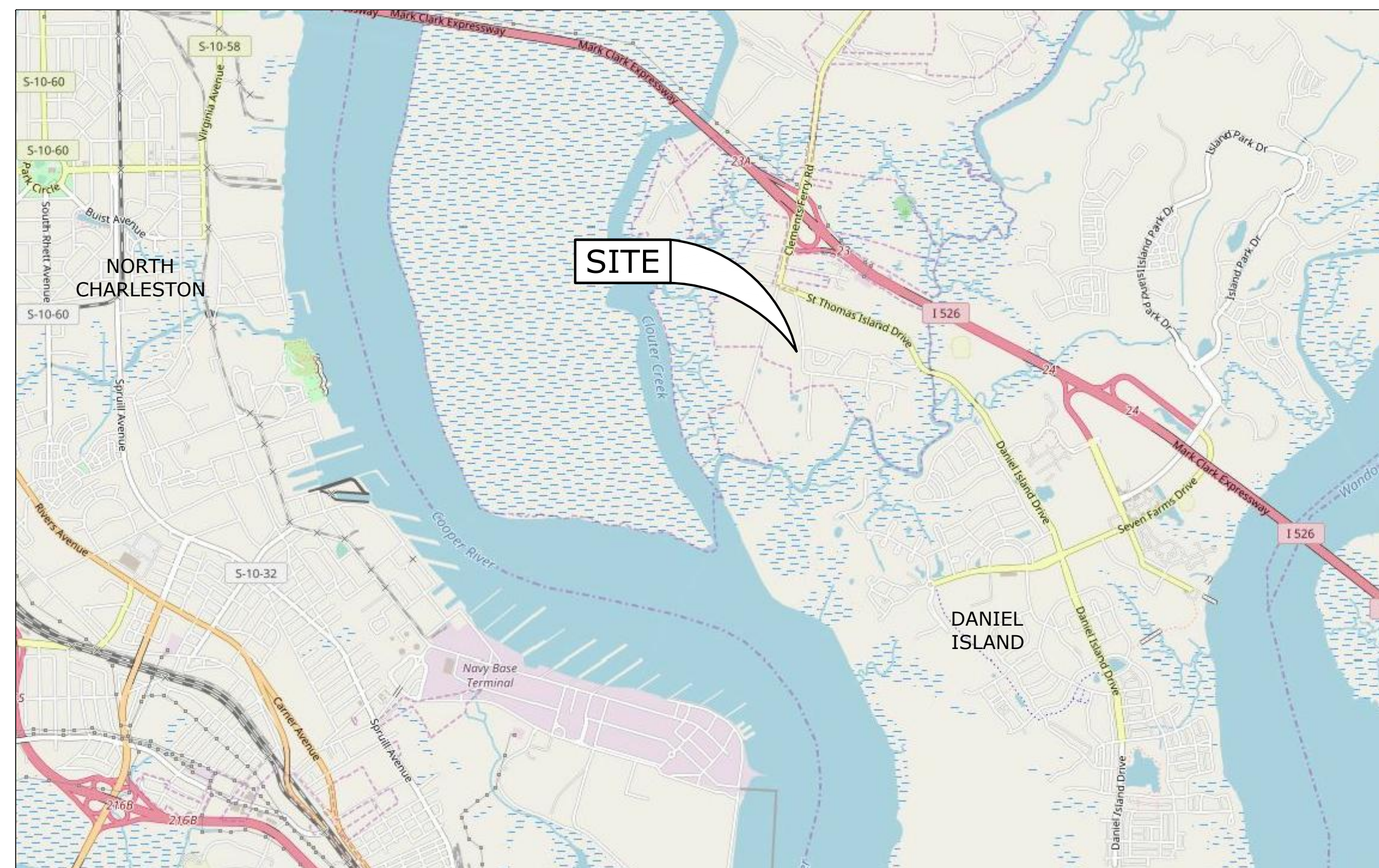


THOMAS ISLAND REGIONAL PUMP STATION
AND INTERCEPTOR

DIVISION I: REGIONAL PUMP STATION

CWS JOB NUMBER: 0764-0006
CWS EXT NUMBER: 3687-735
CWS BID NUMBER: 1947

JANUARY 2020



LOCATION MAP
NOT TO SCALE

Hazen

HAZEN AND SAWYER
735 JOHNNY DODDS BLVD, SUITE 102
MOUNT PLEASANT, SOUTH CAROLINA 29464
HAZEN PROJECT No.: 30533-008



ENGINEER'S CERTIFICATION STATEMENT

I HAVE PLACED MY SIGNATURE AND SEAL ON THE DESIGN DOCUMENTS SUBMITTED SIGNIFYING THAT I ACCEPT RESPONSIBILITY FOR THE DESIGN OF THE SYSTEM.
FURTHER, I CERTIFY TO THE BEST OF MY KNOWLEDGE AND BELIEF THAT THE DESIGN IS CONSISTENT WITH THE REQUIREMENTS OF TITLE 48, CHAPTER 14 OF THE CODE OF LAWS OF SC, 1976 AS AMENDED, PURSUANT TO REGULATION 72-300 ET SEQ. (IF APPLICABLE), AND IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF SCR100000.

JARED M. HARTWIG, PE
PLAN PREPARER

10/23/2019
DATE

INDEX OF DRAWINGS

GENERAL

DRAWING NUMBER	DRAWING TITLE	DIVISION
--	COVER SHEET	DIVISION I
G01	INDEX OF DRAWINGS	DIVISION I & II
G02	ABBREVIATIONS, LEGEND, AND SYMBOLS	DIVISION I & II

CIVIL

GENERAL		
C001	CIVIL NOTES	DIVISION I & II
PUMP STATION		
C100	EXISTING SITE PLAN	DIVISION I
C101	DEMOLITION PLAN	DIVISION I
C102	EROSION CONTROL PLAN	DIVISION I
C103	SITE PIPING PLAN	DIVISION I
C104	STAKING AND PAVING PLAN	DIVISION I
C105	GRADING AND DRAINAGE PLAN	DIVISION I
C106	GRAVITY SEWER AND FORCEMAIN	DIVISION I
CLEMENTS FERRY RD GRAVITY SEWER		
C200	OVERALL KEY PLAN	DIVISION I & II
C201	PLAN AND PROFILE - STA 0+00 TO STA 7+80	DIVISION I & II
** - C202	PLAN AND PROFILE - STA 7+80 TO STA 15+60	DIVISION II
** - C203	PLAN AND PROFILE - STA 15+60 TO STA 23+40	DIVISION II
** - C204	PLAN AND PROFILE - STA 23+40 TO STA 31+20	DIVISION II
** - C205	PLAN AND PROFILE - STA 31+20 TO STA 32+65	DIVISION II
C206	PLAN AND PROFILE - STA 0+00 TO STA 7+80	DIVISION I & II
** - C207	PLAN AND PROFILE - STA 7+80 TO STA 15+60	DIVISION II
** - C208	PLAN AND PROFILE - STA 15+60 TO STA 18+05	DIVISION II
SPORTSMAN ISLAND DRIVE GRAVITY SEWER		
** - C209	PLAN AND PROFILE - STA 0+00 TO STA 7+61	DIVISION II
PUMP STATION 172 GRAVITY SEWER		
** - C210	PLAN AND PROFILE - STA 0+00 TO STA 4+68	DIVISION II
DETAILS		
C900	STANDARD DETAILS	DIVISION I & II
C901	STANDARD DETAILS	DIVISION I & II
C902	STANDARD DETAILS	DIVISION I & II
C903	STANDARD DETAILS	DIVISION I & II
C904	STANDARD DETAILS	DIVISION I & II
C905	STANDARD DETAILS	DIVISION I & II

MECHANICAL

DRAWING NUMBER	DRAWING TITLE	DIVISION
PUMP STATION		
M100	TOP AND BOTTOM PLAN	DIVISION I
M101	SECTIONS	DIVISION I
M900	STANDARD DETAILS	DIVISION I

STRUCTURAL

NOTES		
S001	GENERAL STRUCTURAL NOTES	DIVISION I
PUMP STATION		
S100	TOP AND BOTTOM PLAN	DIVISION I
S101	SECTIONS	DIVISION I
S102	DETAILS	DIVISION I
ELECTRICAL PLATFORM		
S200	FOUNDATION AND TOP PLAN	DIVISION I
S201	SECTIONS AND DETAILS	DIVISION I
DETAILS		
S300	STANDARD DETAILS	DIVISION I
S301	STANDARD DETAILS	DIVISION I

ELECTRICAL

PUMP STATION		
E001	LEGEND, SYMBOLS, ABBREVIATIONS, AND GENERAL NOTES	DIVISION I
E100	CLASSIFICATION PLAN AND SECTION	DIVISION I
E101	POWER AND LIGHTING PLAN	DIVISION I
E102	SINGLE LINE DIAGRAM AND PANEL SCHEDULE	DIVISION I
E900	STANDARD DETAILS	DIVISION I

REFERENCE

PUMP STATION		
R001	REFERENCE DRAWING	DIVISION I
R002	REFERENCE DRAWING	DIVISION I

** DRAWINGS NOT INCLUDED IN THIS CONTRACT

File: D:\30533-CHARLESTON REGIONAL PUMP STATION\GENL G01.dwg, Saved by: L FANNING, Save date: 1/8/2020 3:04 PM
PLOT DATE: 1/7/2020 11:48 AM BY: L FANNING

				PROJECT ENGINEER:	J. HARTWIG
				DESIGNED BY:	L FANNING
				DRAWN BY:	L FANNING
				CHECKED BY:	C. RAGOS
				IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
1	CONSTRUCTION	JAN 2020	HAZEN	0 1/2" 1"	
REV	ISSUED FOR	DATE	BY		



Hazen

HAZEN AND SAWYER
735 JOHNNIE DODDS BLVD, SUITE 102
MOUNT PLEASANT, SOUTH CAROLINA 29464


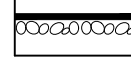
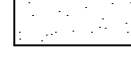
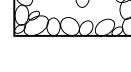
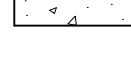
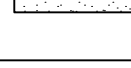

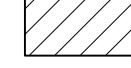

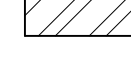
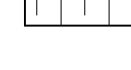
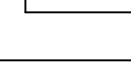
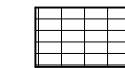


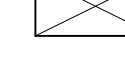















Charleston Water System
COMMISSIONERS OF PUBLIC WORKS
OF THE CITY OF CHARLESTON, SC

THOMAS ISLAND REGIONAL PUMP STATION
AND INTERCEPTOR
DIVISION I

GENERAL
INDEX OF DRAWINGS

DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	G01

ABBREVIATIONS										LEGEND		
AB	ANCHOR BOLT	E	EAST/EASEMENT	J	JOIST	QTY	QUANTITY	UG	UNDERGROUND	<div><div> GRADE OR EARTH</div><div> ASPHALT PAVING</div><div> SAND</div><div> GRAVEL</div><div> CONCRETE</div><div> CONC. FILL OR GROUT</div><div> CONC. MASONRY UNIT</div><div> BRICK</div><div> ROCK</div><div> STEEL</div><div> INSULATION</div><div> WATER SURFACE</div><div> GRATING</div><div> CHECKERED PLATE</div><div> GLASS</div><div> WOOD BLOCKING</div></div>		
A/C	AIR CONDITIONING	EA	EACH	JB	JUNCTION BOX			UGE	UNDERGROUND ELECTRIC			
AC	ALTERNATING CURRENT/ASBESTOS CEMENT	ECC	ECCENTRIC	JCT	JUNCTION			UH	UNIT HEATER			
ACT	ACOUSTIC TILE	EF	EACH FACE	JT	JOINT	R	RADIUS/RISER	UNFIN	UNFINISHED			
AD	AREA DRAIN	EFF	EFFLUENT			RCP	REINFORCED CONCRETE PIPE	UNO	UNLESS NOTED OTHERWISE			
ADDL	ADDITIONAL	EIP	EXIST IRON PIPE			RD	ROAD/ROOF DRAIN	UR	URINAL			
ADJ	ADJUSTABLE	EL OR ELEV	ELEVATION			RECIR	RECIRCULATION	UTIL	UTILITY			
AFF	ABOVE FINISHED FLOOR	ELEC	ELECTRIC/ELECTRICAL	L	LENGTH/ANGLE	RECP	RECEPTACLE					
AGGR	AGGREGATE	ELL	ELBOW	LAB	LABORATORY	RECT	RECTANGULAR	VAC	VACUUM			
AL	ALUMINUM	EMH	EXISTING MANHOLE	LAM	LAMINATED	RED	REDUCER	VAT	VINYL ASBESTOS TILE			
ALLOW	ALLOWANCE/ALLOWABLE	ENGR	ENGINEER	LAT	LATERAL	REF	REFERENCE	VCP	VITRIFIED CLAY PIPE			
ALT	ALTERNATE	ENT	ENTRANCE	LAV	LAVATORY	REG	REGISTER	VEL	VELOCITY			
APPROX	APPROXIMATE	EOG	EDGE OF GRAVEL	LB	POUND/LINE BACK	REINF	REINFORCING	VENT	VENTILATING/VENTILATION			
ARCH	ARCHITECTURAL	EOP	EDGE OF PAVEMENT	LF	LINEAR FEET	REM	REMOVE	VERT	VERTICAL			
ARV	AIR RELEASE VALVE	EQ	EQUAL	LG	LONG	REQD	REQUIRED	VOL	VOLUME			
ASB	ASBESTOS	EQPT	EQUIPMENT	LL	LIVE LOAD	REST	RESTRAINED	VP	VENT PIPE			
ASPH	ASPHALT	ESEW	EMERGENCY SHOWER & EYEWASH	LLH	LONG LEG HORIZONTAL	REV	REVISE	VWC	VINYL WALL COVERING			
AT	ASPHALT TILE	EW	EACH WAY	LLV	LONG LEG VERTICAL	RF	ROOF					
		EX	EXISTING	LP	LIGHT POLE	RFG	ROOFING					
B	BORING	EXC	EXCAVATE	LPT	LOW POINT	RJ	RESTRAINED JOINT	W	WEST/WIDTH			
BD	BOARD	EXH	EXHAUST	LT	LIGHT	RM	ROOM	W/	WITH			
BFE	BOTTOM OF FITTING ELEVATION	EXP	EXPANSION	LTG	LIGHTING	RND	ROUND	WC	WATER CLOSET			
BFP	BACKFLOW PREVENTER	EXT	EXTERIOR	LVR	LOUVER	RO	ROUGH OPENING	WF	WIDE FLANGE			
BFV	BUTTERFLY VALVE			LWL	LOW WATER LEVEL	RPM	REVOLUTIONS PER MINUTE	WH	WALL HYDRANT			
BITUM	BITUMINOUS					RR	RAILROAD	WI	WROUGHT IRON			
BL	BASELINE/BUILDING LINE	FAB	FABRICATE	MAINT	MAINTENANCE	RT	RIGHT	WL	WATER LEVEL			
BLD	BLIND	F&C	FRAME AND COVER	MATL	MATERIAL	RTU	REMOTE TERMINAL UNIT	WM	WATER METER			
BLDG	BUILDING	F&G	FRAME AND GRATE	MAX	MAXIMUM	RW	RAW WATER	W/L	WATER LINE			
BLK	BLOCK	FC	FLUSHING CONNECTION	MECH	MECHANICAL	R/W	RIGHT OF WAY	WO	WINDOW OPENING			
BM	BENCH MARK	FD	FLOOR DRAIN	MEMB	MEMBRANE			W/O	WITHOUT			
BOC	BACK OF CURB	FDN	FOUNDATION	METAL	METAL	S	SOUTH/SLOPE	WP	WATERPROOF			
BOT	BOTTOM	FE	FIRE EXTINGUISHER	MFR	MANUFACTURER	SAN	SANITARY	WPFG	WATER PROOFING			
BRG	BEARING	FF	FINISH FLOOR	MG	MILLION GALLONS	SBL	SURVEY BASELINE	WPT	WALL PENETRATING TYPE			
BRK	BRICK	FH	FIRE HYDRANT	MGD	MILLION GALLONS PER DAY	SCH	SCHEDULE	WSE	WATER SURFACE ELEVATION			
BRZ	BRONZE	FIN	FINISH	MH	MANHOLE	SD	STORM/SITE DRAIN	WSP	WEATHERSTRIP			
BSMT	BASEMENT	FIX	FIXTURE	MIN	MINIMUM	SECT	SECTION	WT	WEIGHT			
BT	BOLT	FL	FLASHING/FLOOR	MISC	MISCELLANEOUS	SERV	SERVICE	WV	WATER VALVE			
BTM	BOTTOM	FLEX	FLEXIBLE	MJ	MECHANICAL JOINT	SEW	SEWER	WWF	WELDED WIRE FABRIC			
BUR	BUILT-UP ROOFING	FLG	FLANGE	MLDG	MOLDING	SF	SQUARE FEET	YD	YARD			
BV	BALL VALVE	FLXC	FLEXIBLE CONNECTION	MO	MASONRY OPENING	SHT	SHEET	YH	YARD HYDRANT			
		FM	FORCE MAIN	MOD	MODIFY/MODIFIED	SI	SQUARE INCH	YR	YEAR			
C	CLOSET/CARPET/CHANNEL	FRF	FIREPROOF	MON	MONUMENT	SIM	SIMILAR					
CAB	CABINET	FRP	FIBERGLASS REINFORCED	MOT	MOTOR	SJ	STEEL JOIST	D	DRAIN			
CB	CATCH BASIN		POLYESTER LAMINATE	MTD	MOUNTED	SPEC	SPECIFICATION	FM	FORCE MAIN			
C/C	CENTER TO CENTER	FT	FEET	MTG	MOUNTING	SQ	SQUARE	NG	NATURAL GAS			
CE	CONSTRUCTION EASEMENT	FURR	FURRING/FURRED	MULT	MULTIPLE	SS	SANITARY SEWER	PW	POTABLE WATER			
CEM	CEMENT					SSMH	SANITARY SEWER MANHOLE	SD	ST			
CER	CERAMIC					SST	STAINLESS STEEL	SS	SANITARY SEWER			
CF	CUBIC FEET			N	NORTH	ST	STREET					
CFM	CUBIC FEET PER MINUTE	G	GAS/GAS LINE	NA	NOT APPLICABLE	STA	STATION					
CI	CAST IRON/CUBIC INCHES	GA	GAUGE	NF	NEAR FACE	STD	STANDARD					
CIP	CAST IRON PIPE	GAL	GALLON	NG	NATURAL GAS	STG	STORAGE					
CL	CENTER LINE	GALV	GALVANIZED	NIC	NOT IN CONTRACT	STR	STIRRUP					
CL ₂	CHLORINE	GC	GENERAL CONTRACTOR	NMH	NEW MANHOLE	STL	STEEL					
CLG	CEILING	GEN	GENERATOR	NO	NUMBER	STR	STRUCTURAL					
CLKG	CAULKING	GI	GALVANIZED IRON	NOM	NOMINAL	SUB	SUBSTITUTE					
CLR	CLEAR	GL	GLASS	NPW	NON POTABLE WATER	SUP	SUPPLY					
CMP	CORRUGATED METAL PIPE	GPM	GALLONS PER MINUTE	NTS	NOT TO SCALE	SUPT	SUPERINTENDENT					
CMU	CONCRETE MASONRY UNIT	GR	GRADE			SUR	SURFACE					
CO	CLEANOUT	GV	GATE VALVE	OC	ON CENTER	SUSP	SUSPENDED					
COL	COLUMN	GW	GUY WIRE	OD	OUTSIDE DIAMETER	SW	SWITCH					
CONC	CONCRETE	GWB	GYPSUM WALL BOARD	OF	OUTSIDE FACE	SWBD	SWITCHBOARD					
CONST	CONSTRUCTION	GWG	GLAZED WALL FINISH	OFF	OFFICE	SWD	SIDE WATER DEPTH					
CONT	CONTINUOUS	GYP	GYPSUM	OHE	OVERHEAD ELECTRIC	SYM	SYMMETRICAL					
CONTR	CONTRACTOR			OPER	OPERATOR	T	TREAD					
CORP	CORPORATION			OPNG	OPENING	T&B	TOP AND BOTTOM					
CORR	CORRIDOR	H	HEIGHT	OPP	OPPOSITE	T&G	TONGUE AND GROOVE					
CP	CONCRETE PLANK	HDW	HARDWARE	ORIG	ORIGINAL	TAN	TANGENT					
CPP	CORRUGATED PLASTIC PIPE	HEX	HEXAGONAL	OT	OPEN TRUSS	TBM	TEMPORARY BENCH MARK					
CRS	COURSE	HM	HOLLOW METAL	OVHD	OVERHEAD	TC	TOP OF CURB					
CT	CERAMIC TILE	HORZ	HORIZONTAL			TDH	TOTAL DYNAMIC HEAD					
CTJ	CONTROL JOINT	HP	HORSEPOWER			TECH	TECHNICAL					
CU	COPPER	HPT	HIGH POINT	PAR	PARALLEL	TEL	TELEPHONE					
CV	CHECK VALVE	HTR	HEATER	PC	POINT OF CURVE/PIECE	TEMP	TEMPERATURE					
CW	COLD WATER	HVAC	HEATING, VENTILATION AND AIR CONDITIONING	PCC	POINT OF COMPOUND CURVE	TER	TERRAZZO					
CY	CUBIC YARD			PCF	POUNDS PER CUBIC FOOT	THERMO	THERMOSTAT					
		HW	HOT WATER	PE LINING	POLYETHYLENE LINING	THK	THICK					
DC	DIRECT CURRENT	HWL	HIGH WATER LEVEL	PERF	PERFORATED	THRU	THROUGH					
DET	DETAIL	HWY	HIGHWAY	PERP	PERPENDICULAR	TOD	TOP OF DECK					
DF	DRINKING FOUNTAIN	HYD	HYDRAULIC	PI	POINT OF INTERSECTION	TOF	TOP OF FOOTING					
DIA (Ø)	DIAMETER			PL	PROPERTY LINE/PLATE	TOG	TOP OF GRATING					
DIAG	DIAGONAL			PNL	PANEL	TOM	TOP OF MASONRY/MANHOLE					
DIM	DIMENSION	I	IRON	PP	POWER POLE	TOS	TOP OF SLAB					
DIP	DUCTILE IRON PIPE	ID	INSIDE DIAMETER	PREFAB	PREFABRICATED	TOW	TOP OF WALL					
DISCH	DISCHARGE	IE	INVERT ELEVATION	PRV	PRESSURE RELIEF VALVE	TOL	TOLERANCE					
DIST	DISTRIBUTION	IF	INSIDE FACE	PS	PUMPING STATION	TPS	TWISTED PAIR SHIELDED					
DJ	DOUBLE JOIST	IN	INCH	PSF	POUNDS PER SQUARE FOOT	TRANS	TRANSFORMER					
DL	DEAD LOAD	INCL	INCLUDED	PSI	POUNDS PER SQUARE INCH	TYP	TYPICAL					
DN	DOWN	INF	INFLUENT	PT	POINT OF TANGENT/POINT							
DOZ	DOZEN	INS	INSULATION	PTN	PARTITION							
DR	DOOR	INT	INTERIOR	PV	PLUG VALVE							
DWG	DRAWING	INV	INVERT	PVC	POLYVINYL CHLORIDE							
DWL	DOWEL			PVMT	PAVEMENT							
				PW	POTABLE WATER							

SECTION AND DETAIL KEYING				LINETYPES	
DRAWINGS ARE CROSS REFERENCED IN THE FOLLOWING METHOD: (A) A SECTION CUT ON DRAWING A3 IS IDENTIFIED AS FOLLOWS:				<div><div> PROPOSED ITEMS</div><div> EXISTING ITEMS</div><div> HIDDEN ITEMS</div><div> DEMOLITION ITEMS</div><div> CENTER LINE</div><div> MATCH LINE</div><div> EXISTING CONTOUR</div><div> PROPOSED CONTOUR</div><div> SILT FENCE</div><div> LIMITS OF DISTURBANCE</div><div> FENCE</div></div>	
(B) THE SECTION SHOWN ON DRAWING A6 IS IDENTIFIED AS FOLLOWS:					
DETAILS ARE CROSS REFERENCED IN A SIMILAR MANNER, EXCEPT DETAILS ARE IDENTIFIED BY A SQUARE WITH A NUMBER IN THE UPPER HALF.					
STANDARD DETAILS ARE REFERENCED BY A UNIQUE SEVEN DIGIT NUMBER AND ARE SHOWN ON THE CONTRACT DRAWINGS BY ONE OF TWO METHODS:					
<div><div> REFERENCED ITEM</div><div>OR:</div><div><div> REFERENCED ITEM</div></div></div>					
STANDARD DETAILS ARE COMPILED IN APPROXIMATE NUMERICAL ORDER IN THE BACK OF THE CONTRACT DRAWINGS ON THE D* DRAWINGS.					

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

File: D:\19833-CHS\19833-001\DESIGN\DRAWINGS\CD\JUL1001.dwg, Saved by: L FANNING, Save date: 2/11/2020 3:40 PM
PLOT DATE: 4/23/2020 8:30 AM, BY: L FANNING

GENERAL NOTES

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS AND ALL APPLICABLE PERMITS.
2. LOCATION SHOWN FOR UNDERGROUND UTILITIES AND STRUCTURES ARE BASED ON FIELD SURVEYS AND RECORD DRAWINGS AND ARE SHOWN FOR GENERAL INFORMATION ONLY. THESE LOCATIONS SHOULD BE CONSIDERED APPROXIMATE AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR IN ADVANCE OF THE WORK, BOTH HORIZONTALLY AND VERTICALLY, TO DETERMINE EXACT SIZE, MATERIAL, DEPTH, LOCATION, AND OTHER UTILITIES NOT SHOWN. EXISTING UTILITY CROSSING AND CONFLICTS SHALL BE COORDINATED WITH UTILITY OWNER AT NO ADDITIONAL COST TO THE CLIENT. CALL THE LOCAL PUBLIC UTILITIES LOCATING SERVICE AT LEAST 72 HOURS PRIOR TO DIGGING FOR LOCATION ASSISTANCE. CONTRACTOR IS RESPONSIBLE FOR CONTACTING ALL UTILITIES PRIOR TO DIGGING.
3. WHEN NEW LINE IS WITHIN FIVE FEET OF EXISTING UTILITIES, CONTRACTOR SHALL DIG TEST PITS TO LOCATE EXISTING LINES IN ADVANCE OF PIPE LAYING OPERATIONS TO ALLOW ADEQUATE TIME FOR ANY NECESSARY RE-ALIGNMENTS OR ADJUSTMENTS.
4. PROVIDE POWER POLE SUPPORT WHEN OPEN DITCH IS WITHIN 5'-0" OF POLE AND WHEN OWNER AND/OR CONDITIONS WARRANT. COORDINATE WITH POWER UTILITY. ADDITIONAL POLES NOT SPECIFICALLY SHOWN MAY ALSO REQUIRE TEMPORARY SUPPORT IF EXCAVATION IS WITHIN 5' OF POLES.
5. ALL ITEMS SUCH AS: FENCES, STORM DRAINS, MAIL BOXES, SIGNS, UNDERGROUND CABLE, PROPERTY PINS, LANDSCAPED SHRUBBERY, ETC., THAT NEED TO BE REMOVED FOR CONSTRUCTION AND REPLACED SHALL BE PROTECTED AND RE-INSTALLED TO THE SATISFACTION OF THE OWNER. CONTRACTOR SHALL RE-ESTABLISH A TEMPORARY RELOCATION IMMEDIATELY AND IN NO CASE LONGER THAN BY THE END OF EACH WORK DAY. CONTRACTOR SHALL COORDINATE WITH PROPERTY OWNERS AS NECESSARY FOR ITEMS SUCH AS FENCES THAT MUST BE MAINTAINED FOR CONTROL OF LIVESTOCK OR SECURITY. TEMPORARY FENCE LINES, ETC., SHALL BE INSTALLED AT NO ADDITIONAL COST TO THE OWNER.
6. PIPELINE SHALL HAVE A MINIMUM COVER OF 3'-6" (UNLESS NOTED OTHERWISE) AND LAID TO AVOID AIR POCKETS ALONG THE TOP OF PIPE. CONTRACTOR SHALL PERFORM HIS OWN GROUND SURVEY PRIOR TO PIPE INSTALLATION TO VERIFY GRADES AND ELEVATIONS.
7. ALL AIR RELEASE VALVES TO BE PLACED AT HIGH SPOT OF PIPELINE AT STATIONS INDICATED PLUS OR MINUS ONE PIPE JOINT.
8. PIPE DEFLECTIONS NOT EXCEED MAXIMUM ONE-HALF OF MANUFACTURER'S RECOMMENDED DEFLECTION ANGLE.
9. ALL AREAS DISTURBED BEYOND THE LIMITS OF CONSTRUCTION SHALL BE RESTORED REGARDLESS OF AREA AFFECTED AT NO ADDITIONAL COST TO THE OWNER.
10. ALL AIR RELEASE VALVES ARE TO BE INSTALLED AT LOCATIONS SHOWN +/- ONE PIPE JOINT IN ORDER TO ENSURE INSTALLATION AT HIGH/LOW POINTS RESPECTIVELY. ALL OTHER VALVES AND BENDS SHALL BE INSTALLED AT LOCATIONS INDICATED +/- 3'-0".
11. ALL RESTRAINED JOINT LENGTHS ARE MINIMUM DISTANCES REQUIRED FROM AN APPLICABLE BEND/APPURTENANCE. ALL FITTINGS INSTALLED WITHIN RESTRAINED LENGTHS INDICATED SHALL BE RESTRAINED.
12. CONTRACTOR SHALL INSTALL PIPELINES AND APPURTENANCES IN LOCATIONS AND AT GRADES INDICATED. CONTRACTOR TO MAKE MINOR ALIGNMENT CHANGES AND DEFLECT PIPE WITHIN ACCEPTABLE DEFLECTIONS TO GENERALLY FOLLOW LAYOUT INDICATED.
13. CONTRACTOR SHALL CLEAR AND GRUB RIGHT OF WAY AND TEMPORARY CONSTRUCTION EASEMENT AS NECESSARY TO COMPLETE INSTALLATION OF PIPELINE.
14. INSIDE/ALONG ROADWAY RIGHTS-OF-WAY, CONTRACTOR SHALL DISTURB AND RESTORE AREAS NECESSARY FOR CONSTRUCTION IN ACCORDANCE WITH APPROVED SCDOT ENCROACHMENT PERMIT. LIMITS OF CONSTRUCTION EXTEND TO ROADWAY PAVEMENT AS NECESSARY. ALL CONSTRUCTION ACTIVITIES SHALL BE CONTAINED WITHIN ESTABLISHED EASEMENTS AND RIGHT OF WAYS SHOWN ON THE CONSTRUCTION DRAWINGS.
15. WHEN FIELD CUTS OF PIPE ARE NECESSARY THE CONTRACTOR SHALL CUT PIPE WITH A PIPE SAW IN ACCORDANCE WITH APPLICABLE AWWA REQUIREMENTS. FIELD WELDING OR TORCH-CUTTING ARE PROHIBITED ON THIS CONSTRUCTION.

16. CONTRACTOR SHALL SAW-CUT EXISTING PAVEMENT FOR ALL ASPHALT DRIVES/ROADS AND RESTORE PAVEMENT IN ACCORDANCE WITH SPECIFICATIONS AND DETAIL 1/C900.

WETLANDS REQUIREMENTS

1. THERE SHALL BE NO DISTURBANCE TO THE WETLANDS AREAS EXCEPT AS INDICATED ON PLANS AND IN THE UNITED STATES ARMY CORPS OF ENGINEERS NATIONWIDE 12 PERMIT.
2. CONTRACTOR SHALL INSTALL SEDIMENT CONTROL FENCES TO BORDER LIMITS OF DISTURBANCE, AS SHOWN. INSTALL DOUBLE ROW OF SILT FENCE WHERE INDICATED.
3. ANY DEWATERING WILL BE DISCHARGED EITHER INTO A SEDIMENTATION DEVICE OR A SEDIMENT FILTER BAG PRIOR TO DISCHARGE.
4. THE CONTRACTOR SHALL STABILIZE THE DISTURBED AREAS ADJACENT TO WETLANDS AND WATERS OF THE STATE IMMEDIATELY FOLLOWING INSTALLATION.

ADDITIONAL REQUIREMENTS FOR WORK INSIDE OF SCDOT RIGHT-OF-WAY

1. CONTRACTOR SHALL PROVIDE SCDOT WITH A DETAILED TRAFFIC CONTROL PLAN FOR ALL WORK WITHIN SCDOT RIGHT-OF-WAY THAT COMPLIES WITH THE SCDOT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, LATEST EDITION, AND EXECUTE TRAFFIC CONTROLS IN ACCORDANCE WITH SCDOT APPROVED TRAFFIC CONTROL PLAN. THE TRAFFIC CONTROL PLAN SHALL BE SUBMITTED TO SCDOT A MINIMUM OF SEVEN DAYS PRIOR TO THE WORK REQUIRING TRAFFIC CONTROL. ALL WORK WITHIN THE PUBLIC HIGHWAY RIGHT-OF-WAY SHALL BE IN STRICT ACCORDANCE WITH THE SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION (SCDOT) ENCROACHMENT PERMIT AND IN ACCORDANCE WITH THE APPROVED TRAFFIC CONTROL PLAN.
2. INSTALL TRAFFIC CONTROL AND SAFETY MEASURES AS NEEDED IN ACCORDANCE WITH SCDOT REQUIREMENTS. TRAFFIC CONTROL DEVICES TO BE MAINTAINED THROUGHOUT THE PROJECT DURATION AS REQUIRED. LANE CLOSURES SHALL BE IN ACCORDANCE WITH SCDOT PERMIT. TRAFFIC CONTROL STANDARDS MUST BE ADHERED TO ON ALL LOCATIONS WITHIN SCDOT'S RIGHT-OF-WAY.
3. ALL EROSION CONTROL, CLEARING, GRUBBING, INSTALLATION AND RESTORATION TO BE IN ACCORDANCE WITH SPECIFICATIONS AND DRAWINGS.
4. TEMPORARILY STORE AND REMOVE SOILS IN SUCH A WAY TO PROTECT EXISTING ROAD PAVEMENT.
5. ALL FILL MATERIAL PLACED SHALL BE IN ACCORDANCE WITH SCDOT REQUIREMENTS.
6. FINISH GRADE SWALES. FERTILIZE AND SEED DISTURBED AREAS. RELOCATE AND REPLACE ALL SEDIMENT AND EROSION CONTROL MEASURES AT END OF EACH DAY. ALL SLOPES 2:1 OR GREATER SHALL RECEIVE PERMANENT EROSION CONTROL MATTING OR HYDROSEEDING.
7. ALL BACKFILL IN SCDOT RIGHT-OF-WAY SHALL MEET MINIMUM LIFT REQUIREMENTS OF 6 INCHES WHEN COMPACTED.
8. ALL PIPE MARKERS IN SCDOT ROW SHALL BE FIBERGLASS AS APPROVED BY SCDOT.
9. FOR ALL DITCHES WITHIN THE SCDOT RIGHT-OF-WAY THAT HAVE SIDELINE GRADES DISTURBED, THE DITCH SHOULD BE REPAIRED IN ACCORDANCE WITH DETAIL 0227011 AND AS SHOWN ON PLANS.
10. ALL STORM DRAIN INSTALLATIONS AND REPAIRS, IF APPLICABLE, SHALL COMPLY WITH SCDOT STANDARD SPECIFICATIONS AND DRAWINGS.
11. ROAD CONSTRUCTION SIGNS SHALL BE UTILIZED AND MAINTAINED PROPERLY IN ACCORDANCE WITH SCDOT STANDARD SPECIFICATIONS AND DRAWINGS.
12. THE PROJECT LIMITS ALONG CLEMENTS FERRY ROAD MAY CONTAIN HEADWALLS, STORM DRAIN PIPES, LANDSCAPING AND ETC. THE CONTRACTOR SHALL ADDRESS ANY DISTURBANCE TO THESE ITEMS WITH SCDOT AND/OR PROPERTY OWNERS PRIOR TO CONSTRUCTION.

SEQUENCE OF CONSTRUCTION OPERATIONS

1. NO WORK TO BE PERFORMED PRIOR TO RECEIPT OF NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) COVERAGE FROM SCDHEC.
2. CONTRACTOR TO SCHEDULE A PRE-CONSTRUCTION MEETING PRIOR TO ANY COMMENCEMENT OF WORK.
3. CONTRACTOR SHALL SIGN AND IMPLEMENT THE REQUIREMENTS OF THE APPROVED STORMWATER POLLUTION PREVENTION PLAN (SWPPP) AND CONTACT THE SCDHEC REGIONAL EA OFFICE LISTED BELOW PRIOR TO STARTING ANY LAND-DISTURBING ACTIVITIES. THE CONTRACTOR SHALL ABIDE BY ALL REQUIREMENTS OF THE SOUTH CAROLINA NPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES SCR100000. THE SWPPP AND ALL REQUIRED DOCUMENTATION SHALL BE KEPT UP TO DATE AND MAINTAINED IN A SAFE LOCATION ON-SITE AT ALL TIMES DURING CONSTRUCTION.

LOWCOUNTRY EA CHARLESTON
1362 McMillan Avenue, Suite 300
Charleston, SC 29405
(843) 953-0150
4. INSTALL PHASE ONE EROSION AND SEDIMENTATION CONTROL MEASURES AS SHOWN ON THE CONTRACT DRAWINGS. NO CONSTRUCTION OR LAND DISTURBANCE ACTIVITIES MAY BEGIN UNTIL ALL EROSION AND SEDIMENTATION CONTROL MEASURES HAVE BEEN INSTALLED AROUND CONSTRUCTION AREAS. IF CLEARING IS REQUIRED FOR INSTALLATION OF A GIVEN MEASURE, ALL OTHER MEASURES SHOWN SHALL BE INSTALLED FIRST. A DOUBLE ROW OF SILT FENCE IS TO BE INSTALLED IN ALL AREAS BETWEEN THE DISTURBED AREA AND ALL WATERS OF THE STATE (WoS). A 10-FOOT BUFFER SHALL BE MAINTAINED WHERE POSSIBLE BETWEEN THE SILT FENCE AND THE WoS.
5. ONCE ALL PHASE ONE MEASURES HAVE BEEN INSTALLED, THE SITE SHALL BE CLEARED AND GRUBBED AS SHOWN ON THE CONTRACT DRAWINGS. CONTRACTOR LAYDOWN/STOCKPILE/CONCRETE WASHOUT AREAS SHALL BE LOCATED AS SHOWN ON THE CONTRACT DRAWINGS.
6. UPON COMPLETION OF CLEARING AND GRUBBING, PHASE TWO EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSTALLED.
7. ONCE ALL PHASE TWO MEASURES HAVE BEEN INSTALLED, CONSTRUCTION ACTIVITIES MAY BEGIN. ONLY THE LENGTH OF TRENCH IN WHICH PIPE CAN BE INSTALLED IN ONE DAY'S TIME SHALL BE OPEN AT ANY TIME, WITH SPOIL MATERIAL PLACED ON THE UPHILL SIDE OF THE TRENCH. PIPING SHALL BE CAPPED AT END OF EACH WORK DAY TO PREVENT SEDIMENT FROM ENTERING. TRENCHES SHALL BE BACKFILLED AT END OF EACH WORK DAY AND DISTURBED AREA SEEDED WITH TEMPORARY SEEDING MEASURES AS NECESSARY.
8. EARTHWORK EXCAVATION AND FILL OPERATIONS, AS WELL AS PUMP STATION CONSTRUCTION, SHALL BE PERFORMED IN ACCORDANCE WITH STANDARD CONSTRUCTION TECHNIQUES. ALL EXCAVATION DEWATERING FLOWS SHALL PASS THROUGH A SEDIMENT FILTERING DEVICE PRIOR TO DISCHARGE. TOPSOIL SHALL BE STRIPPED AND STOCKPILED ON SITE. TOPSOIL STOCKPILE SHALL HAVE PERIMETER EROSION CONTROL MEASURES INSTALLED AND SEEDED WITH TEMPORARY SEEDING MEASURES DURING CONSTRUCTION ACTIVITIES.
9. STORM DRAINAGE DITCHES SHALL BE PROTECTED WITH APPROPRIATE EROSION CONTROL MEASURES AT ALL TIMES. POSITIVE STORMWATER DRAINAGE AWAY FROM CONSTRUCTION ACTIVITIES SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.
10. TEMPORARY SEEDING MEASURES SHALL BE EMPLOYED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN FOURTEEN (14) DAYS AFTER WORK HAS CEASED, EXCEPT WHERE STABILIZATION MEASURES WOULD BE PRECLUDED BY SNOW OR FROZEN GROUND CONDITIONS, OR WHERE CONSTRUCTION ACTIVITY WILL BE RESUMED WITHIN 14 DAYS.
11. ONCE ALL EARTHWORK AND CONSTRUCTION ACTIVITIES ARE COMPLETE, FINAL GRADING MAY BEGIN. CONTRACTOR SHALL FILE A NOTICE OF TERMINATION TO SCDHEC.
12. UPON COMPLETION OF FINAL GRADING, PERMANENT SEEDING, MULCHING, AND FERTILIZING MEASURES

SHALL BE EMPLOYED ON ALL DISTURBED AREAS AS SPECIFIED IN THE CONTRACT DOCUMENTS. ALL EROSION CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL ENTIRE SITE HAS BEEN STABILIZED.

13. ONCE PERMANENT STABILIZATION HAS OCCURRED AND APPROVED BY LOCAL AUTHORITIES, CONTRACTOR SHALL FILE A NOTICE OF TERMINATION (NOT) AS PER THE REQUIREMENTS OF THIS SWPPP AND THE SOUTH CAROLINA NPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES SCR100000. ANY AREAS DISTURBED BY THE REMOVAL OF THESE MEASURES SHALL BE RETURNED AS CLOSELY AS POSSIBLE TO ORIGINAL CONDITION AND SEEDED, MULCHED, AND FERTILIZED AS SPECIFIED IN THE CONTRACT DOCUMENTS.

SEDIMENT AND EROSION CONTROL

1. IF NECESSARY, SLOPES WHICH EXCEED EIGHT (8) VERTICAL FEET SHOULD BE STABILIZED WITH SYNTHETIC OR VEGETATIVE MATS, IN ADDITION TO HYDROSEEDING. IT MAY BE NECESSARY TO INSTALL TEMPORARY SLOPE DRAINS DURING CONSTRUCTION. TEMPORARY BERMS MAY BE NEEDED UNTIL THE SLOPE IS BROUGHT TO GRADE.
2. STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN FOURTEEN (14) DAYS AFTER WORK HAS CEASED, EXCEPT AS STATED BELOW.

• WHERE STABILIZATION BY THE 14TH DAY IS PRECLUDED BY SNOW COVER OR FROZEN GROUND CONDITIONS STABILIZATION MEASURES MUST BE INITIATED AS SOON AS PRACTICABLE.

• WHERE CONSTRUCTION ACTIVITY ON A PORTION OF THE SITE IS TEMPORARILY CEASED, AND EARTH-DISTURBING ACTIVITIES WILL BE RESUMED WITHIN 14 DAYS, TEMPORARY STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF THE SITE.
3. ALL SEDIMENT AND EROSION CONTROL DEVICES SHALL BE INSPECTED ONCE EVERY CALENDAR WEEK. IF PERIODIC INSPECTION OR OTHER INFORMATION INDICATES THAT A BMP HAS BEEN INAPPROPRIATELY OR INCORRECTLY INSTALLED, THE PERMITTEE MUST ADDRESS THE NECESSARY REPLACEMENT OR MODIFICATION REQUIRED TO CORRECT THE BMP WITHIN 48 HOURS OF IDENTIFICATION.
4. PROVIDE SILT FENCE AND/OR OTHER CONTROL DEVICES, AS MAY BE REQUIRED, TO CONTROL SOIL EROSION DURING UTILITY CONSTRUCTION. ALL DISTURBED AREAS SHALL BE CLEANED, GRADED, AND STABILIZED WITH GRASSING PER SPECS IMMEDIATELY AFTER THE UTILITY INSTALLATION. FILL, COVER, AND TEMPORARY SEEDING AT THE END OF EACH DAY ARE RECOMMENDED. IF WATER IS ENCOUNTERED WHILE TRENCHING, THE WATER SHOULD BE FILTERED TO REMOVE SEDIMENT BEFORE BEING PUMPED BACK INTO ANY WATERS OF THE STATE.
5. ALL EROSION CONTROL DEVICES SHALL BE PROPERLY MAINTAINED DURING ALL PHASES OF CONSTRUCTION UNTIL THE COMPLETION OF ALL CONSTRUCTION ACTIVITIES AND ALL DISTURBED AREAS HAVE BEEN STABILIZED. ADDITIONAL CONTROL DEVICES MAY BE REQUIRED DURING CONSTRUCTION IN ORDER TO CONTROL EROSION AND/OR OFFSITE SEDIMENTATION. ALL TEMPORARY CONTROL DEVICES SHALL BE REMOVED ONCE CONSTRUCTION IS COMPLETE AND THE SITE IS STABILIZED.
6. THE CONTRACTOR MUST TAKE NECESSARY ACTION TO MINIMIZE THE TRACKING OF MUD ONTO PAVED ROADWAY(S) FROM CONSTRUCTION AREAS AND THE GENERATION OF DUST. THE CONTRACTOR SHALL DAILY REMOVE MUD/SOIL FROM PAVEMENT, AS MAY BE REQUIRED.
7. RESIDENTIAL SUBDIVISIONS REQUIRE EROSION CONTROL FEATURES FOR INFRASTRUCTURE AS WELL AS FOR INDIVIDUAL LOT CONSTRUCTION. INDIVIDUAL PROPERTY OWNERS SHALL FOLLOW THESE PLANS DURING CONSTRUCTION OR OBTAIN APPROVAL OF AN INDIVIDUAL PLAN IN ACCORDANCE WITH S.C REG. 72-300 ET SEQ. AND SCR100000.
8. TEMPORARY DIVERSION BERMS AND/OR DITCHES WILL BE PROVIDED AS NEEDED DURING CONSTRUCTION TO PROTECT WORK AREAS FROM UPSLOPE RUNOFF AND/OR TO DIVERT SEDIMENT-LADEN WATER TO APPROPRIATE TRAPS OR STABLE OUTLETS.
9. ALL WATERS OF THE STATE (WoS), INCLUDING WETLANDS, ARE TO BE FLAGGED OR OTHERWISE

Clearly marked in the field. A double row of silt fence is to be installed in all areas where a 50-foot buffer can't be maintained between the disturbed area and all WoS. A 10-foot buffer should be maintained between the last row of silt fence and all WoS.

10. LITTER, CONSTRUCTION DEBRIS, OILS, FUELS, AND BUILDING PRODUCTS WITH SIGNIFICANT POTENTIAL FOR IMPACT (SUCH AS STOCKPILES OF FRESHLY TREATED LUMBER) AND CONSTRUCTION CHEMICALS THAT COULD BE EXPOSED TO STORM WATER MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE IN STORM WATER DISCHARGES.

11. A COPY OF THE SWPPP, INSPECTIONS RECORDS, AND RAINFALL DATA MUST BE RETAINED AT THE CONSTRUCTION SITE OR A NEARBY LOCATION EASILY ACCESSIBLE DURING NORMAL BUSINESS HOURS, FROM THE DATE OF COMMENCEMENT OF CONSTRUCTION ACTIVITIES TO THE DATE THAT FINAL STABILIZATION IS REACHED.

12. INITIATE STABILIZATION MEASURES ON ANY EXPOSED STEEP SLOPE (3H:1V OR GREATER) WHERE LAND-DISTURBING ACTIVITIES HAVE PERMANENTLY OR TEMPORARILY CEASED, AND WILL NOT RESUME FOR A PERIOD OF 7 CALENDAR DAYS.

13. MINIMIZE SOIL COMPACTION AND, UNLESS INFEASIBLE, PRESERVE TOPSOIL.

14. MINIMIZE THE DISCHARGE OF POLLUTANTS FROM EQUIPMENT AND VEHICLE WASHING, WHEEL WASH WATER, AND OTHER WASH WATERS. WASH WATERS MUST BE TREATED IN A SEDIMENT BASIN OR ALTERNATIVE CONTROL THAT PROVIDES EQUIVALENT OR BETTER TREATMENT PRIOR TO DISCHARGE.

15. MINIMIZE THE DISCHARGE OF POLLUTANTS FROM DEWATERING OF TRENCHES AND EXCAVATED AREAS. THESE DISCHARGES ARE TO BE ROUTED THROUGH APPROPRIATE BMPS (SEDIMENT BASIN, FILTER BAG, ETC.).
16. THE FOLLOWING DISCHARGES FROM SITES ARE PROHIBITED:

• WASTEWATER FROM WASHOUT OF CONCRETE, UNLESS MANAGED BY AN APPROPRIATE CONTROL;

• WASTEWATER FROM WASHOUT AND CLEAN OUT OF STUCCO, PAINT, FORM RELEASE OILS, CURING COMPOUNDS AND OTHER CONSTRUCTION MATERIALS;

• FUELS, OILS, OR OTHER POLLUTANTS USED IN VEHICLE AND EQUIPMENT OPERATION AND MAINTENANCE; AND

• SOAPS OR SOLVENTS USED IN VEHICLE AND EQUIPMENT WASHING.

17. AFTER CONSTRUCTION ACTIVITIES BEGIN, INSPECTIONS MUST BE CONDUCTED AT A MINIMUM OF AT LEAST ONCE EVERY CALENDAR WEEK AND MUST BE CONDUCTED UNTIL FINAL STABILIZATION IS REACHED ON ALL AREAS OF THE CONSTRUCTION SITE.

18. IF EXISTING BMPS NEED TO BE MODIFIED OR IF ADDITIONAL BMPS ARE NECESSARY TO COMPLY WITH THE REQUIREMENTS OF THIS PERMIT AND/OR SC'S WATER QUALITY STANDARDS, IMPLEMENTATION MUST BE COMPLETED BEFORE THE NEXT STORM EVENT WHENEVER PRACTICABLE. IF IMPLEMENTATION BEFORE THE NEXT STORM EVENT IS IMPRACTICABLE, THE SITUATION MUST BE DOCUMENTED IN THE SWPPP AND ALTERNATIVE BMPS MUST BE IMPLEMENTED AS SOON AS REASONABLY POSSIBLE.

19. A PRE-CONSTRUCTION CONFERENCE MUST BE HELD FOR EACH CONSTRUCTION SITE WITH AN APPROVED ON-SITE SWPPP PRIOR TO THE IMPLEMENTATION OF CONSTRUCTION ACTIVITIES. FOR NON-LINEAR PROJECTS THAT DISTURB 10 ACRES OR MORE THIS CONFERENCE MUST BE HELD ON-SITE UNLESS THE DEPARTMENT HAS APPROVED OTHERWISE.

SEEDING SCHEDULE

SCHEDULE NO.	COMMON SEED NAME	APPLICATION RATE (lb/acre)	PLANTING DATES
TEMPORARY			
1	Rye (grain)	56	September 1 - March 15
	Rye (oats)	75	
2	Ryegrass	50	September 1 - April 15
3	Browntop or Japanese Millet	40	March 15 - August 31

NOTES

1. All seeded areas shall receive 500#/AC 10-10-10 fertilizer and 1500 - 2000#/AC straw mulch.

PERMANENT

1	Rye (grain)	10	September 1 - November 10
	Bahiagrass	40	
	Crimson Clover (annual)	5	
2	Browntop Millet	10	March 15 - August 31
	Bahiagrass	30	
	Sericea Lespedeza	40	

NOTES

1. Other acceptable coastal grass blends can be found in Appendix C "Temporary and Permanent Seeding Rate Tables" of the SCDHEC Stormwater Management BMP Field Manual.
2. All seeded areas shall receive 3000#/AC ground cover textured agricultural limestone, 1000#/AC 10-10-10 fertilizer, and 4000#/AC straw mulch.
3. Application Method:

Application Method	Ground Slope
Broadcast Seeding (Unmulched)	0 - 2%
Broadcast Seeding (Mulched)	2 - 10%
Hydroseeding	Greater than 10%



Know what's below.
Call before you dig.

				PROJECT ENGINEER:	J. HARTWIG
				DESIGNED BY:	L FANNING
				DRAWN BY:	L FANNING
				CHECKED BY:	
				IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
1	CONSTRUCTION	JAN 2020	HAZEN		
REV	ISSUED FOR	DATE	BY		



Hazen

HAZEN AND SAWYER
735 JOHNNIE DODDS BLVD, SUITE 102
MOUNT PLEASANT, SOUTH CAROLINA 29464

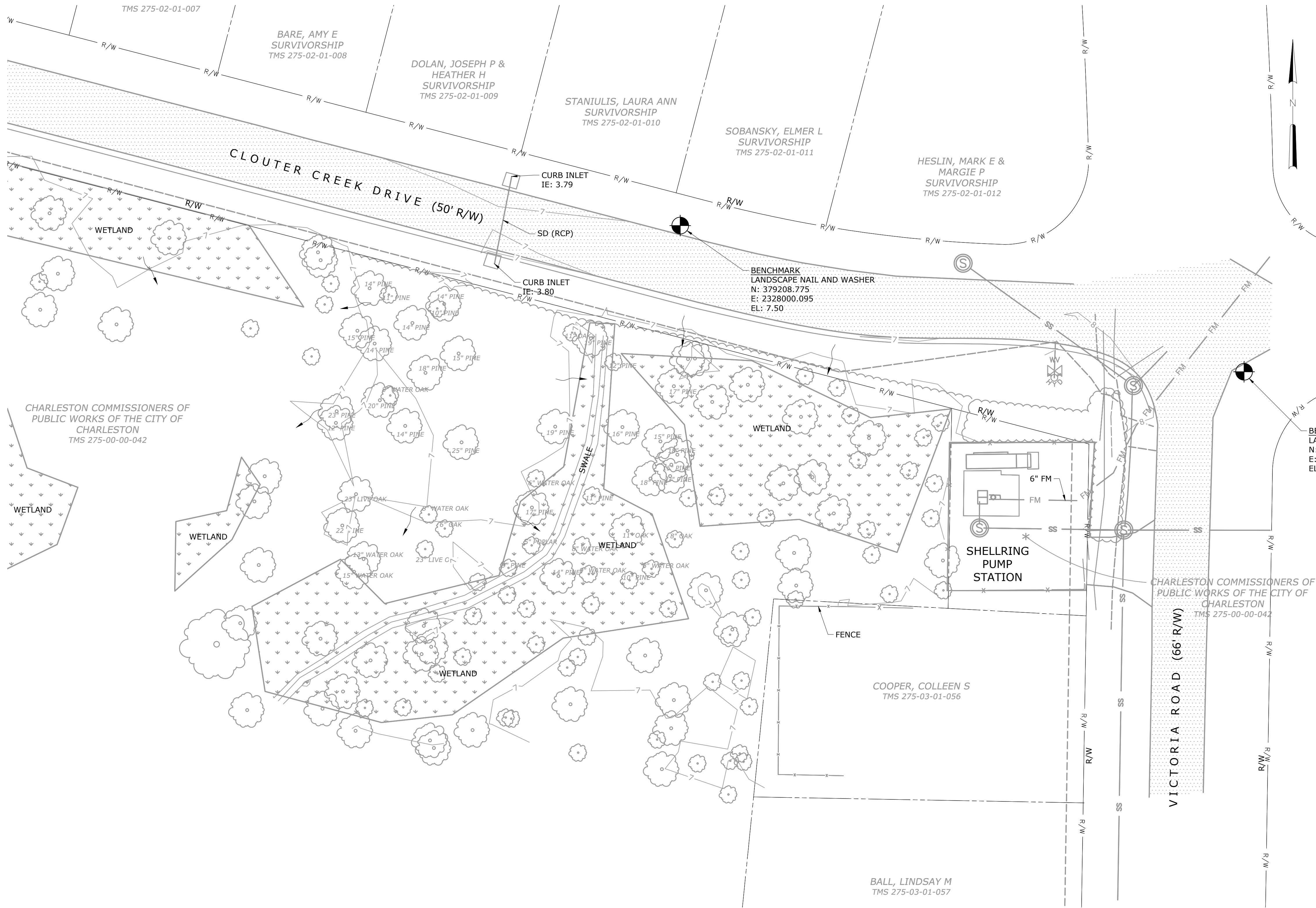


Charleston Water System
COMMISSIONERS OF PUBLIC WORKS
OF THE CITY OF CHARLESTON, SC

THOMAS ISLAND REGIONAL PUMP STATION
AND INTERCEPTOR
DIVISION I & II

GENERAL
CIVIL NOTES

DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	C001



- NOTES:
1. TOPOGRAPHIC INFORMATION TAKEN FROM LAND SURVEYS BY: CORNERSTONE SURVEYING AND ENGINEERING, DATED JULY 13, 2017 AND AUGUST 2, 2017
 2. ALL VERTICAL DATUM (ELEVATIONS) ARE NAVD88
 3. ALL HORIZONTAL DATUM ARE SOUTH CAROLINA STATE PLANE COORDINATES, NAD 83 (2011 ADJUSTMENT).
 4. FEMA 100-YEAR FLOOD ELEVATION: 11.00 (NAVD88) ALONG CLEMENTS FERRY ROAD AND 10.00 (NAVD88) AT PUMP STATION SITE, OBTAINED FROM FEMA FLOOD MAP NUMBERS 45015C0760E AND 45015C0720E, DATED DECEMBER 7, 2018.

