

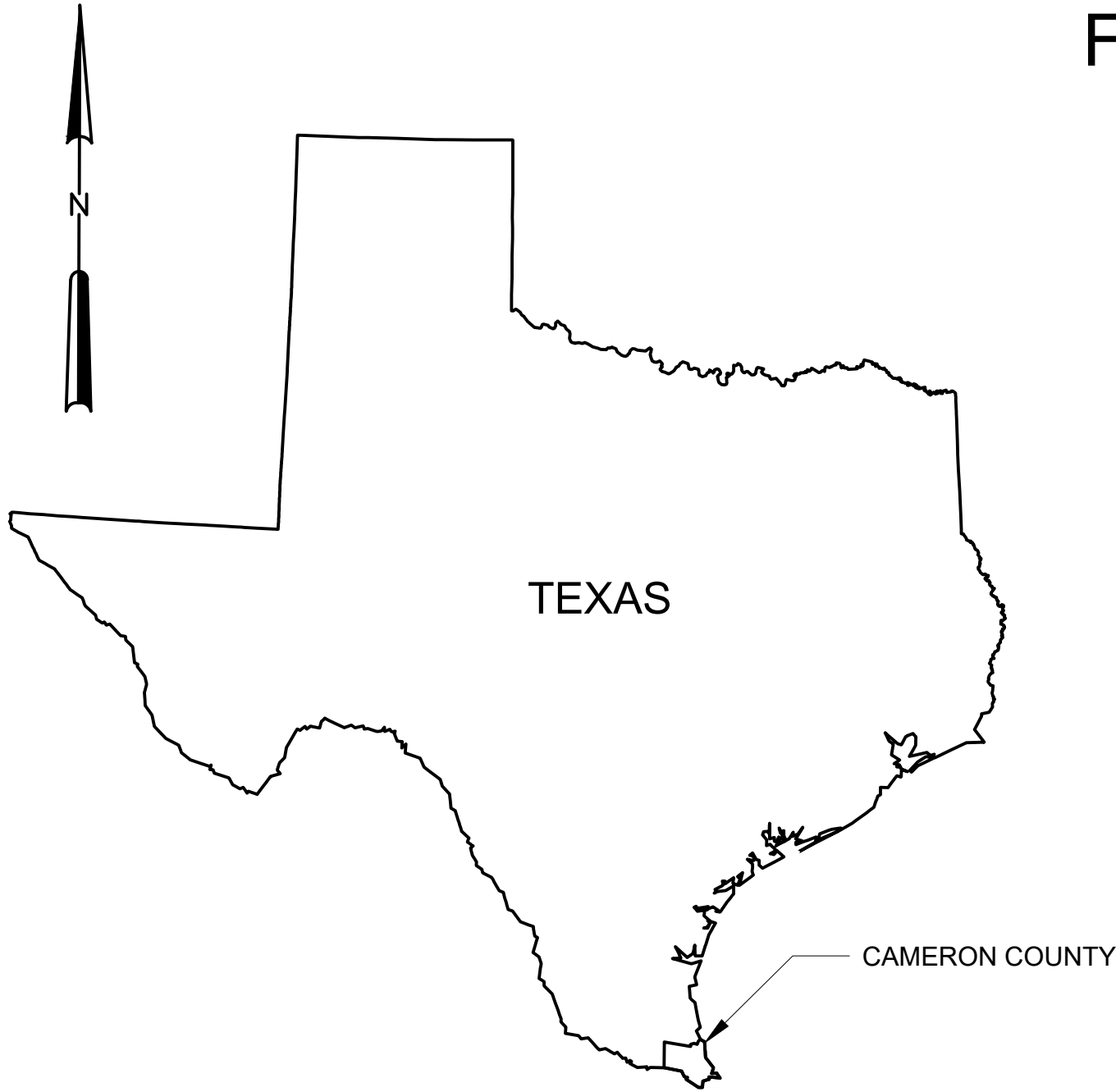
BROWNSVILLE PUBLIC UTILITIES BOARD
BROWNSVILLE, TEXAS



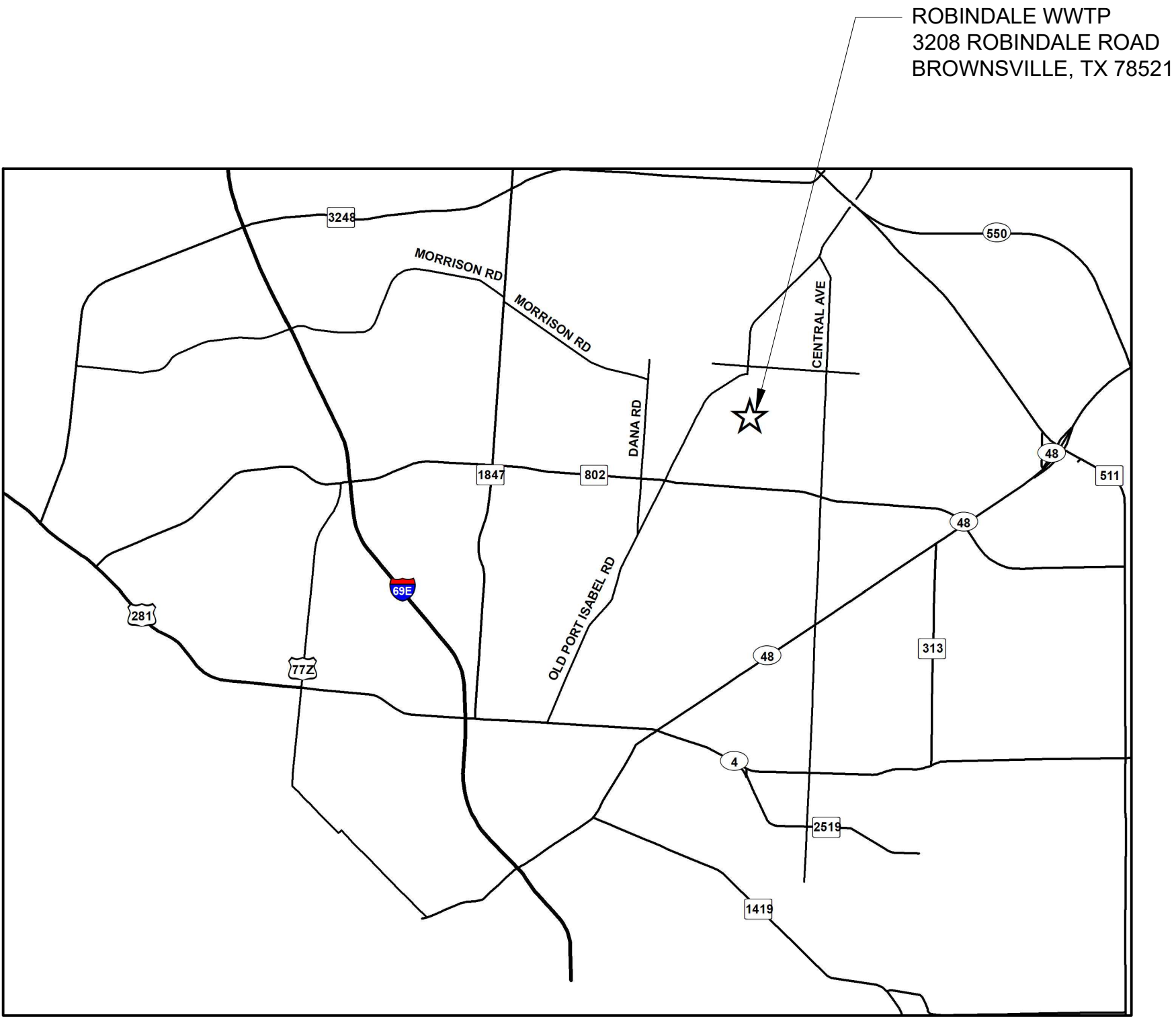
ROBINDALE WWTP
WATER AND WASTEWATER TREATMENT PLANT
IMPROVEMENTS - PACKET 3
BLOWER REPLACEMENT

HAZEN NO.: 60405-003
FEBRUARY 2022

Sharon A. Paulmann
2/11/2022

A circular professional engineer seal for Thomas A. Paulmann, State of Texas, License No. 128794. The seal includes the text "STATE OF TEXAS", "THOMAS A. PAULMANN", "128794", and "LICENSED PROFESSIONAL ENGINEER".

VICINITY MAP
NOT TO SCALE



LOCATION MAP
NOT TO SCALE



HAZEN AND SAWYER
8150 NORTH CENTRAL EXPRESSWAY
TOWER II SUITE 700
DALLAS, TEXAS 75206
TBPE FIRM REGISTRATION NO. F-13618

DRAWING INDEX

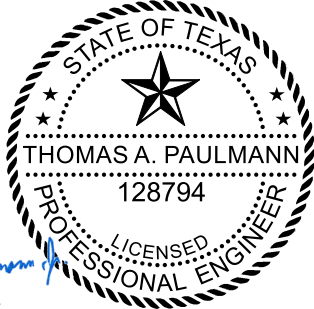
SHEET NUMBER	DRAWING NUMBER	TITLE
	GENERAL	
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	STRUCTURAL	
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26	E660	2012 BLOWER BUILDING POWER PLAN
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28	E951	ELECTRICAL BUILDING 3 SINGLE LINE DIAGRAM
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	INSTRUMENTATION	
34	I01	SYMBOLS & LEGENDS
35	I660	P&ID BLOWERS IN 2012 BLOWER BUILDING AND GENERATOR

NOTES:

1. TOTAL DISTURBED AREA IS LESS THAN 1 ACRE OF LAND. NO STORM WATER POLLUTION PREVENTION PLAN REQUIRED AND NO COVERAGE REQUIRED UNDER THE TPDES GENERAL PERMIT NUMBER TXR1500000 RELATING TO STORMWATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITIES. EROSION AND SEDIMENTATION CONTROL MEASURES ARE NOT SHOWN ON THE CONTRACT DRAWINGS. CONTRACTOR SHALL DETERMINE MEASURES REQUIRED TO PROVIDE CONTROL PER THE GENERAL CONDITIONS, ARTICLE 26.
2. EXISTING FACILITY AND UTILITY INFORMATION SHOWN ON DRAWINGS WERE FROM RECORD DRAWINGS. THE INFORMATION SHOWN IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE, AND OWNER AND ENGINEER ASSUME NO RESPONSIBILITY FOR FAILURE TO SHOW ANY OR ALL FACILITIES ON THE DRAWINGS OR TO SHOW THEM IN THEIR EXACT LOCATION. SEE GENERAL CONDITIONS, ARTICLE 28.
3. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY EXISTING FACILITY AND UTILITY LOCATIONS PRIOR TO CONSTRUCTION. ALL UNDERGROUND UTILITIES DISTURBED OR DAMAGED BY CONSTRUCTION ACTIVITIES SHALL BE RESTORED AND RETURNED TO ORIGINAL CONDITION AND TO THE UTILITY OWNER'S SPECIFICATIONS AT NO ADDITIONAL COST.
4. THE CONTRACTOR SHALL FAMILIARIZE THEMSELVES WITH, AND SHALL AT ALL TIMES CONFORM TO, THE REGULATIONS OF THE "OSHA GENERAL INDUSTRY OCCUPATIONAL SAFETY AND HEALTH STANDARDS, AND OSHA SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION", AND OF APPLICABLE STATE AND LOCAL STANDARDS AND REGULATIONS.
5. THE CONTRACTOR SHALL FAMILIARIZE THEMSELVES WITH, AND SHALL AT ALL TIMES STRICTLY CONFORM TO, ALL APPLICABLE REGULATIONS OF SUBPART "P" ENTITLED, "EXCAVATIONS, TRENCHING, AND SHORING" OF OSHA SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION "GENERAL CONSTRUCTION SAFETY ORDERS" AND THE OWNER'S SITE RULES AND REGULATIONS.
6. ALL DISTURBED AREAS SHALL BE RESTORED IN KIND. IN GRASSED AREAS, CONTRACTOR SHALL INSTALL SOD OF SAME VARIETY AS EXISTING GRASS ON TOP OF MINIMUM 4-INCHES OF TOP SOIL. CONTRACTOR SHALL MAINTAIN SODDED AREAS UNTIL FINAL COMPLETION INCLUDING WATERING, FERTILIZING AND WEED CONTROL. WATER SHALL BE PROVIDED BY OWNER.
7. SEE SPECIFICATION 01 14 00 FOR CONSTRUCTION SEQUENCE REQUIREMENTS.
8. SEE CIVIL AND ELECTRICAL SITE PLANS FOR SITE WORK REQUIREMENTS. NOT ALL WORK REQUIRING SITE RESTORATION IS SHOWN ON CIVIL PLANS.

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PLOT DATE: 2/9/2022 5:29 PM BY: EIBARRA

				PROJECT ENGINEER:	T. PAULMANN
				DESIGNED BY:	T. PAULMANN
				DRAWN BY:	G. LAZO
				CHECKED BY:	S. PHIPPS
0	FOR BID	2/10/22	TAP	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"
REV	ISSUED FOR	DATE	BY		



Thomas A. Paulmann
2/10/2022

Hazen
HAZEN AND SAWYER
8150 NORTH CENTRAL EXPRESSWAY
TOWER II SUITE 700
DALLAS, TEXAS 75206

BROWNSVILLE PUBLIC UTILITIES BOARD
BROWNSVILLE, TEXAS
ROBINDALE WWTP
WATER AND WASTEWATER TREATMENT PLANT
IMPROVEMENTS - PACKET 3
BLOWER REPLACEMENT

GENERAL
DRAWING INDEX AND GENERAL NOTES

DATE:	FEBRUARY 2022
HAZEN NO.:	60405-003
CONTRACT NO.:	01
DRAWING NUMBER:	G02

File: C:\BMS\HAZEN\DWGS-EBAR\A0017321\UGS Saved by: MBAUTISTA Save date: 2/1/2022 8:13 AM
PLOT DATE: 2/9/2022 5:28 PM BY: EBARRA

ABBREVIATIONS																LEGEND															
GENERAL																SYMBOLS															
A/C	AIR CONDITIONER	ECC	ECCENTRIC	INF	INFLUENT	RECT	RECTANGULAR	WP	WATERPROOF	GSP	GALVANIZED STEEL PIPE																				
AB	ANCHOR BOLT	ECH	ELECTRIC CABINET HEATER	INSUL	INSULATION	REF	REFERENCE	WPFG	WATER PROOFING	HDPE	HIGH DENSITY POLYETHYLENE																				
AC	ASBESTOS CEMENT	ED	EQUIPMENT DRAIN	INT	INTERIOR	REG	REGISTER	WSE	WATER SURFACE ELEVATION	PE LINING	POLYETHYLENE LINING																				
ACP	AIR COMPRESSOR	EDH	ELECTRIC DUCT HEATER	INV	INVERT	REINF	REINFORCING	WSP	WEATHER STRIP	RCP	REINFORCED CONCRETE PIPE																				
ACT-MR	ACOUSTICAL CEILING TILE, MOISTURE RESISTANT	EOP	EMERGENCY DISTRIBUTION PANEL	IPP	INSTRUMENT POWER PANEL	REM	REMOVE	WT	WEIGHT	SSP	STAINLESS STEEL PIPE																				
AD	AREA DRAIN	EE	EACH END	JB	JUNCTION BOX	REQD	REQUIRED	WW	WATER VALVE	IPS	IRON PIPE SIZE																				
ADH	ADHESIVE	EEW	EMERGENCY EYE WASH	JCT	JUNCTION	REST	RESTRAINED	WWF	WELDED WIRE FABRIC	PVC	POLYVINYL CHLORIDE																				
ADJ	ADJUSTABLE	EF	EACH FACE OR EXHAUST FAN	JT	JOINT	REV	REVISE	WWTP	WASTEWATER TREATMENT PLANT	PCCP	PRE-STRESSED CONCRETE CYLINDER PIPE																				
AFF	ABOVE FINISHED FLOOR	EFF	EFFLUENT			RH	ROOF HOOD			VCP	VITRIFIED CLAY PIPE																				
AGGR	AGGREGATE	EHH	ELECTRICAL HANDHOLE	L	LENGTH/ANGLE	RIO	REMOTE INPUT/OUTPUT	XFMR	TRANSFORMER																						
AH	AIR HEATER	EL	ELEVATION	LA	LINE AHEAD	RJ	RESTRAINED JOINT	XMH	EXISTING MANHOLE																						
AHU	AIR HANDLING UNIT	ELEC	ELECTRICAL	LAB	LABORATORY	RM	ROOM	YH	YARD HYDRANT																						
AL, ALUM	ALUMINUM	ELP	EMERGENCY LIGHTING PANEL	LAM	LAMINATED	RND	ROUND	YI	YARD INLET																						
ALLOW	ALLOWANCE/ALLOWABLE	EMH	ELECTRICAL MANHOLE	LAT	LATERAL	RO	ROUGH OPENING	YD	YARD																						
ALT	ALTERNATE	ENGR	ENGINEER	LAV	LAVATORY	RPM	REVOLUTIONS PER MINUTE	YR	YEAR																						
APPROX	APPROXIMATE	ENT	ENTRANCE	LB	POUND OR LINE BACK	RR	RAILROAD																								
ARCH	ARCHITECTURAL	EOG	EDGE OF GRAVEL	LD	COMBINATION LOUVER/DAMPER	RT	RIGHT																								
ASB	ASBESTOS	EOP	EDGE OF PAVEMENT	LF	LINEAR FEET	RTU	REMOTE TERMINAL UNIT																								
ASPH	ASPHALT	EPP	EMERGENCY POWER PANEL	LG	LONG	R/W OR ROW	RIGHT OF WAY																								
AT	ASPHALT TILE	EPX	EPOXY	LI	LEVEL INDICATOR			ARV	AIR RELIEF VALVE	A	AIR-LOW PRESSURE																				
ATF	AIR TERMINAL UNIT (FAN POWERED)	EQ	EQUAL	LIP	LIGHTING INDICATING PANEL	S	SOUTH OR SLOPE	ARVT	AIR RELEASE VALVE VAULT	AHP	AIR-HIGH PRESSURE																				
ATS	AUTOMATIC TRANSFER SWITCH	ERH	ELECTRIC WIRE ROPE HOIST	LL	LIVE LOAD	SB	SOIL BORING	BFP	BACKFLOW PREVENTER	CHD	CHEMICAL DRAIN																				
ATU	AIR TERMINAL UNIT	ES	EMERGENCY SHOWER OR EMERGENCY SWITCH	LLH	LONG LEG HORIZONTAL	SBL	SURVEY BASELINE	BF	BLIND FLANGE	DGR	DEWATERED GRIT																				
		ES/EEW	EMERGENCY SHOWER AND EYEWASH	LLV	LONG LEG VERTICAL	SBMP	SODIUM BISULFITE METERING PUMP	BFV	BUTTERFLY VALVE	DS	DIGESTED SLUDGE																				
B	BORING	ET	EXPANSION TANK	LPT	LOW POINT	SCH	SCHEDULE	BV	BALL VALVE	DWS	DEWATERED SLUDGE																				
BC	BOILER CHEMICALS	EUH	ELECTRIC UNIT HEATER	LRG	LOW RESISTANCE GROUNDING	SCG	SLUICE GATE	CAV	COMBINATION AIR VALVE	D	DRAIN (SANITARY)																				
BD	BOARD	EW	EACH WAY	LS	LEVEL SWITCH	SCR	SELECTIVE CATALYTIC REDUCTION	CV	CHECK VALVE	FLT	FILTRATE																				
BDD	BACKDRAFT DAMPER	EX	EXISTING	LTG	LIGHTING	SDG	SLIDE GATE	CPLG	COUPLING	FP	FIRE PROTECTION WATER																				
BFE	BOTTOM OF FITTING ELEV	EXC	EXCAVATE	LVR	LOUVER	SECT	SECTION	DJ	DISMANTLING JOINT	FA	FOUL AIR																				
BH	BASEBOARD HEATER	EXH	EXHAUST	LWL	LOW WATER LEVEL	SERV	SERVICE	EXP JT	EXPANSION JOINT	GR	GRIT SLURRY																				
BITUM	BITUMINOUS	EXP	EXPANSION	MAINT	MAINTENANCE	SF	SQUARE FEET	FLEX	FLEXIBLE	MLR	MIX LIQUOR RETURN																				
B	BASLINE	EXT	EXTERIOR	MANUF	MANUFACTURER	SHT(S)	SHEET(S)	FLG	FLANGE	NUT	NUTRIENT																				
BL	BUILDING LINE			MATL	MATERIAL	SIL	SQUARE INCH	FM	FLOW METER	OF	OVERFLOW																				
BLDG	BUILDING	F	FAN	MAU	MAKE UP AIR HANDLING UNIT	SIM	SIMILAR	FTG	FITTING	PD	PLANT DRAIN																				
BLK	BLOCK	FAB	FABRICATE	MCC	MOTOR CONTROL CENTER	SMH	STORM MANHOLE	FV	FLAP VALVE	PE	POTABLE WATER																				
BLW	BLOWER	F&C	FRAME AND COVER	MCLU	MOTOR CONTROL LINE-UP	SP	SUMP PUMP	GL	GLOBE VALVE	POS	POLYMER SOLUTION																				
BM	BENCH MARK	F&G	FRAME AND GRATE	MECH	MECHANICAL	SPEC	SPECIFICATION	GV	GATE VALVE	RAS	RAW SEWAGE																				
BOC	BACK OF CURB	FC	FLUSHING CONNECTION	MET	METAL	SQ	SQUARE	MJ	MECHANICAL JOINT	RS	RAW SEWAGE																				
BOM	BOTTOM OF MASONRY	FCO	FLOOR CLEANOUT	MFR	MANUFACTURER	SSP	SUBMERSIBLE SUMP PUMP	MOV	MOTOR OPERATED VALVE	RSFM	RAW SEWAGE FORCE MAIN																				
BOT	BOTTOM	FCU	FAN COIL UNIT	MG	MILLION GALLONS	SST	STAINLESS STEEL	NPT	NATIONAL PIPE THREAD	SA	SAMPLE																				
BRC	BRIDGE CRANE	FD	FLOOR DRAIN	MH	MANHOLE	STA	STATION OR STACK	PE	PLAIN END	SE	SECONDARY EFFLUENT																				
BRG	BEARING	FDN	FOUNDATION	MIN	MINIMUM	STD	STANDARD	PV	PLUG VALVE	SHC	SODIUM HYPOCHLORITE																				
BRK	BRICK	FE	FIRE EXTINGUISHER/FLOW ELEMENT	MISC	MISCELLANEOUS	STG	STORAGE OR STOP GATE (LOG)	PRV	PRESSURE RELIEF VALVE	SRS	SCREENED RAW SEWAGE																				
BRL	BUILDING RESTRICTION LINE			MLDG	MOLDING	STR	STIRRUP	RED	REDUCER	SSM	SECONDARY SCUM																				
BRZ	BRONZE			MO	MASONRY OPENING	STL	STEEL	RPZ	REDUCED PRESSURE ZONE ASSEMBLY	TWAS	THICKENED WASTE ACTIVATED SLUDGE																				
BT	BOLT	FEF	FUME EXHAUST FAN	MOD	MODIFY OR MODIFIED	STRU	STRUCTURAL	SAV	SURGE ANTICIPATOR VALVE	WAS	WASTED ACTIVATED SLUDGE																				
		FH	FIRE HYDRANT	MON	MONUMENT	SUB	SUBSTITUTE	SOV	SOLENOID OPERATED VALVE	W1	POTABLE WATER																				
CB	CATCH BASIN	FIG	FIGURE	MOPO	MAINTENANCE OF PLANT OPERATIONS	SUCT	SUCTION	TCV	TEMPERATURE CONTROL VALVE	W2	NON-POTABLE PLANT SERVICE WATER																				
CBD	COUNTERBALANCE BACKDRAFT DAMPER	FIN	FINISH	MTD	MOUNTED	SUPT	SUPERINTENDENT	THD	THREADED																						
CC	COOLING COIL	FIX	FIXTURE	MTG	MOUNTING	SUR	SURFACE																								
C/C	CENTER TO CENTER	FL	FLOOR	MULT	MULTIPLE	SUSP	SUSPENDED																								
CCP	CIRCULATING PUMP	FLXC	FLEXIBLE CONNECTION			SWD	SIDE WATER DEPTH																								
CD	CONTROL DAMPER	FOC	FIBER OPTICS CABLE			SYM	SYMMETRICAL																								
CDWP	CONDENSER WATER PUMP	FPRF	FIREPROOF	N	NORTH			CIP	CAST IRON PIPE																						
CE	CONSTRUCTION EASEMENT	FS	FLOW SWITCH	NA	NOT APPLICABLE	T&B	TOP AND BOTTOM	CMP	CORRUGATED METAL PIPE																						
CEM	CEMENT	FSD	FIRE/SMOKE DAMPER	NAD '83	NORTH AMERICAN DATUM OF 1983	T&G	TONGUE AND GROOVE	CPP	CORRUGATED PLASTIC PIPE																						
CER	CERAMIC	FT	FEET OR FIN TUBE HEATER	NAV'D '88	NORTH AMERICAN VERTICAL DATUM OF 1988	TAN	TANGENT	CU	COPPER PIPE																						
CF	CUBIC FEET	FTG	FOOTING			TBA	TO BE ABANDONED	DIP	DUCTILE IRON PIPE																						
CFM	CUBIC FEET PER MINUTE	FURR	FURRING OR FURRED	NC	NORMALLY CLOSED	TBCN	TRAVELING BRIDGE CRANE	ERCP	ELLIPTICAL REINFORCED CONCRETE PIPE																						
CL	CENTERLINE			NF	NEAR FACE	TBM	TEMPORARY BENCH MARK	FRP	FIBERGLASS REINFORCED PIPE																						
CLKG	CAULKING	G	GATE	NGVD '29	NATIONAL GEODETIC VERTICAL DATUM OF 1929	TC	TOP OF CURB																								
CLR	CLEAR	GA	GAUGE			TDH	TEMPERATURE CONTROL PANEL																								
CMU	CONCRETE MASONRY UNIT	GAL	GALLON	NIC	NOT IN CONTRACT	TECH	TECHNICAL																								
CO	CLEANOUT	GALV	GALVANIZED	No	NUMBER	TECH	TECHNICAL																								
COL	COLUMN	GC	GENERAL CONTRACTOR	NO	NORMALLY OPEN	TEL	TELEPHONE																								
CON	CONCENTRIC	GEN	GENERATOR	NOM	NOMINAL	TEMP	TEMPERATURE																								
CONC	CONCRETE	GIH	GAS INFRARED HEATER	NTS	NOT TO SCALE	TG	TEMPERED GLASS																								
CONST	CONSTRUCTION	GLV	GLOBE HEATER			THK	THICK																								
CONT	CONTINUOUS, CONTINUATION	GPM	GALLONS PER MINUTE			THRU	THROUGH																								
CONTR	CONTRACTOR	GR	GRADE	OC	ON CENTER	TOD	TOP OF DECK																								
CORP	CORPORATION	GRTG	GRATING	OD	OUTSIDE DIAMETER OR OVERHEAD DOOR	TOC	TOP OF CONCRETE																								
CP	CONCRETE PLANK OR CONTROL PANEL, OR CONTROL POINT	GUH	GAS UNIT HEATER			TOD	TOP OF DECK																								
		GUW	GUY WIRE	OF	OUTSIDE FACE	TOF	TOP OF FOOTING																								
CPT	CONTROL POWER TRANSFORMER	GWH	GAS WATER HEATER	OHE	OVERHEAD ELECTRIC	TOM	TOP OF MASONRY/MANHOLE																								
CR	CONTROL RELAY	GYP	GYPSUM	OML	OIL MIST LUBRICATOR	TOS	TOP OF SLAB/ TOP OF STEEL																								
CRS	COURSE			OPER	OPERATOR																										
CSP	CHEMICAL SERVICE PUMP	HC	HEATING COIL	OPNG	OPENING	TOW	TOP OF WALL																								
CSSP	CHEMICAL SERVICE SUMP PUMP	HCP	HORIZONTAL END SUCTION CENTRIFUGAL PUMP	OPP	OPPOSITE	TOL	TOLERANCE																								
CST	CHEMICAL STORAGE TANK			ORF	OIL REMOVAL FILTER	TYP	TYPICAL																								
CT	CERAMIC TILE			ORIG	ORIGINAL																										
CTJ	CONTROL JOINT	HDW	HARDWARE			UG	UNDERGROUND																								
CU	COPPER OR CONDENSING UNIT	HE	HEAT EXCHANGER	P&ID	PROCESS AND INSTRUMENTATION DIAGRAM	UGE	UNDERGROUND ELECTRIC																								
CY	CUBIC YARD	HEX	HEXAGONAL	PAC	PACKAGED AIR CONDITIONING UNIT	UGG	UNDERGROUND GAS UNIT HEATER																								
		HHRG	HYBRID HIGH RESISTANCE GROUNDING			UNFIN	UNFINISHED																								
		HORIZ	HORIZONTAL	PAR	PARALLEL	UNO	UNLESS NOTED OTHERWISE																								
DAD	DESICCANT AIR DRYER	HP	HORSEPOWER OR HEAT PUMP	PC	POINT OF CURVE OR PIECE OR PERSONAL COMPUTER	UPS	UNINTERRUPTIBLE POWER SUPPLY																								
DD	DESICCANT DRYER	HPT	HIGH POINT			U/S	UPSTREAM																								
DEC	DECANT	HRU	HEAT RECOVERY UNIT	PCC	POINT OF COMPOUND CURVE	UTIL	UTILITY																								
DEH	DEHUMIDIFIER	HRG	HIGH RESISTANCE GROUNDING	PCF	POUNDS PER CUBIC FOOT																										
DEM	DEMISTER			PERF	PERFORATED																										
DET	DETAIL			PERP	PERPENDICULAR	VAC	VACUUM																								
DF	DUCT FAN OR DRINKING FOUNTAIN	HSCP	HORIZONTAL SPLIT CASE PUMP	PF	PROPELLER FAN	VACP	VACUUM PUMP																								
		HUM	HUMIDIFIER	PI	POINT OF INTERSECTION	VAP	VAPORIZER																								
DIA OR Ø	DIAMETER	HVAC	HEATING, VENTILATION AND AIR CONDITIONING	PL	PROPERTY LINE OR PLATE	VAV	VARIABLE AIR VOLUME UNIT																								
DIA	DIAGONAL			PLC	PROGRAMMABLE LOGIC CONTROLLER	VCD	VOLUME CONTROL DAMPER																								
DIM	DIMENSION	HW	HEADWALL			VEL	VELOCITY																								
DISC	DISCONNECT	HWB	HEATING WATER BOILER	PLMB	PLUMBING	VENT	VENTILATING OR VENTILATION																								
DISCH	DISCHARGE	HWCH	HEATING WATER CABINET HEATER	PNL	PANEL	VERT	VERTICAL																								
DIST	DISTRIBUTION			PP	POWER PANEL OR POWER POLE	VF	VANE AXIAL FAN																								
DKC	DOOR OPERATOR (ELECTRIC)			PREFAB	PREFABRICATED	VOL	VOLUME																								
DL	DEAD LOAD	HWL	HIGH WATER LEVEL	PROP	PROPOSED	VTR	VENT THROUGH ROOF																								
DN	DOWN	HWP	HEATING WATER PUMP	PRVN	POWER ROOF VENTILATOR																										
DOZ	DOZEN	HWY	HIGHWAY	PSF	POUNDS PER SQUARE FOOT																										
DP	DISTRIBUTION PANEL	HYD	HYDRAULIC	PSI	POUNDS PER SQUARE INCH																										
DS	DISCONNECT SWITCH			PSU	POWER SUPPLY UNIT																										
D/S	DOWNSTEAM	I	IRON	PVMT	PAVEMENT																										
DT	DAY TANK	I&C	INSTRUMENTATION AND CONTROLS																												
DWG(S)	DRAWING(S)	ID	INSIDE DIAMETER	QTY	QUANTITY																										
DWL	DOWEL	IF	INSIDE FACE																												
		IN	INCH	RAD	RADIUS	WL	WATER LEVEL																								
EA	EACH	INCL	INCLUDED	RECIR	RECIRCULATION	W/M	WATER METER																								
						W/O	WITHOUT																								

GENERAL				LEGEND			
SYMBOLS				MATERIALS			
	BALL VALVE		WALL PENETRATION		GRADE OR EARTH		
	BALL CHECK VALVE		FLEXIBLE HOSE		ASPHALT PAVING		
	BUTTERFLY VALVE		SINGLE LINE DRAWINGS		CAST IRON		
	CHECK VALVE		DOUBLE LINE DRAWINGS		STEEL		
	CONTROL VALVE		MECHANICAL COUPLING		INSULATION		
	DIAPHRAGM VALVE		WELDED JOINT		WATER SURFACE		
	FLUSHING CONNECTION		FLANGED JOINT		GRATING		
<							

GENERAL STRUCTURAL NOTES

- G-1

THESE NOTES ARE GENERAL AND SUPPLEMENT THE SPECIFICATIONS. THESE NOTES APPLY TO THE ENTIRE PROJECT UNLESS MODIFIED OR NOTED OTHERWISE IN THE CONTRACT DOCUMENTS.
- G-2

STANDARD DETAILS SHALL BE USED WHEN REFERRED TO OR WHEN NO MORE RESTRICTIVE OR DIFFERENT DETAILS ARE SHOWN ON THE DRAWINGS.
- G-3

DESIGN IS IN ACCORDANCE WITH AND CONSTRUCTION SHALL COMPLY WITH THE PROVISIONS OF THE 2018 INTERNATIONAL BUILDING CODE. THE DESIGN LOADS AND OTHER DESIGN VALUES GIVEN IN NOTES G-4 THROUGH G-7 WERE USED FOR DESIGN OF STRUCTURES UNLESS NOTED OTHERWISE ON THE DRAWINGS.
- G-4

LIVE LOADS:

STRUCTURE \ LEVEL	ROOF	TOP / FIRST FLOOR	BOTTOM / GROUND FLOOR
ELECTRICAL BUILDING	35 PSF	N/A	300 PSF

-ALL STAIRWAYS, LANDINGS AND PLATFORMS ARE DESIGNED FOR A LIVE LOAD = 100 PSF UNLESS NOTED OTHERWISE.
- G-5

SNOW LOAD:

GROUND SNOW LOAD (Pg) = 0 PSF
- G-6

WIND DESIGN CRITERIA:

ULTIMATE DESIGN WIND SPEED (Vult) = 153 MPH
NOMINAL DESIGN WIND SPEED (Vasd) = 119 MPH
RISK CATEGORY = III
WIND EXPOSURE = C
- G-7

SEISMIC LOAD:

RISK CATEGORY = I I I
SEISMIC IMPORTANCE FACTOR (Ie) = 1.25
SITE CLASS = E
MAPPED SPECTRAL RESPONSE ACCELERATIONS (Ss/S1) = 0.037/0.012
SPECTRAL RESPONSE ACCELERATIONS (SMS/SM1) = 0.089/0.052
SPECTRAL RESPONSE COEFFICIENTS (SDS/SD1) = 0.059/0.035
SEISMIC DESIGN CATEGORY = A
- G-8

ALL DIMENSIONS INDICATED FOR EXISTING STRUCTURES SHALL BE VERIFIED BY FIELD MEASUREMENT. ALL DIMENSIONS THAT ARE CONTROLLED BY OR RELATED TO EQUIPMENT SHALL BE VERIFIED BY THE CONTRACTOR WITH THE MANUFACTURER SHOP DRAWINGS PRIOR TO CONSTRUCTION.
- G-9

THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL EXISTING INFORMATION IN THE FIELD AS REQUIRED FOR NEW WORK.
- G-10

IF A CONFLICT IS FOUND BETWEEN DIFFERENT PORTIONS OF THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY. CONTINUED CONSTRUCTION OF THE AREA IN CONFLICT SHALL BE AT THE CONTRACTOR'S OWN RISK UNTIL THE CONFLICT IS RESOLVED.
- G-11

EQUIPMENT ANCHOR SIZES, TYPES, EMBEDMENT AND PATTERNS SHALL BE VERIFIED WITH THE MANUFACTURER. ALL ANCHOR PATTERNS SHALL BE TEMPLATED TO INSURE ACCURACY OF PLACEMENT.
- G-12

STRUCTURAL DRAWINGS SHALL BE USED IN COORDINATION WITH THE DRAWINGS OF ALL OTHER DISCIPLINES AND MANUFACTURER'S SHOP DRAWINGS.
- G-13

STRUCTURES HAVE BEEN DESIGNED FOR OPERATIONAL LOADS ON THE COMPLETED STRUCTURE. DURING CONSTRUCTION, THE STRUCTURES SHALL BE PROTECTED BY BRACING AND TEMPORARY SUPPORTS WHEREVER EXCESSIVE CONSTRUCTION LOADS MAY OCCUR. OVERSTRESSING OF ANY STRUCTURAL ELEMENT IS PROHIBITED.
- G-14

IF CONTRACTOR DESIRES TO TEMPORARILY PLACE OR MOVE LOADS ON OR ADJACENT TO EXISTING STRUCTURES OR UTILITIES DURING CONSTRUCTION PROCESS, CONTRACTOR IS EXCLUSIVELY RESPONSIBLE FOR MAINTAINING STRUCTURAL INTEGRITY AND AVOIDING OVERSTRESSING AND DAMAGING EXISTING STRUCTURES AND UTILITIES. CONTRACTOR SHALL SUBMIT STRUCTURAL CALCULATIONS AND DRAWINGS VERIFYING PROPOSED CONSTRUCTION INCLUDING APPLICATION OF TEMPORARY CONSTRUCTION LOADS WILL NOT OVERSTRESS OR DAMAGE EXISTING STRUCTURES AND UTILITIES. DRAWINGS AND CALCULATIONS SHALL BE SEALED BY A PROFESSIONAL ENGINEER CURRENTLY REGISTERED IN THE STATE OF TEXAS.
- G-15

NO BACKFILL SHALL BE PLACED AGAINST ANY SUBSTRUCTURE WALLS UNLESS ALL ADJACENT SUPPORTING ELEMENTS HAVE ACHIEVED DESIGN STRENGTH, OR WALLS HAVE BEEN PROPERLY BRACED, AND IN ANY CASE NOT SOONER THAN 28 DAYS AFTER THE PLACING OF CONCRETE UNLESS APPROVED BY THE ENGINEER. SUPPORTING ELEMENTS SHALL INCLUDE ADJACENT WALLS, SLABS, BEAMS AND COLUMNS.
- G-16

LEAKAGE TESTING OF HYDRAULIC STRUCTURES SHALL NOT BEGIN UNTIL ALL STRUCTURAL ELEMENTS HAVE REACHED THE SPECIFIED MINIMUM CONCRETE STRENGTH. BACKFILL SHALL NOT BE PLACED AROUND ANY HYDRAULIC STRUCTURE UNTIL THE LEAKAGE TEST HAS BEEN COMPLETED UNLESS APPROVED BY THE ENGINEER.

FOUNDATIONS

- F-1

CONCRETE (CAST-IN-PLACE) NOTES APPLY TO FOUNDATIONS.
- F-2

ALLOWABLE SOIL BEARING PRESSURE

STRUCTURE \ PARAMETER	ALLOWABLE SOIL BEARING PRESSURE
ELECTRICAL BUILDING	2000 PSF
GENERATOR PAD	2000 PSF

- F-3

MINIMUM DEPTH FROM ADJACENT FINISHED GRADE TO BOTTOM OF FOUNDATION = 12 INCHES.
- F-4

STRUCTURES ARE DESIGNED FOR THE 100-YEAR FLOOD ELEVATION OF 18.00

STRUCTURAL METALS

- M-1

DETAIL, FABRICATE, AND ERECT STRUCTURAL STEEL IN ACCORDANCE WITH ANSI/AISC 360 SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, LATEST EDITION.
- M-2

STEEL MATERIAL:

A) STRUCTURAL HSS:	ASTM A500, GRADE C (46/50 KSI) OR A1085 GRADE A (50 KSI)
B) STRUCTURAL PIPE:	ASTM A53, GRADE B (35 KSI)
C) PLATES, BARS AND ANGLES:	ASTM A36 UNO (36 KSI)
D) STRUCTURAL W. C. & MC SHAPES:	ASTM A992 (50 KSI)
E) STRUCTURAL M & S SHAPES:	ASTM A36 (36 KSI)
F) STRUCTURAL HP	ASTM A572 GRADE 50 (50 KSI)
G) ANCHOR RODS	ASTM F1554 GRADE 55 (55 KSI)
- M-3

PROVIDE MINIMUM 3/4" DIAMETER ASTM F3125 GRADE A325 TYPE 1 OR GRADE F1852 TYPE 1 HIGH STRENGTH BOLTS WITH SNUG TIGHTENED TYPE N CONNECTIONS FOR STRUCTURAL STEEL UNLESS NOTED OTHERWISE. HOLES FOR BOLTS SHALL BE STANDARD SIZE UNLESS NOTED OTHERWISE.
- M-4

PROVIDE TYPICAL STEEL BEAM CONNECTIONS FOR A CAPACITY OF NOT LESS THAN ONE HALF OF THE TOTAL UNIFORM LOAD CAPACITY TABULATED IN THE AISC TABLES FOR ALLOWABLE LOADS OF BEAMS UNLESS NOTED OTHERWISE.
- M-5

DO NOT PAINT STEEL SURFACES WHICH ARE TO BE WELDED OR ARE TO BE ENCASED IN CONCRETE.
- M-6

ALL STAINLESS STEEL FABRICATIONS EXPOSED TO UNDERWATER SERVICE SHALL BE TYPE 316. ALL OTHER STAINLESS STEEL FABRICATIONS SHALL BE TYPE 304 UNLESS NOTED OTHERWISE.
- M-7

ALL GROOVE AND BUTT WELDS SHALL BE FULL PENETRATION.
- M-8

FILLET WELD SIZES SHALL NOT BE LESS THAN THE MINIMUM SIZE REQUIRED BY AISC CODE FOR PLATE SIZES TO BE CONNECTED AND SHALL BE APPLIED TO THE ENTIRE JOINT CONTACT LENGTH, AND NOT LESS THAN 3/16".
- M-9

BOTTOM SURFACES OF BASE PLATES SHALL BE GROUTED TO ENSURE FULL BEARING CONTACT WITH CONCRETE SLAB.
- M-10

WHENEVER ONE MEMBER IS FASTENED TO ANOTHER WITH FASTENINGS (BOLTS, WELDS, ETC.) SET AT A UNIFORM SPACING, THERE SHALL BE A MINIMUM OF TWO FASTENINGS PER PIECE CONNECTED AND THE FIRST AND LAST FASTENINGS SHALL BE LOCATED NOT TO EXCEED 0.25 OF FASTENER SPACING FROM EACH END.
- M-11

BOLTED CONNECTIONS FOR STRUCTURAL STEEL SHALL BE ASSEMBLED AND INSPECTED IN ACCORDANCE WITH RCSC (SPECIFICATIONS FOR STRUCTURAL JOINTS USING ASTM HIGH STRENGTH BOLTS).
- M-12

STRUCTURAL WELDED JOINTS SHALL CONFORM TO THE PROVISIONS OF AWS D1.1, STRUCTURAL WELDING CODE BY AMERICAN WELDING SOCIETY. PROOF OF WELDER CERTIFICATION SHALL BE AVAILABLE AT THE JOB SITE DURING TIMES OF INSPECTION.

DEMOLITION

- D-1

FOR DEMOLITION REQUIREMENTS, REFER TO SPECIFICATION 02 41 00 - DEMOLITION.
- D-2

CONCRETE DEMOLITION WITHIN STRUCTURES BEING MODIFIED SHALL BE SELECTIVE DEMOLITION BY CORE DRILLING OR SAWCUTTING AND CAREFUL REMOVAL OF CONCRETE SHOWN TO BE REMOVED. NO OVER CUTTING OF AREAS TO BE DEMOLISHED SHALL BE PERMITTED. CONTRACTOR SHALL CORE DRILL CORNERS OF OPENING PRIOR TO SAWCUTTING. EXPLOSIVES AND VIBRATORY HAMMERS SHALL NOT BE USED FOR DEMOLITION WORK.
- D-3

UNLESS ANCHORING DEVICES AND/OR REINFORCEMENT IS NOTED TO REMAIN FOLLOWING DEMOLITION, REMOVE AND/OR BURN BACK ANCHORS AND REINFORCEMENT STEEL 1/2" MIN BELOW SURFACE AND VOIDS CREATED SHALL BE FILLED WITH EPOXY RESIN BINDER.
- D-4

EMBEDDED CONDUIT ENCOUNTERED DURING DEMOLITION WORK LIMITS SHALL BE PERMANENTLY REROUTED AS NECESSARY. CONTRACTOR SHALL SUBMIT PROPOSED MEANS OF REROUTING ANY INTERFERING CONDUIT.
- D-5

PRIOR TO DEMOLITION OF SMALL OPENINGS (LESS THAN 6 INCHES IN SIZE) FOR PENETRATIONS, ETC., CONTRACTOR SHALL USE NON-DESTRUCTIVE MEANS TO FIELD LOCATE REINFORCEMENT. OPENINGS SHALL BE LOCATED TO AVOID CUTTING THROUGH EXISTING REINFORCEMENT, IF POSSIBLE. EXISTING REINFORCEMENT SHALL NOT BE CUT WITHOUT APPROVAL OF ENGINEER.
- D-6

CONCRETE SURFACES LEFT EXPOSED FOLLOWING DEMOLITION SHALL BE SEALED WITH EPOXY RESIN COATING SUCH AS "SIKAGARD" BY SIKA CORPORATION, "DURACOTE 240" BY TAMMS INDUSTRIES, OR APPROVED EQUAL.
- D-7

DETAILED CONSTRUCTION AND DEMOLITION PLAN SHALL BE SUBMITTED TO THE ENGINEER AND APPROVED BY THE ENGINEER AND OWNER PRIOR TO BEGINNING CONSTRUCTION. ANY SHUTDOWNS SHALL BE SUBMITTED TO, COORDINATED WITH, AND APPROVED BY THE OWNER. ONCE APPROVED, CONTRACTOR SHALL PROVIDE A MINIMUM OF THREE (3) WEEKS NOTICE TO OWNER PRIOR TO SHUTDOWN.

