

JEA Water & Wastewater Standards Manual

VOLUME VIA: Water Reclamation Facility
Details

2024 - Edition

“Foundation for the Future - Water & Wastewater Standards”

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JEA Water Reclamation Facility Standards

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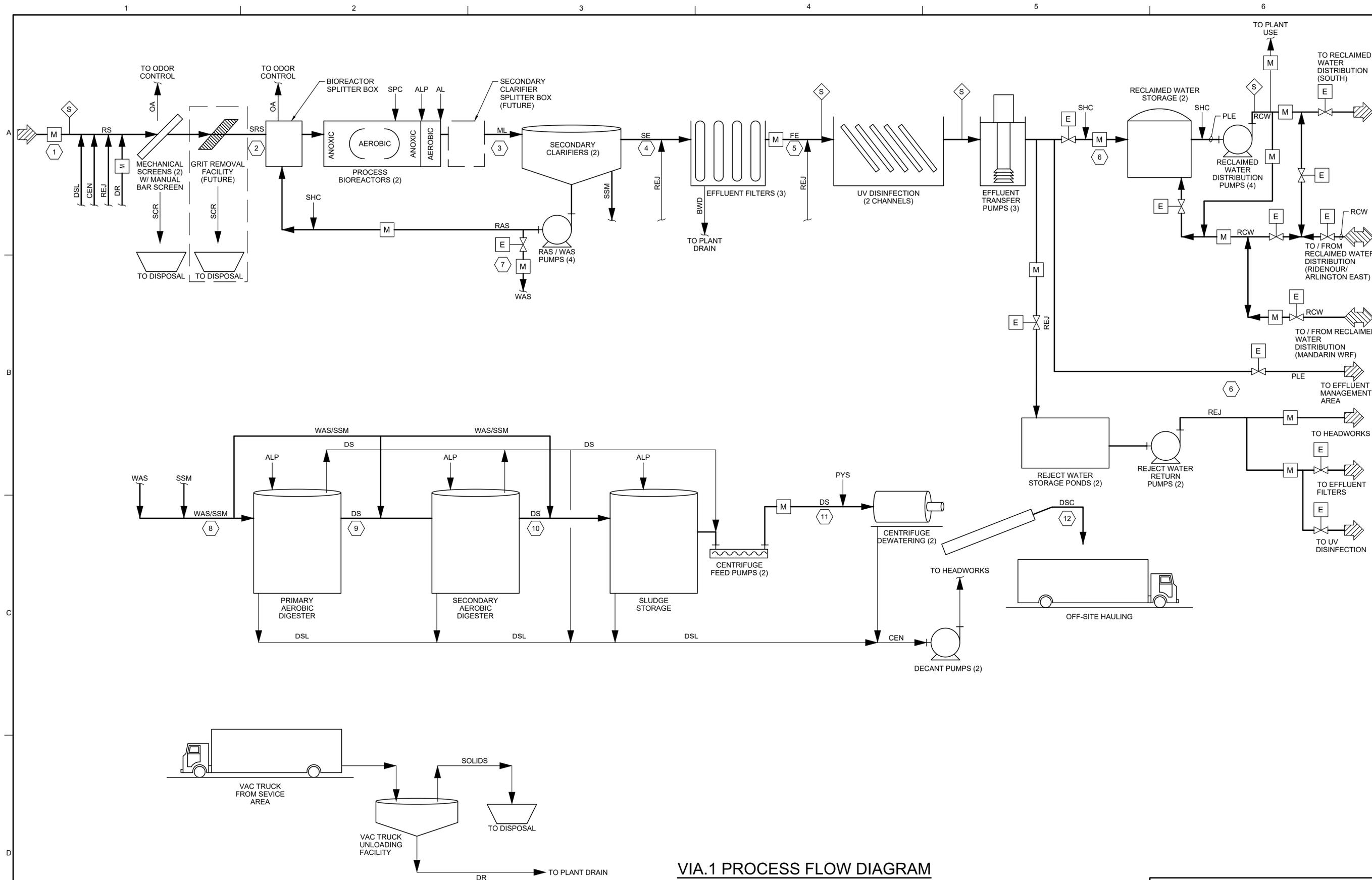
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RECLAIMED TREATMENT PLANT

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VIA.1 PROCESS FLOW DIAGRAM
NTS

GENERAL SHEET NOTES

1. THIS PROCESS FLOW DIAGRAM IS AN EXAMPLE FROM GREENLAND WRF AND IS PROVIDED ONLY AS A TEMPLATE TO SHOW GENERAL APPEARANCE AND FORMATTING. PROCESS FLOW DIAGRAMS ARE SITE SPECIFIC; TECHNICAL CONTENT SHALL BE CUSTOMIZED BASED ON PROJECT REQUIREMENTS.

