECT ENGINEER	DATE
ENGINEER	DATE
REVISION	BY DATE

CITY OF CLEARWATER, FLORIDA  
ENGINEERING DEPARTMENT  
100 S. MYRTLE AVE.  
CLEARWATER, FL 33756



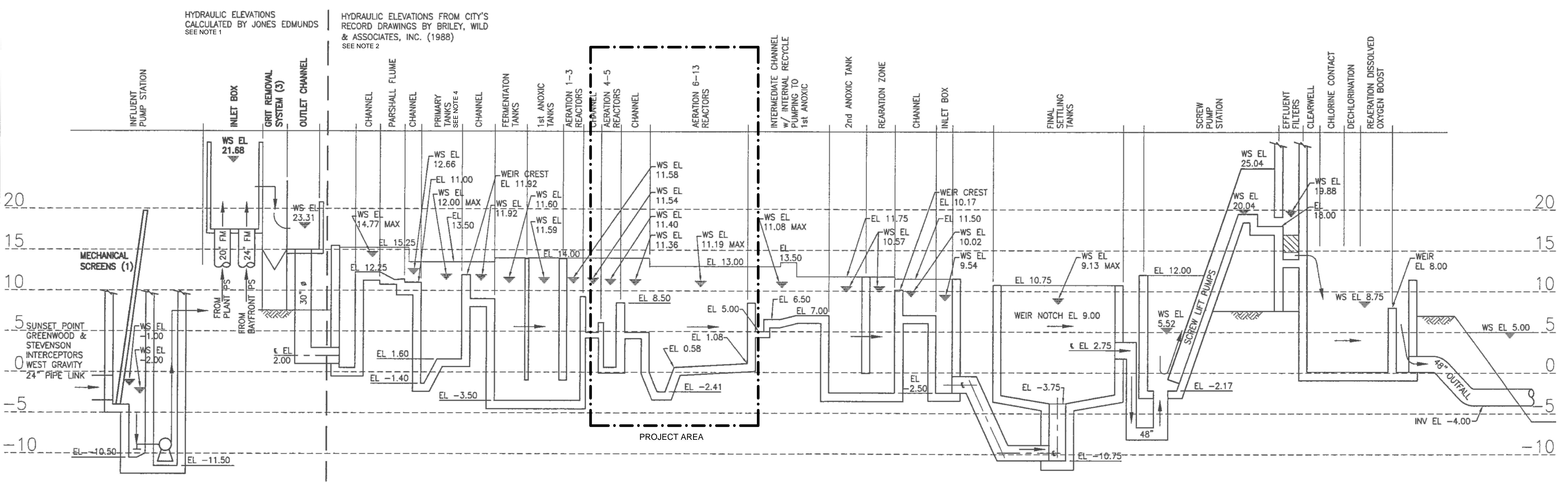
MARSHALL STREET WRF PROCESS CONTROL GATES REPAIRS (FDEP)

GENERAL

EXISTING PROCESS FLOW DIAGRAM

DWG NAME:	FIELD BOOK:	SURVEYED BY:	SCALE:
G-00-04		VERT. N/A	
PROJECT NO.: 18-0047-UT	DATE DRAWN: FEBRUARY 2020	DRAWN BY: MRC	HORIZ. N/A
JOB NO.: 153328	DESIGNED BY: PMW	CHECKED BY: AJM	SHEET NO.: 4 OF 15
	APPROVED BY:		

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
<b>GENERAL NOTES</b>																
1.	FLOW THROUGH THE PROJECT AREA INCLUDES THE FOLLOWING ASSUMPTIONS PER CITY DIRECTION: 54 MGD OF PEAK PLANT FLOW, 30 MGD OF INTERNAL RECIRCULATION, AND 12 MGD OF RAS, EQUALING A TOTAL OF 96 MGD.															
2.	THE EXISTING HYDRAULIC PROFILE IS BASED ON THE 2008 HEADWORKS SCREENING AND Grit REMOVAL PROJECT. THE DESIGN PEAK FLOW INDICATED BY THIS PLAN SET WAS 25 MGD.															
3.	THE HYDRAULIC PROFILE SHOWN HAS NOT BEEN UPDATED FROM THE 2008 PLAN SET.															
4.	PRIMARY TANKS ARE NO LONGER PRESENT AT WRF. THE PRIMARY TANKS WERE REPLACED WITH THE SALSNES FILTERS INSTALLED IN 2012. A REVISION TO THE HYDRAULIC WAS NOT PROVIDED IN THAT SUBMITTAL.															



**Brown and Caldwell**

TAMPA, FLORIDA

RECORD DRAWINGS	DRAWN BY:
SURVEYED BY:	
REVIEWED BY:	
APPROVED BY:	
PROJECT ENGINEER	DATE
ENGINEER	DATE

REVISION	BY DATE
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CITY OF CLEARWATER, FLORIDA  
ENGINEERING DEPARTMENT  
100 S. MYRTLE AVE.  
CLEARWATER, FL 33756



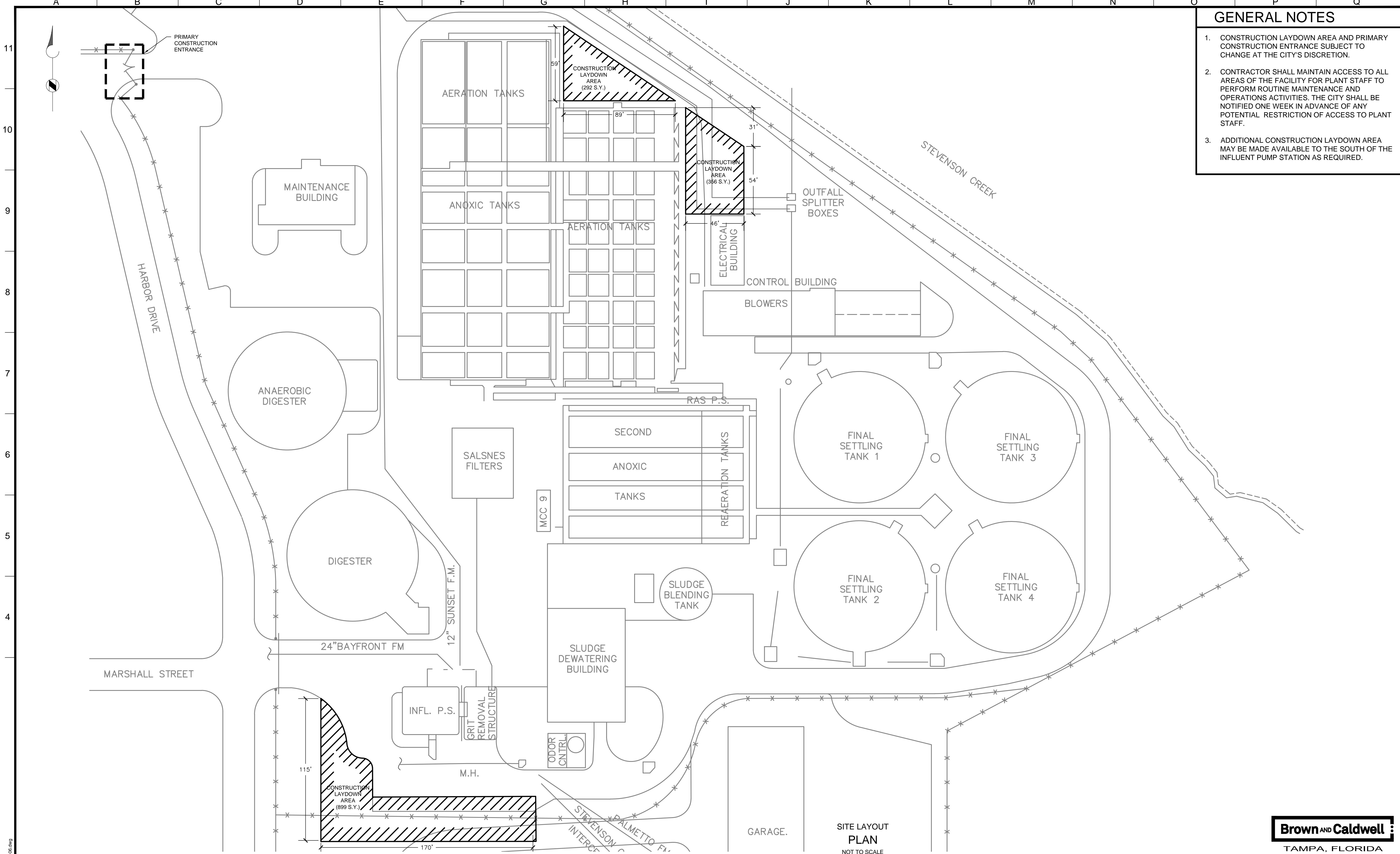
MARSHALL STREET WRF PROCESS CONTROL GATES REPAIRS (FDEP)  
GENERAL

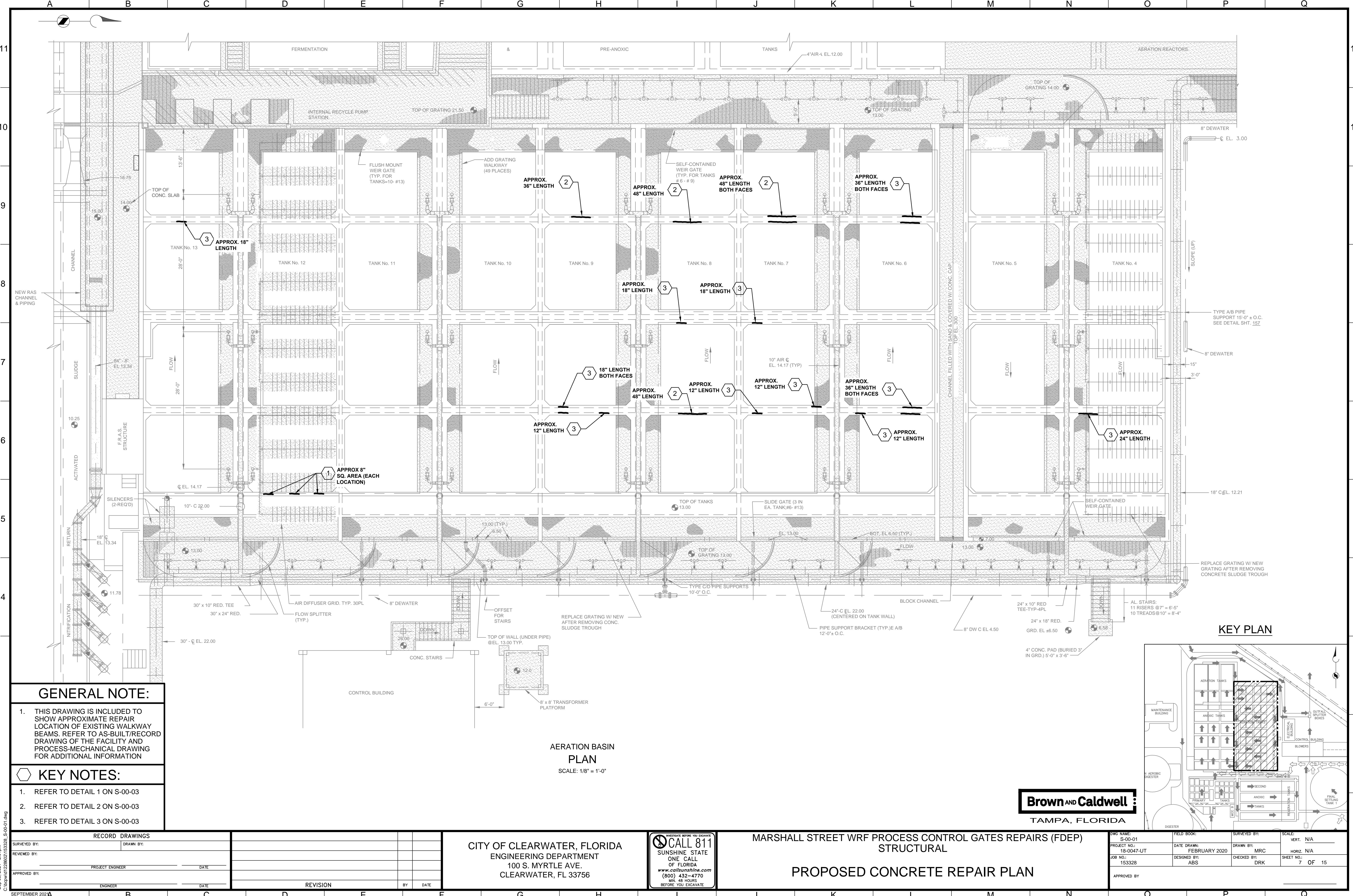
EXISTING HYDRAULIC PROFILE

DWG NAME: G-00-05	FIELD BOOK:	SURVEYED BY:	SCALE: VERT. N/A
PROJECT NO.: 18-0047-UT	DATE DRAWN: FEBRUARY 2020	DRAWN BY: MRC	HORIZ. N/A
JOB NO.: 153328	DESIGNED BY: PMW	CHECKED BY: AJM	SHEET NO.: 5 OF 15
APPROVED BY:			