NONSTRUCTURAL COMPONENT ANCHORAGE

- A-1

ANCHORAGE OF ALL ARCHITECTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS SHALL BE DESIGNED AND INSTALLED TO RESIST THE CONTROLLING CONDITION OF OPERATIONAL FORCES, WIND FORCES OR SEISMIC FORCES IN ACCORDANCE WITH THE GOVERNING BUILDING CODE. SEISMIC FORCES SHALL BE AS PER ASCE 7. COMPONENTS SHALL BE BOLTED, WELDED, OR OTHERWISE POSITIVELY FASTENED WITHOUT CONSIDERATION OF FRICTIONAL RESISTANCE PRODUCED BY THE EFFECTS OF GRAVITY. A CONTINUOUS LOAD PATH OF SUFFICIENT STRENGTH AND STIFFNESS TO RESIST REQUIRED FORCES SHALL BE PROVIDED BETWEEN THE COMPONENT AND THE SUPPORTING STRUCTURE. ANCHORAGE SHALL BE DESIGNED TO RESIST LOADS IN BOTH ORTHOGONAL DIRECTIONS (TRANSVERSE AND LONGITUDINAL) AND SHALL BE DESIGNED AND SEALED BY THE CONTRACTOR'S ENGINEER CURRENTLY REGISTERED IN THE STATE OF TEXAS.
- A-2

COMPONENT REACTION FORCES AT THE POINT OF ATTACHMENT TO THE STRUCTURE SHALL BE SUBMITTED TO AND COORDINATED WITH THE ENGINEER FOR CONFIRMATION THAT SUPPORTING STRUCTURE IS ADEQUATE TO RESIST REQUIRED REACTION FORCES.
- A-3

CONTRACTOR SHALL PROVIDE SPECIAL SEISMIC CERTIFICATION (SSC) FROM MANUFACTURER OF EQUIPMENT FOR ALL SYSTEMS DEEMED NECESSARY BY SPECIFICATIONS. SPECIAL SEISMIC CERTIFICATION SHALL BE IN COMPLIANCE WITH ASCE 7.

CONCRETE (CAST-IN-PLACE)

- C-1

DESIGN OF CONCRETE ELEMENTS INCLUDING WALLS, FORMED SLABS, BEAMS, AND COLUMNS IS IN ACCORDANCE WITH ACI 318 (CODE REQUIREMENTS FOR STRUCTURAL CONCRETE) AND 350 (CODE REQUIREMENTS FOR ENVIRONMENTAL ENGINEERING CONCRETE STRUCTURES).
- C-2

FOR CONCRETE MIX DESIGN SEE SPECIFICATION SECTION 03 30 00.
- C-3

CONCRETE STRENGTH CLASSES (28-DAY COMPRESSIVE STRENGTH):

A) CLASS A2 CONCRETE (4,000 PSI): NORMAL WEIGHT STRUCTURAL CONCRETE IN ALL STRUCTURES OTHER THAN STRUCTURES QUALIFYING AS ENVIRONMENTAL CONCRETE STRUCTURES AS DESCRIBED ABOVE, AND FOR ALL SIDEWALKS, CURB AND GUTTERS, AND PAVEMENT.	
--	--
- C-4

ALL BAR REINFORCING SHALL CONFORM TO ASTM A615, GRADE 60. WHERE REINFORCEMENT IS TO BE WELDED IN ACCORDANCE WITH AWS D1.4, ASTM A706 GRADE 60 SHALL BE USED. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.
- C-5

CONCRETE COVER FOR REINFORCING (UNLESS NOTED OTHERWISE ON THE DRAWINGS):

A) CONCRETE DEPOSITED DIRECTLY AGAINST SOIL:	3"
B) CONCRETE EXPOSED TO WEATHER (#5 OR SMALLER):	1 1/2"
CONCRETE EXPOSED TO WEATHER (#6 OR LARGER):	2"
C) SLABS:	1 1/2"
AT SURFACES CONTACTING FLUID:	2"
D) BEAMS AND COLUMNS (TO MAIN REINFORCEMENT):	2"
BEAMS AND COLUMNS (TO COLUMN TIES OR STIRRUPS):	1 1/2"
E) WALLS 12" OR MORE:	2"
WALLS LESS THAN 12" (#5 OR SMALLER):	1 1/2"
WALLS LESS THAN 12" (#6 OR LARGER):	2"
F) FOR SURFACES EXPOSED TO FLUID IN BEAMS, COLUMNS AND WALLS:	ADD 1/2" TO ABOVE VALUES
- C-6

SPLICES SHALL BE CLASS "B" CONFORMING TO THE PROVISIONS OF ACI 318 UNLESS NOTED OTHERWISE. SPLICE LENGTH FOR TWO DIFFERENT SIZED BARS TO BE LAP SPICED TOGETHER SHALL BE THE LENGTH OF THE LARGER BAR UNLESS NOTED OTHERWISE.
- C-7

ALL EXPOSED CORNERS SHALL HAVE A 3/4" CHAMFER.
- C-8

EQUIPMENT SUPPORTS, ANCHORAGES, OPENINGS, RECESSES AND REVEALS NOT SHOWN ON THE STRUCTURAL DRAWINGS BUT REQUIRED BY OTHER CONTRACT DOCUMENTS, SHALL BE PROVIDED FOR PRIOR TO PLACING CONCRETE.
- C-9

REINFORCING BARS AND ACCESSORIES SHALL NOT BE IN CONTACT WITH ANY METAL PIPE, PIPE FLANGE, METAL CONDUIT, OR OTHER METAL PARTS EMBEDDED IN CONCRETE. A MINIMUM CLEARANCE OF 2" SHALL BE PROVIDED.
- C-10

DOWELS, ANCHOR BOLTS, PIPES, WATERSTOPS AND OTHER EMBEDDED ITEMS SHALL BE HELD SECURELY IN POSITION WHILE CONCRETE IS BEING PLACED.
- C-11

CONDUITS AND OTHER SIMILAR ITEMS EMBEDDED IN OR PENETRATING THROUGH CONCRETE SHALL BE SPACED ON CENTER NOT LESS THAN 3 TIMES THEIR OUTSIDE DIMENSION, BUT NOT LESS THAN 2 1/2" CLEAR. WHEN SUCH ITEMS ARE EMBEDDED IN WALLS OR SLABS, THEY SHALL NOT OCCUPY MORE THAN 1/3 OF THE MEMBER THICKNESS.
- C-12

AT ALL TYPICAL CURBS, EQUIPMENT PADS, AND PIPE SUPPORT PIERS, REINFORCING DOWELS SHOWN MAY BE REPLACED WITH MATCHING DOWELS SET IN EPOXY IN DRILLED HOLES AS SPECIFIED. DOWELS LOCATED CLOSER THAN 3" FROM ANY EDGE OF CONCRETE SHALL NOT BE REPLACED WITH DRILLED DOWELS.
- C-13

DRILLED ADHESIVE DOWELS AND CONCRETE ANCHORS (WHERE DOWELS OR ANCHORS ARE SHOWN TO BE PLACED INTO HARDENED CONCRETE):

A) THE HOLE DIAMETER SHALL BE NO LARGER THAN 1/8" GREATER THAN THE DIAMETER OF THE REINFORCING BAR AT THE DEFORMATIONS FOR DOWELS. THE HOLE DIAMETER SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS FOR ANCHORS.	
B) THE DEPTH OF EMBEDMENT SHALL BE 12 BAR DIAMETERS, UNLESS NOTED OTHERWISE.	
C) ADJUST THE DOWEL OR ANCHOR LOCATIONS AS NEEDED TO AVOID DRILLING THROUGH ANY REINFORCING BARS. IF THE LOCATION NEEDS TO BE MODIFIED, CONTACT THE ENGINEER. CONTRACTOR SHALL USE NON-DESTRUCTIVE MEANS TO FIELD LOCATE REINFORCEMENT PRIOR TO DRILLING HOLES FOR DOWELS OR ANCHORS.	
- C-14

CLEAR DISTANCE FROM ANCHOR RODS TO ANY CONCRETE EDGE SHALL BE 4" MINIMUM UNLESS NOTED OTHERWISE.
- C-15

CONCRETE COMPRESSIVE STRENGTH TESTS SHALL BE AVAILABLE ON THE JOB SITE FOR REVIEW BY THE ENGINEER.

AIR PIPING

- PA-1

CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO FABRICATING STEEL BRACING MEMBERS.
- PA-2

REFER TO PROCESS AIR PIPE SUPPORT NOTES ON MECHANICAL STANDARD DETAILS.

				PROJECT ENGINEER:	J. FORD
				DESIGNED BY:	J. FORD
				DRAWN BY:	R. KANDILAH
				CHECKED BY:	F. POWELL
0	FOR BID	2/10/22	TAP	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"
REV	ISSUED FOR	DATE	BY		



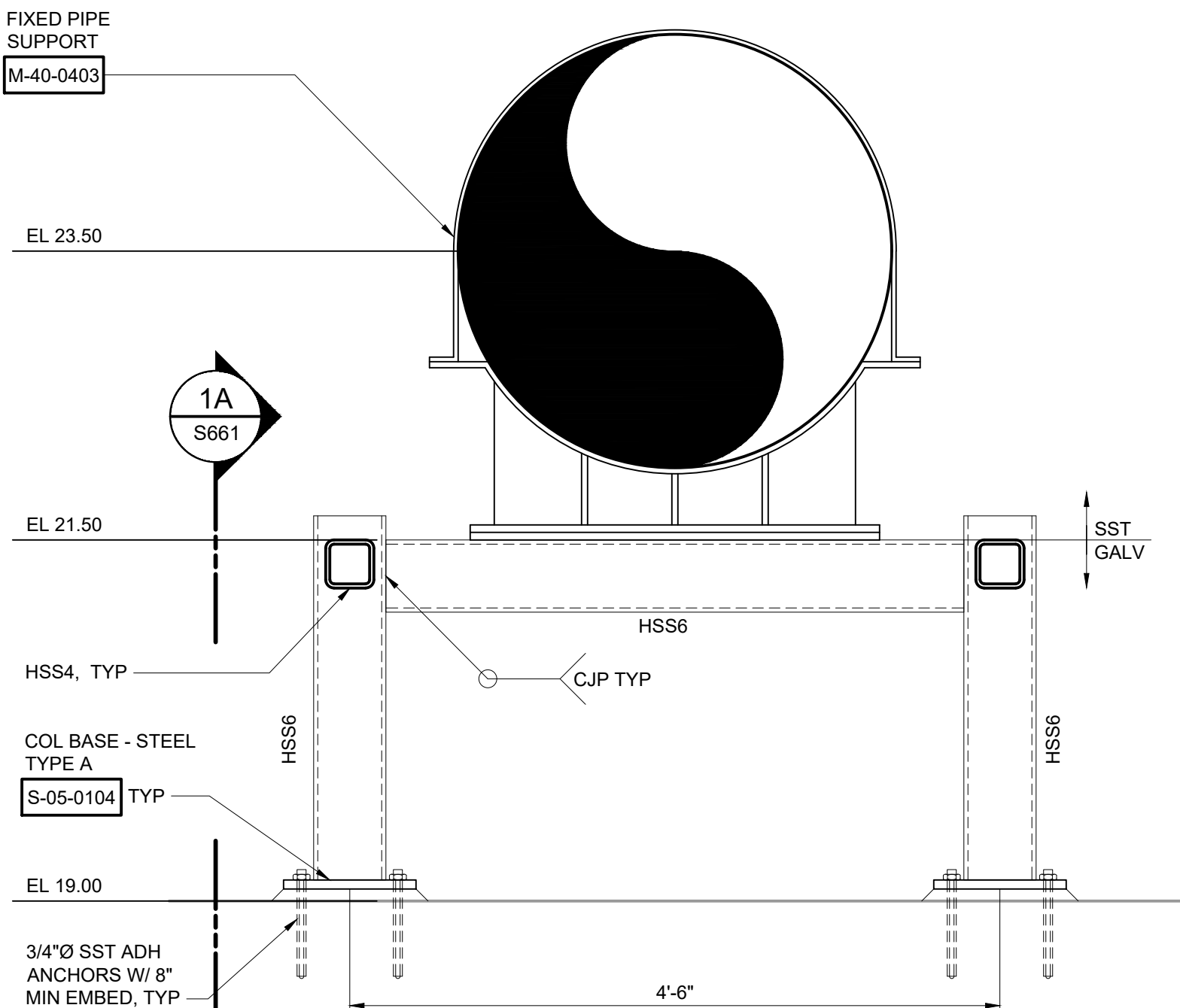
BROWNSVILLE PUBLIC UTILITIES BOARD
BROWNSVILLE, TEXAS

ROBINDALE WWTP
WATER AND WASTEWATER TREATMENT PLANT
IMPROVEMENTS - PACKET 3
BLOWER REPLACEMENT

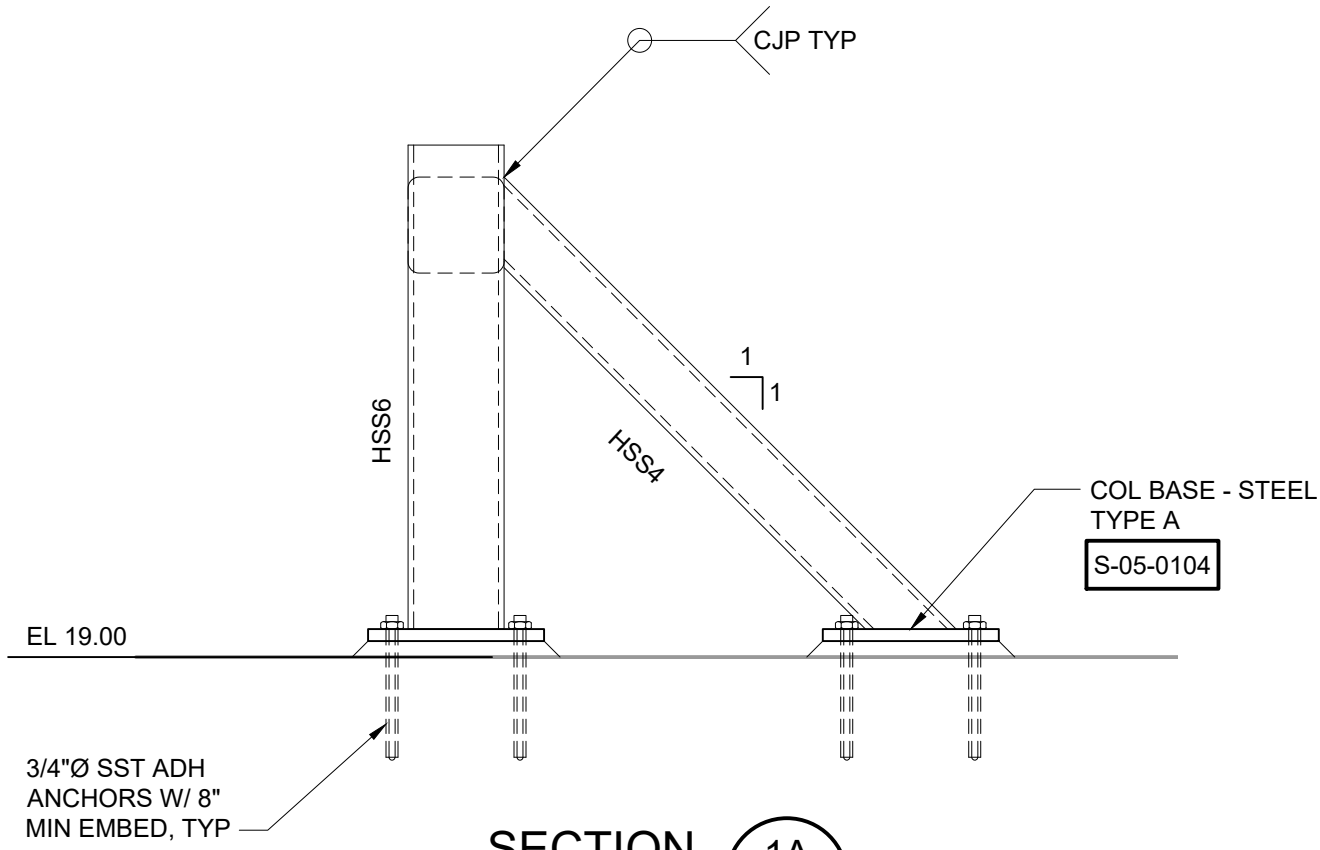
STRUCTURAL GENERAL NOTES

DATE:	FEBRUARY 2022
HAZEN NO.:	60405-003
CONTRACT NO.:	01
DRAWING NUMBER:	S01

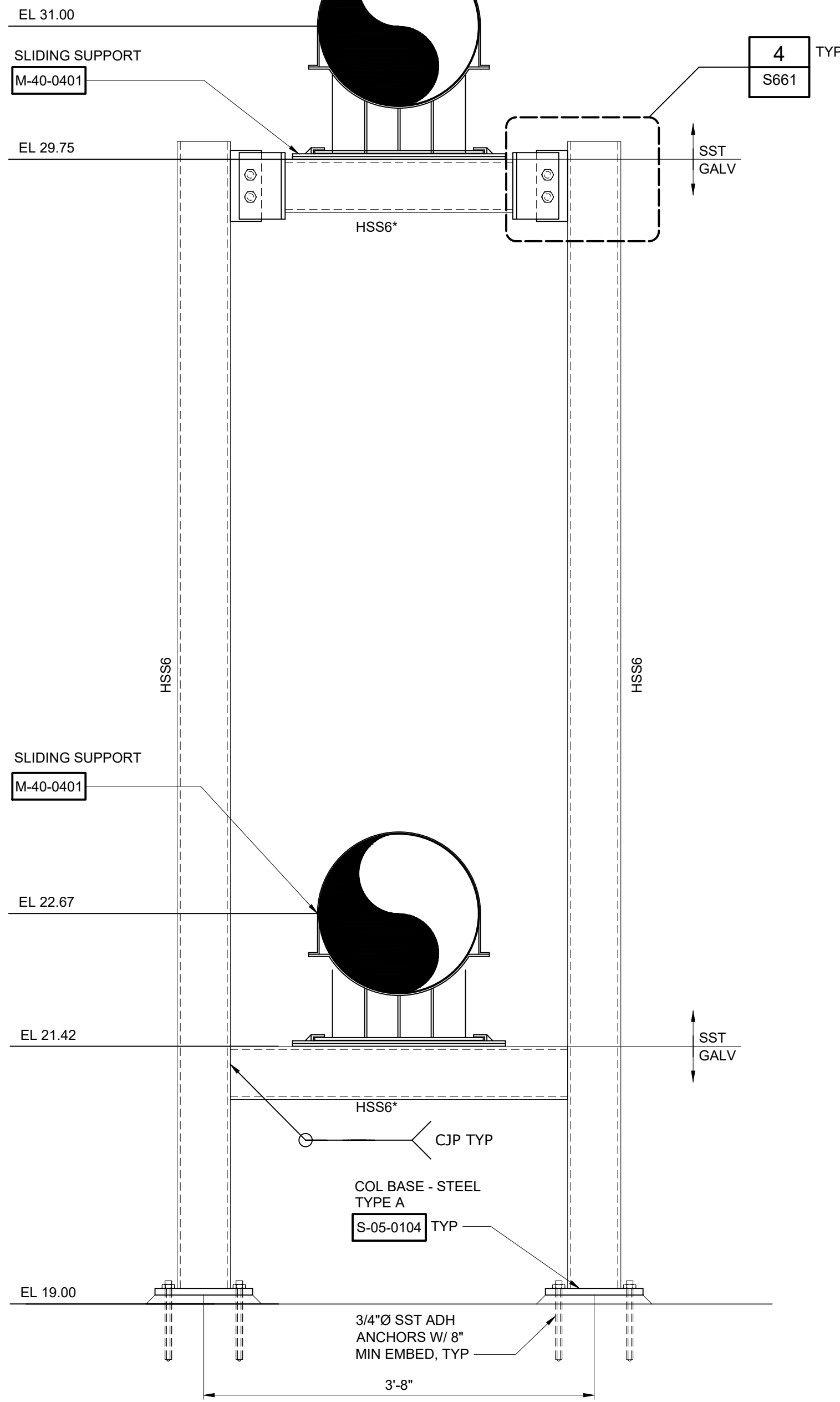
- NOTES:
1. STEEL FRAMING (GALV), FASTENERS, AND CONCRETE ANCHORS ARE TO BE HOT DIPPED GALVANIZED PER SPECIFICATION SECTION 05 05 13 - GALVANIZING.
 2. HSS6 DENOTES HSS6x6x3/8
HSS6* DENOTES HSS6x4x3/8
HSS4 DENOTES HSS4x4x3/8



PIPE SUPPORT 1
DETAIL 1
1'-1'-0"

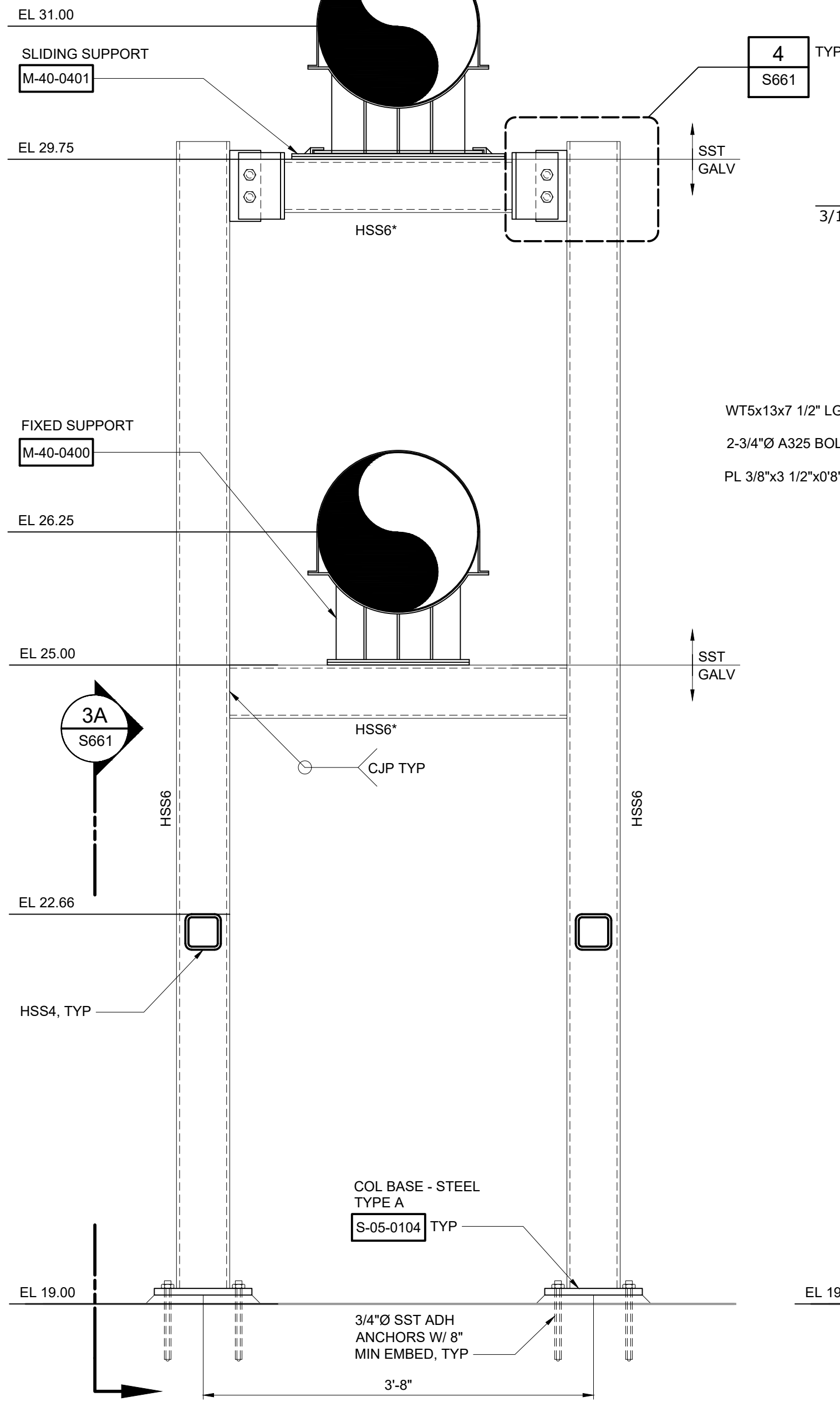


SECTION 1A
1'-1'-0"



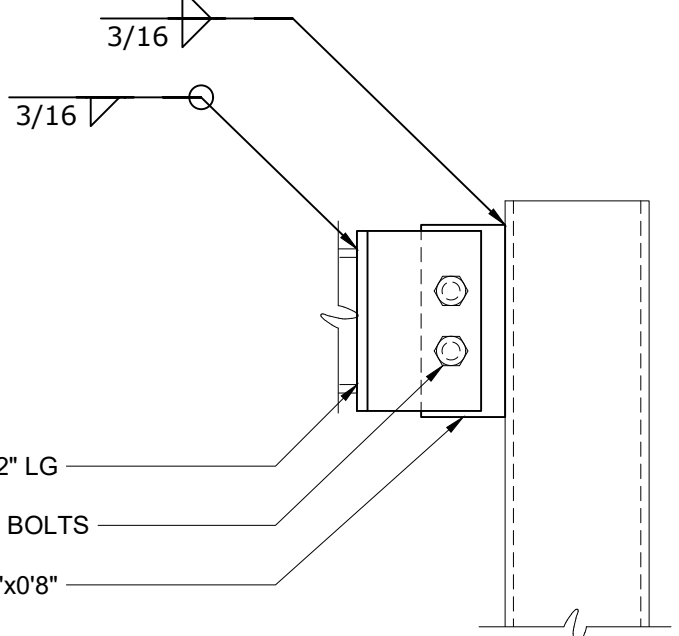
PIPE SUPPORT 2

DETAIL 2
1'-1'-0"

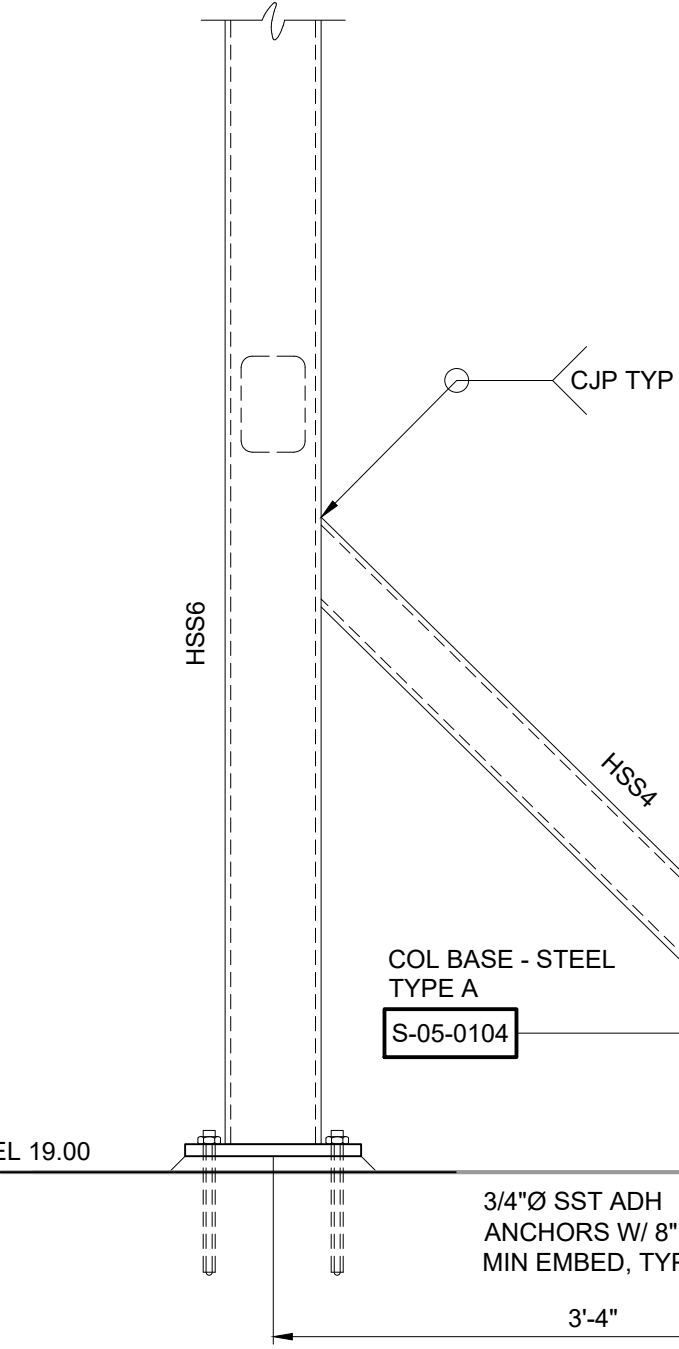


PIPE SUPPORT 3

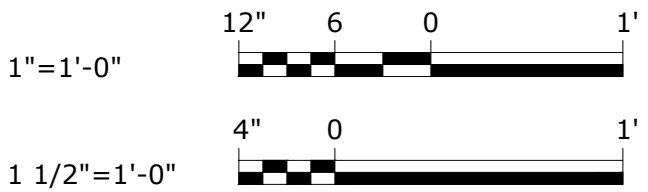
DETAIL 3
1'-1'-0"



DETAIL 4
1'-1'-0"



SECTION 3A
1'-1'-0"



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PLOT DATE: 2/10/2022 9:41 AM BY: RKANDILAH

				PROJECT ENGINEER:	J. FORD
				DESIGNED BY:	J. FORD
				DRAWN BY:	R. KANDILAH
				CHECKED BY:	F. POWELL
0	FOR BID	2/10/22	TAP	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"
REV	ISSUED FOR	DATE	BY		



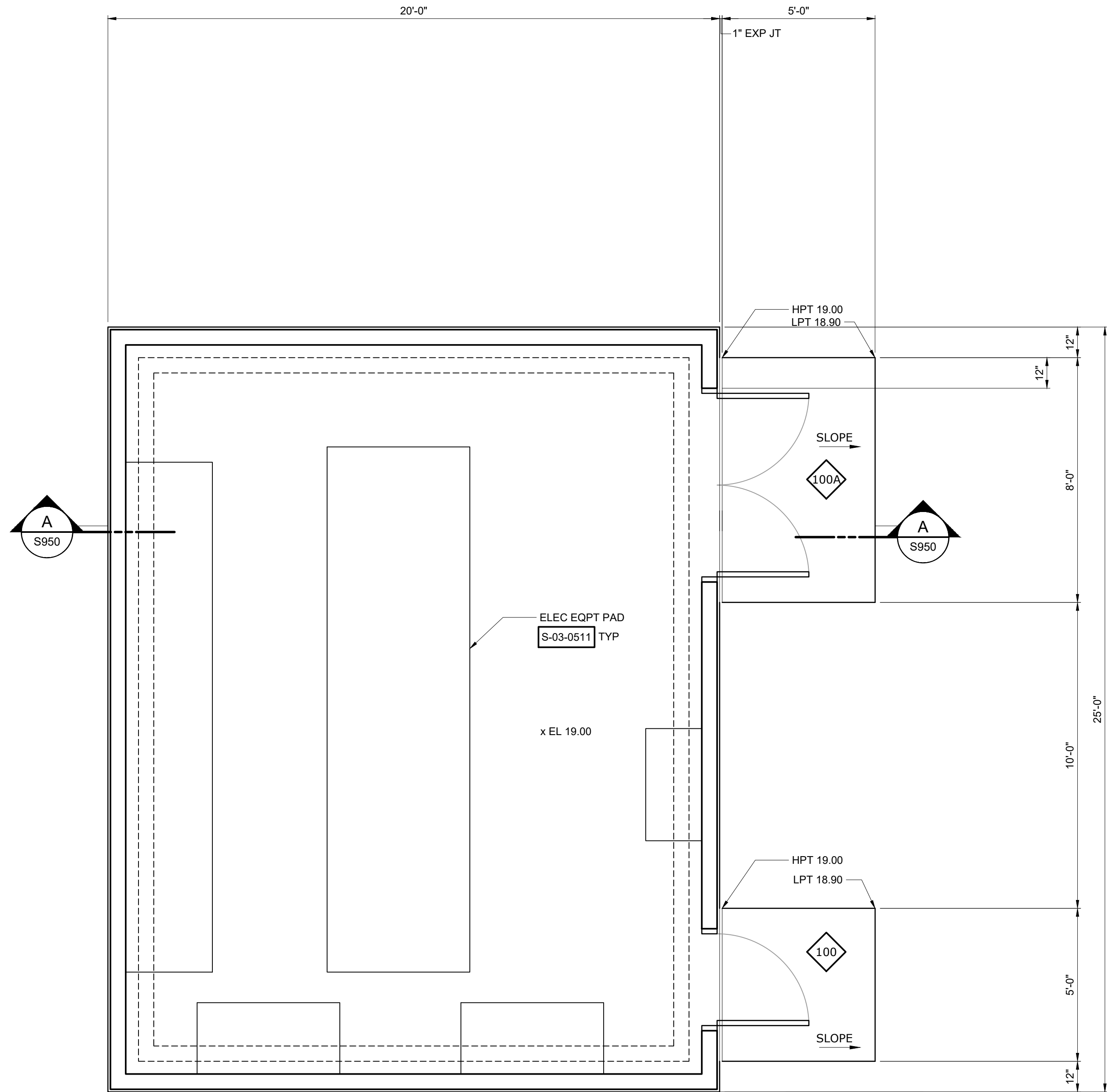
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HAZEN AND SAWYER
8150 NORTH CENTRAL EXPRESSWAY
TOWER II SUITE 700
DALLAS, TEXAS 75206

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BROWNSVILLE, TEXAS
ROBINDALE WWTP
WATER AND WASTEWATER TREATMENT PLANT
IMPROVEMENTS - PACKET 3
BLOWER REPLACEMENT

2012 BLOWER BUILDING
STRUCTURAL
AIR PIPE SUPPORT DETAILS

DATE:	FEBRUARY 2022
HAZEN NO.:	60405-003
CONTRACT NO.:	01
DRAWING NUMBER:	S661

File: C:\BMS\HAZEN\DWG\17376\S950 Saved by RKANDILAH Save date: 1/26/2022 4:18 PM
PLOT DATE: 2/10/2022 9:41 AM BY: RKANDILAH



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

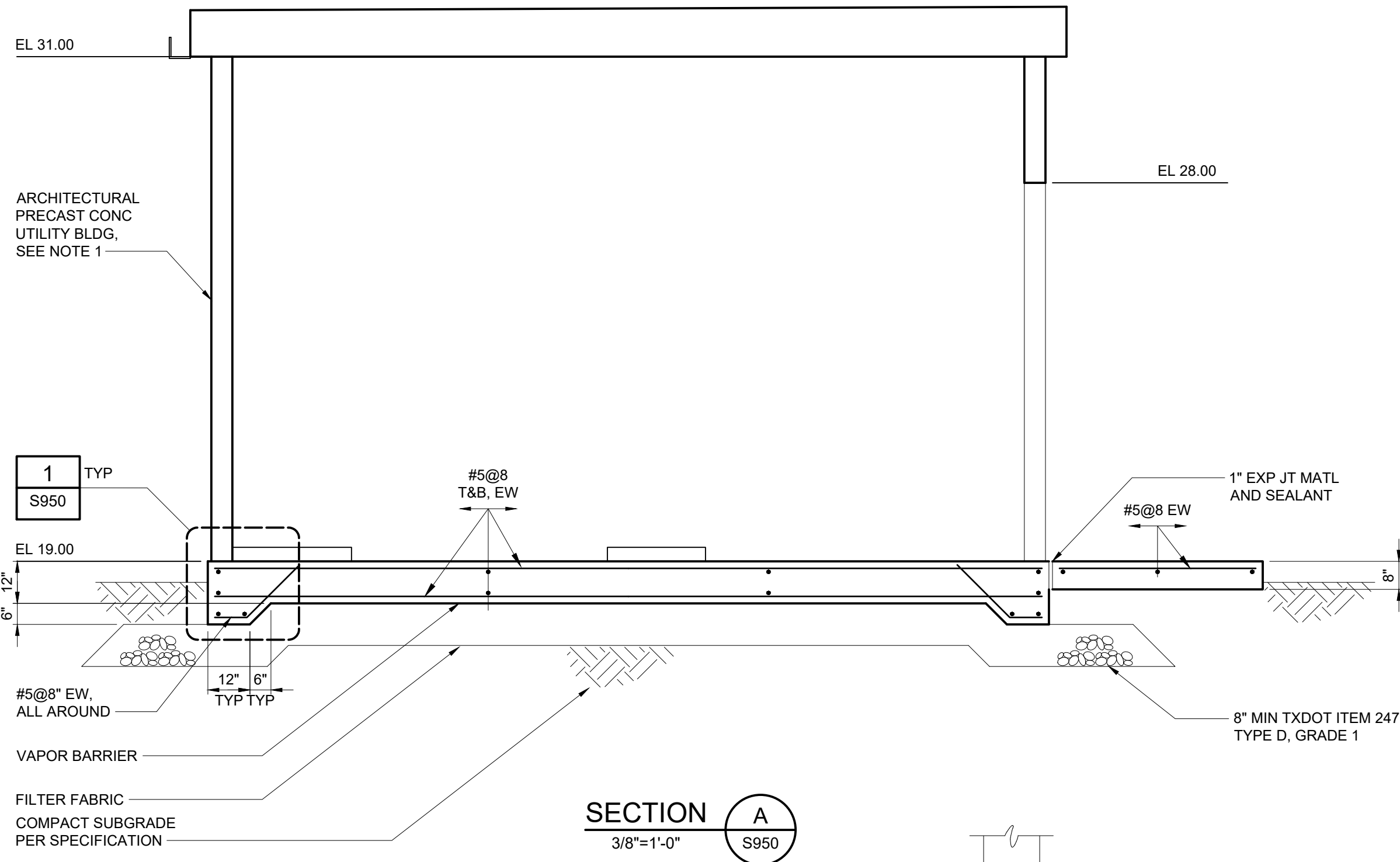
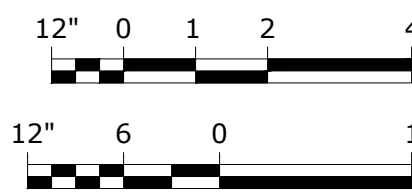
CODE SUMMARY:

BUILDING CODE:
2018 INTERNATIONAL BUILDING CODE
2018 INTERNATIONAL PLUMBING CODE
2018 INTERNATIONAL MECHANICAL CODE
2018 INTERNATIONAL FUEL GAS CODE
2018 INTERNATIONAL FIRE CODE

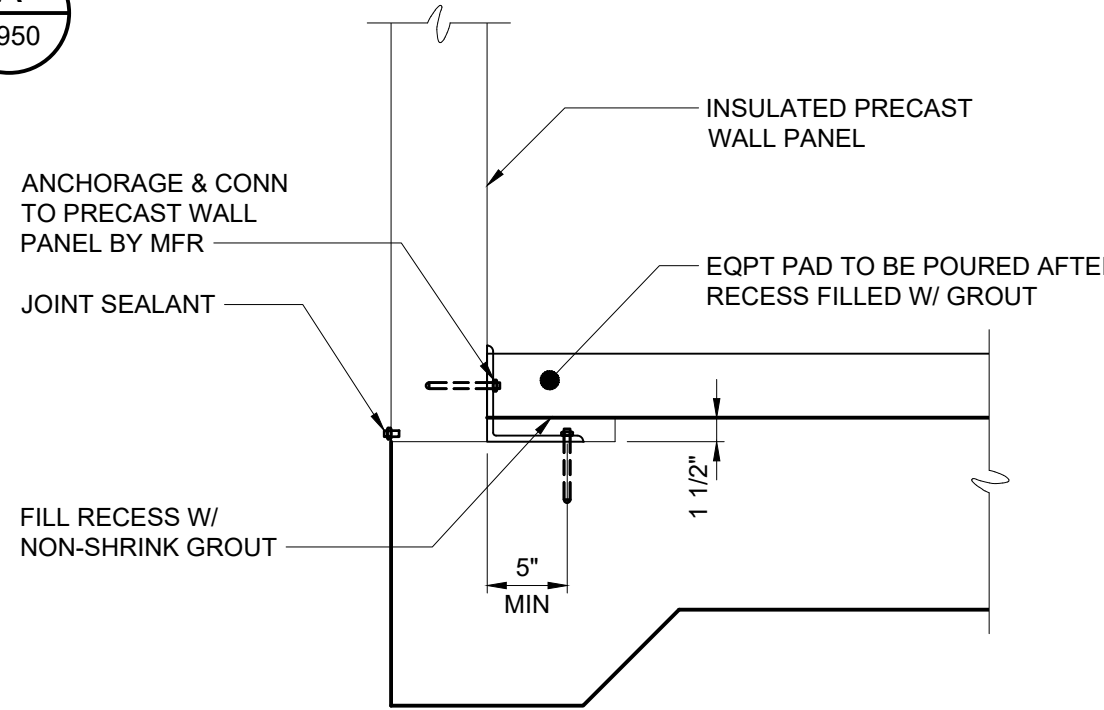
USE GROUP: U UTILITY
CONSTRUCTION TYPE: IIB
TOTAL GROSS AREA: 500 SF
BUILDING HEIGHT: 12 FEET
OCCUPANCY LOAD: 5
EXIT PROVIDED: 2
MAXIMUM TRAVEL DISTANCE: 20 FEET

3/8"=1'-0"

1"=1'-0"



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



NOTE:
REINFORCEMENT NOT SHOWN.

DETAIL 1
1"=1'-0"

NOTES:

1. THE ELECTRICAL BUILDING SHALL BE AN ARCHITECTURAL PRECAST CONCRETE UTILITY BUILDING COMPLETE WITH APPURTENANCES, SEE SPECIFICATION SECTION 03 45 15.
2. HVAC OPENING DIMENSIONS AND LOCATIONS SHALL BE VERIFIED WITH HVAC MANUFACTURER PRIOR TO FABRICATION OF ARCHITECTURAL PRECAST CONCRETE UTILITY BUILDING.
3. FLOOR PENETRATIONS FOR ELECTRICAL CONDUITS SHALL BE COORDINATED WITH ARCHITECTURAL PRECAST CONCRETE UTILITY BUILDING MANUFACTURER.
4. LOCATIONS FOR FLOOR PENETRATIONS SHALL BE SHOWN IN ARCHITECTURAL PRECAST CONCRETE UTILITY BUILDING.
5. DOOR 100 SIZE SHALL BE 3'-0" WIDE AND 6'-8" HIGH, 1 3/4" THICK. DOOR 100A SIZE SHALL BE (2) 3'-0" WIDE AND 9'-0" HIGH, 1 3/4" THICK.
6. SEE SHEET E11 ELECTRICAL PARTIAL SITE PLAN FOR SITE GRADING REQUIREMENTS.