EXISTING SITE PLAN
1" = 20'

DIRECTION OF SURFACE WATER FLOW

				PROJECT ENGINEER:	J. HARTWIG
				DESIGNED BY:	L. FANNING
				DRAWN BY:	L. FANNING
				CHECKED BY:	C. RAGOS
1	CONSTRUCTION	JAN 2020	HAZEN	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
REV	ISSUED FOR	DATE	BY		



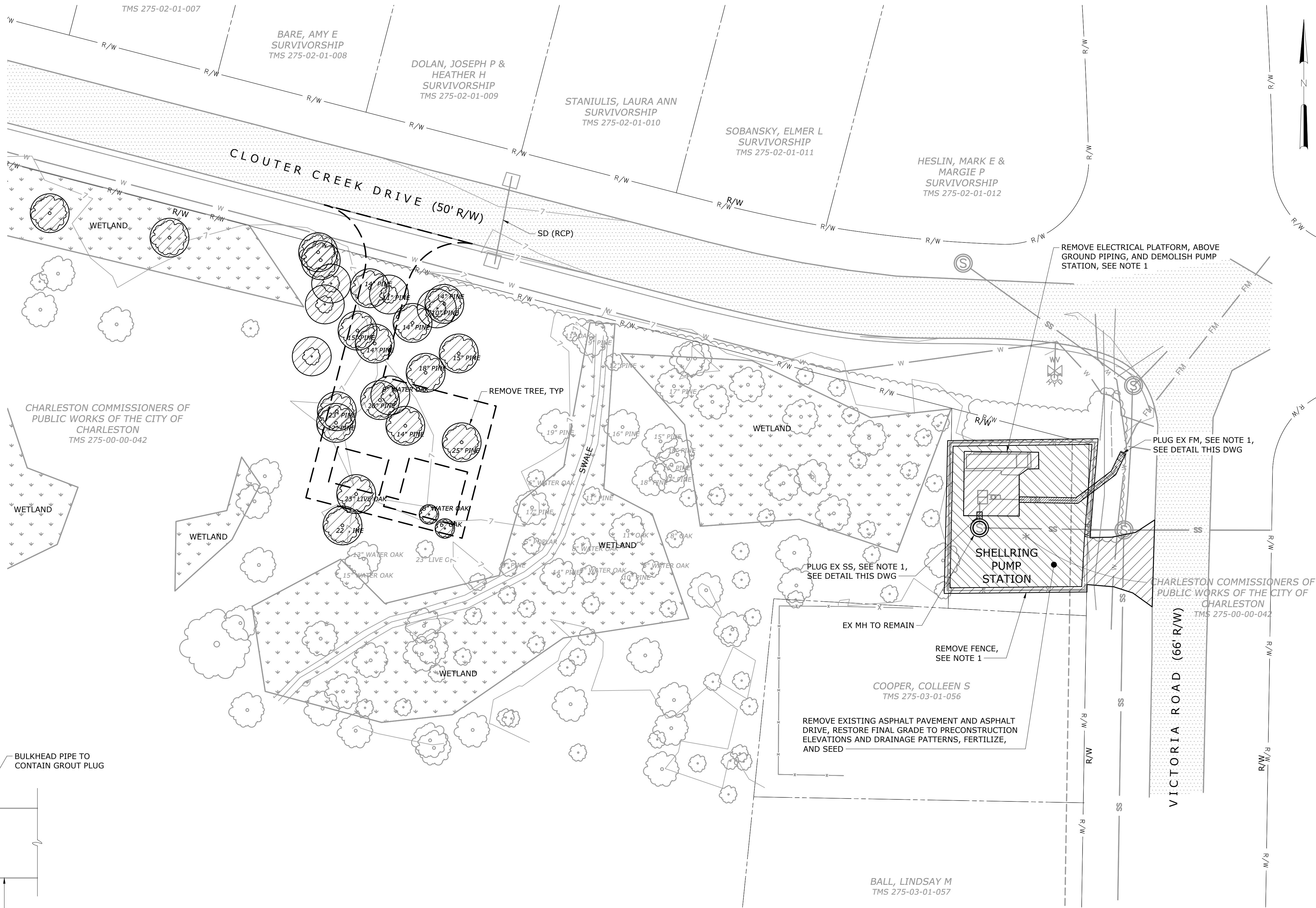
Hazen
HAZEN AND SAWYER
735 JOHNNIE DODDS BLVD, SUITE 102
MOUNT PLEASANT, SOUTH CAROLINA 29464



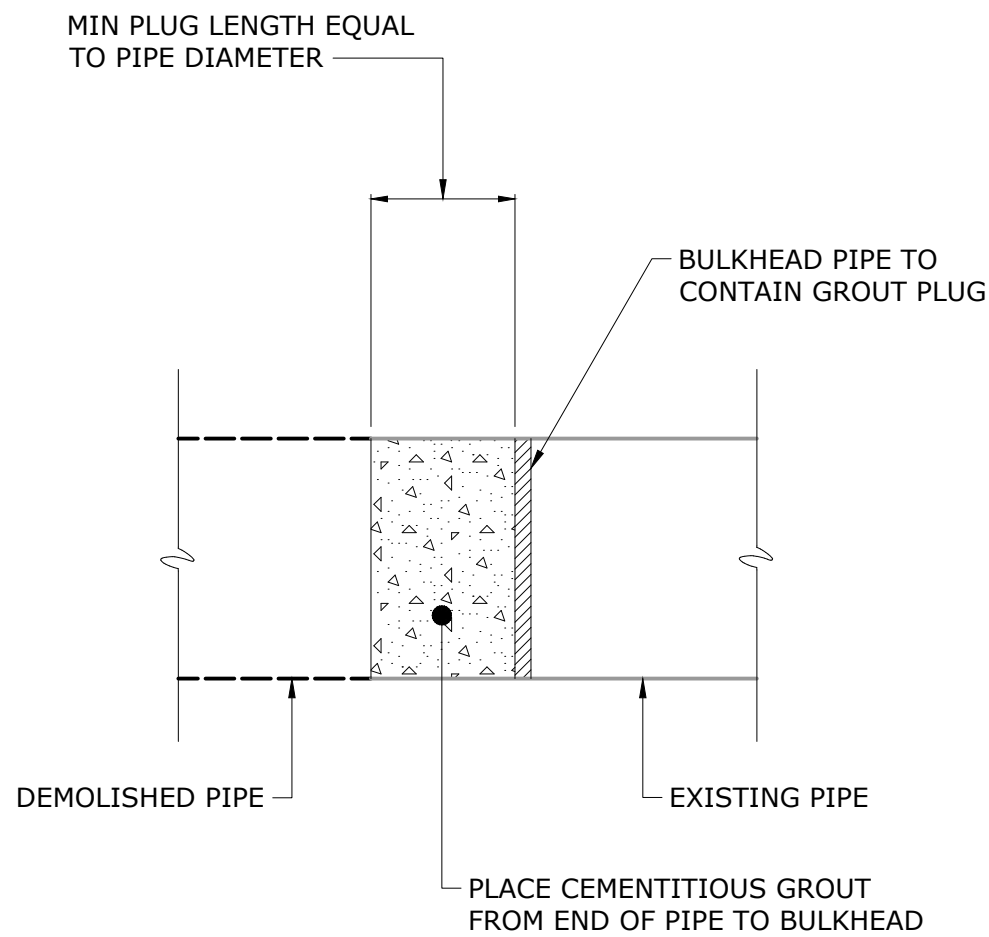
THOMAS ISLAND REGIONAL PUMP STATION
AND INTERCEPTOR
DIVISION I

PUMP STATION
CIVIL
EXISTING SITE PLAN

DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	C100



- NOTES:**
1. EXISTING PUMP STATION TO REMAIN IN SERVICE DURING ENTIRE CONSTRUCTION PROCESS. DEMOLITION/ABANDONMENT OF EXISTING PUMP STATION, EXISTING ELECTRICAL PLATFORM, EXISTING SANITARY SEWER, AND EXISTING FORCEMAIN TO BE PERFORMED AFTER RECEIVING SCDHEC PERMIT TO OPERATE THE NEW PUMP STATION AND COMPLETING APPROPRIATE OPERATIONAL PERIOD. CONTRACTOR SHALL CLEAN PUMP STATION WETWELL, PUNCH HOLES IN BOTTOM OF STRUCTURES TO ALLOW FOR NORMAL GROUNDWATER FLUCTUATION, AND DEMOLISH STRUCTURES TO 36-INCHES BELOW GRADE AND FILL WITH SAND OR GRAVEL. RESTORE FINAL GRADE TO PRECONSTRUCTION ELEVATIONS AND DRAINAGE PATTERNS, FERTILIZE, AND SEED.
 2. SEE SPECIFICATION SECTIONS 01520, 01540, AND 02050 FOR DEMOLITION REQUIREMENTS AND SEQUENCE OF CONSTRUCTION.
 3. SEE REFERENCE DRAWINGS FOR DETAILS ON EXISTING PUMP STATION.
 4. REFER TO SPECIFICATION 01540 FOR EQUIPMENT AND MATERIALS TO BE RETAINED BY OWNER.



PIPE PLUGGING DETAIL
NOT TO SCALE

DEMOLITION PLAN
1" = 20'

				PROJECT ENGINEER:	J. HARTWIG
				DESIGNED BY:	J. HARTWIG
				DRAWN BY:	L. FANNING
				CHECKED BY:	C. RAGOS
1	CONSTRUCTION	JAN 2020	HAZEN	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
REV	ISSUED FOR	DATE	BY		



Hazen
HAZEN AND SAWYER
735 JOHNNIE DODDS BLVD, SUITE 102
MOUNT PLEASANT, SOUTH CAROLINA 29464



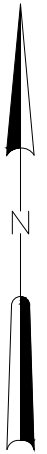
Charleston Water System
COMMISSIONERS OF PUBLIC WORKS
OF THE CITY OF CHARLESTON, SC

**THOMAS ISLAND REGIONAL PUMP STATION
AND INTERCEPTOR
DIVISION I**

**PUMP STATION
CIVIL
DEMOLITION PLAN**

DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	C101

NOTES:
1. SEE DRAWING C001 FOR ADDITIONAL SEDIMENT AND EROSION CONTROL REQUIREMENTS



3
NOTE:
ALL CANOPY TREES, UNDERSTORY TREES, AND SHRUBS OUTSIDE OF THE LIMITS OF DISTURBANCE SHOWN ARE TO REMAIN UNDISTURBED TO MAINTAIN THE EXISTING NATURAL BUFFER

EROSION CONTROL PLAN
1" = 20'

				PROJECT ENGINEER:	J. HARTWIG
				DESIGNED BY:	J. HARTWIG
				DRAWN BY:	L. FANNING
				CHECKED BY:	C. RAGOS
3	ADDENDUM No. 3	APR 2020	HAZEN	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
2	ADDENDUM No. 1	JAN 2020	HAZEN		
1	CONSTRUCTION	JAN 2020	HAZEN		
REV	ISSUED FOR	DATE	BY		



Hazen
HAZEN AND SAWYER
735 JOHNNIE DODDS BLVD, SUITE 102
MOUNT PLEASANT, SOUTH CAROLINA 29464

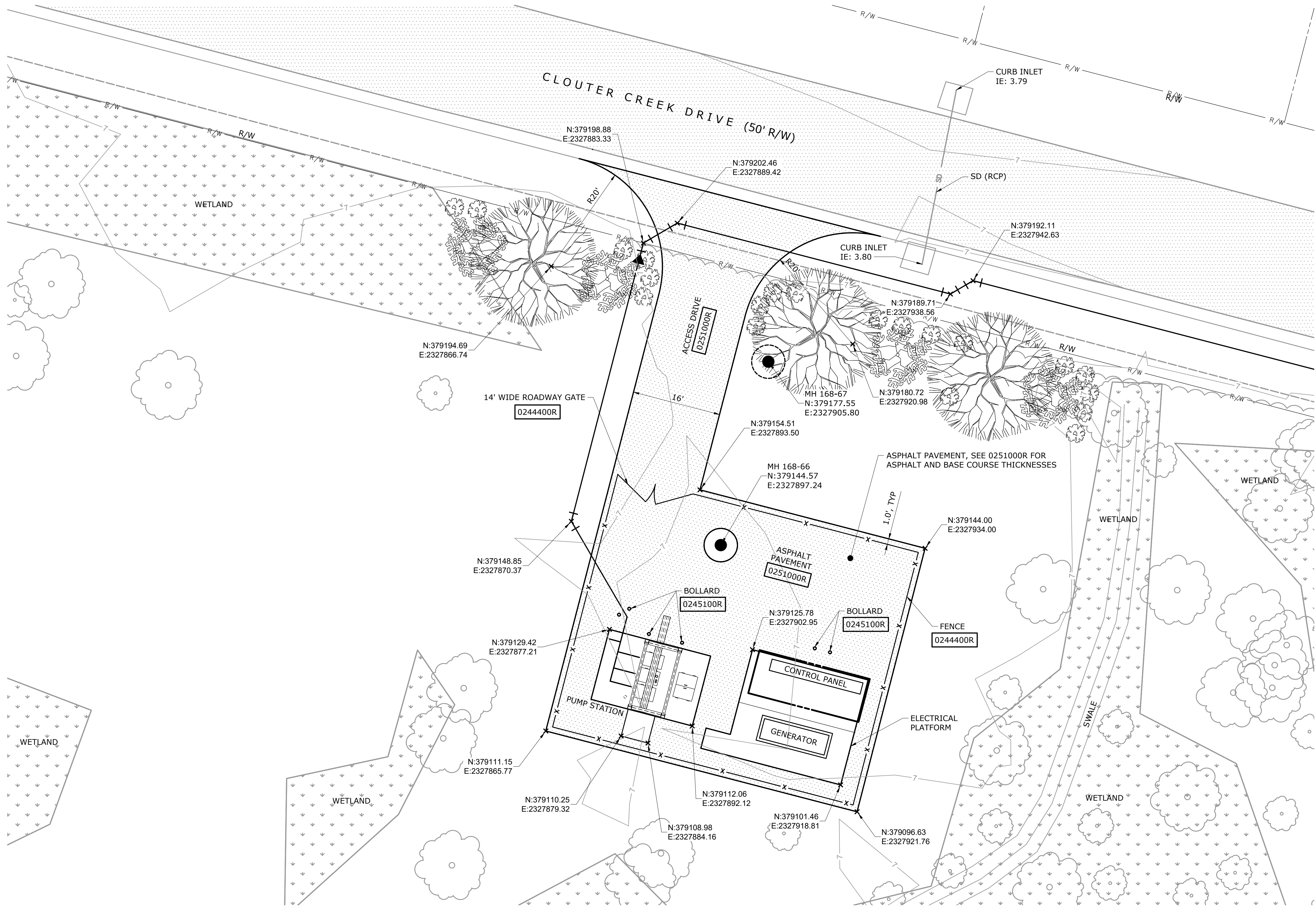


Charleston Water System
COMMISSIONERS OF PUBLIC WORKS
OF THE CITY OF CHARLESTON, SC

THOMAS ISLAND REGIONAL PUMP STATION
AND INTERCEPTOR
DIVISION I

PUMP STATION
CIVIL
EROSION CONTROL PLAN

DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	C102

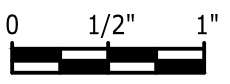


STAKING AND PAVING PLAN
1" = 10'

File: D:\30533-CHARLESTON-WATER-SYSTEM\DESIGN\DRAWINGS\C104 Staked by L FANNING Save date: 4/22/2020 2:28 PM
PLOT DATE: 4/23/2020 9:34 AM BY: L FANNING

1	CONSTRUCTION	JAN 2020	HAZEN	
REV	ISSUED FOR	DATE	BY	

PROJECT ENGINEER:	J. HARTWIG
DESIGNED BY:	J. HARTWIG
DRAWN BY:	L. FANNING
CHECKED BY:	C. RAGOS
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	



Hazen
HAZEN AND SAWYER
735 JOHNNIE DODDS BLVD, SUITE 102
MOUNT PLEASANT, SOUTH CAROLINA 29464

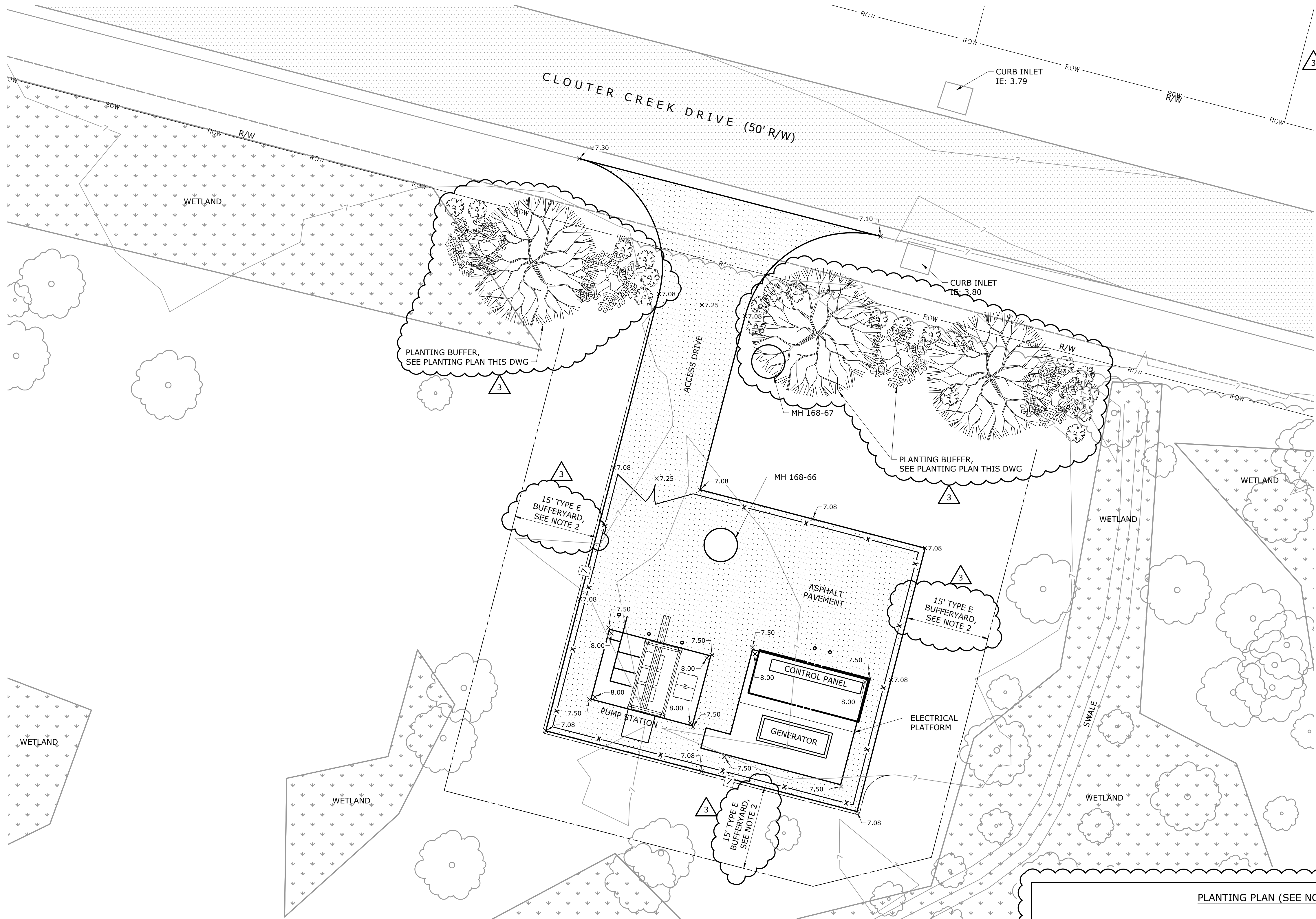


Charleston Water System
COMMISSIONERS OF PUBLIC WORKS
OF THE CITY OF CHARLESTON, SC

THOMAS ISLAND REGIONAL PUMP STATION
AND INTERCEPTOR
DIVISION I

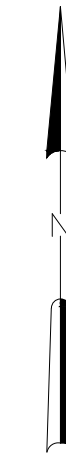
PUMP STATION
CIVIL
STAKING AND PAVING PLAN

DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	C104



NOTES:

1. CONTRACTOR MAY ONLY SUBSTITUTE TREE AND SHRUB SPECIES LISTED WITH SPECIES THAT ARE APPROVED BY BERKELEY COUNTY PLANNING AND ZONING ADMINISTRATOR. BUFFERYARD PLANTINGS TO BE IN ACCORDANCE WITH BERKELEY COUNTY CODE OF ORDINANCE, APPENDIX A - ZONING, ARTICLE 17 - BUFFERYARDS.
2. EXISTING VEGETATION TO REMAIN UNDISTURBED WITHIN THE 15 FOOT TYPE E BUFFERYARD. IF VEGETATION IS DAMAGED OR REMOVED, CONTRACTOR SHALL PROVIDE NEW PLANTINGS TO MEET TYPE E BUFFERYARD PLANTING REQUIREMENTS AND SCHEDULE AN INSPECTION WITH BERKELEY COUNTY PLANNING AND ZONING AND RECEIVE APPROVAL THAT PLANTINGS SATISFY TYPE E BUFFERYARD REQUIREMENTS.




PLANTING PLAN (SEE NOTE 1)

COVER TYPE	QUANTITY	COMMON NAME	SCIENTIFIC NAME	MINIMUM PLANTING HEIGHT	MINIMUM CONTAINER SIZE
CANOPY	3	RED MAPLE	ACER RUBRUM	8 FEET	N/A
UNDERSTORY	4	SOUTHERN BAYBERRY	MYRICA CERIFERA	6 FEET	N/A
SHRUB	20	FOSTER HOLLY	ILEX X ATTENUATA "FOSTERI"	18-24 INCHES	3 GALLON

GRADING AND DRAINAGE PLAN

1" = 10'

				PROJECT ENGINEER:	J. HARTWIG
				DESIGNED BY:	J. HARTWIG
				DRAWN BY:	L. FANNING
3	ADDENDUM No. 3	APR 2020	HAZEN	CHECKED BY:	C. RAGOS
2	ADDENDUM No. 1	JAN 2020	HAZEN	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
1	CONSTRUCTION	JAN 2020	HAZEN		
REV	ISSUED FOR	DATE	BY		



Hazen
HAZEN AND SAWYER
735 JOHNNIE DODDS BLVD, SUITE 102
MOUNT PLEASANT, SOUTH CAROLINA 29464

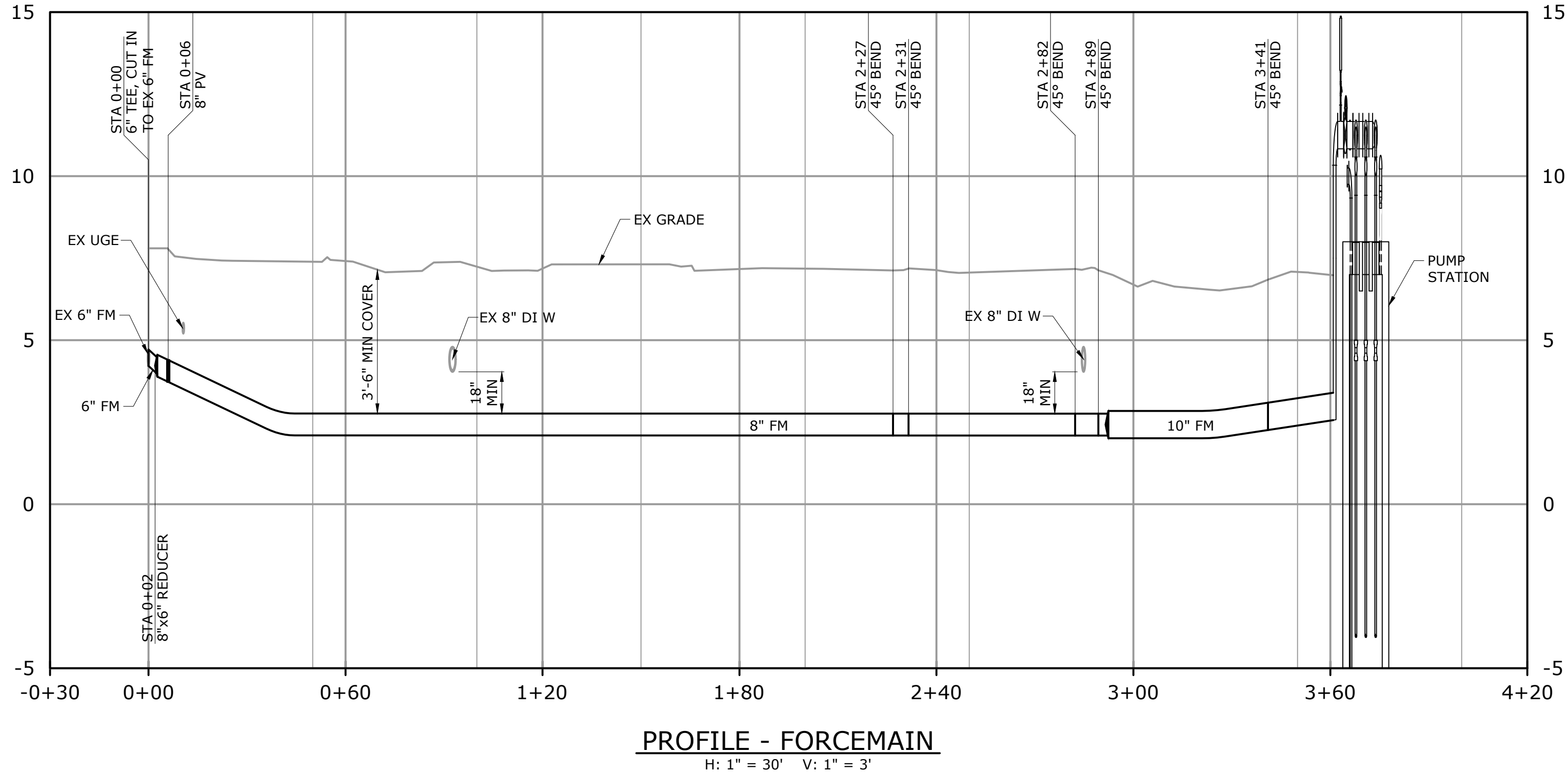
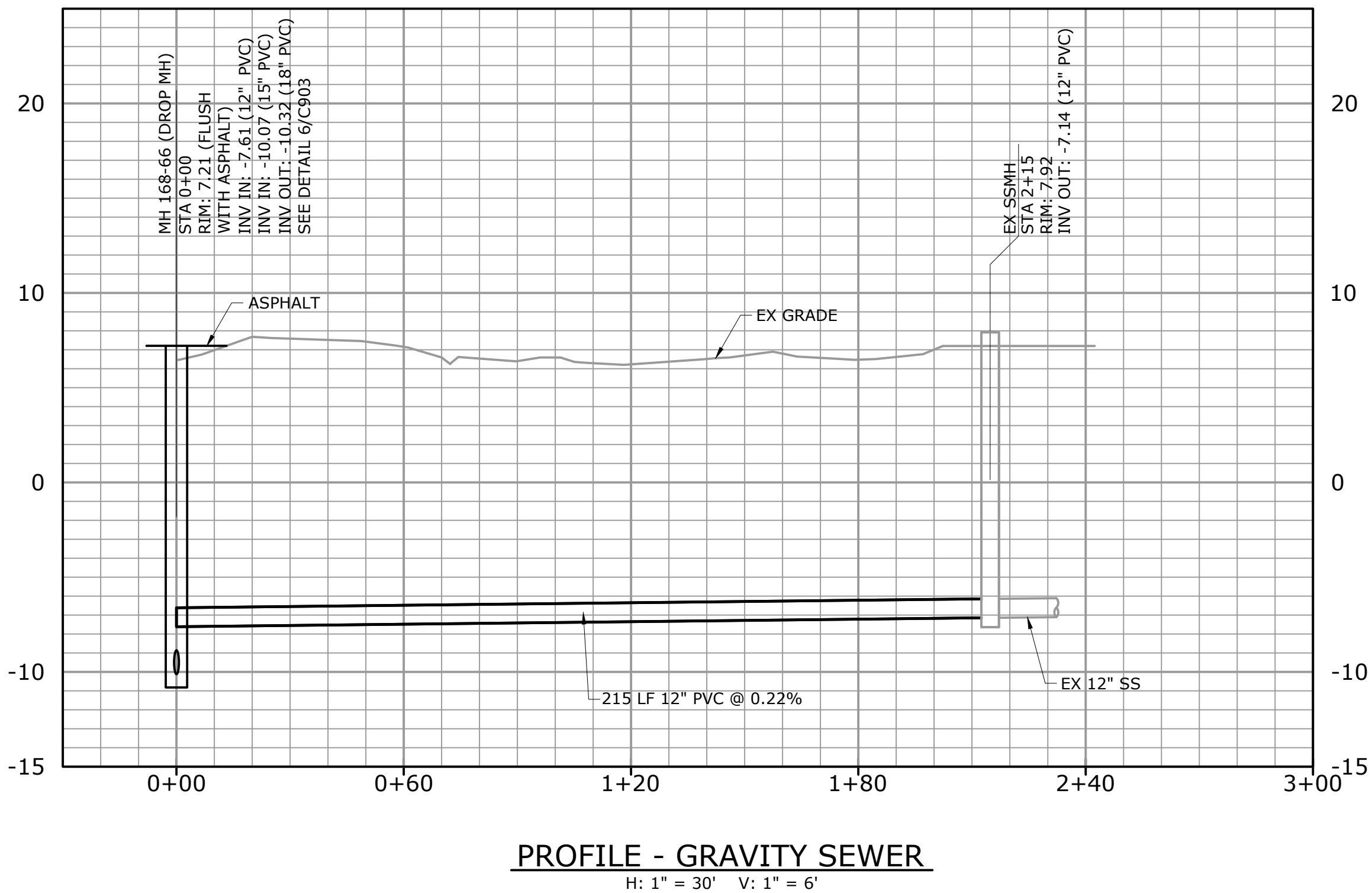
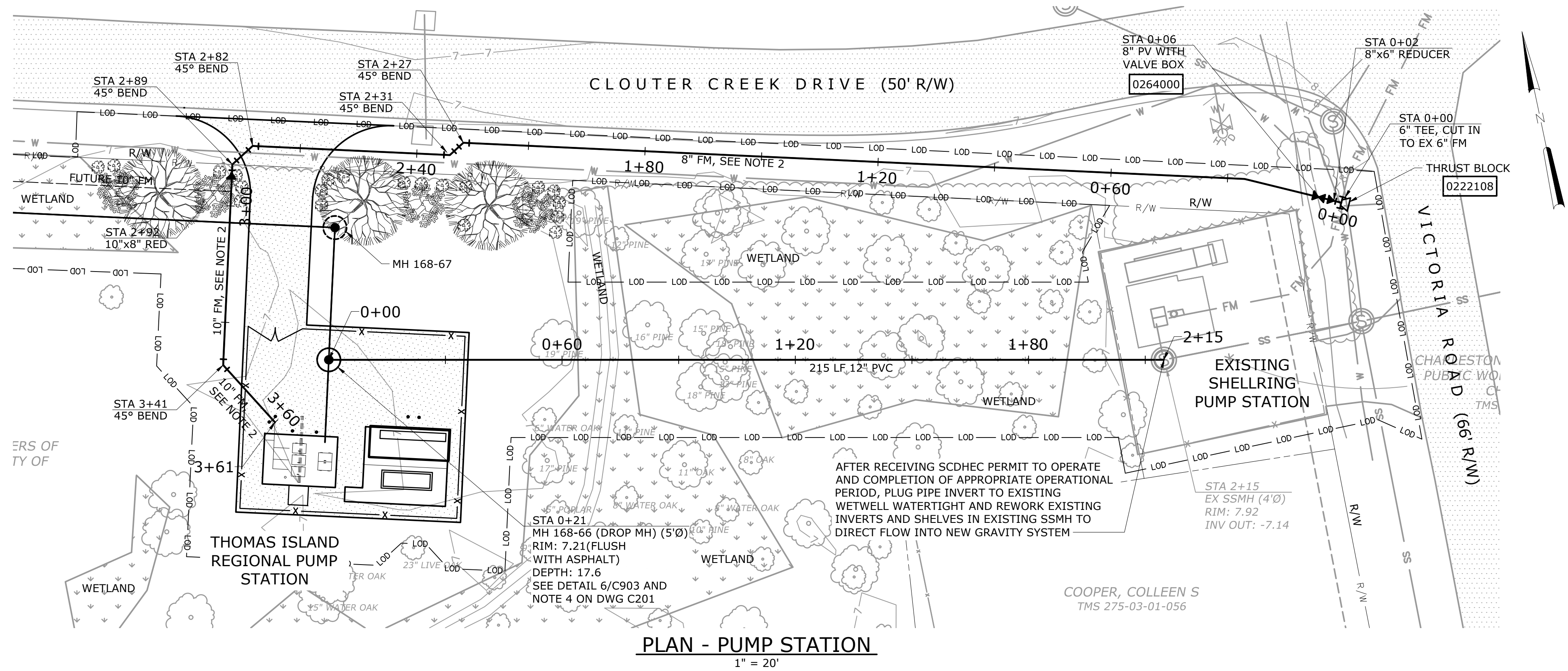


THOMAS ISLAND REGIONAL PUMP STATION
AND INTERCEPTOR
DIVISION I

PUMP STATION
CIVIL
GRADING AND DRAINAGE PLAN

DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	C105

- NOTES:
- SEE DRAWING C001 FOR ADDITIONAL SCDOT AND WETLAND REQUIREMENTS.
 - ALL FORCEMAIN PIPING TO BE RESTRAINED.



File: C:\3533\CHS\3533\008\DESIGN\DRAWINGS\CONSTRUCT\18 Saved by: L FANNING Save date: 4/22/2020 3:49 PM
PLOT DATE: 4/22/2020 8:35 AM BY: L FANNING

REV	ISSUED FOR	DATE	BY
1	CONSTRUCTION	JAN 2020	HAZEN

PROJECT ENGINEER:	J. HARTWIG
DESIGNED BY:	J. HARTWIG
DRAWN BY:	L. FANNING
CHECKED BY:	C. RAGOS
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	

0 1/2" 1"



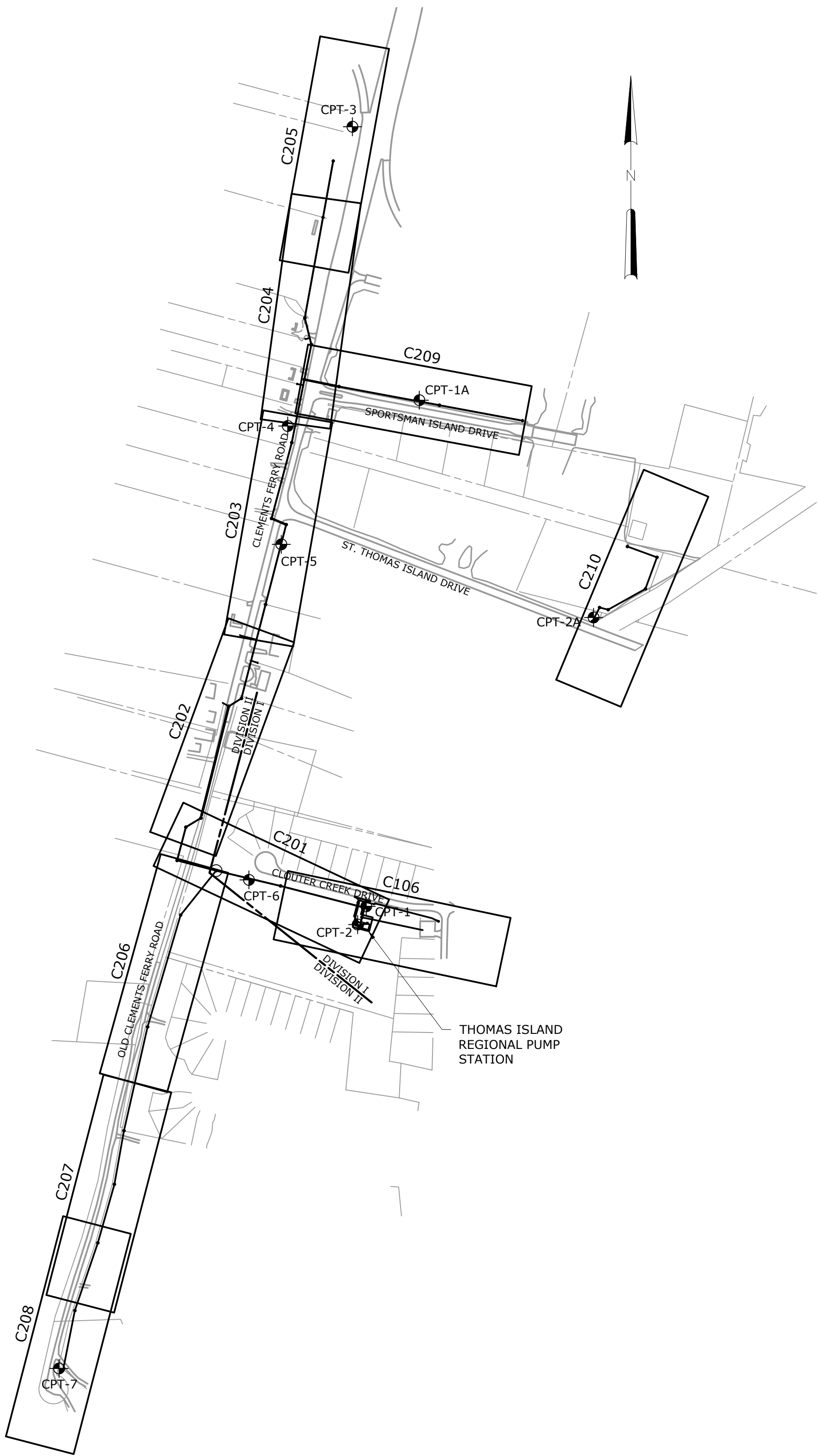
Hazen
HAZEN AND SAWYER
735 JOHNNIE DODDS BLVD, SUITE 102
MOUNT PLEASANT, SOUTH CAROLINA 29464



THOMAS ISLAND REGIONAL PUMP STATION
AND INTERCEPTOR
DIVISION I

PUMP STATION
CIVIL
GRAVITY SEWER AND FORCEMAIN

DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	C106



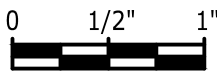
OVERALL KEY PLAN
1" = 300'

⊕ APPROXIMATE SOIL BORING LOCATION

File: D:\30533-CH-30533-008\DESIGN\DRAWINGS\DWG\CULC209.dwg Saved by: L FANNING Save date: 1/7/2020 8:28 AM
PLOT DATE: 4/23/2020 9:39 AM BY: L FANNING

1	CONSTRUCTION	JAN 2020	HAZEN
REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	J. HARTWIG
DESIGNED BY:	L. FANNING
DRAWN BY:	L. FANNING
CHECKED BY:	C. RAGOS
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	



Hazen
HAZEN AND SAWYER
735 JOHNNIE DODDS BLVD, SUITE 102
MOUNT PLEASANT, SOUTH CAROLINA 29464

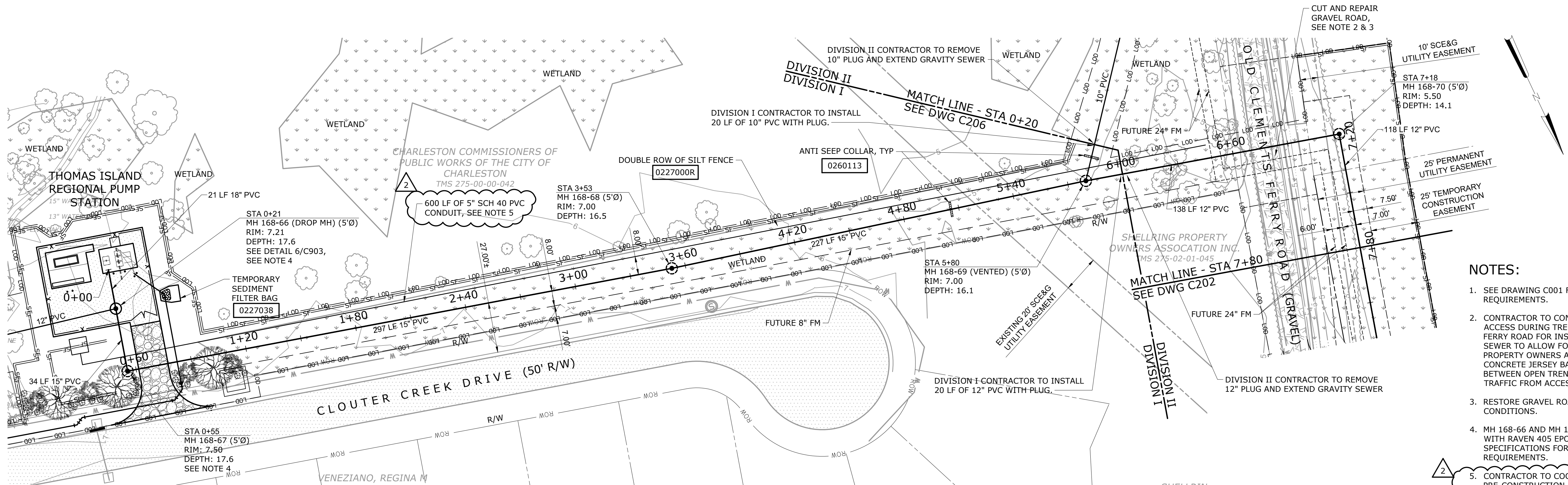


Charleston Water System
COMMISSIONERS OF PUBLIC WORKS
OF THE CITY OF CHARLESTON, SC

THOMAS ISLAND REGIONAL PUMP STATION
AND INTERCEPTOR
DIVISION I & II

CLEMENTS FERRY RD
GRAVITY SEWER
CIVIL
OVERALL KEY PLAN

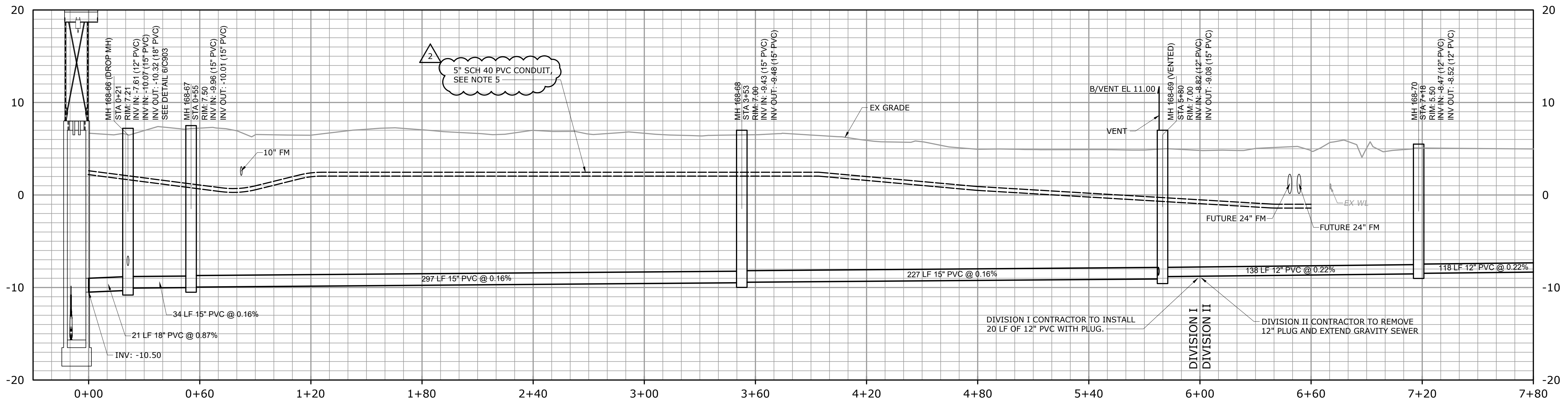
DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	C200



PLAN - CLEMENTS FERRY RD GRAVITY SEWER

1" = 30'

- NOTES:
- SEE DRAWING C001 FOR WETLAND REQUIREMENTS.
 - CONTRACTOR TO CONSTRUCT TEMPORARY ROAD ACCESS DURING TRENCHING OLD CLEMENTS FERRY ROAD FOR INSTALLATION OF SANITARY SEWER TO ALLOW FOR INGRESS/EGRESS OF PROPERTY OWNERS AND EMERGENCY VEHICLES. CONCRETE JERSEY BARRIERS SHALL BE INSTALLED BETWEEN OPEN TRENCH AND ROADS TO PREVENT TRAFFIC FROM ACCESSING OPEN TRENCH AREA.
 - RESTORE GRAVEL ROAD TO PRE-CONSTRUCTION CONDITIONS.
 - MH 168-66 AND MH 168-67 SHALL BE COATED WITH RAVEN 405 EPOXY SYSTEM. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
 - CONTRACTOR TO COORDINATE A PRE-CONSTRUCTION MEETING WITH DOMINION ENERGY PRIOR TO INSTALLATION OF 5-INCH SCHEDULE 40 PVC CONDUIT. CONDUIT TO BE INSTALLED A MINIMUM OF 4-FEET BELOW GRADE AND ALL FITTINGS TO BE GALVANIZED STEEL.



PROFILE - CLEMENTS FERRY RD GRAVITY SEWER

H: 1" = 30' V: 1" = 6'

				PROJECT ENGINEER:	J. HARTWIG
				DESIGNED BY:	L. FANNING
				DRAWN BY:	L. FANNING
				CHECKED BY:	C. RAGOS
2	ADDENDUM No. 1	JAN 2020	HAZEN	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
1	CONSTRUCTION	JAN 2020	HAZEN		
REV	ISSUED FOR	DATE	BY		



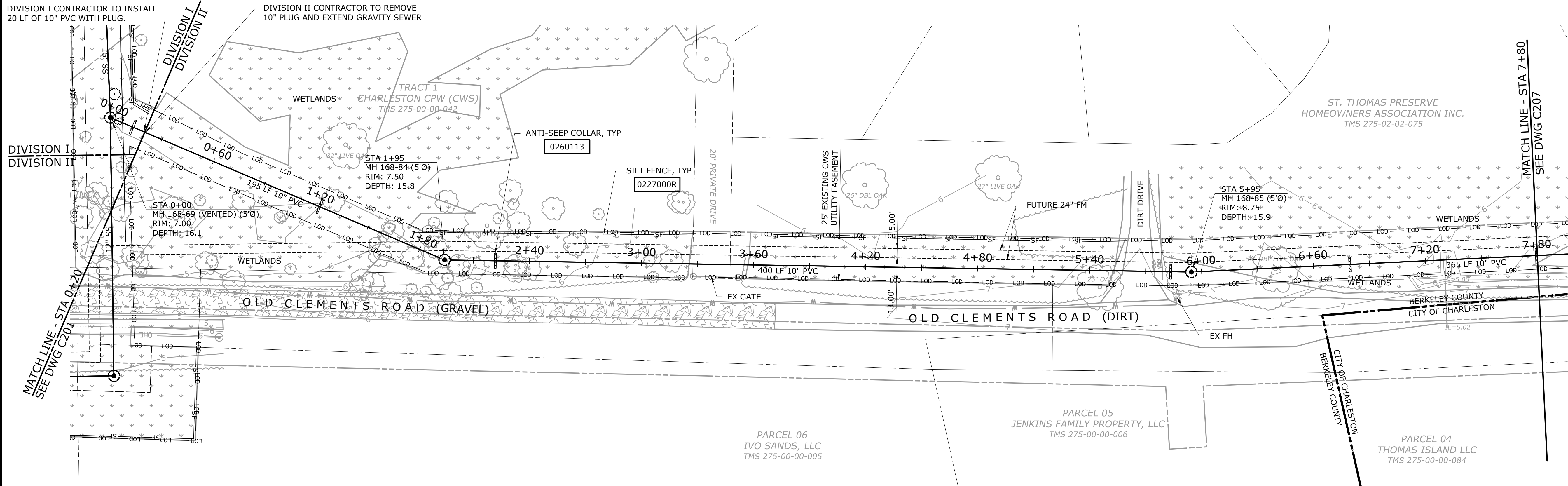
Hazen
HAZEN AND SAWYER
735 JOHNNIE DODDS BLVD, SUITE 102
MOUNT PLEASANT, SOUTH CAROLINA 29464



THOMAS ISLAND REGIONAL PUMP STATION
AND INTERCEPTOR
DIVISION I & II

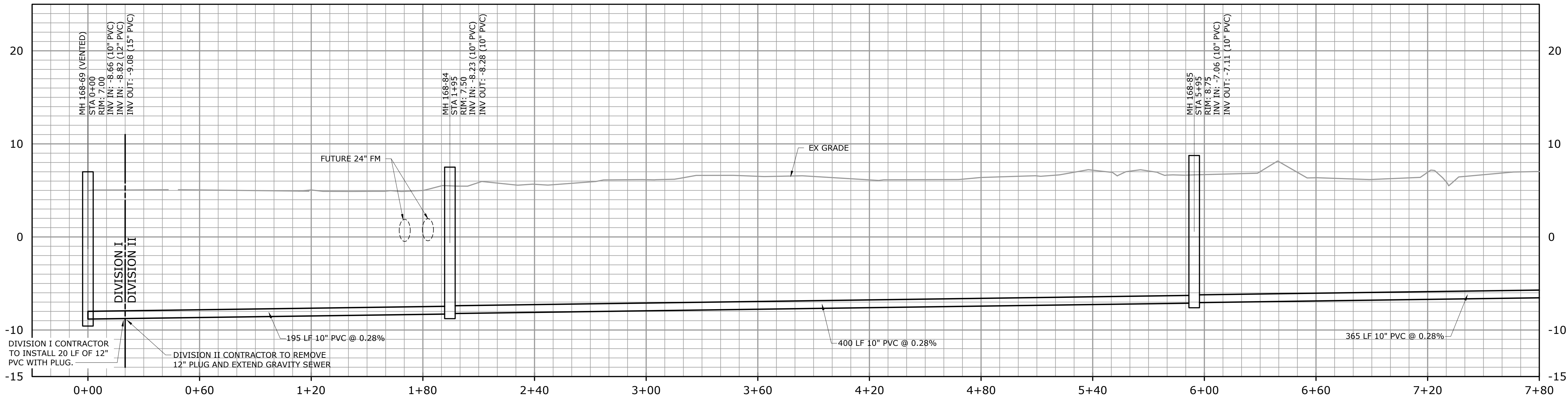
CLEMENTS FERRY RD
GRAVITY SEWER
CIVIL
STA 0+00 TO STA 7+80

DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	C201



PLAN - CLEMENTS FERRY RD GRAVITY SEWER

1" = 30'

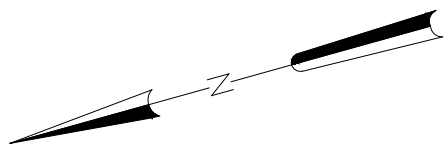


PROFILE - CLEMENTS FERRY RD GRAVITY SEWER

H: 1" = 30' V: 1" = 6'

NOTES:

- CONTRACTOR TO COORDINATE WITH POWER UTILITY TO PROVIDE POWER POLE SUPPORT WHEN ANY PART OF OPEN TRENCH IS WITHIN 5 FEET OF POWER POLE, GUY WIRES, OR AS CONDITIONS WARRANT.
- SEE DRAWING C001 FOR WETLAND REQUIREMENTS.



File: D:\3533-CHARLESTON REGIONAL PUMP STATION\DRAWINGS\C206.dwg Saved by: L FANNING Save date: 1/7/2020 9:55 AM
Plot Date: 1/23/2020 9:39 AM BY: L FANNING

REV	ISSUED FOR	DATE	BY
1	CONSTRUCTION	JAN 2020	HAZEN

PROJECT ENGINEER:	J. HARTWIG
DESIGNED BY:	L. FANNING
DRAWN BY:	L. FANNING
CHECKED BY:	C. RAGOS
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	

0 1/2" 1"



Hazen

HAZEN AND SAWYER
735 JOHNNIE DODDS BLVD, SUITE 102
MOUNT PLEASANT, SOUTH CAROLINA 29464



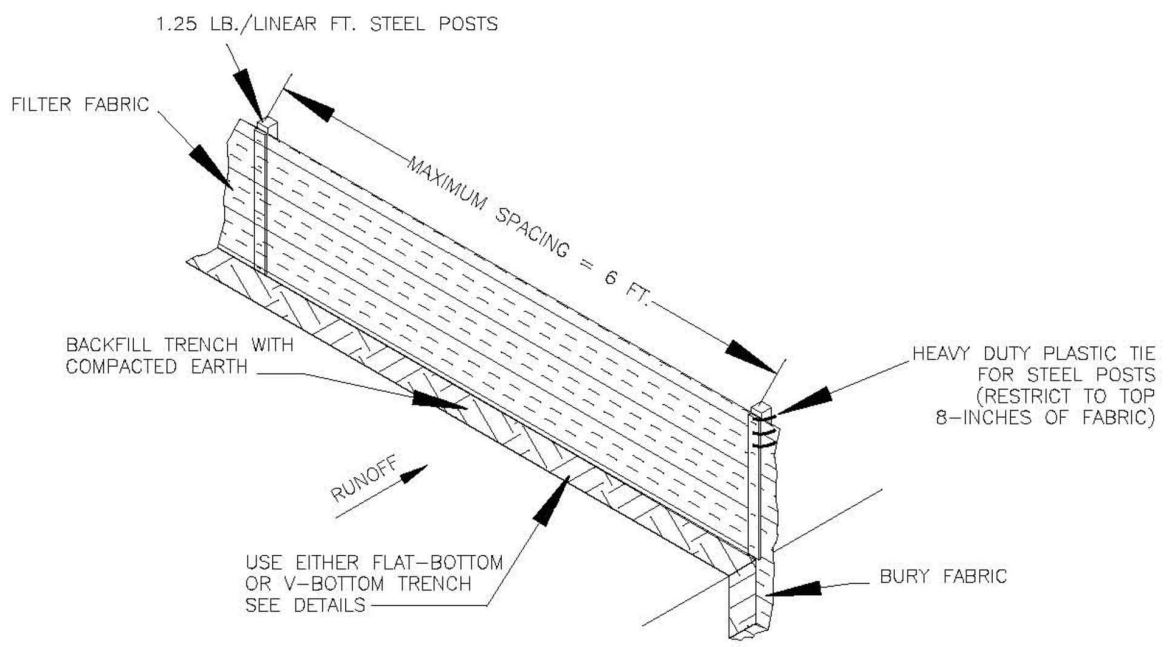
Charleston Water System
COMMISSIONERS OF PUBLIC WORKS
OF THE CITY OF CHARLESTON, SC

THOMAS ISLAND REGIONAL PUMP STATION
AND INTERCEPTOR
DIVISION I & II

CLEMENTS FERRY RD
GRAVITY SEWER
CIVIL
STA 0+00 TO STA 7+80

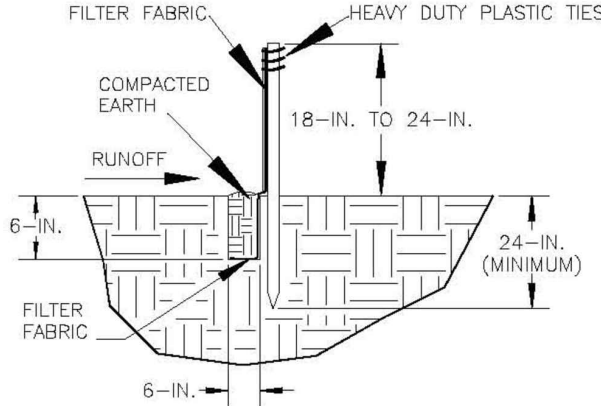
DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	C206

SILT FENCE INSTALLATION

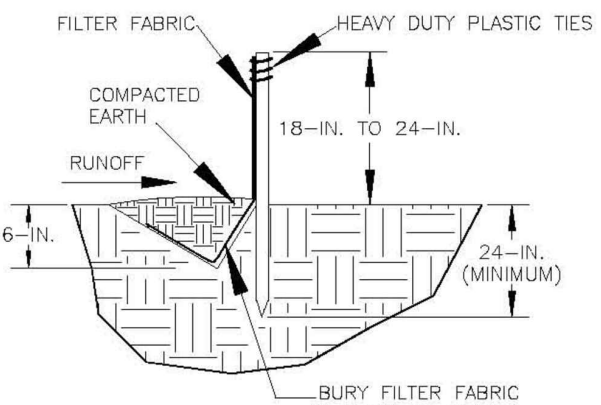


- INSPECTION AND MAINTENANCE:
- INSPECT EVERY 7 CALENDAR DAYS AND WITHIN 24-HOURS AFTER EACH RAINFALL EVENT THAT PRODUCES 1/2 INCHES OR MORE OF PRECIPITATION. CHECK FOR SEDIMENT BUILDUP AND FENCE INTEGRITY. CHECK WHERE RUNOFF HAS ERODED A CHANNEL BENEATH THE FENCE, OR WHERE THE FENCE HAS SAGGED OR COLLAPSED BY FENCE OVERTOPPING.
 - IF THE FENCE FABRIC TEARS, BEGINS TO DECOMPOSE, OR IN ANY WAY BECOMES INEFFECTIVE, REPLACE THE SECTION OF FENCE IMMEDIATELY.
 - REMOVE SEDIMENT ACCUMULATED ALONG THE FENCE WHEN IT REACHES 1/3 THE HEIGHT OF THE FENCE, ESPECIALLY IF HEAVY RAINS ARE EXPECTED.
 - REMOVE TRAPPED SEDIMENT FROM THE SITE OR STABILIZE IT ON SITE.
 - REMOVE SILT FENCE WITHIN 30 DAYS AFTER FINAL STABILIZATION IS ACHIEVED OR AFTER TEMPORARY BEST MANAGEMENT PRACTICES ARE NOT LONGER NEEDED.
 - PERMANENTLY STABILIZE DISTURBED AREAS RESULTING FROM FENCE REMOVAL.

FLAT-BOTTOM TRENCH DETAIL



V-SHAPED TRENCH DETAIL

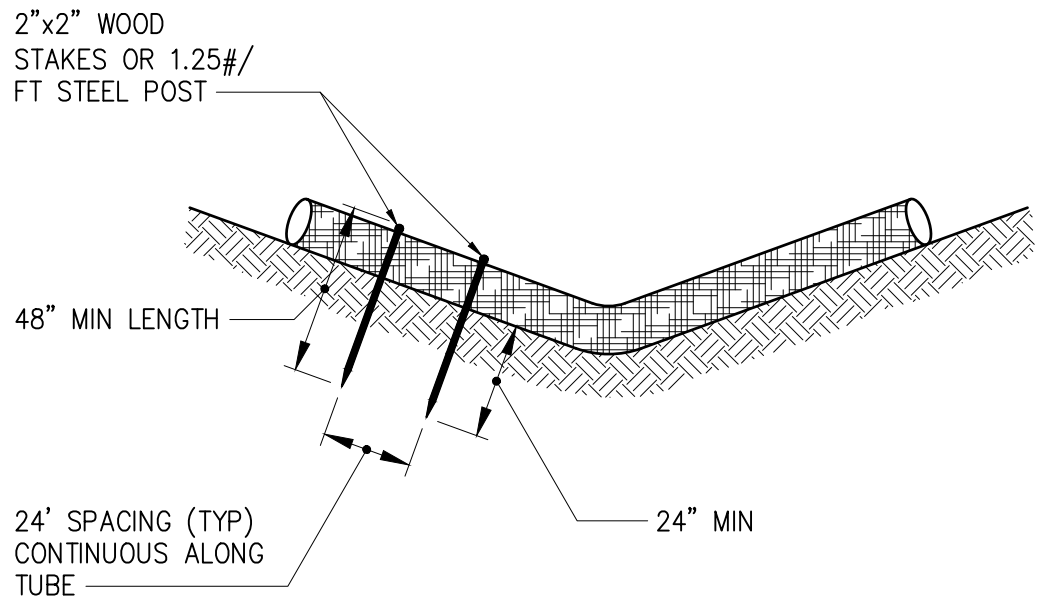


- NOTES:
- DO NOT PLACE SILT FENCE ACROSS CHANNELS OR IN OTHER AREAS SUBJECT TO CONCENTRATED FLOWS. SILT FENCE SHOULD NOT BE USED AS A VELOCITY CONTROL BMP. CONCENTRATED FLOWS ARE GREATER THAN 0.5cfs.
 - MAXIMUM SHEET OR OVERLAND FLOW PATH LENGTH TO THE SILT FENCE SHALL BE 100 FEET.
 - MAXIMUM SLOPE STEEPNESS (NORMAL [PERPENDICULAR] TO THE FENCE LINE) SHALL BE 2:1.
 - SILT FENCE JOINTS, WHEN NECESSARY, SHALL BE COMPLETED BY ONE OF THE FOLLOWING OPTIONS:
 - WRAP EACH FABRIC TOGETHER AT A SUPPORT POST WITH BOTH ENDS FASTENED TO THE POST, WITH A 1 FOOT MINIMUM OVERLAP;
 - OVERLAP SILT FENCE BY INSTALLING 3 FEET PASSED THE SUPPORT POST TO WHICH THE NEW SILT FENCE ROLL IS ATTACHED. ATTACH OLD ROLL T NEW ROLL WITH HEAVY-DUTY PLASTIC TIES; OR,
 - OVERLAP ENTIRE WIDTH OF EACH SILT FENCE ROLL FROM ONE SUPPORT POST TO THE NEXT SUPPORT POST.
 - ATTACH FILTER FABRIC TO THE STEEL POSTS USING HEAVY-DUTY PLASTIC TIES THAT ARE EVENLY SPACED WITHIN THE TOP 8 INCHES OF THE FABRIC.
 - INSTALL THE SILT FENCE PERPENDICULAR TO THE DIRECTION OF THE STORMWATER FLOW AND PLACE THE SILT FENCE THE PROPER DISTANCE FROM THE TOE OF STEEP SLOPES TO PROVIDE SEDIMENT STORAGE AND ACCESS FOR MAINTENANCE AND CLEANOUT.
 - INSTALL SILT FENCE CHECKS (TIE-BACKS) EVERY 50-100 FEET, DEPENDENT ON SLOPE, ALONG SILT FENCE THAT IS INSTALLED WITH SLOPE AND WHERE CONCENTRATED FLOWS ARE EXPECTED OR ARE DOCUMENTED ALONG THE PROPOSED/INSTALLED SILT FENCE.