## GENERAL NOTES

- CONSTRUCTION LAYDOWN AREA AND PRIMARY CONSTRUCTION ENTRANCE SUBJECT TO CHANGE AT THE CITY'S DISCRETION.
- CONTRACTOR SHALL MAINTAIN ACCESS TO ALL AREAS OF THE FACILITY FOR PLANT STAFF TO PERFORM ROUTINE MAINTENANCE AND OPERATIONS ACTIVITIES. THE CITY SHALL BE NOTIFIED ONE WEEK IN ADVANCE OF ANY POTENTIAL RESTRICTION OF ACCESS TO PLANT STAFF.
- ADDITIONAL CONSTRUCTION LAYDOWN AREA MAY BE MADE AVAILABLE TO THE SOUTH OF THE INFILTRANT PUMP STATION AS REQUIRED.

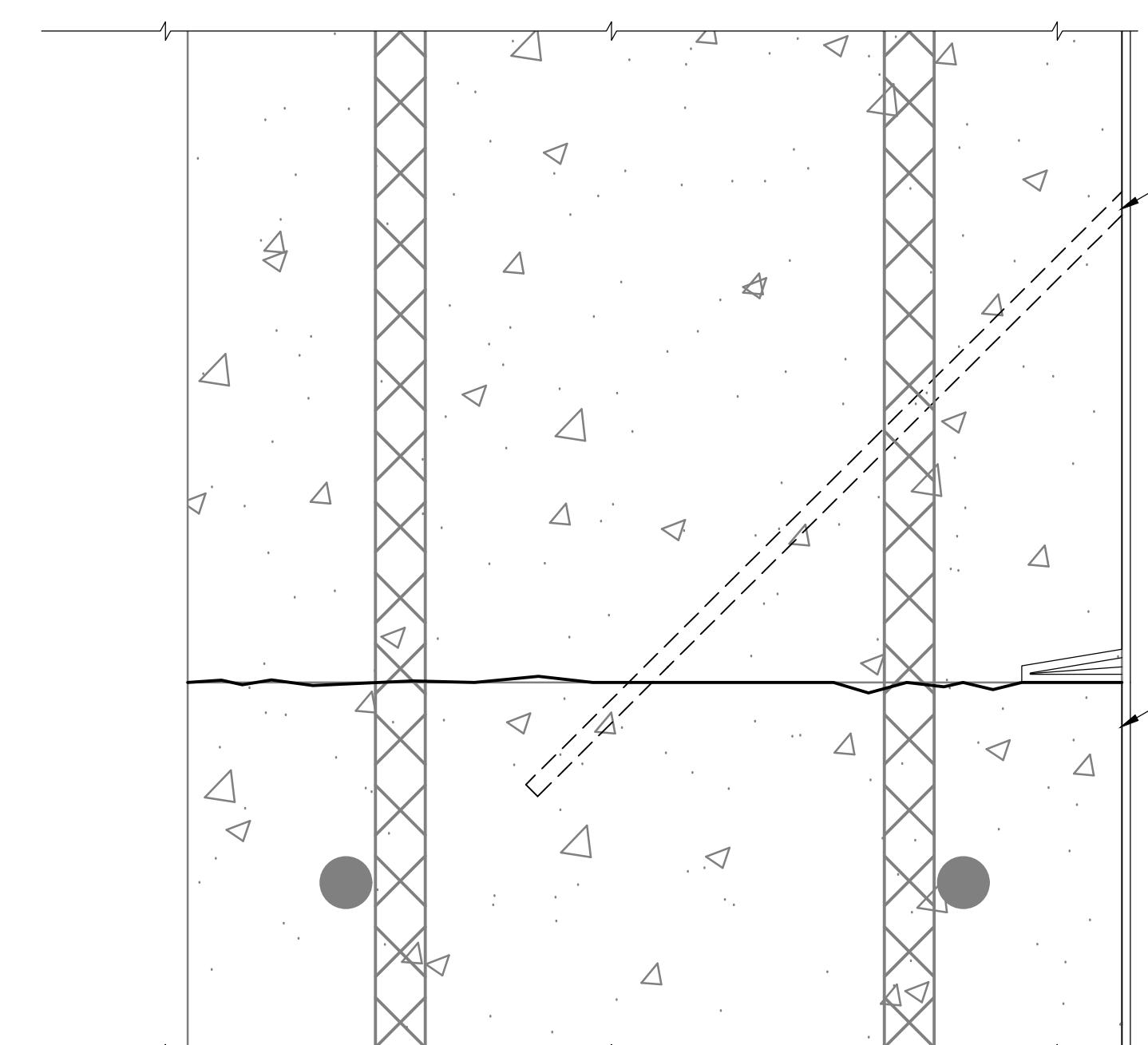




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TYPICAL CRACK INJECTION DETAIL

NOT TO SCALE

Sept 09, 2021 2:20pm  
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RECORD DRAWINGS	
SURVEYED BY:	DRAWN BY:
REVIEWED BY:	
APPROVED BY:	

PROJECT ENGINEER	DATE
REVISION	BY DATE

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CITY OF CLEARWATER, FLORIDA  
ENGINEERING DEPARTMENT  
100 S. MYRTLE AVE.  
CLEARWATER, FL 33756

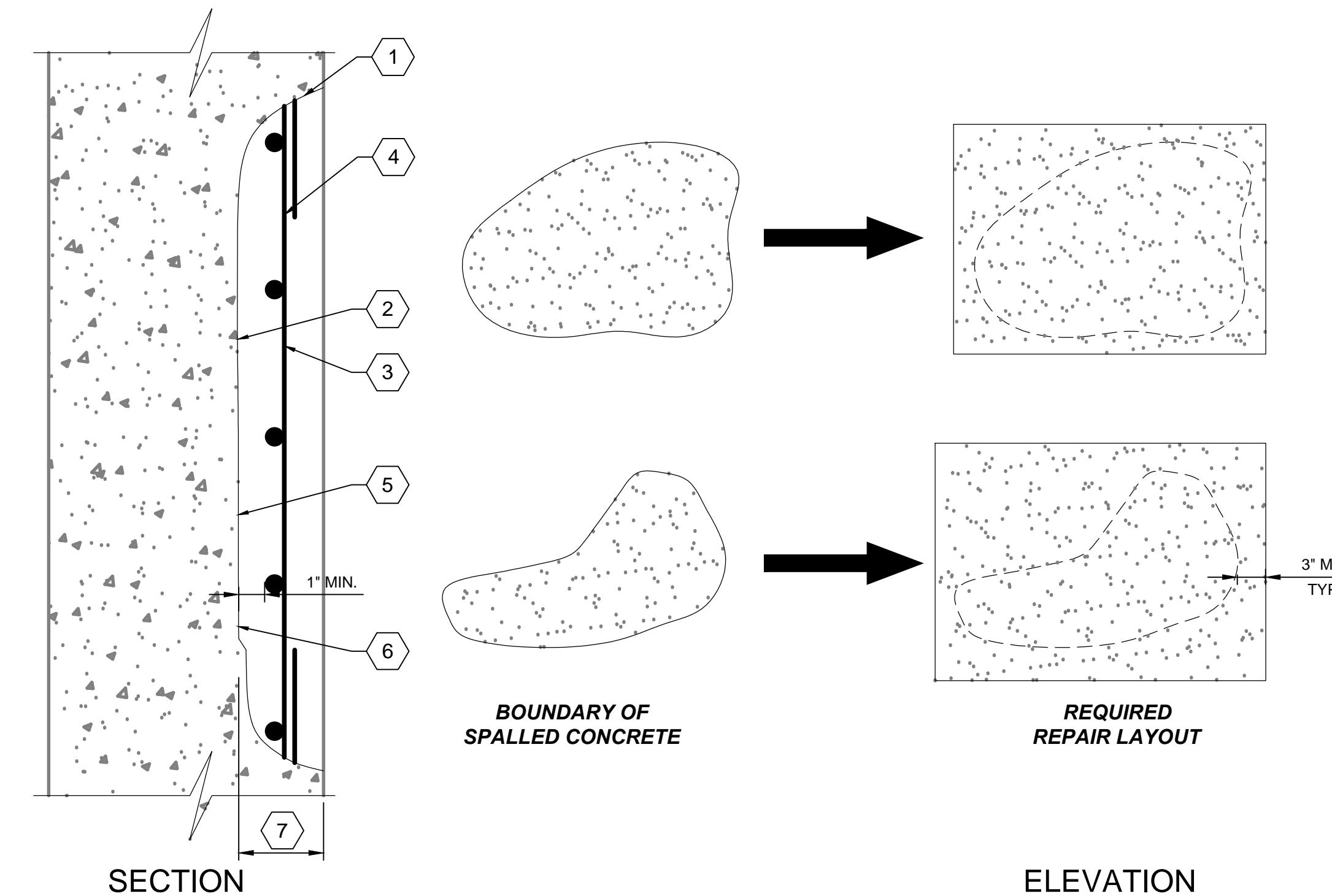


MARSHALL STREET WRF PROCESS CONTROL GATES REPAIRS (FDEP)  
STRUCTURAL  
**GENERAL REPAIR DETAILS**

DWG NAME:	FIELD BOOK:	SURVEYED BY:	SCALE:
S-00-02		VER. N/A	
PROJECT NO.:	DATE DRAWN:	DRAWN BY:	HORIZ. N/A
18-0047-UT	FEBRUARY 2020	MRC	
JOB NO.:	DESIGNED BY:	CHECKED BY:	
153328	ABS	DRK	
	APPROVED BY:		

Brown and Caldwell  
TAMPA, FLORIDA

A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q



- ① SAW CUT PERIMETER OF REPAIR AREA TO A DEPTH OF 1/2". DO NOT CUT EXISTING REINFORCING.
- ② REMOVE ALL DETERIORATED CONCRETE TO SOUND CONCRETE. CHIP CONCRETE SUBSTRATE TO OBTAIN A SURFACE PROFILE OF 1/8-INCH IN DEPTH WITH A NEW FRACTURED AGGREGATE SURFACE. IF EXISTING REINFORCING PROHIBITS REMOVAL OF DETERIORATED CONCRETE, CONTACT ENGINEER.
- ③ WHERE REINFORCING STEEL WITH ACTIVE CORROSION IS ENCOUNTERED, ENGINEER WILL REVIEW CONDITION OF CORRODED STEEL PRIOR TO REPAIR. REPLACEMENT IS REQUIRED WHEN LOSS OF CROSS-SECTIONAL AREA EXCEEDS 25% WHERE EXISTING REINFORCING IS TO REMAIN. ABRASIVE BLAST REINFORCING TO REMOVE RUST, SCALE, AND ALL CONTAMINANTS. REMOVE CONCRETE TO A DEPTH OF 1-INCH MINIMUM BEHIND REINFORCING BAR AS SHOWN.