				PROJECT ENGINEER:	J. FORD
				DESIGNED BY:	J. FORD
				DRAWN BY:	R. KANDILAH
				CHECKED BY:	F. POWELL
0	FOR BID	2/10/22	TAP	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
REV	ISSUED FOR	DATE	BY	0	1/2" 1"



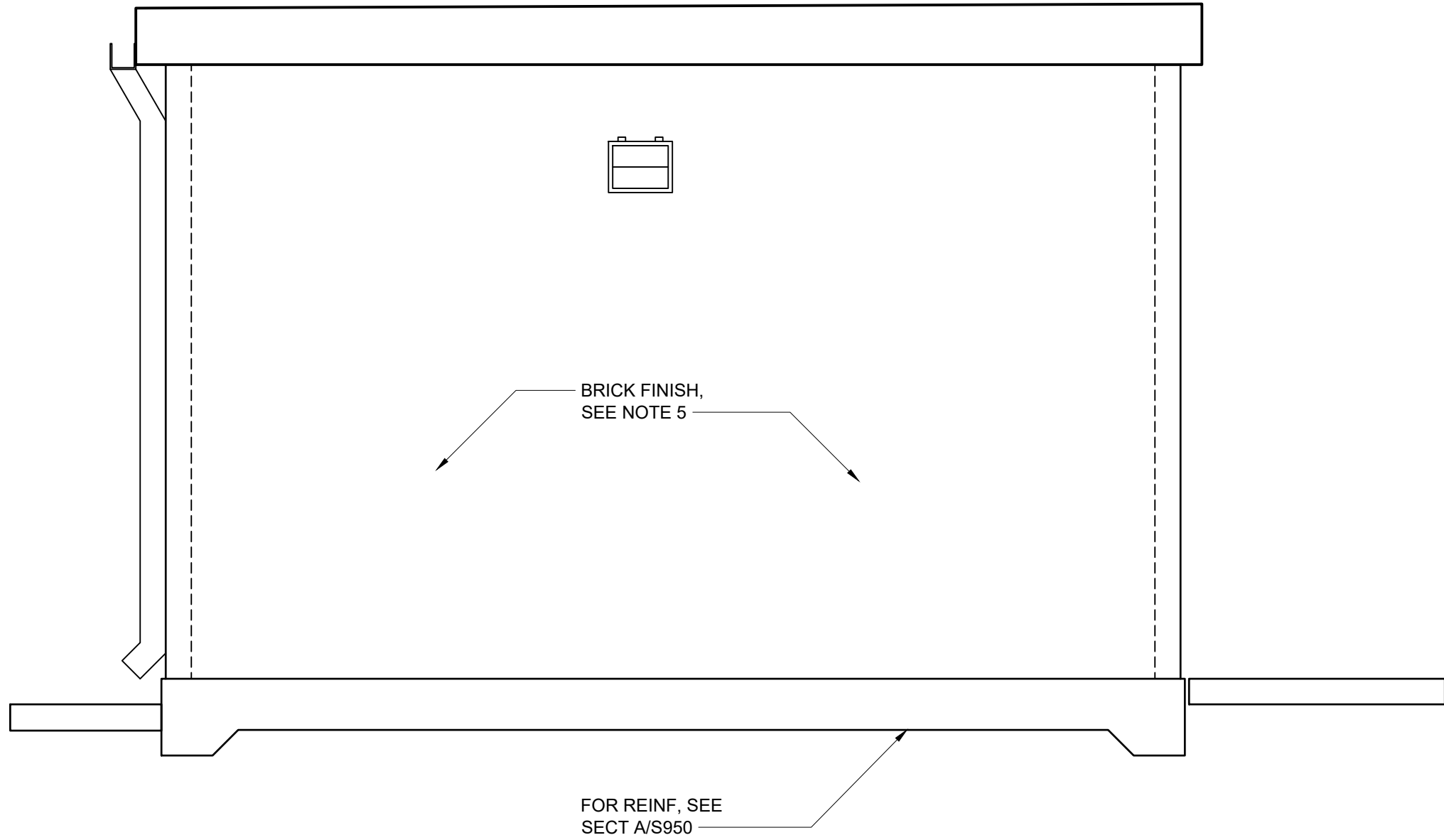
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ROBINDALE WWTP
WATER AND WASTEWATER TREATMENT PLANT
IMPROVEMENTS - PACKET 3
BLOWER REPLACEMENT

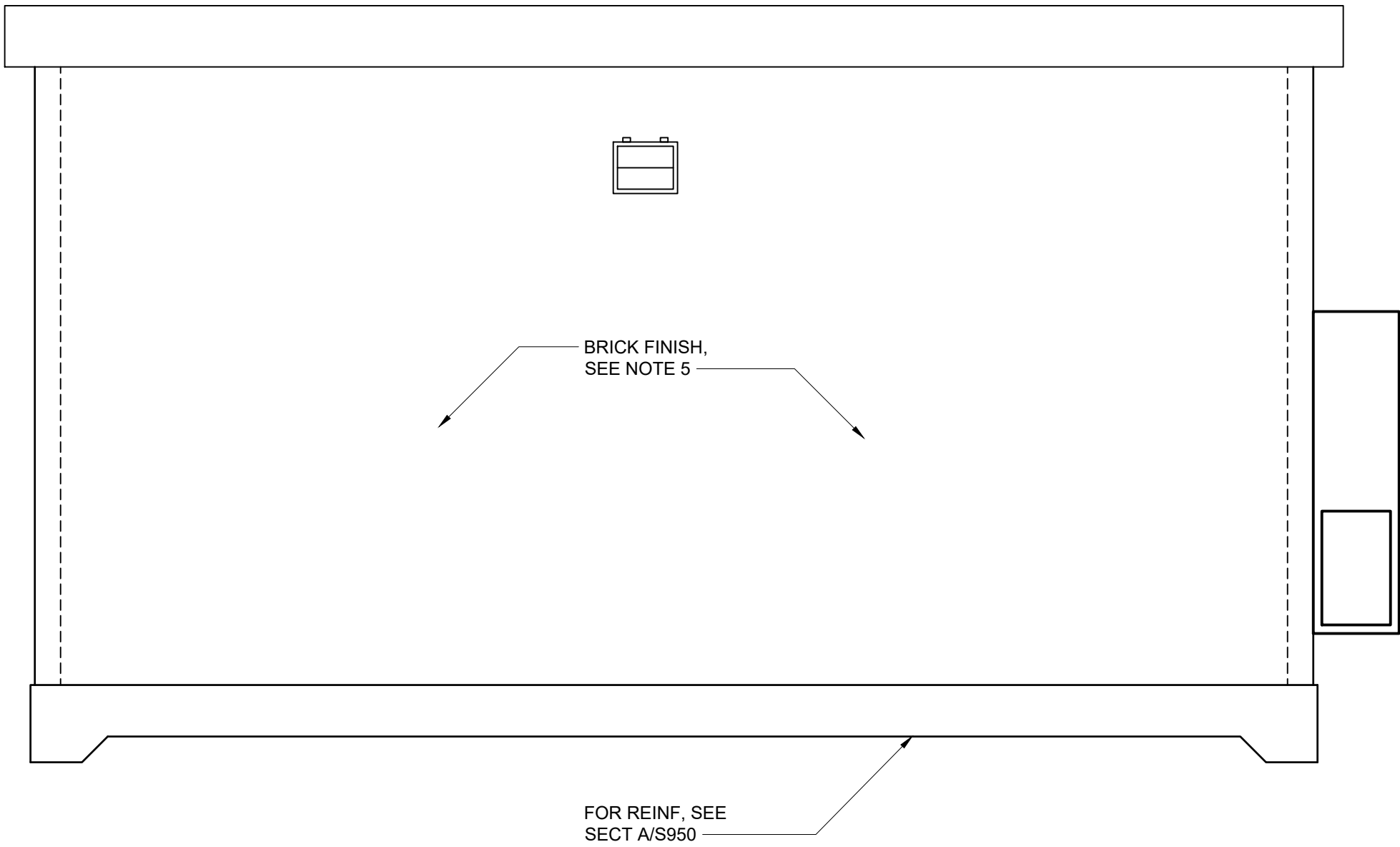
ELECTRICAL BUILDING 3
STRUCTURAL
PLAN, SECTION AND DETAIL

DATE: FEBRUARY 2022
HAZEN NO.: 60405-003
CONTRACT NO.: 01
DRAWING NUMBER:
S950

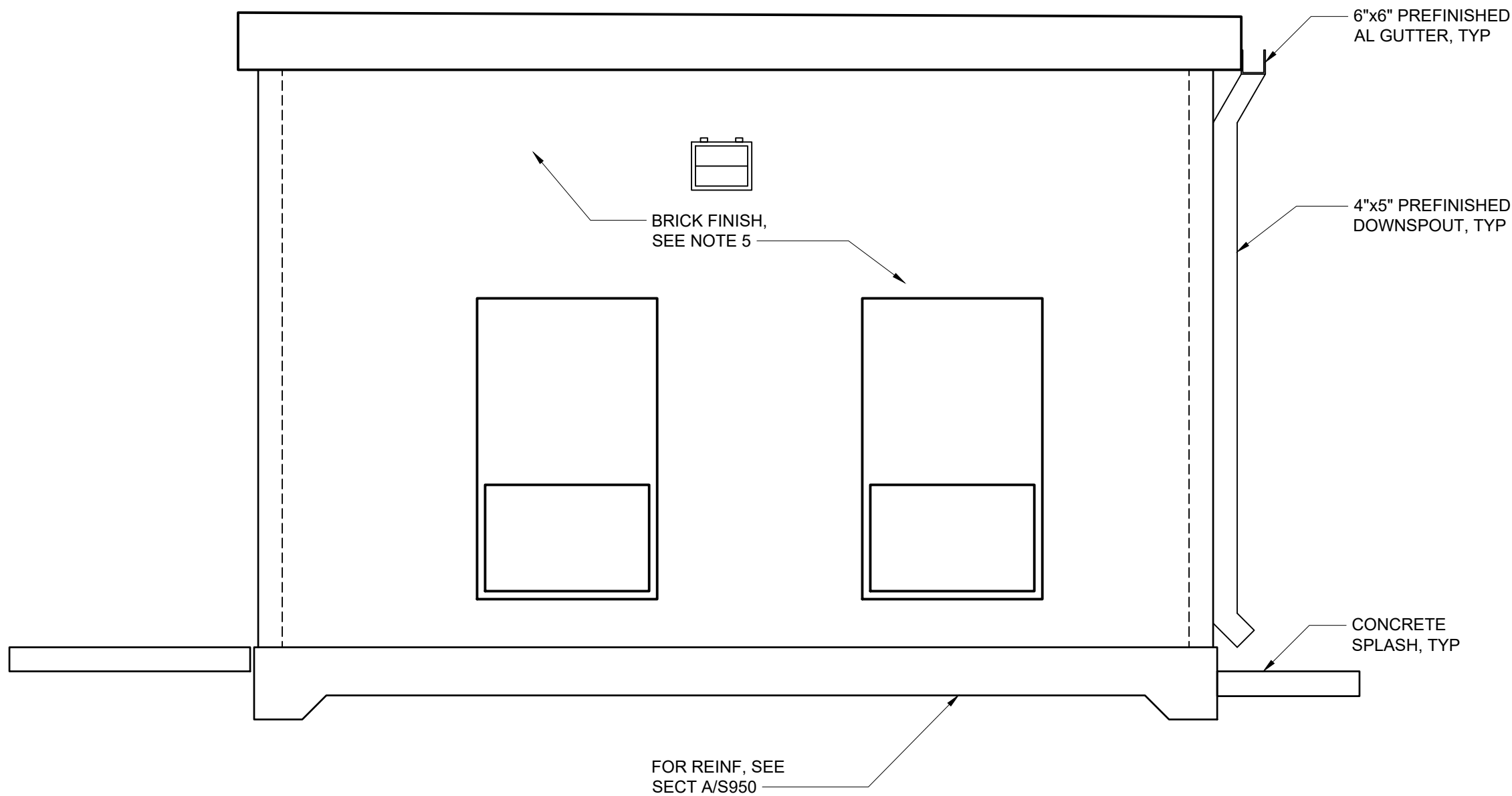
- NOTES:
1. THE ELECTRICAL BUILDING SHALL BE AN ARCHITECTURAL PRECAST CONCRETE UTILITY BUILDING COMPLETE WITH APPURTENANCES, SEE SPECIFICATION SECTION 03 45 15.
 2. HVAC OPENING DIMENSIONS AND LOCATIONS SHALL BE VERIFIED WITH HVAC MANUFACTURER PRIOR TO FABRICATION OF ARCHITECTURAL PRECAST CONCRETE UTILITY BUILDING.
 3. FLOOR PENETRATIONS FOR ELECTRICAL CONDUITS SHALL BE COORDINATED WITH ARCHITECTURAL PRECAST CONCRETE UTILITY BUILDING MANUFACTURER.
 4. LOCATIONS FOR FLOOR PENETRATIONS SHALL BE SHOWN IN ARCHITECTURAL PRECAST CONCRETE UTILITY BUILDING SHOP DRAWING.
 5. ARCHITECTURAL PRECAST CONCRETE UTILITY BUILDING WALL PANELS SHALL HAVE A BRICK FORMED FINISH. COLOR TO BE SELECTED BY OWNER TO MATCH EXISTING PUMP STATION.



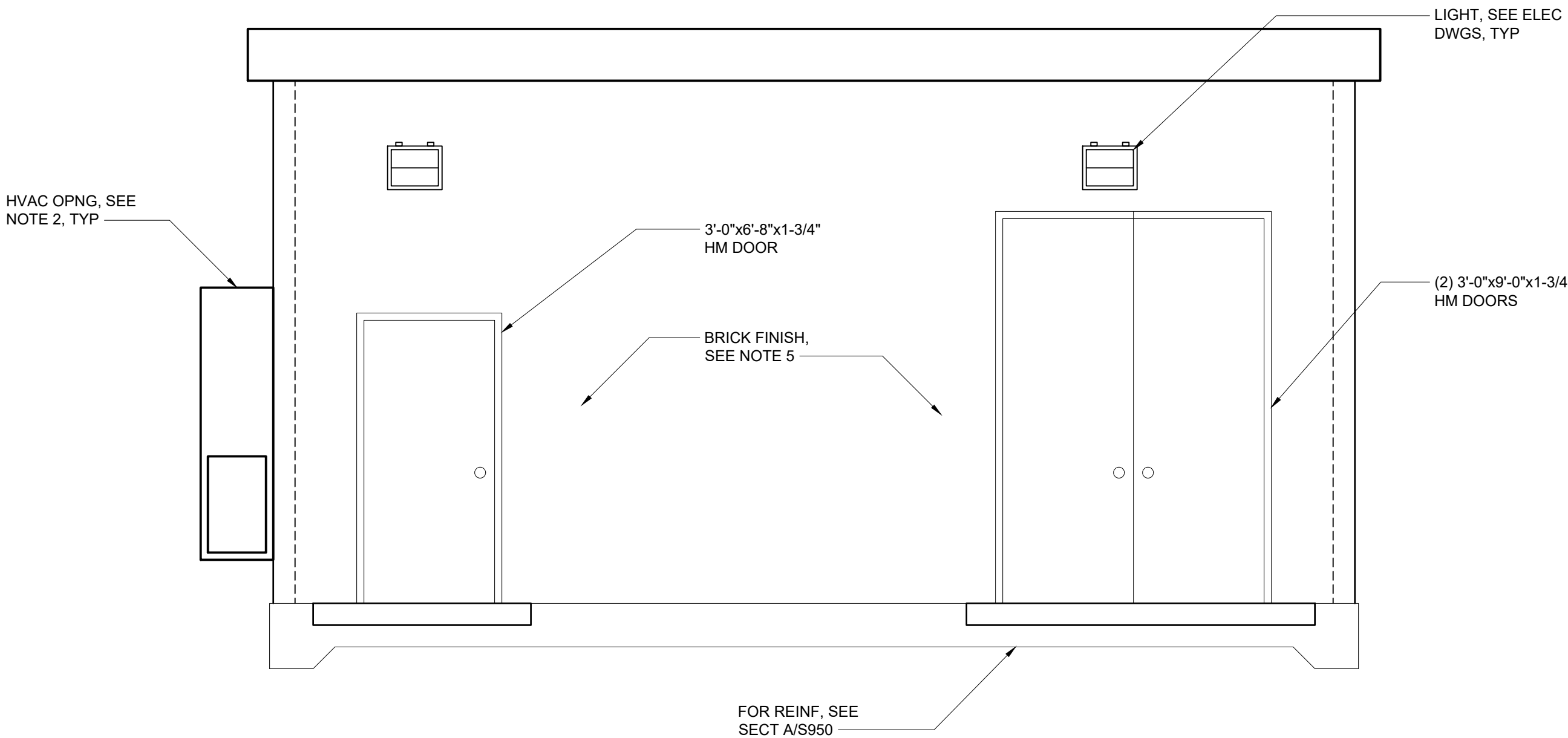
SOUTH ELEVATION
3/8"=1'-0"



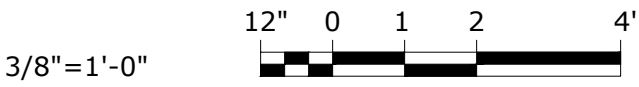
WEST ELEVATION
3/8"=1'-0"



NORTH ELEVATION
3/8"=1'-0"



EAST ELEVATION
3/8"=1'-0"



				PROJECT ENGINEER:	J. FORD
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REV	ISSUED FOR	DATE	BY	0	1/2" 1"



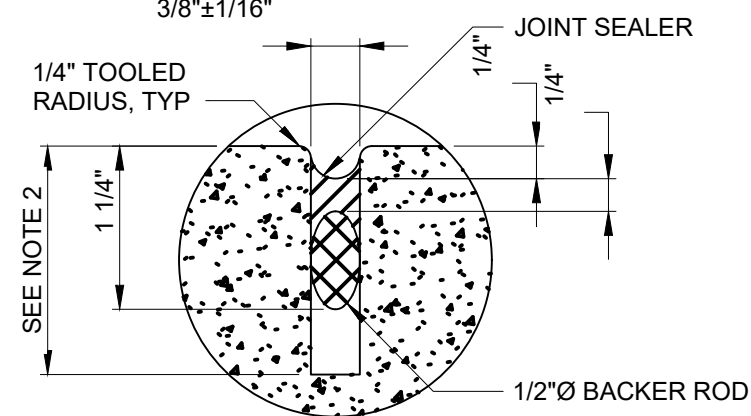
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TOWER II SUITE 700
DALLAS, TEXAS 75206

BROWNSVILLE PUBLIC UTILITIES BOARD
BROWNSVILLE, TEXAS
ROBINDALE WWTP
WATER AND WASTEWATER TREATMENT PLANT
IMPROVEMENTS - PACKET 3
BLOWER REPLACEMENT

ELECTRICAL BUILDING 3
STRUCTURAL
ELEVATIONS

DATE:	FEBRUARY 2022
HAZEN NO.:	60405-003
CONTRACT NO.:	01
DRAWING NUMBER:	S951

1. VERTICAL JOINTS SHALL BE FORMED BY AN APPROVED JOINT INSERT. HORIZONTAL JOINTS SHALL BE FORMED BY AN APPROVED JOINT INSERT OR SAWCUTTING PERFORMED PER SPECIFICATION.
2. DEPTH SHALL BE 1 1/2" IN REINF CONC DEPTH SHALL BE 1/3 OF CONCRETE THICK- NESS IN UNREINFORCED CONCRETE PAVEMENT.



TOP OF SLAB

REIN BAR

2D

3 1/2" MIN

D

2D, 2" MIN CLR

SEE PLANS

NOTE:
D DENOTES PIPE OR CONDUIT OD.

PLAN DIMENSION AS REQUIRED FOR EQUIPMENT

CONFIRM BY ANCHOR BOLT DESIGN

2" MIN EDGE DISTANCE SEE NOTE 3

0" OR 2" MIN EDGE DISTANCE SEE NOTE 3

1" MIN GROUT, SEE NOTES 2 & 3

CONC PAD

CL ANCHOR RODS

PUMP OR EQUIP BASE

LEVELING CHANNEL, SEE NOTES 2 AND 3

#4@12 EW

4" MIN, SEE NOTE 6

8" MIN, SEE NOTE 1

REQUIRED COVER +1" MAX

CONC FLOOR

#5 DOWELS @12" ALL AROUND, SEE NOTE 1

#5 DOWELS @12" ALL AROUND, SEE NOTE 1

LEVELING CHANNEL ANCHORS, SEE NOTE 2

- NOTES:
1. 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.
 2. THE CONTRACTOR SHALL PROVIDE LEVELING CHANNELS AND LEVELING CHANNEL ANCHORS FOR SWITCHGEAR, SWITCHBOARDS, MOTOR CONTROL CENTERS, AND SIMILAR EQUIPMENT WHEN REQUIRED TO MEET EQUIPMENT MANUFACTURER'S LEVELING TOLERANCES. THE CONTRACTOR SHALL PROVIDE 1" MINIMUM NON-SHRINK GROUT FOR PUMPS AND SIMILAR EQUIPMENT WHEN REQUIRED TO MEET EQUIPMENT MANUFACTURER'S UNIFORM BEARING AND LEVELING REQUIREMENTS.
 3. PRIOR TO PLACING CONCRETE PAD, LEVELING CHANNEL SIZE AND MEANS OF INSTALLATION, ANCHORAGE, GROUT, CONCRETE EDGE DISTANCE, AND CONCRETE BLOCKOUTS REQUIREMENTS SHALL BE COORDINATED WITH EQUIPMENT MANUFACTURER.
 4. COAT DISSIMILAR MATERIALS PER THE CONTRACT DOCUMENTS.
 5. STAGGER CHANNEL ANCHORS AND PAD DOWELS.
 6. FOR PADS 24" OR GREATER IN DEPTH, PROVIDE #4@8" HORIZONTAL SKIN REINFORCING AROUND PERIMETER OF PAD.

CLASS "B" SPLICE +2"

WATERSTOP WHERE REQUIRED, SEE SPECIFICATIONS AND GENERAL CONCRETE NOTES

T

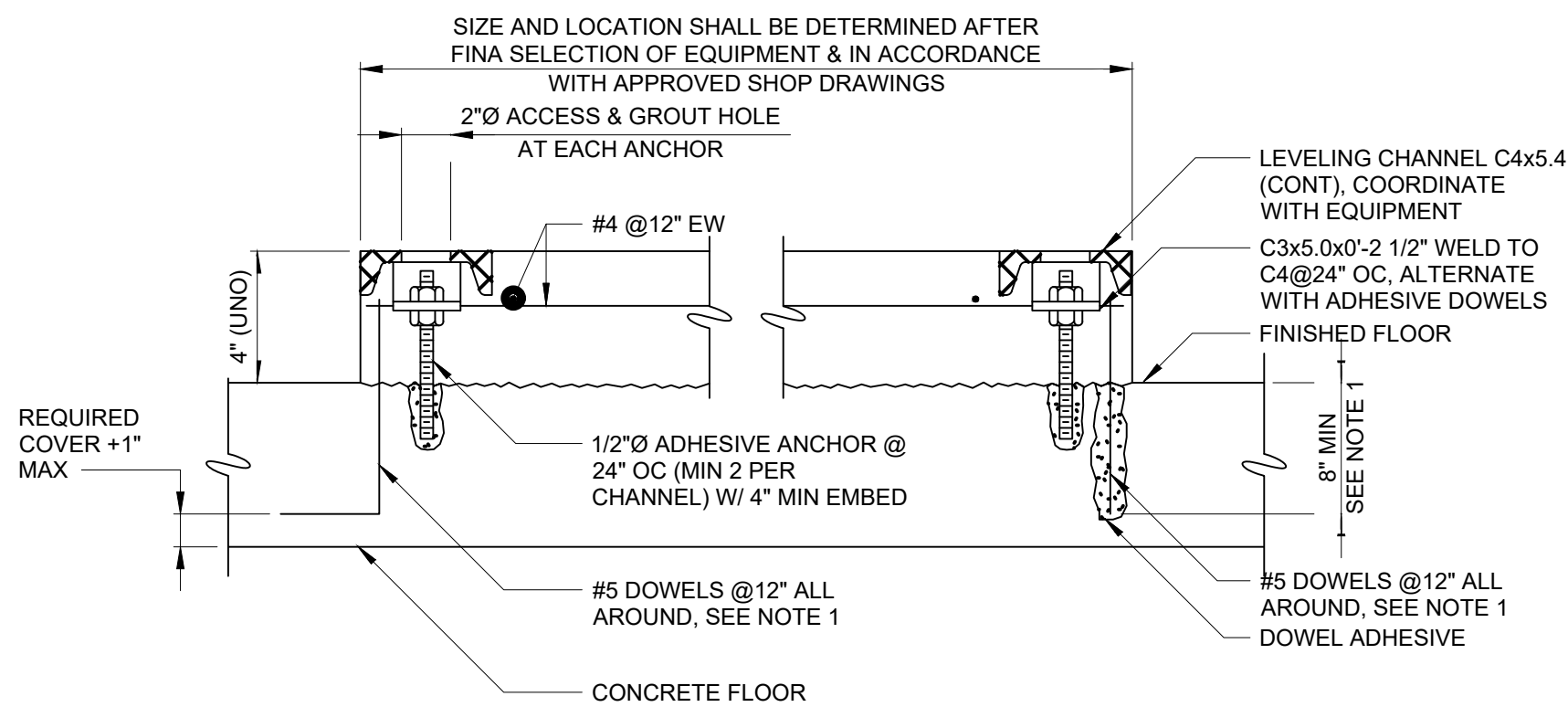
FOR SLAB OR WALL THICKNESS AND REINFORCING, SEE DESIGN DRAWINGS

FOR TYPICAL KEYWAY, SEE S-03-0204

BASIC DEVELOPMENT LENGTH AND SPICE LENGTH									
FOR UNCOATED BARS IN TENSION									
** BASED ON MATERIALS AND CONDITIONS AS FOLLOWS:									
fy = 60,000 psi CLEAR COVER ≥ 1.5 INCHES					fc' = 4000 psi OR GREATER NORMAL WEIGHT CONCRETE				
BASIC DEVELOPMENT LENGTH				BAR SIZE	CLASS B SPICE LENGTH				
ld					1.3 x 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'-4"	# 3	1'-0"	1'-3"	1'-4"	1'-8"	
1'-0"	1'-3"	1'-7"	2'-1"	# 4	1'-3"	1'-8"	2'-1"	2'-9"	
1'-3"	1'-7"	2'-4"	3'-0"	# 5	1'-7"	2'-0"	3'-0"	3'-11"	
1'-6"	1'-11"	3'-1"	4'-0"	# 6	1'-11"	2'-5"	4'-0"	5'-2"	
2'-5"	3'-1"	4'-11"	6'-4"	# 7	3'-1"	4'-0"	6'-4"	8'-3"	
3'-0"	3'-11"	6'-0"	7'-9"	# 8	3'-11"	5'-1"	7'-9"	10'-1"	
3'-8"	4'-9"	6'-8"	8'-9"	# 9	4'-9"	6'-3"	8'-9"	11'-4"	
4'-6"	5'-10"	7'-7"	9'-10"	# 10	5'-10"	7'-7"	9'-10"	12'-9"	
5'-5"	7'-0"	8'-5"	10'-11"	# 11	7'-0"	9'-1"	10'-11"	14'-2"	

* TOP REINFORCEMENT IS ANY HORIZONTAL REINFORCEMENT SO PLACED THAT MORE THAN 12 INCHES OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE REINFORCEMENT.

** FOR MATERIALS OR CONDITIONS DIFFERENT FROM THOSE STATED, LENGTHS SHOWN IN CHART SHALL BE MODIFIED TO CONFORM TO THE PROVISIONS OF ACI 318-14, SECTION 25.3.



- NOTES:
1. 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.
 2. THE CONTRACTOR SHALL PROVIDE LEVELING CHANNELS FOR SWITCHGEAR, SWITCHBOARDS, MOTOR CONTROL CENTERS, AND SIMILAR EQUIPMENT AS REQUIRED TO MEET EQUIPMENT MANUFACTURERS' LEVELING TOLERANCES. LEVELING CHANNEL, SILL, AND MEANS OF INSTALLATION, CONCRETE EDGE DISTANCE, AND CONCRETE BLOCKOUTS SHALL BE COORDINATED WITH EQUIPMENT MANUFACTURER PRIOR TO PLACING CONCRETE BASE.
 3. COAT DISSIMILAR MATERIALS PER THE CONTRACT DOCUMENTS.
 4. STAGGER CHANNEL ANCHORS AND PAD DOWELS.

The image displays two sets of technical drawings for column bases, labeled TYPE A and TYPE B. Each set includes a PLAN view and an ELEVATION view.

TYPE A:

- PLAN View:** Shows a square base with dimensions: COL +1" 6" MIN (width), COL +6" MIN (height), 1 1/4" MIN TYP (corner radius), and 1 3/4" TYP (hole offset).
- ELEVATION View:** Shows the base with dimensions: COL +1" OR AB SPG +3" WHICHEVER IS GREATER (width), 1 1/2" MIN TYP (height), and 1 1/2" TYP (corner radius).

TYPE B:

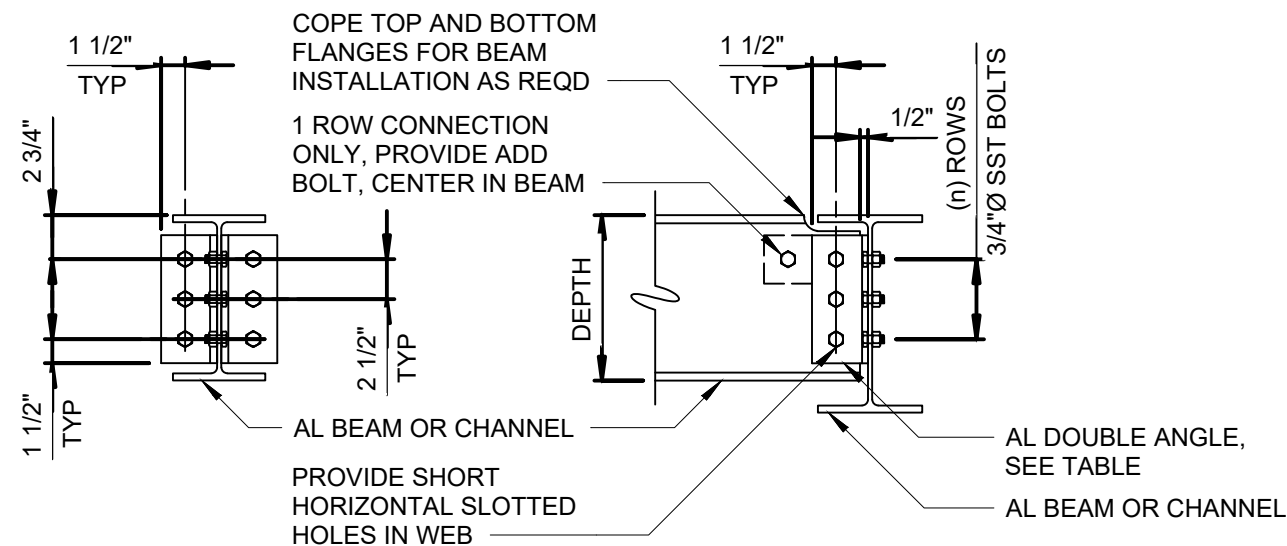
- PLAN View:** Shows a square base with dimensions: COL +5" MIN (width), COL +5" MIN (height), 1 1/4" MIN TYP (corner radius), and 1 1/4" MIN TYP (hole offset).
- ELEVATION View:** Shows the base with dimensions: COL +5" MIN (width), COL +5" MIN (height), 1 1/2" NON-SHRINK GROUT AS SPEC'D, ROUND CORNERS W/ 3/4" RADIUS TOOL (corner radius), and 1 1/2" TYP (corner radius).


Common labels and notes include:

- ANCHOR BOLTS:** Indicated in the elevation views.
- SEE NOTE 2:** Referenced in the elevation views.
- 1 1/2" SEE PLANS (3/4" UNO):** Dimension for the anchor bolt hole.
- 1 1/2" NON-SHRINK GROUT AS SPEC'D, ROUND CORNERS W/ 3/4" RADIUS TOOL:** Specification for the grout and corner radius.

- NOTES:
1. UNLESS OTHERWISE NOTED, ANCHOR BOLTS SHALL BE 3/4" DIA X REQUIRED WITH LEVELING NUTS AND 1'-0" MINIMUM EMBED AND BASE PLATES SHALL BE CENTERED ON COLUMN.
 2. WELD SIZE SHALL BE DETERMINED BY THE THICKEST MEMBER JOINED; MINIMUM WELD SIZE SHALL BE 3/16" FILLET FOR MATERIAL THICKNESS UP TO AND INCLUDING 1/2", 1/4" FILLET FOR THICKNESS OVER 1/2" TO 3/4", AND 5/16" FILLET FOR MATERIAL THICKNESS OVER 3/4". ALL WELDS SHALL BE SINGLE-PASS WELDS.

AL MEMBER DEPTH	AL DOUBLE ANGLES	(N) ROWS
4", 5", 6"	2-L6x4x3/8x0'-3" LONG	1
8"	2-L4x4x5/16x0'-5 1/2"	2
10", 12", 15"	2-L4x4x5/16x0'-8"	3



				PROJECT ENGINEER:	J. FORD
				DESIGNED BY:	J. FORD
				DRAWN BY:	R. KANDILAH
				CHECKED BY:	F. POWELL
0	FOR BID	2/10/22	TAP	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	<div> <div>0</div> <div>1/2"</div> <div>1"</div> </div> 
REV	ISSUED FOR	DATE	BY		



Hazen

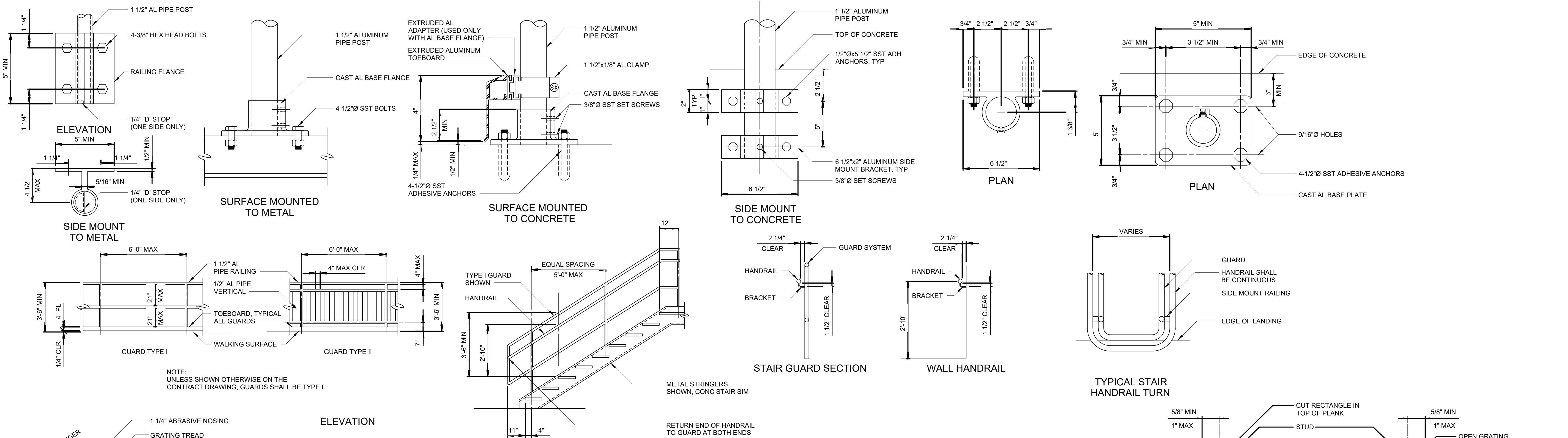
HAZEN AND SAWYER
8150 NORTH CENTRAL EXPRESSWAY
TOWER II SUITE 700
DALLAS, TEXAS 75206

BROWNSVILLE PUBLIC UTILITIES BOARD
BROWNSVILLE, TEXAS

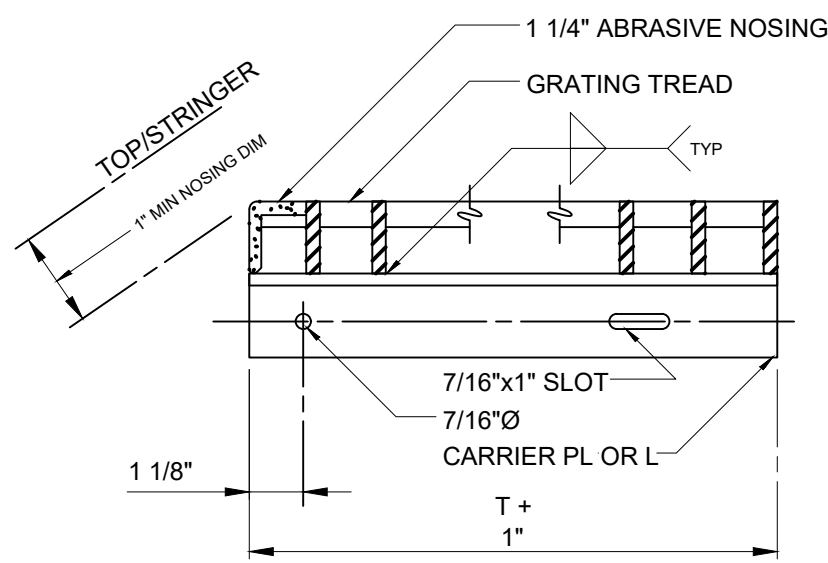
ROBINDALE WWTP
WATER AND WASTEWATER TREATMENT PLANT
IMPROVEMENTS - PACKET 3
BLOWER REPLACEMENT

STRUCTURAL
STANDARD DETAILS
SHEET 1

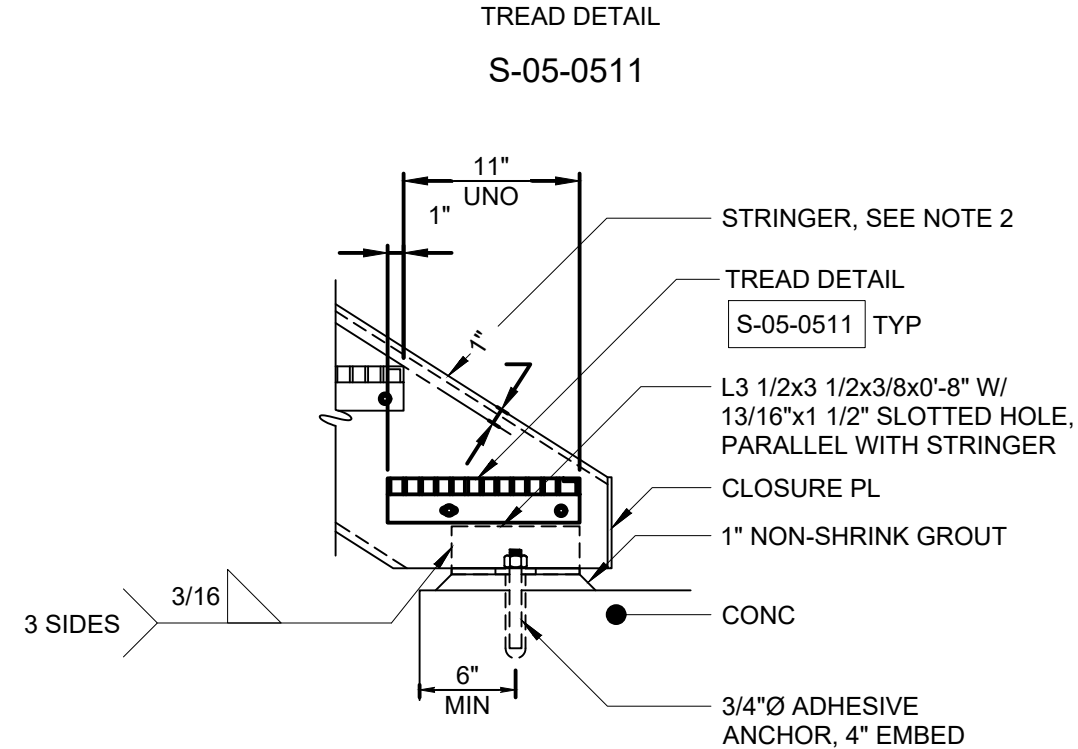
DATE:	FEBRUARY 2022
HAZEN NO.:	60405-003
CONTRACT NO.:	01
DRAWING NUMBER:	SD01



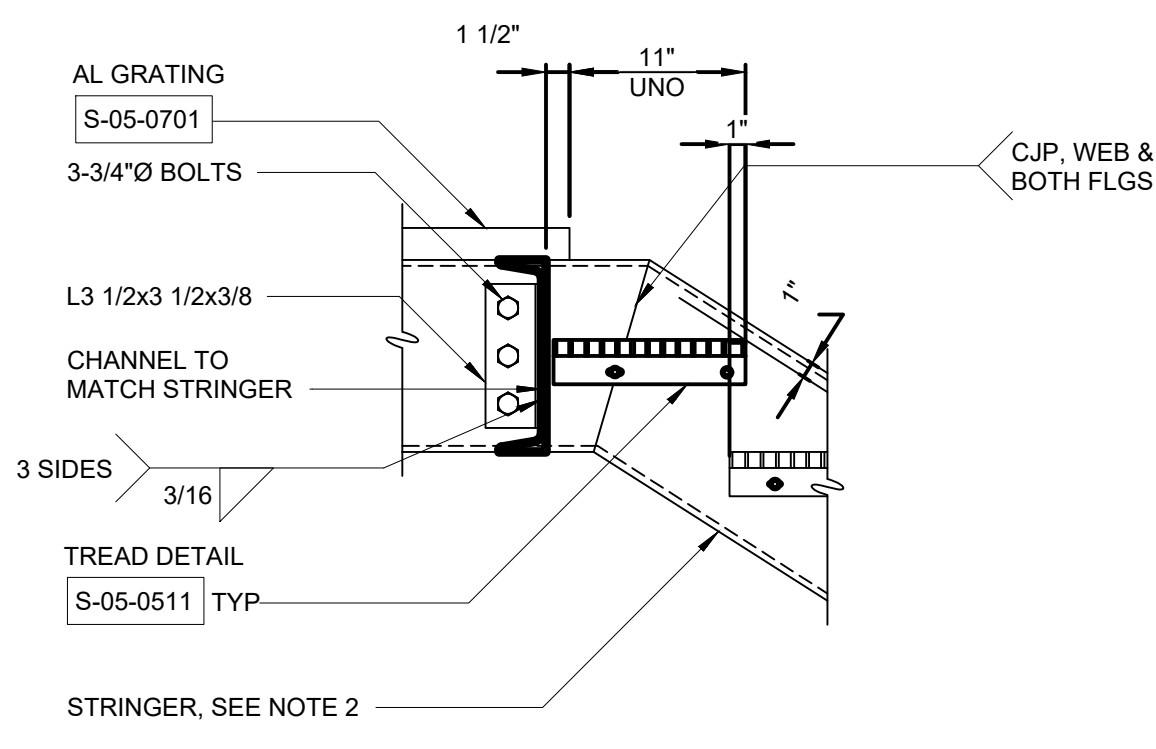
ALUMINUM GUARDS AND HANDRAILS
S-05-0601



TREAD DETAIL
S-05-0511



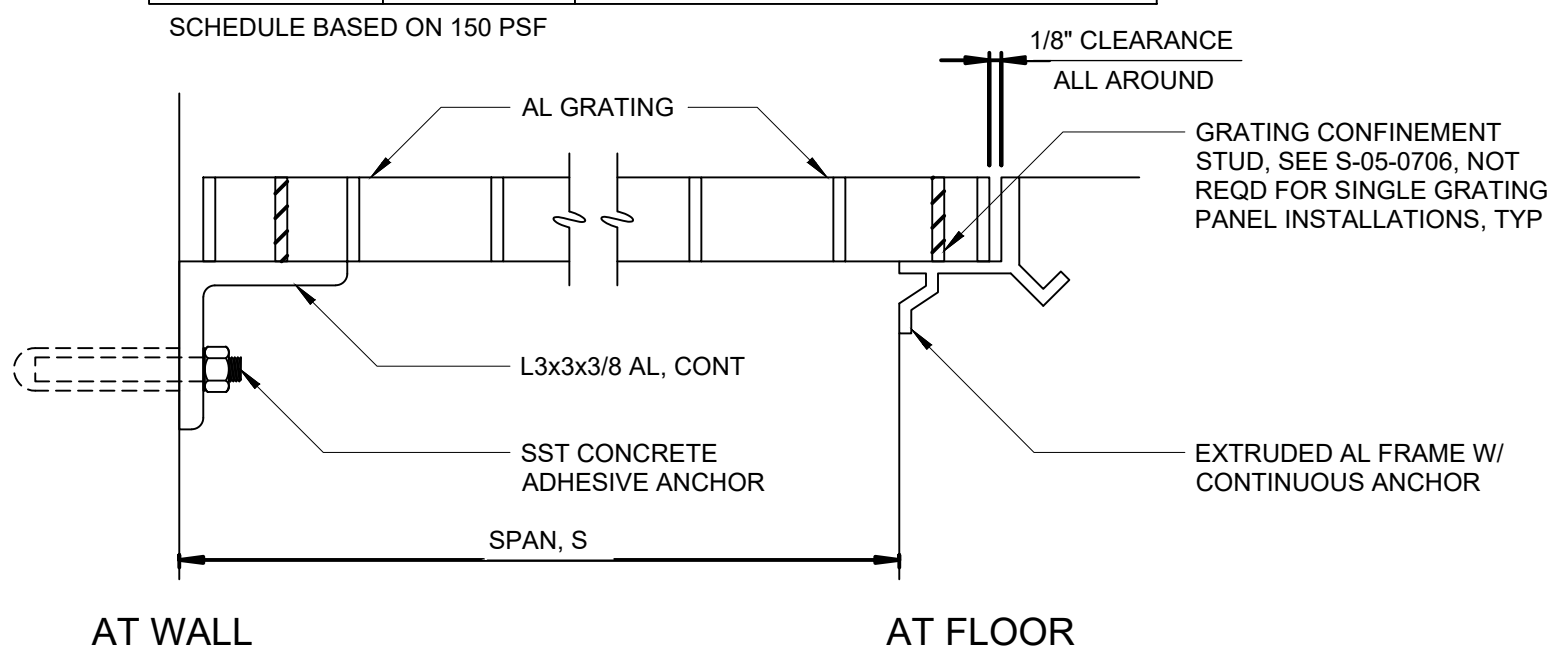
LOWER STRINGER CONNECTION
TO CONCRETE SLAB



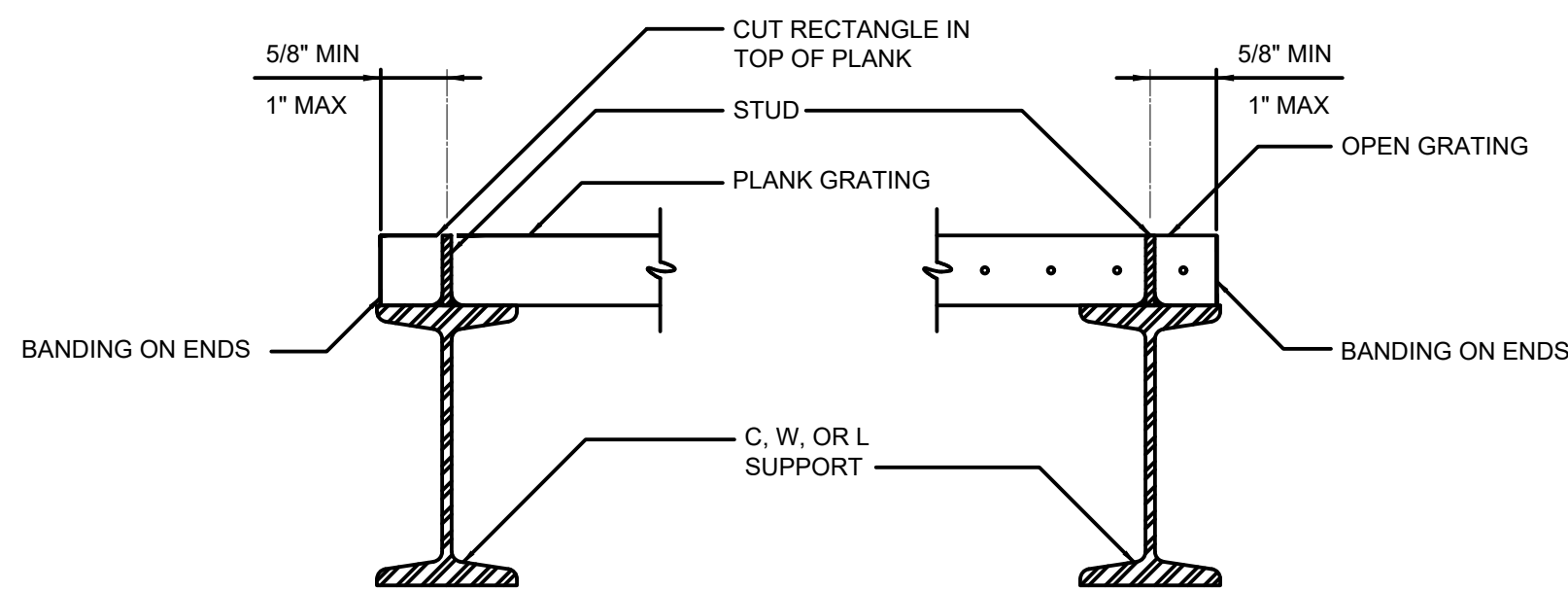
UPPER CRIPPLED STRINGER

SPAN, S	DEPTH (MIN)	CONCRETE ANCHOR (SIZE AND SPACING)
0'-0" < S ≤ 4'-0"	1 1/2"	1/2"Ø x5 1/2" @ 18"
4'-0" < S ≤ 5'-0"	1 3/4"	
5'-0" < S ≤ 5'-6"	2"	
5'-6" < S ≤ 6'-0"	2 1/4"	5/8"Ø x6" @ 18"
6'-0" < S ≤ 6'-6"	2 1/2"	

SCHEDULE BASED ON 150 PSF

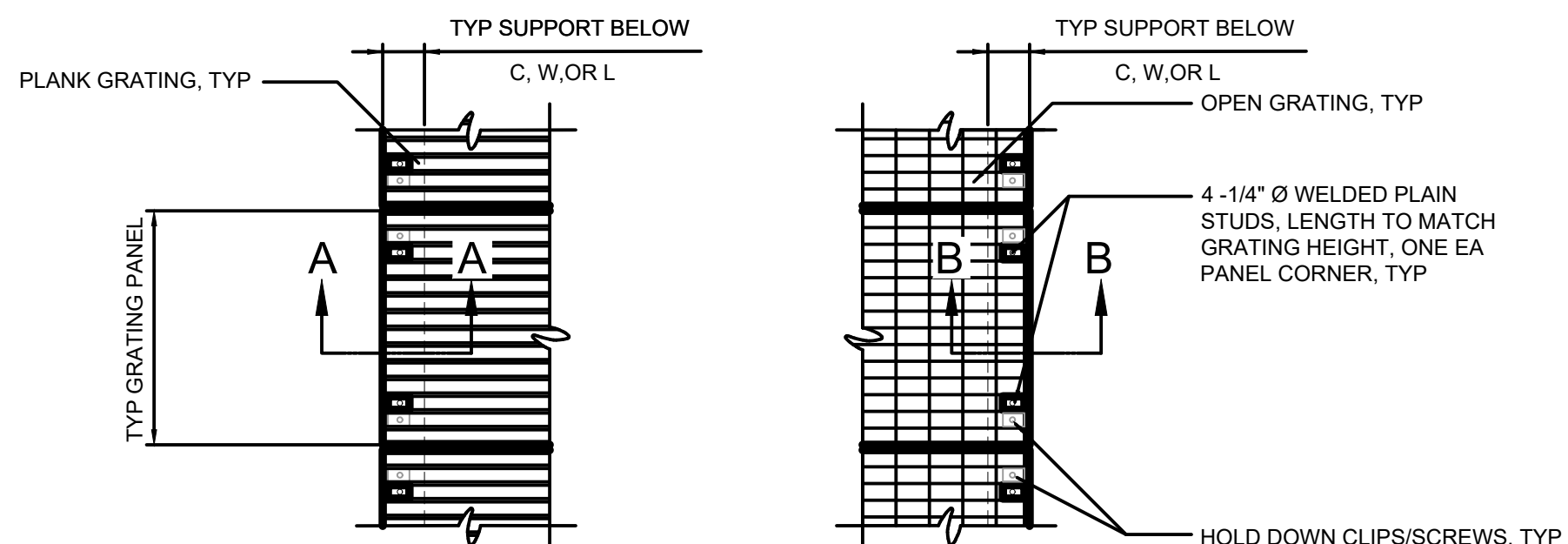


ALUMINUM GRATING
S-05-0701



SECTION A - A

SECTION B - B




PLAN - PLANK GRATING

PLAN - OPEN GRATING

- NOTES:
- STUDS SHALL BE:
METAL GRATING - 1/4" Ø WELDED PLAIN STUD OF SAME MATERIAL AS SUPPORT, WITH STUDS WELDED PER AWS REQUIREMENTS.
FRP GRATING - #14 SST TEK SCREWS, SELF-DRILLED INTO THE BASE MATERIAL.
INSTALLED STUD SHALL MATCH GRATING HEIGHT.
 - STUD SHALL BE PLACED BETWEEN CROSS BAR(S) AND/OR BEARING BARS.