NO.	DATE	DSGN	DR	CHK	APVD	BY	APVD



GENERAL
PROCESS FLOW DIAGRAM

SERVICE		LEGEND		EXPOSURE		PIPING MATERIAL		SPECIFICATION SECTION		JOINT TYPE		TEST PRESSURE (PSIG) AND TYPE (AS INDICATED IN LEGEND)		PIPE COLOR (AND LABEL) ¹		REMARKS	
AL	ALUM	AL	1-3	BUR/EXP	PVC	40 27 00.10	W	100, H									
ALP	AIR - LOW PRESSURE	ALP	5-18	EXP	SST	40 27 00.08	W	30, P									INSULATION PER SPEC SECTION 40 42 13
BWD	BACKWASH DRAIN	BWD	3-8	BUR/ENC	PVC	40 27 00.10	W	25, H									
BYP	BYPASS	BYP	ALL	BUR/EXP	ALL												MATCH PIPE FOR PROCESS FLOW AT FACILITY (FAC)
CDR	CONTAINMENT DRAIN	CDR	4-12	EXP	PVC	40 27 00.10	FL/W	10, H									
CEN	CENTRATE	CEN	16	BUR/EXP	CELDI	40 27 00.01	PRJ/FL										
D	DRAIN-SANITARY	D	<=4	BUR/EXP	PVC-DWV	22 10 01.02	W	5, H									SEE SPEC SECTION 22 10 01 FOR MORE DETAILS.
DR	DRAIN	DR	<=8	BUR/EXP/ENC	PVC	40 27 00.10	W	5, H									ARV/ CONTAINMENT DRAINS
DS	DIGESTED SLUDGE	DS	4	BUR/EXP/ENC	CELDI	40 27 00.01	PRJ/FL	50, H									FAC 10
DSL	DECANT SLUDGE	DSL	2-4	EXP	SST	40 27 00.08	W	10, H									FAC 38; TYPE 304 SST
FE	FILTERED EFFLUENT	FE	4-6	EXP/SUB	SST	40 27 00.08	W	50, H									FAC 59 AND FAC 63
FOR	FUEL OIL RETURN	FOR	6-8	BUR/EXP	CELDI	40 27 00.01	PRJ/FL	50, H									FAC 59 AND FAC 63
FOS	FUEL OIL SUPPLY	FOS	6-10	BUR/ENC	CELDI	40 27 00.01	PRJ	15, H									FAC 22 AND FAC 30
HSM	HEADWORKS SCUM	HSM	6-12	BUR/ENC	CLDI	40 27 00.01	PRJ	20, H									FAC 42 AND FAC 50
HW	HOT WATER-POTABLE	HW	4-12	BUR/ENC	PVC SDR 26	33 05 01.12	PO	G									IN BETWEEN MANHOLES

PIPING SCHEDULE									
SERVICE	LEGEND	SIZE(S) (IN.) ¹	EXPOSURE	PIPING MATERIAL	SPECIFICATION SECTION	JOINT TYPE	TEST PRESSURE (PSIG) AND TYPE (AS INDICATED IN LEGEND)	PIPE COLOR (AND LABEL) ²	REMARKS
ALUM	AL	1-3	BUR/EXP	PVC	40 27 00.10	W	100, H	DARK GREEN	
AIR LOW PRESSURE	ALP	5-18	EXP	SST	40 27 00.08	W	30, P	FEDERAL SAFETY GREEN	INSULATION PER SPEC SECTION 40 42 13
BACKWASH DRAIN	BWD	3-8	BUR/ENC	PVC	40 27 00.10	W	25, H		
		3	EXP	SST	40 27 00.08	W, FL			TYPE 304 SST
BYPASS	BYP	ALL	BUR/EXP	ALL					MATCH PIPE FOR PROCESS FLOW AT FACILITY (FAC)
CENTRATE	CEN	4-12	EXP	PVC	40 27 00.10	FL/W	10, H	BLACK	
		16	BUR/EXP	CELDI	40 27 00.01	PRJ/FL			
DRAIN, SANITARY	D	<=4	BUR/EXP	PVC-DWV	22 10 01.02	W	5, H		SEE SPEC SECTION 22 10 01 FOR MORE DETAILS.
		<=8	BUR/EXP/ENC	PVC	40 27 00.10	W	5, H	BLACK	ARV/ CONTAINMENT DRAINS
		4	BUR/EXP/ENC	CELDI	40 27 00.01	PRJ/FL	50, H	BLACK	FAC 10
		2-4	EXP	SST	40 27 00.08	W	10, H		FAC 38; TYPE 304 SST
		4-6	EXP/SUB	SST	40 27 00.08	W	50, H		FAC 59 AND FAC 63
		6-8	BUR/EXP	CELDI	40 27 00.01	PRJ/FL	50, H	BLACK	FAC 59 AND FAC 63
		6-10	BUR/ENC	CELDI	40 27 00.01	PRJ	15, H		FAC 22 AND FAC 30
		6-12	BUR/ENC	CLDI	40 27 00.01	PRJ	20, H		FAC 42 AND FAC 50
		4-12	BUR/ENC	PVC SDR 26	33 05 01.12	PO	G		IN BETWEEN MANHOLES