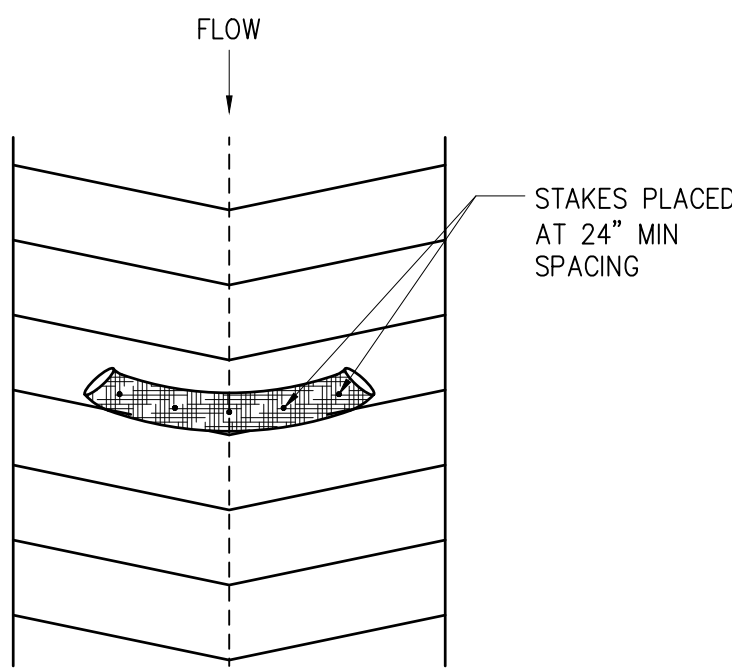
SILT FENCE

0227000R

SEDIMENT TUBE SPACING		
SLOPE	MAXIMUM SEDIMENT TUBE SPACING	
LESS THAN 2%	150- FEET	
2%	100- FEET	
3%	75- FEET	
4%	50- FEET	
5%	40- FEET	
6%	30- FEET	
GREATER THAN 6%	25- FEET	



END VIEW OF DITCH



TOP VIEW OF DITCH

- INSPECTION AND MAINTENANCE:
- INSPECT SEDIMENT TUBES AFTER INSTALLATION FOR GAPS UNDER THE SEDIMENT TUBES AND FOR GAPS BETWEEN THE JOINTS OF ADJACENT ENDS OF SEDIMENT TUBES.
 - INSPECT EVERY 7 DAYS AND WITH 24-HOURS OF A RAINFALL EVENT OF 1/2 INCHES OR GREATER.
 - REPAIR ALL RILLS, GULLIES, AND UNDERCUTTING NEAR SEDIMENT TUBES.
 - REMOVE ALL SEDIMENT DEPOSITS THAT IMPAIR THE FILTRATION CAPABILITY OF SEDIMENT TUBES WHEN THE SEDIMENT REACHES 1/3 THE HEIGHT OF THE EXPOSED SEDIMENT TUBE.
 - REMOVE AND/OR REPLACE INSTALLED SEDIMENT TUBES AS REQUIRED TO ADAPT TO CHANGING CONSTRUCTION SITE CONDITIONS.
 - REMOVE SEDIMENT TUBES FROM THE SITE WHEN THE FUNCTIONAL LONGEVITY IS EXCEEDED AS DETERMINED BY THE ENGINEER, INSPECTOR, OR MANUFACTURER'S REPRESENTATIVE. GATHER SEDIMENT TUBES AND DISPOSE OF THEM IN A REGULAR MEANS AS NON-HAZARDOUS, INERT MATERIAL.
 - PRIOR TO FINAL STABILIZATION, BACKFILL ALL TRENCHES, DEPRESSIONS, AND OTHER GROUND DISTURBANCES CAUSED BY THE REMOVAL OF SEDIMENT TUBES.

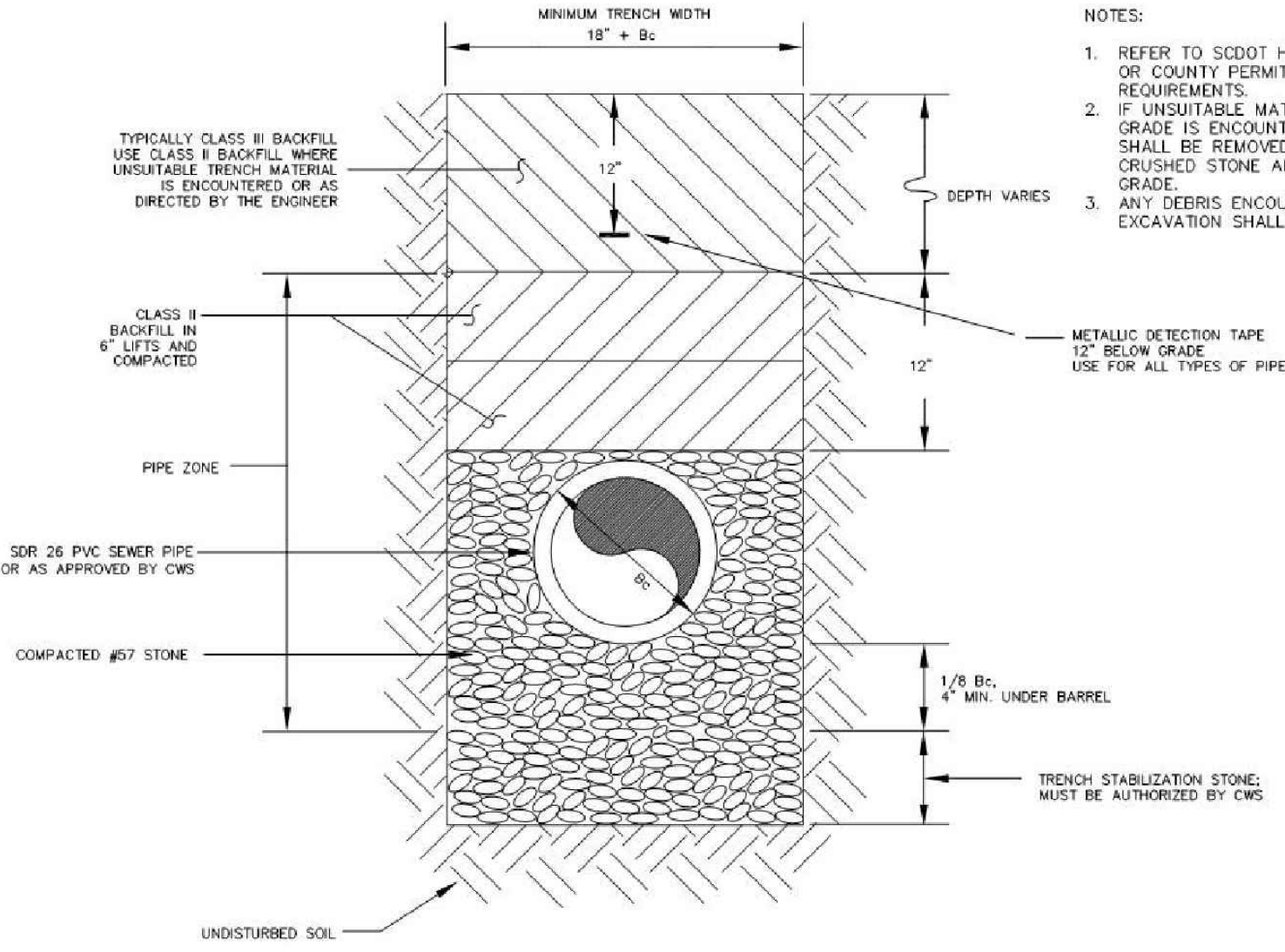
SEDIMENT TUBE DETAILS

1
--

NOT TO SCALE

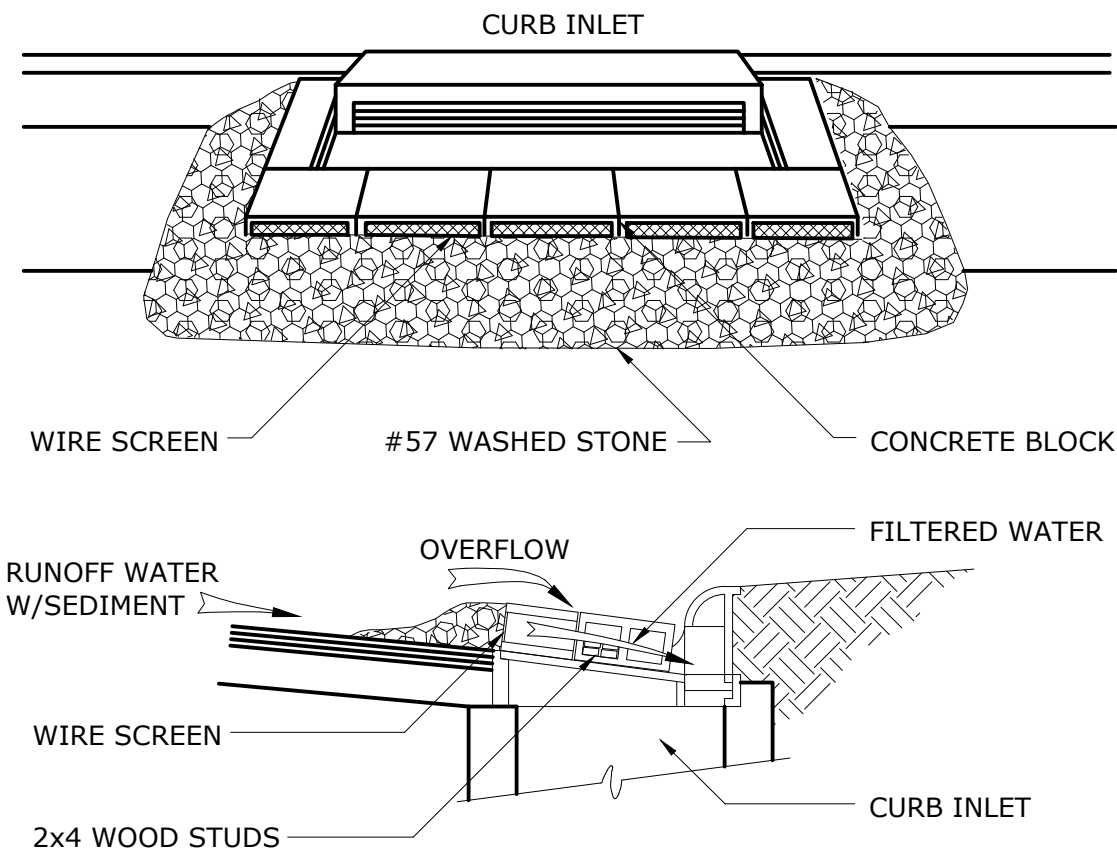
SEDIMENT TUBE NOTES:

- SEDIMENT TUBES ARE ELONGATED TUBES OF COMPACTED GEOTEXTILES, CURLED EXCELSIOR WOOD, NATURAL COCONUT FIBER OR HARDWOOD MULCH. STRAW, PINE AND LEAF MULCH-FILLED SEDIMENT TUBES ARE NOT PERMITTED.
- INSTALL SEDIMENT TUBES ALONG CONTOURS, IN DRAINAGE CONVEYANCE SWALES, AND AROUND INLETS TO HELP REDUCE THE EFFECTS OF SOIL EROSION BY ENERGY DISSIPATION AND RETAIN SEDIMENT.
- SEDIMENT TUBES FOR DITCH CHECKS AND TYPE A INLET STRUCTURE FILTERS EXHIBIT THE FOLLOWING PROPERTIES:
 - PRODUCED BY A MANUFACTURER EXPERIENCED IN SEDIMENT TUBE MANUFACTURING.
 - COMPOSED OF COMPACTED GEOTEXTILES, CURLED EXCELSIOR WOOD, NATURAL COCONUT FIBERS, HARDWOOD MULCH OR A MIX OF THESE MATERIALS ENCLOSED BY A FLEXIBLE NETTING MATERIAL.
 - STRAW, PINE AND LEAF MULCH-FILLED SEDIMENT TUBES ARE NOT PERMITTED.
 - UTILIZES OUTER NETTING THAT CONSISTS OF SEAMLESS, HIGH-DENSITY POLYETHYLENE PHOTODEGRADABLE MATERIALS TREATED WITH ULTRAVIOLET STABILIZERS OR A SEAMLESS, HIGH-DENSITY POLYETHYLENE NON-DEGRADABLE MATERIALS. DIAMETER RANGING FROM 18-INCH TO 24-INCHES.
 - CURLED EXCELSIOR WOOD, OR NATURAL COCONUT ROLLED EROSION CONTROL PRODUCTS (RECPS) THAT ARE ROLLED UP TO CREATE A SEDIMENT TUBE ARE NOT ALLOWED.
- INSTALL OVER BARE SOIL, MULCH AREAS OR EROSION CONTROL BLANKETS. TO BE COMPOSED OF GEOTEXTILES, CURLED EXCELSIOR WOOD, NATURAL COCONUT FIBER OR HARDWOOD MULCH ENCLOSED BY A FLEXIBLE NETTING MATERIAL.
- THE MINIMUM DIAMETER SHOULD BE 18-INCHES. SEDIMENT TUBES SHOULD BE STAKED USING WOODEN STAKES (2-INCHX2-INCH) OR STEEL POSTS (STANDARD "U" OR "T" SECTIONS WITH A MINIMUM WEIGHT OF 1.25 POUNDS PER FOOT) A MINIMUM OF 48-INCHES IN LENGTH PLACED ON 2-FOOT CENTERS.
- STAKES SHOULD BE INTERTWINED WITH THE OUTER MESH ON THE DOWN STREAM SIDE AND DRIVEN IN THE GROUND TO A MINIMUM DEPTH OF 1.5 FEET LEAVING LESS THAN 1 FOOT OF STAKE EXPOSED ABOVE THE SEDIMENT TUBE. ALWAYS REFER TO THE MANUFACTURER'S RECOMMENDATIONS FOR THE STAKING DETAIL. INSTALL ALL SEDIMENT TUBES INSURING THAT NO GAPS EXIST BETWEEN THE SOIL AND THE BOTTOM OF THE SEDIMENT TUBE. THE ENDS OF ADJACENT SEDIMENT TUBES SHOULD BE LAPPED 6-INCH TO PREVENT FLOW AND SEDIMENT FROM PASSING THROUGH THE FIELD JOINT. IN NO SITUATION SHOULD SEDIMENT TUBES BE STACKED ON TOP OF ONE ANOTHER.
- CONSTRUCT A TRENCH THAT IS 20% OF THE TUBE DIAMETER TO INSTALL THE TUBE IN. AVOID DAMAGE TO SEDIMENT TUBES WHILE INSTALLING THEM. IF THE SEDIMENT TUBES BECOMES DAMAGED DURING INSTALLATION, A STAKE SHOULD BE PLACED ON BOTH SIDES OF THE DAMAGED AREA TERMINATING THE TUBE SEGMENT AND A NEW TUBE SEGMENT SHOULD BE INSTALLED IN SWALES OR DRAINAGE DITCHES PERPENDICULAR TO THE DEPTH. SEDIMENT TUBES SHOULD CONTINUE UP THE SIDE SLOPES A MINIMUM OF 1 FOOT ABOVE THE DESIGN FLOW DEPTH. SEDIMENT TUBES SHOULD BE SPACED ACCORDING TO THE SEDIMENT TUBE SPACING TABLE.
- SEDIMENT TUBE LENGTH SELECTED SHOULD MINIMIZE THE NUMBER OF SEDIMENT TUBES NEEDED TO SPAN THE WIDTH OF THE DRAINAGE CONVEYANCE. IF THE DITCH CHECK LENGTH (PERPENDICULAR TO THE FLOW) IS 15 FEET, THEN ONE 15 FOOT SEDIMENT TUBE IS PREFERRED COMPARED TO TWO OVERLAPPING 10 FOOT SEDIMENT TUBES.



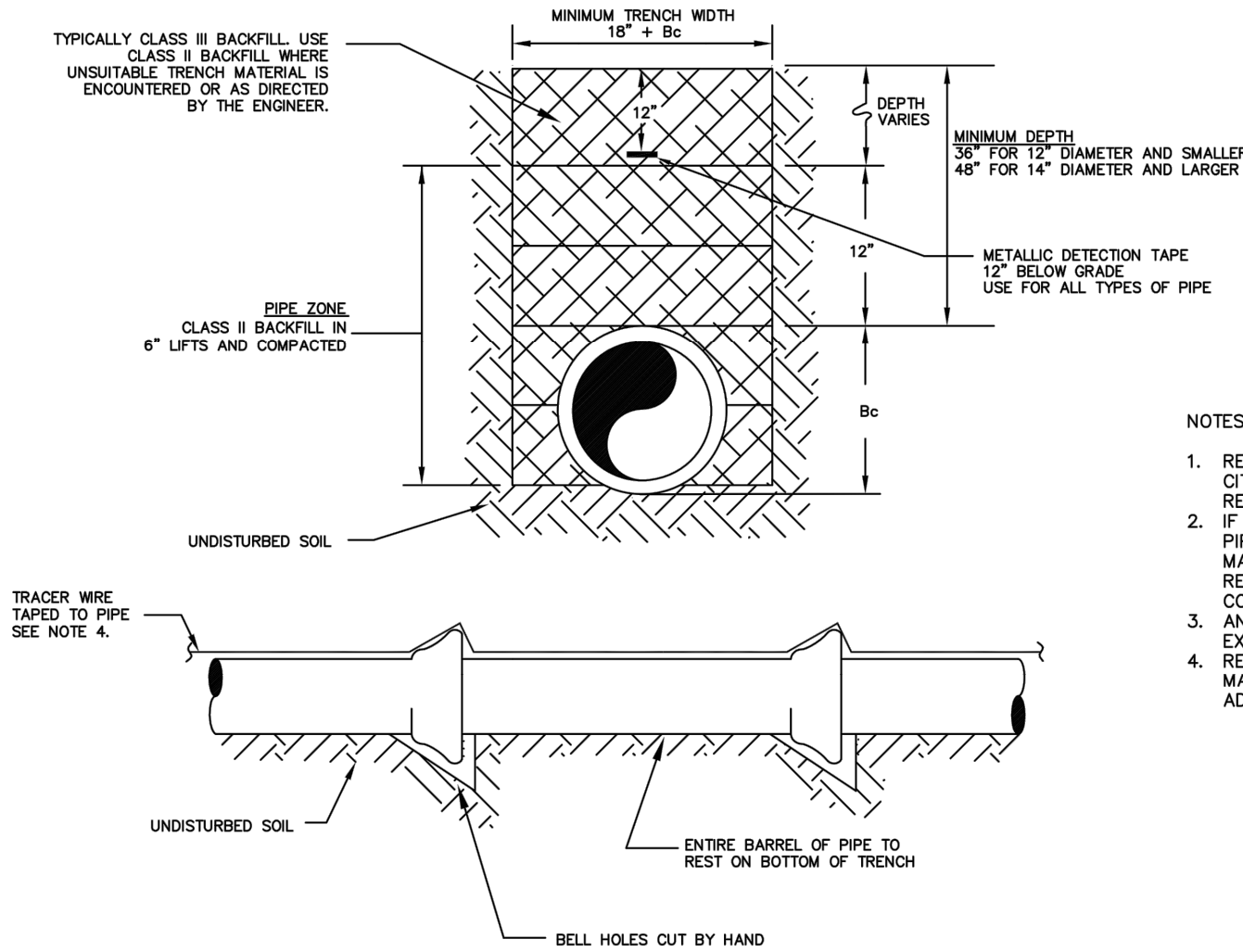
MINIMUM BEDDING FOR GRAVITY SEWER LINE

CWS DETAIL 41



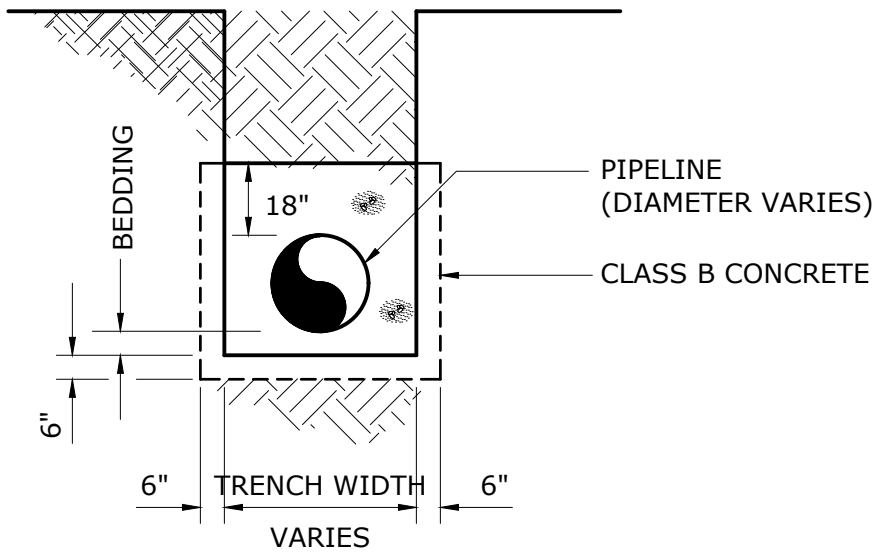
CURB INLET SEDIMENT CONTROL

0227002

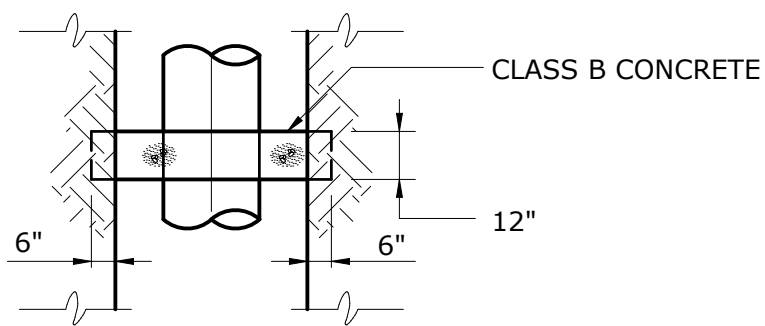


FORCEMAIN BEDDING

CWS DETAIL 51



SECTION



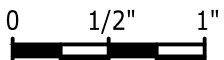
PLAN

ANTI-SEEPAGE COLLAR

0260113

1	CONSTRUCTION	JAN 2020	HAZEN		
REV	ISSUED FOR	DATE	BY		

PROJECT ENGINEER:	J. HARTWIG
DESIGNED BY:	L. FANNING
DRAWN BY:	L. FANNING
CHECKED BY:	C. RAGOS
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	



Hazen
HAZEN AND SAWYER
735 JOHNNIE DODDS BLVD, SUITE 102
MOUNT PLEASANT, SOUTH CAROLINA 29464

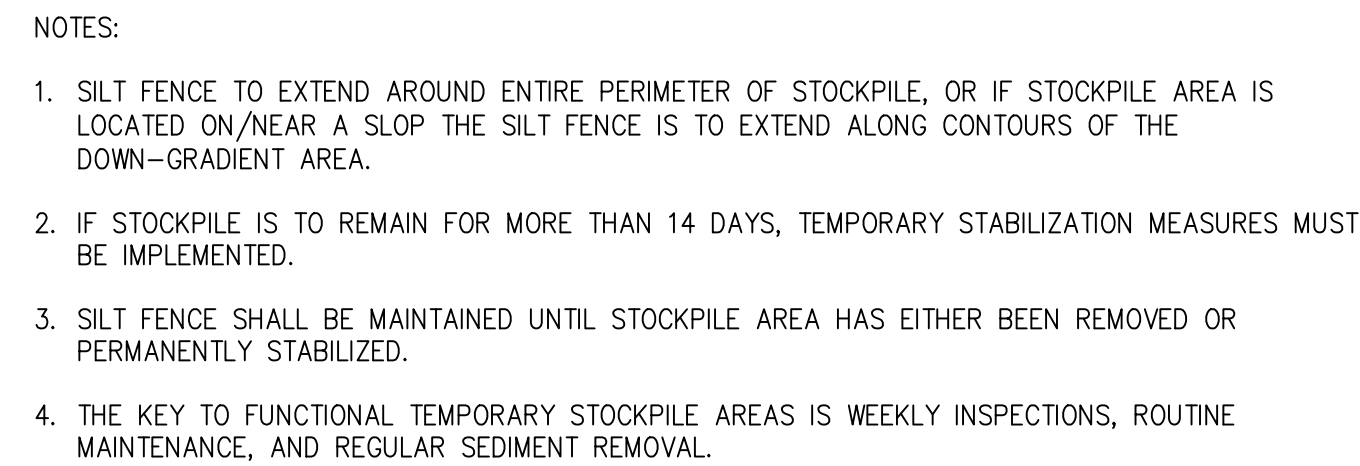


Charleston Water System
COMMISSIONERS OF PUBLIC WORKS
OF THE CITY OF CHARLESTON, SC

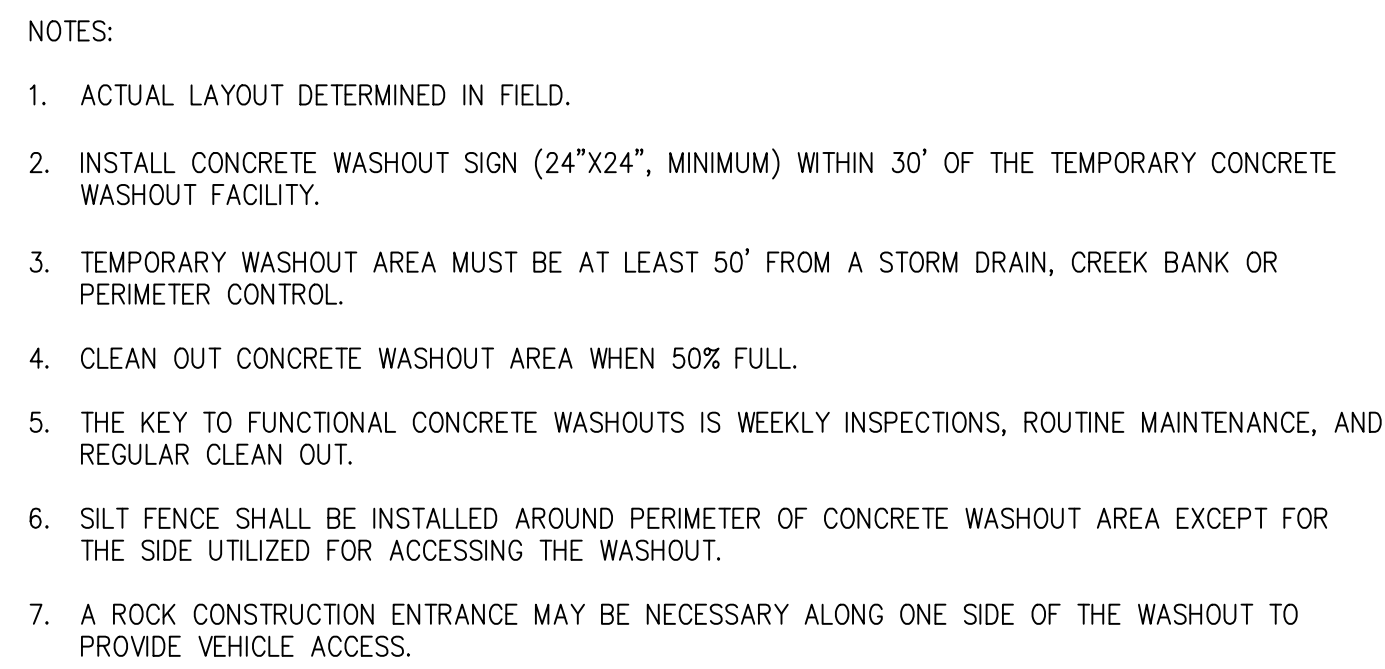
THOMAS ISLAND REGIONAL PUMP STATION
AND INTERCEPTOR
DIVISION I & II

CIVIL
STANDARD DETAILS

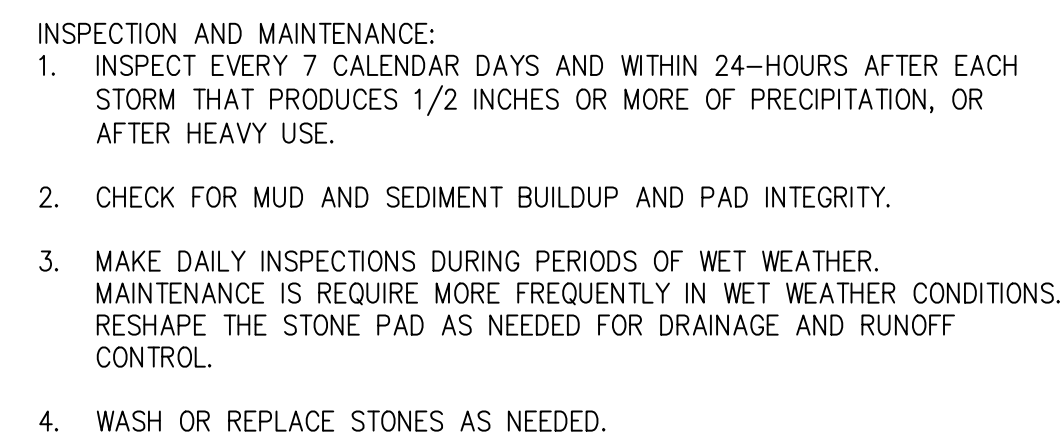
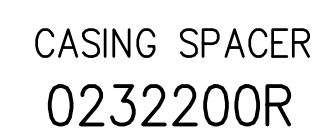
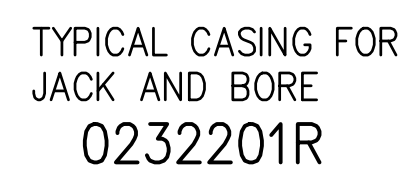
DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	C900




DETAIL	3
NO SCALE	--

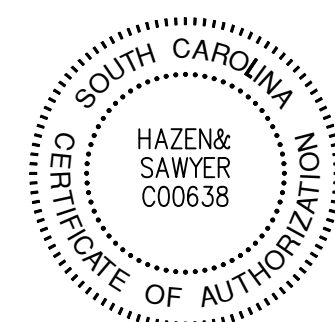


DETAIL	4
NO SCALE	--



TEMPORARY GRAVEL CONSTRUCTION
ENTRANCE / EXIT
0257701R

				PROJECT ENGINEER:	J. HARTWIG
				DESIGNED BY:	L. FANNING
				DRAWN BY:	L. FANNING
				CHECKED BY:	C. RAGOS
1	CONSTRUCTION	JAN 2020	HAZEN	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
REV	ISSUED FOR	DATE	BY		



Hazen

HAZEN AND SAWYER
735 JOHNNIE DODDS BLVD, SUITE 102
MOUNT PLEASANT, SOUTH CAROLINA 29464



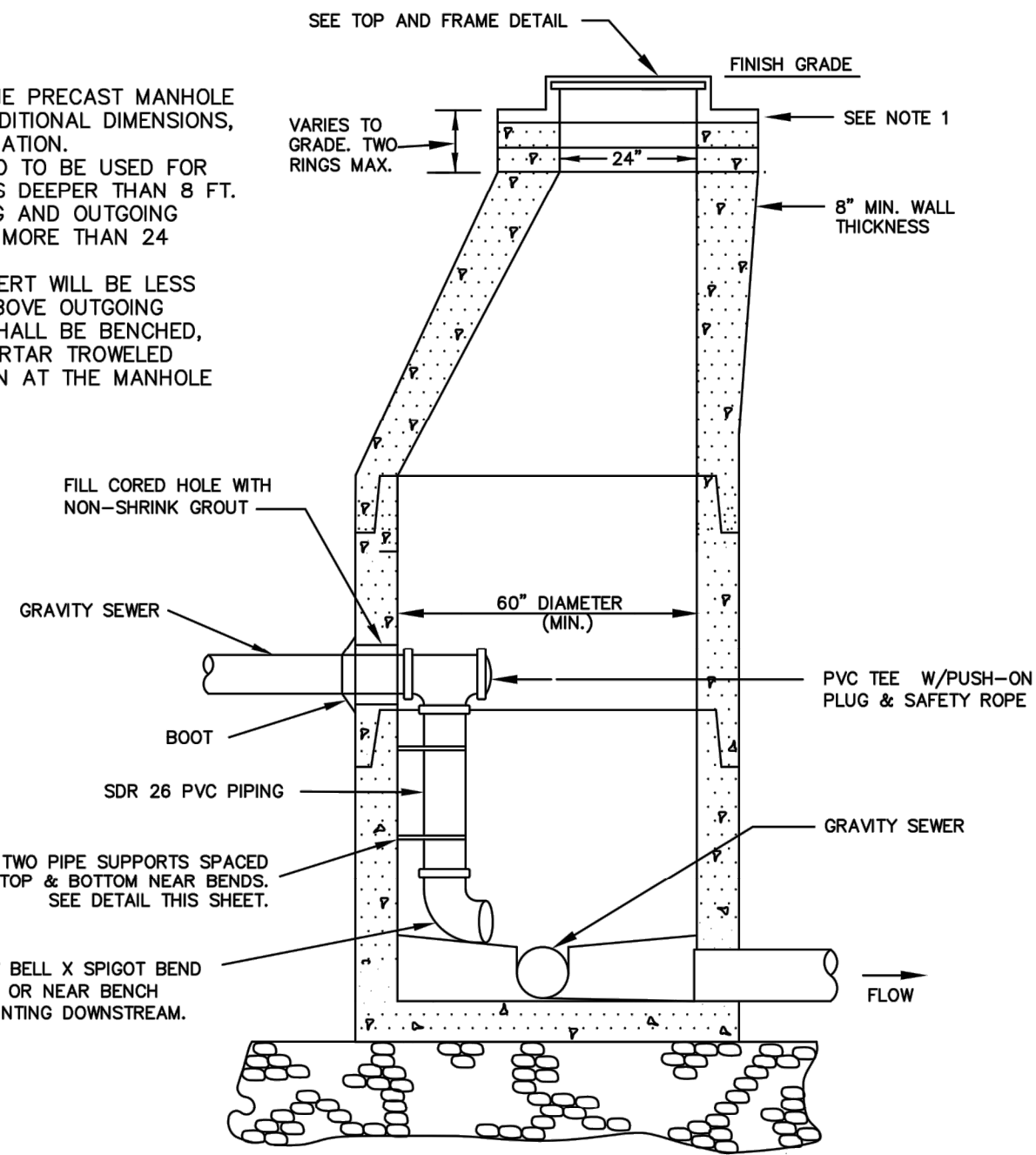
Charleston Water System
COMMISSIONERS OF PUBLIC WORKS
OF THE CITY OF CHARLESTON, SC

THOMAS ISLAND REGIONAL PUMP STATION
AND INTERCEPTOR
DIVISION I & II

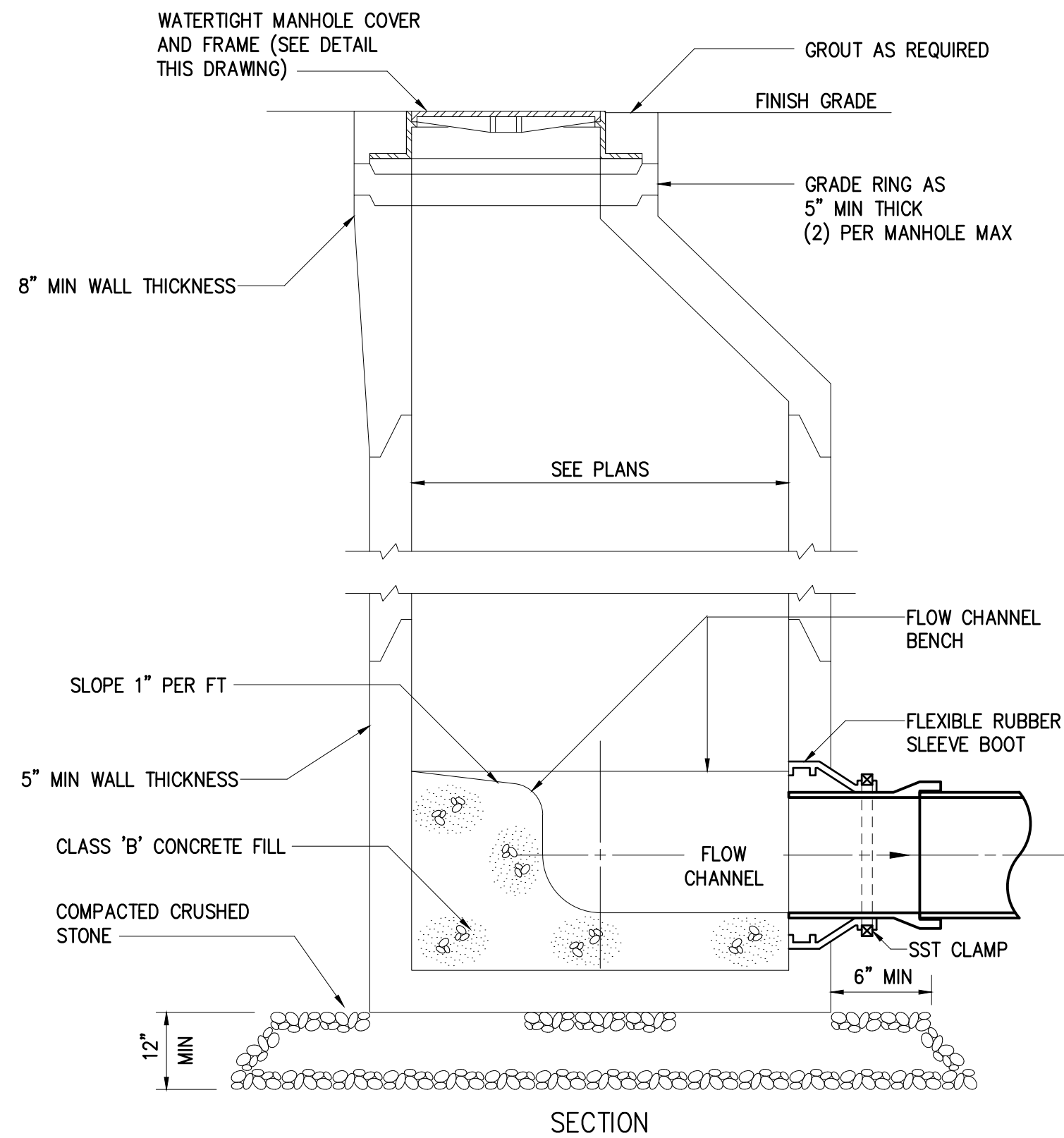
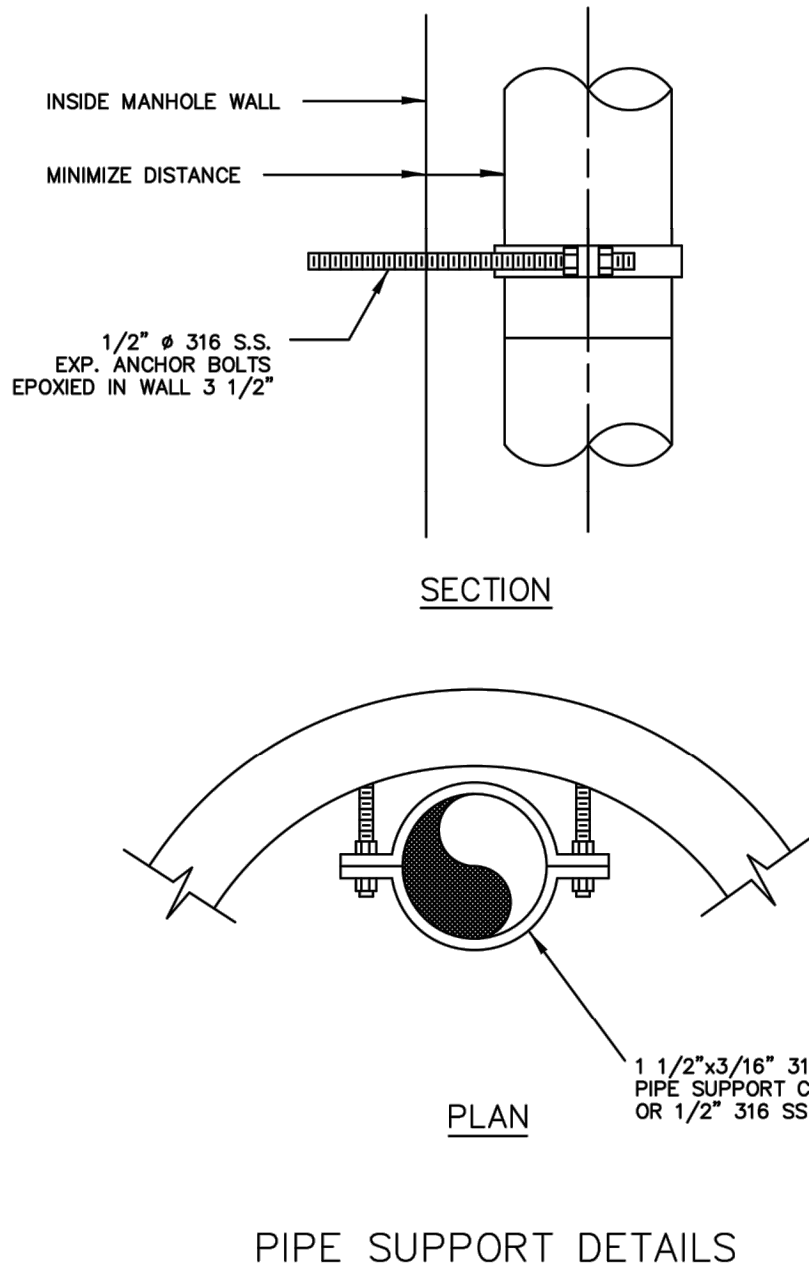
CIVIL
STANDARD DETAILS

DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	C902

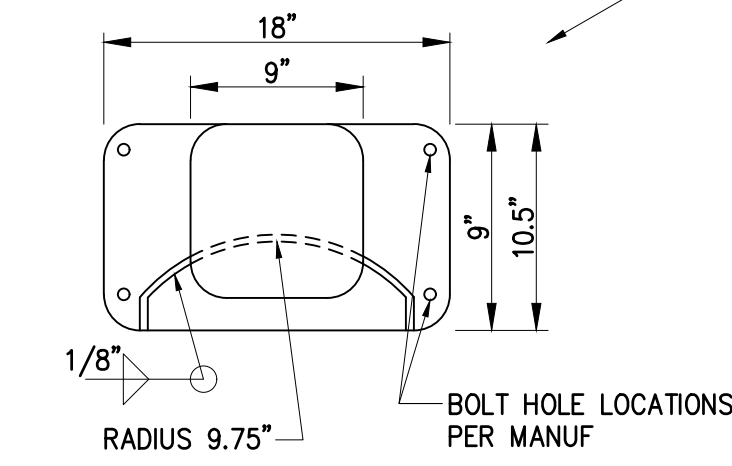
NOTES:
1. SEE ECCENTRIC CONE PRECAST MANHOLE DETAIL #47 FOR ADDITIONAL DIMENSIONS, NOTES, AND INFORMATION.
2. THIS DETAIL IS ALSO TO BE USED FOR FORCE MAIN TIE-INS DEEPER THAN 8 FT.
3. USE WHEN INCOMING AND OUTGOING INVERTS DIFFER BY MORE THAN 24 INCHES.
4. WHEN INCOMING INVERT WILL BE LESS THAN 24 INCHES ABOVE OUTGOING INVERT, THE LINE SHALL BE BENCHED, TROUGHED, AND MORTAR TROWELED SMOOTH TO COME IN AT THE MANHOLE INVERT.



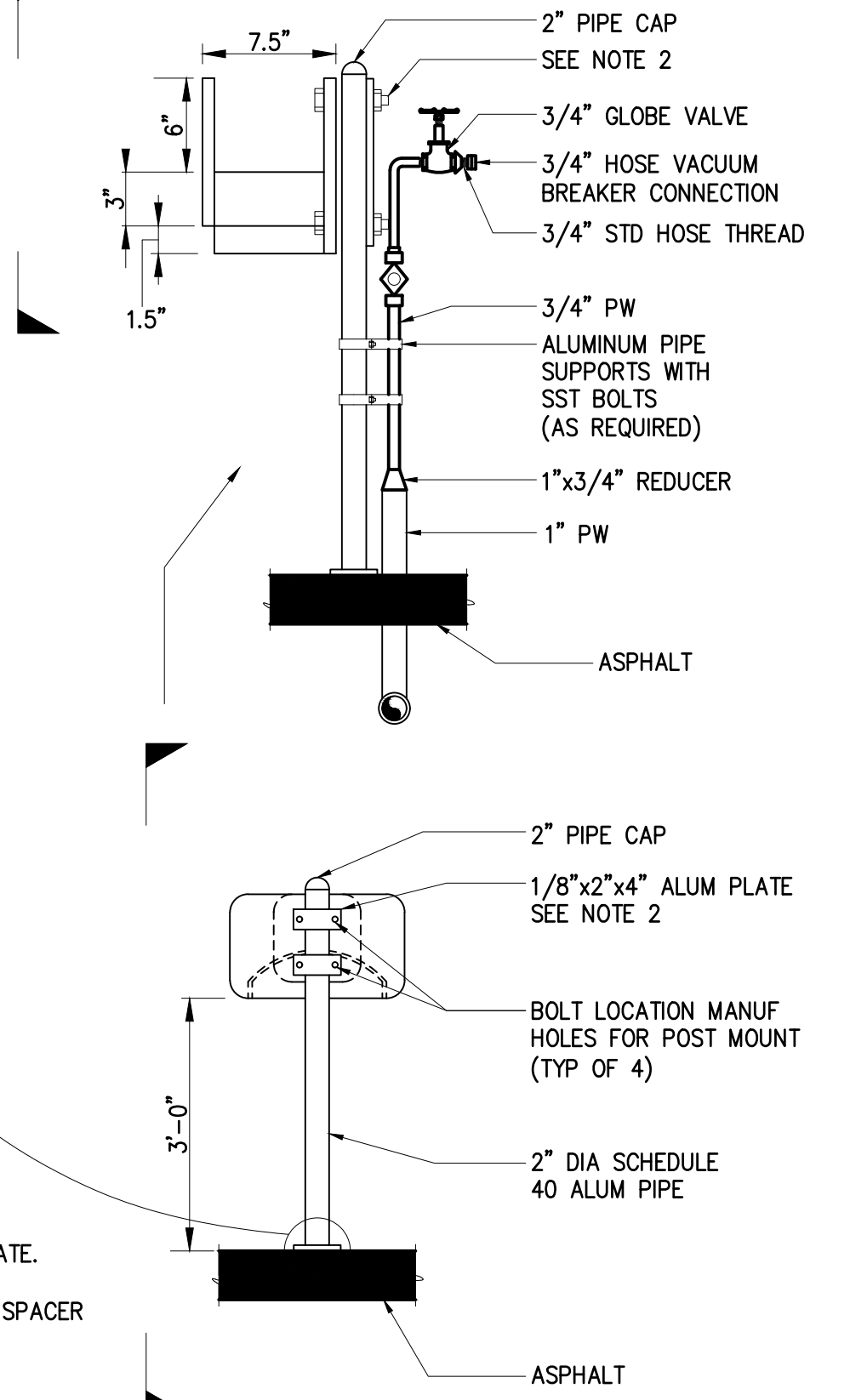
INSIDE DROP MANHOLE
DETAIL 6
CWS DETAIL 49



SECTION
0260101R

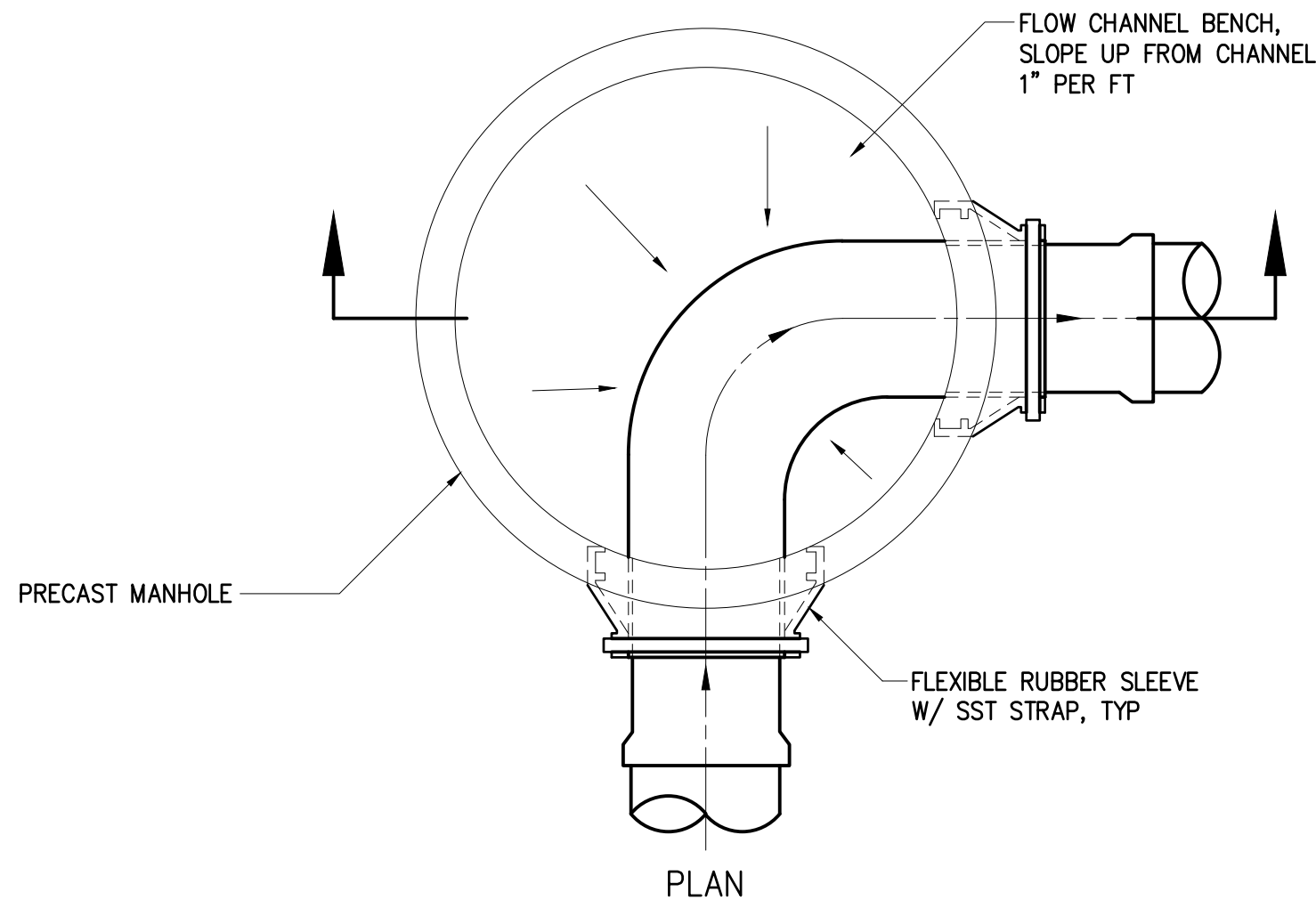


NOTES:
1. ALL UNITS SHALL BE FABRICATED FROM 1/8" 6061-T6 ALUMINUM ALLOY PLATE.
2. ATTACH HOSE RACK TO POST W/ PLATES AND (4)-1/4" SS BOLTS.
3. VERIFY DIMENSIONS WITH THE HOSE FURNISHED FOR SIZING. INSERT DOUBLE SPACER NUTS BETWEEN POST AND HOSE RACK.
4. PROVIDE 50' 3/4" HOSE PER SPECIFICATIONS FOR EACH RACK SHOWN.