GRATING CONFINEMENT USING STUDS
S-05-0706

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PLOT DATE: 2/10/2022 9:41 AM BY: RKANDILAH

				PROJECT ENGINEER:	J. FORD
				DESIGNED BY:	J. FORD
				DRAWN BY:	R. KANDILAH
				CHECKED BY:	F. POWELL
0	FOR BID	2/10/22	TAP	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1" 
REV	ISSUED FOR	DATE	BY		

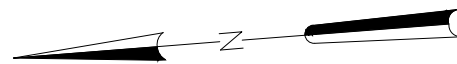


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BROWNSVILLE, TEXAS
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WATER AND WASTEWATER TREATMENT PLANT
IMPROVEMENTS - PACKET 3
BLOWER REPLACEMENT

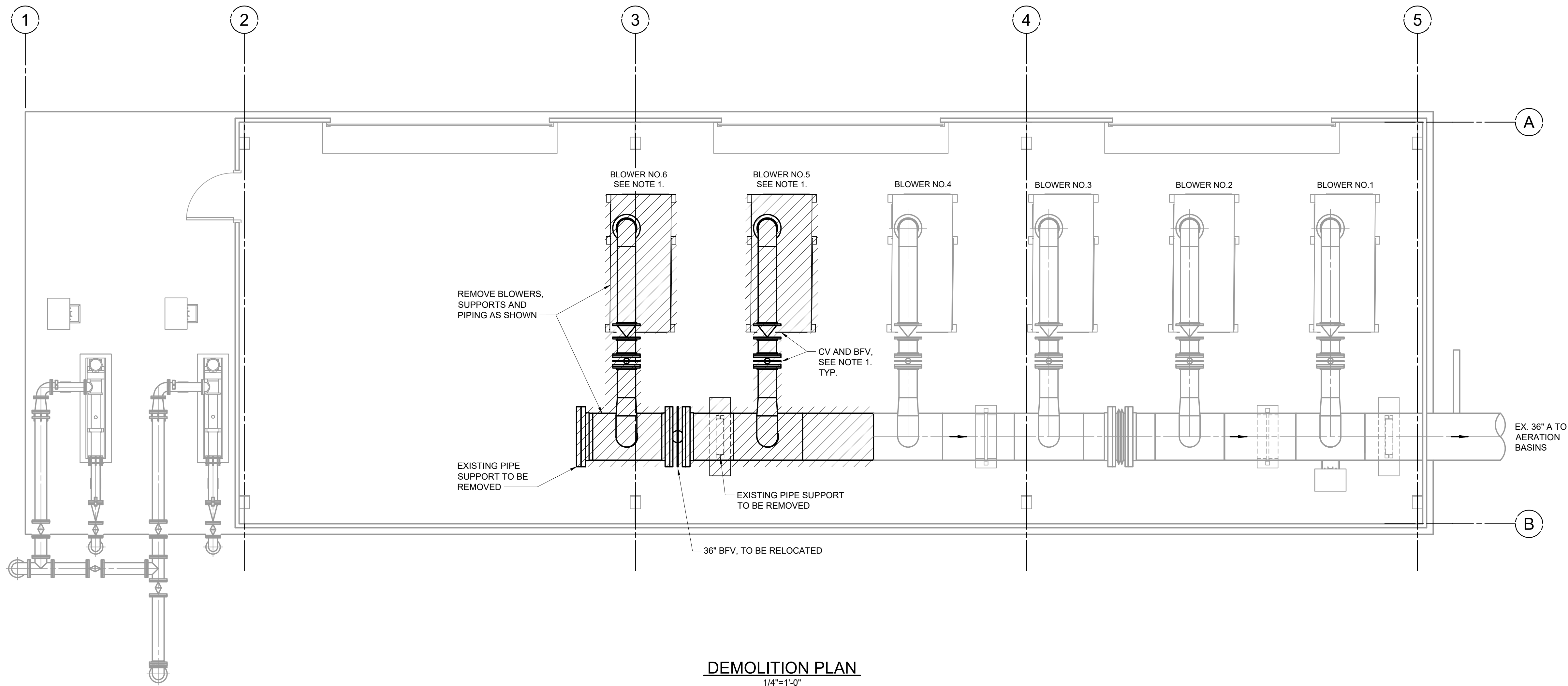
STRUCTURAL
STANDARD DETAILS
SHEET 2

DATE:	FEBRUARY 2022
HAZEN NO.:	60405-003
CONTRACT NO.:	01
DRAWING NUMBER:	SD02



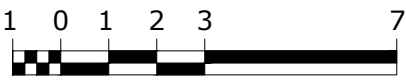
NOTES:

1. EXISTING BLOWER NOS. 5 & 6 TO BE REMOVED
INTACT AND TURNED OVER TO OWNER TOGETHER
WITH ALL ASSOCIATED VALVES.



DEMOLITION PLAN
1/4"=1'-0"

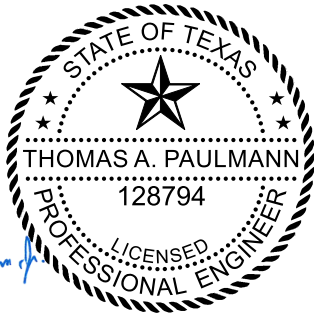
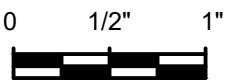
1/4"=1'-0"



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0	FOR BID	2/10/22	TAP
REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	T. PAULMANN
DESIGNED BY:	T. PAULMANN
DRAWN BY:	J. LAZO
CHECKED BY:	S. PHIPPS
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	

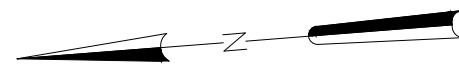


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BROWNSVILLE, TEXAS
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IMPROVEMENTS - PACKET 3
BLOWER REPLACEMENT

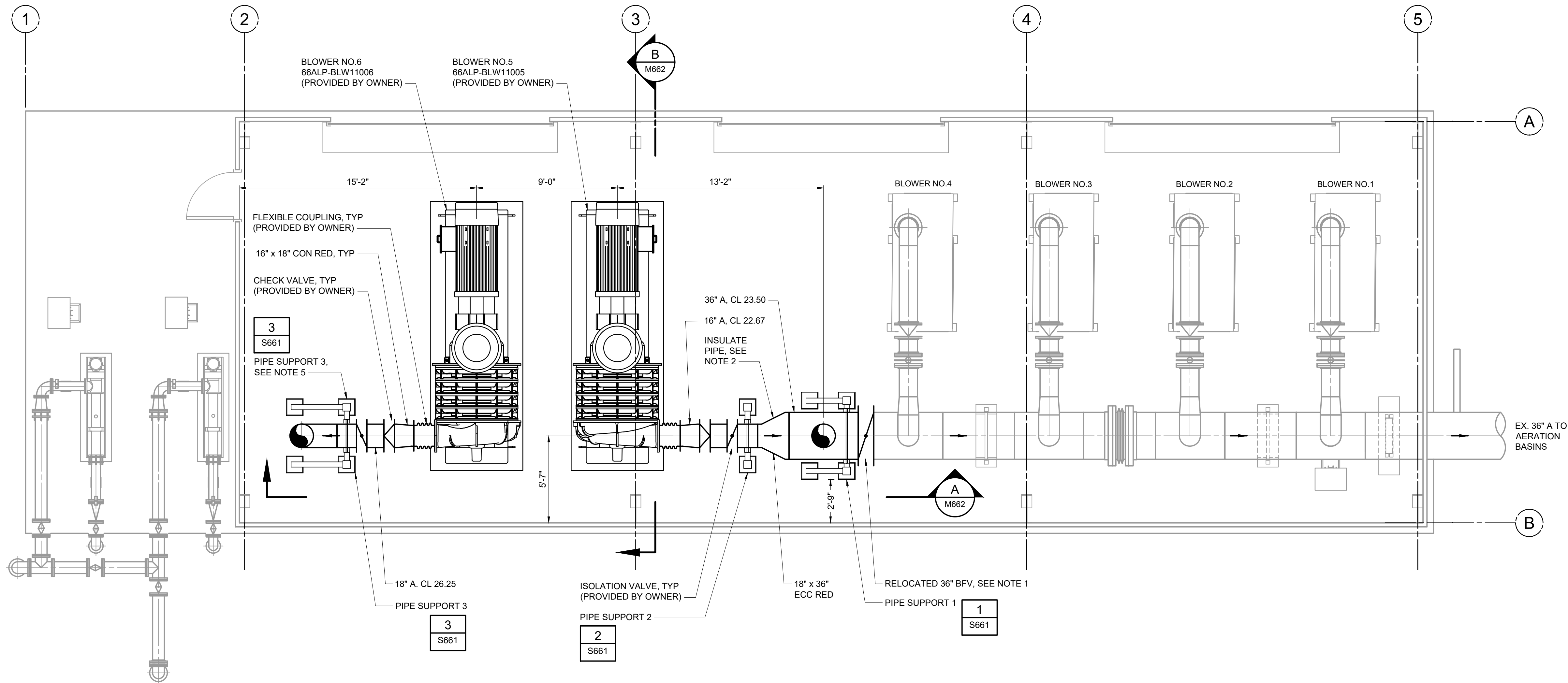
2012 BLOWER BUILDING
MECHANICAL
DEMOLITION PLAN

DATE:	FEBRUARY 2022
HAZEN NO.:	60405-003
CONTRACT NO.:	01
DRAWING NUMBER:	M660



NOTES:

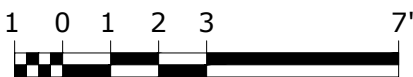
1. CONSTRUCTION SEQUENCING REQUIREMENTS APPLY TO THE WORK ON THIS SHEET. SUPPORT NOS. 1 AND 2 SHALL BE INSTALLED INCLUDING ANCHORS AND GROUT FULLY CURED BEFORE EXISTING 36" A IS REMOVED FROM SERVICE FOR DEMOLITION. EXISTING PROCESS AIR SYSTEM SHALL BE RETURNED TO SERVICE IMMEDIATELY FOLLOWING INSTALLATION OF 36" A CONNECTION TO EX 36" A. REFER TO SPECIFICATION SECTION 01 14 00 - COORDINATION WITH OWNER'S OPERATIONS FOR DETAILS AND FOR LIMITATIONS ON PROCESS AIR SYSTEM OUTAGES.
2. ALL NEW PROCESS AIR PIPING SHALL BE INSULATED PER SPECIFICATION SECTION 40 42 13 INCLUDING CONNECTION TO EXISTING INSULATION AT 36" A HEADER. INSULATION SHALL TERMINATE SHORT OF FLANGE HARDWARE AT BLOWER DISCHARGE FLEXIBLE COUPLING AS REQUIRED TO ALLOW REMOVAL OF COUPLING. INSULATION NOT SHOWN FOR CLARITY.
3. CONTRACTOR SHALL FIELD VERIFY DETAILS OF EX 36" BFV TO BE REUSED AND COORDINATE PIPING ACCORDINGLY.
4. REFER TO P&IDs FOR ADDITIONAL REQUIREMENTS.
5. PROVIDE MINIMUM 3'-0" CLEARANCE BETWEEN PIPE SUPPORT 3 AND BOTH WALLS, NORTH AND WEST.



BOTTOM PLAN

1/4"=1'-0"

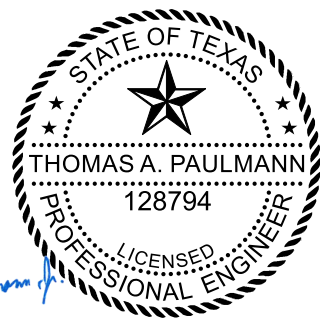
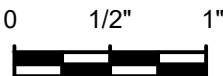
1/4"=1'-0"



File: C:\BMS\HAZEN\FWHS\EBARRA\0173724\M661 Saved by M\AUTISTA Save date: 2/1/2022 9:22 AM
PLOT DATE: 2/9/2022 5:24 PM BY: EBARRA

REV	ISSUED FOR	DATE	BY
0	FOR BID	2/10/22	TAP

PROJECT ENGINEER:	T. PAULMANN
DESIGNED BY:	T. PAULMANN
DRAWN BY:	J. LAZO
CHECKED BY:	S. PHIPPS
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	



Thomas A. Paulmann
2/10/2022

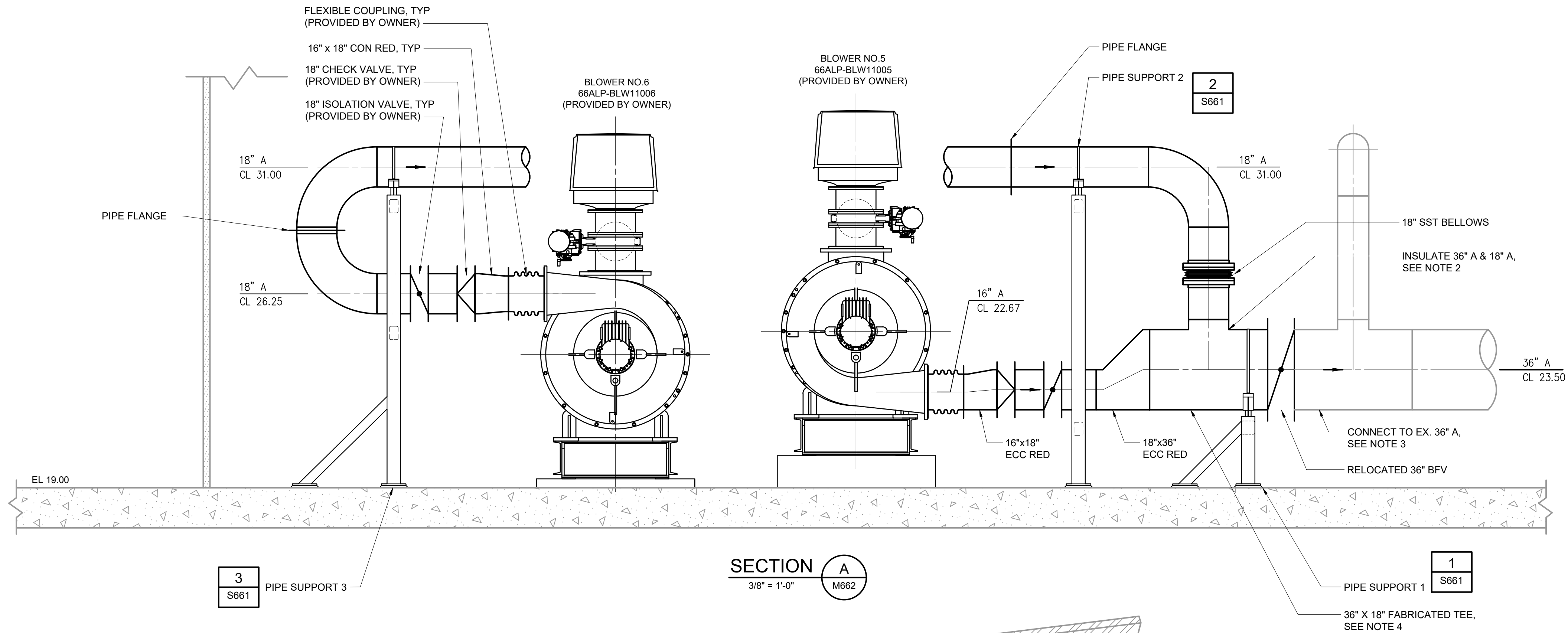
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BROWNSVILLE, TEXAS

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IMPROVEMENTS - PACKET 3
BLOWER REPLACEMENT

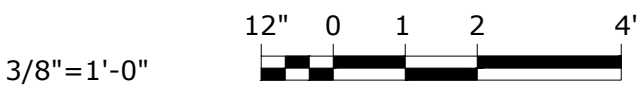
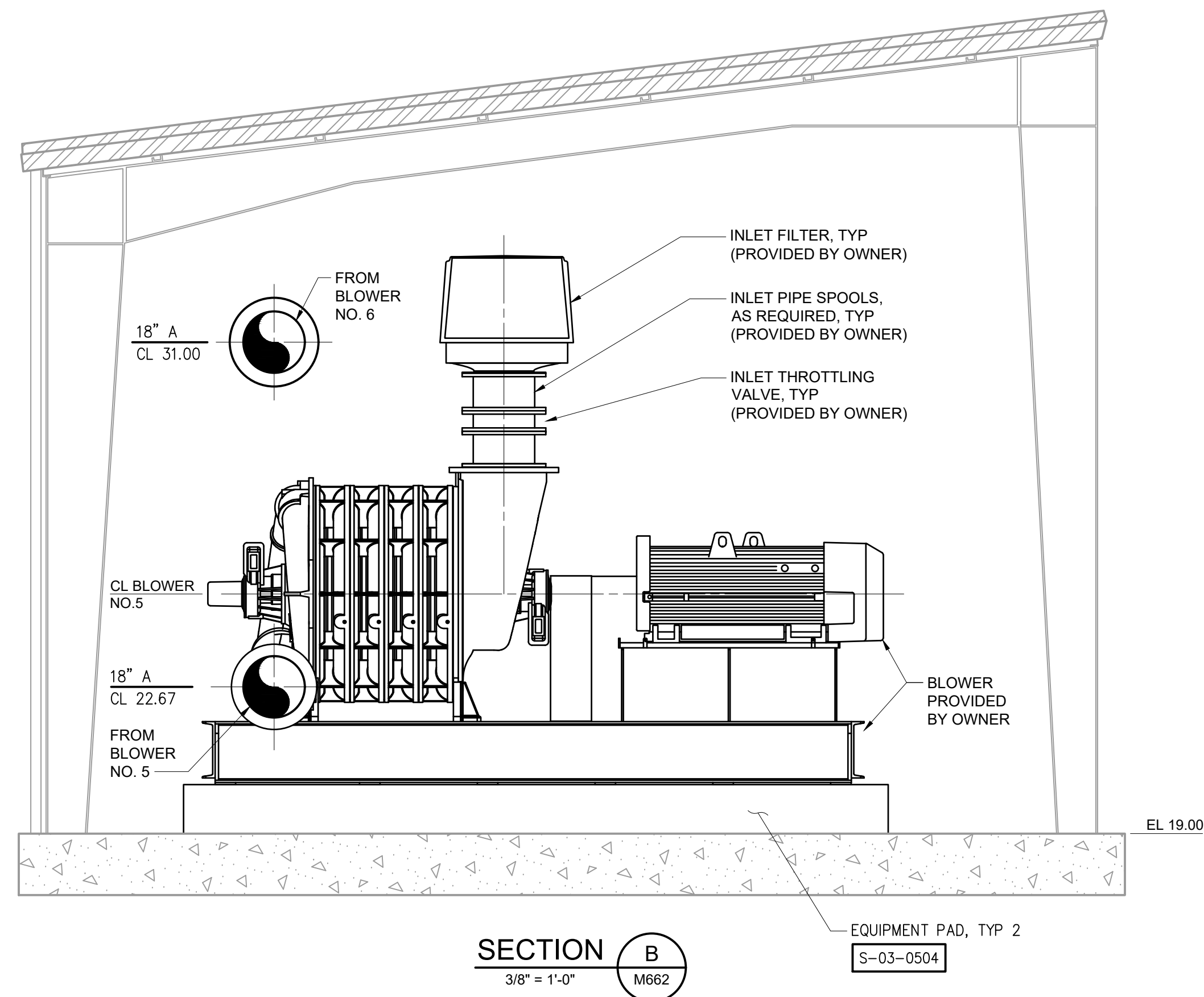
2012 BLOWER BUILDING
MECHANICAL
PLAN

DATE:	FEBRUARY 2022
HAZEN NO.:	60405-003
CONTRACT NO.:	01
DRAWING NUMBER:	M661

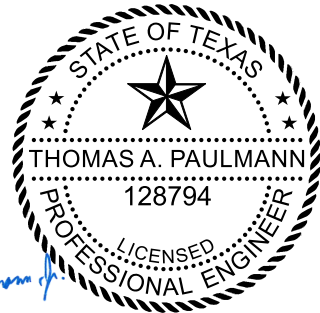


NOTES:

1. CONTRACTOR SHALL COORDINATE BLOWER PAD ELEVATION WITH BLOWER DISCHARGE CENTERLINE ELEVATION AND CONNECTION TO EXISTING AIR HEADER ELEVATION. BLOWER NO. 5 AND BLOWER NO. 6 FACTORY CONFIGURATIONS VARY. CONTRACTOR SHALL ENSURE CORRECT BLOWER IS INSTALLED IN CORRECT LOCATION.
2. ALL NEW PROCESS AIR PIPING SHALL BE INSULATED PER SPECIFICATION SECTION 40 42 13 INCLUDING CONNECTION TO EXISTING INSULATION AT 36" A HEADER. INSULATION SHALL TERMINATE SHORT OF FLANGE HARDWARE AT BLOWER DISCHARGE FLEXIBLE COUPLING AS REQUIRED TO ALLOW REMOVAL OF COUPLING.
3. 36" A SHALL BE CONNECTED TO EX 36" A BY FIELD WELDING OF NEW FLANGE. REFER TO SPECIFICATION SECTION 40 05 24.13 FOR REQUIREMENTS.
4. PROVIDE FABRICATED TEE IN DIMENSIONS AS REQUIRED TO ACHIEVE THE INDICATED LAYOUT AND MAINTAIN ACCESS TO PIPE FLANGE HARDWARE.
5. CONCRETE ANCHORAGE OF BLOWER EQUIPMENT SHALL BE DESIGNED BY AN ENGINEER CURRENTLY REGISTERED IN THE STATE OF TEXAS. CONCRETE ANCHORS FOR BLOWER NO. 6 SHALL EXTEND INTO THE CONCRETE FOUNDATION SLAB AND NOT RELY ON ATTACHMENT TO THE CONCRETE EQUIPMENT PAD FOR UPLIFT RESISTANCE.



				PROJECT ENGINEER:	T. PAULMANN
				DESIGNED BY:	T. PAULMANN
				DRAWN BY:	J. LAZO
				CHECKED BY:	S. PHIPPS
0	FOR BID	2/10/22	TAP	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"
REV	ISSUED FOR	DATE	BY		

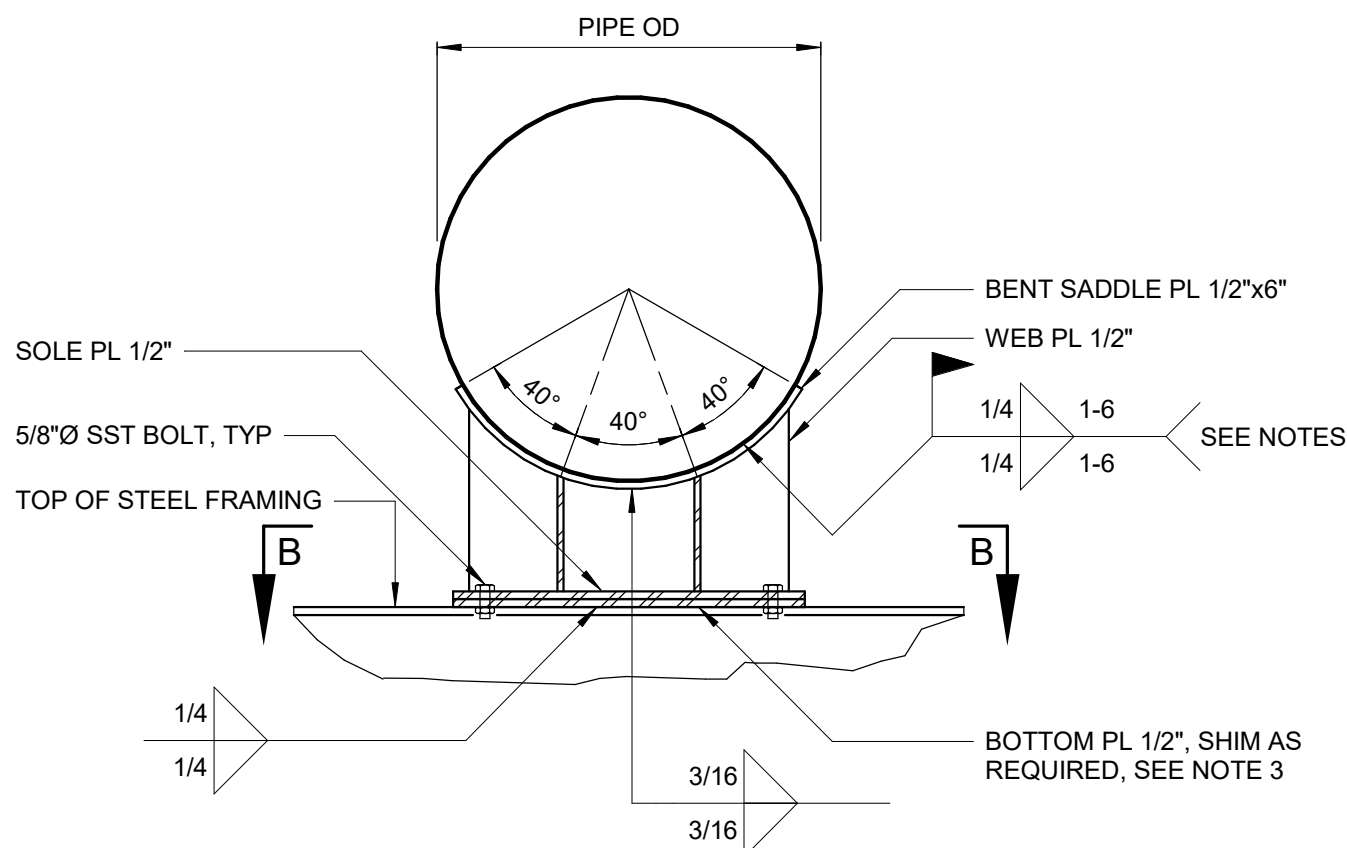


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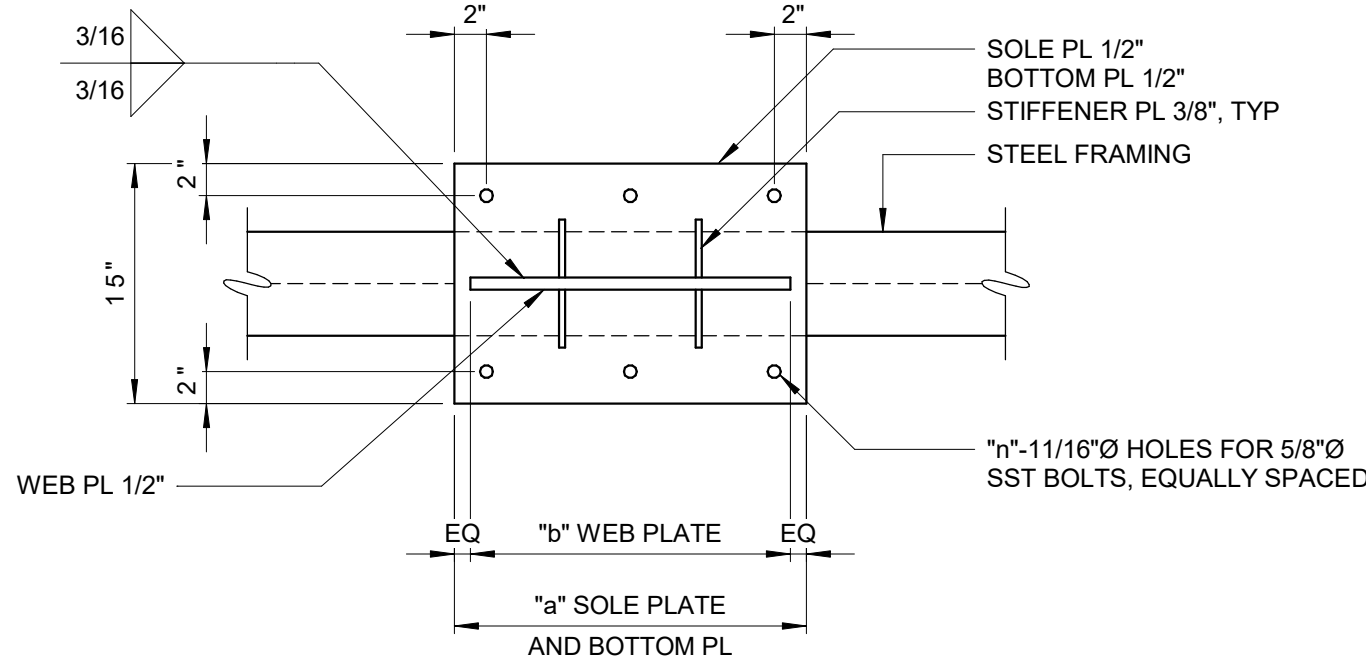
BROWNSVILLE PUBLIC UTILITIES BOARD
BROWNSVILLE, TEXAS
ROBINDALE WWTP
WATER AND WASTEWATER TREATMENT PLANT
IMPROVEMENTS - PACKET 3
BLOWER REPLACEMENT

2012 BLOWER BUILDING
MECHANICAL
SECTIONS

DATE:	FEBRUARY 2022
HAZEN NO.:	60405-003
CONTRACT NO.:	01
DRAWING NUMBER:	M662



FIXED SUPPORT-STEEL



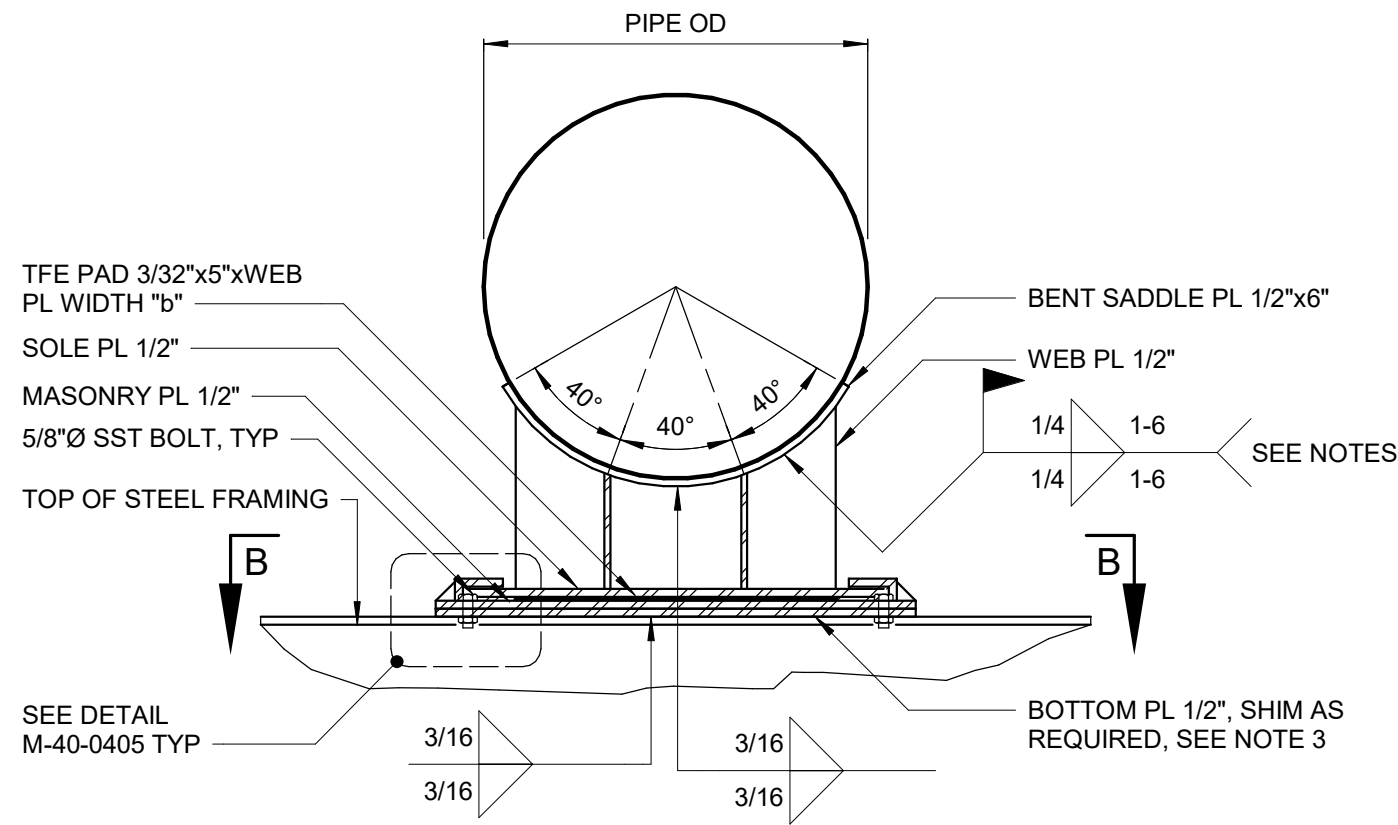
SECTIONAL PLAN B-B

COMMENTS:
• FOR PIPE 18" AND SMALLER, THE PIPE SUPPORT WAS DESIGNED FOR LONGITUDINAL, TRANSVERSE, AND UPLIFT INTERNAL THRUST LOADS ACTING CONCURRENTLY.

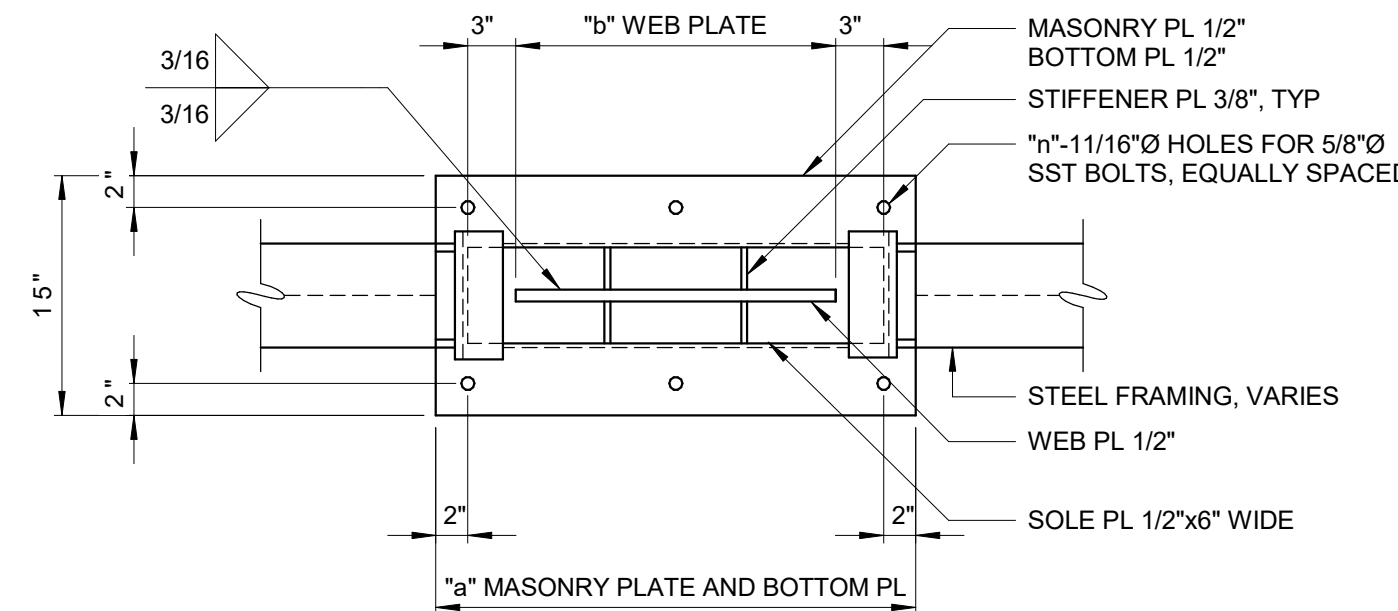
PIPE DIA	"a"	"b"	"n"	"d"	"e"
6"	10"	4"	4"	5"	6"
8"	12"	6"	4"	5"	6"
10"	12"	6"	4"	5"	6"
12"	12"	8"	4"	5"	7"
14"	12"	10"	4"	5"	8"
16"	14"	12"	4"	8"	8"
18"	16"	14"	4"	10"	8"
20"	18"	16"	6"	6"	8"
24"	22"	20"	6"	6"	8"

FIXED SUPPORT FOR 6"-24" PROCESS AIR PIPE MOUNTED ON STEEL

M-40-0400



SLIDING SUPPORT-STEEL



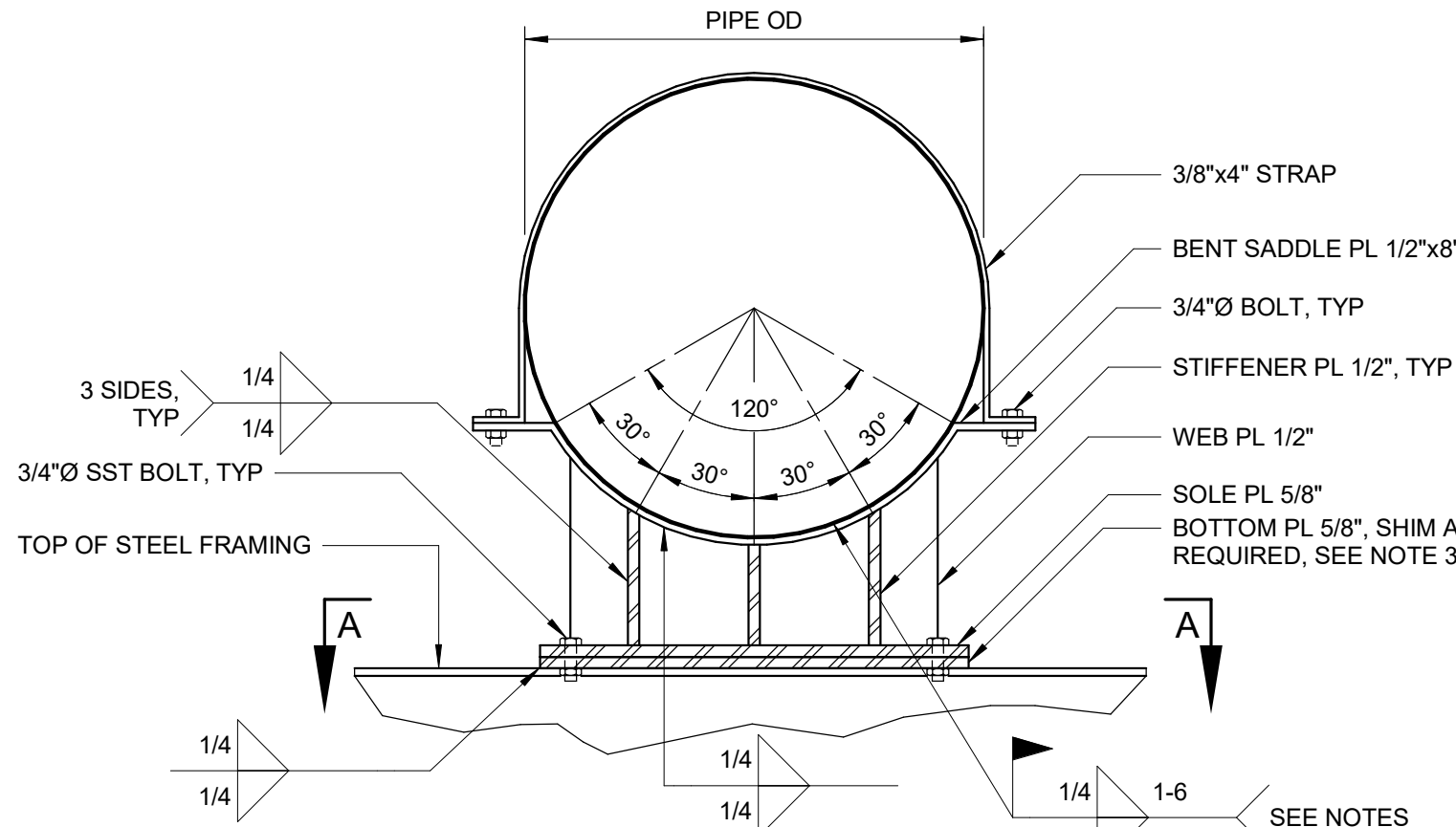
SECTIONAL PLAN B-B

PIPE DIA	"a"	"b"	"n"	"d"
6"	14"	4"	4"	4"
8"	16"	6"	4"	4"
10"	16"	6"	4"	4"
12"	18"	8"	4"	4"
14"	20"	10"	4"	4"
16"	22"	12"	4"	4"
18"	2'-0"	14"	4"	5"
20"	2'-2"	16"	6"	5"
24"	2'-6"	20"	6"	6"

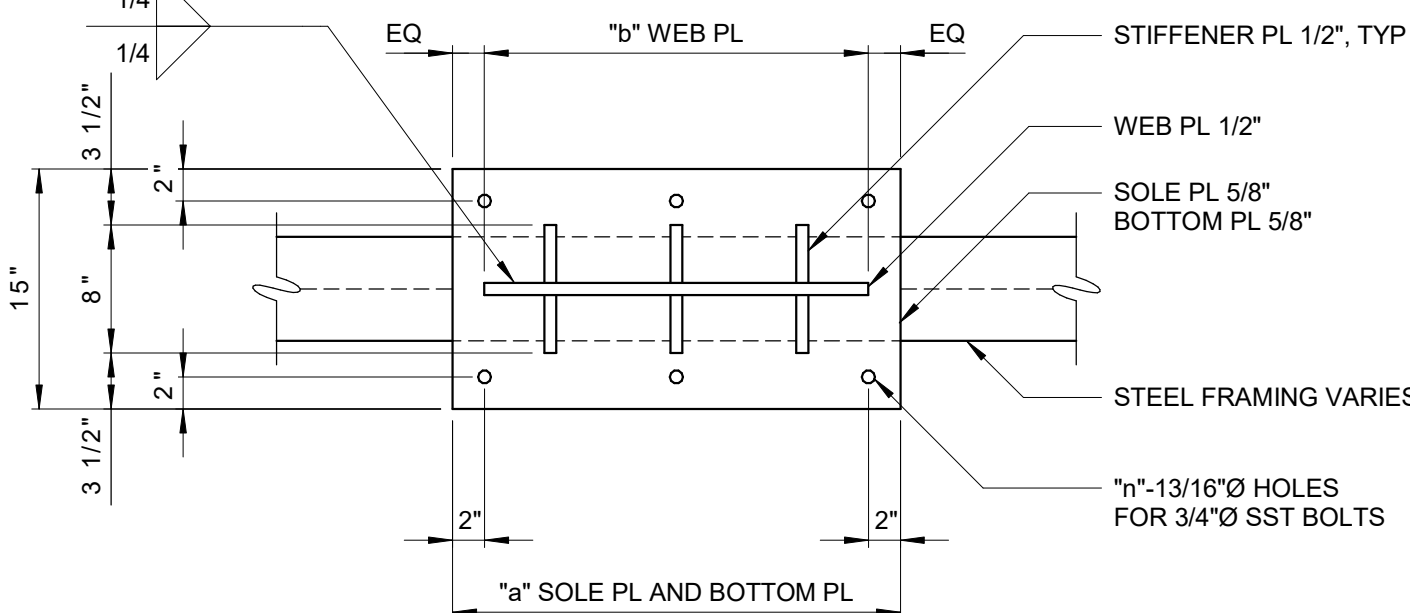
NOTE:
USE 1 STIFFENER PL
CENTERED FOR PIPES < 14"Ø.
USE 2 STIFFENER PL @ 40° AS
SHOWN FOR PIPES ≥ 14"Ø

SLIDING SUPPORT FOR 6"-24" PROCESS AIR PIPE MOUNTED ON STEEL

M-40-0401



FIXED SUPPORT-STEEL

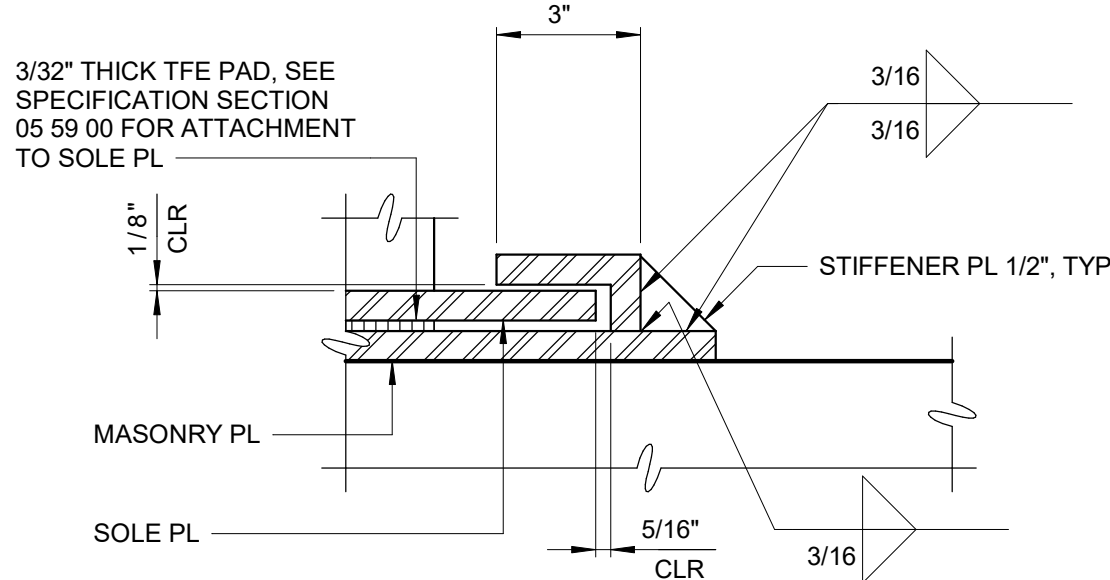


SECTIONAL PLAN A-A

PIPE DIA	"a"	"b"	"n"
30"	2'-4"	2'-0"	6
36"	2'-10"	2'-6"	8
42"	3'-4"	3'-0"	8
48"	3'-9"	3'-6"	8

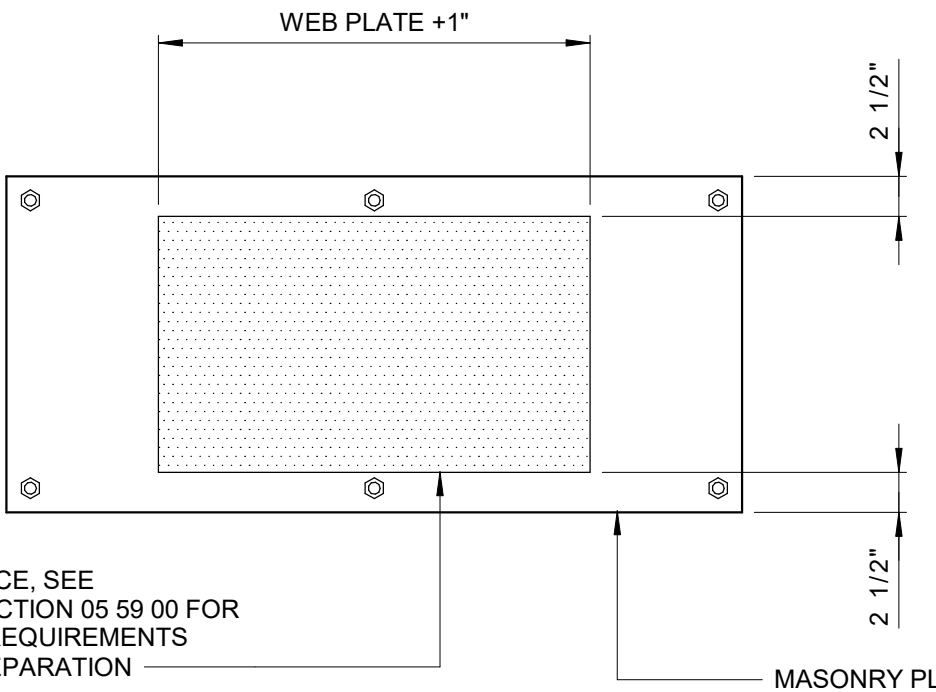
FIXED SUPPORT FOR 30"-48" PIPE MOUNTED ON STEEL

M-40-0403



SLIDING PLATE HOLD-DOWN

M-40-0405



MASONRY PL BEARING SURFACE PREPARATION

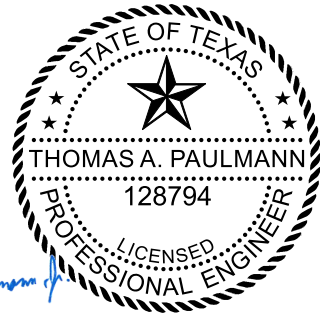
M-40-0406

PROCESS AIR PIPE SUPPORT NOTES:

1. MATERIAL OF SUPPORT FROM SOLE PLATE AND ABOVE SHALL MATCH MATERIAL OF PIPE.
2. MATERIAL OF BOTTOM PLATE SHALL MATCH MATERIAL OF STEEL FRAMING BELOW.
3. SHIM PLATE SHALL BE LOCATED ON TOP OF BOTTOM PLATE AND SHALL HAVE THE SAME DIMENSIONS AS BOTTOM PLATE.
4. DISSIMILAR METALS SHALL BE ISOLATED PER 40 05 00.
5. AIR PIPE SHALL BE FULLY INSTALLED PRIOR TO FIELD WELDING SADDLE PLATES TO PIPE.
6. ALL WORK INCLUDING FIELD WELDS SHALL BE APPROVED BY ENGINEER PRIOR TO TESTING OF AIR PIPE.
7. SOLE PLATE SHALL BE CENTERED ON MASONRY PLATE ON INITIAL INSTALLATION.