- ④ IF REINFORCING REPLACEMENT IS REQUIRED, CUT EXISTING CORRODED REINFORCING BAR AS REQUIRED AND PROVIDE CLASS A TENSION LAP SPLICE PER ACI 318 OF MATCHING SIZE.
- ⑤ SURFACE PREPARATION SHALL COMPLY WITH REPAIR MORTAR MANUFACTURER'S INSTRUCTIONS.
- ⑥ INSTALL REPAIR MORTAR PER THE MANUFACTURER'S REQUIREMENTS.
- ⑦ FOR BID PURPOSES, ASSUME TOTAL DEPTH OF REPAIR IS 6-INCHES.

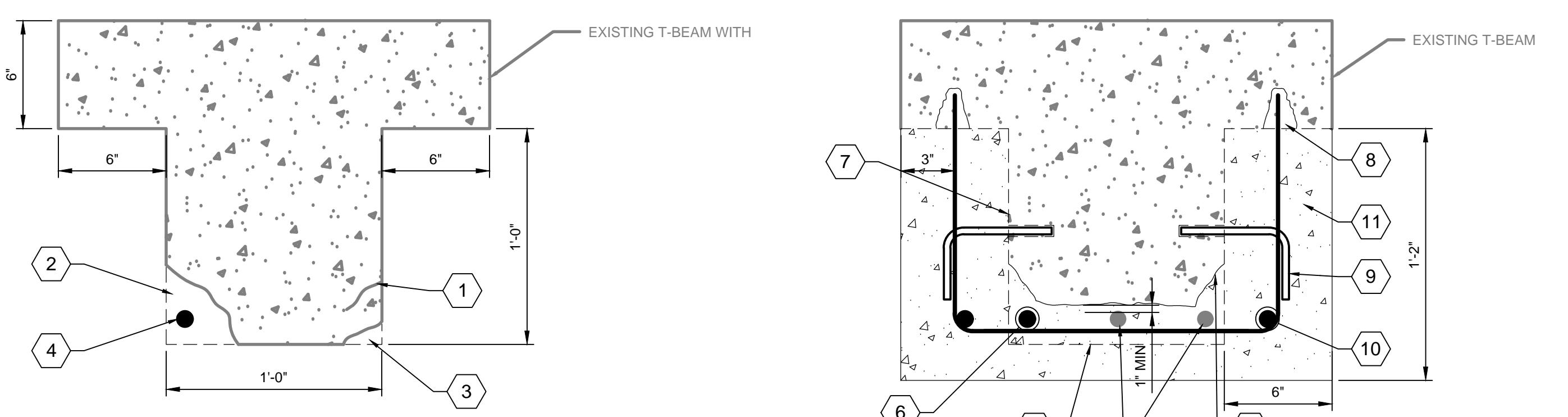
### TYPICAL CONCRETE SURFACE SPALL REPAIR DETAIL 1

NOT TO SCALE

REPAIR SCHEDULE				
	REPAIR TYPE	DETAIL REFERENCE NUMBER	BID QUANTITY	NOTES
CONCRETE WALKWAY BEAMS	CRACK REPAIR	2 OR 3 ON SHEET S-00-03	90	LF
	SURFACE SPALL REPAIR	1 ON SHEET S-00-03	20	SF

REPAIR SCHEDULE NOTES:

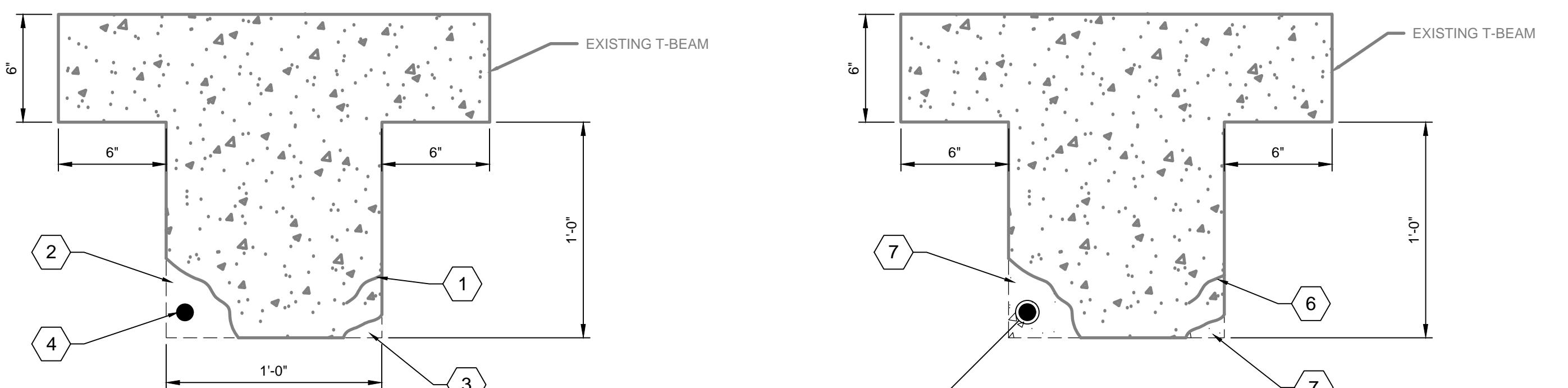
- PAYMENT OF CONCRETE REPAIR AND REHABILITATION WORK SHALL BE BASED ON ACTUAL MEASURED REPAIR QUANTITIES MULTIPLIED BY THE ASSOCIATED UNIT PRICES INCLUDED ON THE PROPOSAL BID FORM.
- ENGINEER MAY DIRECT CONTRACTOR TO PERFORM REPAIR WORK THAT IS GREATER THAN OR LESS THAN THE ESTIMATED QUANTITIES STATED ON THE PROPOSAL BID FORM AND LISTED IN THE TABLE ABOVE. CONTRACTOR WILL BE COMPENSATED AT THE UNIT PRICES ON THE PROPOSAL BID FORMS FOR THE ACTUAL QUANTITY OF CONCRETE REPAIR WORK AS SHOWN, SPECIFIED OR ORDERED.
- REFER TO SHEET S-00-01 FOR REPAIR LOCATIONS BASED ON AVAILABLE INFORMATION DURING THE DESIGN PHASE. CONTRACTOR SHALL VERIFY THE APPROXIMATE REPAIR QUANTITIES AND LOCATIONS PRIOR TO PROCEEDING WITH REPAIR WORK. CONTACT ENGINEER FOR ANY DISCREPANCY.
- PRIOR TO COMMENCING DEMOLITION WORK, ALL BEAMS REQUIRING REPAIR SHALL BE PROVIDED WITH TEMPORARY SHORING AT INTERVALS NOT TO EXCEED 4 FEET, DESIGNED TO ACCOMMODATE THE REQUIRED REPAIRS AND CAPABLE OF SUPPORTING THE STRUCTURE DEAD LOAD PLUS A LIVE LOAD OF 150 PSF.
- REFER TO SECTION 03900 FOR ADDITIONAL INFORMATION.



- ① CRACK OR SPALL IN BEAM
- ② MISSING SECTION OF BEAM
- ③ DAMAGED OR MISSING SECTION OF BEAM
- ④ CORRODED OR MISSING REINFORCING. WHERE EXISTING REINFORCING REMAINS, IT SHOWS MAJOR CORROSION AND SECTION LOSS GREATER THAN 25% OF THE CROSS-SECTIONAL AREA.
- ⑤ REMOVE ALL LOOSE AND DAMAGED CONCRETE UP TO SOUND CONCRETE USING 10 LB CHIPPING HAMMERS OR HYDROBLASTING. USE CAUTION TO REDUCE MICRO FRACTURES. DEMOLITION SHALL EXTEND TO 1' MIN. ALL AROUND EXISTING REINFORCING. SUBSTRATE SHOULD HAVE A MIN. 1/4" AMPLITUDE. DO NOT CUT OR DAMAGE REINFORCING.
- ⑥ ABRASIVE BLAST REINFORCING TO REMOVE RUST, SCALE AND CONTAMINANTS. REPLACE IS REQUIRED WHERE MORE THAN 25% REBAR CROSS SECTION IS LOST. IF REINFORCEMENT REPLACEMENT IS REQUIRED, CUT EXISTING CORRODED REINFORCING BAR AS REQUIRED AND PROVIDE MECHANICAL COUPLER OF MATCHING SIZE. REFER TO DETAIL A ON THIS SHEET FOR MORE INFORMATION.
- ⑦ SURFACE PREPARATION SHALL COMPLY WITH REPAIR MORTAR MANUFACTURER'S INSTRUCTIONS.
- ⑧ PROVIDE #3 REBAR @ 12°c. W/MIN. 3 1/2" EMBED INTO HILTI RE-500V3 OR EQUAL AT UNDERSIDE OF EXISTING BEAM FLANGES.
- ⑨ #3 @ 12°c. AT MID-DEPTH. DRILL AND EPOXY GROUT INTO EXISTING CONCRETE W/MIN 3 1/2" EMBED. VERIFY AND AVOID EXISTING BEAM STIRRUPS PRIOR TO DRILLING. TYPICAL ON EACH FACE.
- ⑩ PROVIDE (1) #6 REBAR ON EITHER SIDE OF EXISTING BEAM STEM. PROVIDE MINIMUM 6" EMBED INTO HILTI RE-500V3 OR EQUAL AT EACH END INTO EXISTING WALL. PROVIDE NEW REBAR AT SAME ELEVATION AS EXISTING REBARS.
- ⑪ INSTALL REPAIR MORTAR PER MANUFACTURER'S RECOMMENDATION.
- ⑫ ORIGINAL PROFILE OF EXISTING DETERIORATED BEAM.
- ⑬ EXISTING REINF EXPOSED DURING REMOVAL OF DETERIORATE CONCRETE TO REMAIN.

### STANDARD "T" BEAM REPAIR DETAIL 2

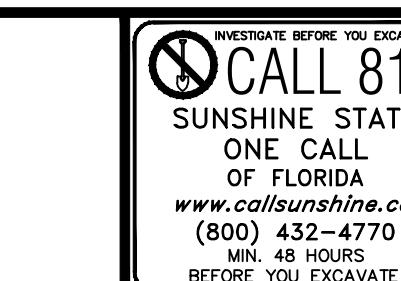
NOT TO SCALE



- ① CRACK IN BEAM.
- ② MISSING SECTION OF BEAM. SAW CUT AREA TO MIN. 3" BEYOND EXISTING DAMAGED AREA AND SAW CUT PERIMETER OF REPAIR AREA TO A DEPTH OF 1/2". DO NOT CUT EXISTING REINFORCING.
- ③ DAMAGED OR MISSING SECTION OF BEAM.
- ④ EXISTING REINFORCING SHOWS MINOR CORROSION AND SECTION LOSS LESS THAN 25% OF CROSS-SECTIONAL AREA.
- ⑤ ABRASIVE BLAST REINFORCING TO REMOVE RUST, SCALE AND CONTAMINANTS. APPLY CORROSION INHIBITOR AS SPECIFIED. REFER TO SPEC 03900.
- ⑥ PRIOR TO INJECTING CRACK REPAIR PRODUCT, CONTRACTOR TO REMOVE ALL LOOSE AND DAMAGED CONCRETE UP TO SOUND CONCRETE USING 10 LB CHIPPING HAMMER OR HYDROBLASTING. USE CAUTION TO REDUCE MICRO FRACTURES. FOR BID PURPOSES ASSUME DAMAGED OR LOOSE CONCRETE TO EXTEND 12" ON EITHER SIDE OF CRACK START AND END. INJECT REPAIR PRODUCT AS SPECIFIED. REFER TO DETAIL ON S-00-02 FOR TYPICAL CRACK INJECTION DETAIL.
- ⑦ INSTALL REPAIR MORTAR PER MANUFACTURER RECOMMENDATION.