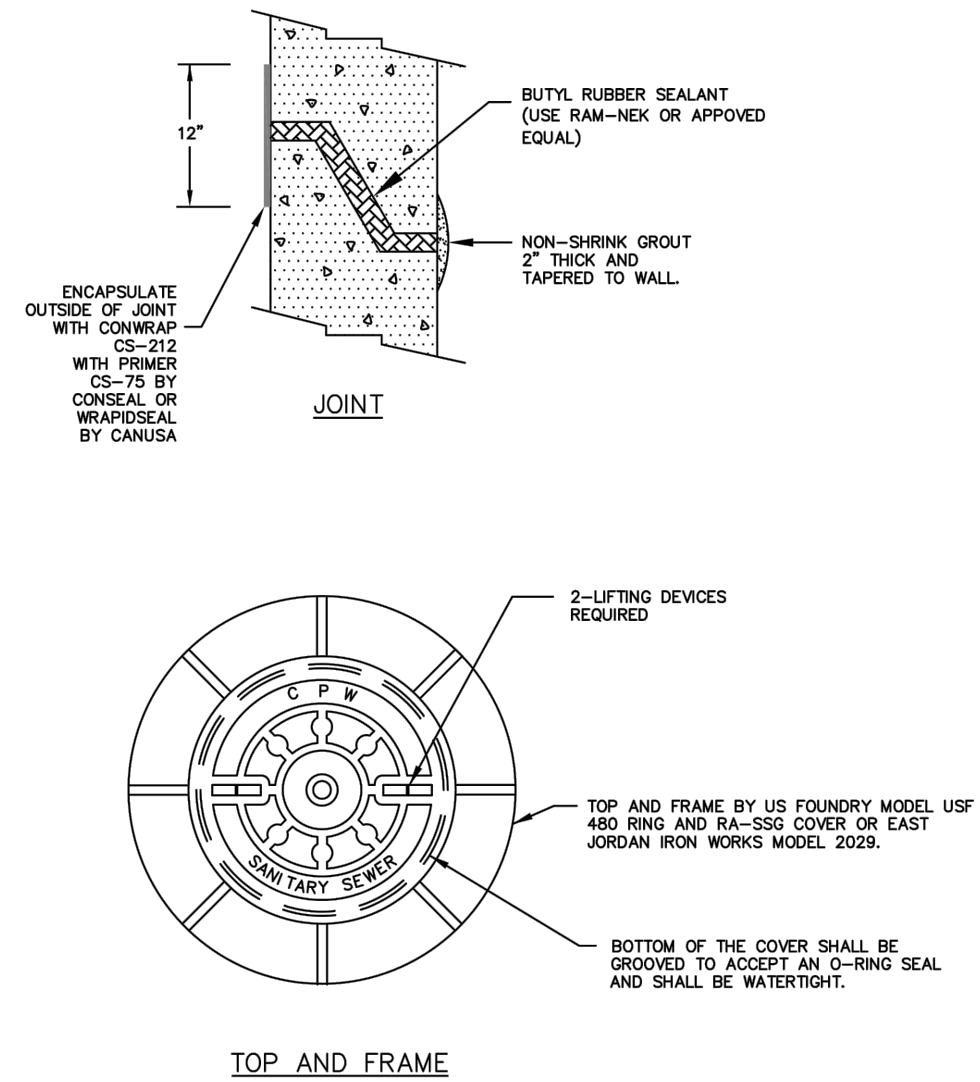


ELEVATION - POST MOUNTED

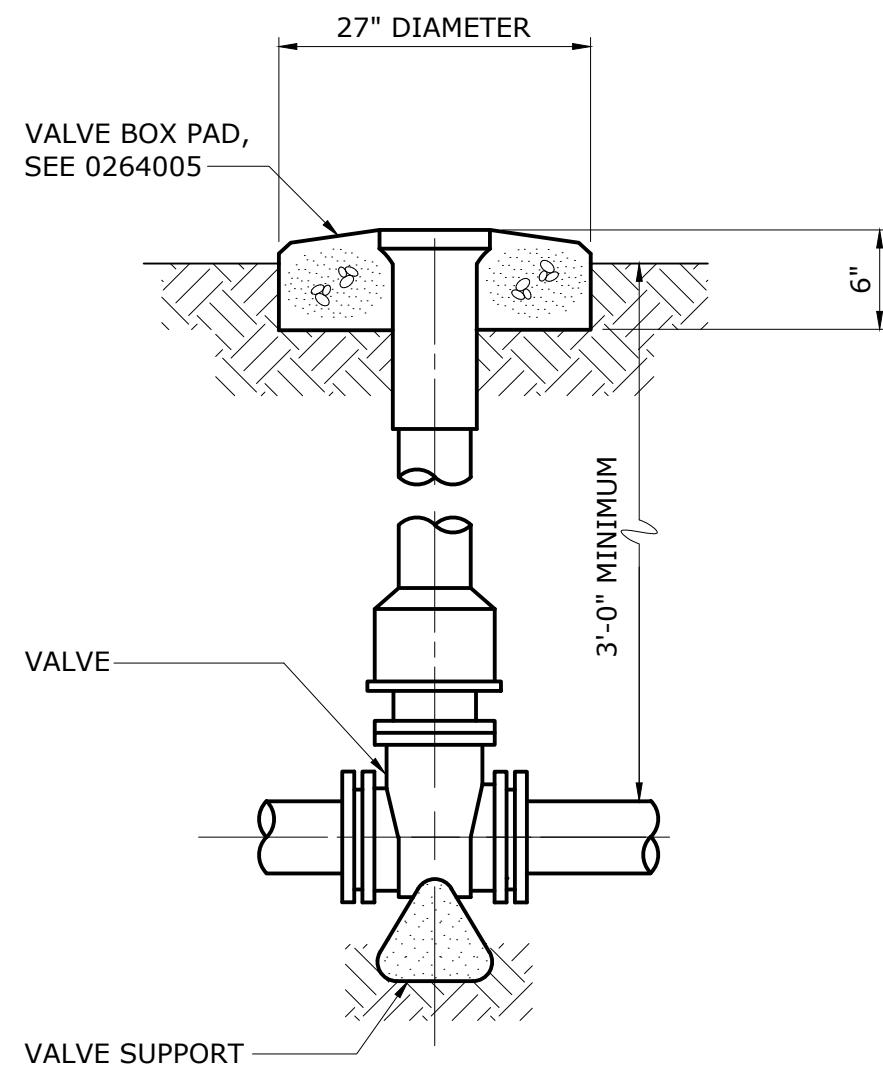
HOSE BIBB WITH
HOSE RACK
1511209R



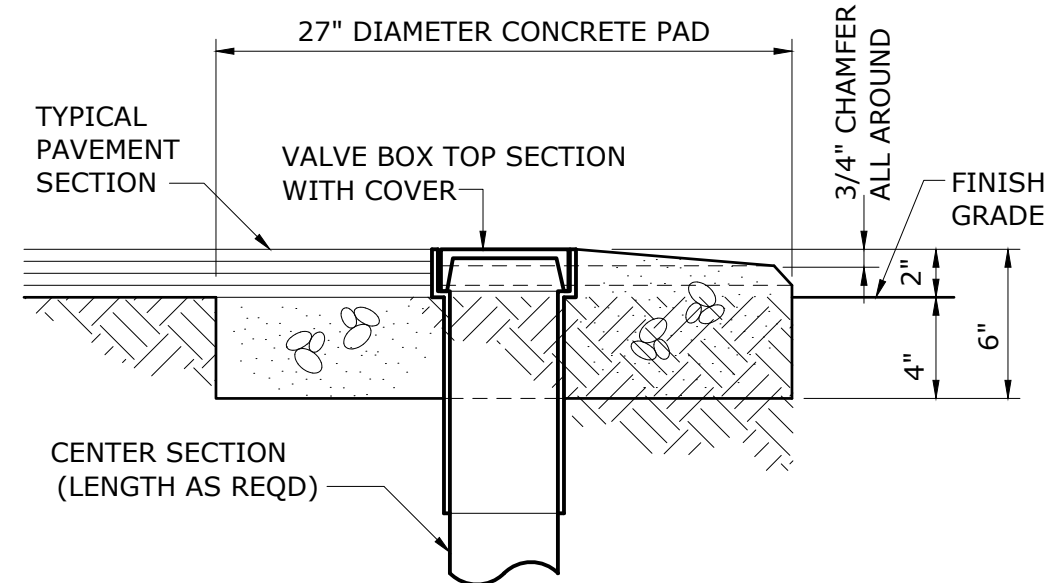
PLAN
0260100R



TOP AND FRAME
MANHOLE FRAME AND COVER
CWS DETAIL 47



VALVE BOX
0264000



VALVE BOX PAD
0264005

File: C:\9353\CHS\9353\008\DESIGN\DRAWINGS\CONV\DETAILS Standard by L Fanning Date: 4/22/2020 10:49 AM
Plot Date: 4/22/2020 8:39 AM By: L Fanning

				PROJECT ENGINEER:	J. HARTWIG
				DESIGNED BY:	L. FANNING
				DRAWN BY:	L. FANNING
				CHECKED BY:	C. RAGOS
1	CONSTRUCTION	JAN 2020	HAZEN	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
REV	ISSUED FOR	DATE	BY		



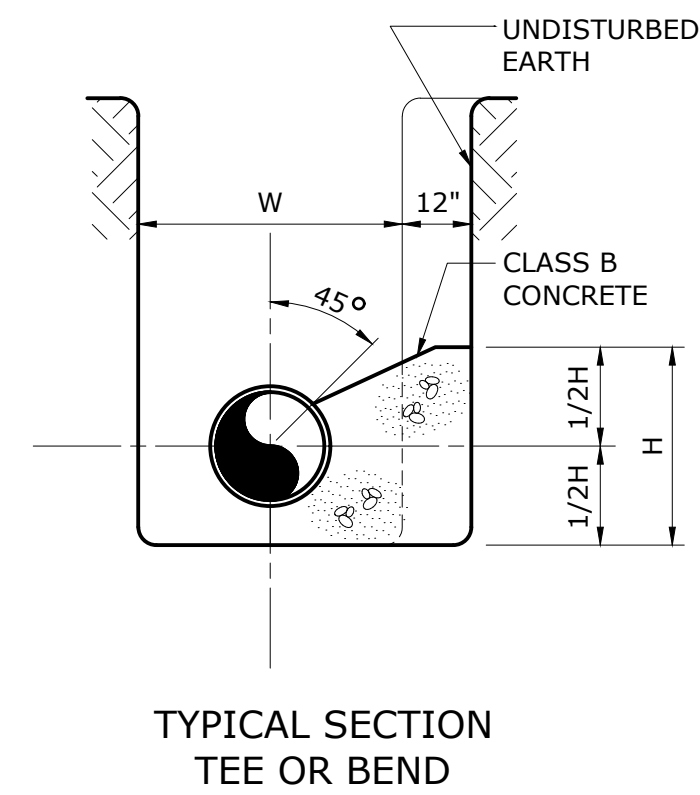
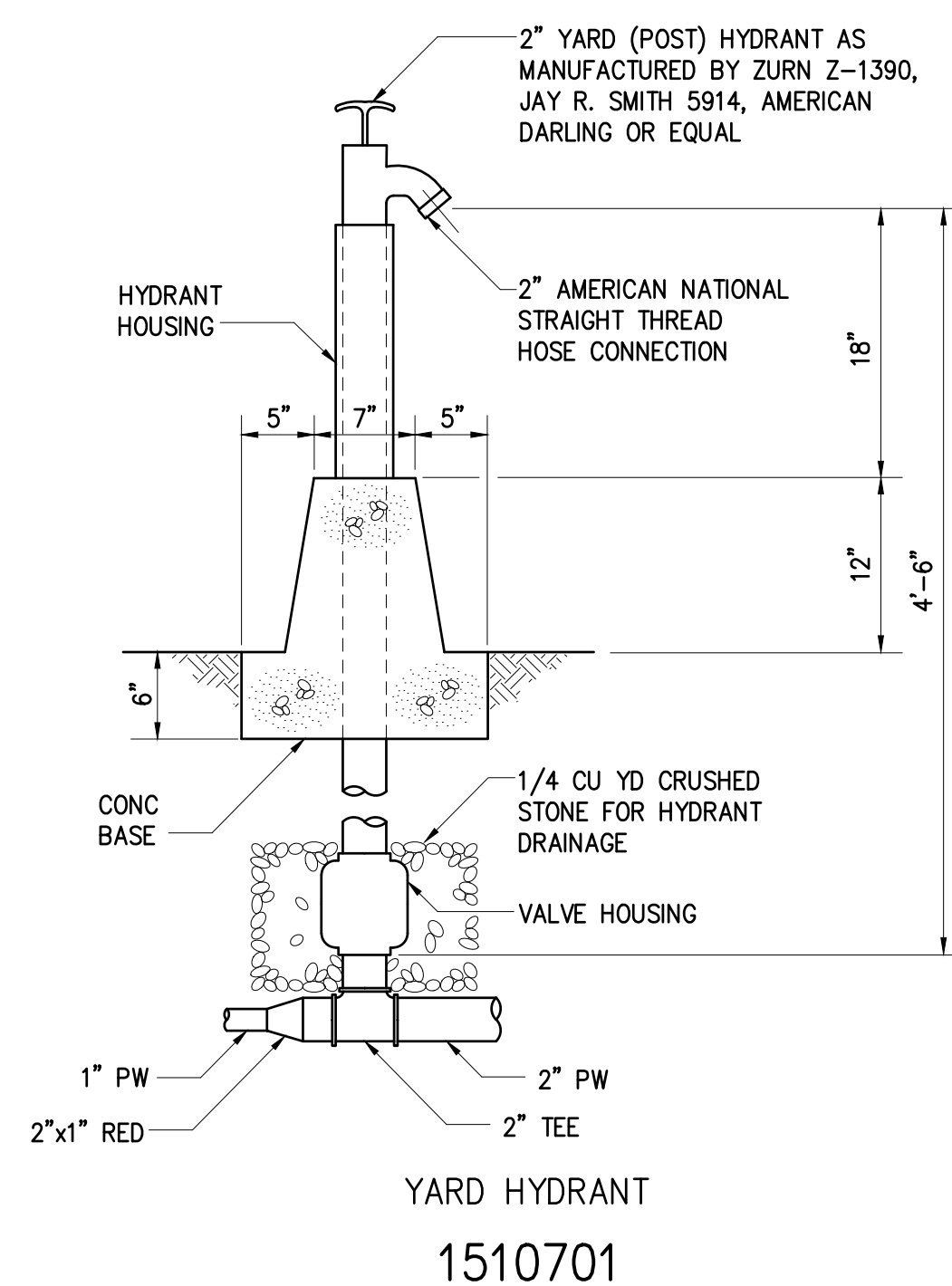
Hazen
HAZEN AND SAWYER
735 JOHNNIE DODDS BLVD, SUITE 102
MOUNT PLEASANT, SOUTH CAROLINA 29464



Charleston Water System
COMMISSIONERS OF PUBLIC WORKS
OF THE CITY OF CHARLESTON, SC
THOMAS ISLAND REGIONAL PUMP STATION
AND INTERCEPTOR
DIVISION I & II

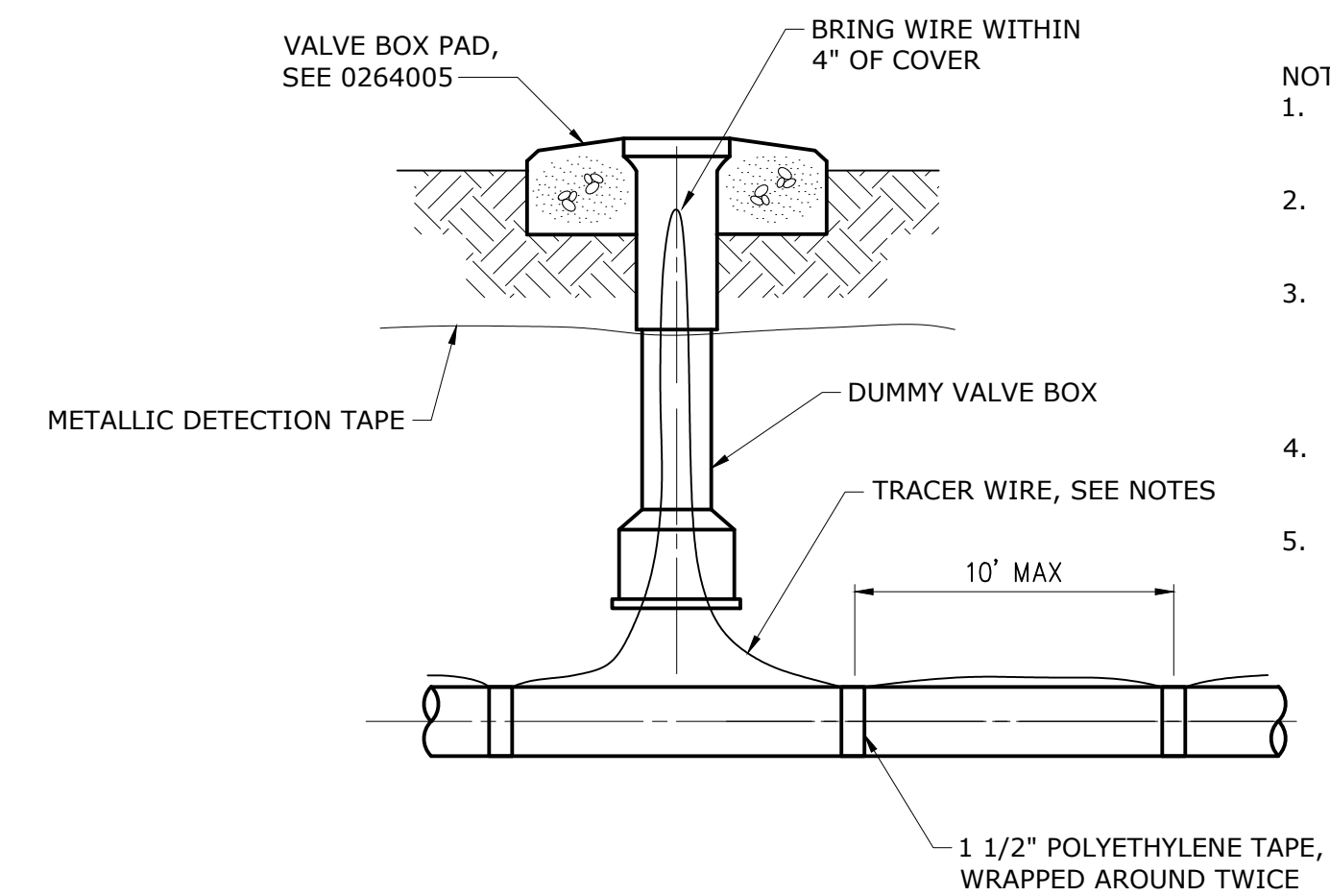
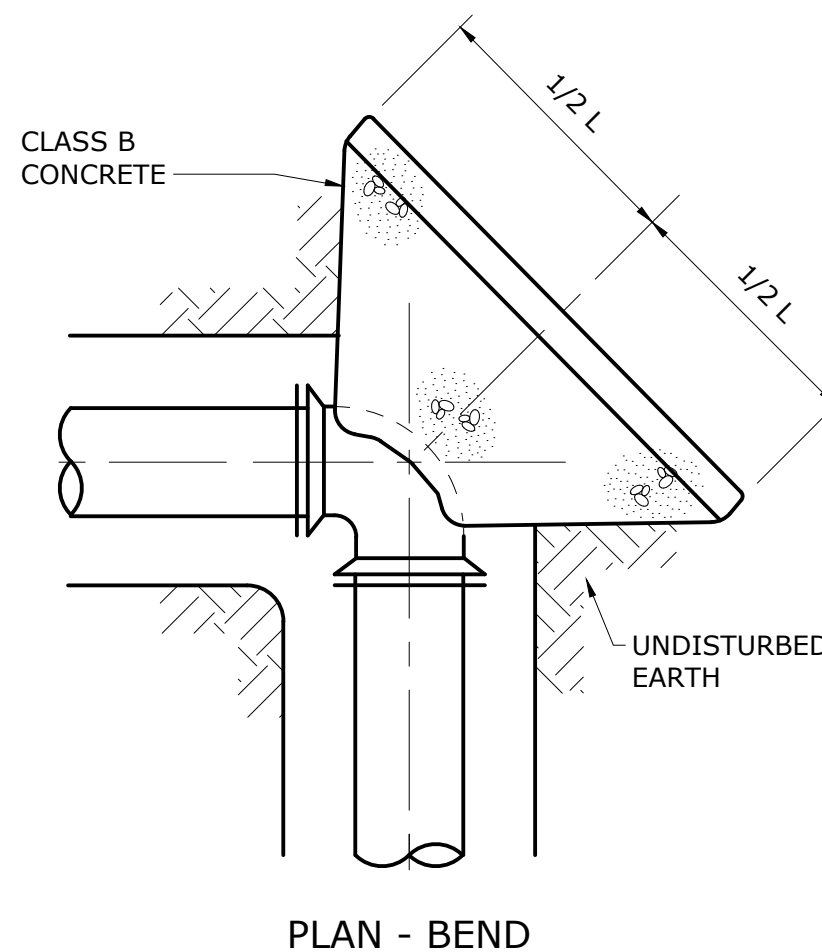
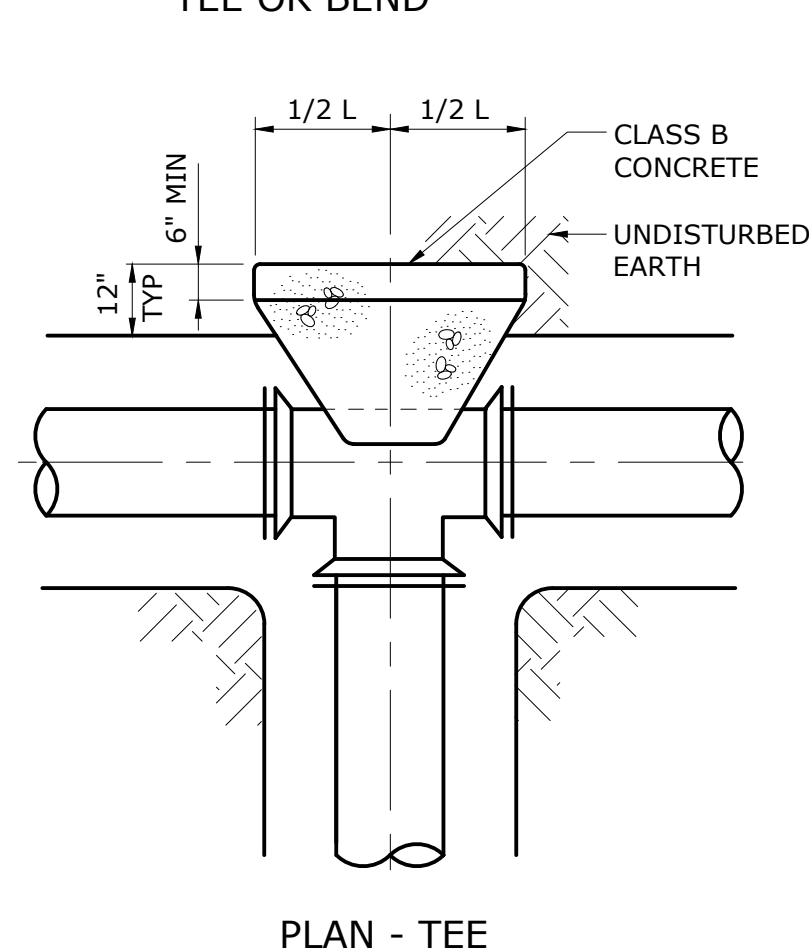
CIVIL
STANDARD DETAILS

DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	C903

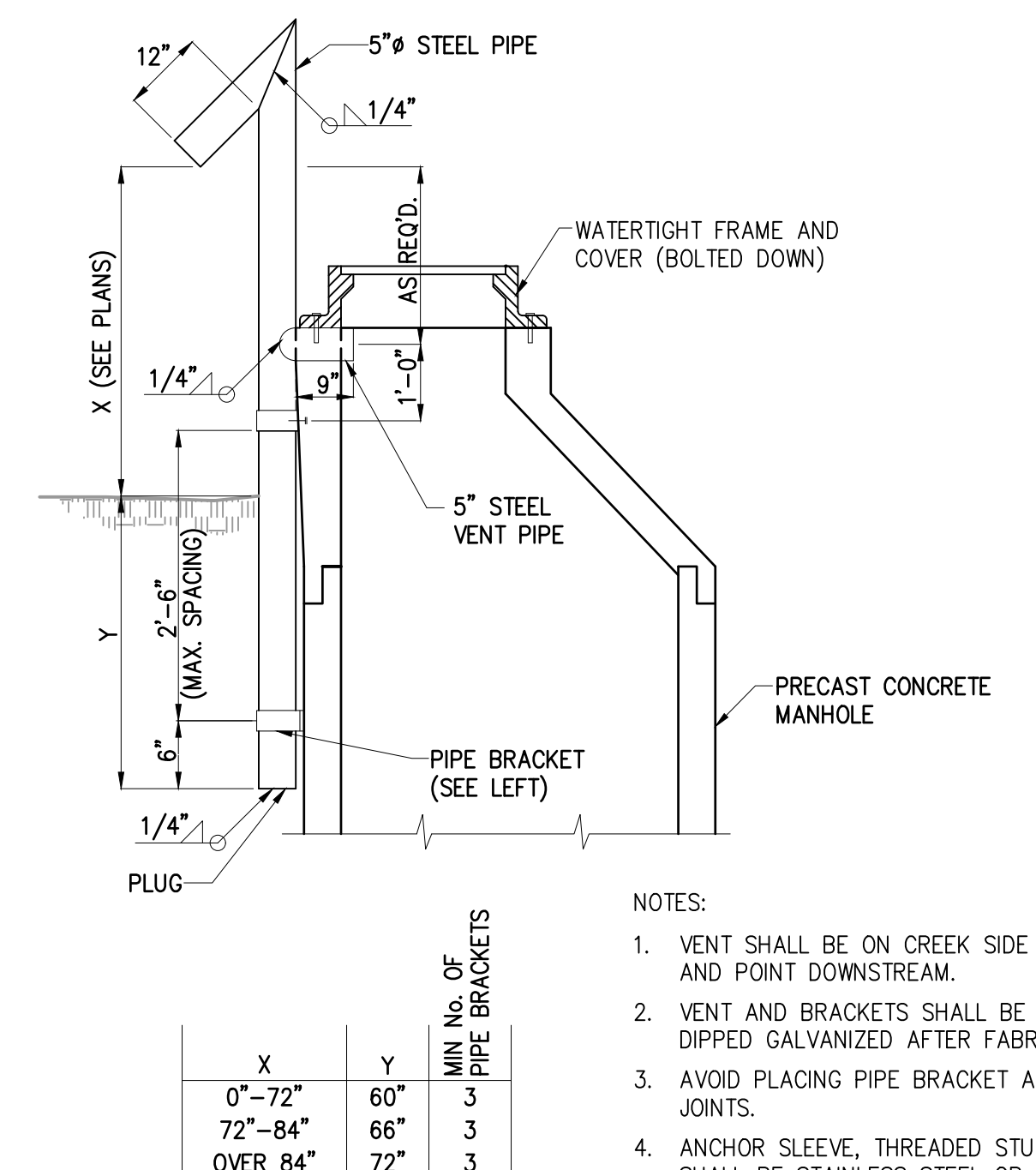
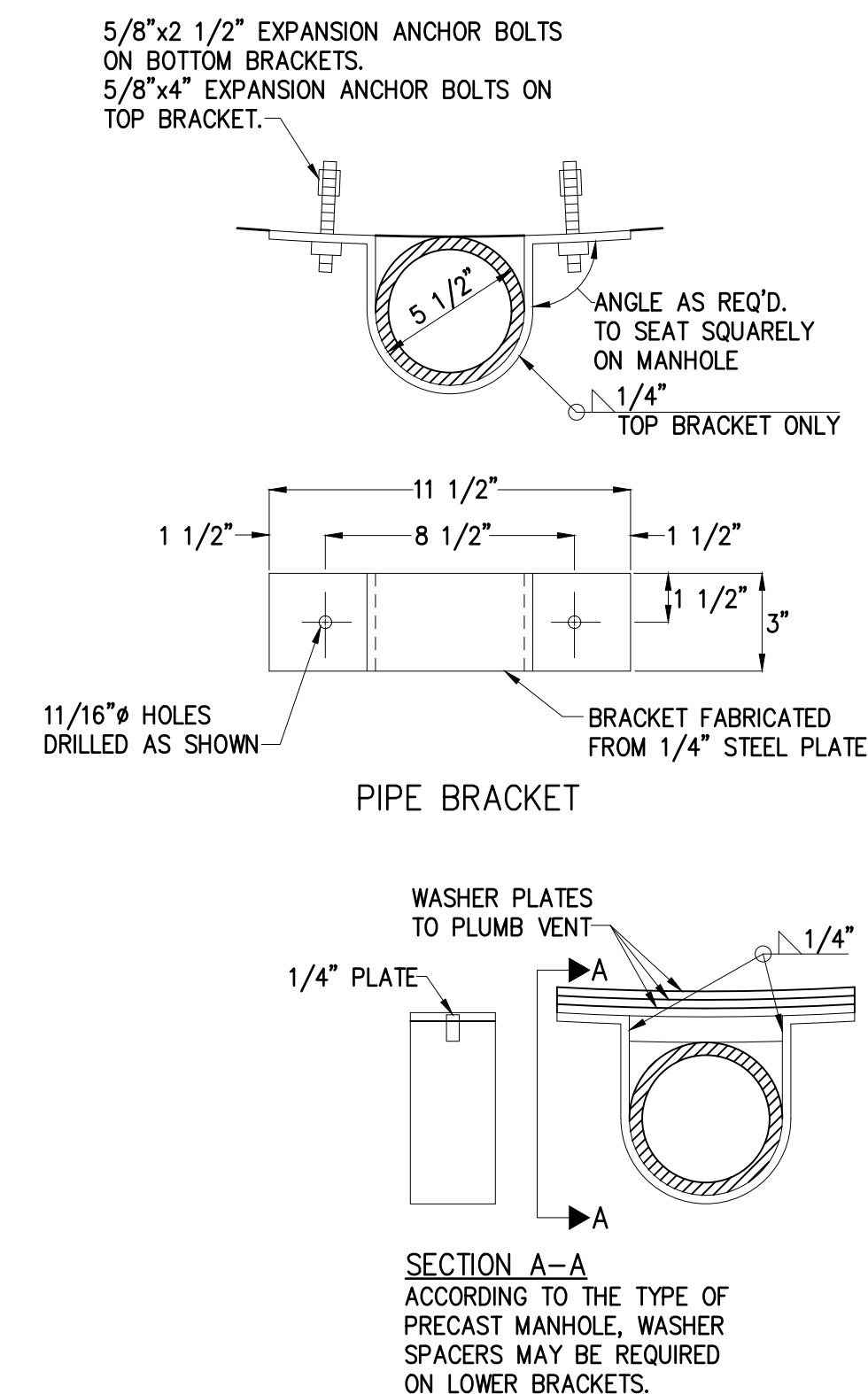
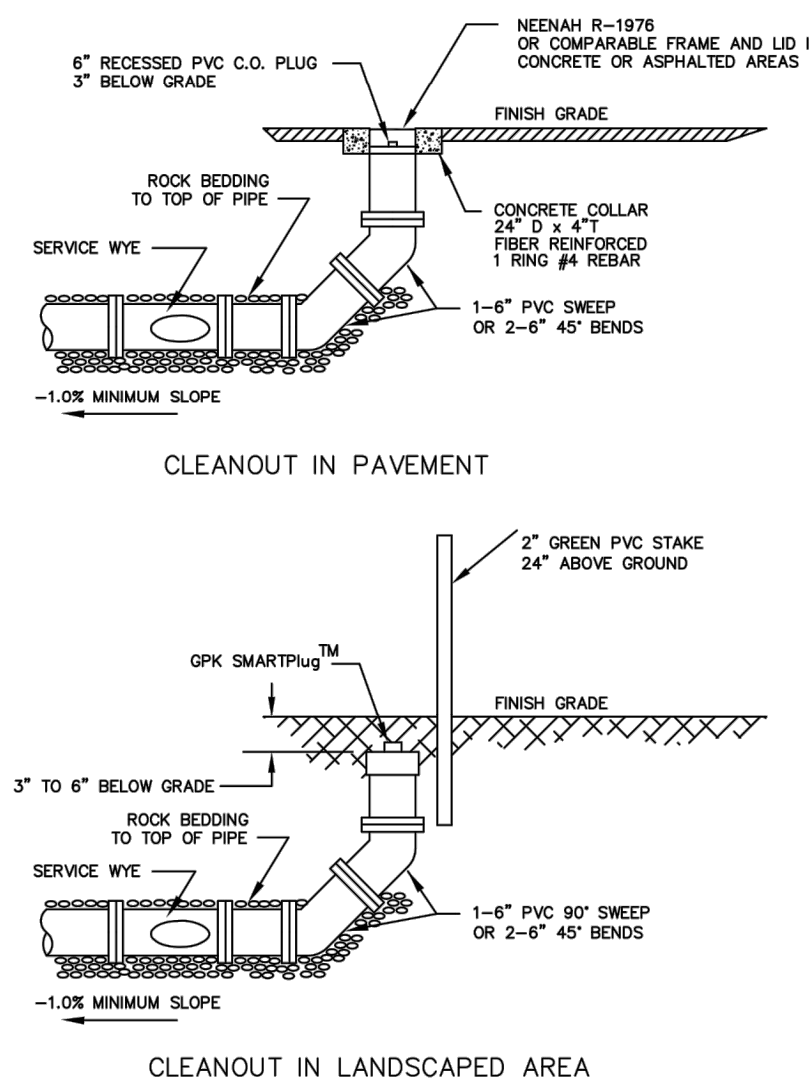
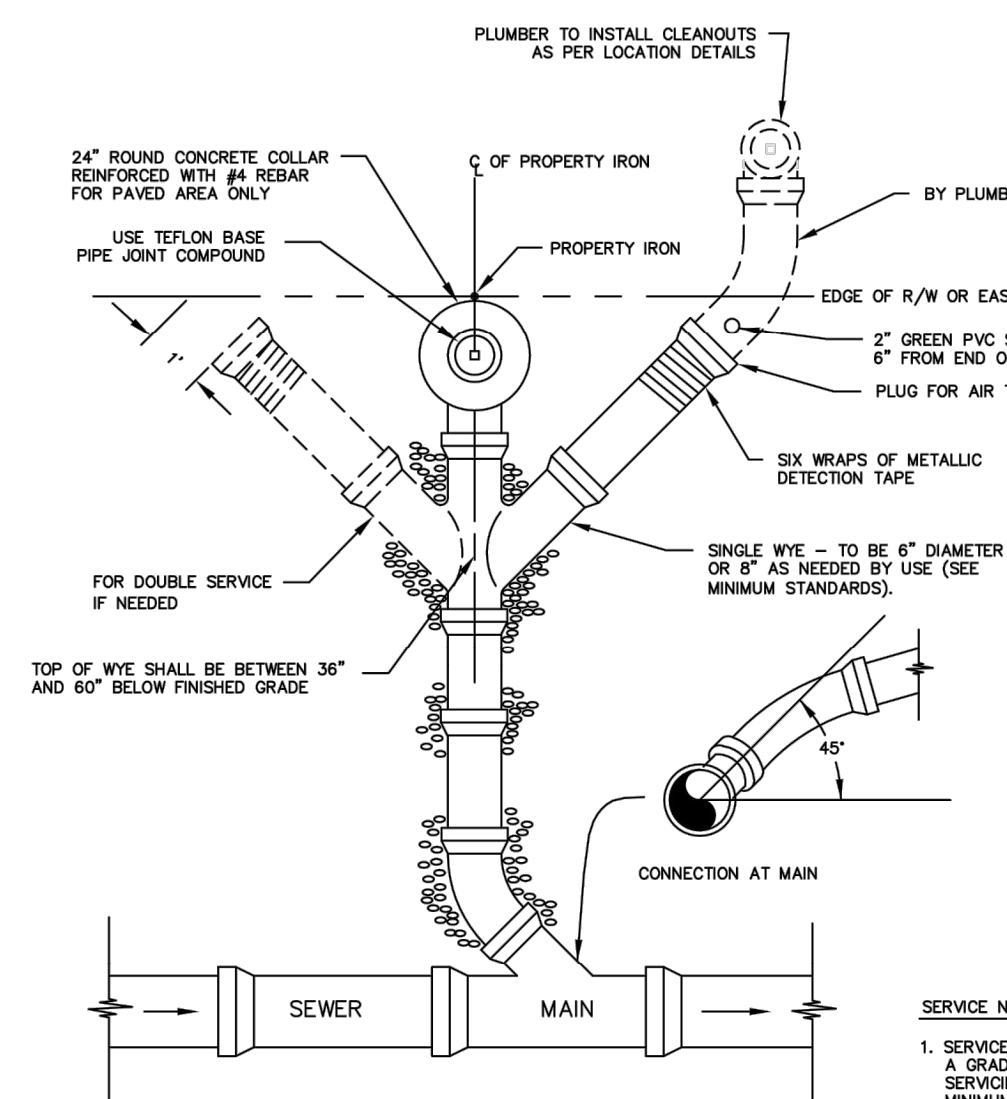
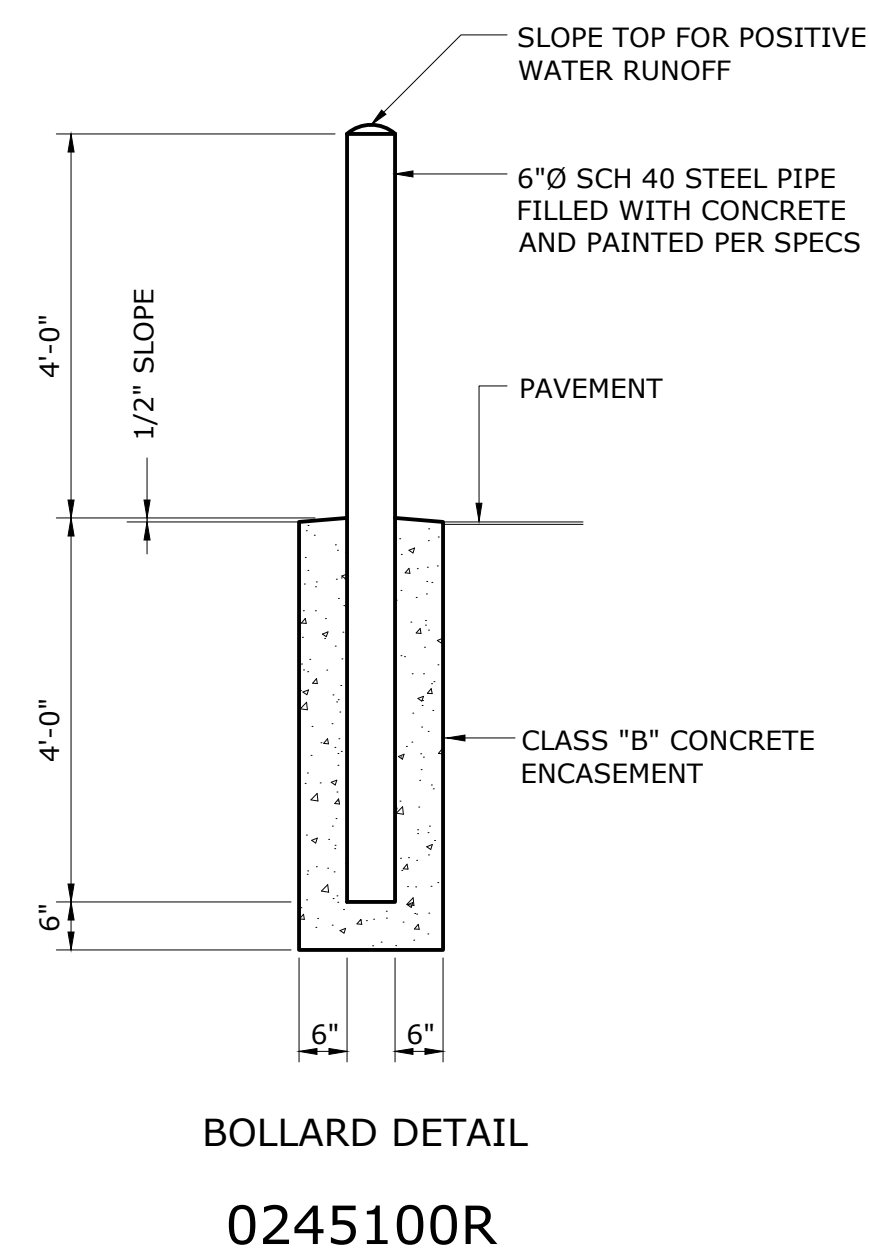


CONCRETE THRUST BLOCK SCHEDULE*								
PIPE SIZE (IN)	BEND						DESIGN PRESSUR (PSI)	
	90°/TEE		45°		22 1/2°			11 1/4°
	H	L	H	L	H	L	H	L
6	1.7	3.4	1.3	2.5	0.9	1.8	0.6	1.3
8	2.3	4.5	1.7	3.3	1.2	2.4	0.8	1.7
12	3.3	6.6	2.4	4.9	1.7	3.5	1.2	2.5
16	4.3	8.7	3.2	6.4	2.3	4.6	1.6	3.2
24	6.4	12.9	4.7	9.5	3.4	6.8	2.4	4.8
30	8.0	16.0	5.9	11.8	4.2	8.4	3.0	6.0
36	9.6	19.1	7.0	14.1	5.0	10.1	3.6	7.1
42	11.1	22.2	8.2	16.4	5.8	11.7	4.1	8.3
48	12.7	25.4	9.3	18.7	6.7	13.3	4.7	9.5
54	14.3	28.5	10.5	21.0	7.5	15.0	5.3	10.6


* BASED ON AVERAGE SOIL PASSIVE BEARING
STRENGTH OF 2000 PSF USING SF OF 1.5.
DIMENSIONS FOR BLOCKS IN FEET

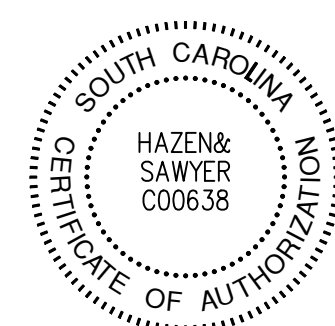


- NOTES:
1. OPEN CUT INSTALLATIONS WILL REQUIRE INSULATED 12 GAUGE COPPER WIRE.
 2. TRENCHLESS INSTALLATION WILL REQUIRE INSULATED 10 GAUGE STAINLESS STEEL WIRE.
 3. CONTRACTOR SHALL INSTALL DUMMY VALVE BOXES AT INTERVALS NO GREATER THAN 1000 FEET, INCLUDING ONE AT THE PUMP STATION AND ONE AT THE DISCHARGE POINT.
 4. THE WIRE AND TAPE SHALL MEET THE REQUIREMENTS OF THE CWS MINIMUM STANDARDS.
 5. REFER TO FORCE MAIN BEDDING DETAIL FOR ADDITIONAL INFORMATION.



- NOTES:
1. VENT SHALL BE ON CREEK SIDE AND POINT DOWNSTREAM.
 2. VENT AND BRACKETS SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.
 3. AVOID PLACING PIPE BRACKET AT MANHOLE JOINTS.
 4. ANCHOR SLEEVE, THREADED STUD AND NUT SHALL BE STAINLESS STEEL OR GALVANIZED STEEL.
 5. ROTATE STRAIGHT WALL OF MANHOLE TO CREEK SIDE.

					PROJECT ENGINEER:	J. HARTWIG
					DESIGNED BY:	L. FANNING
					DRAWN BY:	L. FANNING
					CHECKED BY:	C. RAGOS
1	CONSTRUCTION	JAN 2020	HAZEN	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE		
REV	ISSUED FOR	DATE	BY			



Hazen

HAZEN AND SAWYER
735 JOHNNIE DODDS BLVD, SUITE 102
MOUNT PLEASANT, SOUTH CAROLINA 29464

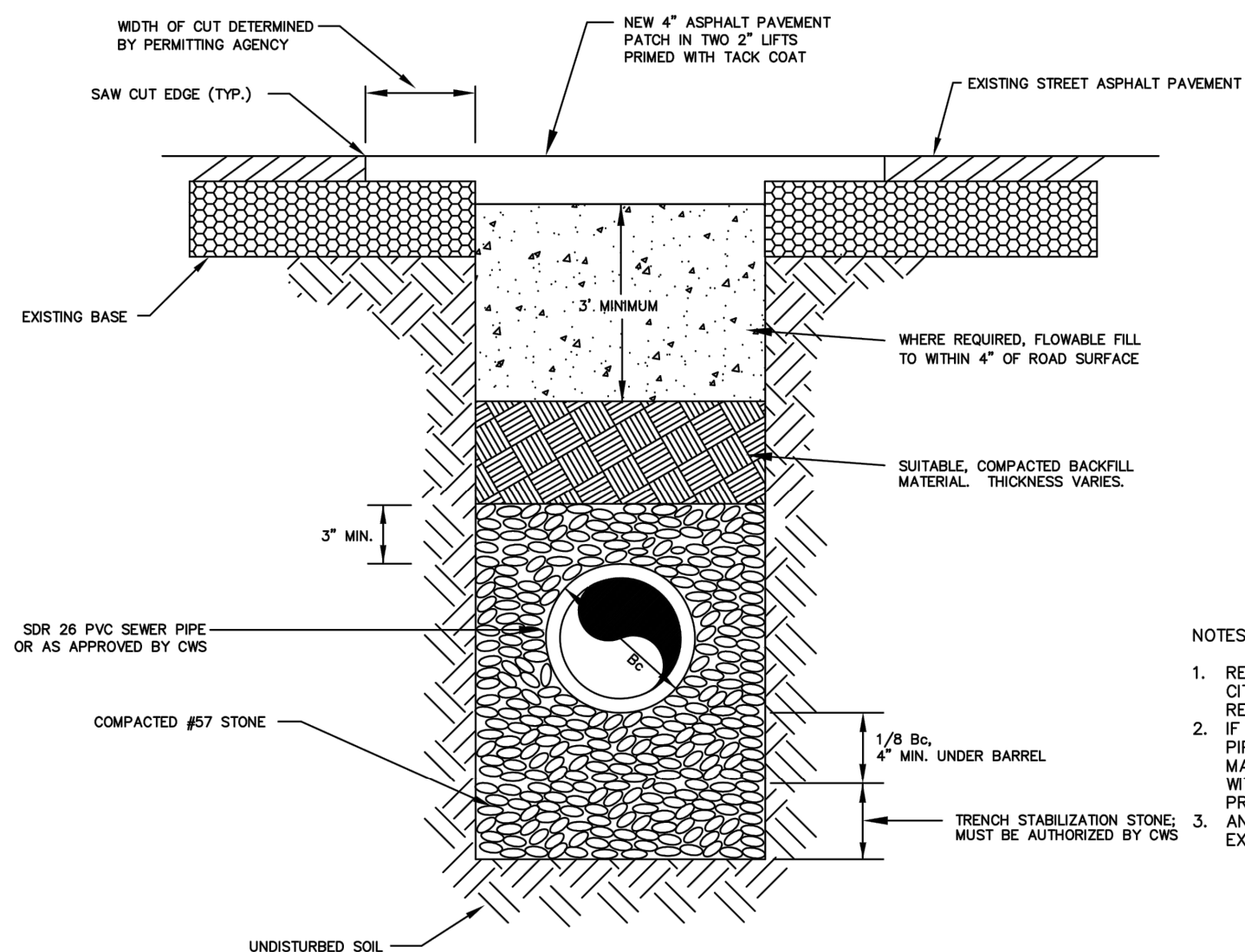


Charleston Water System
COMMISSIONERS OF PUBLIC WORKS
OF THE CITY OF CHARLESTON, SC

THOMAS ISLAND REGIONAL PUMP STATION
AND INTERCEPTOR
DIVISION I & II

CIVIL
STANDARD DETAILS

DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	C904

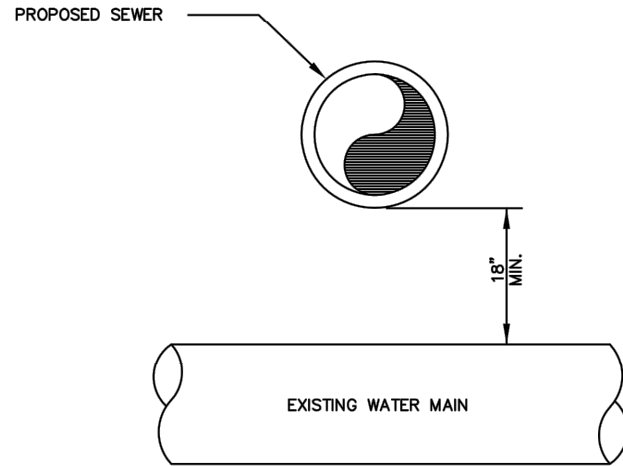


- NOTES:
1. REFER TO SCDOT HIGHWAY DEPARTMENT, CITY, OR COUNTY PERMITS FOR ADDITIONAL REQUIREMENTS.
 2. IF UNSUITABLE MATERIAL BENEATH FINAL PIPE GRADE IS ENCOUNTERED, SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH CRUSHED STONE AND COMPACTED TO PROPER GRADE.
 3. ANY DEBRIS ENCOUNTERED IN TRENCH EXCAVATION SHALL BE REMOVED.

TYPICAL SEWER MAIN ROAD CUT

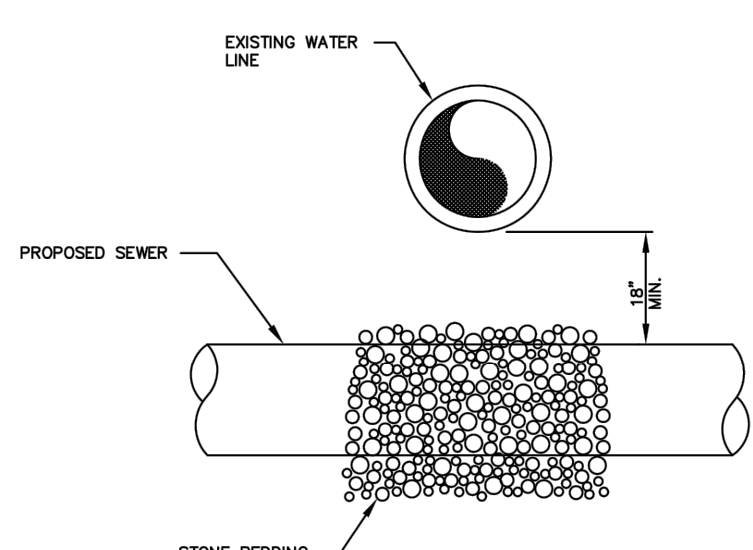
DETAIL	9
CWS DETAIL 42	--

- NOTES FOR SEWER OVER WATER MAIN:
1. INSTALL A FULL JOINT OF PIPE FOR WHICHEVER MAIN IS LAID SECOND. IT IS TO BE CENTERED AT CROSSING.
 2. IF THE WATER IS EXISTING AND THE MINIMUM CLEARANCE IS NOT MET, THE SEWER SHALL BE PVC C900, C905, OR DUCTILE IRON PIPE. PROVIDE RESTRAINED JOINT FITTINGS WHEN TRANSITIONING FROM DIP TO PVC. PLACE FLOWABLE FILL BETWEEN TOP OF WATER MAIN AND BOTTOM OF SEWER.
 3. IF THE SEWER IS EXISTING, THE WATER MAIN SHALL MEET THE MINIMUM CLEARANCE.



SEWER CROSSING ABOVE WATER MAIN

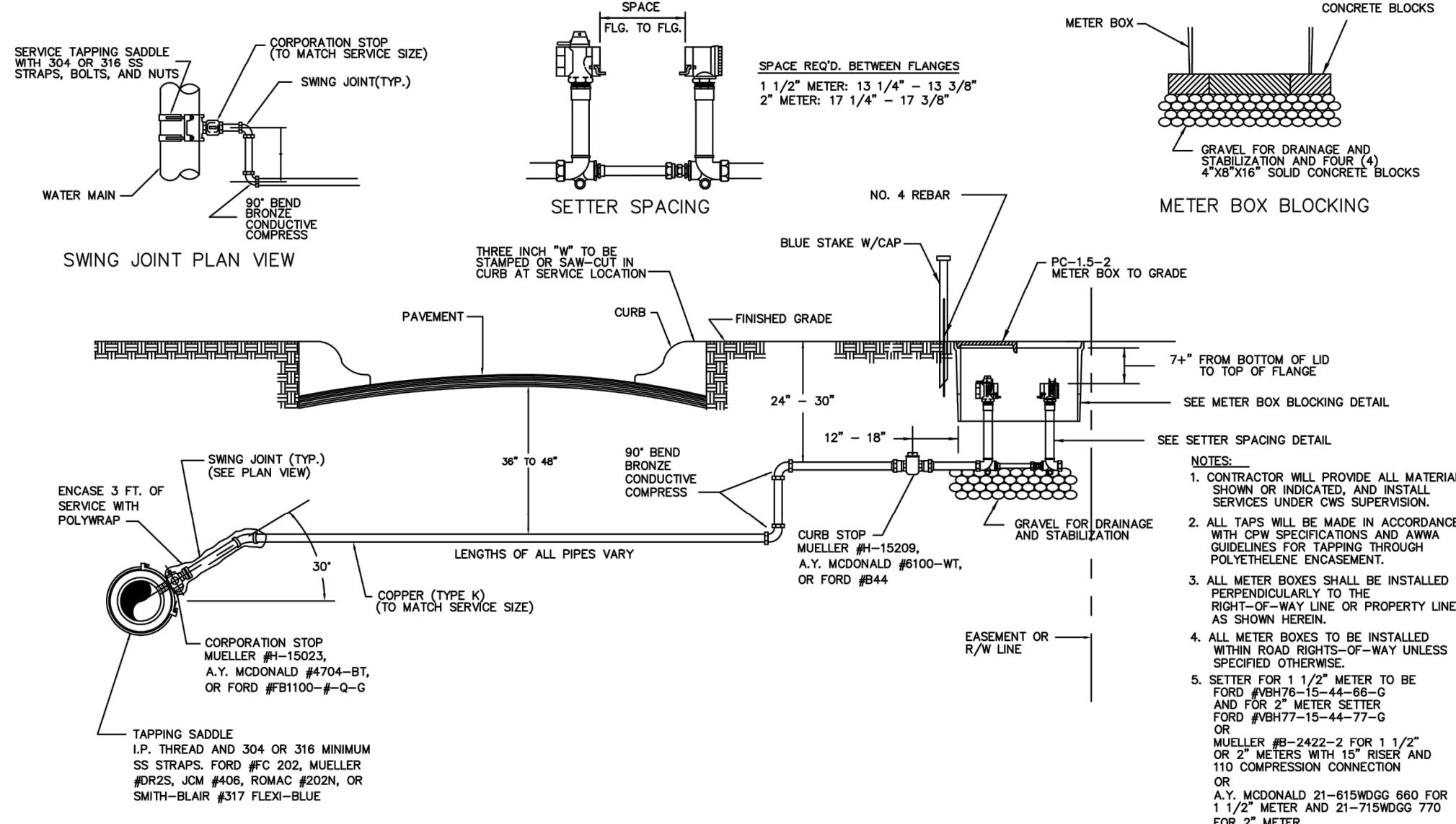
- NOTES FOR SEWER UNDER WATER MAIN:
1. SOIL REPLACED UNDER THE WATER MAIN SHALL BE COMPACTED AS PER CWS MINIMUM STANDARDS FOR WATER MAIN INSTALLATION.
 2. IF CLEARANCE IS LESS THAN 18", PVC C900, C905 OR DUCTILE IRON PIPE SHALL BE USED. PROVIDE RESTRAINED JOINT FITTINGS WHEN TRANSITIONING FROM DIP TO PVC. PLACE FLOWABLE FILL BETWEEN TOP OF SEWER AND BOTTOM OF WATER MAIN. PLACE A LAYER OF POLYWRAP ABOVE SEWER STONE BEDDING PRIOR TO PLACING FLOWABLE FILL.
 3. INSTALL A FULL JOINT OF PIPE FOR WHICHEVER MAIN IS LAID SECOND. IT IS TO BE CENTERED AT CROSSING.



SEWER CROSSING UNDER WATER MAIN

SEWER MAIN CROSSING WATER MAIN

NOT TO SCALE



1 1/2" AND 2" WATER SERVICE

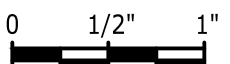
NOT TO SCALE

2" WATER SERVICE

DETAIL	10
CWS DETAIL 21	--

File: C:\9353-CHAR\DESIGN\DRAWINGS\CIVIL\DETAILS Drawn by: LFANNING Date: 4/22/2020 10:49 AM
Plot Date: 4/22/2020 9:39 AM By: LFANNING

				PROJECT ENGINEER:	J. HARTWIG
				DESIGNED BY:	L. FANNING
				DRAWN BY:	L. FANNING
				CHECKED BY:	C. RAGOS
1	CONSTRUCTION	JAN 2020	HAZEN	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
REV	ISSUED FOR	DATE	BY		



Hazen
HAZEN AND SAWYER
735 JOHNNIE DODDS BLVD, SUITE 102
MOUNT PLEASANT, SOUTH CAROLINA 29464

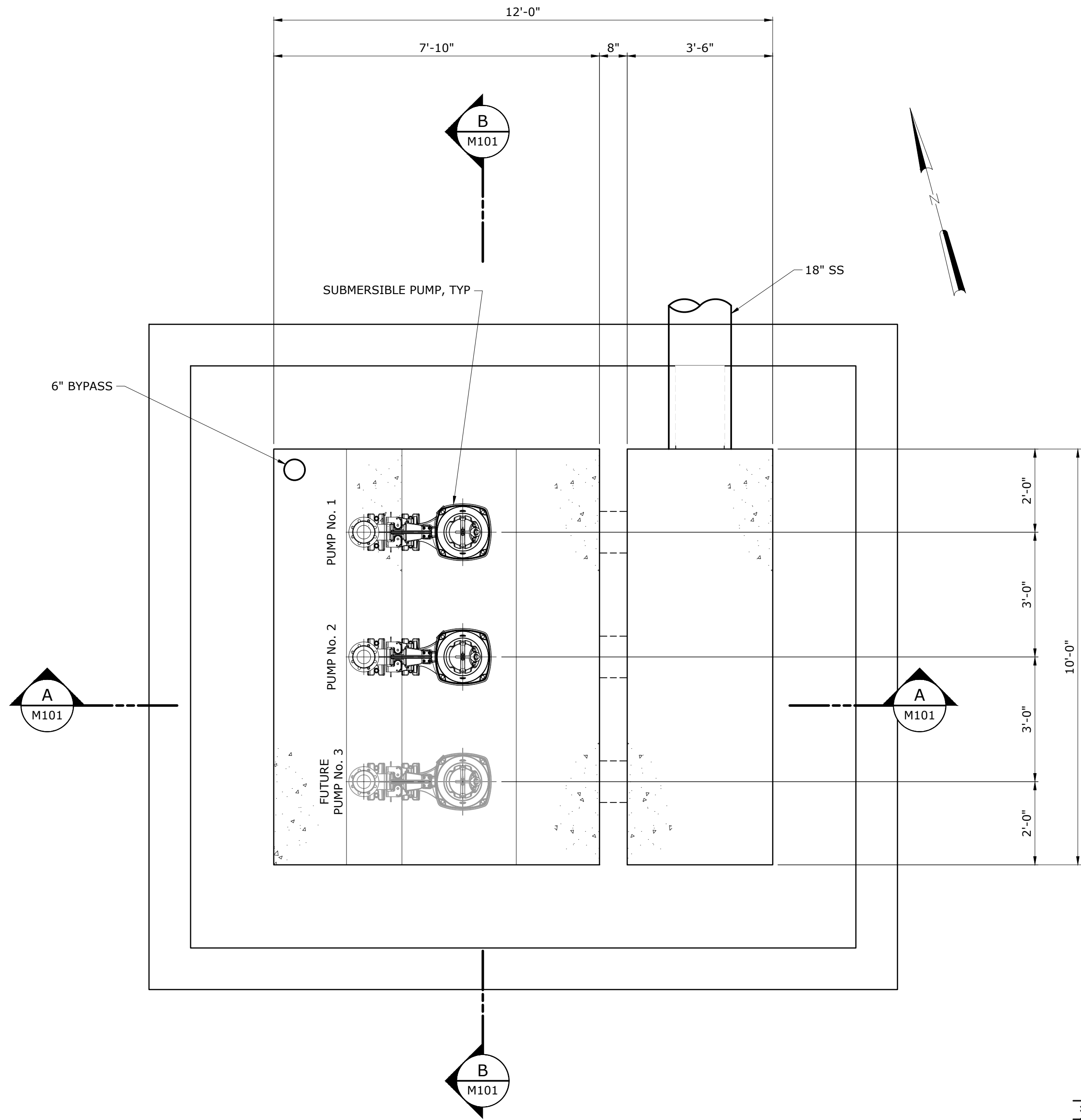


Charleston Water System
COMMISSIONERS OF PUBLIC WORKS
OF THE CITY OF CHARLESTON, SC

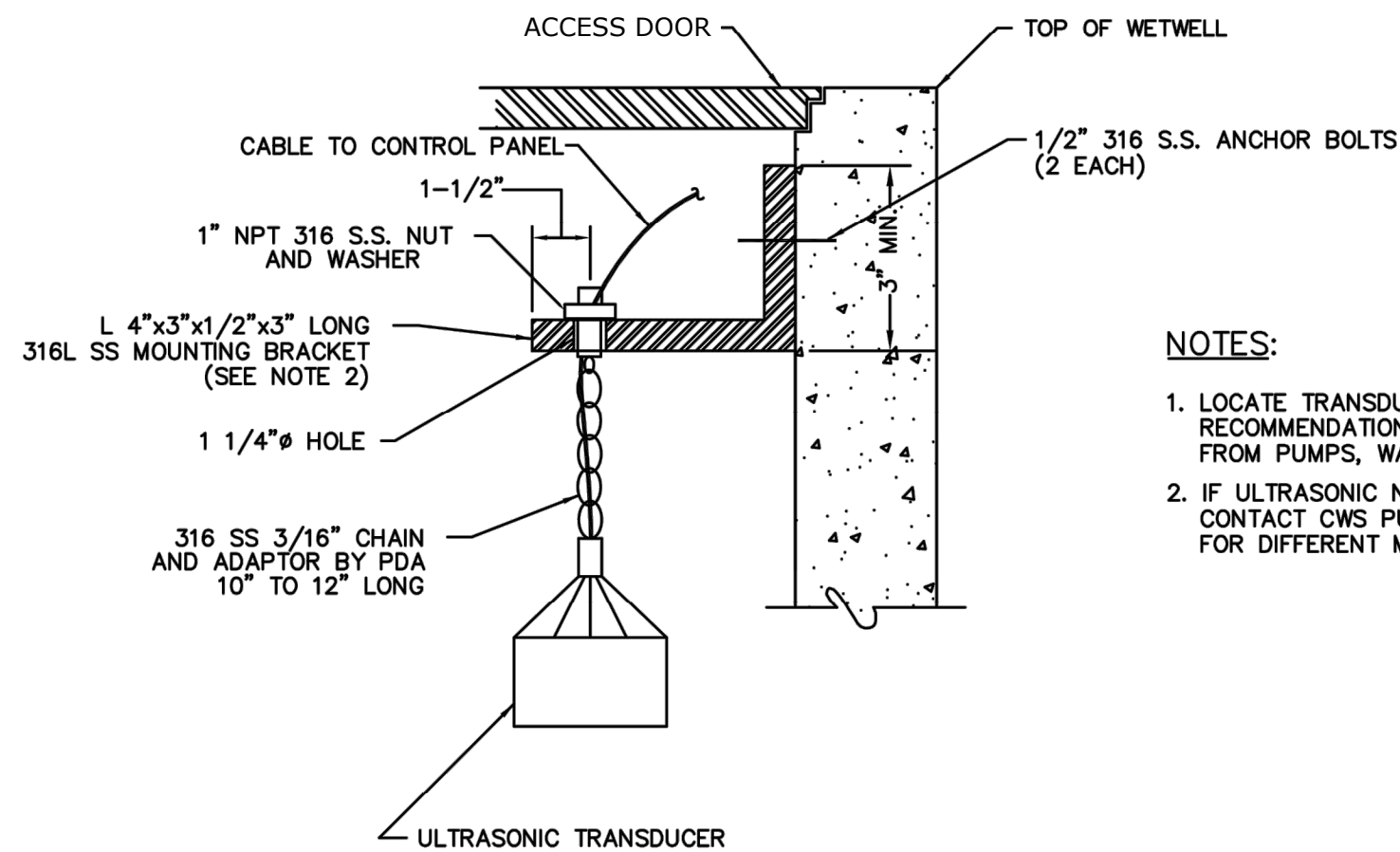
THOMAS ISLAND REGIONAL PUMP STATION
AND INTERCEPTOR
DIVISION I & II

CIVIL
STANDARD DETAILS

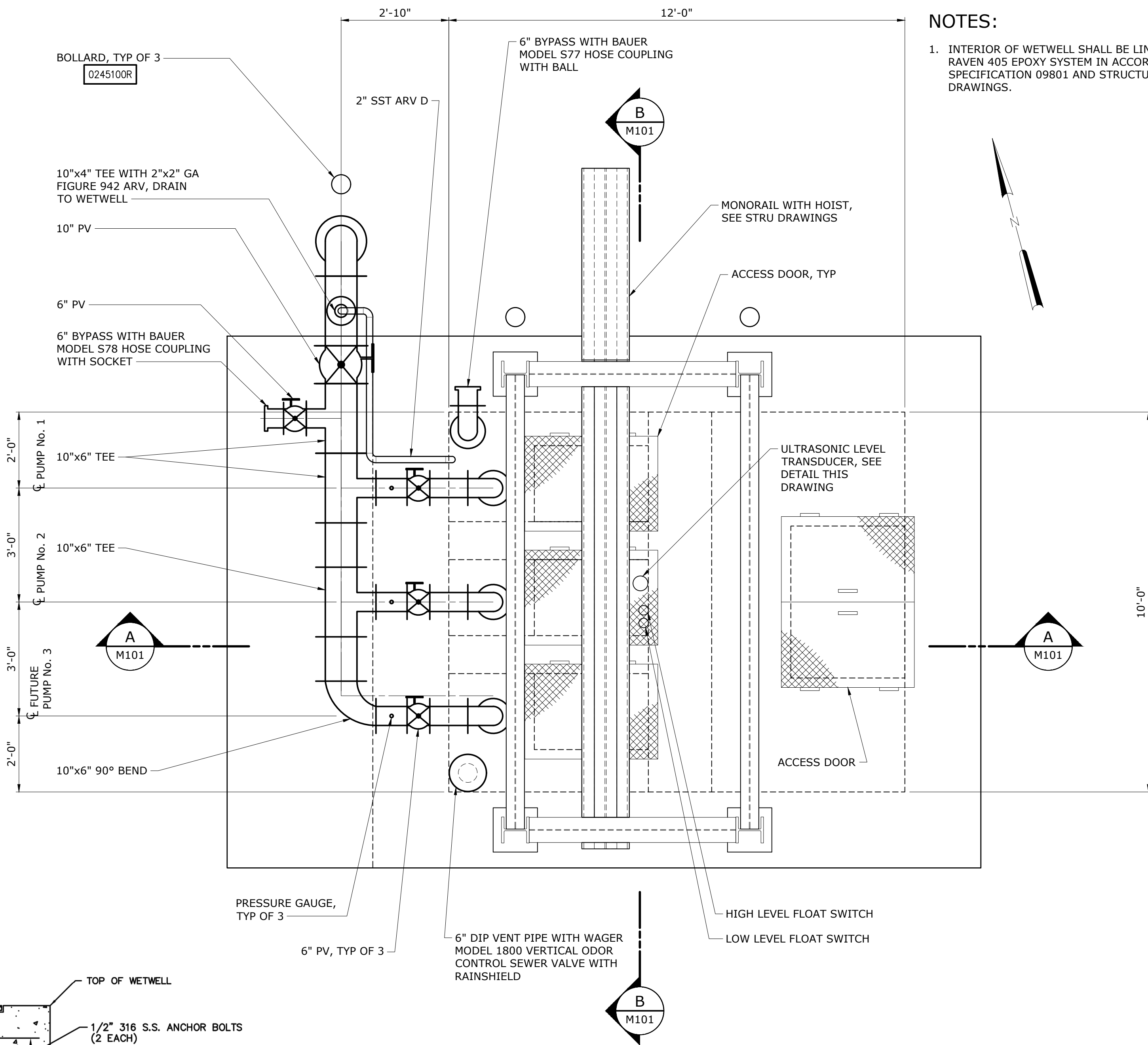
DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	C905



BOTTOM PLAN
1/2" = 1'-0"



TRANSDUCER MOUNTING DETAIL
NOT TO SCALE



TOP PLAN
1/2" = 1'-0"

- NOTES:**
- INTERIOR OF WETWELL SHALL BE LINED WITH RAVEN 405 EPOXY SYSTEM IN ACCORDANCE WITH SPECIFICATION 09801 AND STRUCTURAL DRAWINGS.