DIGESTED SLUDGE	DS	3-10	BUR/EXP	CELDI	40 27 00.01	PRJ/FL	150, H	DARK BROWN	
DIGESTED SLUDGE AND WASTE ACTIVATED SLUDGE	DS/ WAS	8	BUR/EXP	CELDI	40 27 00.01	PRJ/FL	150, H	DARK BROWN	
DECANT SLUDGE	DSL	4-8	BUR/EXP/SUB	CELDI	40 27 00.01	PRJ/FL	50, H	LIGHT BROWN	
FILTERED EFFLUENT	FE	24-36	BUR/EXP/ENC	CLDI	40 27 00.01	PRJ/FL	30, H	SILVER/GRAY	
FUEL OIL RETURN	FOR	1 1/2-2	EXP/CONT	CS	40 27 00.03/ 43 40 05	T/SW	50, P	FEDERAL SAFETY ORANGE	PIPING TO INCLUDE SECONDARY CONTAINMENT PER SPEC SECTION 40 27 00.25
FUEL OIL SUPPLY	FOS	1/2-4	EXP/CONT	CS	40 27 00.03/ 43 40 05	T/SW	50, P	FEDERAL SAFETY ORANGE	PIPING TO INCLUDE SECONDARY CONTAINMENT PER SPEC SECTION 40 27 00.25
HEADWORKS SCUM	HSM	6	EXP	PVC	40 27 00.10	W	20, H	LIGHT BROWN	
HOT WATER	HW	<=2	EXP	CPVC	40 27 00.11	W	150, H	GREEN (WITH WHITE LETTERS)	SEE SPEC SECTION 22 10 01 FOR MORE DETAILS.
INTERNAL PLANT RETURN	IPR	10-18	BUR/EXP/ENC	CELDI	40 27 00.01	PRJ/FL	50, H	BLACK	FAC 10
LIQUID POLYMER	LPO	2-4	EXP	PVC	40 27 00.10	W	100, H	BUFF	HEAT TRACE PER SPEC SECTION 40 05 33. INSULATION PER SPEC SECTION 40 42 13.
MIXED LIQUOR	ML	30	BUR/EXP/ENC	CELDI	40 27 00.01	PRJ/FL	30, H	SILVER/GRAY	
ODOROUS AIR	OA	6-24	EXP	FRP	23 31 16.16	SEE 23 31 16.16	25, H	NATURAL OR WHITE (WITH BLACK LETTERS)	
ODOR CONTROL DRAIN	OCD	2-4	BUR/EXP	PVC	40 27 00.10	W	5, H	BLACK	
OVERFLOW	OF	3-4	EXP	PVC	40 27 00.10	W	5, H		MATCH PROCESS FLOW
		10-24	EXP/SUB/BUR/ENC	CELDI/ CLDI	40 27 00.01	FL/PRJ	5, H		MATCH PIPE FOR PROCESS FLOW AT FACILITY
PLANT EFFLUENT	PLE	<=2 1/2	EXP/ENC	SST	40 27 00.08	W/FL	50, H		INSULATION PER SPEC SECTION 40 42 13. TYPE 304 SST.
		2 1/2	BUR	PVC	40 27 00.10	W	50, H		
		14-36	BUR/EXP/ ENC	CLDI	40 27 00.01	PRJ/FL	50, H	SILVER/GRAY	
POTABLE WATER	PW	<=2 1/2	BUR/EXP	PVC/CPVC	40 27 00.10/ 40 27 00.11	W	150, H	LIGHT BLUE, (PLUMBING PIPING LABEL TO BE GREEN WITH WHITE LETTERS)	HEAT TRACE PER SPEC SECTION 40 05 33. INSULATION PER SPEC SECTION 40 42 13. PLUMBING DISTRIBUTION PIPING TO BE CPVC.
		6-8	BUR	CLDI	40 27 00.01	PRJ	150, H		
POLYMER SOLUTION	PYS	1-2	BUR/EXP	PVC	40 27 00.10	FL/ W	150, H	BUFF	HEAT TRACE PER SPEC SECTION 40 05 33. INSULATION PER SPEC SECTION 40 42 13
RETURNED ACTIVATED SLUDGE	RAS	14-36	BUR/EXP/ENC	CELDI	40 27 00.01	PRJ/FL	50, H	LIGHT BROWN	
RETURN AND WASTE ACTIVATED SLUDGE	RAS/ WAS	10-14	BUR/EXP/ENC	CELDI	40 27 00.01	PRJ/FL	50, H	LIGHT BROWN	
RECLAIMED WATER	RCW	<= 3	EXP/ENC	SST	40 27 00.08	W	150, H		INSULATION PER SPEC SECTION 40 42 13.
		<= 4	BUR/EXP	PVC	40 27 00.10	W	150, H	PURPLE	TYPE 304 SST AT HOSE BIBB WASHDOWN STATIONS AND AT FAC 30 SECONDARY CLARIFIERS.
		4-36	BUR/EXP/ENC	CLDI	40 27 00.01	PRJ/FL	150, H	PURPLE	
REJECT WATER	REJ	6-24	BUR/EXP/ ENC	CLDI	40 27 00.01	PRJ/FL	30, H	DARK GRAY	
RAW SEWAGE	RS	30-36	BUR/EXP	CELDI	40 27 00.01	PRJ/FL	150, H	DARK GRAY	
SAMPLE	SA	<= 1	EXP	PVC	40 27 00.10	W	50, H	MEDIUM GREEN	
SECONDARY EFFLUENT	SE	24-36	BUR/EXP	CLDI	40 27 00.01	PRJ/FL	30, H	SILVER/GRAY	
SODIUM HYPOCHLORITE	SHC	1-3	BUR/EXP	PVC	40 27 00.10	W	100, H	FEDERAL SAFETY YELLOW	
SUPPLEMENTAL CARBON	SPC	1-3	BUR/EXP	PVC	40 27 00.10	W	100, H	BLACK	
SCREENED RAW SEWAGE	SRS	24	BUR/EXP	CELDI	40 27 00.01	PRJ/FL	30, H	DARK GRAY	
SECONDARY SCUM	SSM	4-6	SUB/BUR/EXP	CELDI	40 27 00.01	PRJ/FL	20, H	LIGHT BROWN	
VENT	V	<= 4	EXP	PVC/PVC-DWV	40 27 00.10/ 22 10 01.02	W	NA		MATCH PIPE FOR PROCESS FLOW AT FACILITY, PLUMBING VENTS TO BE PVC-DWV. SEE SPECIFICATION 22 10 01 FOR MORE DETAILS.
		4-24	EXP	CLDI	40 27 00.01	FL	NA		
WASTE ACTIVATED SLUDGE	WAS	4-8	BUR/ENC/EXP	CELDI	40 27 00.01	PRJ/FL	50, H	DARK BROWN	

¹> GREATER THAN
²< LESS THAN
³<= LESS THAN OR EQUAL TO
⁴>= GREATER THAN OR EQUAL TO
⁵ALL* ALL SIZES
⁶COATING SYSTEM NUMBER AS SPECIFIED IN SECTION 09 90 00, PAINTING AND COATING, AND AS SPECIFIED IN ARTICLE PIPE CORROSION PROTECTION.