### CONCRETE "T" BEAM REPAIR DETAIL WITH MINOR CORROSION TO REINFORCING DETAIL 3

NOT TO SCALE



### MARSHALL STREET WRF PROCESS CONTROL GATES REPAIRS (FDEP) STRUCTURAL

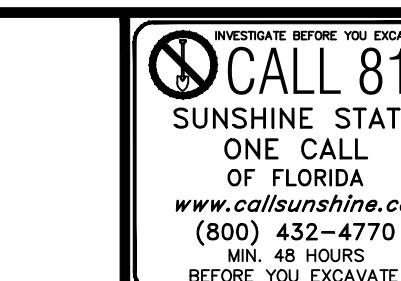
#### GENERAL REPAIR DETAILS II

Brown and Caldwell

TAMPA, FLORIDA

RECORD DRAWINGS	DRAWN BY:
SURVEYED BY:	
REVIEWED BY:	
APPROVED BY:	
PROJECT ENGINEER	DATE
ENGINEER	DATE
REVISION	BY DATE

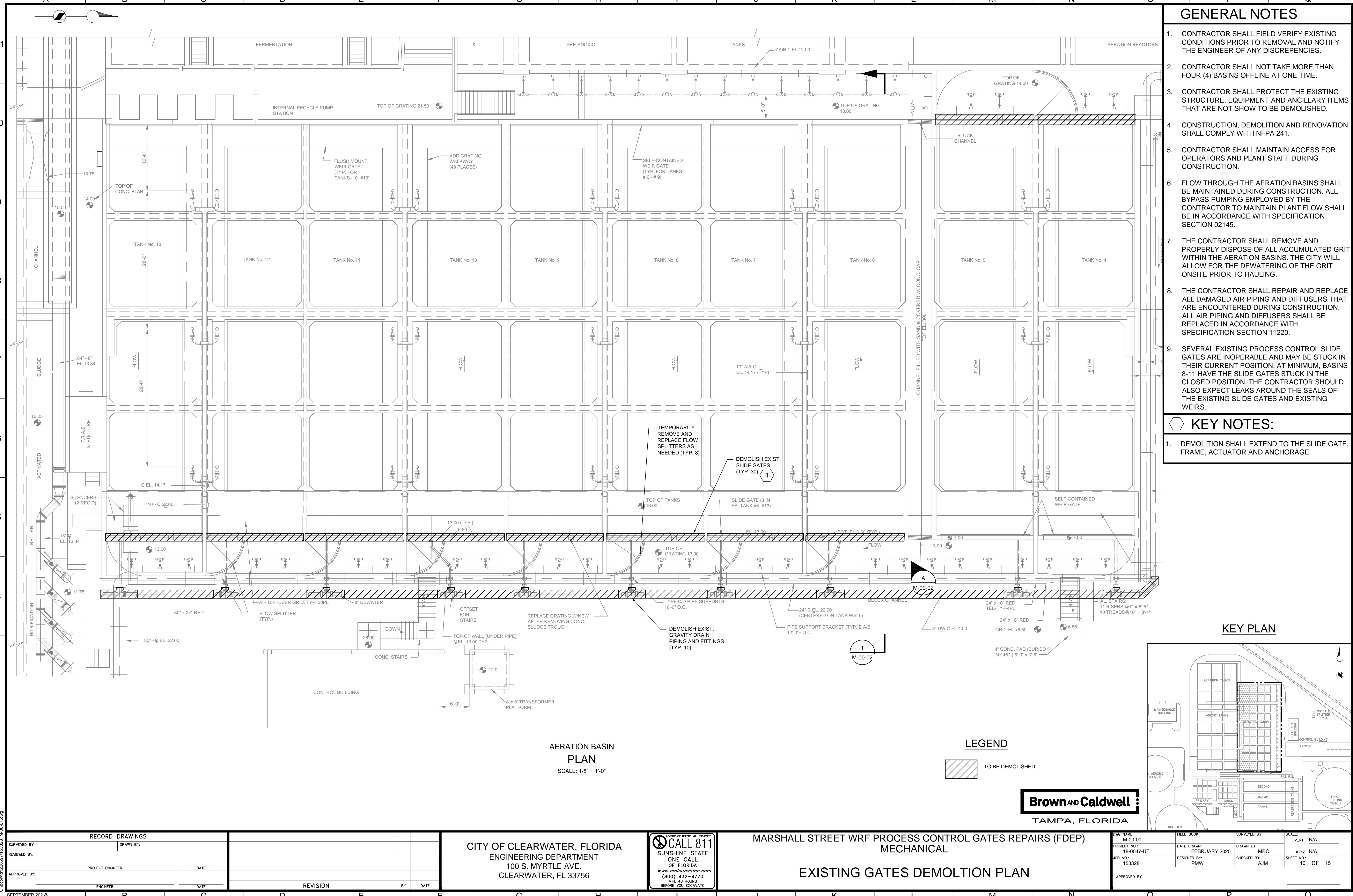
CITY OF CLEARWATER, FLORIDA  
ENGINEERING DEPARTMENT  
100 S. MYRTLE AVE.  
CLEARWATER, FL 33756



### MARSHALL STREET WRF PROCESS CONTROL GATES REPAIRS (FDEP) STRUCTURAL

#### GENERAL REPAIR DETAILS II

DWG NAME: S-00-03	FIELD BOOK:	SURVEYED BY:	SCALE: VERT. N/A
PROJECT NO.: 18-0047-UT	DATE DRAWN: FEBRUARY 2020	DRAWN BY: MRC	HORIZ. N/A
JOB NO.: 153328	DESIGNED BY: ABS	CHECKED BY: DRK	SHEET NO.: 9 OF 15
APPROVED BY:			



## GENERAL NOTES

- CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO REMOVAL AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.

CONTRACTOR SHALL NOT TAKE MORE THAN FOUR (4) BASINS OFFLINE AT ONE TIME.

CONTRACTOR SHALL PROTECT THE EXISTING STRUCTURE, EQUIPMENT AND ANCILLARY ITEMS THAT ARE NOT SHOW TO BE DEMOLISHED.

CONSTRUCTION, DEMOLITION AND RENOVATION SHALL COMPLY WITH NFPA 241.

CONTRACTOR SHALL MAINTAIN ACCESS FOR OPERATORS AND PLANT STAFF DURING CONSTRUCTION.

FLOW THROUGH THE AERATION BASINS SHALL BE MAINTAINED DURING CONSTRUCTION. ALL BYPASS PUMPING EMPLOYED BY THE CONTRACTOR TO MAINTAIN PLANT FLOW SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 02145.

THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL ACCUMULATED GRIT WITHIN THE AERATION BASINS. THE CITY WILL ALLOW FOR THE DEWATERING OF THE GRIT SITE PRIOR TO HAULING.

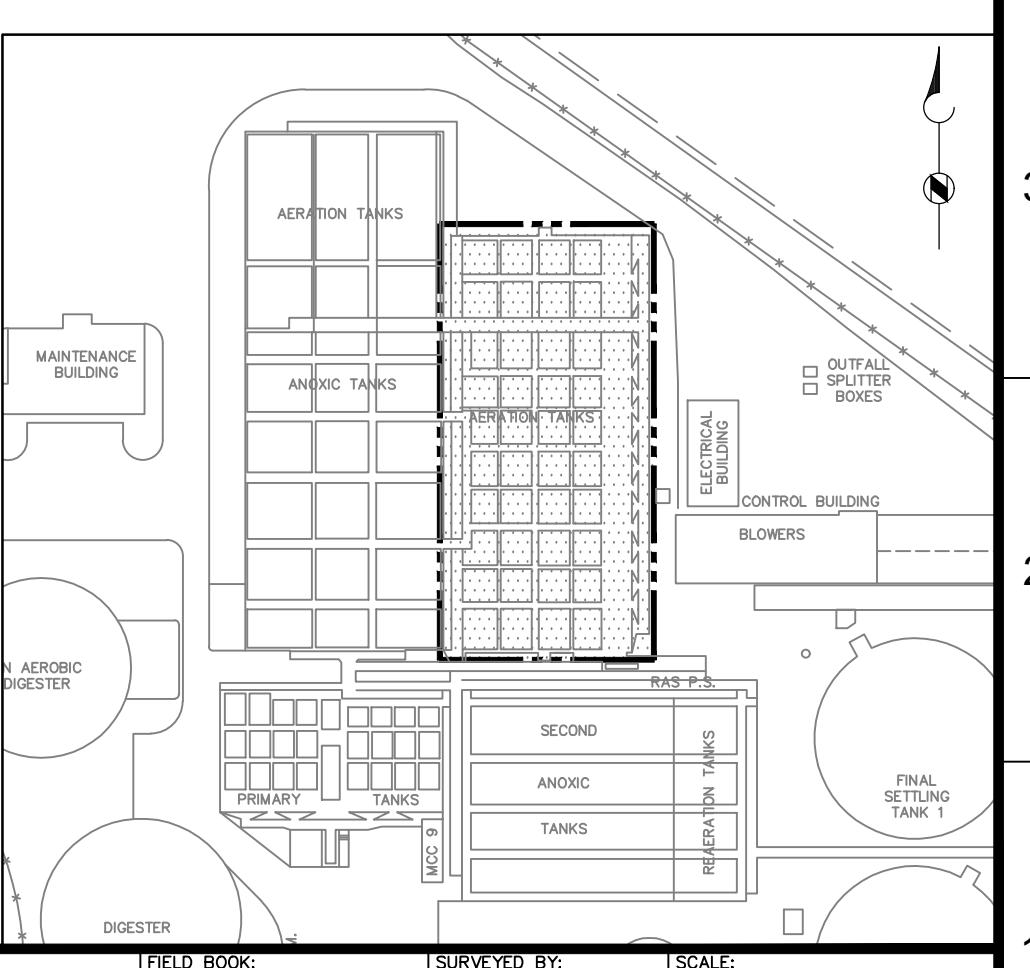
THE CONTRACTOR SHALL REPAIR AND REPLACE ALL DAMAGED AIR PIPING AND DIFFUSERS THAT ARE ENCOUNTERED DURING CONSTRUCTION. ALL AIR PIPING AND DIFFUSERS SHALL BE REPLACED IN ACCORDANCE WITH SPECIFICATION SECTION 11220.

SEVERAL EXISTING PROCESS CONTROL SLIDE GATES ARE INOPERABLE AND MAY BE STUCK IN THEIR CURRENT POSITION. AT MINIMUM, BASINS 11 HAVE THE SLIDE GATES STUCK IN THE CLOSED POSITION. THE CONTRACTOR SHOULD ALSO EXPECT LEAKS AROUND THE SEALS OF THE EXISTING SLIDE GATES AND EXISTING PIERS.

