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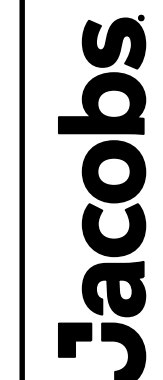
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FOR INFORMATION ONLY  
NOT FOR ADDING PURPOSES



01-GENERAL  
INDEX TO DRAWINGS

PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING.	
DATE	JULY 2023
PROJ	E2X90000
DWG	01-G-002
SHEET	2 of 96

BID READY

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# ABBREVIATIONS

AB, ABV ABDN AC AC ACFL ACI ACMU ACP ACST ACT AD ADDL ADJ ADW AFD AFF AFG AG AGGR AHR AISC AJ AL ALKY ALTN AM AMRD ANDZ APPROX APVD ARCH AR AS ASSY ATS AUTO AUX AVG AWW @ B BAL BETW BF BFV BL BFP BLDG BLK BM BO B.O.B. BOD BOP BOT BRG BRK BRKR BSP BV BVC C C TO C CAB CB CC CC CCP CCS CDF CE CFM CFS CHEM CHKD CI CIP CISP CJ CKT	CL CLDI CLSF CLG CLR CLSM CMP CMP CMU CNTR CO COL CONC COND CONDNT CONN CONSTR CONT CONTR COORD COP CP CP-X CPLG CPRSR CPT CPVC CR CRS CRS CT CT CTC CTR CTRD CTSK CU CU FT CU IN CUH CV CWR CY, CU YD CWS D d DA DAS DBA DBL DC DEG DET DF DDI DH DI DIA DIAG DIP DIR DISCH DN DO DOL DP, DPNL DR DS DWG DWL Δ E EA EB, EBCT ECC EE EDF EF EFF EFL EIFS EL ELB ELC ELEC ENGR EOP	CENTERLINE CEMENT LINED DUCTILE IRON CONTROLLED LOW STRENGTH FILL CEILING CLEAR, CLEARANCE CONTROLLED LOW STRENGTH MATERIAL CENTRAL MONITORING PANEL CORRUGATED METAL PIPE CONCRETE MASONRY UNIT COUNTER CLEANOUT, CARBON MONOXIDE COLUMN, COLOR CONCRETE CONDENSATE CONDITIONED CONNECTION CONSTRUCTION CONTINUED, CONTINUOUS, CONTINUATION CONTRACTOR COORDINATE COPPER CENTER PIVOT CONTROL PANEL NO. X COUPLING COMPRESSOR CONTROL POWER TRANSFORMER, CARPET CHLORINATED PVC CONTROL RELAY COLD ROLLED STEEL CONSTRUCTION ROAD STABILIZATION CERAMIC TILE CURRENT TRANSFORMER COMPUTER TERMINAL CABINET CENTER CENTERED COUNTERSUNK CUBIC CUBIC FOOT CUBIC INCH COPPER TUBING, HARD DRAWN CHECK VALVE CABINET DOOR MOUNTED WASTE RECEPTACLE CUBIC YARD CLEAN WATER SERVICES DEEP, DRAIN PENNY NAIL SIZE DUAL ACTION DATA ACQUISITION SYSTEM DEFORMED BAR ANCHOR DOUBLE DIRECT CURRENT DEGREE DETAIL DOUGLAS FIR, DRINKING FOUNTAIN DROP INLET DOUBLE HUNG DUCTILE IRON DIAMETER DIAGONAL DUCTILE IRON PIPE DIRECTION DISCHARGE DOWN DISSOLVED OXYGEN DIRECT-ON-LINE DISTRIBUTION PANEL DOOR DOWNSPOUT DRAWING DOWEL DELTA EAST, EMPTY EACH, EXHAUST AIR EMPTY BED CONTACT TIME ECCENTRIC EMERGENCY EYEWASH EGG-SHAPED DIGESTER FACILITY EACH FACE, EXHAUST FAN EFFICIENCY, EFFICIENT EFFLUENT EXTERIOR INSULATION AND FINISH SYSTEM ELEVATION ELBOW ELECTRICAL LOAD CENTER ELECTRIC, ELECTRICAL ENGINEER EDGE OF PAVEMENT	ESC EP EQL EQL SP EQPT ESC ETM EVC EW EWC EXH EXP EXP AB EXP JT EXST, EXIST EXT °F FACP FB F, FU F, FX FAP FC FCP FCA FCL2 FCO FCTY FD FDN FDR FEXT FF FG FH FHY FIG FL FLG FL FLEX FLH FLTR FLUOR FNSH FOB FOT FP FPM FR FRP FSHS FT FTG FU FVNR FVR FWD G, GND GA GAL GALV GB GC GCMU GFA GFI GFR GH GL GPD GPH GPM GPS GRTG GSB GSP GV GVL GWB GYP H H2S H.A.S. HC HCL HDNR HDNS HDR	EROSION AND SEDIMENT CONTROL EXPLOSION PROOF, EDGE OF PAVING EQUAL EQUALLY SPACED EQUIPMENT EROSION AND SEDIMENT CONTROL ELAPSED TIME METER END OF VERTICAL CURVE EACH WAY ELECTRIC WATER COOLER EXHAUST EXPANSION, EXPOSED EXPANSION ANCHOR BOLT EXPANSION JOINT EXISTING EXTERIOR DEGREE FAHRENHEIT FIRE ALARM CONTROL PANEL FLAT BAR FUSE FIXED FIRE ALARM PANEL FLEXIBLE CONDUIT FLANGED COUPLING ADAPTER FREE CHLORINE RESIDUAL FLOOR CLEANOUT FACTORY FLOOR DRAIN FOUNDATION FEEDER FIRE EXTINGUISHER FINISHED FLOOR FINISH GRADE, FLOAT GLASS FLAT HEAD FIRE HYDRANT FIGURE FLOW LINE FLANGE FLOOR FLEXIBLE FLAT HEAD FILTER FLUORESCENT FINISH FLAT ON BOTTOM FLAT ON TOP FIELD PANEL FEET PER MINUTE FORWARD REVERSE FIBERGLASS REINFORCED PLASTIC FOLDING SHOWER SEAT FOOT OR FEET FOOTING FIXTURE UNIT FULL VOLTAGE NON-REVERSING FULL VOLTAGE REVERSING FORWARD GROUND GAUGE GALLON GALVANIZED GYPSUM BOARD GROOVED COUPLING GLAZED CONCRETE MASONRY UNITS GROOVED FLANGE ADAPTER GROUND FAULT INTERRUPTER GROUND FAULT RELAY GREENHOUSE GLASS GALLONS PER DAY GALLONS PER HOUR GALLONS PER MINUTE GLOBAL POSITION SYSTEM GRATING GYPSUM SOFFIT BOARD GALVANIZED STEEL PIPE GATE VALVE GRAVEL GYPSUM WALLBOARD GYPSUM HIGH, HORN OR HOWLER HYDROGEN SULFIDE HEADED ANCHOR STUD HOLLOW CORE WOOD HYDROCHLORIC ACID HARDENER HARDNESS HEADER	HDW HGL HK HGT HH HID HK HM HOA HOR HORIZ HP HPT HPU HR HV HVAC HWL IC ID IE I.F. IG IN INCAND INFL INJS INST INSTM INSUL INVT IP IRRIG ITG ITX IU IW JA JB JAN JCT JT K KIP KIT K-PL KSK KV KVA KVAR KW L LA LAB LAM LAT LB LC LD LDG LEL LF LG LH LHR LLH LLV LNTL LONG LOS LP LPT LR LR LR LS LT LTG, LTS LTX LWL MA MAS MATL MAX MB MC	HARDWARE HYDRAULIC GRADE LINE HOOK HEIGHT HANDHOLE HIGH INTENSITY DISCHARGE HOOK HOLLOW METAL HAND-OFF-AUTO HAND-OFF-REMOTE HORIZONTAL HORSEPOWER HIGH POINT HYDRAULIC POWER UNIT HOSE RACK, HANDRAIL HOSE VALVE HEATING, VENTILATING AND AIR CONDITIONING HIGH WATER LEVEL INTERRUPTING CAPACITY INDUCED DRAFT, INSIDE DIAMETER INVERT ELEVATION INSIDE FACE INSULATING, INSULATING GLASS INCH INCANDESCENT INFLUENT INJECTIONS INSTANTANEOUS INSTRUMENT, INSTRUMENTATION INSULATION INVERT INLET PROTECTION, INSTRUMENTATION PANEL IRRIGATION INSULATED TEMPERED GLASS ISOLATION TRANSFORMER INTAKE UNIT IRRIGATION WELL JALOUSIE JAL-AWNING JUNCTION BOX JANITOR JUNCTION JOINT KEY GROUP, KEY INTERLOCK THOUSAND POUNDS KITCHEN KICKPLATE KITCHEN SINK KILOVOLTS KILOVOLT AMPERES KILOVOLT AMPERES REACTIVE KILOWATT ANGLE, LENGTH LIGHTNING ARRESTER LABORATORY LAMINATE LATITUDE POUND LIGHTING CONTACTOR COMBINATION LOUVER/DAMPER LOADING DOCK LOWER EXPLOSIVE LIMIT LINEAR FEET LONG LEFT HAND LEFT HAND REVERSE LONG LEG HORIZONTAL LONG LEG VERTICAL LINTEL LONGITUDINAL LOCK-OUT STOP PUSHBUTTON LIGHT POLE, LIGHTING PANEL, LOCAL PANEL LOW POINT LATCHING RELAY LOCAL-REMOTE LONG RADIUS LABORATORY SINK LEFT LIGHTS OR LIGHTING LIGHTING TRANSFORMER LOW WATER LEVEL MANUAL-AUTO MASONRY MATERIAL MAXIMUM MACHINE BOLT MASONRY CLEARANCE	MC MCC MCJ MDO MECH MFD MFR MGD MH MIN MISC MJ MLO MMDW MMP MMWW MP MPU MS MSC MSR MT MTD MTG MTS MUS MV MWS N NA NA NC NEUT NG NGVD NIC N.O. NO., # NOM NP NPT NS NTS O2 O TO O OA OC OC OCA OCR OD O.F. OFCl OFOI OL OO OOA OOR OP OPER OPNG OPP OSA OSC OSD OWSJ OZ P P PAVT PB PC PC PCCP PCV PE PED	MODULATE-CLOSE MOTOR CONTROL CENTER MASONRY CONTROL JOINT MEDIUM DENSITY OVERLAY MECHANICAL MANUFACTURED MANUFACTURER MILLION GALLONS PER DAY MANHOLE, MOUNTING HEIGHT MINIMUM MISCELLANEOUS MECHANICAL JOINT MAIN LUGS ONLY DRY WEATHER MAXIMUM MONTH MECHANICAL MOUNTING PANEL WET WEATHER MAXIMUM MONTH MANUAL OPERABLE, MASONRY OPENING METAL PANEL MULTIPURPOSE UNIT MANUFACTURER'S STANDARD MANUFACTURER SUPPLIED CABLE GROUPED MOTOR CONTROL MOUNT MOUNTED MOUNTING MANUAL TRANSFER SWITCH MILL TYPE STEEL PIPE MULCHING MERCURY VAPOR MAXIMUM WATER SURFACE NORTH, NEUTRAL NOT APPLICABLE NON-AUTOMATIC NORMALLY CLOSED NEUTRAL NATURAL GAS NATIONAL GEODETIC VERTICAL DATUM NOT IN CONTRACT NORMALLY OPEN NUMBER NOMINAL NON-PROTECTED NATIONAL PIPE THREADS NON-SHRINK NOT TO SCALE OXYGEN OUT TO OUT OVERALL, ODOROUS AIR ON CENTER OPEN-CLOSE (O) OPEN-CLOSE-AUTO OPEN-CLOSE-REMOTE OUTSIDE DIAMETER, OVERFLOW DRAIN OUTSIDE FACE OWNER FURNISHED, CONTRACTOR INSTALLED OWNER FURNISHED, OWNER INSTALLED OVERLOAD RELAY ON-OFF ON-OFF-AUTO ON-OFF-REMOTE OPAQUE PANEL, OUTLET PROTECTION OPERATOR OPENING OPPOSITE OUTSIDE AIR OPEN STOP-CLOSE OPEN SITE DRAIN OPEN WEB STEEL JOIST OUNCE PROJECTED PILASTER, PIPE PAVER TILE PUSHBUTTON SWITCH POINT OF CURVE, PHOTOCCELL PRECAST CONCRETE PANEL PRECAST CONCRETE CYLINDER PIPE PRESSURE CONTROL VALVE PLAIN END PEDESTAL, PEDESTRIAN	PEP PEN. PFC PH pH PH PI PIT PJF PL PL PLAM PLAS PLC PLYWD PNL PP P-P PPL PR PRC PRCST PREFAB PRES PRI PRM PROJ PROP PS PS PSF PSI PSIG PT PT PTD PTN PV PVC PVI PVMT PVT QAA QMM QPI QPP QT R R OR RAD RA RC RCP RCPT RD RDCR RDW RECIR RECIR REF REFR REINF REQD RESIL RFS RH RH RHR RL RLS RM RO ROL RPM RR	POLYETHYLENE PIPE PENETRATION POUNDS PER CUBIC FOOT PENTHOUSE HYDROGEN ION CONCENTRATION PHASE POINT OF INTERSECTION PILOT TUBE TEST STATION PREMOULDED JOINT FILLER PLATE (STEEL) PROPERTY LINE PLASTIC LAMINATE PLASTER, PLASTIC PROGRAMMABLE LOGIC CONTROLLER PLYWOOD PANEL POWER POLE PUSH-PULL POLYPROPYLENE LINED PAIR POINT OF REVERSE CURVE PRECAST PREFABRICATION PRESSURE PRIMARY PERMANENT REFERENCED MARKER PROJECTION PROPERTY PLASTIC SHEET, POLYCARBONATE SHEET PAINT SYSTEM POUNDS PER SQUARE FOOT POUNDS PER SQUARE INCH POUNDS PER SQUARE INCH, GAUGE POINT OF TANGENCY POTENTIAL TRANSFORMER PRESSURE TREATED PAPER TOWEL DISPENSER PARTITION PLUG VALVE POLYVINYL CHLORIDE POINT OF VERTICAL INTERSECTION PAVEMENT POINT OF VERTICAL TANGENCY AVERAGE FLOW MAXIMUM 30 DAY FLOW PEAK INSTANTANEOUS FLOW PEAK PUMPING FLOW QUARRY TILE RISER RADIUS RETURN AIR REINFORCED CONCRETE REINFORCED CONCRETE PIPE RECEPTACLE ROAD, ROOF DRAIN REDUCER REDWOOD RECIRCULATION REFER OR REFERENCE REFRIGERATE, REFRIGERANT REINFORCED, REINFORCING, REINFORCE REQUIRED RESILIENT ROLL-UP FIRE SHUTTER RIGHT HAND ROD HOLE RIGHT HAND REVERSE RAIN LEADER RUBBER LINED STEEL ROOM ROUGH OPENING RAISE-OFF-LOWER REVOLUTIONS PER MINUTE RIPRAP
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- GENERAL NOTES:**
- 1. THIS IS A STANDARD LEGEND SHEET. THEREFORE, NOT ALL OF THE INFORMATION SHOWN MAY BE USED ON THIS PROJECT.
  - 2. CONTACT ENGINEER FOR ABBREVIATIONS USED BUT NOT SHOWN ON THIS DRAWING.

**JACOBS**

01-GENERAL  
**ABBREVIATIONS LEGEND**

01-GENERAL  
FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION  
ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

REVISION  
CHKD  
N JOHNSON  
SA KORCSMAROS  
DR  
DATE  
NO.  
DSGN

BY  
APVD  
DL  
LYNCH

VERIFY SCALE  
BAR IS ONE INCH ON ORIGINAL DRAWING.  
0 1" 1"

DATE JULY 2023  
PROJ E2X90000  
DWG 01-G-003  
SHEET 3 of 96

BID READY

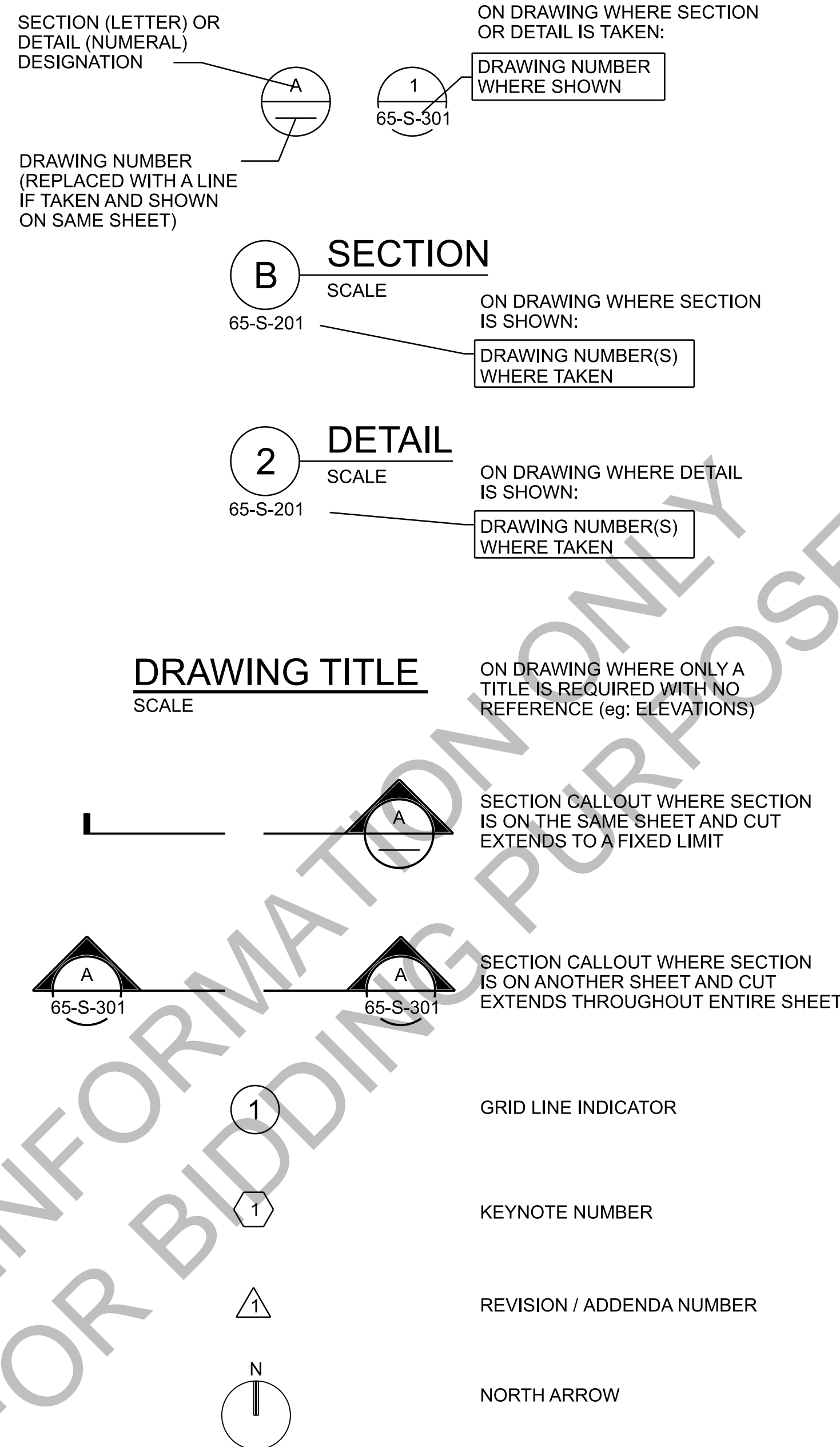
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# ABBREVIATIONS

RRUB	RADIAL RUBBER	TG	TEMPERED
RS	RIGID STEEL	TH	TOP-HINGED
RST	REINFORCING STEEL	THD	THREAD
RT	RIGHT	THK	THICKNESS
RTN	RETURN	THRU	THROUGH
RTO	REGENERATIVE THERMAL OXIDIZER	TJB	TERMINAL JUNCTION BOX
RUB	RUBBER	TL	TEFLON LINED PIPE
RUBC	RUBBER CUSHIONED FLOORING	T.O.	TIME TO OPEN, TOP OF
RUBS	RUBBER ESD CONTROL FLOORING	TOAE	TIME OPEN AFTER ENERGIZATION
R/W	RIGHT OF WAY	TOC	TOP OF CONCRETE
		TOC	TOP OF CURB
		TOD	TIME ON DELAY, TOP OF DUCT
S	I-BEAM		TOTAL OXYGEN DEMAND
S	SLOPE, SOUTH, SWITCH	TOF	TOP OF FOOTING
SA	SUPPLY AIR	TOG	TOP OF GROUT, TOP OF GRATE
SATC	SUSPENDED ACCUSTICAL TILE CEILING	T.O.P.	TOP OF PARAPET
SB	SEDIMENT BASIN	TOS	TOP OF SLAB
SC	SHOWER CURTAIN, SOLID CORE WOOD	TOW	TOP OF WALL
SCADA	SUPERVISORY CONTROL AND DATA ACQUISITION	TP	TURNING POINT
SCC	SOLID CORE	TR	TRANSOM, TRUSS
SCFM	STANDARD CUBIC FEED PER MINUTE	TRANS	TRANSFORMER, TRANSITION
SCHED	SCHEDULE	TRANSV	TRANSVERSE
SCU	SPEED CONTROL UNIT	TRD	TREAD
SDP	SUB-DISTRIBUTION PANEL	TS	TEMPORARY SEEDING, TUBE STEEL
SDWK	SIDEWALK	TSHT	THRESHOLD
SEC	SECONDARY	TSS	TOTAL SUSPENSION SOLIDS
SECT	SECTION	TST	TOP OF STEEL
SED	SEDIMENTATION	TTC	TELEPHONE TERMINAL CABINET
SEW	SEWAGE	TTD	TOILET TISSUE DISPENSER
SG	LAMINATED SAFETY GLASS, SAFETY	TU-X	TREATMENT UNIT NO. X
SGWB	SUSPENDED GYPSUM WALL BOARD	TURB	TURBIDITY
SH	SHEET	TWP	TRANSLUCENT WALL PANEL
SHA	SURFACE HARDENING AGENT	TX	TRANSFORMER
SHS	SOLIDS HANDLING SYSTEM	TYP	TYPICAL
SIM	SIMILAR		
SK	SINK	UON	UNLESS OTHERWISE NOTED
SLR	SEALER	UNO	UNLESS NOTED OTHERWISE
SMLS	SEAMLESS EPOXY	UPS	UNINTERRUPTIBLE POWER SUPPLY
SOI	SPRAY- ON INSULATION	USB	UNIT SUBSTATION
SOLN	SOLUTION	UVR	UNDER VOLTAGE RELAY
SP	SPACE OR SPACES,	V	VENT, VALVE
	SPANDREL PANEL, STORMPROOF	V	VOLTMETER, VOLTS
SPEC, SPECS	SPECIFICATIONS	VB	VAPOR BARRIER (RETARDER)
SPD	SUMP PUMP DISCHARGE	VC	VERTICAL CURVE
SPG	SPACING	VCP	VITRIFIED CLAY PIPE
SPLY	SUPPLY	VCT	VINYL COMPOSITION TILE
SQ	SQUARE	VEL	VELOCITY
SQ FT	SQUARE FOOT, FEET	VERT	VERTICAL
SQ IN	SQUARE INCH	VHC	VOLATILE HYDROCARBONS
SR	SHORT RADIUS	VIB	VIBRATION
SS	START-STOP	VIF	VERIFY IN FIELD
SST	STAINLESS STEEL	VIN	VINYL
SSC	SUPERVISORY SET POINT CONTROL	VINT, VT	VINYL TILE
ST	STORM DRAIN	VP	VERTICAL PIVOTED
ST	STRAIGHT	VPS	VENEER PLASTER SYSTEM
STA	STATUS, STATION	VPC	POINT OF VERTICAL CURVATURE
STD	STANDARD	VPI	POINT OF VERTICAL INTERSECTION
STIF	STIFFENER	VPT	POINT OF VERTICAL TANGENT
STIRR	STIRRUP	VS	VERTICAL SLIDE
STL	STEEL	VTR	VENT THRU ROOF
STRL	STRUCTURAL	VWC	VINYL WALL COVERING
STRUCT	STRUCTURE		
SUBFL	SUBFLOOR	W	WEST
SUSP	SUSPENDED	W/	WITH
SV	SOLENOID VALVE	WC	WATER COLUMN
SVIN	SHEET VINYL	WEASTRIP	WEATHERSTRIP
SWBD	SWITCHBOARD	WG	WIRE, WIRE GLASS
SWGR	SWITCHGEAR	WH	WATTHOUR METER
SYMM	SYMMETRICAL	WHD	WATTHOUR DEMAND METER
		WP	WATERPROOF, WEATHERPROOF, WORKPOINT
T	THERMOSTAT, TREAD	WR	WASTE RECEPTACLE
T/	TOP OF	WRB	WATER RESISTANT GWB
T&B	TOP AND BOTTOM	WS	WATER SURFACE, WATERSTOP, WELDED STEEL
T&G	TONGUE AND GROOVE	WWF	WELDED WIRE FABRIC
TA	TRANSFER AIR	WWPH	WET WEATHER PEAK HOUR
TAN	TANGENT		
TB	TERMINAL BOARD		
TBG	TUBING		
TC	TIME TO CLOSE		
TC	TURBIDITY CURTAIN		
TCAD	TIME CLOSE AFTER DE-ENERGIZATION		
TCAE	TIME CLOSE AFTER ENERGIZATION		
TDH	TOTAL DYNAMIC HEAD		
TDR	TIME DELAY RELAY		
TECH	TECHNICAL		
TEL	TELEPHONE		
TEMP	TEMPORARY, TEMPERATURE		
TF	TOP FACE		
TFG	TEMPERED FLOAT GLASS		

# SECTION / DETAIL DESIGNATIONS



# DESIGN DETAIL DESIGNATION

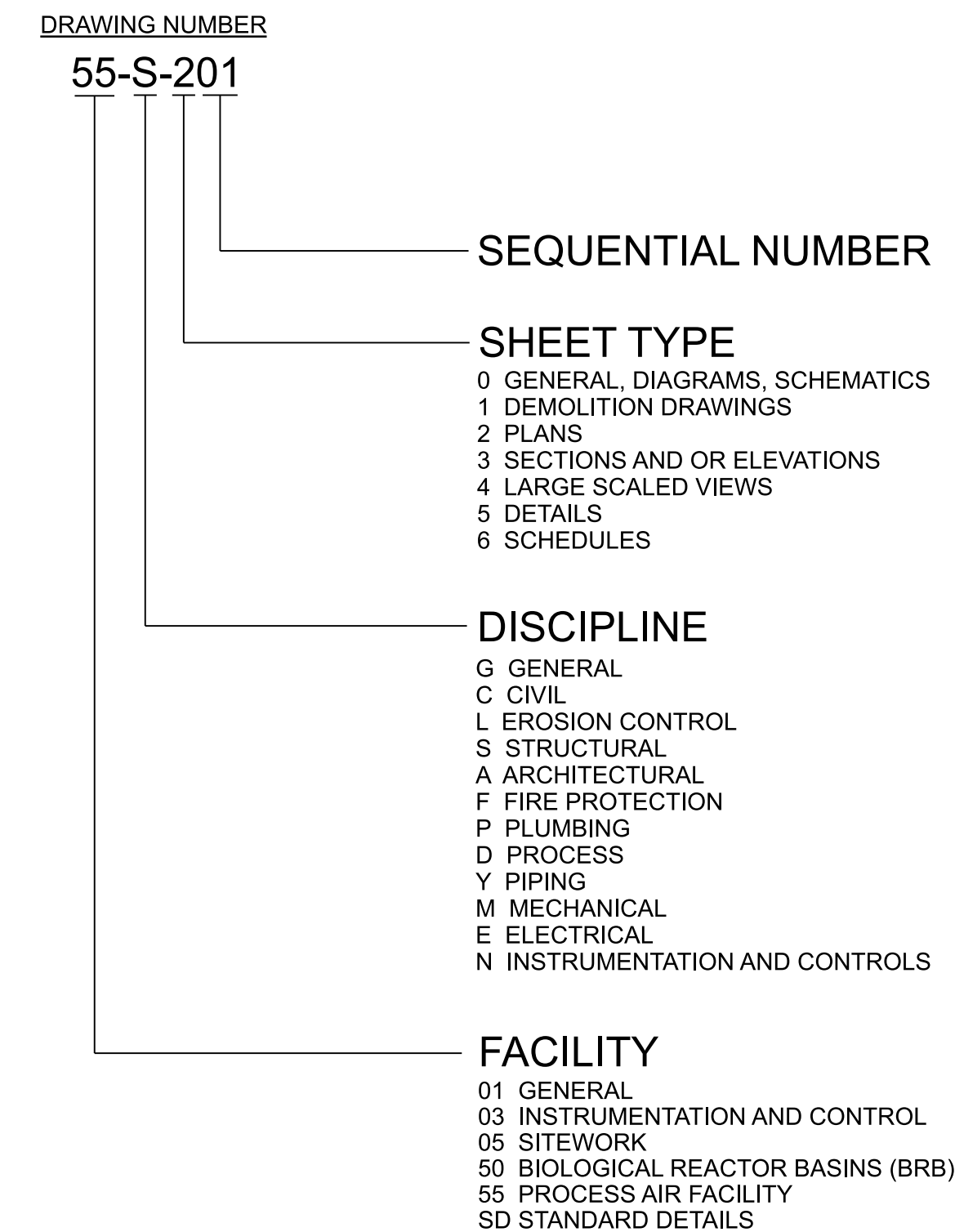
DESIGN DETAIL DESIGNATION (NUMERAL) SHOWN ON DESIGN DETAIL DRAWING(S)

(1234-567)

### NOTES:

- ALL DESIGN DETAILS ARE TYPICAL AND MUST BE USED IF DESIGN DETAIL DESIGNATION IS NOT SHOWN
- THE TERM STANDARD DETAIL, OR A FORM OF IT, IS SYNONYMOUS WITH DESIGN DETAIL. THE DESIGN DETAILS REPRESENT THE CHARACTER AND NATURE OF THE WORK REQUIRED THROUGHOUT THE PROJECT. ALL ASSOCIATED WORK SHALL BE IN ACCORDANCE WITH THE DESIGN DETAILS SHOWN WHETHER THE DETAILS ARE SPECIFICALLY REFERENCED OR NOT.

# DRAWING NUMBER DESIGNATION



# PROJECT NOTES:

- PROJECT ELEVATIONS ARE BASED ON NAVD 88. EXISTING ELEVATIONS ARE BASED ON NGVD 29. EXISTING DRAWINGS WERE USED AS BACKGROUNDS FOR EXISTING BUILDINGS/STRUCTURES. EXISTING ELEVATIONS HAVE BEEN CONVERTED TO NAVD 88, UNLESS NOTED OTHERWISE. TO CONVERT BETWEEN NGVD 29 AND NAVD 88 USE THE FOLLOWING CONVERSIONS:  
 NGVD 29 TO NAVD 88: SUBTRACT 1.04 FEET  
 NAVD 88 TO NGVD 29: ADD 1.04 FEET
- CONTRACTOR SHALL FIELD VERIFY EXISTING ELEVATIONS AND DIMENSIONS.

# GENERAL NOTES:

- THIS IS A STANDARD LEGEND SHEET. THEREFORE, NOT ALL OF THE INFORMATION SHOWN MAY BE USED ON THIS PROJECT.
- CONTACT ENGINEER FOR ABBREVIATIONS USED BUT NOT SHOWN ON THIS DRAWING.

**Jacobs**

01-GENERAL  
 ABBREVIATIONS AND  
 GENERAL LEGEND

VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING.	
DATE	JULY 2023
PROJ	E2X90000
DWG	01-G-004
SHEET	4 of 96

BID READY

# INSTRUMENT IDENTIFICATION

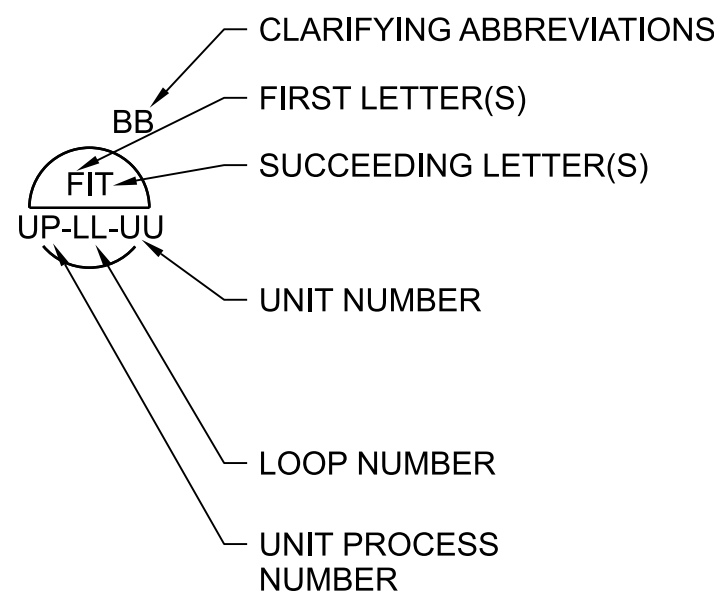
## INSTRUMENT IDENTIFICATION LETTERS TABLE

LETTER	FIRST-LETTER		SUCCEEDING-LETTERS		
	PROCESS OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	READOUT OR PASSIVE FUNCTION	READOUT OR PASSIVE FUNCTION
A	ANALYSIS (+)		ALARM		
B	BURNER, COMBUSTION		USER'S CHOICE (*)	USER'S CHOICE (*)	USER'S CHOICE (*)
C	USER'S CHOICE (*)			CONTROL	
D	DENSITY (S.G.)	DIFFERENTIAL			
E	VOLTAGE		PRIMARY ELEMENT, SENSOR		
F	FLOW RATE	RATIO (FRACTION)			
G	USER'S CHOICE (*)		GLASS, GAUGE VIEWING DEVICE	GATE	
H	HAND (MANUAL)				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT (PILOT)		LOW
M	MOTION	MOMENTARY			MIDDLE, INTERMEDIATE
N	TORQUE		USER'S CHOICE (*)	USER'S CHOICE (*)	USER'S CHOICE (*)
O	USER'S CHOICE (*)		ORIFICE, RESTRICTION		
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RADIATION		RECORD OR PRINT		
S	SPEED, FREQUENCY	SAFETY			
T	TEMPERATURE		SWITCH		
U	MULTI VARIABLE		MULTI FUNCTION	MULTI FUNCTION	MULTI FUNCTION
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE		WELL		
X	UNCLASSIFIED (*)	X AXIS	UNCLASSIFIED (*)	UNCLASSIFIED (*)	UNCLASSIFIED (*)
Y	EVENT, STATE OR PRESENCE	Y AXIS		RELAY, COMPUTE, CONVERT	
Z	POSITION	Z AXIS		DRIVE, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

TABLE BASED ON THE INSTRUMENTATION, SYSTEMS, AND AUTOMATION SOCIETY (ISA) STANDARD.

(+) WHEN USED, EXPLANATION IS SHOWN ADJACENT TO INSTRUMENT SYMBOL. SEE ABBREVIATIONS AND LETTER SYMBOLS.  
 (\*) WHEN USED, DEFINE THE MEANING HERE FOR THE PROJECT.

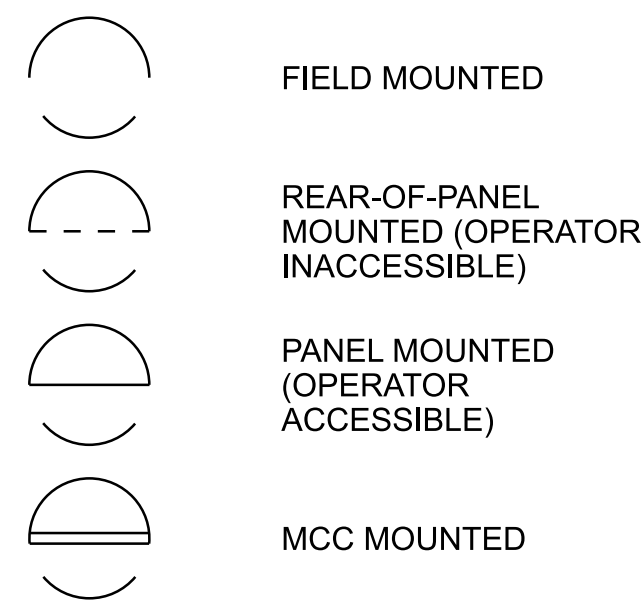
### EXAMPLE SYMBOLS



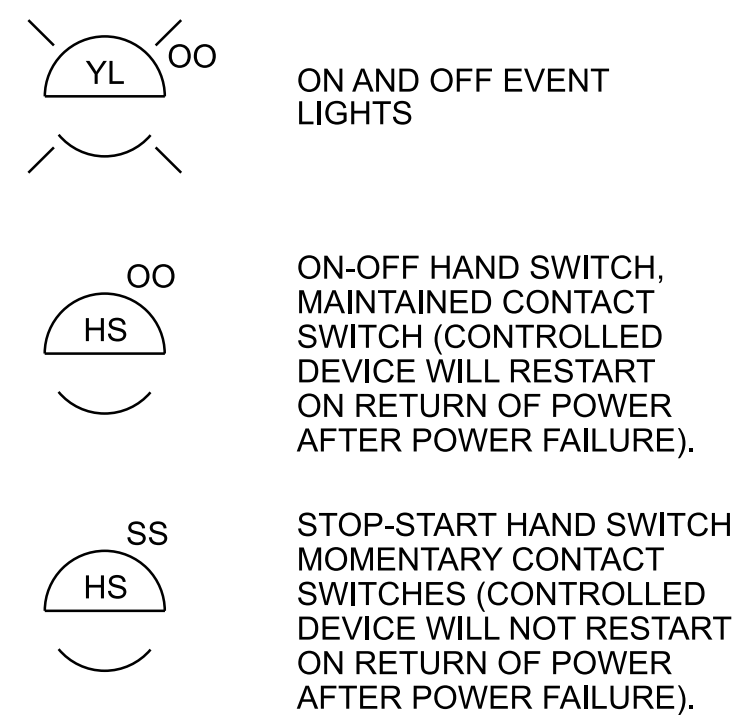
### DIGITAL SYSTEM INTERFACES

- ▲ ANALOG INPUT
- ▼ ANALOG OUTPUT
- △ DISCRETE INPUT
- ▽ DISCRETE OUTPUT

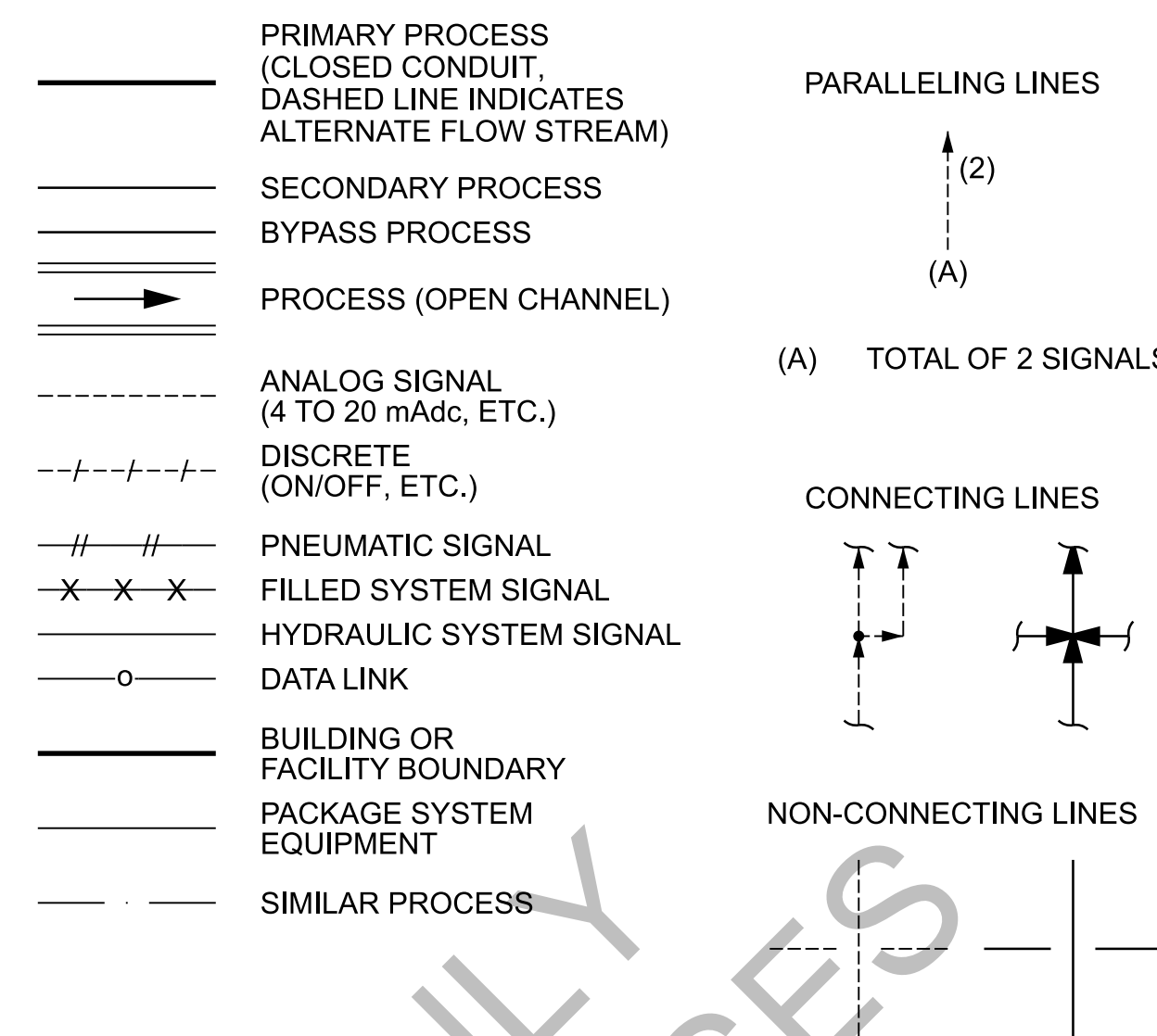
### GENERAL INSTRUMENT OR FUNCTIONAL SYMBOLS



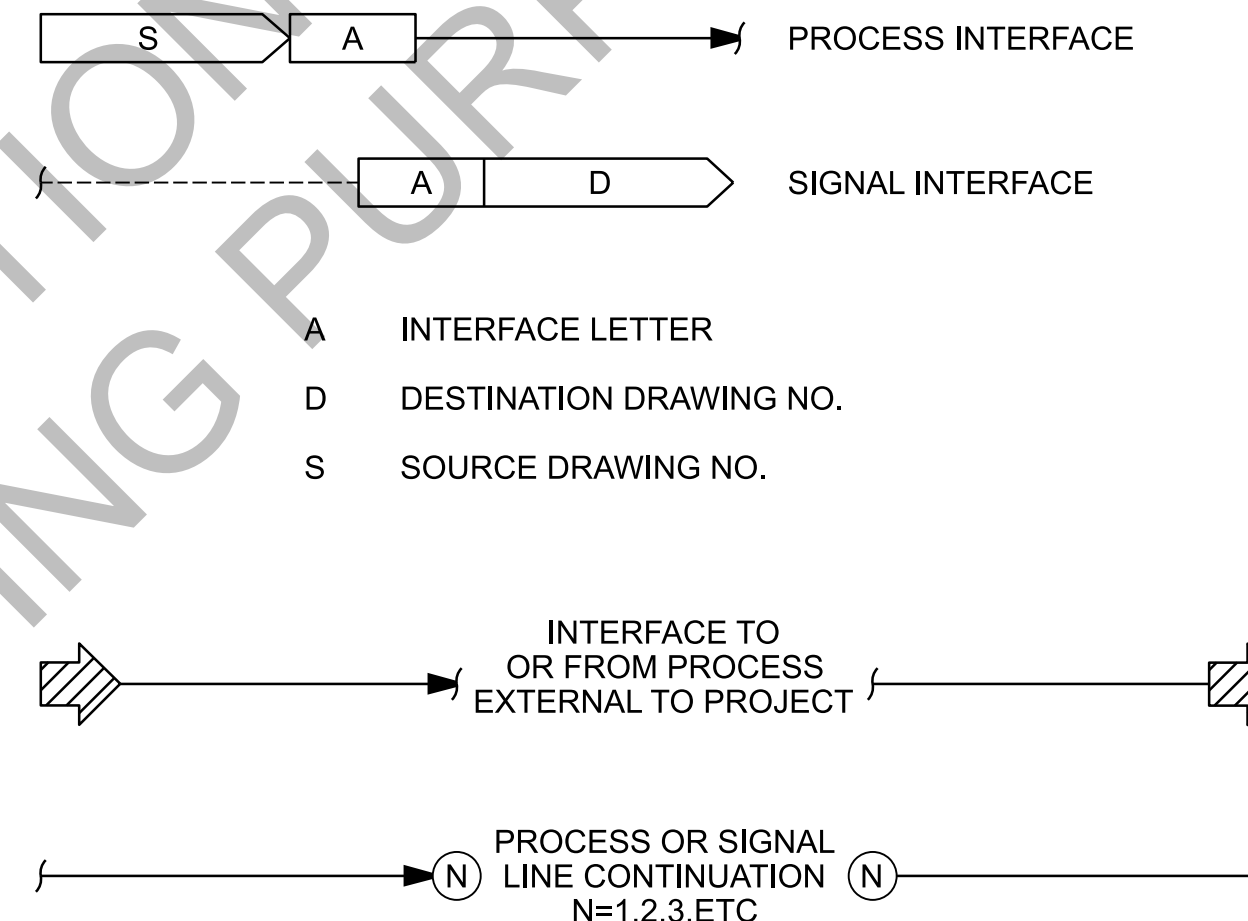
### HAND SWITCHES AND INDICATING LIGHTS



# LINE LEGEND



# INTERFACE SYMBOLS



# SELF CONTAINED VALVE & EQUIPMENT TAG NUMBERS

- D-UP-LL-UU**
- D ARV AIR RELEASE VALVE
  - AVRV AIR AND VACUUM RELEASE VALVE
  - E EJECTOR
  - G GATE
  - M MECHANICAL EQUIPMENT
  - P PUMP
  - T TANK
- UP UNIT PROCESS NUMBER  
 LL LOOP NUMBER  
 UU UNIT NUMBER

# ABBREVIATIONS & LETTER SYMBOLS

- AC ALTERNATING CURRENT
- AM AUTO-MANUAL
- CL<sub>2</sub> etc. CHLORINE (TYPICAL: USE STANDARD CHEMICAL ELEMENT ABBREVIATIONS)
- COD CHEMICAL OXYGEN DEMAND
- CP-X CONTROL PANEL NO. X (X = FACILITY NUMBER)
- DC DIRECT CURRENT
- DO DISSOLVED OXYGEN
- FCL<sub>2</sub> FREE CHLORINE RESIDUAL
- FOS FAST-OFF-SLOW
- FOSA FAST-OFF-SLOW-AUTO
- FOSR FAST-OFF-SLOW-REMOTE
- FP-W-X FIELD PANEL NO. WX (W = UNIT PROCESS NUMBER, X = PANEL NUMBER)
- FR FORWARD-REVERSE
- HOA HAND-OFF-AUTO
- HOR HAND-OFF-REMOTE
- ISR INTRINSICALLY SAFE RELAY
- LEL LOWER EXPLLOSIVE LIMIT
- LOS LOCKOUT STOP
- LR LOCAL-REMOTE
- MA MANUAL-AUTO
- MC MODULATE-CLOSE
- MCC-X MOTOR CONTROL CENTER NO. X
- MSC MANUFACTURER SUPPLIED CABLE
- NC NORMALLY CLOSED
- NO NORMALLY OPEN
- OC OPEN-CLOSE(D)
- OCA OPEN-CLOSE-AUTO
- OCR OPEN-CLOSE-REMOTE
- OO ON-OFF
- OAA ON-OFF-AUTO
- OOR ON-OFF-REMOTE
- ORP OXIDATION REDUCTION POTENTIAL
- OSC OPEN-STOP-CLOSE
- pH HYDROGEN ION CONCENTRATION
- PLC PROGRAMMABLE LOGIC CONTROLLER
- RIO REMOTE I/O UNIT
- RTU-X REMOTE TELEMETRY UNIT NO. X
- SOF SLOW-OFF-FAST
- SS START-STOP
- TCL<sub>2</sub> TOTAL CHLORINE RESIDUAL
- TOC TOTAL ORGANIC CARBON
- TOD TOTAL OXYGEN DEMAND
- TURB TURBIDITY
- VHC VOLATILE HYDROCARBONS
- VIB VIBRATION

# GENERAL NOTES

- COMPONENTS AND PANELS SHOWN WITH A SINGLE ASTERISK (\*) ARE TO BE PROVIDED AS PART OF A PACKAGE SYSTEM.
- COMPONENTS AND PANELS SHOWN WITH A DOUBLE ASTERISK (\*\*\*) ARE TO BE PROVIDED UNDER DIVISION 26, ELECTRICAL.
- THIS IS A STANDARD LEGEND. THEREFORE, NOT ALL OF THIS INFORMATION MAY BE USED ON THE PROJECT.

**Jacobs**

01-GENERAL  
 INSTRUMENTATION AND  
 CONTROL LEGEND  
 SHEET 1 OF 2

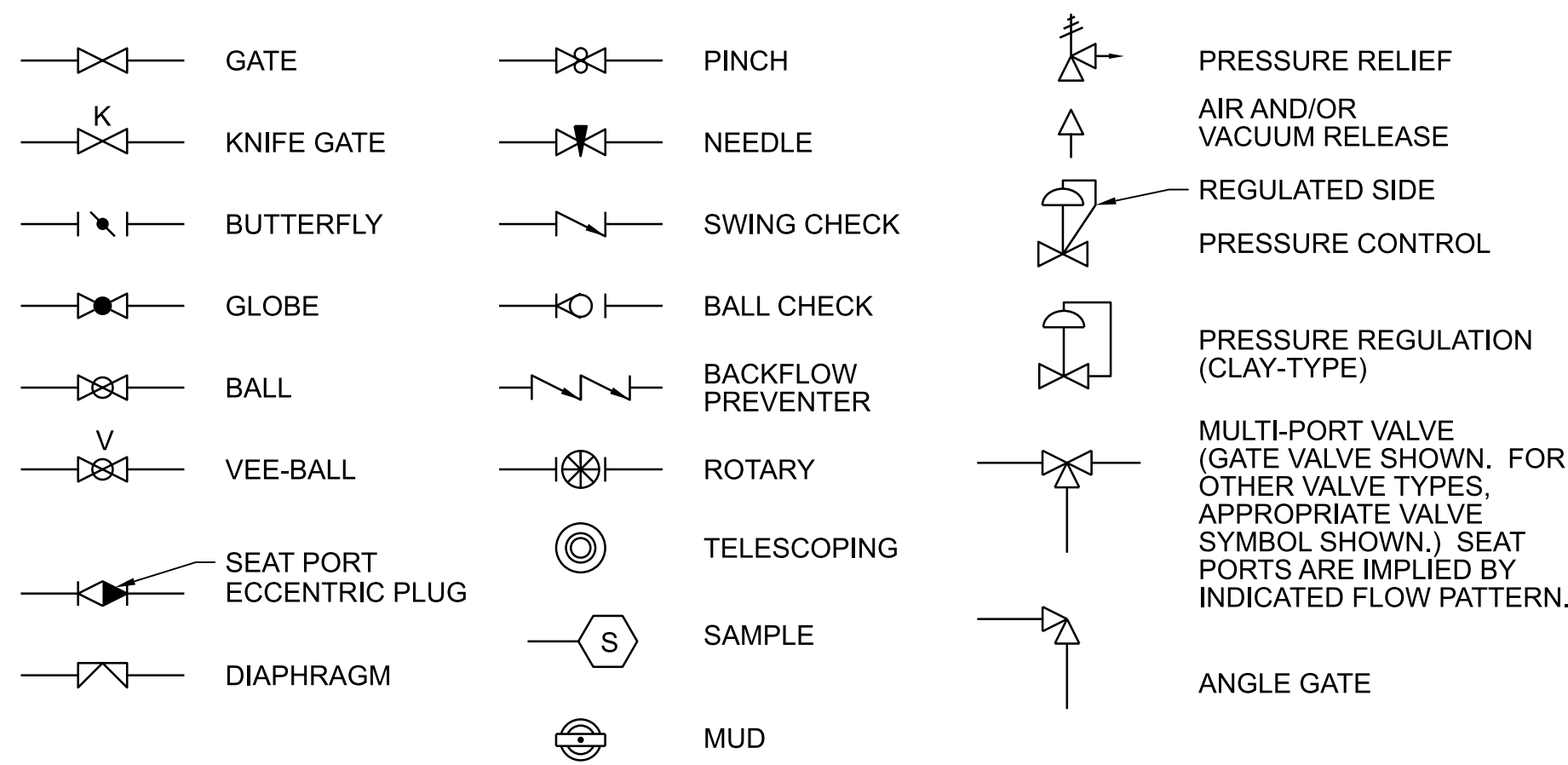
VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING.	
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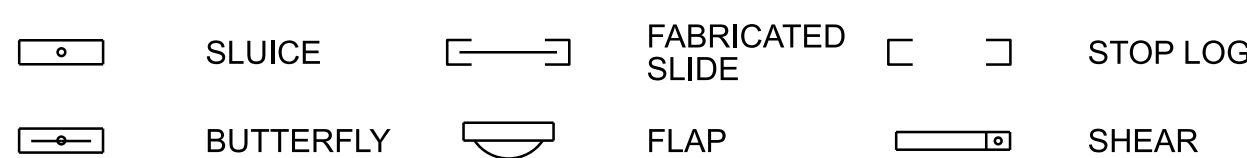
REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF JACOBS AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF JACOBS. © JACOBS 2020. ALL RIGHTS RESERVED.

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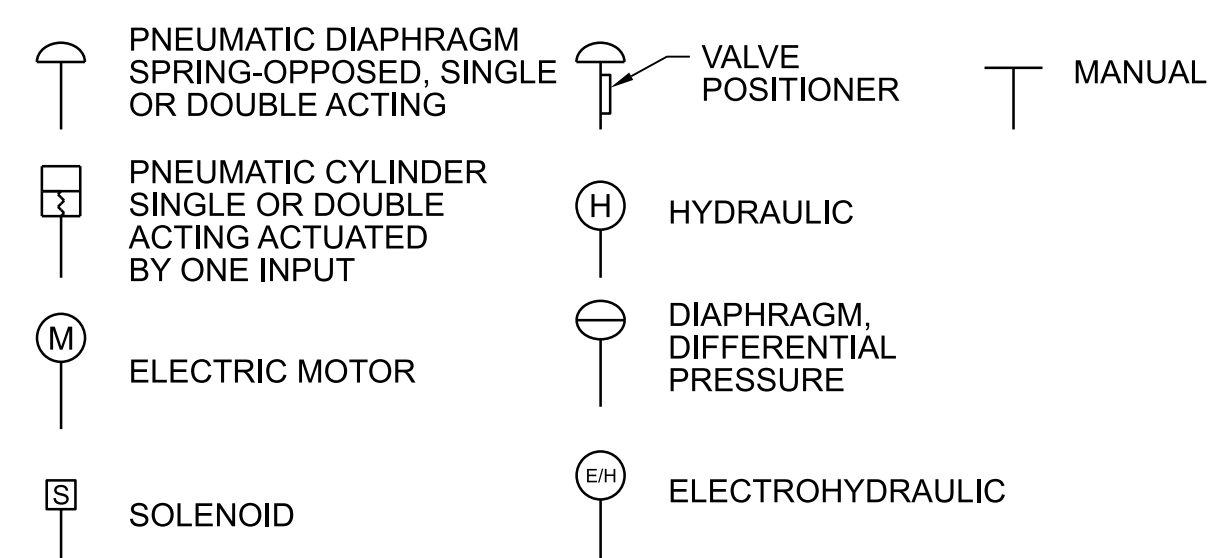
**VALVE SYMBOLS**



**GATE SYMBOLS**



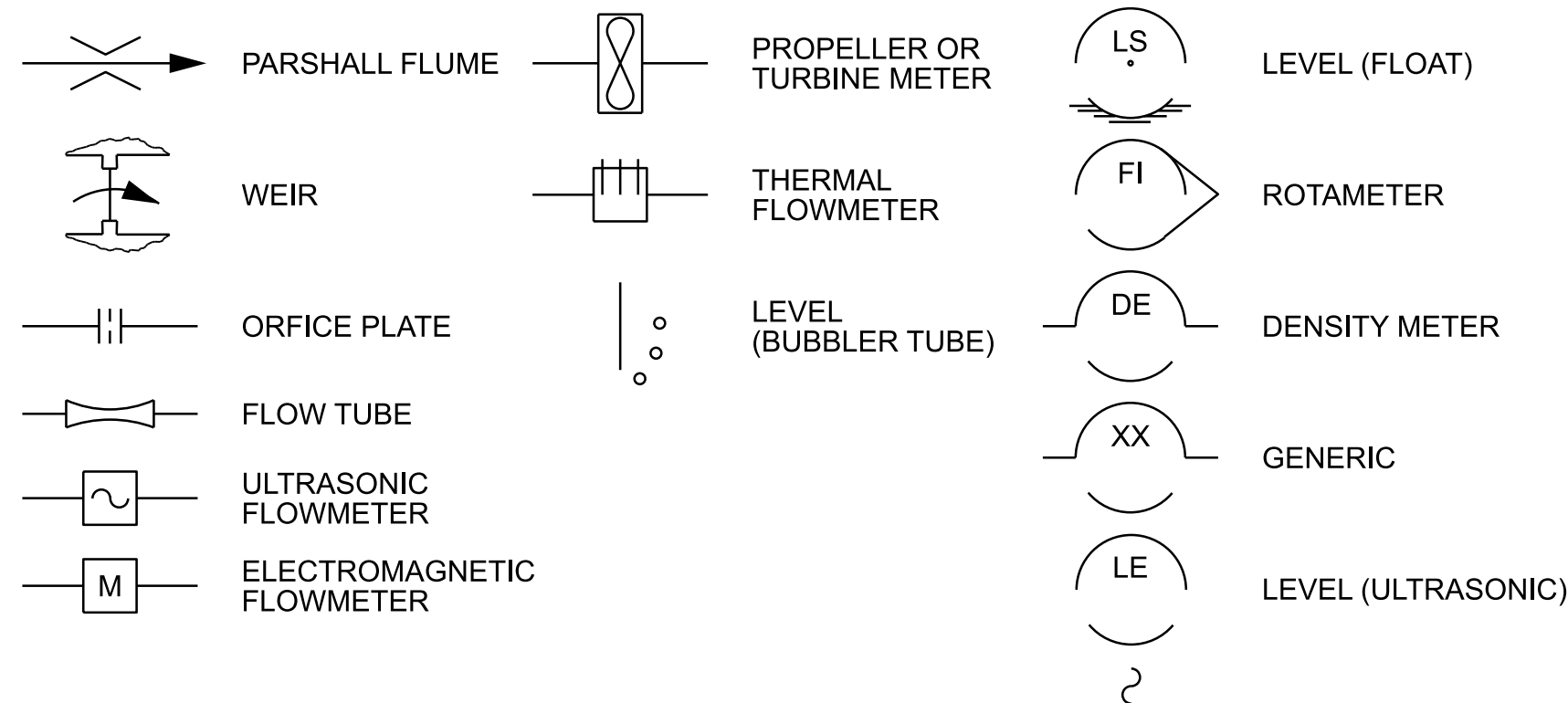
**ACTUATOR SYMBOLS**



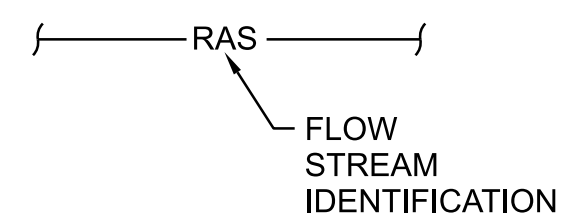
NOTE: ON LOSS OF PRIMARY POWER (PNEUMATIC, ELECTRICAL, OR HYDRAULIC)

XX: FO FAIL OPEN  
FC FAIL CLOSED  
FLP FAIL TO LAST POSITION

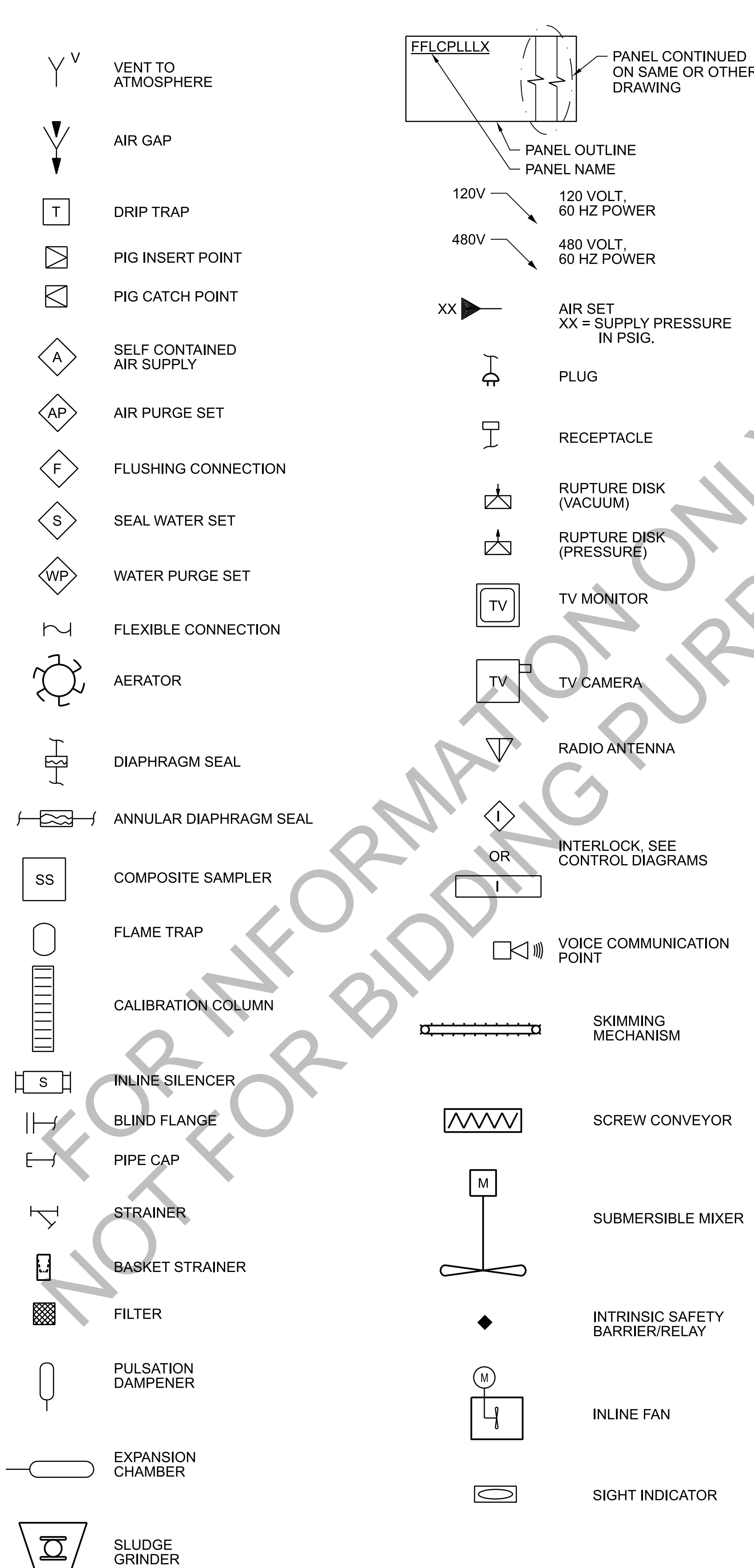
**PRIMARY ELEMENT SYMBOLS**



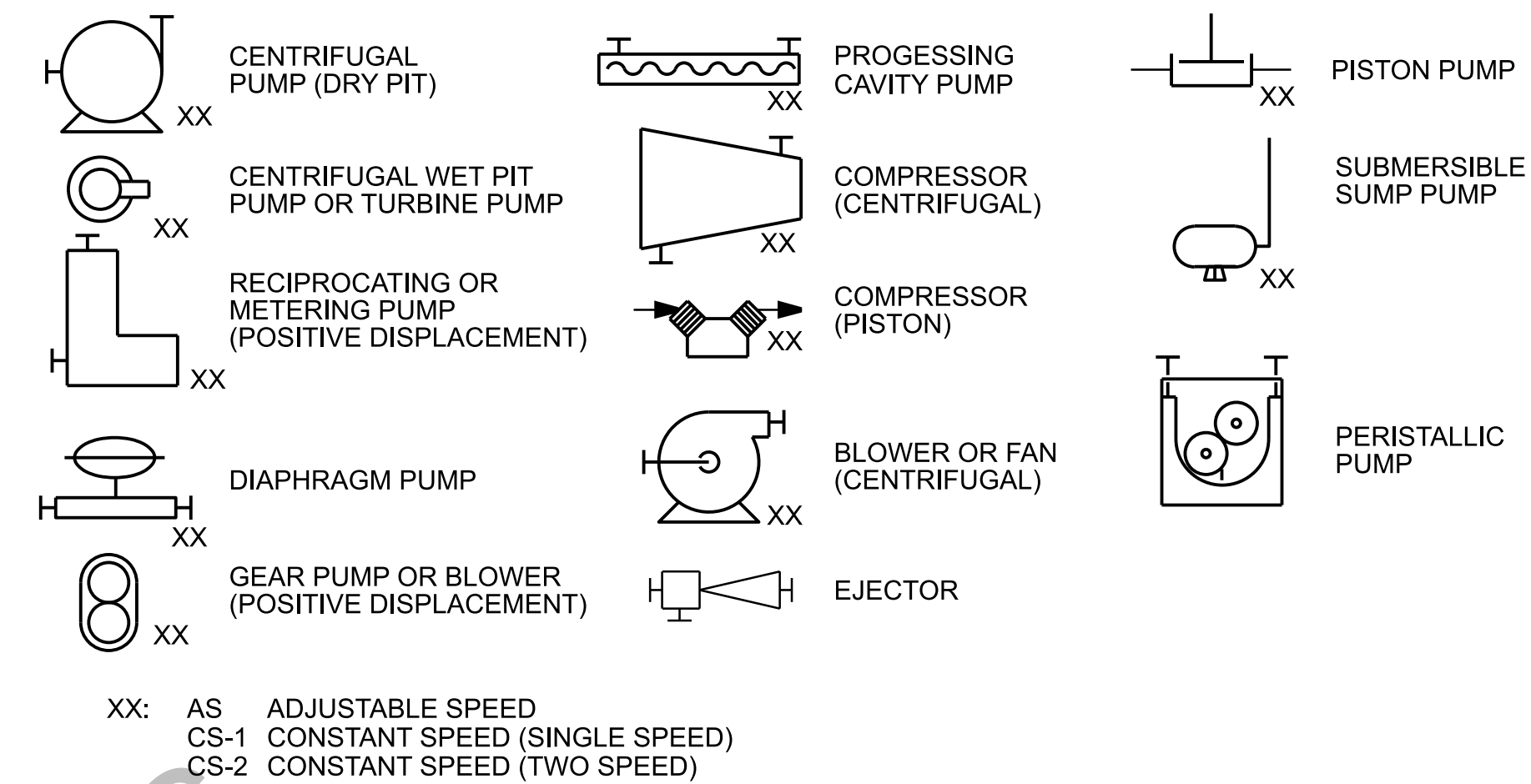
**PIPING DESIGNATION**



**MISCELLANEOUS SYMBOLS**



**PUMP AND COMPRESSOR SYMBOLS**



**FLOW STREAM IDENTIFICATION**

- ALP AIR LOW PRESSURE PROCESS
- FWP FIRE WATER PROTECTION
- PW PLANT WATER
- SD SCUM DRAIN
- WAS WASTE ACTIVATED SLUDGE

**Jacobs**

01-GENERAL  
INSTRUMENTATION AND CONTROL LEGEND  
SHEET 2 OF 2

VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING.	
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NOTE:  
1. FOR EXISTING CIVIL YARD PIPING FLOW STREAM IDENTIFICATION, SEE CIVIL LEGEND.



## GENERAL ARCHITECTURAL NOTES

- UNLESS OTHERWISE INDICATED, PLAN DIMENSIONS ARE TO COLUMN GRID ON CENTERLINES, NOMINAL SURFACE OF MASONRY, FACE OF STUDS AND FACE OF CONCRETE WALLS.
- "FLOOR LINE" REFERS TO TOP ON CONCRETE SLABS. FINISH FLOORING IS INSTALLED ABOVE THE FLOOR LINE. FOR DEPRESSED FLOORS AND CURBS, SEE STRUCTURAL DRAWINGS.
- REPETITIVE FEATURES ARE NOT DRAWN IN THEIR ENTIRETY AND SHALL BE COMPLETELY PROVIDED AS IF DRAWN IN FULL.
- WHERE DOOR IS LOCATED NEAR CORNER OF ROOM AND IS NOT LOCATED BY DIMENSION ON PLAN OR DETAILS, DIMENSION SHALL BE 3-INCHES FROM FACE OF STUD (WALL) TO FACE OF ROUGH OPENING. DIMENSION SHALL BE 6" FROM FACE OF WALL TO EDGE OF ROUGH OPENING AT CONCRETE WALLS, 8" AT CMU WALLS.
- AT SOUND INSULATED WALLS, FULL HEIGHT PARTITIONS SHALL BE SEALED BOTH SIDES WITH ACOUSTIC SEALANT; TOP, BOTTOM, INTERSECTION, DOOR FRAMES, GLAZED OPENING FRAMES, AND OTHER PENETRATIONS.
- LINE OF EXISTING GRADES, AS SHOWN ON THE BUILDING ELEVATIONS AND SECTIONS ARE APPROXIMATE. THEY ARE AT THE BUILDING FACE, OR ON THE SECTION END EXCEPT AS NOTED.
- VERIFY ALL ROUGH-IN DIMENSIONS FOR EQUIPMENT PROVIDED IN THIS CONTRACT, OR BY OTHERS.
- REFER TO ARCHITECTURAL, STRUCTURAL, MECHANICAL, ELECTRICAL AND OTHER CATEGORIES OR DRAWINGS FOR ADDITIONAL NOTES.
- VERIFY SIZE AND LOCATION OF, AND PROVIDE: REQUIRED OPENINGS THROUGH FLOORS AND WALLS, ACCESS DOORS, FURRING, CURBS, ANCHORS AND INSERTS. PROVIDE ALL BASES AND BLOCKING REQUIRED FOR ACCESSORIES, MECHANICAL, ELECTRICAL AND OTHER EQUIPMENT.

## ARCH/STRUCT MATERIAL SYMBOLS

SYMBOL	LEGEND
	GRATING, SPAN DIRECTION INDICATED
	CHECKERED PLATE
	GROUT
	GRANULAR FILL
	EARTH OR FINISH GRADE
	CONCRETE
	CMU WALL (PLAN)
	CMU WALL (SECTION)
	MASONRY WALL
	METAL STUD WALL (PLAN)
	WOOD STUD WALL (PLAN)
	RIGID INSULATION
	BATT INSULATION
	STEEL
	ALUMINUM
	PLYWOOD
	GYPSUM WALLBOARD
	ACOUSTICAL TILE
	WOOD, ROUGH CONTINUOUS
	WOOD, ROUGH NON-CONTINUOUS
	WOOD, FINISHED

## ARCHITECTURAL/STRUCTURAL LEGEND

SYMBOL	LEGEND
	NEW REFERENCE GRID INDICATOR
	EXISTING REFERENCE GRID INDICATOR
	ROOM IDENTIFIER
	DOOR IDENTIFIER
	WINDOW IDENTIFIER
	RELIGHT IDENTIFIER
	LOUVER IDENTIFIER
	WALL TYPE INDICATOR
	SIGNAGE IDENTIFIER
	PRECAST PANEL IDENTIFIER
	EXTERIOR ELEVATION INDICATOR
	INTERIOR ELEVATION INDICATOR
	DETAIL INDICATOR - SMALL CONDITION
	SPOT ELEVATION INDICATOR
	DIRECTION OF SLOPE DOWN
	DOOR/HATCH SWING INDICATOR
	INDICATES PAIR OF DOORS
	FIRE EXTINGUISHER "X" = NUMBER IN SPECIFICATIONS
	CONTROL JOINT
	EXPANSION JOINT
	RAILINGS

## CONNECTICUT CODES

THE STATE BUILDING INSPECTOR, STATE FIRE MARSHAL AND THE CODES AND STANDARDS COMMITTEE ARE IN THE PROCESS OF ADOPTING THE 2022 STATE BUILDING AND FIRE SAFETY CODES BASED ON THE 2021 EDITIONS OF THE INTERNATIONAL CODE COUNCIL (ICC) DOCUMENTS. THE PROJECTED EFFECTIVE DATE FOR THE 2022 CODES IS OCTOBER 2022.

PER THE STATE OF CONNECTICUT OFFICE OF STATE BUILDING INSPECTOR, THE FOLLOWING CODES HAVE BEEN ADOPTED AND ARE APPLICABLE TO THIS PROJECT:

BUILDING CODE:  
2018 CONNECTICUT STATE BUILDING CODE (CSBC),  
2015 INTERNATIONAL BUILDING CODE (IBC) AS MODIFIED BY CSBC  
EXISTING BUILDING CODE: 2015 INTERNATIONAL EXISTING BUILDING CODE (IEBC) AS MODIFIED BY CSBC  
ACCESSIBILITY CODE: ICC/ANSI A117.1-2009 ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES AS MODIFIED BY CSBC  
FIRE CODE: CONNECTICUT STATE FIRE SAFETY CODE INCLUDING ALL CURRENT AMENDMENTS TO THE FIRE CODE  
ENERGY CODE: 2015 INTERNATIONAL ENERGY CONSERVATION CODE (IECC) AS MODIFIED BY CAIECC  
MECHANICAL CODE: 2015 INTERNATIONAL MECHANICAL CODE INTERNATIONAL MECHANICAL CODE (IMC) AS MODIFIED BY CSBC  
PLUMBING CODE: 2015 INTERNATIONAL PLUMBING CODE (IPC) AS MODIFIED BY CSBC  
ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE (NEC) AS MODIFIED BY CSBC

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**Jacobs**

01-GENERAL  
ARCHITECTURAL/STRUCTURAL  
LEGEND

PROCESS AIR COMPRESSOR SYSTEM  
FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION  
ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

NO.	DATE	DR	CHK	APVD	DL LYNCH
		R SIEBERS	SA KORCSMAROS	A DOLSAK	
		DSGN	REVISION	BY	APVD

VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING.	
DATE	JULY 2023
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## DESIGN CRITERIA

- APPLICABLE CODE: 2015 INTERNATIONAL BUILDING CODE (IBC), AS AMENDED BY THE STATE OF CONNECTICUT AND ALL OTHER APPLICABLE LOCAL AGENCIES.
- DEAD LOADS:
  - SELF WEIGHT
  - ROOF CALLATERAL LOAD = 15 PSF
- ROOF LOADES:
  - SNOW LOADS:
    - GROUND SNOW LOAD,  $P_g$  = 30 PSF
    - SNOW EXPOSURE FACTOR,  $C_e$  = 1.0
    - IMPORTANCE FACTOR,  $I$  = 1.1
  - ROOF LIVE LOAD = 20 PSF
- BUILDING LIVE LOADS:
  - MECHANICAL ROOM = 200 PSF
  - ELECTRICAL ROOM = 300 PSF
- WIND LOADS:
  - BASIC WIND SPEED (3-SECOND GUST) = 135 MPH
  - EXPOSURE CATEGORY = C
  - RISK CATEGORY = III
  - INTERNAL PRESSURE COEFFICIENT = 0.55 +/-

STRENGTH LEVEL COMPONENTS AND CLADDING - WALL (TABLE 30.4-1 AND FIGURE 30.4-2A)						
COMPONENT	ZONE	EFF. AREA (FT <sup>2</sup> )	+GC <sub>p</sub>	-GC <sub>p</sub>	PRES (+VE) (PSF)	PRES (-VE) (PSF)
<= 10 SF	4	10.0	0.90	-0.99	51.9	-55.1
50 SF	4	50.0	0.79	-0.88	47.9	-51.1
<= 10 SF	5	10.0	0.90	-1.26	51.9	-64.8
50 SF	5	50.0	0.79	-1.04	47.9	-56.8

- SEISMIC LOADS:
  - MAPPED SPECTRAL RESPONSE ACCELERATIONS
    - $S_s$  = 0.2g
    - $S_1$  = 0.053g
  - DESIGN SPECTRAL RESPONSE ACCELERATIONS
    - $S_{ds}$  = 0.213g
    - $S_{d1}$  = 0.086g
  - SITE CLASS = D
  - RISK CATEGORY = III
  - SEISMIC DESIGN CATEGORY = B
  - IMPORTANCE FACTOR,  $I_e$  = 1.25
  - SEISMIC FORCE RESISTING SYSTEM ORDINARY REINFORCED CMU SHEAR WALLS
    - $V$  =  $C_s W$
    - $V$  = 680 KIPS
    - $R$  = 2
    - $C_s$  = 0.124
- SOIL DESIGN PARAMETERS:
  - GROUND WATER (GW) ELEVATION:
    - NORMAL HIGH GW EL 11.5 FEET
    - 100 YEAR FLOOD EL 12.0 FEET
- FROST DEPTH: 42IN

## GENERAL INFORMATION

- FOR ABBREVIATIONS NOT LISTED, SEE ASME Y14.38 "ABBREVIATIONS AND ACRONYMS: PUBLICATION AS DISTRIBUTED BY THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME).
- DESIGN DETAILS ARE INTENDED TO BE TYPICAL AND SHALL APPLY TO SIMILAR SITUATIONS OCCURRING THROUGHOUT THE PROJECT, WHETHER OR NOT THEY ARE INDIVIDUALLY CALLED OUT.
- VERIFY FINAL OPENING DIMENSIONS IN WALLS, SLABS, AND DECKS WITH OTHER DISCIPLINE DRAWINGS PRIOR TO CONSTRUCTION OF THESE ELEMENTS.
- FOR NUMBER, TYPE, SIZE, ARRANGEMENT, AND/OR LOCATION OF EQUIPMENT PADS, SEE OTHER DISCIPLINE DRAWINGS. COORDINATE WITH EQUIPMENT SUPPLIER PRIOR TO PLACING SLABS, WALLS AND FOUNDATIONS. COORDINATE PIPING OPENINGS WITH OTHER DISCIPLINE DRAWINGS.
- DO NOT CUT OR MODIFY STRUCTURAL MEMBERS FOR PIPES, DUCTS, ETC., UNLESS SPECIFICALLY DETAILED OR APPROVED IN WRITING BY THE ENGINEER.
- VISITS TO THE JOB SITE BY THE ENGINEER TO OBSERVE THE CONSTRUCTION DO NOT IN ANY WAY MEAN THAT ENGINEER IS GUARANTOR OF CONSTRUCTOR'S WORK, NOR RESPONSIBLE FOR THE COMPREHENSIVE OR SPECIAL INSPECTIONS, COORDINATION, SUPERVISION, OR SAFETY AT THE JOB SITE.
- INFORMATION (DETAILING, DIMENSIONS, CONFIGURATIONS, AND ELEVATIONS, ETC.) OF EXISTING CONSTRUCTION SHOWN REFLECTS AVAILABLE EXISTING DESIGN DOCUMENTS, AND DOES NOT NECESSARILY REPRESENT THE AS-CONSTRUCTED CONDITIONS. THE CONTRACTOR SHALL FIELD VERIFY DIMENSIONS, ELEVATIONS AND DETAILING OF THE EXISTING STRUCTURES PRIOR TO UNDERTAKING ANY WORK THAT IS AFFECTED BY THE EXISTING STRUCTURE. NOTIFY ENGINEER IF CONDITIONS VARY FROM THAT SHOWN PRIOR TO STARTING WORK.

## INSPECTION AND TESTING

- SPECIAL INSPECTION DOES NOT INCLUDE OR WAIVE THE RESPONSIBILITY FOR INSPECTIONS REQUIRED BY THE BUILDING OFFICIAL. THE CONTRACTOR SHALL SCHEDULE BOTH INSPECTIONS.
- SPECIFIED CONCRETE AND OTHER MATERIAL TESTING RELATED TO SPECIAL INSPECTION DURING CONSTRUCTION WILL BE OWNER FURNISHED.
- SPECIFIED LABORATORY TEST MIXES AND SIMILAR TEST RESULTS TO VERIFY MATERIAL QUALITY AND CONFORMANCE TO SPECIFICATIONS, AND SUBMITTED FOR REVIEW PRIOR TO ACCEPTANCE FOR USE ON THE PROJECT, SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- SPECIAL INSPECTION, TESTING AND OBSERVATION (OWNER FURNISHED) IS REQUIRED IN ACCORDANCE WITH IBC SECTIONS 110 AND 1704 INDICATED IN THE STATEMENT OF SPECIAL INSPECTIONS.

## FOUNDATIONS

- REFER TO GEOTECHNICAL MEMORANDUM FOR THE PROCESS AIR COMPRESSOR BUILDING DATED JULY 22, 2022 BY JACOBS.
- A MINIMUM OF 4-INCH LAYER OF COMPACTED GRANULAR FILL SHALL BE PLACED UNDER STRUCTURAL CONCRETE OF BUILDING FOUNDATION SLAB AND FOUNDATION WALL.
- FOUNDATION BEARING SURFACES SHALL BE OBSERVED BY THE GEOTECHNICAL ENGINEER OR QUALIFIED DESIGNER PRIOR TO PLACEMENT OF FORMWORK OR REINFORCING STEEL. THE OBSERVATION SHALL VERIFY IF THE ACTUAL EXPOSED SUBGRADE IS AS ANTICIPATED BY THE SITE SPECIFIC BORINGS, TESTING AND DATA REPORTS.
- NO BACKFILL SHALL BE PLACED BEHIND WALLS UNTIL THE WALL'S CONCRETE HAS ATTAINED 100 PERCENT AND TOP SUPPORTING SLAB'S CONCRETE HAS ATTAINED 80 PERCENT OF THEIR SPECIFIED 28 DAY COMPRESSIVE STRENGTH.

## FORMWORK, SHORING, AND BRACING

- STRUCTURES SHOWN ON THE DRAWINGS HAVE BEEN DESIGNED FOR STABILITY UNDER FINAL CONDITIONS ONLY. DESIGN SHOWN DOES NOT INCLUDE NECESSARY COMPONENTS OR EQUIPMENT FOR STABILITY OF THE STRUCTURES DURING CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR WORK RELATING TO CONSTRUCTION ERECTION METHODS, BRACING, SHORING, RIGGING, GUYS, SCAFFOLDING, FORMWORK, AND OTHER WORK AIDS REQUIRED TO SAFELY PERFORM THE WORK SHOWN.
- TEMPORARY SHORING SHALL REMAIN IN PLACE UNTIL ELEVATED CONCRETE SLABS HAVE REACHED 80 PERCENT OF THE 28 DAY COMPRESSIVE STRENGTH AS DETERMINED BY FIELD CYLINDER BREAKS.
- "BURY" BARS OR "CARRIER" BARS ARE NOT ALLOWED FOR THE MATS OF REINFORCING IN ALL SLABS.