REV	FOR BID	ISSUED FOR	DATE	TAP	BY
0			2/10/22		

PROJECT ENGINEER:	T. PAULMANN
DESIGNED BY:	T. PAULMANN
DRAWN BY:	J. LAZO
CHECKED BY:	S. PHIPPS
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"



Sharon A. Paulmann
2/10/2022

Hazen

HAZEN AND SAWYER
8150 NORTH CENTRAL EXPRESSWAY
TOWER II SUITE 700
DALLAS, TEXAS 75206

BROWNSVILLE PUBLIC UTILITIES BOARD
BROWNSVILLE, TEXAS

ROBINDALE WWTP
WATER AND WASTEWATER TREATMENT PLANT
IMPROVEMENTS - PACKET 3
BLOWER REPLACEMENT

MECHANICAL
STANDARD DETAILS
SHEET 1

DATE:	FEBRUARY 2022
HAZEN NO.:	60405-003
CONTRACT NO.:	01
DRAWING NUMBER:	

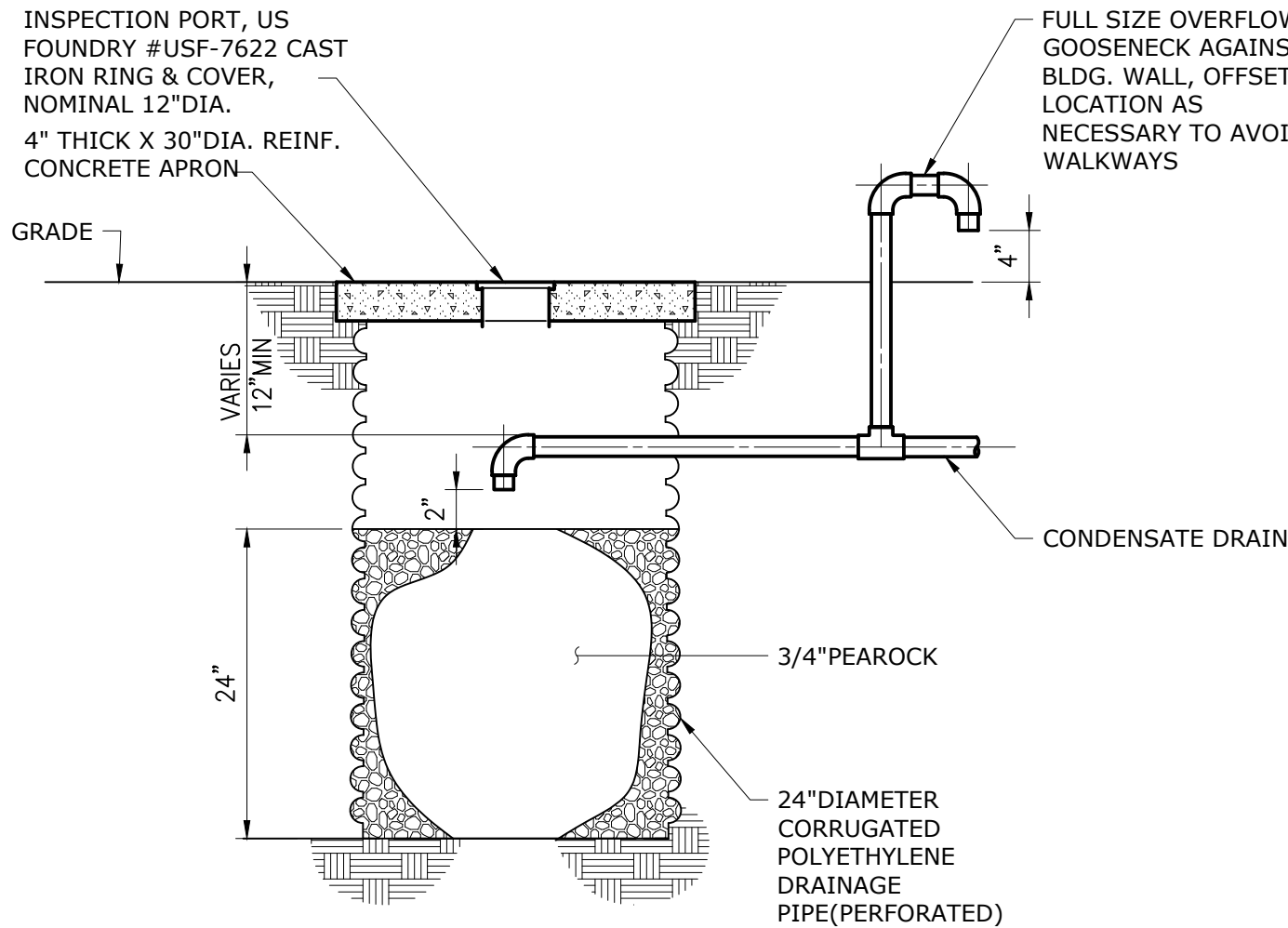
MD01

SYMBOLS						ABBREVIATIONS						GENERAL NOTES					
<div><div><div>T / S</div><div></div><div>THERMOSTAT/SENSOR</div></div><div><div>Z</div><div></div><div>GATE VALVE</div></div><div><div>X</div><div></div><div>CHECK VALVE</div></div><div><div>K</div><div></div><div>AUTOMATIC CONTROL VALVE 2-WAY</div></div><div><div>K</div><div></div><div>AUTOMATIC CONTROL VALVE 3-WAY</div></div><div><div>S</div><div></div><div>SOLENOID OPERATED VALVE</div></div><div><div>X</div><div></div><div>GLOBE VALVE</div></div><div><div>O</div><div></div><div>BALL VALVE</div></div><div><div>F</div><div></div><div>BUTTERFLY VALVE</div></div><div><div>V</div><div></div><div>COMBINATION BALANCING COCK & FLOW SENSOR</div></div><div><div>X</div><div></div><div>TRIPLE DUTY VALVE (STRAIGHT, ANGLE PATTERN)</div></div><div><div>E</div><div></div><div>PIPING ELBOW, 90° TURNED DOWN</div></div><div><div>E</div><div></div><div>PIPING ELBOW, 90° TURNED UP</div></div><div><div>T</div><div></div><div>PIPING TEE, OUTLET TURNED DOWN</div></div><div><div>T</div><div></div><div>PIPING TEE, OUTLET TURNED UP</div></div><div><div>G</div><div></div><div>PRESSURE GAGE WITH SHUTOFF COCK (BALL VALVE)</div></div><div><div>M</div><div></div><div>THERMOMETER</div></div><div><div>D</div><div></div><div>SUPPLY AIR DUCT SECTION-UP</div></div><div><div>D</div><div></div><div>SUPPLY AIR DUCT SECTION-DOWN</div></div><div><div>R</div><div></div><div>RETURN AIR DUCT SECTION-UP</div></div><div><div>R</div><div></div><div>RETURN AIR DUCT SECTION-DOWN</div></div><div><div>E</div><div></div><div>EXHAUST AIR DUCT SECTION-UP</div></div><div><div>E</div><div></div><div>EXHAUST AIR DUCT SECTION-DOWN</div></div><div><div>M</div><div></div><div>MOTORIZED DAMPER</div></div><div><div>F</div><div></div><div>FIRE DAMPER WITH ACCESS DOOR</div></div><div><div>H</div><div></div><div># HOUR RATED WALL (2 HR. SHOWN)</div></div><div><div>F</div><div></div><div>FIRE/SMOKE DAMPER WITH ACCESS DOOR</div></div><div><div>H</div><div></div><div># HOUR RATED WALL (2 HR. SHOWN)</div></div><div><div>M</div><div></div><div>MANUAL VOLUME DAMPER</div></div><div><div>B</div><div></div><div>BACKDRAFT DAMPER</div></div><div><div>S</div><div></div><div>CHANGE OF ELEVATION: RISE (R) OR DROP (D)</div></div></div> <div><div>(*)/(*)-AHU-1</div><div></div><div>QUANTITY DESIGNATION EQUIPMENT DESIGNATION BUILDING DESIGNATION WHEN APPLICABLE</div><div>SR1 → SUPPLY AIR REGISTER → SUPPLY AIR REGISTER (TYPE 1) → SUPPLY AIR REGISTER (TYPE 2), ETC.</div><div>RR1 → RETURN AIR REGISTER (TYPE 1) ER1 → EXHAUST AIR REGISTER (TYPE 1)</div><div>20X10 SR1 → 20X10 NECK SIZE, SUPPLY REGISTER (TYPE 1) 1000 CFM → 1000 CUBIC FEET PER MINUTE AIRFLOW RATE</div><div>LOUVERED FACE SIZE</div><div>24X24 CDA 8-300 → CEILING DIFFUSER (TYPE A) NECK DIAMETER</div><div>SHADE SECTION OF CEILING DIFFUSER INDICATES INACTIVE PANELS</div><div>DOOR LOUVER NUMBER INDICATES SIZE SQ FT</div></div>						<div><div>ACAIR CONDITIONING, AIR CONDITIONING UNIT</div><div>ACCUCOOLING CONDENSING UNIT</div><div>ACCACCOOLING CONDENSER</div><div>ADACCESS DOOR</div><div>AFFABOVE FINISHED FLOOR</div><div>AFUEANNUAL FUEL UTILIZATION EFFICIENCY</div><div>AHUAIR HANDLING UNIT</div><div>APDAIR PRESSURE DROP</div><div>ATCAUTOMATIC TEMPERATURE CONTROL</div><div>ATUAIR TERMINAL UNIT</div><div>BBOILER</div><div>BDBGRAVITY BACKDRAFT DAMPER</div><div>BFPBACKFLOW PREVENTER</div><div>BHPBRAKE HORSEPOWER</div><div>BODBOTTOM OF DUCT</div><div>BORBOTTOM OF REGISTER</div><div>BOTBOTTOM</div><div>CBCIRCUIT BREAKER</div><div>CFMCUBIC FEET OF STANDARD AIR PER MINUTE</div><div>CHCABINET UNIT HEATER</div><div>CLGCCeilings</div><div>CONNCONNECTION</div><div>CWSCILLED WATER SUPPLY</div><div>CWRCHILLED WATER RETURN</div><div>DBDRY BULB</div><div>DDCDIRECT DIGITAL CONTROL</div><div>DXDIRECT EXPANSION REFRIGERANT</div><div>DIA, ØDIAMETER</div><div>DMDAMPEN MOTOR</div><div>DNDOWN</div><div>EAEEXHAUST AIR</div><div>ECELECTRICAL CONTRACTOR</div><div>EATENTERING AIR TEMPERATURE</div><div>EDHELECTRIC DUCT HEATER</div><div>EUHELECTRIC UNIT HEATER</div><div>EFEEXHAUST FAN</div><div>EL/ELEVELEVATION</div><div>ESENTHALPY SENSOR</div><div>ESPEXTERNAL STATIC PRESSURE</div><div>ETEXPANSION TANK</div><div>EWTENTERING WATER TEMPERATURE</div><div>FAFREE AREA</div><div>FCFORWARD CURVED OR FAN COIL</div><div>FDFIRE DAMPER WITH ACCESS DOOR</div><div>FLAFULL LOAD AMPS</div><div>FORFUEL OIL RETURN</div><div>FOSFUEL OIL SUPPLY</div><div>FOVFUEL OIL VENT</div><div>FPMFEET PER MINUTE</div><div>FTRFINNED TUBE RADIATION</div><div>GCGENERAL CONTRACTOR</div><div>GPMGALLONS PER MINUTE</div><div>HGHOT GAS</div><div>HPHORSEPOWER OR HEAT PUMP</div><div>HVHEATING AND VENTILATING UNIT</div><div>HWSHOT WATER SUPPLY</div><div>HWRHOT WATER RETURN</div><div>IDECINDIRECT EVAPORATIVE COOLING</div><div>IN, WGINCHES OF WATER GAGE</div><div>KWKILOWATT (1,000 WATTS)</div><div>L1LOUVER (TYPE 1)</div><div>LATLEAVING AIR TEMPERATURE</div><div>LD1LINEAR DIFFUSER (TYPE 1)</div><div>LFLINEAR FEET</div><div>LRLINEAR RETURN</div><div>LWITLEAVING WATER TEMPERATURE</div><div>MAUMAKEUP AIR UNIT</div><div>MBH1,000 BTU PER HOUR</div><div>MCMECHANICAL CONTRACTOR</div><div>MCAMINIMUM CIRCUIT AMPACITY</div><div>MDMOTORIZED DAMPER</div><div>MTDMOUNTED</div><div>NCNORMALLY CLOSED, NOISE CRITERIA</div><div>NKNECK</div><div>NONORMALLY OPEN</div><div>NTSNOT TO SCALE</div><div>OAOUTSIDE AIR</div><div>OAIOUTSIDE AIR INTAKE</div><div>ORPOXYGEN REDUCTION POTENTIAL</div><div>PUMP</div><div>PCPLUMBING CONTRACTOR</div><div>PDPRESSURE DROP</div><div>PFPROPELLER FAN</div><div>PH, ØPHASE</div><div>PPUPPOSITIVE PRESSURIZATION UNIT</div><div>PROPROMPELLER</div><div>PRVPRESSURE REGULATING VALVE</div><div>PTACPACKAGED TERMINAL AIR CONDITIONING UNIT</div><div>PSPRESSURE SENSOR</div><div>PWPOTABLE WATER</div><div>RARETURN AIR</div><div>RHRELATIVE HUMIDITY</div><div>RLREFRIGERANT LIQUID</div><div>RLARATED LINE AMPS</div><div>RSREFRIGERANT SUCTION</div><div>RPMREVOLUTIONS PER MINUTE</div><div>SASUPPLY AIR</div><div>SDSMOKE DETECTOR</div><div>SFSUPPLY AIR FAN</div><div>SHRSSENSIBLE HEAT RATIO</div><div>SPSTATIC PRESSURE</div><div>SPECSPECIFICATION</div><div>SSSTAINLESS STEEL</div><div>SVSOLENOID VALVE</div><div>TEMPTEMPERATURE</div><div>TFTRANSFER FAN</div><div>THTOTAL HEAT</div><div>TODTOP OF DUCT</div><div>TOUTOP OF UNIT</div><div>TORTOP OF REGISTER</div><div>TSPTOTAL STATIC PRESSURE</div><div>TSTEMPERATURE SENSOR</div><div>TYPYTICAL</div><div>UVOLTS</div><div>VAVARIABLE AIR VOLUME</div><div>VDVOLUME DAMPER</div><div>VELVELOCITY</div><div>VHHEATING CONTROL VALVE</div><div>VCcooling CONTROL VALVE</div><div>VFDVARIABLE FREQUENCY DRIVE</div><div>VVTVARIABLE VOLUME AND VARIABLE TEMPERATURE</div><div>WPDWATER PRESSURE DROP</div><div>WWITH</div><div>WBWET BULB</div><div>WCWATER COLUMN</div></div>						<div><div>THE SHALL COMPLY WITH THE FOLLOWING APPLICABLE CODES: 2018 INTERNATIONAL BUILDING CODE 2018 INTERNATIONAL MECHANICAL CODE 2018 INTERNATIONAL FUEL GAS CODE 2018 INTERNATIONAL PLUMBING CODE 2009 INTERNATIONAL ENERGY CONSERVATION CODE</div><div>THE SYMBOLS AND ABBREVIATIONS LIST ON THIS SHEET IS A COMPREHENSIVE STANDARD GUIDE INTENDED FOR GENERAL USE ON ALL PROJECTS. THEREFORE NOT ALL THE SYMBOLS AND ABBREVIATIONS CONTAINED IN THIS LIST ARE NECESSARILY USED ON THIS PARTICULAR PROJECT AND SHOULD BE USED FOR CLARIFICATION ONLY.</div><div>ALL DUCT DIMENSIONS ARE CLEAR DIMENSIONS TO INSIDE OF DUCT. DIMENSIONS TO DUCTS FROM FLOOR OR WALL SHALL BE TO THE OUTSIDE OF DUCT/INSULATION. WHERE INTERNAL INSULATION IS REQUIRED THE DUCT SIZE SHALL BE INCREASED TO GIVE CLEAR INSIDE DIMENSIONS AS NOTED ON THE DRAWINGS.</div><div>EQUIPMENT SIZES AND LOCATIONS ARE APPROXIMATE. ACTUAL DIMENSIONS TO BE DETERMINED BY EQUIPMENT FURNISHED. COORDINATE HVAC WORK WITH THE WORK OF ALL OTHER TRADES.</div><div>FINAL OPENING DIMENSIONS, CONCRETE PAD SIZES, AND LOCATIONS MUST BE COORDINATED DURING CONSTRUCTION WITH APPROVED EQUIPMENT.</div><div>FINAL SIZES OF FLOOR OPENINGS, DUCT PLENUMS, TRANSITIONS AND PIPING CONNECTIONS TO ALL EQUIPMENT SHALL BE DETERMINED BY EQUIPMENT FURNISHED.</div><div>THE DRAWINGS ARE SCHEMATIC IN NATURE AND SHOW INTENDED GENERAL LOCATION OF HVAC EQUIPMENT AND SYSTEMS. NOT ALL OFFSETS AND REQUIRED FITTINGS FOR ACTUAL FIELD INSTALLATION ARE INTENDED TO BE SHOWN FOR INSTALLATION OF SYSTEMS IN THE SPACE AVAILABLE IN CONSIDERATION OF WORK OF OTHER TRADES AND FIELD CONDITIONS. CONTRACTOR SHALL PROVIDE ADDITIONAL OFFSETS IN DUCTWORK AND PIPING AS REQUIRED TO AVOID SUCH INTERFERENCES OR FIELD CONDITIONS AT NO ADDITIONAL COST TO THE ORIGINAL CONTRACT AMOUNT.</div><div>FIRST FIGURE OF DUCT SIZE INDICATES DIMENSION OF FACE SHOWN OR INDICATED OR WIDTH OF DUCT IN PLAN VIEW.</div><div>COORDINATE THE REQUIREMENTS FOR HVAC OPENINGS AND SLEEVES IN BUILDING ELEMENTS WITH THE GC.</div><div>CONTRACTOR SHALL REFER TO SPECIFICATION SECTION 09900 FOR PAINTING REQUIREMENTS UNLESS OTHERWISE NOTED.</div><div>REFER TO ELECTRICAL DRAWINGS OR SPECIFICATIONS FOR INTERLOCKING WIRING REQUIREMENTS.</div><div>CONTRACTOR SHALL COORDINATE DUCTWORK INSTALLATION WITH OTHER TRADES SO THAT THE DUCTWORK IS INSTALLED BEFORE THE PIPING, LIGHTING AND ELECTRICAL CONDUIT.</div><div>PROVIDE ADEQUATE SUPPORT, PER THE MANUFACTURER'S RECOMMENDATIONS, FOR ALL HVAC EQUIPMENT.</div><div>CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING ELECTRICAL RATINGS FROM CERTIFIED DRAWINGS OF EQUIPMENT AND SHALL MAKE ANY BRANCH CIRCUIT DISTRIBUTION MODIFICATION REQUIREMENTS WITHOUT ANY ADDITIONAL COST TO OWNER. THE CONTRACTOR SHALL SUBMIT A SCHEDULE OF SUCH CHANGES FOR APPROVAL BY ENGINEER.</div><div>WHEREVER THE REQUIREMENTS AND REGULATIONS OF STATE, FEDERAL AND LOCAL AUTHORITIES HAVING JURISDICTION DIFFER FROM THE DRAWINGS OR SPECIFICATIONS, THEY SHALL TAKE PRECEDENCE AND SHALL BE MADE PART OF THE CONTRACT (EXCEPT WHERE THE DRAWINGS OR SPECIFICATIONS ARE MORE STRINGENT).</div><div>THE CONTRACTOR SHALL PROVIDE AND INSTALL FIRE AND SMOKE RATED DAMPERS IN HVAC DUCTS WHICH PENETRATE FIRE RATED BUILDING ASSEMBLIES AS SHOWN ON ARCHITECTURAL DRAWINGS.</div><div>DUCTWORK AND PLENUM TO LOUVERS SHALL BE CONNECTED TO FRAMED OPENINGS AND, SEALED AIRTIGHT AND WEATHER RESISTANT.</div><div>THERMOSTATS, SENSORS, AND/OR CONTROL PANEL LOCATIONS SHOWN ARE APPROXIMATE AND SHALL BE COORDINATED TO SUIT FIELD CONDITIONS.</div><div>INSTALL WALL MTD SENSORS, CONTROLS AND THERMOSTATS 5'-0" AFF UNLESS OTHERWISE NOTED. ALIGN WITH OTHER NEARBY ITEMS SUCH AS LIGHT SWITCHES. DO NOT INSTALL CLOSER THAN 6-INCHES FROM EDGE OF DOOR FRAME OR CORNER OF WALL AS SHOWN ON ARCH PLANS. WHERE CONFLICTS MAY OCCUR WITH ITEMS SUCH AS LIGHT SWITCHES, MOUNT THE SENSOR OR CONTROL DEVICE 4'-6" AFF CENTERED ABOVE THE LIGHT SWITCH.</div><div>PROVIDE ADEQUATE MEANS OF ACCESS CLEARANCE FOR ALL HVAC/MECHANICAL EQUIPMENT AND SYSTEMS THAT REQUIRE ACCESS FOR PROPER OPERATION, MAINTENANCE AND REPAIR PER RECOMMENDED MANUFACTURER CLEARANCES. PROVIDE ACCESS DOORS WHERE NECESSARY IN FINISHED WALLS OR DRYWALL CEILINGS FOR ACCESS TO VALVES, DAMPERS, OR CONTROL DEVICES.</div><div>COORDINATE THE REQUIREMENTS OF HVAC HANGERS AND SUPPORTS W/ OTHER PRIME CONTRACTORS PROVIDING STRUCTURAL AND/OR ARCHITECTURAL BUILDING ELEMENTS WHICH HVAC SUPPORTS SHALL INTERFACE.</div><div>HVAC CONTRACTOR SHALL PROVIDE ALL FIRESTOPPING AND PIPE SLEEVES FOR ALL PIPE</div></div>					

DESIGN TEMPERATURE CONDITIONS	
OUTSIDE	ELECTRICAL ROOMS
WINTER: 38.7° F DB	WINTER: 60° F
SUMMER: 95.7° F DB / 77.8° F WB	SUMMER: 78° F DB
OUTSIDE DESIGN TEMPERATURES BASED UPON ASHRAE 2017 FUNDAMENTALS CHAPTER 14 CLIMATIC DESIGN DATA FOR THE 99.6 PERCENTILE HEATING DRYBULB INCIDENCE AND 0.4 PERCENTILE COOLING DRYBULB AND WETBULB INCIDENCES: BROWNSVILLE INTERNATIONAL AIRPORT, BROWNSVILLE, TX.	

AIR CONDITIONING UNIT SCHEDULE																					
UNIT No.	LOCATION	AREA SERVED	MANUFACTURER		TYPE	CAPACITY BTU/HR		WEIGHT	FAN DATA			COMPRESSOR			EER	ELECTRIC HEAT		ELECTRICAL			NOTES
			MAKE	MODEL		TOTAL	SENSIBLE		CFM	H.P.	E.S.P.	TYPE	QTY.	REFRIG.		STAGES	K.W.	FLA	MOCp	V/P/HZ	
EB-AC-1	ELECTRICAL BUILDING	ELECTRICAL ROOM	MARVAIR	MAA1072D09C	WALL MOUNTED	70,000	48,000	705	1,950	3/4	0.1"	SCROLL	1	R-410A	10.0	2	9	17.0	25	460/3/60	1 THRU 8
EB-AC-2	ELECTRICAL BUILDING	ELECTRICAL ROOM	MARVAIR	MAA1072D09C	WALL MOUNTED	70,000	48,000	705	1,950	3/4	0.1"	SCROLL	1	R-410A	10.0	2	9	17.0	25	460/3/60	1 THRU 8

- NOTES:
1. SCROLL COMPRESSOR.
2. CAPACITY RATINGS BASED ON 80° ENT WB., 95°F OUTDOOR AMBIENT.
3. RETURN AIR GRILLE .
4. SUPPLY GRILLE.
5. REFER TO SPECIFICATION 23 81 23.
6. ROOM TEMPERATURE SETPOINT SHALL BE 75 DEGREES FAHRENHEIT ALL UNITS.
7. LOW AMBIENT COOLING.
8. HIGH AND LOW PRESSURE SWITCHES.



CONTROL SYMBOLS

- SD

SMOKE DETECTOR

T

THERMOSTAT

HO R

HAND-OFF-REMOTE
- MD

R-RED
A-AMBER
G-GREEN
B-BLUE
W-WHITE

BD

BACKDRAFT DAMPER
- FS

FLOW SWITCH

DP

DIFFERENTIAL PRESSURE SWITCH

H

C

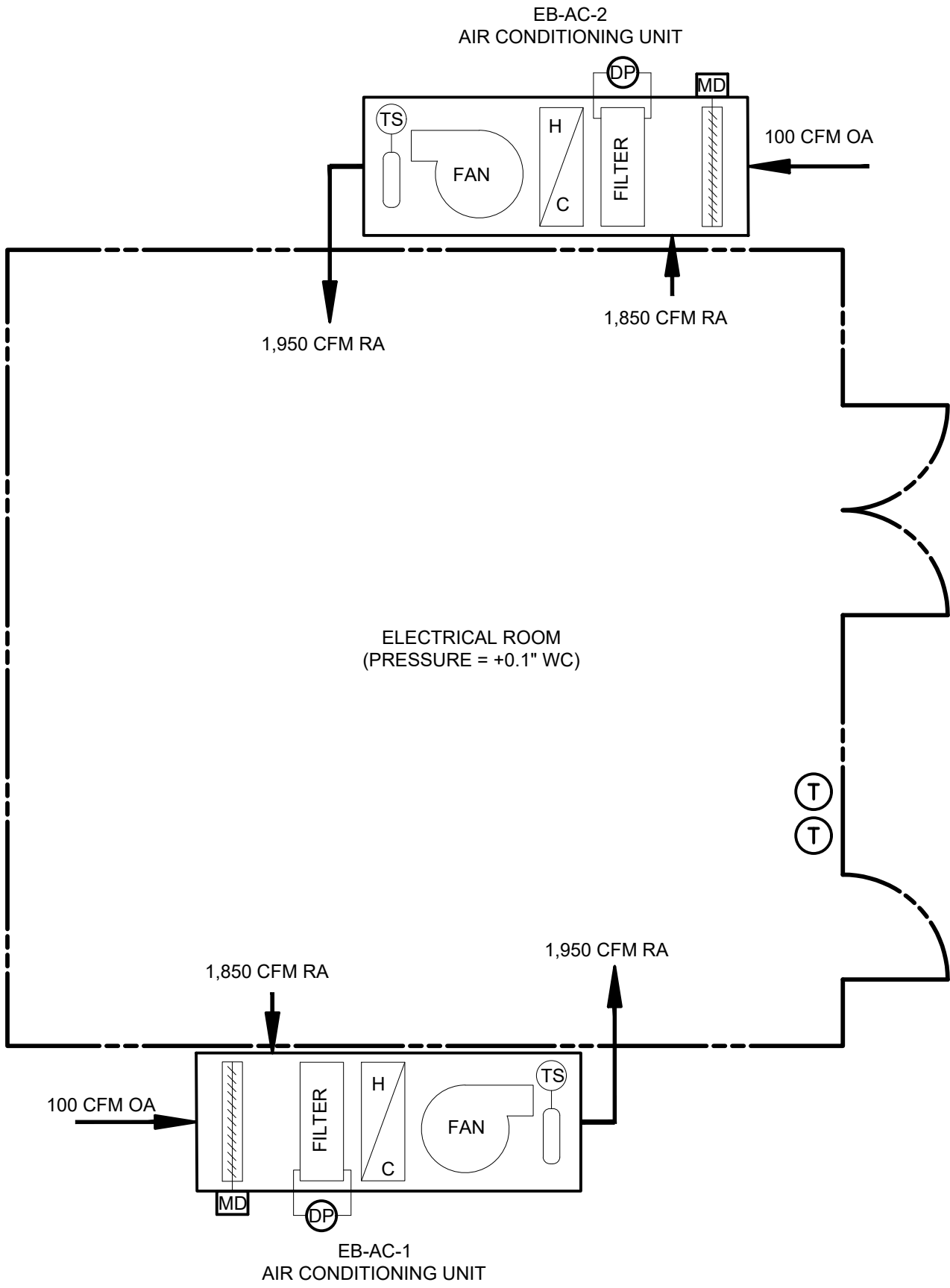
ELECTRIC HEAT COIL
- ⊙

ALARM HORN

⬮

ALARM LIGHT

- NOTES:
1. ALL ROOM PRESSURES ARE RELATIVE TO AMBIENT PRESSURE.
2. FOR SEQUENCE OF OPERATION SEE SPECIFICATION 23 81 23.



AIRFLOW DIAGRAM


				PROJECT ENGINEER: T. PAULMANN		<div><div><div>STATE OF TEXAS</div><div>NORMAN E. BARTLEY</div><div>119731</div><div>LICENSED PROFESSIONAL ENGINEER</div></div><div><i>Norman E. Bartley</i> 02/11/22</div></div>	<div><div>Hazen</div><div>HAZEN AND SAWYER</div><div>8150 NORTH CENTRAL EXPRESSWAY</div><div>TOWER II SUITE 700</div><div>DALLAS, TEXAS 75206</div></div>	BROWNSVILLE PUBLIC UTILITIES BOARD		HVAC SCHEDULES, AIRFLOW DIAGRAMS & DETAILS		DATE: FEBRUARY 2022
				DESIGNED BY: R. VAN DYKE				HAZEN NO.: 60405-003				
				DRAWN BY: T. NOLAN				CONTRACT NO.: 01				
				CHECKED BY: N. BARTLEY				DRAWING NUMBER:				
0	FOR BID	2/10/22	TAP	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"			H02				
REV	ISSUED FOR	DATE	BY									



1. INSTALL MANUFACTURER PROVIDED SUPPLY AIR AND RETURN AIR GRILLES. COORDINATE WALL OPENING SIZE AND ELEVATION WITH DUCT CONNECTIONS TO UNIT.
2. PROVIDE 316 STAINLESS STEEL CONNECTING DUCT BETWEEN GRILLES AND AIR CONDITIONING UNIT.
3. MAINTAIN 3'-0" CLEARANCE AROUND UNIT FOR MAINTENANCE AND ELECTRICAL REQUIREMENTS.
4. MAINTAIN 1'-0" CLEARANCE FROM BOTTOM OF UNIT TO FINISHED GRADE.
5. SET POINT FOR EB-AC-1 TO BE 75° F AND SET POINT FOR EB-AC-2 TO BE 78° F.
6. ROUTE ¾" MOISTURE RETENTION CONDENSATE DRAIN PIPING TO FRENCH DRAIN.

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



				PROJECT ENGINEER:	T. PAULMANN
				DESIGNED BY:	R. VAN DYKE
				DRAWN BY:	A. RODRIGUEZ
				CHECKED BY:	N. BARTLEY
0	FOR BID	2/10/22	TAP	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	<div> <div>0</div> <div>1/2"</div> <div>1"</div>  </div>
REV	ISSUED FOR	DATE	BY		



Hazen

HAZEN AND SAWYER
8150 NORTH CENTRAL EXPRESSWAY
TOWER II SUITE 700
DALLAS, TEXAS 75206

BROWNSVILLE PUBLIC UTILITIES BOARD
BROWNSVILLE, TEXAS

ROBINDALE WWTP
WATER AND WASTEWATER TREATMENT PLANT
IMPROVEMENTS - PACKET 3
BLOWER REPLACEMENT

ELECTRICAL BUILDING 3

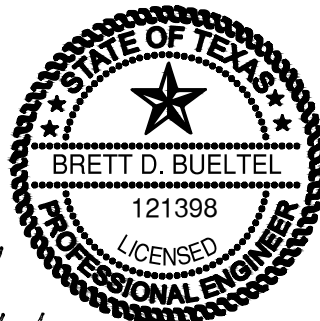

HVAC

TOP PLAN

DATE:	FEBRUARY 2022
HAZEN NO.:	60405-003
CONTRACT NO.:	01
DRAWING NUMBER:	H950

File: C:\BMS\HAZEN\DWG\173719\E02 Saved by N STEWART Save date: 4/12/2024 4:08 PM
PLOT DATE: 2/10/2022 4:39 PM BY: N STEWART

ABBREVIATIONS				ABBREVIATIONS, CONT.				NOTES:				
AE	ANALYSIS ELEMENT			(*)PB	PULLBOX*			1.	UNLESS SPECIFICALLY NOTED OTHERWISE, ALL UNDERGROUND CONCRETE ENCASED ELECTRICAL CONDUITS SHALL BE PER STANDARD DETAIL E-33-0101.			
AHU	AIR HANDLING UNIT			PC	PHOTOCELL			2.	BOND ALL NEW CONCRETE ENCASED GROUND CONDUCTORS TO EXISTING GROUND CONDUCTORS IN ALL MANHOLES, PULL BOXES, CABLE TRAYS, AND SIMILAR LOCATIONS WHERE APPLICABLE.			
AIC	AMPERE INTERRUPTING CAPACITY			PCC	POINT OF COMMON COUPLING			3.	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.			
AIT	ANALYSIS INDICATING TRANSMITTER			PE	PRESSURE ELEMENT			4.	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.			
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE			PIT	PRESSURE INDICATING TRANSMITTER			5.	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 (SWBD GROUND BUS, PANELBOARD GROUND BUS, ETC.). GROUND CONDUCTOR SIZE SHALL BE PER THE LATEST EDITION OF THE NEC.			
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS			PLC	PROGRAMMABLE LOGIC CONTROLLER			6.	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.			
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS			PP	POWER PANEL			7.	LIGHTNING PROTECTION SYSTEMS SHALL BE PROVIDED FOR THE STRUCTURES INDICATED ON THE DRAWINGS AND IN ACCORDANCE WITH SECTION 26 41 00.			
AF	AMPERE FRAME			PST	PHASE SHIFTING TRANSFORMER			8.	REFERENCE SECTION 01 14 00 FOR CONSTRUCTION SEQUENCING REQUIREMENTS.			
AT	AMPERE TRIP			PT	POTENTIAL TRANSFORMER			9.	CONDUIT HOMERUNS ARE NOT SHOWN ON THE DRAWINGS. CONTRACTOR SHALL REFER TO CONDUIT AND WIRE SCHEDULES, RISER DIAGRAMS, SINGLE LINE DIAGRAMS, AND OTHER DRAWINGS FOR CONDUIT AND WIRE REQUIREMENTS.			
ATS	AUTOMATIC TRANSFER SWITCH			PTT	PUSH TO TEST			10.	ALL ELECTRICAL NON-STRUCTURAL COMPONENTS ARE SUBJECT TO SEISMIC DESIGN CATEGORY 'A' AND ARE THEREFORE EXEMPT FROM SEISMIC ANCHORAGE AND BRACING AS STIPULATED IN SECTION 01 73 23 - SEISMIC ANCHORAGE AND BRACING.			
BC	BYPASS CONTACTOR			RCS	REMOTE CONTROL STATION							
BKR	BREAKER			RECP	RECEPTACLE							
(L/V)CP	(LOCAL/VENDOR) CONTROL PANEL			RIO	REMOTE I/O							
CPT	CONTROL POWER TRANSFORMER			RM	ROOM							
CT	CURRENT TRANSFORMER			RTD	RESISTANCE THERMAL DEVICE							
DB	DUCTBANK			RTU	REMOTE TELEMETRY UNIT							
DSW	DISCONNECT SWITCH			RVAT	REDUCED VOLTAGE AUTO TRANSFORMER							
(*)HH	HAND HOLE*			RVSS	REDUCED VOLTAGE SOLID STATE							
(*)MH	MANHOLE*			SA	SUPPLY AIR							
EO	ELECTRICALLY OPERATED			S.E.	SERVICE ENTRANCE							
ETM	ELAPSED TIME METER			SP. C.	SPARE CONDUIT							
ETU	ELECTRONIC TRIP UNIT			SPD	SURGE PROTECTIVE DEVICE							
FAAP	FIRE ALARM ANNUNCIATOR PANEL			SSOL	SOLID STATE OVERLOAD							
FACP	FIRE ALARM CONTROL PANEL			SST	STAINLESS STEEL							
FS	FLOW SWITCH			TB	TEST BLOCK							
FSL	FLOW SWITCH LOW			TC	TIMED CLOSE							
FVNR	FULL VOLTAGE NON-REVERSING			TO	TIMED OPEN							
FVR	FULL VOLTAGE REVERSING			TSH	TWISTED SHIELDED							
GFCI	GROUND FAULT CIRCUIT INTERRUPTER			TX	TRANSFORMER							
GFCT	GROUND FAULT CURRENT TRANSFORMER			TYP	TYPICAL							
GNG	GO-NO GO			UPS	UNINTERRUPTIBLE POWER SUPPLY							
GND	GROUND			VFD	VARIABLE FREQUENCY DRIVE							
HOA	HAND-OFF-AUTO			WPCR	WEATHER PROOF CORROSION RESISTANT							
HPU	HYDRAULIC POWER UNIT			WT	WALK THROUGH							
IC	INPUT CONTACTOR			XFMR	TRANSFORMER							
IEEE	INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS											
ISO	INTERNATIONAL ORGANIZATION FOR STANDARDIZATION				*DESIGNATED ABBREVIATIONS CAN HAVE THE FOLLOWING PREFIXES:							
(*)JB	JUNCTION BOX*			E	ELECTRIC							
LCS	LOCAL CONTROL STATION			P	POWER							
LP	LIGHTING PANEL			C	CONTROL							
LS	LEVEL SWITCH			I	INSTRUMENTATION							
LSL	LEVEL SWITCH LOW			F	FIBER							
LSLL	LEVEL SWITCH LOW-LOW											
LSH	LEVEL SWITCH HIGH											
LSHH	LEVEL SWITCH HIGH-HIGH											
LT	LEVEL TRANSMITTER											
MFR	MULTI-FUNCTION RELAY											
MH	MANHOLE											
MOD	MOTOR OPERATED DAMPER											
MOG	MOTOR OPERATED GATE											
MOL	MOTOR OPERATED LOUVER											
MOV	MOTOR OPERATED VALVE											
MPR	MOTOR PROTECTION RELAY											
MTD	MOUNTED											
MTS	MANUAL TRANSFER SWITCH											
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											

				PROJECT ENGINEER:	T. PAULMANN	<div><div><div>Brett Bueltel</div><div>2/10/2022</div></div></div>					<div><div>HAZEN AND SAWYER 8150 NORTH CENTRAL EXPRESSWAY TOWER II SUITE 700 DALLAS, TEXAS 75206</div></div>					<div>BROWNSVILLE PUBLIC UTILITIES BOARD BROWNSVILLE, TEXAS</div> <div>ROBINDALE WWTP WATER AND WASTEWATER TREATMENT PLANT IMPROVEMENTS - PACKET 3 BLOWER REPLACEMENT</div>					<div>ELECTRICAL ABBREVIATIONS AND GENERAL NOTES</div>					DATE:	FEBRUARY 2022
				DESIGNED BY:	N. STEWART											HAZEN NO.:	60405-003										
				DRAWN BY:	N. STEWART											CONTRACT NO.:	01										
				CHECKED BY:	B. BUELTEL											DRAWING NUMBER:											
0	FOR BID	2/10/22	TAP	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE																E02							
REV	ISSUED FOR	DATE	BY																								

File: C:\BMS\HAZEN\DWG\173718103 Saved by NSTEWART Save date: 4/12/2024 4:07 PM
PLOT DATE: 2/10/2022 4:39 PM BY: NSTEWART

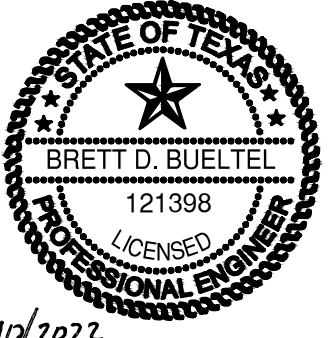
DUCTBANK NUMBER	CONDUIT	SIZE	FROM	TO
DB-A	P-0001	4"	UTILITY JUNCTION BOX	UTILITY TRANSFORMER
	P-0002	4"	UTILITY JUNCTION BOX	UTILITY TRANSFORMER
DB-B	P-0001	4"	UTILITY JUNCTION BOX	UTILITY TRANSFORMER
	P-0002	4"	UTILITY JUNCTION BOX	UTILITY TRANSFORMER
DB-C	P-0003	4"	UTILITY TRANSFORMER	SWBD-BLB
	P-0004	4"	UTILITY TRANSFORMER	SWBD-BLB
	P-0005	4"	UTILITY TRANSFORMER	SWBD-BLB
	P-0006	4"	UTILITY TRANSFORMER	SWBD-BLB
	P-0007	4"	UTILITY TRANSFORMER	SWBD-BLB
	P-0008	4"	UTILITY TRANSFORMER	SWBD-BLB
	P-0009	4"	UTILITY TRANSFORMER	SWBD-BLB
	P-0010	4"	UTILITY TRANSFORMER	SWBD-BLB
	P-0011	4"	UTILITY TRANSFORMER	SWBD-BLB
	P-0012	4"	UTILITY TRANSFORMER	SWBD-BLB
	P-0013	4"	UTILITY TRANSFORMER	SWBD-BLB
DB-D	P-0015	4"	GEN-BLB	SWBD-BLB
	P-0016	4"	GEN-BLB	SWBD-BLB
	P-0017	4"	GEN-BLB	SWBD-BLB
	P-0018	4"	GEN-BLB	SWBD-BLB
	P-0019	4"	GEN-BLB	SWBD-BLB
	P-0020	4"	GEN-BLB	SWBD-BLB
	P-0021	4"	GEN-BLB	SWBD-BLB
	P-0022	4"	GEN-BLB	SWBD-BLB
	P-0023	4"	GEN-BLB	SWBD-BLB
	P-0024	4"	GEN-BLB	SWBD-BLB
	P-0025	4"	GEN-BLB	SWBD-BLB
	C-0001	1"	96PLC01	GEN-BLB
	C-0020	2"	SWBD-BLB	GEN-BLB
	C-0021	2"	SWBD-BLB	GEN-BLB
	I-0033	2"	96PLC01	GEN-BLB
	I-0034	2"	96PLC01	GEN-BLB
DB-E	P-0041	4"	RVSS-11005	66ALP-BLW-11005
	P-0042	4"	RVSS-11005	66ALP-BLW-11005
	P-0043	4"	RVSS-11005	66ALP-BLW-11005
	P-0044	4"	RVSS-11007 (FUTURE)	PB-11007
	P-0045	4"	RVSS-11007 (FUTURE)	PB-11007
	P-0046	4"	RVSS-11007 (FUTURE)	PB-11007
	P-0047	4"	RVSS-11006	66ALP-BLW-11006
	P-0048	4"	RVSS-11006	66ALP-BLW-11006
	P-0049	4"	RVSS-11006	66ALP-BLW-11006
	P-0050	4"	RVSS-11006	66ALP-BLW-11006
	P-0051	4"	RVSS-11008 (FUTURE)	PB-11007
	P-0052	4"	RVSS-11008 (FUTURE)	PB-11007
	P-0053	4"	RVSS-11008 (FUTURE)	PB-11007
	P-0054	4"	RVSS-11008 (FUTURE)	PB-11007
	P-0059	1"	SWBD-BLB	66-MOV-11005
	P-0060	1"	SWBD-BLB	66-MOV-11006
	P-0067	1"	SWBD-BLB	PB-11007
	P-0068	1"	SWBD-BLB	PB-11007
	C-0001	1"	96PLC01	GEN-BLB
	C-0006	2"	RVSS-11005	CPB-11005
	C-0007	2"	RVSS-11006	CPB-11006
	C-0008	2"	RVSS-11007 (FUTURE)	PB-11007
	C-0009	2"	RVSS-11008 (FUTURE)	PB-11007
	C-0018	1"	LCP-11005	CONTROL JUNCTION BOX
	C-0019	1"	LCP-11006	CONTROL JUNCTION BOX
	I-0001	2"	66NIP01	97NIP01 (NETWORK PANEL)
	I-0014	2"	LCP-11005	INSTRUMENTATION JUNCTION BOX
	I-0015	2"	LCP-11005	INSTRUMENTATION JUNCTION BOX
	I-0016	2"	CJB-11006	LCS-66ALP-BLW-11006
	I-0017	2"	CJB-11006	DSW-66ALP-BLW-11006
	I-0018	2"	LCP-11007 (FUTURE)	PB-11007
	I-0019	2"	LCP-11007 (FUTURE)	PB-11007
	I-0020	2"	LCP-11008 (FUTURE)	PB-11007
	I-0021	2"	LCP-11008 (FUTURE)	PB-11007
DB-F	I-0033	2"	96PLC01	GEN-BLB
	I-0034	2"	96PLC01	GEN-BLB
	C-0001	1"	96PLC01	GEN-BLB
	I-0033	2"	96PLC01	GEN-BLB
	I-0034	2"	96PLC01	GEN-BLB
	I-0033	2"	96PLC01	GEN-BLB
	I-0034	2"	96PLC01	GEN-BLB
	I-0033	2"	96PLC01	GEN-BLB
	I-0034	2"	96PLC01	GEN-BLB
	I-0033	2"	96PLC01	GEN-BLB