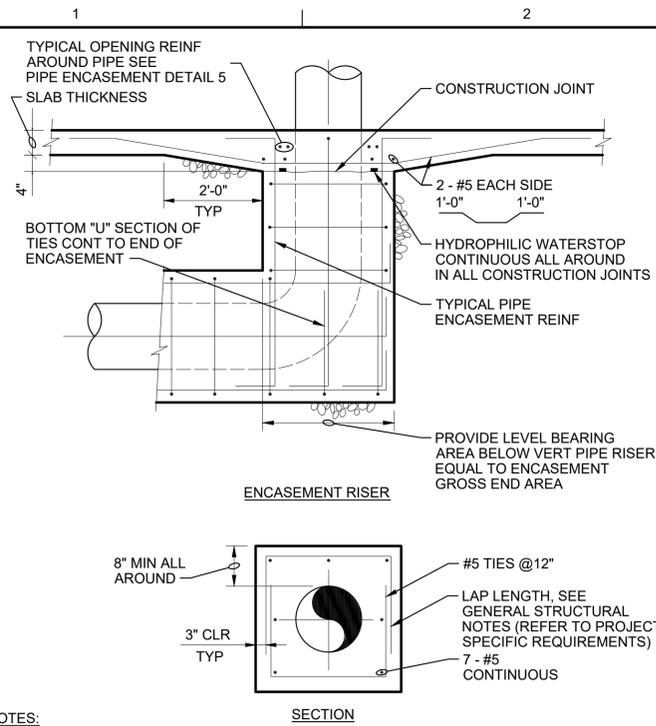
VIA.3 PIPING SCHEDULE

GENERAL SHEET NOTES

- THIS PIPING SCHEDULE IS AN EXAMPLE FROM GREENLAND WRF. PIPING SCHEDULES ARE SITE SPECIFIC AND SHALL BE CUSTOMIZED BASED ON PROJECT REQUIREMENTS.

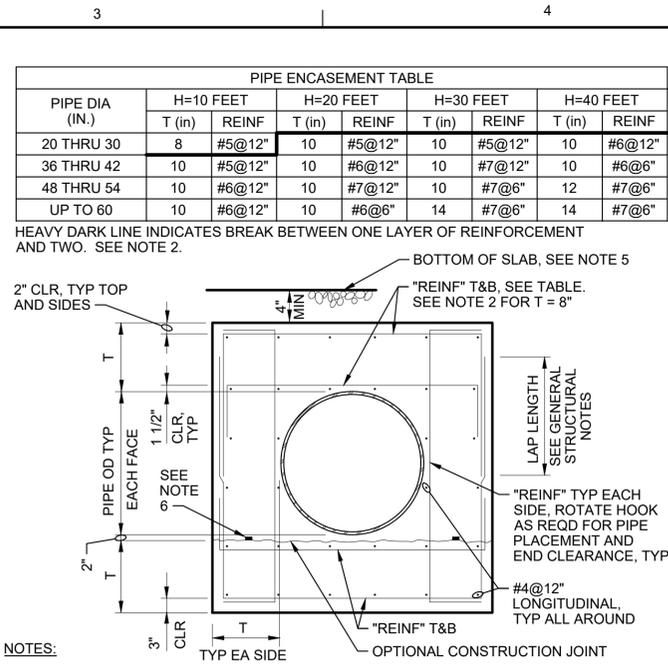


GENERAL PIPING SCHEDULE



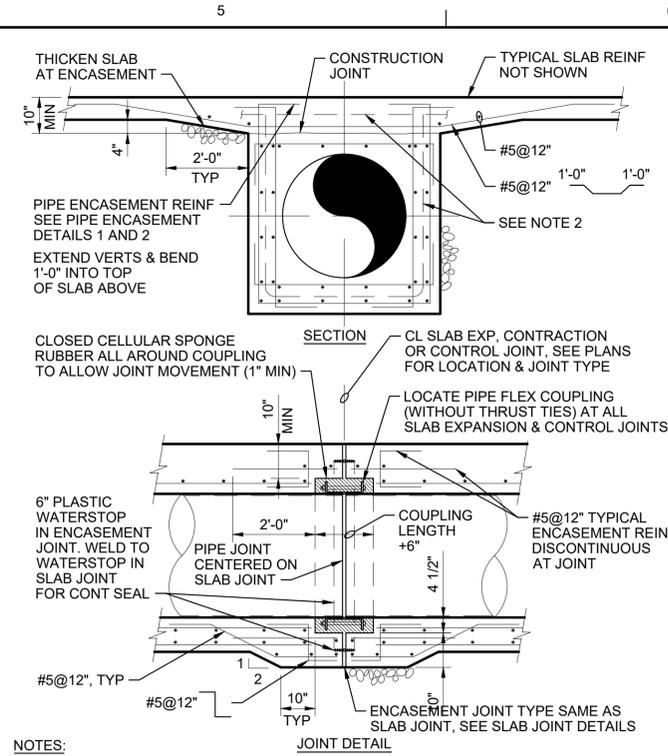
- NOTES:**
- SECTION APPLIES TO PIPES W/ DIAMETERS 18" AND SMALLER. FOR 20" DIAMETER PIPES AND LARGER, SEE PIPE ENCASUREMENT DETAIL 2.
 - WHEN PIPE ENCASUREMENT IS CLOSER THAN 4" TO SLAB ABOVE, TIE SLAB & ENCASUREMENT TOGETHER. SEE PIPE ENCASUREMENT DETAIL 3.
 - EXTEND PIPE ENCASUREMENT 5'-0" MIN BEYOND EDGE OF BASE SLAB.