## CONCRETE REINFORCING

- REINFORCING STEEL:
  - TYPICAL: ASTM A615, GRADE 60
- FABRICATION AND PLACEMENT OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH CRSI MSP-1 "MANUAL OF STANDARD PRACTICE" AND ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE".
- MINIMUM REINFORCING FOR CONCRETE WALLS AND SLABS SHALL BE AS FOLLOWS:
 

THICKNESS	REINF EACH WAY	LOCATION
6"	#4@12"	CENTERED
8"	#5@12"	CENTERED
10"	#5@12"	EACH FACE
12"	#5@12"	EACH FACE

PROVIDE LARGER SIZES AND MORE REINFORCING IN SECTIONS OF CONCRETE WHERE REQUIRED BY THE DETAILS ON THE DRAWINGS OR BY THE SPECIFICATIONS.
- CONCRETE COVER FOR REINFORCING, UNLESS SHOWN OTHERWISE, SHALL BE:
  - WHEN CAST AGAINST EARTH:
    - CONCRETE EXPOSED TO EARTH, LIQUID, WASHDOWN, OR WEATHER:
      - WALLS AND SLABS 2"
      - BEAM STIRRUPS AND COLUMN TIES 2"
      - BEAM AND COLUMN PRIMARY REINFORCING 2 1/2"
- 90 DEGREE BENDS, UNLESS OTHERWISE SHOWN, SHALL BE ACI 318 STANDARD HOOKS.
- LAP VERTICAL WALL BARS WITH DOWELS FROM BASE SLABS AND EXTEND INTO TOP FACE OF ROOF SLABS AND LAP WITH TOP SLAB REINFORCEMENT. PROVIDE A MINIMUM OF FOUR FULL HEIGHT VERTICAL BARS WITH MATCHING DOWELS AT WALL ENDS, CORNERS AND INTERSECTIONS WITH SIZE TO MATCH TYPICAL VERTICAL REINFORCING STEEL SHOWN OR REQUIRED BY NOTES ABOVE.
- LOCATE ELEVATED SLAB AND BEAM TOP BAR SPLICES AT MIDSPAN AND BOTTOM BAR SPLICES AT SUPPORTS.
- REINFORCEMENT BENDS AND LAPS, UNLESS OTHERWISE NOTED, SHALL SATISFY THE FOLLOWING MINIMUM REQUIREMENTS:

CONCRETE DESIGN STRENGTH = 4,500 PSI MIN AT 28 DAYS <sup>3</sup>		GRADE 60 REINFORCING STEEL									
BAR SIZE		#3	#4	#5	#6	#7	#8	#9	#10	#11	
LAP SPLICE LENGTH											
SPACING = 3"	TOP BAR 2	1'-4"	1'-8"	2'-1"	3'-0"	5'-2"	6'-8"	8'-6"	10'-10"	13'-4"	
	OTHER BAR	1'-4"	1'-4"	1'-8"	2'-4"	4'-0"	5'-2"	6'-7"	8'-4"	10'-3"	
SPACING = 4"	TOP BAR 2	1'-4"	1'-8"	2'-0"	2'-5"	3'-10"	5'-0"	6'-5"	8'-1"	10'-0"	
	OTHER BAR	1'-4"	1'-4"	1'-7"	1'-10"	3'-0"	3'-11"	4'-11"	6'-3"	7'-8"	
SPACING ≥ 6"	TOP BAR 2	1'-4"	1'-8"	2'-0"	2'-5"	3'-6"	4'-0"	5'-0"	6'-2"	7'-5"	
	OTHER BAR	1'-4"	1'-4"	1'-7"	1'-10"	2'-9"	3'-1"	3'-10"	4'-9"	5'-8"	
EMBEDMENT LENGTH											
SPACING = 3"	TOP BAR 2	1'-0"	1'-3"	1'-8"	2'-4"	4'-0"	5'-2"	6'-7"	8'-4"	10'-3"	
	OTHER BAR	1'-0"	1'-0"	1'-3"	1'-10"	3'-1"	4'-0"	5'-1"	6'-5"	7'-11"	
SPACING = 4"	TOP BAR 2	1'-0"	1'-3"	1'-7"	1'-10"	3'-0"	3'-11"	4'-11"	6'-3"	7'-8"	
	OTHER BAR	1'-0"	1'-0"	1'-3"	1'-5"	2'-4"	3'-0"	3'-10"	4'-10"	5'-11"	
SPACING ≥ 6"	TOP BAR 2	1'-0"	1'-3"	1'-7"	1'-10"	2'-9"	3'-1"	3'-10"	4'-9"	5'-8"	
	OTHER BAR	1'-0"	1'-0"	1'-3"	1'-5"	2'-1"	2'-5"	3'-0"	3'-8"	4'-5"	

- LAP LENGTHS ARE BASED ON MINIMUM CONCRETE COVER OF 2". LONGER LENGTHS ARE REQUIRED FOR CONCRETE COVER LESS THAN 2".
- TOP BARS SHALL BE DEFINED AS ANY HORIZONTAL BARS PLACED SUCH THAT MORE THAN 12 INCHES OF CONCRETE IS CAST IN THE MEMBER BELOW THE BAR IN ANY SINGLE POUR. HORIZONTAL WALL BARS ARE CONSIDERED TOP BARS.
- WHERE 3000 PSI CONCRETE IS USED, INCREASE ABOVE LENGTHS BY 16 PERCENT. WHERE 3500 PSI CONCRETE IS USED, INCREASE ABOVE LENGTHS BY 7 PERCENT.

## CAST IN PLACE CONCRETE

- 28-DAY COMPRESSIVE STRENGTHS (TO MEET STRUCTURAL STRENGTH REQUIREMENTS):
  - TYPICAL: 5000 PSI
  - DUCT BANKS AND PIPE ENCASEMENTS NOT INTEGRAL WITH FOUNDATIONS AND CONCRETE FILL: 4000PSI
- DESIGN STRENGTHS ARE SAME AS 28-DAY COMPRESSIVE STRENGTHS.
- CONTINUOUS WATERSTOP AS SPECIFIED SHALL BE INSTALLED IN CONSTRUCTION JOINTS OF HYDRAULIC STRUCTURES, CHANNELS, AND BELOW GRADE STRUCTURES, EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE.
- CONSTRUCTION JOINTS INDICATED ARE SUGGESTED LOCATIONS. CONTRACTOR MAY REVISE LOCATION OF JOINTS, SUBJECT TO SPECIFIED REQUIREMENTS. LAYOUT SHOWING ALL CONSTRUCTION JOINT LOCATIONS SHALL BE SUBMITTED FOR REVIEW BY ENGINEER.
- ROUGHEN AND CLEAN CONSTRUCTION JOINTS IN WALLS AND SLABS AS SPECIFIED PRIOR TO PLACING ADJACENT CONCRETE.
- COORDINATE PLACEMENT OF OPENINGS, PIPE PENETRATIONS, CURBS, DOWELS, SLEEVES, CONDUITS, BOLTS AND INSERTS PRIOR TO PLACEMENT OF CONCRETE.
- NO ALUMINUM CONDUIT OR PRODUCTS CONTAINING ALUMINUM OR ANY OTHER MATERIAL INJURIOUS TO THE CONCRETE SHALL BE EMBEDDED IN THE CONCRETE.
- DO NOT PLACE CONDUIT PARALLEL TO BEAM OR COLUMN REINFORCEMENT UNLESS SPECIFICALLY INDICATED IN DRAWINGS.

## WELDING

- WELDS SHALL CONFORM TO AMERICAN WELDING SOCIETY (AWS):
  - D1.1, STRUCTURAL WELDING CODE STEEL
  - D1.2, STRUCTURAL WELDING CODE ALUMINUM
  - D1.6, STRUCTURAL WELDING CODE STAINLESS STEEL
- REPAIR WELDS FOUND DEFECTIVE IN ACCORDANCE WITH AWS D1.1 SECTION 5.26.
- USE INTERMITTENT WELDS AT FIELD WELDS OF EMBED PLATES AND ANGLES TO AVOID SPALLING OR CRACKING OF THE EXISTING CONCRETE.
- BUTT JOINT WELDS SHALL BE COMPLETE JOINT PENETRATION (CJP) UNLESS INDICATED OTHERWISE.

## STRUCTURAL STEEL AND METAL FABRICATIONS

- STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING ASTM STANDARDS:
 

W-SHAPES	A992
MISCELLANEOUS SHAPES INCLUDING ANGLES, CHANNELS, PLATES, ETC.	A36
HOLLOW STRUCTURAL SECTIONS (HSS)	A500, GRADE B
STEEL PIPE	A53, GRADE B
STAINLESS STEEL SHAPES	A276
- ALUMINUM SHALL CONFORM TO THE FOLLOWING ASTM STANDARDS:
 

STRUCTURAL SHAPES	B308
PLATES	B209
- FASTENERS SHALL BE HIGH STRENGTH BOLTS CONFORMING TO THE FOLLOWING ASTM STANDARDS EXCEPT WHERE SPECIFICALLY INDICATED OTHERWISE:
 

ANCHOR BOLTS (AB)	F593, AISI TYPE 316, CONDITION CW
STAINLESS STEEL	F1554, GR 36 / A153
STEEL OR GALVANIZED STEEL	
MACHINE BOLTS (MB)	A307
STEEL	F593, AISI TYPE 316, CONDITION CW
STAINLESS STEEL	A307 / A153
GALVANIZED STEEL	F468, ALLOY 2024-T4
ALUMINUM	
- ITEMS TO BE EMBEDDED IN CONCRETE SHALL BE CLEAN AND FREE OF OIL, DIRT AND PAINT.

## STEEL DECKING

- DECK SHALL BE 3" COMPOSITE METAL DECK, 20 GAUGE, AND SHALL BE ATTACHED AS FOLLOWS:
  - AT PERPENDICULAR SUPPORTS, ATTACH WITH 4 POWDER DRIVEN FASTENERS PER 36" SHEET. AT PARALLEL SUPPORTS, ATTACH WITH POWDER DRIVEN FASTENERS AT 12" SPACING. AT SIDELAPS FASTEN SHEETS TOGETHER WITH MINIMUM OF 3 BUTTON PUNCHES PER SPAN. FASTENERS ABOVE ARE SPECIFIC TO DECK PRODUCT USED AS THE BASIS OF DESIGN. CONTRACTOR SHALL FASTEN THE DECKING IN ACCORDANCE WITH INSTALLED DECK MANUFACTURER'S RECOMMENDATIONS TO MEET SPECIFIED CAPACITY REQUIREMENTS.
  - DECKING SHALL HAVE A MINIMUM 1 1/2 INCHES BEARING ON SUPPORTS.
  - DECKING SHALL BE CONTINUOUS OVER THREE SPANS MINIMUM, EXCEPT WHERE SHOWN OTHERWISE.
  - DECK RECEIVING CONCRETE FILL SHALL BE COMPOSITE TYPE.
  - LOCATE OPENINGS FOR EQUIPMENT PER OTHER DISCIPLINE DRAWINGS.
  - REINFORCE SMALL OPENINGS AS SPECIFIED.

PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL		EAST SHORE WATER POLLUTION ABATEMENT FACILITY		Greater New Haven Water Pollution Control Authority New Haven, CT	
01-GENERAL		STRUCTURAL NOTES		SHEET 1 OF 2	
VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"					
DATE	JULY 2023				
PROJ	E2X90000				
DWG	01-G-009				
SHEET	9 of 96				

# CONCRETE UNIT MASONRY

- MASONRY WALL TYPE: ORDINARY REINFORCED WALLS.
- DESIGN COMPRESSIVE STRENGTH,  $f_m$ , OF THE FINISHED ASSEMBLY AND MATERIAL PROPERTIES SHALL BE PER THE TABLE BELOW.
- MORTAR: ASTM C270, TYPE S, HYDRATED. DO NOT USE MASONRY CEMENT.
- GROUT: ASTM C476 COARSE GROUT. USE OF WATER REDUCERS OR SUPERPLASTICIZERS IS NOT PERMITTED.
- CONCRETE MASONRY UNITS: ASTM C90, NORMAL WEIGHT, LINEAR SHRINKAGE SHALL NOT EXCEED 0.065 PERCENT.

DESIGN COMPRESSIVE STRENGTH $f'_m$ (PSI)	UNIT STRENGTH (PSI)	GROUT STRENGTH (PSI) MIN/MAX	MORTAR PROPERTIES
2,000	2,800	2,000 / 3,500	Type S

- PLACE COURSES IN WALLS, COLUMNS, AND PILASTERS IN RUNNING BOND PATTERN.
- PROVIDE MATCHING FOUNDATION DOWELS FOR ALL TYPICAL AND ADDITIONAL VERTICAL BARS.
- PROVIDE VERTICAL BARS AND DOWELS WITH LAP LENGTHS AS SHOWN IN DETAIL (0422-004)
- STAGGER ADJACENT LAP SPLICES BY 24 INCHES WHEN SEPARATED BY 3 INCHES OR LESS.
- PROVIDE NUMBER OF FULL HEIGHT VERTICAL BARS AT EDGES OF OPENINGS AS SHOWN IN DETAIL (0422-004)
- PROVIDE FULL HEIGHT VERTICAL BARS IN 3 CELLS AT WALL CORNERS AND INTERSECTIONS AS SHOWN IN DETAIL (0422-001)
- PROVIDE JOINT REINFORCING AT CORNER AND INTERSECTIONS WITH LAP LENGTHS AS SHOWN IN DETAIL (0422-001)
- PROVIDE REINFORCED LINTELS ABOVE AND REINFORCED BOND BEAMS BELOW OPENINGS AS SHOWN IN DETAIL (0422-003)
- PROVIDE FULL HEIGHT VERTICAL BARS WITH MATCHING DOWELS IN CELLS ADJACENT TO OPENINGS AS SHOWN IN DETAIL (0422-003)
- GROUTING: PARTIALLY GROUT WALLS:
  - DO NOT SOLID GROUT WALLS UNLESS INDICATED ON THE DRAWINGS.
  - GROUT ONLY CELLS WITH REINFORCING WHERE REBAR IS SPACED AT 32 INCHES ON CENTER OR GREATER EACH WAY.
  - SOLID GROUT ALL CELLS IN CMU WALLS WHERE REBAR IS SPACED AT 24 INCHES ON CENTER OR LESS, EITHER WAY.
  - SOLID GROUT ALL PIERS, COLUMNS, HEADERS, AND BOND BEAMS.
  - SOLID GROUT ADDITIONAL MASONRY AREAS SPECIFICALLY INDICATED ON THE DRAWINGS.
- MASONRY UNIT AND GROUT TESTING SHALL BE IN CONFORMANCE WITH IBC "UNIT STRENGTH METHOD". TESTING WILL BE OWNER FURNISHED AS INDICATED ON THE STATEMENT OF SPECIAL INSPECTIONS PLAN PROVIDED ON THE DRAWINGS. PRISM TEST METHOD MAY BE SUBMITTED AS AN ALTERNATIVE OR MAY BE REQUIRED BY OWNER'S REPRESENTATIVE TO VERIFY WORK.
- THE MINIMUM REINFORCING FOR REINFORCED CONCRETE BLOCK WALLS SHALL BE AS FOLLOWS. PROVIDE LARGER SIZES AND MORE REINFORCING IN SECTIONS OF WALLS WHERE REQUIRED BY THE DETAILS ON THE DRAWINGS OR BY THE SPECIFICATIONS.
 

WALL THICKNESS	VERTICAL REINFORCING	VERTICAL BAR LOCATION	HORIZONTAL JOINT REINFORCING*
8"	#6@48"	CENTERED	EVERY OTHER COURSE
12"	#6@32"	EACH FACE	EVERY OTHER COURSE

\* EXCEPT WITH BOND BEAMS AT TOP OF WALL AND BOTTOM OF WALL
- DO NOT PLACE CONDUIT IN CELLS CONTAINING PARALLEL REINFORCEMENT.

## DEFERRED SUBMITTALS

- DEFERRED SUBMITTALS ARE THOSE PORTIONS OF THE DESIGN WHICH ARE NOT SUBMITTED AT THE TIME OF PERMIT APPLICATION AND WHICH ARE TO BE SUBMITTED TO THE PERMITTING AGENCY FOR ACCEPTANCE PRIOR TO INSTALLATION OF THAT PORTION OF THE WORK OR ARE REQUIRED TO BE SUBMITTED FOR REVIEW ONLY BY THE ENGINEER.
- WHERE DEFERRED SUBMITTALS INCLUDE ADDITIONAL MATERIALS, INSTALLATION, ANCHORAGE, OR CERTIFICATION OF COMPONENTS THAT REQUIRE SPECIAL INSPECTION AND/OR STRUCTURAL OBSERVATION TO MEET CODE REQUIREMENTS, THE DEFERRED SUBMITTAL SHALL INCLUDE SPECIFIC LINE ITEMS TO BE ADDED TO THE APPROPRIATE TABLES IN THE PROJECT'S STATEMENT OF SPECIAL INSPECTIONS PLAN IF THEY ARE NOT ALREADY IDENTIFIED.
- THE FOLLOWING IS A LIST OF DEFERRED SUBMITTALS PER IBC SECTION 107.3.4.1 OF 2015 IBC THAT ARE EXPECTED TO CONTAIN STRUCTURAL CALCULATIONS OR SAFETY RELATED SYSTEM INFORMATION FOR REVIEW TO MEET BUILDING PERMITTING REQUIREMENTS FOR DESIGNED SYSTEMS. PRIOR TO INSTALLATION OF THE INDICATED STRUCTURAL ELEMENT, EQUIPMENT, DISTRIBUTION SYSTEM, OR COMPONENT OR ITS ANCHORAGE, THE CONTRACTOR SHALL SUBMIT THE REQUIRED CALCULATIONS AND SUPPORTING DATA AND DRAWINGS FOR REVIEW AND ACCEPTANCE BY THE ENGINEER. ADDITIONALLY, ACCEPTANCE INDICATED ON THE ENGINEER'S COMMENT FORM, ALONG WITH THE COMPLETED, FINAL SUBMITTAL SHALL THEN BE SUBMITTED BY THE CONTRACTOR TO THE PERMITTING AGENCY AND APPROVED PRIOR TO INSTALLATION OF THESE ITEMS.

SPECIFICATION SECTION	CODE REQUIRED DEFERRED SUBMITTALS FOR REVIEW BY PERMITTING AGENCY
01 88 15	ANCHORAGE AND BRACING
05 52 16	ALUMINUM RAILINGS
OTHER	ANY EQUIPMENT OR COMPONENT IN WHICH A TECHNICAL SPECIFICATION REQUIRES SUBMITTAL OF EQUIPMENT OR ANCHORAGE SYSTEM CALCULATIONS

FOR INFORMATION ONLY  
NOT FOR BIDDING PURPOSES

**Jacobs**

01-GENERAL  
STRUCTURAL NOTES  
SHEET 2 OF 2

PROCESS AIR COMPRESSOR SYSTEM  
FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION  
ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

NO.	DATE	DR	DR RANGE	SA	KORCSMAROS	J	CRIVELLO	APVD	BY	APVD	DL	LYNCH

VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING.	
DATE	JULY 2023
PROJ	E2X90000
DWG	01-G-010
SHEET	10 of 96

BID READY

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# PIPE AND FITTING SYMBOLS

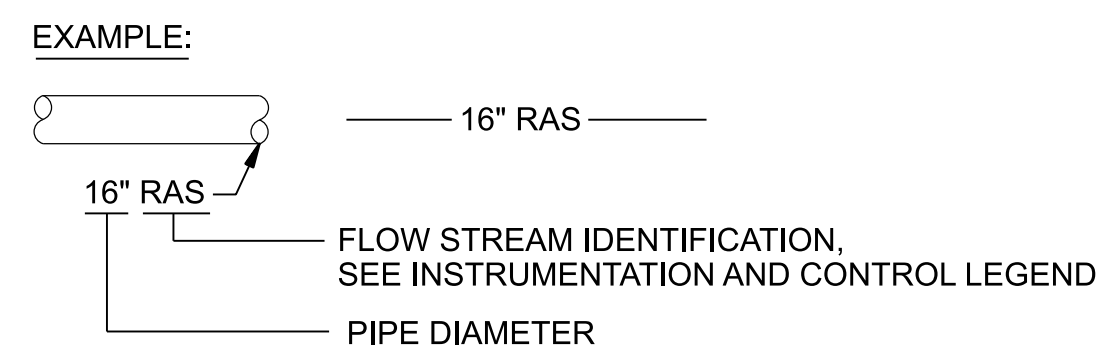
DOUBLE LINE	SINGLE LINE	DESCRIPTION	DOUBLE LINE	SINGLE LINE	DESCRIPTION
		EXISTING PIPE			REDUCING BUSHING
		NEW PIPE			UNION
		EXISTING PIPE TO BE ABANDONED			CAP
		EXISTING PIPE TO BE REMOVED			ANCHOR
		WELDED JOINT			ELBOW, 90 DEGREE
		GROOVED END JOINT			CROSS
		FLANGED JOINT			TEE
		MECHANICAL JOINT & PROPRIETARY RESTRAINED JOINT			ELBOW, 45 DEGREE
		BELL & SPIGOT JOINT (LEADED)			LATERAL
		HUB & SPIGOT JOINT (RUBBER GASKET)			
		BALL JOINT			
		ADAPTER SIDE GROOVED END ADAPTER FLANGE			
		FLANGED COUPLING ADAPTER (RESTRAINING SYSTEM BY MFR)			
		RESTRAINED FLANGED COUPLING ADAPTER SEE 4005-545			
		FLEXIBLE COUPLING			
		METAL BELLOWS EXP JOINT			
		ELASTOMER BELLOWS EXP JOINT			
		ELBOW UP			
		ELBOW DOWN			
		TEE UP			
		TEE DOWN			
		LATERAL UP			
		LATERAL DOWN			
		CONCENTRIC REDUCER			
		ECCENTRIC REDUCER			

- NOTES:**
- ONLY FLANGED END CONNECTIONS ARE SHOWN HERE FOR DOUBLE LINE FITTINGS. FITTINGS WITH OTHER END PATTERNS ARE SHOWN SIMILARLY ON THE CONSTRUCTION DRAWINGS. ALSO SEE PIPING SPECIFICATIONS.
  - SYMBOLS SHOWN HERE FOR SINGLE LINE FITTINGS ARE GENERIC ONLY. REFER TO PIPING SPECIFICATIONS FOR SPECIFIC END CONNECTIONS FOR SINGLE LINE PIPE AND FITTINGS.
  - EXISTING PIPE AND EQUIPMENT IS SHOWN LIGHT-LINED AND/OR SCREENED. NEW PIPING AND EQUIPMENT IS SHOWN HEAVY-LINED.

## ACTUATOR SYMBOLS

	PNEUMATIC DIAPHRAGM		HYDRAULIC
	PNEUMATIC CYLINDER		MANUAL
	ELECTRIC MOTOR		SOLENOID
			ELECTRO HYDRAULIC

## PIPING DESIGNATION



# VALVE SYMBOLS

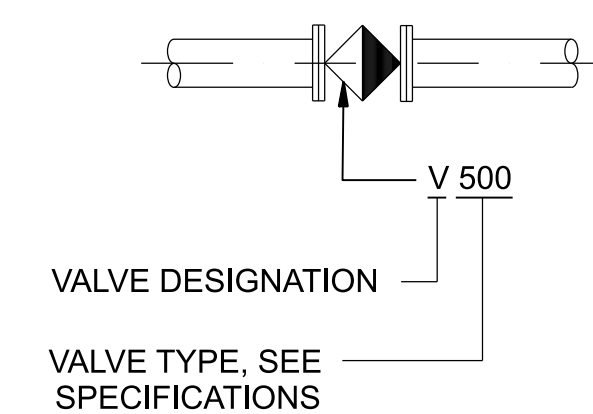
SINGLE LINE	DOUBLE LINE	DESCRIPTION
		GATE
		KNIFE GATE
		BUTTERFLY
		GLOBE
		BALL
		SEATING PORT
		ECCENTRIC PLUG
		PLUG OR COCK
		NEEDLE
		DIAPHRAGM
		PINCH
		SWING CHECK
		BALL CHECK
		HOSE VALVE (HV-X) OR (V-X) X = NO. IN SPECS
		SAMPLE
		MUD
		PRESSURE RELIEF
		AIR AND/OR VACUUM RELEASE
		REGULATED SIDE PRESSURE CONTROL (INTERNAL PILOT)
		REGULATED SIDE PRESSURE CONTROL (EXTERNAL PILOT)
		MULTI-PORT VALVE, ARROWS INDICATE FLOW PATTERN. SEATING PORTS ARE IMPLIED BY INDICATED FLOW PATTERN.
		TELESCOPING

## GENERAL PIPING NOTES

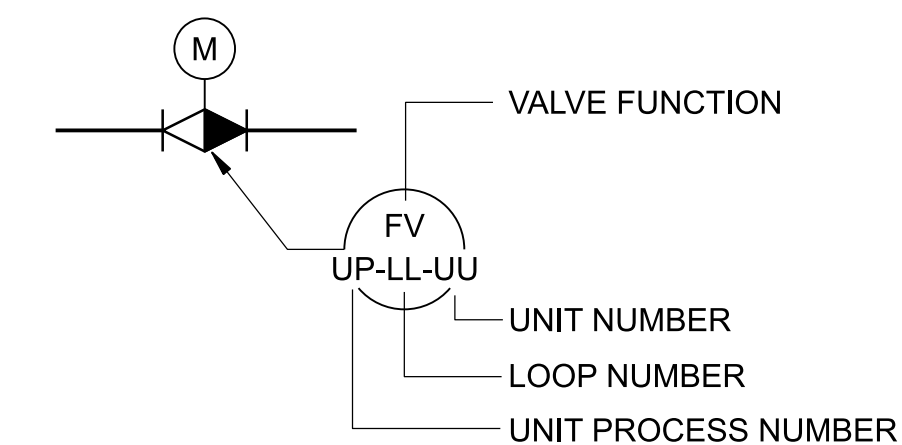
- LAY PIPE TO UNIFORM GRADE BETWEEN INDICATED ELEVATION POINTS.
- SIZE OF FITTINGS SHOWN ON DRAWINGS SHALL CORRESPOND TO ADJACENT STRAIGHT RUN OF PIPE, UNLESS OTHERWISE INDICATED. TYPE OF JOINT AND FITTING MATERIAL SHALL BE THE SAME AS SHOWN FOR ADJACENT STRAIGHT RUN OF PIPE.
- LOCATION AND NUMBER OF PIPE HANGERS AND PIPE SUPPORTS SHOWN IS ONLY APPROXIMATE. CONTRACTOR SHALL DESIGN SUPPORTS AS SPECIFIED.
- ALL JOINTS SHALL BE WATERTIGHT. WALL PIPES SHALL BE USED WHEREVER PIPING PASSES FROM A STRUCTURE TO BACKFILL.
- ALL FLEXIBLE CONNECTORS AND COUPLING ADAPTERS SHALL BE PROVIDED WITH THRUST PROTECTION AS SPECIFIED, UNLESS OTHERWISE NOTED. THRUST PROTECTION SHALL BE ADEQUATE FOR TEST PRESSURES SPECIFIED.
- SYMBOLS, LEGENDS, AND PIPE USE IDENTIFICATIONS SHOWN SHALL BE FOLLOWED THROUGHOUT THE DRAWINGS, WHEREVER APPLICABLE. NOT ALL OF THE VARIOUS PIPING COMPONENTS ARE NECESSARILY USED IN THE PROJECT.
- ALL BURIED PIPING TO BE PRESSURE TESTED, SHALL BE PROVIDED WITH THRUST PROTECTION AS SPECIFIED, UNLESS INSTALLED WITH RESTRAINED JOINTS.
- NUMBER AND LOCATION OF UNIONS SHOWN ON DRAWINGS IS ONLY APPROXIMATE. PROVIDE ALL UNIONS NECESSARY TO FACILITATE CONVENIENT REMOVAL OF VALVES AND MECHANICAL EQUIPMENT.
- WHERE A GROOVED END COUPLING IS SHOWN, IT SHALL BE THE RIGID JOINT TYPE, UNLESS OTHERWISE SPECIFIED. WHERE A FLANGED COUPLING ADAPTER IS SHOWN, A STANDARD FLANGE SHALL BE JOINED TO THE COUPLING ADAPTER.

# VALVE DESIGNATIONS

## MANUAL VALVES AND CHECK VALVES

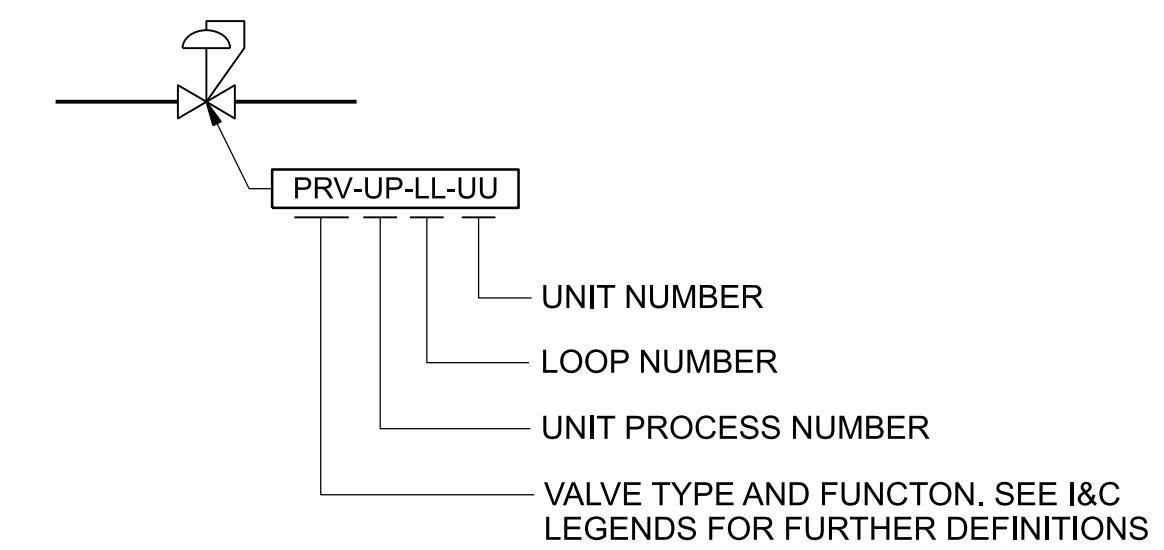


## CONTROL VALVES



**NOTE:**  
SEE I&C LEGENDS FOR FURTHER DEFINITIONS AND ACTUATOR TYPES.

## SELF-CONTAINED REGULATING VALVES



**Jacobs**

01-GENERAL  
PROCESS MECHANICAL  
LEGEND

VERIFY SCALE	
DATE	JULY 2023
PROJ	E2X90000
DWG	01-G-011
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BID READY

# HEATING, VENTILATING, AND AIR CONDITIONING PIPE AND FITTING SYMBOLS

DOUBLE LINE	SINGLE LINE	
		EXISTING PIPE (SCREENED)
		NEW PIPE
		EXISTING PIPE TO BE ABANDONED
		EXISTING PIPE TO BE REMOVED
		WELDED JOINT
		GROOVED END JOINT
		FLANGED JOINT
		FLEXIBLE COUPLING
		GROOVED END GROOVED END ADAPTER FLANGE
		STEEL BELLOWS EXP JOINT
		ELBOW UP
		ELBOW DOWN
		TEE UP
		TEE DOWN
		LATERAL UP
		LATERAL DOWN
		CONCENTRIC REDUCER
		ECCENTRIC REDUCER
		UNION
		ANCHOR
		PIPE ALIGNMENT GUIDE
		FLEXIBLE (ELASTOMER) PIPE CONNECTION

- NOTES:**
- ONLY FLANGED FITTINGS ARE SHOWN FOR DOUBLE LINE PIPING. FITTINGS WITH OTHER END PATTERNS ARE SIMILAR.
  - EXISTING PIPING AND EQUIPMENT IS SHOWN LIGHT LINED AND/OR SCREENED AND IS NOTED AS EXISTING. NEW PIPING AND EQUIPMENT IS SHOWN HEAVY-LINED.

## VALVE SYMBOLS

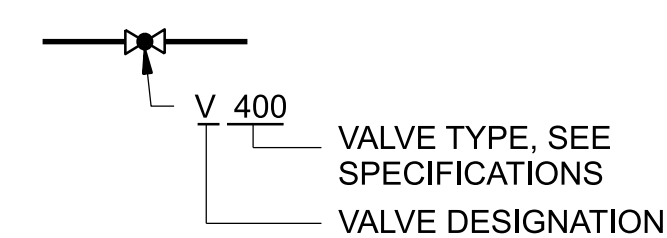
SINGLE LINE	DOUBLE LINE	
		GATE
		BUTTERFLY
		GLOBE
		BALL
		SEATING PORT
		ECCENTRIC PLUG
		PLUG OR COCK
		NEEDLE
		SWING CHECK
		BALL CHECK
		BALANCING FITTING
		COMBINATION FLOWMETER AND BALANCING FITTING
		COMBINATION FLOWMETER, BALANCING FITTING AND SHUT-OFF VALVE
		PRESSURE RELIEF
		AIR VENT (AUTO)
		AIR VENT (MANUAL)
		REGULATED SIDE PRESSURE CONTROL
		MULTI-PORT VALVE (GLOBE VALVE SHOWN. FOR OTHER VALVE TYPES, APPROPRIATE VALVE SYMBOL SHOWN). ARROWS INDICATE FLOW PATTERN. SEATING PORTS ARE IMPLIED BY INDICATED FLOW PATTERN.
		SOLENOID VALVE
		TO TEMPERATURE SENSOR
		TEMPERATURE SENSING VALVE

## MISCELLANEOUS PIPING SYMBOLS

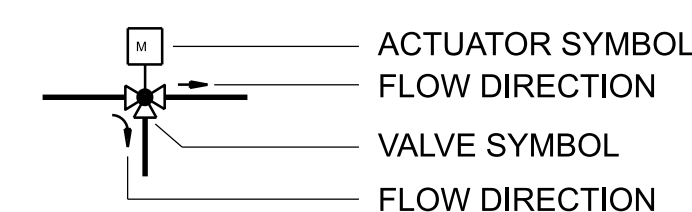
	STEAM TRAP X = NO. IN SPECS		GAUGE WITH COCK
	FLOW SWITCH		THERMOMETER
	FLOW METER X = NO. SHOWN IN SPECS		GAUGE GLASS WITH COCKS
	PRESSURE SWITCH		
	STRAINER		

## VALVE DESIGNATIONS

### MANUAL VALVES AND CHECK VALVES



### CONTROL VALVES



## HVAC EQUIPMENT IDENTIFICATION

ACC	AIR-COOLED CONDENSER
ACCU	AIR-COOLED CONDENSING UNIT
ACU	AIR CONDITIONING UNIT
AHU	AIR HANDLING UNIT
BD	BACKDRAFT DAMPER
CD	CEILING DIFFUSER
CG	CEILING GRILLE
CR	CEILING REGISTER
DG	DOOR GRILLE
EDH	ELECTRIC DUCT HEATER
EF	EXHAUST FAN
FG	FLOOR GRILLE
FD	FIRE DAMPER
HCP	HVAC CONTROL PANEL
HTP	HEAT PUMP
LD	LINEAR DIFFUSER
MAU	MAKE UP AIR HANDLING UNIT
MD	MOTORIZED DAMPER
ML	MOTORIZED LOUVER
OBD	OPPOSED BLADE DAMPER
SF	SUPPLY FAN
SR	SUPPLY REGISTER
UH	UNIT HEATER
WC	WATER CHILLER
WG	WALL GRILLE
WR	WALL REGISTER
WSG	WATER SUPPLY GRILLE
WSR	WALL SUPPLY REGISTER

## HEATING, VENTILATING, AND AIR CONDITIONING SYMBOLS

	WALL REGISTER OR GRILLE (SUPPLY)
	CEILING DIFFUSER OR REGISTER (SUPPLY)
	CEILING REGISTER OR GRILLE (RETURN AND EXHAUST)
	WALL REGISTER OR GRILLE (RETURN AND EXHAUST)
	TURNING VANES
	45 DEGREE ENTRY
	CONICAL TEE
	BELLMOUTH
	SMOKE DAMPER
	FIRE DAMPER
	MANUAL OPPOSED-BLADE DAMPER
	MANUAL BUTTERFLY DAMPER
	MOTORIZED DAMPER
	SOUND ATTENUATED DUCT
	FLEXIBLE CONNECTION
	FLEXIBLE DUCTWORK
	INCLINED RISE IN DUCT
	INCLINED DROP IN DUCT
	SUPPLY DUCT (SECTION)
	INTAKE, RETURN, OR EXHAUST DUCT (SECTION)
	ROOM TEMPERATURE SENSOR
	ROOM PRESSURE SENSOR
	ROOM HUMIDITY SENSOR
	ENVIRONMENTAL CONTROL PANEL
(200)	200 SCFM
	MOTORIZED VALVE - 3 WAY
	MOTORIZED VALVE - 2 WAY

## GENERAL NOTE

- FOR FLOW STREAM IDENTIFICATION SEE INSTRUMENTATION AND CONTROL LEGEND.

**Jacobs**

01-GENERAL  
HVAC  
LEGEND

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE JULY 2023

PROJ E2X90000

DWG 01-G-012

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BID READY

SYMBOL	DESCRIPTION
<b>ONE LINE DIAGRAM</b>	
	DRAWOUT AIR CIRCUIT BREAKER, LOW VOLTAGE
	CIRCUIT BREAKER, THERMAL MAGNETIC TRIP SHOWN, 3 POLE, UNO
	CIRCUIT BREAKER, STATIC TRIP UNIT, SENSOR AMP TRIP AND FRAME RATINGS SHOWN, 3 POLE, UNO
	CIRCUIT BREAKER, MAGNETIC TRIP ONLY, TRIP RATING SHOWN, 3 POLE, UNO
	CIRCUIT BREAKER WITH CURRENT LIMITING FUSES, TRIP AND FUSE RATING INDICATED, 3 POLE, UNO
	FUSED SWITCH, SWITCH AND FUSE CURRENT RATING INDICATED, 3 POLE, UNO
	SWITCH, CURRENT RATING INDICATED, 3 POLE, UNO
	FUSE, CURRENT RATING AND QUANTITY INDICATED
	MAGNETIC STARTER WITH OVERLOAD, NEMA SIZE INDICATED, FVNR UNO
	ELECTRONIC STARTER/SPEED CONTROL RVSS = REDUCED VOLTAGE SOFT STARTER AFD = AC ADJUSTABLE FREQUENCY DRIVE DC = DC ADJUSTABLE SPEED DRIVE RVAT = REDUCED VOLTAGE AUTO TRANSFORMER TYPE RVRT = REDUCED VOLTAGE REACTOR TYPE
	CABLE OR BUS CONNECTION POINT
	KEY INTERLOCK
	SURGE ARRESTER (GAP TYPE)
	CAPACITOR - KVAR INDICATED, 3 PHASE
	AC MOTOR, SQUIRREL CAGE INDUCTION - HORSEPOWER INDICATED
	GENERATOR, KW/KVA RATING SHOWN
	ANALOG METER WITH SWITCH - SCALE RANGE SHOWN V = VOLTAGE      KW = KILOWATTS A = AMPERAGE      KVAR = KILOVARS PF = POWER FACTOR
	DIGITAL POWER METER (MULTIFUNCTION)
	UTILITY REVENUE METER
	GROUND
	TRANSFORMER, SIZE, VOLTAGE RATINGS, AND PHASE INDICATED
	SHIELDED ISOLATION TRANSFORMER
	POTENTIAL TRANSFORMER, VOLTAGE RATING AND QUANTITY INDICATED
	CURRENT TRANSFORMER, RATIO(100:5) AND QUANTITY INDICATED (3)
	CONNECTION POINT TO EQUIPMENT SPECIFIED IN OTHER DIVISIONS, RACEWAY, CONDUCTOR AND CONNECTION IN THIS DIVISION
	TRANSIENT VOLTAGE SURGE SUPPRESSOR

SYMBOL	DESCRIPTION
<b>ONE LINE DIAGRAM</b>	
	DRAWOUT POWER CIRCUIT BREAKER, MEDIUM VOLTAGE
	NON DRAWOUT FUSED SWITCH, MEDIUM VOLTAGE
	DRAWOUT FUSED SWITCH AND CONTACTOR, MEDIUM VOLTAGE
	DRAWOUT FUSED SWITCH AND VACUUM CONTACTOR, MEDIUM VOLTAGE
	DRAWOUT VACUUM CONTACTOR, MEDIUM VOLTAGE
	MEDIUM VOLTAGE CABLE STRESS CONE TYPE TERMINATION, OPEN TERMINATOR OR ELBOW
	SWITCH - LOAD BREAK, GROUP OPERATED, MEDIUM VOLTAGE
	SWITCH W/ARCING HORNS, MEDIUM VOLTAGE
	DISCONNECTING FUSE - SOLID MATERIAL, MEDIUM VOLTAGE
	SWITCH - HOOK STICK OPERATED, SINGLE POLE, MEDIUM VOLTAGE
	FUSE - EXPULSION, HOOK STICK OPERATED, SINGLE POLE, MEDIUM VOLTAGE
	GROUND SWITCH, GANG OPERATED
	TERMINAL BLOCK LUG
	DELTA CONNECTION
	WYE GROUNDED CONNECTION, SOLID GROUND
	WYE NEUTRAL GROUND RESISTOR OR IMPEDANCE CONNECTION
	RELAY OR DEVICE, FUNCTION NUMBER AS INDICATED
	CURRENT TRANSFORMER, ZERO SEQUENCE, RATIO AND QUANTITY INDICATED
	BUSHING CURRENT TRANSFORMER, MULTI-RATIO AND QUANTITY INDICATED
	MOTOR OPERATOR, BREAKER OR SWITCH
	ENERGY MONITORING UNIT
	MOTOR PROTECTION RELAY
	PAD MOUNTED TRANSFORMER WITH PRIMARY SWITCH

SYMBOL	DESCRIPTION																
<b>CONTROL DIAGRAM</b>																	
	PUSH-BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY OPEN																
	PUSH-BUTTON SWITCH, MOMENTARY CONTACT, NORMALLY CLOSED																
	PUSH BUTTON SWITCH, MAINTAINED CONTACTS WITH MECHANICAL INTERLOCK																
	3 POSITION SELECTOR SWITCH MAINTAINED CONTACT																
	SELECTOR SWITCH - MAINTAINED CONTACT - CHART IDENTIFIES OPERATION WHEN NEEDED FOR CLARITY:																
	<table border="1"> <thead> <tr> <th colspan="4">POSITION</th> </tr> <tr> <th>CKT</th> <th>HAND</th> <th>OFF</th> <th>REMOTE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>X</td> <td>O</td> <td>O</td> </tr> <tr> <td>2</td> <td>O</td> <td>O</td> <td>X</td> </tr> </tbody> </table>	POSITION				CKT	HAND	OFF	REMOTE	1	X	O	O	2	O	O	X
POSITION																	
CKT	HAND	OFF	REMOTE														
1	X	O	O														
2	O	O	X														
	X - CLOSED CONTACT O - OPEN CONTACT																
	TOGGLE SWITCH, ON-OFF TYPE																
	SELECTOR SWITCH, ON-OFF TYPE																
	MUSHROOM HEAD PUSHBUTTON SWITCH																
	INDICATING LIGHT, PUSH-TO-TEST, LETTER INDICATES COLOR																
	INDICATING LIGHT - LETTER INDICATES COLOR A - AMBER      G - GREEN      S - STROBE B - BLUE      R - RED C - CLEAR      W - WHITE																
	ELAPSED TIME METER																
	MOTOR STARTER CONTACTOR COIL																
	CONTROL RELAY, X INDICATES NUMERICAL ORDER IN CIRCUIT																
	TIME DELAY RELAY, X INDICATES NUMERICAL ORDER IN CIRCUIT																
	SOLENOID VALVE, X INDICATES NUMERICAL ORDER IN CIRCUIT																
	CONTACT - NORMALLY OPEN																
	CONTACT - NORMALLY CLOSED																
	REMOTE DEVICE																
	TIME DELAY RELAY CONTACT, NORMALLY OPEN, CLOSING WHEN ENERGIZED AND TIMED OUT																
	TIME DELAY RELAY CONTACT, NORMALLY CLOSED, OPENS WHEN ENERGIZED AND TIMED OUT																
	TIME DELAY RELAY CONTACT, CLOSING WHEN ENERGIZED, OPENS WHEN DE-ENERGIZED AND TIMED OUT																
	TIME DELAY RELAY CONTACT, OPENS WHEN ENERGIZED, CLOSING WHEN DE-ENERGIZED AND TIMED OUT																
	MOTOR SPACE HEATER																
	TERMINAL BLOCK, REMOTE																
	TERMINAL BLOCK, INTERNAL																
	FUSED TERMINAL BLOCK																
	FUSE, RATING INDICATED																
	TRANSFORMER, CONTROL POWER																
	THERMOCOUPLE																

<b>GENERAL NOTES</b>	
1.	THESE ARE STANDARD LEGEND SHEETS. SOME SYMBOLS AND ABBREVIATIONS MAY APPEAR ON THE LEGEND AND NOT ON THE DRAWINGS.
2.	FOR ADDITIONAL ABBREVIATIONS OF OTHER DIVISIONS (HVAC, MECHANICAL, AND STRUCTURAL/ARCHITECTURAL) SEE OTHER LEGENDS.

PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

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SA KORCSMAROS

J BROSNAN

DL LYNCH

NO. DATE

REVISION

BY APVD

DR

CHK

APVD

DSGN

D MUNZER

APVD

01-GENERAL

ELECTRICAL LEGEND SHEET 1 OF 3

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE JULY 2023

PROJ E2X90000

DWG 01-G-013

SHEET 13 of 96

SYMBOL	DESCRIPTION
<b>POWER SYSTEM PLAN</b>	
	CONNECTION POINT TO EQUIPMENT SPECIFIED IN OTHER DIVISIONS, RACEWAY, CONDUCTOR, TERMINATION AND CONNECTION IN THIS DIVISION.
	MAJOR ELECTRICAL COMPONENT OR DEVICE - NAME OR IDENTIFYING SYMBOL AS SHOWN.
	PANELBOARD - SURFACE MOUNTED
	PANELBOARD - FLUSH MOUNTED
	TERMINAL JUNCTION BOX
	MOTOR, SQUIRREL CAGE INDUCTION
	GENERATOR, VOLTAGE AND SIZE AS INDICATED.
	HOME RUN - DESTINATION SHOWN
	EXPOSED CONDUIT AND CONDUCTORS*
	CONCEALED CONDUIT AND CONDUCTORS*
NOTE: ALL UNMARKED CONDUIT RUNS CONSIST OF TWO NO. 12, ONE NO. 12 GROUND CONDUCTORS IN 3/4" CONDUIT. RUNS MARKED WITH CROSSHATCHES INDICATE NUMBER OF NO. 12 CONDUCTORS. CROSSHATCH WITH SUBSCRIPT "G" INDICATES GREEN GROUND WIRE.	
	CROSSHATCHES WITH BAR INDICATE NO.10 CONDUCTOR, SIZE CONDUIT ACCORDING TO SPECIFICATIONS AND APPLICABLE CODE.
	CONDUIT AND CONDUCTOR CALLOUT, SEE LEGEND.
	CONDUIT DOWN
	CONDUIT UP
	CONDUIT, STUBBED AND CAPPED
	CONDUIT TERMINATION AT CABLE TRAY
	EXISTING CONDUIT/ DUCT BANK
	BUS DUCT - SEE SPECIFICATIONS
	CONCRETE ENCASED, DUCT BANK. KEY NOTE INDICATES ARRANGEMENT, SIZE AND QUANTITY.
	DIRECT BURIED DUCT BANK
	FIBER OPTIC CONDUIT
	CONCEALED CONDUIT ROUTING AREA
	CONDUIT ROUTING AREA
	CABLE TRAY
	GENERAL CONTROL OR WIRING DEVICE. LETTER SYMBOLS OR ABBREVIATIONS INDICATE TYPE OF DEVICE
	CONTROL STATION. SEE CONTROL DIAGRAMS FOR CONTROL DEVICE(S) REQUIRED.
	NONFUSED DISCONNECT SWITCH, CURRENT RATING INDICATED, 3 POLE
	FUSED DISCONNECT SWITCH, CURRENT RATING INDICATED (60/40, 60=SWITCH RATING / 40=FUZE RATING) 3 POLE
	COMBINATION CIRCUIT BREAKER AND MAGNETIC STARTER, NEMA SIZE INDICATED

SYMBOL	DESCRIPTION
<b>POWER SYSTEM PLAN</b>	
	BREAKER, SEPARATELY MOUNTED, CURRENT RATING INDICATED (100/40, 100 = FRAME SIZE; 40 = TRIP RATING) 3 POLE
	CONTACTOR, MAGNETIC, NEMA SIZE INDICATED
	LIGHTING CONTACTOR, CURRENT RATING INDICATED
	STARTER, MAGNETIC NEMA SIZE INDICATED
	CONVENIENCE RECEPTACLE - DUPLEX UNLESS NOTED OTHERWISE WP - WEATHERPROOF C - CLOCK HANGER TL - TWIST LOCK CRE - CORROSION RESISTANT GFCI - GROUND FAULT CIRCUIT INTERRUPTER EX - EXPLOSION PROOF SUBSCRIPT NUMBER AT RECEPTACLE INDICATES CIRCUIT
	240V RECEPTACLE
	CONVENIENCE RECEPTACLE - QUADRUPLEX
	MULTI OUTLET ASSEMBLY
	DUPLEX CONVENIENCE RECEPTACLE - FLUSH IN FLOOR
	CONVENIENCE RECEPTACLE, PEDESTAL, DUPLEX SINGLE FACE UNLESS INDICATED OTHERWISE
	RECEPTACLE, SPECIAL PURPOSE-NEMA CONFIGURATION AND AMPERAGE INDICATED
	THERMOSTAT
	UTILITY REVENUE METERING FACILITY
	UTILITY POLE
<b>LIGHTING SYSTEM PLAN</b>	
	LUMINAIRE, SEE SCHEDULE
	LUMINAIRE, SEE SCHEDULE
	LUMINAIRE WITH INTERNAL BATTERY BACKUP, SEE SCHEDULE
	STRIP LUMINAIRE, SEE SCHEDULE
	LUMINAIRE AND POLE, SEE SCHEDULE
	WALL MOUNTED LUMINAIRE, SEE SCHEDULE
	FLOOD LIGHTS - AIM IN THE DIRECTION SHOWN
	STANDBY LIGHTING UNIT, SURFACE MOUNTED, SEE SCHEDULE
	EXIT LIGHTS - FILLED SECTION INDICATES LIGHTED FACE, ARROW INDICATES EGRESS DIRECTIONAL INDICATORS, XX = FIXTURE NUMBER, SEE SCHEDULE
	SMALL LETTER SUBSCRIPT AT SWITCH AND LUMINAIRE INDICATES SWITCHING. SUBSCRIPT NUMBER AT LUMINAIRE INDICATES CIRCUIT
	WALL SWITCH: 2- DOUBLE POLE P- PILOT LIGHT 3- THREE WAY K- KEY OPERATED 4- FOUR WAY D- DIMMER WP- WEATHERPROOF CRE- CORROSION RESISTANT EX- EXPLOSION PROOF L- MOMENTARY 3-WAY M- MOTOR RATED MS- MANUAL STARTER WITH OVERLOADS Mc- MOMENTARY CONTACT- SPRING RETURN TO CENTER
	OCCUPANCY SENSOR
	LIGHTING CONTACTOR
	MOTION DETECTOR
	PHOTOCELL

SYMBOL	DESCRIPTION
<b>TELEPHONE SYSTEM PLAN AND RISER</b>	
	TELEPHONE TERMINAL CABINET
	TELEPHONE RECEPTACLE FLOOR BOX
	TELEPHONE RECEPTACLE
	TELEPHONE SYSTEM RACEWAY
<b>COMPUTER SYSTEM (DATA) PLAN AND RISER</b>	
	COMPUTER SYSTEM TERMINAL CABINET
	COMPUTER NETWORK CONNECTION
	COMPUTER NETWORK CONNECTION, FLUSH IN FLOOR
	DATA SYSTEM RACEWAY
<b>COMBINED TELEPHONE/COMPUTER SYSTEM PLAN AND RISER</b>	
	COMBINATION TELEPHONE/DATA RECEPTACLE, WALL MOUNTED, NUMBER OF PORTS INDICATED
	COMBINATION TELEPHONE/DATA RECEPTACLE, FLOOR BOX, NUMBER OF PORTS INDICATED
<b>CLOSED CIRCUIT/TELEVISION CABLE PLAN AND RISER</b>	
	COMBINATION CLOSED CIRCUIT TELEVISION RECEPTACLE (CCTV) AND DUPLEX CONVENIENCE RECEPTACLE IN TWO GANG BOX WITH BARRIER, 12" DOWN FROM CEILING
	COMBINATION TELEVISION CABLE RECEPTACLE (TV) AND DUPLEX CONVENIENCE RECEPTACLE IN TWO GANG BOX WITH BARRIER, 12" DOWN FROM CEILING
	CLOSED CIRCUIT TELEVISION RECEPTACLE, FLOOR BOX
	TELEVISION CABLE RECEPTACLE, FLOOR BOX

SYMBOL	DESCRIPTION
<b>SECURITY SYSTEM PLAN AND RISER</b>	
	CARD KEY ACCESS
	CONTROL STATION
	DOOR SWITCH
	EGRESS PUSHBUTTON
	ELECTRONIC LOCK M = MAGNETIC S = STRIKE
	INTERCOM
	MONITOR
	MOTION SENSOR
	VIDEO CAMERA PTZ = PAN/TILT/ZOOM F = FIXED
<b>GROUND SYSTEM PLAN</b>	
	GROUND ROD
	GROUND ROD IN TEST WELL SEE 2605-202
	GROUNDING CONDUCTOR, SIZE AS INDICATED
	PIGTAIL FOR CONNECTION TO EQUIPMENT CABINET OR FRAME
	EQUIPMENT GROUND BUS
	EQUIPMENT NEUTRAL BUS

<b>JACOBS</b>	
01-GENERAL ELECTRICAL LEGEND SHEET 2 OF 3	
PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL EAST SHORE WATER POLLUTION ABATEMENT FACILITY Greater New Haven Water Pollution Control Authority New Haven, CT	
NO.	DATE
REVISION	CHK
BY	APVD
DL LYNCH	
J. BROSNAN	
SA KORCSMAROS	
D. MUNZER	
DR	
DSGN	
VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING.	
DATE	JULY 2023
PROJ	E2X90000
DWG	01-G-014
SHEET	14 of 96



1	2	3	4	5	6
ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION
<b>ABBREVIATIONS</b>					
A	AMPERE, AUTOMATIC	G	GROUND	O	OPEN
AC	ALTERNATING CURRENT	GALV	GALVANIZED	OCA	OPEN-CLOSE-AUTO
ACB	AIR-CIRCUIT BREAKER	GEN	GENERATOR	OCB	OIL CIRCUIT BREAKER
ACSR	ALUMINUM CONDUCTOR STEEL-REINFORCED	GFCI	GROUND FAULT CIRCUIT INTERRUPTER	OCR	OVER CURRENT RELAY
ADJ	ADJUSTABLE	GFR	GROUND FAULT RELAY	OH	OVERHEAD
AF	AMPERE FRAME	GND	GROUND	OHM	OHMMETER
AFD	ADJUSTABLE FREQUENCY DRIVE	GPR	GENERATOR PROTECTOR RELAY	OL	OVERLOAD RELAY
AFF	ABOVE FINISHED FLOOR	GRS	GALVANIZED RIGID STEEL CONDUIT	OO	ON-OFF
AFG	ABOVE FINISHED GRADE			OOA	ON-OFF-AUTO
AHM	AMPERE-HOUR METER	H	HIGH SPEED	OOR	ON-OFF-REMOTE
AHU	AIR HANDLING UNIT	HGT	HEIGHT	OS	OCCUPANCY SENSOR
AL	ALUMINUM	HH	HANDHOLE	PB	PULL BOX
AM	AMMETER	HID	HIGH INTENSITY DISCHARGE	PC	PHOTOCELL
ANT	ANTENNA	HMI	HUMAN-MACHINE INTERFACE	PCC	POINT OF COMMON COUPLING
APPROX	APPROXIMATE	HOA	HAND-OFF-AUTO	PCB	POWER CIRCUIT BREAKER
AS	AMMETER SWITCH, AMPERE SENSOR	HOR	HAND-OFF-REMOTE	PF	POWER FACTOR
ATO	AUTOMATIC THROWOVER	HP	HORSEPOWER	PH	PHASE
AT	AMPERE TRIP	HPS	HIGH PRESSURE SODIUM	PLC	PROGRAMMABLE LOGIC CONTROLLER
ATS	AUTOMATIC TRANSFER SWITCH	HS	HAND SWITCH	PNL	PANEL
AUTO	AUTOMATIC	HV	HIGH VOLTAGE	POT	POTENTIOMETER
AUX	AUXILIARY	HVAC	HEATING, VENTILATING & AIR CONDITIONING	PP	POWER PACK
AWG	AMERICAN WIRE GAGE	HZ	HERTZ	PS	PRESSURE SWITCH
				PT	PROGRAMMED START
				PVC	POTENTIAL TRANSFORMER
				PWR	POLYVINYL CHLORIDE POWER
BAT	BATTERY	IAW	IN ACCORDANCE WITH	R	RELAY, REVERSE, RUN, RAISE
BC	BARE COPPER	IC	INTERRUPTING CAPACITY	RCPT	RECEPTACLE
BIL	BASIC IMPULSE LEVEL	I & C	INSTRUMENTATION AND CONTROL	REF	REFERENCE
BKR, BRKR	BREAKER	IMC	INTERMEDIATE METALLIC CONDUIT	REM	REMOTE
BLDG	BUILDING	INCAND	INCANDESCENT	RGS	RIGID GALVANIZED STEEL CONDUIT
		INST	INSTANTANEOUS	RIO	REMOTE INPUT/OUTPUT
		INT	INTERRUPTING	RMS	ROOT MEAN SQUARE
		ISR	INTRINSICALLY SAFE RELAY	RPM	REVOLUTIONS PER MINUTE
C	CONDUIT, CONTACTOR, CONDUCTOR, CLOSE, CENTIGRADE CIRCUIT BREAKER	J, JB	JUNCTION BOX	RTU	REMOTE TELEMETRY UNIT
CB	CIRCUIT BREAKER			RTD	RESISTANCE TEMPERATURE DETECTOR
CC	CONTROL CABLE			RVNR	REDUCED VOLTAGE NON-REVERSING
CKT	CIRCUIT			RVR	REDUCED VOLTAGE REVERSING
CLF	CURRENT LIMITING FUSE	K	KEY INTERLOCK	SA	SURGE ARRESTER
CONT	CONTINUE	KA	KILOAMPERES	SC	SPEED CONTROL
CP	CONTROL PANEL	KAIC	KILOAMPERES INTERRUPTING CAPACITY	SCADA	SUPERVISORY CONTROL AND DATA ACQUISITION SYSTEM
CPT	CONTROL POWER TRANSFORMER	KCM	THOUSAND CIRCULAR MILS	SCU	SPEED CONTROL UNIT
CPU	CENTRAL PROCESSING UNIT	KV	KILOVOLTS	SF	SUPPLY FAN
CR	CONTROL RELAY	KVA	KILOVOLT AMPERES	SH	SPACE HEATER
CS	CONTROL STATION: C=CLOSE, T=TRIP	KW	KILOWATTS	S/N	SOLID NEUTRAL
CT	CURRENT TRANSFORMER, CABLE TRAY	KWH	KILOWATT HOURS	SOL	SOLENOID
CU	COPPER	KWHD	KILOWATT HOURS DEMAND	SP	SPARE
				SPD	SPEED
				SS	START STOP
				SST	STAINLESS STEEL
				ST	SHUNT TRIP
				SUB	SUBSTATION
				SV	SOLENOID VALVE
				SW	SWITCH
				SWBD	SWITCHBOARD
				SWGR	SWITCHGEAR
				SYMM	SYMMETRICAL
DB	DIRECT BURIED	L	LIGHTING CONTACTOR, LOW SPEED, LOWER	T	THERMOSTAT, TRANSFORMER
DC	DIRECT CURRENT	LC	LIGHTING CONTROLLER, LATCH COIL	TB	TERMINAL BOARD, TEST BLOCK
DIV	DIVISION	LCP	LOCAL CONTROL PANEL	TD	TEMPERATURE DETECTOR, TIME DELAY
DN	DOWN	LE	LEVEL ELEMENT	TDC	TIME-DELAY CLOSING
DP	DISTRIBUTION PANEL	LIT	LEVEL INDICATING TRANSMITTER	TDO	TIME-DELAY OPENING
DPDT	DOUBLE-POLE DOUBLE-THROW	LOR	LOCAL-OFF-REMOTE	TDR	TIME DELAY RELAY
DPST	DOUBLE-POLE SINGLE-THROW	LP	LIGHTING PANEL	TEL	TELEPHONE
DS	DISCONNECT SWITCH	LPS	LOW PRESSURE SODIUM	TEMP	TEMPERATURE
		LR	LOCAL/REMOTE	TJB	TERMINAL JUNCTION BOX
		LS	LIMIT SWITCH, LEVEL SWITCH	TSP	TWISTED SHIELDED PAIR
		LT	LEVEL TRANSMITTER	TST	TWISTED SHIELDED TRIAD
		LT FLEX	LIQUID-TIGHT FLEX CONDUIT	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
				TYP	TYPICAL
E	EMPTY	M	MAGNETIC CONTACTOR COIL, MOTOR, MANUAL	UC	UNLATCH COIL
EA	EACH	MA	MILLIAMPERE	UH	UNIT HEATER
EDH	ELECTRIC DUCT HEATER	MAN	MANUAL	UNO	UNLESS NOTED OTHERWISE
EF	EXHAUST FAN	MAU	MAKE-UP AIR UNIT	UPS	UNINTERRUPTIBLE POWER SUPPLY
EG	ENGINE GENERATOR	MAX	MAXIMUM	UVR	UNDER VOLTAGE RELAY
EL	ELEVATION	MCB	MAIN CIRCUIT BREAKER	V	VOLTAGE, VOLTS
ELEC	ELECTRIC	MCC	MOTOR CONTROL CENTER	VCB	VACUUM CIRCUIT BREAKER
ELEM	ELEMENTARY	MDC	MOTORIZED DAMPER CONTROL	VFD	VARIABLE FREQUENCY DRIVE
EMER	EMERGENCY	MECH	MECHANICAL	VIB	VIBRATION
EMS	ENERGY MONITORING SYSTEM	MFR	MANUFACTURER	VM	VOLTMETER
EMT	ELECTRICAL METALLIC TUBING	MH	MANHOLE, METAL HALIDE, MOUNTING HEIGHT	VR	VOLTAGE REGULATOR
EMU	ENERGY MONITORING UNIT	MIN	MINIMUM	VS	VOLTMETER SWITCH
ENCL	ENCLOSURE	MO	MOTOR OPERATOR	W	WATTS
EO	ELECTRIC OPERATED, ELECTRIC OPERATOR	MOP	MOTOR OPERATED POTENTIOMETER	WHD	WATT HOUR DEMAND METER
EP	EXPLOSION-PROOF	MOV	METAL OXIDE VARIATOR, MOTOR OPERATED VALVE	WM	WATTMETER
ETM	ELAPSED TIME METER	MPR	MOTOR PROTECTION RELAY	WP	WEATHERPROOF
EUH	ELECTRIC UNIT HEATER	MRCT	MULTI RATIO CURRENT TRANSFORMER	XD	TRANSDUCER
EX	EXHAUST	MS	MOTOR STARTER	XFMR	TRANSFORMER
EXST	EXISTING	MSC	MANUFACTURER SUPPLIED CABLE	XPDR	TRANSPONDER
		MT	MOUNT	Z	IMPEDANCE
		MTD	MOUNTED	ZS	POSITION SWITCH
		MTS	MANUAL TRANSFER SWITCH		
		MV	MEDIUM VOLTAGE		
		MVA	MEGA-VOLT AMPERES		
F	FORWARD, FREQ	N	NEUTRAL, NORMAL		
FA	FIRE ALARM	NA	NON-AUTOMATIC		
FACP	FIRE ALARM CONTROL PANEL	NC	NORMALLY CLOSED		
FDR	FEEDER	NEC	NATIONAL ELECTRICAL CODE		
FF	FINISHED FLOOR	NESC	NATIONAL ELECTRICAL SAFETY CODE		
FI	FLOW INDICATOR	NEUT	NEUTRAL		
FLEX	FLEXIBLE CONDUIT	NIC	NOT IN CONTRACT		
FLR	FLOOR	N.O.	NORMALLY OPEN		
FLUOR	FLUORESCENT	NP	NAMEPLATE		
FPR	FEEDER PROTECTOR RELAY	NTS	NOT TO SCALE		
FO	FIBER OPTIC				
FP	FIELD PANEL				
FREQ	FREQUENCY				
FU	FLOAT SWITCH				
FUSE	FUSE				
FVNR	FULL VOLTAGE NON-REVERSING				
FVR	FULL VOLTAGE REVERSING				
FWD	FORWARD				

NOT FOR BIDDING PURPOSES

Jacobs

01-GENERAL  
PROCESS AIR COMPRESSOR SYSTEM  
FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION  
ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

ELECTRICAL ABBREVIATIONS

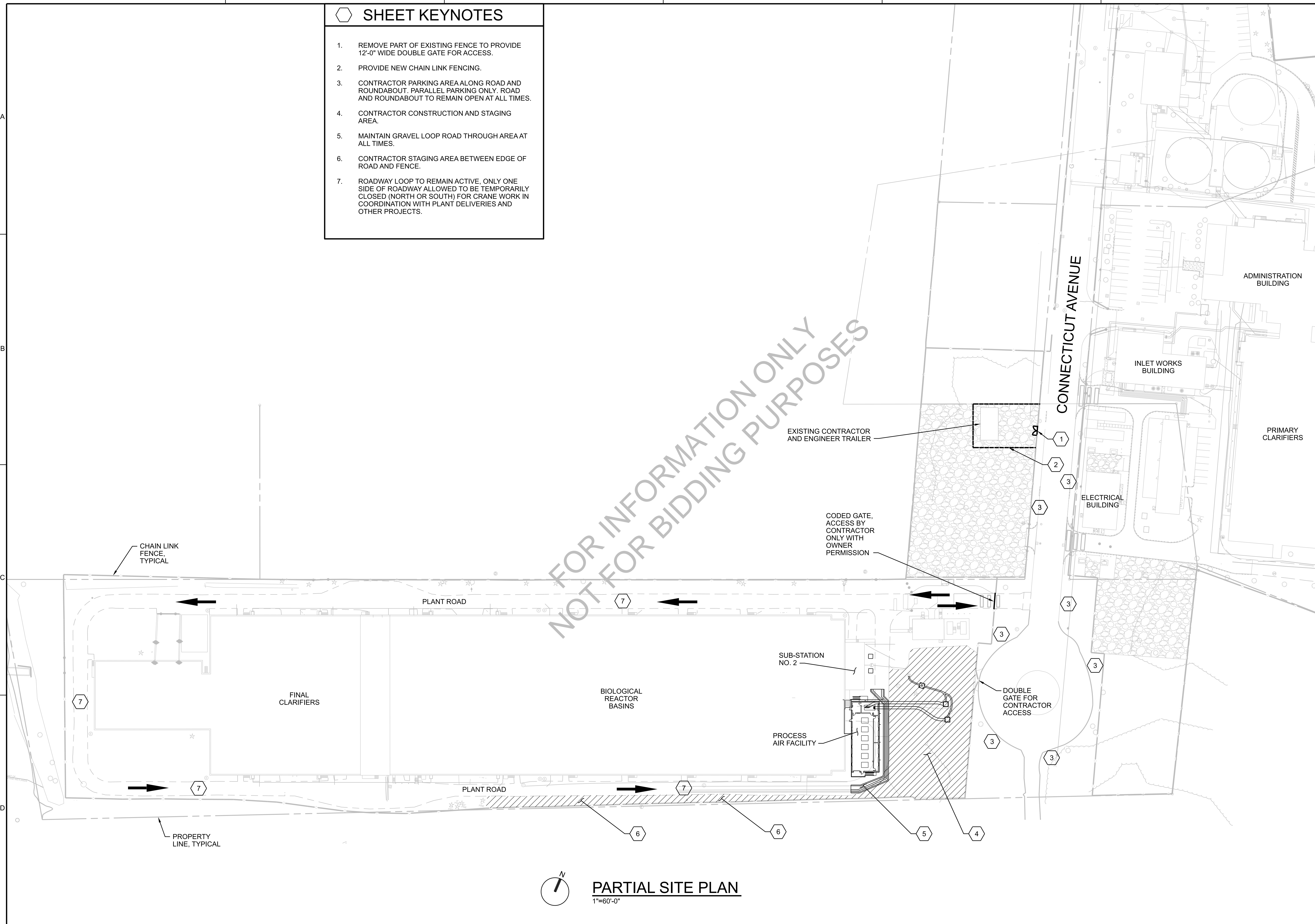
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DATE	JULY 2023
PROJ	E2X90000
DWG	01-G-016
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BID READY



- ### SHEET KEYNOTES
- REMOVE PART OF EXISTING FENCE TO PROVIDE 12'-0" WIDE DOUBLE GATE FOR ACCESS.
  - PROVIDE NEW CHAIN LINK FENCING.
  - CONTRACTOR PARKING AREA ALONG ROAD AND ROUNDABOUT. PARALLEL PARKING ONLY. ROAD AND ROUNDABOUT TO REMAIN OPEN AT ALL TIMES.
  - CONTRACTOR CONSTRUCTION AND STAGING AREA.
  - MAINTAIN GRAVEL LOOP ROAD THROUGH AREA AT ALL TIMES.
  - CONTRACTOR STAGING AREA BETWEEN EDGE OF ROAD AND FENCE.
  - ROADWAY LOOP TO REMAIN ACTIVE, ONLY ONE SIDE OF ROADWAY ALLOWED TO BE TEMPORARILY CLOSED (NORTH OR SOUTH) FOR CRANE WORK IN COORDINATION WITH PLANT DELIVERIES AND OTHER PROJECTS.

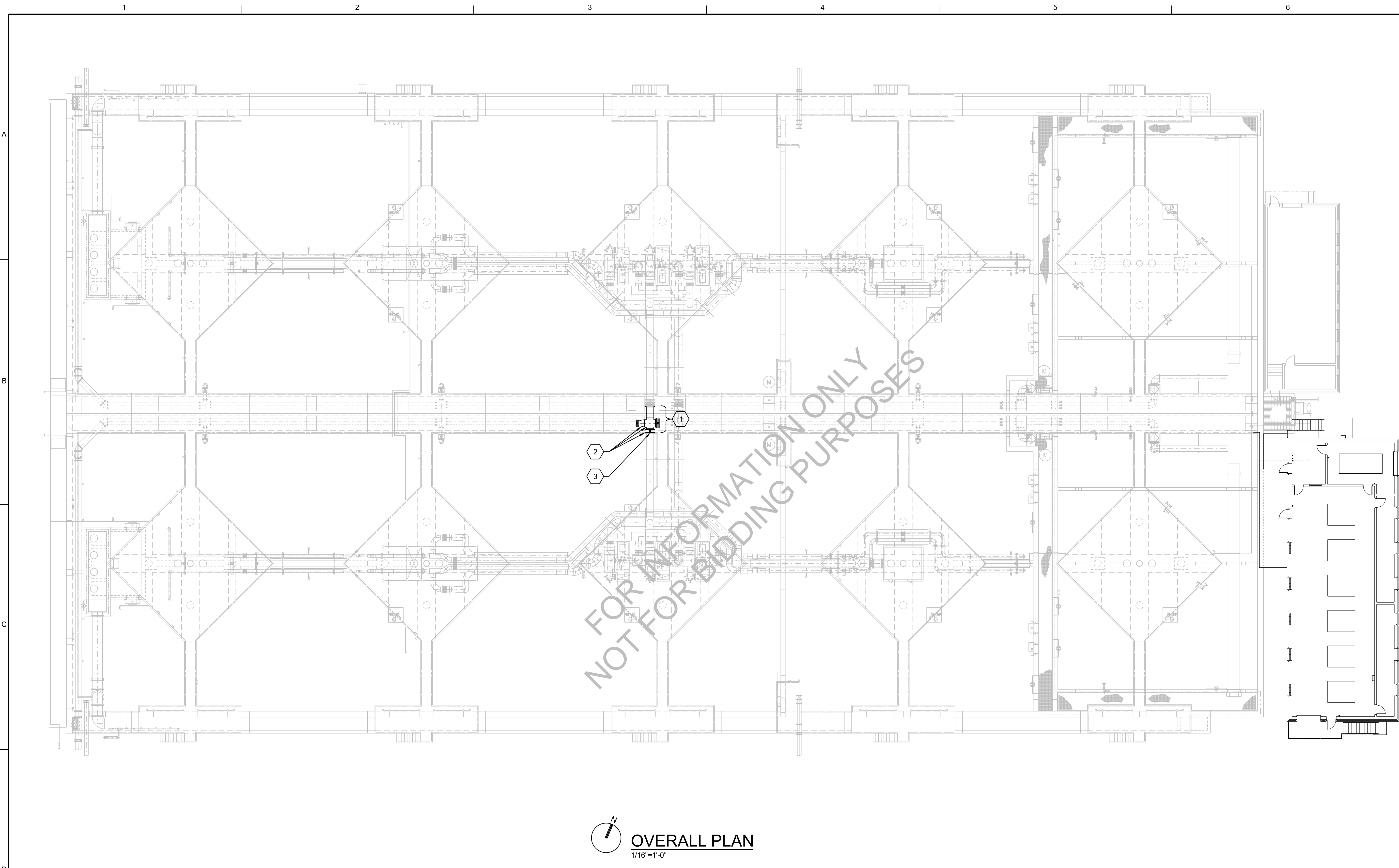
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		GENERAL <b>CONSTRUCTION ACCESS                  PLAN AND TEMPORARY                  CONSTRUCTION FACILITIES</b>									
		PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL EAST SHORE WATER POLLUTION ABATEMENT FACILITY Greater New Haven Water Pollution Control Authority New Haven, CT									
		NO.	DATE	REVISION	CHK	DR	APVD	BY	APVD		
						K MASSEY	SA KORCSMAROS	N JOHNSON	DL LYNCH		
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**PARTIAL SITE PLAN**  
 1"=60'-0"

**BID READY**



**OVERALL PLAN**  
1/16"=1'-0"

**GENERAL SHEET NOTES**

1. WORK SHOWN ON THIS DWG MUST BE COMPLETED DURING A 6 HOUR SHUTDOWN.

**30" CROSS INSTALLATION KEYNOTES**

1. DEMOLISH SECTION OF 30" FRP DISCHARGE PIPE.
2. INSTALL PREFABRICATED 30" CROSS, REDUCER AND THREE ISOLATION BUTTERFLY VALVES.
3. A TEMPORARY 30" FRP COUPLING CAN BE USED TO MAKE CONNECTION TO CUT END OF FRP PIPE.

**Jacobs**  
BIOLOGICAL REACTOR AERATION BASINS  
CONSTRUCTION PHASING  
OVERALL UPPER PLAN  
PHASE 1

PROCESS AIR COMPRESSOR SYSTEM  
FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION  
ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

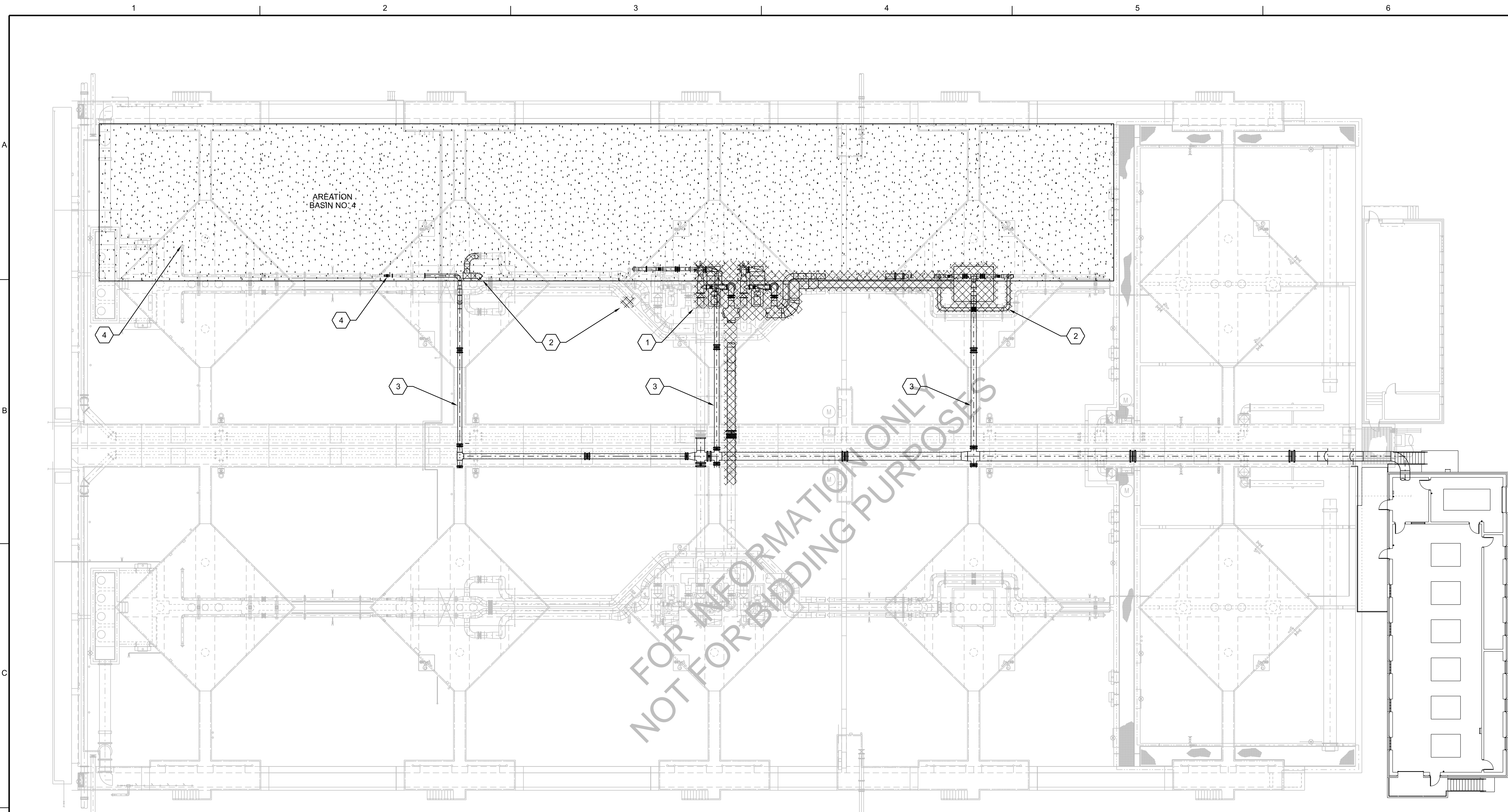
VERIFY SCALE	
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DATE	JULY 2023
PROJ	E2X90000
DWG	01-G-101
SHEET	18 of 96

NO.	DATE	DR	CHK	APVD	BY	APVD
		K BAIRD	SA KORCSMAROS	N JOHNSON		DL LYNCH

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**BID READY**






**OVERALL PLAN**  
 1/16"=1'-0"

**LEGEND**


 BASIN 4 ZONE

**GENERAL SHEET NOTES**

- ITEMS SHOWN BOLD AND CROSS HATCHED TO BE DEMOLISHED.

**BASIN PIPING INSTALLATION  
STAGE 1 KEYNOTES**

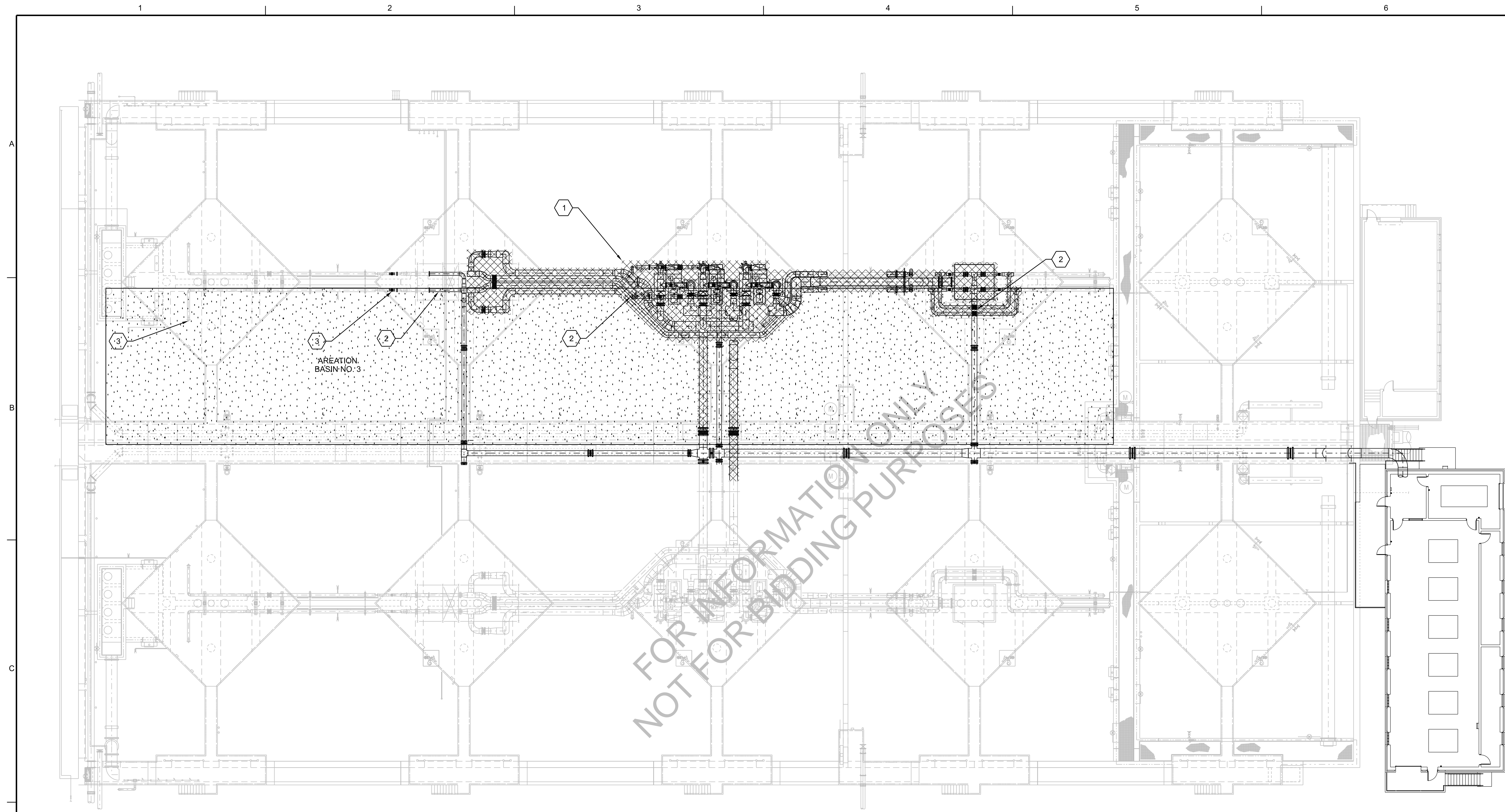
- DEMOLISH TWO BLOWERS ON NORTH SIDE OF AERATION BASINS INCLUDING THE NORTH SIDE FILTERS, SUCTION PIPING, SUCTION CROSSOVER PIPING UP TO 30" ISOLATION VALVE AND DISCHARGE PIPING UP TO BLOWER ISOLATION VALVES. SEE SPECIFICATION PROJECT COORDINATION 01 31 00 FOR AERATION BASIN WORK SEQUENCE.
- DEMOLISH BASIN 4 FRP PIPING DOWNSTREAM OF 20" DISCHARGE PIPING ISOLATION VALVE AND SUPPORTS NO LONGER REQUIRED.
- INSTALL NEW ALP PIPING TO ZONES 2A/2B, 3 AND 4/5 FOR BASIN 4.
- INSTALL NEW CONTROL VALVES AND INSTRUMENTATION FOR BASIN 4.

NO.	DATE	DR	CHK	REVISION	BY	APVD

PROCESS AIR COMPRESSOR SYSTEM  
 FOR LOW LEVEL NITROGEN REMOVAL  
 EAST SHORE WATER POLLUTION  
 ABATEMENT FACILITY  
 Greater New Haven Water Pollution Control Authority  
 New Haven, CT

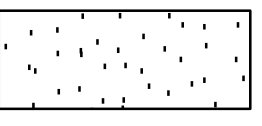
**Jacobs**  
 BIOLOGICAL REACTOR AERATION BASINS  
**CONSTRUCTION PHASING  
OVERALL UPPER PLAN  
PHASE 3**

VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING.	
DATE	JULY 2023
PROJ	E2X90000
DWG	01-G-103
SHEET	20 of 96



**OVERALL PLAN**  
1/16"=1'-0"

**LEGEND**

 BASIN 3 ZONE

**GENERAL SHEET NOTES**

- ITEMS SHOWN BOLD AND CROSS HATCHED TO BE DEMOLISHED.

**BASIN PIPING INSTALLATION  
STAGE 2 KEYNOTES**

- ALL REMAINING FRP PIPING AND SUPPORTS NORTH OF CROSSOVER ISOLATION VALVES CAN BE DEMOLISHED.
- INSTALL NEW ALP PIPING TO ZONES 2A/2B, 3 AND 4/5 FOR BASIN 3. SEE SPECIFICATION PROJECT COORDINATION 01 31 00 FOR AERATION BASIN WORK SEQUENCE.
- INSTALL NEW CONTROL VALVES AND INSTRUMENTATION FOR BASIN 3.