- NOTES:**
- LOCATE TRANSDUCER PER MANUFACTURER'S RECOMMENDATIONS TO AVOID INTERFERENCE FROM PUMPS, WALL, ETC. IN THE WETWELL.
 - IF ULTRASONIC NEEDS TO EXTEND OUT INTO WETWELL, CONTACT CWS PUMP STATION MAINTENANCE MANAGER FOR DIFFERENT MOUNTING DETAIL.

File: D:\3533-CHARLESTON-WATER-SYSTEMS\DESIGN\DRAWINGS\MECHANICAL\0 Saved by: LFANNING Save date: 1/7/2020 10:27 AM
PLOT DATE: 1/7/2020 11:49 AM BY: LFANNING

				PROJECT ENGINEER:	J. HARTWIG
				DESIGNED BY:	J. HARTWIG
				DRAWN BY:	L. FANNING
				CHECKED BY:	C. RAGOS
1	CONSTRUCTION	JAN 2020	HAZEN	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
REV	ISSUED FOR	DATE	BY		



Hazen
HAZEN AND SAWYER
735 JOHNNIE DODDS BLVD, SUITE 102
MOUNT PLEASANT, SOUTH CAROLINA 29464

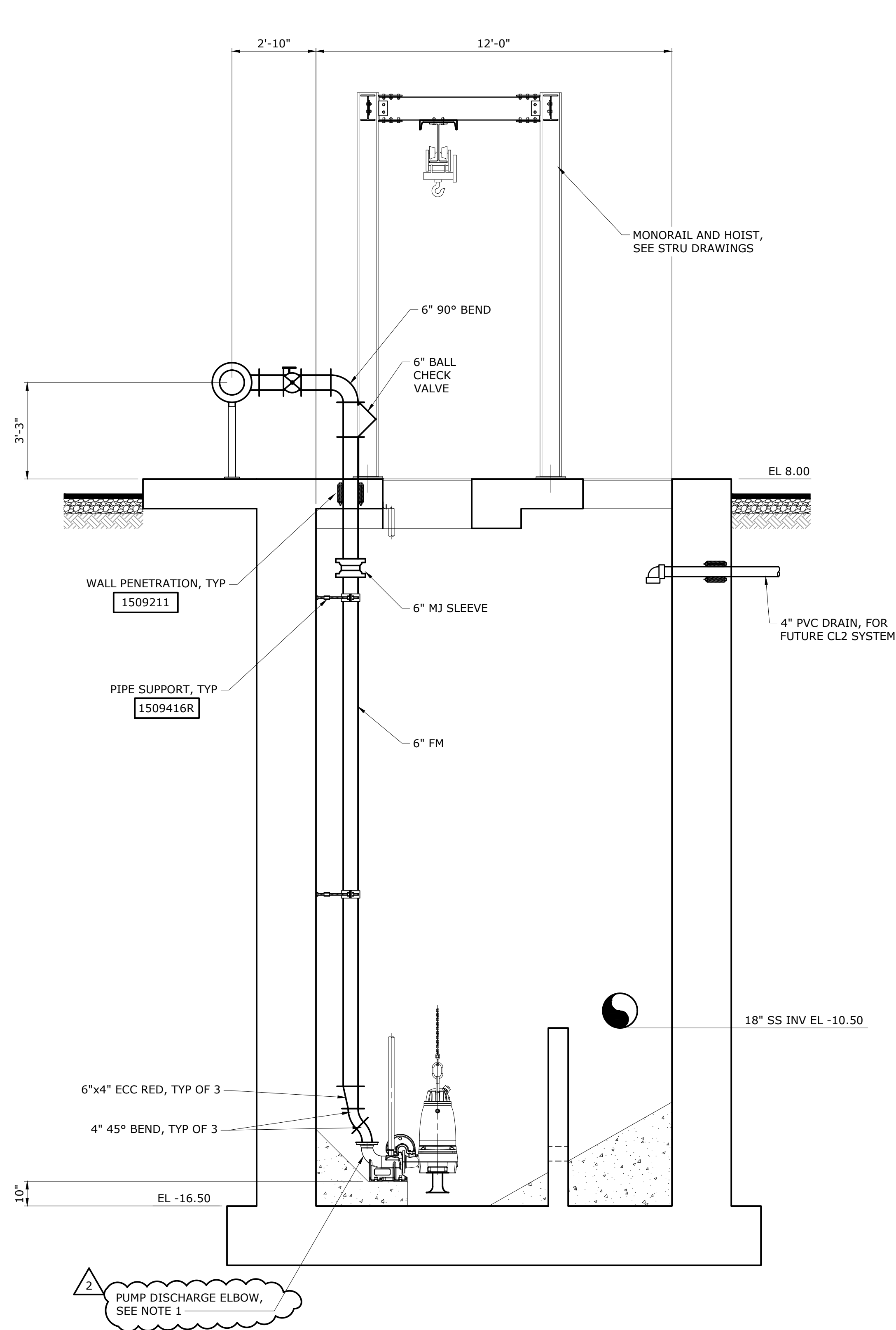


Charleston Water System
COMMISSIONERS OF PUBLIC WORKS
OF THE CITY OF CHARLESTON, SC

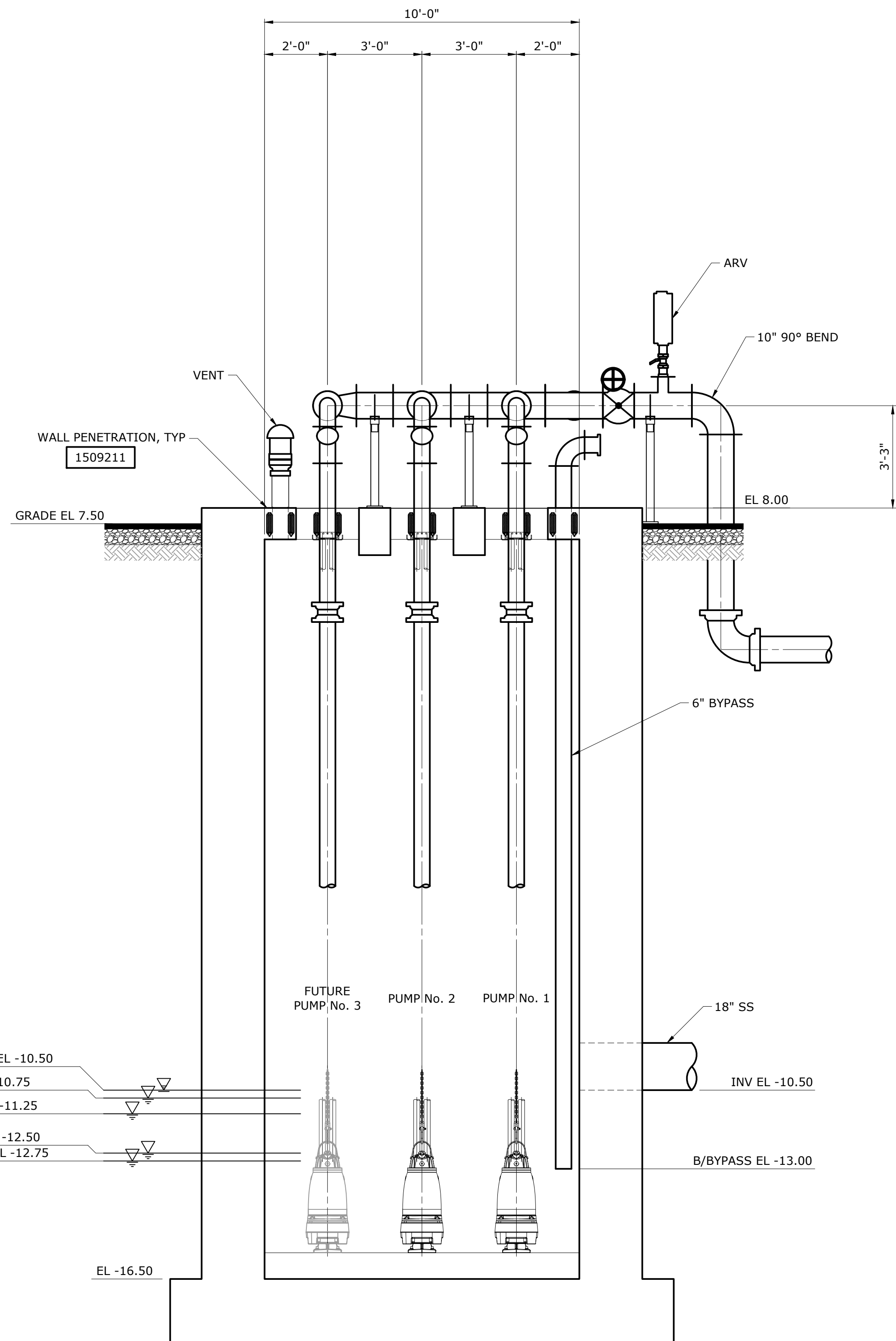
**THOMAS ISLAND REGIONAL PUMP STATION
AND INTERCEPTOR
DIVISION I**

**PUMP STATION
MECHANICAL
TOP AND BOTTOM PLAN**

DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	M100



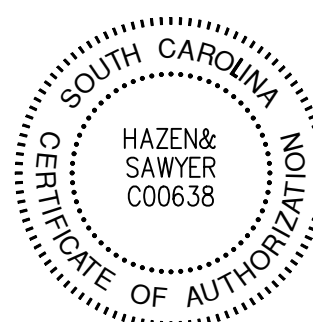
SECTION A
3/8" = 1'-0" M100



SECTION B
3/8" = 1'-0" M100

- NOTES:
1. ALL DISCHARGE PIPING, GUIDE RAILS, SUPPORTS, AND BASE ELBOW TO BE INSTALLED FOR FUTURE PUMP P-103.

				PROJECT ENGINEER:	J. HARTWIG
				DESIGNED BY:	J. HARTWIG
				DRAWN BY:	L. FANNING
				CHECKED BY:	C. RAGOS
2	ADDENDUM No. 1	JAN 2020	HAZEN	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
1	CONSTRUCTION	JAN 2020	HAZEN		
REV	ISSUED FOR	DATE	BY		



Hazen
HAZEN AND SAWYER
735 JOHNNIE DODDS BLVD, SUITE 102
MOUNT PLEASANT, SOUTH CAROLINA 29464



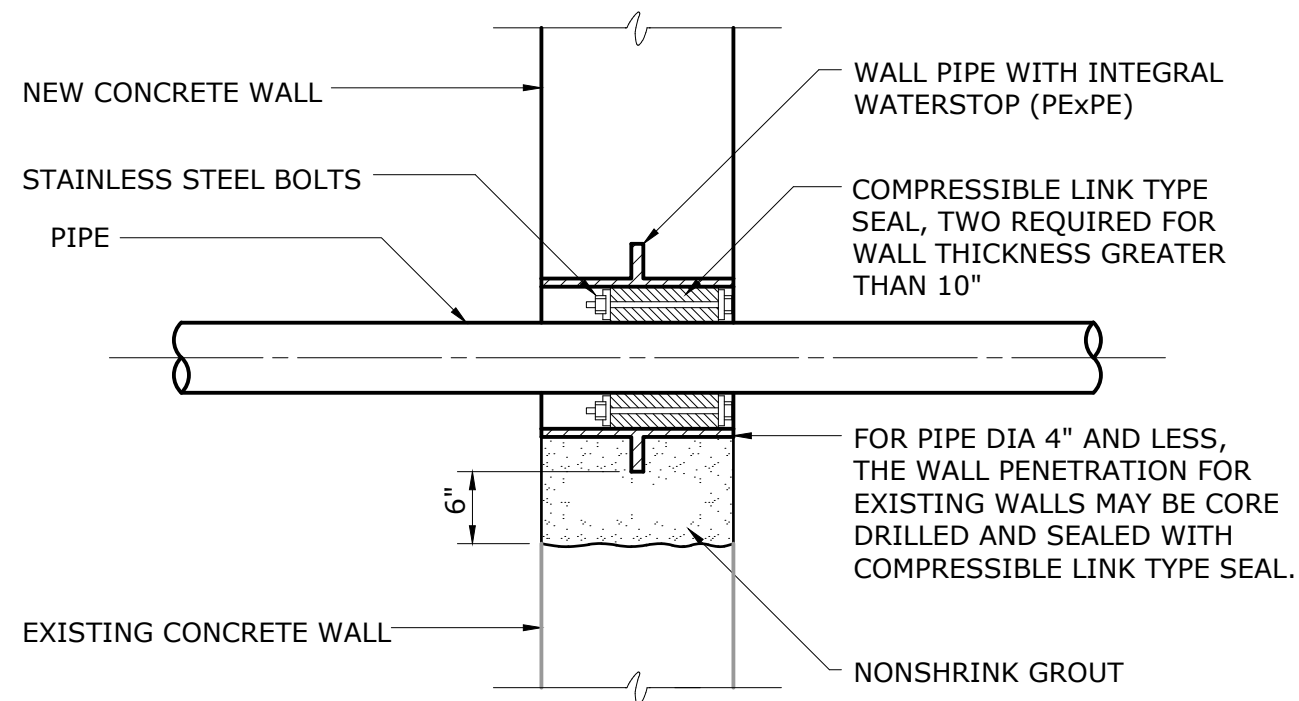
Charleston Water System
COMMISSIONERS OF PUBLIC WORKS
OF THE CITY OF CHARLESTON, SC

THOMAS ISLAND REGIONAL PUMP STATION
AND INTERCEPTOR
DIVISION I

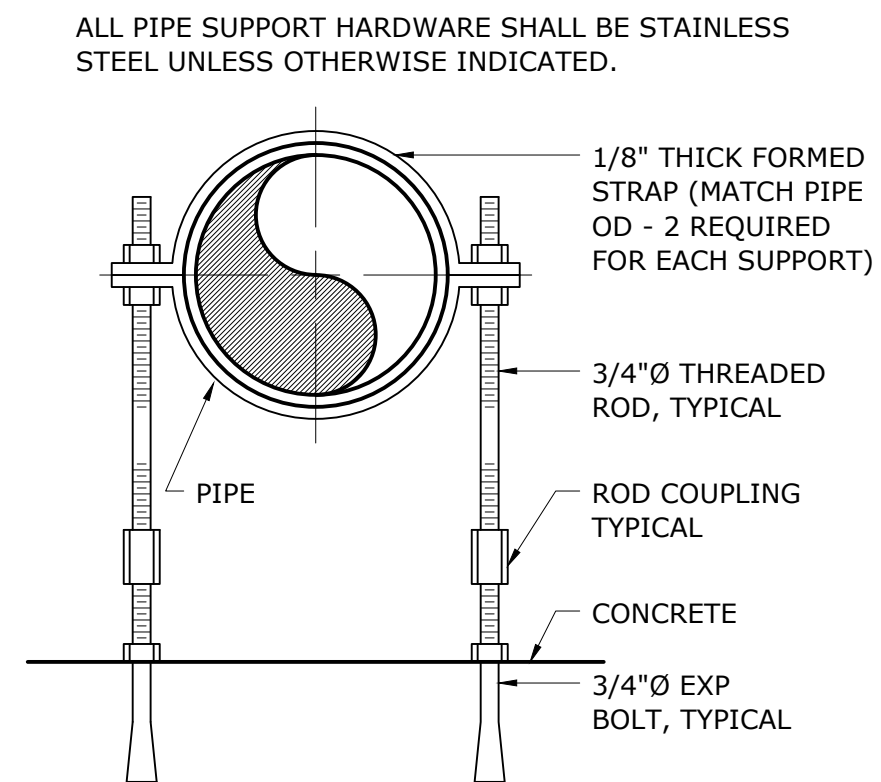
PUMP STATION
MECHANICAL
SECTIONS

DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	M101

P:\030533-CHARLESTON REGIONAL PUMP STATION MECHANICAL DETAILS.dwg Plot Date: 1/7/2020 11:40 AM By: L FANNING PLOT DATE: 1/7/2020 11:40 AM By: L FANNING



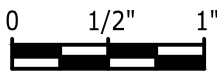
WALL PENETRATION
1509211



PIPE SUPPORT
1509416R

1	CONSTRUCTION	JAN 2020	HAZEN
REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	J. HARTWIG
DESIGNED BY:	J. HARTWIG
DRAWN BY:	L. FANNING
CHECKED BY:	C. RAGOS
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	



Hazen

HAZEN AND SAWYER
735 JOHNNIE DODDS BLVD, SUITE 102
MOUNT PLEASANT, SOUTH CAROLINA 29464

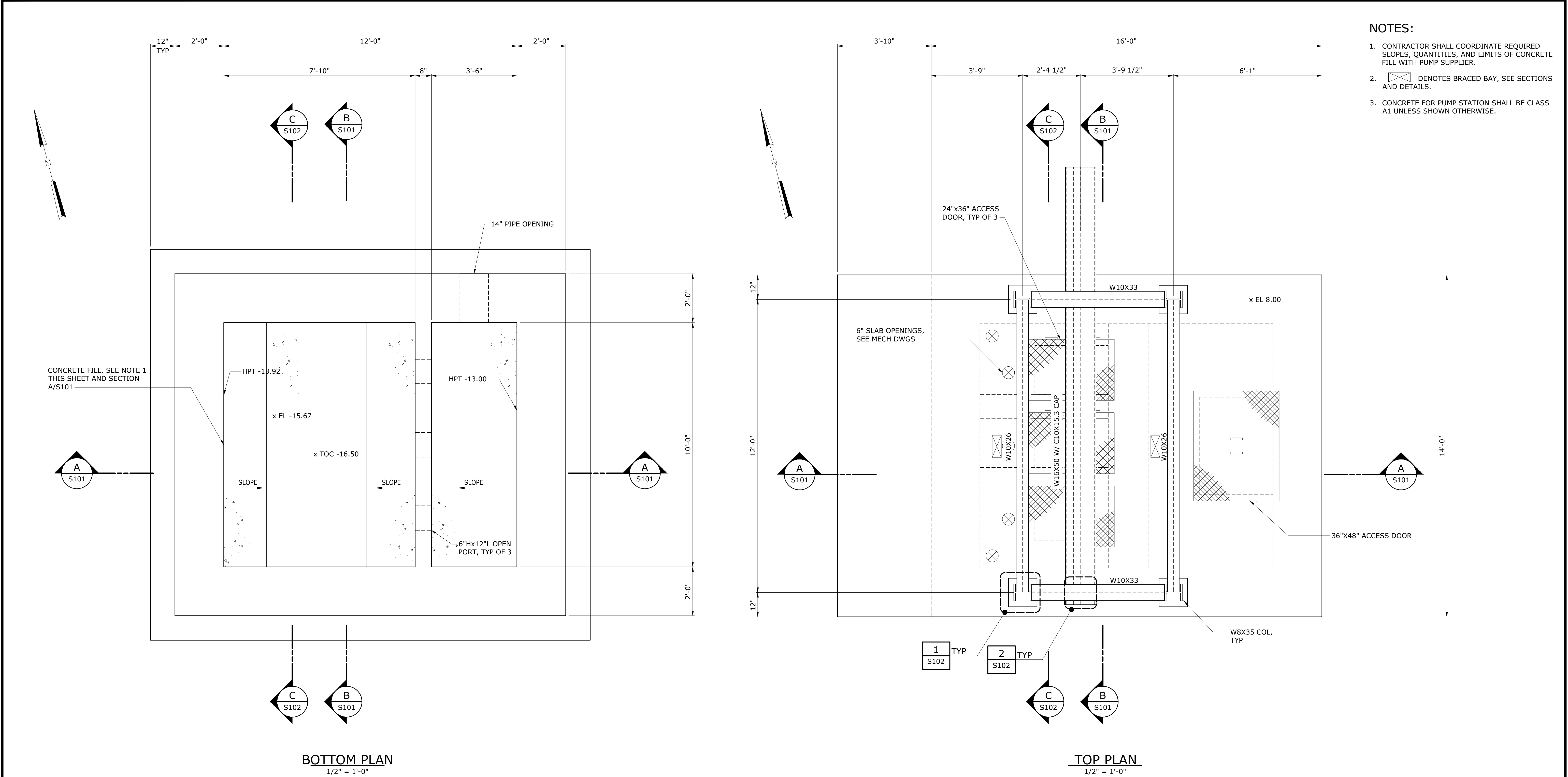



Charleston Water System
COMMISSIONERS OF PUBLIC WORKS
OF THE CITY OF CHARLESTON, SC

THOMAS ISLAND REGIONAL PUMP STATION
AND INTERCEPTOR
DIVISION I

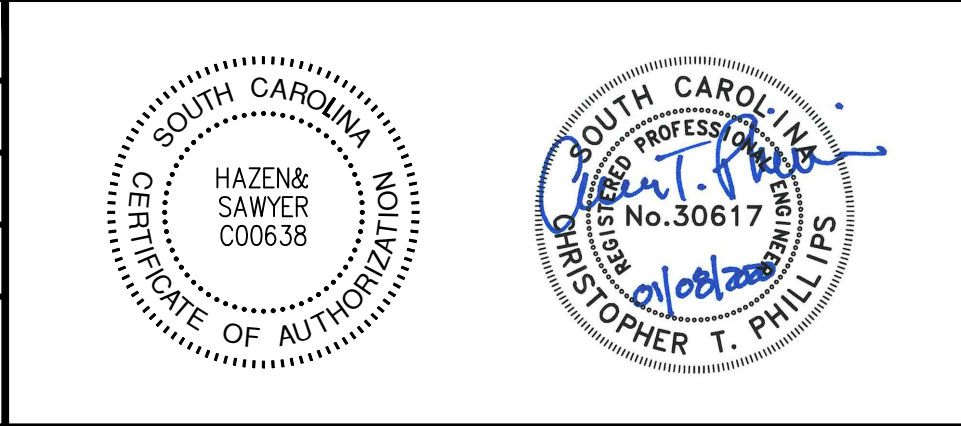
PUMP STATION
MECHANICAL
STANDARD DETAILS

DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	M900




- NOTES:
- CONTRACTOR SHALL COORDINATE REQUIRED SLOPES, QUANTITIES, AND LIMITS OF CONCRETE FILL WITH PUMP SUPPLIER.
 -  DENOTES BRACED BAY, SEE SECTIONS AND DETAILS.
 - CONCRETE FOR PUMP STATION SHALL BE CLASS A1 UNLESS SHOWN OTHERWISE.

				PROJECT ENGINEER:	J. HARTWIG
				DESIGNED BY:	R. ASHBY
				DRAWN BY:	R. ASHBY
				CHECKED BY:	C. PHILLIPS
				IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
1	CONSTRUCTION	JAN 2020	HAZEN	0 1/2" 1"	
REV	ISSUED FOR	DATE	BY		



Hazen
HAZEN AND SAWYER
735 JOHNNIE DODDS BLVD, SUITE 102
MOUNT PLEASANT, SOUTH CAROLINA 29464

 **Charleston Water System**
COMMISSIONERS OF PUBLIC WORKS
OF THE CITY OF CHARLESTON, SC

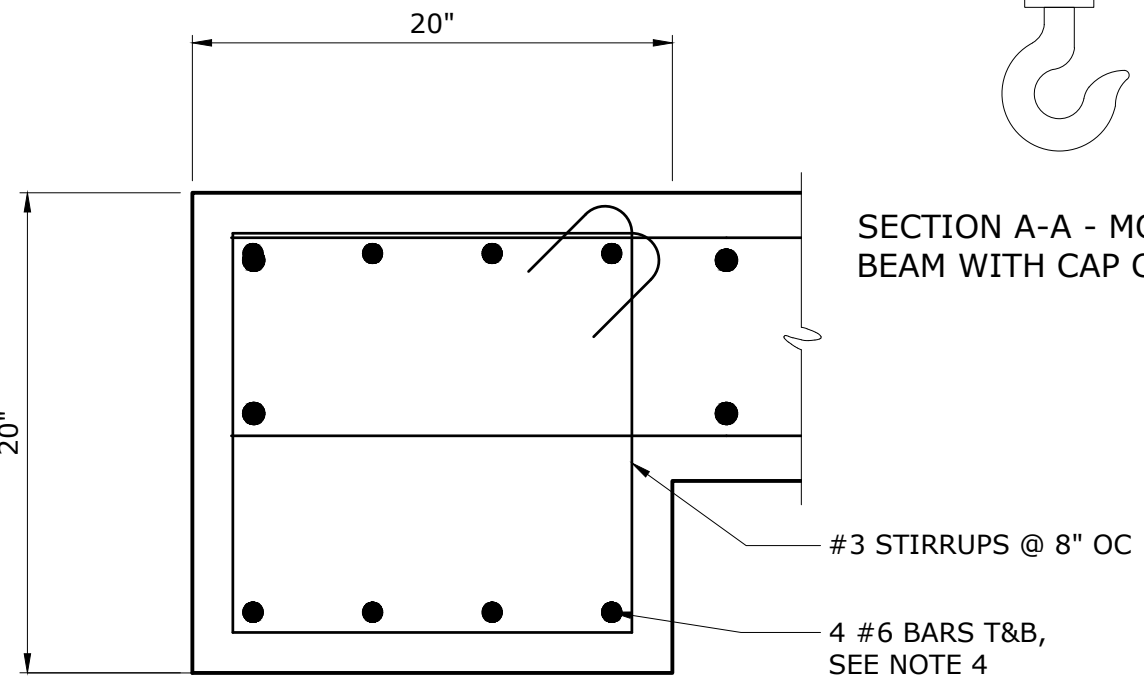
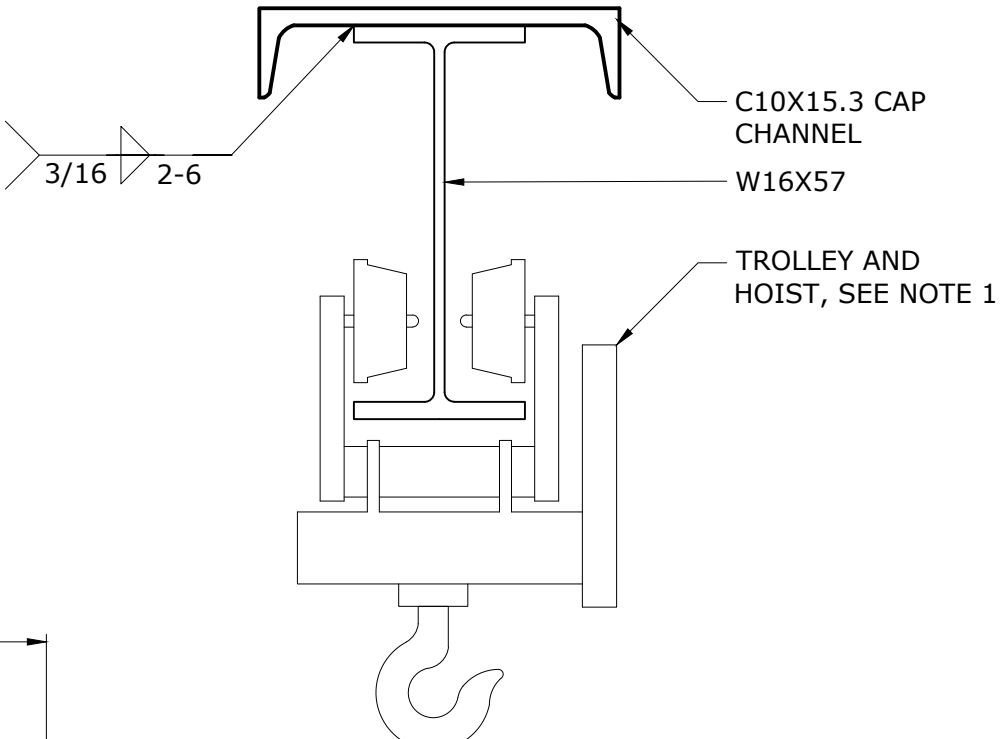
**THOMAS ISLAND REGIONAL PUMP STATION
AND INTERCEPTOR
DIVISION I**

**PUMP STATION
STRUCTURAL
TOP AND BOTTOM PLAN**

DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	S100

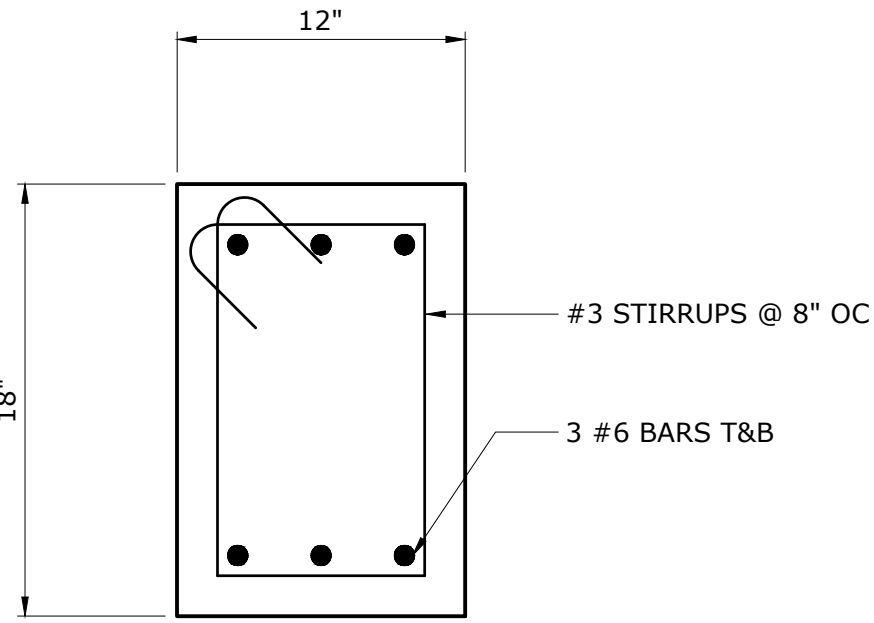
- NOTES:
1. MONORAIL TROLLEY AND HOIST SHALL BE FURNISHED IN ACCORDANCE WITH THE PROVISIONS OF SPECIFICATION SECTION 14620 - TROLLEY HOISTS.
 2. ALL STEEL SHALL BE PAINTED IN ACCORDANCE WITH PROVISIONS OF SPECIFICATION 09900 - PAINTING.
 3. UNLESS NOTED OTHERWISE, PROVIDE SKIN REINFORCEMENT IN BEAMS BETWEEN TOP AND BOTTOM MAIN REINFORCEMENT AS FOLLOWS:

FOR BEAMS 18" OR LESS IN DEPTH, NO SKIN REINFORCEMENT IS REQUIRED.
FOR BEAMS >18" THRU 36", PROVIDE #5 @12" EF.
 4. TERMINATE BEAM TOP REINFORCEMENT AT ENDS WITH STANDARD 90° HOOKS TYPICAL EACH END.
 5. CONCRETE FOR PUMP STATION SHALL BE CLASS A1 UNLESS SHOWN OTHERWISE.



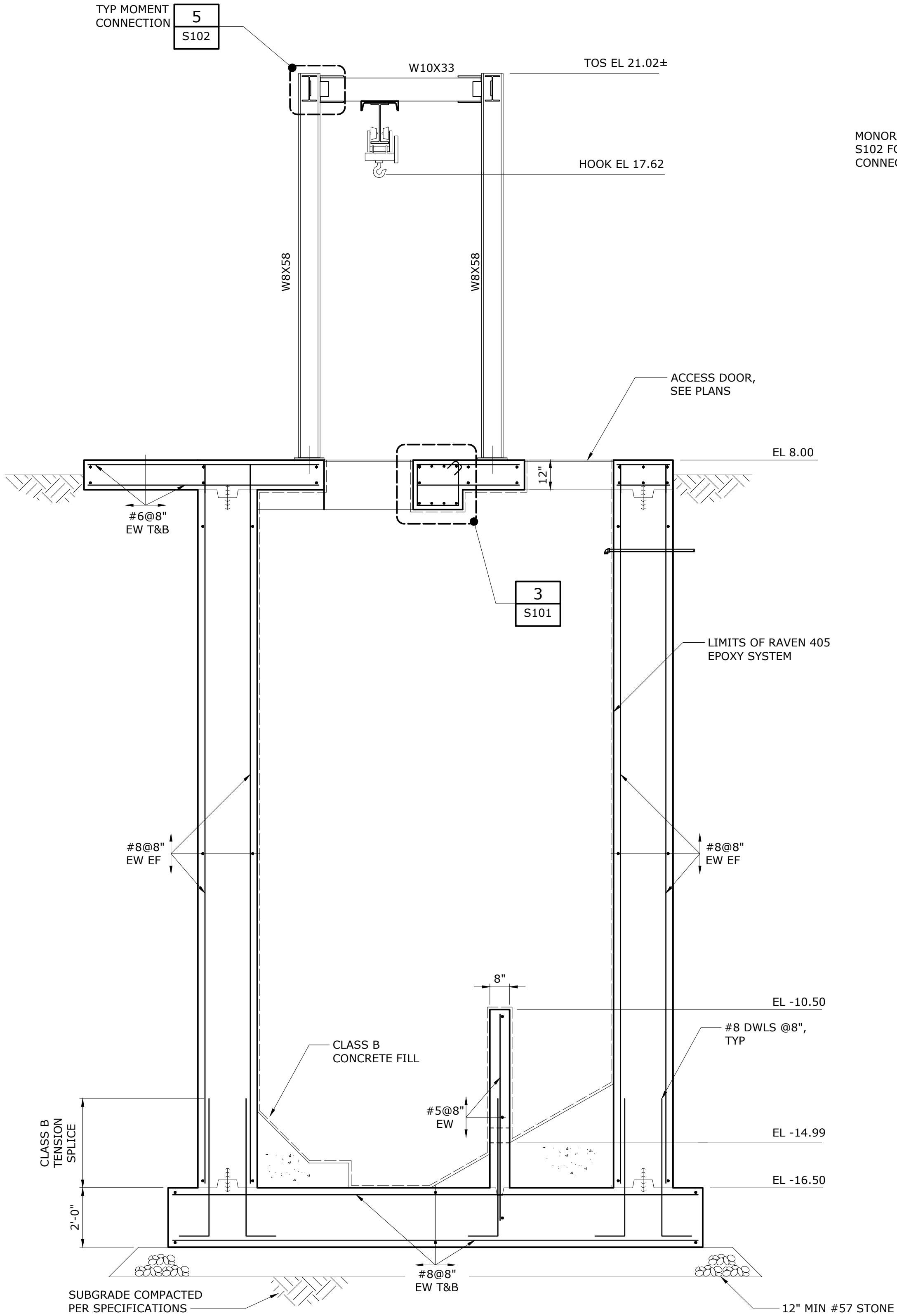
BEAM 1

DETAIL 3
1 1/2" = 1'-0" S101

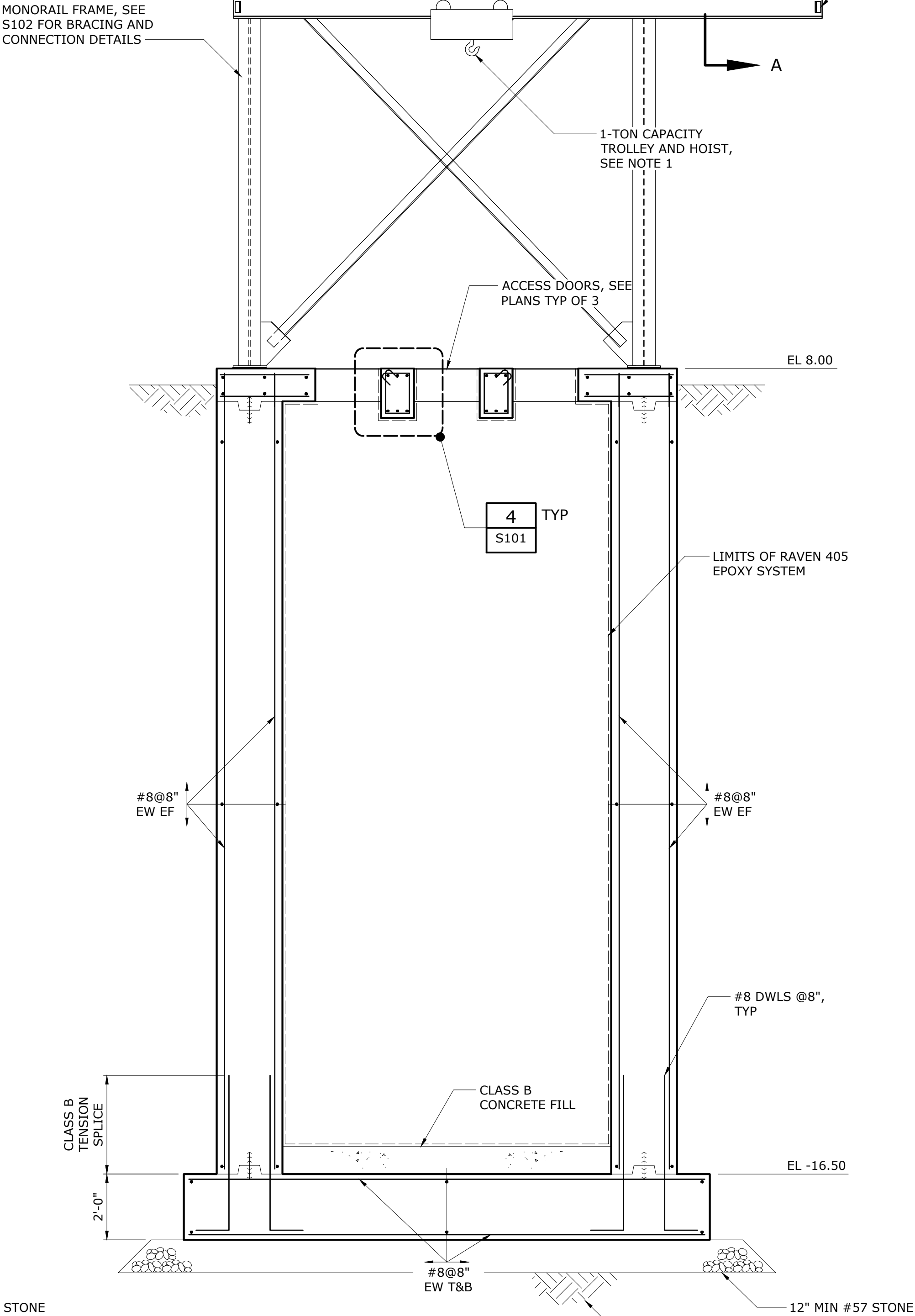


BEAM 2

DETAIL 4
1 1/2" = 1'-0" S101



SECTION A
3/8" = 1'-0" S100



SECTION B
3/8" = 1'-0" S100

				PROJECT ENGINEER:	J. HARTWIG
				DESIGNED BY:	R. ASHBY
				DRAWN BY:	R. ASHBY
				CHECKED BY:	C. PHILLIPS
				IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
1	CONSTRUCTION	JAN 2020	HAZEN	0 1/2" 1"	
REV	ISSUED FOR	DATE	BY		



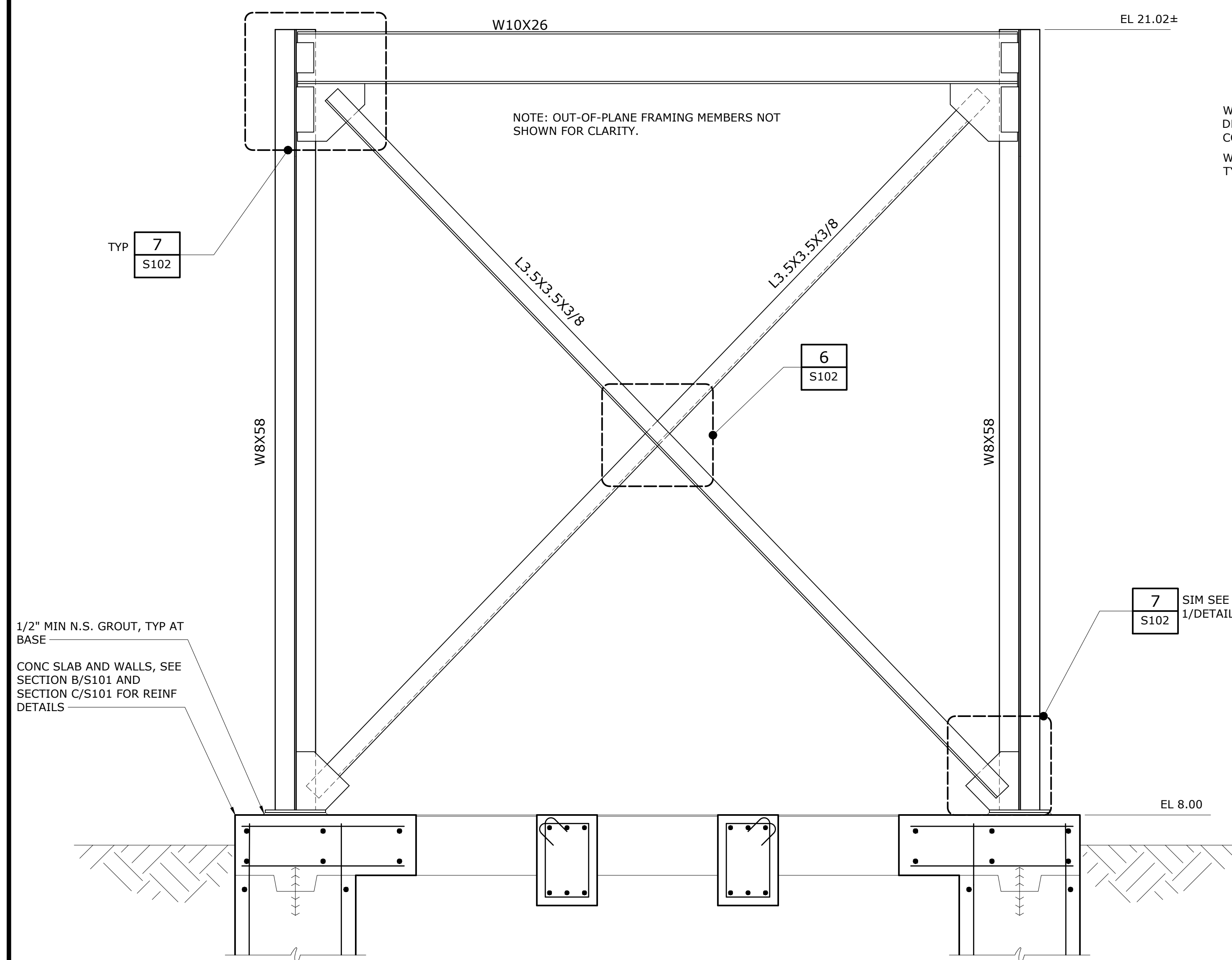
Hazen
HAZEN AND SAWYER
735 JOHNNIE DODDS BLVD, SUITE 102
MOUNT PLEASANT, SOUTH CAROLINA 29464

Charleston Water System
COMMISSIONERS OF PUBLIC WORKS
OF THE CITY OF CHARLESTON, SC

**THOMAS ISLAND REGIONAL PUMP STATION
AND INTERCEPTOR
DIVISION I**

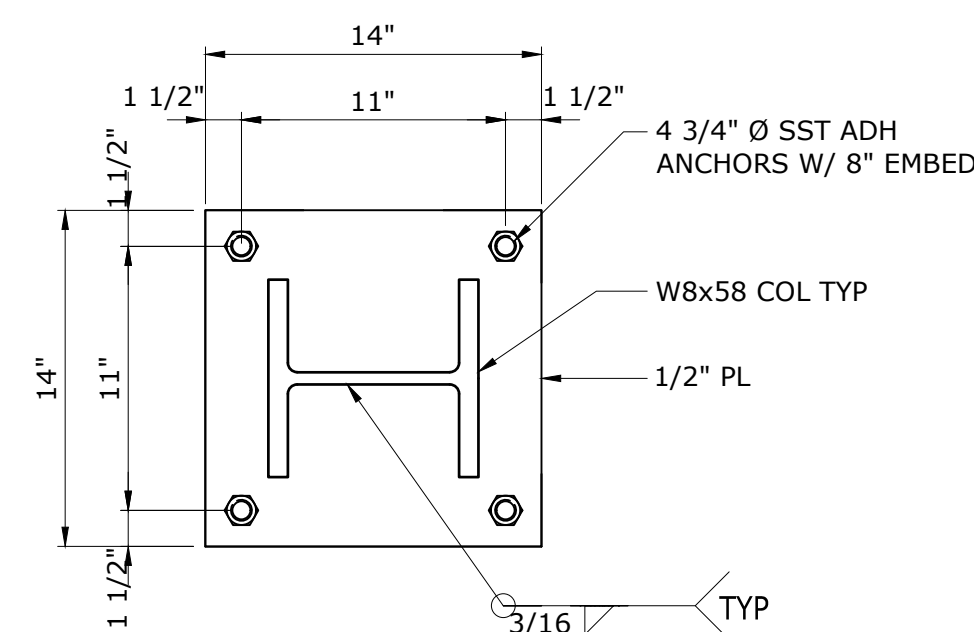
**PUMP STATION
STRUCTURAL
SECTIONS**

DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	S101



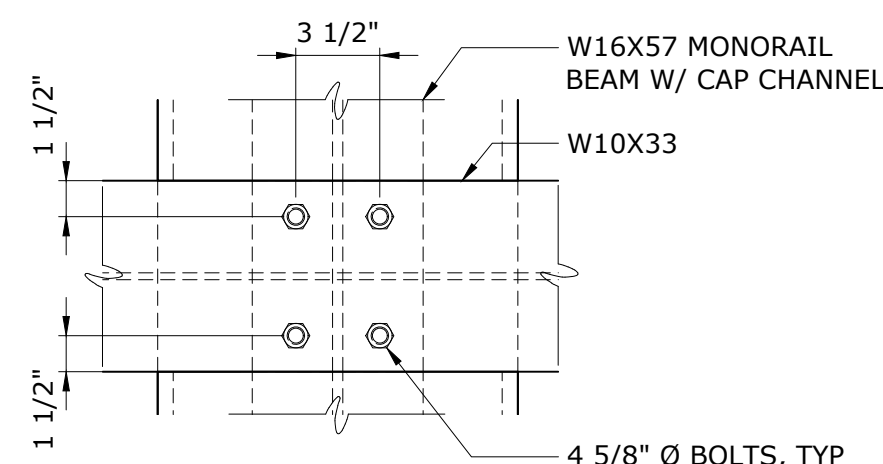
MONORAIL FRAME- TYP TWO SIDES

SECTION C
3/4" = 1'-0" S100

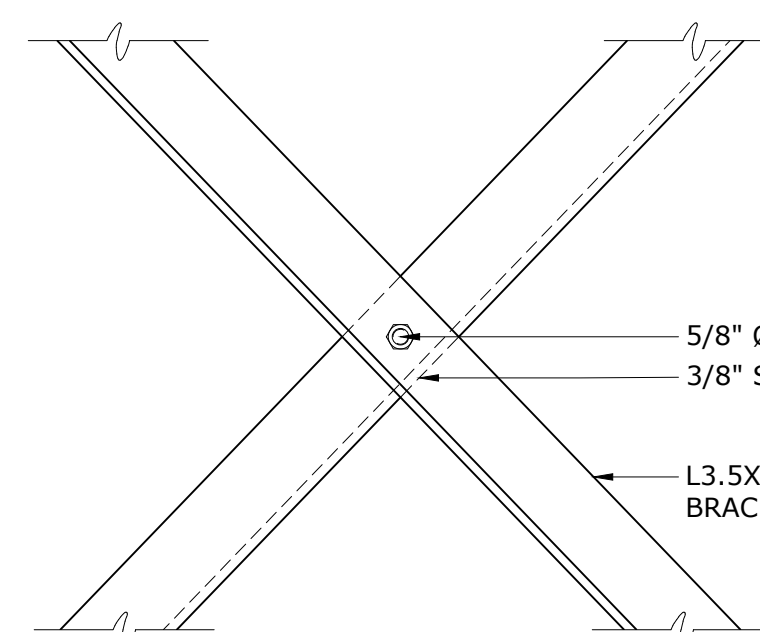


BASEPLATE - TYP 4 LOCATIONS

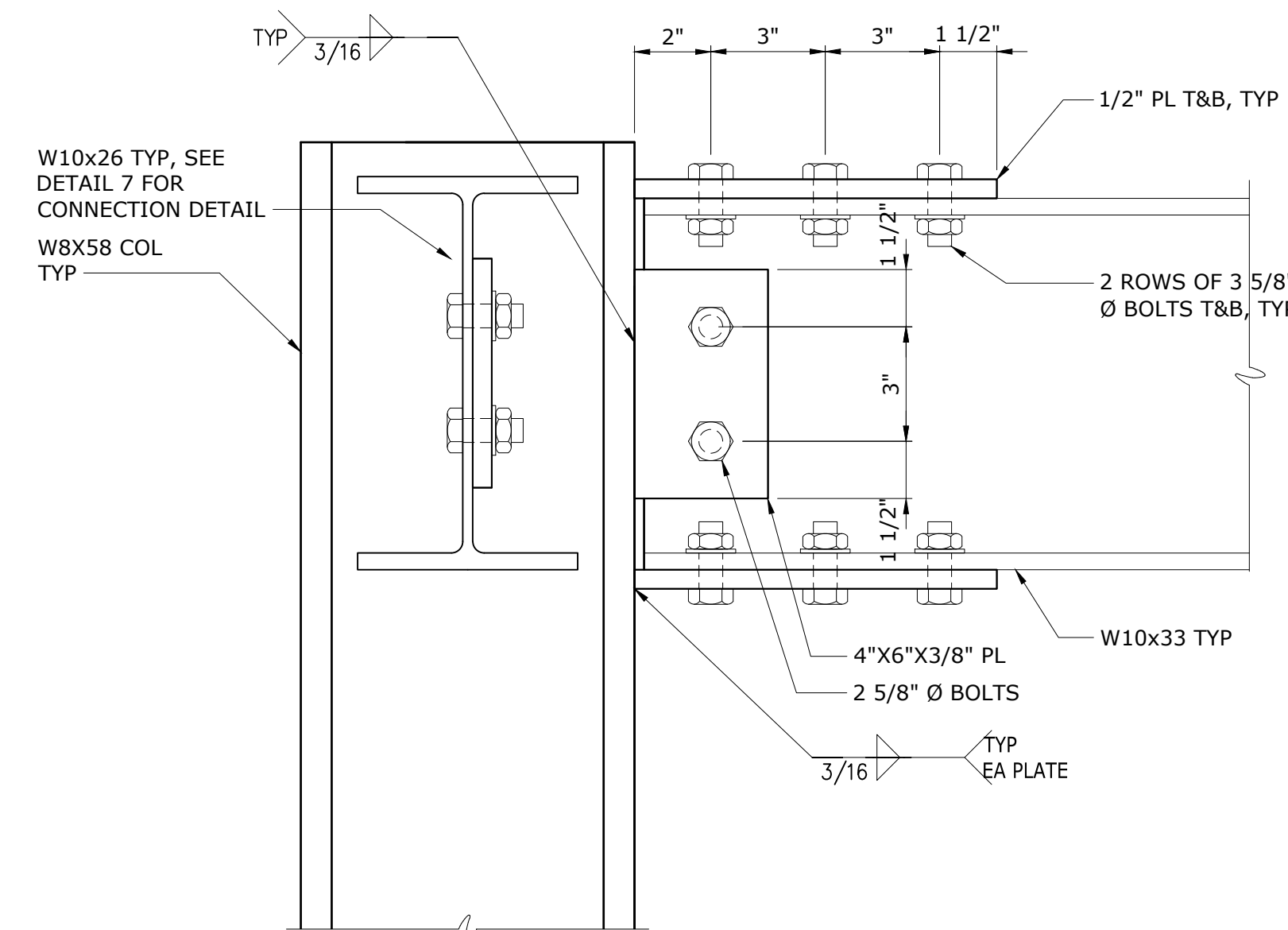
DETAIL	1
1 1/2" = 1'-0"	S100



DETAIL	2
1 1/2" = 1'-0"	S100

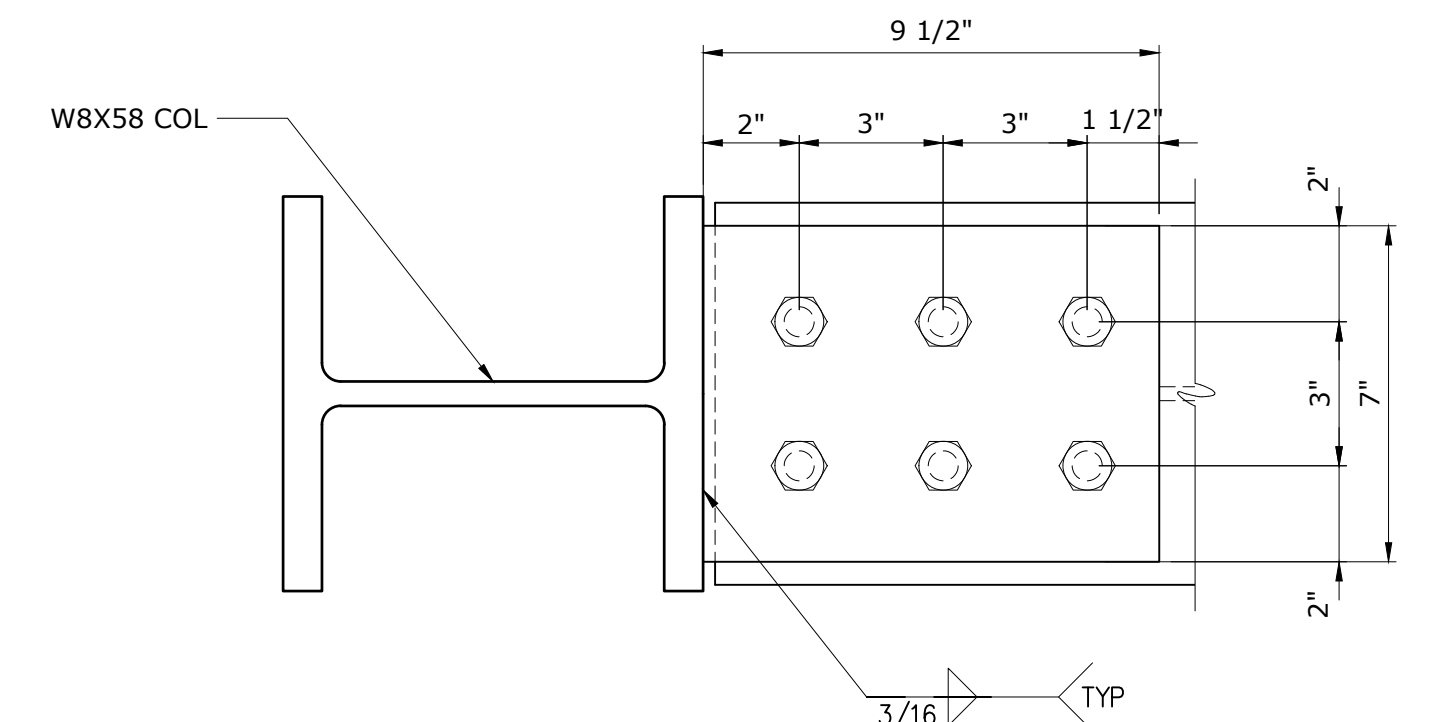


DETAIL	6
1 1/2" = 1'-0"	S102

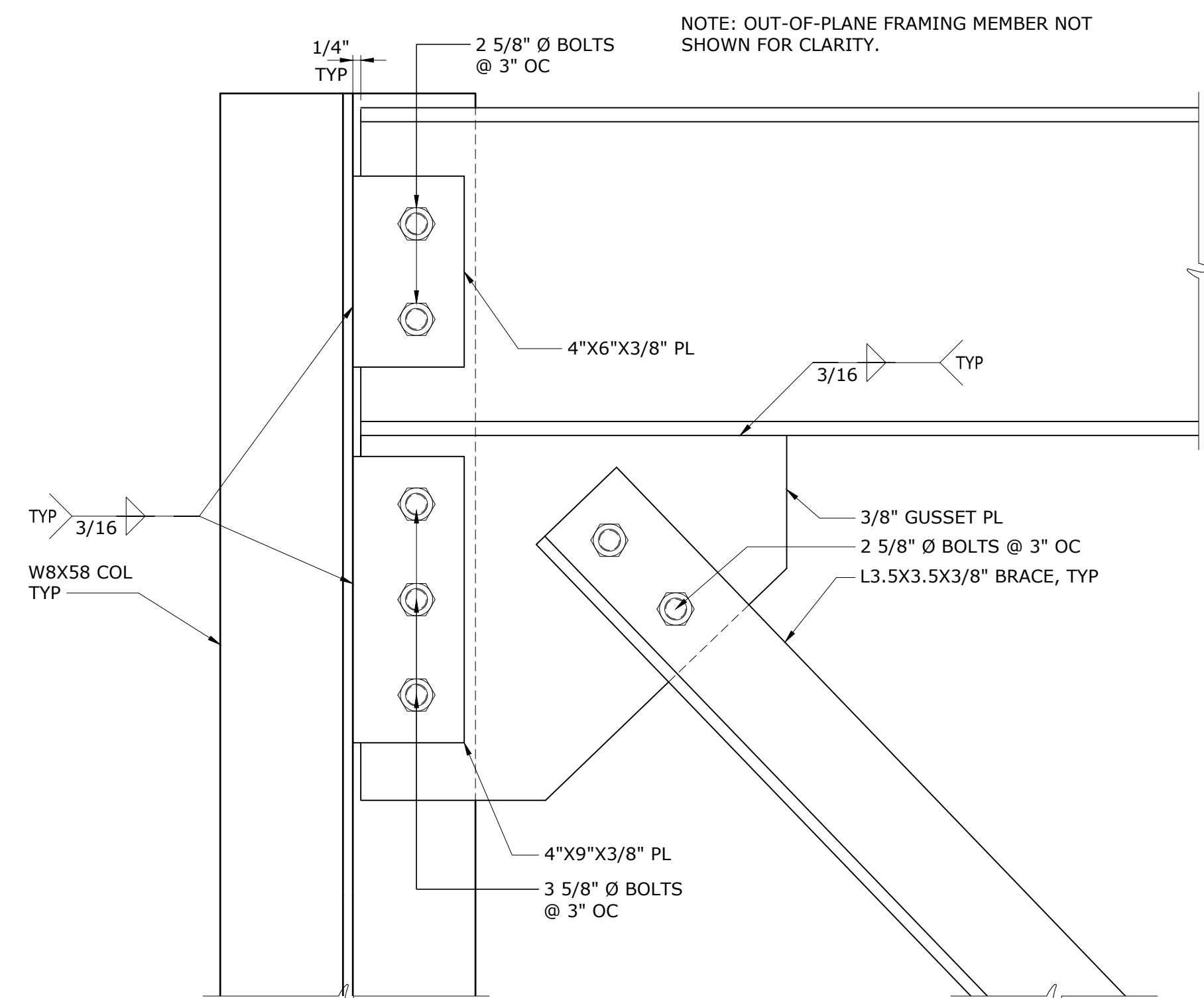


MOMENT CONNECTION - TYP 4 LOCATIONS

DETAIL	5
3" = 1'-0"	S101




MOMENT CONNECTION - PLAN VIEW

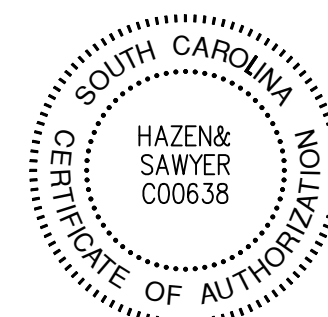


DETAIL	7
3" = 1'-0"	S102

- NOTES:
1. FOR GUSSET CONNECTION AT BOTTOM, WELD GUSSET TO W8 AND BASE PL USING 3/16" FILLET WELD EACH SIDE.