VIA.26 PIPE ENCASUREMENT DETAIL 1
NTS



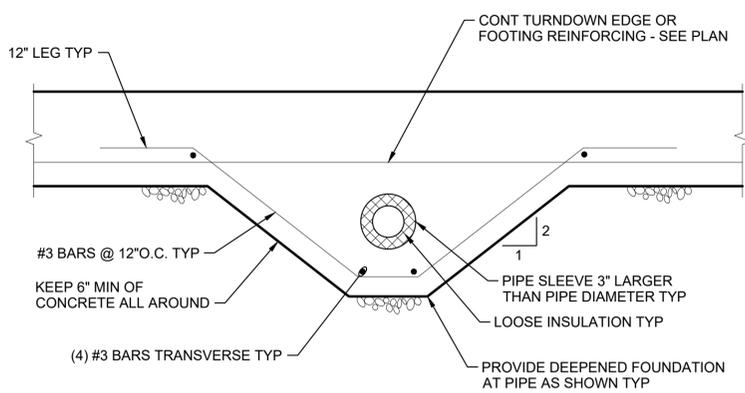
- NOTES:**
- THIS DETAIL APPLIES TO PIPE DIAMETER OF 20" AND LARGER. FOR SMALLER THAN 20", SEE PIPE ENCASUREMENT DETAIL 1.
 - FOR T=8" REINFORCEMENT SHALL BE ONE LAYER AND CENTERED IN SLABS OR WALLS. SIM PIPE ENCASUREMENT DETAIL 1.
 - FOR ENCASUREMENT AT PIPE RISER, SEE PIPE ENCASUREMENT DETAIL 1.
 - "H" IS FILL HEIGHT OR WATER DEPTH OR COMBINATION ABOVE PIPE.
 - WHEN PIPE ENCASUREMENT CLOSER THAN 4" TO SLAB ABOVE, TIE SLAB & ENCASUREMENT TOGETHER. SEE PIPE ENCASUREMENT DETAIL 3.
 - HYDROPHILIC WATERSTOP CONTINUOUS ALL AROUND IN ALL CONSTRUCTION JOINTS.

VIA.27 PIPE ENCASUREMENT DETAIL 2
NTS

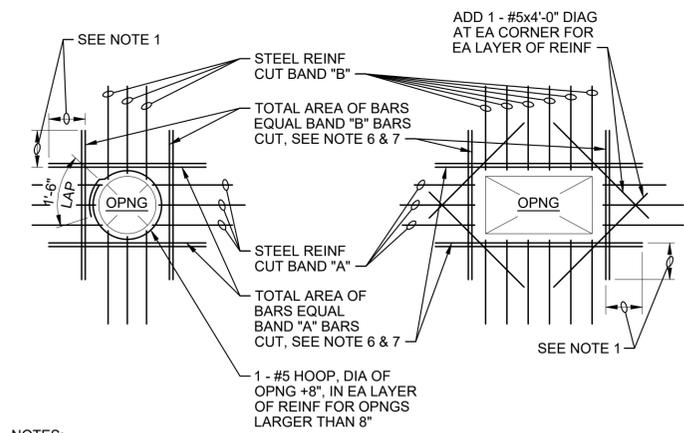


- NOTES:**
- TIE PIPE ENCASUREMENT TO SLAB AS SHOWN WHEN DISTANCE BETWEEN PIPE ENCASUREMENT AND BOTTOM OF SLAB IS LESS THAN 4".
 - 6" PLASTIC WS IN ENCASUREMENT JOINTS. WELD TO WS IN SLAB JOINTS.