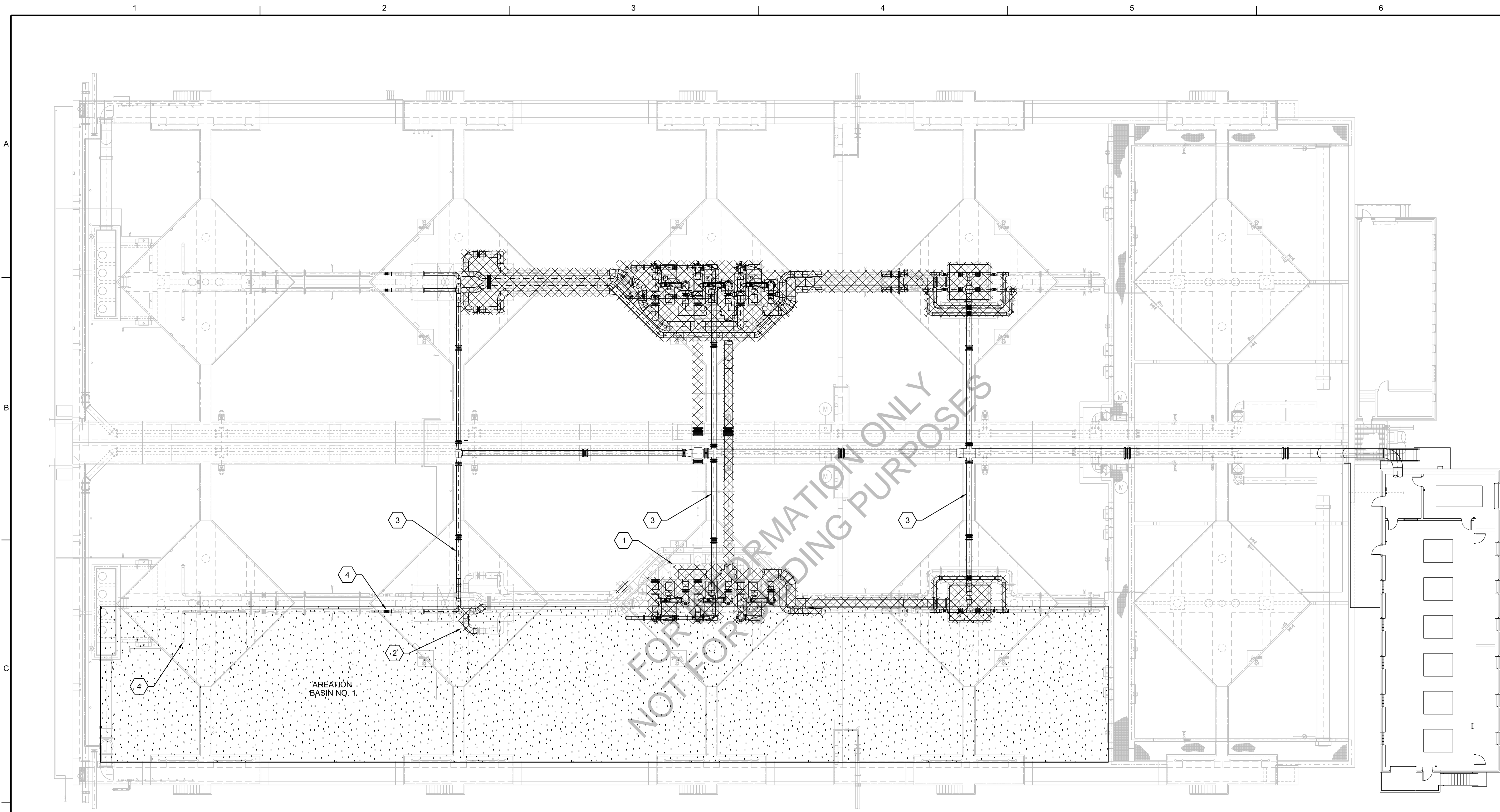
NO.	DATE	DR	CHK	REVISION	BY	APVD
		K BAIRD	Z GHASEMY		N JOHNSON	DL LYNCH

PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

**Jacobs**  
BIOLOGICAL REACTOR AERATION BASINS  
CONSTRUCTION PHASING  
OVERALL UPPER PLAN  
PHASE 4

VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING.	
DATE	JULY 2023
PROJ	E2X90000
DWG	01-G-104
SHEET	21 of 96

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NOT FOR CONSTRUCTION PURPOSES

**OVERALL PLAN**  
 1/16"=1'-0"

LEGEND
<div style="display: flex; align-items: center; gap: 10px;"> <div style="width: 20px; height: 10px; background: repeating-linear-gradient(45deg, transparent, transparent 2px, black 2px, black 4px); border: 1px solid black;"></div> <span>BASIN 1 ZONE</span> </div>
GENERAL SHEET NOTES
<ol style="list-style-type: none"> <li>1. ITEMS SHOWN BOLD AND CROSS HATCHED TO BE DEMOLISHED.</li> </ol>

BASIN PIPING INSTALLATION STAGE 3 KEYNOTES
<ol style="list-style-type: none"> <li>1. DEMOLISH THREE BLOWERS ON SOUTH SIDE OF AERATION BASINS INCLUDING THE SOUTH SIDE FILTERS, SUCTION PIPING, SUCTION CROSSOVER PIPING UP TO 30" ISOLATION VALVE AND DISCHARGE PIPING UP TO BLOWER ISOLATION VALVES. SEE SPECIFICATION PROJECT COORDINATION 01 31 00 FOR AERATION BASIN WORK SEQUENCE.</li> <li>2. DEMOLISH BASIN 1 FRP DOWNSTREAM OF 20" DISCHARGE PIPING ISOLATION VALVE AND SUPPORTS NO LONGER REQUIRED.</li> <li>3. INSTALL NEW ALP PIPING TO ZONES 2A/2B, 3 AND 4/5 FOR BASIN 1.</li> <li>4. INSTALL NEW CONTROL VALVES AND INSTRUMENTATION FOR BASIN 1.</li> </ol>

Jacobs

PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL  
 EAST SHORE WATER POLLUTION ABATEMENT FACILITY  
 Greater New Haven Water Pollution Control Authority  
 New Haven, CT

Biological Reactor Aeration Basins  
 Construction Phasing  
 Overall Upper Plan  
 Phase 5

NO.	DATE	DR	CHK	REVISION	BY	APVD

DATE	JULY 2023
PROJ	E2X90000
DWG	01-G-105
SHEET	22 of 96

VERIFY SCALE	BAR IS ONE INCH ON ORIGINAL DRAWING.
DATE	JULY 2023
PROJ	E2X90000
DWG	01-G-105
SHEET	22 of 96

FILENAME: 01-G-105\_E2X90000.dgn

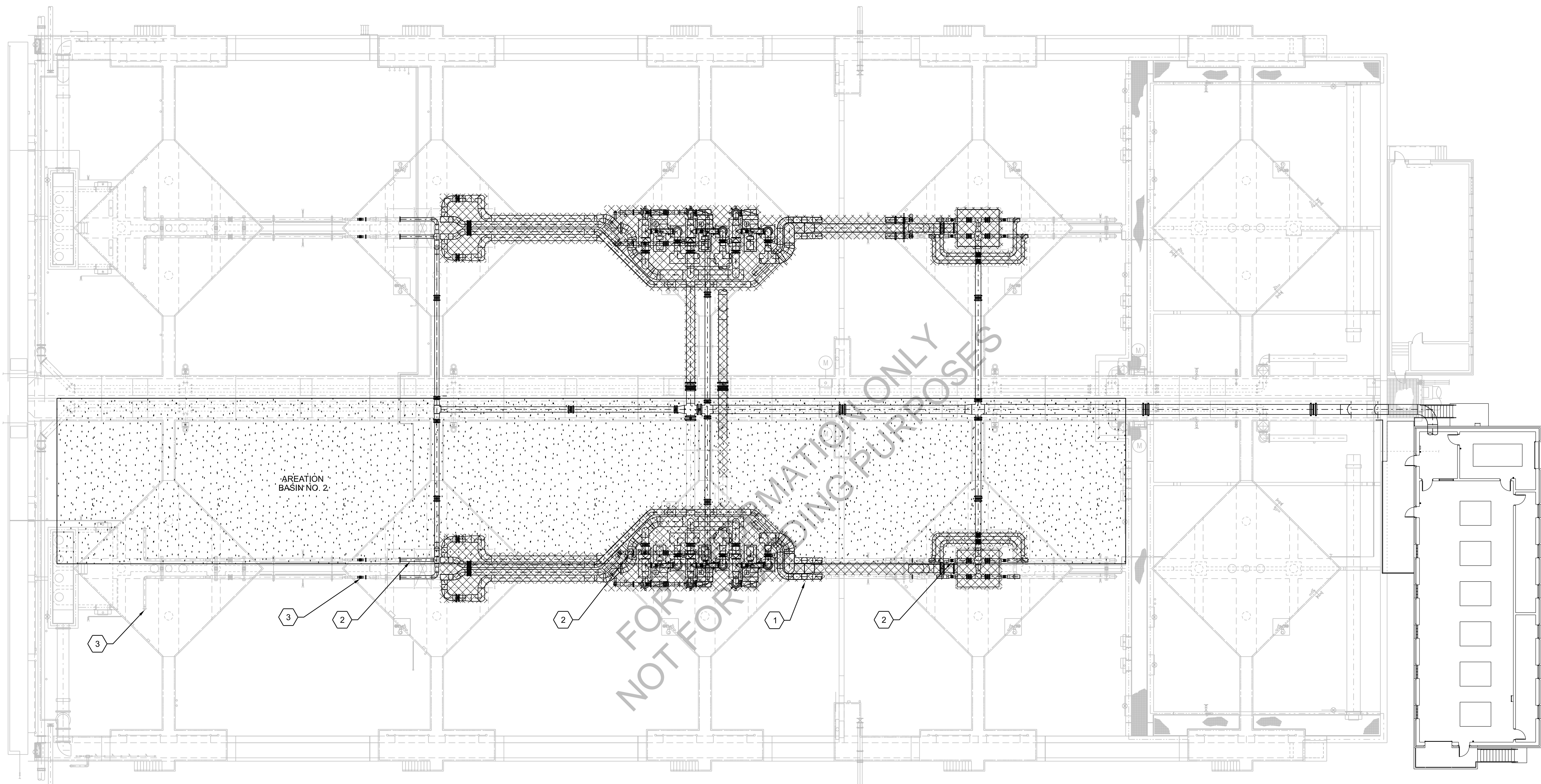
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PLOT TIME: 9:36:34 AM

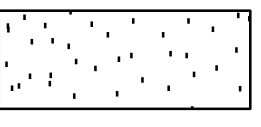
SPWURL

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 **OVERALL PLAN**  
1/16"=1'-0"

<b>LEGEND</b>		<b>BASIN PIPING INSTALLATION STAGE 4 KEYNOTES</b>
	BASIN 2 ZONE	
<b>GENERAL SHEET NOTES</b>		<ol style="list-style-type: none"> <li>ALL REMAINING FRP PIPING AND SUPPORTS SOUTH OF CROSSOVER ISOLATION VALVES CAN BE DEMOLISHED.</li> <li>INSTALL NEW ALP PIPING TO ZONES 2A/2B, 3 AND 4/5 FOR BASIN 2. SEE SPECIFICATION PROJECT COORDINATION 01 31 00 FOR AERATION BASIN WORK SEQUENCE.</li> <li>INSTALL NEW CONTROL VALVES AND INSTRUMENTATION FOR BASIN 2.</li> </ol>
<ol style="list-style-type: none"> <li>ITEMS SHOWN BOLD AND CROSS HATCHED TO BE DEMOLISHED.</li> </ol>		

NO.	DATE	DSGN	DR	CHK	REVISION	BY	APVD

**JACOBS**

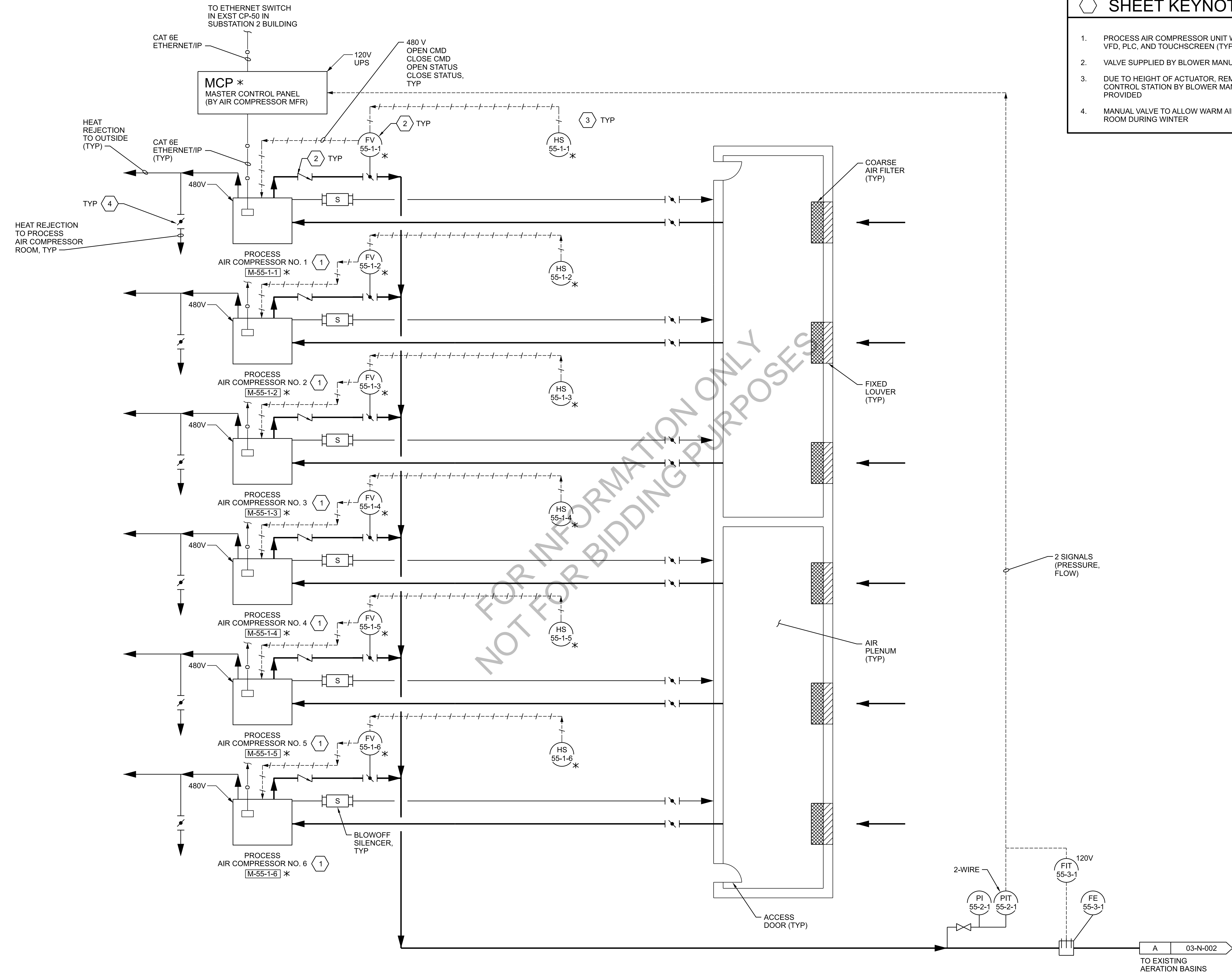
PROCESS AIR COMPRESSOR SYSTEM  
FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION  
ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

BIOLOGICAL REACTOR AERATION BASINS  
**CONSTRUCTION PHASING  
OVERALL UPPER PLAN  
PHASE 6**

VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING.	
DATE	JULY 2023
PROJ	E2X90000
DWG	01-G-106
SHEET	23 of 96

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- ### SHEET KEYNOTES
1. PROCESS AIR COMPRESSOR UNIT WITH INTEGRAL VFD, PLC, AND TOUCHSCREEN (TYP).
  2. VALVE SUPPLIED BY BLOWER MANUFACTURER
  3. DUE TO HEIGHT OF ACTUATOR, REMOTE HAND CONTROL STATION BY BLOWER MANUFACTURER PROVIDED
  4. MANUAL VALVE TO ALLOW WARM AIR INTO ROOM DURING WINTER

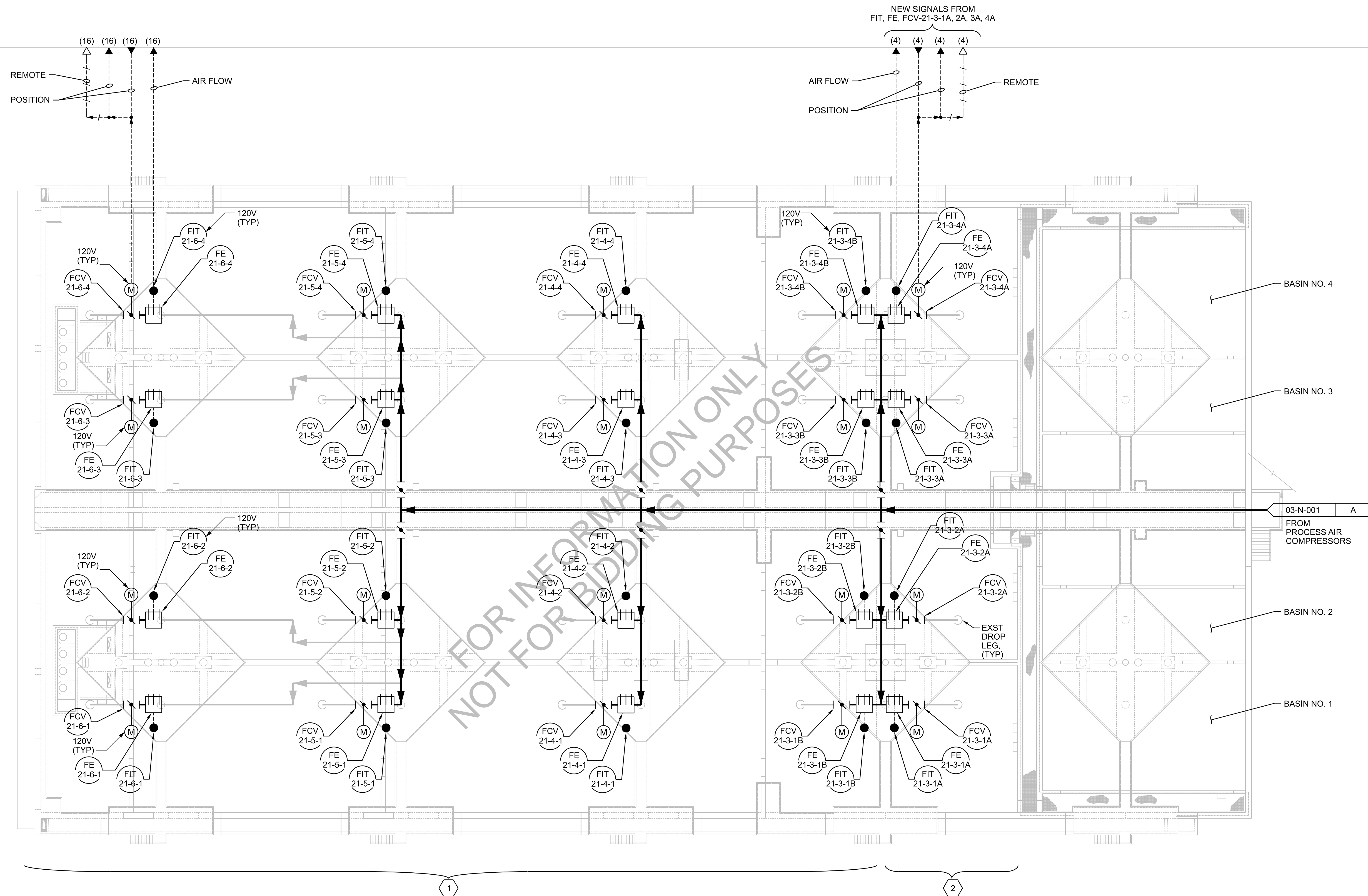


FOR INFORMATION ONLY  
NOT FOR BIDDING PURPOSES

PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL		EAST SHORE WATER POLLUTION ABATEMENT FACILITY		Greater New Haven Water Pollution Control Authority New Haven, CT	
NO.	DATE	DR	CHK	APVD	BY
		D MUNZER	SA KORCSMAROS	J BROSNAN	DL LYNCH
<b>Jacobs</b>					
INSTRUMENTATION AND CONTROL P&ID PROCESS AIR COMPRESSORS					
VERIFY SCALE					
BAR IS ONE INCH ON ORIGINAL DRAWING.					
DATE	JULY 2023				
PROJ	E2X90000				
DWG	03-N-001				
SHEET	24 of 96				



EXISTING AERATION PLC CONTROL PANEL  
(CP-50)



SHEET KEYNOTES	
1.	EXISTING FIT, FE AND FCV TO BE REPLACED WITH NEW. SEE SPECIFICATIONS.
2.	NEW FIT, FE AND FCV. SEE SPECIFICATIONS.

<b>Jacobs</b> INSTRUMENTATION AND CONTROL P&ID BIOLOGICAL REACTOR AERATION BASINS	PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL EAST SHORE WATER POLLUTION ABATEMENT FACILITY Greater New Haven Water Pollution Control Authority New Haven, CT	DSGN NO. DATE DR D MUNZER REVISION CHK SA KORCSMAROS APVD J BROSNAN BY DL LYNCH
	FROM PROCESS AIR COMPRESSORS 03-N-001 A	BASIN NO. 4 BASIN NO. 3 BASIN NO. 2 BASIN NO. 1
	EXST DROP LEG, (TYP)	(16) (16) (16) (16) REMOTE POSITION AIR FLOW (4) (4) (4) (4) AIR FLOW POSITION REMOTE
	120V (TYP) FIT 21-6-4 FE 21-6-4 FCV 21-6-4 M	120V (TYP) FIT 21-5-4 FE 21-5-4 FCV 21-5-4 M

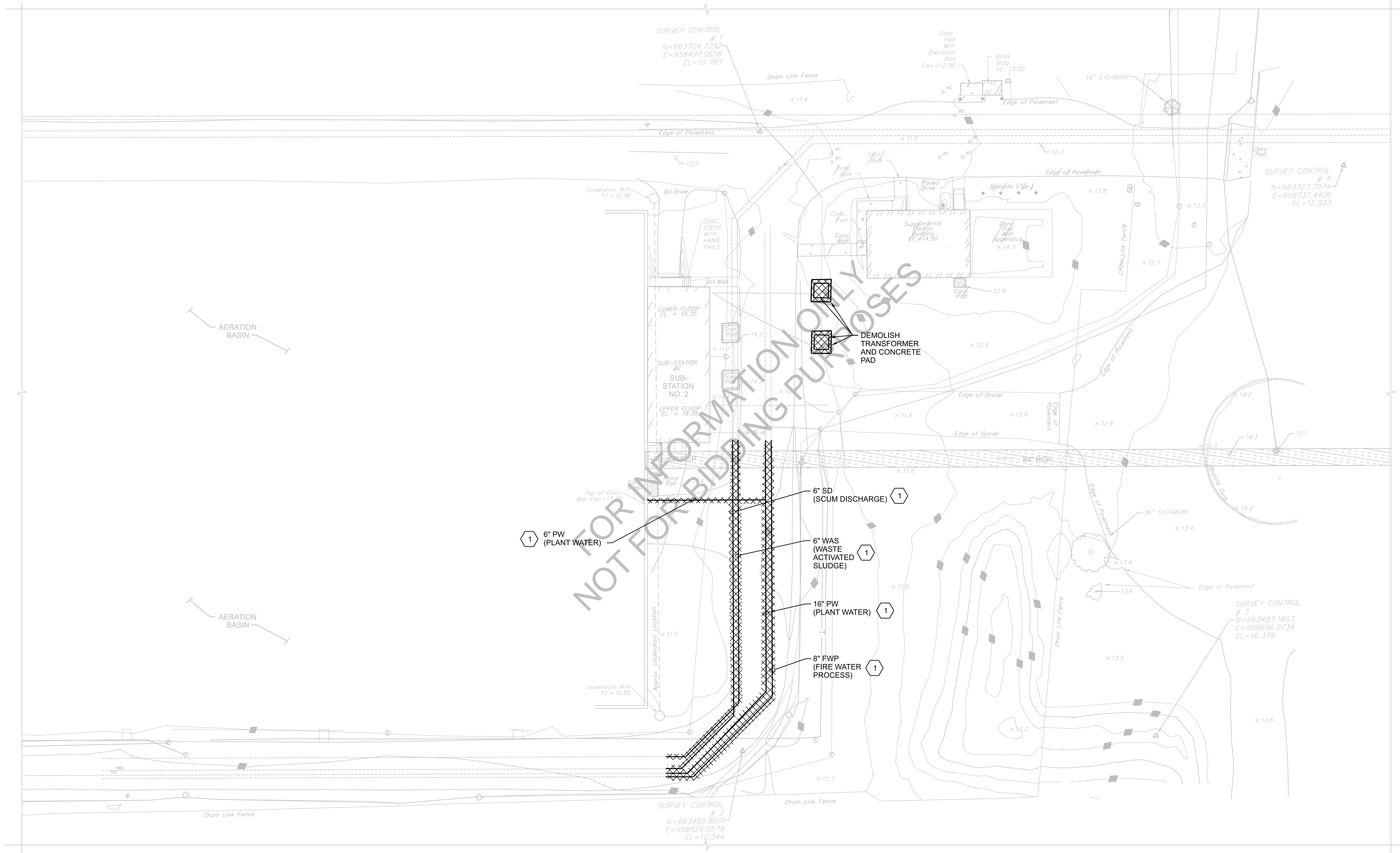
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
DATE JULY 2023
PROJ E2X90000
DWG 03-N-002
SHEET 25 of 96

# GENERAL SHEET NOTES

- 1. ITEMS SHOWN BOLD AND CROSS HATCHED TO BE DEMOLISHED.

# SHEET KEYNOTES

- 1. DEMOLISH PORTION OF EXISTING PIPE TO LIMITS AS SHOWN.



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**PARTIAL SITE PLAN**
  
 1"=20'-0"

PROCESS AIR COMPRESSOR SYSTEM  
 FOR LOW LEVEL NITROGEN REMOVAL  
 EAST SHORE WATER POLLUTION  
 ABATEMENT FACILITY  
 Greater New Haven Water Pollution Control Authority  
 New Haven, CT

Jacobs

SITE  
**DEMOLITION  
 PLAN**

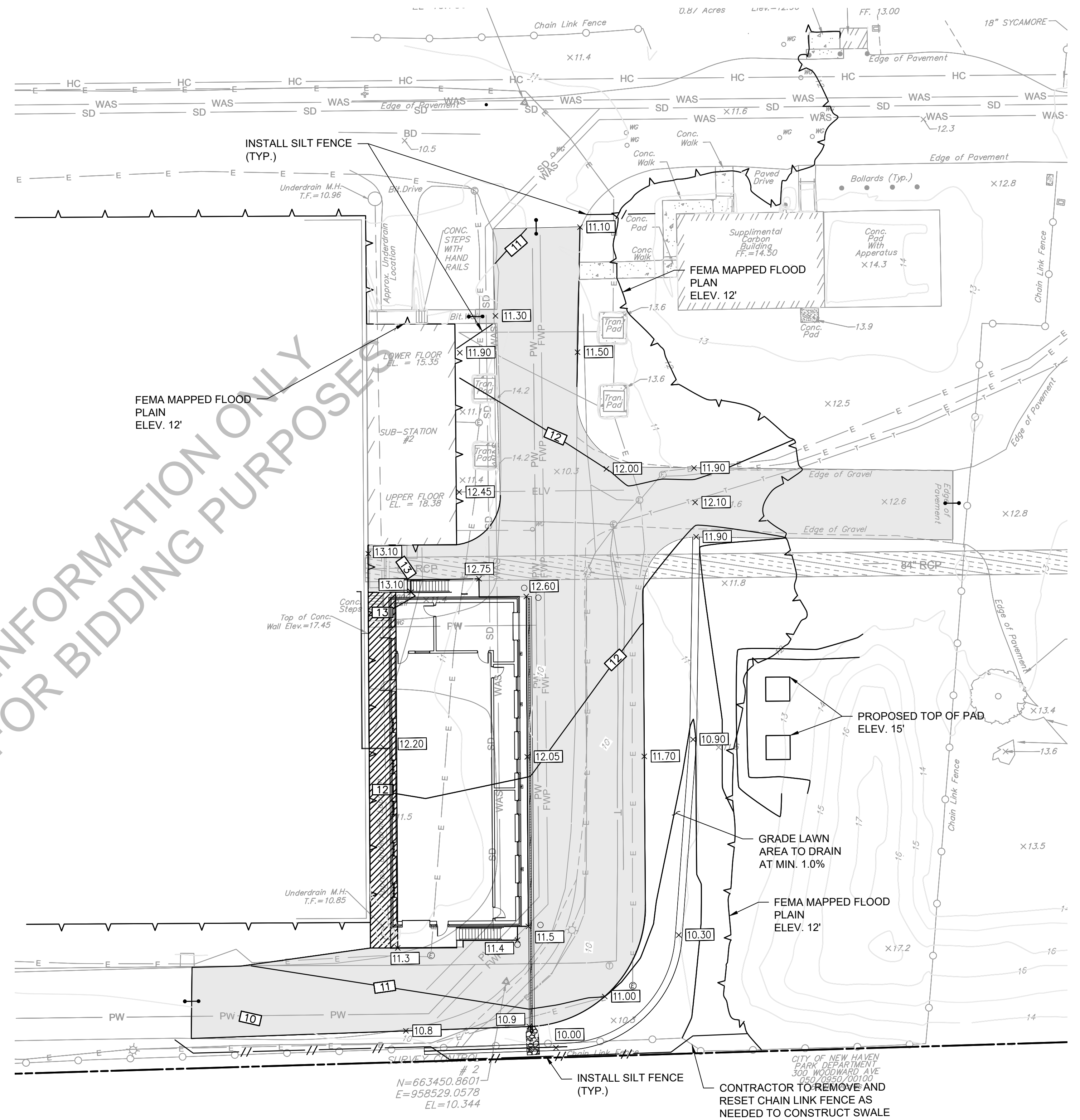
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DATE	JULY 2023
PROJ	E2X90000
DWG	05-X-101
SHEET	26 of 96

BID READY

NO.	DATE	DR	REVISION	BY	APVD
		K. MASSEY			DL LYNCH

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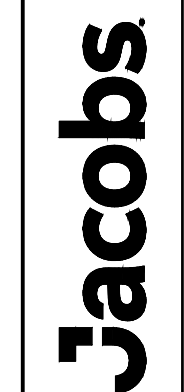
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**SITE PLAN**  
1"=20'-0"



PROCESS AIR COMPRESSOR SYSTEM  
FOR LOW LEVEL NITROGEN REMOVAL  
at the  
EAST SHORE WATER POLLUTION  
ABATEMENT FACILITY  
Greater New Haven Water Pollution  
Control Authority New Haven, CT



**EROSION & SEDIMENT CONTROL PLAN**

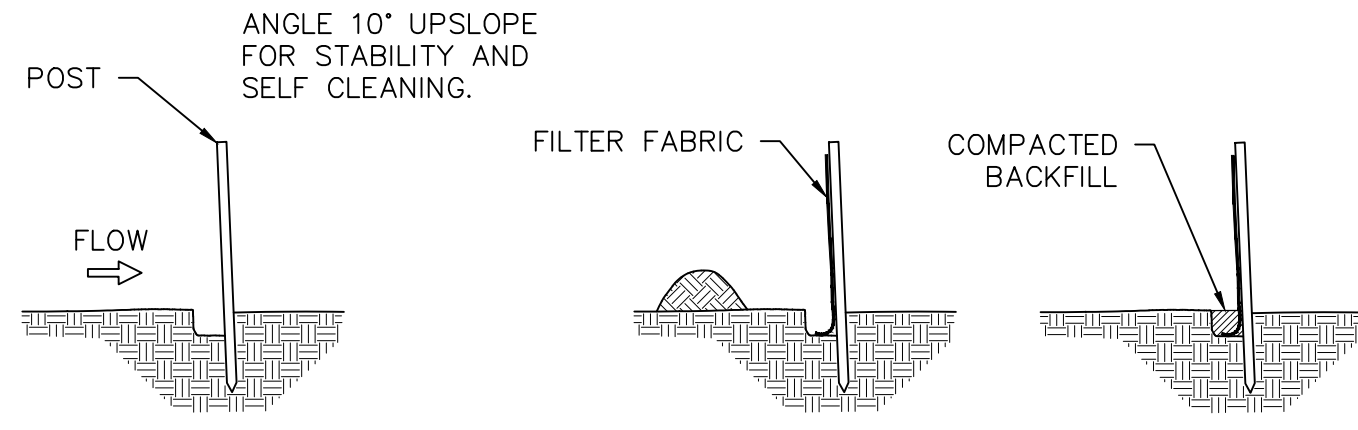
VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING.	
DATE	JULY 2023
PROJ	E2X90000
DWG	05-W-201
SHEET	27 of 96

**BID READY**

NO.	DATE	DR	REVISION	BY	APVD
		F WALSH	CHK	D VILL	APVD
					DL LYNCH

A  
B  
C  
D

1 2 3 4 5 6



1. SET POSTS AND EXCAVATE A 6"x6" TRENCH. SET POST DOWNSLOPE.
  2. ATTACH FILTER FABRIC FENCING TO POST AND EXTEND IT TO THE TRENCH BOTTOM.
  3. BACKFILL THE TRENCH AND COMPACT THE EXCAVATED SOIL.
- SILT FENCE**  
NOT TO SCALE

FOR INFORMATION ONLY  
NOT FOR BIDDING PURPOSES



PROCESS AIR COMPRESSOR SYSTEM  
FOR LOW LEVEL NITROGEN REMOVAL  
at the  
EAST SHORE WATER POLLUTION  
ABATEMENT FACILITY  
Greater New Haven Water Pollution  
Control Authority - New Haven, CT



**SITE  
EROSION & SEDIMENT CONTROL  
DETAILS**

VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING.	
DATE	JULY 2023
PROJ	E2X90000
DWG	05-W-501
SHEET	28 of 96

NO.	DATE	REVISION	CHK	DR	D	BY
DSGN				F WALSH	D VILL	APVD
						DL LYNCH

A  
B  
C  
D

1

2

3

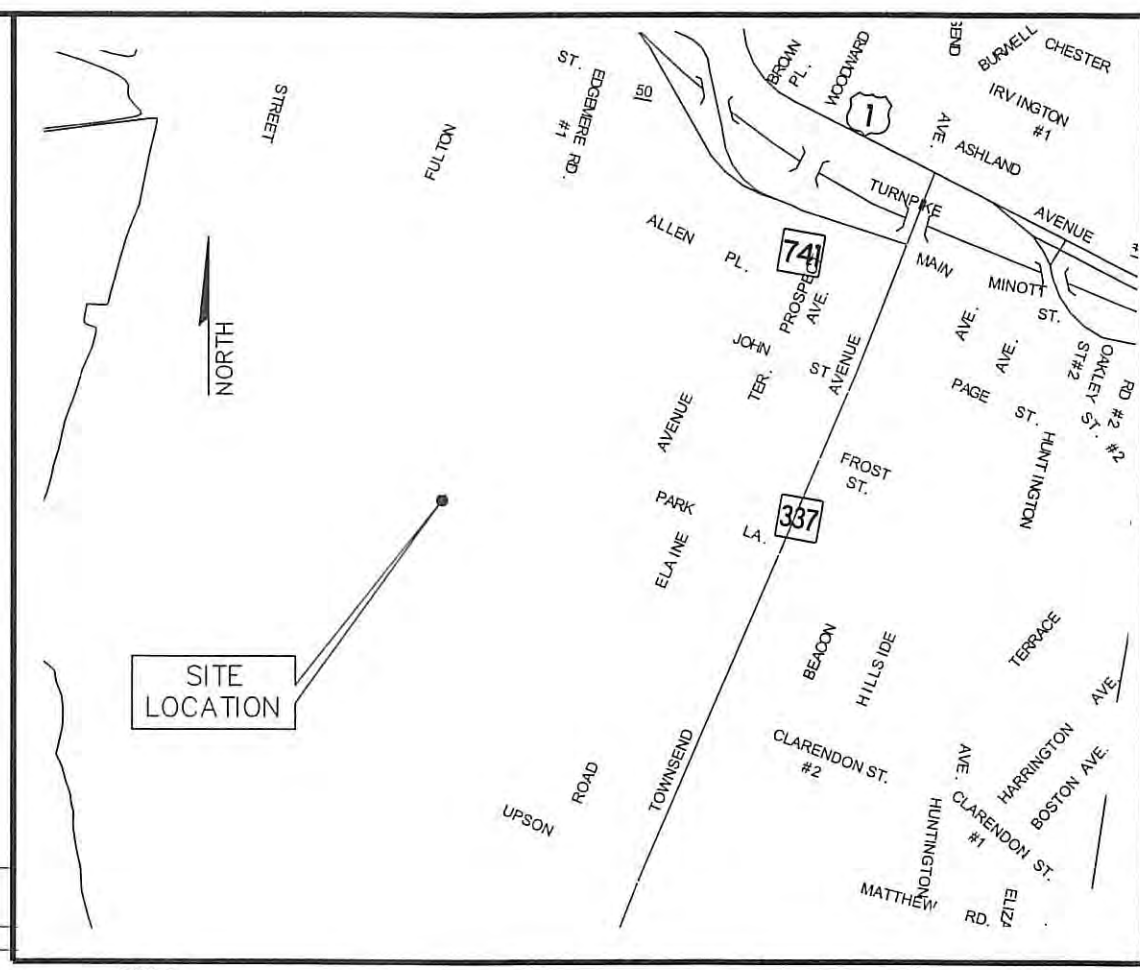
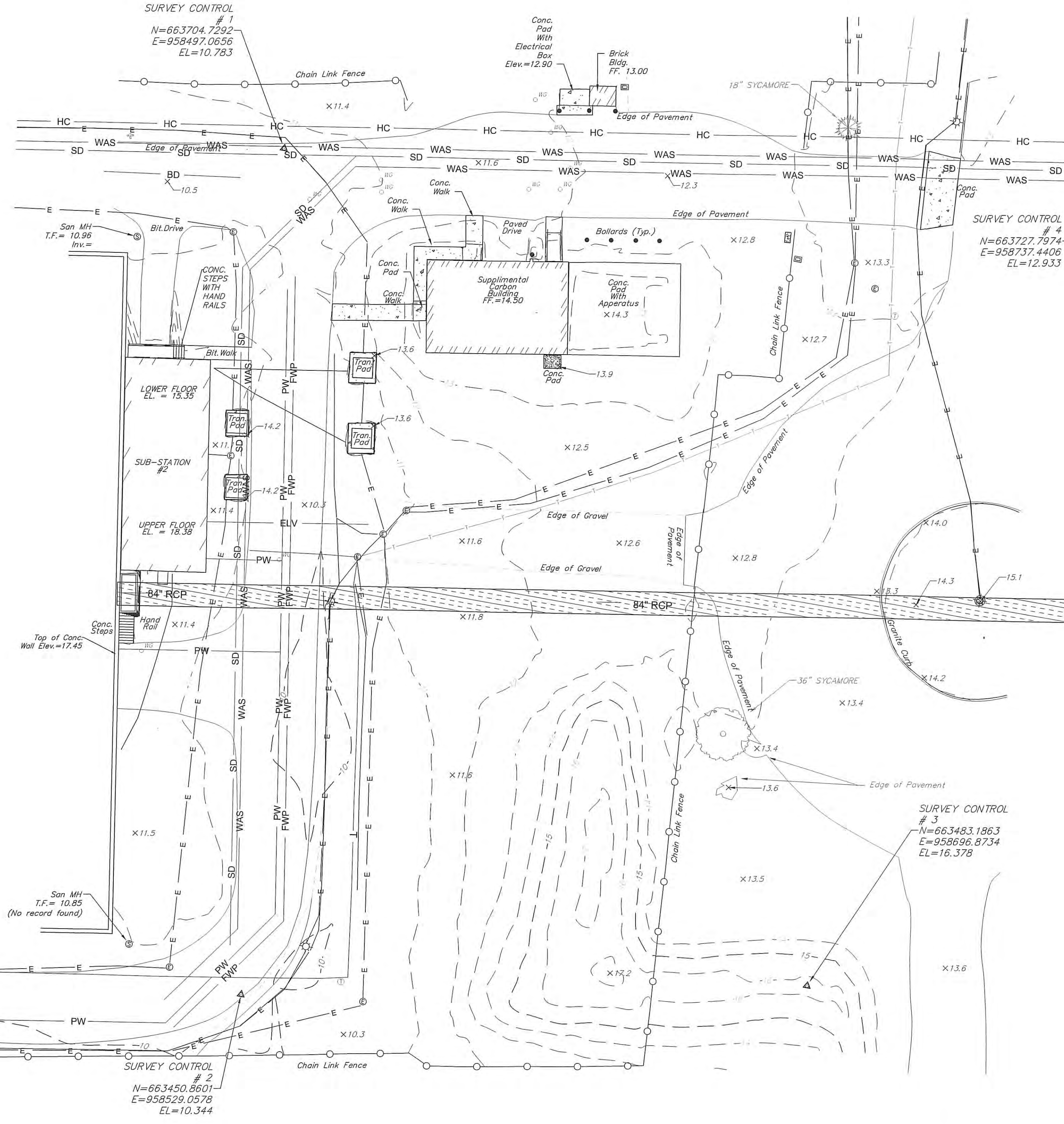
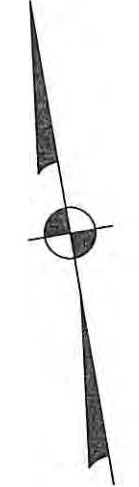
4

5

6

**LEGEND**

	PROPERTY LINE
	EASEMENT LINE
	CHAIN LINK FENCE
	EDGE OF WETLANDS
	EDGE OF WATER
	ELECTRIC LINE
	TELECOMMUNICATIONS LINE
	WATER LINE
	SANITARY LINE
	GAS LINE
	OVERHEAD WIRES
	DRAINAGE PIPE
	SLUDGE DISCHARGE LINE
	PLANT WATER LINE
	HYPOCHLORITE LINE
	WASTE ACTIVATED SLUDGE DISCHARGE LINE
	FIRE WATER PROCESSING LINE
	ELECTRIC LOW VOLTAGE
	BLOW DOWN
	STREET LIGHT/LAMP POST
	UTILITY POLE
	WATER GATE/VALVE
	FIRE HYDRANT
	GAS GATE VALVE
	SIGN
	PROPERTY CORNER IRON PIN
	HAND HOLE
	CATCH BASIN
	DRAINAGE MANHOLE
	SANITARY MANHOLE
	MAILBOX
	BORING
	BUSH
	DECIDUOUS TREE
	BOLLARD
	SPOTGRADE



**LOCATION MAP**  
NOT TO SCALE

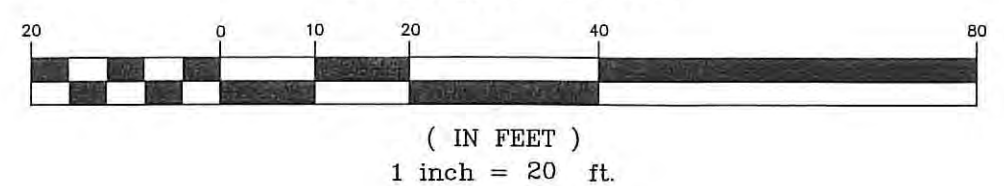
**GENERAL NOTES**

- THIS SURVEY HAS BEEN PREPARED IN ACCORDANCE WITH THE REGULATIONS OF CONNECTICUT STATE AGENCIES, SECTIONS 20-300b-1 THRU 20-300b-20, AS REVISED AND THE "STANDARDS AND SUGGESTED METHODS AND PROCEDURES FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON AUGUST 29, 2019.
- THIS PLAN CONFORMS TO HORIZONTAL ACCURACY CLASS A-2 AND TOPOGRAPHIC ACCURACY CLASS T-2.
- BOUNDARY DETERMINATION (NONE)
- THE TYPE OF SURVEY PERFORMED IS A TOPOGRAPHIC SURVEY AND IS INTENDED TO DEPICT EXISTING CONDITIONS OF AN AREA REQUESTED BY THE OWNER.
- PROPERTY LINES ARE NOT DEPICTED FOR THE PURPOSES OF THIS SURVEY.
- NORTH ARROW AND BEARINGS REFER TO NAD83 AND BASED UPON REFERENCE MAP #1.
- ELEVATIONS REFER TO NAVD88 AND BASED UPON REFERENCE MAP #1.
- UNDERGROUND UTILITIES, IF DEPICTED HEREON, ARE APPROXIMATE IN NATURE AND ARE A COMPILATION OF EXISTING RECORDS, AVAILABLE MAPPING AND LOCATION OF VISIBLE EVIDENCE. OTHER UTILITIES MAY EXIST WHICH ARE NOT SHOWN. PRIOR TO ANY DIGGING OR SITE EXCAVATION CONTACT "CALL BEFORE YOU DIG" 1-800-922-4455 OR 811.
- TRACT 3 AREA = 482,567 S.F. OR 11.078 ACRES BASED ON REFERENCE MAP ENTITLED - "GREATER NEW HAVEN WATER POLLUTION CONTROL AUTHORITY, WETLAND LOCATION PLAN, EAST SHORE WATER POLLUTION ABATEMENT FACILITY, 345 EAST SHORE PARKWAY, NEW HAVEN, CT, SHEET 1 OF 1, DATE: AUG. 13, 2012, SCALE: 1" = 250' UIC, ENGINEERS AND SURVEYORS.

**MAP REFERENCES**

- "GENERAL SITE WORKING LIMITS AND STAGING PLAN, 1-40", AUGUST 2013, PROJ. 407000, DWG 01-G-007, SHEET 7 OF 506" BY CH2MHILL.
- "GREATER NEW HAVEN WATER POLLUTION CONTROL AUTHORITY, PROPERTY/BOUNDARY & TOPOGRAPHIC MAP, EAST SHORE WATER POLLUTION ABATEMENT FACILITY, SHEET 4 OF 9, MARCH 30, 2012, 1"-40" BY UIC ENGINEERS.
- "GREATER NEW HAVEN WATER POLLUTION CONTROL AUTHORITY, WETLAND LOCATION PLAN, EAST SHORE WATER POLLUTION ABATEMENT FACILITY, 345 EAST SHORE PARKWAY, NEW HAVEN, CT, SHEET 1 OF 1, DATE: AUG. 13, 2012, SCALE: 1"=250' UIC, ENGINEERS AND SURVEYORS.

**GRAPHIC SCALE**



TO MY KNOWLEDGE AND BELIEF THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

*Peter Parizo*

PETER PARIZO P.E.L.S. #14653

NO CERTIFICATION IS EXPRESSED OR IMPLIED UNLESS THIS MAP BEARS THE ORIGINAL SIGNATURE AND EMBOSSED SEAL OF THE ABOVE NAMED LAND SURVEYOR.

NO.	DATE	DESCRIPTION	REVISIONS
1	5/17/2021	Add water lines, add note # 5, Tract Area.	

**FREEMAN COMPANIES, LLC**  
LAND DEVELOPMENT ENGINEERING DESIGN CONSTRUCTION SERVICES

FREEMAN COMPANIES, LLC  
35 JOHN STREET  
HARTFORD, CT 06106  
WWW.FREEMANCO.COM  
(860)51-9050  
FAX:(860)96-7161

**TOPOGRAPHIC SURVEY**  
**GREATER NEW HAVEN WATER POLLUTION CONTROL AUTHORITY**  
**345 EAST SHORE PARKWAY**  
**NEW HAVEN, CONNECTICUT**

SURVEYED:	L.K. & A.K.
DRAFTED:	R.L.C.
APPROVED:	B.B.
SCALE:	1" = 20'
PROJECT NO.:	2021-0314
DATE:	04/15/2021
CAD FILE:	2021-0314

TITLE:  
**TOPOGRAPHIC SURVEY**

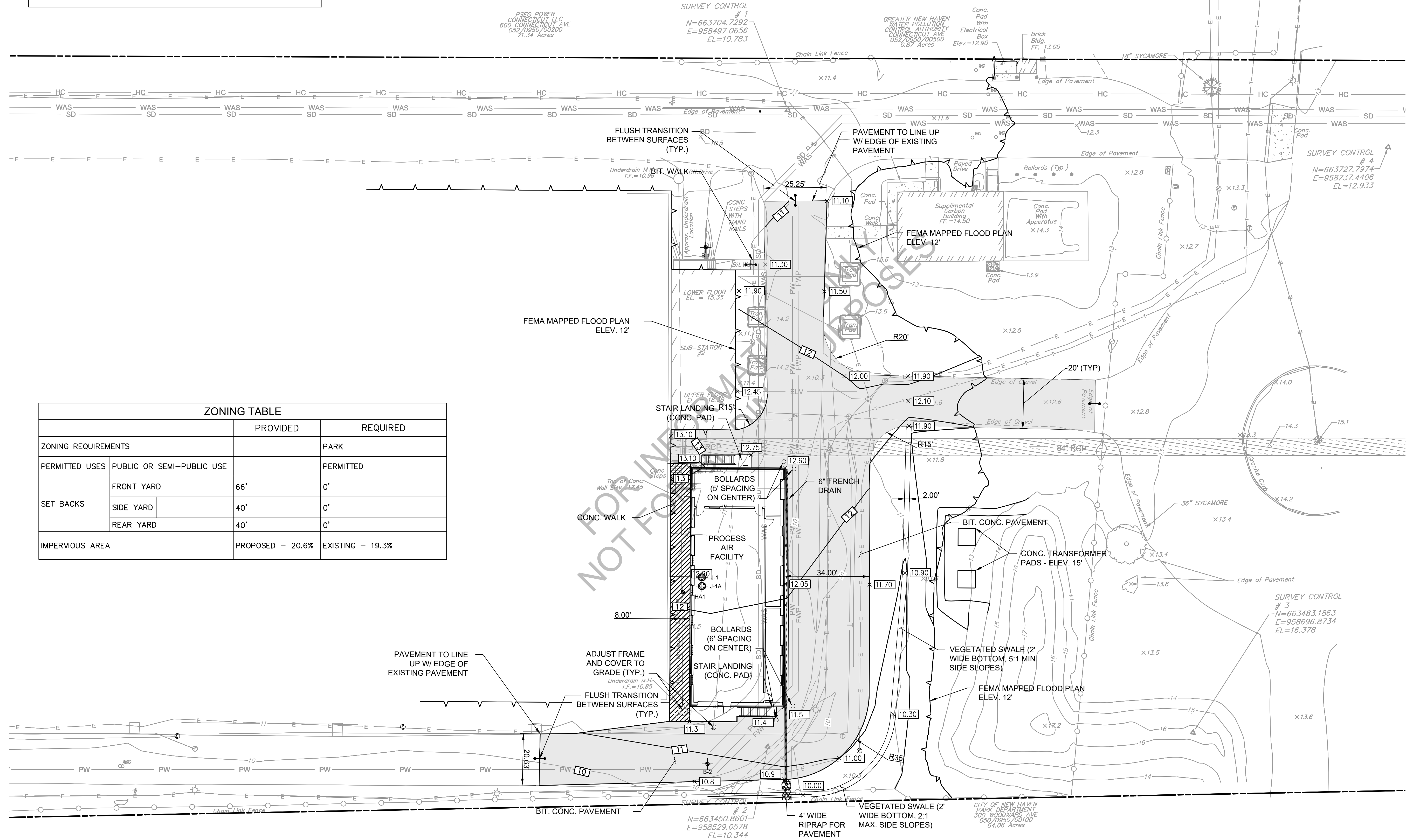
SHEET NUMBER:  
**EX-1**

**LEGEND**

- GEOTECHNICAL INVESTIGATION PROGRAM PERFORMED BY JACOBS IN JUNE 2021. REFER TO JACOBS GEOTECHNICAL MEMORANDUM FOR THE PROCESS AIR COMPRESSOR BUILDING DATED JULY 22, 2022.
- GEOTECHNICAL INVESTIGATION PROGRAM PERFORMED BY OTHERS IN 2012 AND 1972 (APPROXIMATE LOCATIONS). REFER TO JACOBS GEOTECHNICAL MEMORANDUM FOR THE PROCESS AIR COMPRESSOR BUILDING DATED JULY 22, 2022.

**GENERAL SHEET NOTES**

- REMOVE AND DISPOSE ALL EXCAVATED MATERIAL IN ACCORDANCE WITH SPECIFICATION SECTION 02 61 00. REMOVAL AND DISPOSAL OF CONTAMINATED SOIL.



**ZONING TABLE**

		PROVIDED	REQUIRED
ZONING REQUIREMENTS			PARK
PERMITTED USES	PUBLIC OR SEMI-PUBLIC USE		PERMITTED
SET BACKS	FRONT YARD	66'	0'
	SIDE YARD	40'	0'
	REAR YARD	40'	0'
IMPERVIOUS AREA		PROPOSED - 20.6%	EXISTING - 19.3%

**SITE PLAN**  
1"=20'-0"

**ZUVIC**  
Professional Engineer No. 00495  
New Haven, CT 06511

**JACOBS**

SITE  
**CIVIL**  
SITE PLAN

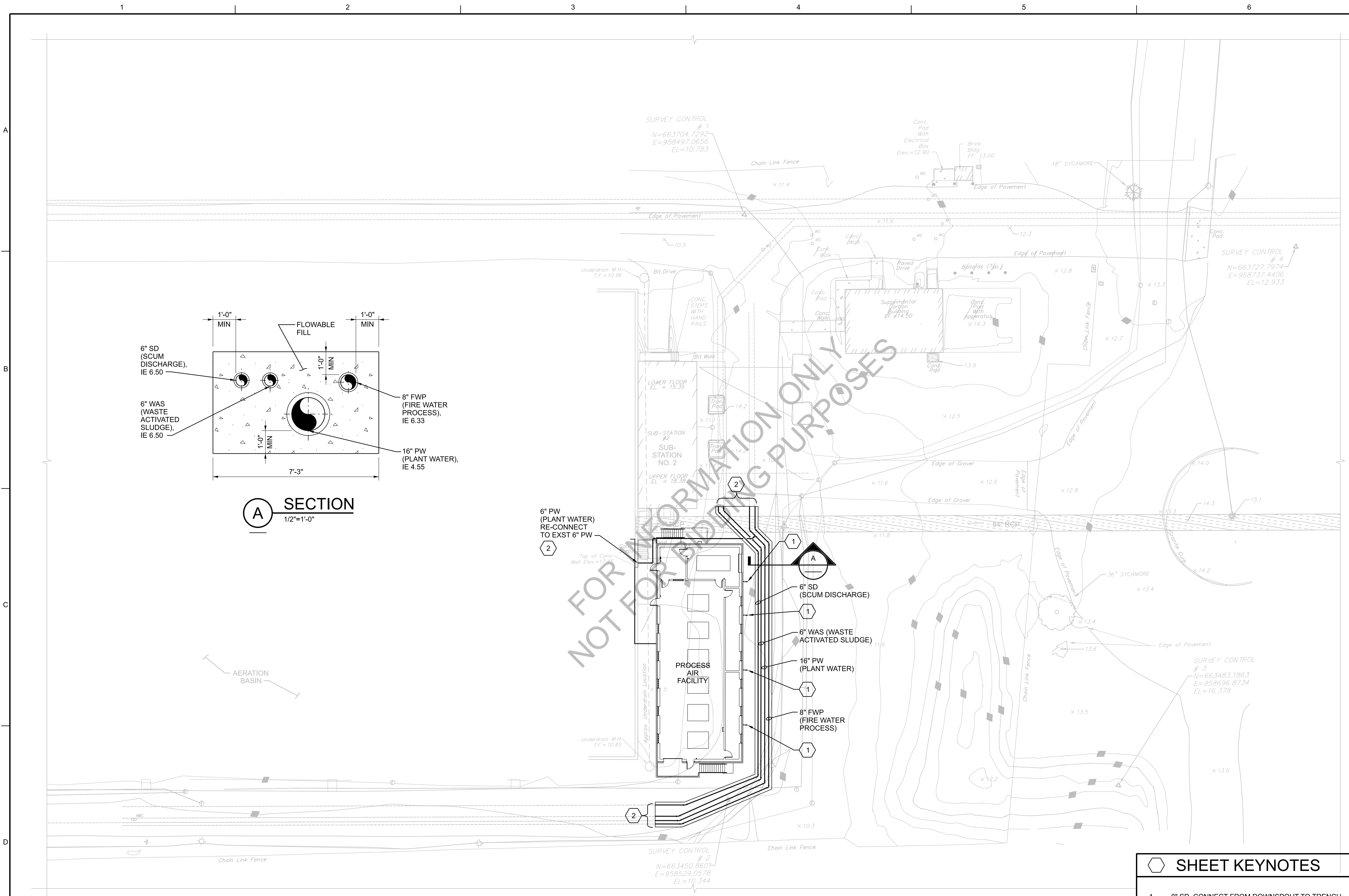
VERIFY SCALE  
BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE	JULY 2023
PROJ	E2X90000
DWG	05-SC-201
SHEET	30 of 96

**BID READY**

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NO.	DATE	DR	REVISION	BY	APVD
		F WALSHE			
		D VILL	CHK		
				F WALSHE	
					DL LYNCH



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

**PARTIAL SITE PLAN**  
1"=20'-0"

**SHEET KEYNOTES**

- 8" SD, CONNECT FROM DOWNSPOUT TO TRENCH DRAIN.
- CONNECT NEW PIPING TO EXST PIPING WITH RESTRAINED COUPLING.
- MAINTAIN UNDERGROUND TELEPHONE UTILITY AT INTERSECTION WITH SD, WAS, PW, AND FWP.

**Jacobs**

SITE  
PIPING  
PLAN

PROCESS AIR COMPRESSOR SYSTEM  
FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION  
ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING.	
DATE	JULY 2023
PROJ	E2X90000
DWG	05-P-201
SHEET	31 of 96

NO.	DATE	DR	REVISION	BY	APVD
		K MASSEY	CHK	N JOHNSON	DL LYNCH

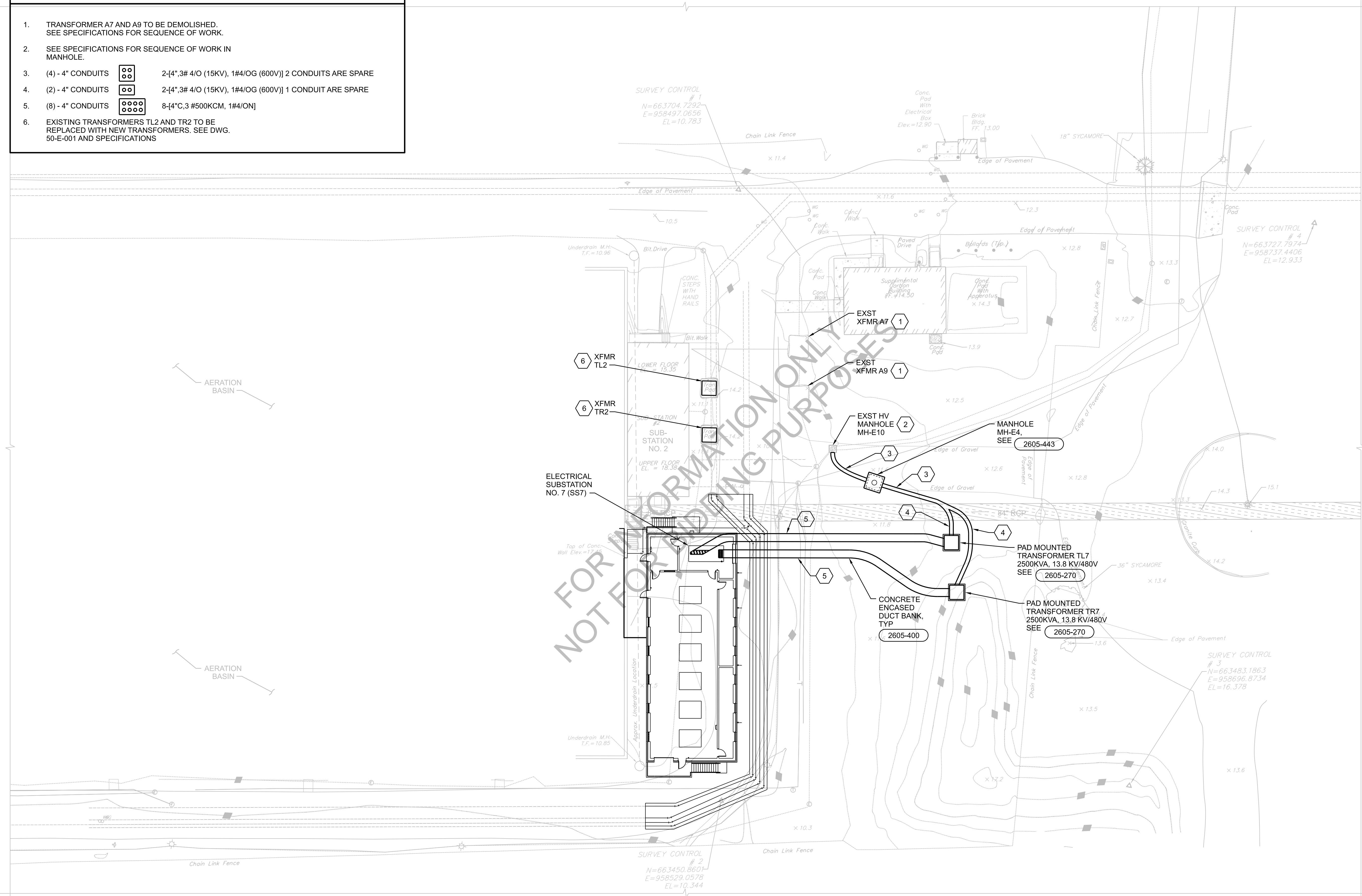
BID READY

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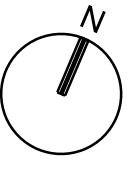
**SHEET KEYNOTES**

1. TRANSFORMER A7 AND A9 TO BE DEMOLISHED. SEE SPECIFICATIONS FOR SEQUENCE OF WORK.
2. SEE SPECIFICATIONS FOR SEQUENCE OF WORK IN MANHOLE.
3. (4) - 4" CONDUITS 2-[4",3# 4/O (15KV), 1#4/OG (600V)] 2 CONDUITS ARE SPARE
4. (2) - 4" CONDUITS 2-[4",3# 4/O (15KV), 1#4/OG (600V)] 1 CONDUIT ARE SPARE
5. (8) - 4" CONDUITS 8-[4"C.3 #500KCM, 1#4/ON]
6. EXISTING TRANSFORMERS TL2 AND TR2 TO BE REPLACED WITH NEW TRANSFORMERS. SEE DWG. 50-E-001 AND SPECIFICATIONS

A  
B  
C  
D



FOR INFORMATION ONLY  
NOT FOR BIDDING PURPOSES



**PARTIAL SITE PLAN**  
1"=20'-0"



**SITE ELECTRICAL PLAN**

PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

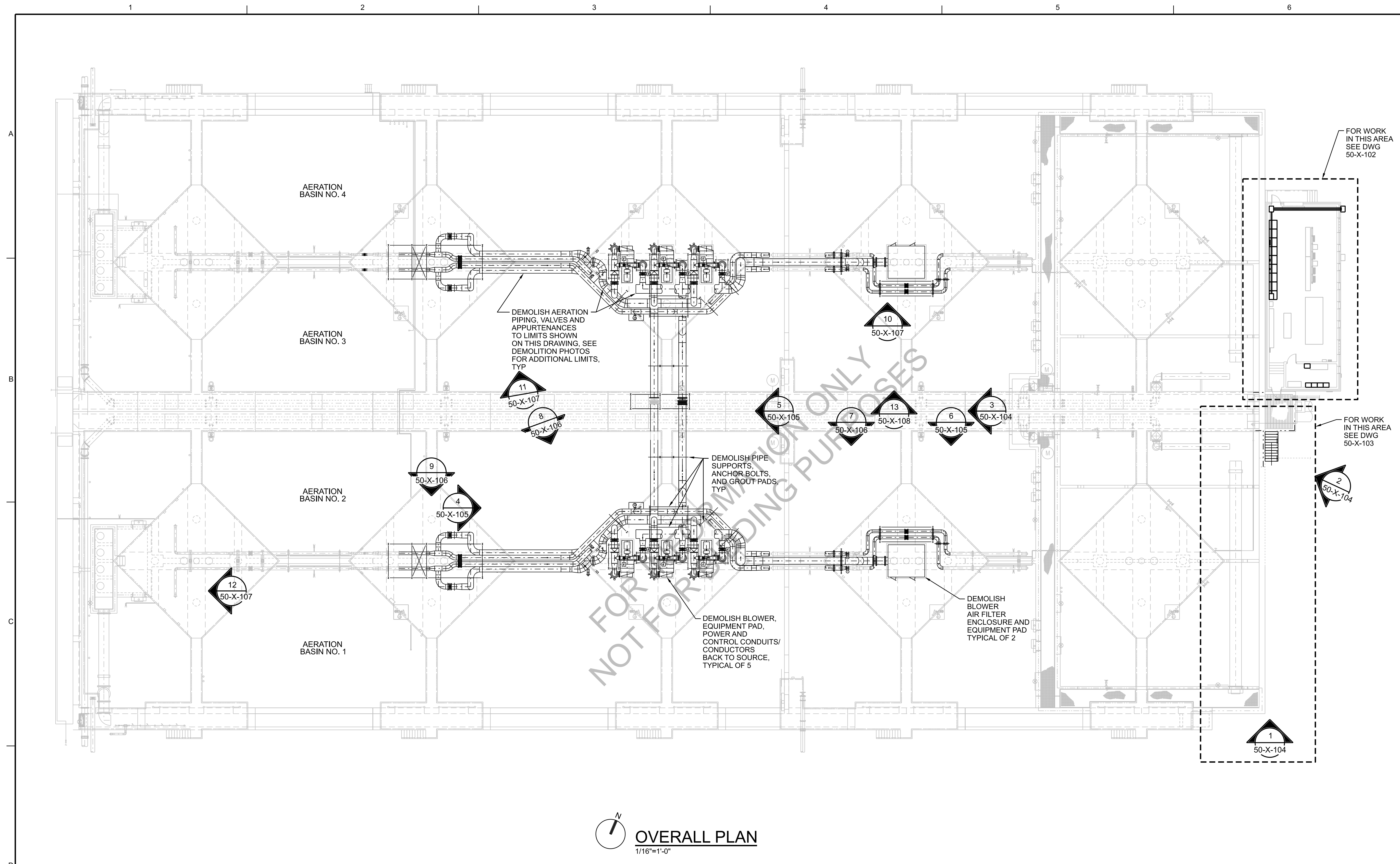
NO.	DATE	DR	REVISION	BY	APVD

VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING.	
DATE	JULY 2023
PROJ	E2X90000
DWG	05-E-201
SHEET	32 of 96

**BID READY**

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**OVERALL PLAN**  
 1/16"=1'-0"

**GENERAL SHEET NOTES**

1. ITEMS DEPICTED ON THIS DRAWING ARE BASED ON AS-BUILT INFORMATION DERIVED FROM PREVIOUS CONTRACT DRAWINGS. CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO COMMENCING WORK. NOTIFY ENGINEER OF ANY DISCREPANCIES.
2. ITEMS SHOWN BOLD ON THIS DRAWING TO BE DEMOLISHED.

NO.	DATE	DSGN	CHK	APVD	BY	APVD

PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL  
 EAST SHORE WATER POLLUTION ABATEMENT FACILITY  
 Greater New Haven Water Pollution Control Authority  
 New Haven, CT

**Jacobs**  
 BIOLOGICAL REACTOR AERATION BASINS  
**DEMOLITION**  
**OVERALL UPPER PLAN**

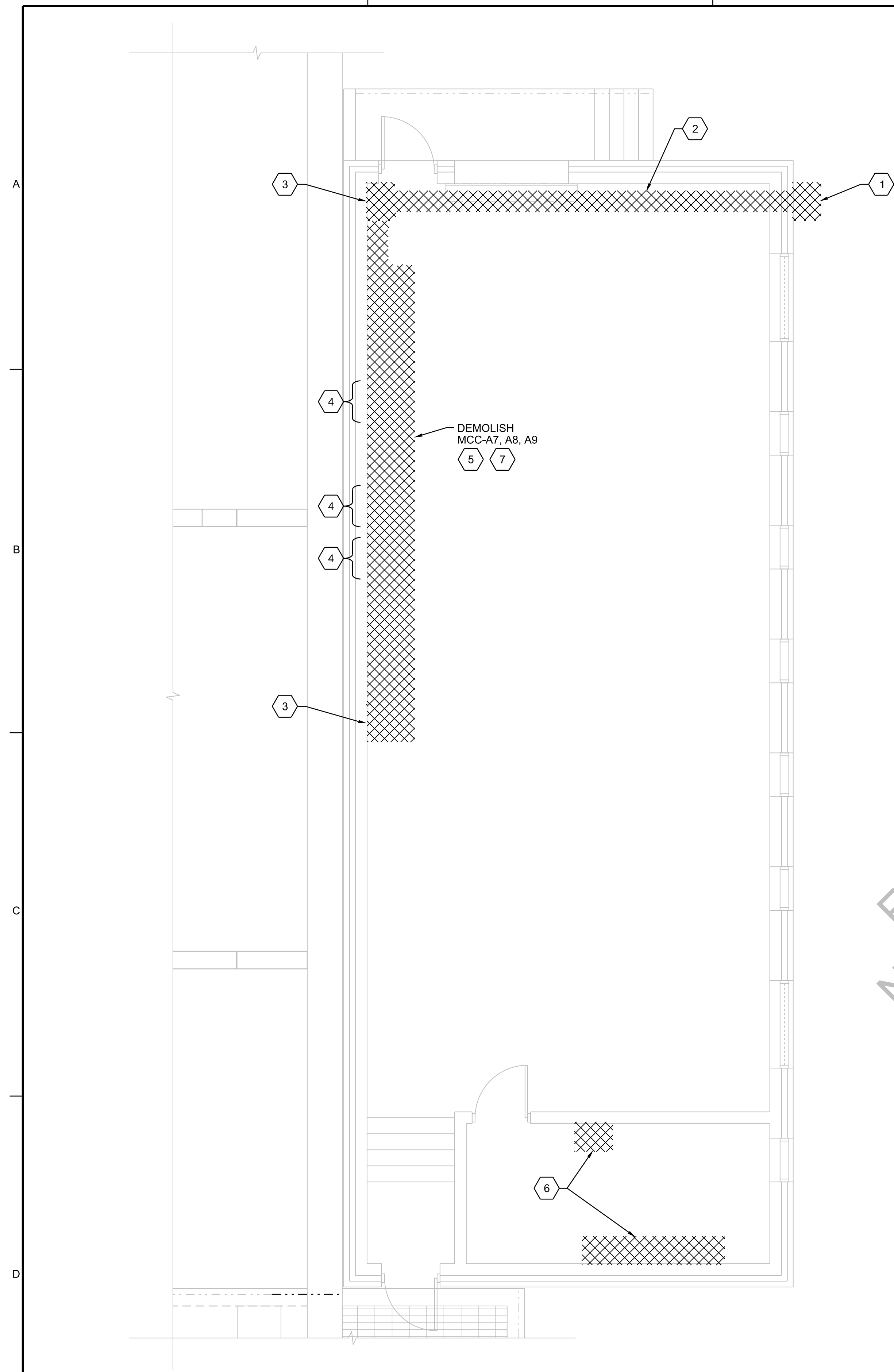
VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING. 	
DATE	JULY 2023
PROJ	E2X90000
DWG	50-X-101
SHEET	33 of 96

**GENERAL SHEET NOTES**

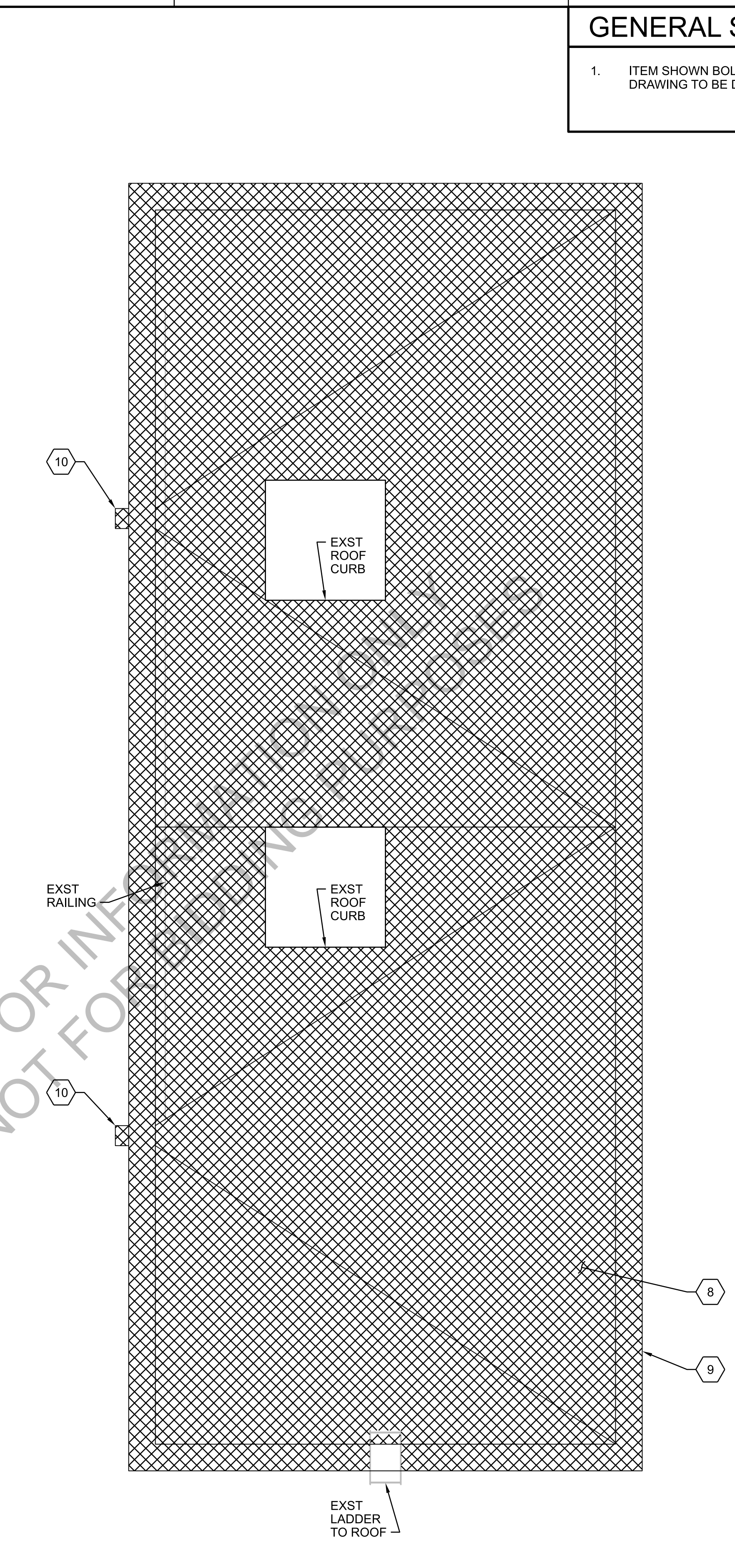
- ITEM SHOWN BOLD AND CROSS-HATCHED ON THIS DRAWING TO BE DEMOLISHED.

**SHEET KEYNOTES**

- DEMOLISH EXTERIOR PULLBOX. RESTORE BRICK FACE AFTER REMOVAL OF PULLBOX. REMOVE CONDUITS TO 1'-0" ABOVE GRADE AND CAP.
- DEMOLISH OVERHEAD CONDUITS ROUTED FROM MCCS.
- DEMOLISH PULLBOXES ABOVE MCCS.
- DEMOLISH ALL EXPOSED CONDUITS FROM TOP OF MCCS.
- ALL CONDUITS ROUTED TO AERATION BASINS SHALL BE CAPPED.
- DEMOLISH ALL FIVE AERATION BLOWER CONTROL PANELS. DEMOLISH ALL EXPOSED CONDUITS TO OVERHEAD WIREWAY. PLUG ALL HOLES IN WIREWAY.
- COORDINATE DEMOLITION WITH SEQUENCE OF WORK IN SPECIFICATIONS
- DEMOLISH GRAVEL SURFACED BUILT-UP ROOFING, INSULATION, AND FLASHING DOWN TO CONCRETE SUBSTRATE, TYP.
- DEMOLISH AL COPING, TYP.
- DEMOLISH AL SCUPPER AND DOWNSPOUT, TYP.



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



**ROOF PLAN**  
1/4"=1'-0"

PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

**Jacobs**  
BIOLOGICAL REACTOR AERATION BASINS  
**DEMOLITION**  
ELECTRICAL SUBSTATION NO. 2  
PLAN

VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING.	
DATE	JULY 2023
PROJ	E2X90000
DWG	50-X-102
SHEET	34 of 96

NO.	DATE	DR	CHK	APVD
		D. MUNZER	SA KORCSMAROS	N. JOHNSON
				DL LYNCH

**BID READY**

**GENERAL SHEET NOTES**

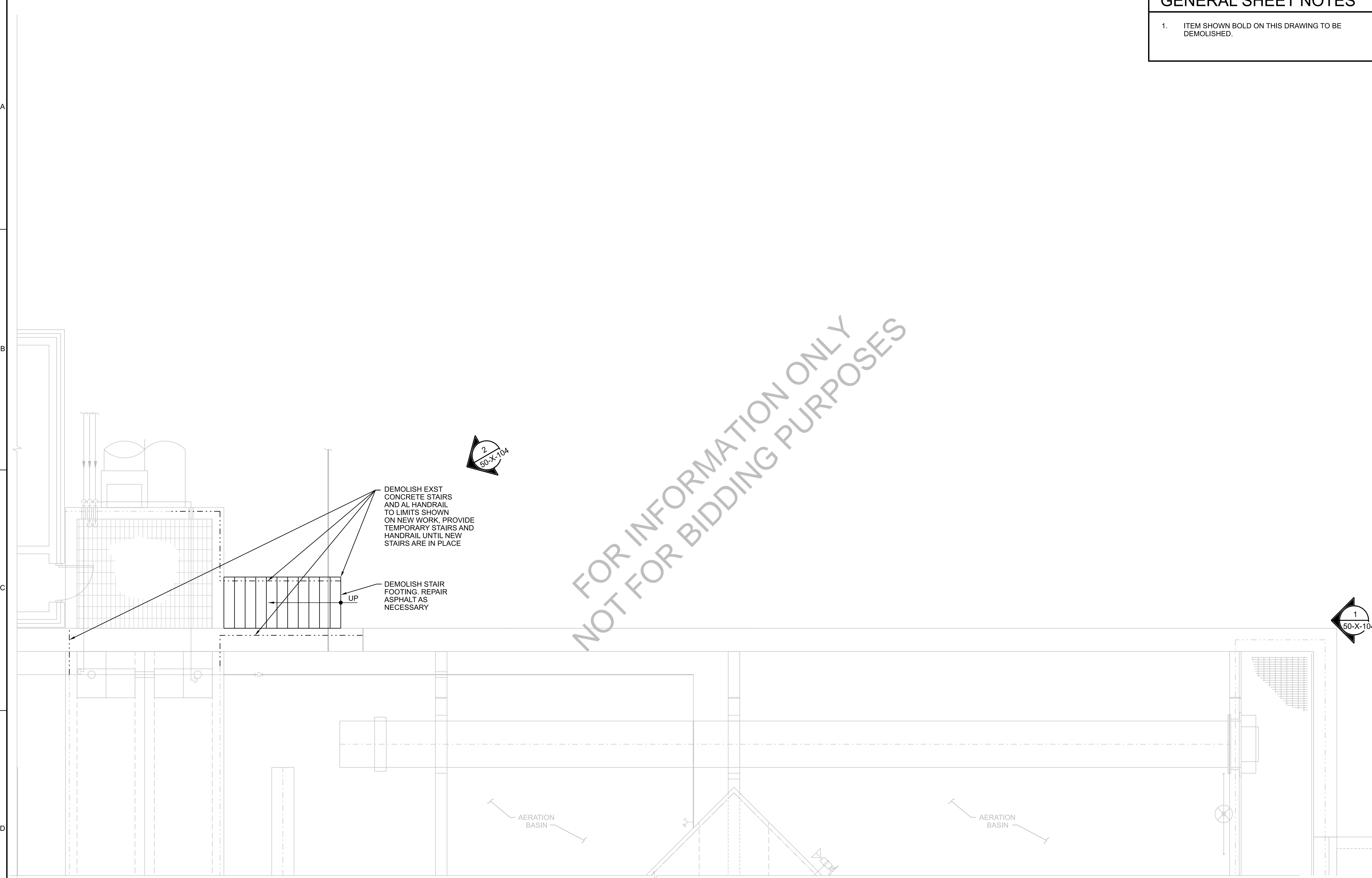
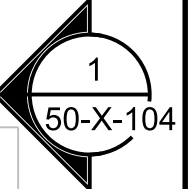
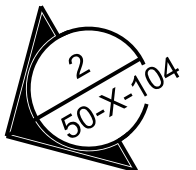
1. ITEM SHOWN BOLD ON THIS DRAWING TO BE DEMOLISHED.

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DEMOLISH EXST CONCRETE STAIRS AND AL HANDRAIL TO LIMITS SHOWN ON NEW WORK. PROVIDE TEMPORARY STAIRS AND HANDRAIL UNTIL NEW STAIRS ARE IN PLACE

DEMOLISH STAIR FOOTING. REPAIR ASPHALT AS NECESSARY

UP



**Jacobs**

BIOLOGICAL REACTOR AERATION BASINS  
DEMOLITION  
PARTIAL UPPER PLAN

PROCESS AIR COMPRESSOR SYSTEM  
FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION  
ABATEMENT FACILITY

Greater New Haven Water Pollution Control Authority  
New Haven, CT

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE	JULY 2023
PROJ	E2X90000
DWG	50-X-103
SHEET	35 of 96

**BID READY**

NO.	DATE	DR	DESIGN	CHK	REVISION	BY	APVD
		K BAIRD	SA KORCSMAROS	N JOHNSON	DL LYNCH		

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**1** PHOTO  
NTS  
50-X-101  
50-X-103



**2** PHOTO  
NTS  
50-X-101  
50-X-103



**3** PHOTO  
NTS  
50-X-101

**GENERAL SHEET NOTES**

- ITEM SHOWN BOLD AND CROSS-HATCHED ON THIS DRAWING TO BE DEMOLISHED.
- ALL PAINTED CARBON STEEL SUPPORTS FOR ALP ARE TO BE DEMOLISHED. GALVANIZED STEEL SUPPORTS FOR ALP TO REMAIN.

NO.	DATE	DR	REVISION	BY
		K BAIRD	CHK	DL LYNCH
		SA KORCSMAROS	APVD	
		N JOHNSON	APVD	
			APVD	

PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

**Jacobs**  
BIOLOGICAL REACTOR AERATION BASINS  
DEMOLITION  
PHOTOS

VERIFY SCALE	
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DATE	JULY 2023
PROJ	E2X90000
DWG	50-X-104
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2. ALL PAINTED CARBON STEEL SUPPORTS FOR ALP ARE TO BE DEMOLISHED. GALVANIZED STEEL SUPPORTS FOR ALP TO REMAIN.



**4** PHOTO  
NTS  
50-X-101



**5** PHOTO  
NTS  
50-X-101



**6** PHOTO  
NTS  
50-X-105

NO.	DATE	DR	REVISION	BY
		K BAIRD	CHK	DL LYNCH
		SA KORCSMAROS	APVD	
		N JOHNSON		

PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

**Jacobs**  
BIOLOGICAL REACTOR AERATION BASINS  
DEMOLITION  
PHOTOS

VERIFY SCALE	
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DATE	JULY 2023
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DWG	50-X-105
SHEET	37 of 96

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**BID READY**



**7** PHOTO  
NTS  
50-X-101



**8** PHOTO  
NTS  
50-X-101



**9** PHOTO  
NTS  
50-X-101

**GENERAL SHEET NOTES**

- ITEM SHOWN BOLD AND CROSS-HATCHED ON THIS DRAWING TO BE DEMOLISHED.
- ALL PAINTED CARBON STEEL SUPPORTS FOR ALP ARE TO BE DEMOLISHED. GALVANIZED STEEL SUPPORTS FOR ALP TO REMAIN.

PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

**Jacobs**  
BIOLOGICAL REACTOR AERATION BASINS  
DEMOLITION  
PHOTOS

VERIFY SCALE	
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DATE	JULY 2023
PROJ	E2X90000
DWG	50-X-106
SHEET	38 of 96

NO.	DATE	DR	REVISION	BY
1		K BAIRD	SA KORCSMAROS	DL LYNCH
2			CHK	APVD
3				APVD
4				APVD
5				APVD
6				APVD
7				APVD
8				APVD
9				APVD
10				APVD

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**BID READY**

DEMOLISH THERMAL MASS FLOW METER AND CONDUIT BACK TO LCP, TYP OF 4

DEMOLISH VALVE AND CONDUIT BACK TO LCP, CAP PIPE WITH GASKET AND BLIND FLANGE, TYP OF 4



**10** PHOTO  
NTS  
50-X-101

DEMOLISH THERMAL MASS FLOWMETER AND CONDUIT BACK TO LCP, TYP OF 4

DEMOLISH VALVE AND ALP REDUCERS FOR INSTALLATION OF NEW VALVE, IF NECESSARY REMOVE SUFFICIENT ALP TO PERMIT NEW REDUCERS AND VALVE TO FIT, TYP OF 4



**11** PHOTO  
NTS  
50-X-101

DEMOLISH VALVE AND ALP REDUCERS FOR INSTALLATION OF NEW VALVE, IF NECESSARY, REMOVE SUFFICIENT ALP TO PERMIT NEW REDUCERS AND VALVE TO FIT, TYP OF 4

**GENERAL SHEET NOTES**

- ITEM SHOWN BOLD AND CROSS-HATCHED ON THIS DRAWING TO BE DEMOLISHED.
- ALL PAINTED CARBON STEEL SUPPORTS FOR ALP ARE TO BE DEMOLISHED, GALVANIZED STEEL SUPPORTS FOR ALP TO REMAIN.

DEMOLISH THERMAL MASS FLOWMETER AND CONDUIT BACK TO LCP, TYP OF 4



**12** PHOTO  
NTS  
50-X-101

NO.	DATE	DR	CHK	BY
		K BAIRD	SA KORCSMAROS	N JOHNSON
		DSGN	REVISION	APVD
				DL LYNCH

PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

**Jacobs**  
BIOLOGICAL REACTOR AERATION BASINS  
DEMOLITION  
PHOTOS

VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING.	
DATE	JULY 2023
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DWG	50-X-107
SHEET	39 of 96

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**BID READY**

GENERAL SHEET NOTES

1. ITEM SHOWN BOLD AND CROSS-HATCHED ON THIS DRAWING TO BE DEMOLISHED.



DEMOLISH SIMILAR  
INSTALLATION  
AT OTHER BLOWERS

**13** PHOTO  
NTS  
50-X-101

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**Jacobs**

BIOLOGICAL REACTOR AERATION BASINS  
DEMOLITION  
PHOTOS

PROCESS AIR COMPRESSOR SYSTEM  
FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION  
ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

NO.	DATE	REVISION	BY	APVD

DSCR	NO.	DATE	REVISION	BY	APVD

DR	CHK	APVD	BY	APVD

DL	LYNCH

VERIFY SCALE  
BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE	JULY 2023
PROJ	E2X90000
DWG	50-X-108
SHEET	40 of 96

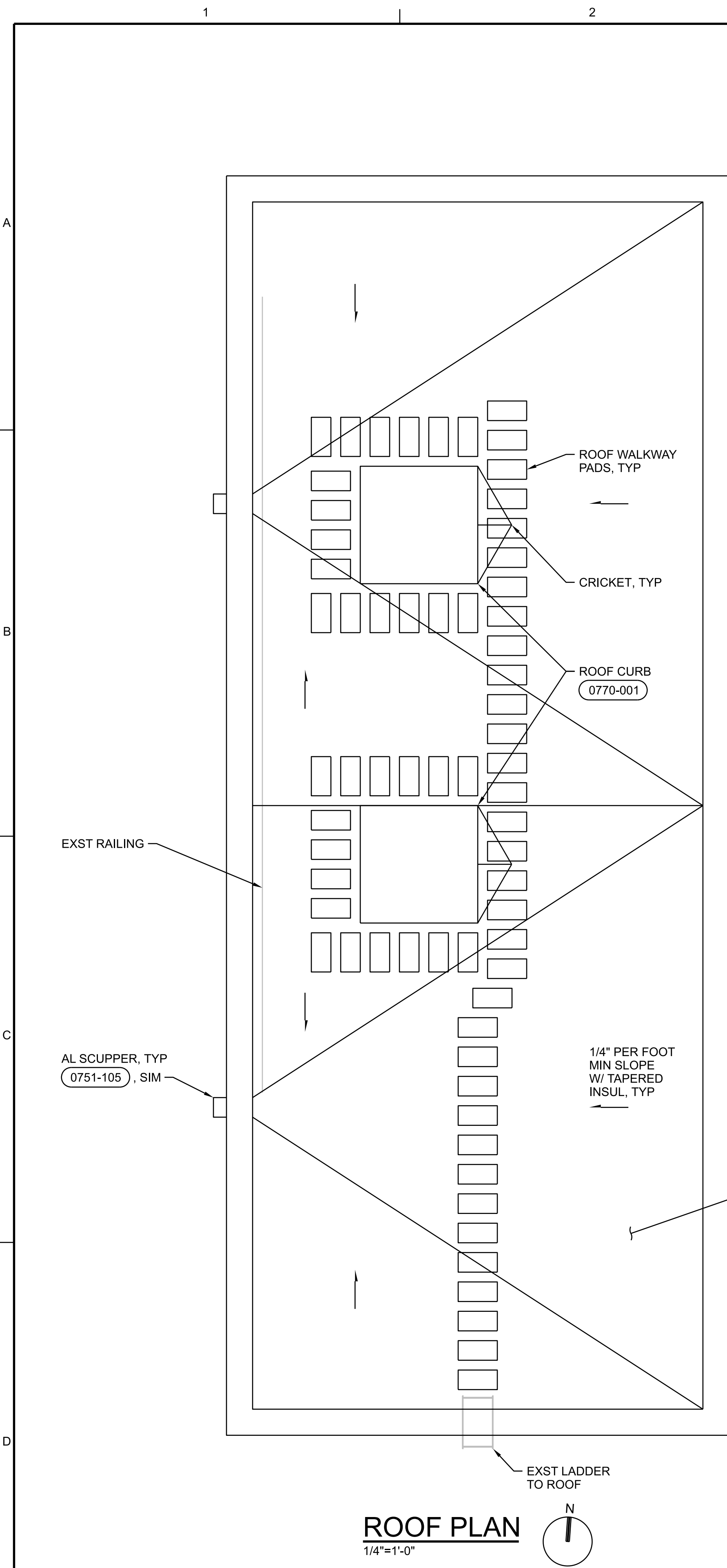
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A  
B  
C  
D

1 2 3 4 5 6





AL COPING, TYP  
(0751-101) AND (0751-106), SIM

ROOF WALKWAY PADS, TYP

CRICKET, TYP

ROOF CURB  
(0770-001)

EXST RAILING

AL SCUPPER, TYP  
(0751-105), SIM

1/4" PER FOOT  
MIN SLOPE  
W/ TAPERED  
INSUL, TYP

MODIFIED BITUMINOUS  
MEMBRANE ROOFING, TYP

EXST LADDER  
TO ROOF

**ROOF PLAN**  
1/4"=1'-0"  
N

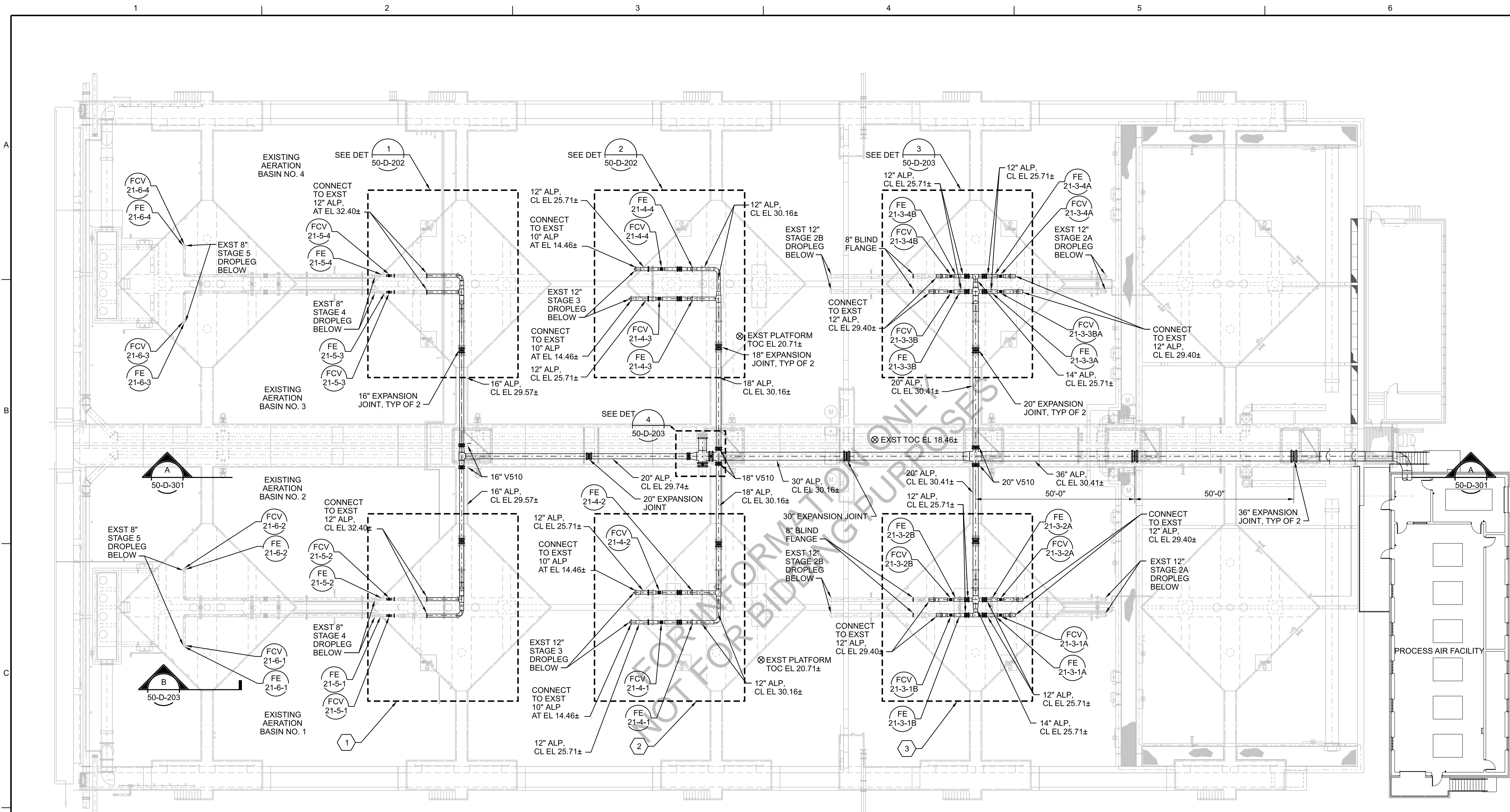
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**GENERAL SHEET NOTES**

- FIELD VERIFY EXISTING CONDITIONS AND DIMENSIONS.
- SEAL ALL NEW PENETRATIONS AND OPENINGS FROM DEMOLISHED ITEMS IN FLOORS, WALLS, AND CEILINGS.
- SEE DRAWING 01-G-008 FOR LEGEND AND GENERAL NOTES.
- SEE DRAWING 55-A-601 FOR INTERIOR FINISH SCHEDULE.
- PROVIDE SEALS AROUND PIPE, CONDUIT, DUCT, AND OTHER PENETRATIONS THROUGH ROOF, SEE DETAILS (0770-005) AND (0770-009). SEE PROCESS MECHANICAL, MECHANICAL, AND ELECTRICAL DRAWINGS FOR PENETRATION TYPES, SIZES, AND LOCATIONS.
- SEE DRAWING 55-A-200 FOR SUBSTATION NO. 2 FLOOR PLAN, AND SEE DRAWING 55-A-301 FOR PARTIAL SUBSTATION NO. 2 ELEVATION.

<p>PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL</p> <p>EAST SHORE WATER POLLUTION ABATEMENT FACILITY</p> <p>Greater New Haven Water Pollution Control Authority New Haven, CT</p>		<p>REVISION</p> <p>NO. DATE</p> <p>DR</p> <p>SA KORCSMAROS</p> <p>CHK</p> <p>DL LYNCH</p>
<p><b>Jacobs</b></p> <p>BIOLOGICAL REACTOR AERATION BASINS ARCHITECTURAL ROOF PLAN</p>		<p>DGN</p> <p>RG SIEBERS</p> <p>APVD</p> <p>DL MICHALEK</p>
<p>1/4"=1'-0"</p> <p>VERIFY SCALE</p> <p>BAR IS ONE INCH ON ORIGINAL DRAWING.</p>		
<p>DATE JULY 2023</p> <p>PROJ E2X90000</p> <p>DWG 50-A-201</p> <p>SHEET 41 of 96</p>		

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**OVERALL PLAN**  
 1/16"=1'-0"

**GENERAL SHEET NOTES**

1. ITEMS DEPICTED ON THIS DRAWING ARE BASED ON AS-BUILT INFORMATION DERIVED FROM PREVIOUS CONTRACT DRAWINGS. CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO COMMENCING WORK. NOTIFY ENGINEER OF ANY DISCREPANCIES.
2. CONTRACTOR TO FIELD VERIFY EXST PIPING LAYOUT, DIMENSIONS AND LOCATIONS OF NEW PIPING CONNECTIONS TO EXST.

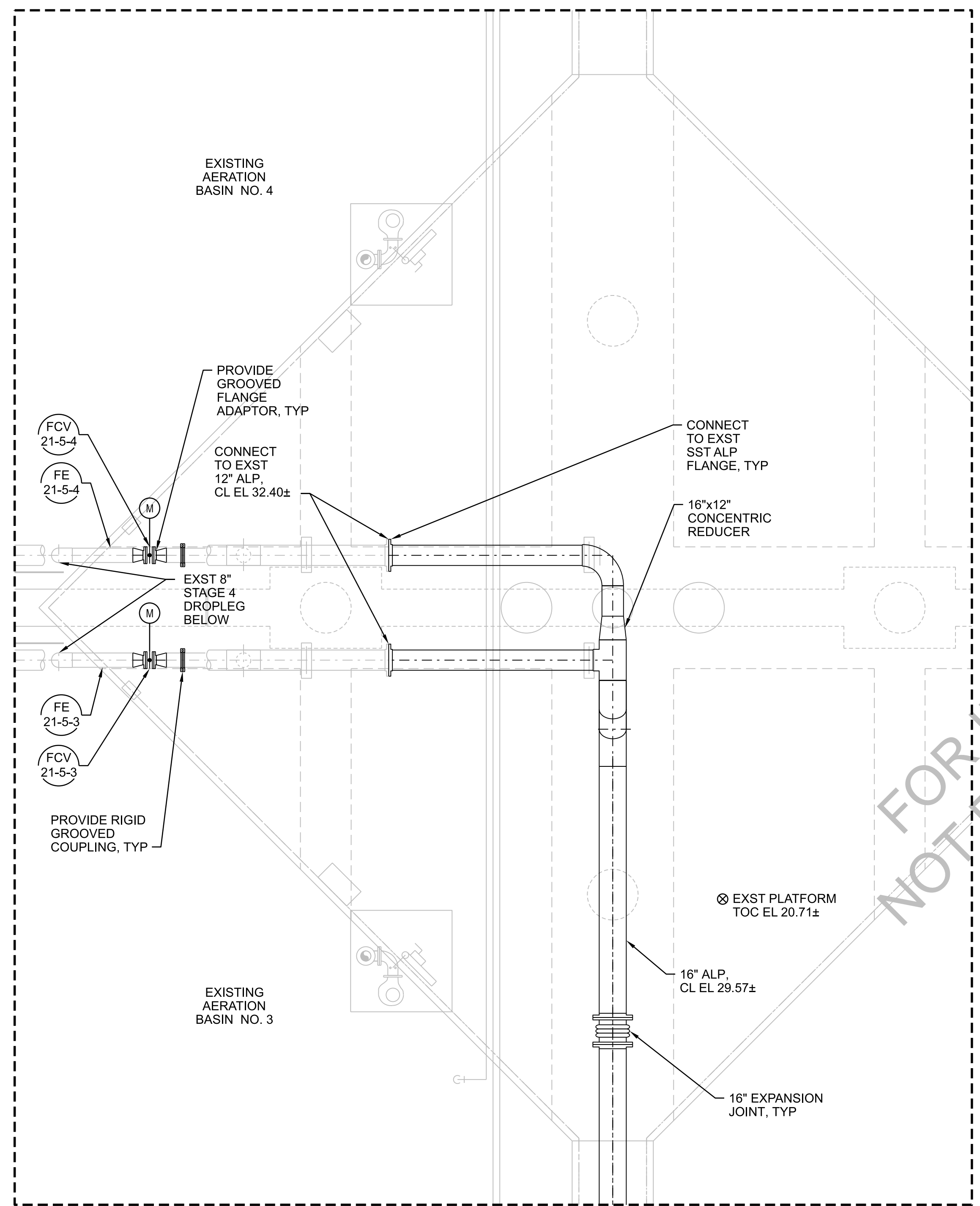
**SHEET KEYNOTES**

1. PIPING SHOWN IN THIS AREA IS A MIRROR IMAGE TO DETAIL 50-D-202
2. PIPING SHOWN IN THIS AREA IS A MIRROR IMAGE TO DETAIL 50-D-203
3. PIPING SHOWN IN THIS AREA IS A MIRROR IMAGE TO DETAIL 50-D-204

		BIOLOGICAL REACTOR AERATION BASINS <b>PROCESS MECHANICAL          OVERALL UPPER PLAN</b>	
PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL EAST SHORE WATER POLLUTION ABATEMENT FACILITY Greater New Haven Water Pollution Control Authority New Haven, CT			
DATE	JULY 2023	BY	DL LYNCH
PROJ	E2X90000	REVISION	CHK
DWG	50-D-201	DR	K BAIRD
SHEET	42 of 96	APVD	N JOHNSON
VERIFY SCALE		BAR IS ONE INCH ON ORIGINAL DRAWING. 	
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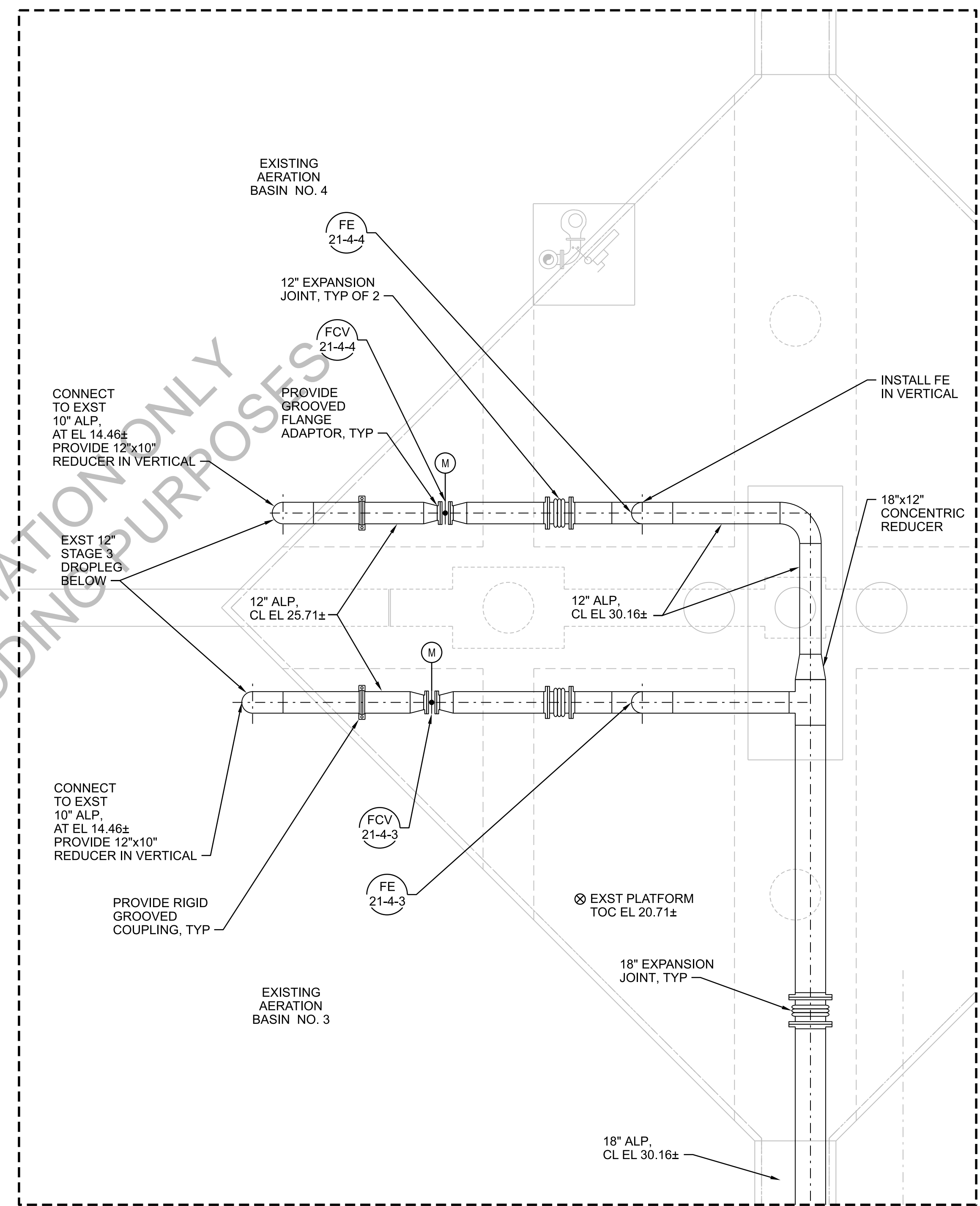
1 2 3 4 5 6

A  
B  
C  
D



PARTIAL PLAN

**1** **DETAIL**  
1/4"=1'-0"  
50-D-201



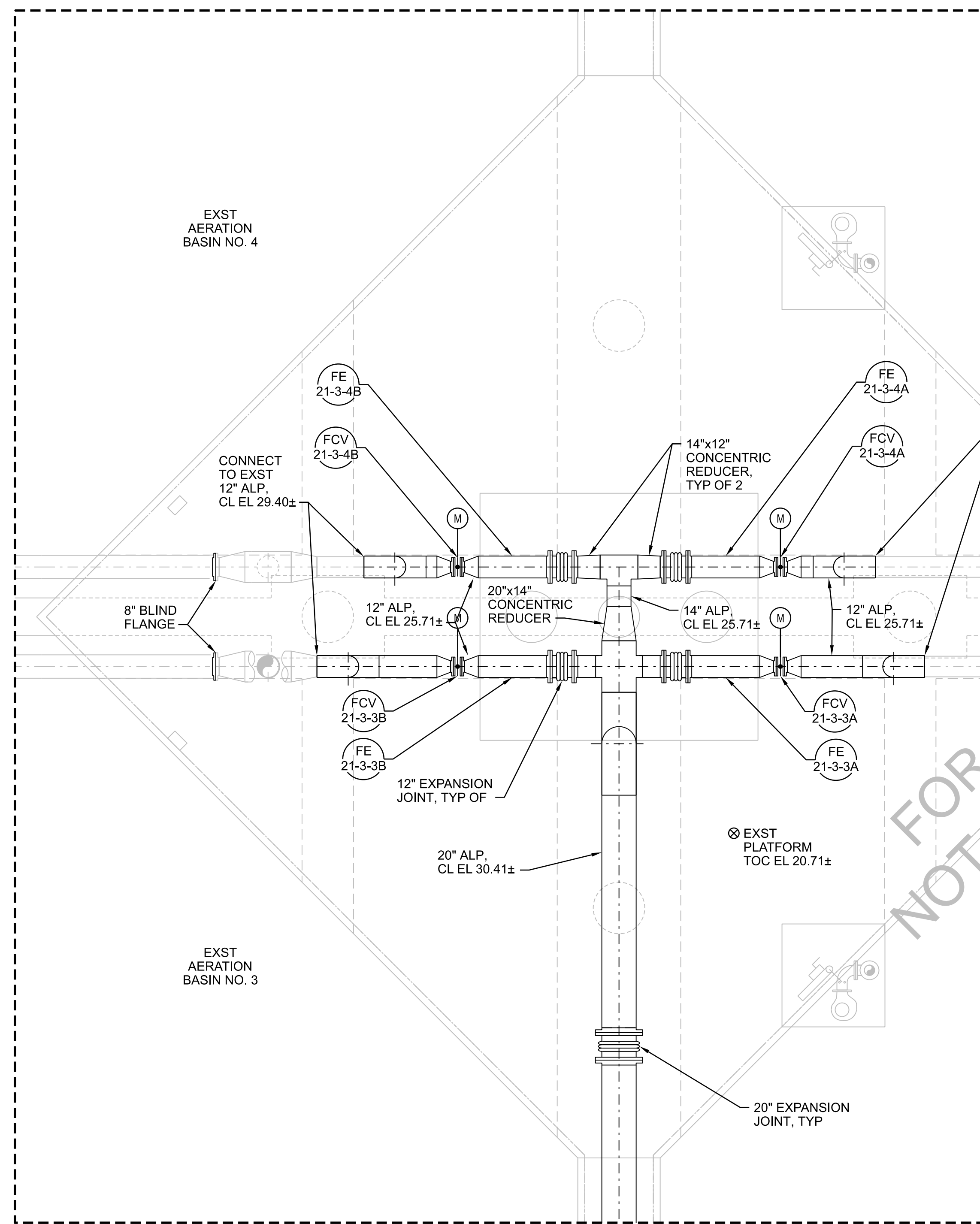
PARTIAL PLAN

**2** **DETAIL**  
1/4"=1'-0"  
50-D-201

**GENERAL SHEET NOTES**

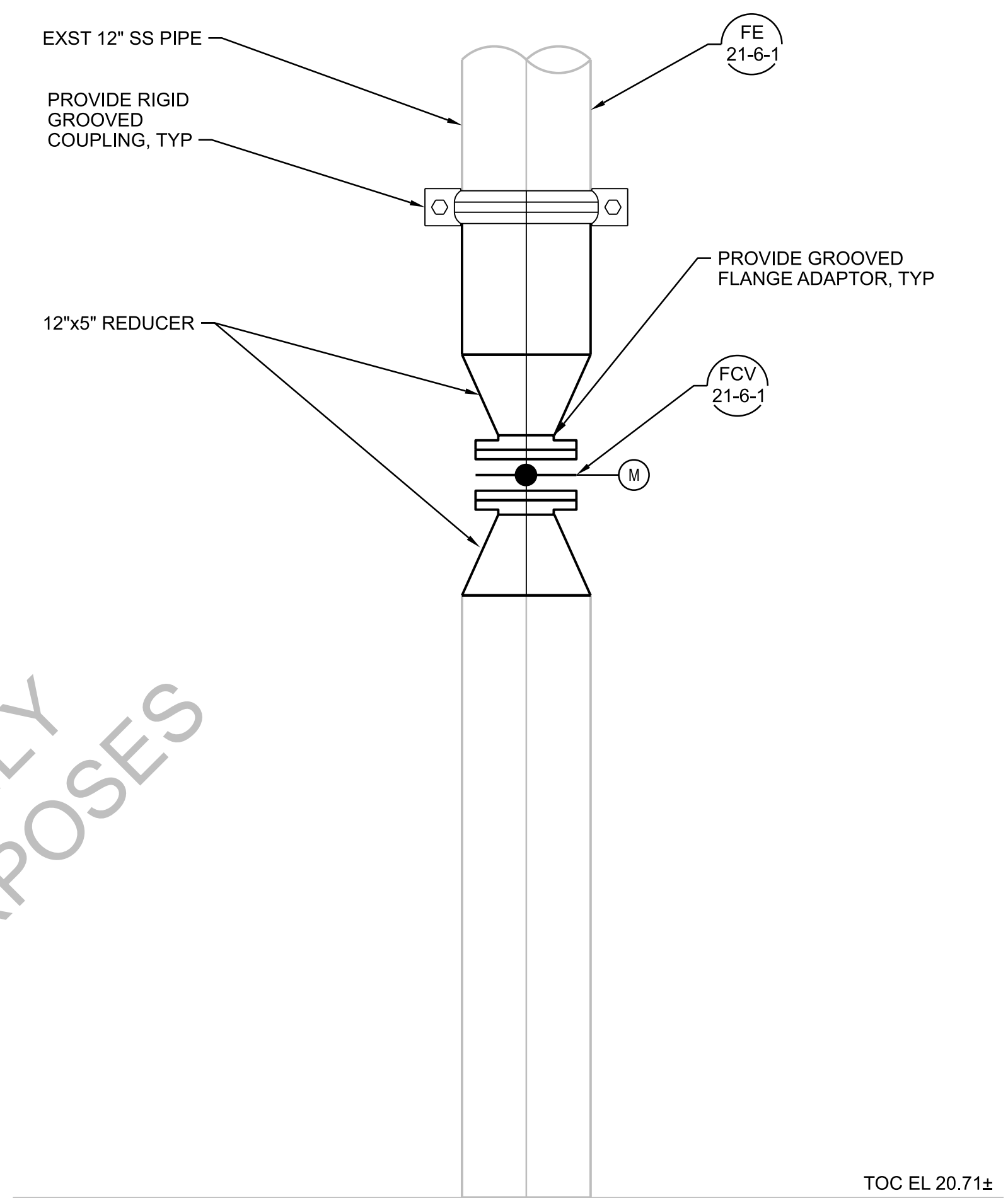
- CONTRACTOR TO FIELD VERIFY EXST PIPING LAYOUT, DIMENSIONS AND LOCATIONS OF NEW PIPING CONNECTIONS TO EXST.

		PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL EAST SHORE WATER POLLUTION ABATEMENT FACILITY Greater New Haven Water Pollution Control Authority New Haven, CT		NO. _____ DATE _____	DR. _____ K BAIRD	REVISION BY APVD DL LYNCH
		BIOLOGICAL REACTOR AERATION BASINS PROCESS MECHANICAL/STRUCTURAL ENLARGED PARTIAL UPPER PLANS		DSGN. _____ N JOHNSON	CHK. _____ ZGHASEMY	APVD. _____ N JOHNSON
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VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING.						
DATE	JULY 2023		PROJ		E2X90000	
DWG	50-D-202		SHEET		43 of 96	
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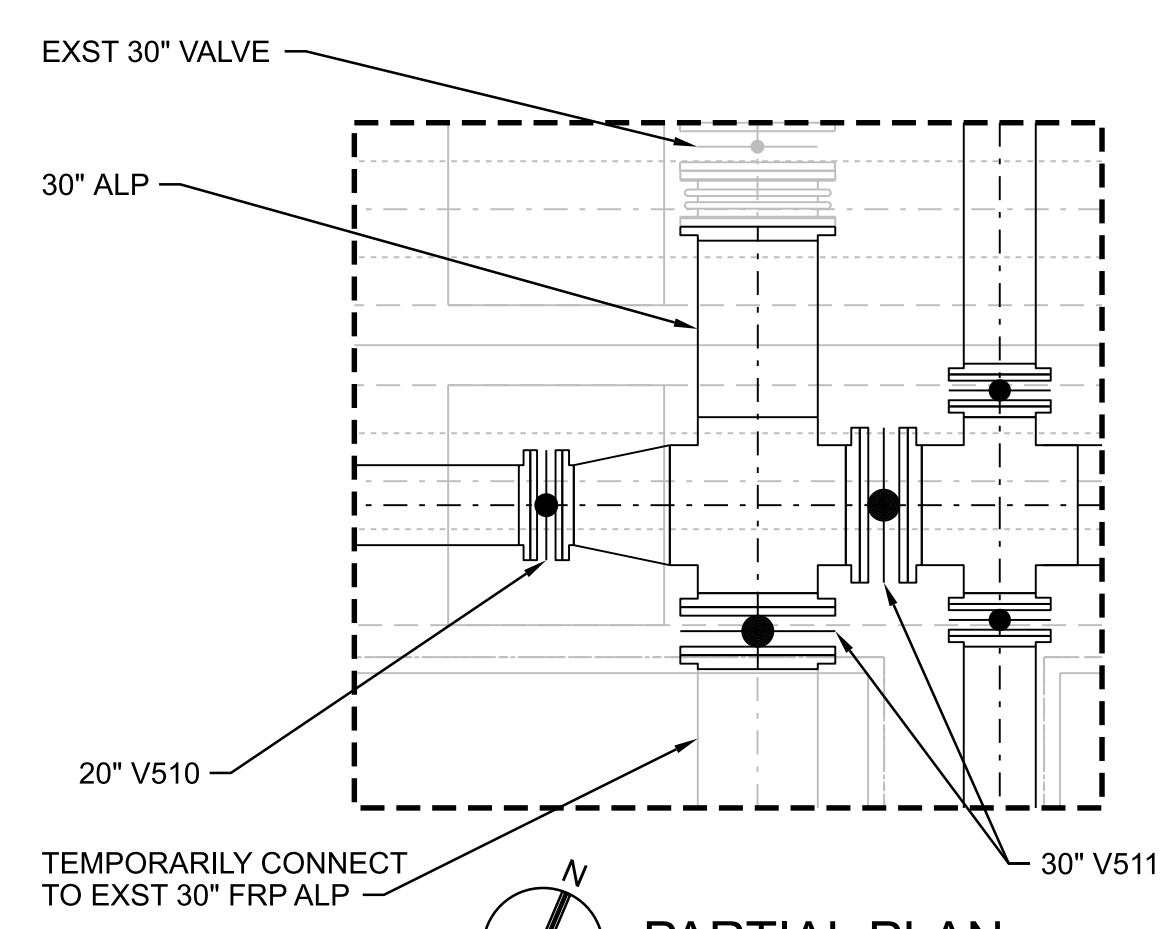


**3** PARTIAL PLAN  
1/4"=1'-0"

**3** DETAIL  
1/4"=1'-0"  
50-D-201



**B** SECTION  
NTS  
50-D-201



**4** PARTIAL PLAN  
1/4"=1'-0"  
50-D-201

**4** DETAIL  
1/4"=1'-0"  
50-D-201

**GENERAL SHEET NOTES**

- CONTRACTOR TO FIELD VERIFY EXST PIPING LAYOUT, DIMENSIONS AND LOCATIONS OF NEW PIPING CONNECTIONS TO EXST.

PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL		EAST SHORE WATER POLLUTION ABATEMENT FACILITY		Greater New Haven Water Pollution Control Authority New Haven, CT	
BIOLOGICAL REACTOR AERATION BASINS		PROCESS MECHANICAL/STRUCTURAL ENLARGED PARTIAL UPPER PLAN		REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE DEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF JACOBS AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF JACOBS.	
NO.	DATE	DR	CHK	APVD	DL LYNCH
		K BAIRD	Z GHASEMY	N JOHNSON	
<p><b>JACOBS</b></p> <p>VERIFY SCALE</p> <p>BAR IS ONE INCH ON ORIGINAL DRAWING.</p> <p>DATE: JULY 2023</p> <p>PROJ: E2X90000</p> <p>DWG: 50-D-203</p> <p>SHEET: 44 of 96</p>					

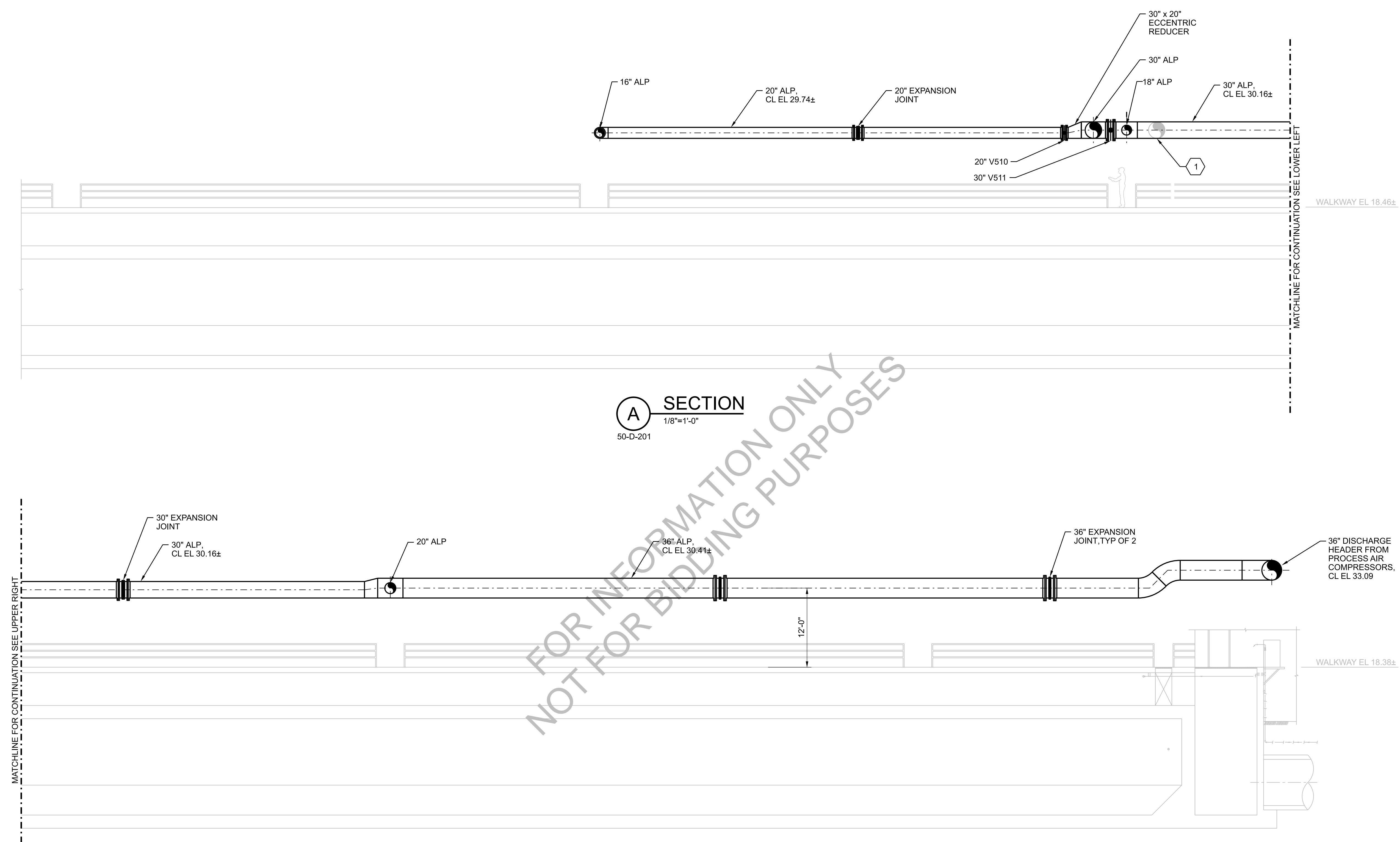
1 2 3 4 5 6

A

B

C

D



**A** SECTION  
1/8"=1'-0"  
50-D-201

**A** SECTION  
1/8"=1'-0"  
50-D-201

**GENERAL SHEET NOTES**

- CONTRACTOR TO FIELD VERIFY EXST PIPING LAYOUT, DIMENSIONS AND LOCATIONS OF NEW PIPING CONNECTIONS TO EXST.

**SHEET KEYNOTES**

- 30" FRP PIPES SHOWN FOR REFERENCE, TO BE DEMOLISHED UNDER THIS CONTRACT

NO.	DATE	DR	REVISION	BY	APVD
		K BAIRD	SA KORCSMAROS	N JOHNSON	DL LYNCH

PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

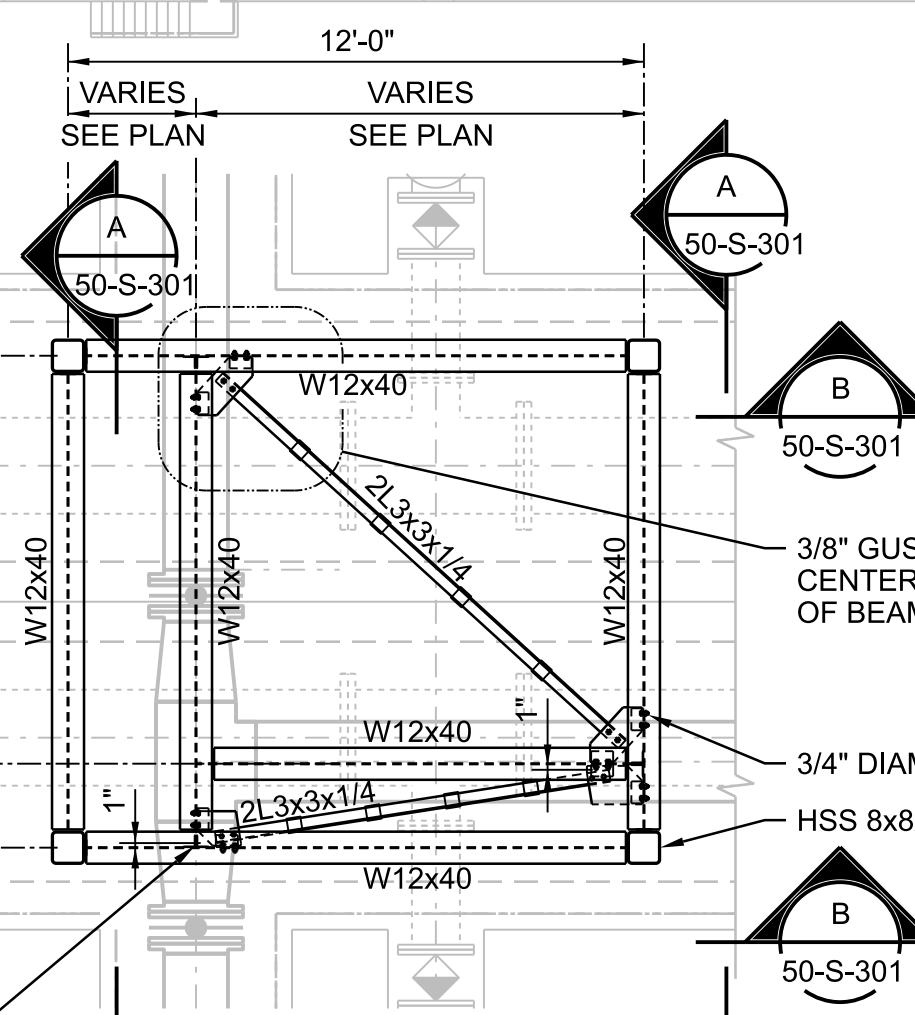
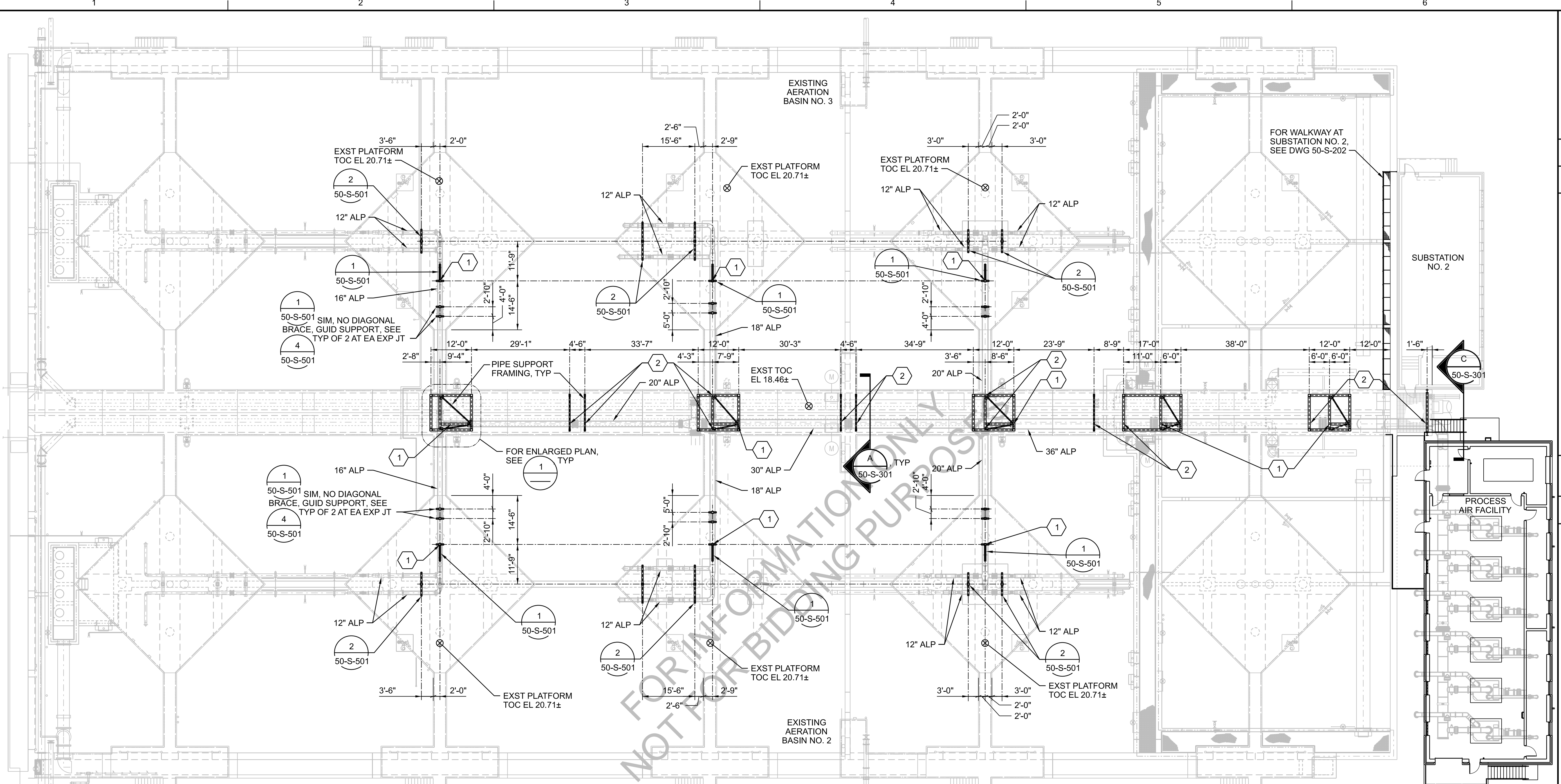
**Jacobs**

BIOLOGICAL REACTOR AERATION BASINS  
PROCESS MECHANICAL/STRUCTURAL SECTIONS

VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING.	
DATE	JULY 2023
PROJ	E2X90000
DWG	50-D-301
SHEET	45 of 96

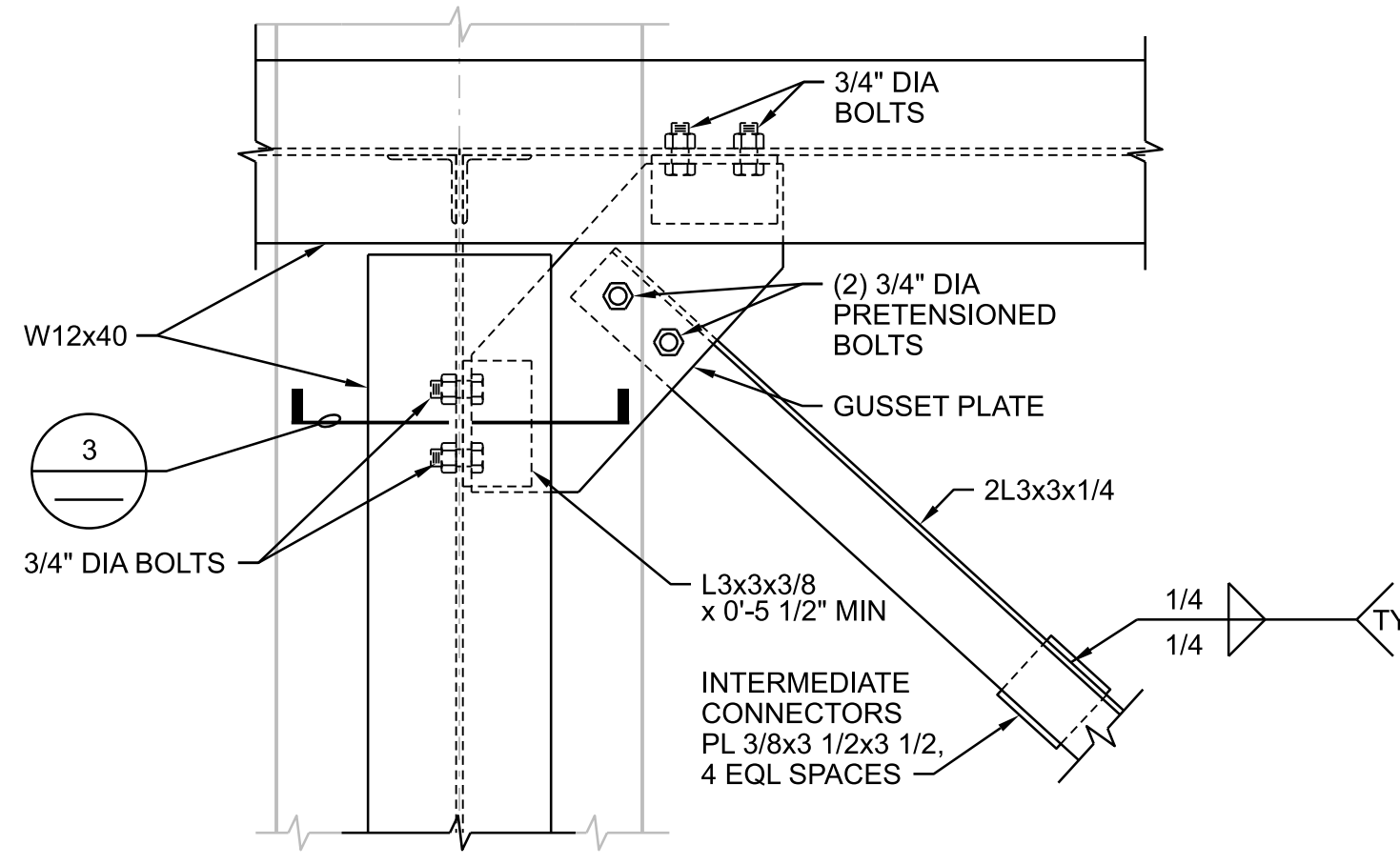
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**BID READY**

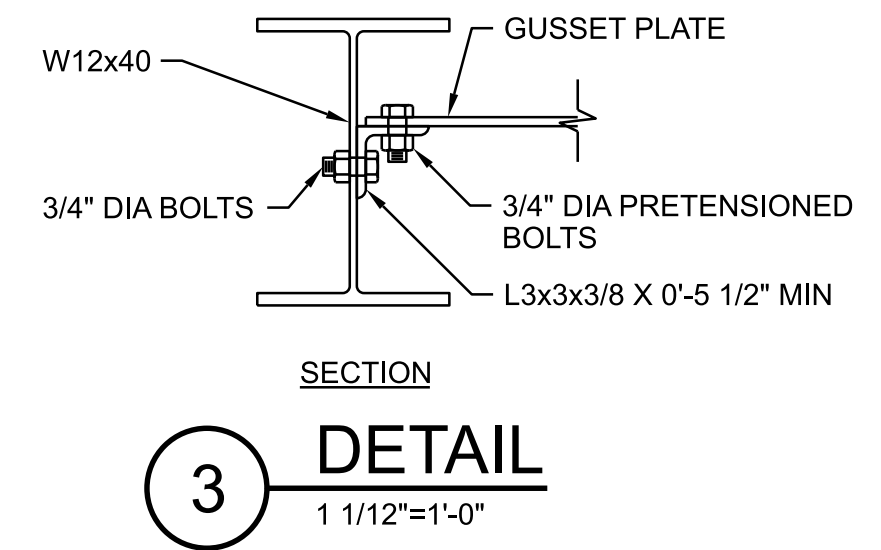


**1 ENLARGED PLAN**  
1/4"=1'-0"

**OVERALL PLAN**  
1/16"=1'-0"



**2 DETAIL**  
1 1/12"=1'-0"



**3 DETAIL**  
1 1/12"=1'-0"

- NOTES:**
1. ALL BOLTS SHALL BE A MINIMUM OF 1 1/4" AWAY FROM THE EDGE OF THE ANGLE OR GUSSET PLATE.
  2. BOLTS SHALL BE SPACED 3" FROM EACH OTHER.
  3. GUSSET PLATES SHALL BE POSITIONED AT MID-DEPTH OF THE BEAMS THEY ATTACH TO.

**SHEET KEYNOTES**

1. ANCHOR SUPPORT AT BRACING, SEE **3** 50-S-501
2. GUIDE SUPPORT, SEE **4** 50-S-501

NO.	DATE	DR	CHK	REVISION	BY	APVD

PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

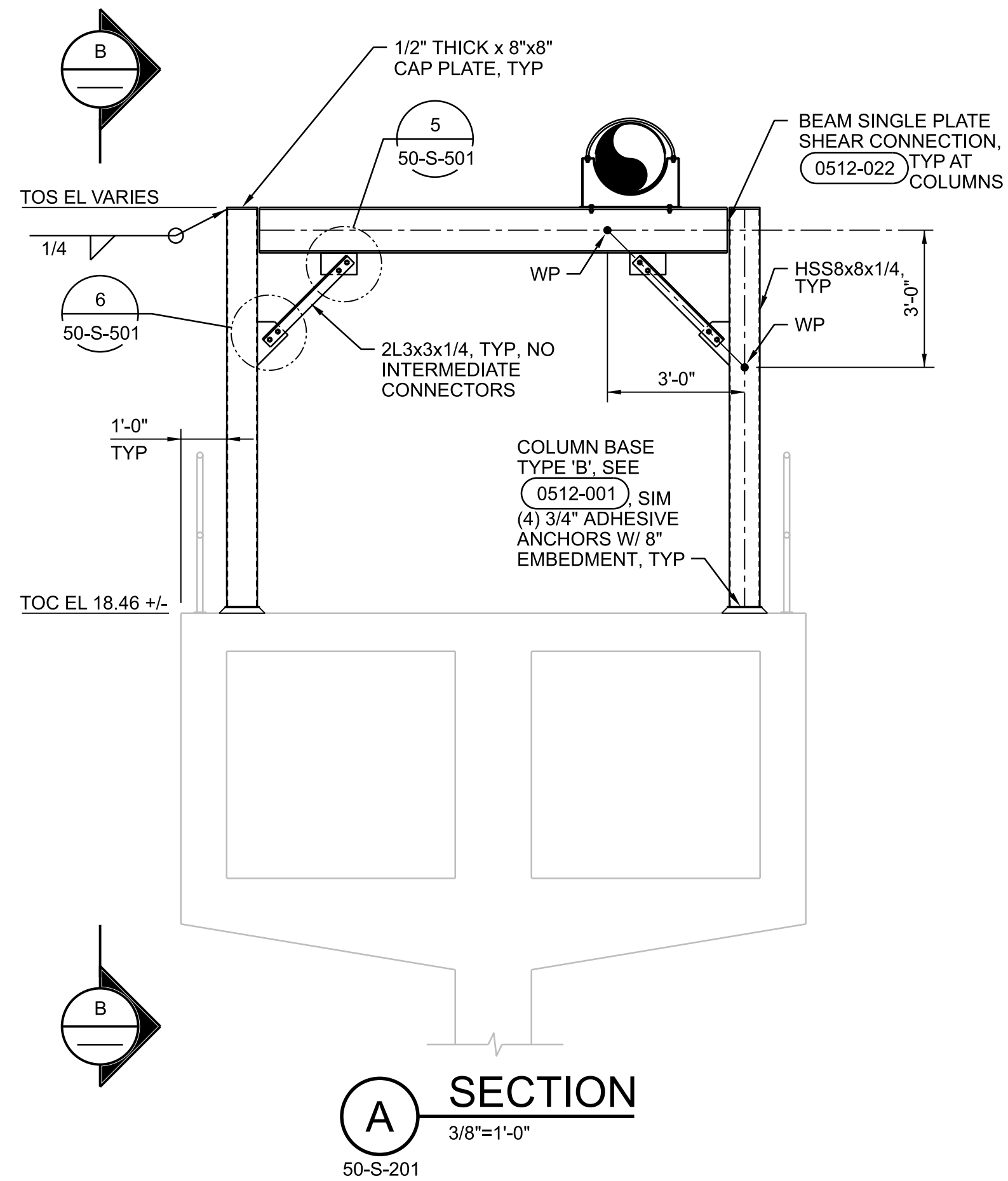
**Jacobs**  
BIOLOGICAL REACTOR AERATION BASINS  
**STRUCTURAL UPPER PLAN AND ENLARGED PLAN AND DETAILS**

VERIFY SCALE	BAR IS ONE INCH ON ORIGINAL DRAWING.
DATE	JULY 2023
PROJ	E2X90000
DWG	50-S-201
SHEET	46 of 96

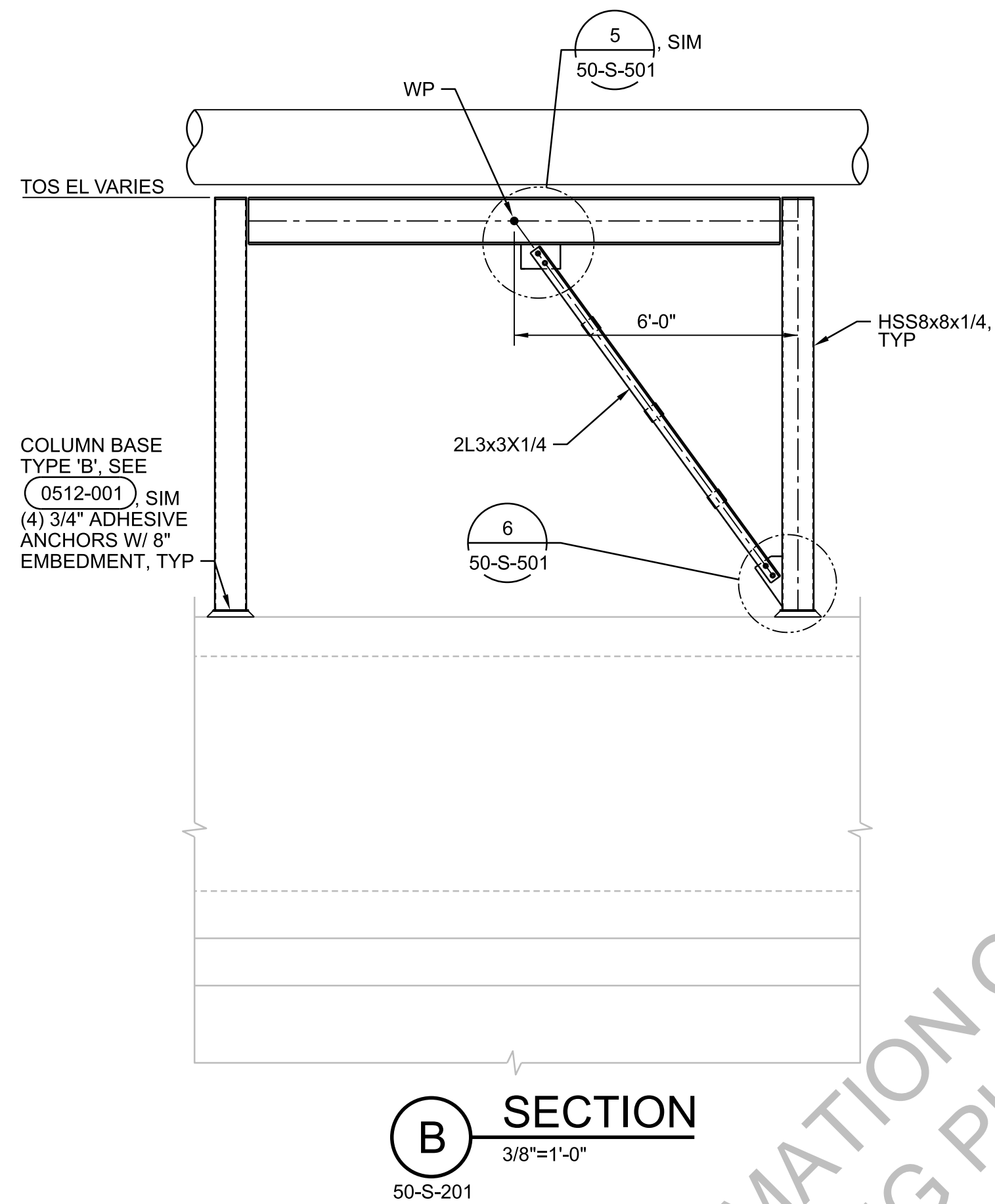
**BID READY**



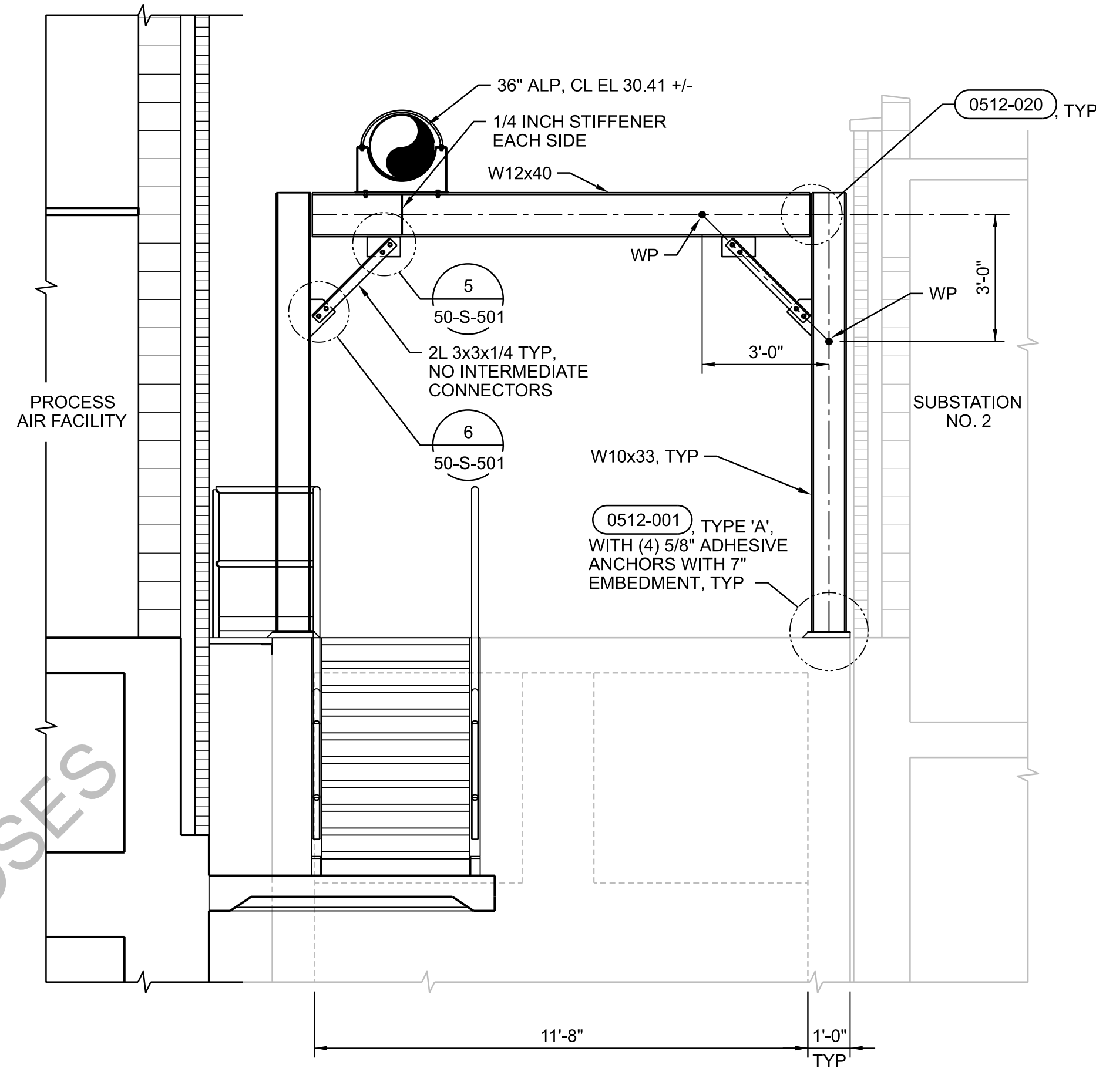
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**A** SECTION  
3/8"=1'-0"  
50-S-201



**B** SECTION  
3/8"=1'-0"  
50-S-201



**C** SECTION  
3/8"=1'-0"  
50-S-201

**GENERAL SHEET NOTE**

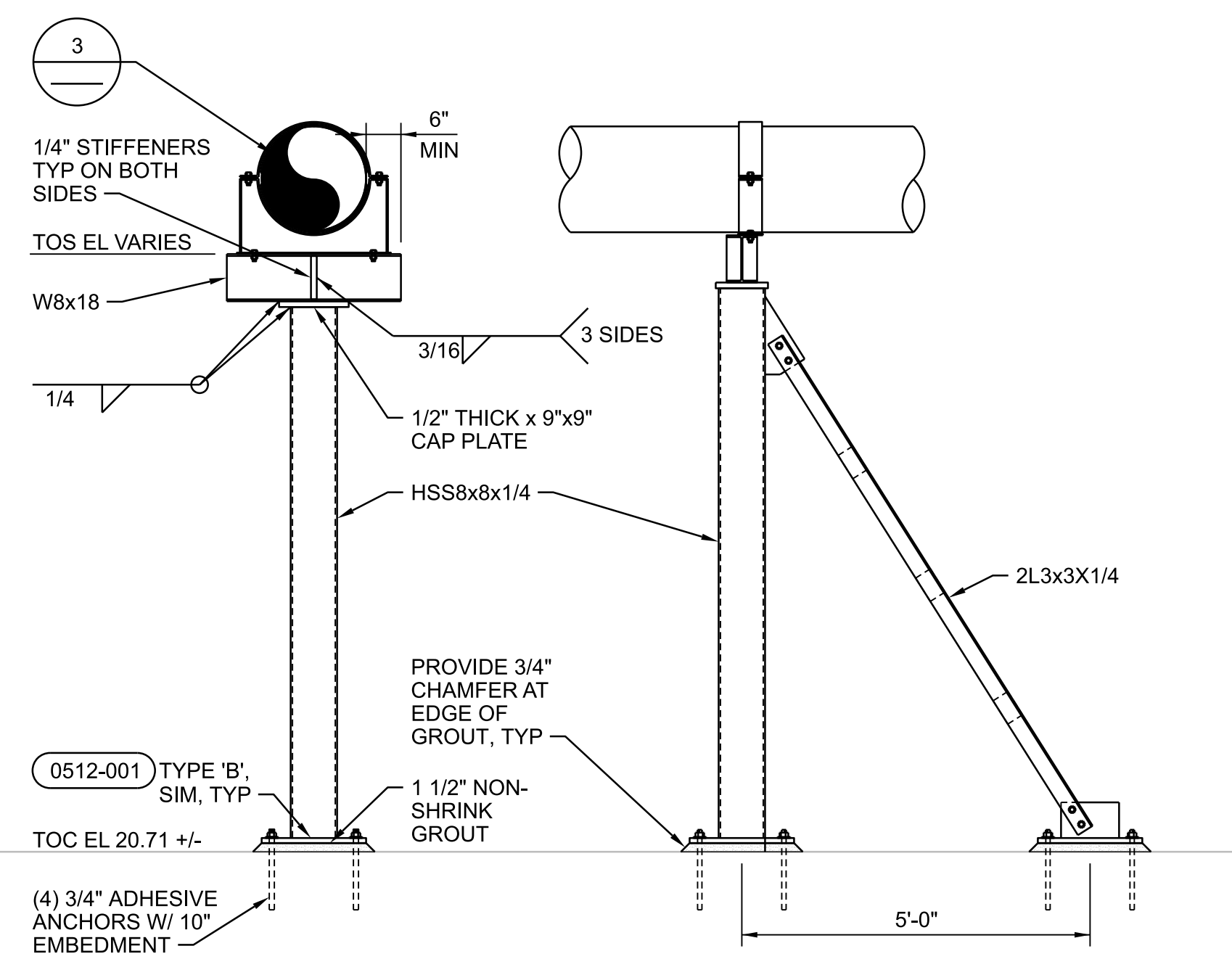
1. ALL PIPE SUPPORTS SHALL BE HOT DIP GALVANIZED.

<b>Jacobs</b>		BIOLOGICAL REACTOR AERATION BASINS STRUCTURAL SECTIONS AND DETAILS	
PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL EAST SHORE WATER POLLUTION ABATEMENT FACILITY Greater New Haven Water Pollution Control Authority New Haven, CT		DR LANGE DR	PA KARABAN CHK
NO.	DATE	REVISION	BY APVD
DSGN	DR	CHK	DL LYNCH
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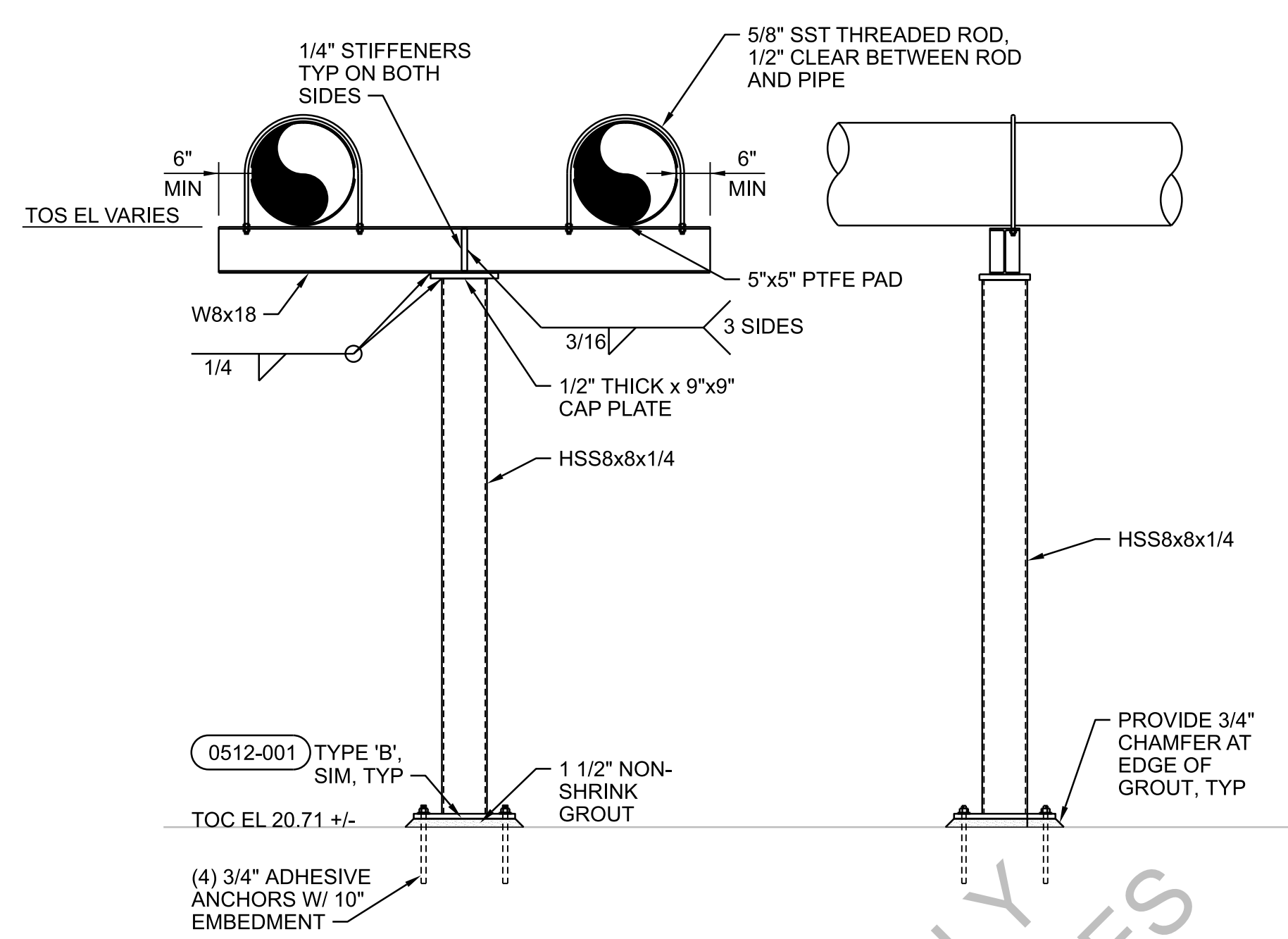
VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING.	
DATE	JULY 2023
PROJ	E2X90000
DWG	50-S-301
SHEET	48 of 96

BID READY

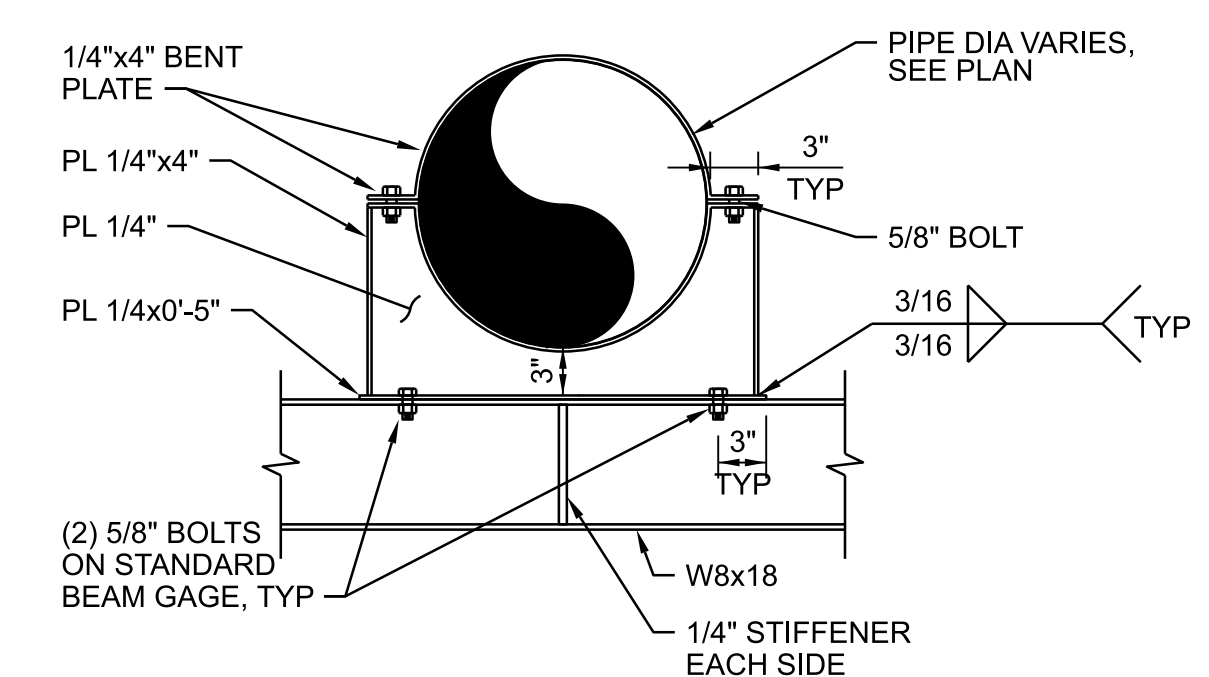




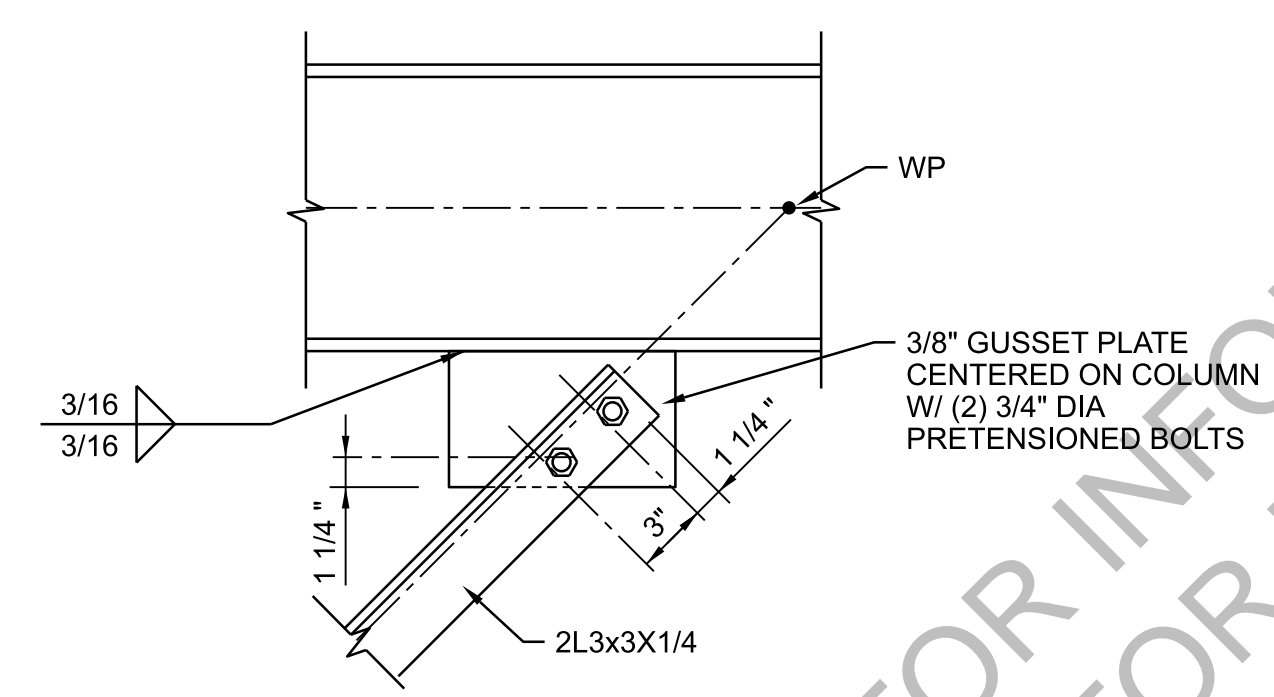
**1** DETAIL  
1/2"=1'-0"  
50-S-201



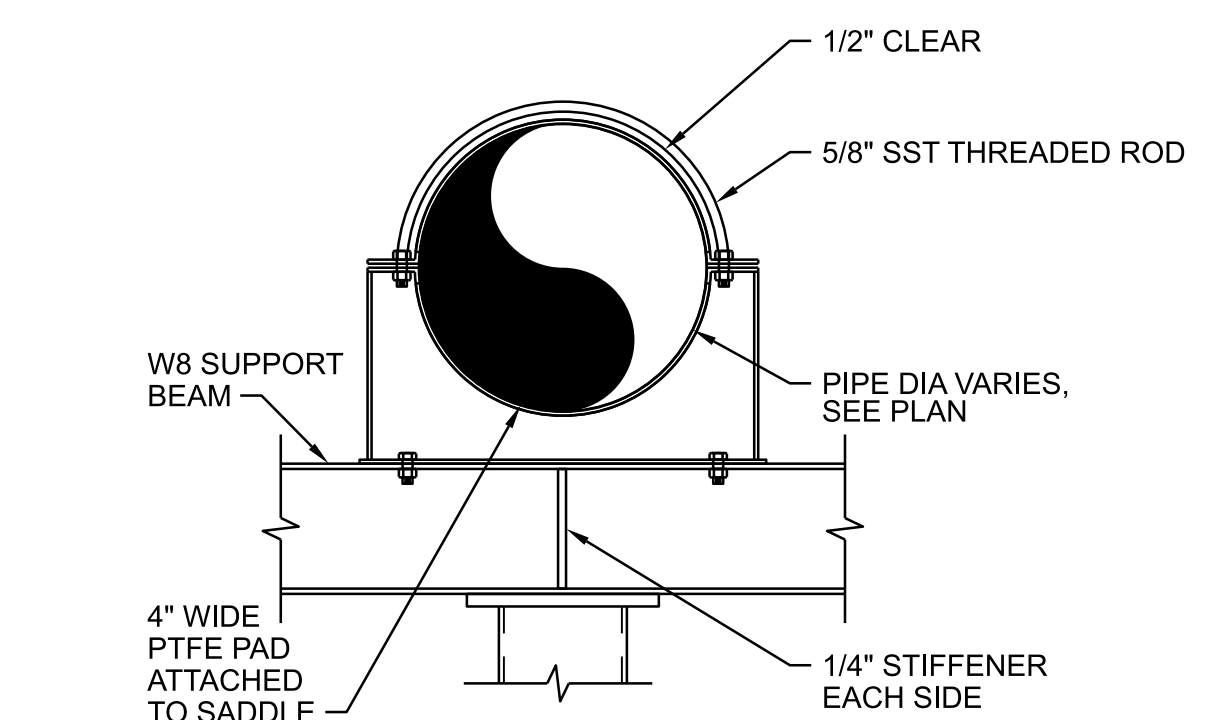
**2** DETAIL  
1/2"=1'-0"  
50-S-201



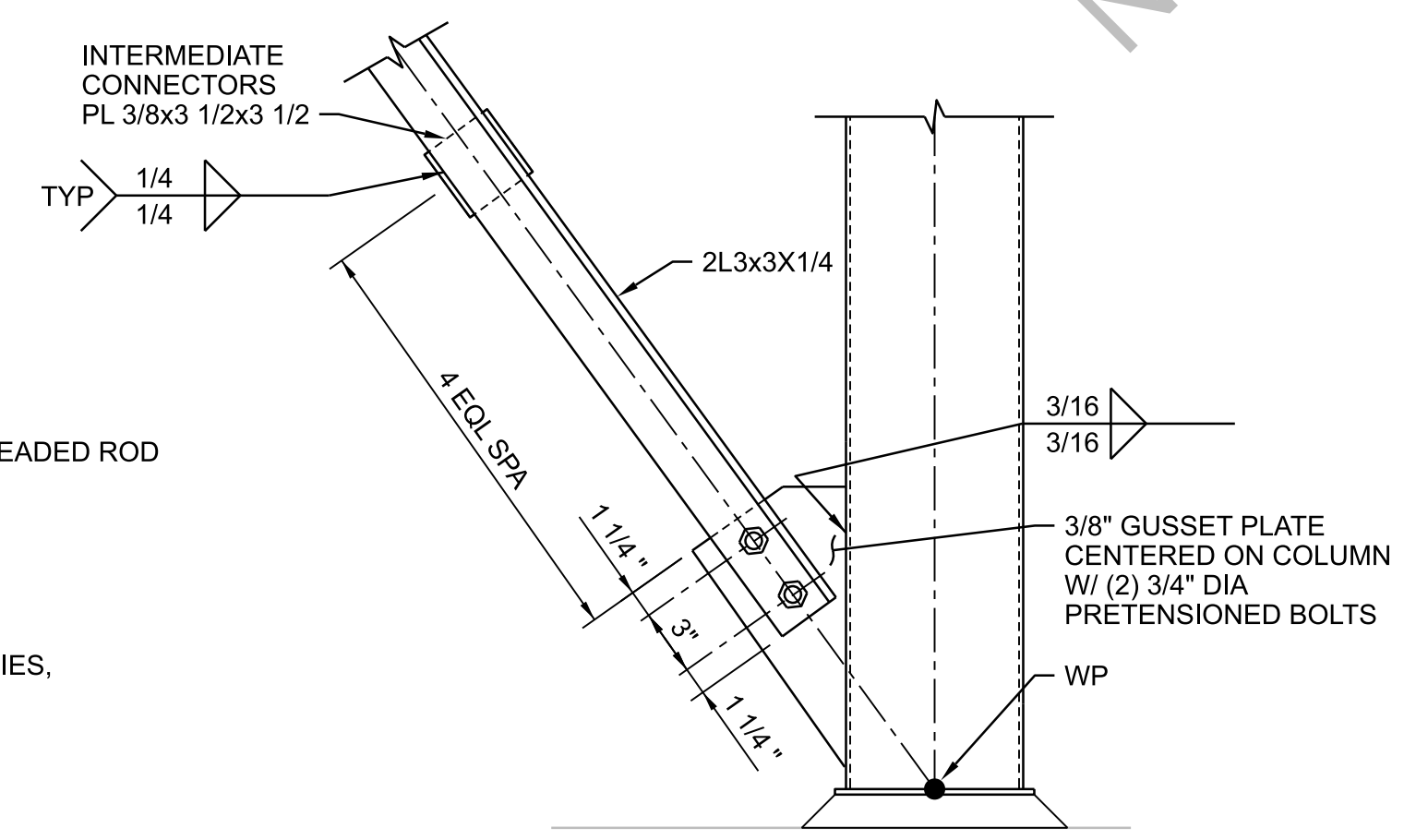
**3** DETAIL  
1"=1'-0"  
50-S-201



**5** DETAIL  
1 1/2"=1'-0"



**4** DETAIL  
1"=1'-0"  
50-S-201



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

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NOT FOR BIDDING PURPOSES

**GENERAL SHEET NOTE**

1. ALL PIPE SUPPORTS SHALL BE HOT DIP GALVANIZED.

NO.	DATE	DR	PA KARABAN	CHK	APVD	DL LYNCH

PROCESS AIR COMPRESSOR SYSTEM  
FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION  
ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

**Jacobs**  
BIOLOGICAL REACTOR AERATION BASINS  
STRUCTURAL  
DETAILS

VERIFY SCALE	BAR IS ONE INCH ON ORIGINAL DRAWING.
DATE	JULY 2023
PROJ	E2X90000
DWG	50-S-501
SHEET	49 of 96

BID READY

**SHEET KEYNOTES**

1. PROVIDE ADVANCED POWER QUALITY MONITOR AT SUBSTATION MAIN BREAKERS AND WIRE TO LPC CABINET AS DETAILED ON CABLE BLOCK DIAGRAMS AND ON CONDUIT AND CABLE SCHEDULE.
2. PULLBACK 13.8KV FEEDERS TO TRANSFORMERS TL4 AND TR4 FROM EXISTING MANHOLE MH-E10 AND REROUTE TO NEW MANHOLE E-4.
3. XFMRA7, XFMRA9 AND SS4 TO BE DEMOLISHED. SEE SPECIAL SEQUENCE REQUIREMENTS IN SPECS.
4. REPLACE EXISTING TRANSFORMERS. SEE SPECIFICATIONS.