- ## NOTES:
1. STEEL SHALL BE PAINTED IN ACCORDANCE WITH PROVISIONS OF SPECIFICATION 09900 - PAINTING.
 2. ALL BOLTS SHALL BE A325N UNLESS NOTED OTHERWISE.

				PROJECT ENGINEER:	J. HARTWIG
				DESIGNED BY:	R. ASHBY
				DRAWN BY:	R. ASHBY
				CHECKED BY:	C. PHILLIPS
1	CONSTRUCTION	JAN 2020	HAZEN	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
REV	ISSUED FOR	DATE	BY		



Hazen

HAZEN AND SAWYER

735 JOHNNIE DODDS BLVD, SUITE 102
MOUNT PLEASANT, SOUTH CAROLINA 29464



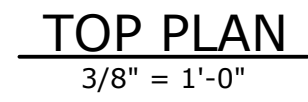
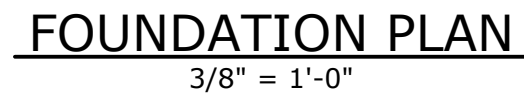
Charleston Water System
COMMISSIONERS OF PUBLIC WORKS
OF THE CITY OF CHARLESTON, SC

THOMAS ISLAND REGIONAL PUMP STATION
AND INTERCEPTOR
DIVISION I

PUMP STATION STRUCTURAL DETAILS

DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	S102

1. PRE-ENGINEERED METAL CANOPY SYSTEM SHALL BE FURNISHED IN ACCORDANCE WITH PROVISIONS OF SPECIFICATION SECTION 10535. CONTRACTOR SHALL COORDINATE CANOPY DIMENSIONS WITH CONTROL PANEL SUPPLIER.
2. CONCRETE FOR ELECTRICAL PLATFORM SHALL BE CLASS A2.



A circular professional engineer seal for the State of South Carolina. The outer ring contains the text "SOUTH CAROLINA" at the top and "STATE OF SOUTH CAROLINA" at the bottom. Inside this ring, the words "PROFESSIONAL ENGINEER" are written in a semi-circle on the left, and "LICENSED IN THE STATE OF SOUTH CAROLINA" is written in a semi-circle on the right. In the center of the seal, the text "HAZEN & SAWYER" is displayed above the license number "C00638".

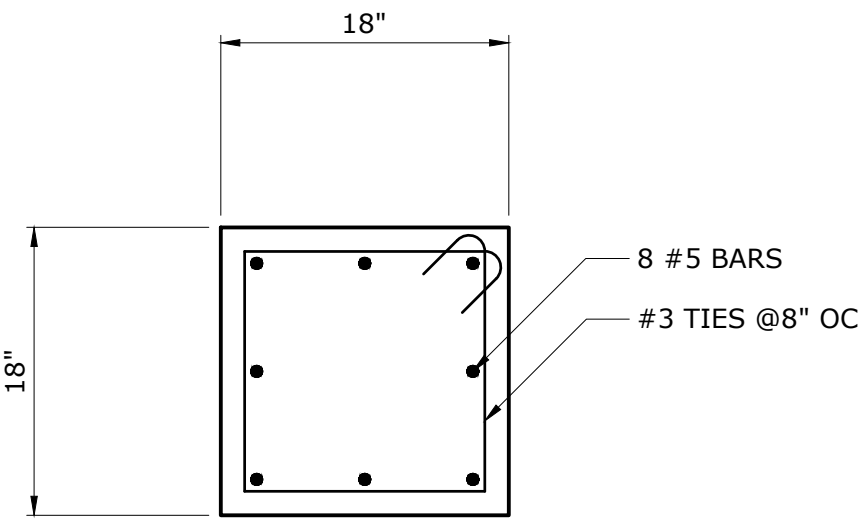


THOMAS ISLAND REGIONAL PUMP STATION
AND INTERCEPTOR
DIVISION I

DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	S200

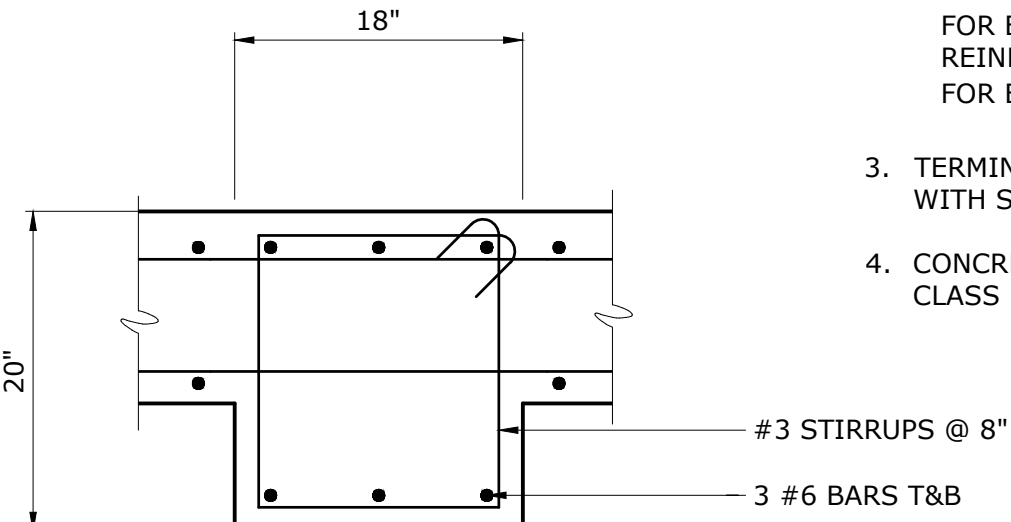
- NOTES:
- PRE-ENGINEERED METAL CANOPY SYSTEM SHALL BE FURNISHED IN ACCORDANCE WITH PROVISIONS OF SPECIFICATION SECTION 10535- CANOPIES. CONTRACTOR SHALL COORDINATE CANOPY DIMENSIONS WITH CONTROL PANEL SUPPLIER.
 - UNLESS NOTED OTHERWISE, PROVIDE SKIN REINFORCEMENT IN BEAMS BETWEEN TOP AND BOTTOM MAIN REINFORCEMENT AS FOLLOWS:

FOR BEAMS 18"OR LESS IN DEPTH, NO SKIN REINFORCEMENT IS REQUIRED.
FOR BEAMS >18" THRU 36", PROVIDE #5 @12" EF.
 - TERMINATE BEAM TOP REINFORCEMENT AT ENDS WITH STANDARD 90° HOOKS TYPICAL EACH END.
 - CONCRETE FOR ELECTRICAL PLATFORM SHALL BE CLASS A2.



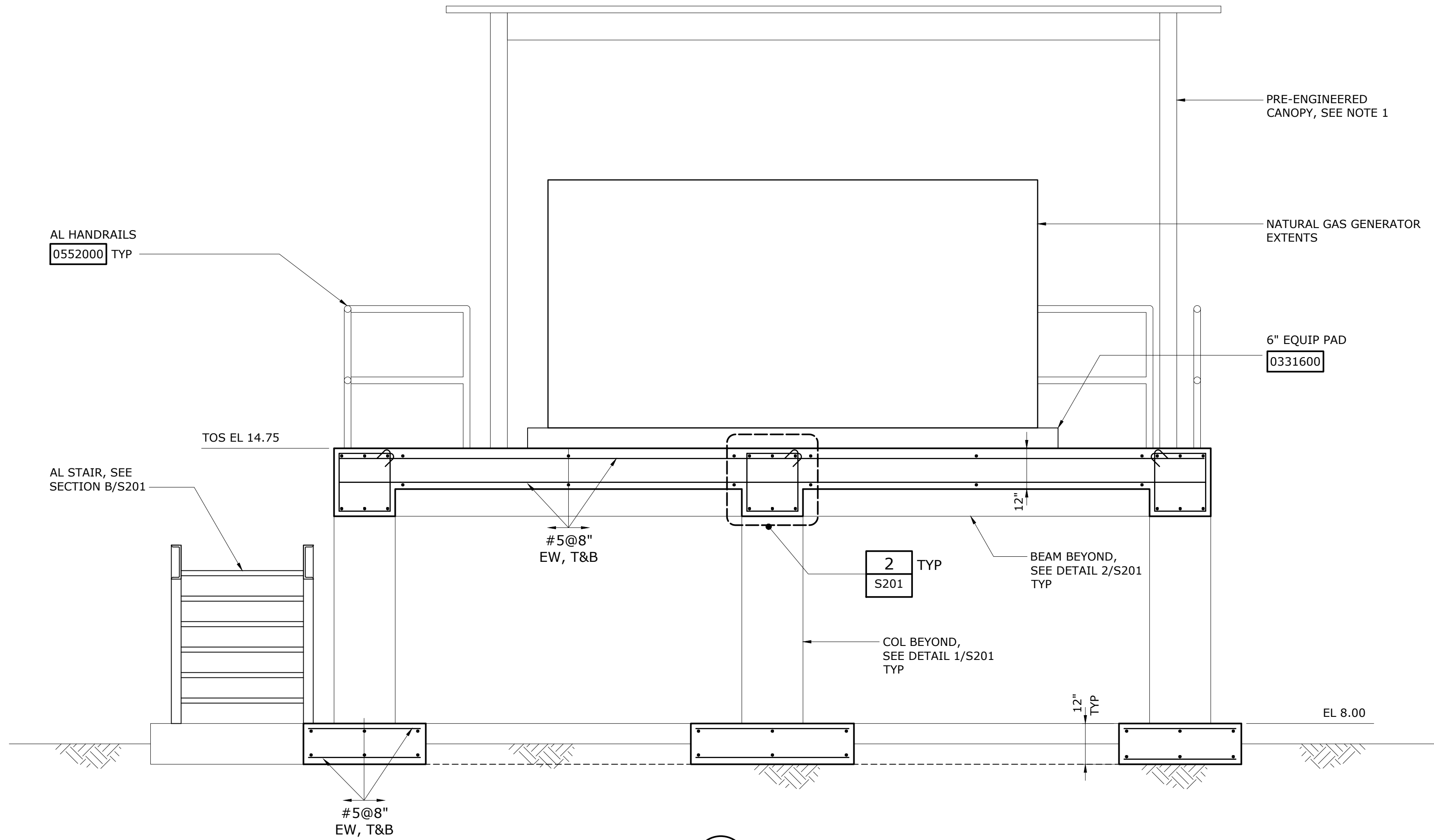
TYP COLUMN

DETAIL 1
1" = 1'-0" S200

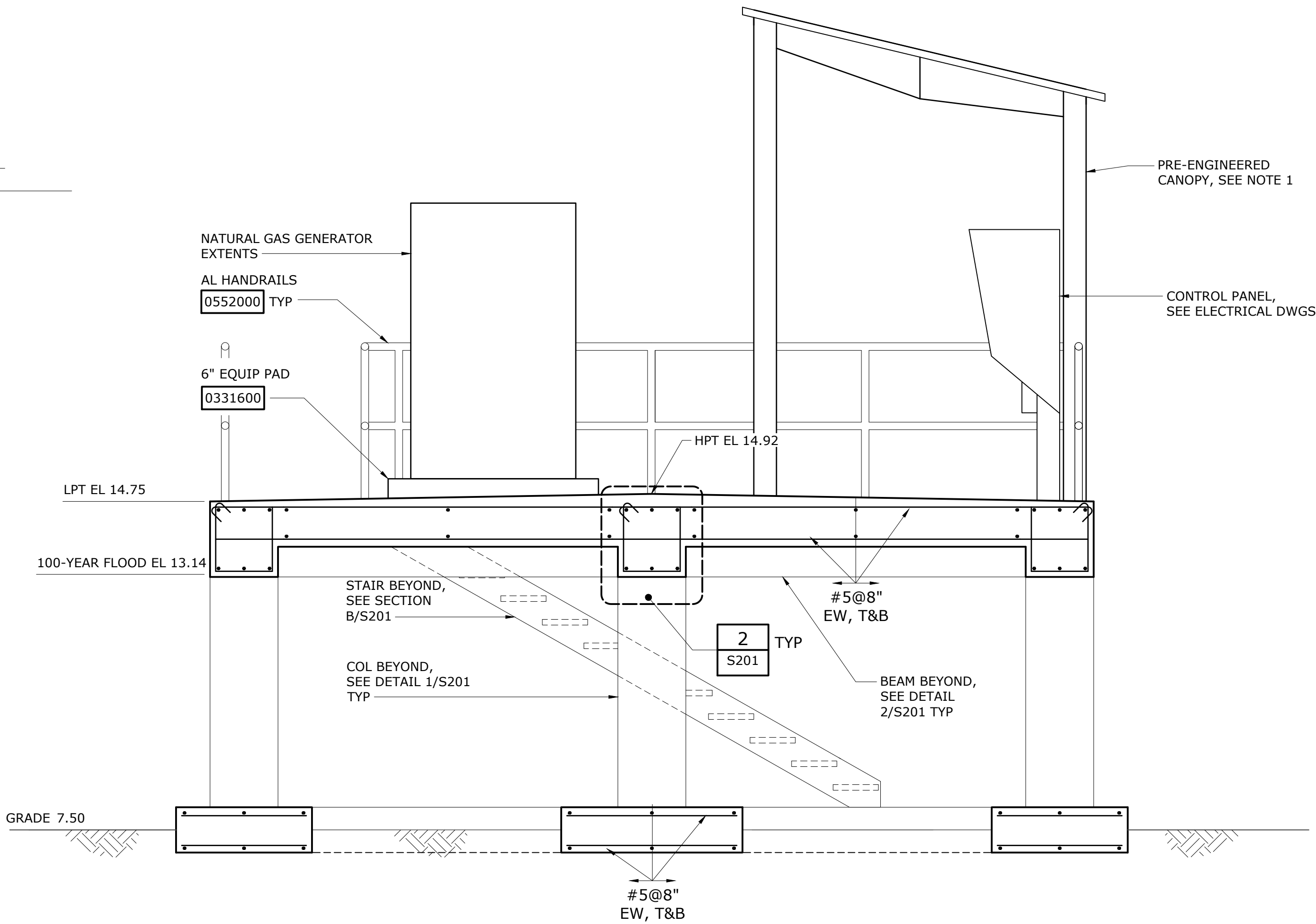


TYP BEAM

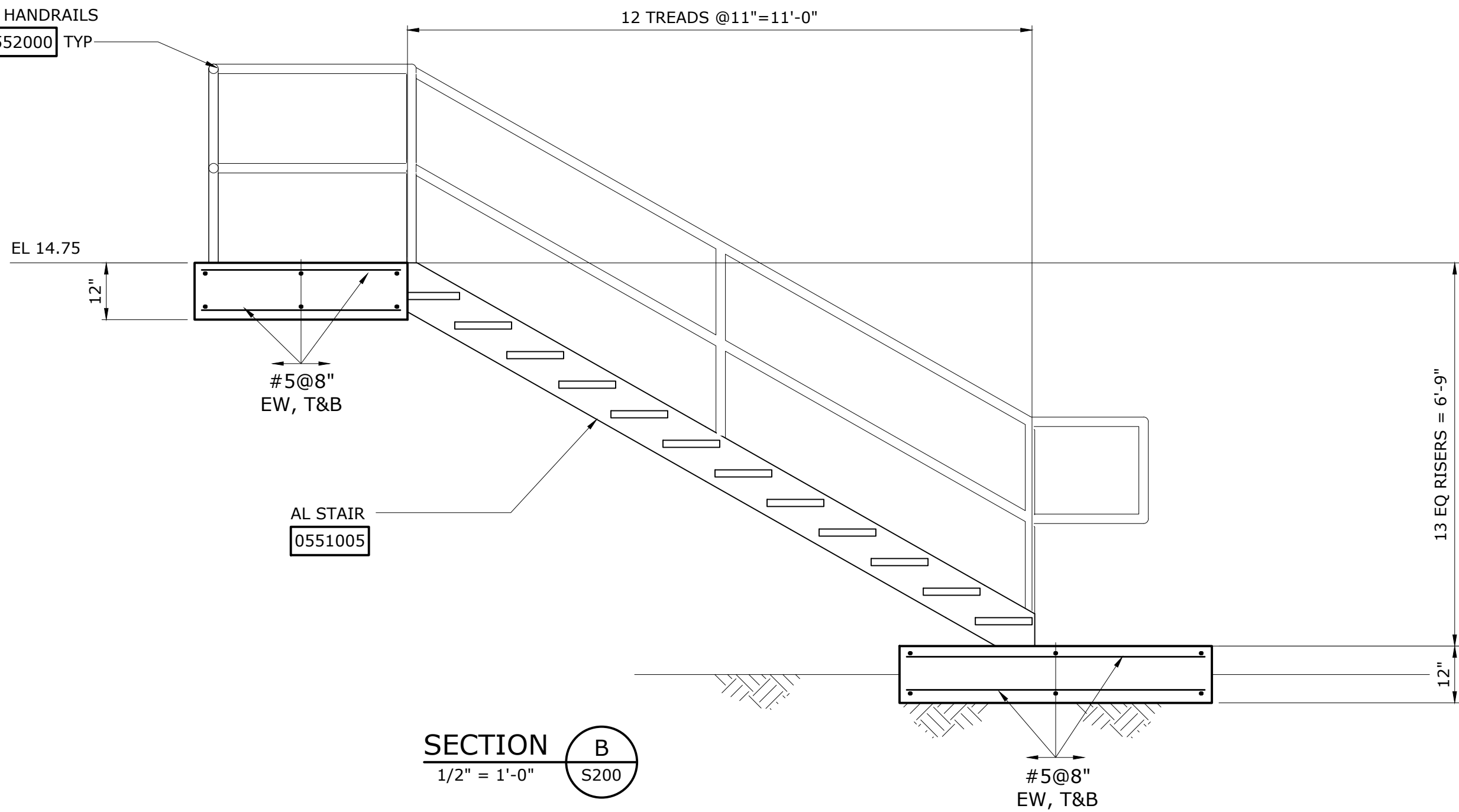
DETAIL 2
1" = 1'-0" S201



SECTION A
1/2" = 1'-0" S200

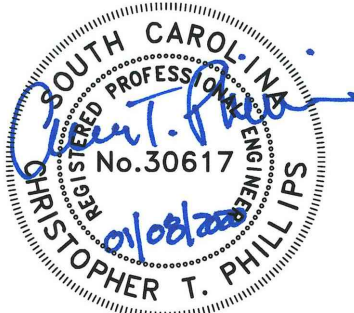


SECTION C
1/2" = 1'-0" S200



SECTION B
1/2" = 1'-0" S200

				PROJECT ENGINEER:	J. HARTWIG
				DESIGNED BY:	R. ASHBY
				DRAWN BY:	R. ASHBY
				CHECKED BY:	C. PHILLIPS
				IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
1	CONSTRUCTION	JAN 2020	HAZEN		
REV	ISSUED FOR	DATE	BY		



Hazen
HAZEN AND SAWYER
735 JOHNNIE DODDS BLVD, SUITE 102
MOUNT PLEASANT, SOUTH CAROLINA 29464

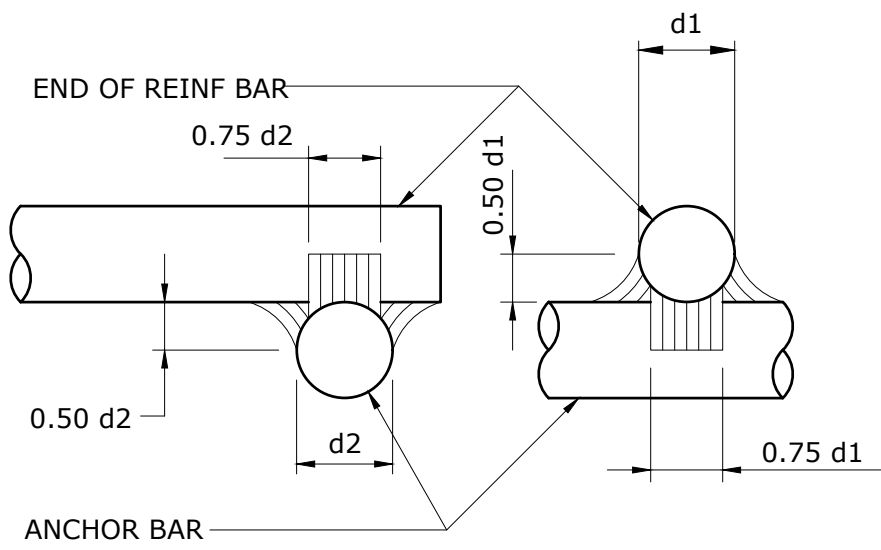


Charleston Water System
COMMISSIONERS OF PUBLIC WORKS
OF THE CITY OF CHARLESTON, SC

THOMAS ISLAND REGIONAL PUMP STATION
AND INTERCEPTOR
DIVISION I

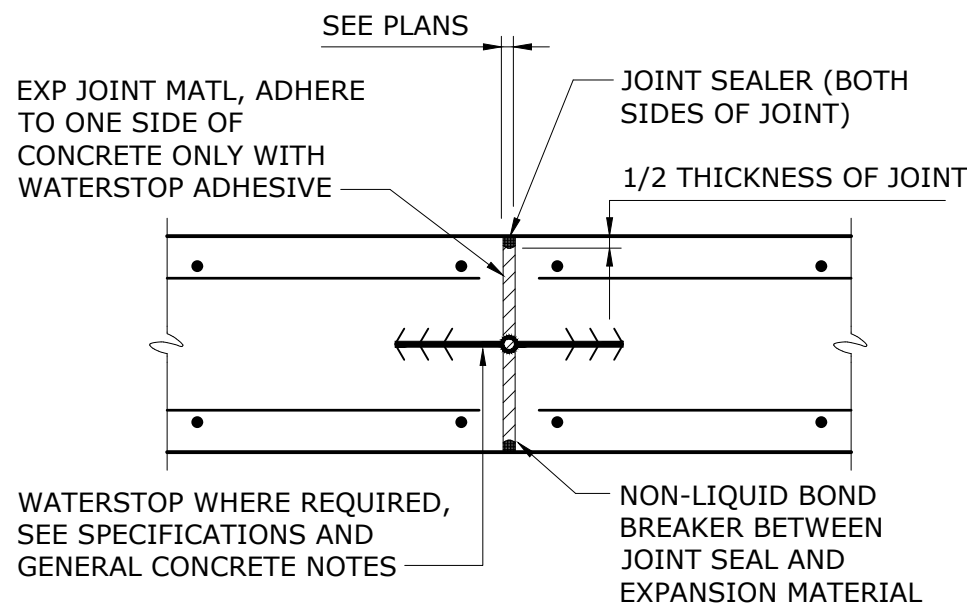
ELECTRICAL PLATFORM
STRUCTURAL
SECTIONS AND DETAILS

DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	S201

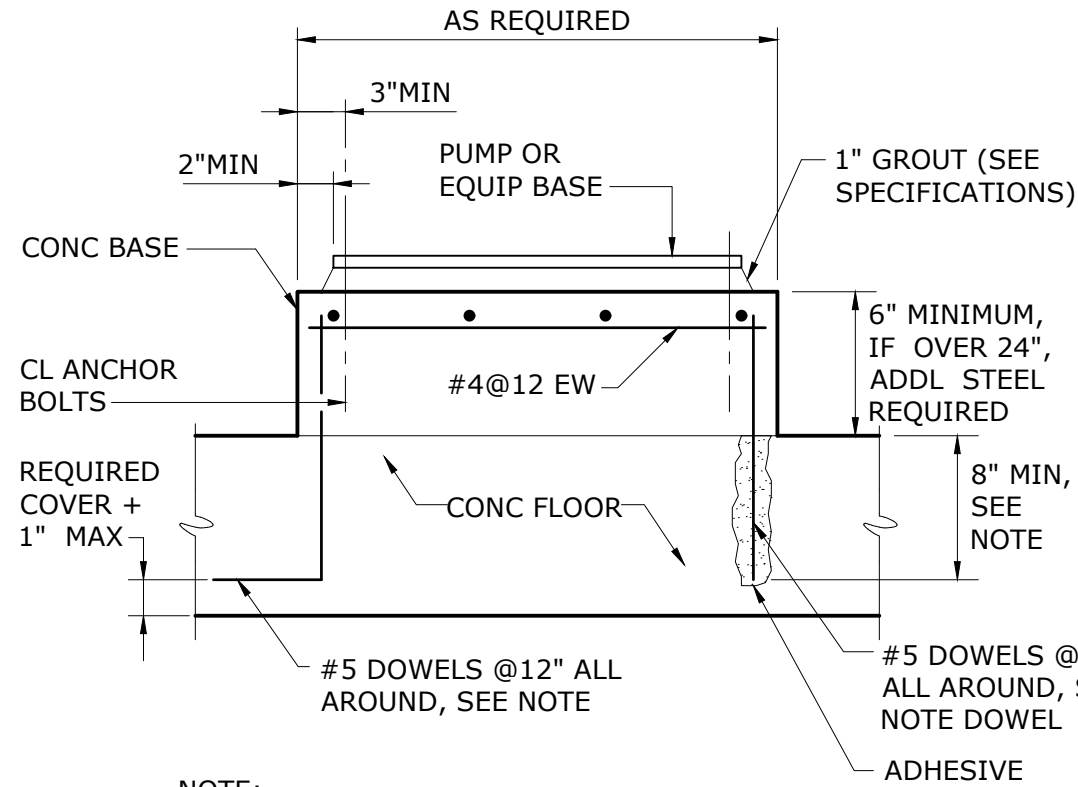


NOTES:
BARS TO BE WELDED SHALL CONFORM TO ASTM A706. WELDING SHALL BE DONE BY CERTIFIED WELDERS IN CONFORMANCE WITH AWS D1.4. WELDING IS PERMITTED ONLY WHERE SHOWN ON PLANS OR OTHERWISE APPROVED BY THE ENGINEER.

REINFORCING BAR WELDMENT
0321000



TYPICAL EXPANSION JOINT
0325100

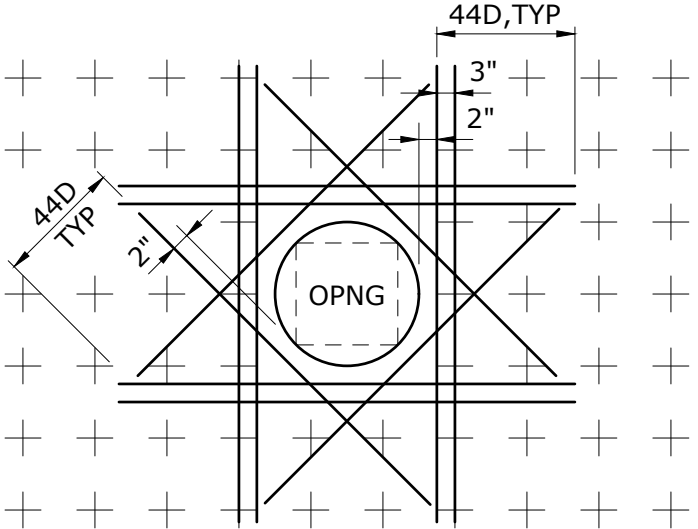


NOTE:
DOWELS MAY BE CAST IN WITH 90° HOOK OR ANCHORED WITH DOWEL ADHESIVE AT CONTRACTORS OPTION. WHERE FLOOR IS 8" THICK OR LESS, USE #4 DOWELS EMBEDDED TO WITHIN 2" OF BOTTOM OF FLOOR SLAB.

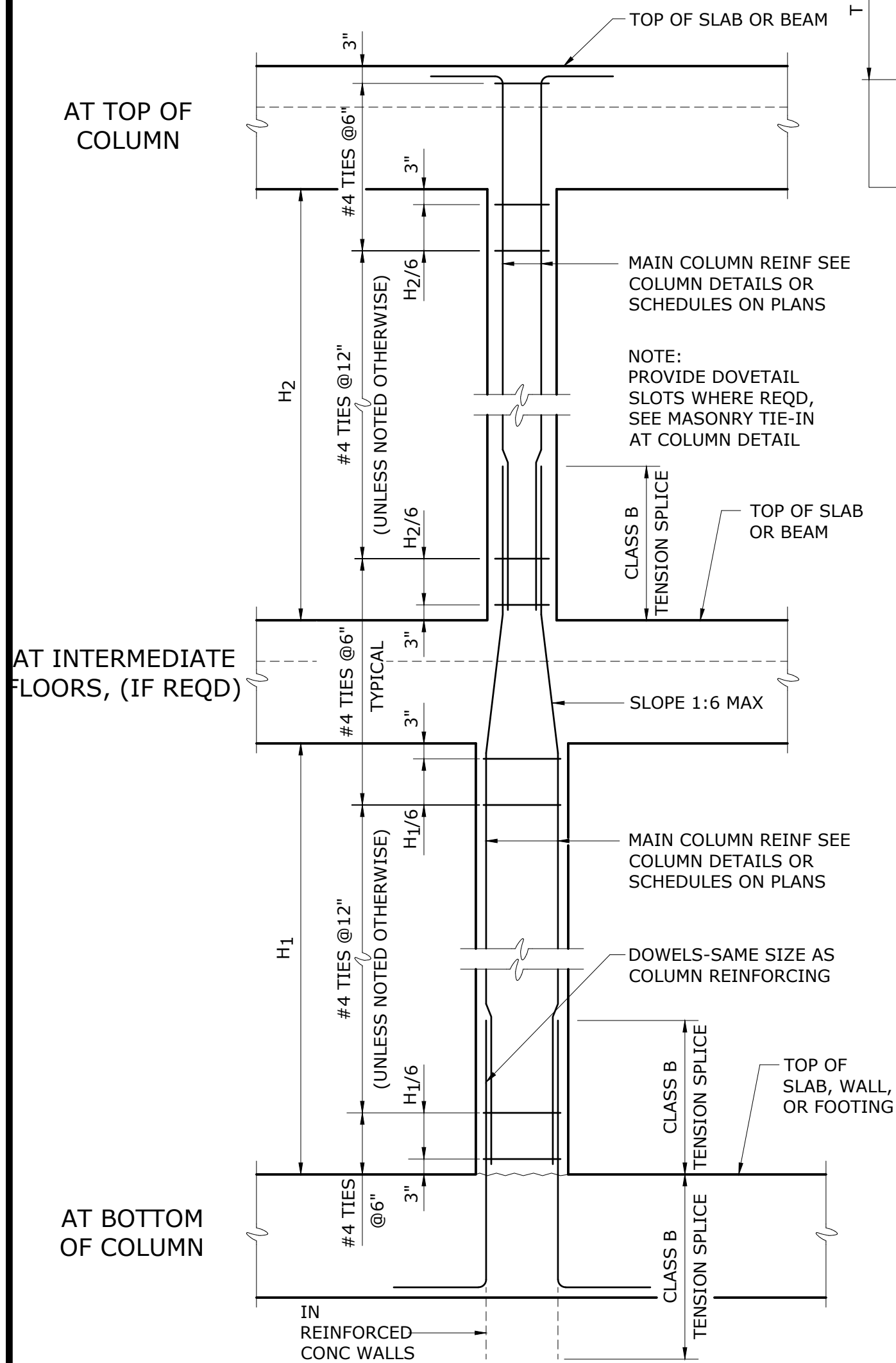
TYP PUMP OR EQUIP BASE
0331600

BASIC DEVELOPMENT LENGTH AND SPLICE LENGTH									
FOR BARS IN TENSION									
** BASED ON MATERIALS AND CONDITIONS AS FOLLOWS:									
fy = 60,000 psi					fc' = 4500 psi OR GREATER				
UNCOATED BARS					NORMAL WEIGHT CONCRETE				
CLEAR COVER ≥ 1.5 INCHES									
BASIC DEVELOPMENT LENGTH				BAR SIZE	CLASS B SPLICE LENGTH				
ld					1.3 × ld				
CLEAR SPACING ≥ 3"		CLEAR SPACING < 3"			CLEAR SPACING ≥ 3"		CLEAR SPACING < 3"		
BASIC	TOP *	BASIC	TOP *		BASIC	TOP *	BASIC	TOP *	
1'-0"	1'-0"	1'-0"	1'-3"	# 3	1'-0"	1'-2"	1'-3"	1'-7"	
1'-0"	1'-2"	1'-6"	2'-0"	# 4	1'-2"	1'-7"	2'-0"	2'-7"	
1'-2"	1'-6"	2'-2"	2'-10"	# 5	1'-6"	1'-11"	2'-10"	3'-8"	
1'-5"	1'-9"	2'-11"	3'-9"	# 6	1'-9"	2'-4"	3'-9"	4'-11"	
2'-3"	2'-11"	4'-7"	6'-0"	# 7	2'-11"	3'-9"	6'-0"	7'-9"	
2'-10"	3'-8"	5'-8"	7'-4"	# 8	3'-8"	4'-9"	7'-4"	9'-6"	
3'-6"	4'-6"	6'-4"	8'-3"	# 9	4'-6"	5'-10"	8'-3"	10'-8"	
4'-3"	5'-6"	7'-2"	9'-3"	# 10	5'-6"	7'-2"	9'-3"	12'-0"	
5'-1"	6'-7"	7'-11"	10'-3"	# 11	6'-7"	8'-7"	10'-3"	13'-4"	
* TOP REINFORCEMENT IS ANY HORIZONTAL REINFORCEMENT SO PLACED THAT MORE THAN 12 INCHES OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE REINFORCEMENT. AS AN EXAMPLE, HORIZONTAL WALL BARS ARE CONSIDERED TOP REINFORCEMENT.									
** FOR MATERIALS OR CONDITIONS DIFFERENT FROM THOSE STATED, LENGTHS SHOWN IN CHART SHALL BE MODIFIED TO CONFORM TO THE PROVISIONS OF ACI 318, SECTION 12.2.									

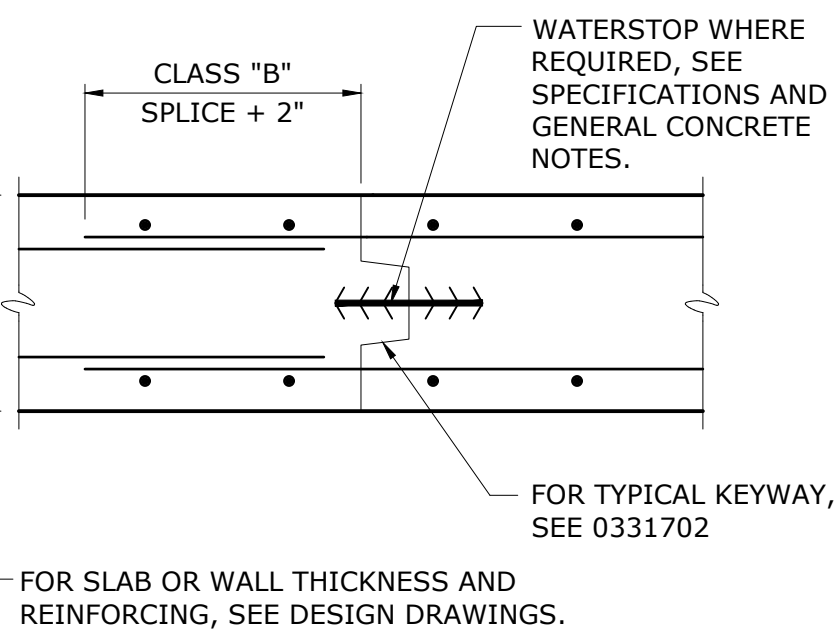
0321005



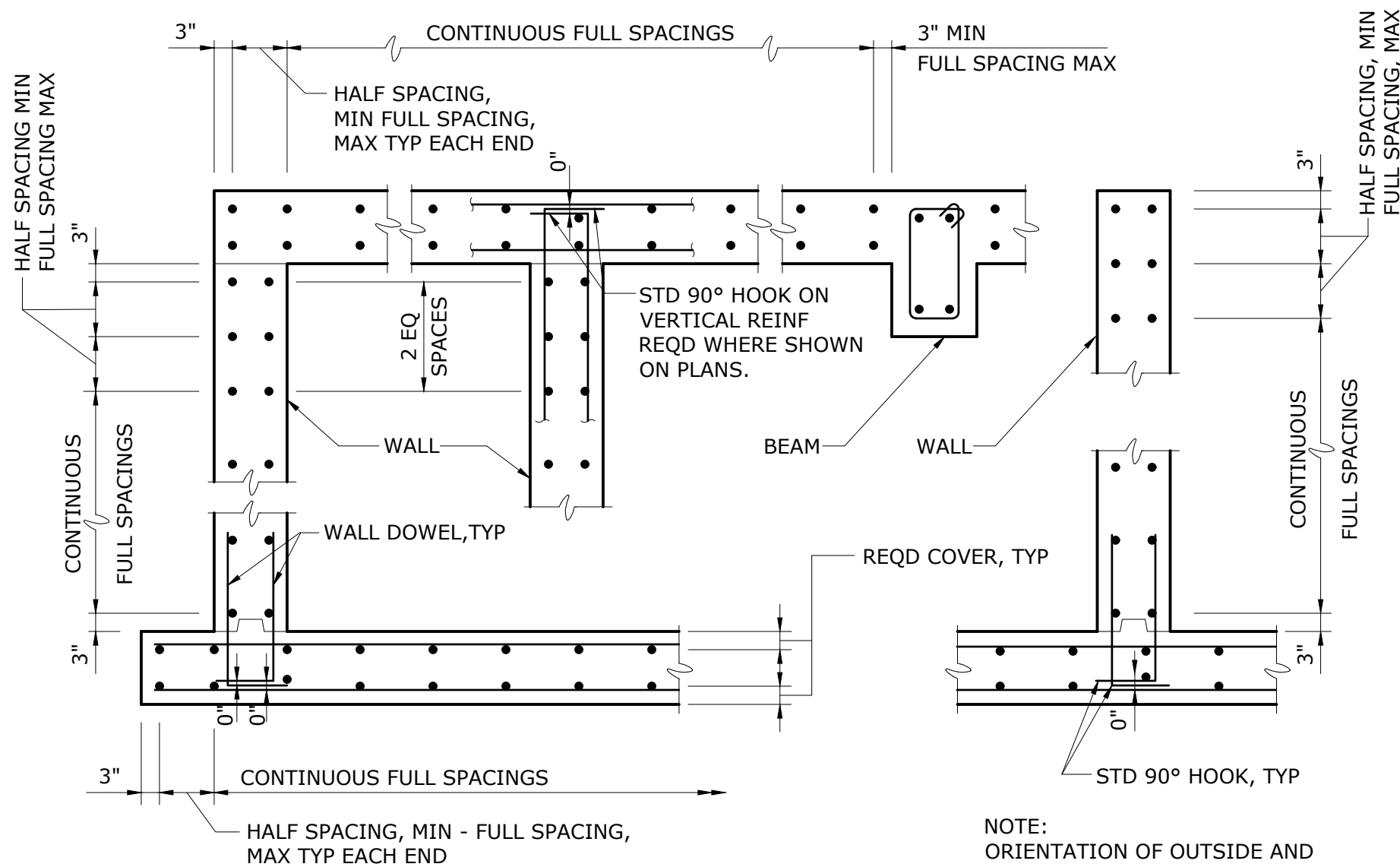
TYPICAL REINF AT OPENINGS
0331703



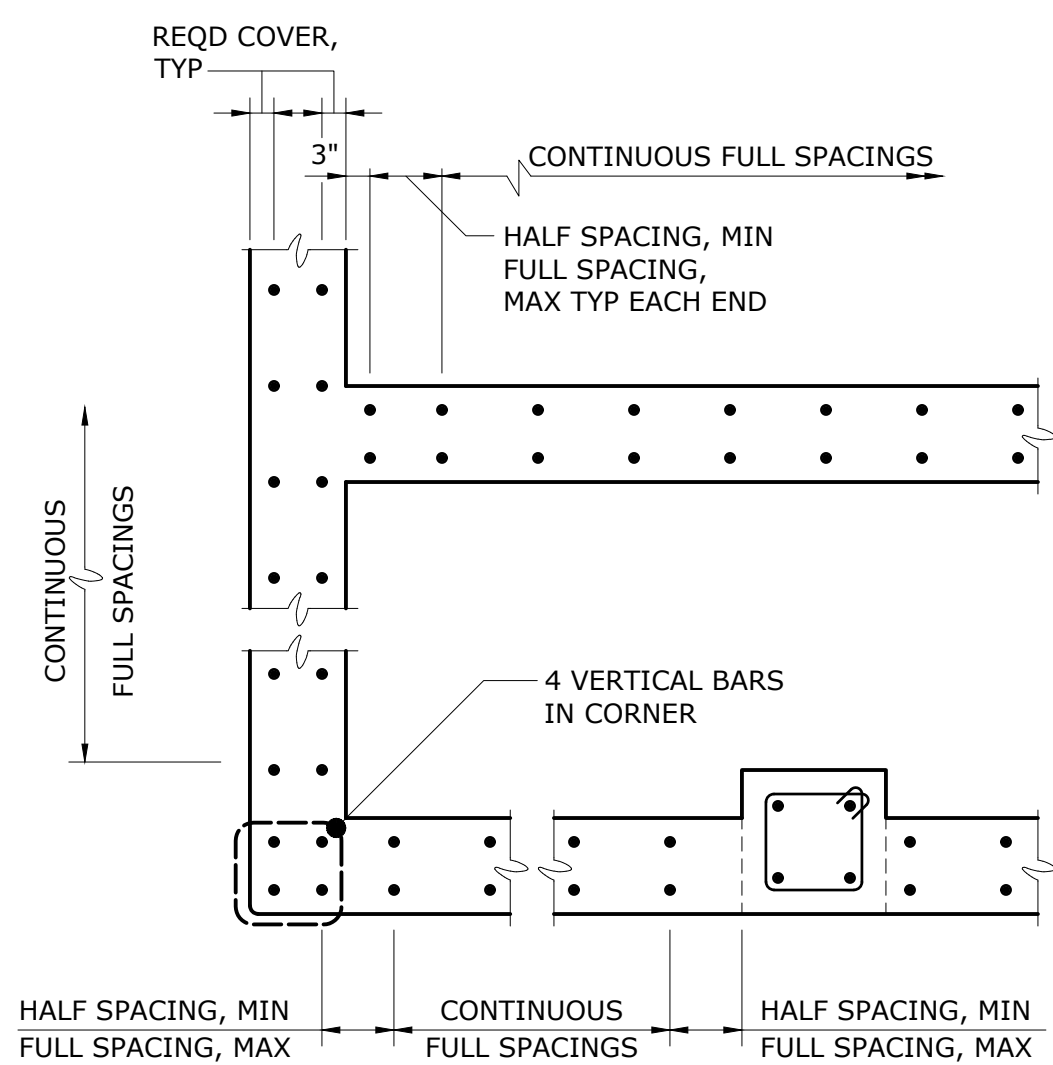
TYPICAL COLUMN ELEVATION
0331800



TYPICAL CONSTRUCTION JOINT
0331701



TYPICAL BAR PLACEMENT
0331704



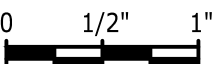
PLAN - WALLS

DEVELOPMENT LENGTH OF STANDARD HOOKS		
FOR BARS IN TENSION		
fy = 60,000 psi fc' = 4000 psi OR GREATER		
BAR SIZE	DEVELOPMENT LENGTH, ldh	
	BASIC	W/ CONC COVER *
#3	8"	6"
#4	10"	7"
#5	1'-0"	9"
#6	1'-3"	11"
#7	1'-5"	1'-0"
#8	1'-7"	1'-2"
#9	1'-10"	1'-4"
#10	2'-1"	1'-6"
#11	2'-3"	1'-7"
* SIDE COVER NORMAL TO PLANE OF HOOK AT LEAST 2 1/2"; AND FOR 90° HOOK, END COVER BEYOND OUTSIDE END OF HOOK AT LEAST 2".		

0321003

REV	CONSTRUCTION	JAN 2020	HAZEN
1	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	J. HARTWIG
DESIGNED BY:	R. ASHBY
DRAWN BY:	R. ASHBY
CHECKED BY:	C. PHILLIPS
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	



Hazen

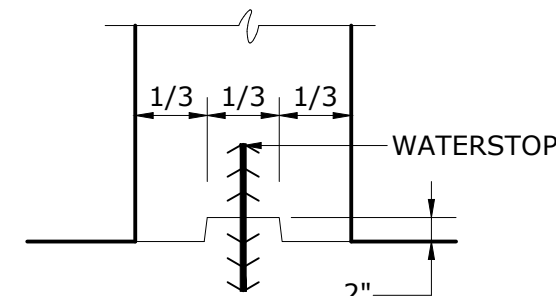
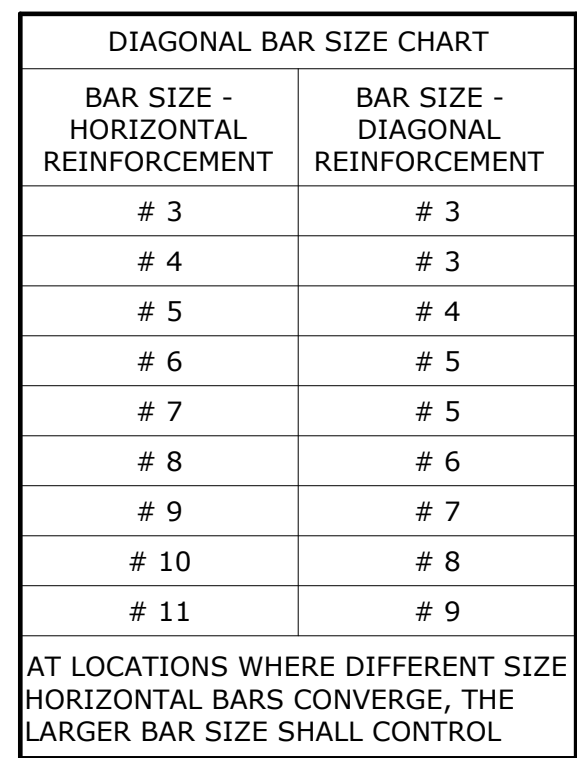
HAZEN AND SAWYER
735 JOHNNIE DODDS BLVD, SUITE 102
MOUNT PLEASANT, SOUTH CAROLINA 29464

Charleston Water System
COMMISSIONERS OF PUBLIC WORKS
OF THE CITY OF CHARLESTON, SC

THOMAS ISLAND REGIONAL PUMP STATION
AND INTERCEPTOR
DIVISION I

DETAILS
STRUCTURAL
STANDARD DETAILS

DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	S300

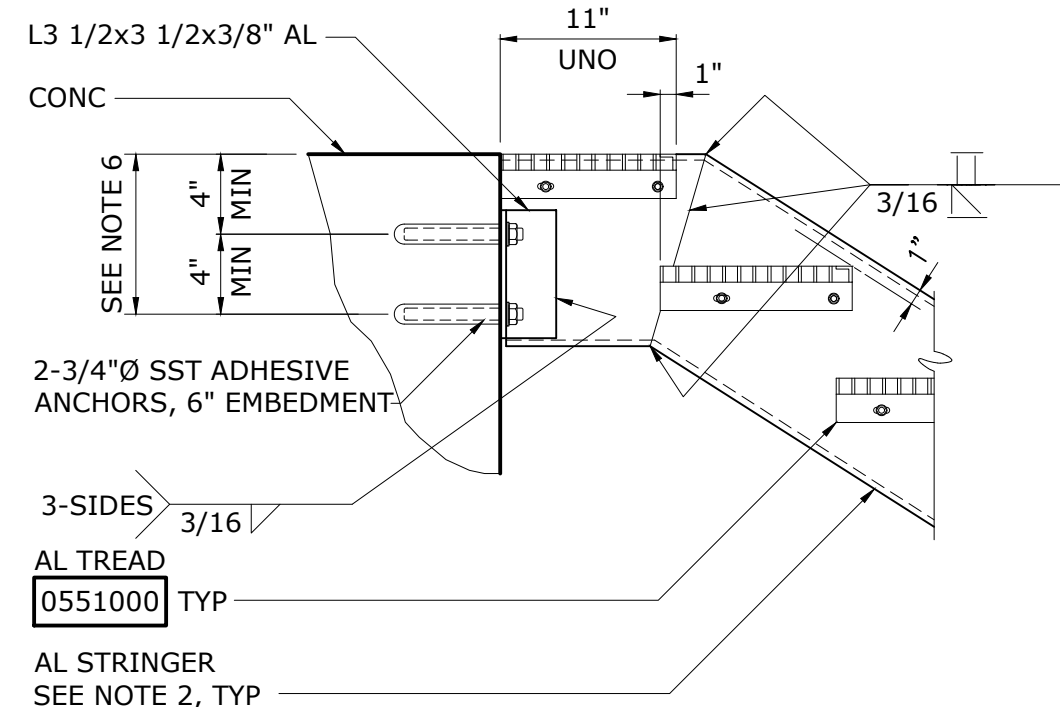


Technical drawing of a grate assembly showing top and side views. The top view shows a rectangular grate with a 1 1/4 inch abrasive nosing and a grating tread. The side view shows the grate mounted on a carrier plate or L-bracket. Dimensions include a 7/16 inch diameter hole, a 7/16 inch by 1 inch slot, and a total width of T + 1 inch.