VIA.28 PIPE ENCASUREMENT DETAIL 3
NTS

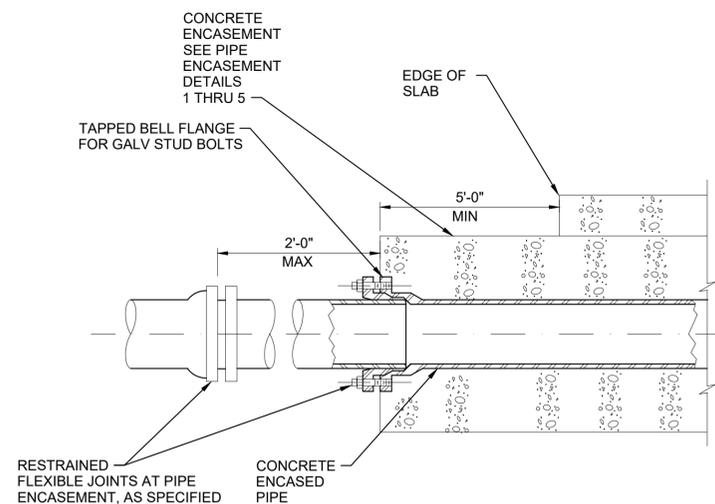


VIA.29 PIPE ENCASUREMENT DETAIL 4
NTS



- NOTES:**
- PROVIDE MINIMUM LAP. SEE GENERAL STRUCTURAL NOTES (REFER TO PROJECT-SPECIFIC REQUIREMENTS).
 - TYPICAL FOR ALL OPENINGS IN CONCRETE WALLS OF BELOW GRADE AND HYDRAULIC STRUCTURES AND ALL STRUCTURAL CONCRETE SLABS UNLESS INDICATED OTHERWISE ON PLANS.
 - DO NOT WELD REINFORCEMENT TO PIPE SLEEVES AND INSERTS.
 - PROVIDE A MINIMUM OF 2 "A" BARS AND 2 "B" BARS EACH SIDE OF OPENING (1 EACH FACE), INCLUDING DOWELS AND CORNER BARS, TYPICAL.
 - FOR OPENINGS LARGER THAN 8'-0", REINFORCE SAME AS FOR 8'-0" OPENINGS.
 - SPACE AT 3 BAR DIAMETERS (OR 3" MINIMUM) ON CENTER. LOCATE HALF OF TOTAL AREA ON EACH SIDE OF OPENING.
 - AT OPENINGS WITHIN 12" OF AN INTERSECTING WALL OR SLAB, PROVIDE ONLY THE EXTRA REINFORCEMENT WHICH WILL FIT, AT THE BAR SPACING IN NOTE 6.