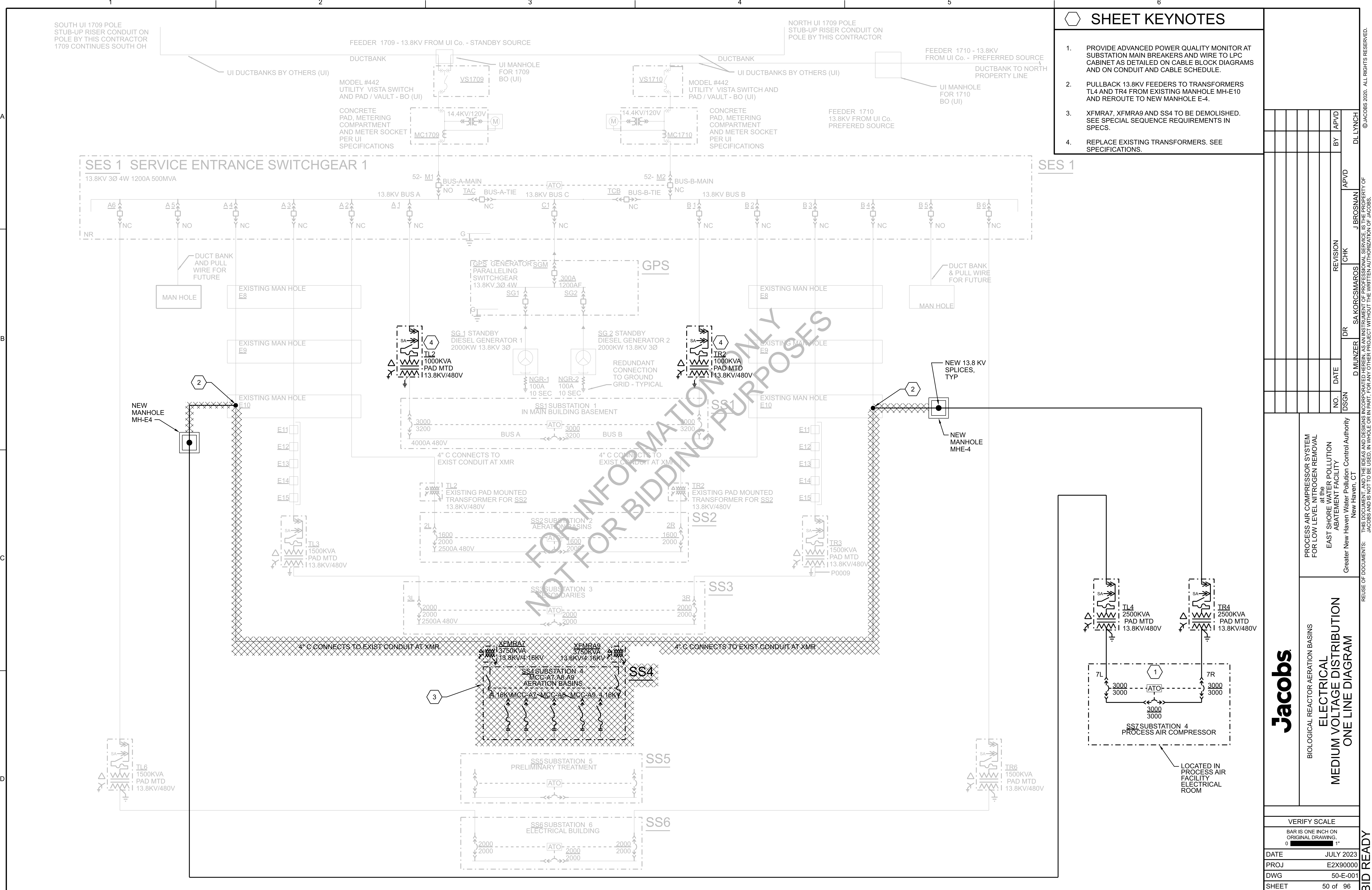
NO.	DATE	DR	REVISION	BY	APVD
		D. MUNZER	CHK	J. BROSNAN	DL LYNCH

PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

**Jacobs**  
BIOLOGICAL REACTOR AERATION BASINS  
ELECTRICAL  
MEDIUM VOLTAGE DISTRIBUTION  
ONE LINE DIAGRAM

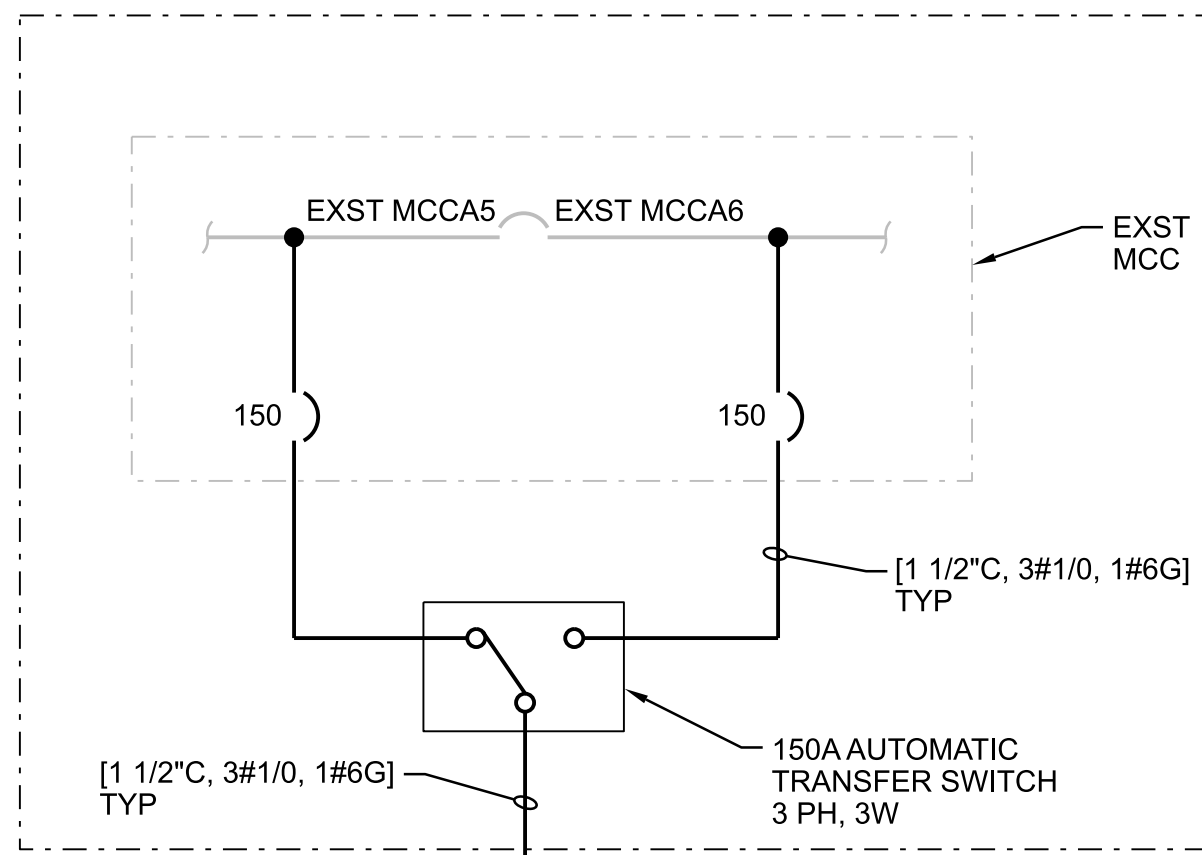
VERIFY SCALE	BAR IS ONE INCH ON ORIGINAL DRAWING.
DATE	JULY 2023
PROJ	E2X90000
DWG	50-E-001
SHEET	50 of 96

**BID READY**

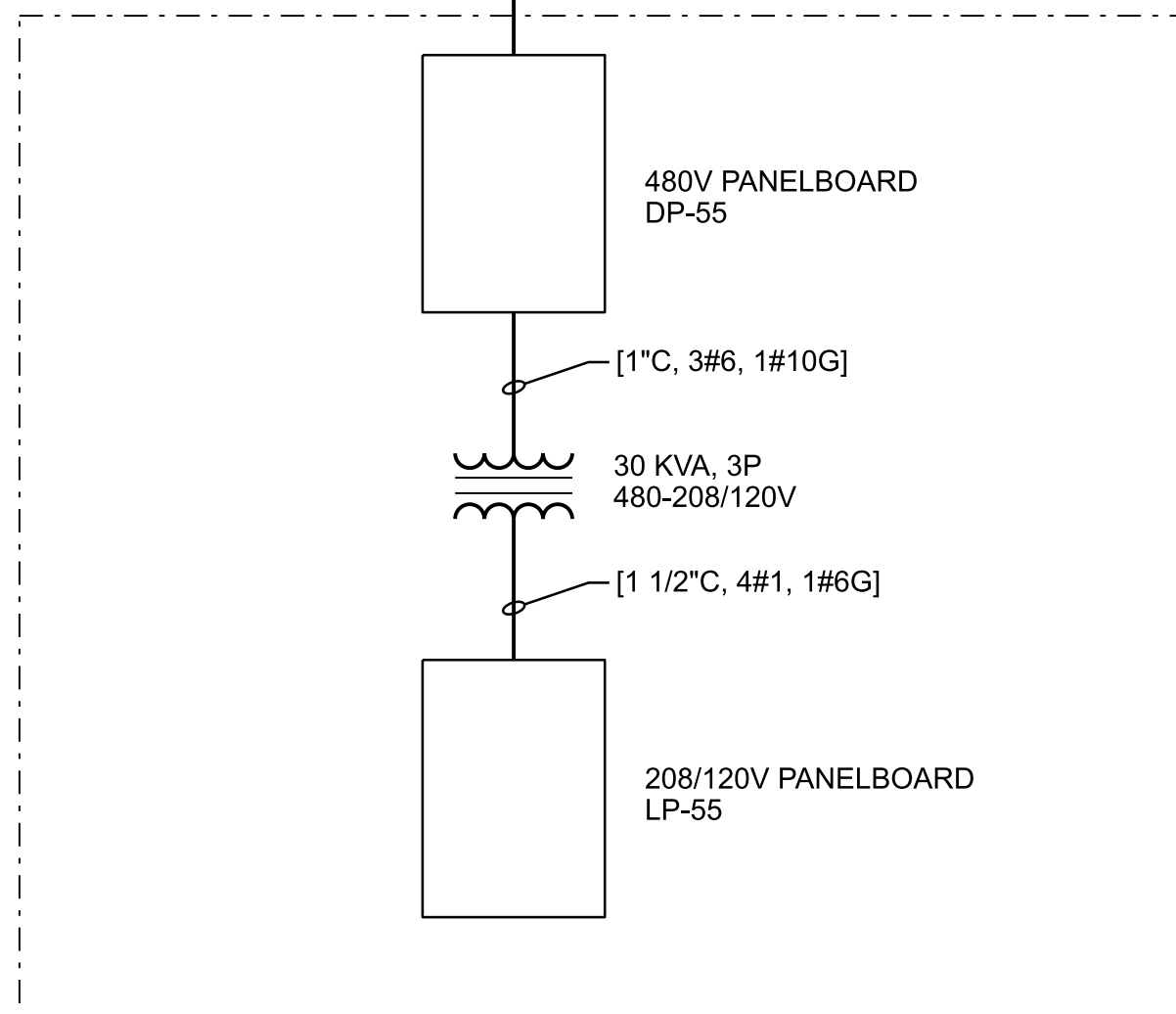


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LOCATED IN EXST SUBSTATION NO. 2 BUILDING



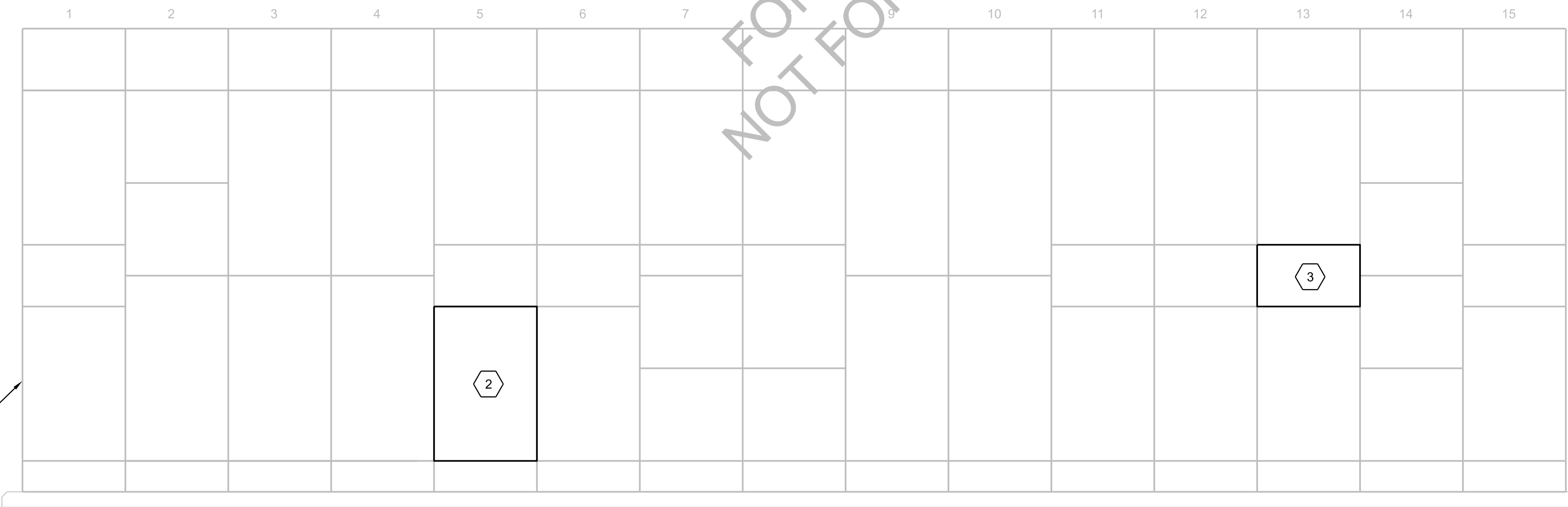
LOCATED IN PROCESS AIR FACILITY (ELECTRICAL ROOM)

**ONE-LINE DIAGRAM**  
NTS

PANEL: DP-55		LOCATION: PHASE: 3		PROCESS AIR COMP BUILDING 55	
VOLTAGE: 480V		BUS SIZE: 150		WIRE: 3	
NEUTRAL: NONE		MOUNTING: SURFACE			
NOTE: DOOR IN A DOOR STYLE PANELBOARD FRONT		SCOR 42 KA RMS SYMMETRICAL			
LOAD IN VA		IBKR	TKT	IBKR	TKT
A	B	C		A	B
500			1	2	20/3
	500		3	4	
		500	5	6	
10000			7	8	20/3
	10000		9	10	
		10000	11	12	
3333			13	14	20/3
	3333		15	16	
		3333	17	18	
			19	20	20/3
			21	22	
			23	24	
			25	26	
			27	28	
			29	30	
			31	32	
			33	34	
			35	36	
			37	38	
			39	40	
			41	42	
13833	13833	13833	TOTAL		

PANEL: LP-55		LOCATION: PHASE: 3		PROCESS AIR COMP BUILDING 55	
VOLTAGE: 208Y/120		BUS SIZE: 100		WIRE: 4	
NEUTRAL: FULL		MOUNTING: SURFACE			
NOTE: DOOR IN A DOOR STYLE PANELBOARD FRONT		SCOR 12 KA RMS SYMMETRICAL			
LOAD IN VA		IBKR	TKT	IBKR	TKT
A	B	C		A	B
500			1	2	15/1
	180		3	4	15/1
		480	5	6	15/1
180			7	8	15/1
	960		9	10	15/1
		2704	11	12	30/2
2704			13	14	
	120		15	16	20/2
			17	18	
			19	20	30/2
			21	22	
			23	24	20/2
			25	26	
			27	28	
			29	30	
			31	32	
			33	34	
			35	36	
			37	38	
			39	40	
			41	42	
3384	1260	3304	TOTAL		

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NOT FOR BIDDING PURPOSES



**FRONT ELEVATION**

**MODIFICATIONS TO EXISTING MCC-A5 AND MCC-A6 LOCATED IN EXISTING SUBSTATION NO. 2 BUILDING**  
NTS

**SHEET KEYNOTES**

- MCC IS GE MODEL EVOLUTION. GE REQ. NO. 302EW210-MC. ISSUED 2015. MEBANE, NC USA. ALL WORK SHALL MATCH EXISTING.
- MODIFY EXISTING SPACE FOR NEW CIRCUIT BREAKER. CIRCUIT BREAKER SHALL MATCH EXISTING BREAKERS IN INTERRUPTING RATING. MODIFY DOOR AS NECESSARY. PROVIDE LAMINATED NAMEPLATE "ATS-55".
- MODIFY EXISTING SPACE FOR NEW CIRCUIT BREAKER. CIRCUIT BREAKER SHALL MATCH EXISTING BREAKERS IN INTERRUPTING RATING. MODIFY DOOR AS NECESSARY. PROVIDE LAMINATED NAMEPLATE "ATS-55".

**Jacobs**

BIOLOGICAL REACTOR AERATION BASINS  
ELECTRICAL  
MODIFICATIONS TO EXISTING  
MCC-A5 & MCC-A6 SUBSTATION NO. 2

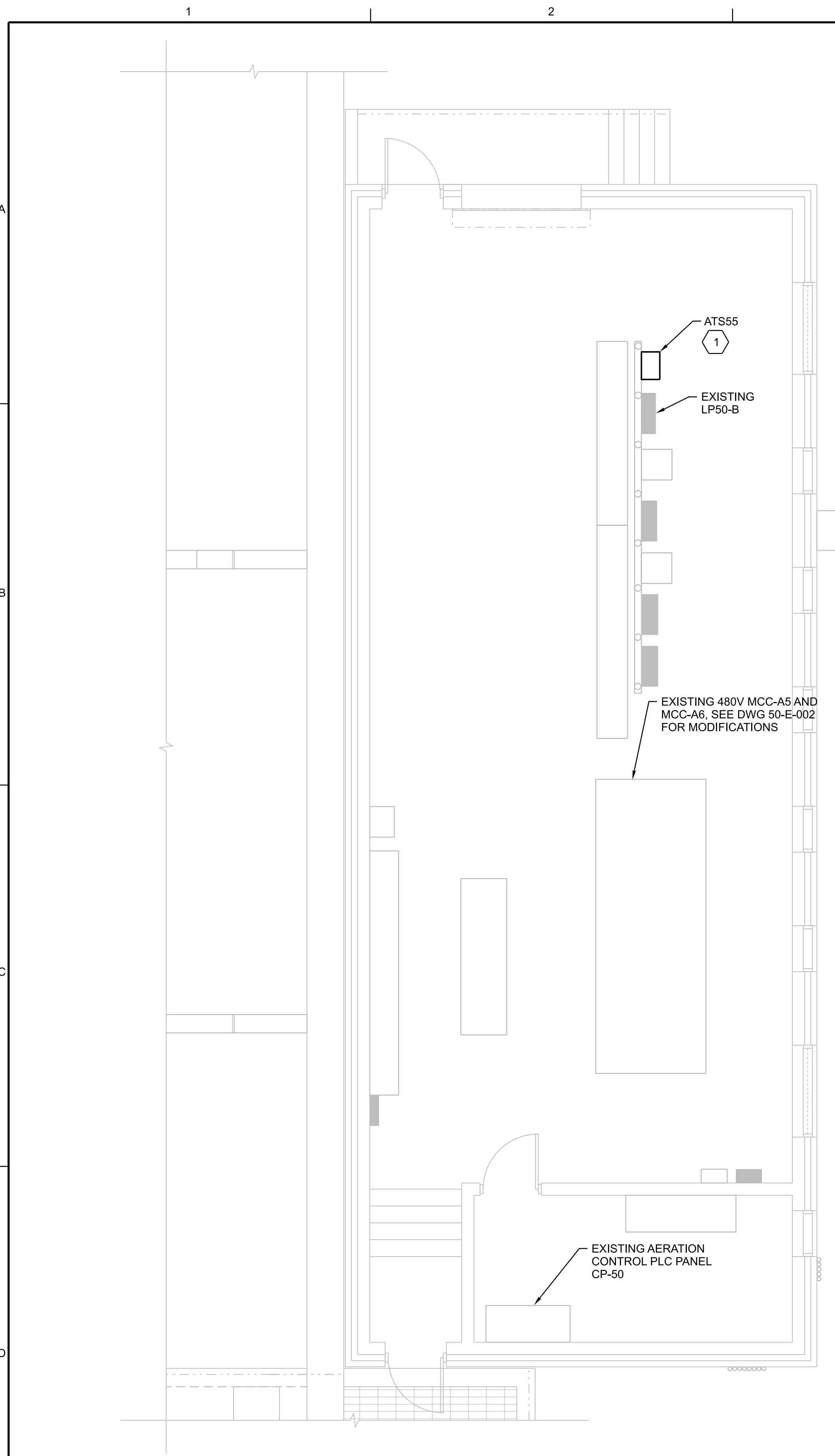
PROCESS AIR COMPRESSOR SYSTEM  
FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION  
ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

VERIFY SCALE  
BAR IS ONE INCH ON ORIGINAL DRAWING.  
0 1"

DATE: JULY 2023  
PROJ: E2X90000  
DWG: 50-E-002  
SHEET: 51 of 96

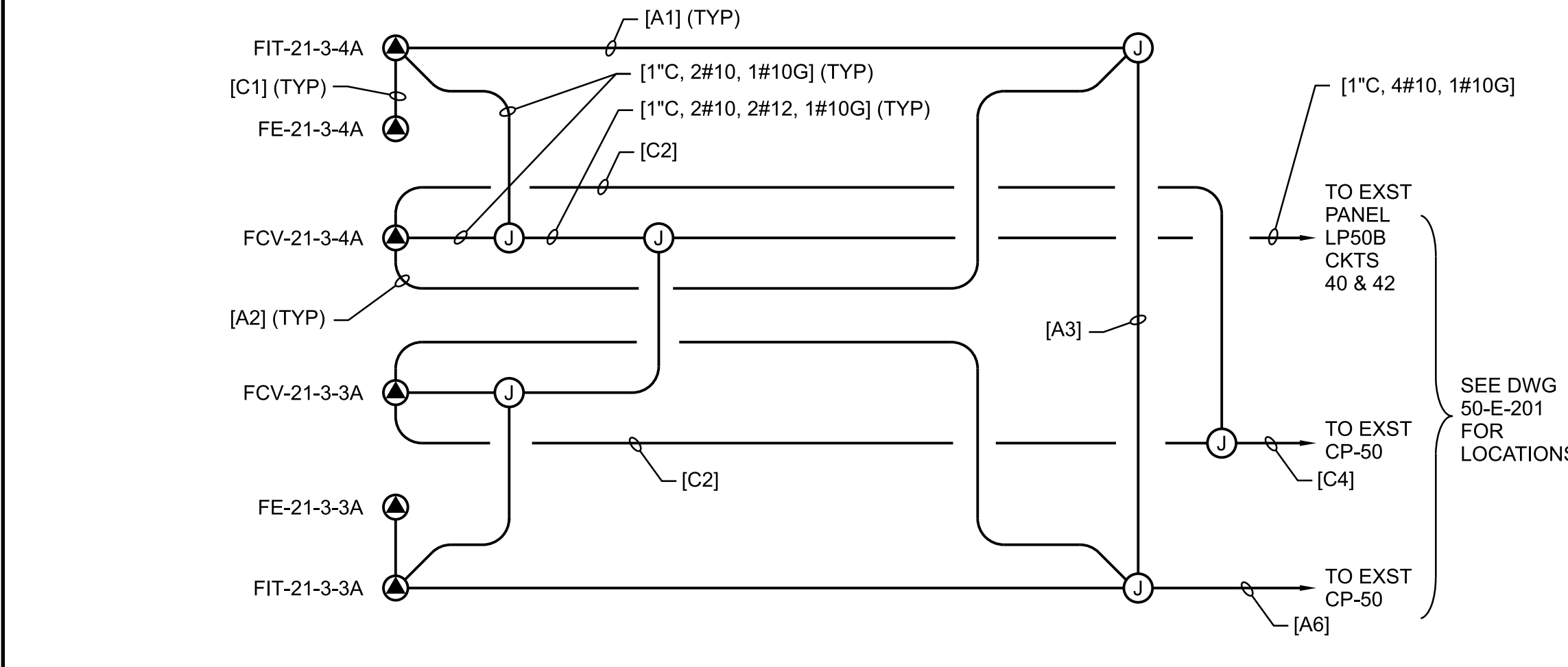
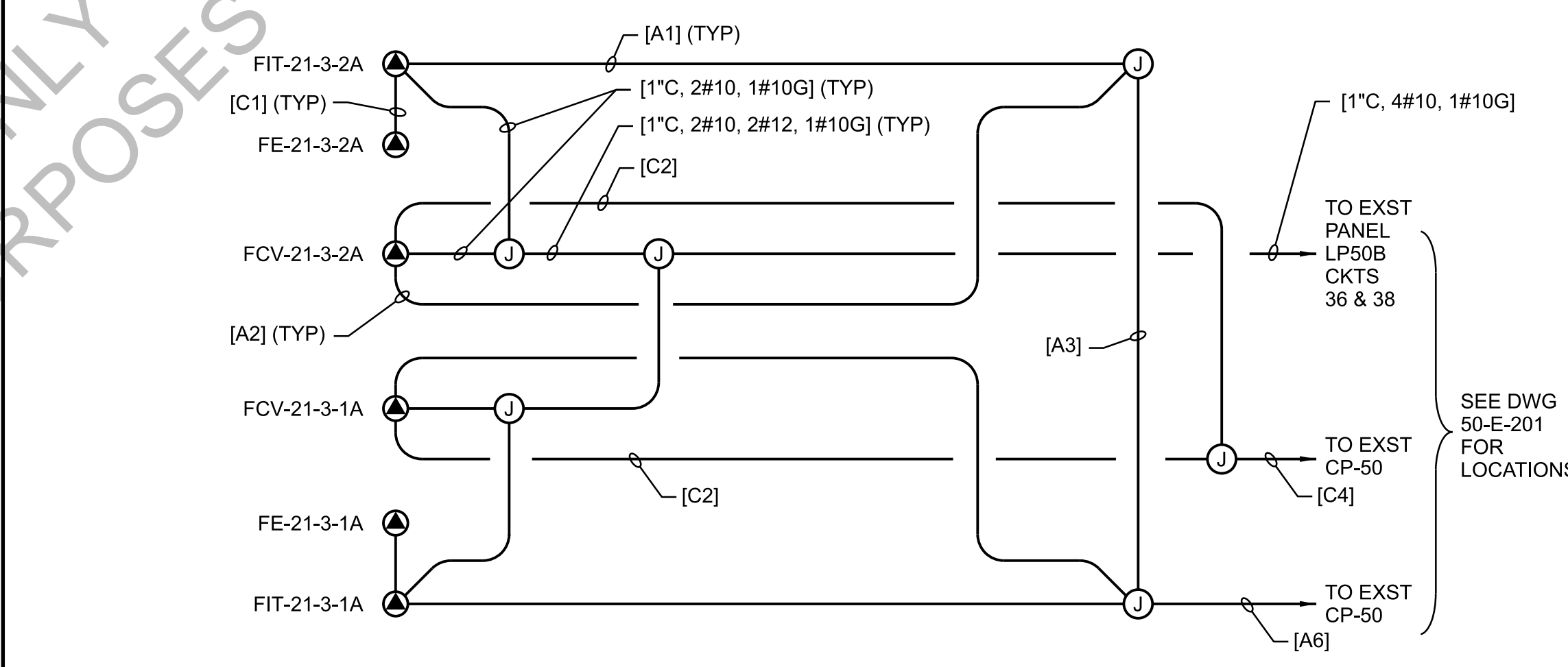
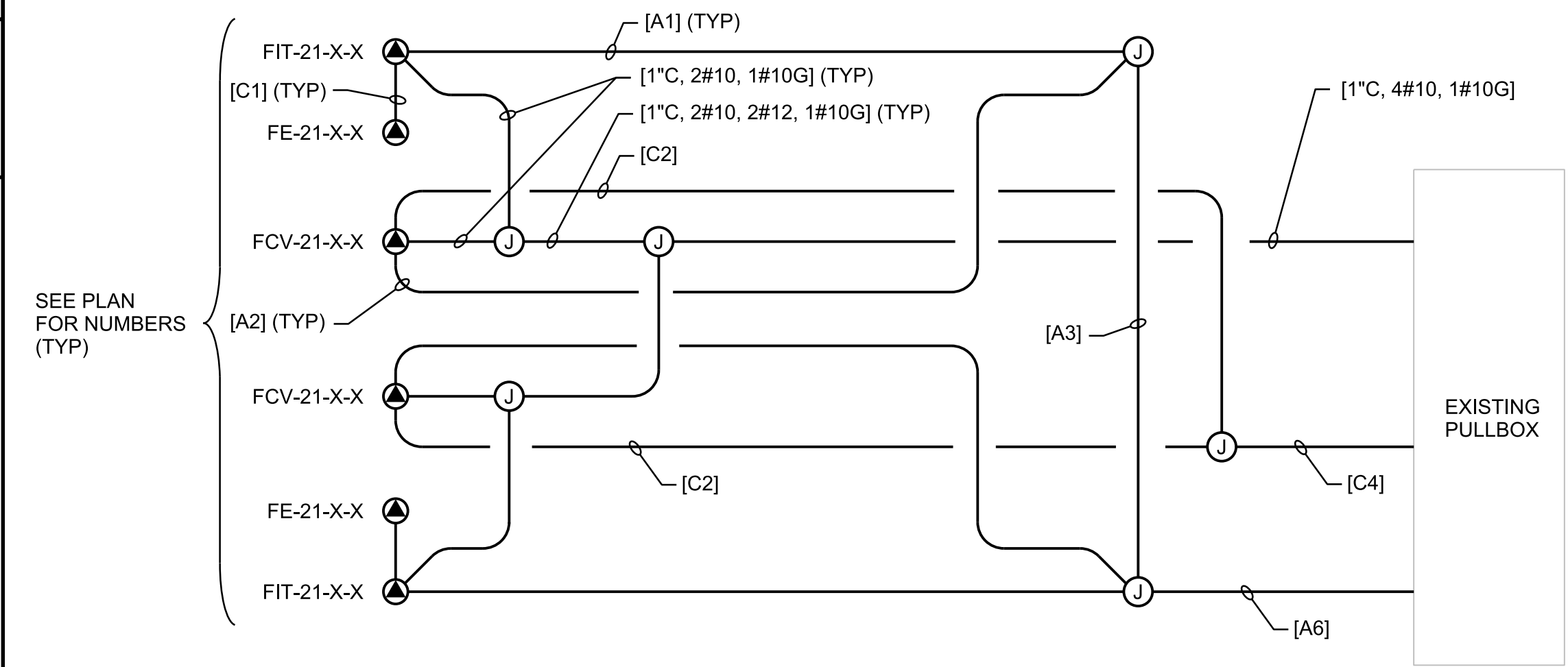
REVISION  
NO. DATE DSGN DR SA KORCSMAROS J BRONMAN APVD BY APVD  
CHK

DL LYNCH



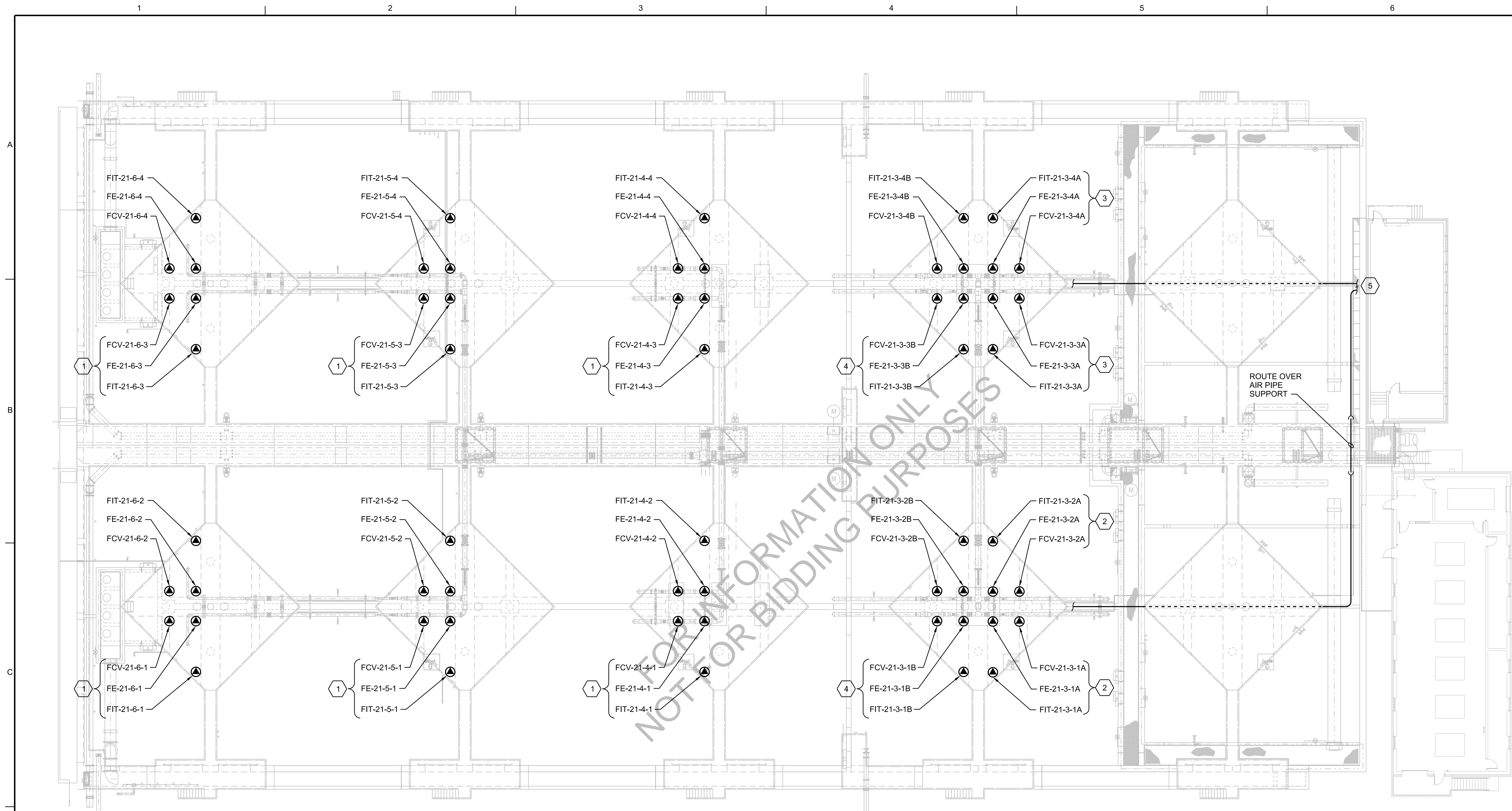
### SHEET KEYNOTES

- MOUNT ATS55 ON EXISTING BACKPLATE. SEE DWG. 50-E-002 FOR CONDUIT AND CONDUCTOR REQUIREMENTS



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<p><b>Jacobs</b></p> <p>PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL EAST SHORE WATER POLLUTION ABATEMENT FACILITY Greater New Haven Water Pollution Control Authority New Haven, CT</p>	<p><b>Jacobs</b></p> <p>BIOLOGICAL REACTOR AERATION BASINS ELECTRICAL SUBSTATION NO. 2 PLAN AND CABLE BLOCK DIAGRAMS</p>
<p>DR: SA KORCSMAROS D: D MUNZER DSGN: SA KORCSMAROS</p>	<p>CHK: J. BROSNAN BY: DL LYNCH APVD: [Signature]</p>
<p>NO. DATE</p>	<p>REVISION</p>
<p>VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"</p>	
<p>DATE: JULY 2023 PROJ: E2X90000 DWG: 50-E-201 SHEET: 52 of 96</p>	
<p>PLOT DATE: 7/18/2023 PLOT TIME: 9:39:18 AM</p>	



**OVERALL PLAN**  
 1/16"=1'-0"

SHEET KEYNOTES	SHEET KEYNOTES
<p>1. FCV, FE AND FIT ARE NEW AND REPLACES EXISTING EQUIPMENT WITH SAME P&amp;ID NUMBER. NEW LOCATIONS ARE NOT SAME AS EXISTING. SEE CABLE BLOCK DIAGRAM 1 FOR CONDUITS AND CONDUCTOR REQUIREMENTS FOR TYPICAL GROUPS. INSTALL NEW CONDUITS AND CONDUCTORS TO NEW EQUIPMENT LOCATIONS. REUSE EXISTING CONDUITS AND CONDUCTORS WHERE PRACTICAL. FOLLOW ROUTING PRACTICES UTILIZED IN EXISTING INSTALLATIONS. FLOW INDICATING TRANSMITTERS (FIT) SHALL BE HANDRAIL MOUNTED SIMILAR TO EXISTING.</p> <p>2. FCV-21-3-1A AND 2A, FE-21-3-1A AND 2A, AND FIT-21-3-1-1A AND 2A ARE NEW. SEE CABLE BLOCK DIAGRAM 2 ON DWG 50-E-201 FOR CONDUITS AND CONDUCTOR REQUIREMENTS.</p>	<p>3. FCV-21-3-3A AND 4A, FE-21-3-3A AND 4A, AND FIT-21-3-1-3A AND 4A ARE NEW. SEE CABLE BLOCK DIAGRAM 3 ON DWG 50-E-201 FOR CONDUITS AND CONDUCTOR REQUIREMENTS.</p> <p>4. FCV-21-3-1B, 2B, 3B AND 4B, FE-21-3-1B, 2B, 3B AND 4B, AND FIT-21-3-1B, 2B, 3B AND 4B ARE NEW AND REPLACES EXISTING FCV-21-3-1, 2, 3 AND 4, FE-21-3-1, 2, 3 AND 4 AND FIT-21-3-1, 2, 3 AND 4. SEE CABLE BLOCK DIAGRAM 1 ON DWG 50-E-201 FOR CONDUITS AND CONDUCTOR REQUIREMENTS. FLOW INDICATING TRANSMITTERS (FIT) SHALL BE HANDRAIL MOUNTED SIMILAR TO EXISTING.</p> <p>5. CONDUIT ROUTE FROM NEW FCV, FE AND FIT TO SUBSTATION 2 BUILDING.</p>

**Jacobs**

BIOLOGICAL REACTOR AERATION BASINS  
ELECTRICAL  
OVERALL UPPER PLAN

PROCESS AIR COMPRESSOR SYSTEM  
FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION  
ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

NO.	DATE	DR	CHK	REVISION

BY	APVD	BY	APVD

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE: JULY 2023

PROJ: E2X90000

DWG: 50-E-202

SHEET: 53 of 96

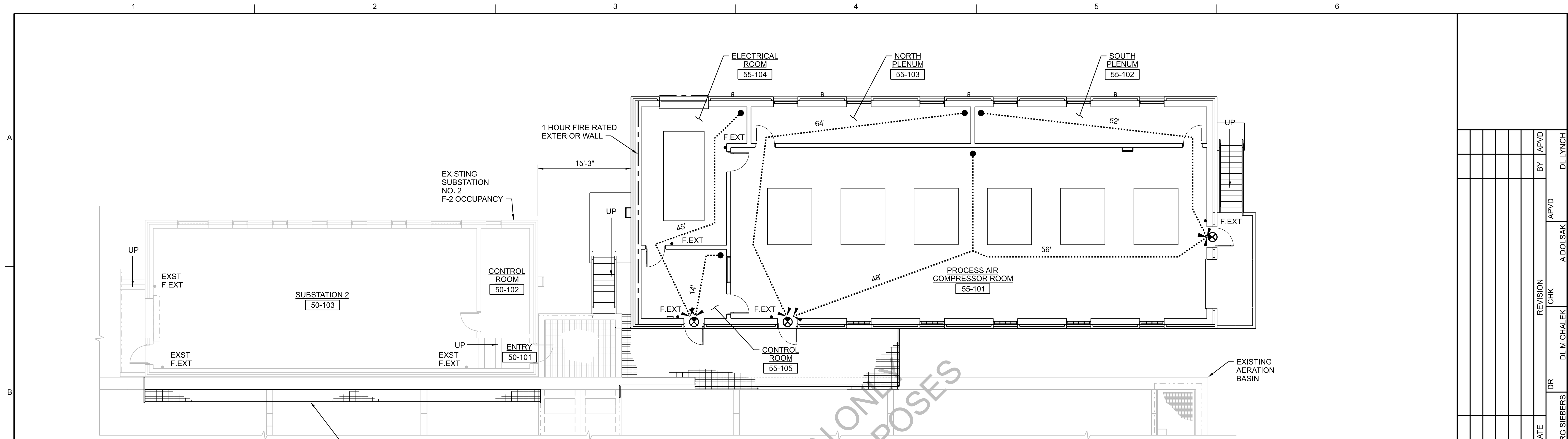
DL LYNCH

J. BROSNAN

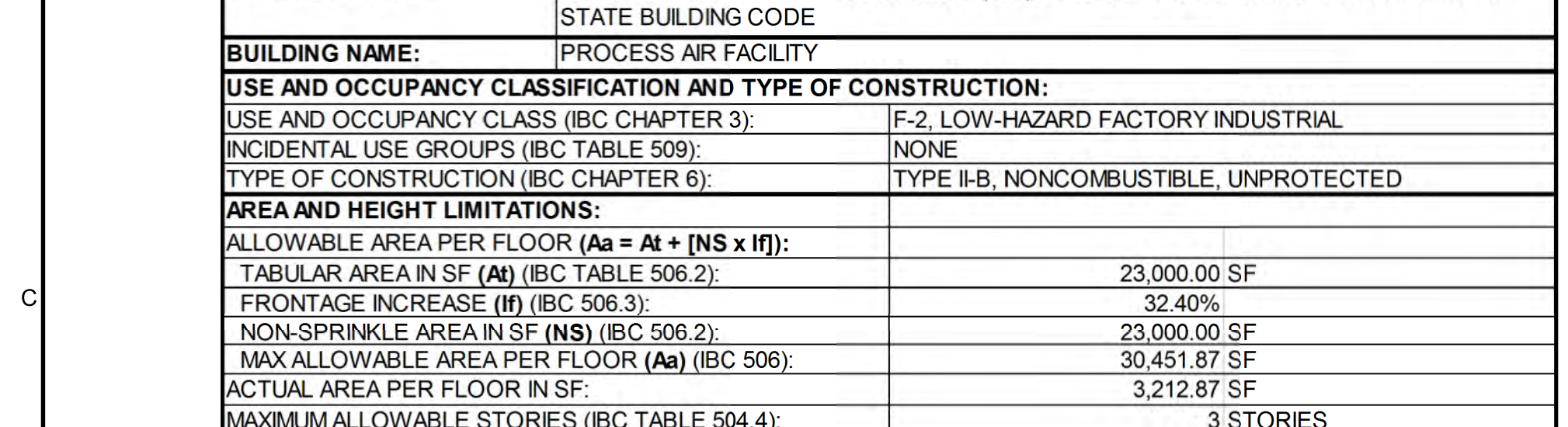
D. MUNZER

S. KORCSMAROS

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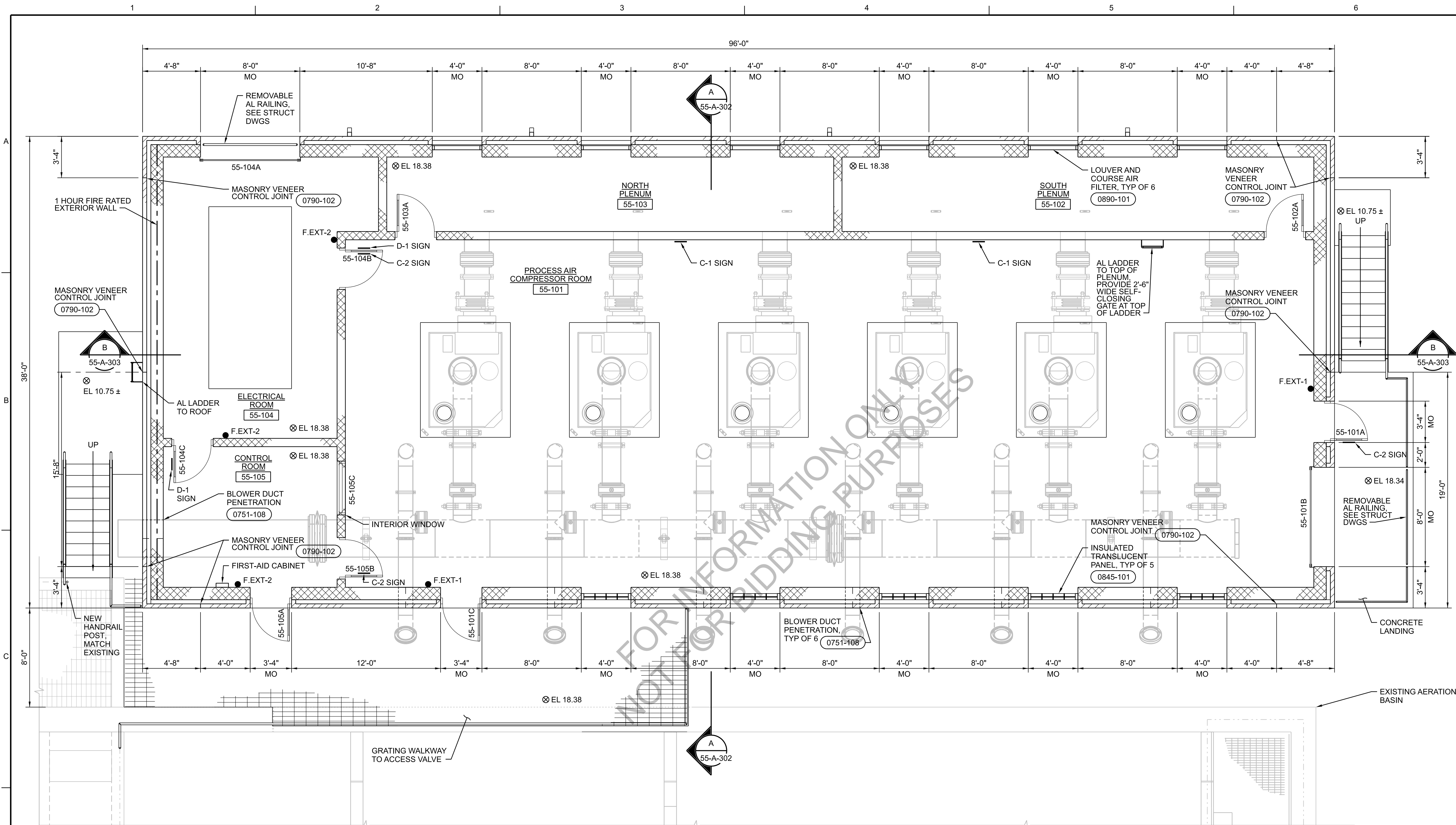


BUILDING CODE DATA	
<b>BUILDING CODE:</b>	2021 INTERNATIONAL BUILDING CODE (IBC) AS ADOPTED BY THE 2022 CONNECTICUT STATE BUILDING CODE
<b>BUILDING NAME:</b>	PROCESS AIR FACILITY
<b>USE AND OCCUPANCY CLASSIFICATION AND TYPE OF CONSTRUCTION:</b>	
USE AND OCCUPANCY CLASS (IBC CHAPTER 3):	F-2, LOW-HAZARD FACTORY INDUSTRIAL
INCIDENTAL USE GROUPS (IBC TABLE 509):	NONE
TYPE OF CONSTRUCTION (IBC CHAPTER 6):	TYPE II-B, NONCOMBUSTIBLE, UNPROTECTED
<b>AREA AND HEIGHT LIMITATIONS:</b>	
ALLOWABLE AREA PER FLOOR ( $A_a = A_t + [NS \times If]$ ):	
TABULAR AREA IN SF ( $A_t$ ) (IBC TABLE 506.2):	23,000.00 SF
FRONTAGE INCREASE ( $If$ ) (IBC 506.3):	32.40%
NON-SPRINKLE AREA IN SF ( $NS$ ) (IBC 506.2):	23,000.00 SF
MAX ALLOWABLE AREA PER FLOOR ( $A_a$ ) (IBC 506):	30,451.87 SF
ACTUAL AREA PER FLOOR IN SF:	3,212.87 SF
MAXIMUM ALLOWABLE STORIES (IBC TABLE 504.4):	3 STORIES
ACTUAL NUMBER OF STORIES:	1 STORY
MAXIMUM ALLOWABLE HEIGHT (IBC TABLE 504.3):	55 FEET
ACTUAL HEIGHT:	30 FEET
<b>EGRESS REQUIREMENTS:</b>	
DESIGN OCCUPANT LOAD (IBC 1004.1): 300 SF/PERSON	10.71 OCCUPANTS
ACTUAL OCCUPANT LOAD:	0 OCCUPANTS
MIN EGRESS WIDTH (IBC 1018 AND 1024.2):	3 FEET
STAIR WIDTH (IBC 1009.3 AND 1011.2):	3 FEET
COMMON PATH TRAVEL (IBC TABLE 1006.2.1):	75 FEET
REQUIRED EXITS (IBC 1006.3):	2 EXITS (1 WITH 75 FEET MAXIMUM TRAVEL DISTANCE AND 49 MAXIMUM OCCUPANTS)
MAX TRAVEL DISTANCE (IBC TABLE 1017.2):	300 FEET
<b>MINIMUM PLUMBING FIXTURES (IBC TABLE 2902.1):</b>	
MIN DISTANCE TO TOILET (IBC 2902.3.2.1):	TOILET IN OPERATIONS BUILDING
<b>REQUIRED FIRE RESISTANT RATINGS:</b>	
BUILDING ELEMENTS HOURLY FIRE RATING (IBC TABLE 601):	
PRIMARY STRUCTURAL FRAME:	0 HOURS
EXTERIOR BEARING WALLS:	0 HOURS
INTERIOR BEARING WALLS:	0 HOURS
INTERIOR NON-BEARING WALLS:	0 HOURS
FLOOR CONSTRUCTION:	0 HOURS
ROOF CONSTRUCTION:	0 HOURS
FIRE SEPARATION DISTANCE (IBC TABLE 705.5):	<10 FEET IS 1 HOUR
<b>FIRE PROTECTION:</b>	
AUTOMATIC SPRINKLER SYSTEM (IBC 903):	NOT REQUIRED AND NOT PROVIDED
FIRE EXTINGUISHERS (IBC 906):	PROVIDED AT EXITS
FIRE ALARM (IBC 907):	NOT REQUIRED AND NOT PROVIDED
<b>ACCESSIBILITY REQUIREMENTS:</b>	
EQUIPMENT SPACES NOT REQUIRED TO BE HANDICAPPED ACCESSIBLE (IBC 1103.2.9)	



<p><b>PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL</b></p> <p><b>EAST SHORE WATER POLLUTION ABATEMENT FACILITY</b></p> <p>Greater New Haven Water Pollution Control Authority New Haven, CT</p>	
<p><b>Jacobs</b></p> <p>PROCESS AIR FACILITY <b>ARCHITECTURAL LIFE SAFETY PLAN</b></p>	
<p>1/8"=1'-0"</p> <p>VERIFY SCALE</p> <p>BAR IS ONE INCH ON ORIGINAL DRAWING.</p>	
DATE	JULY 2023
PROJ	E2X90000
DWG	55-A-200
SHEET	54 of 96

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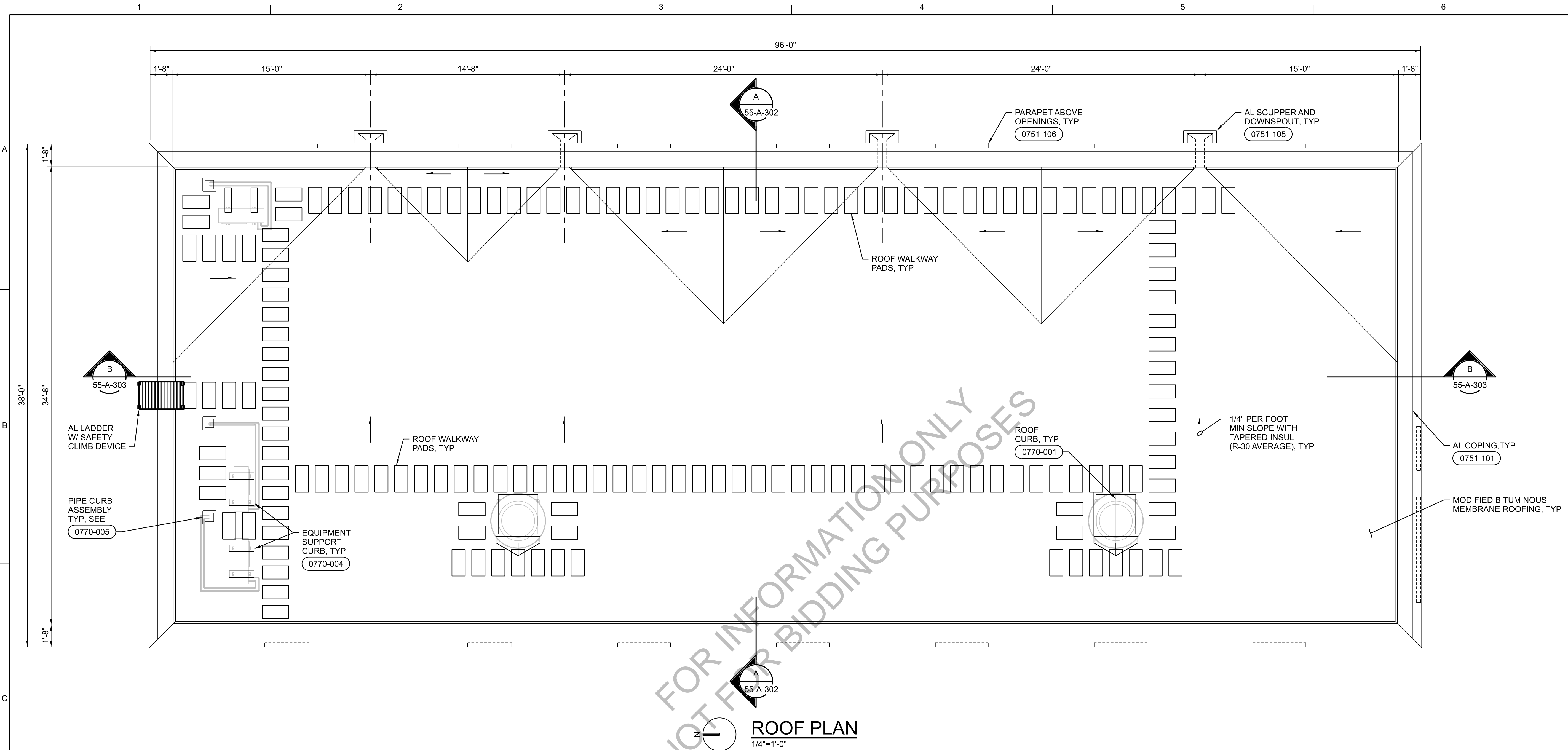


**FLOOR PLAN**  
 1/4"=1'-0"

NO.	DATE	REVISION	BY	APVD

PROCESS AIR COMPRESSOR SYSTEM  
 FOR LOW LEVEL NITROGEN REMOVAL  
 EAST SHORE WATER POLLUTION  
 ABATEMENT FACILITY  
 Greater New Haven Water Pollution Control Authority  
 New Haven, CT

	<b>PROCESS AIR FACILITY          ARCHITECTURAL          FLOOR PLAN</b>
1/4"=1'-0" VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING.	<b>BID READY</b>
DATE: JULY 2023 PROJ: E2X90000 DWG: 55-A-201 SHEET: 55 of 96	DL LYNCH A DOLSAK DL MICHALEK RG SIEBERS DR



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NOT FOR BIDDING PURPOSES

**ROOF PLAN**  
1/4"=1'-0"

**GENERAL SHEET NOTE**

- PROVIDE SEALS AROUND PIPES, VENTS, CONDUITS, AND OTHER PENETRATIONS THROUGH ROOF. SEE (0770-005) AND (0770-009).
- NOT ALL PENETRATIONS ARE SHOWN, SEE OTHER DISCIPLINE DRAWINGS FOR PENETRATION TYPES, SIZES, QUANTITIES, AND LOCATIONS.

NO.	DATE	DR	CHK	BY	APVD

RG SIEBERS  
DL MICHALEK  
A DOLSAK  
DL LYNCH

PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL EAST SHORE WATER POLLUTION ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

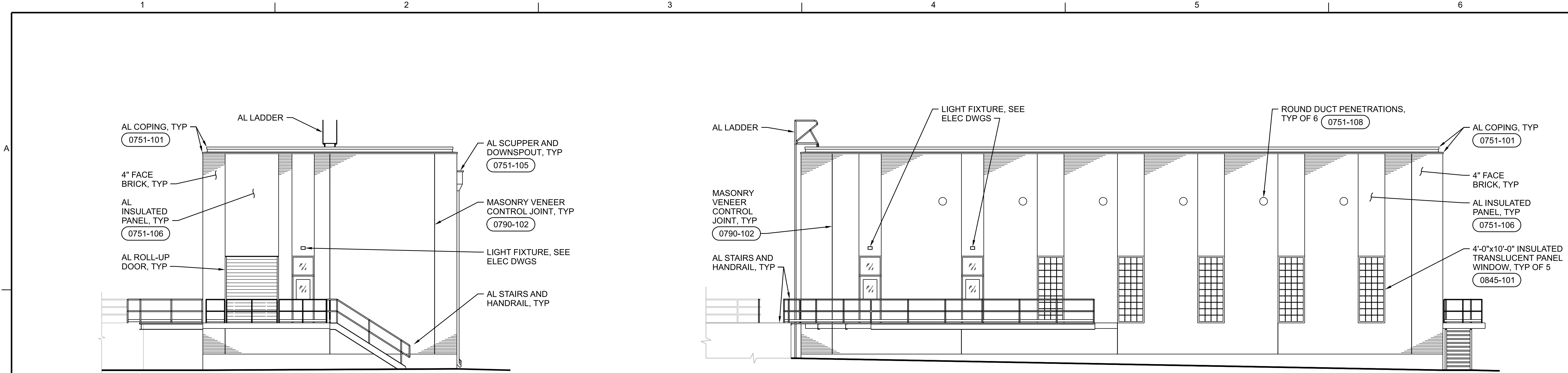
**Jacobs**

PROCESS AIR FACILITY  
**ARCHITECTURAL  
ROOF PLAN**

DATE	JULY 2023
PROJ	E2X90000
DWG	55-A-202
SHEET	56 of 96

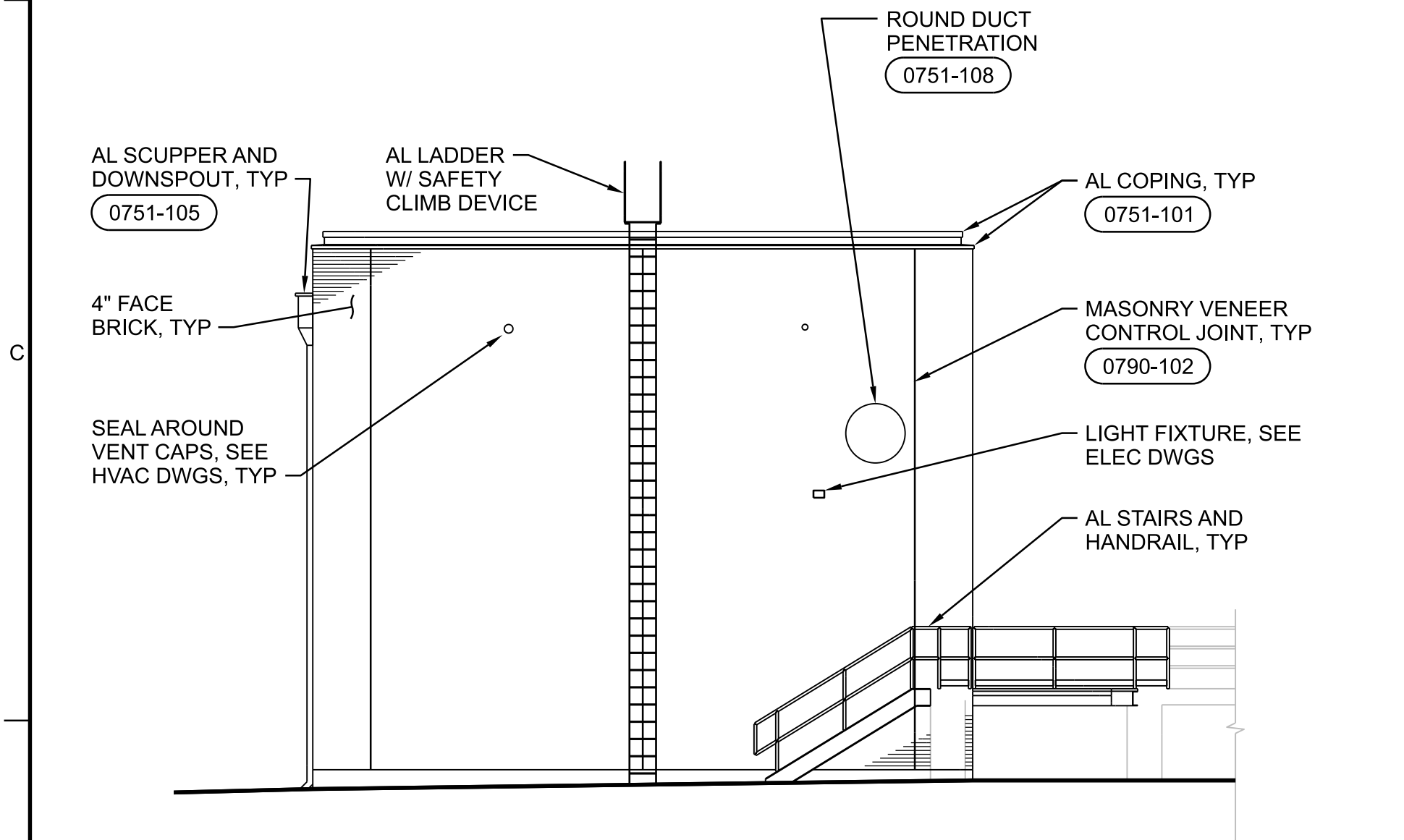
**BID READY**



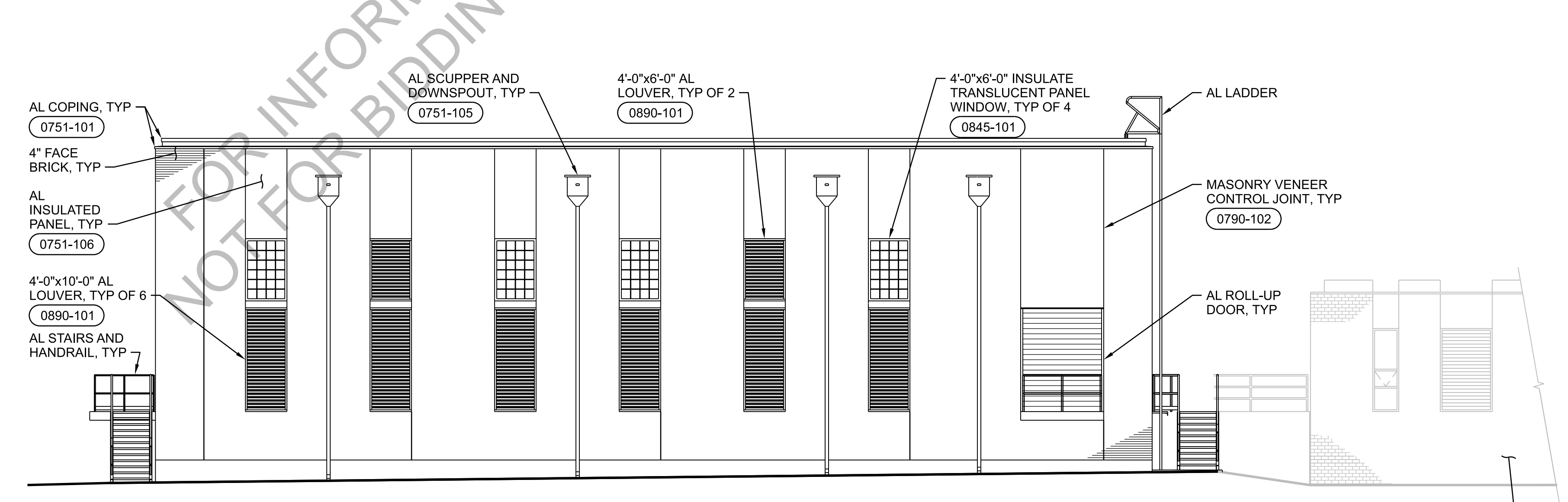


**SOUTH ELEVATION**  
1/8"=1'-0"

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



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



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

ON SUBSTATION NO. 2, TUCK POINT EXISTING BRICK, REINSTALL LOOSE BRICKS, REPLACE DAMAGED BRICKS, REMOVE VEGETATION ALONG WEST WALL, AND REPLACE ALUMINUM DOWNSPOUTS

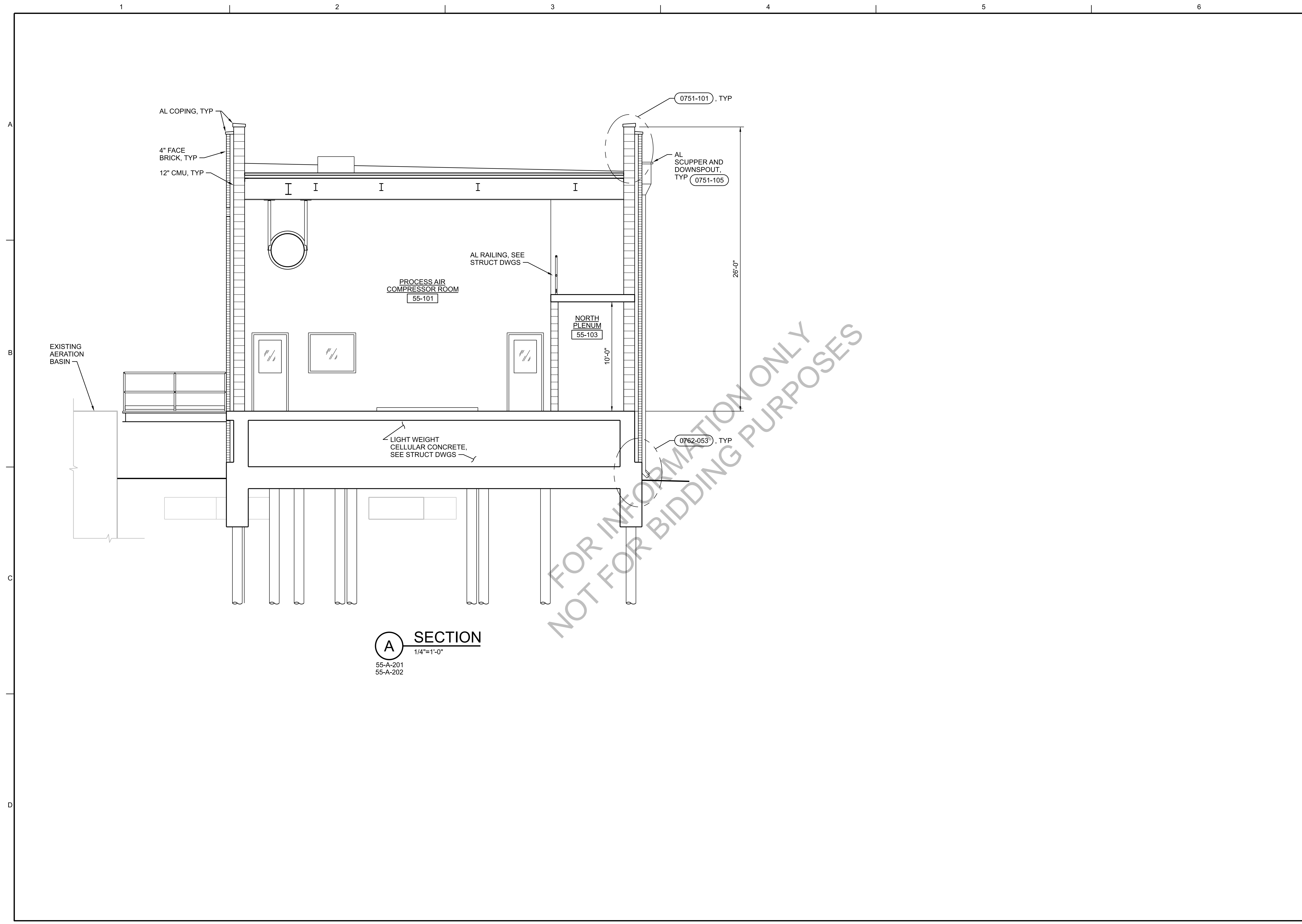
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NO.	DATE	DR	REVISION	BY	APVD

RG SIEBERS  
DL MICHALEK  
A DOLSAK  
DL LYNCH

PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

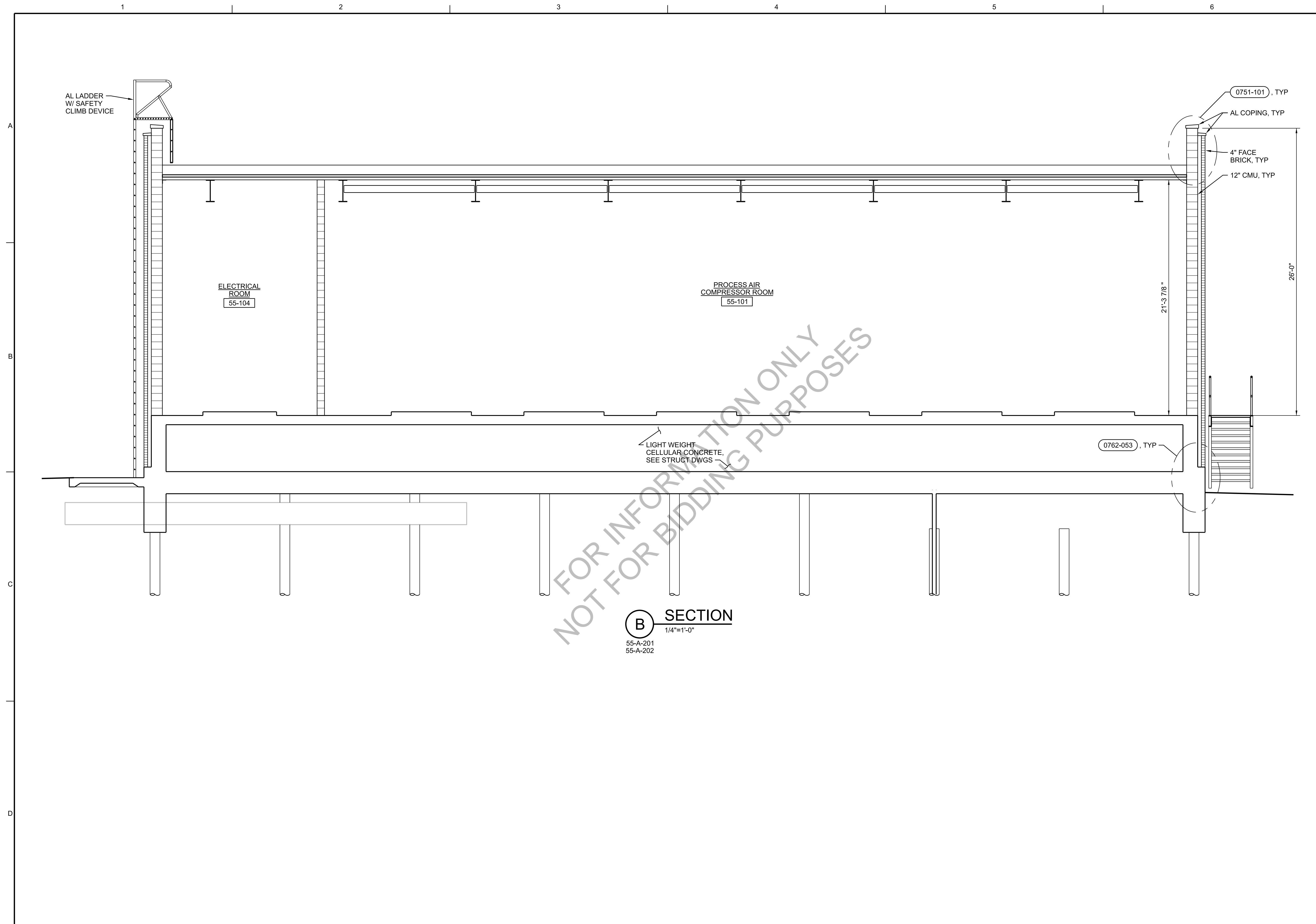
DATE	JULY 2023
PROJ	E2X90000
DWG	55-A-301
SHEET	57 of 96



FOR INFORMATION ONLY  
NOT FOR BIDDING PURPOSES

**A** SECTION  
1/4"=1'-0"  
55-A-201  
55-A-202

<b>Jacobs</b> PROCESS AIR FACILITY ARCHITECTURAL SECTION	PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL EAST SHORE WATER POLLUTION ABATEMENT FACILITY Greater New Haven Water Pollution Control Authority New Haven, CT		DGN	DR	CHK	APVD	BY	APVD	DL LYNCH
	DGN	DATE	REVISION	A DOLSAK	APVD	BY	APVD	DL LYNCH	
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1/4"=1'-0" VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1'									
DATE		JULY 2023		DATE		JULY 2023		DATE	
PROJ		E2X90000		PROJ		E2X90000		PROJ	
DWG		55-A-302		DWG		55-A-302		DWG	
SHEET		58 of 96		SHEET		58 of 96		SHEET	



FOR INFORMATION ONLY  
NOT FOR BIDDING PURPOSES

**B** SECTION  
1/4"=1'-0"  
55-A-201  
55-A-202

NO.	DATE	REVISION	BY	APVD

PROCESS AIR COMPRESSOR SYSTEM  
FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION  
ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

DESIGN: RG SIEBERS  
DRAWING: DR  
CHECK: A DOLSAK  
APPROVED: APVD  
DATE: DL LYNCH

<b>Jacobs</b>	
PROCESS AIR FACILITY ARCHITECTURAL SECTION	
1/4"=1'-0"	
VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING. 0 1"	
DATE	JULY 2023
PROJ	E2X90000
DWG	55-A-303
SHEET	59 of 96

### DOOR AND HARDWARE SCHEDULE

DOOR NUMBER	NOMINAL SIZE		DOOR				FRAME				DETAILS (NOTE 2)			DOOR HARDWARE	FIRE-RATING LABEL	OTHER REQUIREMENT
	WIDTH	HEIGHT	MATL	TYPE (NOTE 1)	GLASS	FINISH (NOTE 4)	MATL	TYPE (NOTE 1)	GLASS	FINISH (NOTE 4)	HEAD	JAMB	SILL			
PROCESS AIR FACILITY																
55-101A	3'-0"	7'-2"	FRP	G	ITG	FCTY	FRP	ST	ITG	FCTY	0811-101	0811-102	0871-001	HDW-2	----	
55-101B	8'-0"	10'-0"	AL	OCD	AS SPEC'D	FCTY	GSTL	SOCD	----	10/4	0833-101	0833-102	0833-103	AS SPEC'D	----	
55-101C	3'-0"	7'-2"	FRP	G	ITG	FCTY	FRP	ST	ITG	FCTY	0811-101	0811-102	0871-001	HDW-2	----	
55-102A	3'-0"	7'-2"	FRP	F	----	FCTY	FRP	S	----	FCTY	0811-003	0811-004	0871-002	HDW-3	----	
55-103A	3'-0"	7'-2"	FRP	F	----	FCTY	FRP	S	----	FCTY	0811-003	0811-004	0871-002	HDW-3	----	
55-104A	8'-0"	10'-0"	AL	OCD	AS SPEC'D	FCTY	GSTL	SOCD	----	10/4	0833-101	0833-102	0833-103	AS SPEC'D	----	
55-104B	3'-0"	7'-2"	FRP	G	TG	FCTY	FRP	S	----	FCTY	0811-003	0811-004	0871-002	HDW-1	----	
55-104C	3'-0"	7'-2"	FRP	G	TG	FCTY	FRP	S	----	FCTY	0811-003	0811-004	0871-002	HDW-1	----	
55-105A	3'-0"	7'-2"	FRP	G	ITG	FCTY	FRP	ST	ITG	FCTY	0811-101	0811-102	0871-001	HDW-2	----	
55-105B	3'-0"	7'-2"	FRP	G	TG	FCTY	FRP	S	----	FCTY	0811-003	0811-004	0871-002	HDW-1	----	
55-105C	4'-0"	4'-0"	----	----	----	----	FRP	WDW	TG	FCTY	0811-010	0811-011	0811-012	----	----	INTERIOR WINDOW

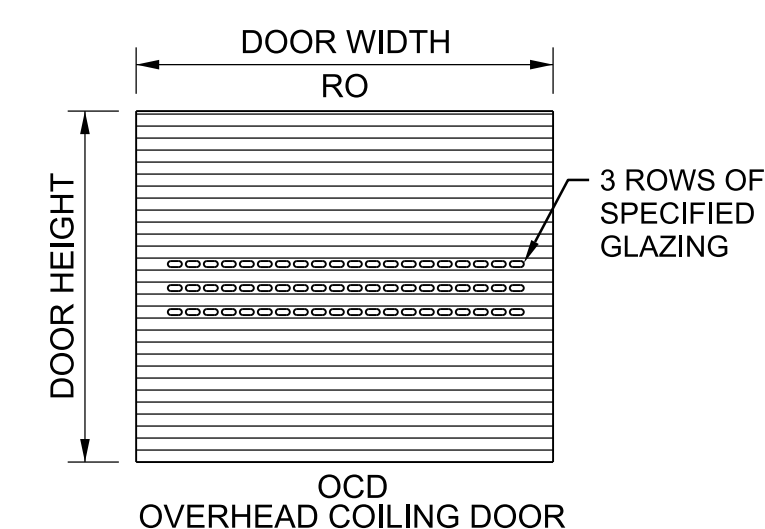
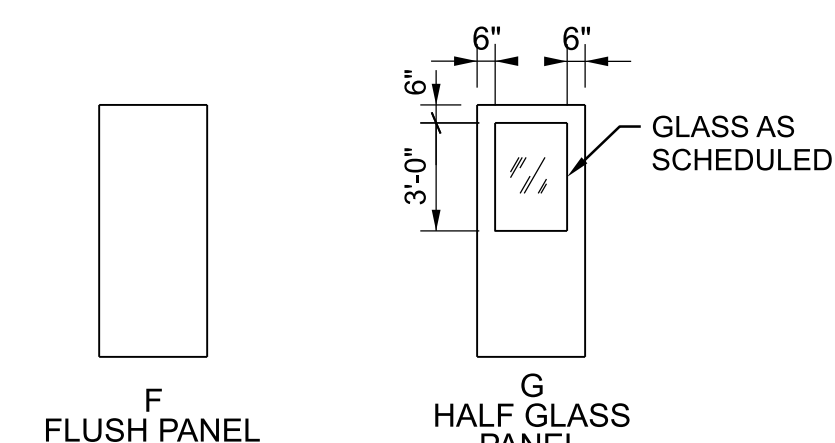
**ABBREVIATIONS:**

AL	ALUMINUM	MATL	MATERIAL
FCTY	FACTORY	SPEC'D	SPECIFIED
FRP	FIBERGLASS REINFORCED PLASTIC		
GSTL	GALVANIZED STEEL		

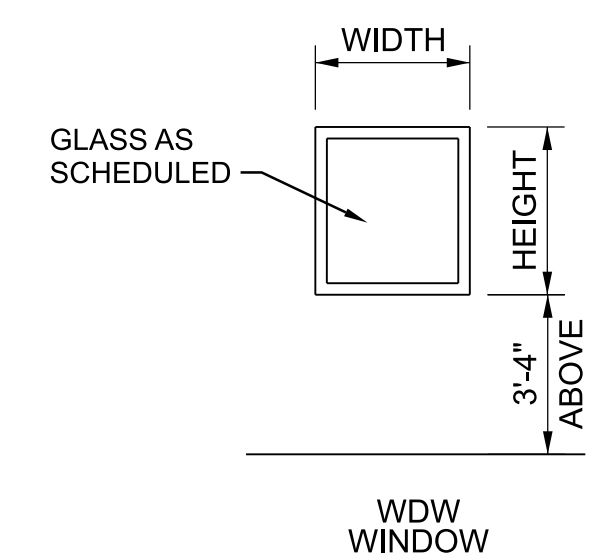
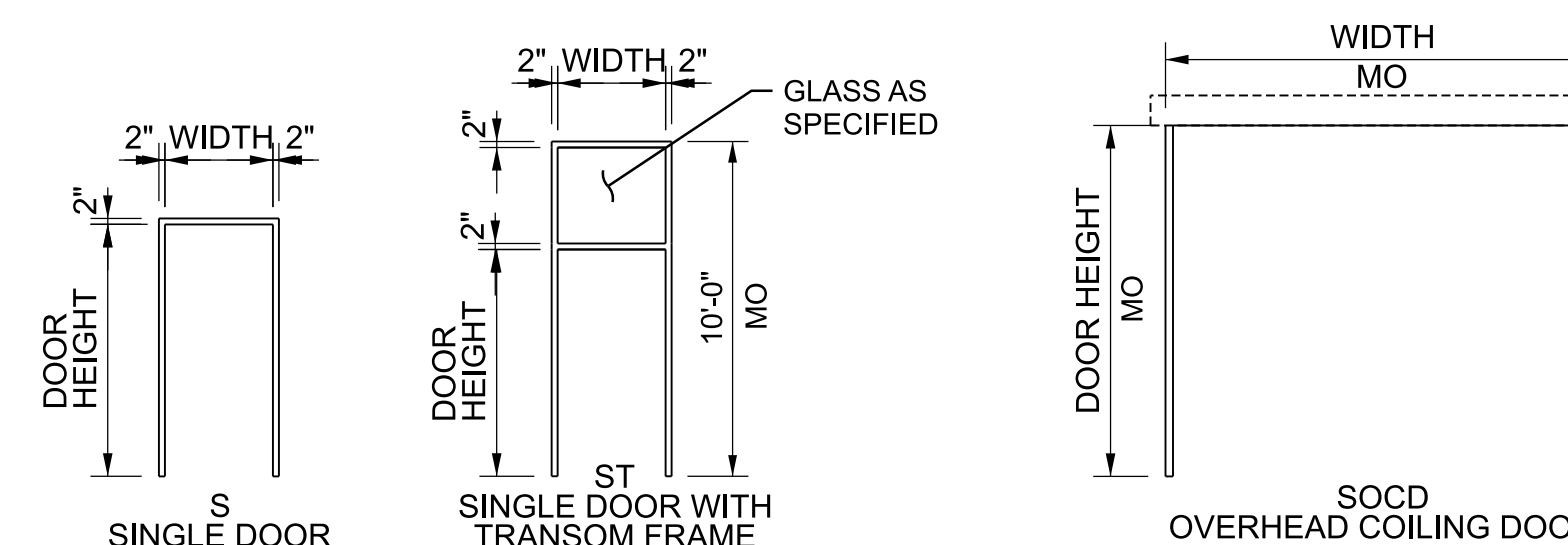
**NOTES:**

- NO. 1. SEE BELOW FOR DOOR AND FRAME TYPES.
- NO. 2. FOR DOOR DETAILS SEE STANDARD DETAILS.
- NO. 3. COLOR AS SPECIFIED OR AS SELECTED.
- NO. 4. NUMBERS IN FINISH COLUMN REFER TO PAINT SYSTEMS IN SPECIFICATION SECTION 09 90 00.