# KEY NOTES:

- MOTION SHALL EXTEND TO THE SLIDE GATE,  
AME, ACTUATOR AND ANCHORAGE

## KEY PLAN



## LEGEND



# Brown AND Caldwell

## **MARSHALL STREET WRF PROCESS CONTROL GATES REPAIRS (FDEP) MECHANICAL**

# EXISTING GATES DEMOITION PLAN

RECORD DRAWINGS		
SURVEYED BY:	DRAWN BY:	
REVIEWED BY:		
	PROJECT ENGINEER	DATE
APPROVED BY:		
	ENGINEER	DATE
SEPTEMBER 2021 A	B	C

A rectangular label with a black border. Inside, the text "CITY OF CLEARWATER, FLORIDA" is at the top, followed by "ENGINEERING DEPARTMENT" on the next line, then "100 S. MYRTLE AVE." on the third line, and "CLEARWATER, FL 33756" on the bottom line. The label is positioned above the main content area.

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**CITY OF CLEARWATER, FLORIDA  
ENGINEERING DEPARTMENT  
100 S. MYRTLE AVE.  
CLEARWATER, FL 33756**

A rectangular sign with a black border. Inside, at the top left, is a large circle containing a diagonal slash over a shovel icon. To the right of the icon, the text "INVESTIGATE BEFORE YOU EXCAVATE" is printed in capital letters. Below the icon, the words "CALL 811" are written in large, bold, sans-serif font. Underneath that, "SUNSHINE STATE" and "ONE CALL" are stacked vertically, followed by "OF FLORIDA". At the bottom left is the website "www.callsunshine.com". At the bottom center is the phone number "(800) 432-4770". At the very bottom, the text "MIN. 48 HOURS" and "BEFORE YOU EXCAVATE" are centered.

# MARSHALL STREET WRF PROCESS CONTROL GATES REPAIRS (FDEP) MECHANICAL

DIGESTER			
DWG NAME: M-00-01	FIELD BOOK:	SURVEYED BY:	SCALE: VERT. N/A
PROJECT NO.: 18-0047-UT	DATE DRAWN: FEBRUARY 2020	DRAWN BY: MRC	HORIZ. N/A
JOB NO.: 153328	DESIGNED BY: PMW	CHECKED BY: AJM	SHEET NO.: 10 OF 15
APPROVED BY _____			

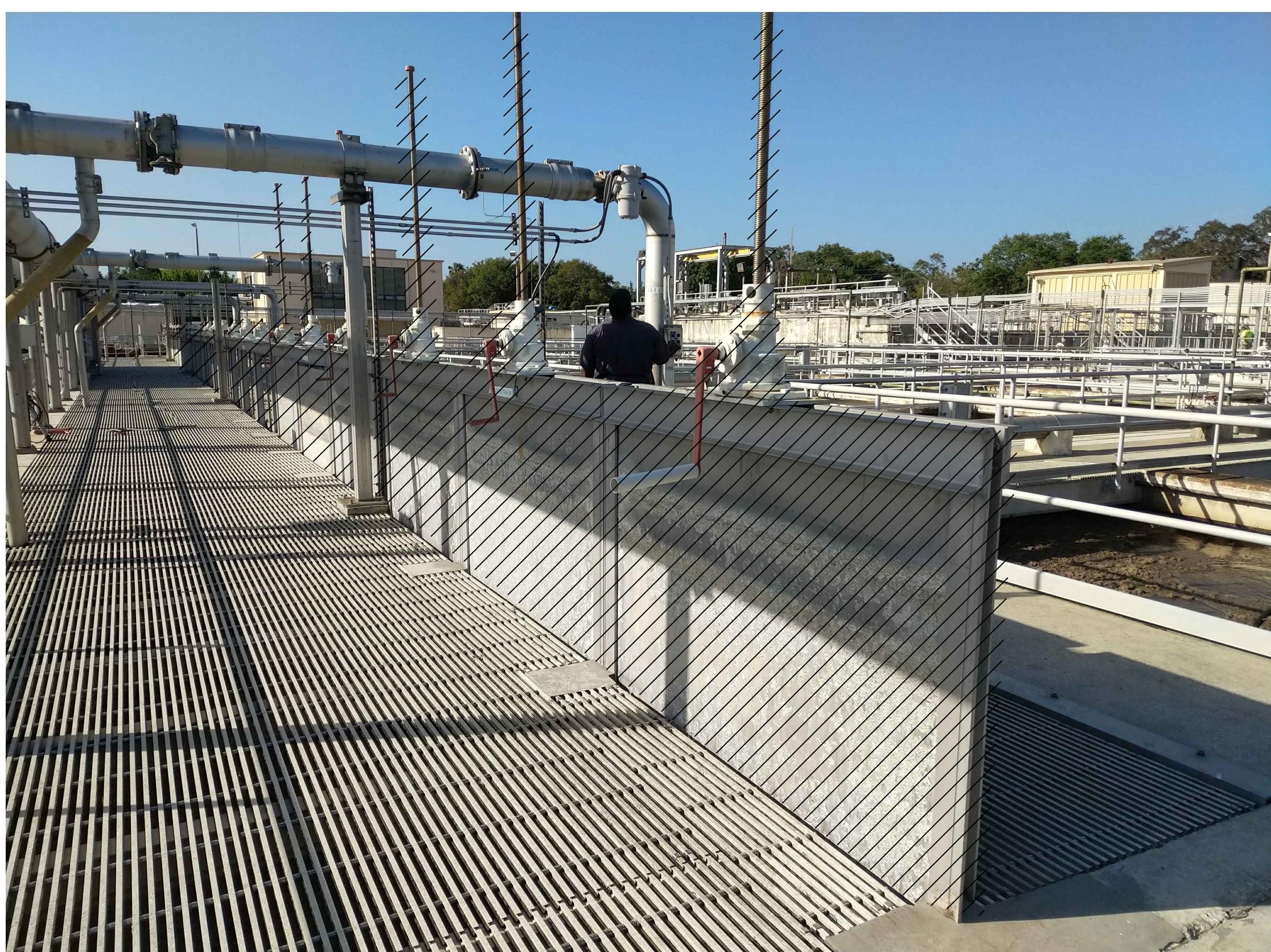
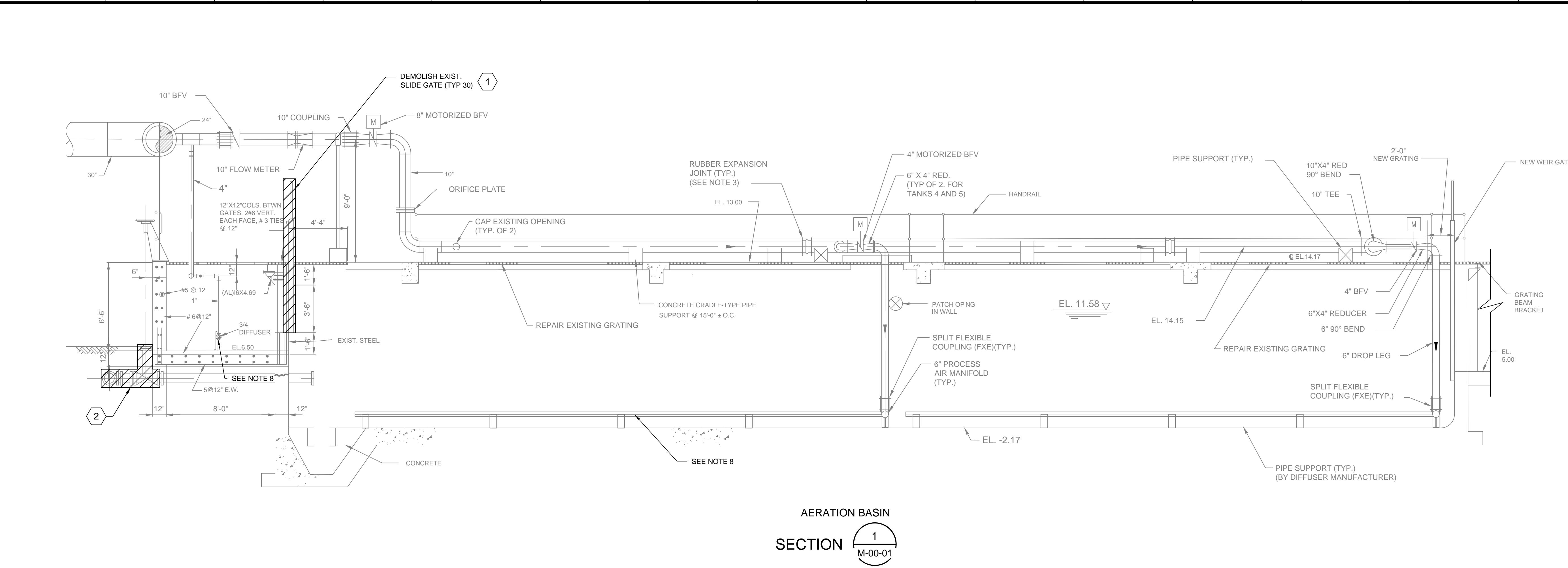
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## GENERAL NOTES

- CONTRACTOR SHALL COORDINATE WITH OWNER'S REPRESENTATIVE TO DETERMINE THE EXTENT OF AIR PIPING REPLACEMENT ENCOUNTERED IN THE FIELD.
- CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO REMOVAL AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
- CONTRACTOR SHALL NOT TAKE MORE THAN FOUR (4) BASINS OFFLINE AT ONE TIME.
- CONTRACTOR SHALL PROTECT THE EXISTING STRUCTURE, EQUIPMENT AND ANCILLARY ITEMS THAT ARE NOT SHOW TO BE DEMOLISHED.
- CONSTRUCTION, DEMOLITION AND RENOVATION SHALL COMPLY WITH NFPA 241.
- CONTRACTOR SHALL MAINTAIN ACCESS FOR OPERATORS AND PLANT STAFF DURING CONSTRUCTION.
- FLOW THROUGH THE AERATION BASINS SHALL BE MAINTAINED DURING CONSTRUCTION.
- THE CONTRACTOR SHALL REPAIR AND REPLACE ALL DAMAGED AIR PIPING AND DIFFUSERS THAT ARE ENCOUNTERED DURING CONSTRUCTION. ALL AIR PIPING AND DIFFUSERS SHALL BE REPLACED IN ACCORDANCE WITH SPECIFICATION SECTION 11220.