VIA.30 PIPE ENCASUREMENT DETAIL 5
NTS

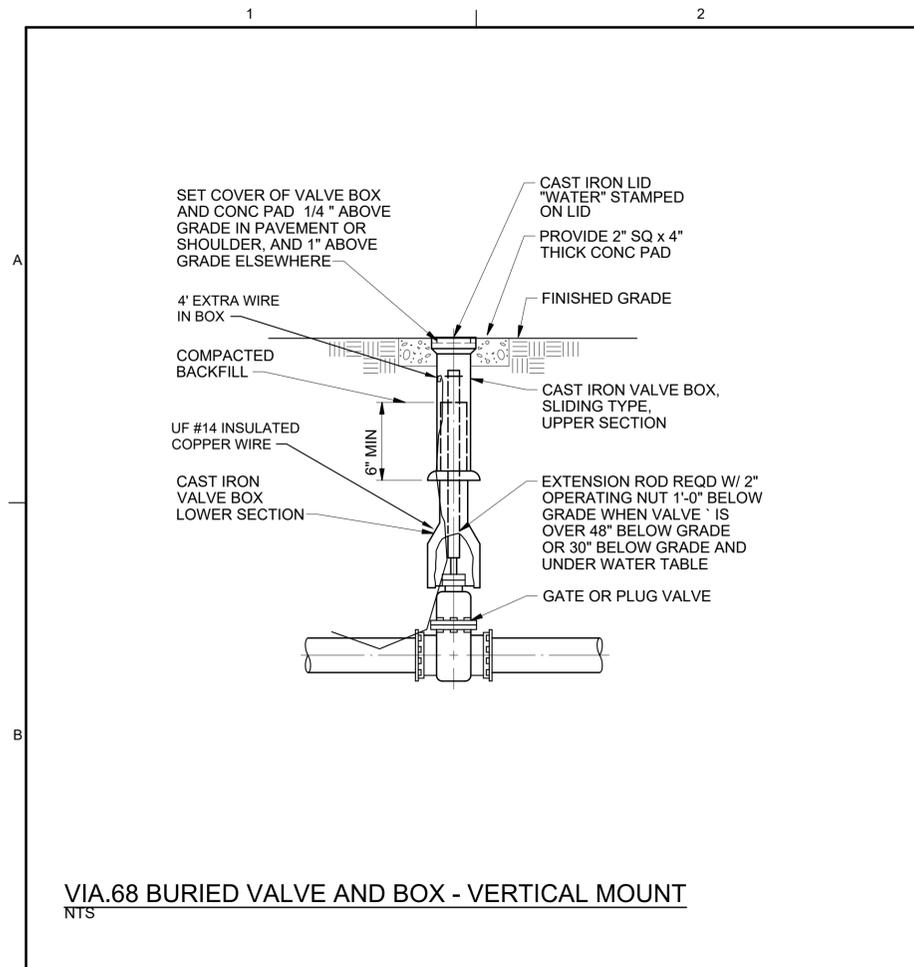


VIA.31 PIPE ENCASUREMENT DETAIL 6
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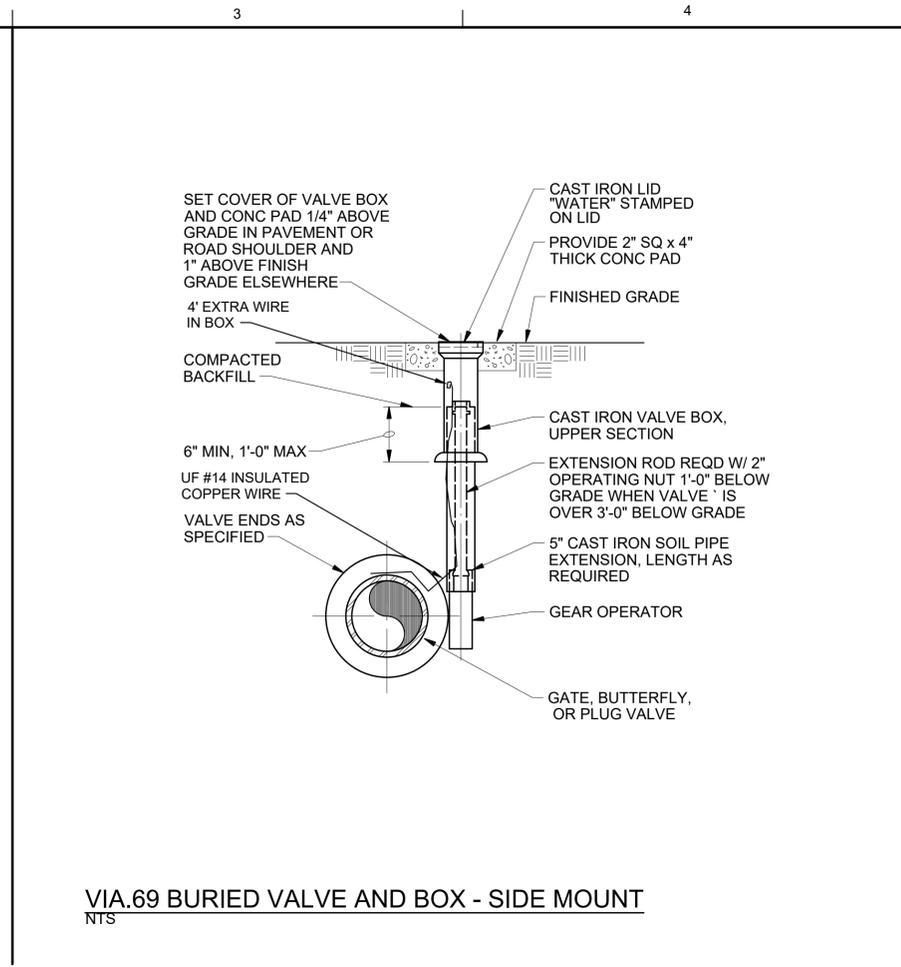
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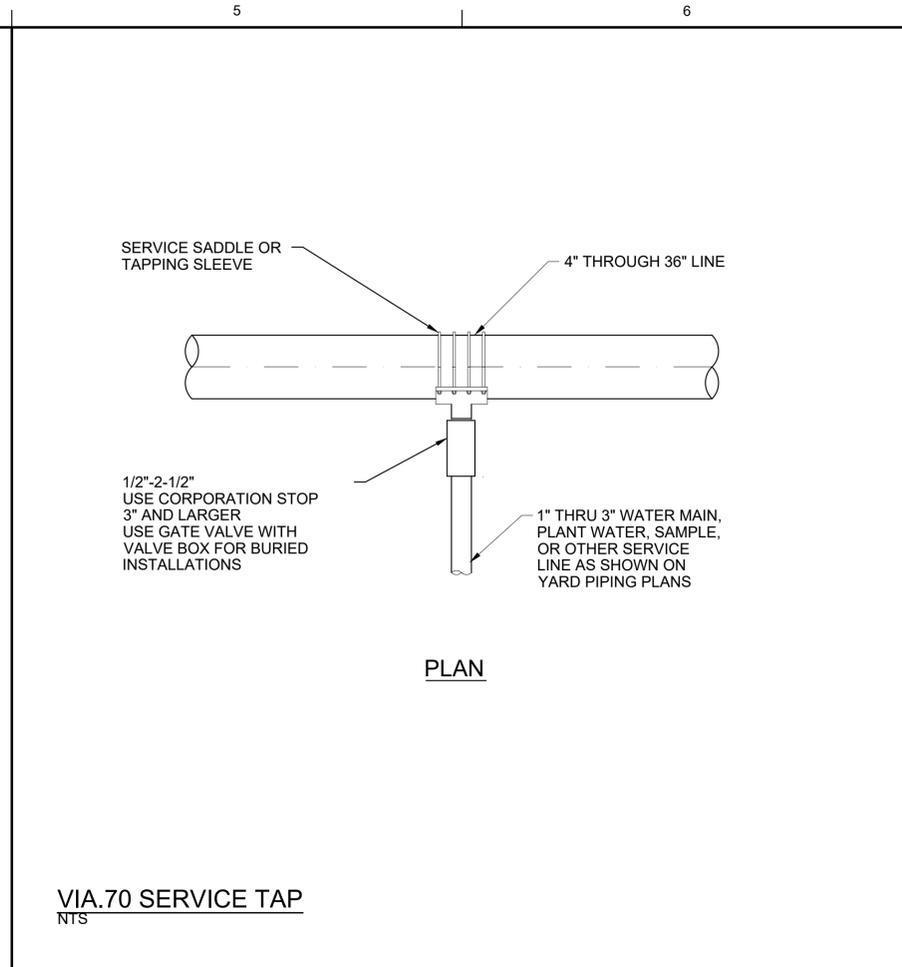
STRUCTURAL/PROCESS DETAILS
PIPE ENCASUREMENT