### DOOR TYPES



### FRAME TYPES



### INTERIOR FINISH SCHEDULE

ROOM NUMBER	ROOM NAME	FLOOR (NOTE 6)		BASE & WAINSCOT			TYPICAL WALL			CEILING		MISCELLANEOUS			
		MATL	FINISH (NOTE 1)	HEIGHT	MATL	FINISH (NOTE 1)	WALLS	MATL	FINISH (NOTE 1)	HEIGHT	MATL	FINISH (NOTE 1)	ITEM	MATL	FINISH (NOTE 1)
SUBSTATION NO. 2															
50-101	ENTRY	EXST CONC	----	----	----	----	EXST CONC/CMU	22	10.8' +/-	EXST CONC	22				
50-102	CONTROL ROOM	EXST CONC	----	----	----	----	EXST CONC/CMU	22	12.8' +/-	EXST CONC	22				
50-103	SUBSTATION 2	EXST CONC	----	----	----	----	EXST CONC/CMU	22	12.8' +/-	EXST CONC	22				
PROCESS AIR FACILITY															
55-101	PROCESS AIR COMPRESSOR ROOM	CONC	SEALER	----	----	----	CMU	22	21.3' +/-	EXP	10/4				
55-102	SOUTH PLENUM	CONC	SEALER	----	----	----	CMU	22	10'-0"	CONC	22				
55-103	NORTH PLENUM	CONC	SEALER	----	----	----	CMU	22	10'-0"	CONC	22				
55-104	ELECTRICAL ROOM	CONC	SEALER	----	----	----	CMU	22	21.3' +/-	EXP	10/4				
55-105	CONTROL ROOM	CONC	SEALER	----	----	----	CMU	22	10'-0"	ATC	FCTY				

**ABBREVIATIONS:**

ATC	ACOUSTICAL TILE CEILING
CMU	CONCRETE MASONRY UNITS
CONC	CONCRETE
EXP	EXPOSED STRUCTURE
EXST	EXISTING
FCTY	FACTORY
MATL	MATERIAL

**NOTES:**

- NUMBERS IN FINISH COLUMN REFER TO PAINT SYSTEMS IN SPECIFICATION SECTION 09 90 00.
- FINISH CLOSETS AND ALCOVES THE SAME AS THE SPACE INTO WHICH THEY OPEN.
- WALL SURFACES BEHIND CASEWORK AND OTHER BUILT-IN ITEMS NEED NOT BE PAINTED.
- FOR DOOR AND FRAME FINISHES SEE DOOR AND HARDWARE SCHEDULE.
- COLOR AS SPECIFIED OR SELECTED.
- CONCRETE EQUIPMENT PADS ARE TO BE PAINTED THE SAME FINISH AS THE FLOORS. SEE CONCRETE SECTION 03 30 00 FOR SEALER.

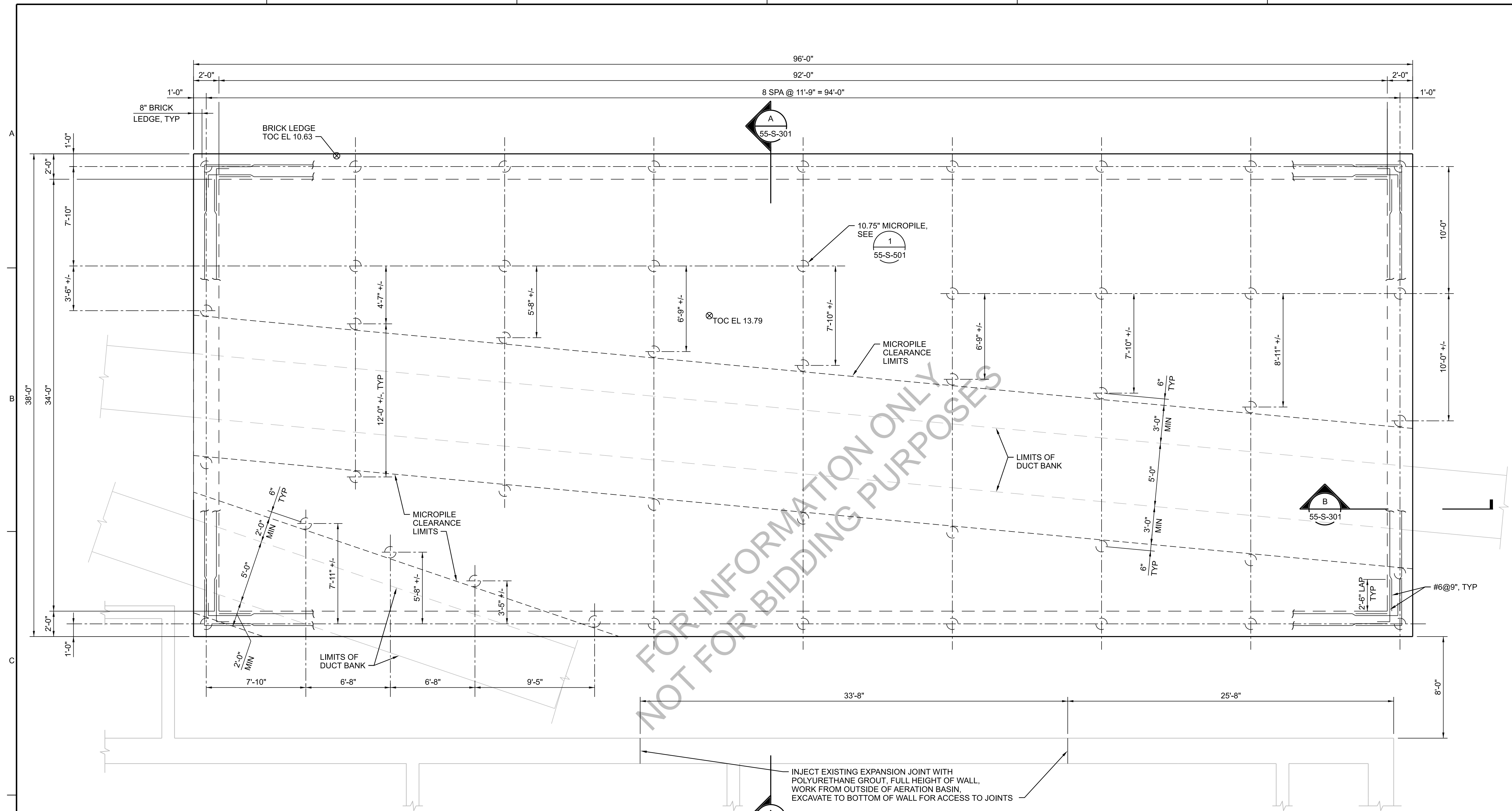
**Jacobs**

PROCESS AIR FACILITY  
ARCHITECTURAL  
SCHEDULES

PROCESS AIR COMPRESSOR SYSTEM  
FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION  
ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

NTS	
VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING.	
DATE	JULY 2023
PROJ	E2X90000
DWG	55-A-601
SHEET	60 of 96

BID READY



**FOUNDATION PLAN**  
1/4"=1'-0"

INJECT EXISTING EXPANSION JOINT WITH POLYURETHANE GROUT, FULL HEIGHT OF WALL, WORK FROM OUTSIDE OF AERATION BASIN, EXCAVATE TO BOTTOM OF WALL FOR ACCESS TO JOINTS

**GENERAL SHEET NOTES**

- DUCT BANKS HORIZONTAL LIMITS SHOWN ARE APPROXIMATE. IN ACCORDANCE WITH SPECIFICATION SECTION 31 23 16 - 4, EXCAVATION, IN ORDER TO IDENTIFY THE ACTUAL ELEVATION AND HORIZONTAL LIMITS OF THE DUCT BANKS, EXCAVATE ONE TEST PIT AT EACH LOCATION OF DUCT BANKS PENETRATING THE BUILDING FOUNDATION WALL. TOTAL OF FOUR TEST PITS ARE ANTICIPATED.
- J-1 AND J-1A BORING LOCATIONS CONTAIN STEEL PIECES (DRILLING RODS AND CASINGS) THAT WERE ABANDONED IN PLACE DURING THE JUNE 2021 GEOTECHNICAL INVESTIGATION PROGRAM. REFER TO DRAWING 05-SC-201 FOR THE BORING LOCATIONS.
- FOR REPAIR OF THE EXPANSION JOINTS, PERFORM EXCAVATION IN ACCORDANCE WITH SPECIFICATION SECTION 31 23 16 - 4, EXCAVATION, AND BACKFILL USING GRANULAR FILL IN ACCORDANCE WITH SPECIFICATION SECTION 31 23 23 - 6, FILL AND BACKFILL. THE EXCAVATION LIMITS SHALL BE COORDINATED WITH THE LIMITS OF DUCT BANK SHOWN.

**Jacobs**

PROCESS AIR FACILITY  
**STRUCTURAL FOUNDATION PLAN**

NO.	DATE	DR	CHK	BY

DR LANGE  
DL MICHALEK  
J. CRIVELLO  
DL LYNCH

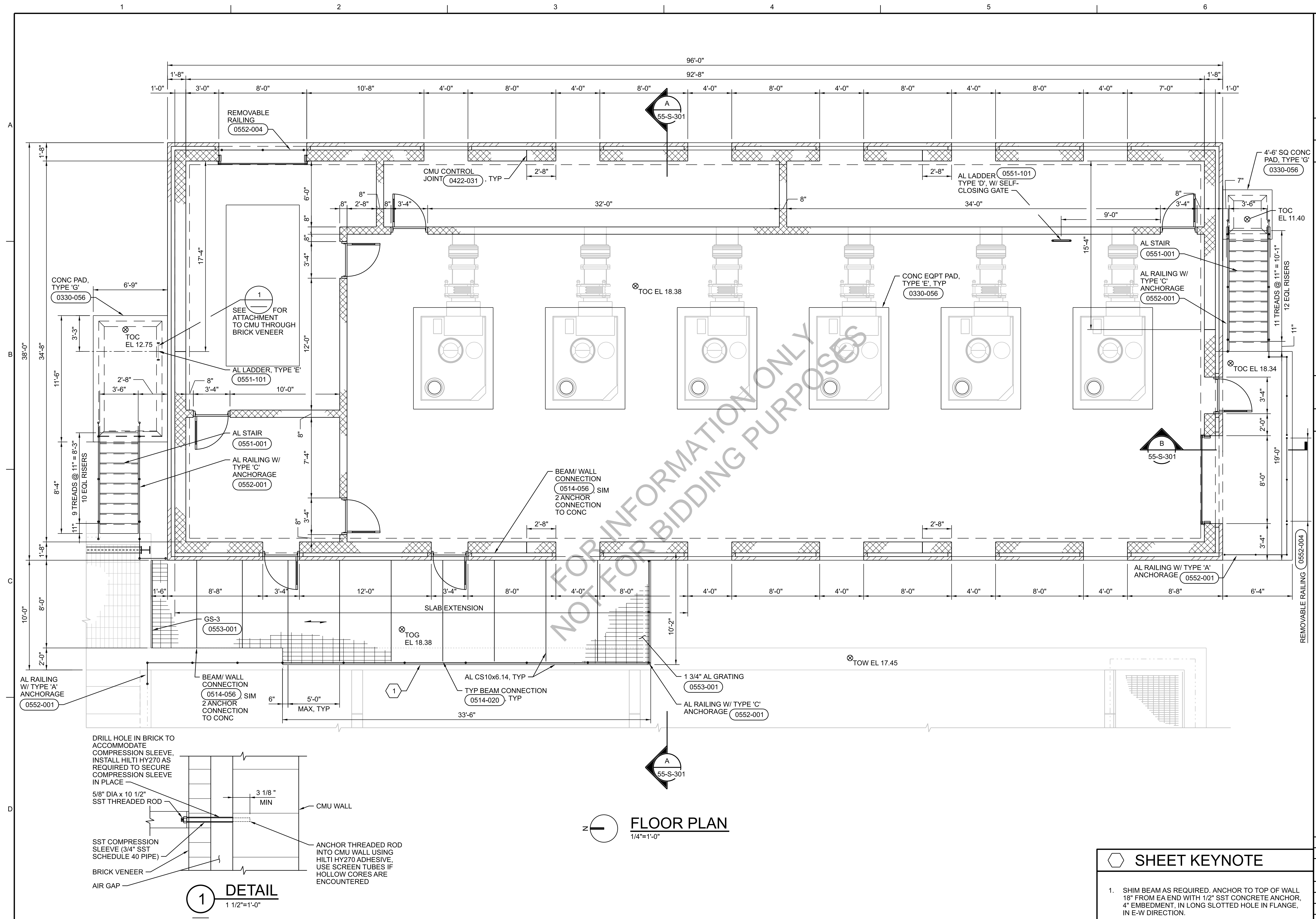
PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

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1/4"=1'-0"  
VERIFY SCALE  
BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE	JULY 2023
PROJ	E2X90000
DWG	55-S-201
SHEET	61 of 96

**BID READY**



**FLOOR PLAN**  
1/4"=1'-0"

**1**  
1 1/2"=1'-0"

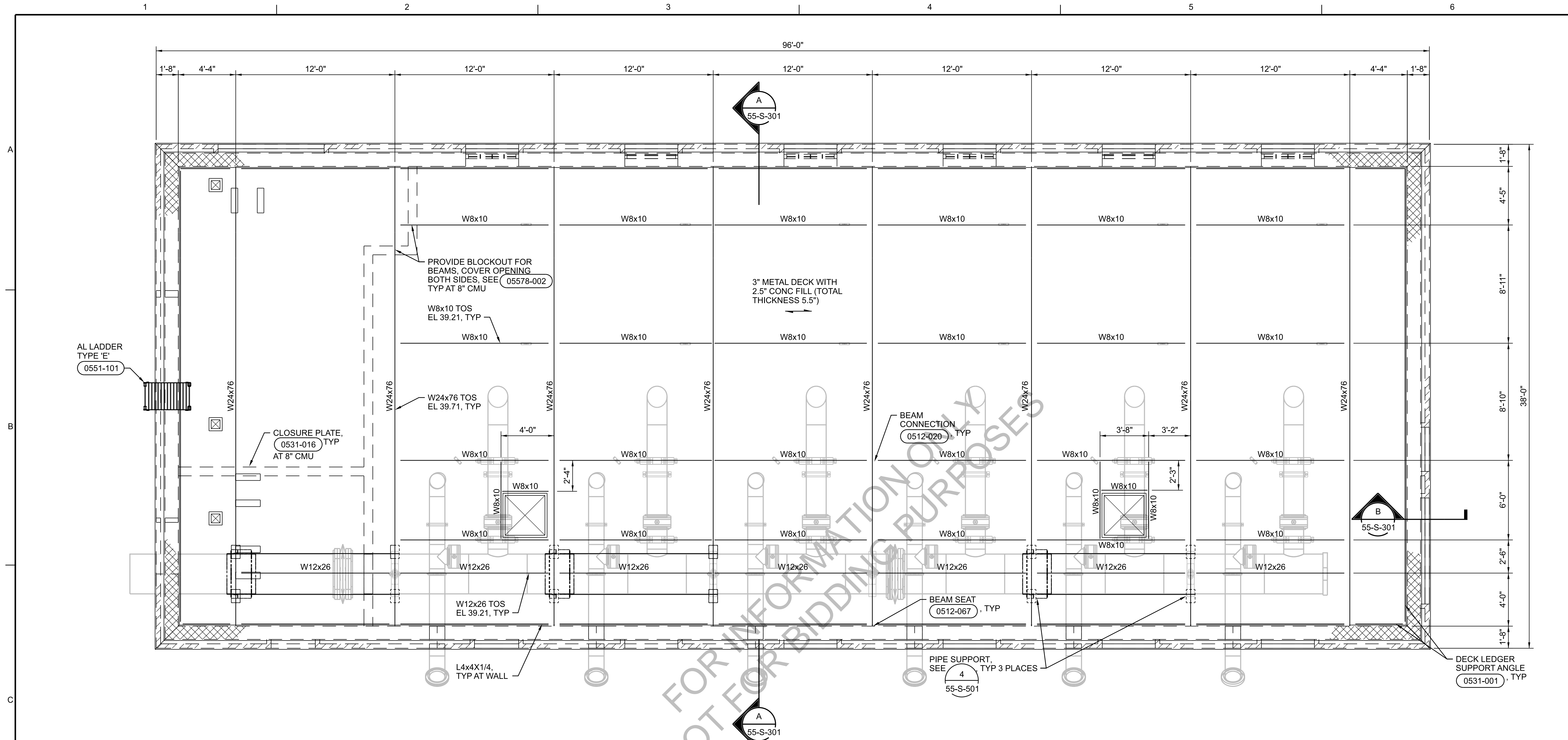
SHEET KEYNOTE	
1.	SHIM BEAM AS REQUIRED. ANCHOR TO TOP OF WALL 18" FROM EA END WITH 1/2" SST CONCRETE ANCHOR, 4" EMBEDMENT, IN LONG SLOTTED HOLE IN FLANGE, IN E-W DIRECTION.

NO.	DATE	DR	CHK	REVISION	BY	APVD

PROCESS AIR COMPRESSOR SYSTEM  
FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION  
ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

<b>Jacobs</b>	
PROCESS AIR FACILITY STRUCTURAL FLOOR PLAN AND DETAIL	
DATE	JULY 2023
PROJ	E2X90000
DWG	55-S-202
SHEET	62 of 96

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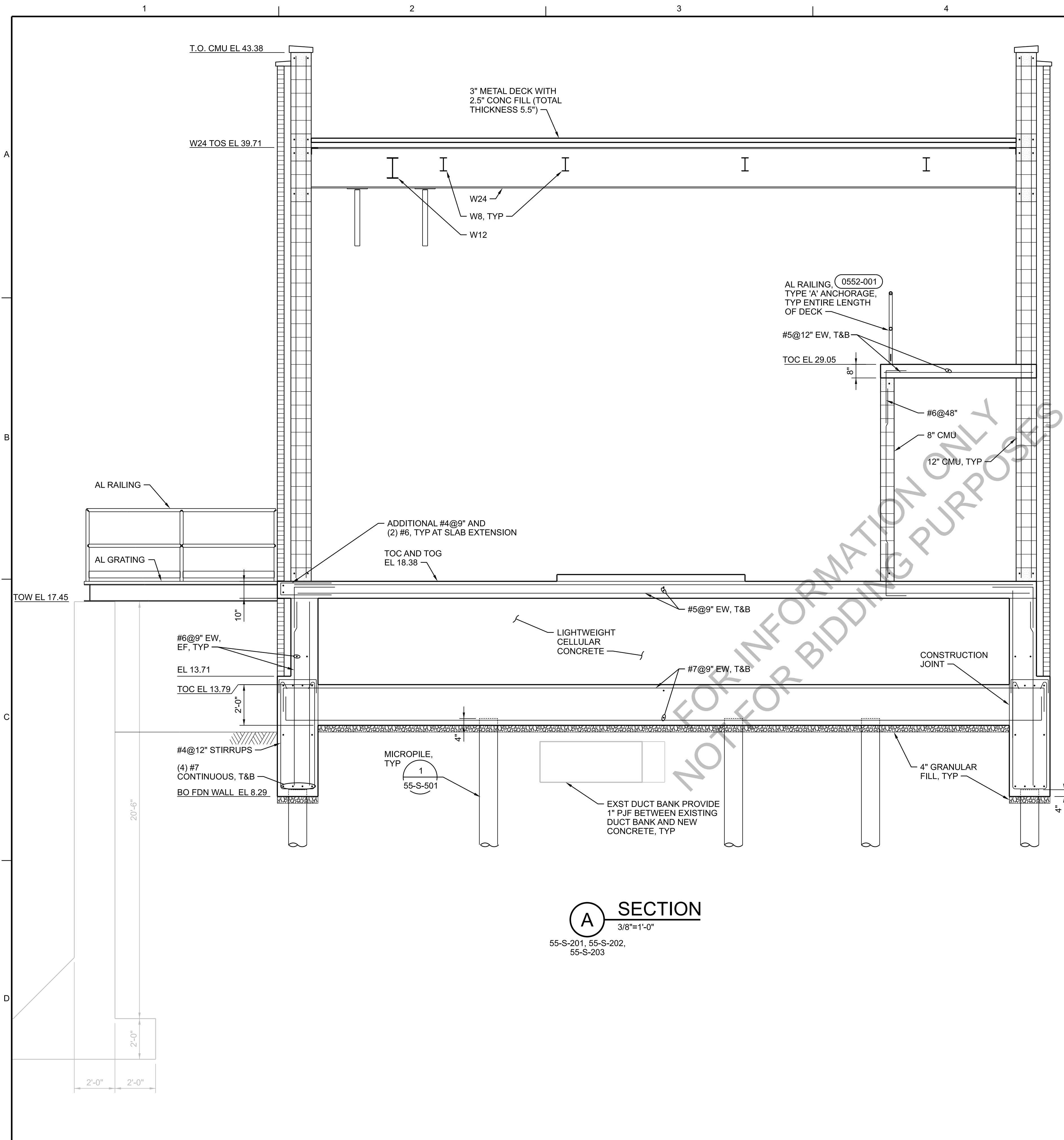
**ROOF FRAMING PLAN**  
 1/4"=1'-0"

REVISION			CHK	APVD

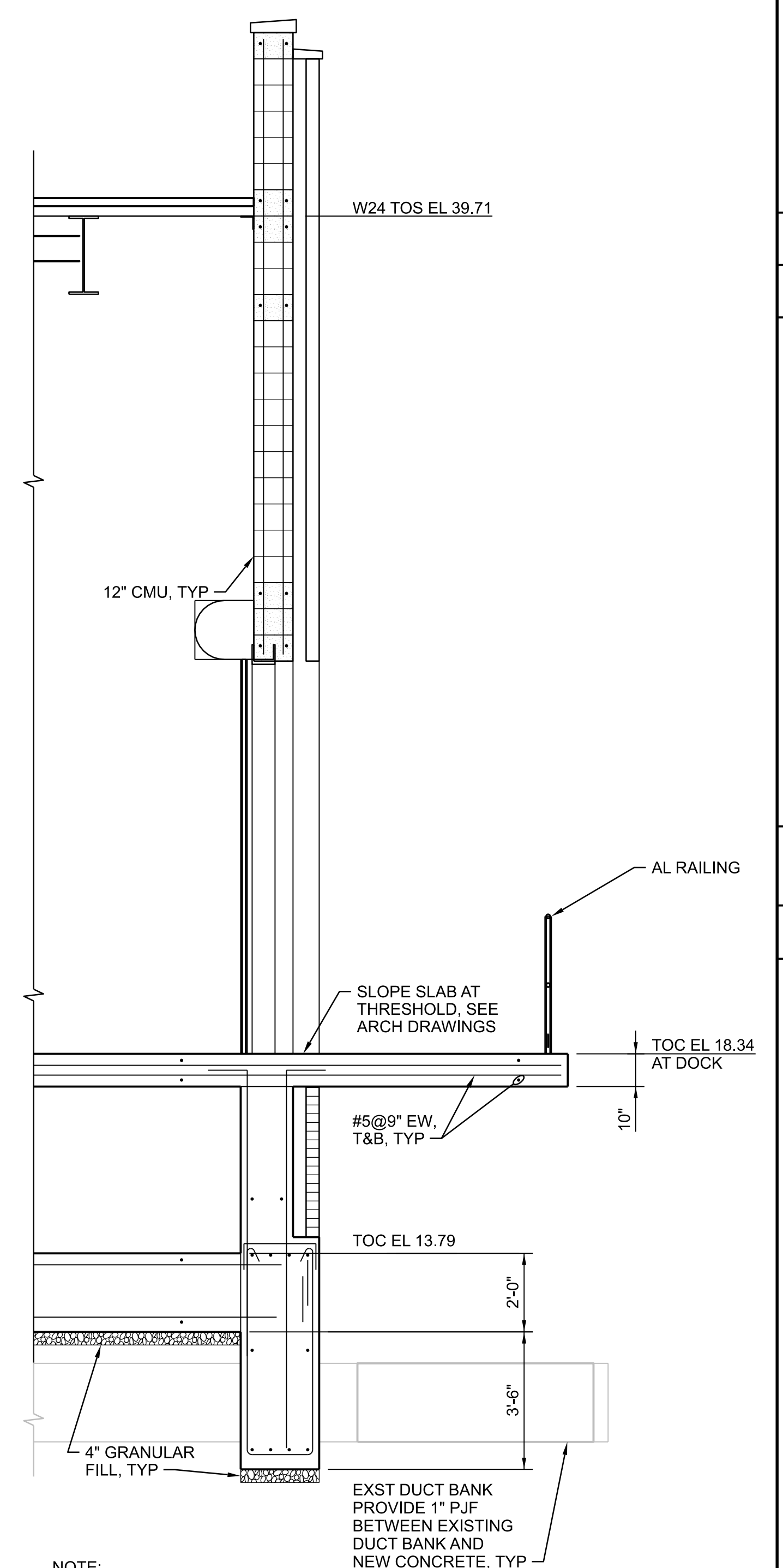
DR LANGE  
 DSGN  
 NO. DATE  
 DR LANGE  
 J. CRIVELLO  
 APVD  
 DL MICHALEK  
 CHK  
 DL LYNCH  
 APVD

<p style="text-align: center;"> <b>Jacobs</b>          PROCESS AIR FACILITY  <b>STRUCTURAL ROOF FRAMING PLAN AND DETAIL</b> </p>	<p style="text-align: center;">         PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL          EAST SHORE WATER POLLUTION ABATEMENT FACILITY          Greater New Haven Water Pollution Control Authority          New Haven, CT       </p>
1/4"=1'-0" VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING.	
DATE JULY 2023 PROJ E2X90000 DWG 55-S-203 SHEET 63 of 96	

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**A SECTION**  
3/8"=1'-0"  
55-S-201, 55-S-202,  
55-S-203



**B SECTION**  
3/8"=1'-0"  
55-S-201, 55-S-202,  
55-S-203

**GENERAL SHEET NOTES**

- ACCORDANCE WITH SPECIFICATION SECTION 31 23 23 - 5, FILL AND BACKFILL, A MINIMUM 4-INCH LAYER OF COMPACTED GRANULAR FILL SHALL BE PLACED UNDER STRUCTURAL CONCRETE OF BUILDING FOUNDATION SLAB AND FOUNDATION WALLS.
- DUCT BANKS VERTICAL AND HORIZONTAL LIMITS SHOWN ARE APPROXIMATE. IN ACCORDANCE WITH SPECIFICATION SECTION 31 23 16 - 4, EXCAVATION AND HORIZONTAL LIMITS OF THE DUCT BANKS, EXCAVATE ONE TEST PIT AT EACH LOCATION OF DUCT BANKS PENETRATING THE BUILDING FOUNDATION WALL. A TOTAL OF FOUR TEST PITS ARE ANTICIPATED.
- REMOVE AND DISPOSE OF ALL EXCAVATED MATERIAL IN ACCORDANCE WITH SPECIFICATION SECTION 02 61 00, REMOVAL AND DISPOSAL OF CONTAMINATED SOIL.

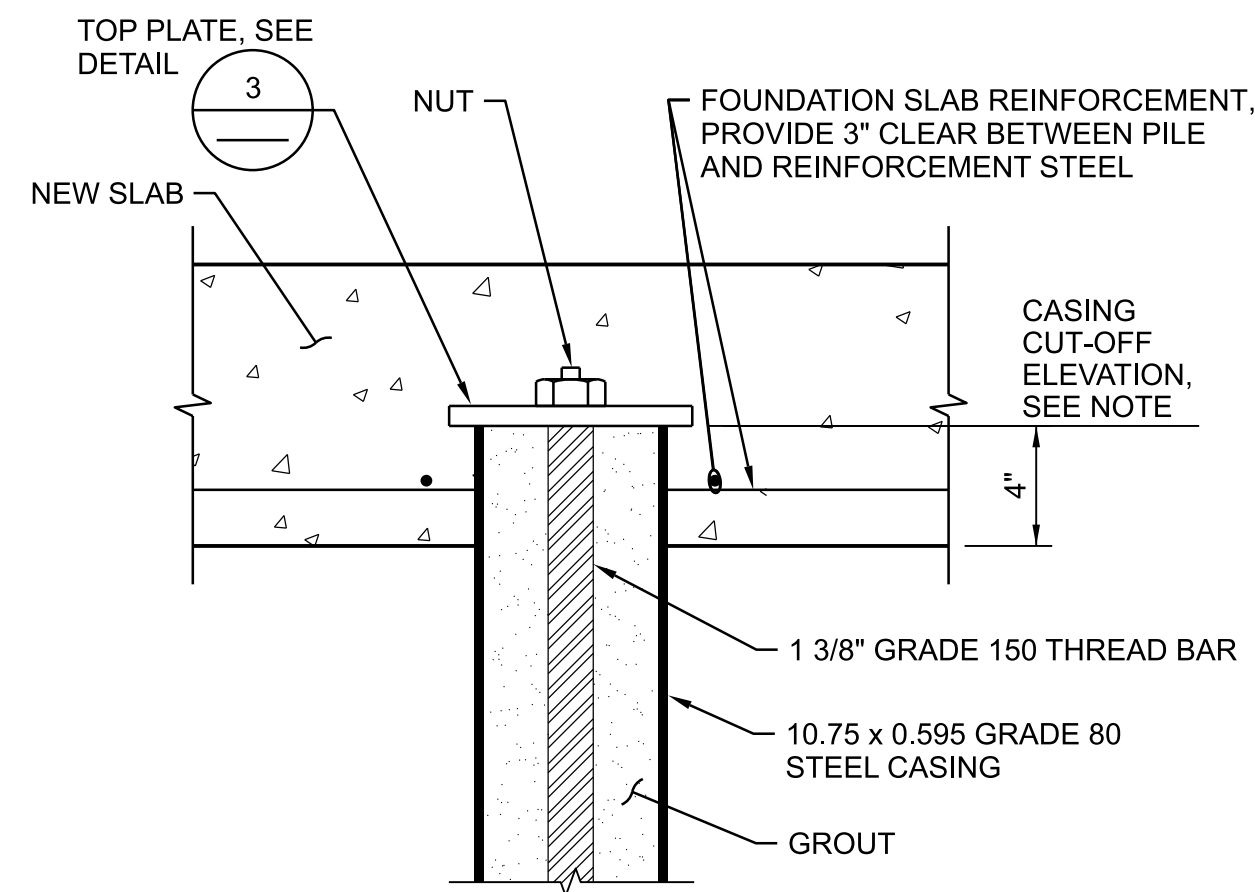
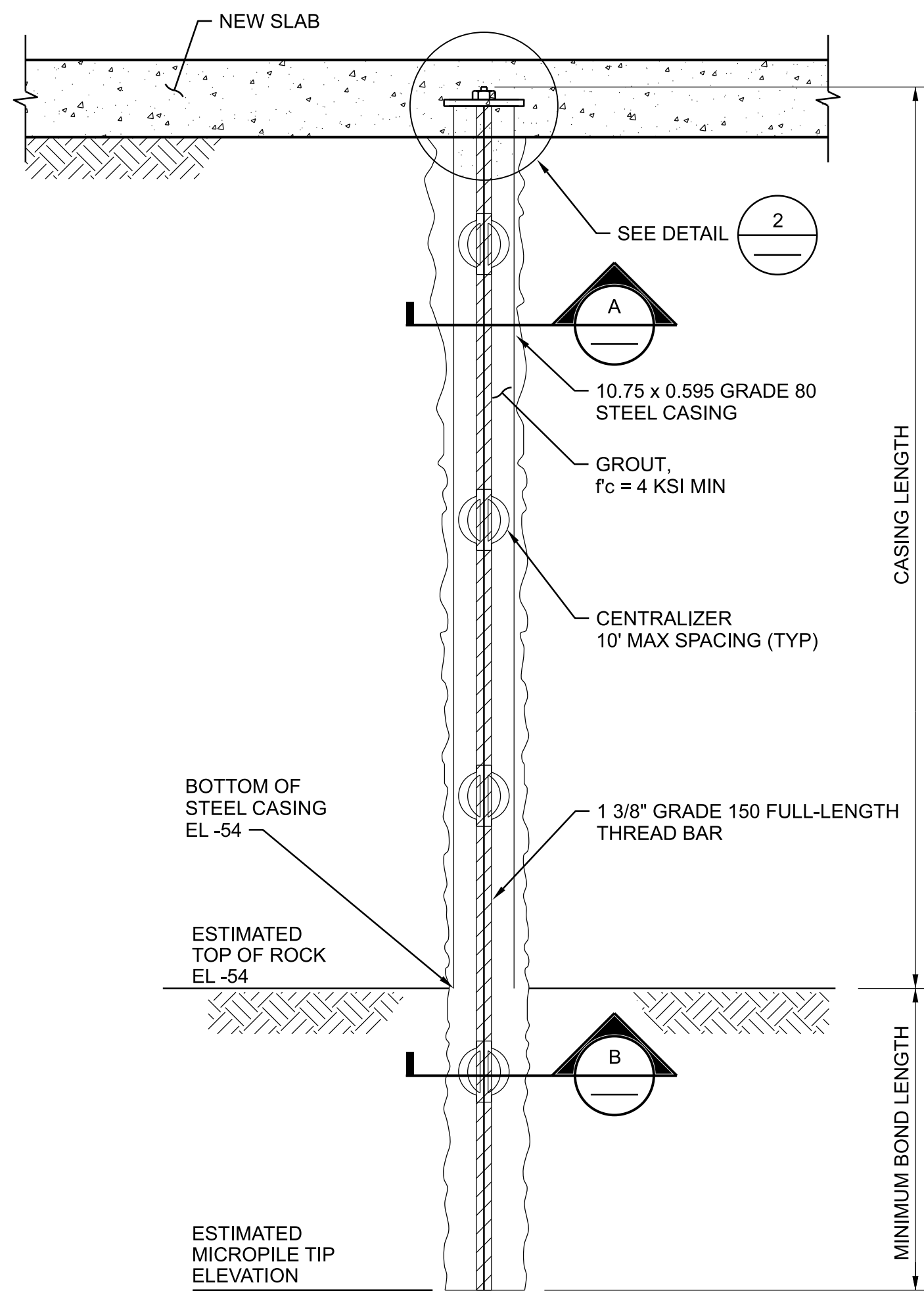
PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL		REVISION		APVD	
EAST SHORE WATER POLLUTION ABATEMENT FACILITY		CHK		BY	
Greater New Haven Water Pollution Control Authority New Haven, CT		DR		DL LYNCH	
PROCESS AIR FACILITY STRUCTURAL SECTIONS		NO. DATE		J. CRIVELLO	
3/8"=1'-0"		DR LANGE		DL MICHALEK	
VERIFY SCALE		DGN		CHK	
BAR IS ONE INCH ON ORIGINAL DRAWING.		NO. DATE		APVD	
DATE JULY 2023		NO. DATE		BY	
PROJ E2X90000		NO. DATE		DL LYNCH	
DWG 55-S-301		NO. DATE		APVD	
SHEET 64 of 96		NO. DATE		BY	

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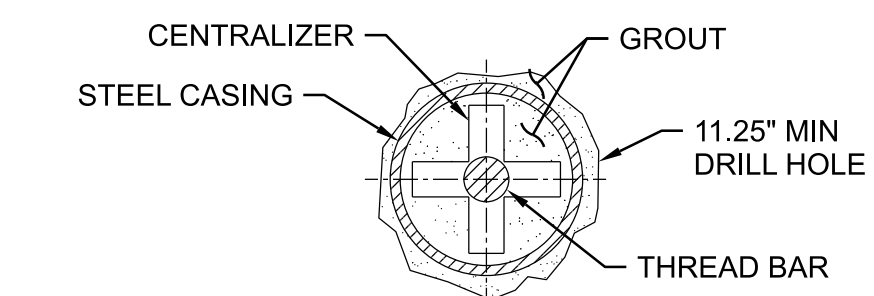
**GENERAL SHEET NOTES**

- MICROPILES SHALL BE INSTALLED IN ACCORDANCE WITH SPECIFICATION SECTION 31 43 00, MICROPILES.
- IF ROCK IS ENCOUNTERED AT SHALLOW DEPTHS, INSTALL MICROPILES WITH A MINIMUM BOND LENGTH IN ROCK OF 10 FEET.

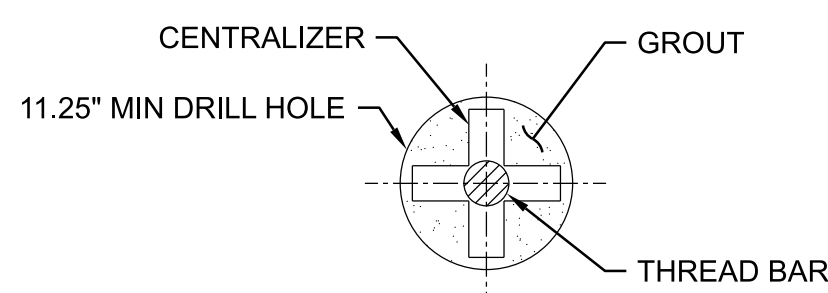


NOTE:  
INSTALLATION TOLERANCE FOR CASING CUT-OFF ELEVATION IS ±1 INCH

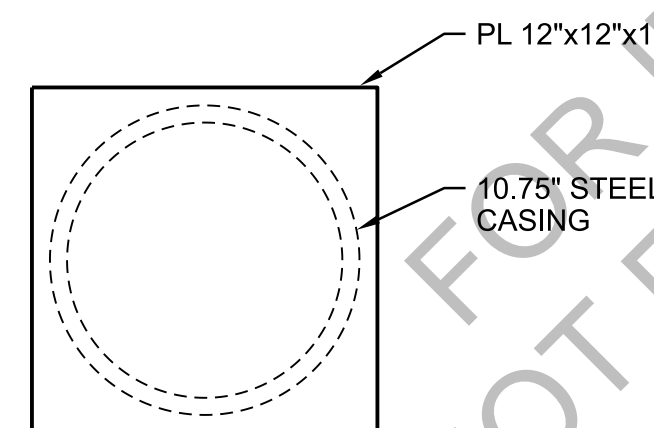
**2** DETAIL  
NTS



**A** SECTION  
NTS



**B** SECTION  
NTS



NOTE:  
1. PLATE SHALL CONFORM TO ASTM A572 GRADE 50.

**PLAN**

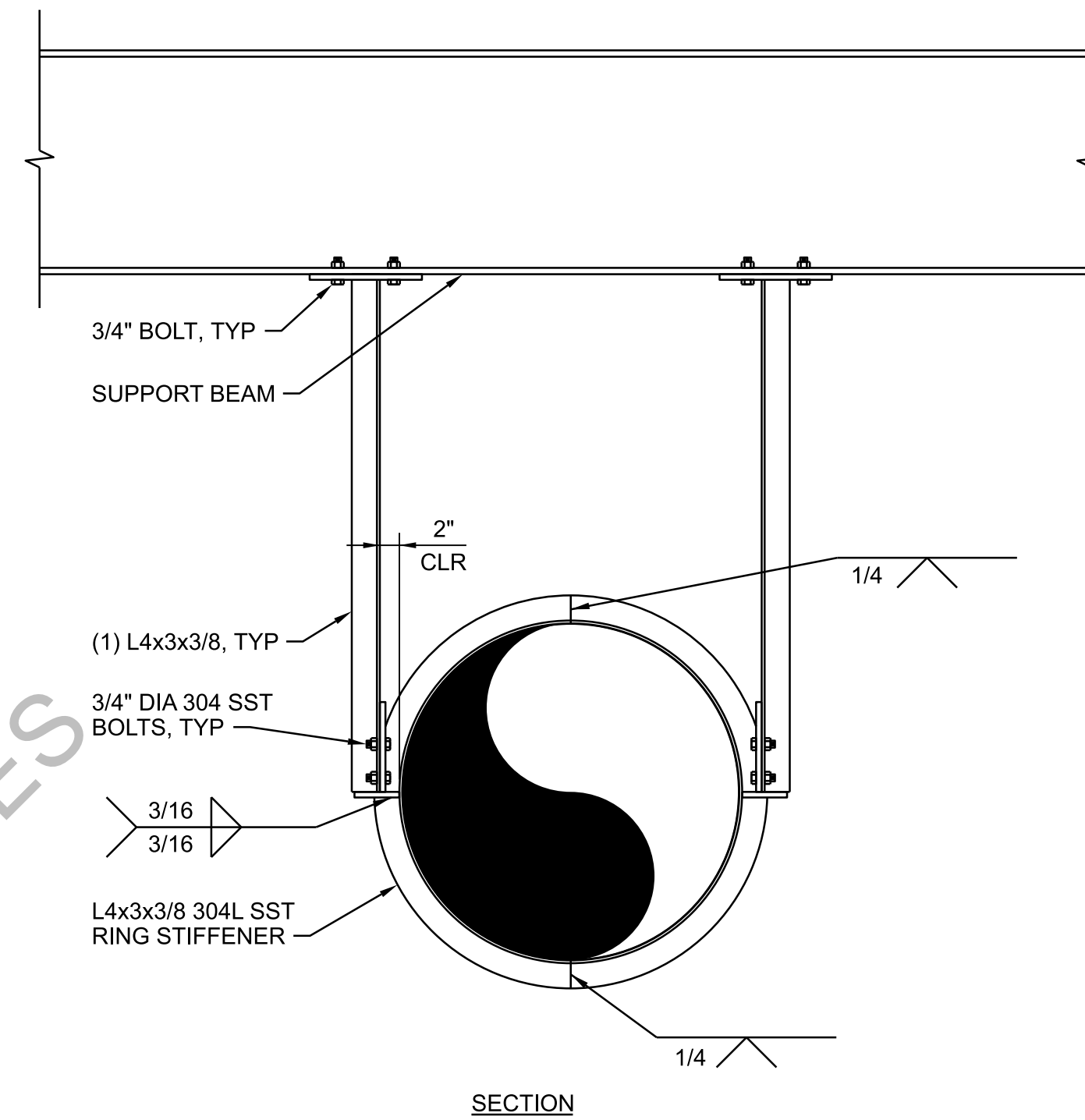
**3** DETAIL  
NTS

PILE LOCATION	PILE QUANTITY	ALLOWABLE LOADS			CASING CUT-OFF ELEVATION (FT)	MINIMUM BOND LENGTH IN ROCK (FT)	ESTIMATED MICROPILE TIP ELEVATION (FT)
		COMPRESSION (KIPS)	TENSION (KIPS)	LATERAL (KIPS)			
PROCESS AIR FACILITY BUILDING	46	206	0	12.4	8.6 AT PERIMETER 12.1 ELSEWHERE	10	-64

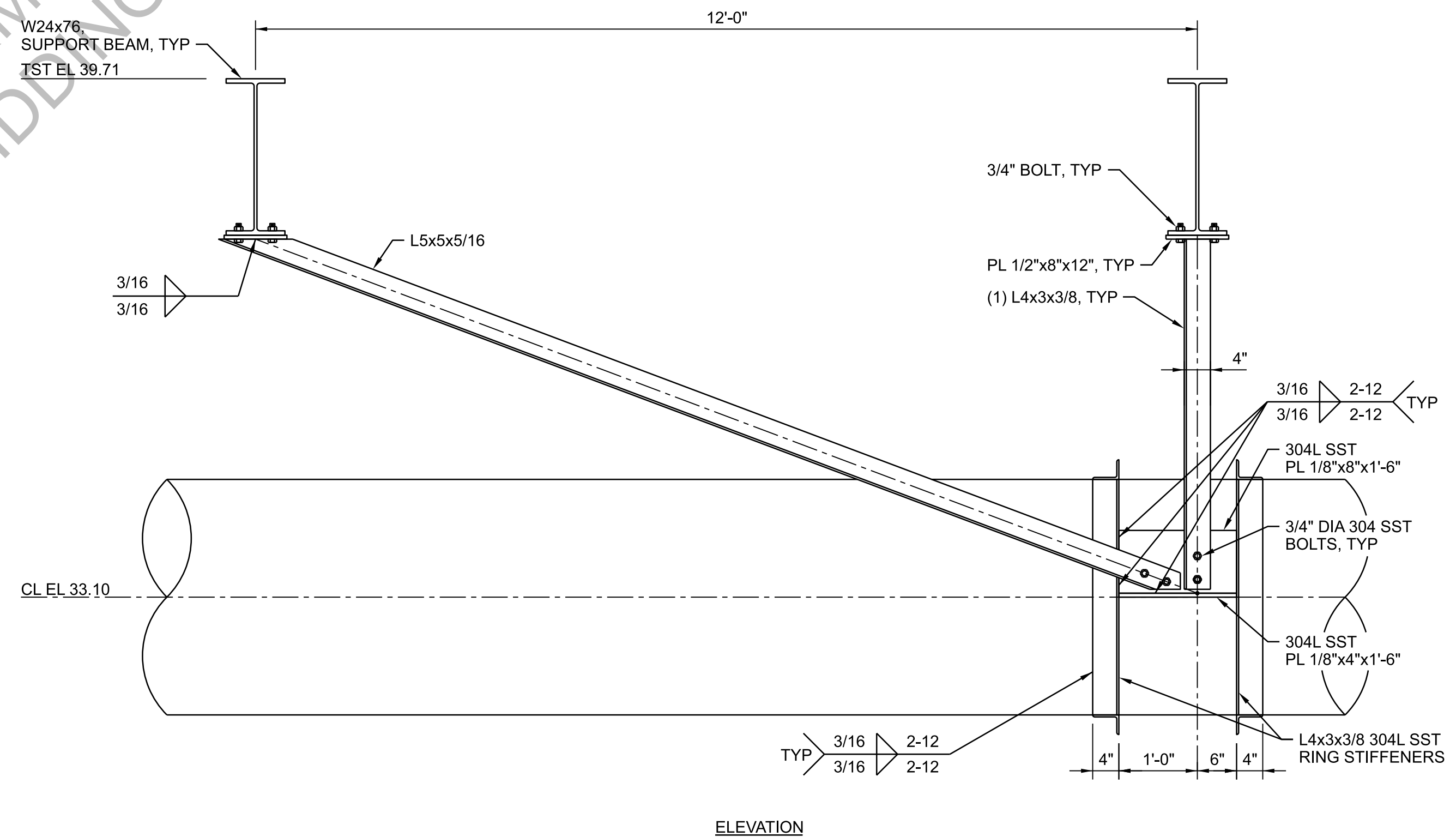
NOTE:  
ALLOWABLE LOADS SHOWN ARE SERVICE LEVEL LOADS BASED ON ALLOWABLE STRESS DESIGN. A FACTOR OF SAFETY FOR SOIL-GROUT BOND STRENGTH OF 2.5 HAS BEEN CONSIDERED IN THE DESIGN.

**1** DETAIL  
NTS

55-S-201



**SECTION**



**ELEVATION**

**4** DETAIL  
3/4"=1'-0"

55-S-203

**Jacobs**  
PROCESS AIR FACILITY  
STRUCTURAL  
DETAILS

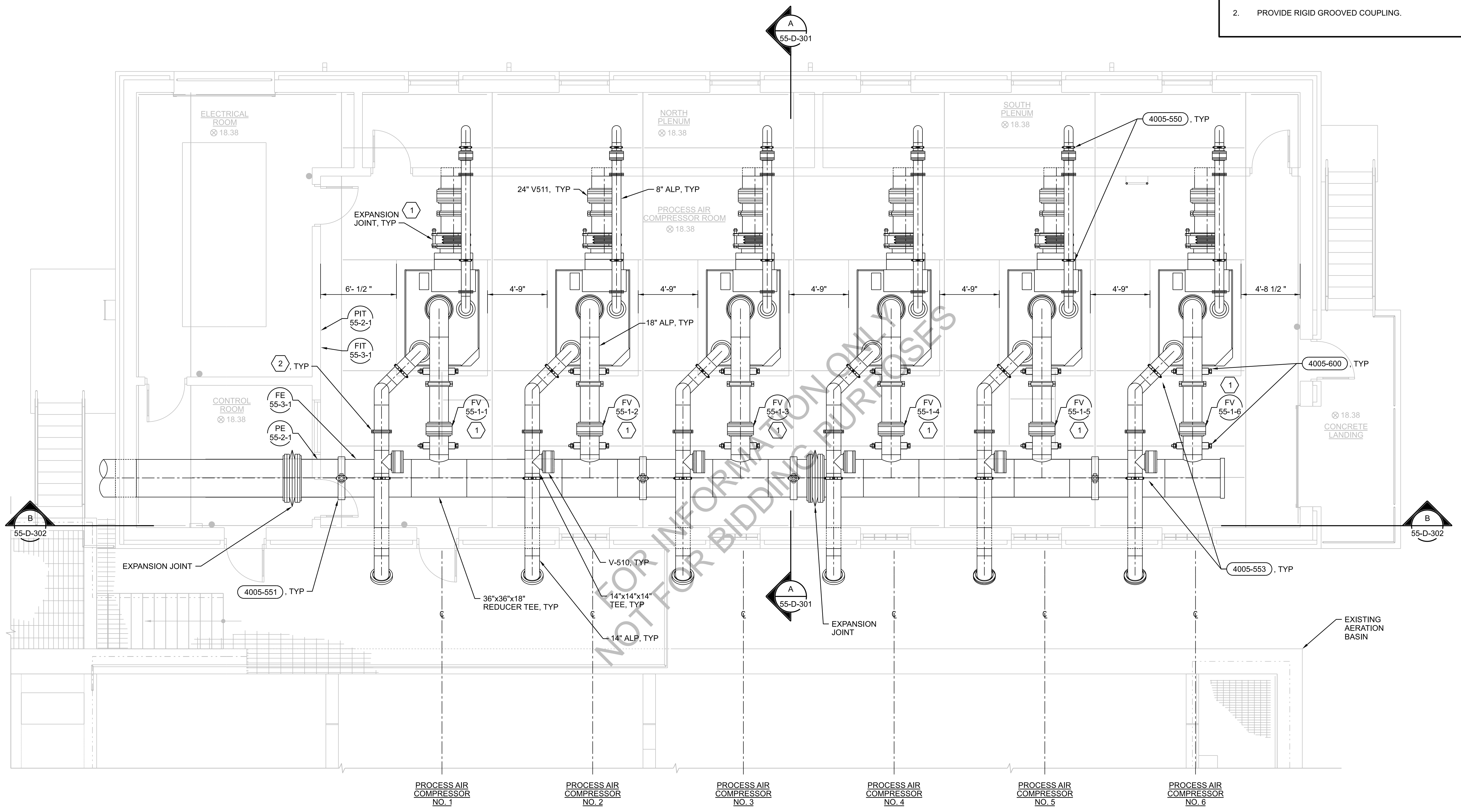
PROCESS AIR COMPRESSOR SYSTEM  
FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION  
ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

DATE	JULY 2023
PROJ	E2X90000
DWG	55-S-501
SHEET	65 of 96

BID READY

### SHEET KEYNOTES

- 1. PROVIDED BY PAC MANUFACTURER.
- 2. PROVIDE RIGID GROOVED COUPLING.



**FLOOR PLAN**  
1/4"=1'-0"

## Jacobs

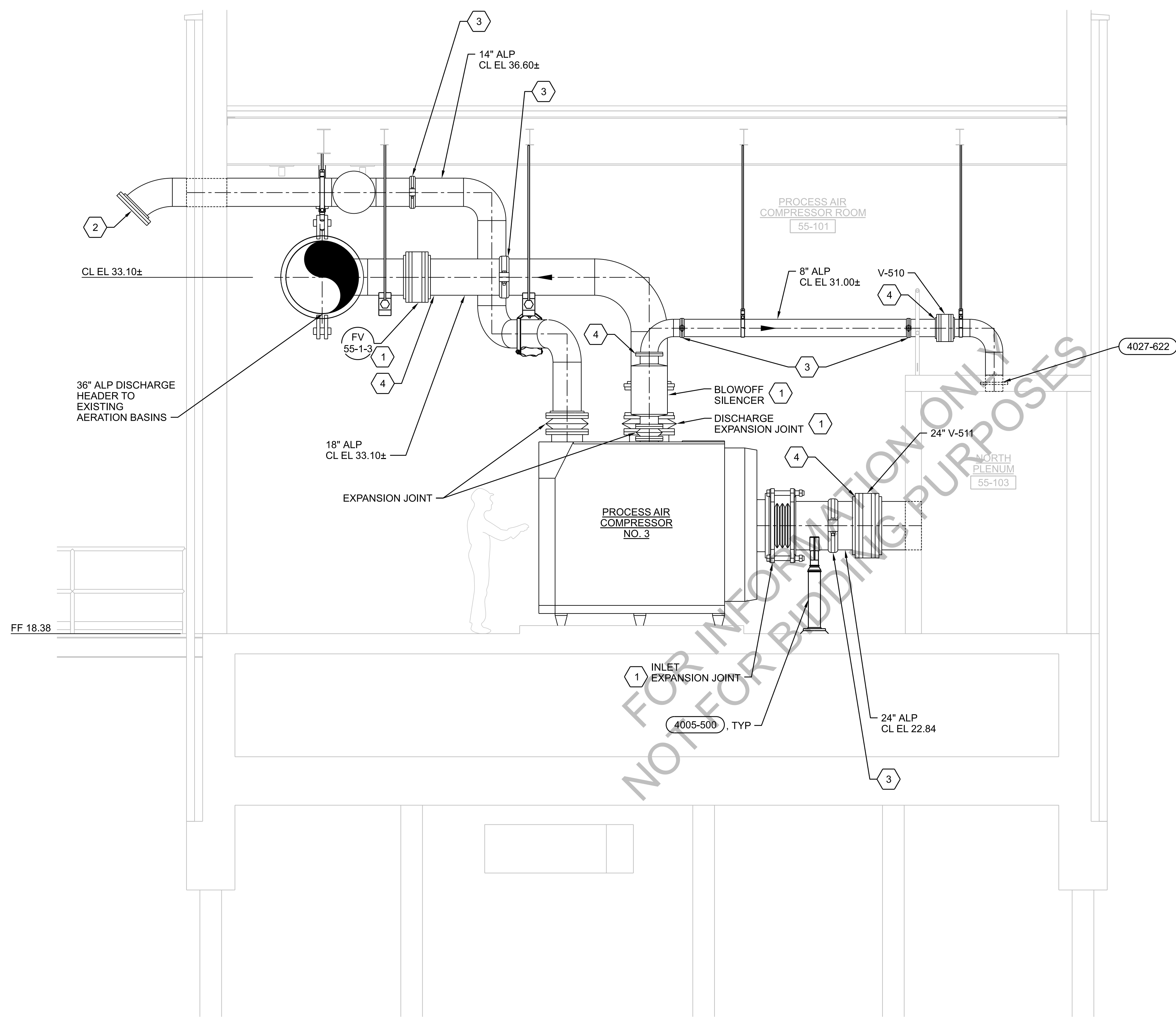
PROCESS AIR FACILITY  
**PROCESS MECHANICAL  
FLOOR PLAN**

PROCESS AIR COMPRESSOR SYSTEM  
FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION  
ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

NO.	DATE	DR	REVISION	BY	APVD


1/4"=1'-0"	
VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING.	
DATE	JULY 2023
PROJ	E2X90000
DWG	55-D-201
SHEET	66 of 96

SHEET KEYNOTES	
1.	PROVIDED BY PAC MANUFACTURER.
2.	PROVIDE 316 SS BUG SCREEN.
3.	PROVIDE RIGID GROOVED COUPLING.
4.	PROVIDE GROOVED FLANGE ADAPTOR AT THIS LOCATION FOR DISMANTLING.



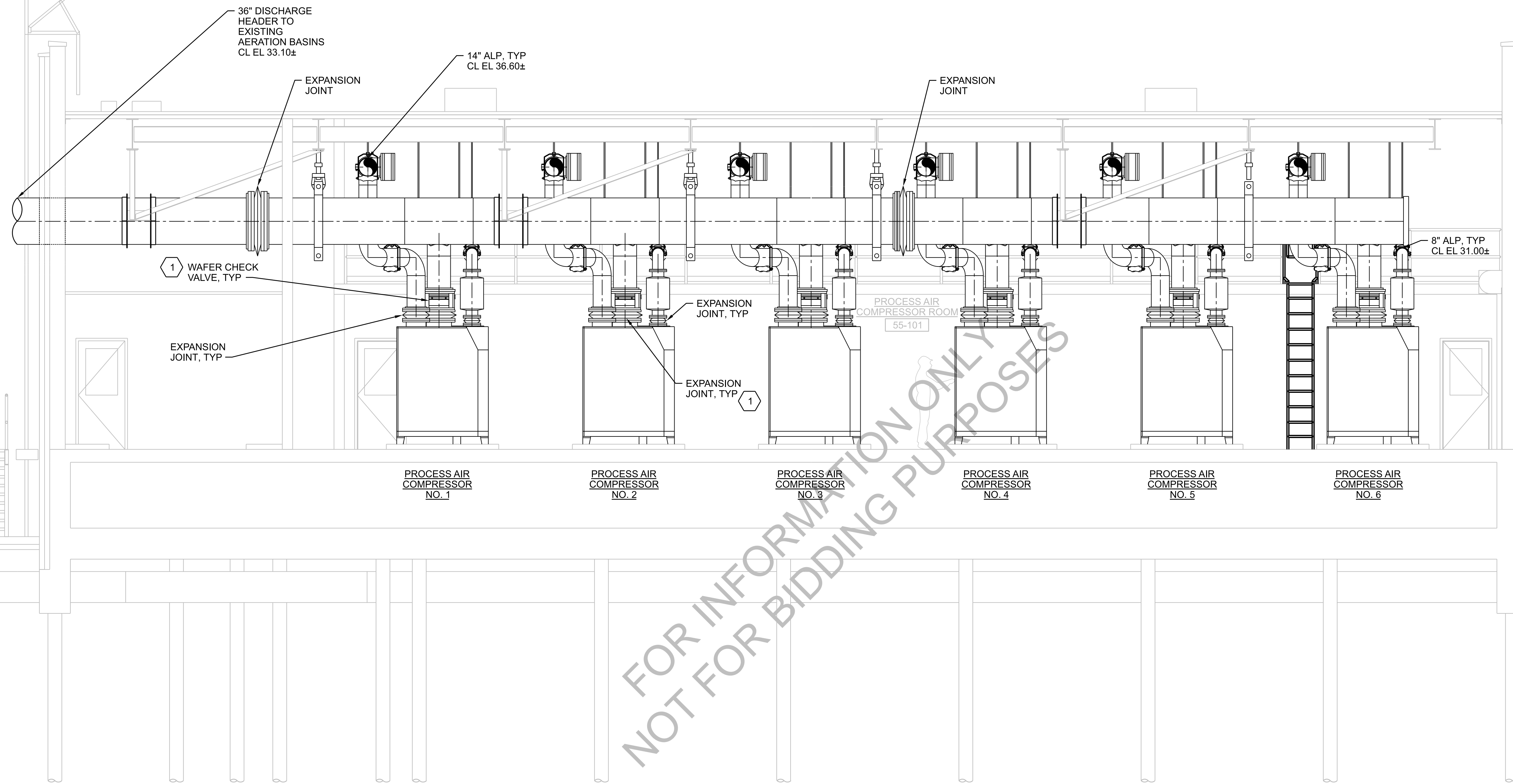
**A** SECTION  
3/8"=1'-0"  
55-D-201

<p>PROCESS AIR FACILITY PROCESS MECHANICAL SECTION A</p>	PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL EAST SHORE WATER POLLUTION ABATEMENT FACILITY Greater New Haven Water Pollution Control Authority New Haven, CT	
	PROCESS AIR COMPRESSOR ROOM 55-101	NORTH PLENUM 55-103
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3/8"=1'-0" VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING.		
DATE	JULY 2023	
PROJ	E2X90000	
DWG	55-D-301	
SHEET	67 of 96	
K BAIRD DR Z GHASEMY APVD N JOHNSON BY		DL LYNCH

SHEET KEYNOTES

1. PROVIDED BY PAC MANUFACTURER.

A  
B  
C  
D



**(B)** SECTION  
1/4"=1'-0"  
55-D-201

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**Jacobs**

PROCESS AIR FACILITY  
PROCESS MECHANICAL  
SECTION B

PROCESS AIR COMPRESSOR SYSTEM  
FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION  
ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

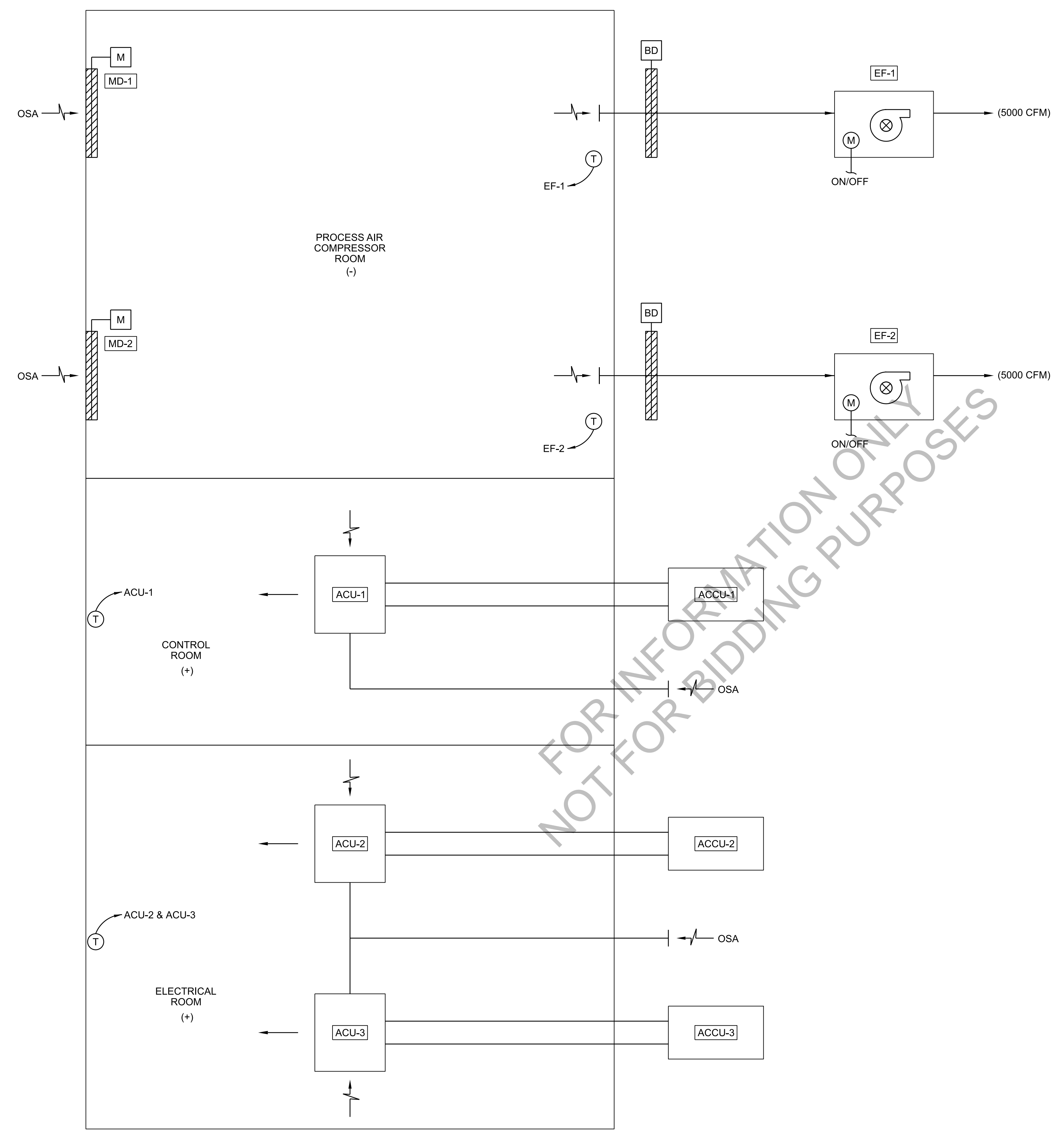
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VERIFY SCALE  
BAR IS ONE INCH ON  
ORIGINAL DRAWING.  
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DATE	JULY 2023
PROJ	E2X90000
DWG	55-D-302
SHEET	68 of 96

BID READY

NO.	DATE	DR	CHK	REVISION
		K BAIRD	Z GHASEMY	
				BY APVD
				DL LYNCH

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**AIR FLOW SCHEMATIC**

**SEQUENCE OF OPERATION:**

**CONTROL ROOM**

ACU-1 AND ACCU-1

**OPERATING SETPOINTS:**

SPACE HEATING TEMPERATURE: INITIALLY 68 DEGREES F +/- 2 DEGREES F (ADJUSTABLE)  
 SPACE COOLING TEMPERATURE: INITIALLY 75 DEGREES F +/- 2 DEGREES F (ADJUSTABLE)

**COOLING DEMAND:**

WHENEVER THE ROOM TEMPERATURE IS ABOVE 75 DEGREES F THE WALL MOUNTED THERMOSTAT/CONTROLLER WILL LOAD OR UNLOAD THE OUTDOOR CONDENSING UNIT ACCU-1 AND TURN ON INDOOR UNIT ACU-1 TO MAINTAIN SPACE COOLING SETPOINT.

**HEATING DEMAND:**

WHENEVER THE ROOM TEMPERATURE IS BELOW 68 DEGREES F THE WALL MOUNTED CONTROLLER WILL LOAD OR UNLOAD THE HEAT PUMP OUTDOOR CONDENSING UNIT ACCU-1 AND TURN ON INDOOR UNIT ACU-1 TO MAINTAIN SPACE HEATING SETPOINT.

**ELECTRICAL ROOM**

ACU-2 AND ACU-3  
 ACCU-2 AND ACCU-3

**OPERATING SETPOINTS:**

SPACE HEATING TEMPERATURE: INITIALLY 55 DEGREES F +/- 2 DEGREES F (ADJUSTABLE)  
 SPACE COOLING TEMPERATURE: INITIALLY 80 DEGREES F +/- 2 DEGREES F (ADJUSTABLE)

**COOLING DEMAND:**

WHENEVER THE ROOM TEMPERATURE IS ABOVE 80 DEGREES F THE WALL MOUNTED THERMOSTAT/CONTROLLER WILL LOAD OR UNLOAD THE HEAT PUMP OUTDOOR CONDENSING UNIT ACCU-2 AND TURN ON INDOOR UNIT ACU-2 TO MAINTAIN SPACE COOLING SETPOINT. IF THE ROOM TEMPERATURE IS ABOVE 82 DEGREES F THE THERMOSTAT/CONTROLLER WILL LOAD OR UNLOAD THE OUTDOOR CONDENSING UNIT ACCU-3 AND TURN ON INDOOR HEAT PUMP UNIT ACU-3 TO MAINTAIN SPACE COOLING SETPOINT. PROVIDE LEAD/LAG SEQUENCING OF ACU-2, ACCU-2 AND ACU-3, ACCU-3 ON SEVEN-DAY INTERVALS.

**HEATING DEMAND:**

WHENEVER THE ROOM TEMPERATURE IS BELOW 55 DEGREES F, THE WALL MOUNTED CONTROLLER WILL LOAD OR UNLOAD THE HEAT PUMP OUTDOOR CONDENSING UNIT ACCU-2 OR ACCU-3 AND TURN ON INDOOR UNIT ACU-2 OR ACU-3 TO MAINTAIN SPACE HEATING SETPOINT. PROVIDE LEAD/LAG SEQUENCING OF ACU-2, ACCU-2 AND ACU-3, ACCU-3 ON SEVEN-DAY INTERVALS.

**COMPRESSOR ROOM**

EXHAUST FAN EF-1 AND EF-2  
 UNIT HEATER UH-1 AND UH-2  
 MOTORIZED DAMPER MD-1 AND MD-2

**OPERATING SETPOINTS:**

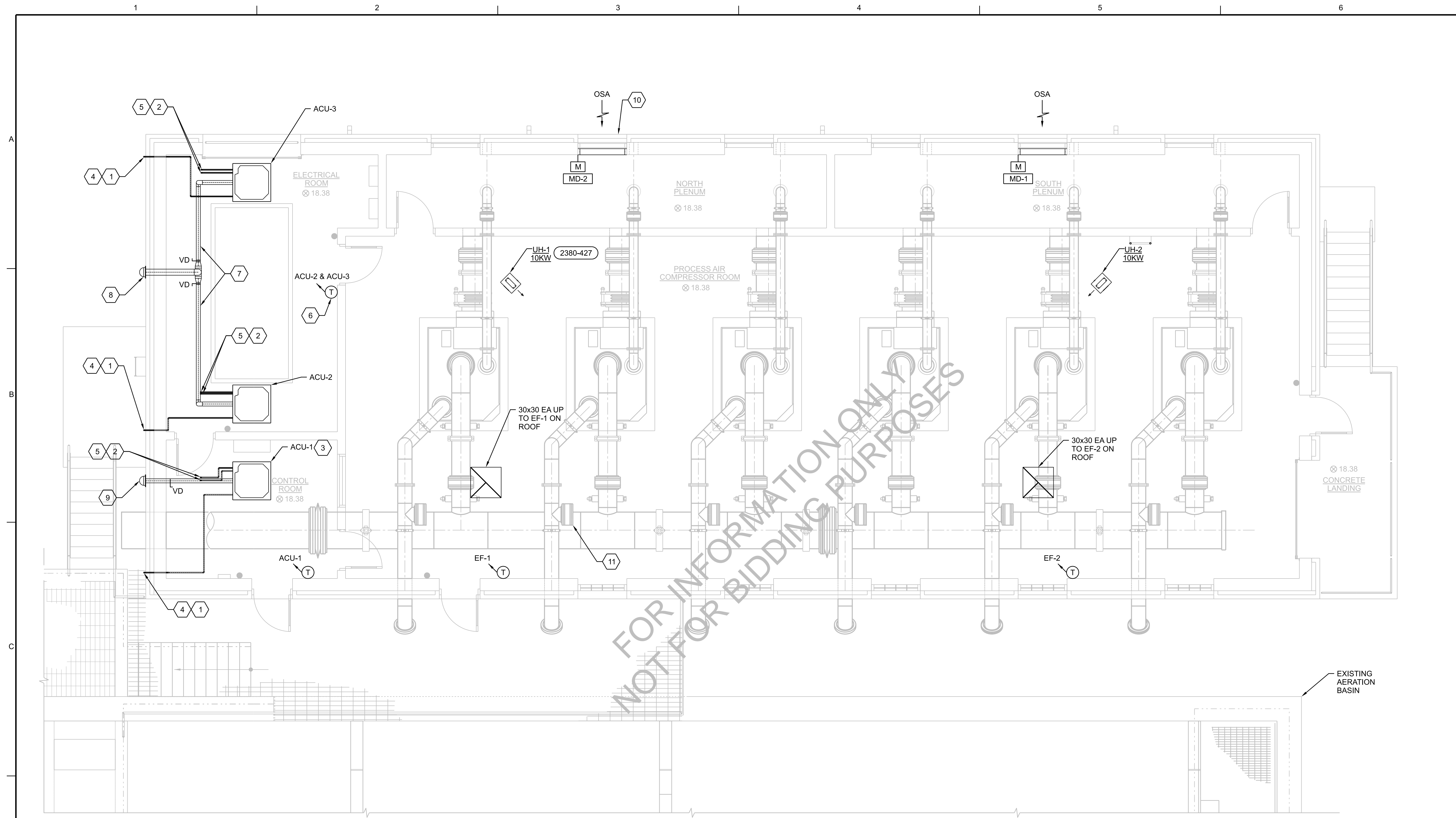
SPACE HEATING TEMPERATURE: INITIALLY 55 DEGREES F +/- 2 DEGREES F (ADJUSTABLE)  
 SPACE VENTILATION TEMPERATURE: INITIALLY 80 DEGREES F +/- 2 DEGREES F (ADJUSTABLE)

**GENERAL:**

WHEN THE SPACE TEMPERATURE IS ABOVE 80 DEGREES F (ADJ), AS SENSED BY THE SPACE MOUNTED THERMOSTAT, MOTORIZED DAMPER MD-1 SHALL OPEN. WHEN THE DAMPER IS PROVEN OPEN, EF-1 SHALL ENERGIZE AND RUN CONTINUOUSLY. IF THE SPACE TEMPERATURE CONTINUES TO RISE ABOVE 83 DEGREES F (ADJ), MOTORIZED DAMPER MD-2 SHALL OPEN. WHEN THE DAMPER IS PROVEN OPEN, EF-2 SHALL ENERGIZE AND RUN CONTINUOUSLY. AS THE SPACE TEMPERATURE SETPOINT IS SATISFIED, THE EXHAUST FAN EF-1 AND EF-2 SHALL BE DE-ENERGIZED IN A SIMILAR SEQUENCE AND MOTORIZED DAMPERS MD-1 AND MD-2 SHALL BE CLOSED. LEAD/LAG SEQUENCING OF EF-1 AND EF-2 SHALL BE ESTABLISHED MANUALLY VIA THERMOSTAT SETTING ON A MONTHLY INTERVAL.

WHEN THE SPACE AIR TEMPERATURE FALLS BELOW 55 DEGREES F (ADJ) AS SENSED BY UNIT'S INTEGRAL THERMOSTAT, THE UNIT HEATER'S FACTORY CONTROLS SHALL ENABLE THE UNIT HEATER UH-1 AND UH-2 TO MAINTAIN SPACE SETPOINT.

		PROCESS AIR FACILITY FOR LOW LEVEL NITROGEN REMOVAL EAST SHORE WATER POLLUTION ABATEMENT FACILITY Greater New Haven Water Pollution Control Authority New Haven, CT		PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL EAST SHORE WATER POLLUTION ABATEMENT FACILITY Greater New Haven Water Pollution Control Authority New Haven, CT	
		PROCESS AIR FACILITY HVAC AIR FLOW SCHEMATIC AND SEQUENCE OF OPERATIONS		REVISION NO. DATE DSGN DR CHK APVD BY APVD M SHAFIQUZZAMAN SA KORCSMAROS M LUDWIG DL LYNCH M SHAFIQUZZAMAN SA KORCSMAROS M LUDWIG DL LYNCH	
VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING.					
DATE		JULY 2023		PROJECT	
PROJ		E2X90000		DWG	
DWG		55-H-001		SHEET	
SHEET		69 of 96		PLOT DATE: 7/18/2023	
PLOT TIME: 9:34:25 AM		FILENAME: 55-H-001_E2X90000.dgn		PLOT DATE: 7/18/2023	



**FLOOR PLAN**  
 1/4"=1'-0"

SHEET KEYNOTES	
1. ROUTE COOLING COIL CONDENSATE TO OUTDOOR AND TERMINATE 18 INCH ABOVE GRADE. PROVIDE INSULATION AND HEAT TRACE, SIZE AND INSTALL IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS, TYP.	6. WALL MOUNTED THERMOSTAT/CONTROLLER, TYP.
2. NUMBER OF REFRIGERANT PIPE AND PIPING SIZE SHALL BE ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS AND BASED ON FIELD CONDITION.	7. 4 INCH DIA FRESH AIR INTAKE DUCT, TYP.
3. PROVIDE SUPPORT FROM ROOF DECK PER MANUFACTURER'S RECOMMENDATIONS, TYP.	8. TERMINATE 6-INCH DIA DUCT WITH 45 DEGREE ELBOW 1/4"x1/4" SST WIREMESH SCREEN/WALL CAP.
4. SEAL WALL PIPING PENETRATION AIR AND WATER TIGHT, TYP.	9. TERMINATE 4-INCH DIA DUCT WITH 45 DEGREE ELBOW 1/4"x1/4" SST WIREMESH SCREEN/WALL CAP.
5. RSL AND RLL UP THROUGH ROOF SLAB AND TO AIR COOLED CONDENSING UNIT, TYP.	10. REFER TO ARCH DRAWING FOR EXACT LOCATION OF THE LOUVER, TYP.
	11. MANUAL DAMPERS TO ALLOW WASTE HEAT FROM THE BLOWERS INTO THE ROOM FOR WINTER HEATING. TYP OF 4. REFER TO PROCESS MECHANICAL DRAWINGS.

DL LYNCH
BY
APVD

M LUDWIG
CHK
REVISION

Z HASEMY
DR
NO. DATE

M SHAFIQUZZAMAN
DGN

Greater New Haven Water Pollution Control Authority

East Shore Water Pollution Abatement Facility

PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL

Greater New Haven Water Pollution Control Authority

New Haven, CT

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JACOBS
PROCESS AIR FACILITY HVAC FLOOR PLAN

1/4"=1'-0"

VERIFY SCALE

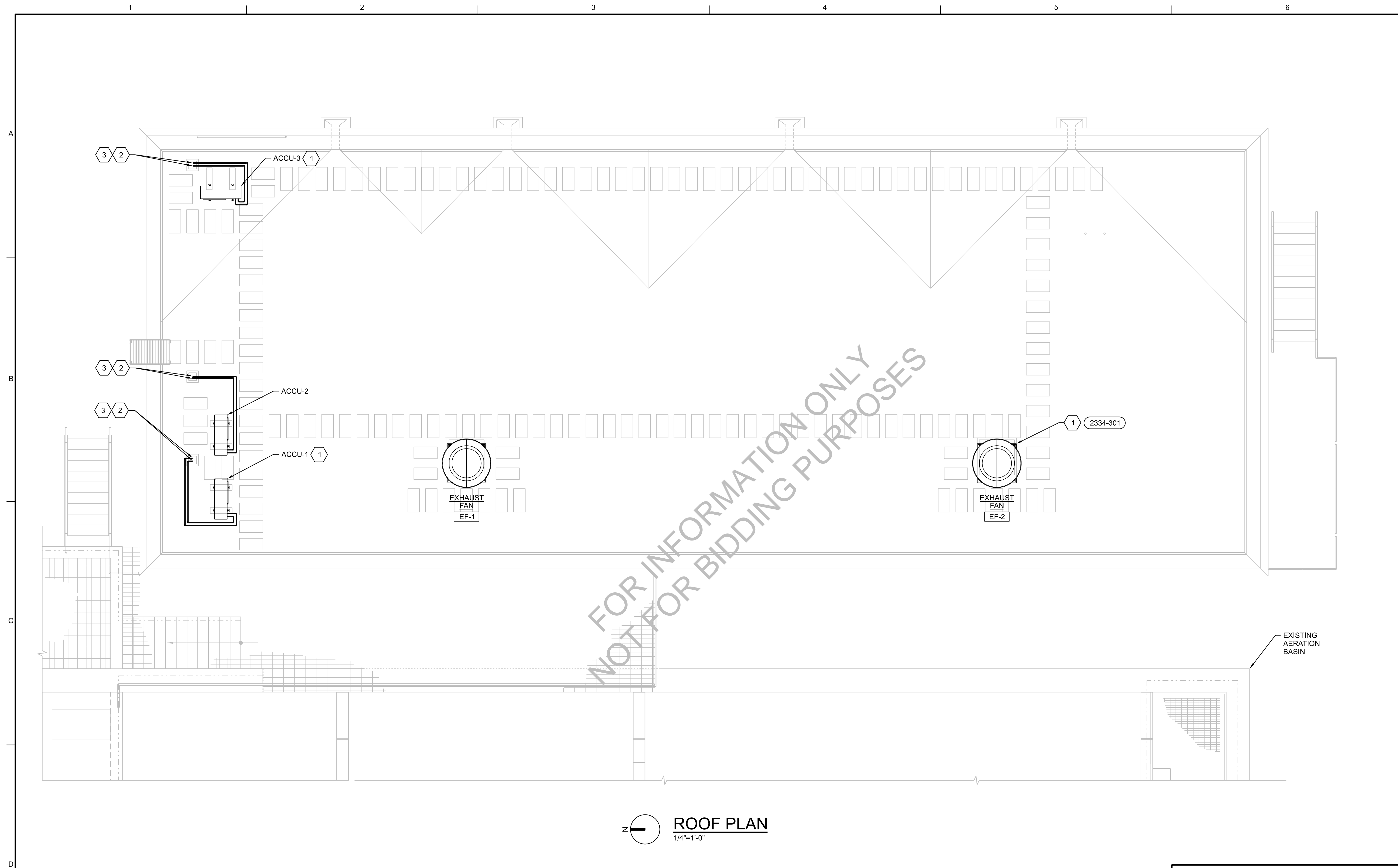
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DATE JULY 2023

PROJ E2X90000

DWG 55-H-201

SHEET 70 of 96



**ROOF PLAN**  
 1/4"=1'-0"

SHEET KEYNOTES	
1.	PROVIDE EQUIPMENT CURB, TYP. REFER TO ARCHITECTURAL DRAWING FOR DETAILS.
2.	REFRIGERANT PIPE DOWN TO ACU, TYP.
3.	SEAL ROOF PIPING PENETRATION AIR AND WATER TIGHT.