DUCTBANK NUMBER	CONDUIT	SIZE	FROM	TO
DB-G	P-0041	4"	RVSS-11005	66ALP-BLW-11005
	P-0042	4"	RVSS-11005	66ALP-BLW-11005
	P-0043	4"	RVSS-11005	66ALP-BLW-11005
	P-0044	4"	RVSS-11007 (FUTURE)	PB-11007
	P-0045	4"	RVSS-11007 (FUTURE)	PB-11007
	P-0046	4"	RVSS-11007 (FUTURE)	PB-11007
	P-0047	4"	RVSS-11006	66ALP-BLW-11006
	P-0048	4"	RVSS-11006	66ALP-BLW-11006
	P-0049	4"	RVSS-11006	66ALP-BLW-11006
	P-0050	4"	RVSS-11006	66ALP-BLW-11006
	P-0051	4"	RVSS-11008 (FUTURE)	PB-11007
	P-0052	4"	RVSS-11008 (FUTURE)	PB-11007
	P-0053	4"	RVSS-11008 (FUTURE)	PB-11007
	P-0054	4"	RVSS-11008 (FUTURE)	PB-11007
	P-0059	1"	SWBD-BLB	66-MOV-11005
	P-0060	1"	SWBD-BLB	66-MOV-11006
	P-0067	1"	SWBD-BLB	PB-11007
	P-0068	1"	SWBD-BLB	PB-11007
	C-0006	2"	RVSS-11005	CPB-11005
	C-0007	2"	RVSS-11006	CPB-11006
	C-0008	2"	RVSS-11007 (FUTURE)	PB-11007
	C-0009	2"	RVSS-11008 (FUTURE)	PB-11007
	C-0018	1"	LCP-11005	CONTROL JUNCTION BOX
	C-0019	1"	LCP-11006	CONTROL JUNCTION BOX
	I-0014	2"	LCP-11005	INSTRUMENTATION JUNCTION BOX
	I-0015	2"	LCP-11005	INSTRUMENTATION JUNCTION BOX
	I-0016	2"	CJB-11006	LCS-66ALP-BLW-11006
	I-0017	2"	CJB-11006	DSW-66ALP-BLW-11006
	I-0018	2"	LCP-11007 (FUTURE)	PB-11007
	I-0019	2"	LCP-11007 (FUTURE)	PB-11007
	I-0020	2"	LCP-11008 (FUTURE)	PB-11007
	I-0021	2"	LCP-11008 (FUTURE)	PB-11007
	I-0001	2"	66NIP01	97NIP01 (NETWORK PANEL)
DB-H	P-0041	4"	RVSS-11005	66ALP-BLW-11005
	P-0042	4"	RVSS-11005	66ALP-BLW-11005
	P-0043	4"	RVSS-11005	66ALP-BLW-11005
	P-0044	4"	RVSS-11007 (FUTURE)	PB-11007
	P-0045	4"	RVSS-11007 (FUTURE)	PB-11007
	P-0046	4"	RVSS-11007 (FUTURE)	PB-11007
	P-0047	4"	RVSS-11006	66ALP-BLW-11006
	P-0048	4"	RVSS-11006	66ALP-BLW-11006
	P-0049	4"	RVSS-11006	66ALP-BLW-11006
	P-0050	4"	RVSS-11006	66ALP-BLW-11006
	P-0051	4"	RVSS-11008 (FUTURE)	PB-11007
	P-0052	4"	RVSS-11008 (FUTURE)	PB-11007
	P-0053	4"	RVSS-11008 (FUTURE)	PB-11007
	P-0054	4"	RVSS-11008 (FUTURE)	PB-11007
	P-0059	1"	SWBD-BLB	66-MOV-11005
	P-0060	1"	SWBD-BLB	66-MOV-11006
	P-0067	1"	SWBD-BLB	PB-11007
	P-0068	1"	SWBD-BLB	PB-11007
	C-0006	2"	RVSS-11005	CPB-11005
	C-0007	2"	RVSS-11006	CPB-11006
	C-0008	2"	RVSS-11007 (FUTURE)	PB-11007
	C-0009	2"	RVSS-11008 (FUTURE)	PB-11007
DB-I	C-0018	1"	LCP-11005	CONTROL JUNCTION BOX
	C-0019	1"	LCP-11006	CONTROL JUNCTION BOX
	I-0014	2"	LCP-11005	INSTRUMENTATION JUNCTION BOX
	I-0015	2"	LCP-11005	INSTRUMENTATION JUNCTION BOX
	I-0016	2"	CJB-11006	LCS-66ALP-BLW-11006
	I-0017	2"	CJB-11006	DSW-66ALP-BLW-11006
	I-0018	2"	LCP-11007 (FUTURE)	PB-11007
	I-0019	2"	LCP-11007 (FUTURE)	PB-11007
	I-0020	2"	LCP-11008 (FUTURE)	PB-11007
	I-0021	2"	LCP-11008 (FUTURE)	PB-11007
	I-0001	2"	66NIP01	97NIP01 (NETWORK PANEL)
DB-J	C-0001	1"	96PLC01	GEN-BLB
	I-0033	2"	96PLC01	GEN-BLB
	I-0034	2"	96PLC01	GEN-BLB
	I-0033	2"	96PLC01	GEN-BLB

DUCTBANK NUMBER	CONDUIT	SIZE	FROM	TO
DB-K	P-0015	4"	GEN-BLB	SWBD-BLB
	P-0016	4"	GEN-BLB	SWBD-BLB
	P-0017	4"	GEN-BLB	SWBD-BLB
	P-0018	4"	GEN-BLB	SWBD-BLB
	P-0019	4"	GEN-BLB	SWBD-BLB
	P-0020	4"	GEN-BLB	SWBD-BLB
	P-0021	4"	GEN-BLB	SWBD-BLB
	P-0022	4"	GEN-BLB	SWBD-BLB
	P-0023	4"	GEN-BLB	SWBD-BLB
	P-0024	4"	GEN-BLB	SWBD-BLB
	P-0025	4"	GEN-BLB	SWBD-BLB
	C-0020	2"	SWBD-BLB	GEN-BLB
	C-0021	2"	SWBD-BLB	GEN-BLB
DB-L	P-0041	4"	RVSS-11005	66ALP-BLW-11005
	P-0042	4"	RVSS-11005	66ALP-BLW-11005
	P-0043	4"	RVSS-11005	66ALP-BLW-11005
	P-0044	4"	RVSS-11007 (FUTURE)	PB-11007
	P-0045	4"	RVSS-11007 (FUTURE)	PB-11007
	P-0046	4"	RVSS-11007 (FUTURE)	PB-11007
	P-0047	4"	RVSS-11006	66ALP-BLW-11006
	P-0048	4"	RVSS-11006	66ALP-BLW-11006
	P-0049	4"	RVSS-11006	66ALP-BLW-11006
	P-0050	4"	RVSS-11006	66ALP-BLW-11006
	P-0051	4"	RVSS-11008 (FUTURE)	PB-11007
	P-0052	4"	RVSS-11008 (FUTURE)	PB-11007
	P-0053	4"	RVSS-11008 (FUTURE)	PB-11007
	P-0054	4"	RVSS-11008 (FUTURE)	PB-11007
	P-0059	1"	SWBD-BLB	66-MOV-11005
	P-0060	1"	SWBD-BLB	66-MOV-11006
	P-0067	1"	SWBD-BLB	PB-11007
	P-0068	1"	SWBD-BLB	PB-11007
	C-0006	2"	RVSS-11005	CPB-11005
	C-0007	2"	RVSS-11006	CPB-11006
	C-0008	2"	RVSS-11007 (FUTURE)	PB-11007
	C-0009	2"	RVSS-11008 (FUTURE)	PB-11007
DB-M	C-0018	1"	LCP-11005	CONTROL JUNCTION BOX
	C-0019	1"	LCP-11006	CONTROL JUNCTION BOX
	I-0001	2"	66NIP01	97NIP01 (NETWORK PANEL)
	I-0014	2"	LCP-11005	INSTRUMENTATION JUNCTION BOX
	I-0015	2"	LCP-11005	INSTRUMENTATION JUNCTION BOX
	I-0016	2"	CJB-11006	LCS-66ALP-BLW-11006
	I-0017	2"	CJB-11006	DSW-66ALP-BLW-11006
	I-0018	2"	LCP-11007 (FUTURE)	PB-11007
	I-0019	2"	LCP-11007 (FUTURE)	PB-11007
	I-0020	2"	LCP-11008 (FUTURE)	PB-11007
	I-0021	2"	LCP-11008 (FUTURE)	PB-11007
	I-0001	2"	66NIP01	97NIP01 (NETWORK PANEL)

DUCTBANK SCHEDULE

				PROJECT ENGINEER:	T. PAULMANN
				DESIGNED BY:	N. STEWART
				DRAWN BY:	N. STEWART
				CHECKED BY:	B. BUELTEL
0	FOR BID	2/10/22	TAP	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
REV	ISSUED FOR	DATE	BY		



Brett Bueltel
2/10/2022

Hazen

HAZEN AND SAWYER
8150 NORTH CENTRAL EXPRESSWAY
TOWER II SUITE 700
DALLAS, TEXAS 75206

BROWNSVILLE PUBLIC UTILITIES BOARD
BROWNSVILLE, TEXAS

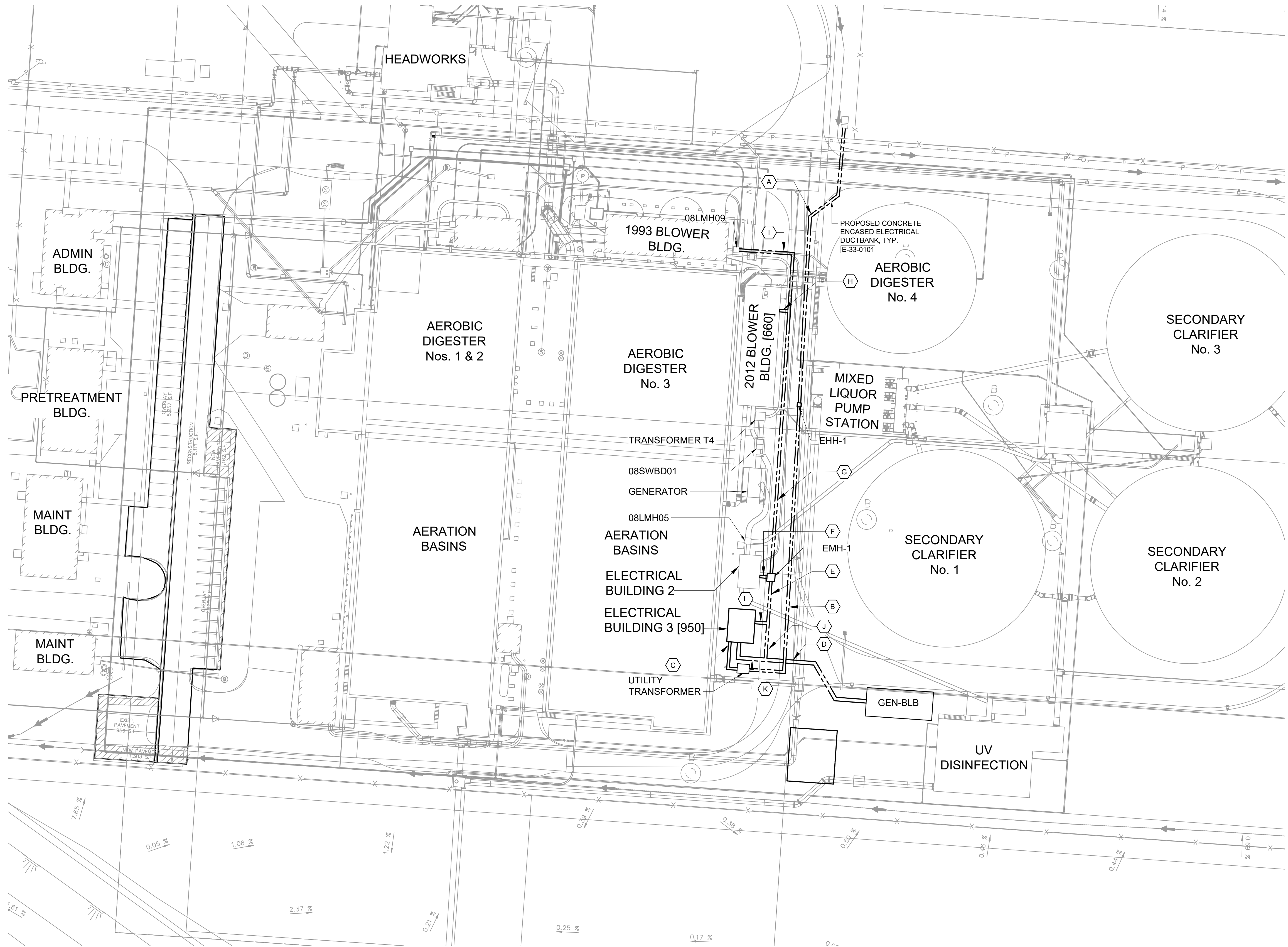
ROBINDALE WWTP
WATER AND WASTEWATER TREATMENT PLANT
IMPROVEMENTS - PACKET 3
BLOWER REPLACEMENT

ELECTRICAL
DUCTBANK SCHEDULE

E03

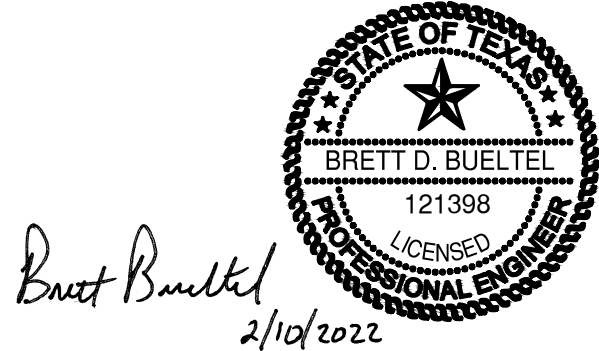
DATE:	FEBRUARY 2022
HAZEN NO.:	60405-003
CONTRACT NO.:	01
DRAWING NUMBER:	

- NOTES:
1. THE LOCATION OF EXISTING YARD PIPING, ELECTRICAL DUCTBANKS, AND OVERHEAD ELECTRICAL LINES WERE TAKEN FROM RECORD DRAWINGS AND ARE APPROXIMATE. CONTRACTOR SHALL VERIFY EXISTING LOCATIONS AND FIELD COORDINATE ROUTINGS OF NEW DUCTBANKS AS NEEDED.
 2. DRAWINGS DO NOT REFLECT ANY CHANGES BEING MADE TO THE UTILITY-OWNED PRIMARY SERVICE. SERVICE IS ANTICIPATED TO BE UPGRADED BY THE ELECTRIC UTILITY. ROUTING OF PRIMARY DUCTBANKS AND PLACEMENT OF PAD MOUNTED TRANSFORMER SHALL BE COORDINATED WITH THE UTILITY PRIOR TO CONSTRUCTION.



PARTIAL SITE PLAN
1"=40'

				PROJECT ENGINEER:	T. PAULMANN
				DESIGNED BY:	N. STEWART
				DRAWN BY:	N. STEWART
				CHECKED BY:	B. BUELTEL
0	FOR BID	2/10/22	TAP	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
REV	ISSUED FOR	DATE	BY		



Hazen
HAZEN AND SAWYER
8150 NORTH CENTRAL EXPRESSWAY
TOWER II SUITE 700
DALLAS, TEXAS 75206

BROWNSVILLE PUBLIC UTILITIES BOARD
BROWNSVILLE, TEXAS
ROBINDALE WWTP
WATER AND WASTEWATER TREATMENT PLANT
IMPROVEMENTS - PACKET 3
BLOWER REPLACEMENT

ELECTRICAL
OVERALL SITE PLAN

DATE:	FEBRUARY 2022
HAZEN NO.:	60405-003
CONTRACT NO.:	01
DRAWING NUMBER:	E10

FOR CONTINUATION SEE DRAWING E12

NOTES:

1. THE LOCATION OF EXISTING YARD PIPING, ELECTRICAL DUCTBANKS, AND OVERHEAD ELECTRICAL LINES WERE TAKEN FROM RECORD DRAWINGS AND ARE APPROXIMATE. CONTRACTOR SHALL VERIFY EXISTING LOCATIONS AND FIELD COORDINATE ROUTINGS OF NEW DUCTBANKS AS NEEDED.
2. REFER TO N.E.C. ARTICLE 250.52(A)(3) FOR BONDING OF GROUND RING TO STRUCTURAL FOUNDATION REBAR.
3. GROUND RING CONDUCTOR SHALL BE #4/0 BARE COPPER WIRE 30" MINIMUM BELOW FINISHED GRADE. ALL GROUND CONDUCTORS TO EQUIPMENT OR STRUCTURAL STEEL SHALL BE BARE COPPER WIRE.
4. EACH DUCT BANK GROUND CONDUCTOR CROSSING THE GROUND RING SHALL BE EXOTHERMICALLY WELDED TO THE GROUND RING CONDUCTOR.
5. ALL TRANSFORMERS AND PANELBOARDS SHALL BE BONDED TO THE GROUND RING CONDUCTOR.
6. GENERATOR ENCLOSURE SHALL BE PROVIDED WITH LIGHTNING PROTECTION SYSTEM PER SPECIFICATION 26 41 00.
7. PLATFORM, STAIRS, AND HANDRAIL TO BE PROVIDED BY THE GENERATOR SUPPLIER. REFERENCE STRUCTURAL DRAWING E952 FOR REQUIREMENTS.

AERATION BASIN No. 3

ELECTRICAL BUILDING 2

ELECTRICAL BUILDING 3

DB E

DB B

DB L

DB J

DB K

DB C

UTILITY TRANSFORMER

DB D

SECONDARY CLARIFIER No. 1

COPPER GROUNDING ROD WITH TEST WELL, TYP. DETAIL E-26-0501 SEE NOTE 2, TYP.

SEE NOTE 4

SEE NOTE 6

GEN-BLB SEE NOTE 7

COPPER GROUNDING ROD, TYP.

UV DISINFECTION / CASCADE AERATION

PARTIAL SITE PLAN

1:120

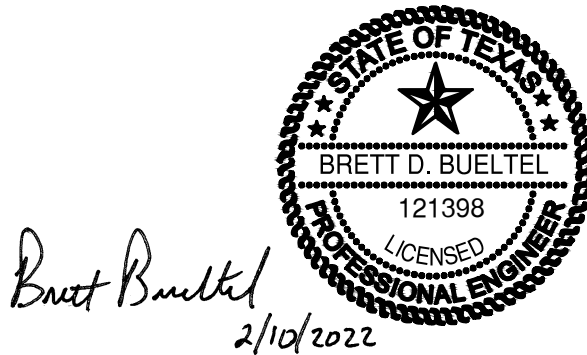
KEY PLAN

NTS

REV	ISSUED FOR	DATE	BY
0	FOR BID	2/10/22	TAP

PROJECT ENGINEER:	T. PAULMANN
DESIGNED BY:	N. STEWART
DRAWN BY:	N. STEWART
CHECKED BY:	B. BUELTEL
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	

0 1/2" 1"



Hazen
HAZEN AND SAWYER
8150 NORTH CENTRAL EXPRESSWAY
TOWER II SUITE 700
DALLAS, TEXAS 75206

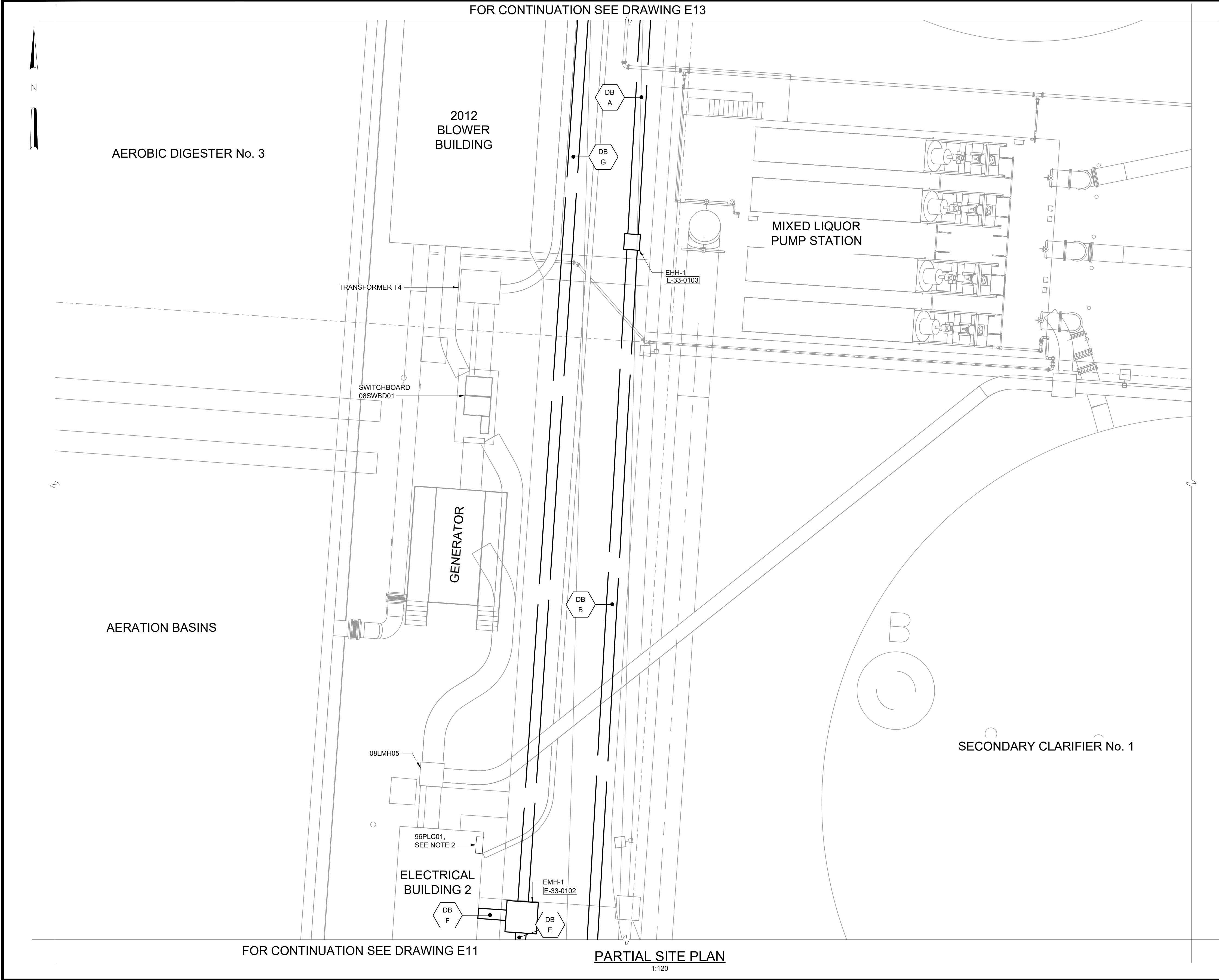
BROWNSVILLE PUBLIC UTILITIES BOARD
BROWNSVILLE, TEXAS
ROBINDALE WWTP
WATER AND WASTEWATER TREATMENT PLANT
IMPROVEMENTS - PACKET 3
BLOWER REPLACEMENT

ELECTRICAL
PARTIAL SITE PLAN

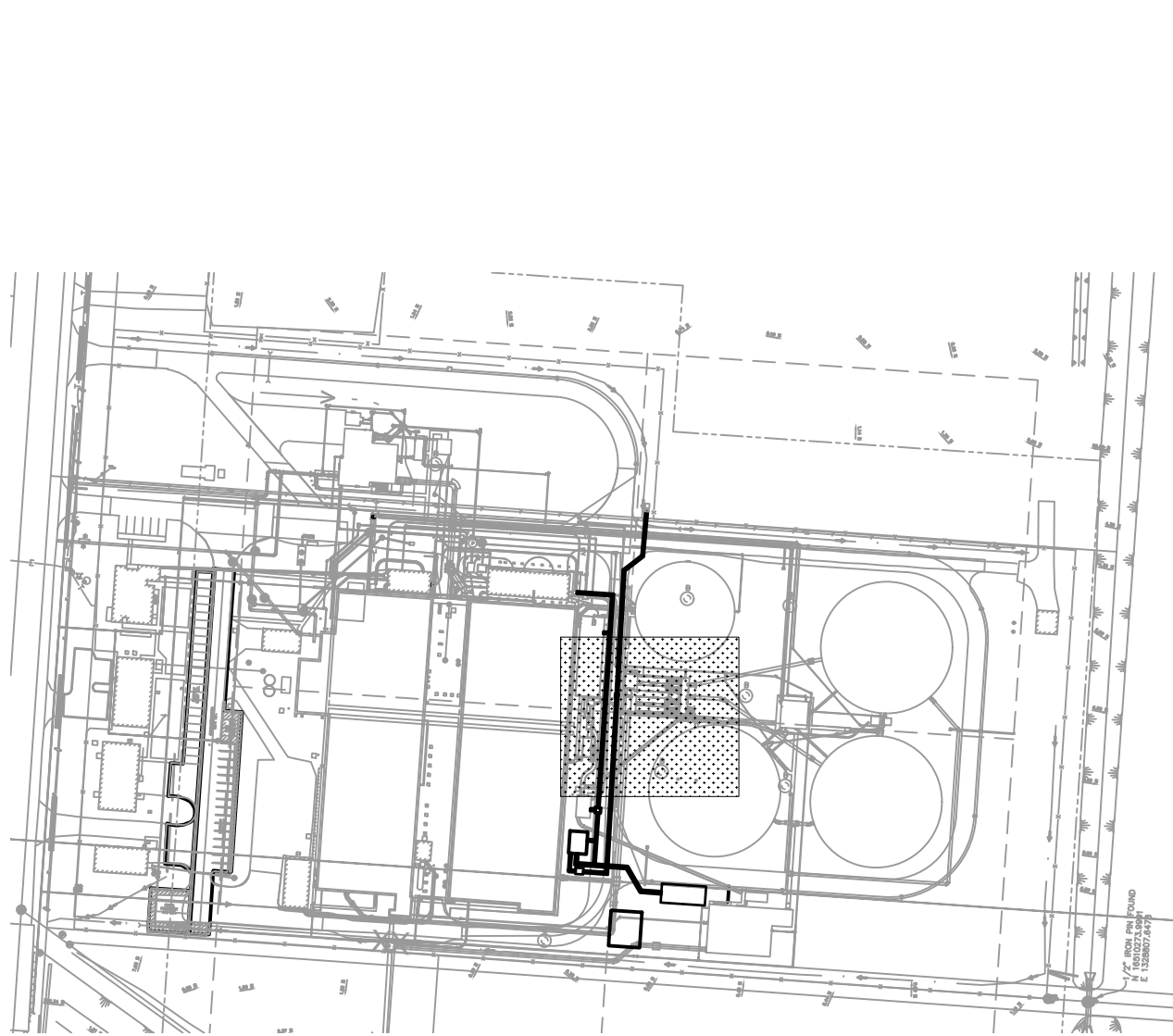
DATE:	FEBRUARY 2022
HAZEN NO.:	60405-003
CONTRACT NO.:	01
DRAWING NUMBER:	

E11

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PLOT DATE: 2/10/2022 4:39 PM BY: N STEWART



- NOTES:
1. THE LOCATION OF EXISTING YARD PIPING, ELECTRICAL DUCTBANKS, AND OVERHEAD ELECTRICAL LINES WERE TAKEN FROM RECORD DRAWINGS AND ARE APPROXIMATE. CONTRACTOR SHALL VERIFY EXISTING LOCATIONS AND FIELD COORDINATE ROUTINGS OF NEW DUCTBANKS AS NEEDED.
 2. CONDUIT FROM 96PLC01 SHALL BE ROUTED OVERHEAD ALONG INTERIOR WALLS. CONDUIT SHALL BE ROUTED DOWN THE INTERIOR WALL NEAR THE ELEVATION OF THE OUTSIDE GRADE BEFORE PENETRATING WALL. PROVIDE A CONDULET ALONG THE EXTERIOR OF THE NORTH WALL BEFORE CONDUIT IS ROUTED UNDERGROUND.



				PROJECT ENGINEER:	T. PAULMANN
				DESIGNED BY:	N. STEWART
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				CHECKED BY:	B. BUELTEL
0	FOR BID	2/10/22	TAP	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
REV	ISSUED FOR	DATE	BY		

Hazen

HAZEN AND SAWYER
8150 NORTH CENTRAL EXPRESSWAY
TOWER II SUITE 700
DALLAS, TEXAS 75206

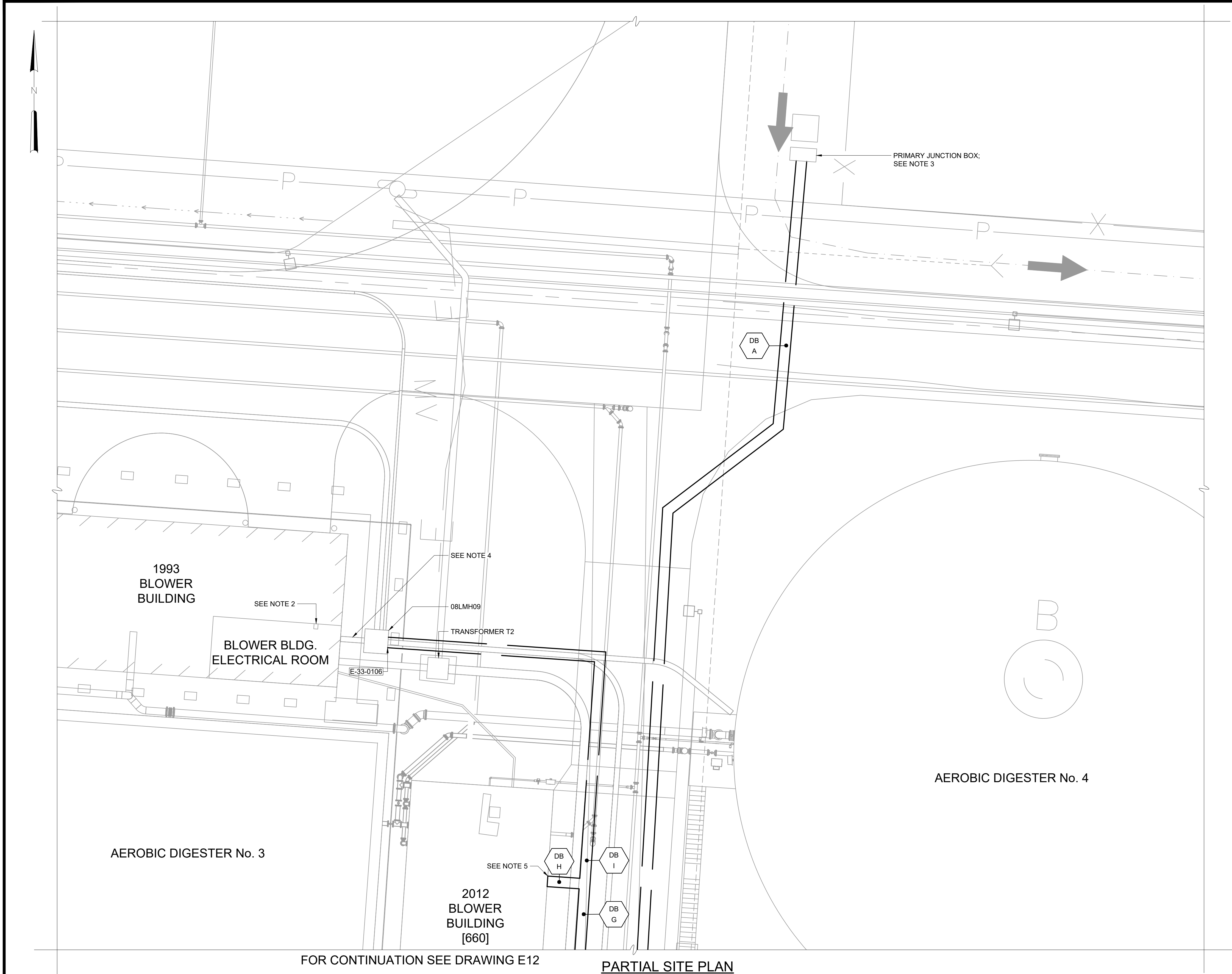
BROWNSVILLE PUBLIC UTILITIES BOARD
BROWNSVILLE, TEXAS

ROBINDALE WWTP
WATER AND WASTEWATER TREATMENT PLANT
IMPROVEMENTS - PACKET 3
BLOWER REPLACEMENT

ELECTRICAL
PARTIAL SITE PLAN

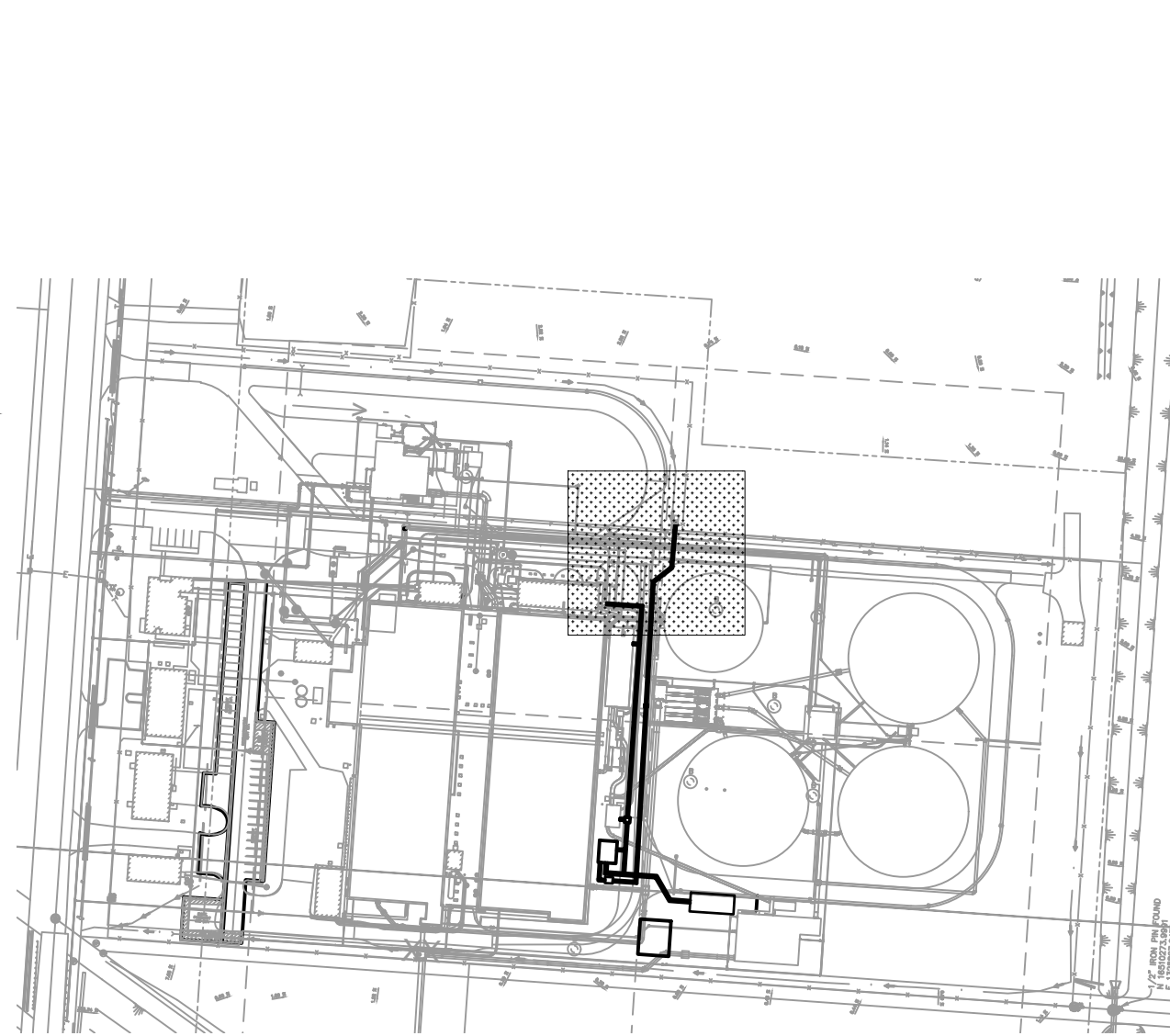
DATE:	FEBRUARY 2022
HAZEN NO.:	60405-003
CONTRACT NO.:	01
DRAWING NUMBER:	E12

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PLOT DATE: 2/10/2022 4:39 PM BY: NSTEWART



PARTIAL SITE PLAN

1:120



KEY PLAN

NTS

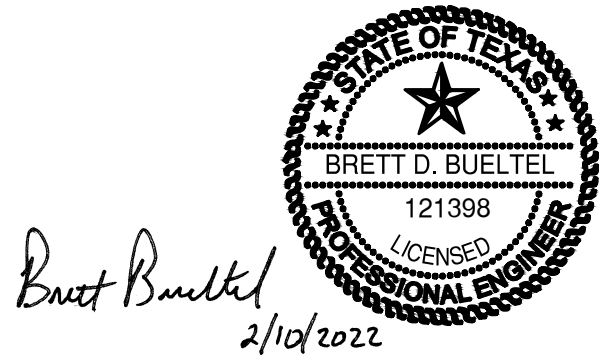
NOTES:

1. THE LOCATION OF EXISTING YARD PIPING, ELECTRICAL DUCTBANKS, AND OVERHEAD ELECTRICAL LINES WERE TAKEN FROM RECORD DRAWINGS AND ARE APPROXIMATE. CONTRACTOR SHALL VERIFY EXISTING LOCATIONS AND FIELD COORDINATE ROUTINGS OF NEW DUCTBANKS AS NEEDED.
2. APPROXIMATE LOCATION OF 66NIP01.
3. DRAWINGS DO NOT REFLECT ANY CHANGES BEING MADE TO THE UTILITY-OWNED PRIMARY SERVICE. SERVICE IS ANTICIPATED TO BE UPGRADED BY THE ELECTRIC UTILITY. ROUTING OF PRIMARY DUCTBANKS AND PLACEMENT OF PAD MOUNTED TRANSFORMER SHALL BE COORDINATED WITH THE UTILITY PRIOR TO CONSTRUCTION.
4. EXISTING SPARE CONDUIT FROM 08LMH09 TO BLOWER BLDG. ELECTRICAL ROOM TO BE UTILIZED. REFERENCE DRAWING E952 FOR REQUIREMENTS.
5. CONDUITS FROM DUCTBANK SHALL STUB-UP ADJACENT TO STRUCTURE AND BE PROVIDED WITH CONDULETS BEFORE PENETRATING THE WALL WITHIN 2' ABOVE FINISHED GRADE. CONDUIT SHALL BE ROUTED EXPOSED TO EQUIPMENT AS REQUIRED. CONDUIT SHALL BE ROUTED OVERHEAD TO ALLOW FOR EQUIPMENT REMOVAL.

REV	ISSUED FOR	DATE	BY
0	FOR BID	2/10/22	TAP

PROJECT ENGINEER:	T. PAULMANN
DESIGNED BY:	N. STEWART
DRAWN BY:	N. STEWART
CHECKED BY:	B. BUELTEL
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	

0 1/2" 1"



Hazen
HAZEN AND SAWYER
8150 NORTH CENTRAL EXPRESSWAY
TOWER II SUITE 700
DALLAS, TEXAS 75206

BROWNSVILLE PUBLIC UTILITIES BOARD
BROWNSVILLE, TEXAS
ROBINDALE WWTP
WATER AND WASTEWATER TREATMENT PLANT
IMPROVEMENTS - PACKET 3
BLOWER REPLACEMENT

ELECTRICAL
PARTIAL SITE PLAN

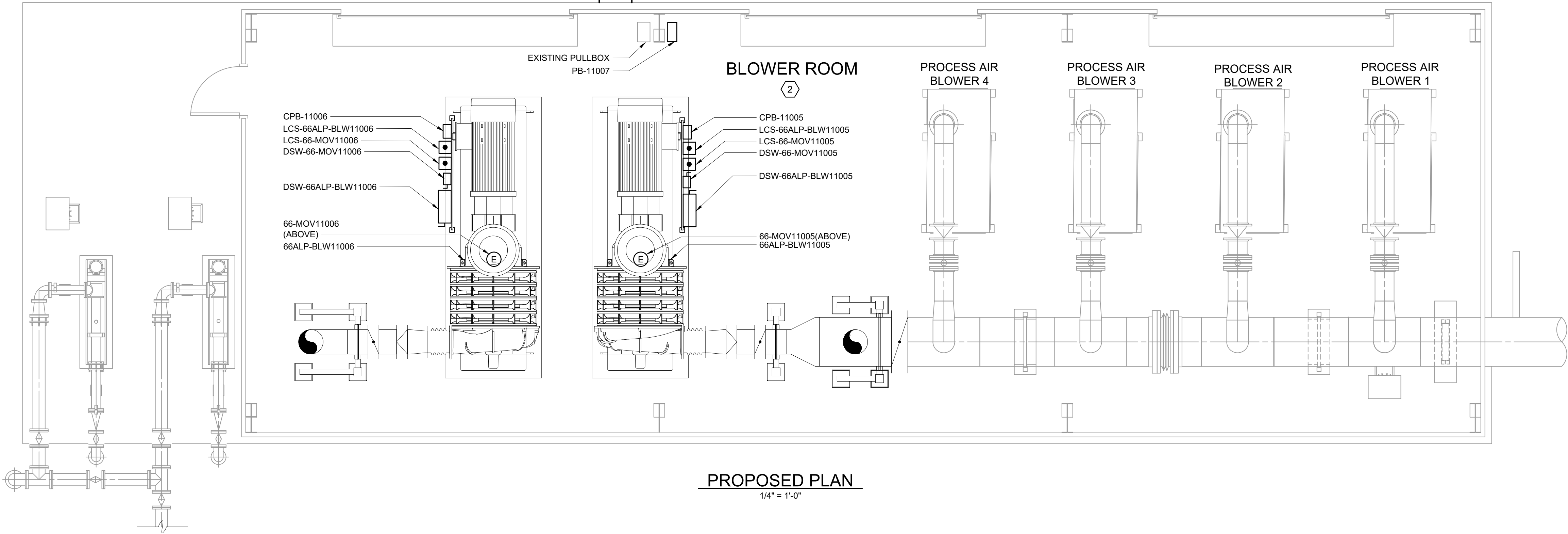
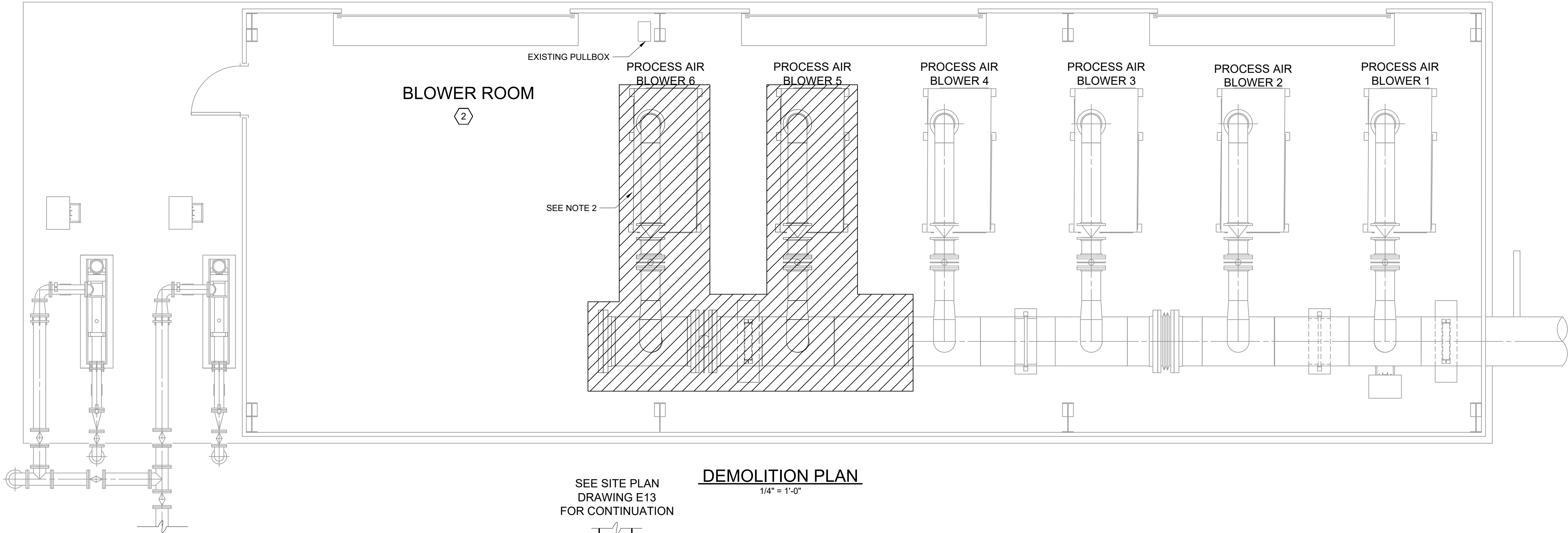
DATE:	FEBRUARY 2022
HAZEN NO.:	60405-003
CONTRACT NO.:	01
DRAWING NUMBER:	E13

AREA DESIGNATIONS:

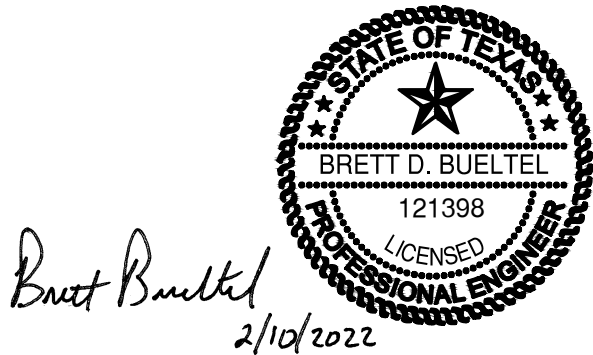
- 1
- INDOOR WET PROCESS AREA
- 2
- INDOOR DRY PROCESS AREA
- 3
- INDOOR DRY NON-PROCESS AREA

NOTES:

1. PLAN DRAWINGS ARE SHOWN TO INDICATE GENERAL EQUIPMENT LOCATIONS. COORDINATE EXACT LOCATIONS WITH FIELD REQUIREMENTS AND OTHER DISCIPLINES.
2. DEMOLISH BLOWERS 5 AND 6 ELECTRICAL, INCLUDING ASSOCIATED DISCONNECT SWITCHES, CONTROL PANELS, AND ANCILLARY ELECTRICAL EQUIPMENT. ALL CONDUCTORS ARE TO BE DISCONNECTED AND REMOVED TO SOURCE. ALL EXPOSED CONDUIT, INCLUDING HANGERS AND SUPPORTS, SHALL BE DISCONNECTED AND REMOVED BACK TO SOURCE. EMBEDDED CONDUITS SHALL BE SEALED PER STANDARD DETAIL E-26-0103. REFERENCE MECHANICAL DEMOLITION DRAWINGS FOR ADDITIONAL REQUIREMENTS.