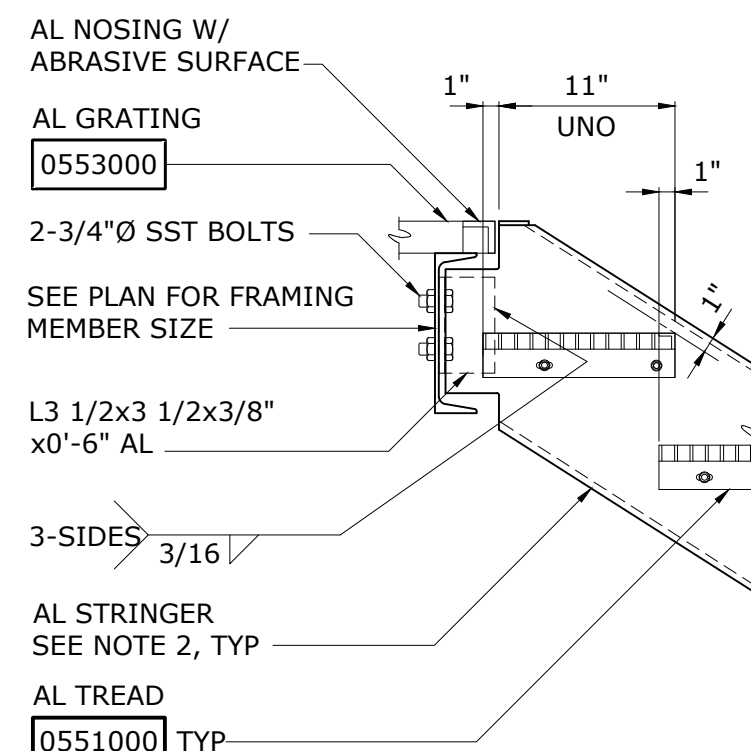
Labels and dimensions in the drawing include:

- TOP/STRINGER
- 1 1/4" ABRASIVE NOSING
- GRATING TREAD
- TYP
- 1" MIN NOSING DIM
- 7/16"Ø
- 7/16"x1" SLOT
- CARRIER PL OR L
- 1 1/8"
- T + 1"

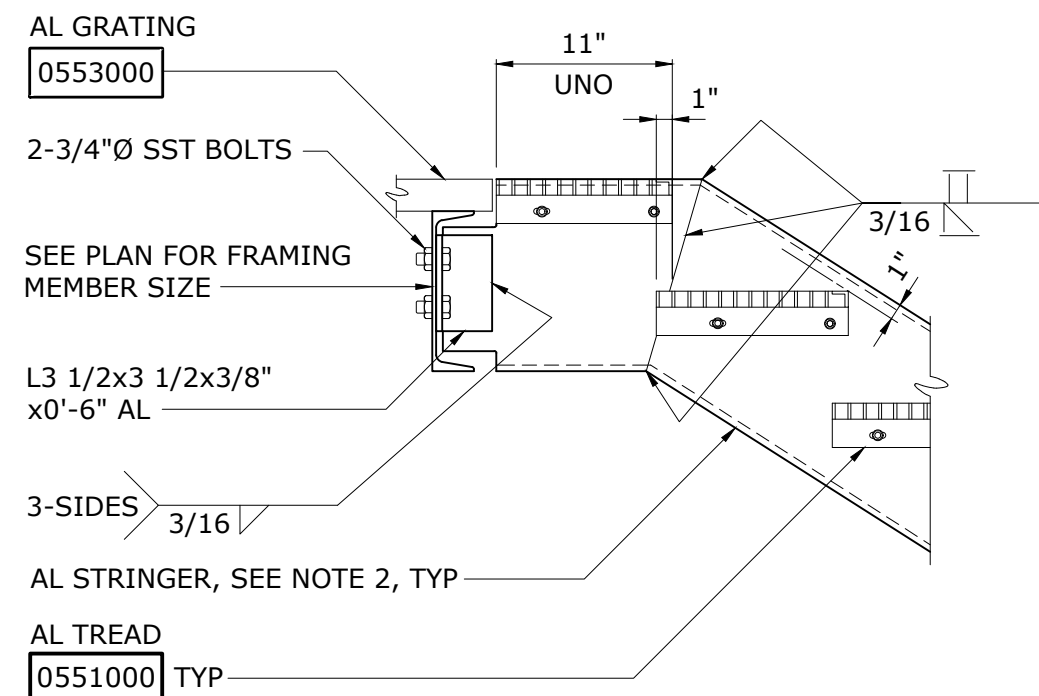
INTERSECTION



UPPER STRINGER CONNECTION TO CONCRETE WITH TREAD



UPPER STRINGER CONNECTION TO FRAMING MEMBER



AL CHECKERED PLATE
FLUSH WITH SURFACE

EXTRUDED
ALUMINUM FRAME

ANCHOR LUG @ 18"OC
MIN TWO EACH SIDE, TYP

AL STIFFENER ANGLE AS REQD
WELDED TO CHECKERED PL,
(SEE SPECS)

FALL THROUGH PREVENTION SYSTEM
REQUIRED AT ALL OPENINGS

BENT 5/16" SST ROD,
RECESS INTO PL WHEN AT
REST

CUTOUT IN PL

DRILL AND TAP FOR
3/8"Øx5/8" LG SST FLAT
HEAD MACHINE SCREW TYP
AS REQUIRED

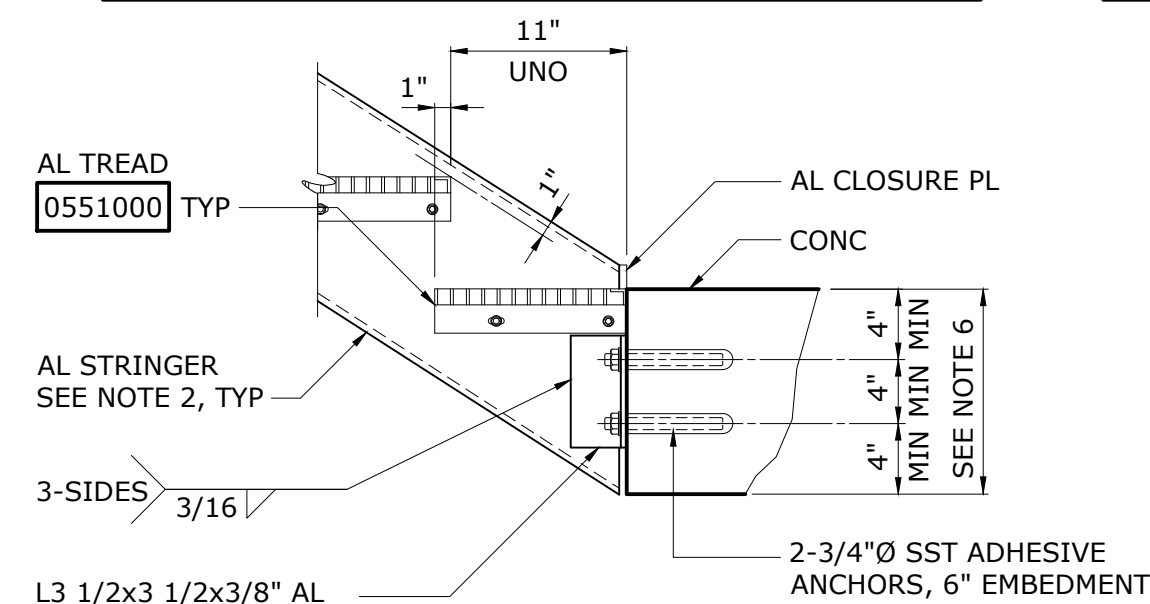
1 1/4"x1/8" NEOPRENE
BONDED TO FRAME
CONTINUOUS AROUND
OPENING

2"x3/16" AL BAR

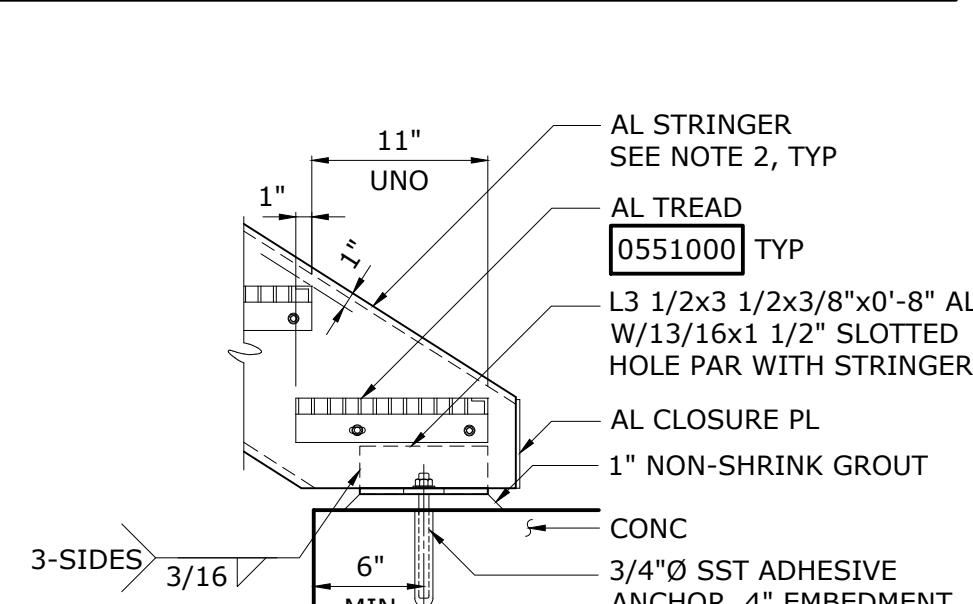
3/8"Ø SST HEX NUT

Dimensions: 4 1/2", 5", 1/8"

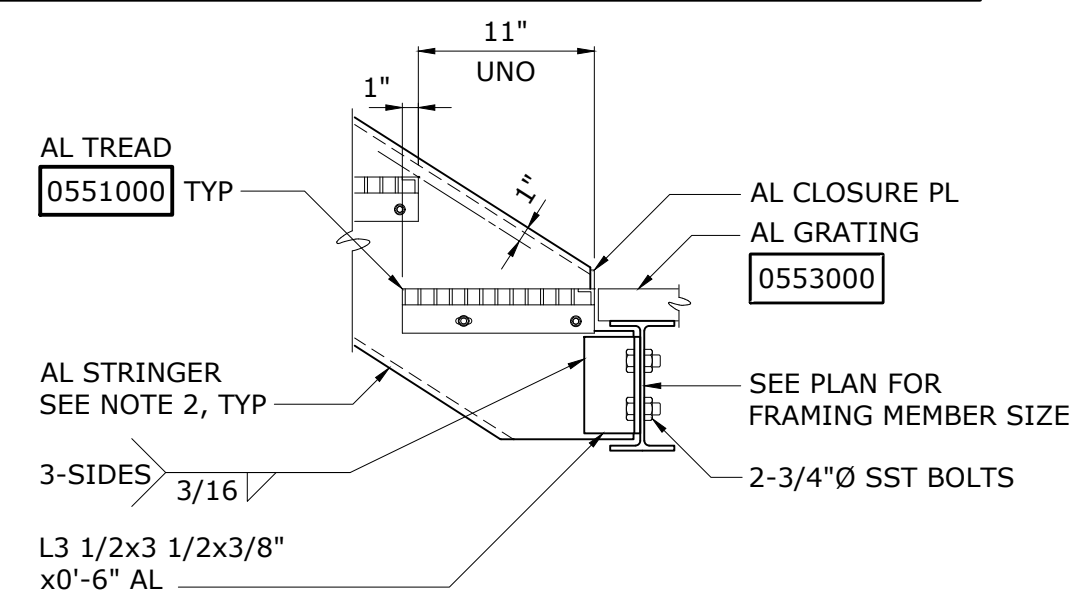
SECTION
ACCESS HATCH



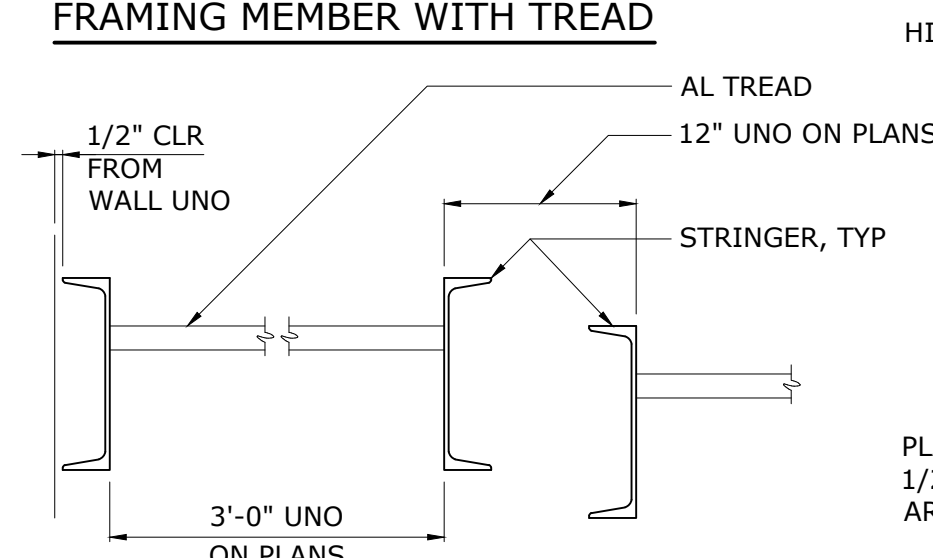
LOWER STRINGER CONNECTION TO CONCRETE



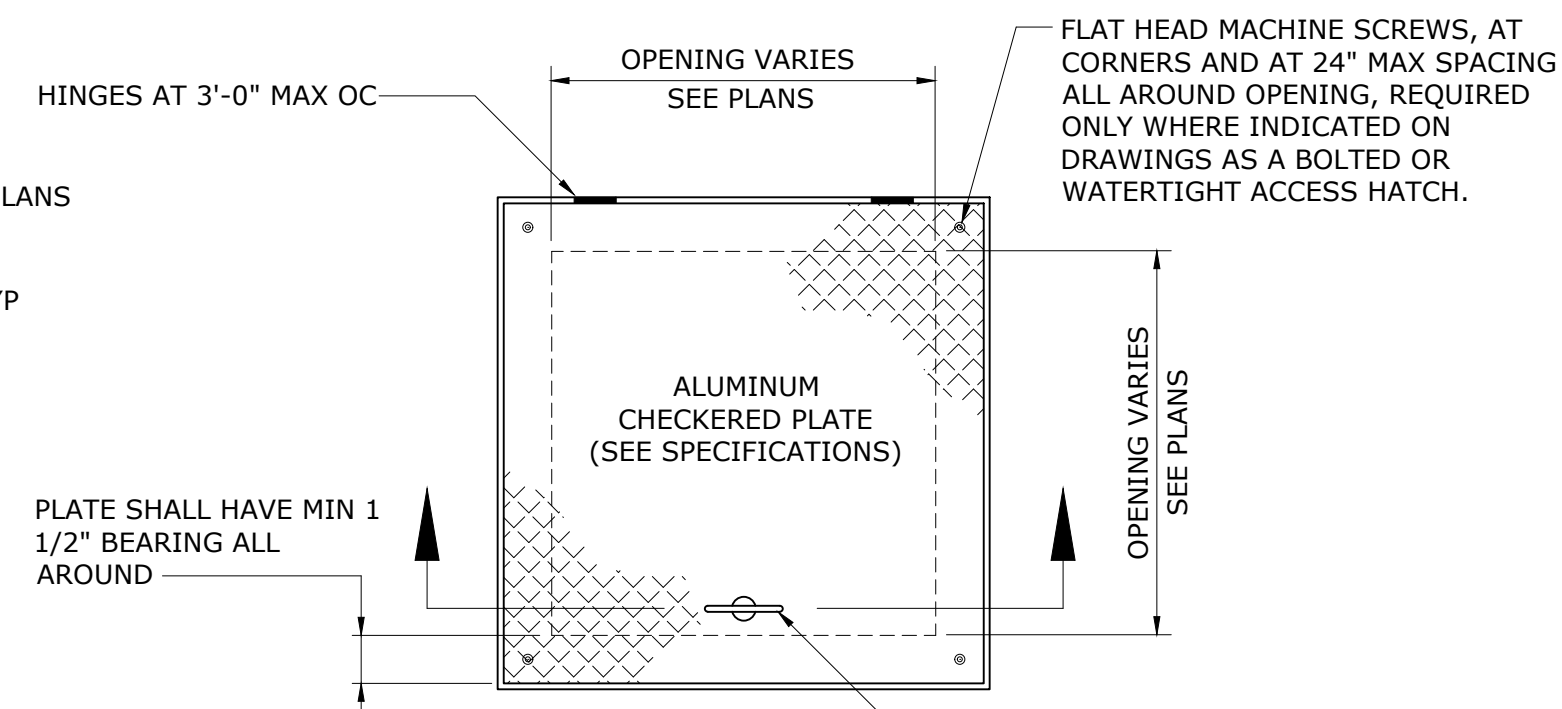
LOWER STRINGER CONNECTION TO CONCRETE SLAB



LOWER STRINGER CONNECTION TO FRAMING MEMBER



TYPICAL TREAD CROSS SECTION



ACCESS HATCH


0553010

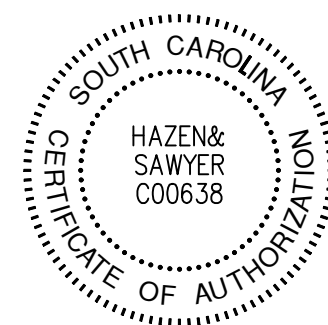
NOTES:

1. PROVIDE PROTECTION FOR DISSIMILAR METALS AND CONCRETE PER SPECIFICATIONS.
2. C12x10.4 AL STRINGERS ARE TYPICAL UNLESS NOTED OTHERWISE ON PLANS.
3. STAIR HANDRAIL AND TOEBOARD NOT SHOWN FOR CLARITY.

4. ALL FASTENERS SHALL BE STAINLESS STEEL, UNLESS NOTED OTHERWISE.
5. FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO FABRICATION.
6. NO CONCRETE REINFORCING SHALL BE CUT FOR INSTALLATION OF ADHESIVE ANCHORS UNLESS APPROVED BY THE ENGINEER. PRIOR TO FABRICATION CONTRACTOR SHALL COORDINATE LOCATION OF ADHESIVE ANCHORS WITH REINFORCING AND LENGTHEN DIMENSIONS AS NEEDED TO CLEAR REINFORCING.

ALUMINUM STAIR DETAILS
0551005

				PROJECT ENGINEER:	J. HARTWIG
				DESIGNED BY:	R. ASHBY
				DRAWN BY:	R. ASHBY
				CHECKED BY:	C. PHILLIPS
1	CONSTRUCTION	JAN 2020	HAZEN	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
REV	ISSUED FOR	DATE	BY		



Hazen

HAZEN AND SAWYER
735 JOHNNIE DODDS BLVD, SUITE 102
MOUNT PLEASANT, SOUTH CAROLINA 29464



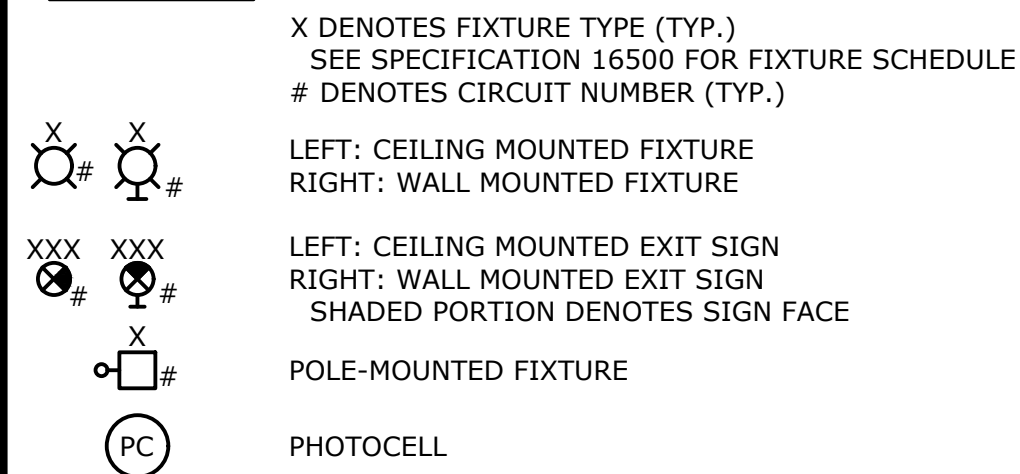
Charleston Water System
COMMISSIONERS OF PUBLIC WORKS
OF THE CITY OF CHARLESTON, SC

THOMAS ISLAND REGIONAL PUMP STATION
AND INTERCEPTOR
DIVISION I

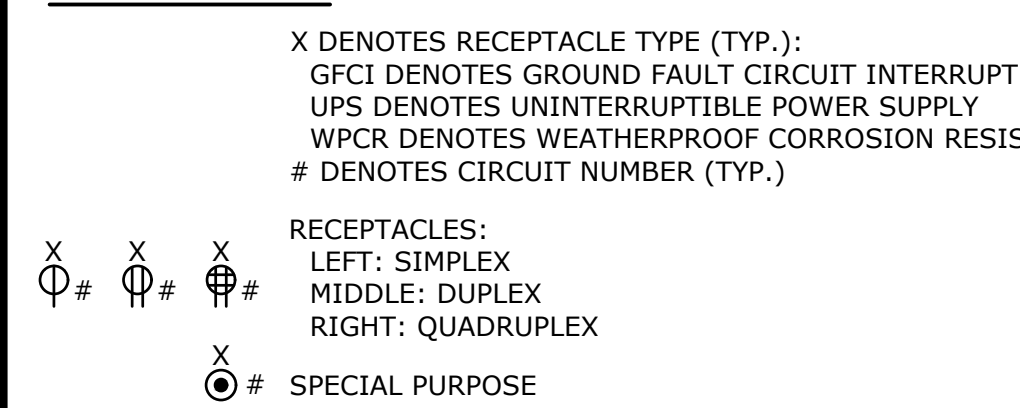
DETAILS STRUCTURAL STANDARD DETAILS

DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	S301

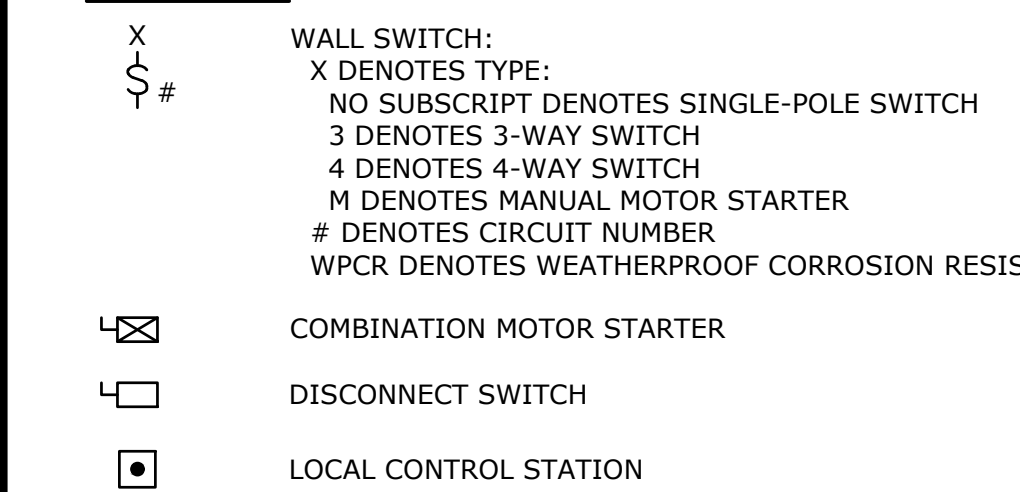
LIGHTING:



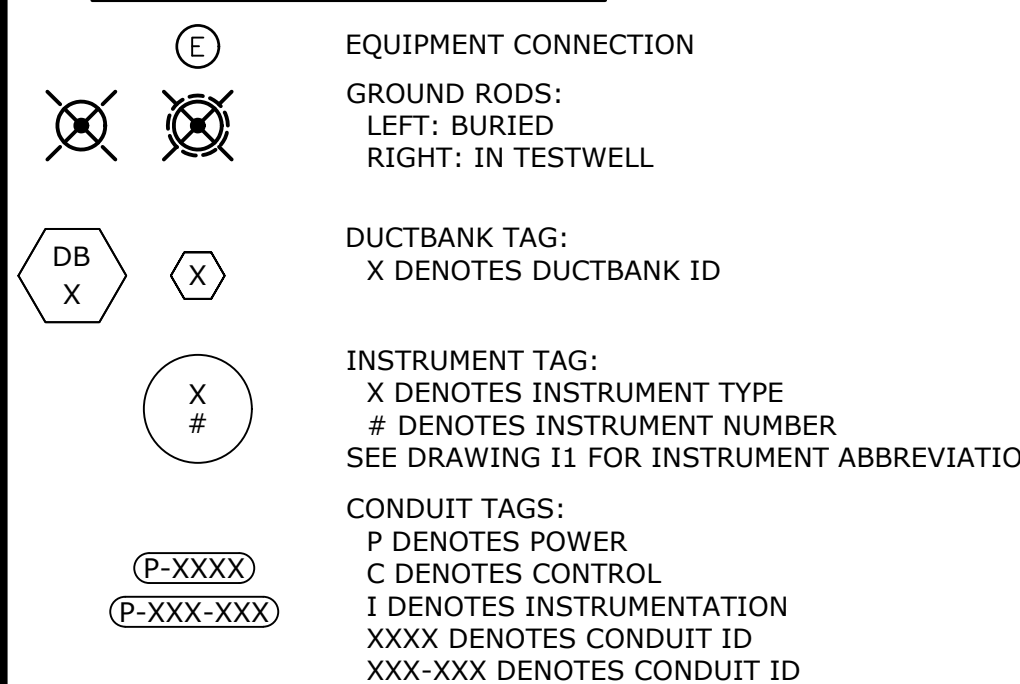
RECEPTACLES:



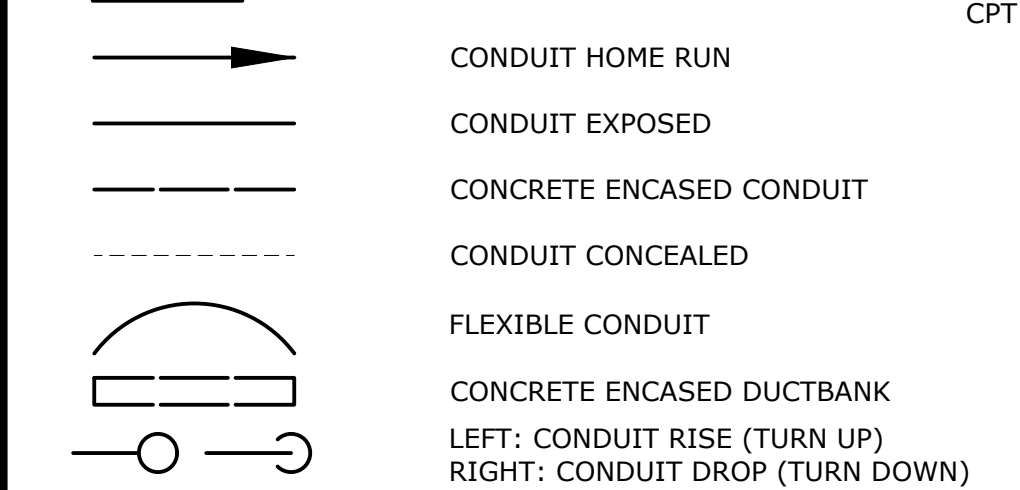
SWITCHES



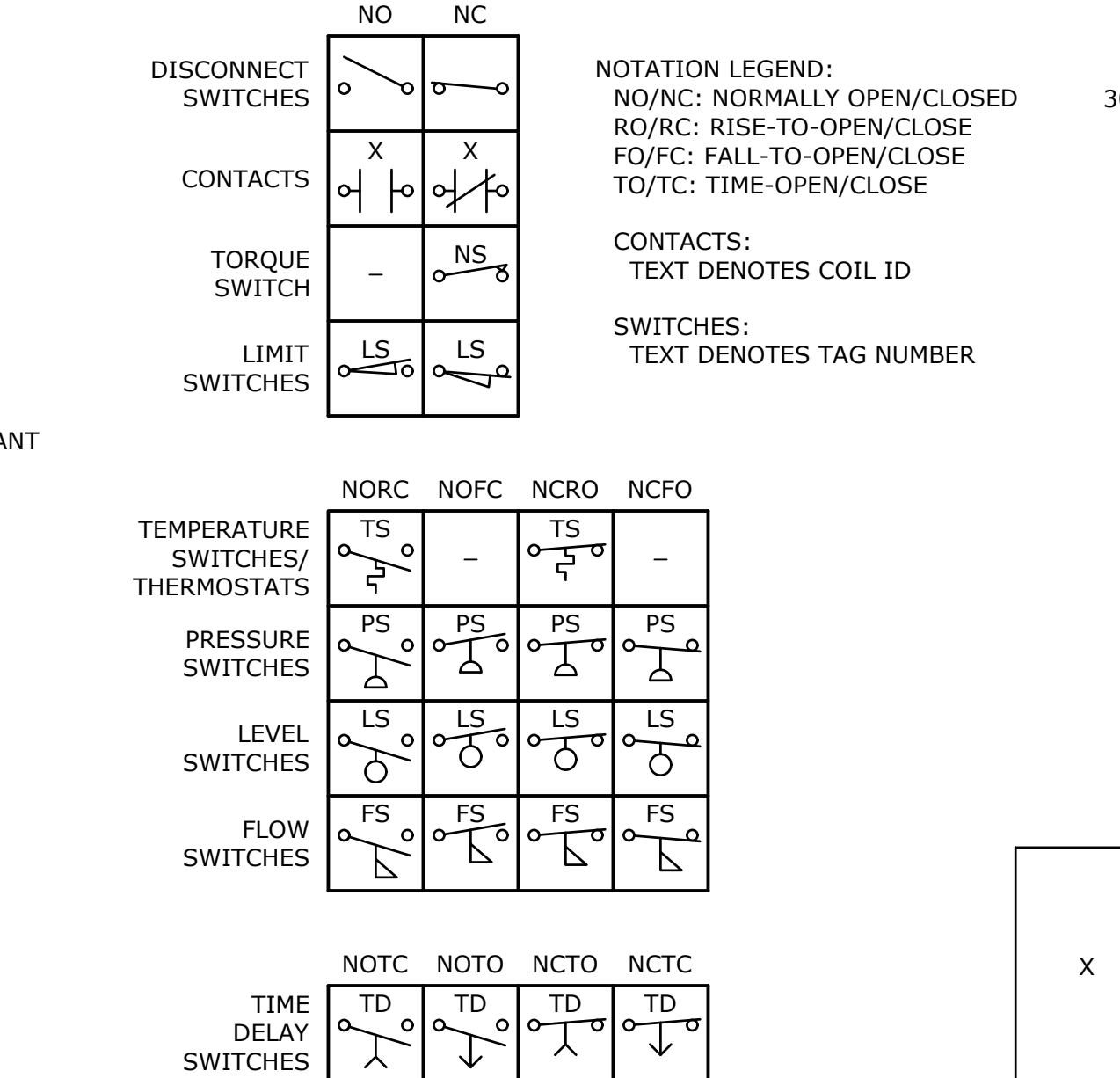
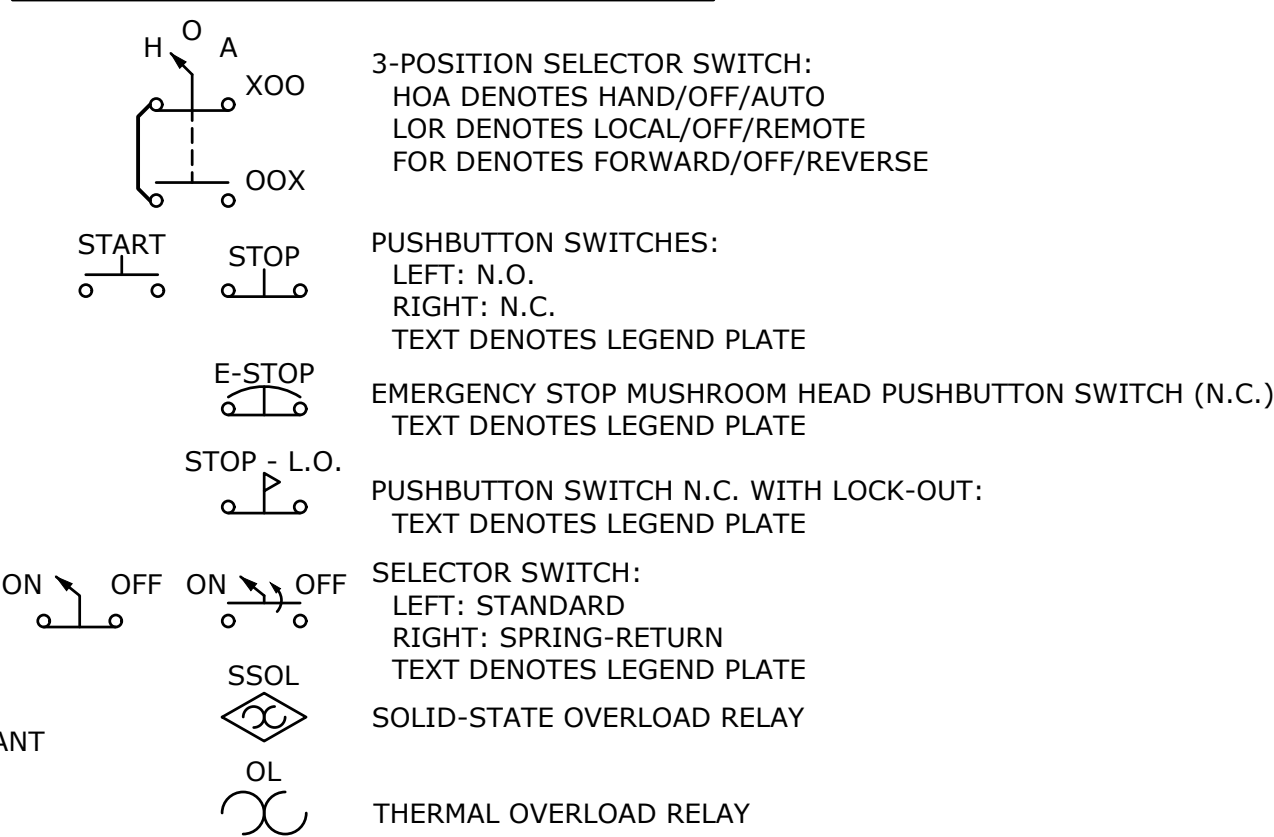
MISC PLAN VIEW SYMBOLS



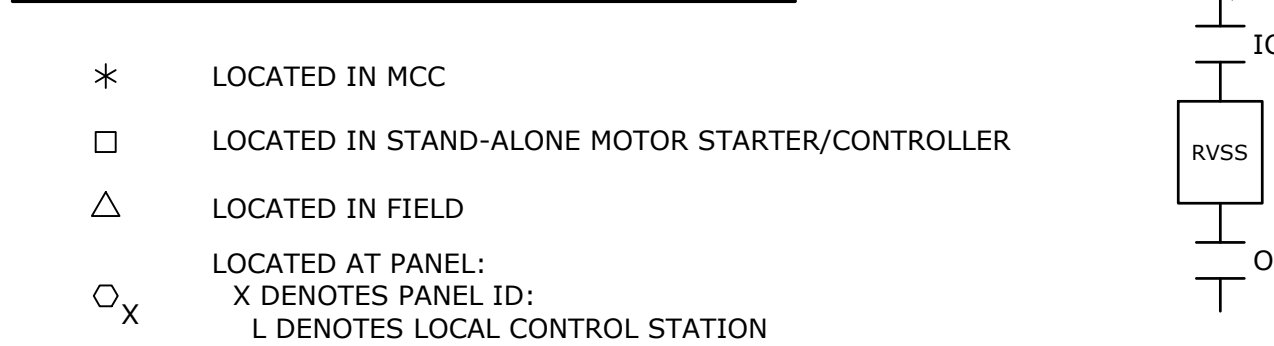
WIRING



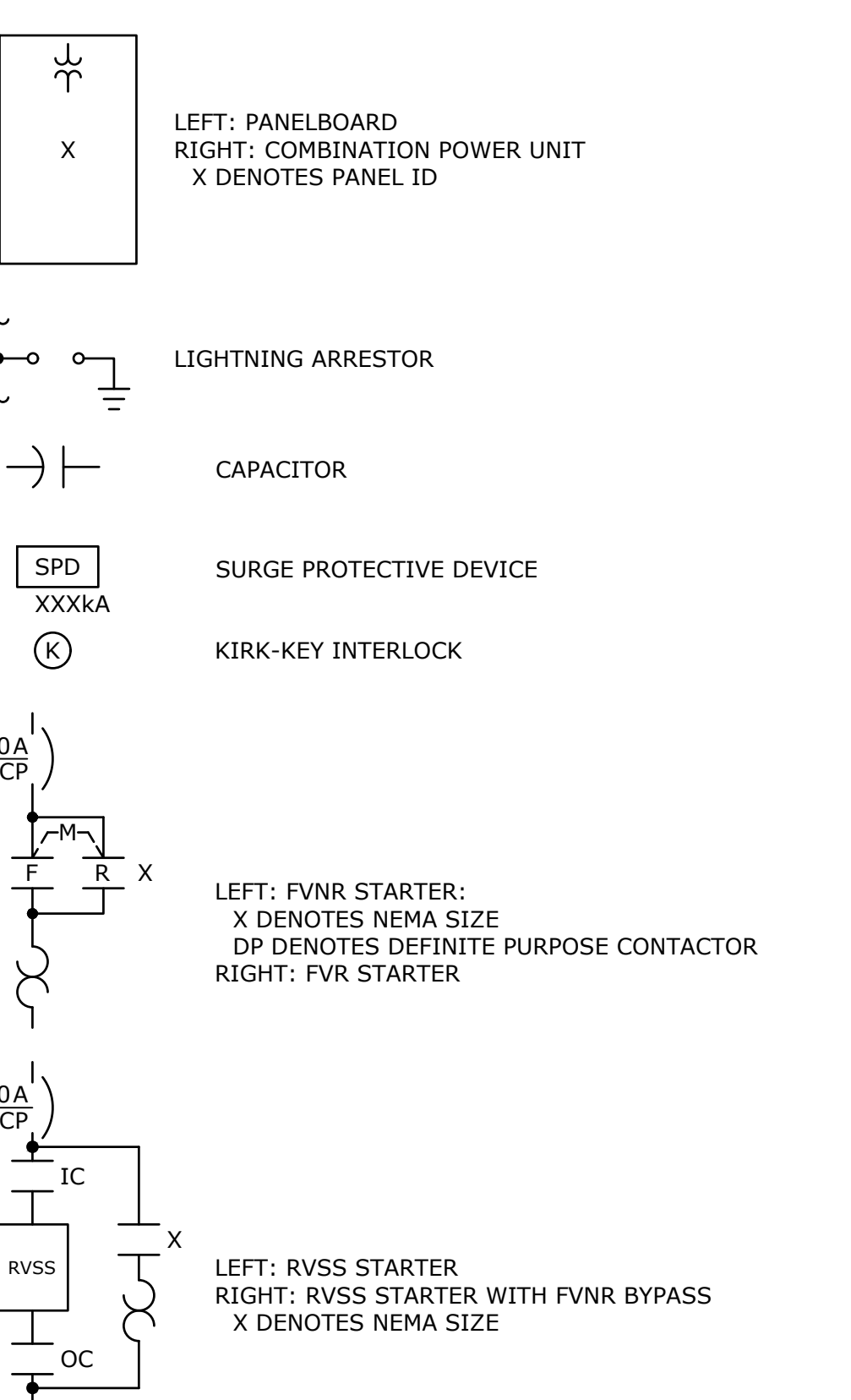
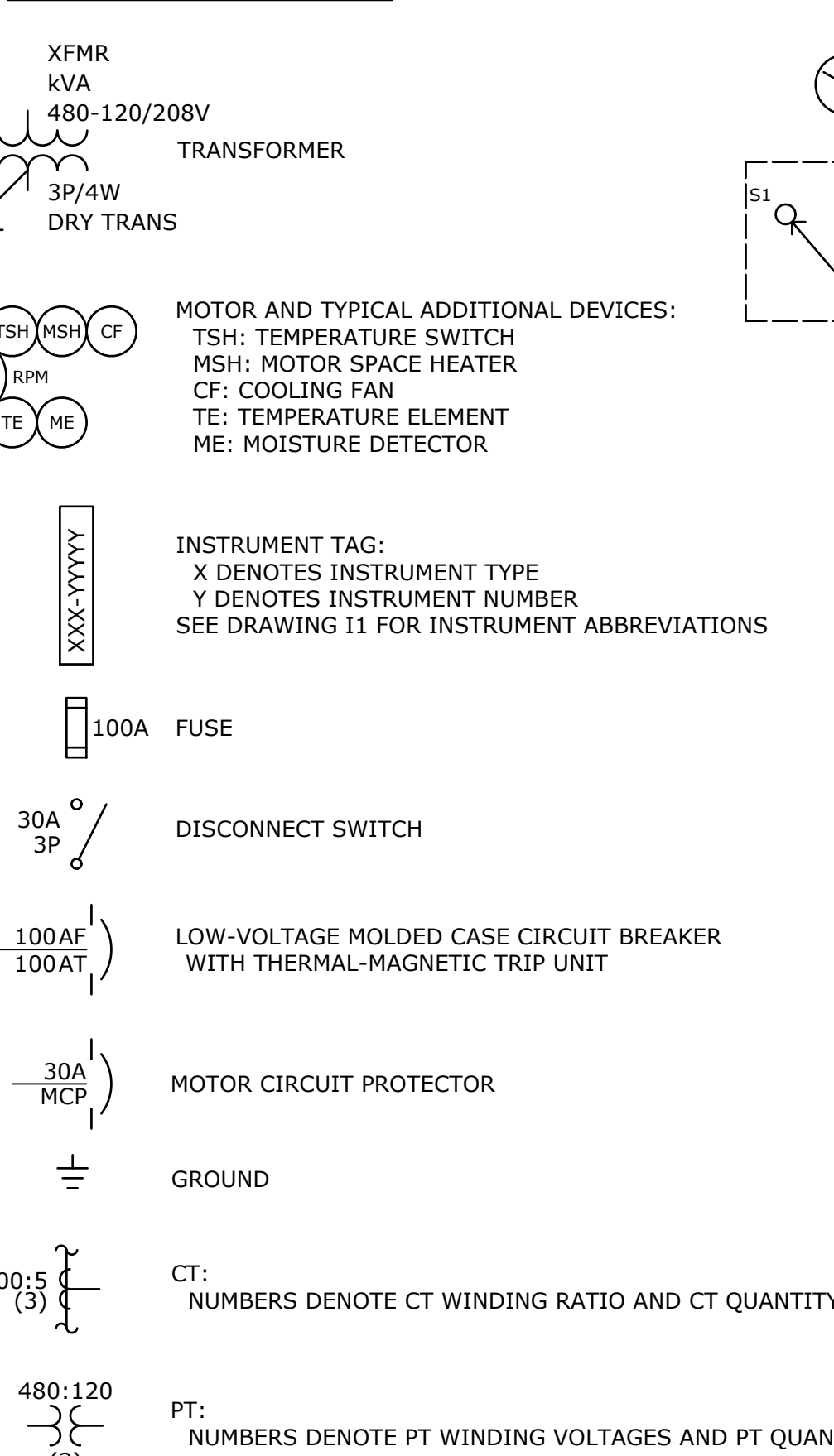
ELEMENTARY CONTROL SCHEMATICS



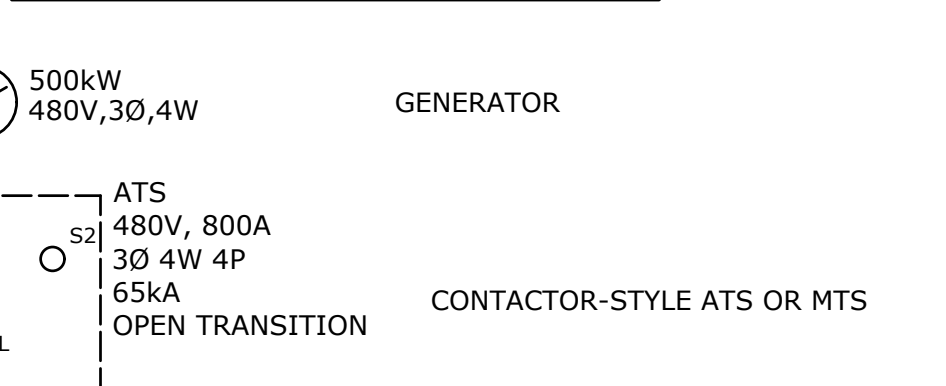
EQUIPMENT/DEVICE LOCATION SYMBOLS



SINGLE-LINE DIAGRAMS



SINGLE-LINE DIAGRAMS, CONT'D.



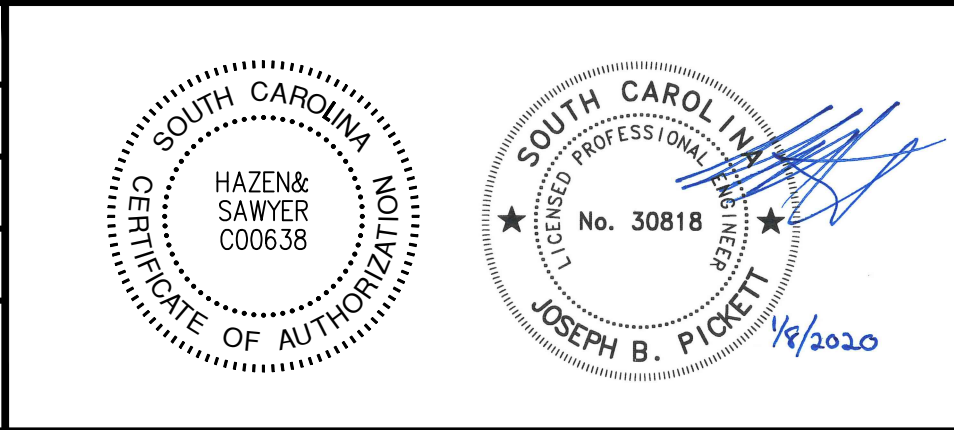
ABBREVIATIONS

AIC	AMPERE INTERRUPTING CAPACITY
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
AF	AMPERE FRAME
AT	AMPERE TRIP
ATS	AUTOMATIC TRANSFER SWITCH
BKR	BREAKER
(L/V)CP	(LOCAL/VENDOR) CONTROL PANEL
CPT	CONTROL POWER TRANSFORMER
CT	CURRENT TRANSFORMER
DB	DUCTBANK
DSW	DISCONNECT SWITCH
ETM	ELAPSED TIME METER
FS	FLOW SWITCH
FSL	FLOW SWITCH LOW
FVNR	FULL VOLTAGE NON-REVERSING
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFCT	GROUND FAULT CURRENT TRANSFORMER
GND	GROUND
HOA	HAND-OFF-AUTO
IC	INPUT CONTACTOR
IEEE	INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS
ISO	INTERNATIONAL ORGANIZATION FOR STANDARDIZATION
JB	JUNCTION BOX
LCS	LOCAL CONTROL STATION
LP	LIGHTING PANEL
LS	LEVEL SWITCH
LSL	LEVEL SWITCH LOW
LSLL	LEVEL SWITCH LOW-LOW
LSH	LEVEL SWITCH HIGH
LSHH	LEVEL SWITCH HIGH-HIGH
LT	LEVEL TRANSMITTER
MOG	MOTOR OPERATED GATE
MOV	MOTOR OPERATED VALVE
MPR	MOTOR PROTECTION RELAY
MTD	MOUNTED
MWTS	MOTOR WINDING TEMPERATURE SWITCH
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSN
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OC	OUTPUT CONTACTOR
OL	OVERLOAD
PC	PHOTOCELL
PCC	POINT OF COMMON COUPLING
PJB	POWER JUNCTION BOX
PLC	PROGRAMMABLE LOGIC CONTROLLER
PP	POWER PANEL
PT	POTENTIAL TRANSFORMER
PTT	PUSH TO TEST
RCS	REMOTE CONTROL STATION
RECP	RECEPTACLE
RM	ROOM
RTD	RESISTANCE THERMAL DEVICE
RVSS	REDUCED VOLTAGE SOLID STATE
S.E.	SERVICE ENTRANCE
SP.	C. SPARE CONDUIT
SPD	SURGE PROTECTIVE DEVICE
SST	STAINLESS STEEL
TB	TEST BLOCK
TC	TIMED CLOSE
TO	TIMED OPEN
TSH	TWISTED SHIELDED
TX	TRANSFORMER
TYP	TYPICAL
UPS	UNINTERRUPTIBLE POWER SUPPLY
WPCR	WEATHER PROOF CORROSION RESISTANT
XFMR	TRANSFORMER

NOTES:


- UNLESS SPECIFICALLY NOTED OTHERWISE, ALL UNDERGROUND CONCRETE ENCASED ELECTRICAL CONDUITS SHALL BE PER STANDARD DETAIL 1611801.
- THE INSTALLATION OF ALL CONCRETE ENCASED ELECTRICAL CONDUITS SHALL COMPLY WITH ACI 318, SECTION 6.3. CONTRACTOR SHALL SUPPLY EXPANSION JOINT FITTINGS AS REQUIRED FOR THERMAL EXPANSION AND DEFLECTION.
- BOND ALL NEW CONCRETE ENCASED GROUND CONDUCTORS TO EXISTING GROUND CONDUCTORS IN ALL MANHOLES, PULL BOXES, CABLE TRAYS, AND SIMILAR LOCATIONS WHERE APPLICABLE.
- UNLESS OTHERWISE SPECIFIED OR NOTED, ALL WALL MOUNTED ELECTRICAL PANELS, ENCLOSURES, AND SIMILAR EQUIPMENT SHALL BE MOUNTED 6'-6" (MAX) FROM THE TOP OF THE PANEL TO FINISHED FLOOR OR GRADE.
- UNLESS OTHERWISE NOTED, ALL LIGHTING SWITCHES, CONTROL SWITCHES, AND SIMILAR EQUIPMENT SHALL BE MOUNTED WITH THEIR CENTERLINE APPROXIMATELY 4'-0" ABOVE FINISHED FLOOR, SLAB, OR GRADE.
- A SEPARATE EQUIPMENT GROUNDING CONDUCTOR SHALL BE PROVIDED FOR EACH CIRCUIT (SEPARATE CONDUCTOR IN THE CONDUIT). THE CONDUCTOR SHALL BE TERMINATED AT THE PROPER DEVICE, TERMINAL, OR LUG AT THE POWER SOURCE (MCC GROUND BUS, PANELBOARD GROUND BUS, ETC.). GROUND CONDUCTOR SIZE SHALL BE PER THE LATEST EDITION OF THE NEC.
- ELECTRICAL SYSTEMS INSTALLED IN HAZARDOUS LOCATIONS SHALL BE CONSTRUCTED IN ACCORDANCE WITH CHAPTER 5, ART. 500 OF THE LATEST EDITION OF THE NEC. CONTRACTOR SHALL SEAL ALL CONDUITS LEAVING HAZARDOUS AREAS. WALL AND FLOOR OPENINGS SHALL BE SEALED WITH FIREPROOF COMPOUND.
- ALL EQUIPMENT LOCATED IN HAZARDOUS AREAS SHALL BE SUITABLE FOR THE CLASS, DIVISION, AND GROUP RATING OF THE LOCATION.
- UNLESS SPECIFICALLY NOTED OTHERWISE, EXISTING PAVEMENT SHALL BE SAW CUT AND REMOVED TO ALLOW FOR THE INSTALLATION OF NEW ELECTRICAL DUCTBANKS. AFTER INSTALLATION, REPLACE PAVEMENT WITH NEW TO MATCH ORIGINAL CONDITIONS.
- LIGHTNING PROTECTION SHALL BE PROVIDED FOR THE STRUCTURES INDICATED ON THE DRAWINGS AND IN ACCORDANCE WITH SECTION 16670.
- CONDUIT HOMERUNS ARE NOT SHOWN ON DRAWINGS. CONTRACTOR SHALL REFER TO CONDUIT AND WIRE SCHEDULE, RISER DIAGRAMS, SINGLE LINE DIAGRAMS, AND OTHER DRAWINGS FOR CONDUIT AND WIRE REQUIREMENTS.
- ALL PROCESS INSTRUMENTS SHALL BE PROVIDED WITH A LOCAL DISCONNECT SWITCH AS SPECIFIED IN SPECIFICATION SECTION 16141.
- ALL ELECTRICAL NON-STRUCTURAL COMPONENTS ARE SUBJECT TO SEISMIC DESIGN CATEGORY 'D'. COMPONENTS WITH AN IMPORTANCE FACTOR OF $I_p = 1.0$, AND WHICH ALSO MEET THE STIPULATIONS LISTED IN SECTION 01350 - SEISMIC ANCHORAGE AND BRACING, ARE EXEMPT FROM SEISMIC ANCHORAGE AND BRACING. ESSENTIAL COMPONENTS SHALL HAVE AN IMPORTANCE FACTOR OF $I_p = 1.5$ AND SHALL BE DESIGNED, INSTALLED, ANCHORED, AND BRACED TO RESIST SEISMIC FORCES AS STIPULATED IN SECTION 01350 - SEISMIC ANCHORAGE AND BRACING. ESSENTIAL COMPONENTS (WITH $I_p = 1.5$) SHALL BE FURNISH WITH A MANUFACTURER'S CERTIFICATE OF SEISMIC QUALIFICATION.

				PROJECT ENGINEER:	J. HARTWIG
				DESIGNED BY:	B. PICKETT
				DRAWN BY:	P. BOWLES
				CHECKED BY:	B. PICKETT
1	CONSTRUCTION	JAN 2020	HAZEN	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
REV	ISSUED FOR	DATE	BY		



Hazen

HAZEN AND SAWYER
735 JOHNNIE DODDS BLVD, SUITE 102
MOUNT PLEASANT, SOUTH CAROLINA 29464



Charleston Water System
COMMISSIONERS OF PUBLIC WORKS
OF THE CITY OF CHARLESTON, SC

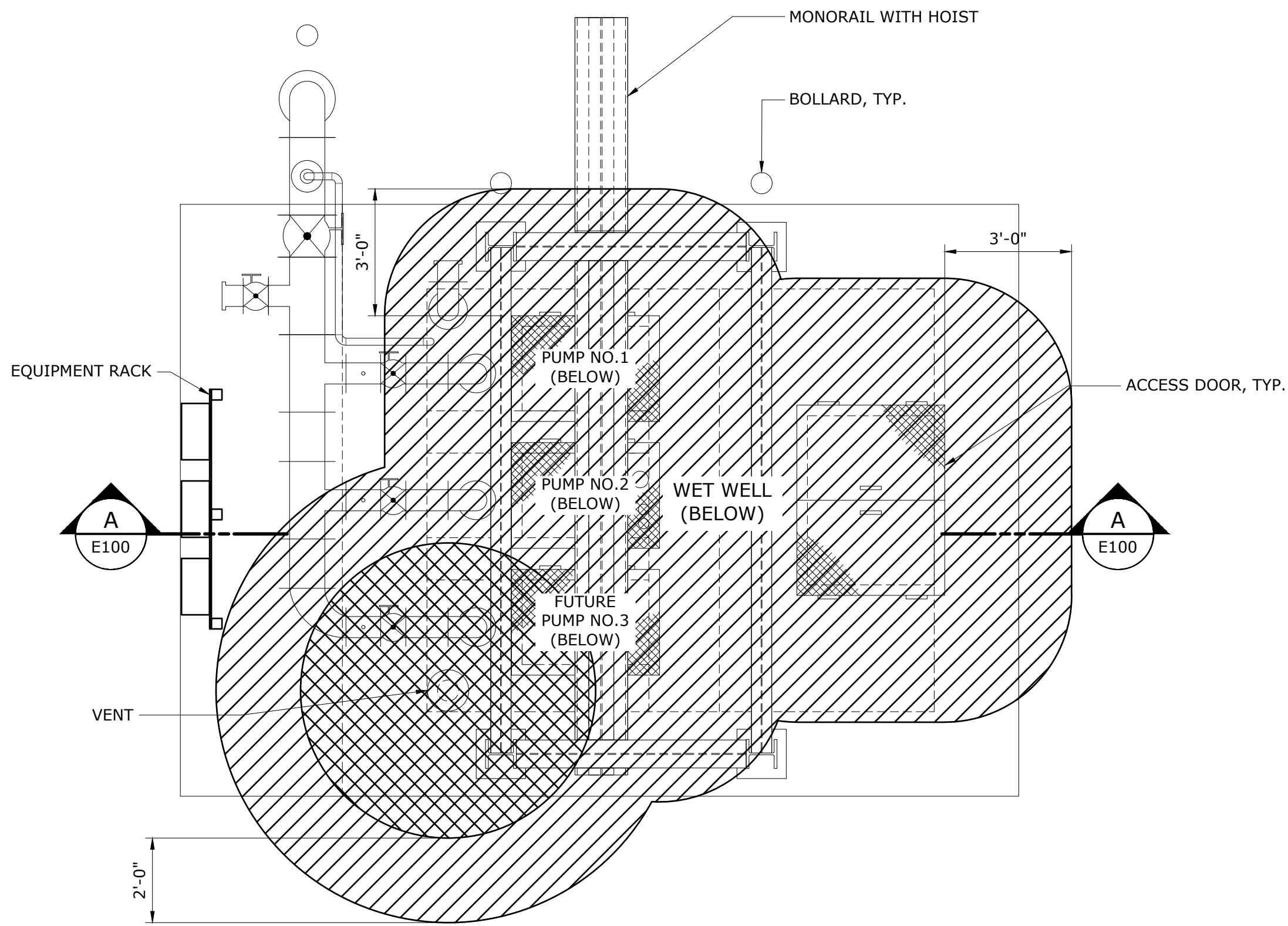
**THOMAS ISLAND REGIONAL PUMP STATION
AND INTERCEPTOR
DIVISION I**

**PUMP STATION
ELECTRICAL
LEGEND, SYMBOLS, ABBREVIATIONS,
AND GENERAL NOTES**

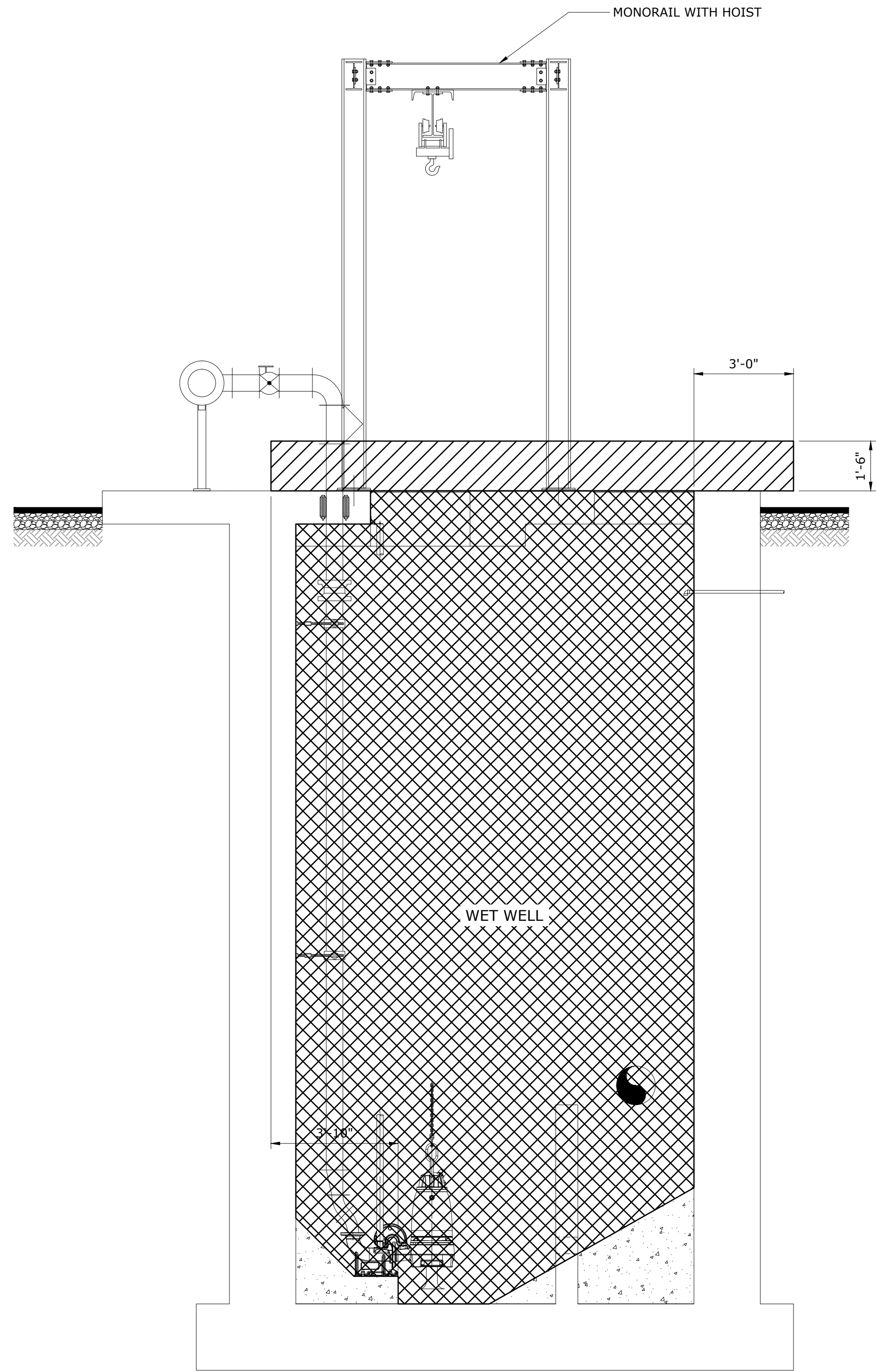
DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	E001

NOTES:

1. ALL EQUIPMENT, ELECTRICAL MATERIALS, AND WIRING METHODS IN THE CLASSIFIED AREAS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NEC.



CLASSIFICATION PLAN
3/8" = 1'-0"



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

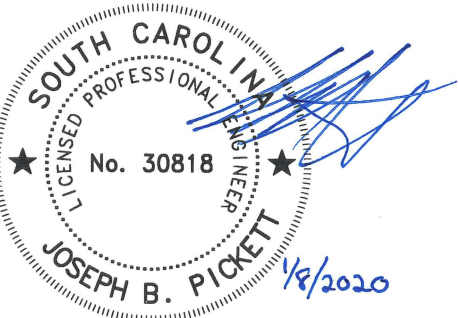
- LEGEND:**
- CLASS I, DIV. 1, GROUP D.
 - CLASS I, DIV. 2, GROUP D.

- WETWELL:**
- SPACE CLASSIFIED PER NFPA-820-2016 EDITION, TABLE 4.2.2, ROW 16a
- CLASS I, DIVISION 1 AREAS:**
- ENTIRE WETWELL ENCLOSED SPACE
 - ENVELOPE 3-FT RADIUS AROUND VENT

- CLASS I, DIVISION 2 AREAS:**
- 18 INCHES HIGH ENVELOPE 3-FT AROUND ACCESS HATCHES.
 - ENVELOPE 2-FT RADIUS EXTENDING FROM DIVISION 1 AREA AROUND VENT.