**PROCESS AIR FACILITY  
HVAC  
ROOF PLAN**

PROCESS AIR COMPRESSOR SYSTEM  
FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION  
ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

NO.	DATE	REVISION	CHK	BY	APVD

DGSN	DR	M SHAFIQUZZAMAN	APVD	M LUDWIG	DL LYNCH
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### CONTROL DAMPERS

23 09 13.02

TAG	SPECIFICATION TYPE	SERVES	CONSTRUCTION MATERIALS					PERFORMANCE					NOMINAL DIMENSIONS INCHES		ACTUATOR DATA				DAMPER		ACTUATOR		APPLICABLE REMARKS
			AXLES	BLADE	FRAME	SEALS		MAX TEMP. DEG. F.	MAX PRESS. IN. WG.	MAX VELOCITY FPM	MAX LEAKAGE @ 1 IN. WG. CFM / SQFT	PRESS. DROP @ 1500 FPM IN. WG.	L	H	FAILS	RANGE	TYPE	VOLTS OR PRESS.	MANUFACTURER	MODEL NO.	MANUFACTURER	MODEL NO.	
						JAMB	BLADE																
MD-1	HIGH PERFORMANCE CONTROL DAMPER	OA LOUVER	NOTE A	NOTE A	NOTE A	NOTE A	NOTE A	13	6000	2	0.05	NOTE D	NOTE D	CLOSED	2 POSITION	ELECTRIC	120	NOTE A	NOTE A	NOTE A	NOTE A		
MD-2	HIGH PERFORMANCE CONTROL DAMPER	OA LOUVER	NOTE A	NOTE A	NOTE A	NOTE A	NOTE A	13	6000	2	0.05	NOTE D	NOTE D	CLOSED	2 POSITION	ELECTRIC	120	NOTE A	NOTE A	NOTE A	NOTE A		

REMARKS:  
 A: PER SPECIFICATIONS SECTION 23 09 13  
 B: AS SUPPLIED BY FAN MANUFACTURER  
 C: SEE DRAWING TO MATCH WITH DUCT SIZE  
 D: SEE DRAWING TO MATCH WITH LOUVER SIZE

ABBREVIATIONS:  
 STL GALVANIZED STEEL  
 ALUM ALUMINUM  
 304 SST STAINLESS STEEL, TYPE 304  
 316 SST STAINLESS STEEL, TYPE 316  
 PVC POLY VINYL CHLORIDE

### DUCTLESS SPLIT SYSTEM DX INDOOR UNITS

23 81 00.02

SYMBOL	LOCATION	TYPE	FAN DATA				DX COOLING DATA				DX HEATING DATA				FAN MOTOR DATA				UNIT ELECTRICAL DATA				UNIT DIMENSIONS			MANUFACTURER	MODEL	APPLICABLE REMARKS		
			SUPPLY AIR(MAX) CFM	SUPPLY AIR(MIN) CFM	OUTSIDE AIR CFM	EXTERNAL STATIC P IN W.G.	TOTAL BTU/H	SENS. BTU/H	EAT DEG. F DB	COND. DEG. F WB	TOTAL BTU/H	EAT DEG. F DB	COND. DEG. F WB	FLA	VOLT	PH	#CONN.	MCA	FUSE	VOLT	PH	FACTORY INSTALLED DISCONNECT	INCHES	MAX WEIGHT LBS	W				D	H
ACU-1	CONTROL ROOM	IN CEILING	880	570	50	0.2	30,000	-	80	67	95	32,000	70	47	1	208/230	1	-	1	-	208/230	1	YES	34	34	12	56	MITSUBISHI, MR. SLIM	PLA-A30EA7	NOTE A-G
ACU-2	ELECT. ROOM	IN CEILING	1160	740	50	0.2	42,000	-	80	67	95	45,000	70	47	1	208/230	1	-	2	-	208/230	1	YES	38	38	12	56	MITSUBISHI, MR. SLIM	PLA-A42EA7	NOTE A-G
ACU-3	ELECT. ROOM	IN CEILING	1160	740	50	0.2	42,000	-	80	67	95	45,000	70	47	1	208/230	1	-	2	-	208/230	1	YES	38	38	12	56	MITSUBISHI, MR. SLIM	PLA-A42EA7	NOTE A-G

REMARKS:  
 A: PROVIDE HANGING BRACKET  
 B: MCA IS FOR INDOOR UNIT  
 C: FACTORY INSTALLED DISCONNECT  
 D: 5 YEAR WARRANTY ON PARTS AND DEFECTS  
 E: PROVIDE INTESISBOX® AC INTERFACES  
 F: PROVIDE WALL MOUNTED REMOTE CONTROLLER 7-DAY PROGRAMMABLE WITH GROUP CONTROL LEAD/LAG FUNCTION  
 G: DRAIN PAN LEVEL SENSOR / CONTROL

### SPLIT SYSTEM DX OUTDOOR UNITS

23 81 00.03

TAG	LOCATION	DX COOLING DATA				DX HEATING DATA				OUTDOOR FAN DATA				COMPRESSOR DATA				UNIT ELECTRICAL DATA				UNIT DIMENSIONS			MANUFACTURER	MODEL	APPLICABLE REMARKS			
		CAPACITY BTU/HR	AMBIENT TEMP. DEG. F	SEER @ARI	CAPACITY BTU/HR	COND. DEG. F	COP @ARI	NO.	FLA (EA)	VOLT	PH	CFM (TOTAL)	NO.	STEPS	RLA (EA)	FLA (EA)	VOLT.	PH.	# CONN	MCA	BRAKER SIZE	NEMA CLASS	VOLT	PH				INCHES	MAX WEIGHT LBS	W
ACCU-1	ROOF	30,000	95	13.1	32000	47	-	1	0.4	208/230	1	-	-	-	-	-	-	1	-	19.0	26.0	208/230	1	37	14	37	153	MITSUBISHI, MR. SLIM	PUZ-A30NHA7-BS	NOTE A-E
ACCU-2	ROOF	42,000	95	13.1	45000	47	-	2	0.4	208/230	1	-	-	-	-	-	-	1	-	25.0	31.0	208/230	1	42	14	53	214	MITSUBISHI, MR. SLIM	PUZ-A42NHA7-BS	NOTE A-E
ACCU-3	ROOF	42,000	95	13.1	45000	47	-	2	0.4	208/230	1	-	-	-	-	-	-	1	-	25.0	31.0	208/230	1	42	14	53	214	MITSUBISHI, MR. SLIM	PUZ-A42NHA7-BS	NOTE A-E

REMARKS:  
 A: WIND BAFFLE  
 B: FACTORY INSTALLED DISCONNECT  
 C: 7 YEAR COMPRESSOR WARRANTY FOR EACH COMPRESSOR  
 D: 5 YEAR WARRANTY ON PARTS  
 E: BREAKER SIZE FOR BOTH INDOOR AND OUTDOOR

### FANS

23 34 00

TAG	SERVICE	TYPE	FAN DATA				SOUND DATA								ELECTRICAL DATA				MAXIMUM DIMENSIONS			MANUFACTURER	MODEL NO.	APPLICABLE REMARKS							
			AIRFLOW		SPEED	DRIVE	WHEEL		MAXIMUM	MAX. FAN SOUND POWER LEVEL dB (RE 10 <sup>-12</sup> W) @ MID OCTAVE BAND FREQUENCY (Hz)								MOTOR		NEMA CLASS	VOLT				PH	PHYSICAL SIZE			WEIGHT		
			MAXIMUM CFM	@ESP IN. WG.			MINIMUM CFM	RPM		TYPE	MIN DIA INCH	BHP	63	125	250	500	1K	2K	4K							8K	HP	RPM		ENCLOSURE	L
EF-1	COMPRESSOR ROOM	ROOF CENTRIFUGAL UPBLAST	5,000	0.5	-	571	BELT	BI	-	0.88	75	78	75	69	65	65	61	52	1	1725	TEFC	TEFC	460	3	50	50	36	273	GREENHECK	CUBE-300HP-10	A THRU L
EF-2	COMPRESSOR ROOM	ROOF CENTRIFUGAL UPBLAST	5,000	0.5	-	508	BELT	BI	-	0.88	75	78	75	69	65	65	61	52	1	1725	TEFC	TEFC	460	3	50	50	36	272	GREENHECK	CUBE-300HP-10	A THRU L

REMARKS:  
 A: DISCONNECT: NEMA 4X, HEAVY DUTY  
 B: OSHA APPROVED MOTOR SIDE GUARD  
 C: GRAVITY DAMPER  
 D: NEMA PREMIUM EFFICIENT MOTOR  
 E: MOTOR WITH THERMAL OVERLOAD  
 F: MOTOR WITH 1.15 OR GREATER MOTOR SERVICE FACTOR  
 G: GRIP NOTCH BELT(S)  
 H: STAINLESS STEEL FASTENERS  
 I: STAINLESS STEEL SHAFT  
 J: ROOF CURB, BIRDSCREEN: ALUMINUM  
 K: COATED WITH HI-PRO POLYESTER, CONCRETE GRAY-RAL 7023, FAN AND ATTACHED ACC  
 L: EXTENDED BEARING LUBE LINES  
 FC: FORWARD CURVED  
 BI: BACKWARD INCLINED  
 AF: AIR FOIL  
 XP: EXPLOSION PROOF

### UNIT HEATERS

23 82 00.01

TAG	LOCATION	UNIT HEATER TYPE	AIR SIDE DATA				ELEC. HEAT DATA				UNIT ELECTRIC DATA				MOUNTING HEIGHT (MIN.) FEET	MAXIMUM DIMENSIONS			MANUFACTURER	MODEL	APPLICABLE REMARKS						
			SUPPLY AIRFLOW CFM	HORIZ THROW FEET	MOTOR		CAPACITY	NO. STEPS	VOLT	PH	MCA	MOCP	NEMA CLASS	VOLT		PH	PHYSICAL SIZE					WEIGHT					
					RPM	POWER KW											VOLT	PH					L	W	H		
UH-1	COMPRESSOR ROOM	ELECTRIC, SUSPENDED, CORROSION RESISTANT	1450	43	-	1/4	460	1	-	-	10	-	460	3	14	-	-	460	3	NOTE A	22	16	13	56	INDEECO	TRIAD	A THRU E
UH-2	COMPRESSOR ROOM	ELECTRIC, SUSPENDED, CORROSION RESISTANT	1450	43	-	1/4	460	1	-	-	10	-	460	3	14	-	-	460	3	NOTE A	22	16	13	56	INDEECO	TRIAD	A THRU E

REMARKS:  
 A: PER MANUFACTURER RECOMMENDATION  
 B: FACTORY MOUNTED BUILT-IN THERMOSTAT  
 C: MOUNTING BRACKET, 316 STAINLESS STEEL  
 D: DISCONNECT: FACTORY INSTALLED, NEMA TYPE 4X  
 E: HEATER ON PILOT LIGHT

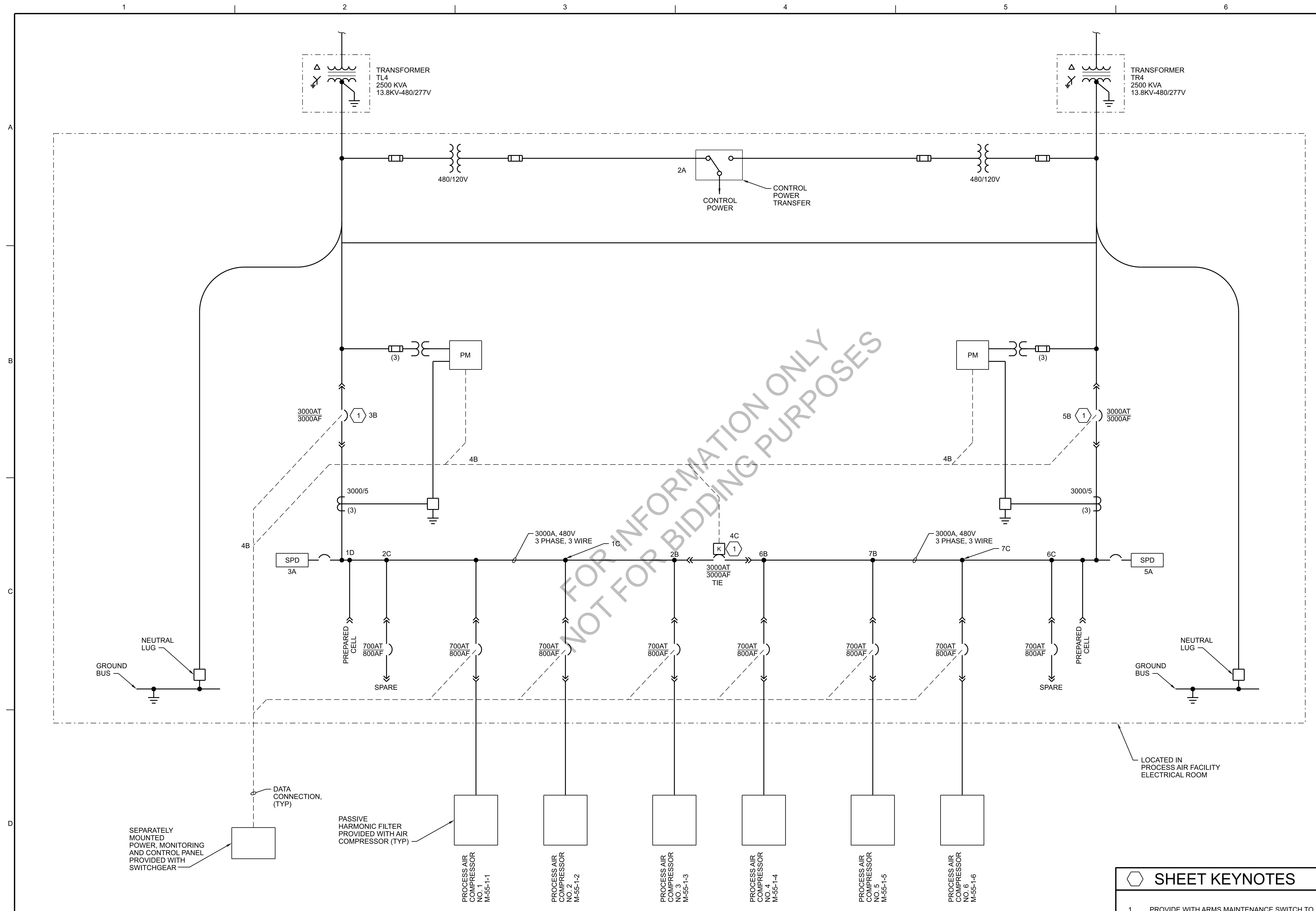


PROCESS AIR FACILITY  
 HVAC SCHEDULES  
 PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL  
 EAST SHORE WATER POLLUTION ABATEMENT FACILITY  
 Greater New Haven Water Pollution Control Authority  
 New Haven, CT

NTS
VERIFY SCALE
BAR IS ONE INCH ON ORIGINAL DRAWING.
DATE JULY 2023
PROJ E2X90000
DWG 55-H-601
SHEET 72 of 96

BID READY





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**ONE-LINE DIAGRAM**

NTS

**SHEET KEYNOTES**

- PROVIDE WITH ARMS MAINTENANCE SWITCH TO MEET NEC 240.87 FOR ARC FLASH ENERGY REDUCTION DURING MAINTENANCE.

NO.	DATE	DR	CHK	REVISION	BY	APVD
		D. MUNZER	SA. KORCSMAROS		J. BROSNAN	DL. LYNCH

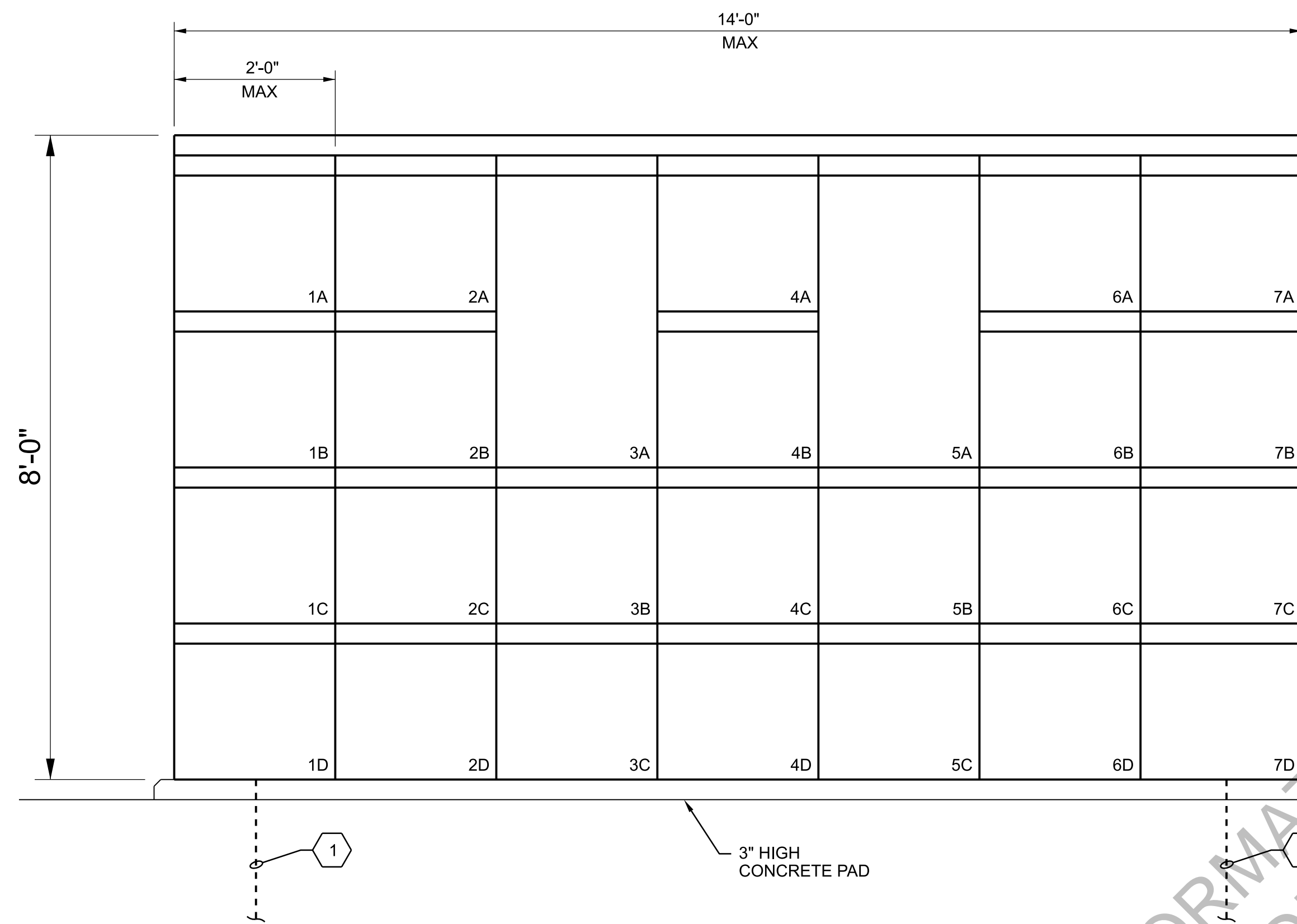
PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

**Jacobs**

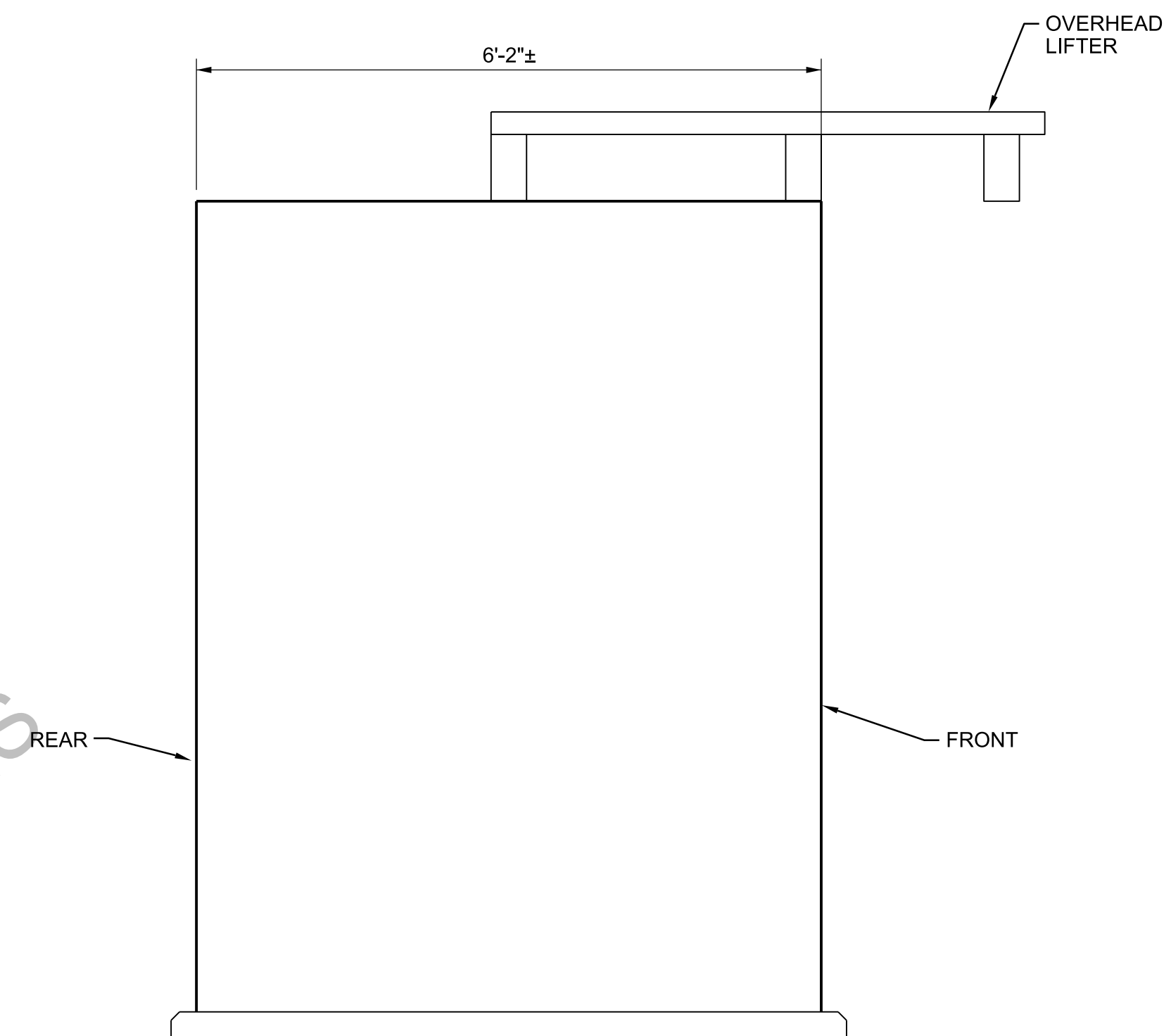
PROCESS AIR FACILITY  
**ELECTRICAL SUBSTATION NO. 4**  
**ONE-LINE DIAGRAM**

VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING.	
DATE	JULY 2023
PROJ	E2X90000
DWG	55-E-001
SHEET	73 of 96

**BID READY**



ELEVATION



SECTION

**SUBSTATION NO. 4 ELEVATION**

NTS

COMPT NO	DESCRIPTION	FRAME/TRIP	HP
1A	SPACE		
1B	AIR COMPRESSOR NO. 1	800/700	450 HP
1C	AIR COMPRESSOR NO. 2	800/700	450 HP
1D	PREPARED CELL FOR FUTURE BREAKER		
2A	24VDC POWER FOR RELAYS		
2B	AIR COMPRESSOR NO. 3	800/700	450 HP
2C	SPARE BREAKER	800/700	
2D	SPACE		
3A	SURGE PROTECTION DEVICE SPD		
3B	MAIN BREAKER SOURCE A	3000/3000	
3C	SPACE		
4A	AUXILIARY COMPARTMENT		
4B	NETWORK SWITCHES		
4C	TIE BREAKER	3000/3000	
4D	AUXILIARY COMPARTMENT		
5A	SURGE PROTECTION DEVICE SPD		
5B	MAIN BREAKER SOURCE B	3000/3000	
5C	SPACE		
6A	SPACE		
6B	AIR COMPRESSOR NO. 4	800/700	450 HP
6C	SPARE BREAKER	800/700	
6D	SPACE		
7A	SPACE		
7B	AIR COMPRESSOR NO. 5	800/700	450 HP
7C	AIR COMPRESSOR NO. 6	800/700	450 HP
7D	SPACE		

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**Jacobs**

PROCESS AIR FACILITY  
**ELECTRICAL  
SUBSTATION NO. 4  
ELEVATION**

PROCESS AIR COMPRESSOR SYSTEM  
FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION  
ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
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**SHEET KEYNOTES**

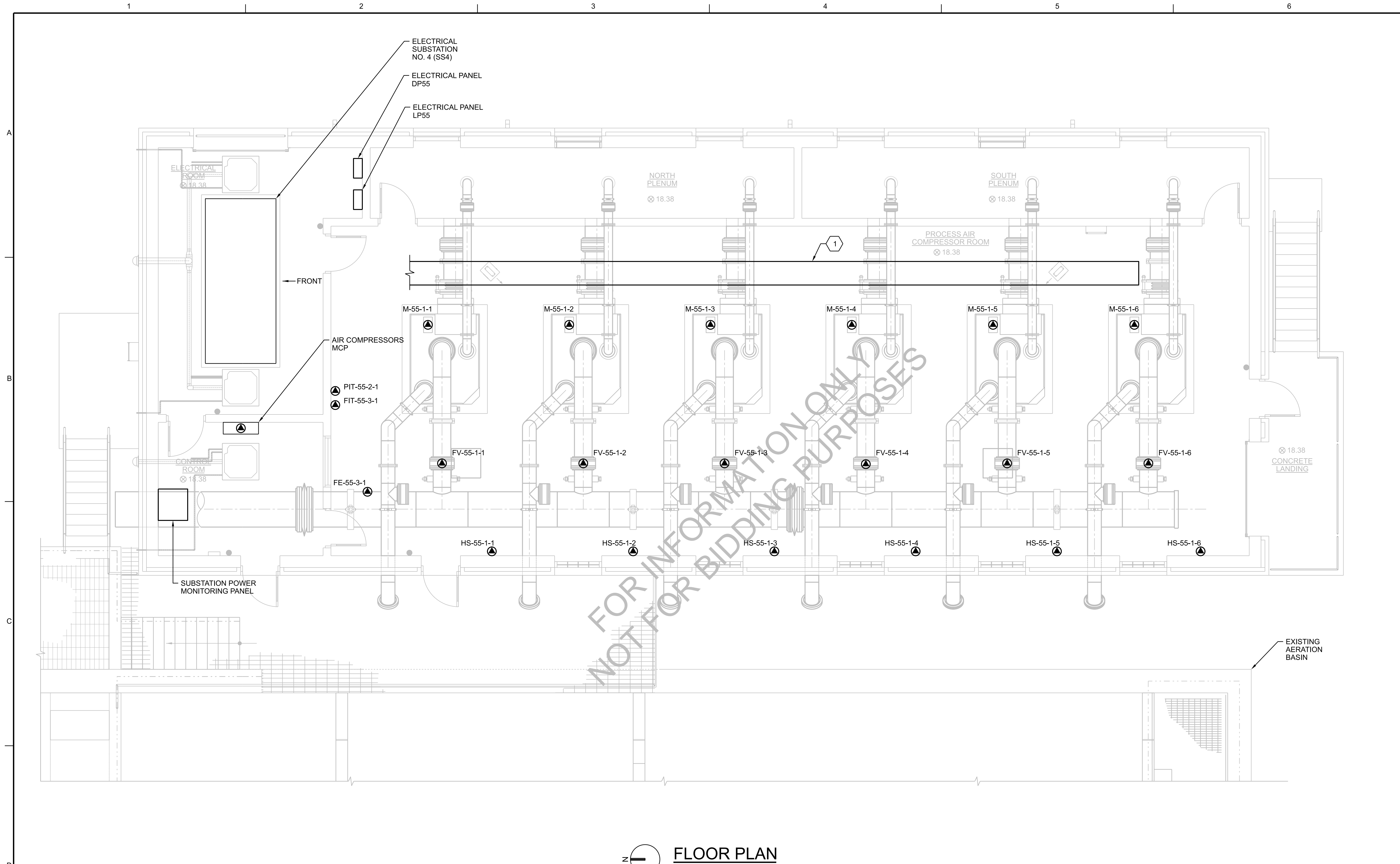
- PROVIDE BOTTOM CONDUIT ENTRY TO MAIN BREAKER.

VERIFY SCALE

BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE	JULY 2023
PROJ	E2X90000
DWG	55-E-002
SHEET	74 of 96

**BID READY**



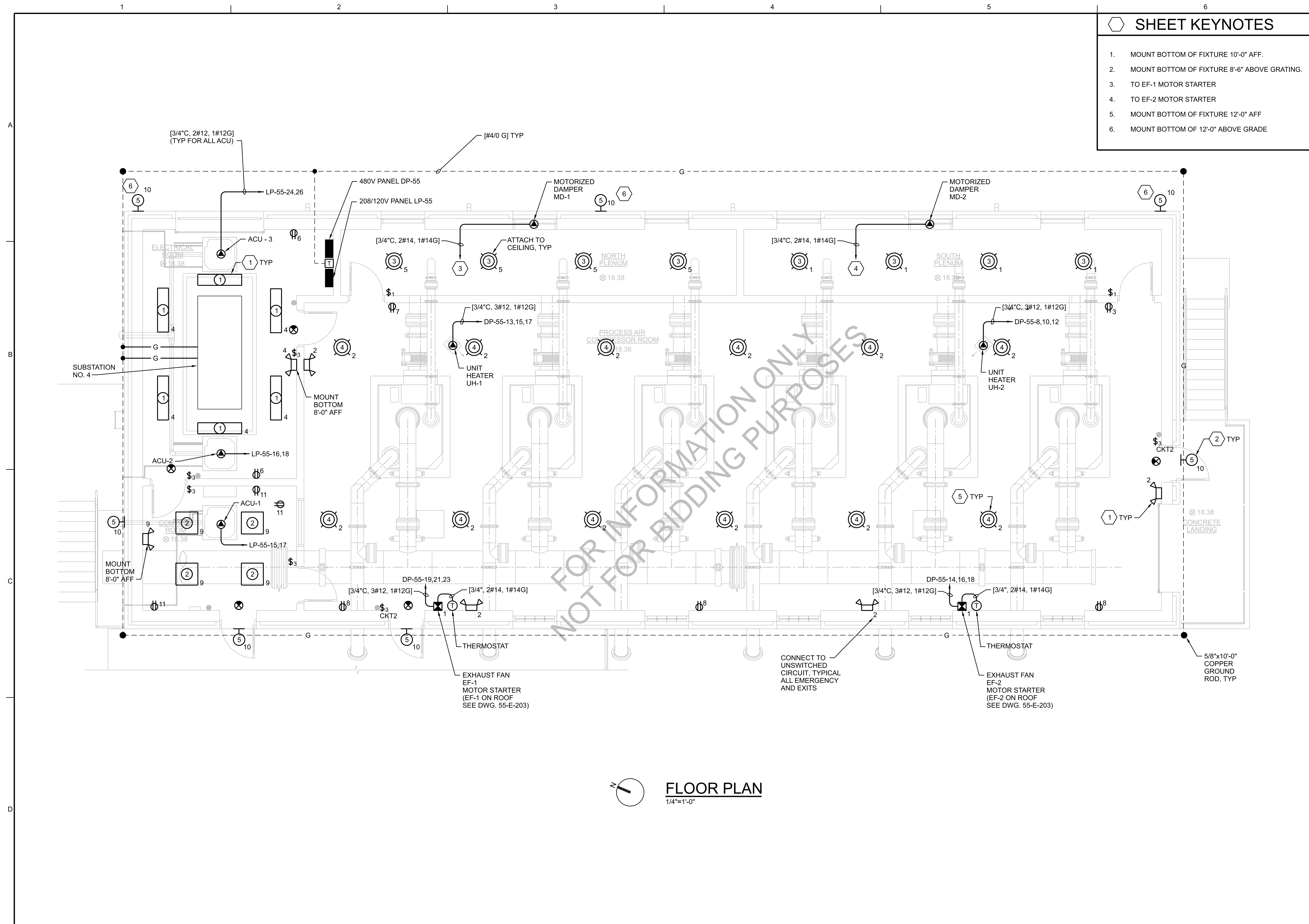
**FLOOR PLAN**  
1/4"=1'-0"

SHEET KEYNOTES	
1.	APPROXIMATE LOCATION OF OVERHEAD CONDUIT RACK. BOTTOM EL. 32.0. SEE (2605-300)
2.	SEE CABLE BLOCK DIAGRAM CBD-1 ON DWG 55-E-602 FOR CONDUITS AND CONDUCTORS.

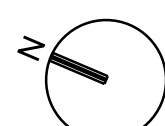
<b>Jacobs</b> PROCESS AIR FACILITY <b>ELECTRICAL</b> <b>PROCESS FLOOR PLAN</b>		PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL EAST SHORE WATER POLLUTION ABATEMENT FACILITY Greater New Haven Water Pollution Control Authority New Haven, CT	
		REUSE OF DOCUMENTS: THIS DOCUMENT, AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF JACOBS AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF JACOBS.	D MUNZER DSGN NO. DATE
1/4"=1'-0" VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING.		DATE JULY 2023 PROJ E2X90000 DWG 55-E-201 SHEET 75 of 96	BID READY

# SHEET KEYNOTES

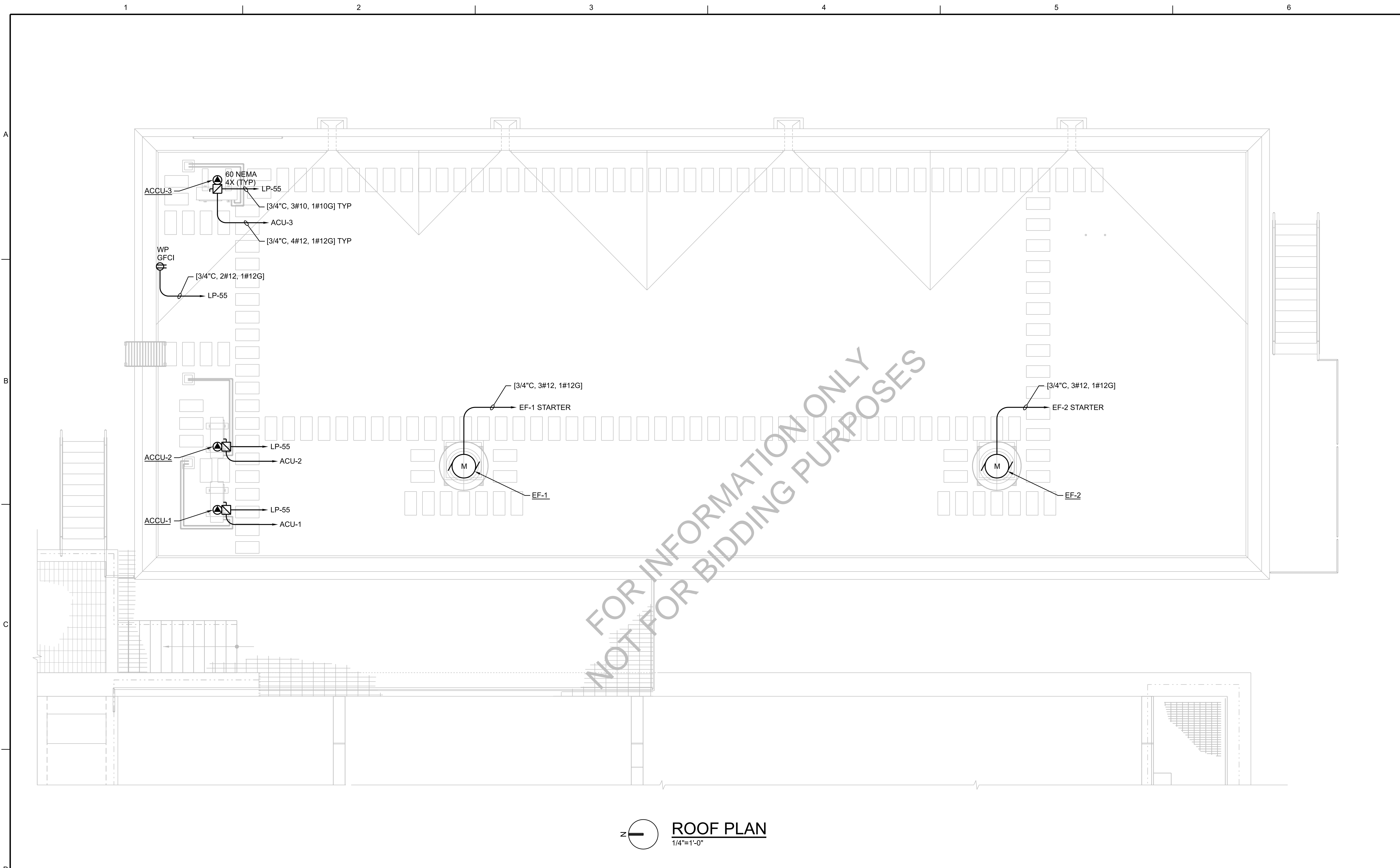
1. MOUNT BOTTOM OF FIXTURE 10'-0" AFF.
2. MOUNT BOTTOM OF FIXTURE 8'-6" ABOVE GRATING.
3. TO EF-1 MOTOR STARTER
4. TO EF-2 MOTOR STARTER
5. MOUNT BOTTOM OF FIXTURE 12'-0" AFF
6. MOUNT BOTTOM OF 12'-0" ABOVE GRADE



NOT FOR BIDDING PURPOSES


**FLOOR PLAN**  
 1/4"=1'-0"

<h2 style="margin: 0;">Jacobs</h2> <p style="margin: 0; font-size: 0.8em;">PROCESS AIR FACILITY ELECTRICAL FACILITY FLOOR PLAN</p>		PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL EAST SHORE WATER POLLUTION ABATEMENT FACILITY Greater New Haven Water Pollution Control Authority New Haven, CT	REVISION NO. DATE DR D. MUNZER DSGN CHK SA. KORCSMAROS APVD J. BROSNAN BY DL LYNCH
1/4"=1'-0" VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING.		DATE JULY 2023 PROJ E2X90000 DWG 55-E-202 SHEET 76 of 96	



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**ROOF PLAN**  
 1/4"=1'-0"

SHEET KEYNOTES									
<ol style="list-style-type: none"> <li>1. PROVIDE EQUIPMENT CURB FOR CONDENSING UNIT ON THE ROOF. TYP. REFER TO ARCHITECTURAL DRAWING FOR DETAILS.</li> <li>2. REFRIGERANT PIPE DOWN TO ACU, TYP.</li> <li>3. SEAL ROOF PIPING PENETRATION AIR AND WATER TIGHT.</li> </ol>	<p style="text-align: center; font-size: 0.8em;">1/4"=1'-0"</p> <p style="text-align: center; font-size: 0.7em;">VERIFY SCALE</p> <p style="text-align: center; font-size: 0.6em;">BAR IS ONE INCH ON ORIGINAL DRAWING.</p> <table style="width: 100%; font-size: 0.7em;"> <tr> <td>DATE</td> <td>JULY 2023</td> </tr> <tr> <td>PROJ</td> <td>E2X90000</td> </tr> <tr> <td>DWG</td> <td>55-E-203</td> </tr> <tr> <td>SHEET</td> <td>77 of 96</td> </tr> </table>	DATE	JULY 2023	PROJ	E2X90000	DWG	55-E-203	SHEET	77 of 96
DATE	JULY 2023								
PROJ	E2X90000								
DWG	55-E-203								
SHEET	77 of 96								

DM MUNZER
SA KORCSMAROS
J BROSNIAN
DL LYNCH

DR
CHK
APVD
BY

NO.
DATE
REVISION

DSGN
APVD

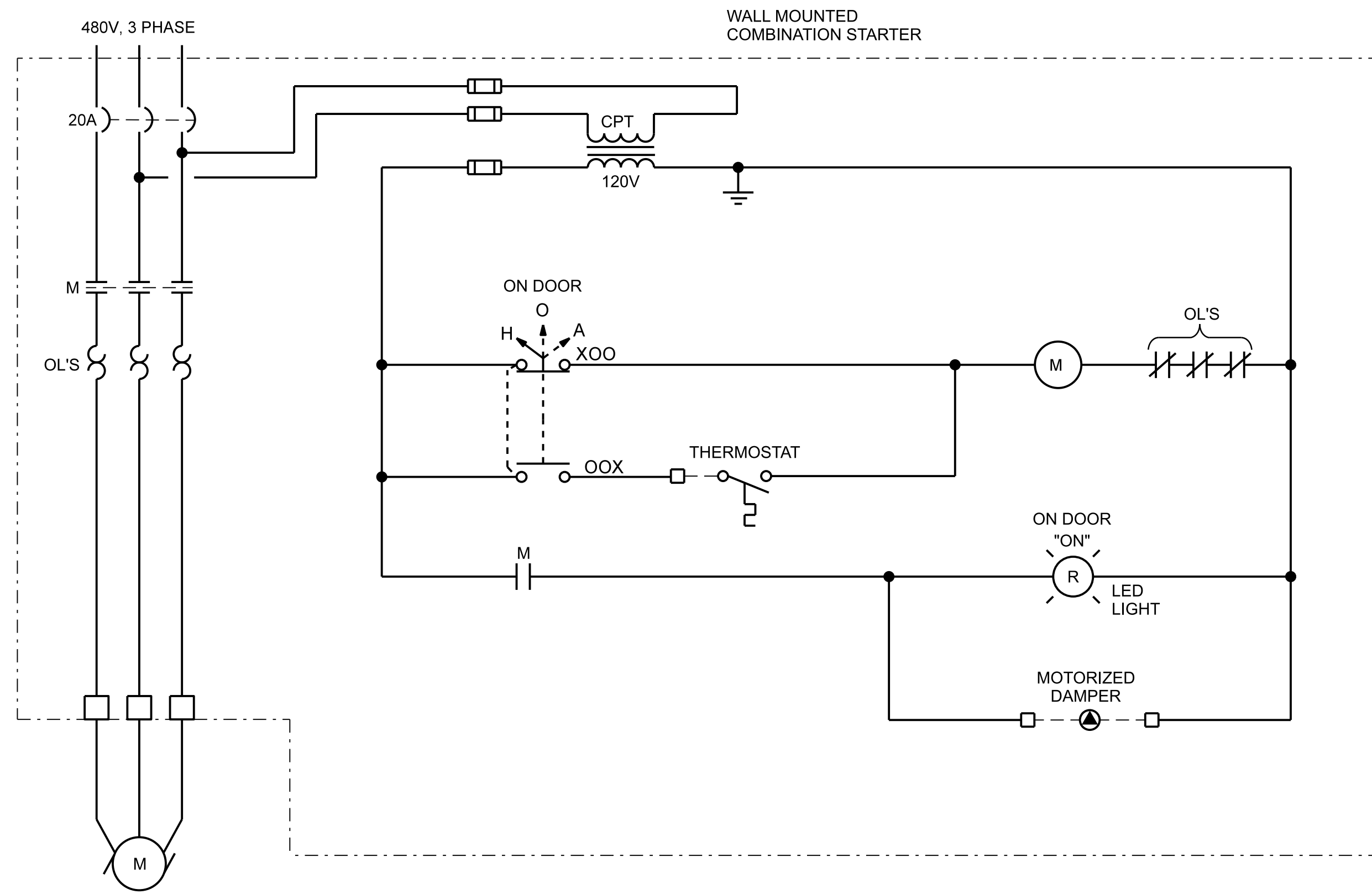
Jacobs

PROCESS AIR FACILITY  
ELECTRICAL  
ROOF PLAN

PROCESS AIR COMPRESSOR SYSTEM  
FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION  
ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

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EXHAUST FAN EF-1  
EXHAUST FAN EF-2

LUMINAIRE SCHEDULE					
SYMBOL	TYPE	VOLTS	LUMINAIRE DESCRIPTION	MANUFACTURER	MOUNTING
5	LED	120	EXTERIOR WALL MOUNT, DARK BRONZE, 1500 LUMENS, FUSED, INTEGRAL PHOTOCELL	LITHONIA WST-LED SERIES	WALL
2	LED	120	4000 LUMENS, 24" x 24" SQUARE TROFFER, FLUSH STEEL WHITE DOOR, ACRYLIC LENS	LITHONIA GLT SERIES	CEILING GRID
3	LED	120	600 LUMENS, LED VAPOR TIGHT, CEILING MOUNTED	LITHONIA OLVTM	CEILING
4	LED	120	20,000 LUMENS, 150 WATT, 4000 KELVIN HIGH BAY FIXTURE WITH UP LIGHTING	PHILIPS LUMILEDS	SUSPENDE
1	LED	120	4000 LUMENS, 40 WATTS, 40K CCT, ACRYLIC DIFFUSER, WIDE DISTRIBUTION	LITHONIA DMW SERIES	SUSPENDE
EMERGENCY LIGHT FIXTURE	LED	120	TWO LAMP HEADS, EMERGENDY STANDBY LIGHTING UNIT. POLYCARBONATE ENCLOSURE. NICAD BATTERY FOR 90 MINUTES OF ILLUMINATION. SELF TESTING DIAGNOSTIC ELECTRONICS	LITHONIA TCLM M4	WALL MOUNTED
EXIT LIGHT	LED	120	EXIT LIGHT SELF CONTAINED BATTERY. BRUSHED ALUMINUM FACEPLATES. RED LETTERS. ITEGRAL NICAD BATTERY. SELF TESTING WITH BI-COLOR TRI-LEVEL STATUS INDICATOR LIGHT	LIGHT ALARMS GXE-A-G-A	WALL

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**Jacobs**

PROCESS AIR FACILITY  
ELECTRICAL CONTROL DIAGRAMS  
AND LUMINAIRE SCHEDULE

PROCESS AIR COMPRESSOR SYSTEM  
FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION  
ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

NO.	DATE	DR	CHK	APVD
		D MUNZER	SA KORCSMAROS	J BROSNAN
		DSGN	REVISION	BY
				DL LYNCH

VERIFY SCALE	
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DATE	JULY 2023
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DWG	55-E-601
SHEET	78 of 96

BID READY

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1 2 3 4 5 6

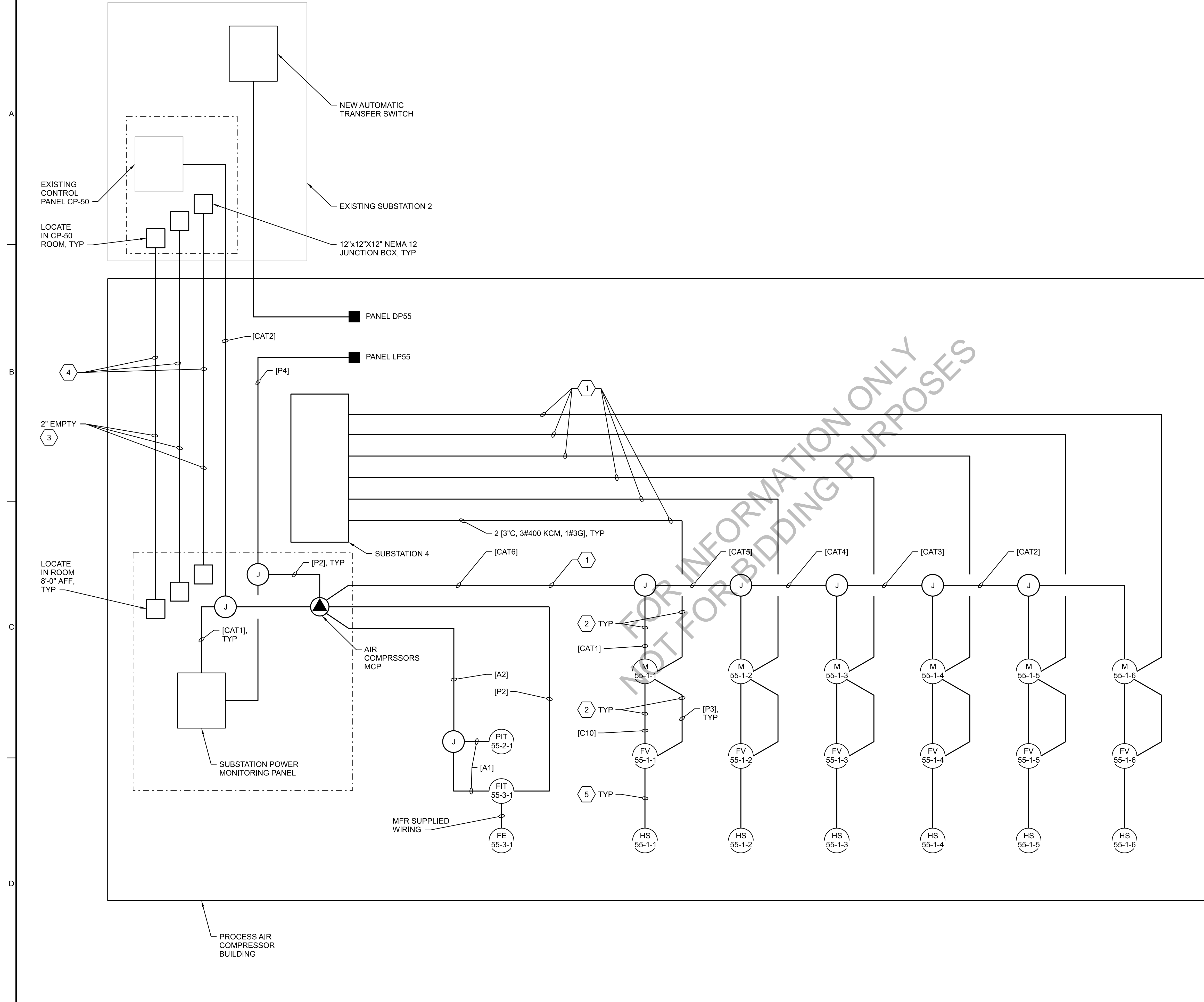
**SHEET KEYNOTES**

- OVERHEAD CONDUIT RACK, DO NOT LOCATE DIRECTLY OVER PROCESS AIR COMPRESSORS.
- PROVIDE MINIMUM 3 FEET FLEXIBLE METAL CONDUIT AT M-51-1-1 TO ALLOW FUTURE REMOVAL, TYP OF 6.
- EMPTY CONDUITS PROVIDED FOR FUTURE INSTALLATION.
- INSTALL CONDUIT RACK BETWEEN PROCESS AIR COMPRESSOR BUILDING AND SUBSTATION 2. BOTTOM OF RACK SHALL NOT BE LESS THAN 12'-0" ABOVE WALKWAY.
- [1"C, MFR RECOMMENDED WIRING]

**CONDUCTOR AND CONDUIT IDENTIFICATION**

- [CAT1] = [3/4"C, 1 - CAT6 CABLE]
- [CAT2] = [2"C, 2 - CAT6 CABLE]
- [CAT3] = [1"C, 3 - CAT6 CABLE]
- [CAT4] = [1 1/4"C, 4 - CAT6 CABLE]
- [CAT5] = [1 1/4"C, 5 - CAT6 CABLE]
- [CAT6] = [1 1/4"C, 6 - CAT6 CABLE]

SEE DWG 01-G-015 FOR ADDITIONAL CALLOUTS



NO.	DATE	DR	REVISION	BY	APVD
		D MUNZER	CHK	J BROSNAN	APVD
				DL LYNCH	



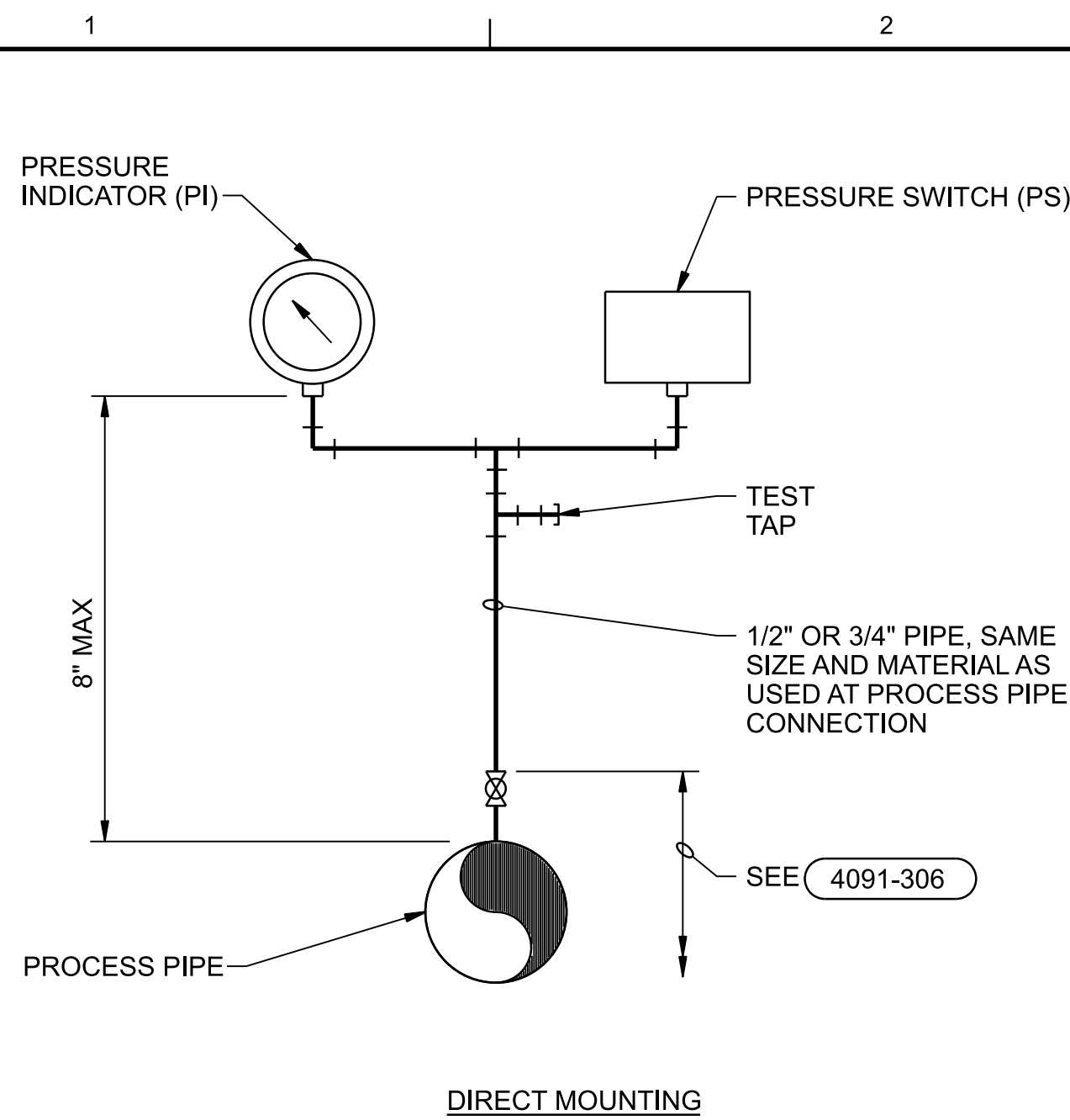
**CABLE BLOCK DIAGRAMS**

PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING.	
DATE	JULY 2023
PROJ	E2X90000
DWG	55-E-602
SHEET	79 of 96

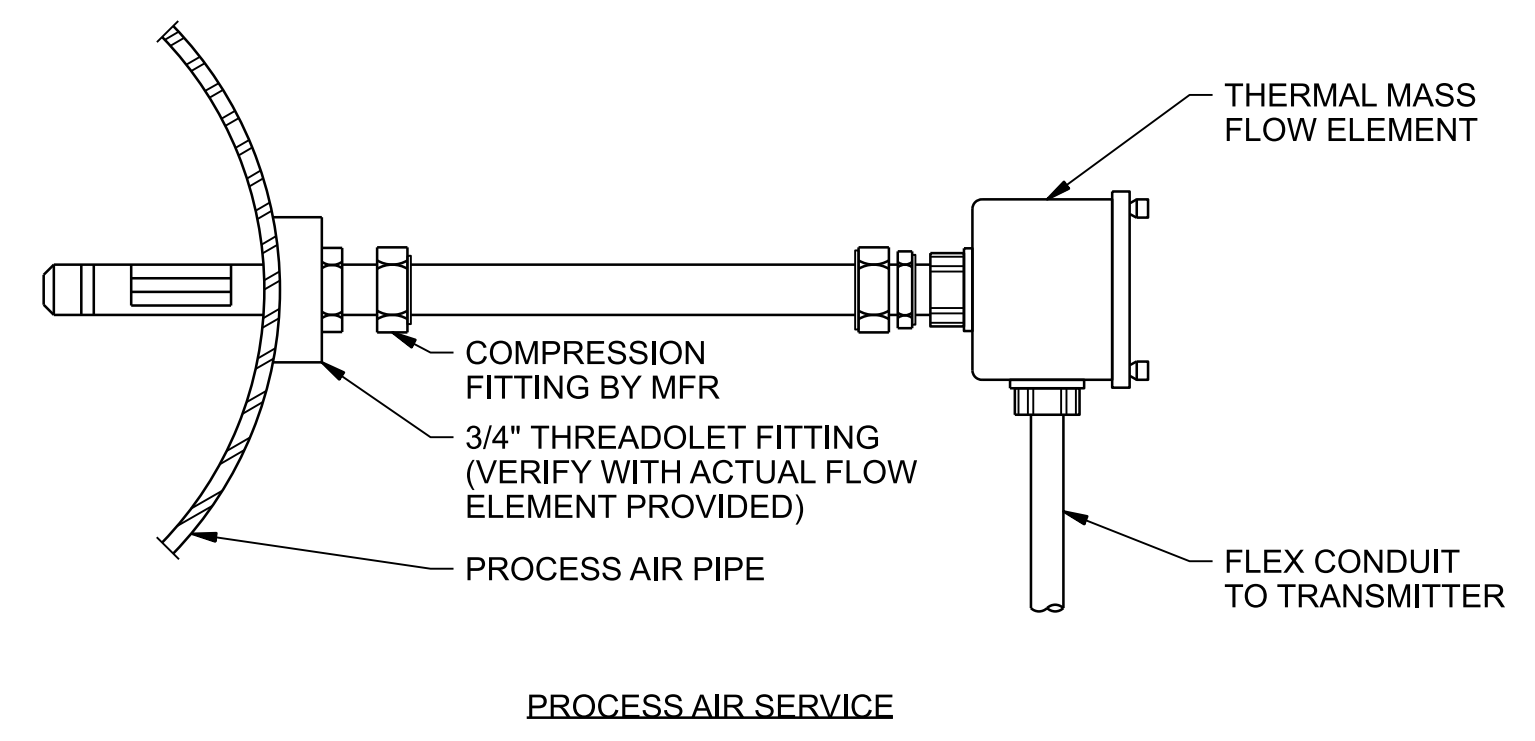
BID READY

NOT FOR BIDDING PURPOSES

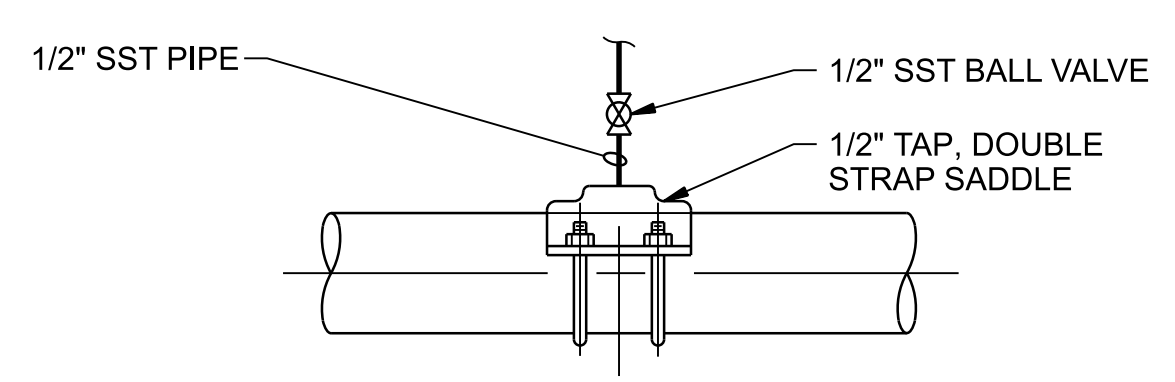


**NOTES:**  
 1. INDICATOR AND SWITCH INSTALLATION SHOWN. FOR SINGLE INSTRUMENT INSTALLATIONS, MOUNT DEVICE DIRECTLY ABOVE TEST TAP.

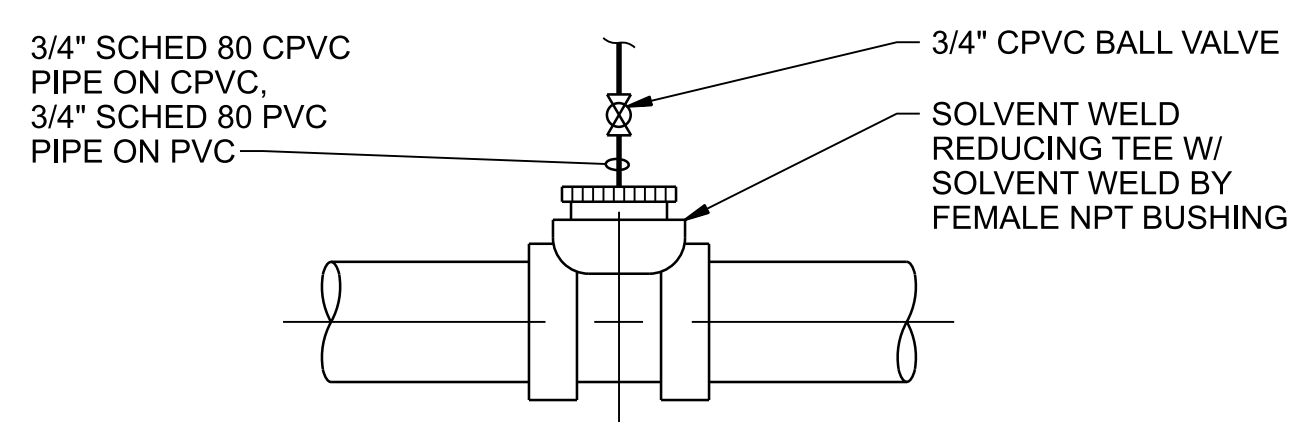
**PRESSURE DEVICE INSTALLATION**  
 NTS 4091-306



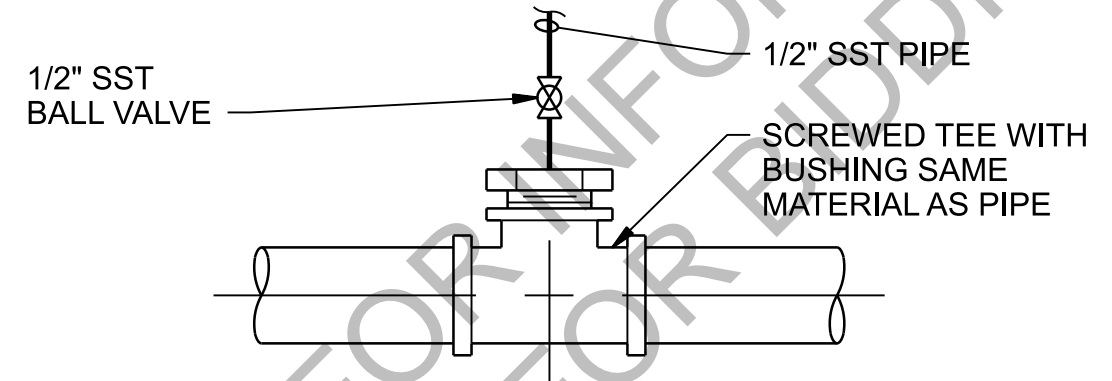
**THERMAL MASS FLOW ELEMENT INSTALLATION**  
 NTS 2605-500



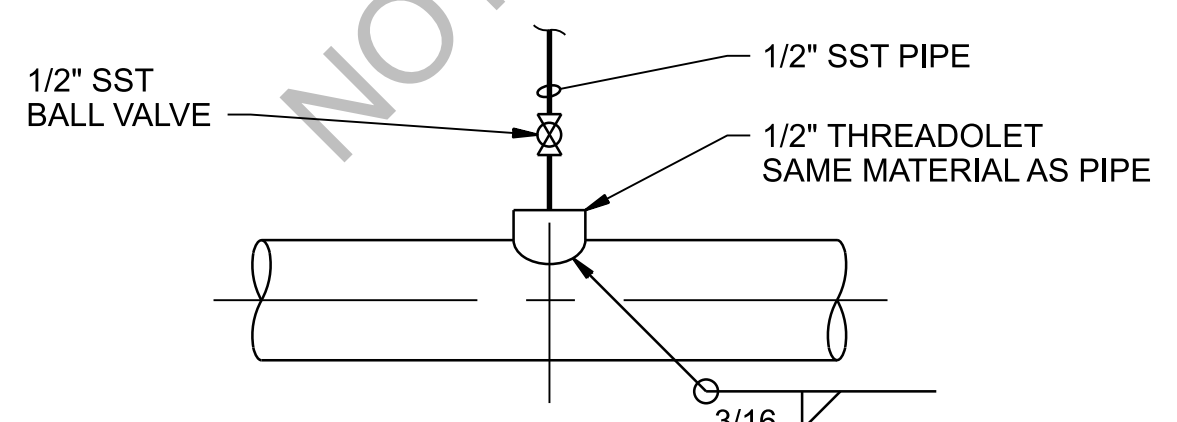
**CEMENT LINE STEEL PIPE, CAST IRON PIPE AND DUCTILE IRON PIPE**



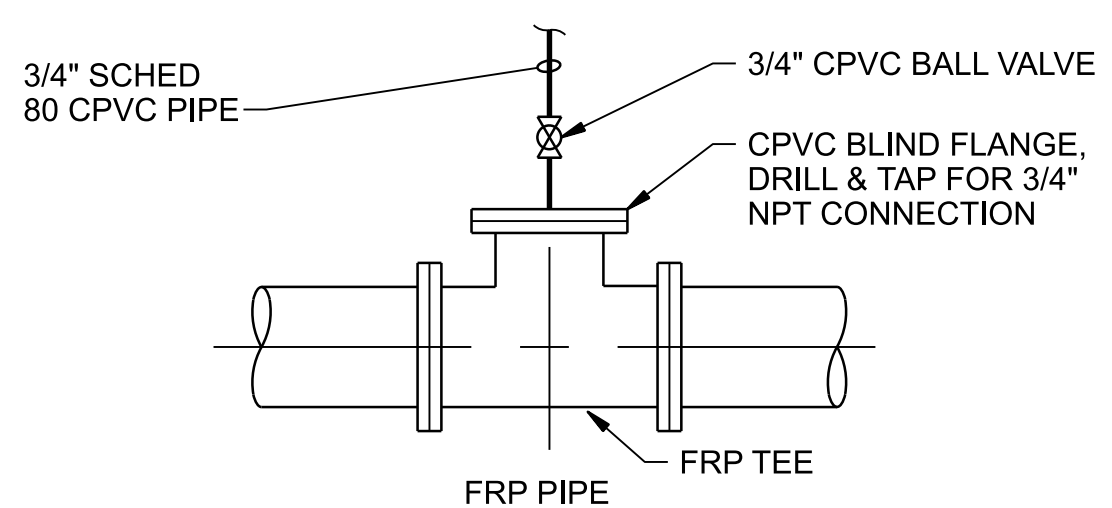
**PVC AND CPVC PIPE**



**STEEL & SST PIPE 3 1/2\"**



**STEEL & SST PIPE 4\"**



**FRP PIPE**

**PRESSURE CONNECTION INSTALLATION**  
 NTS

4091-306

NO.	DATE	DR	REVISION	BY
		D. MUNZER	CHK	J. BROSNAN
		DSGN	APVD	DL LYNCH

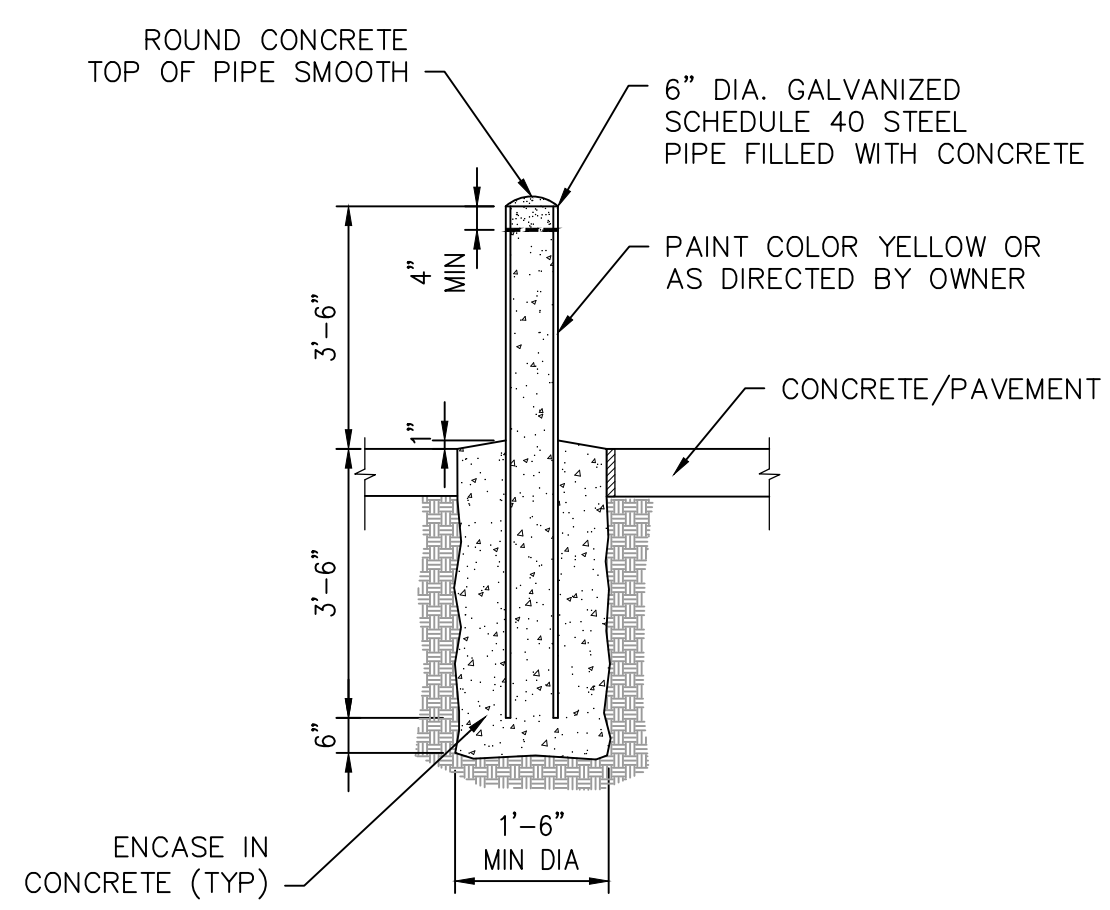
PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL  
 EAST SHORE WATER POLLUTION ABATEMENT FACILITY  
 Greater New Haven Water Pollution Control Authority  
 New Haven, CT

**Jacobs**  
 SD - STANDARD DETAILS  
 I&C

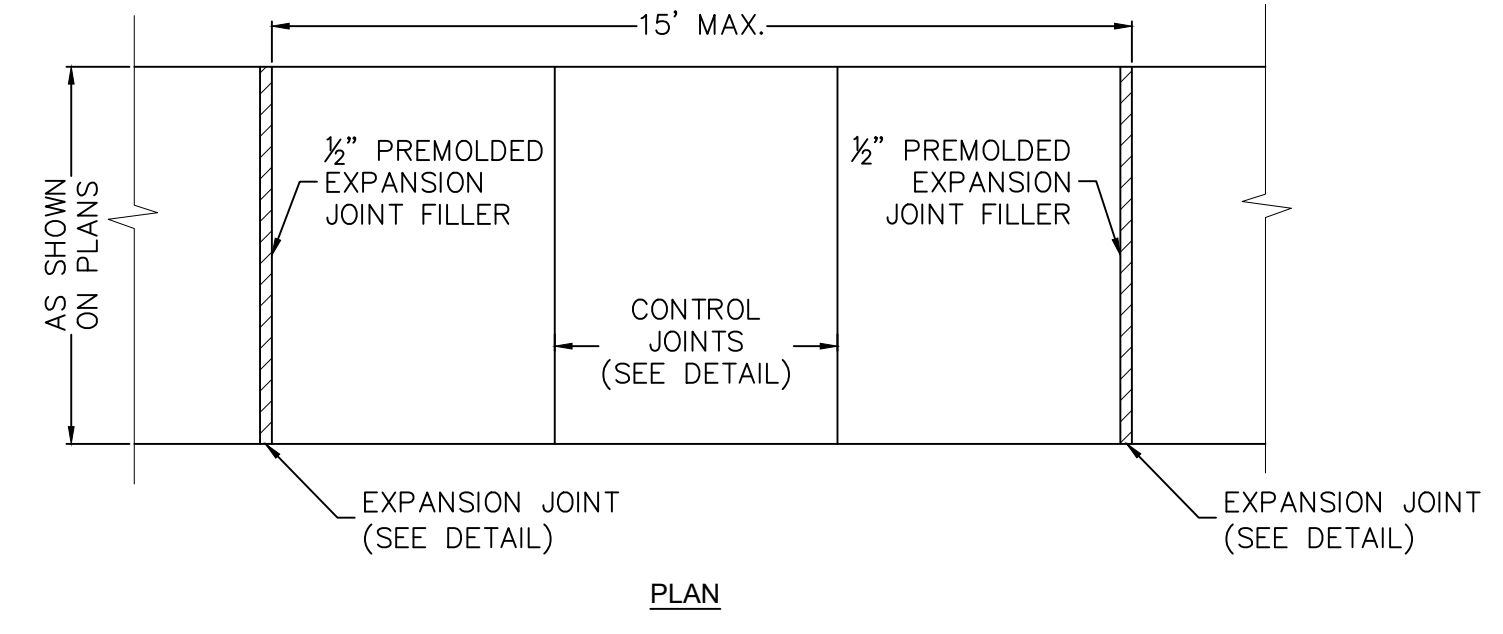
NTS	
VERIFY SCALE	
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DWG	SD-N-501
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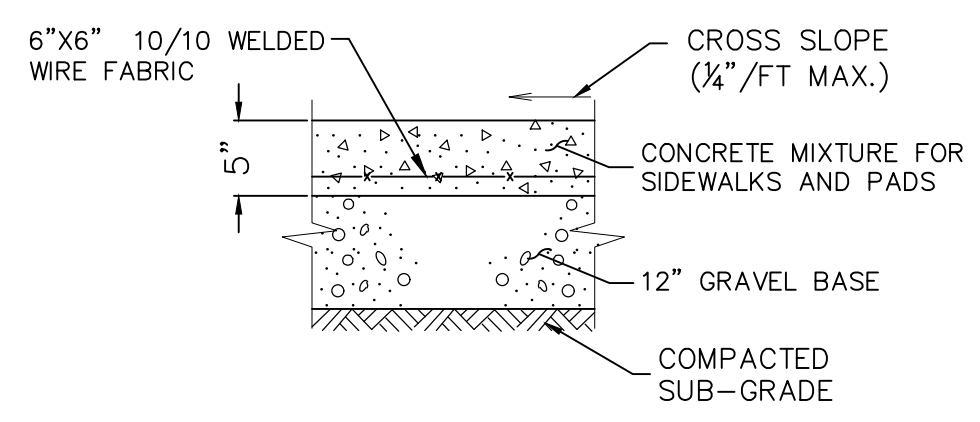




**BOLLARD**  
NOT TO SCALE



PLAN



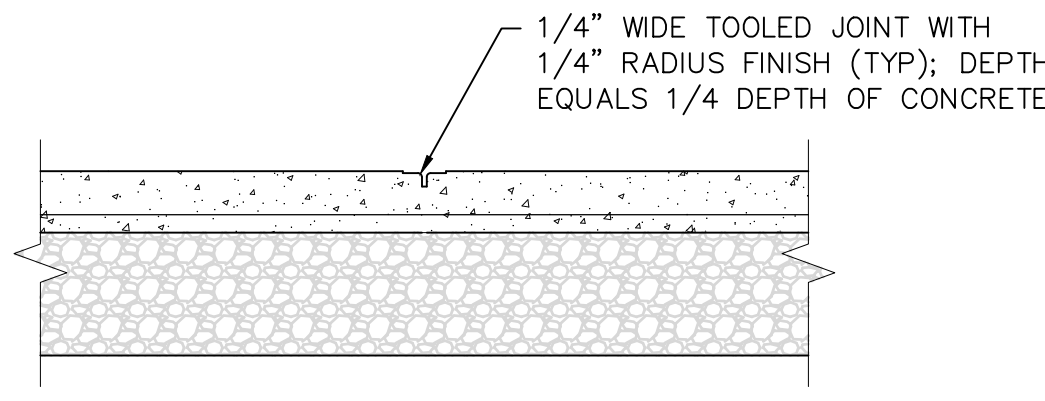
SECTION

- NOTES:**
1. INCREASE SLAB THICKNESS TO 8" OVER 9" GRAVEL BASE FOR SIDEWALKS CROSSING DRIVEWAYS AND OTHER VEHICULAR TRAFFIC LOADED AREAS.
  2. REMOVE CONCRETE WALKS TO THE NEAREST EXPANSION JOINT AT THE LOCATIONS NOTED ON THE PLANS.
  3. MATCH WIDTH AND PROVIDE FLUSH TRANSITION BETWEEN NEW AND EXISTING CONCRETE SIDEWALK.
  4. IF CALLED FOR, INTEGRATE CONCRETE CURBING INTO SIDEWALK, MIN 18" CURB HEIGHT WITH 6" REVEAL, 1" RADIUS ON CURB TOP.

**TYPICAL CONCRETE SIDEWALK**  
NOT TO SCALE

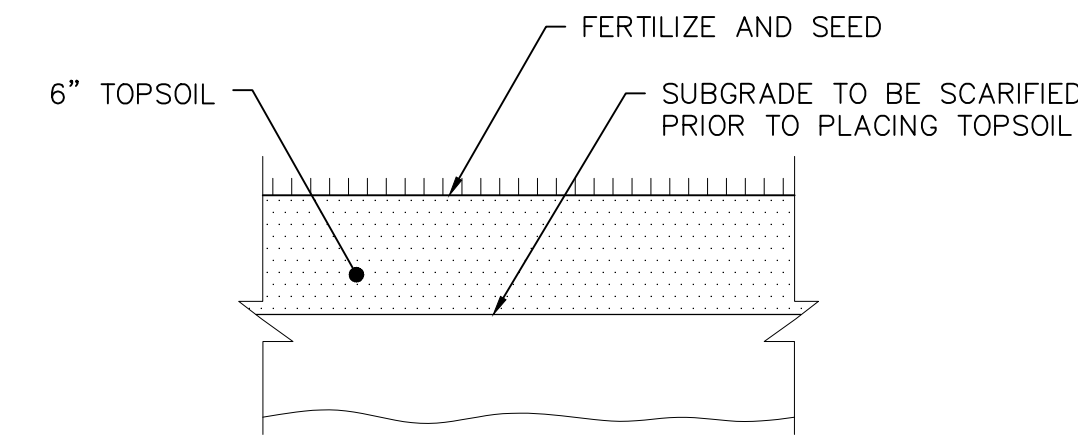


EXPANSION JOINT



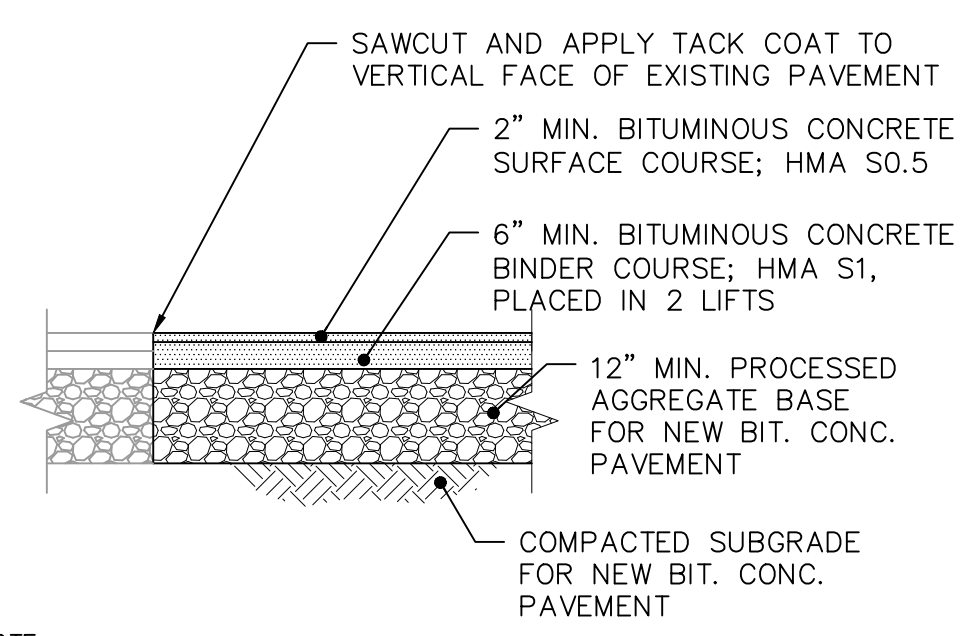
CONTROL JOINT

**TYPICAL CONCRETE SIDEWALK JOINTS**  
NOT TO SCALE



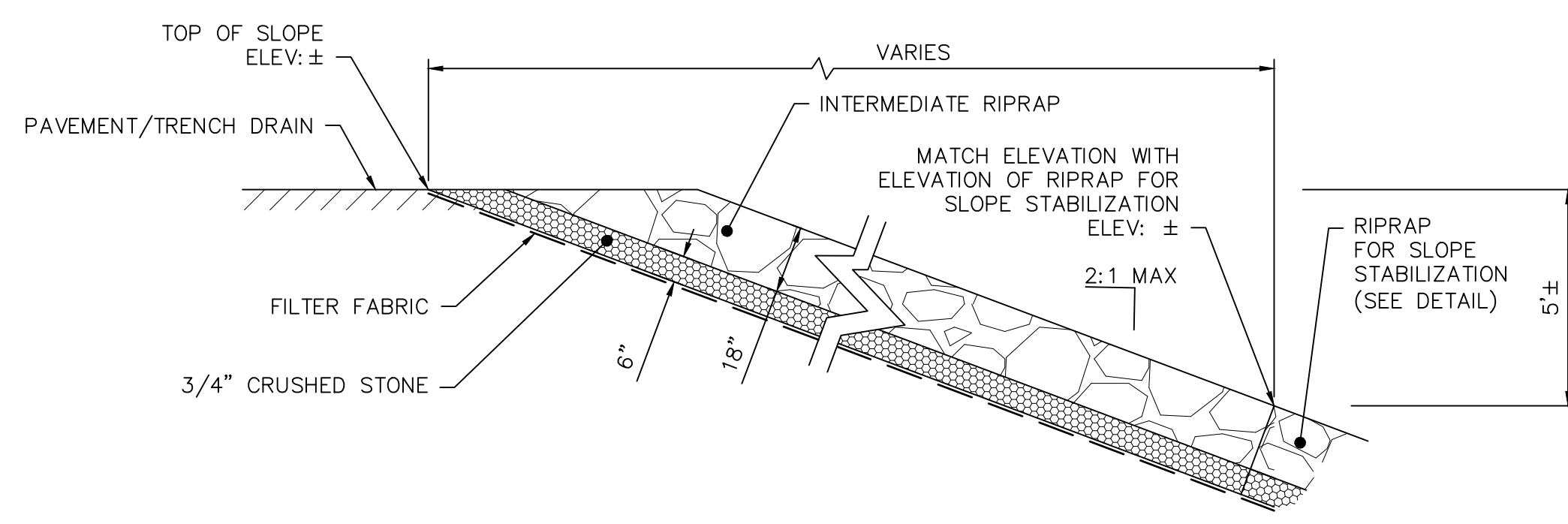
- NOTES:**
1. THE PERMANENT SEED MIX FOR TURF ESTABLISHMENT IS AS FOLLOWS:
- | NAME                | MINIMUM PROPORTION BY WEIGHT |
|---------------------|------------------------------|
| KENTUCKY BLUEGRASS  | 45%                          |
| CREeping RED FESCUE | 10%                          |
| PERENNIAL RYE GRASS | 45%                          |
2. SEED SHALL BE APPLIED AT A RATE OF 2 POUNDS PER 1000 SQUARE FEET. THE SEEDED AREA SHALL BE MULCHED WITH A LAYER OF GRASS, HAY OR STRAW AT A RATE OF 10 POUNDS PER 100 SQUARE FEET. THE SEEDED AREAS SHALL BE THOROUGHLY WATERED UNTIL SATISFACTORY STAND OF GRASS HAS BEEN ESTABLISHED.

**TURF ESTABLISHMENT**  
NOT TO SCALE



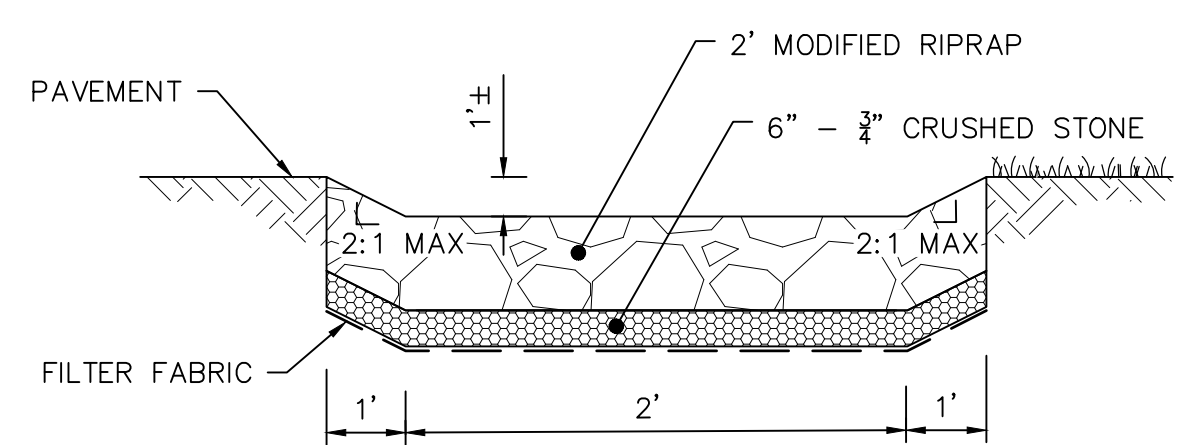
- NOTE:**
1. HMA BITUMINOUS CONCRETE MIXTURES SHALL COMPLY WITH CT DOT FORM 818 MATERIAL SPECIFICATIONS.

**BITUMINOUS CONCRETE PAVEMENT**  
NOT TO SCALE



- NOTES:**
1. STABILIZE DISTURBED AREAS AROUND THE RIPRAP IMMEDIATELY AFTER ITS CONSTRUCTION.
  2. INSPECT AFTER MAJOR RAINSTORMS OR ONCE PER YEAR.
  3. MATCH THE DOWNSLOPE ELEVATION OF THE RIPRAP WITH THE ELEVATION OF THE EXISTING GRASS SWALE.