## KEY NOTES:

- DEMOLITION SHALL EXTEND TO THE SLIDE GATE, FRAME, ACTUATOR AND ANCHORAGE
- DEMOLISH EXISTING GRAVITY DRAIN PIPING AND FITTINGS AS SHOWN



GATE DEMOLITION  
PHOTO A  
M-00-01

TO BE DEMOLISHED

TO BE DEMOLISHED

Brown and Caldwell

TAMPA, FLORIDA

RECORD DRAWINGS	
SURVEYED BY:	DRAWN BY:
REVIEWED BY:	
APPROVED BY:	

PROJECT ENGINEER DATE

ENGINEER DATE

REVISION BY DATE

SEPTEMBER 2021 A

CITY OF CLEARWATER, FLORIDA  
ENGINEERING DEPARTMENT  
100 S. MYRTLE AVE.  
CLEARWATER, FL 33756



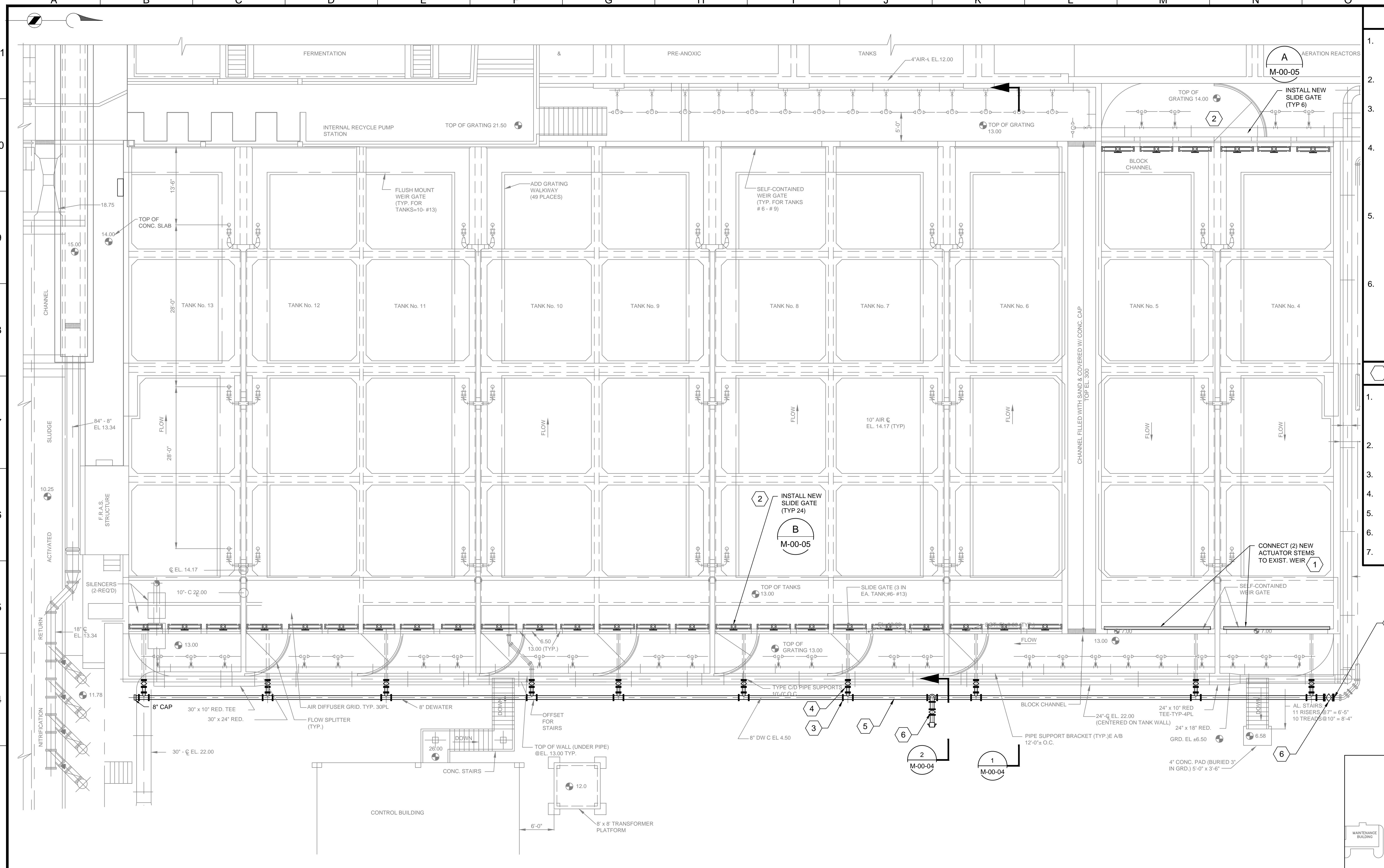
MARSHALL STREET WRF PROCESS CONTROL GATES REPAIRS (FDEP)

MECHANICAL

EXISTING GATES DEMOLITION SECTION

DWG NAME:	FIELD BOOK:	SURVEYED BY:	SCALE:
M-00-02		VERT. N/A	
PROJECT NO.: 18-00047-UT	DATE DRAWN: FEBRUARY 2020	DRAWN BY: MRC	HORIZ. N/A
JOB NO.: 153328	DESIGNED BY: PMW	CHECKED BY: AJM	SHEET NO.: 11 OF 15

APPROVED BY



## GENERAL NOTES

- CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO REMOVAL AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.

CONTRACTOR SHALL NOT TAKE MORE THAN FOUR (4) BASINS OFFLINE AT ONE TIME.

CONTRACTOR SHALL MAINTAIN ACCESS FOR OPERATORS AND PLANT STAFF DURING CONSTRUCTION.

LOW THROUGH THE AERATION BASINS SHALL BE MAINTAINED DURING CONSTRUCTION. ALL BYPASS PUMPING EMPLOYED BY THE CONTRACTOR TO MAINTAIN PLANT FLOW SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 02145.

THE CONTRACTOR SHALL REPAIR AND REPLACE ALL DAMAGED AIR PIPING AND DIFFUSERS THAT ARE ENCOUNTERED DURING CONSTRUCTION. ALL AIR PIPING AND DIFFUSERS SHALL BE REPLACED IN ACCORDANCE WITH SPECIFICATION SECTION 11220.

SEVERAL EXISTING PROCESS CONTROL SLIDES ARE INOPERABLE AND MAY BE STUCK IN THEIR CURRENT POSITION. AT A MINIMUM, BASINS 11-11 HAVE THE SLIDE GATES STUCK IN THE CLOSED POSITION. THE CONTRACTOR SHOULD ALSO EXPECT LEAKS AROUND THE SEALS OF THE EXISTING SLIDE GATES AND EXISTING PIERS.

## KEY NOTES:

- CONNECT (2) NEW ACTUATOR STEMS TO EACH EXISTING WEIR TO RE-ESTABLISH CONNECTION BETWEEN THE EXISTING WEIR PLATE AND THE EXISTING ACTUATORS

INSTALL NEW SLIDE GATE PER SPECIFICATION SECTION 11103

x6" MJ TEE (RESTRAINED) (TYP 10)

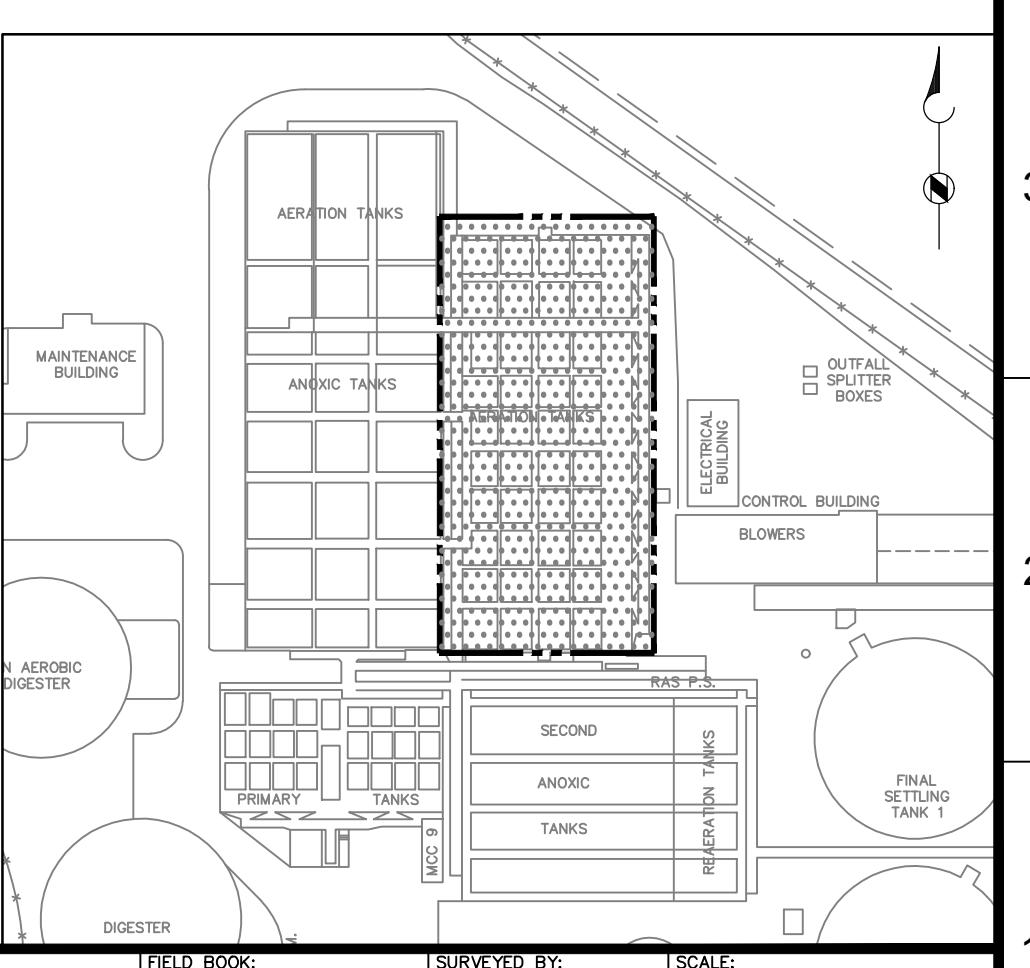
PLUG VALVE (TYP 10)

RESTRAINED DIP

PLUG VALVE (TYP 2)

CONNECT TO EXISTING DI DRAIN PIPE

## KEY PLAN



# Brown AND Caldwell

RECORD DRAWINGS		
SURVEYED BY:	DRAWN BY:	
REVIEWED BY:		
PROJECT ENGINEER		
APPROVED BY:	DATE	
ENGINEER		
SEPTEMBER 2021	B	C

**CITY OF CLEARWATER, FLORIDA  
ENGINEERING DEPARTMENT  
100 S. MYRTLE AVE.  
CLEARWATER, FL 33756**



# MARSHALL STREET WRF PROCESS CONTROL GATES REPAIRS (FDEP) MECHANICAL

# PROPOSED AERATION BASIN MODIFICATIONS PLAN

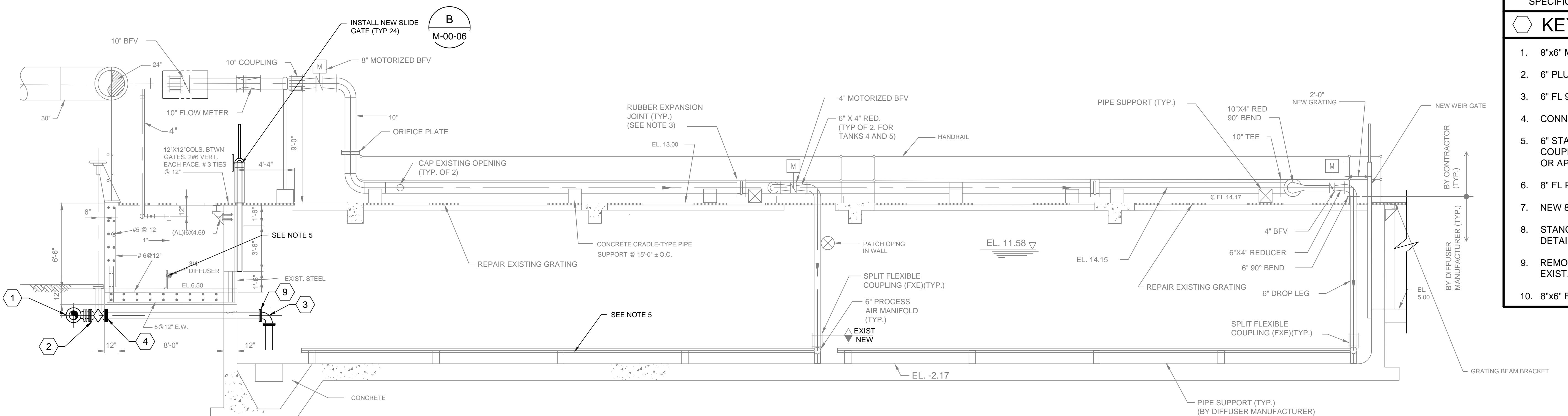
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## GENERAL NOTES