File: C:\30533-CHAR\30533-008\DESIGN\DRAWINGS\SELECTED\100 Saved by TRAVIAN Save date: 12/20/2019 1:38 PM
PLOT DATE: 1/7/2020 4:31 PM BY: PBOYLES

				PROJECT ENGINEER:	J. HARTWIG
				DESIGNED BY:	B. PICKETT
				DRAWN BY:	P. BOWLES
				CHECKED BY:	B. PICKETT
				IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
1	CONSTRUCTION	JAN 2020	HAZEN		
REV	ISSUED FOR	DATE	BY		



Hazen

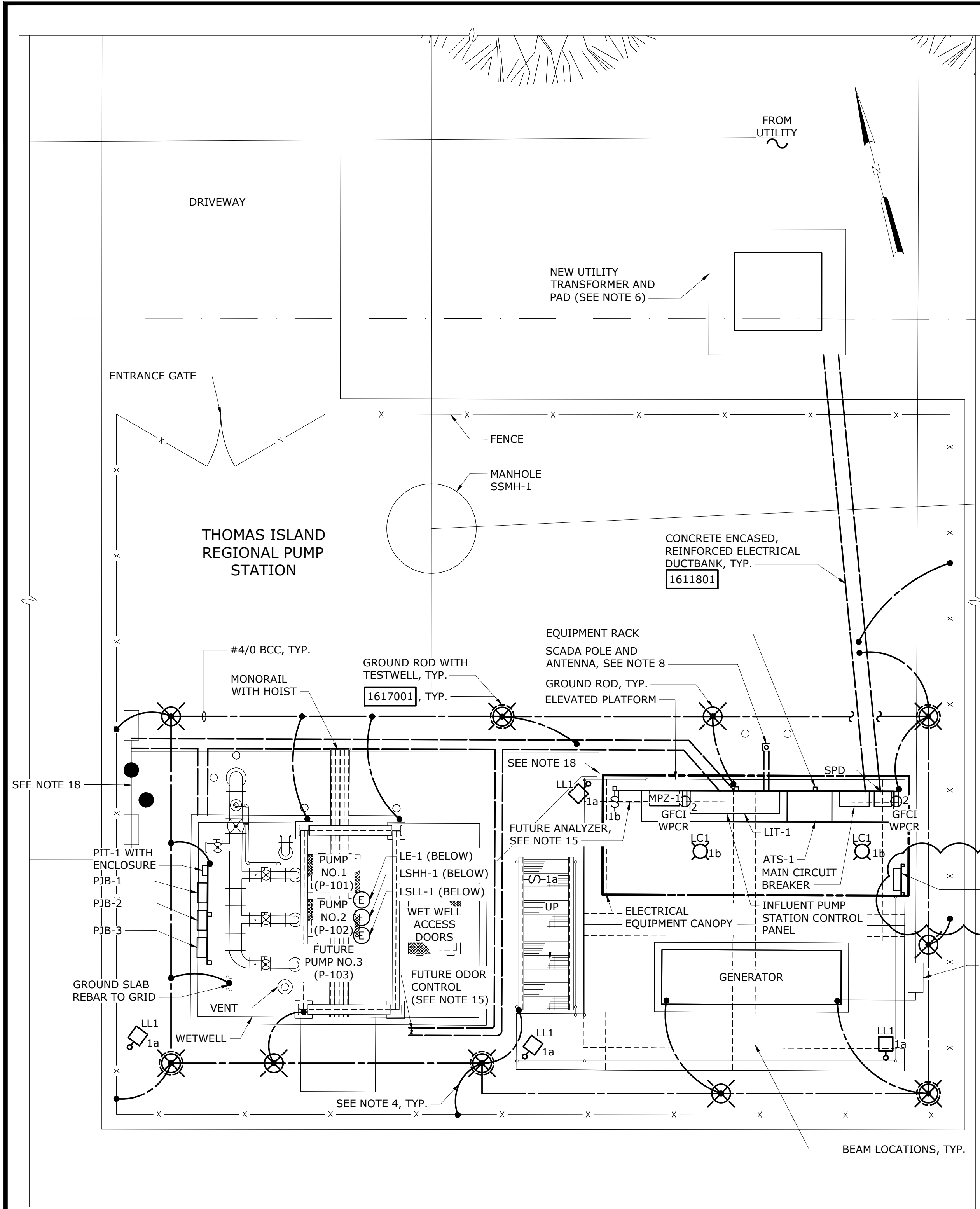
HAZEN AND SAWYER
735 JOHNNIE DODDS BLVD, SUITE 102
MOUNT PLEASANT, SOUTH CAROLINA 29464

 **Charleston Water System**
COMMISSIONERS OF PUBLIC WORKS
OF THE CITY OF CHARLESTON, SC

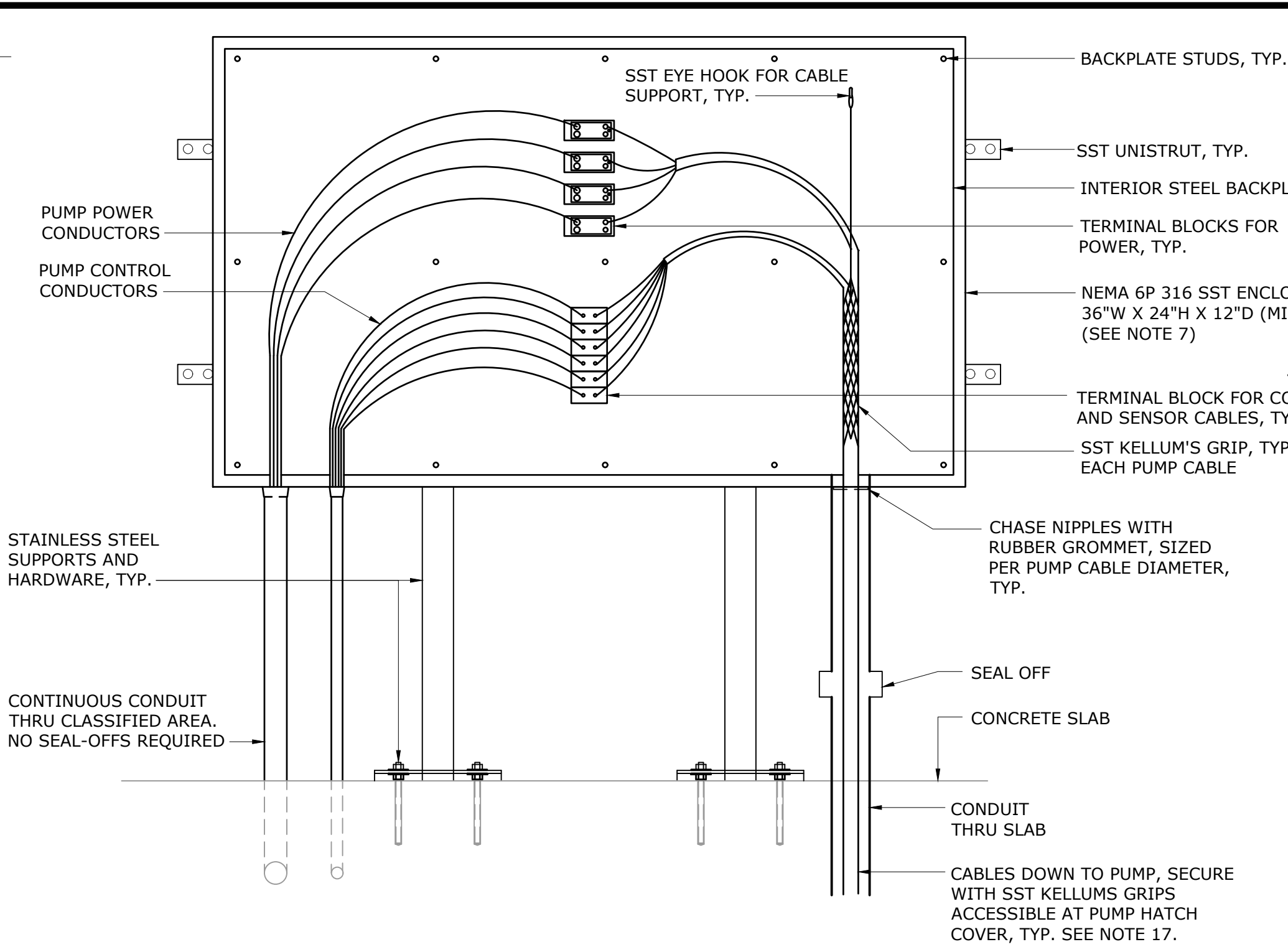
**THOMAS ISLAND REGIONAL PUMP STATION
AND INTERCEPTOR
DIVISION I**

**PUMP STATION
ELECTRICAL
CLASSIFICATION PLAN
AND SECTION**

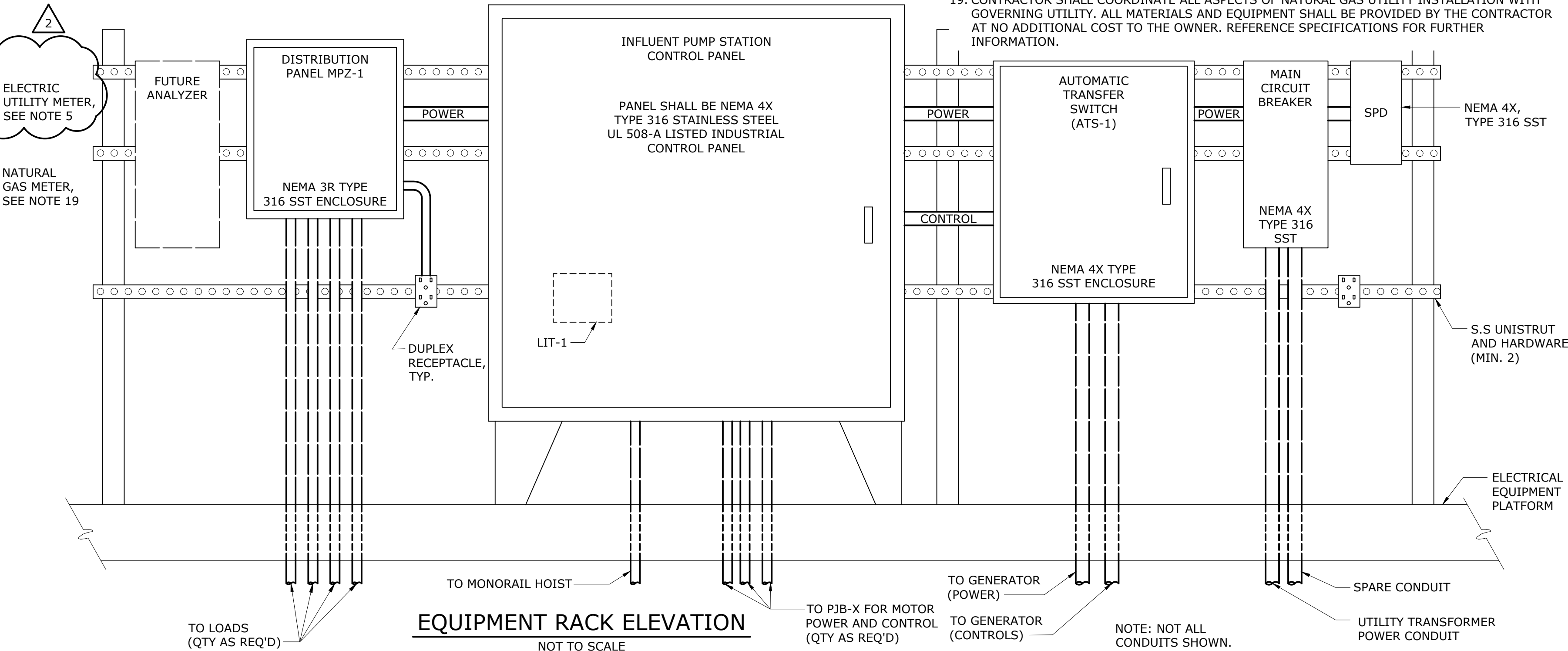
DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	E100



POWER AND LIGHTING PLAN
1" = 5'-0"



JUNCTION BOX INTERIOR DETAIL (PJB-1 THRU PJB-3)
NOT TO SCALE



EQUIPMENT RACK ELEVATION
NOT TO SCALE

- NOTES:
1. EACH DUCTBANK GROUND CONDUCTOR CROSSING THE GROUND LOOP SHALL BE EXOTHERMICALLY WELDED TO THE GROUND LOOP CONDUCTOR.
 2. GROUND LOOP CONDUCTOR SHALL BE #4/0 BARE COPPER WIRE 30 INCHES BELOW FINISHED GRADE. ALL GROUND CONDUCTORS TO EQUIPMENT OR STRUCTURAL STEEL SHALL BE BARE COPPER WIRE.
 3. IF VERTICALLY DRIVEN GROUND RODS ENCOUNTER ROCK BEFORE BEING DRIVEN TO 10'-0" DEPTH, CONTRACTOR SHALL BE PERMITTED TO DRIVE ROD AT AN ANGLE OR LAY IN ACCORDANCE WITH N.E.C. ARTICLE 250.53(G).
 4. CONTRACTOR SHALL GROUND AND BOND THE EXTERIOR FENCE TO THE GROUND RING PER N.E.C. REQUIREMENTS.
 5. CONTRACTOR SHALL COORDINATE ALL ASPECTS OF UTILITY INSTALLATION WITH GOVERNING ELECTRICAL UTILITY. ALL MATERIALS AND EQUIPMENT SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. REFERENCE SPECIFICATION 16000 FOR DETAILS. COORDINATE EXACT METER LOCATION WITH UTILITY.
 6. CONTRACTOR SHALL FURNISH AND INSTALL CONCRETE TRANSFORMER PAD TO MEET THE REQUIREMENTS OF THE ELECTRICAL UTILITY. COORDINATE EXACT LOCATION OF THE TRANSFORMER AND TRANSFORMER PAD WITH ENGINEER AND UTILITY PRIOR TO INSTALLATION.
 7. CONTRACTOR SHALL FURNISH AND INSTALL JUNCTION BOXES FOR THE PUMPS AS INDICATED. JUNCTION BOXES SHALL BE NEMA 6P 316 SST, AND SHALL HAVE FULL LENGTH PIANO HINGES WITH PAD LOCKABLE HANDLES ON EACH DOOR. SCREW TYPE FASTENERS ARE NOT PERMITTED.
 8. CONTRACTOR SHALL FURNISH AND INSTALL SCADA POLE AND ANTENNA IN ACCORDANCE WITH THE OWNER'S REQUIREMENTS. SEE SPECIFICATIONS FOR FURTHER DETAILS.
 9. CONDUITS SHOWN ON ELEVATION ARE FOR ROUTING INTENT ONLY. CONTRACTOR SHALL REFERENCE SINGLE LINE DIAGRAMS AND PANEL SCHEDULES FOR EXACT SIZE AND QUANTITY REQUIRED.
 10. ALL EQUIPMENT, ELECTRICAL MATERIALS, AND WIRING METHODS IN THE CLASSIFIED AREAS SHALL BE IN ACCORDANCE WITH THE NEC.
 11. CONTRACTOR SHALL FURNISH AND INSTALL LIGHTNING PROTECTION SYSTEM AS DESCRIBED IN SPECIFICATION SECTION 16670.
 12. CONTRACTOR SHALL FURNISH AND INSTALL LIGHTING AS SHOWN. LIGHT FIXTURES SHALL BE ARRANGED SO THAT LIGHT DOES NOT INTERFERE WITH TRAFFIC, IS SHIELDED OR DIRECTED AWAY FROM ADJOINING RESIDENCES, AND PRODUCES NO GLARE ACROSS RESIDENTIAL PROPERTY BOUNDARIES.
 13. MOUNT ALL TYPE LL1 FIXTURES AT 10'-0" ABOVE PLATFORM, OR GRADE.
 14. MOUNT ALL TYPE LC1 FIXTURES AT CANOPY HEIGHT.
 15. CONTRACTOR SHALL INSTALL CONDUITS FOR FUTURE EQUIPMENT AND STUB-UP AT LOCATIONS OF FUTURE EQUIPMENT.
 16. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS INDICATING ELECTRICAL EQUIPMENT RACK LAYOUT BASED ON SELECTED MFR'S FOR THIS PROJECT. SHOP DRAWING TO INCLUDE DIMENSIONED LAYOUT OF PANELS AND INTENT OF CONDUIT ROUTING FOR APPROVAL BY ENGINEER.
 17. CONTRACTOR SHALL USE LONG SLOPE 90 DEGREE CONDUIT TO EASILY REMOVE PUMPS IN THE FUTURE.
 18. CONTRACTOR SHALL FURNISH AND INSTALL HEAT TRACING FOR ABOVE GROUND PIPING 2" IN DIAMETER AND BELOW. SEE MECHANICAL DRAWINGS FOR FURTHER DETAILS.
 19. CONTRACTOR SHALL COORDINATE ALL ASPECTS OF NATURAL GAS UTILITY INSTALLATION WITH GOVERNING UTILITY. ALL MATERIALS AND EQUIPMENT SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. REFERENCE SPECIFICATIONS FOR FURTHER INFORMATION.

				PROJECT ENGINEER:	J. HARTWIG
				DESIGNED BY:	B. PICKETT
				DRAWN BY:	P. BOWLES
				CHECKED BY:	B. PICKETT
2	ADDENDUM No. 3	APR 2020	HAZEN	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
1	CONSTRUCTION	JAN 2020	HAZEN		
REV	ISSUED FOR	DATE	BY		



Hazen
HAZEN AND SAWYER
735 JOHNNIE DODDS BLVD, SUITE 102
MOUNT PLEASANT, SOUTH CAROLINA 29464

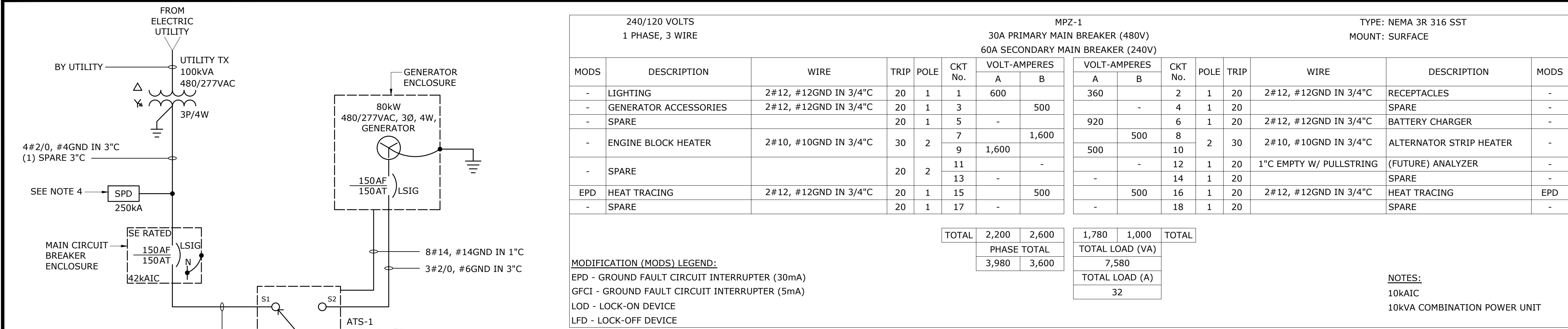


Charleston Water System
COMMISSIONERS OF PUBLIC WORKS
OF THE CITY OF CHARLESTON, SC

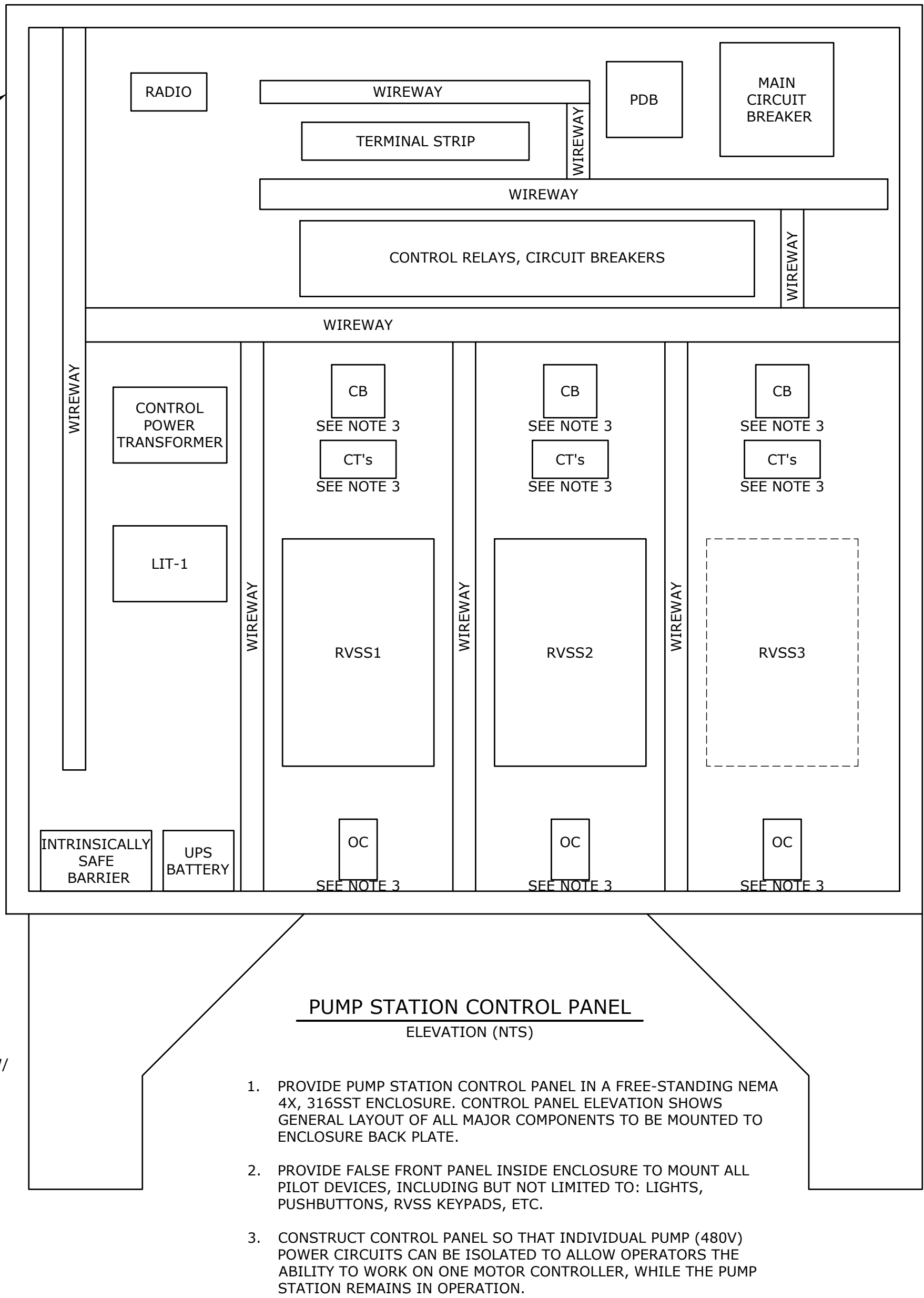
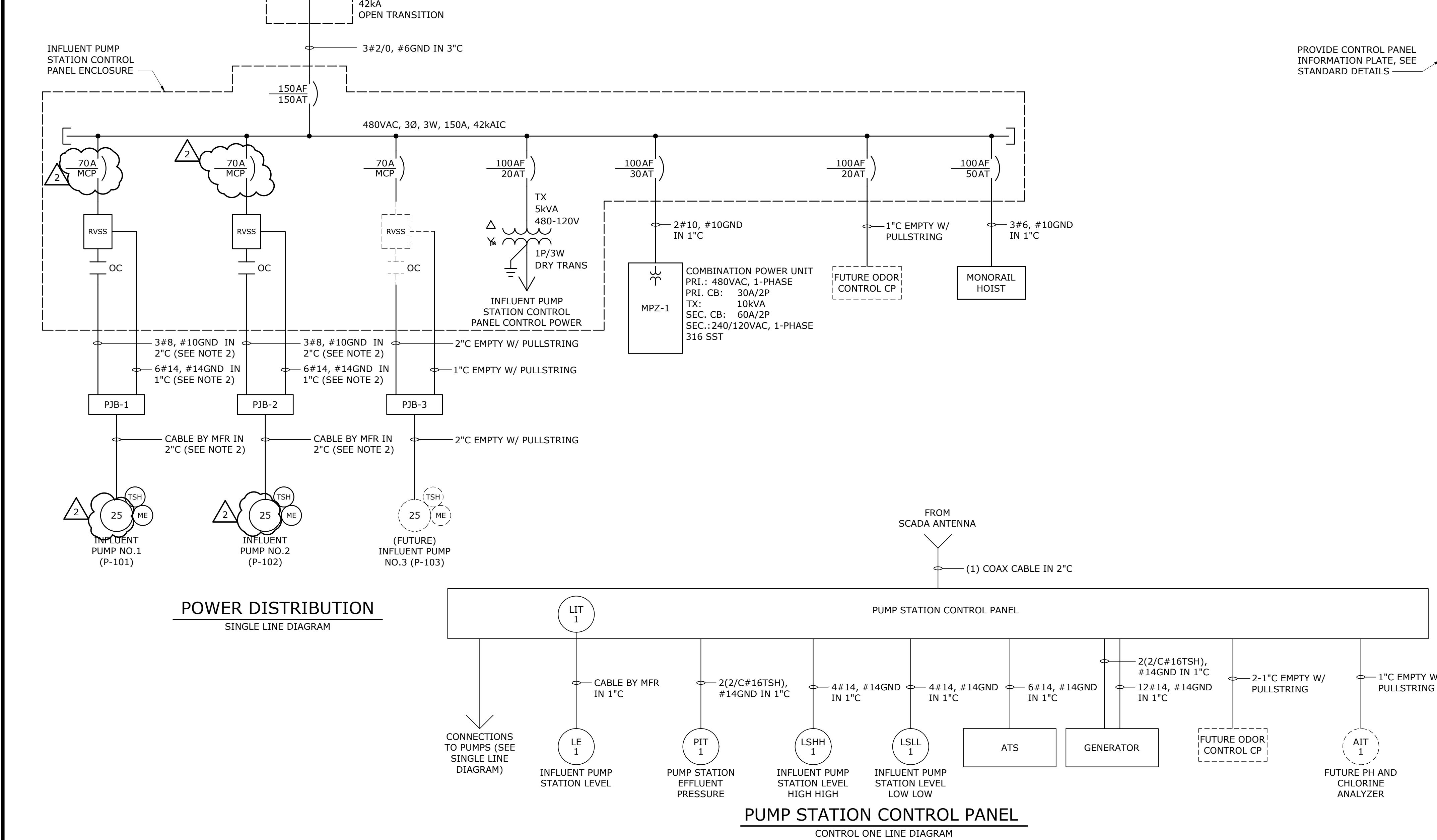
THOMAS ISLAND REGIONAL PUMP STATION
AND INTERCEPTOR
DIVISION I

PUMP STATION
ELECTRICAL
POWER AND LIGHTING PLAN

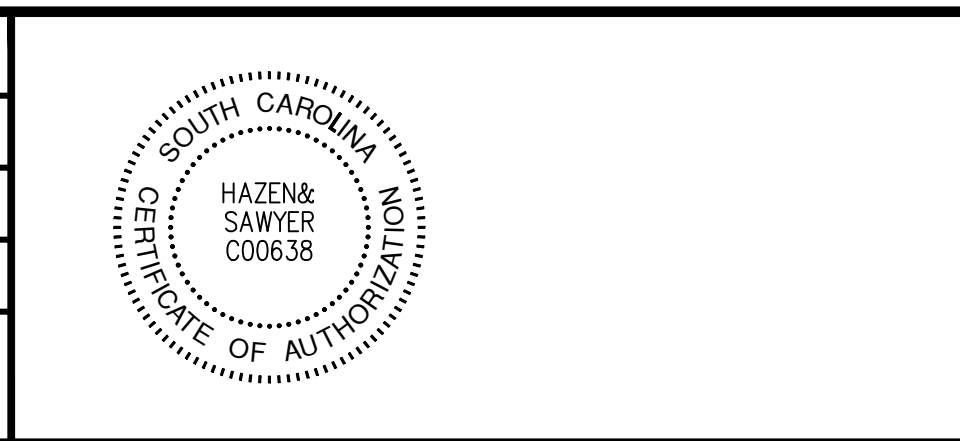
DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	E101



- NOTES:
- PUMP STATION CONTROL PANEL SHALL BE PROVIDED WITH COMPONENTS SUITABLE FOR BOTH THE CURRENT PUMP STATION LOADS AND THE FUTURE PUMP STATION LOADS (AS INDICATED). THESE COMPONENTS INCLUDE, BUT ARE NOT LIMITED TO, BRANCH CIRCUIT BREAKERS, CT'S, STARTERS, OUTPUT CONTACTORS, ETC.
 - COORDINATE WIRING WITH APPROVED SHOP DRAWINGS. CHANGES SHALL NOT RESULT IN ADDITIONAL COST TO THE OWNER.
 - ELEVATION SHOWS CONTROL PANEL BACK PLATE GENERAL ARRANGEMENT. REFER TO SPECIFICATIONS, CONTROL SCHEMATICS, AND SINGLE LINE DIAGRAMS FOR ALL EQUIPMENT REQUIRED WITHIN THE PANEL.
 - TYPE 1 SPD AS SPECIFIED IN SECTION 16280.
 - ALL INTERNAL WIRING OF THE PUMP STATION CONTROL PANEL SHALL BE PROVIDED BY MFR IN ACCORDANCE WITH THE FUNCTION REQUIREMENTS OF SPECIFICATION SECTION 11130.
 - GENERATOR MANUFACTURER SHALL SUBMIT SIZING REPORT FOR A GENERATOR CAPABLE OF RUNNING EQUIPMENT SHOWN.
 - CONTRACTOR SHALL COORDINATE ALL ASPECTS OF UTILITY INSTALLATION WITH GOVERNING ELECTRICAL UTILITY. ALL MATERIALS AND EQUIPMENT SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. CONDUIT AND DUCTBANK BY CONTRACTOR, CONDUCTORS BY UTILITY. REFERENCE SPECIFICATION 16000 FOR DETAILS.




				PROJECT ENGINEER:	J. HARTWIG
				DESIGNED BY:	B. PICKETT
				DRAWN BY:	P. BOWLES
				CHECKED BY:	B. PICKETT
2	ADDENDUM No. 1	JAN 2020	HAZEN	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
1	CONSTRUCTION	JAN 2020	HAZEN		
REV	ISSUED FOR	DATE	BY		



Hazen

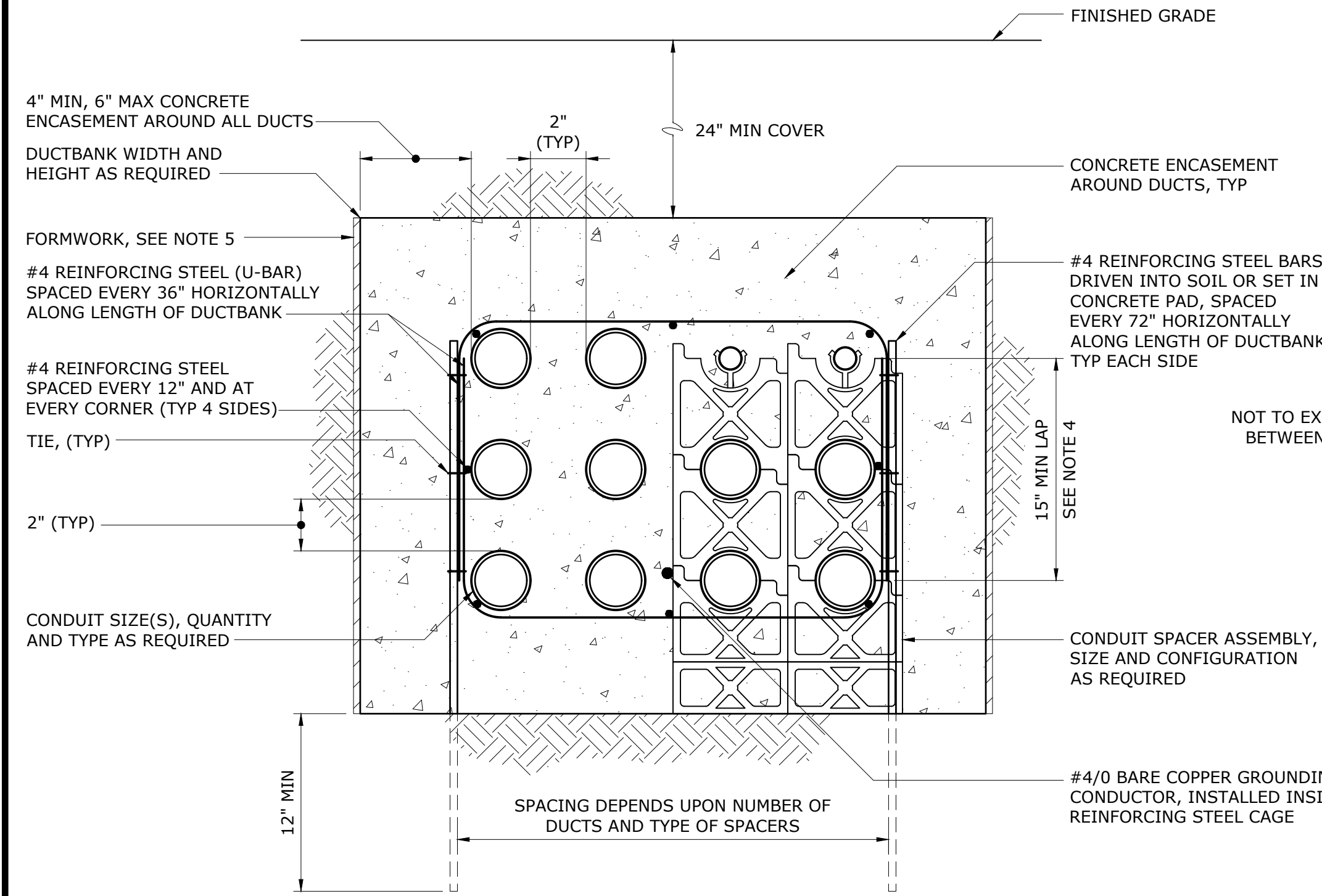
HAZEN AND SAWYER
735 JOHNNIE DODDS BLVD, SUITE 102
MOUNT PLEASANT, SOUTH CAROLINA 29464

 **Charleston Water System**
COMMISSIONERS OF PUBLIC WORKS
OF THE CITY OF CHARLESTON, SC

**THOMAS ISLAND REGIONAL PUMP STATION
AND INTERCEPTOR
DIVISION I**

**PUMP STATION
ELECTRICAL
SINGLE LINE DIAGRAM
AND PANEL SCHEDULE**

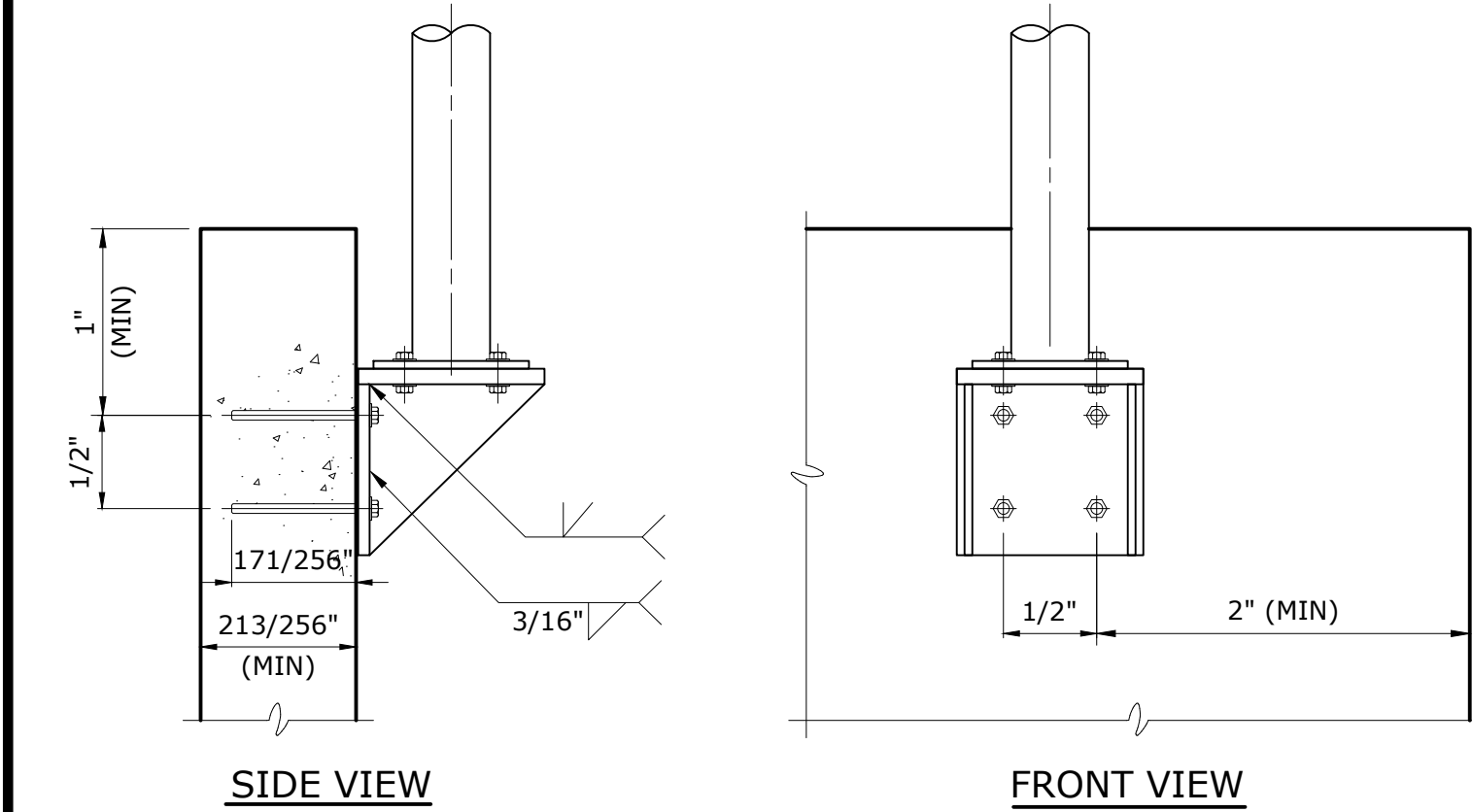
DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	E102



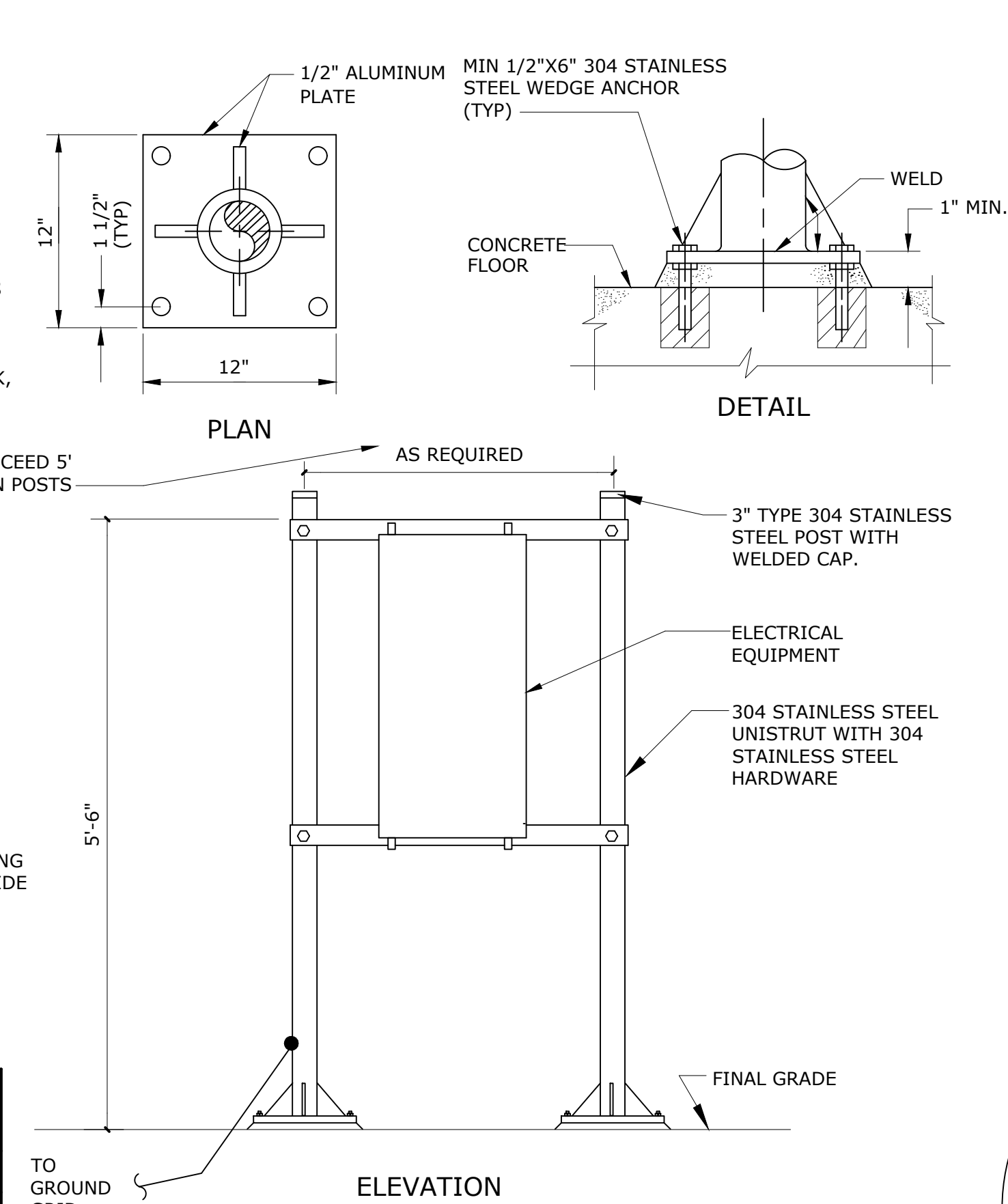
- NOTES:
- CONCRETE SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH SPECIFICATION SECTION 03300.
 - REINFORCING STEEL AND TIES SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH SPECIFICATION SECTION 03200. OVERLAP FOR REINFORCING STEEL SPLICES ALONG THE DUCTBANK LENGTH SHALL BE 15", MINIMUM.
 - CONDUIT SPACERS ARE REQUIRED IN ACCORDANCE WITH SPECIFICATION SECTION 16118. HORIZONTAL SPACING OF CONDUIT SPACER ASSEMBLIES ALONG LENGTH OF DUCTBANK SHALL AS SHOWN IN THE TABLE.
 - FOR DUCTBANKS LESS THAN 15" IN HEIGHT, THE LAP SHALL BE THE HEIGHT OF THE DUCTBANK.
 - IN POOR SOIL CONDITIONS, DUCTBANKS SHALL BE FORMED WITH FORMING MATERIALS TO MAINTAIN 4" MINIMUM ENCASEMENT. WHERE SOIL CONDITIONS PERMIT AND THE EXCAVATION IS MAINTAINED FOR A 4" MINIMUM TO 10" MAXIMUM ENCASEMENT, THE FORMWORK CAN BE OMITTED.

MAX SPACING BETWEEN CONDUIT SPACER ASSEMBLIES	
CONDUIT SIZE	SPACING
1"	3 FT
1 1/4-2"	5 FT
2 1/2-3"	6 FT
3 1/2-5"	7 FT
6"	8 FT

TYPICAL DUCTBANK SECTION
1611801



LIGHT POLE ANCHORAGE AT SIDE CONC WALL < 12"
NOT TO SCALE
1650006



- NOTE:
- ADJUST THE NUMBER OF SUPPORT POSTS TO ACCOMMODATE THE EQUIPMENT TO BE INSTALLED.

TYPICAL EQUIPMENT RACK ON GRADE
1613003

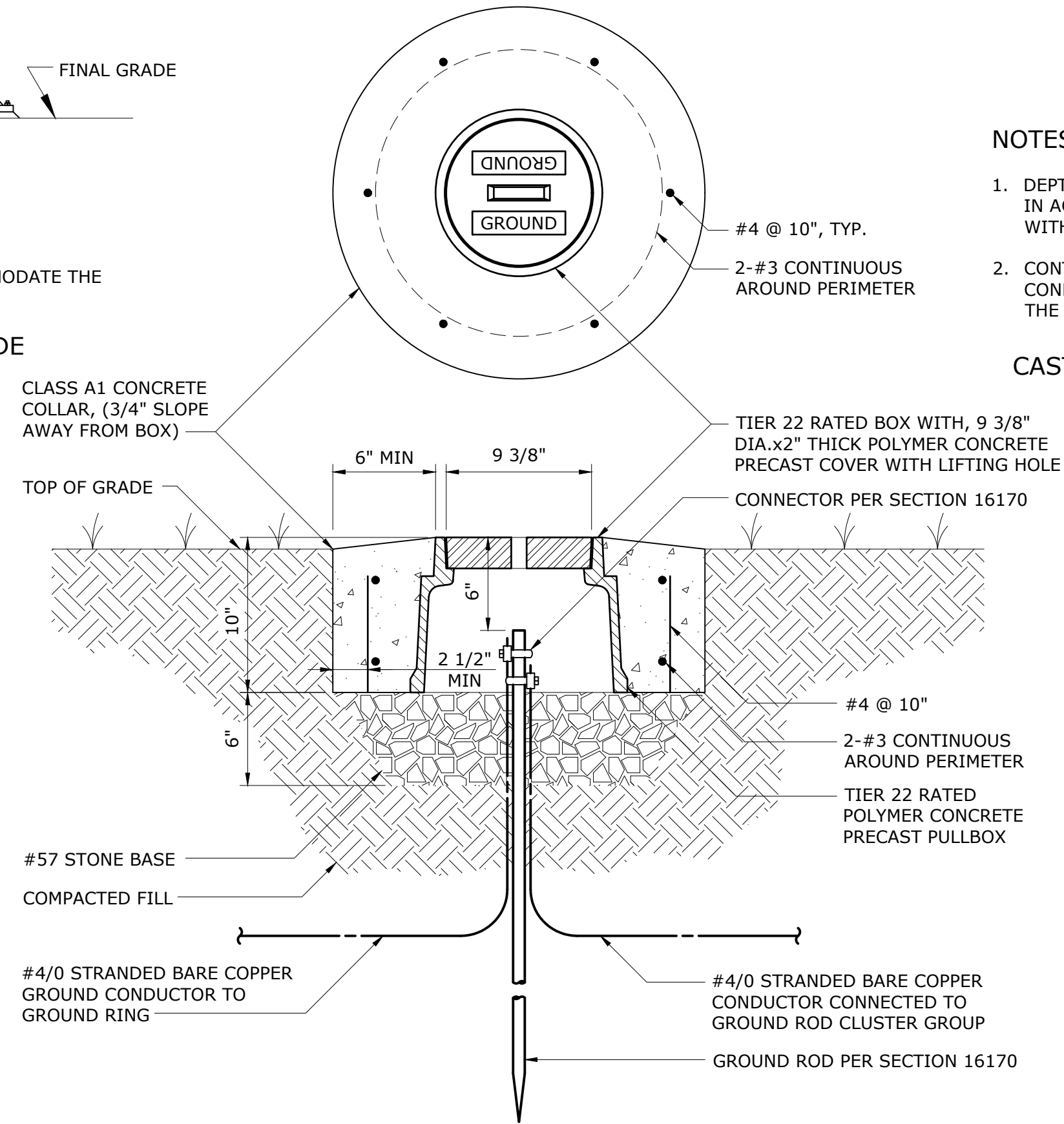
PUMP H.P.	_____
CAPACITY GPM	_____
TOTAL DEAD HEAD	_____
OPERATING RPM	_____
IMPELLER NO.	_____
VOLTS	_____
AMPS	_____
PHASE	_____
MANUFACTURER	_____
MODEL NO.	_____
SIN #1	_____ SIN #2 _____

ALUMINUM PLATE WITH PUMP INFORMATION STAMPED IN PLATE TO BE ATTACHED TO INSIDE OF CONTROL PANEL DOOR IN PLAIN VIEW.

CONTROL PANEL INFORMATION PLATES

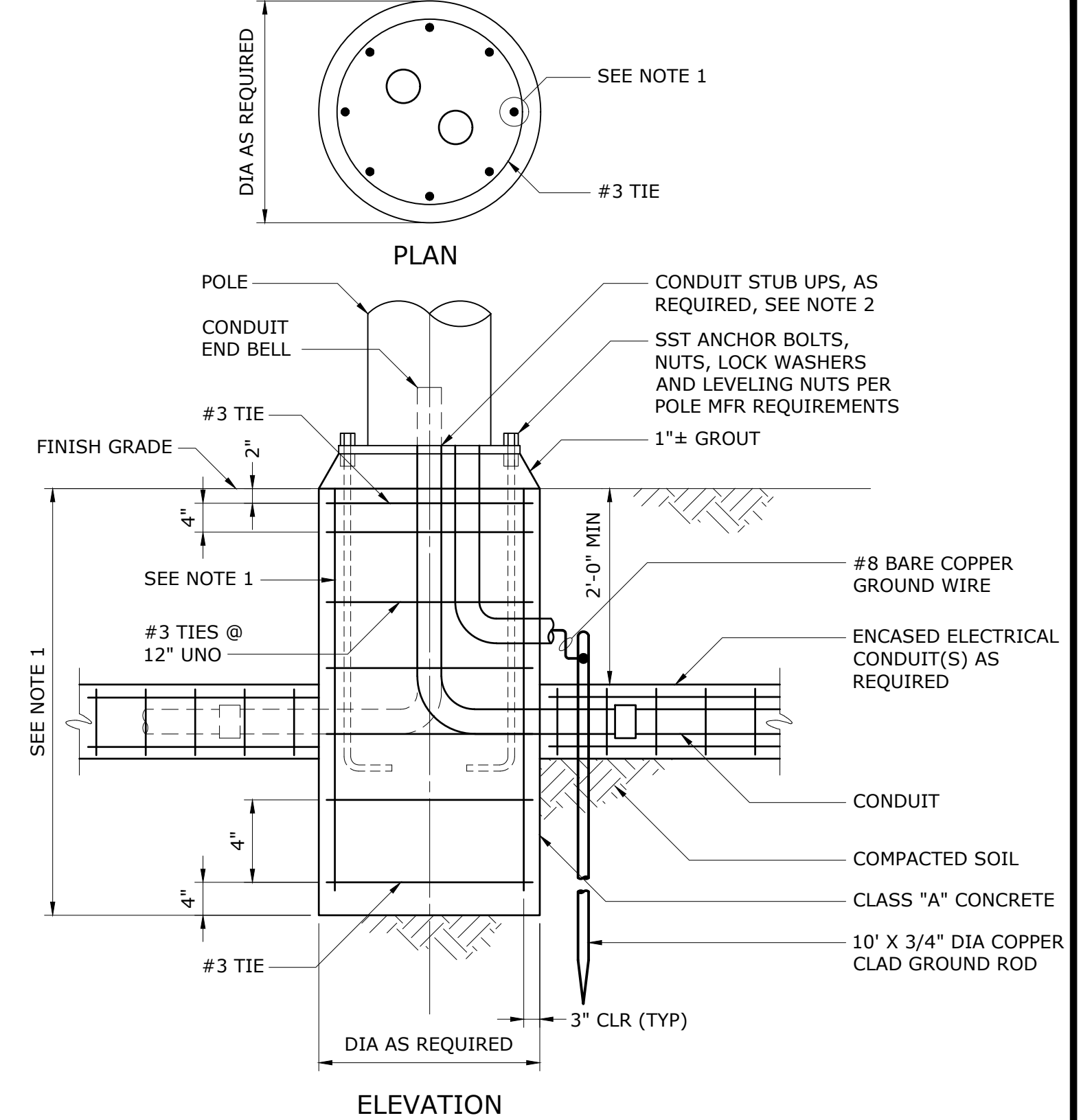
NOTE: THE CONTRACTOR SHALL INCLUDE A SCHEMATIC FOR THE CONTROL PANEL COMPONENTS LAMINATED ON BOTH SIDES PLACED IN A POCKET ATTACHED TO THE INSIDE OF THE PANEL DOOR. THE ABOVE PUMP AND MOTOR INFORMATION PLATE SHALL BE PERMANENTLY AFFIXED TO THE INSIDE OF THE PANEL DOOR.

CONTROL PANEL INFORMATION PLATE



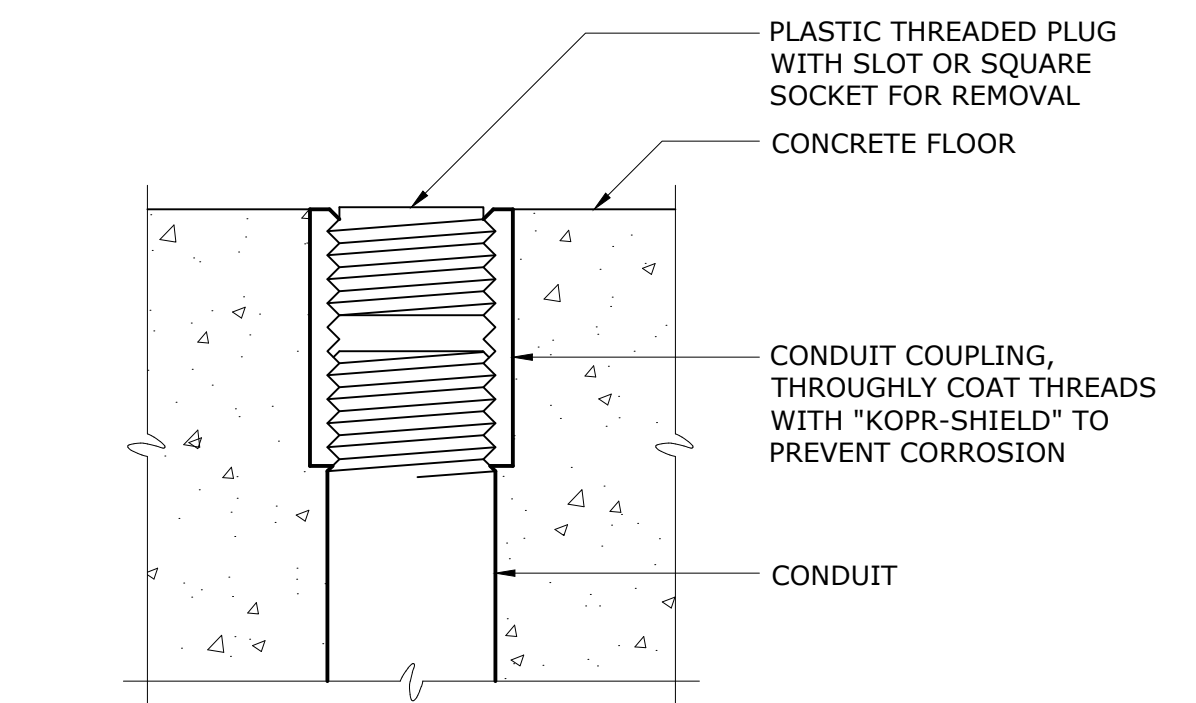
- NOTES:
- PRECAST PULLBOX AND COVER SHALL BE OLDCASTLE PART NUMBER 09101187, OR APPROVED EQUAL.

GROUND ROD TEST WELL INSTALLATION DETAIL
1617001



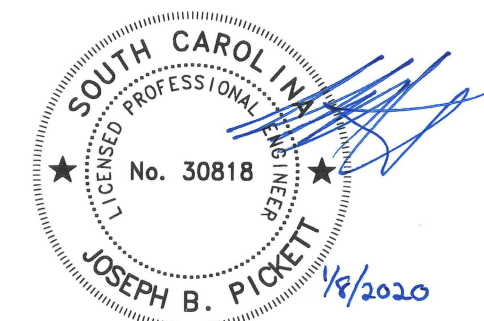
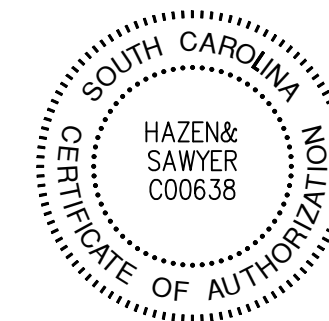
- NOTES:
- DEPTH AND REINFORCEMENT SHALL BE DETERMINED BY POLE MANUFACTURER IN ACCORDANCE WITH SECTION 16500. LOADING SHALL BE IN ACCORDANCE WITH SECTION 16500.
 - CONTRACTOR SHALL CAREFULLY COORDINATE LOCATION AND QUANTITY OF CONDUITS IN THE BASE SO THAT WHEN POLE IS INSTALLED, IT WILL FIT OVER THE CONDUITS.

CAST-IN-PLACE POLE-MOUNTED LIGHTING FIXTURE BASE (FLUSH BASE)
1650001



FLOOR STUB-UP FOR FUTURE CONDUIT
1611101

				PROJECT ENGINEER:	J. HARTWIG
				DESIGNED BY:	B. PICKETT
				DRAWN BY:	P. BOWLES
				CHECKED BY:	B. PICKETT
				IF THIS BAR DOES NOT MEASURE 1\"	
1	CONSTRUCTION	JAN 2020	HAZEN		
REV	ISSUED FOR	DATE	BY		



Hazen
HAZEN AND SAWYER
735 JOHNNIE DODDS BLVD, SUITE 102
MOUNT PLEASANT, SOUTH CAROLINA 29464



Charleston Water System
COMMISSIONERS OF PUBLIC WORKS
OF THE CITY OF CHARLESTON, SC

THOMAS ISLAND REGIONAL PUMP STATION AND INTERCEPTOR DIVISION I


PUMP STATION ELECTRICAL STANDARD DETAILS

DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	E900



IMPACT THE OPERATIONALITY, CAP

J. Clinton Dunn
J. CLINTON DUNN, P.E.
S.C.P.E. No. 16722

PROJECT ENGINEER:	J. HARTWIG
DESIGNED BY:	--
DRAWN BY:	--
CHECKED BY:	--
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	

Hazen

HAZEN AND SAWYER
735 JOHNNIE DODDS BLVD, SUITE 102
MOUNT PLEASANT, SOUTH CAROLINA 29464



THOMAS ISLAND REGIONAL PUMP STATION
AND INTERCEPTOR
DIVISION I

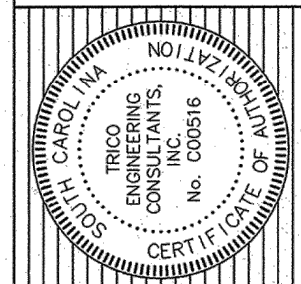
DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	R001

PUMP STATION RECORD DRAWING
SHELLING AT ST. THOMAS ISLAND

TITLE

PHASE 1

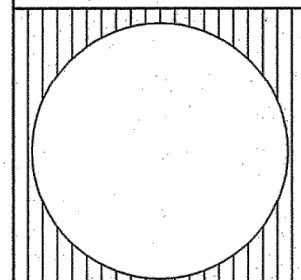
BERKELEY COUNTY
SOUTH CAROLINA



TRICO
ENGINEERING CONSULTANTS, INC.

4969 Centre Pointe Drive
North Charleston, SC 29418
South Charleston, 29415
Phone: (843) 740-7700
Phone: (843) 740-7700
Fax: (843) 740-7707
info@tricoengineering.com

Civil Engineering – Surveying – Landscape Architecture
Land Planning – Wetland Consulting – GPS Services
Visit us at <http://www.tricoengineering.com>



DESIGNED : —
 DRAWN : KES
 CHECKED : RAA
 APPROVED : JCD
 SCALE : AS SHOWN
 DATE : NOV. 2, 2006
 PROJECT NO. : 04-129
 SHEET 8 OF 9

[illegible]