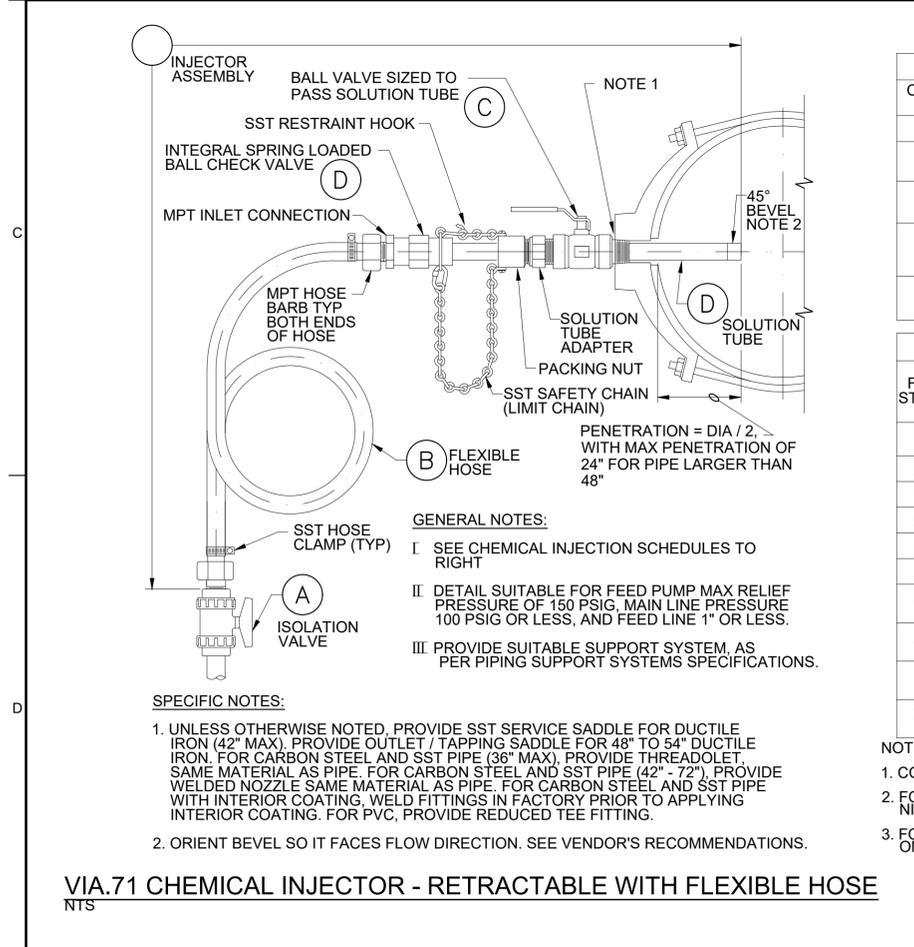
VIA.68 BURIED VALVE AND BOX - VERTICAL MOUNT
NTS



VIA.69 BURIED VALVE AND BOX - SIDE MOUNT
NTS



VIA.70 SERVICE TAP
NTS



VIA.71 CHEMICAL INJECTOR - RETRACTABLE WITH FLEXIBLE HOSE
NTS

SCHEDULE 1 - CHEMICAL INJECTOR DEFAULT COMPONENTS		
COMPONENT MARK	COMPONENT DESCRIPTION	MODEL / MATERIALS
(A)	ISOLATION VALVE	1/2" PVC/CPVC BALL VALVE
(B)	FLEXIBLE HOSE	REINFORCED PVC (1" MAX & 150 PSIG MAX)
(C)	SOLUTION TUBE ISOLATION VALVE	1" SST BALL VALVE
(D)	SOLUTION TUBE AND INTEGRAL SPRING LOADED BALL CHECK VALVE WITH TEFLON BALL	SEE SCHEDULE 2
(E)	INJECTOR ASSEMBLY INCLUDES (B)(C)(D) AND ANCILLARIES	SAF-T-FLO EB146; OR EQUAL

SCHEDULE 2 - COMPONENTS BY CHEMICAL			
FLOW STREAM	DESCRIPTION (NOTE 1)	MATERIAL OF SOLUTION TUBE AND BALL CHECK BODY & SPRING	OTHER COMPONENTS SEE SCHEDULE 1
FL	HYDROFLUOSILICIC ACID, 25-35%	ALLOY 20; HASTELLOY C-276 SPRING	DEFAULT
SH	SODIUM HYDROXIDE, 30-70%	316 STAINLESS STEEL	DEFAULT, NOTE 2
SBS	SODIUM BISULFITE, 38%	316 STAINLESS STEEL	DEFAULT
SHC	SODIUM HYPOCHLORITE, 12%	HASTELLOY C-276	DEFAULT, NOTE 3
FC	FERRIC CHLORIDE, 40%	HASTELLOY C-276	DEFAULT
AL	ALUM, 48%	HASTELLOY C-276	DEFAULT
PP	POTASSIUM PERMANGANATE, 10%	ALLOY 20; HASTELLOY C-276 SPRING	DEFAULT
X	CORROSION INHIBITOR (ORTHO-PHOSPHATES)	316 STAINLESS STEEL	DEFAULT
X	FERRIC SULFATE, 40%	ALLOY 20; HASTELLOY C-276 SPRING	DEFAULT
X	POLYMER (CATIONIC AND ANIONIC)	316 STAINLESS STEEL	DEFAULT

NOTE:
 1. COMPONENTS SUITABLE FOR CONCENTRATIONS LISTED UP TO 100°F.
 2. FOR HYDROXIDE ISOLATION VALVE (A) FURNISH 1/2" SST BALL VALVE, SST NIPPLES, AND SST FLANGES. FLANGE CONNECT TO MATING PIPE USING SST FASTENERS.
 3. FOR HYPOCHLORITE ISOLATION VALVE (A), PROVIDE PRESSURE RELIEF HOLE DRILLED ON LOW PRESSURE SIDE OF BALL VALVE.

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PROCESS DETAILS
BURIED VALVES
& MISC PIPING

99-SD-509
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