				PROJECT ENGINEER:	T. PAULMANN
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0	FOR BID	2/10/22	TAP	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
REV	ISSUED FOR	DATE	BY		



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HAZEN AND SAWYER
8150 NORTH CENTRAL EXPRESSWAY
TOWER II SUITE 700
DALLAS, TEXAS 75206

BROWNSVILLE PUBLIC UTILITIES BOARD
BROWNSVILLE, TEXAS
ROBINDALE WWTP
WATER AND WASTEWATER TREATMENT PLANT
IMPROVEMENTS - PACKET 3
BLOWER REPLACEMENT

2012 BLOWER BUILDING
ELECTRICAL
POWER PLAN

DATE:	FEBRUARY 2022
HAZEN NO.:	60405-003
CONTRACT NO.:	01
DRAWING NUMBER:	E660

AREA DESIGNATIONS:

- 1

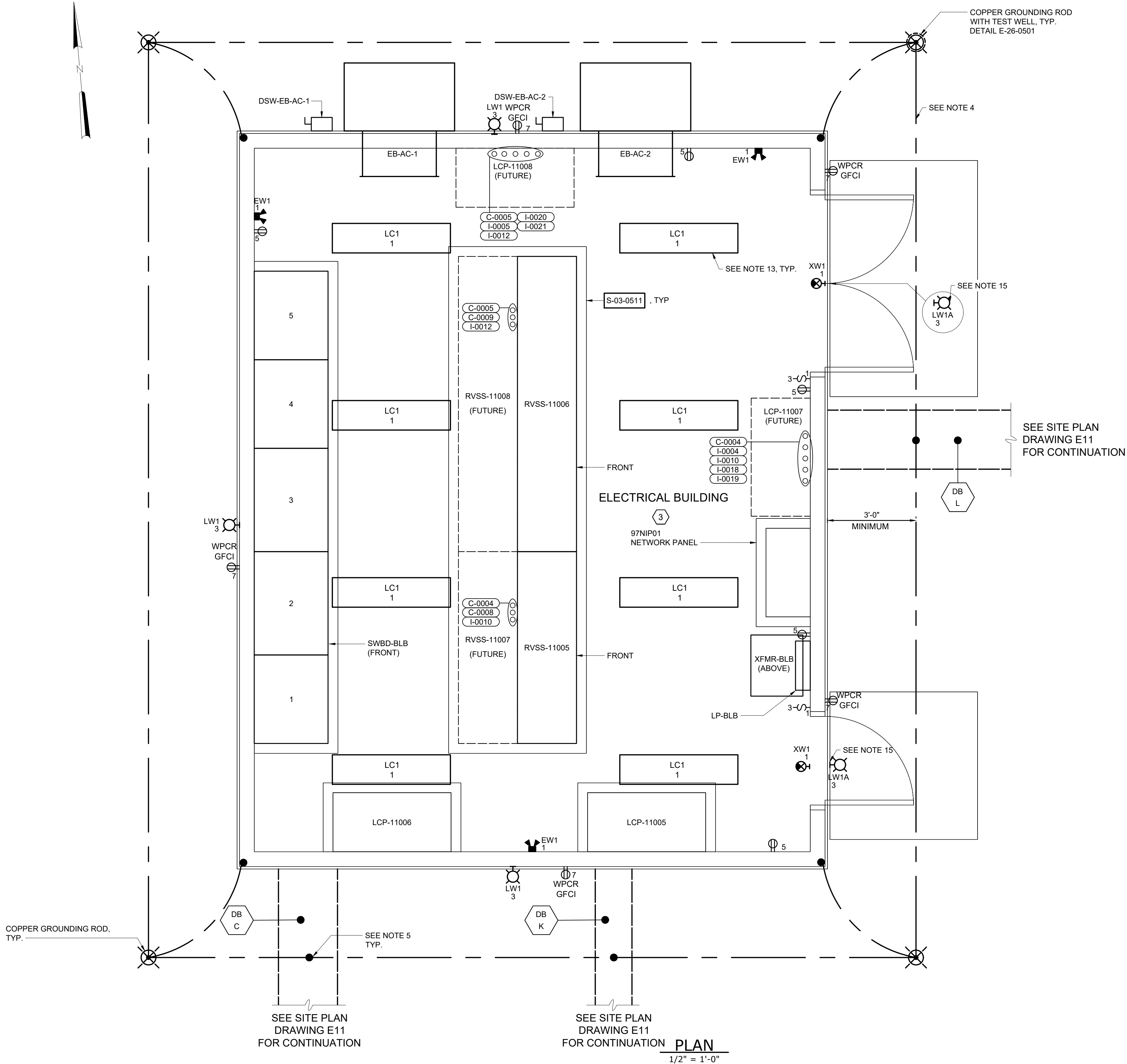
INDOOR WET PROCESS AREA
- 2

INDOOR DRY PROCESS AREA
- 3

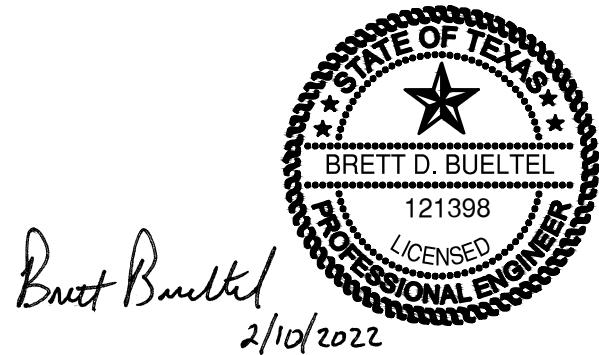
INDOOR DRY NON-PROCESS AREA

NOTES:

1. PLAN DRAWING SHOW APPROXIMATE EQUIPMENT LOCATIONS. COORDINATE EXACT LOCATIONS WITH FIELD REQUIREMENTS AND OTHER DISCIPLINES.
2. NOT USED.
3. REFER TO N.E.C. ARTICLE 250.52(A)(3) FOR BONDING OF GROUND RING TO STRUCTURAL FOUNDATION REBAR.
4. GROUND RING CONDUCTOR SHALL BE #4/0 BARE COPPER WIRE 30" MINIMUM BELOW FINISHED GRADE. ALL GROUND CONDUCTORS TO EQUIPMENT OR STRUCTURAL STEEL SHALL BE BARE COPPER WIRE.
5. EACH DUCT BANK GROUND CONDUCTOR CROSSING THE GROUND RING SHALL BE EXOTHERMICALLY WELDED TO THE GROUND RING CONDUCTOR.
6. ALL TRANSFORMERS, MOTOR CONTROL CENTERS, SWITCHBOARDS, SWITCHGEAR, AND PANELBOARDS SHALL BE BONDED TO THE GROUND RING CONDUCTOR.
7. FURNISH AND INSTALL LIGHTNING PROTECTION SYSTEM FOR THIS FACILITY PER SPECIFICATION 26 41 00.
8. FURNISH AND INSTALL 1" CONDUITS THROUGH CONCRETE PAD FOR LIGHTNING PROTECTION DOWN CONDUCTORS TO GROUND RING. ALL DOWN CONDUCTORS SHALL BE ROUTED DOWN INSIDE OF BUILDING.
9. COORDINATE GROUND SYSTEM INSTALLATION WITH INSTALLATION OF THE LIGHTNING PROTECTION SYSTEM
10. LIGHTING FIXTURES LOCATIONS SHOWN ARE APPROXIMATE. CONTRACTOR SHALL LOCATE FIXTURES TO COORDINATE WITH ALL ELECTRICAL AND HVAC EQUIPMENT.
11. ALL 'XW1' TYPE LIGHT FIXTURES SHALL BE MOUNTED 12" ABOVE THEIR RESPECTIVE DOOR FRAME.
12. ALL 'EW1' TYPE LIGHT FIXTURES SHALL BE MOUNTED 7' AFF.
13. ALL 'LC1' TYPE LIGHT FIXTURES SHALL BE MOUNTED 12' AFF.
14. ALL 'LW1' TYPE LIGHT FIXTURES SHALL BE MOUNTED 10' AFG UNLESS OTHERWISE SPECIFIED.
15. LIGHT FIXTURE MOUNTED 12" ABOVE DOOR FRAME.



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0	FOR BID	2/10/22	TAP	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
REV	ISSUED FOR	DATE	BY		



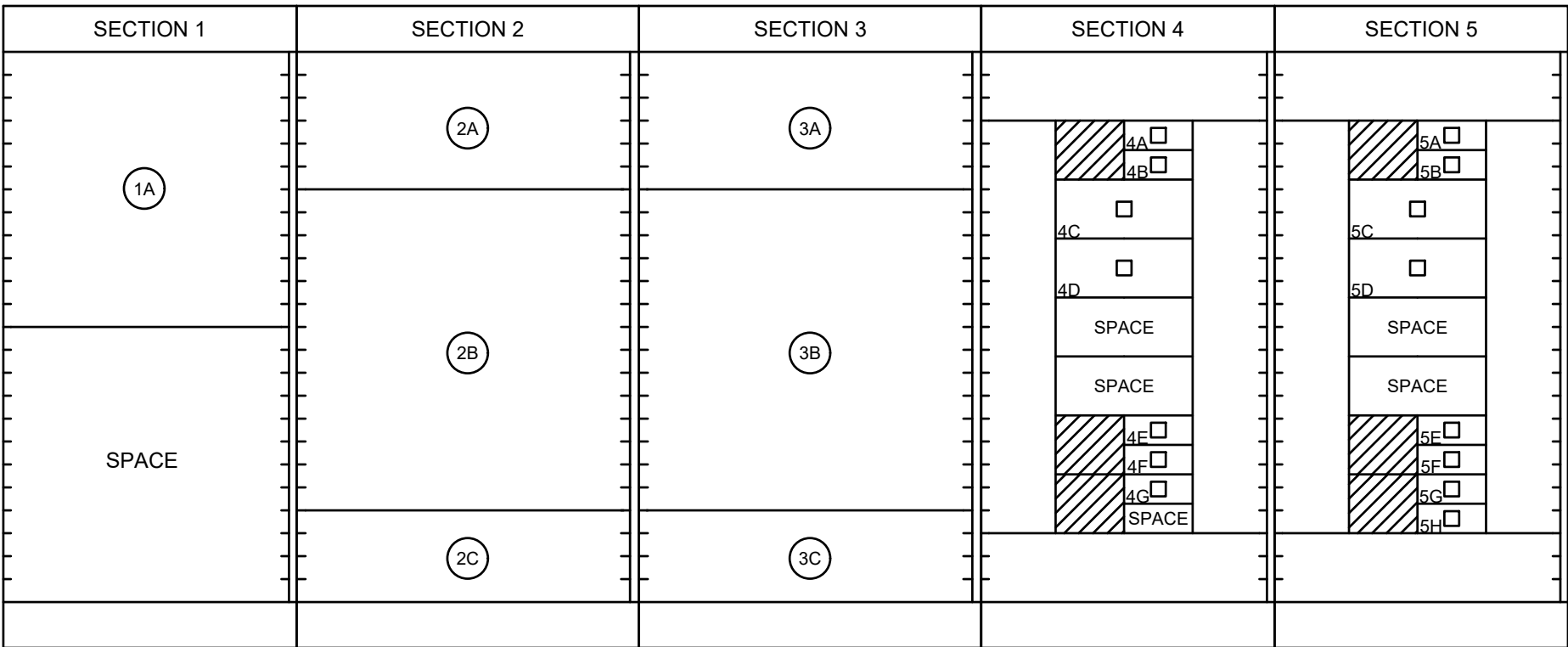
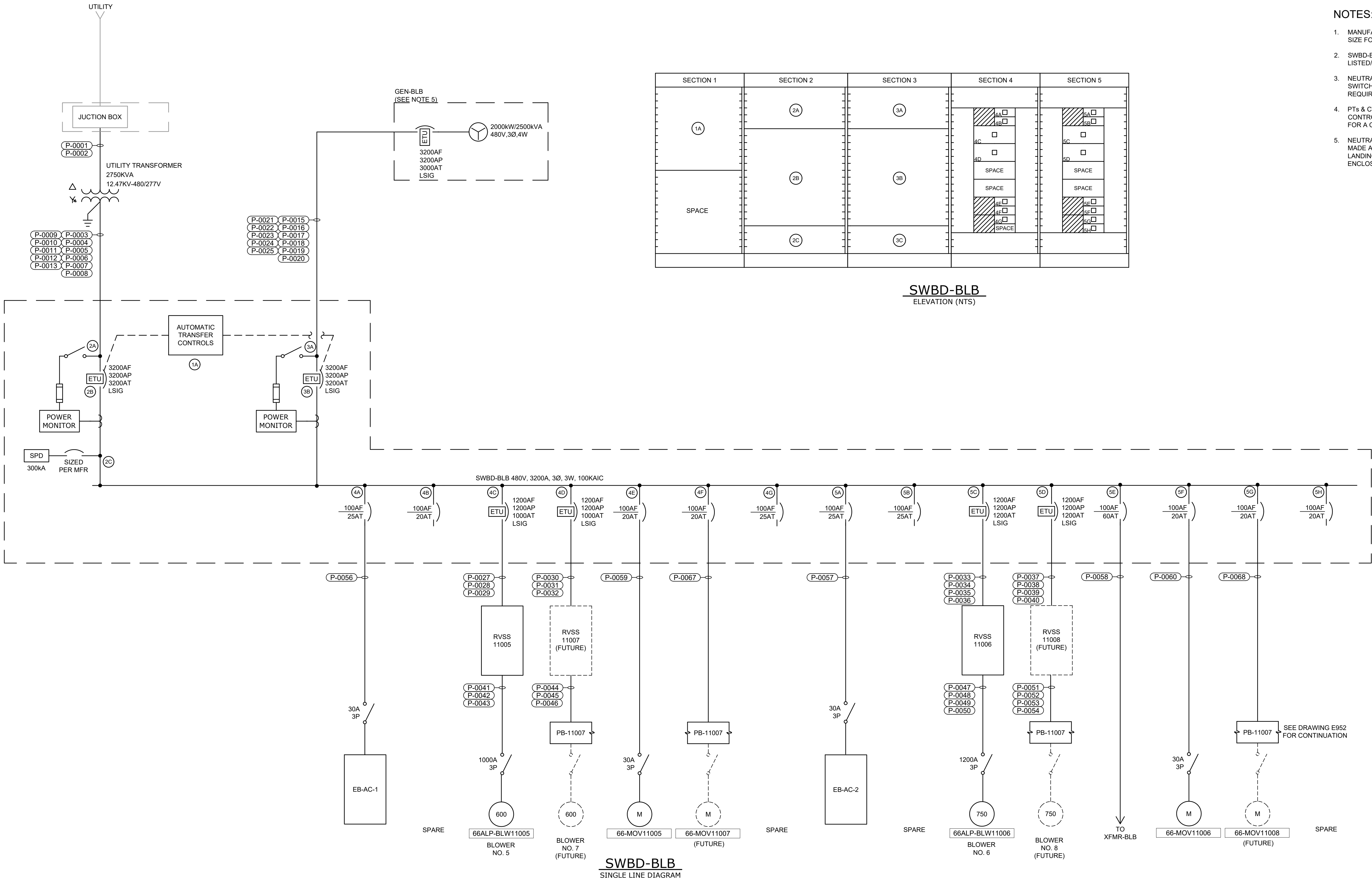
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8150 NORTH CENTRAL EXPRESSWAY
TOWER II SUITE 700
DALLAS, TEXAS 75206

BROWNSVILLE PUBLIC UTILITIES BOARD
BROWNSVILLE, TEXAS
ROBINDALE WWTP
WATER AND WASTEWATER TREATMENT PLANT
IMPROVEMENTS - PACKET 3
BLOWER REPLACEMENT

ELECTRICAL BUILDING 3
ELECTRICAL
POWER AND LIGHTING PLAN

DATE:	FEBRUARY 2022
HAZEN NO.:	60405-003
CONTRACT NO.:	01
DRAWING NUMBER:	E950

File: C:\BMSHAZEN\DWG\173718\B1 Saved by N STEWART Save date: 2/10/2022 4:38 PM
PLOT DATE: 2/10/2022 4:38 PM BY: N STEWART



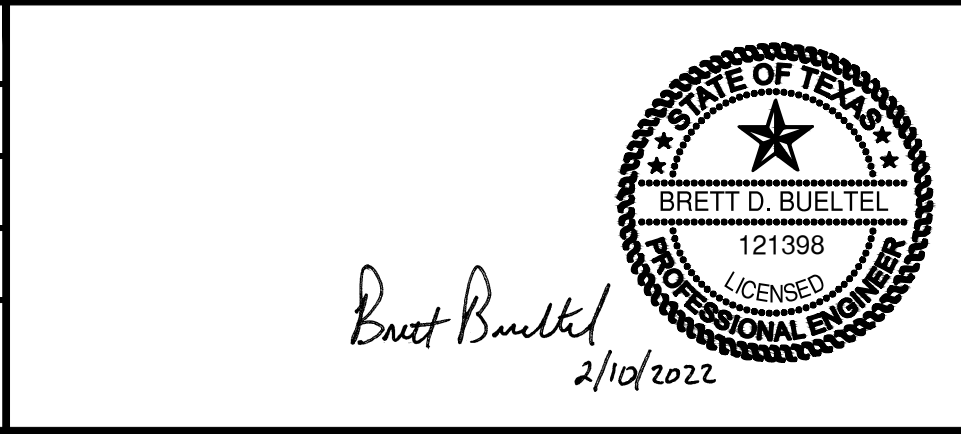
SWBD-BLB
ELEVATION (NTS)

SWBD-BLB
SINGLE LINE DIAGRAM

NOTES:

1. MANUFACTURER TO DETERMINE CIRCUIT BREAKER SIZE FOR SPD.
2. SWBD-BLB SHALL BE SERVICE ENTRANCE LISTED/LABELED.
3. NEUTRAL-GROUND BOND SHALL BE MADE WITHIN THE SWITCHBOARD. PROVIDE NEUTRAL LADING PAD AS REQUIRED.
4. PTs & CTs REQUIRED FOR AUTOMATIC TRANSFER CONTROLS ARE NOT SHOWN. PROVIDE AS REQUIRED FOR A COMPLETE SYSTEM PER SECTION 26 24 13.
5. NEUTRAL-GROUND BOND FOR GENERATOR SHALL BE MADE AT THE GENERATOR. PROVIDE NEUTRAL LANDING PAD AS REQUIRED WITHIN GENERATOR ENCLOSURE.

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REV	ISSUED FOR	DATE	BY		



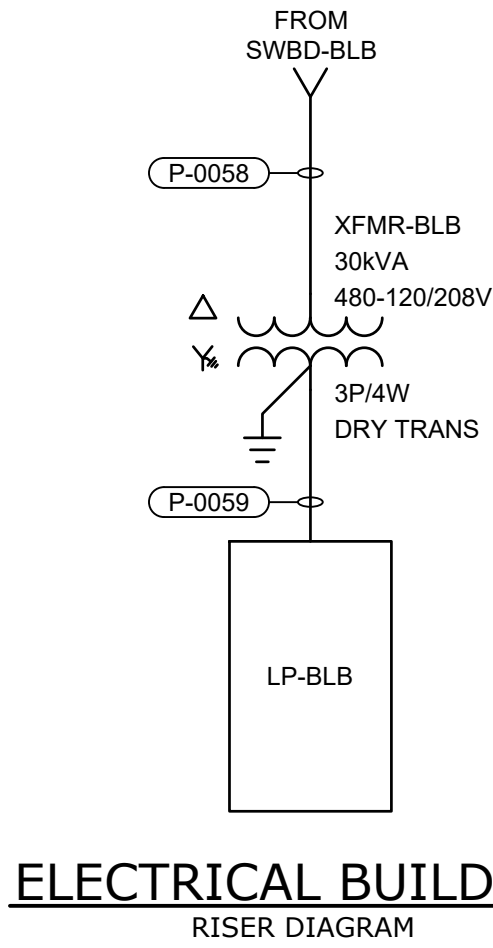
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HAZEN AND SAWYER
8150 NORTH CENTRAL EXPRESSWAY
TOWER II SUITE 700
DALLAS, TEXAS 75206

BROWNSVILLE PUBLIC UTILITIES BOARD
BROWNSVILLE, TEXAS
ROBINDALE WWTP
WATER AND WASTEWATER TREATMENT PLANT
IMPROVEMENTS - PACKET 3
BLOWER REPLACEMENT

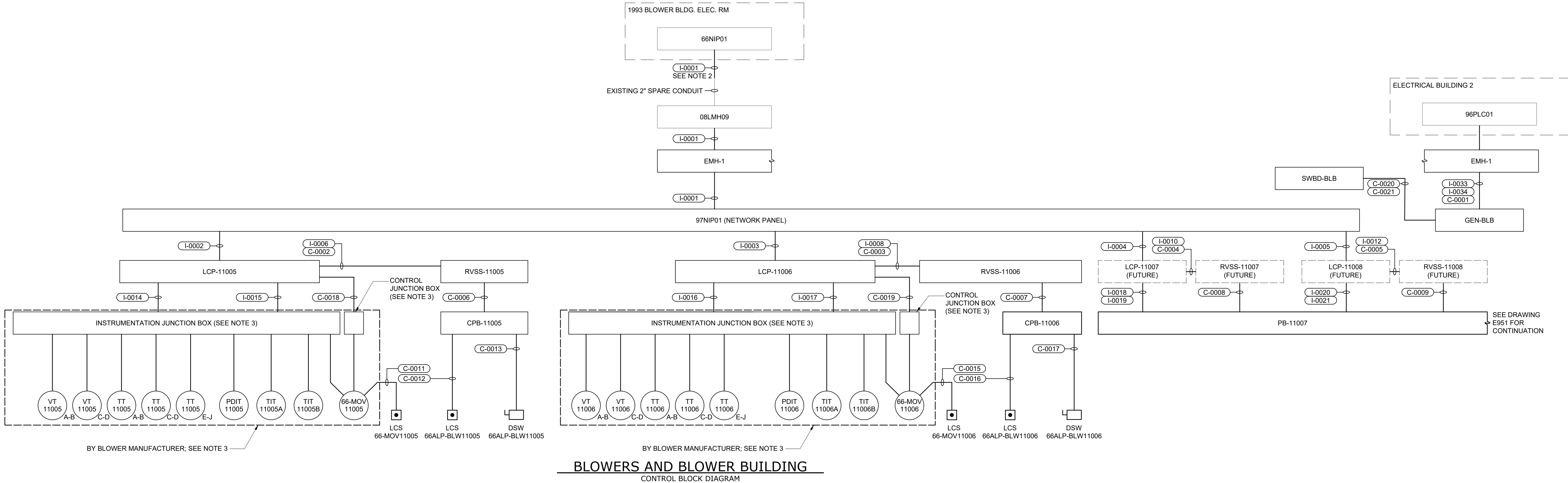
ELECTRICAL BUILDING 3
ELECTRICAL
SINGLE LINE DIAGRAM
E951

DATE:	FEBRUARY 2022
HAZEN NO.:	60405-003
CONTRACT NO.:	01
DRAWING NUMBER:	

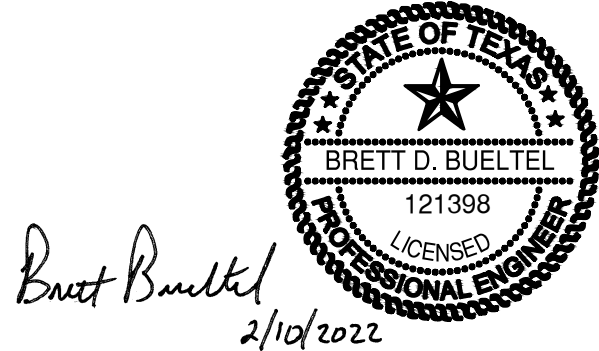
208/120 VOLTS 3 PHASE, 4 WIRE						LP-BLB MAIN BREAKER 100A 3P			TYPE: NEMA 1 MOUNT: SURFACE								
MODS	DESCRIPTION	WIRE	TRIP	POLE	CKT No.	VOLT-AMPERES			VOLT-AMPERES			CKT No.	POLE	TRIP	WIRE	DESCRIPTION	MODS
						A	B	C	A	B	C						
LFD	ELECTRICAL BLDG - INTERIOR LGT	SEE NOTE 1	20	1	1	225			500	2	1	20	P-0062	LCP-11005		LFD	
LFD	ELECTRICAL BLDG - EXTERIOR LGT	SEE NOTE 1	20	1	3			312		4	1	20	P-0063	LCP-11006		LFD	
LFD	ELECTRICAL BLDG - INTERIOR RECP	SEE NOTE 1	20	1	5				720	6	1	20	P-0065	LCP-11007 (FUTURE)		LFD	
LFD	ELECTRICAL BLDG - EXTERIOR RECP	SEE NOTE 1	20	1	7	720				8	1	20	P-0066	LCP-11008 (FUTURE)		LFD	
-	SPARE	-	20	1	9			-		10	1	20	P-0064	97NIP01 (NETWORK PANEL)		LFD	
-	SPARE	-	20	1	11			-		12	1	20	-	SPARE		-	
LFD	GEN-BLB (SHORE POWER)	P-0014	60	3	13	5,764			-	14	1	20	-	SPARE		-	
					15		5,764			-	16	1	20	-	SPARE		-
					17			5,764			-	18	1	20	-	SPARE	
-	SPARE	-	20	1	19	-				20	1	20	-	SPARE		-	
-	SPARE	-	20	1	21			-		22	1	20	-	SPARE		-	
-	SPARE	-	20	1	23			-		24	1	20	-	SPARE		-	
-	SPACE	-	-	1	25	-				26	1	-	-	SPACE		-	
-	SPACE	-	-	1	27			-		28	1	-	-	SPACE		-	
-	SPACE	-	-	1	29			-		30	1	-	-	SPACE		-	
-	SPACE	-	-	1	31	-				32	1	-	-	SPACE		-	
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-	SPACE	-	-	1	35			-		36	1	-	-	SPACE		-	
-	SPACE	-	-	1	37	-				38	1	-	-	SPACE		-	
-	SPACE	-	-	1	39			-		40	1	-	-	SPACE		-	
-	SPACE	-	-	1	41			-		42	1	-	-	SPACE		-	
						TOTAL	6,709	6,076	6,484	1,000	1,000	500	TOTAL				
						PHASE TOTAL			TOTAL LOAD (VA)								
						7,709	7,076	6,984	21,769								
									TOTAL LOAD (A)								
									60								
MODIFICATION (MODS) LEGEND:																	
EPD - GROUND FAULT CIRCUIT INTERRUPTER (30mA)																	
GFCI - GROUND FAULT CIRCUIT INTERRUPTER (5mA)																	
LOD - LOCK-ON DEVICE																	
LFD - LOCK-OFF DEVICE																	
NOTES: 42KAIC 120KA INTEGRAL SPD																	



- NOTES:
- UNLESS SPECIFIED OTHERWISE, ALL LIGHTING AND RECEPTACLE CIRCUITS SHALL BE 2#12, #12GND IN 3/4" CONDUIT.
 - CONFIRM LOCATION OF EXISTING CONDUIT STUB-UPS IN 1993 BLOWER BUILDING ELECTRICAL ROOM FROM 08LMH09. EXTEND 2" SPARE CONDUIT AS NEEDED TO 66NIP01. THE 1993 BLOWER BUILDING ELECTRICAL ROOM SHALL BE CONSIDERED TO BE AN INDOOR DRY NON-PROCESS AREA. REFERENCE SPECIFICATIONS FOR REQUIRED MATERIALS.
 - DEVICES AND INSTRUMENTS SHALL BE PRE-WIRED TO JUNCTION BOXES BY THE MANUFACTURER. DEVICES AND BOXES NOT SHOWN ON PLANS FOR CLARITY. LOCATION OF THESE BOXES SHALL BE CONFIRMED AND COORDINATED WITH SHOP DRAWINGS.



				PROJECT ENGINEER:	T. PAULMANN
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0	FOR BID	2/10/22	TAP	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
REV	ISSUED FOR	DATE	BY		



Hazen

HAZEN AND SAWYER
8150 NORTH CENTRAL EXPRESSWAY
TOWER II SUITE 700
DALLAS, TEXAS 75206

BROWNSVILLE PUBLIC UTILITIES BOARD
BROWNSVILLE, TEXAS

ROBINDALE WWTP
WATER AND WASTEWATER TREATMENT PLANT
IMPROVEMENTS - PACKET 3
BLOWER REPLACEMENT

ELECTRICAL BUILDING 3
ELECTRICAL
PANEL SCHEDULE, RISER,
AND CONTROL BLOCK
DIAGRAM

DATE:	FEBRUARY 2022
HAZEN NO.:	60405-003
CONTRACT NO.:	01
DRAWING NUMBER:	E952


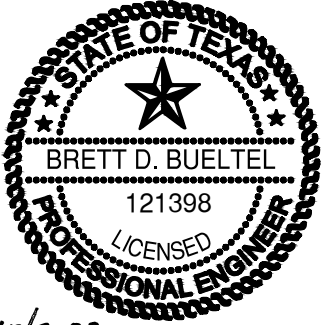
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PLOT DATE: 2/10/2022 4:39 PM BY: N STEWART

CONDUIT NO.	SIZE	FROM	TO	CONDUCTORS	REMARKS
P-0001	4"	UTILITY JUNCTION BOX	UTILITY TRANSFORMER	EMPTY W/ PULLSTRING	VIA EHH-1
P-0002	4"	UTILITY JUNCTION BOX	UTILITY TRANSFORMER	EMPTY W/ PULLSTRING	VIA EHH-1
P-0003	4"	UTILITY TRANSFORMER	SWBD-BLB	4-500kcmil, 500kcmil GND	SET 1 OF 10
P-0004	4"	UTILITY TRANSFORMER	SWBD-BLB	4-500kcmil, 500kcmil GND	SET 2 OF 10
P-0005	4"	UTILITY TRANSFORMER	SWBD-BLB	4-500kcmil, 500kcmil GND	SET 3 OF 10
P-0006	4"	UTILITY TRANSFORMER	SWBD-BLB	4-500kcmil, 500kcmil GND	SET 4 OF 10
P-0007	4"	UTILITY TRANSFORMER	SWBD-BLB	4-500kcmil, 500kcmil GND	SET 5 OF 10
P-0008	4"	UTILITY TRANSFORMER	SWBD-BLB	4-500kcmil, 500kcmil GND	SET 6 OF 10
P-0009	4"	UTILITY TRANSFORMER	SWBD-BLB	4-500kcmil, 500kcmil GND	SET 7 OF 10
P-0010	4"	UTILITY TRANSFORMER	SWBD-BLB	4-500kcmil, 500kcmil GND	SET 8 OF 10
P-0011	4"	UTILITY TRANSFORMER	SWBD-BLB	4-500kcmil, 500kcmil GND	SET 9 OF 10
P-0012	4"	UTILITY TRANSFORMER	SWBD-BLB	4-500kcmil, 500kcmil GND	SET 10 OF 10
P-0013	4"	UTILITY TRANSFORMER	SWBD-BLB	EMPTY W/ PULLSTRING	SPARE
P-0014	1"	LP-BLB	GEN-BLB	4#6, #10GND	GENERATOR SHORE POWER
P-0015	4"	GEN-BLB	SWBD-BLB	3-500kcmil, 500kcmil GND	SET 1 OF 10
P-0016	4"	GEN-BLB	SWBD-BLB	3-500kcmil, 500kcmil GND	SET 2 OF 10
P-0017	4"	GEN-BLB	SWBD-BLB	3-500kcmil, 500kcmil GND	SET 3 OF 10
P-0018	4"	GEN-BLB	SWBD-BLB	3-500kcmil, 500kcmil GND	SET 4 OF 10
P-0019	4"	GEN-BLB	SWBD-BLB	3-500kcmil, 500kcmil GND	SET 5 OF 10
P-0020	4"	GEN-BLB	SWBD-BLB	3-500kcmil, 500kcmil GND	SET 6 OF 10
P-0021	4"	GEN-BLB	SWBD-BLB	3-500kcmil, 500kcmil GND	SET 7 OF 10
P-0022	4"	GEN-BLB	SWBD-BLB	3-500kcmil, 500kcmil GND	SET 8 OF 10
P-0023	4"	GEN-BLB	SWBD-BLB	3-500kcmil, 500kcmil GND	SET 9 OF 10
P-0024	4"	GEN-BLB	SWBD-BLB	3-500kcmil, 500kcmil GND	SET 10 OF 10
P-0025	4"	GEN-BLB	SWBD-BLB	EMPTY W/ PULLSTRING	SPARE
P-0026					NOT USED
P-0027	4"	SWBD-BLB	RVSS-11005	3-500kcmil, 2/0GND	
P-0028	4"	SWBD-BLB	RVSS-11005	3-500kcmil, 2/0GND	
P-0029	4"	SWBD-BLB	RVSS-11005	3-500kcmil, 2/0GND	
P-0030	4"	SWBD-BLB	RVSS-11007	EMPTY W/ PULLSTRING	
P-0031	4"	SWBD-BLB	RVSS-11007	EMPTY W/ PULLSTRING	
P-0032	4"	SWBD-BLB	RVSS-11007	EMPTY W/ PULLSTRING	
P-0033	4"	SWBD-BLB	RVSS-11006	3-500kcmil, 2/0GND	
P-0034	4"	SWBD-BLB	RVSS-11006	3-500kcmil, 2/0GND	
P-0035	4"	SWBD-BLB	RVSS-11006	3-500kcmil, 2/0GND	
P-0036	4"	SWBD-BLB	RVSS-11006	3-500kcmil, 2/0GND	
P-0037	4"	SWBD-BLB	RVSS-11008	EMPTY W/ PULLSTRING	
P-0038	4"	SWBD-BLB	RVSS-11008	EMPTY W/ PULLSTRING	
P-0039	4"	SWBD-BLB	RVSS-11008	EMPTY W/ PULLSTRING	
P-0040	4"	SWBD-BLB	RVSS-11008	EMPTY W/ PULLSTRING	
P-0041	4"	RVSS-11005	66ALP-BLW-11005	3-500kcmil, 2/0GND	VIA DSW
P-0042	4"	RVSS-11005	66ALP-BLW-11005	3-500kcmil, 2/0GND	VIA DSW
P-0043	4"	RVSS-11005	66ALP-BLW-11005	3-500kcmil, 2/0GND	VIA DSW
P-0044	4"	RVSS-11007 (FUTURE)	PB-11007	EMPTY W/ PULLSTRING	BLOWER NO. 7 (FUTURE)
P-0045	4"	RVSS-11007 (FUTURE)	PB-11007	EMPTY W/ PULLSTRING	BLOWER NO. 7 (FUTURE)
P-0046	4"	RVSS-11007 (FUTURE)	PB-11007	EMPTY W/ PULLSTRING	BLOWER NO. 7 (FUTURE)
P-0047	4"	RVSS-11006	66ALP-BLW-11006	3-500kcmil, 2/0GND	VIA DSW
P-0048	4"	RVSS-11006	66ALP-BLW-11006	3-500kcmil, 2/0GND	VIA DSW
P-0049	4"	RVSS-11006	66ALP-BLW-11006	3-500kcmil, 2/0GND	VIA DSW
P-0050	4"	RVSS-11006	66ALP-BLW-11006	3-500kcmil, 2/0GND	VIA DSW
P-0051	4"	RVSS-11008 (FUTURE)	PB-11007	EMPTY W/ PULLSTRING	BLOWER NO. 8 (FUTURE)
P-0052	4"	RVSS-11008 (FUTURE)	PB-11007	EMPTY W/ PULLSTRING	BLOWER NO. 8 (FUTURE)
P-0053	4"	RVSS-11008 (FUTURE)	PB-11007	EMPTY W/ PULLSTRING	BLOWER NO. 8 (FUTURE)
P-0054	4"	RVSS-11008 (FUTURE)	PB-11007	EMPTY W/ PULLSTRING	BLOWER NO. 8 (FUTURE)
P-0055				NOT USED	
P-0056	1"	SWBD-BLB	EB-AC-1	3#10, #10GND	VIA DSW
P-0057	1"	SWBD-BLB	EB-AC-2	3#10, #10GND	VIA DSW
P-0058	1"	SWBD-BLB	XMFR-BLB	3#8, #10GND	
P-0059	1"	SWBD-BLB	66-MOV-11005	3#12, #12GND	VIA DSW
P-0060	1"	SWBD-BLB	66-MOV-11006	3#12, #12GND	VIA DSW
P-0061	2"	XMFR-BLB	LP-BLB	4#2, #6GND	
P-0062	1"	LP-BLB	LCP-11005	2#12, #12GND	
P-0063	1"	LP-BLB	LCP-11006	2#12, #12GND	
P-0064	1"	LP-BLB	97NIP01 (NETWORK PANEL)	2#12, #12GND	
P-0065	1"	LP-BLB	LCP-11007	EMPTY W/ PULLSTRING	
P-0066	1"	LP-BLB	LCP-11008	EMPTY W/ PULLSTRING	
P-0067	1"	SWBD-BLB	PB-11007	EMPTY W/ PULLSTRING	66-MOV-11007 (FUTURE)
P-0068	1"	SWBD-BLB	PB-11007	EMPTY W/ PULLSTRING	66-MOV-11008 (FUTURE)

CONDUIT NO.	SIZE	FROM	TO	CONDUCTORS	REMARKS
C-0001	1"	96PLC01	GEN-BLB	12#14, #14GND	VIA EMH-1
C-0002	1"	LCP-11005	RVSS-11005	12#14, #14GND	
C-0003	1"	LCP-11006	RVSS-11006	12#14, #14GND	
C-0004	1"	LCP-11007 (FUTURE)	RVSS-11007 (FUTURE)	EMPTY W/ PULLSTRING	
C-0005	1"	LCP-11008 (FUTURE)	RVSS-11008 (FUTURE)	EMPTY W/ PULLSTRING	
C-0006	2"	RVSS-11005	CPB-11005	36#14, #14GND	
C-0007	2"	RVSS-11006	CPB-11006	36#14, #14GND	
C-0008	2"	RVSS-11007 (FUTURE)	PB-11007	EMPTY W/ PULLSTRING	
C-0009	2"	RVSS-11008 (FUTURE)	PB-11007	EMPTY W/ PULLSTRING	
C-0010	3/4"	CPB-11005	66-MOV-11005	18#14, #14GND	
C-0011	3/4"	66-MOV-11005	LCS-66-MOV-11005	14#14, #14GND	
C-0012	3/4"	CPB-11005	LCS-66ALP-BLW-11005	14#14, #14GND	
C-0013	3/4"	CPB-11005	DSW-66ALP-BLW-11005	4#14, #14GND	
C-0014	3/4"	CPB-11006	66-MOV-11006	18#14, #14GND	
C-0015	3/4"	66-MOV-11006	LCS-66-MOV-11006	14#14, #14GND	
C-0016	3/4"	CPB-11006	LCS-66ALP-BLW-11006	14#14, #14GND	
C-0017	3/4"	CPB-11006	DSW-66ALP-BLW-11006	4#14, #14GND	
C-0018	1"	LCP-11005	CONTROL JUNCTION BOX	16#14, #14GND	
C-0019	1"	LCP-11006	CONTROL JUNCTION BOX	16#14, #14GND	
C-0020	2"	SWBD-BLB	GEN-BLB	16#14, #14GND	
C-0021	2"	SWBD-BLB	GEN-BLB	EMPTY W/ PULLSTRING	SPARE

CONDUIT NO.	SIZE	FROM	TO	CONDUCTORS	REMARKS
I-0001	2"	66NIP01	97NIP01 (NEWTWORK PANEL)	1 FOC	VIA EMH-1 & 08LMH09
I-0002	1"	97NIP01 (NEWTWORK PANEL)	LCP-11005	(1) CAT6 CABLE	
I-0003	1"	97NIP01 (NEWTWORK PANEL)	LCP-11006	(1) CAT6 CABLE	
I-0004	1"	97NIP01 (NEWTWORK PANEL)	LCP-11007 (FUTURE)	EMPTY W/ PULLSTRING	
I-0005	1"	97NIP01 (NEWTWORK PANEL)	LCP-11008 (FUTURE)	EMPTY W/ PULLSTRING	
I-0006	2"	LCP-11005	RVSS-11005	6(2/C#16TSH), #14GND	
I-0007				NOT USED	
I-0008	2"	LCP-11006	RVSS-11006	6(2/C#16TSH), #14GND	
I-0009				NOT USED	
I-0010	2"	LCP-11007 (FUTURE)	RVSS-11008 (FUTURE)	EMPTY W/ PULLSTRING	
I-0011				NOT USED	
I-0012	2"	LCP-11008 (FUTURE)	RVSS-11008 (FUTURE)	EMPTY W/ PULLSTRING	
I-0013				NOT USED	
I-0014	2"	LCP-11005	INSTRUMENTATION JUNCTION BOX	14(2/C#16TSH), #14GND	
I-0015	2"	LCP-11005	INSTRUMENTATION JUNCTION BOX	14(2/C#16TSH), #14GND	
I-0016	2"	CJB-11006	LCS-66ALP-BLW-11006	14(2/C#16TSH), #14GND	
I-0017	2"	CJB-11006	DSW-66ALP-BLW-11006	14(2/C#16TSH), #14GND	
I-0018	2"	LCP-11007 (FUTURE)	PB-11007	EMPTY W/ PULLSTRING	
I-0019	2"	LCP-11007 (FUTURE)	PB-11007	EMPTY W/ PULLSTRING	
I-0020	2"	LCP-11008 (FUTURE)	PB-11007	EMPTY W/ PULLSTRING	
I-0021	2"	LCP-11008 (FUTURE)	PB-11007	EMPTY W/ PULLSTRING	
I-0022				NOT USED	
I-0023				NOT USED	
I-0024				NOT USED	
I-0025				NOT USED	
I-0026				NOT USED	
I-0027				NOT USED	
I-0028				NOT USED	
I-0029				NOT USED	
I-0030				NOT USED	
I-0031				NOT USED	
I-0032				NOT USED	
I-0033	2"	96PLC01	GEN-BLB	1 FOC	VIA EMH-1
I-0034	2"	96PLC01	GEN-BLB	EMPTY W/ PULLSTRING	SPARE: VIA EMH-1

				PROJECT ENGINEER:	T. PAULMANN
				DESIGNED BY:	N. STEWART
				DRAWN BY:	N. STEWART
				CHECKED BY:	B. BUELTEL
0	FOR BID	2/10/22	TAP	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
REV	ISSUED FOR	DATE	BY		





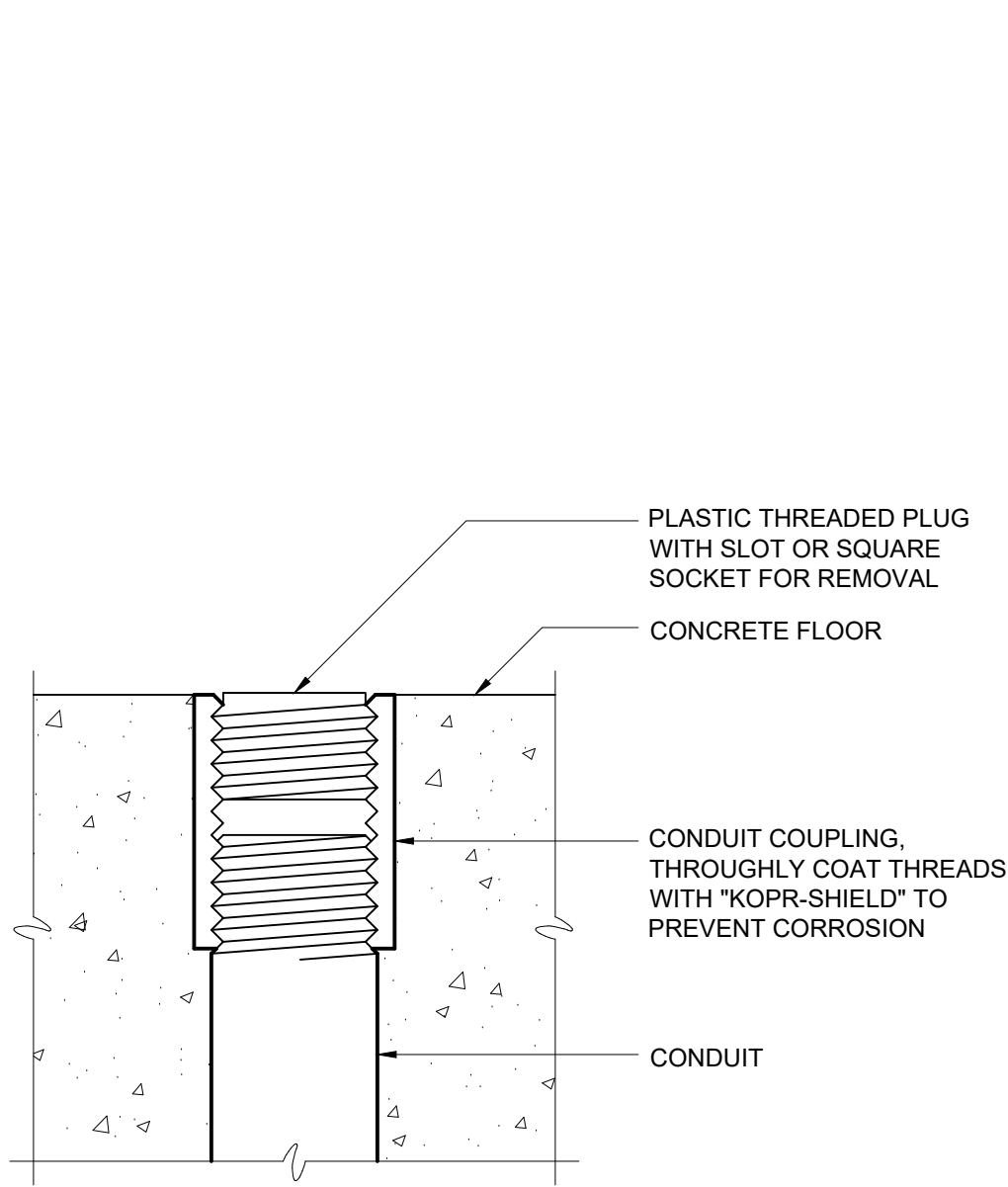
HAZEN AND SAWYER
8150 NORTH CENTRAL EXPRESSWAY
TOWER II SUITE 700
DALLAS, TEXAS 75206