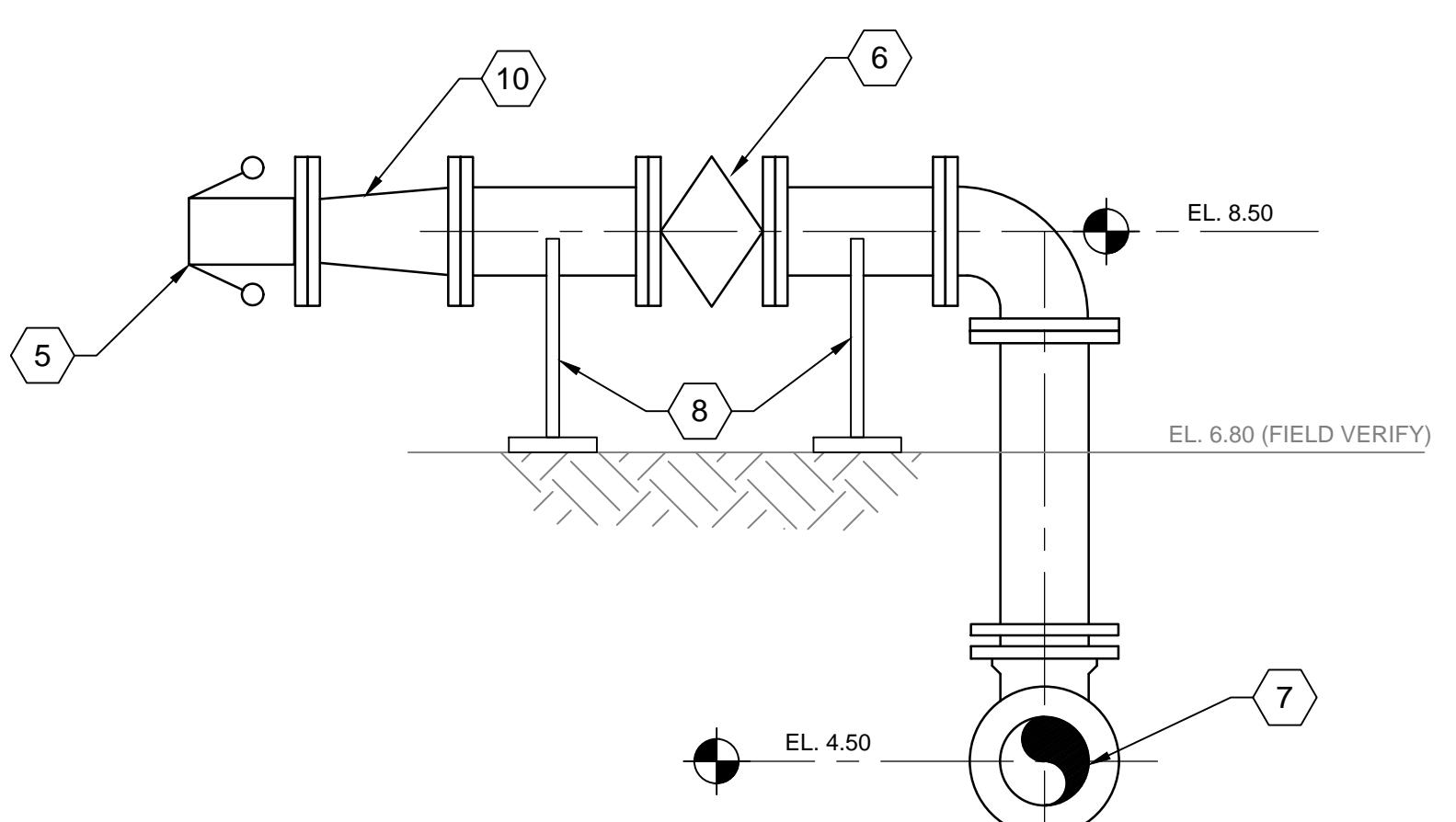
- CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO REMOVAL AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
- CONTRACTOR SHALL NOT TAKE MORE THAN FOUR (4) BASINS OFFLINE AT ONE TIME.
- CONTRACTOR SHALL MAINTAIN ACCESS FOR OPERATORS AND PLANT STAFF DURING CONSTRUCTION.
- FLOW THROUGH THE AERATION BASINS SHALL BE MAINTAINED DURING CONSTRUCTION. ALL BYPASS PUMPING EMPLOYED BY THE CONTRACTOR TO MAINTAIN PLANT FLOW SHALL BE IN ACCORDANCE WITH SPECIFICATION SECTION 02145.
- THE CONTRACTOR SHALL REPAIR AND REPLACE ALL DAMAGED AIR PIPING AND DIFFUSERS THAT ARE ENCOUNTERED DURING CONSTRUCTION. ALL AIR PIPING AND DIFFUSERS SHALL BE REPLACED IN ACCORDANCE WITH SPECIFICATION SECTION 11220.

## KEY NOTES:

- 8"x6" MJ TEE (RESTRAINED)
- 6" PLUG VALVE
- 6" FL 90° BEND
- CONNECT TO EXISTING 6" DRAIN PIPE
- 6" STAINLESS STEEL QUICK CONNECT COUPLING W/ DUST CAP. CAM-LOCK TYPE C OR APPROVED EQUAL.
- 8" FL PLUG VALVE
- NEW 8" DIP (RESTRAINED)
- STANCHION TYPE PIPE SUPPORT, SEE DETAIL M-00-06 DETAIL C
- REMOVE EXIST. BLIND FL. AND CONNECT TO EXIST. 6" DRAINAGE PIPE
- 8"x6" FLANGED REDUCER



AERATION BASIN  
SECTION 1  
M-00-03  
SCALE: 1/8"=1'-0"



AERATION BASIN  
SECTION 2  
M-00-03  
SCALE: 3/4"=1'-0"

**Brown and Caldwell**

TAMPA, FLORIDA

RECORD DRAWINGS	DRAWN BY:
SURVEYED BY:	
REVIEWED BY:	
APPROVED BY:	
PROJECT ENGINEER	DATE
ENGINEER	DATE

REVISION	BY	DATE
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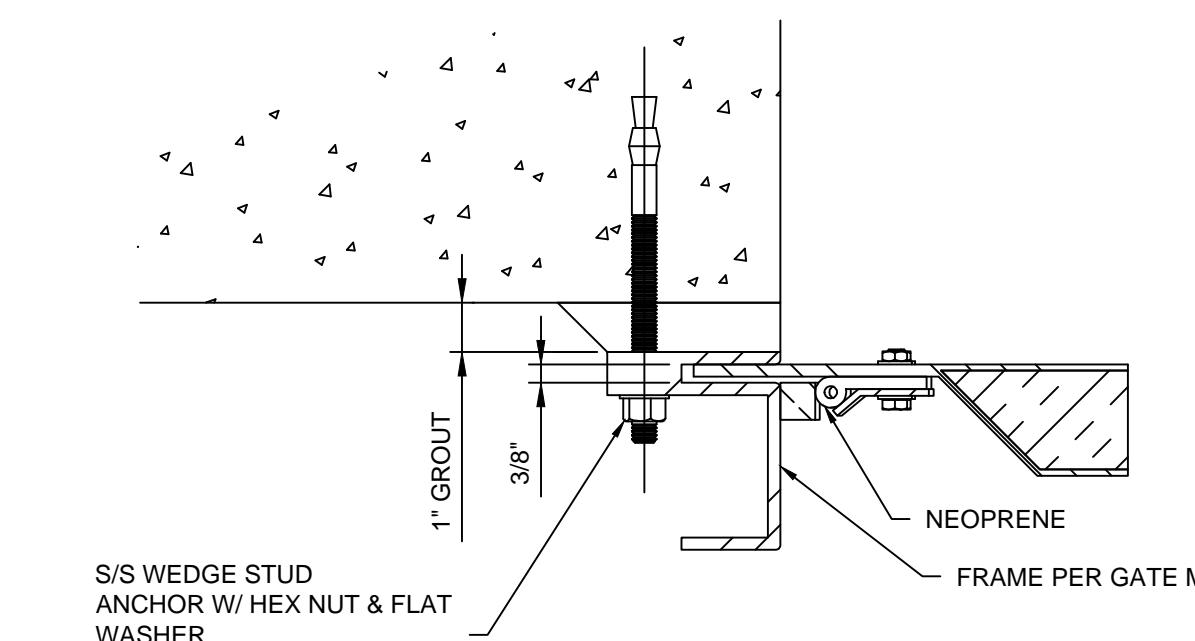
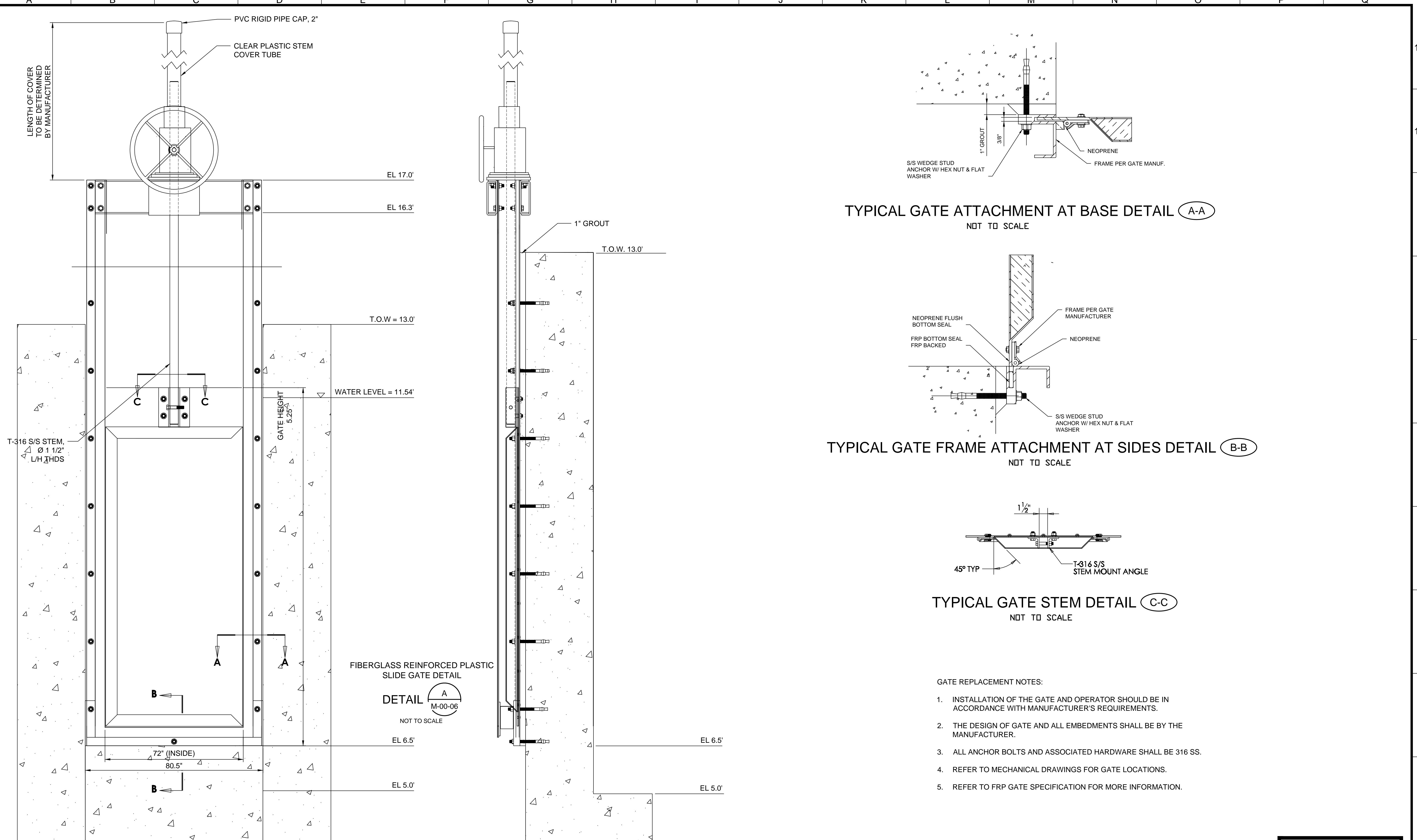
CITY OF CLEARWATER, FLORIDA  
ENGINEERING DEPARTMENT  
100 S. MYRTLE AVE.  
CLEARWATER, FL 33756