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BROWNSVILLE, TEXAS

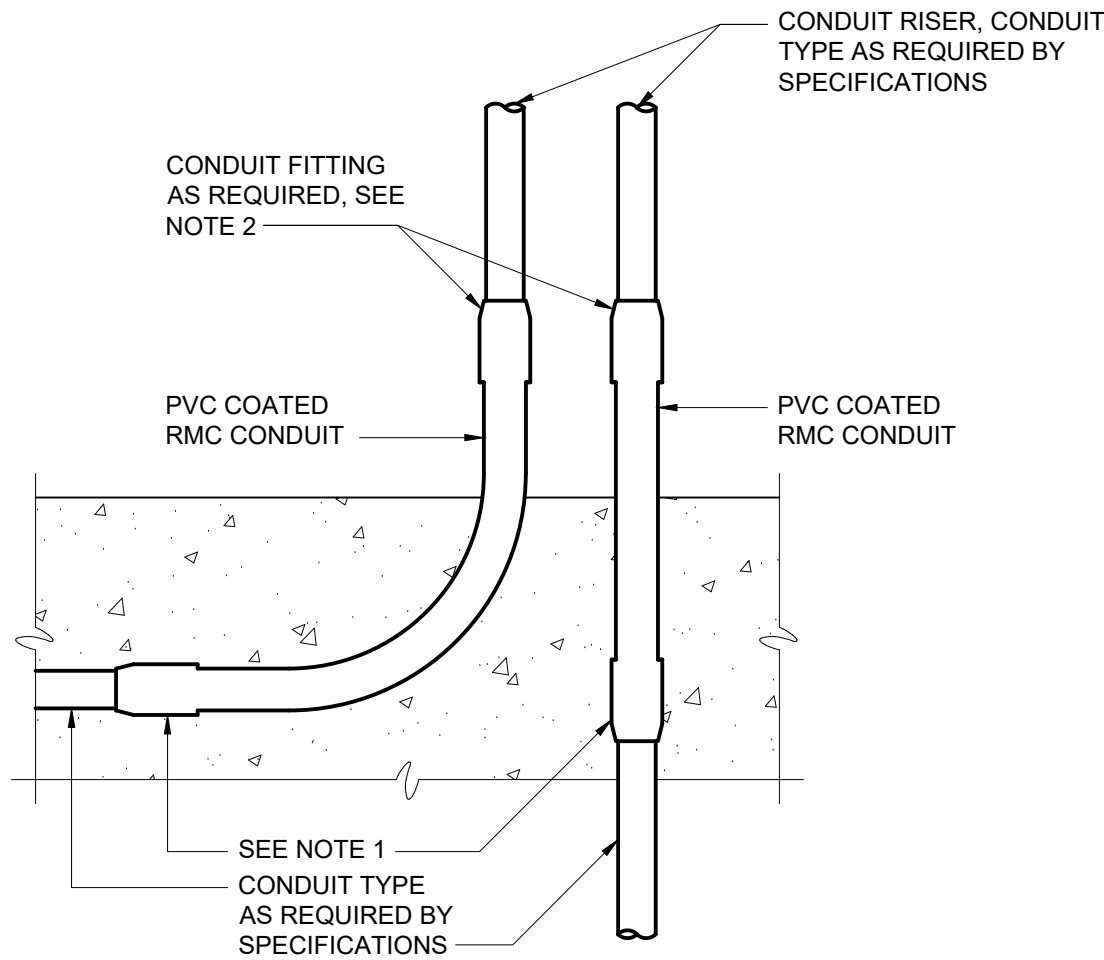
ROBINDALE WWTP
WATER AND WASTEWATER TREATMENT PLANT
IMPROVEMENTS - PACKET 3
BLOWER REPLACEMENT

ELECTRICAL BUILDING 3
ELECTRICAL
CONDUIT AND WIRE
SCHEDULES

DATE:	FEBRUARY 2022
HAZEN NO.:	60405-003
CONTRACT NO.:	01
DRAWING NUMBER:	E953



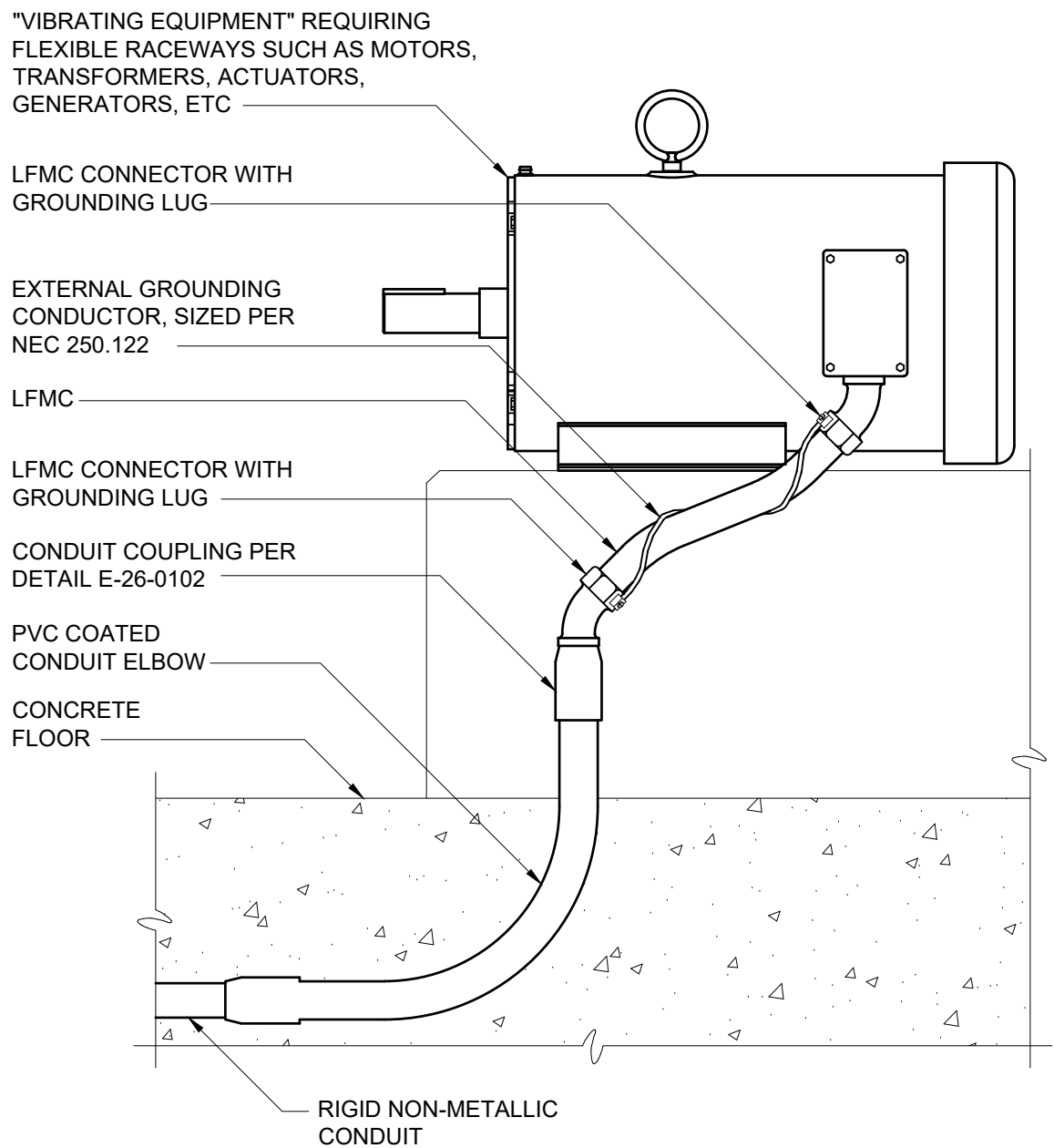
FLOOR STUB-UP FOR FUTURE CONDUIT
E-26-0101



NOTES:

- FOR ENCASED PVC CONDUIT USE PVC TERMINAL ADAPTER. FOR ALL OTHER CONDUIT TYPES, USE PVC COATED RMC COUPLINGS.
- IF ANY THREADS OF THE PVC COATED RMC CONDUIT ARE EXPOSED AFTER INSTALLATION OF THE CONDUIT FITTING, THE CONDUIT FITTING SHALL BE PVC COATED TYPE WITH APPROPRIATE PVC SKIRTS. IF THE THREADS OF THE PVC COATED RMC CONDUIT ARE PROPERLY CUT SO THAT THEY ARE NOT EXPOSED AFTER INSTALLATION OF THE CONDUIT FITTING, THE CONDUIT MATERIAL SHALL BE AS REQUIRED BY THE SPECIFICATIONS, BASED ON THE MATERIAL OF THE CONDUIT RISER.

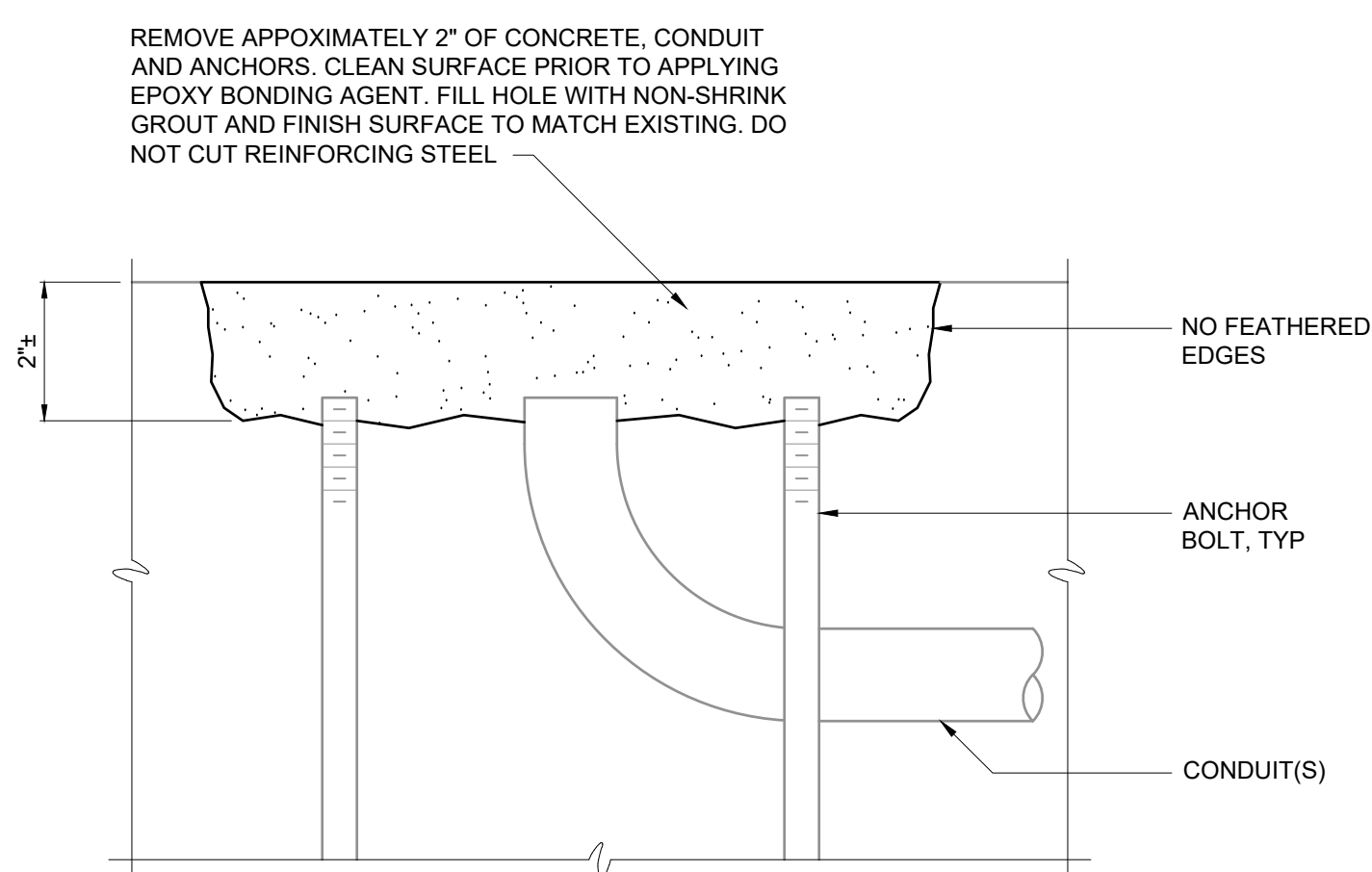
CONDUIT EXITING CONCRETE ENCASEMENT
E-26-0102



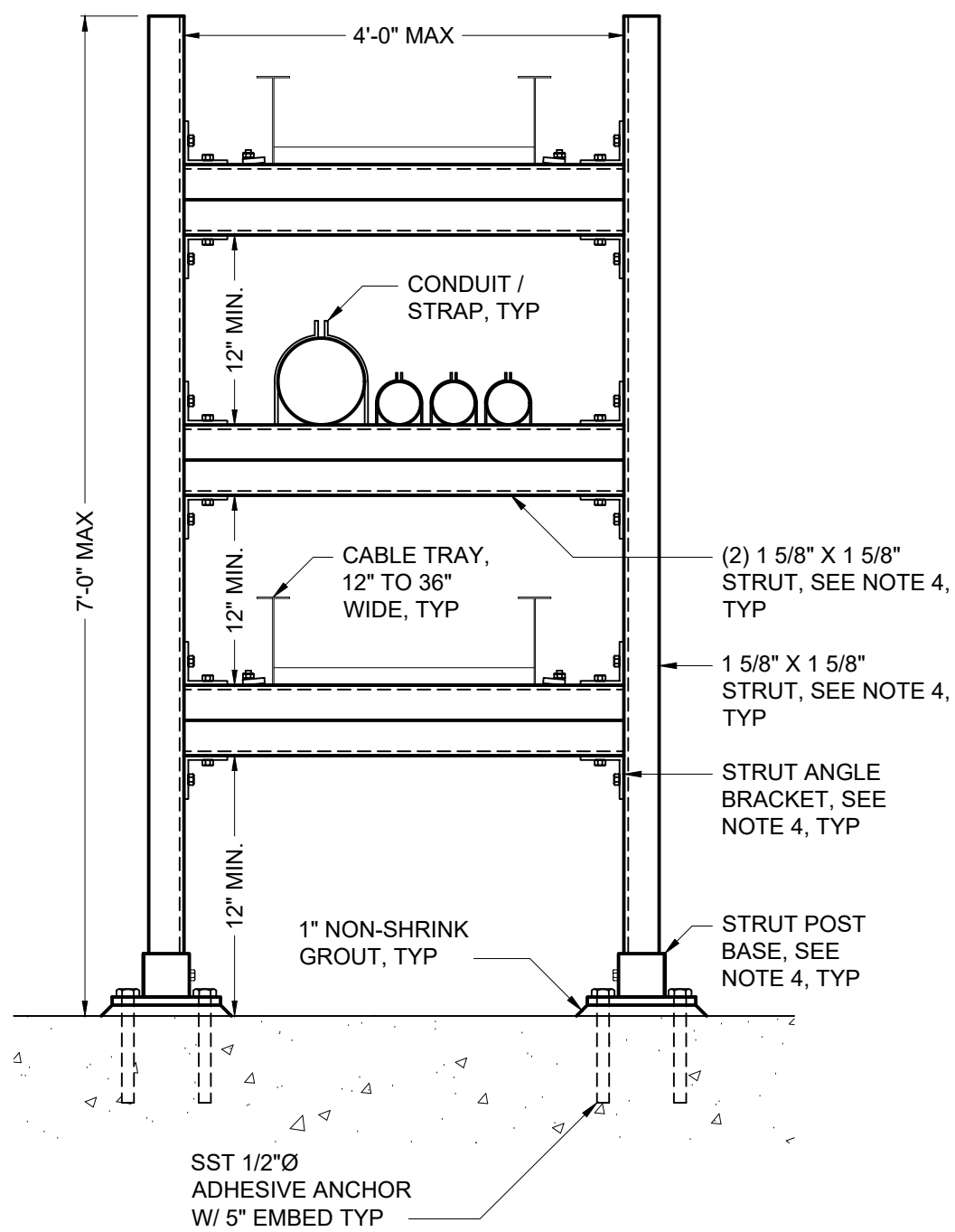
NOTES:

- WHERE NON-METALLIC CONDUIT TRANSITIONS TO RIGID METALLIC CONDUIT AND / OR LIQUIDTIGHT FLEXIBLE METALLIC CONDUIT, (LFMC), TO FEED VIBRATING TYPE LOADS, THE CONTRACTOR SHALL FURNISH AND INSTALL AN EXTERNAL BARE COPPER GROUNDING CONDUCTOR AND APPROVED GROUNDING LFMC CONNECTORS TO ENSURE GROUND CONTINUITY TO THE RIGID METALLIC CONDUIT AS SHOWN. THE GROUNDING CONDUCTOR SHALL BE SIZED ACCORDING TO NEC 250.122 AND BE NEATLY WRAPPED AROUND LFMC AS SHOWN. LFMC INSTALLED IN THIS MANNER CANNOT BE USED FOR A CONTINUOUS GROUND PATH PER NEC 350.60.

LFMC CONDUIT GROUND STRAP
E-26-0104



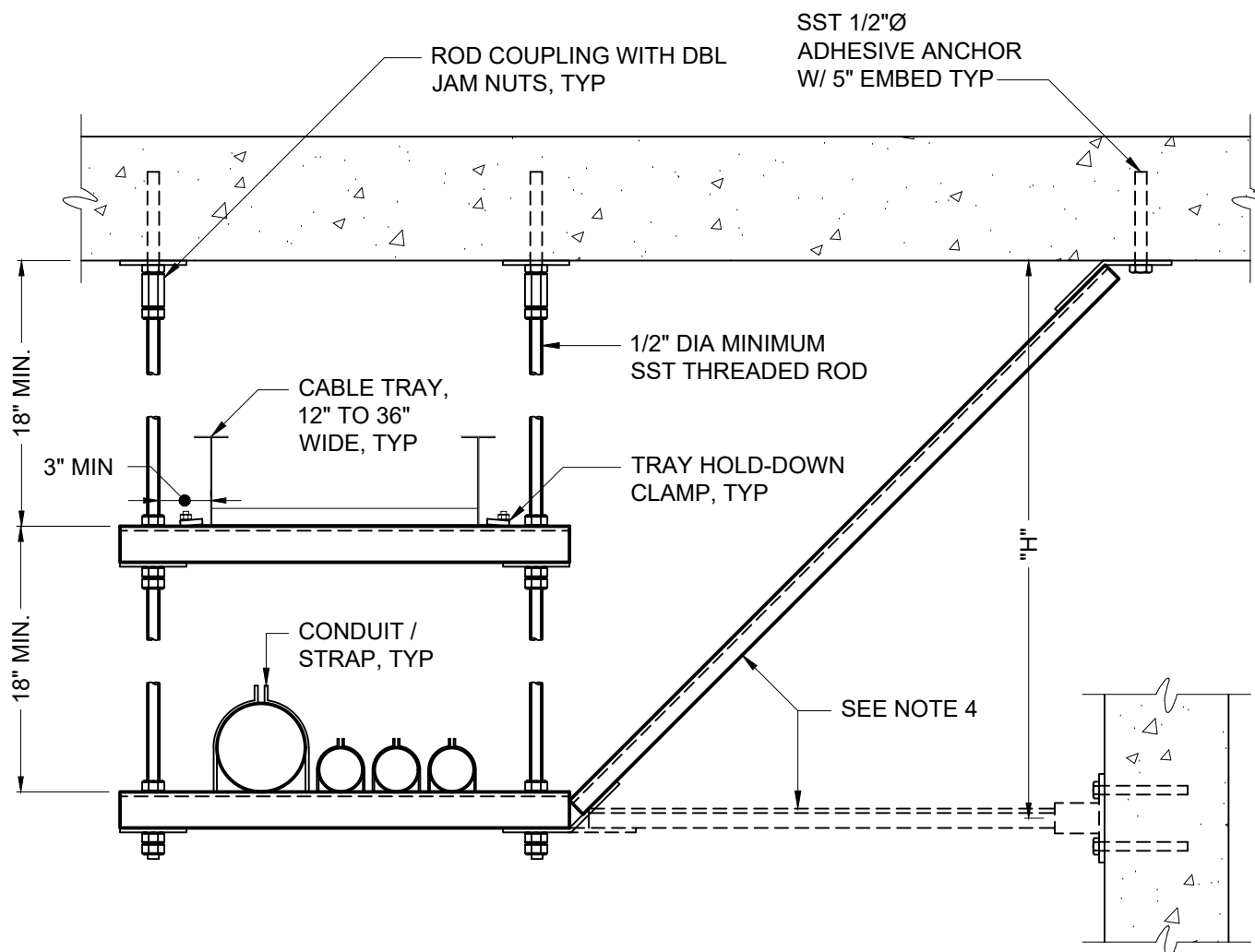
SEALING ABANDONED CONDUIT
AND ANCHOR BOLTS
E-26-0103



NOTES:

- CONDUIT SUPPORT RACK SPACING SHALL BE BASED ON MAXIMUM SPAN ALLOWABLE FOR ANY INDIVIDUAL PIPE AND FOR MAXIMUM LOAD.
- X-BRACING REQUIRED AT 30'-0" OC.
- STRUT SHALL BE 12 GAUGE MINIMUM.
- REFER TO AREA DESIGNATION DRAWINGS AND SPECIFICATIONS FOR REQUIRED MATERIALS OF CONSTRUCTION.

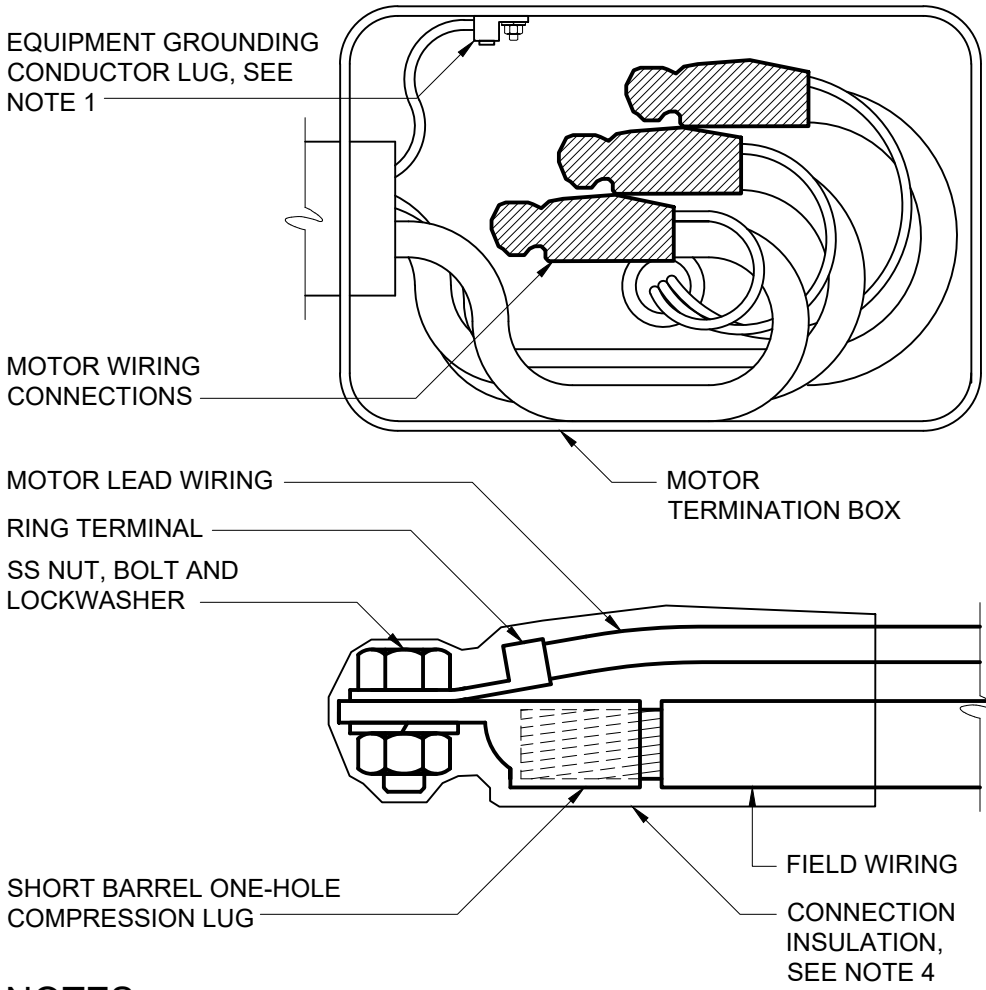
FREESTANDING RACEWAY SUPPORT RACK
E-26-0203



NOTES:

- SPACE SUPPORTS AT 5'-0" MAXIMUM. HANGER SPACING SHALL BE BASED ON MAXIMUM LOAD.
- ALL THREAD ROD SHALL BE USED ONLY FOR DUAL TRAYS / RACKS.
- REFER TO AREA DESIGNATION DRAWINGS AND SPECIFICATIONS FOR REQUIRED MATERIALS OF CONSTRUCTION.
- PREFORMED BRACING CHANNEL AT 30'-0" SPACING MAX. BRACE AT INTERMEDIATE LEVEL WHEN "H" DIMENSION EXCEEDS 6'-0".
- STRUT SHALL BE 12 GAUGE MINIMUM.

SUSPENDED RACEWAY SUPPORT RACK
E-26-0201



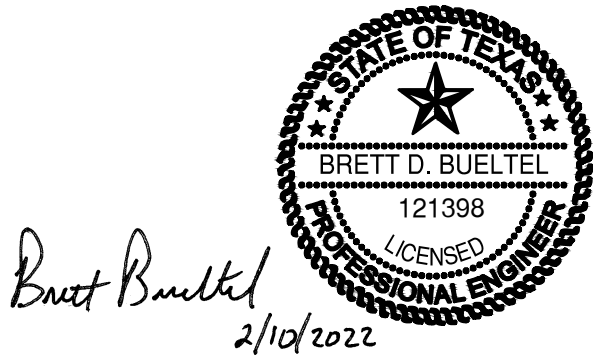
NOTES:

- EQUIPMENT GROUNDING CONDUCTOR LUG SHALL BE ATTACHED WITH NUT AND LOCKWASHER TO THE MOTOR GROUNDING STUD. WHERE PROVIDED, FACTORY INSTALLED EQUIPMENT GROUNDING CONDUCTOR LUGS ARE ACCEPTABLE IN LIEU OF THE FIELD INSTALLED EQUIPMENT GROUNDING CONDUCTOR LUG.
- RING TERMINALS ON MOTOR LEADS SHALL BE FACTORY INSTALLED BY THE MOTOR MANUFACTURER.
- INSTALL SHORT BARREL COMPRESSION CONNECTOR ON FIELD WIRING WITH MANUFACTURER'S RECOMMENDED COMPRESSION TOOL AND CRIMPING DIE. CONNECTORS SHALL HAVE SMOOTHLY ROUNDED EDGES.
- HEAT SHRINK OR COLD APPLIED CONNECTOR INSULATION LISTED FOR THE PURPOSE AND AS SPECIFIED.

LOW VOLTAGE MOTOR TERMINATION
E-26-0301

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				PROJECT ENGINEER:	T. PAULMANN
				DESIGNED BY:	N. STEWART
				DRAWN BY:	N. STEWART
				CHECKED BY:	B. BUELTEL
0	FOR BID	2/10/22	TAP	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"
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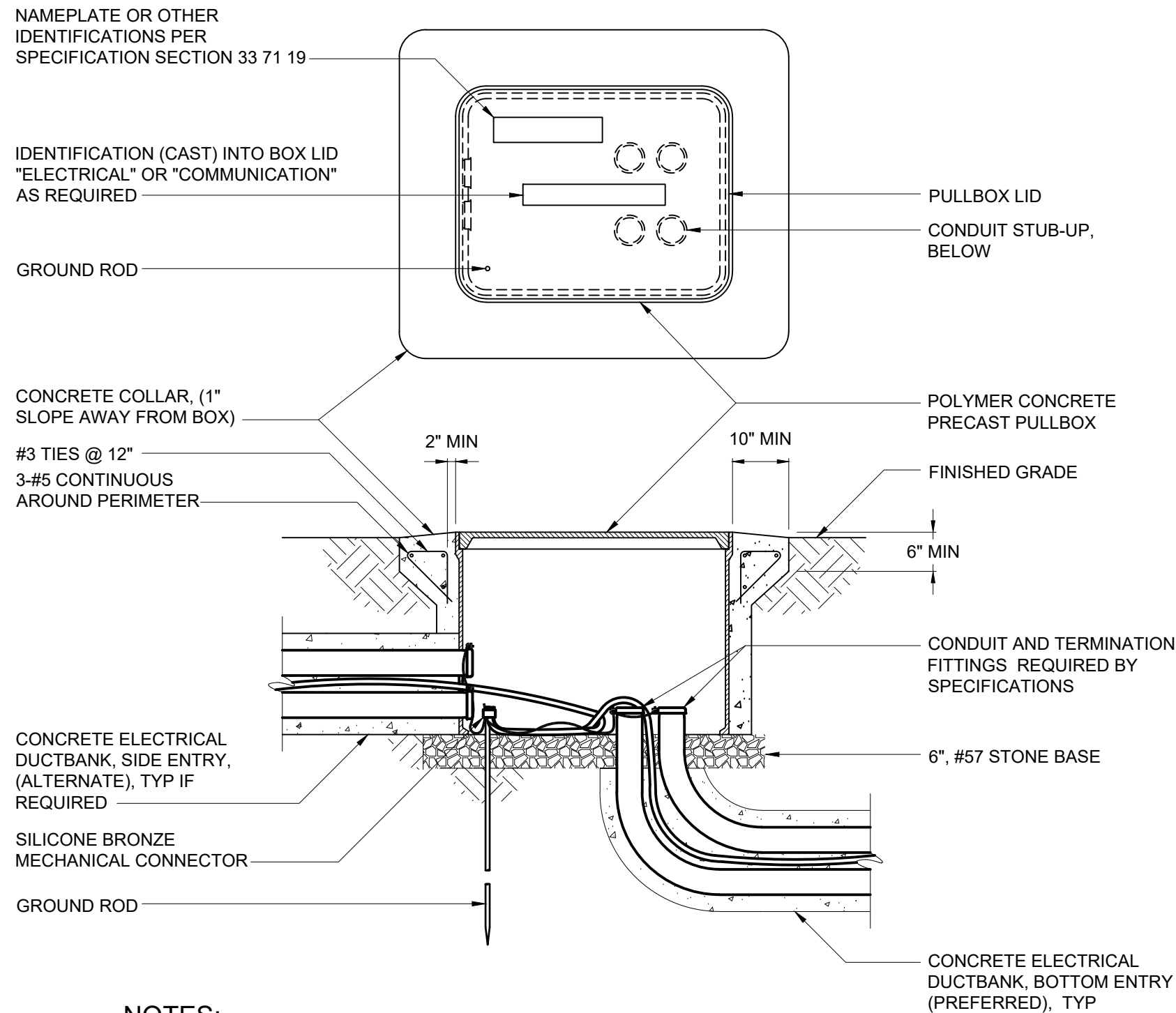


Hazen
HAZEN AND SAWYER
8150 NORTH CENTRAL EXPRESSWAY
TOWER II SUITE 700
DALLAS, TEXAS 75206

BROWNSVILLE PUBLIC UTILITIES BOARD
BROWNSVILLE, TEXAS
ROBINDALE WWTP
WATER AND WASTEWATER TREATMENT PLANT
IMPROVEMENTS - PACKET 3
BLOWER REPLACEMENT

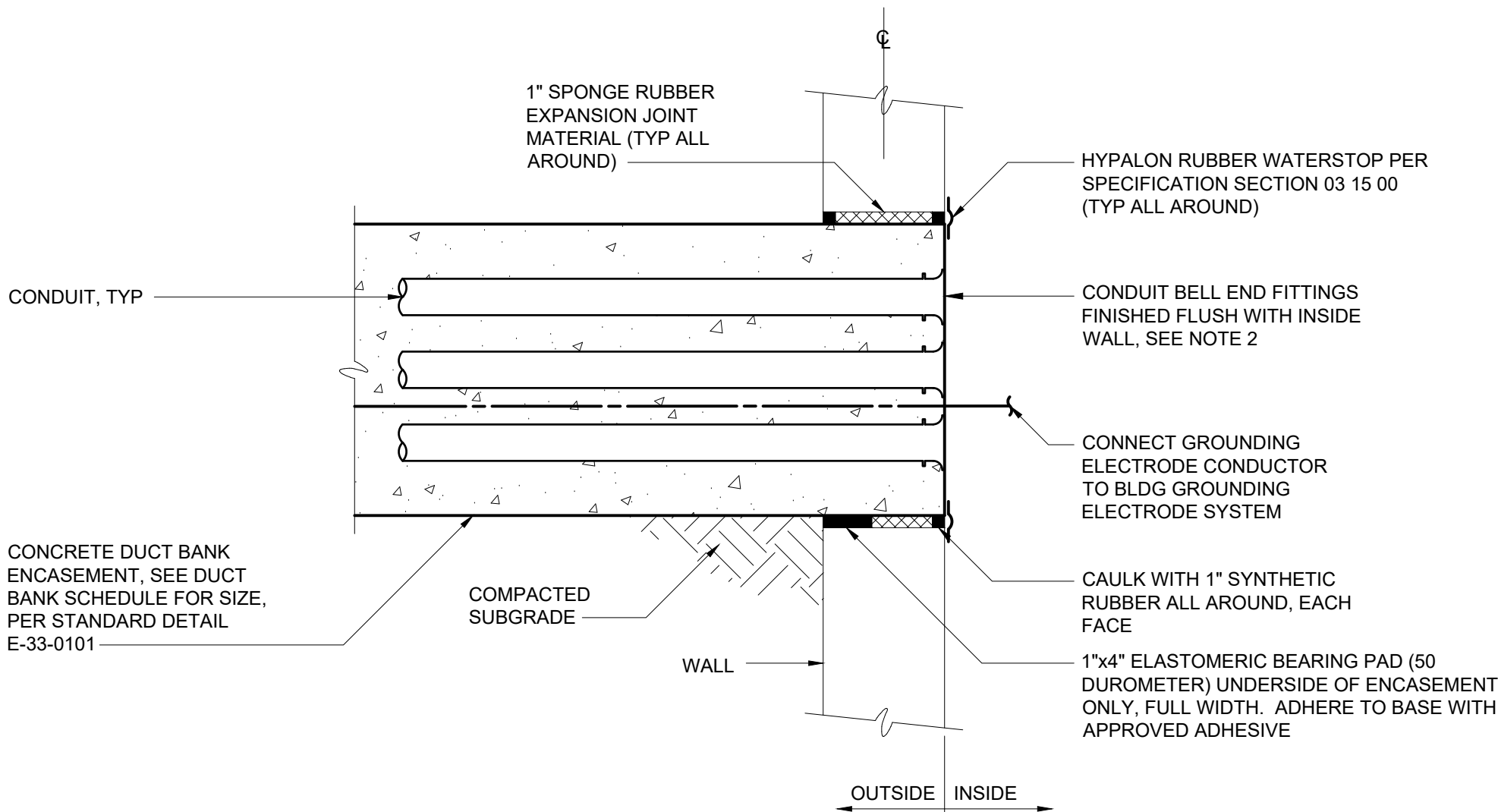
ELECTRICAL
STANDARD DETAILS
SHEET 1

DATE:	FEBRUARY 2022
HAZEN NO.:	60405-003
CONTRACT NO.:	01
DRAWING NUMBER:	ED01



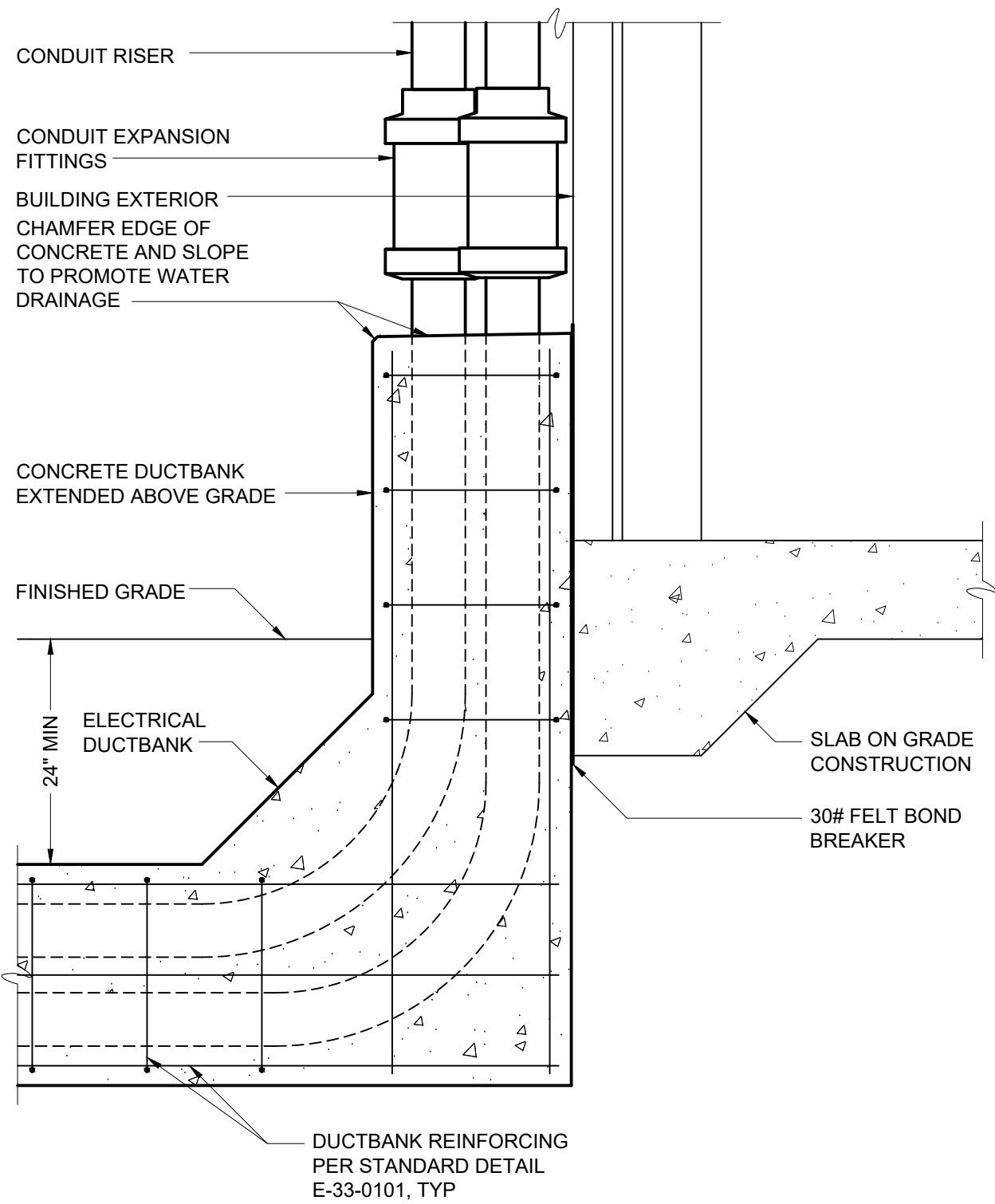
- NOTES:
- FOR SIDE ENTRY, CONDUIT DUCTBANK SHALL ENTER PULLBOX AT LOWEST POINT.
 - GROUND CONDUCTORS WITHIN DUCTBANK SHALL BE BOLTED TOGETHER AND TO GROUND ROD.
 - CONDUIT BONDING BUSHINGS (IF REQUIRED) SHALL BE BONDED TO GROUND ROD.
 - FOR SIDE ENTRY, CONDUIT SHALL ENTER IN INDIVIDUAL CIRCULAR HOLES APPROPRIATELY SIZED FOR THE CONDUIT. LARGE SINGLE RECTANGULAR OPENINGS FOR MULTIPLE CONDUITS ARE NOT ACCEPTABLE.
 - DUCTBANK REINFORCING REBAR SHALL PENETRATE THE SIDEWALLS OF THE BOX NO LONGER THAN 1".

POLYMER CONCRETE ELECTRICAL HANDHOLE
E-33-0103



- NOTES:
- BLOCK-OUT IN WALL SHALL BE SMOOTH AND PLUM BUILT TO ACCOMMODATE THE REQUIRED CONCRETE DUCT BANK ENCASEMENT PLUS 1" ALL AROUND.
 - INSTALL EXPANDING FOAM SEALANT IN CONDUIT AROUND CONDUCTORS PER MANUFACTURER'S RECOMMENDATIONS.

BELOW-GRADE DUCT BANK TERMINATION TO EXISTING MANHOLE
E-33-0106



DUCTBANK ABUTMENT (FLOATING) TO STRUCTURE
E-33-0108

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				PROJECT ENGINEER:	T. PAULMANN
				DESIGNED BY:	N. STEWART
				DRAWN BY:	N. STEWART
				CHECKED BY:	B. BUELTEL
0	FOR BID	2/10/22	TAP	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
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HAZEN AND SAWYER
8150 NORTH CENTRAL EXPRESSWAY
TOWER II SUITE 700
DALLAS, TEXAS 75206

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BROWNSVILLE, TEXAS

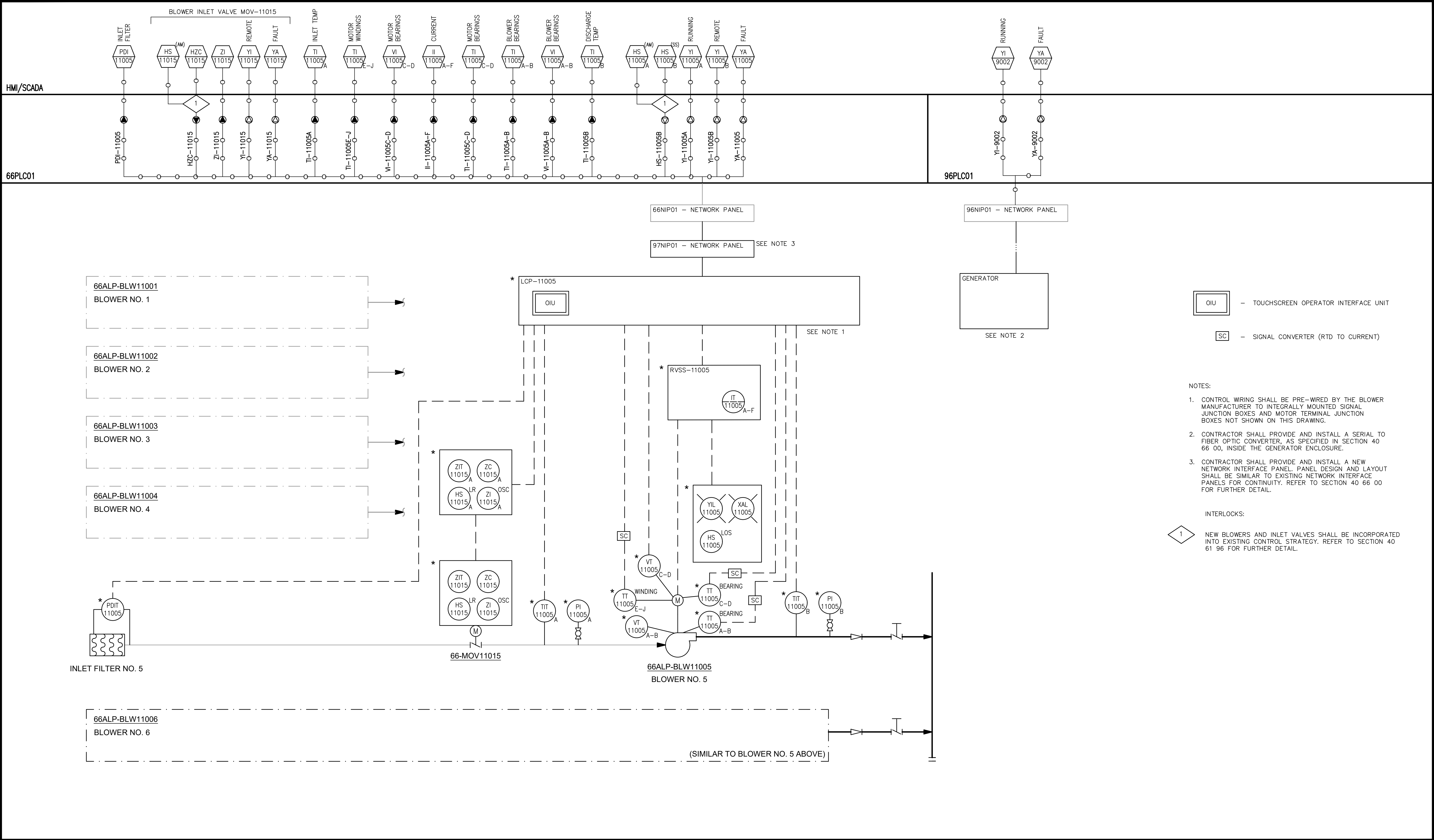
ROBINDALE WWTP
WATER AND WASTEWATER TREATMENT PLANT
IMPROVEMENTS - PACKET 3
BLOWER REPLACEMENT

ELECTRICAL
STANDARD DETAILS
SHEET 3

ED03

DATE:	FEBRUARY 2022
HAZEN NO.:	60405-003
CONTRACT NO.:	01
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				PROJECT ENGINEER:	T. PAULMANN		Hazen HAZEN AND SAWYER 8150 NORTH CENTRAL EXPRESSWAY TOWER II SUITE 700 DALLAS, TEXAS 75206	BROWNSVILLE PUBLIC UTILITIES BOARD BROWNSVILLE, TEXAS	ROBINDALE WWTP WATER AND WASTEWATER TREATMENT PLANT IMPROVEMENTS - PACKET 3 BLOWER REPLACEMENT	DATE:	FEBRUARY 2022
				DESIGNED BY:	D. ENNIS					HAZEN NO.:	60405-003
				DRAWN BY:	D. ENNIS					CONTRACT NO.:	01
				CHECKED BY:	D. EDWARDS					DRAWING NUMBER:	
0	FOR BID	2/10/22	TAP	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"						I660
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