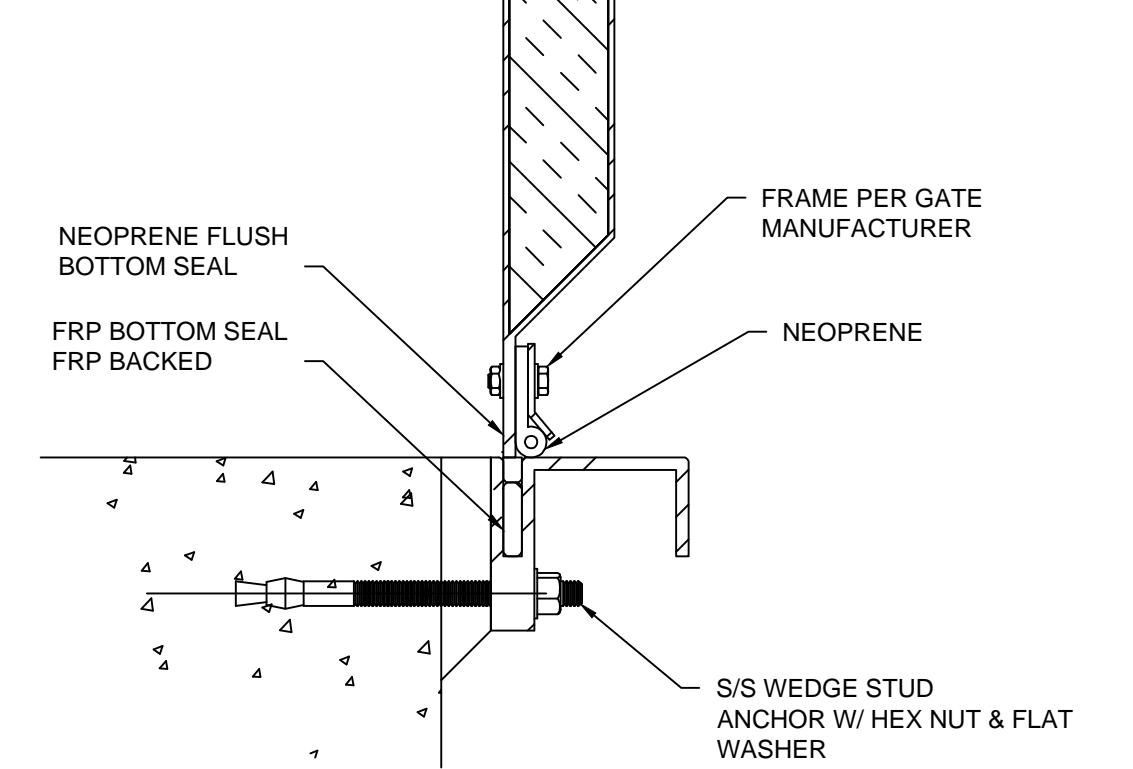
MARSHALL STREET WRF PROCESS CONTROL GATES REPAIRS (FDEP)  
MECHANICAL

PROPOSED AERATION BASIN MODIFICATIONS SECTION

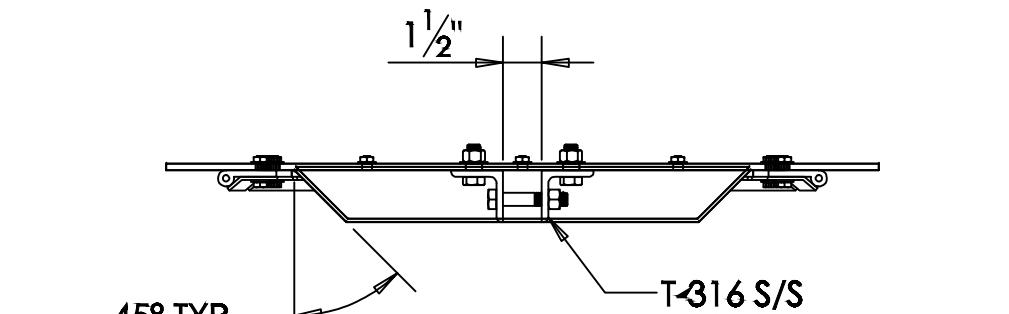
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PROJECT NO.: 18-0047-UT	DATE DRAWN: FEBRUARY 2020	DRAWN BY: MRC
JOB NO.: 153328	DESIGNED BY: PMW	CHECKED BY: AJM
SHEET NO.: 13 OF 15		



TYPICAL GATE ATTACHMENT AT BASE DETAIL (A-A)



TYPICAL GATE FRAME ATTACHMENT AT SIDES DETAIL (B-B)



TYPICAL GATE STEM DETAIL (C-C)

GATE REPLACEMENT NOTES:

1. INSTALLATION OF THE GATE AND OPERATOR SHOULD BE IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.
2. THE DESIGN OF GATE AND ALL EMBEDMENTS SHALL BE BY THE MANUFACTURER.
3. ALL ANCHOR BOLTS AND ASSOCIATED HARDWARE SHALL BE 316 SS.
4. REFER TO MECHANICAL DRAWINGS FOR GATE LOCATIONS.
5. REFER TO FRP GATE SPECIFICATION FOR MORE INFORMATION.

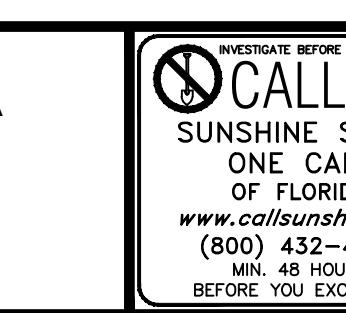
Brown and Caldwell

TAMPA, FLORIDA

RECORD DRAWINGS	
SURVEYED BY:	DRAWN BY:
REVIEWED BY:	
APPROVED BY:	

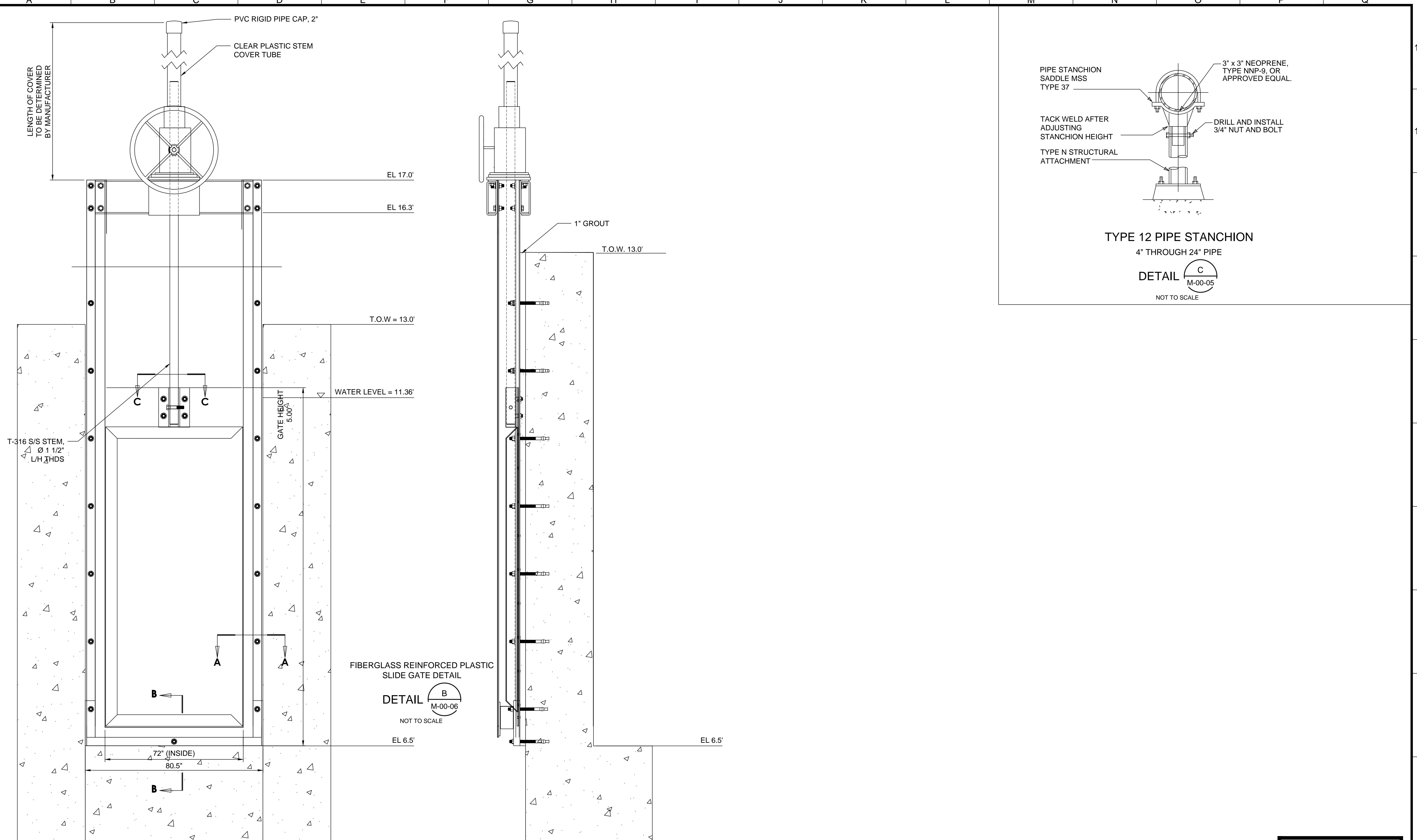
PROJECT ENGINEER	DATE	REVISION	BY	DATE
ENGINEER				

CITY OF CLEARWATER, FLORIDA  
ENGINEERING DEPARTMENT  
100 S. MYRTLE AVE.  
CLEARWATER, FL 33756



MARSHALL STREET WRF PROCESS CONTROL GATES REPAIRS (FDEP)  
MECHANICAL  
MECHANICAL STANDARD DETAILS I

DWG NAME:	FIELD BOOK:	SURVEYED BY:	SCALE:
M-00-05		VERT. N/A	
PROJECT NO.: 18-0047-UT	DATE DRAWN: FEBRUARY 2020	DRAWN BY: MRC	HORIZ. N/A
JOB NO.: 153328	DESIGNED BY: PMW	CHECKED BY: AJM	SHEET NO.: 14 OF 15



Brown and Caldwell

TAMPA, FLORIDA

RECORD DRAWINGS	DRAWN BY:
SURVEYED BY:	
REVIEWED BY:	
APPROVED BY:	
PROJECT ENGINEER	DATE
ENGINEER	DATE

REVISION	BY	DATE
D		

CITY OF CLEARWATER, FLORIDA  
ENGINEERING DEPARTMENT  
100 S. MYRTLE AVE.  
CLEARWATER, FL 33756



MARSHALL STREET WRF PROCESS CONTROL GATES REPAIRS (FDEP)  
MECHANICAL  
MECHANICAL STANDARD DETAILS II

DWG NAME:	FIELD BOOK:	SURVEYED BY:	SCALE:
M-00-06		VERT. N/A	
PROJECT NO.:		DRAWN BY:	
18-0047-UT		MRC	
JOB NO.:		DESIGNED BY:	
153328		PMW	
		CHECKED BY:	
		AJM	
		SHEET NO.:	
		15 OF 15	