**RIPPRAP FOR PAVEMENT LEAKOFF**  
NOT TO SCALE



**ZUVIC**  
INCORPORATED  
2000 W. MAIN ST. SUITE 100  
NEW HAVEN, CT 06510  
TEL: 203.261.1111 FAX: 203.261.1112

PROCESS AIR COMPRESSOR SYSTEM  
FOR LOW LEVEL NITROGEN REMOVAL  
at the  
EAST SHORE WATER POLLUTION  
ABATEMENT FACILITY  
Greater New Haven Water Pollution  
Control Authority New Haven, CT

**Jacobs**

STANDARD DETAILS  
CIVIL

VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING.	
DATE	JULY 2023
PROJ	E2X90000
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**BID READY**

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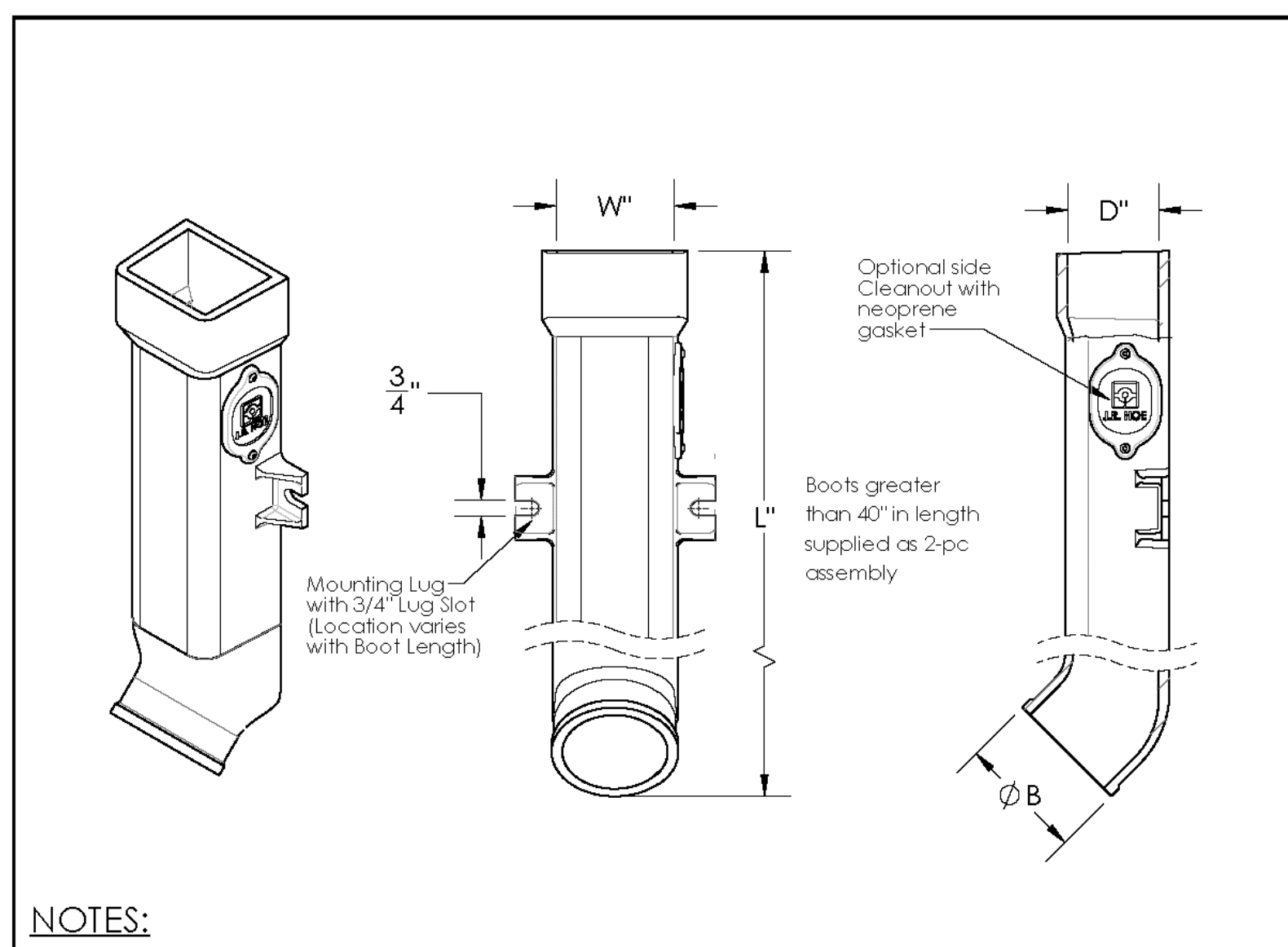
A

B

C

D

ONLY  
POSES



NOTES:

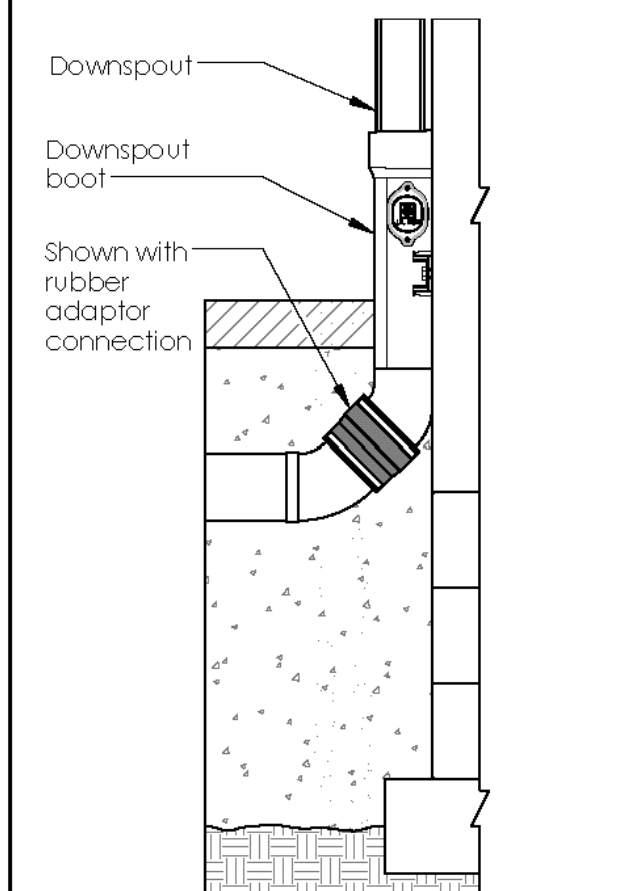
**Material:**  
ASTM A-48 Class 30 Gray Iron

**Configuration:**  
Angular

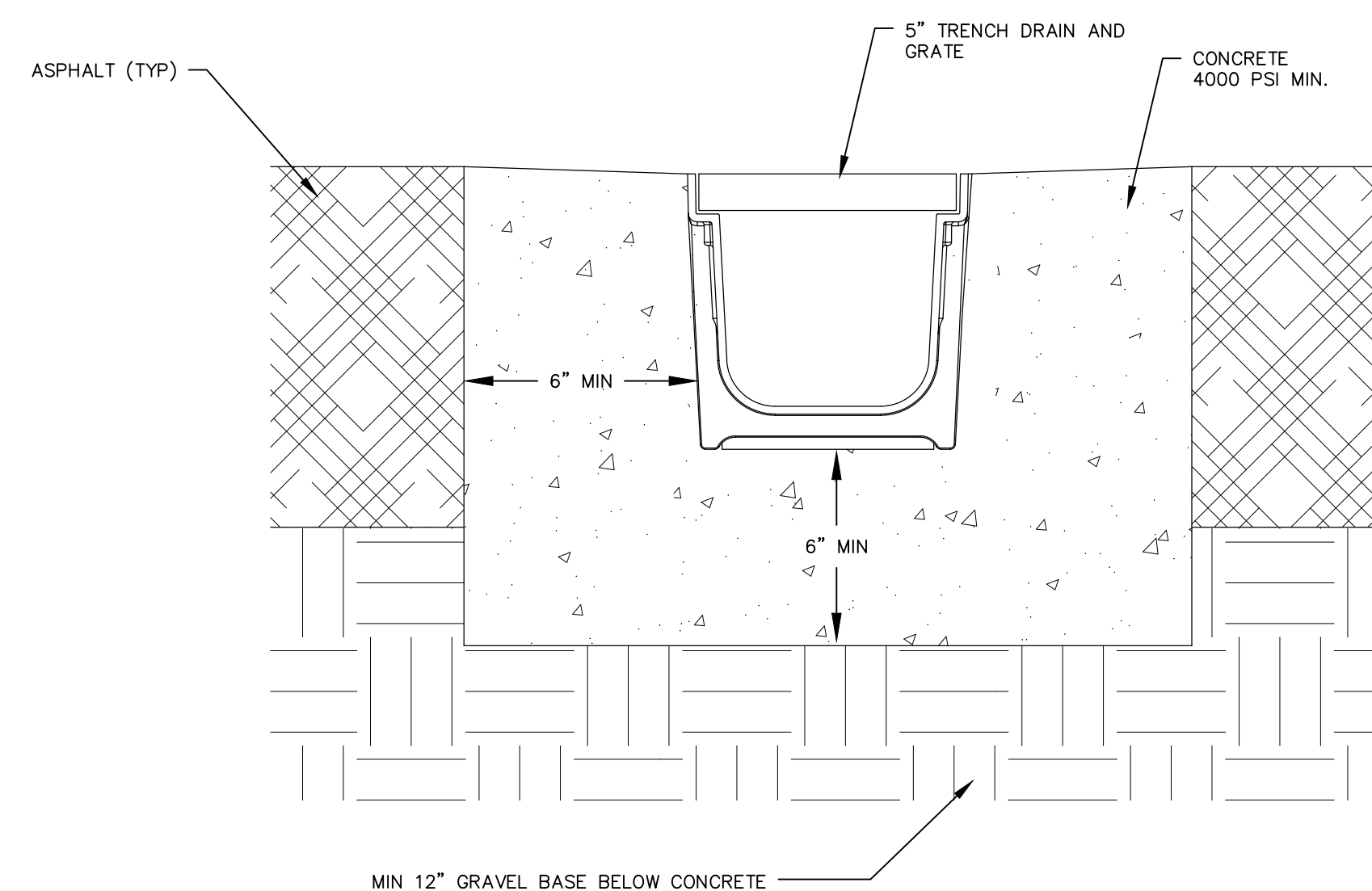
**Cleanout Option:**  
Cleanout access available on all sizes 24" or greater in length. Cast iron cleanout covers with neoprene gasket is secured to downspout boot with stainless steel tamper proof screws.

**Finish Options:**  
- Uncoated - plain cast iron finish  
- Primer Coated - rust inhibitive primer coating for contractor - applied finish coat.  
- Powder Coated - factory applied powder coat finish, color to be selected from manufacturer's standard range.

**Accessories:**  
- Rubber adapters, or rubber couplings, provide connection from downspout boot outlet to underground drainage pipe  
- Mounting hardware consists of stainless steel anchors, bolts and washers to install downspout boots on the building wall.



ANGULAR DOWNSPOUT BOOTS  
NOT TO SCALE



NOTES:

TRENCH DRAIN SHALL CONSIST OF POLYCAST 700 SERIES 600N WITH DG06141D SLOTTED DUCTILE IRON GRATE AND FRAME OR APPROVED EQUAL.

TRENCH DRAIN SHALL BE EMBEDDED IN A MINIMUM OF 6" OF CONCRETE (MIN 4000PSI). REFER TO MANUFACTURERS METHODS OF INSTALLATION FOR ADDITIONAL INFORMATION.

PLACE CONCRETE EMBEDMENT ON A MIN OF 12" OF GRAVEL BASE.

CONNECT DOWNSPOUT BOOT INTO TRENCH DRAIN (DISCHARGE BELOW GRATE)

INSTALL END CAP W/ OPENING AT DISCHARGE POINT IN SWALE

TYPICAL TRENCH DRAIN DETAIL  
NOT TO SCALE

ZUVIC  
ZUVIC ENGINEERING INC. 1000  
NEW HAVEN, CT 06511  
TEL: 203.289.1111 FAX: 203.289.1112

JACOBS

STANDARD DETAILS  
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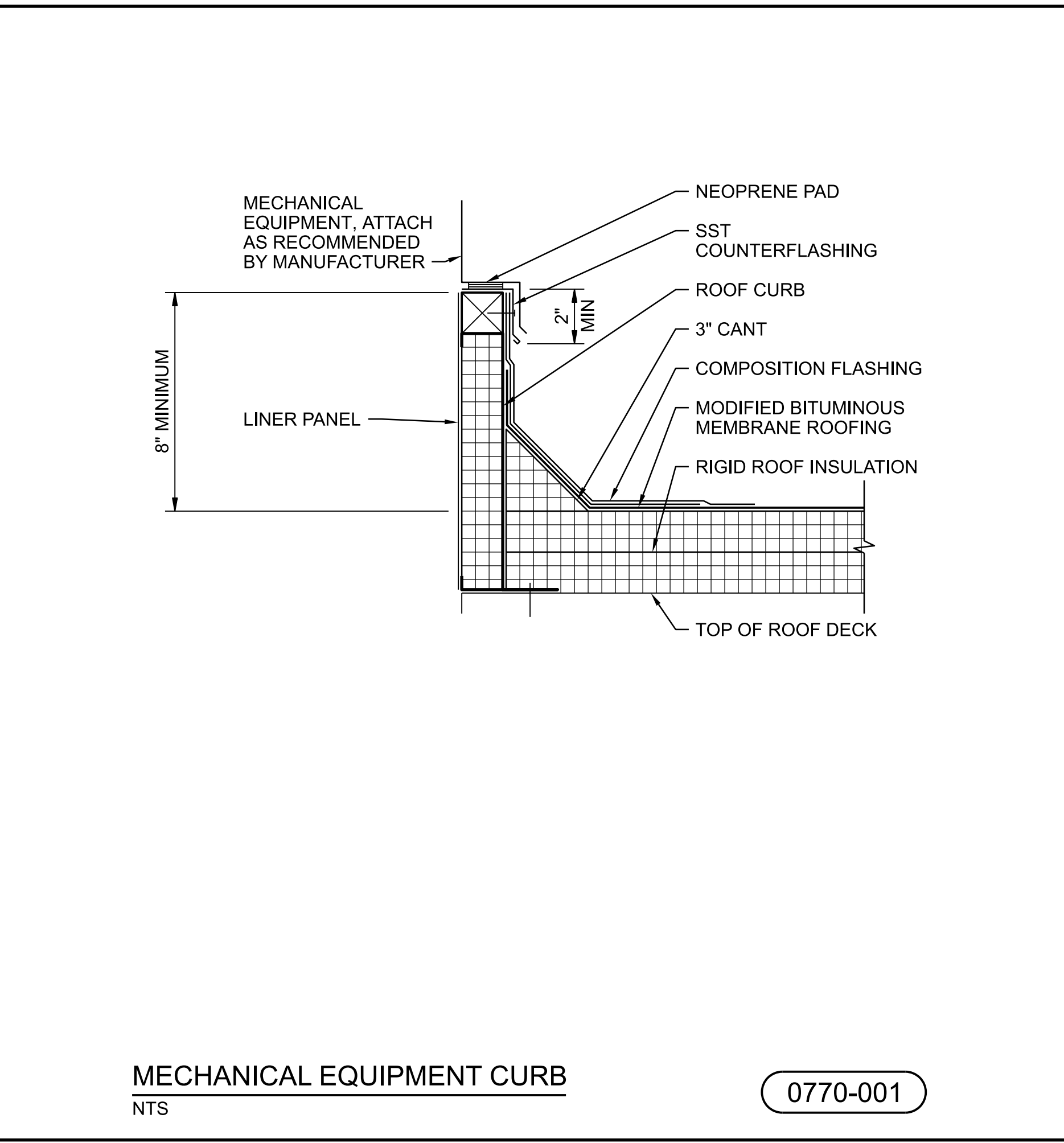
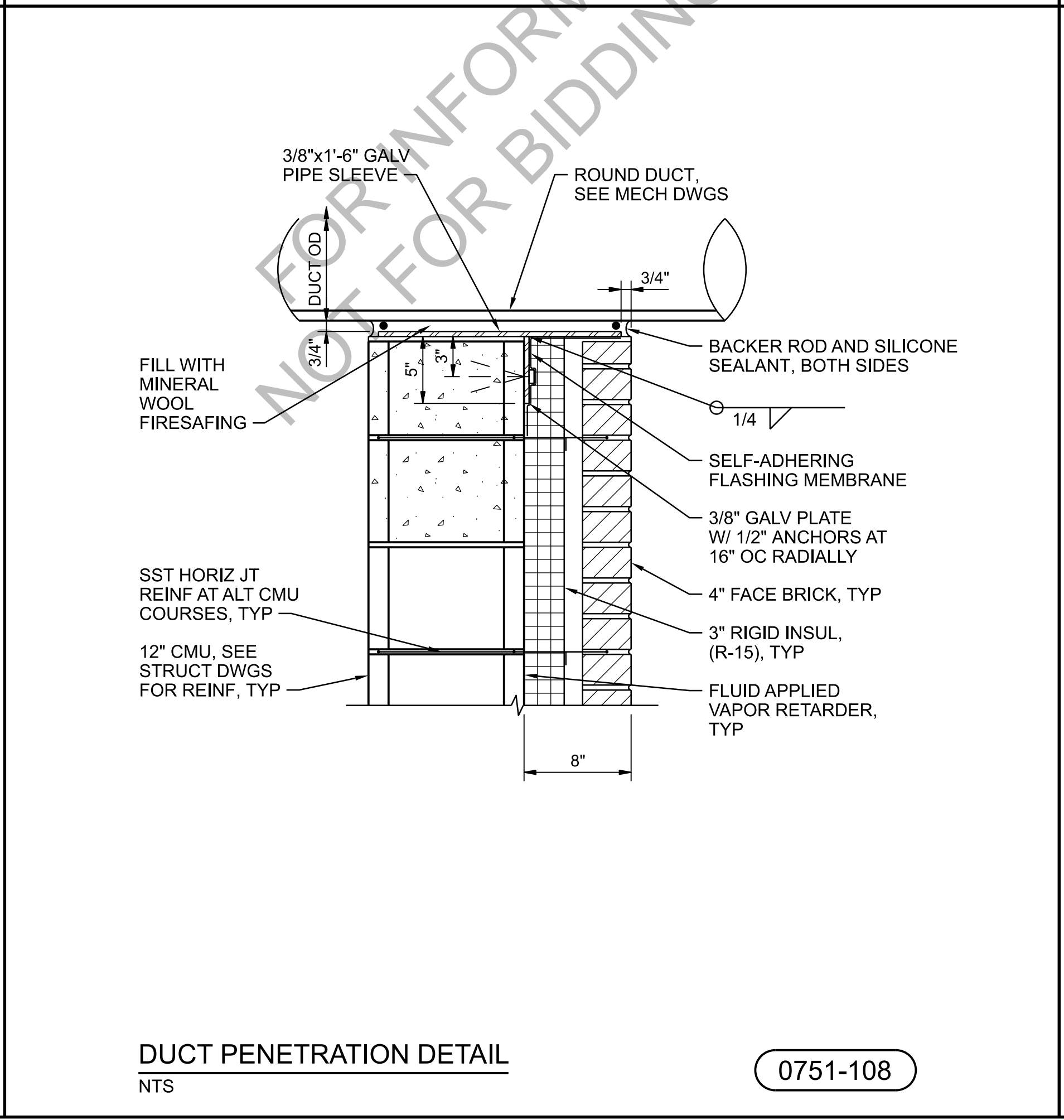
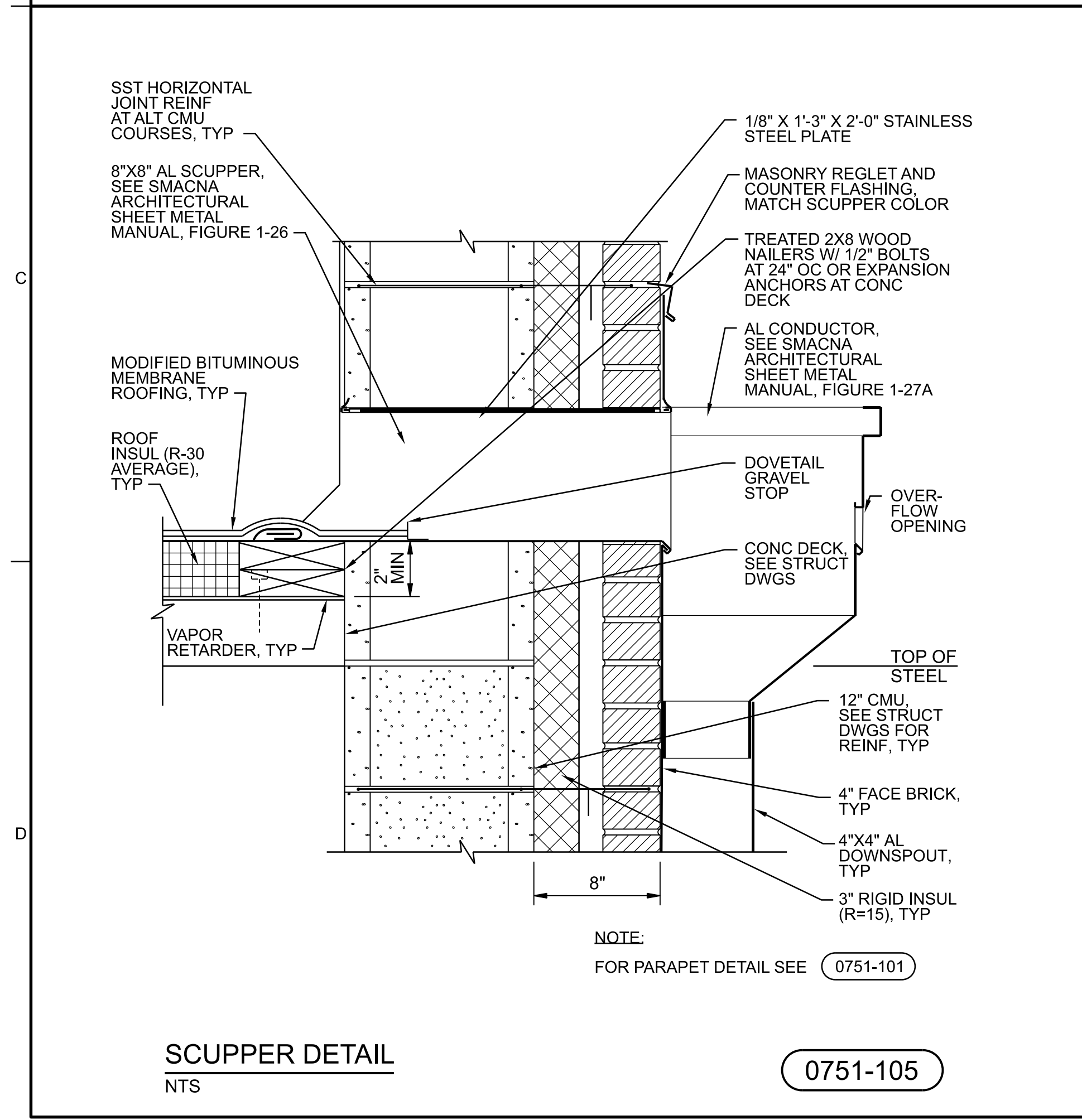
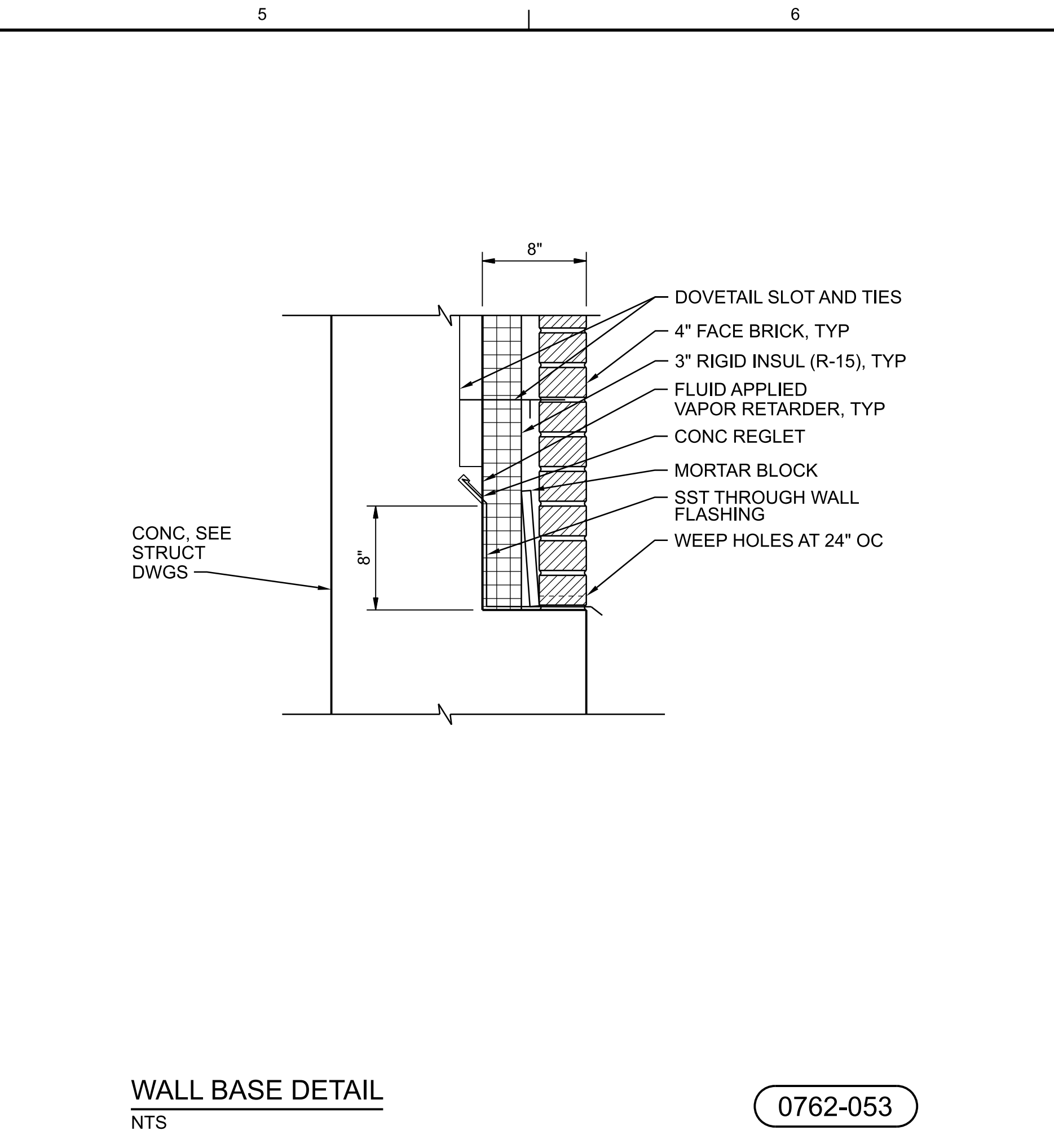
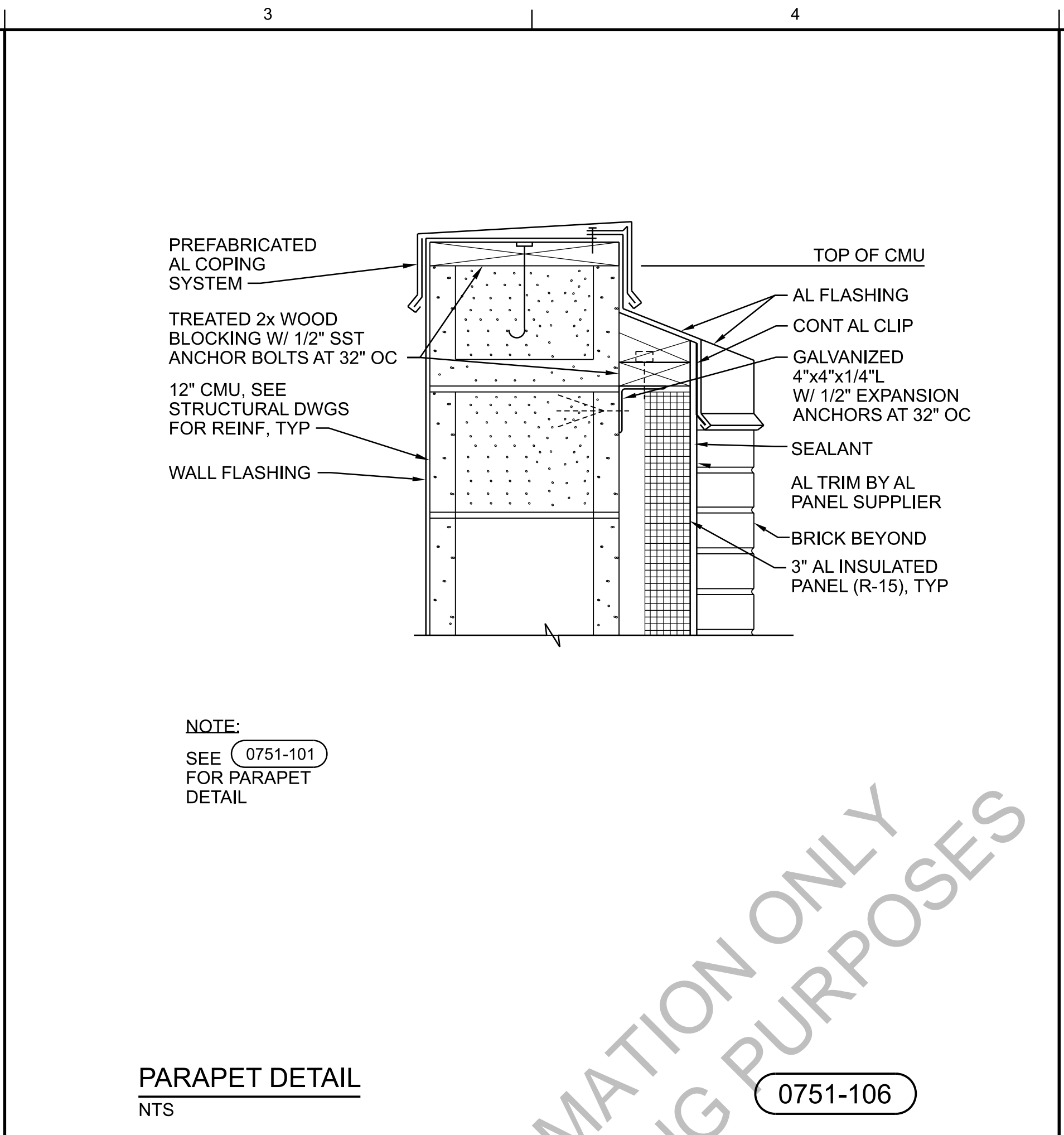
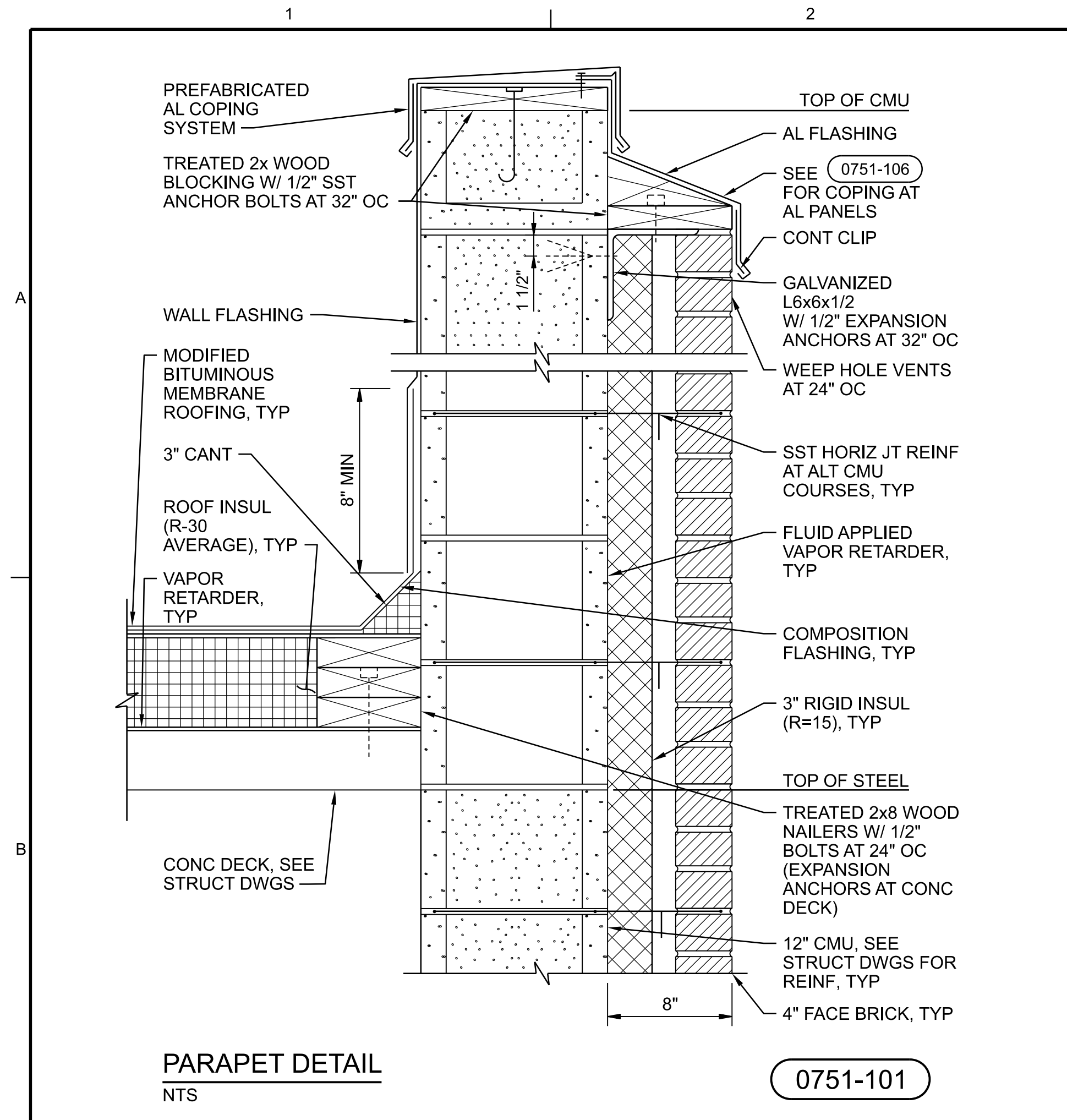
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Greater New Haven Water Pollution  
Control Authority New Haven, CT

NO.	DATE	DR	CHK	APVD	BY	APVD
		F WALSH	D VILL	F WALSH		
						DL LYNCH

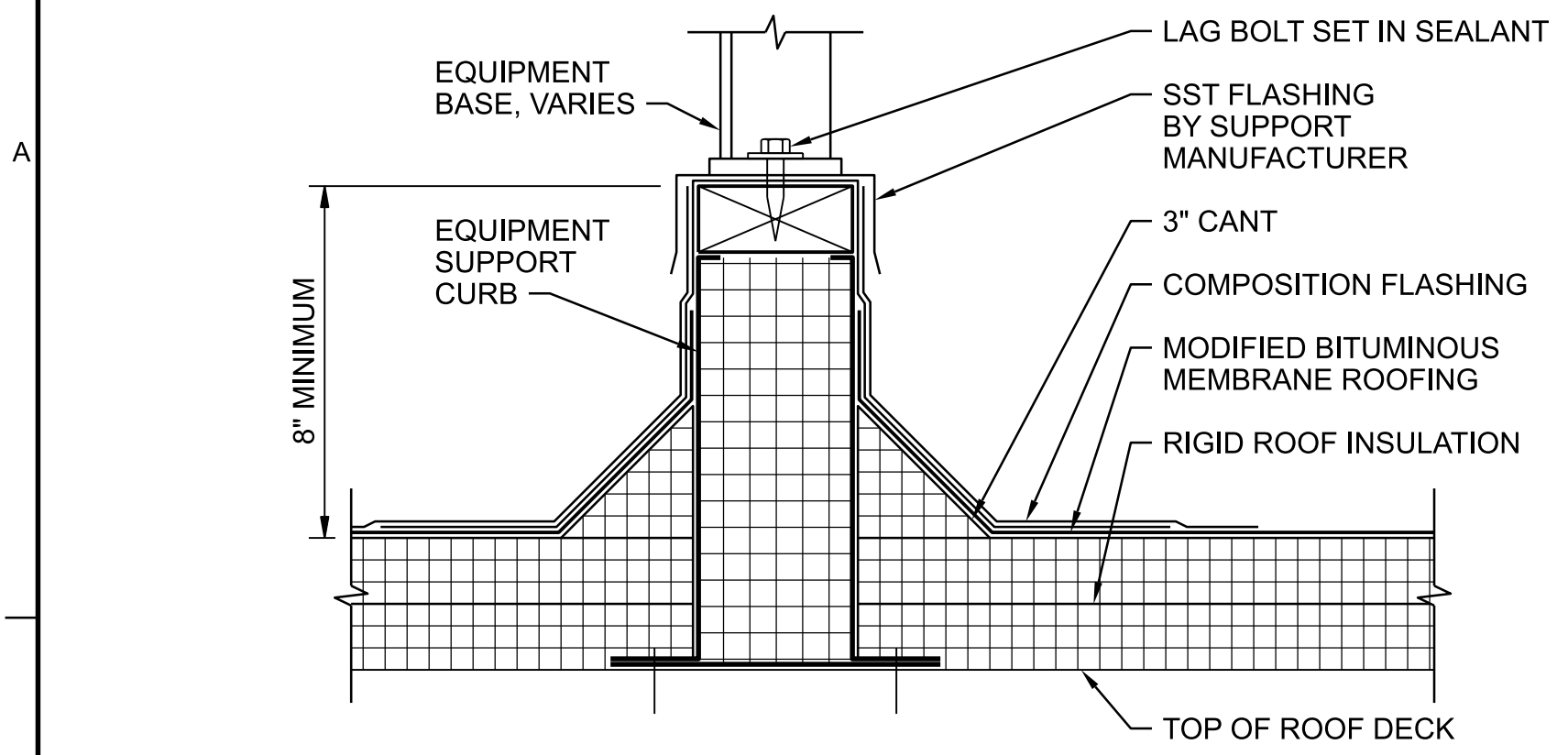
VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING.	
DATE	JULY 2023
PROJ	E2X90000
DWG	SD-C-502
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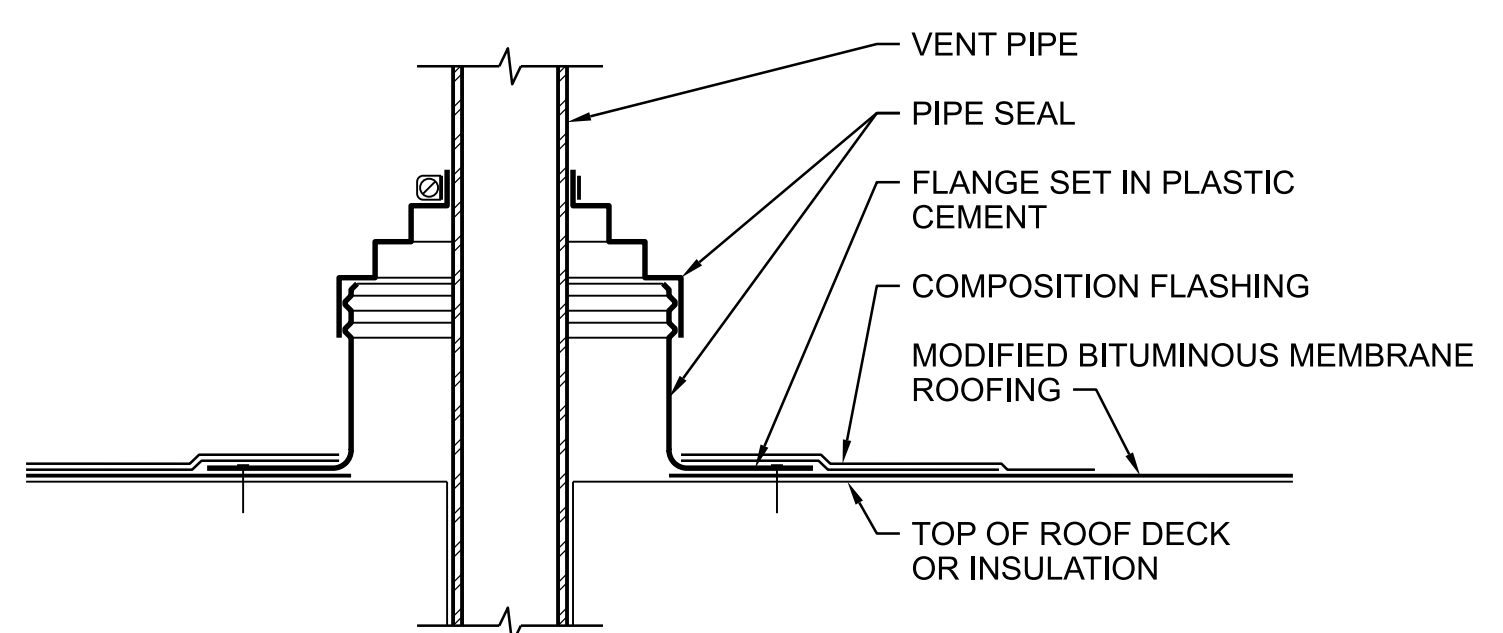
BID READY



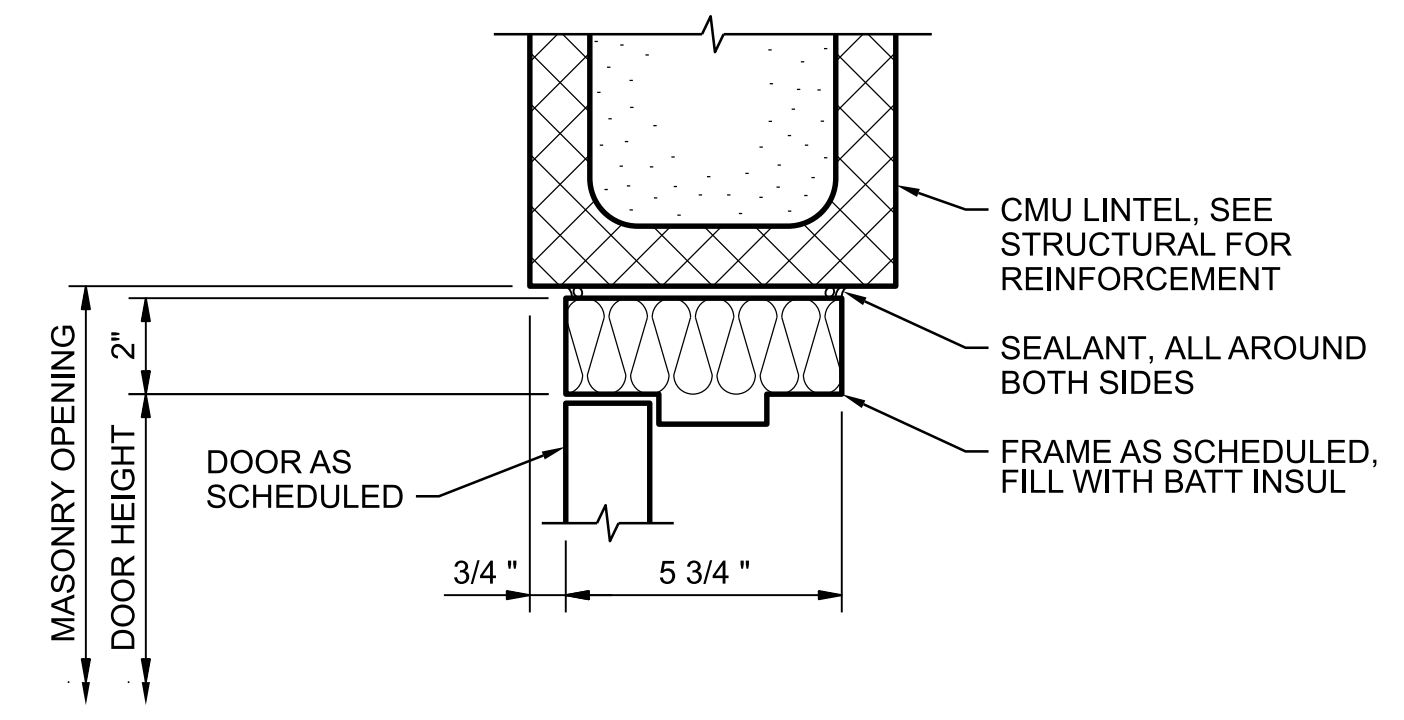
PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL				EAST SHORE WATER POLLUTION ABATEMENT FACILITY		Greater New Haven Water Pollution Control Authority New Haven, CT		REUSE OF DOCUMENTS: THIS DOCUMENT AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, IS THE PROPERTY OF JACOBS AND IS NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF JACOBS.		DL LYNCH	
NO.	DATE	DR	REVISION	CHK	APVD	BY	APVD	A DOLSAK			
		RG SIEBERS		DL MICHALEK				DL LYNCH			
<p><b>JACOBS</b> SD - STANDARD DETAILS ARCHITECTURAL</p> <p>NTS VERIFY SCALE BAR IS ONE INCH ON ORIGINAL DRAWING. DATE: JULY 2023 PROJ: E2X90000 DWG: SD-A-501 SHEET: 83 of 96</p>											



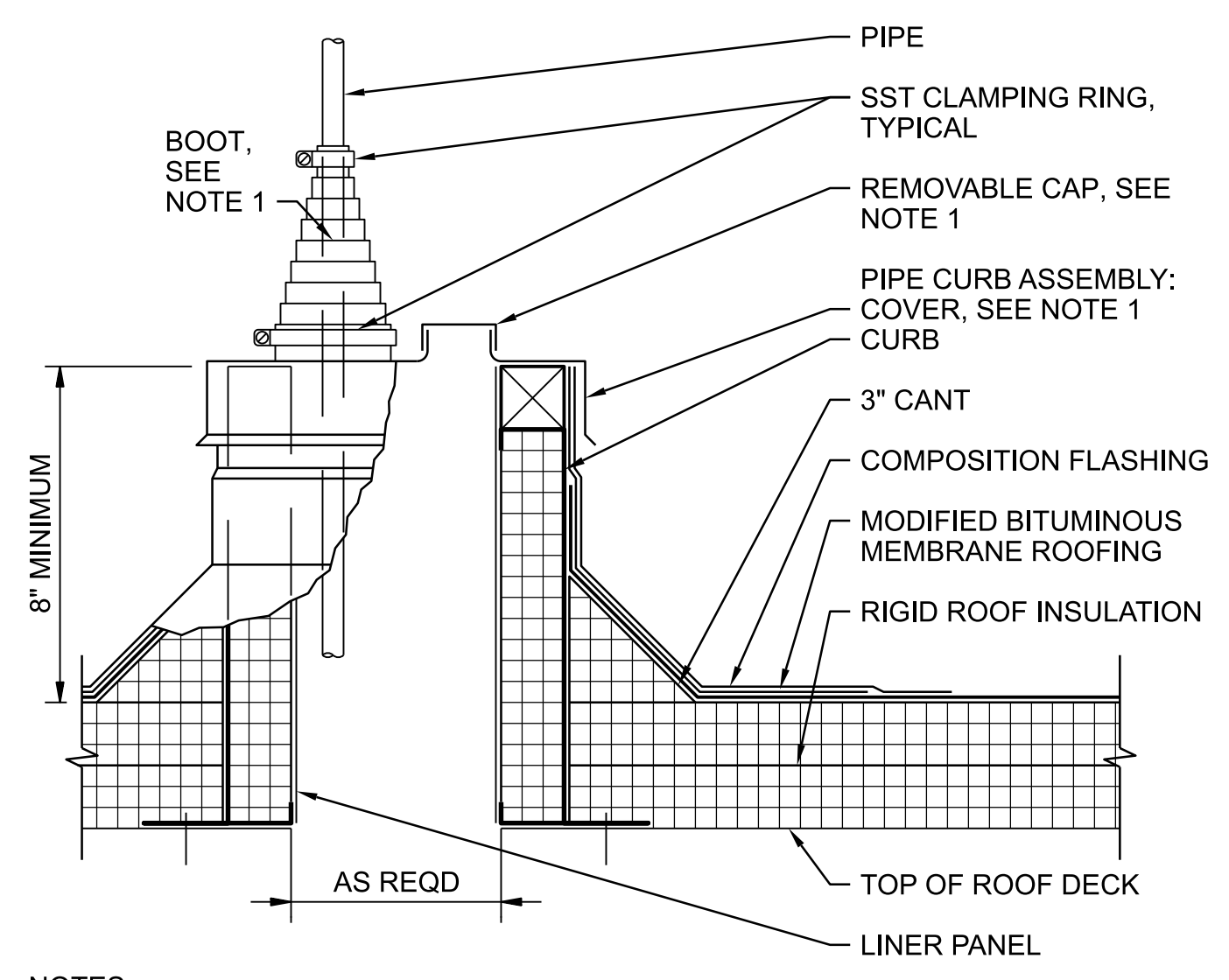
**EQUIPMENT SUPPORT CURB**  
NTS (0770-004)



**PIPE THROUGH ROOF**  
NTS (0770-009)

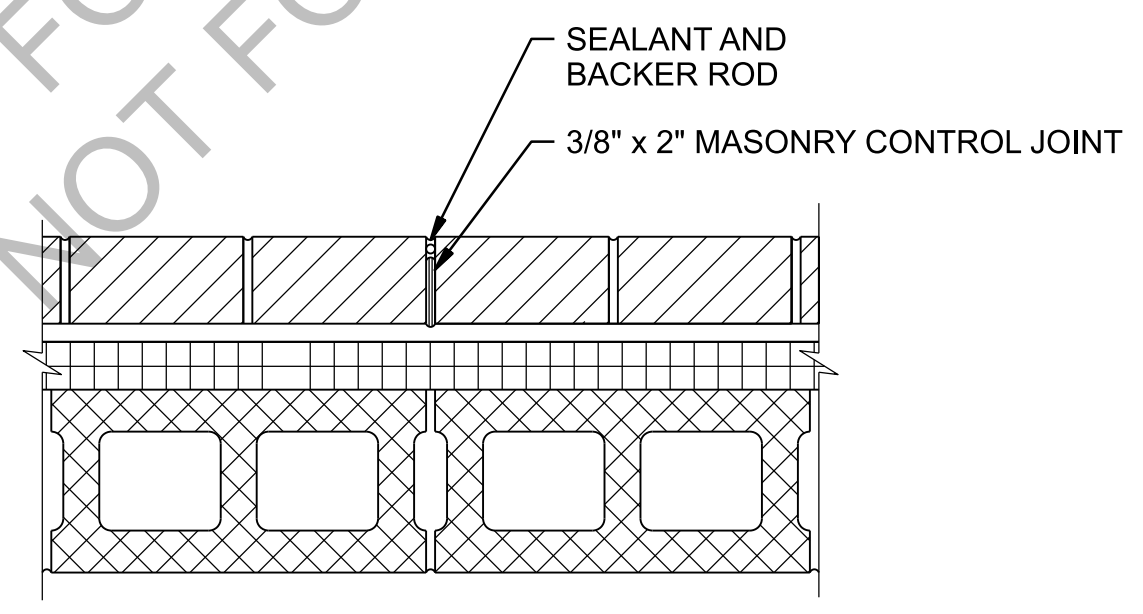


**DOOR HEAD**  
NTS (0811-003)

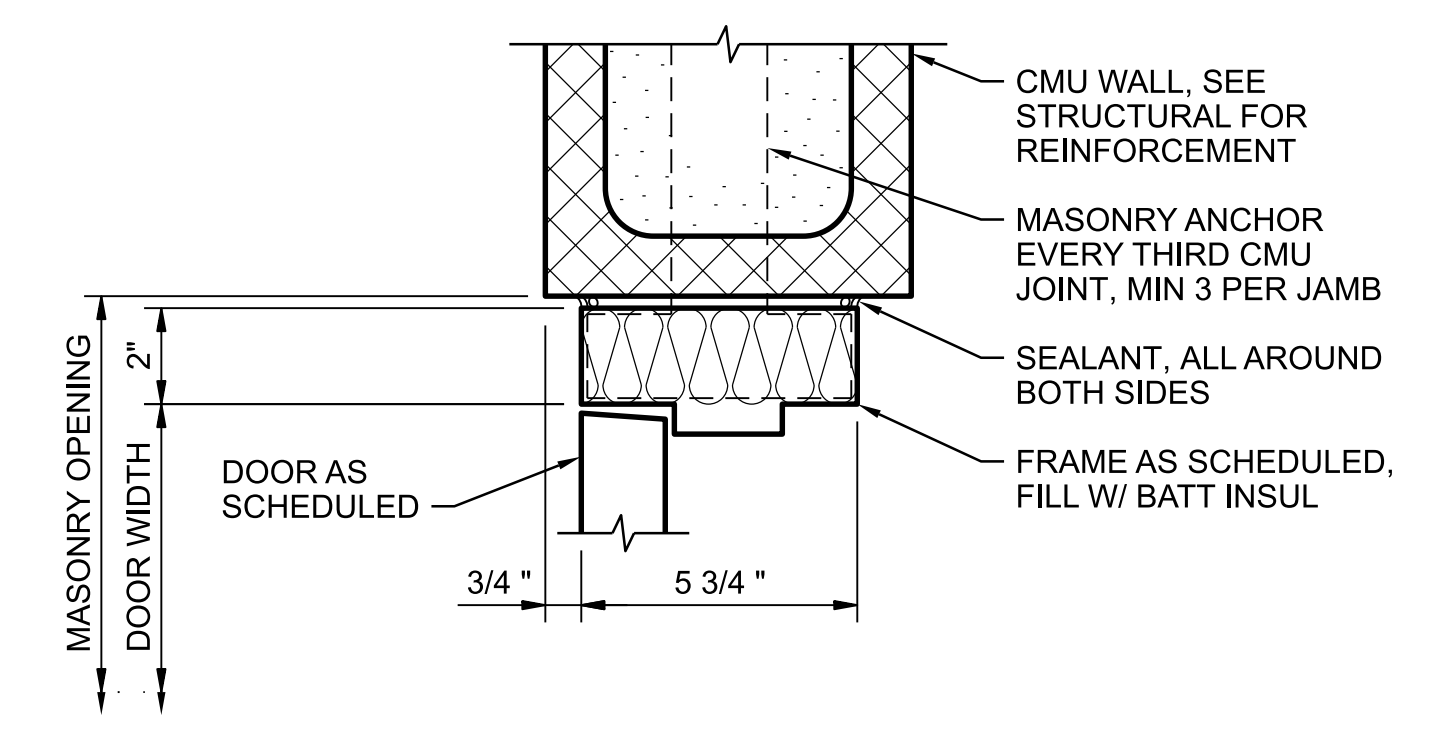


**NOTES:**  
1. PROVIDE COVER AND ACCESSORIES TO SUIT PIPE PENETRATIONS SHOWN ON DRAWINGS.

**PIPE CURB ASSEMBLY**  
NTS (0770-005)



**MASONRY VENEER CONTROL JOINT**  
NTS (0790-102)



**DOOR JAMB**  
NTS (0811-004)

NO.	DATE	DR	REVISION	BY
		RG SIEBERS	CHK	DL LYNCH
		DGN	APVD	A DOLSAK

PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

**Jacobs**  
SD - STANDARD DETAILS  
ARCHITECTURAL

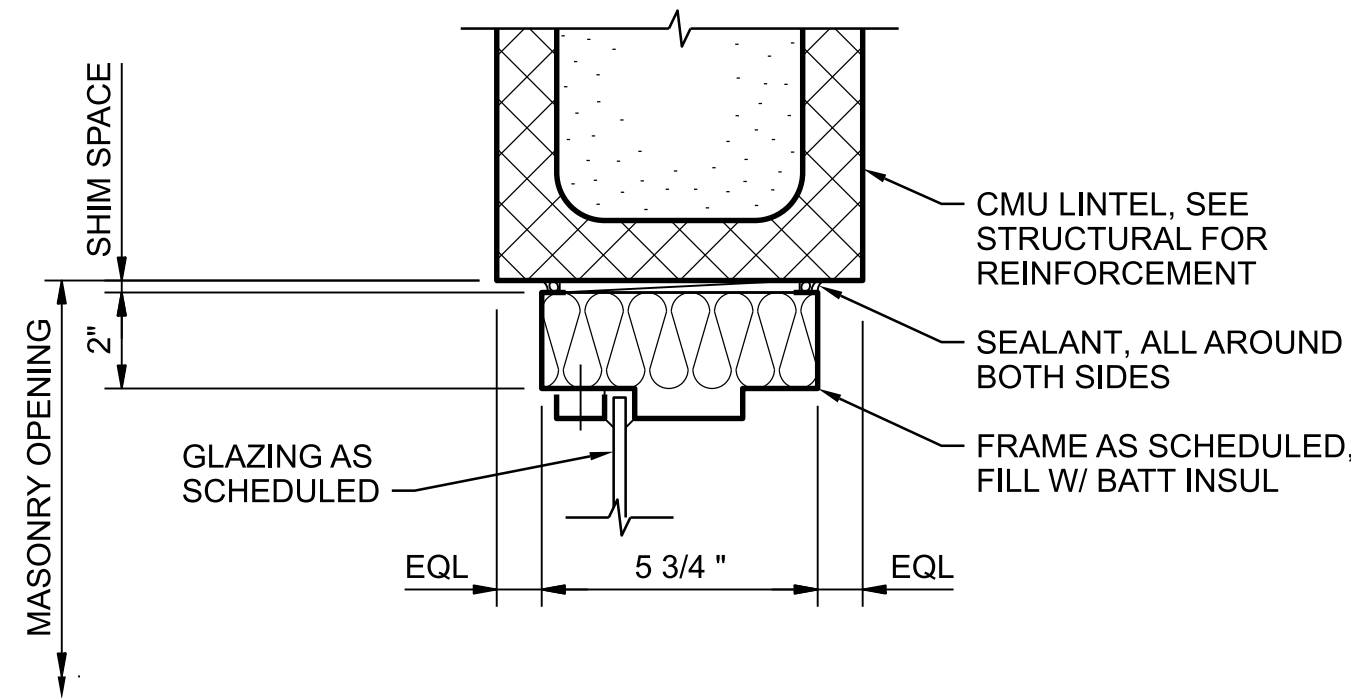
NTS  
VERIFY SCALE  
BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE: JULY 2023  
PROJ: E2X90000  
DWG: SD-A-502  
SHEET: 84 of 96

FOR INFORMATION ONLY  
NOT FOR BIDDING PURPOSES

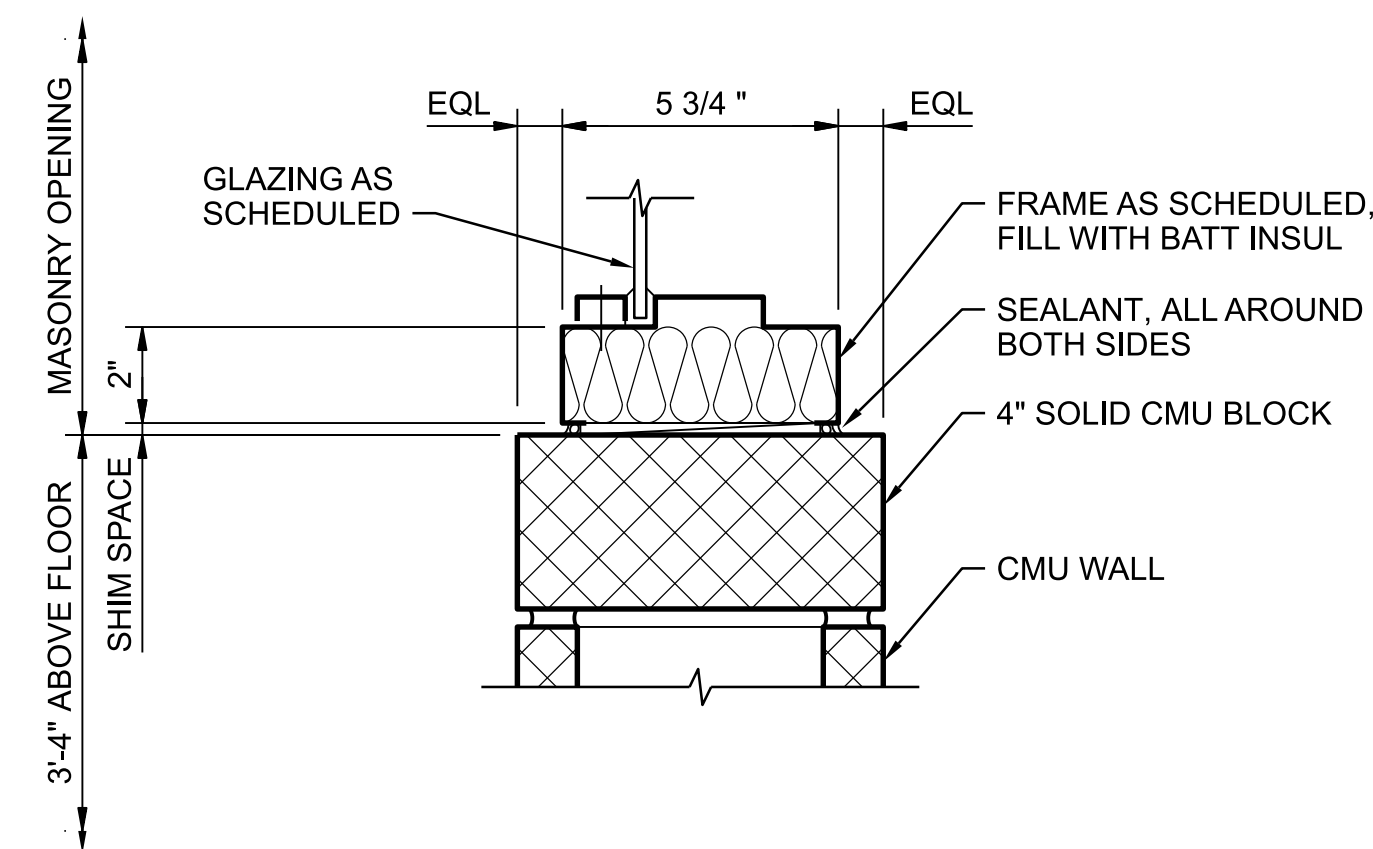
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**BID READY**



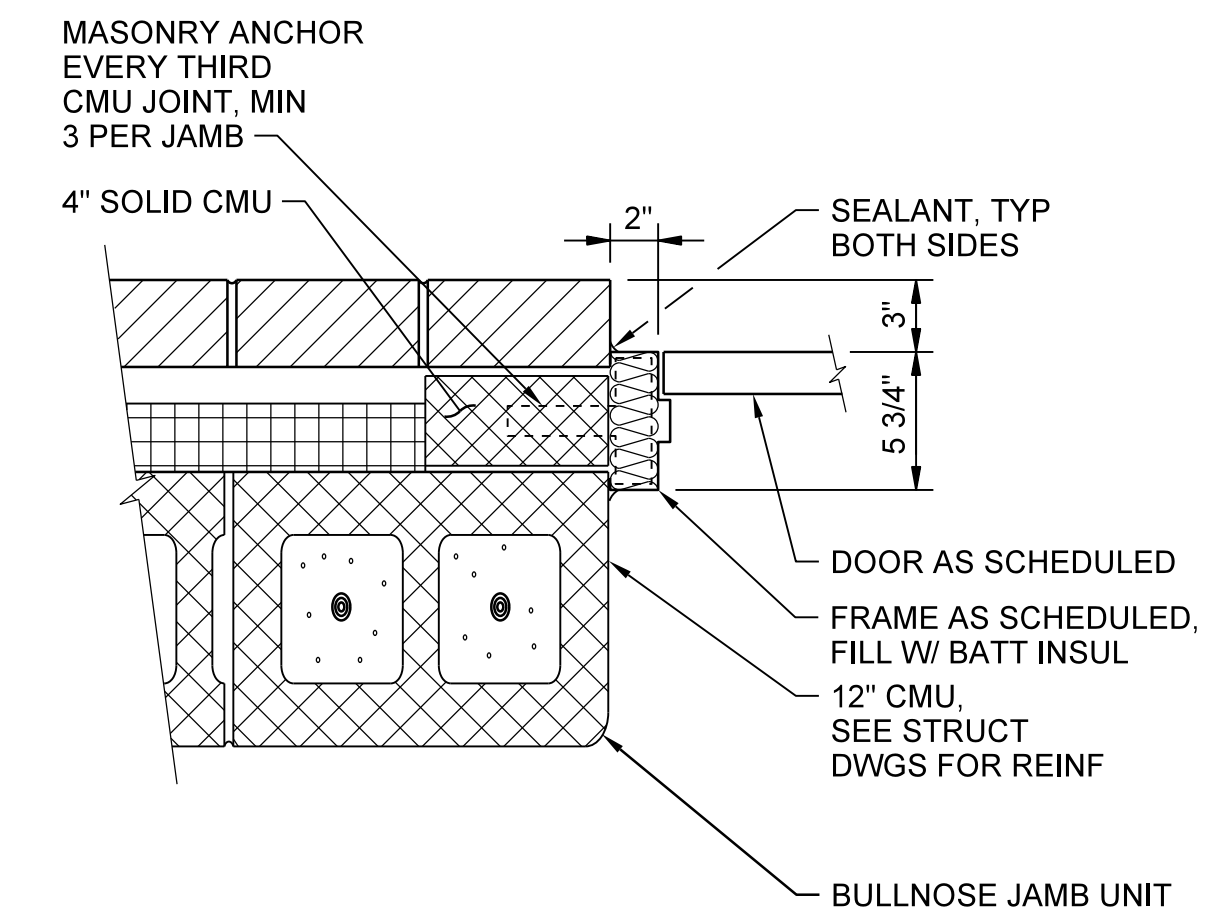
RELIGHT/SIDELIGHT/TRANSOM HEAD  
NTS

0811-010



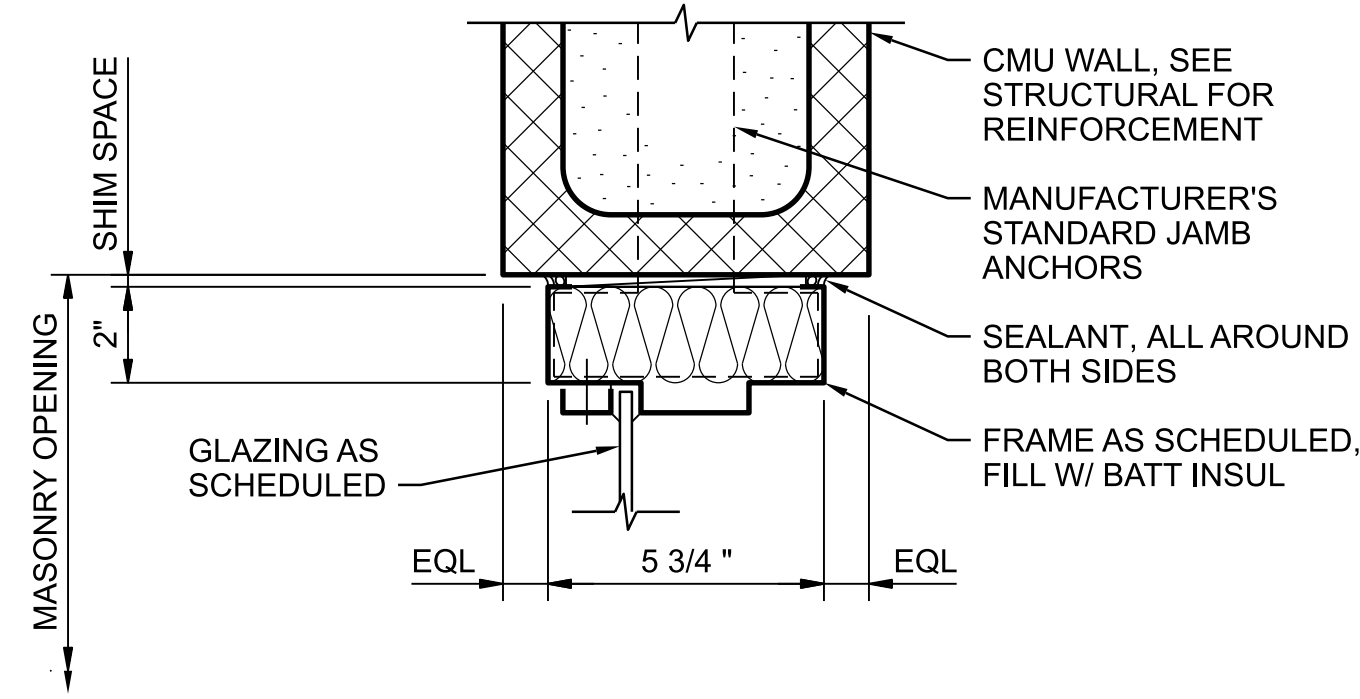
RELIGHT/SIDELIGHT SILL  
NTS

0811-012



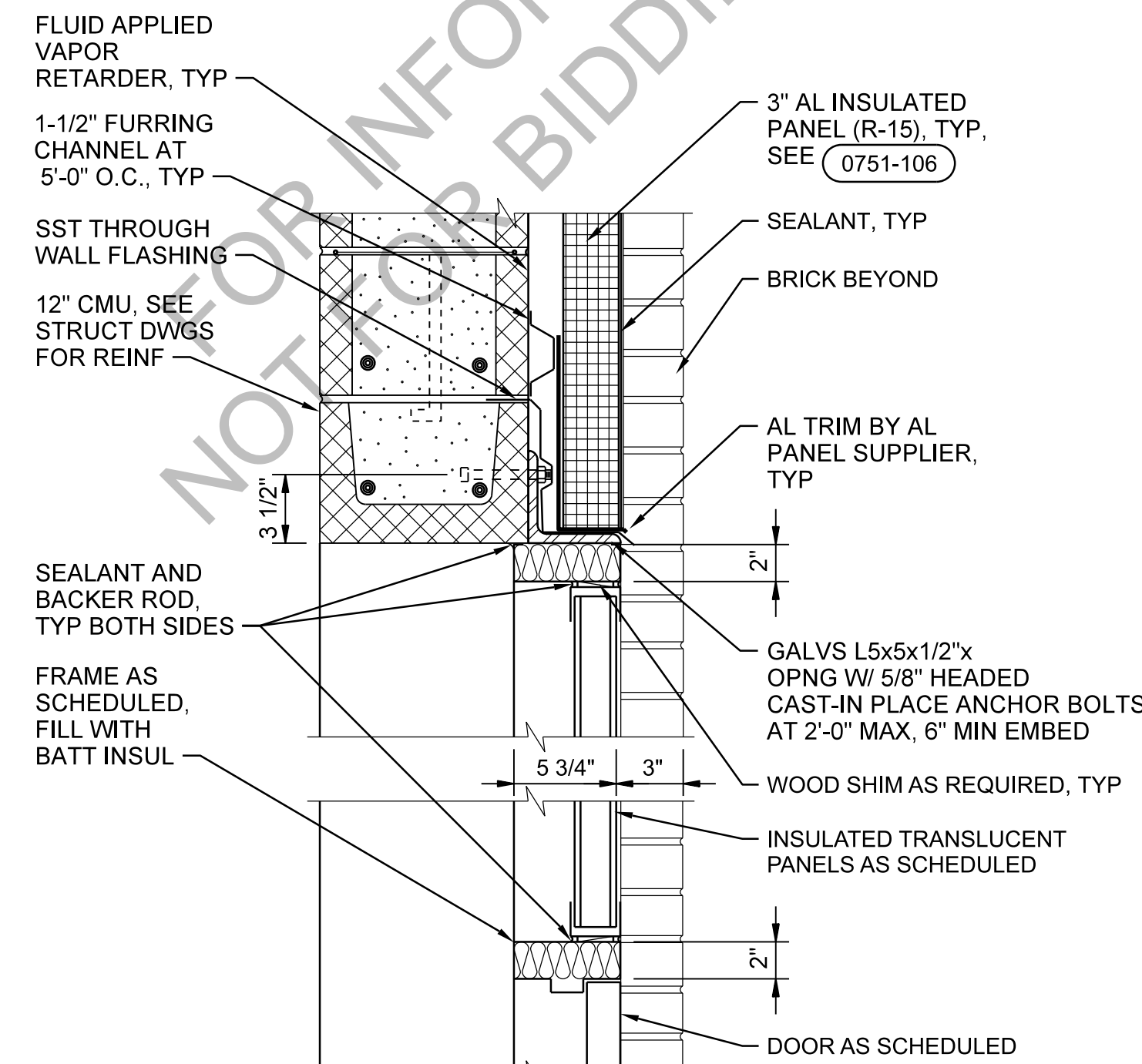
DOOR JAMB DETAIL  
NTS

0811-102



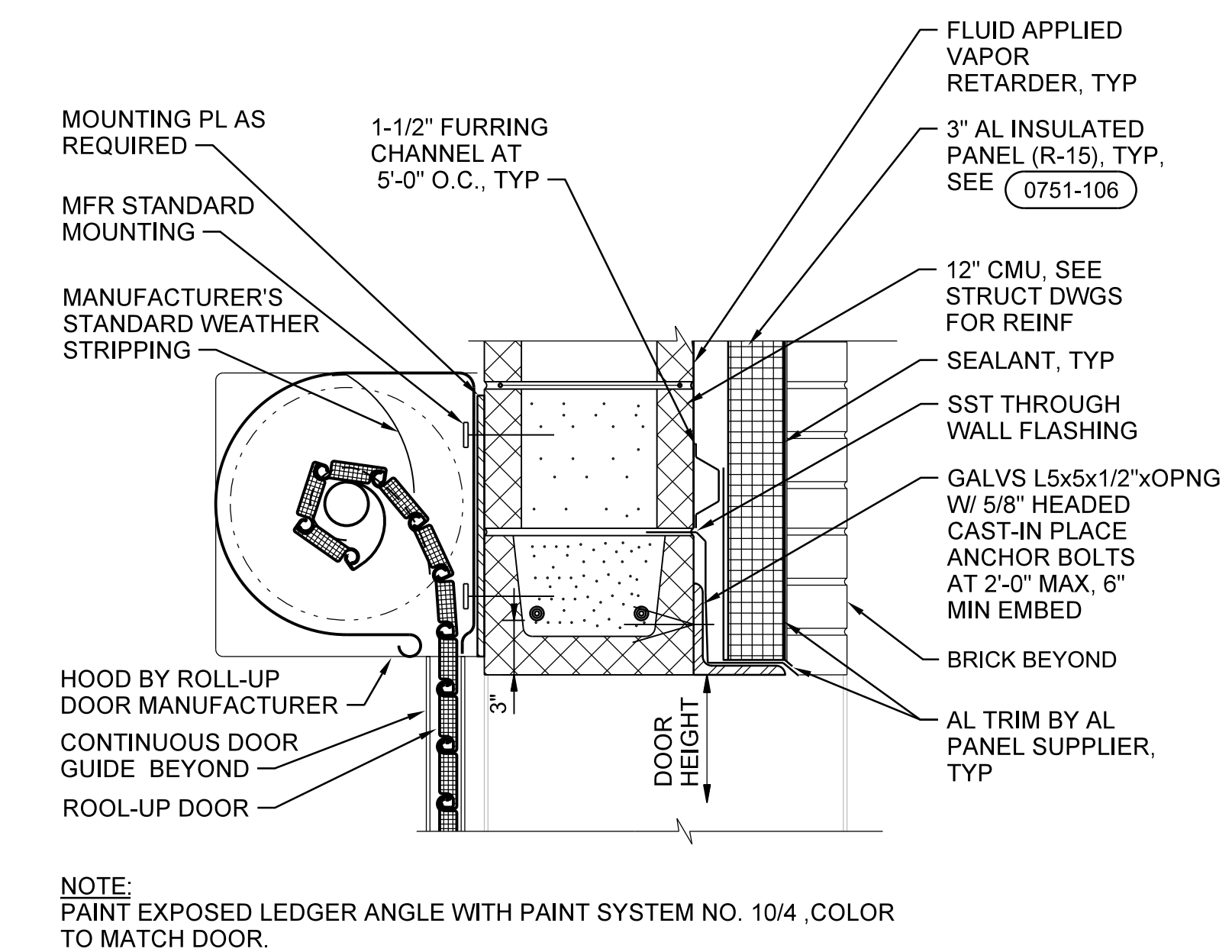
RELIGHT/SIDELIGHT/TRANSOM JAMB  
NTS

0811-011



DOOR HEAD DETAIL  
NTS

0811-101



DOOR HEAD DETAIL  
NTS

0833-101

PROCESS AIR COMPRESSOR SYSTEM  
FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION  
ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

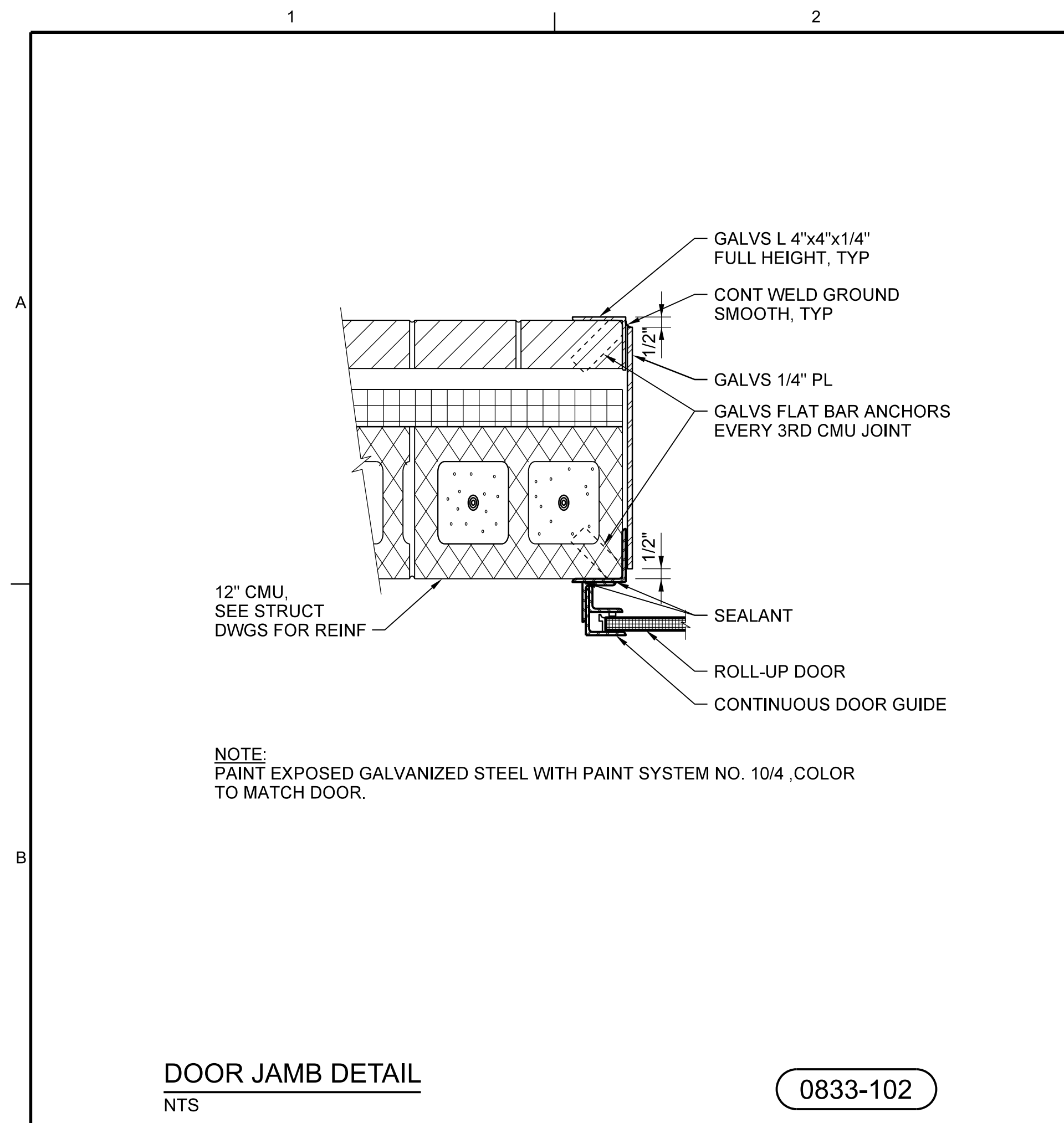
**Jacobs**  
SD - STANDARD DETAILS  
ARCHITECTURAL

NTS	
VERIFY SCALE	
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DATE	JULY 2023
PROJ	E2X90000
DWG	SD-A-503
SHEET	85 of 96

BID READY

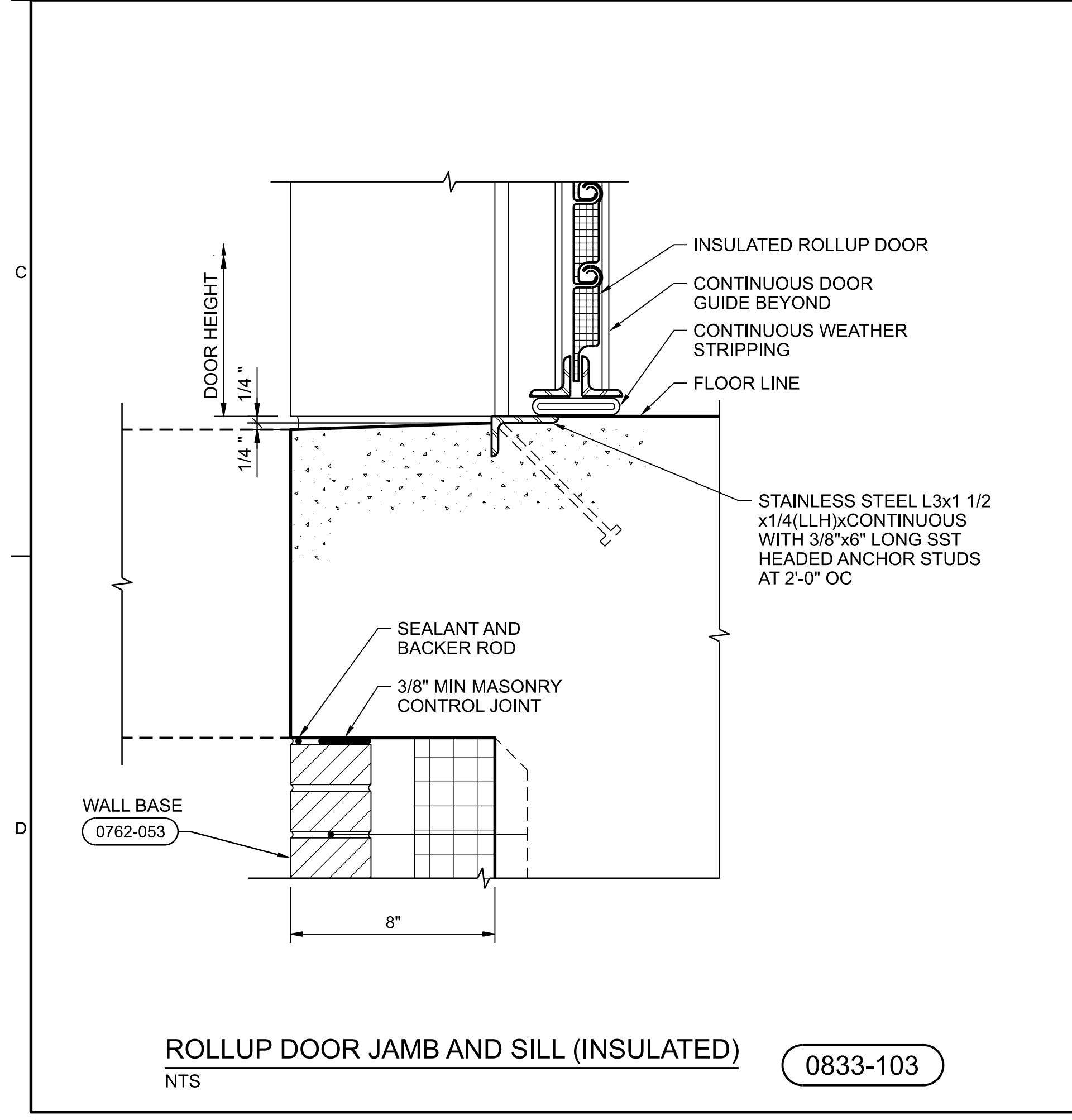
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		RG SIEBERS	CHK	DL MICHALEK	DL LYNCH
				A DOLSAK	



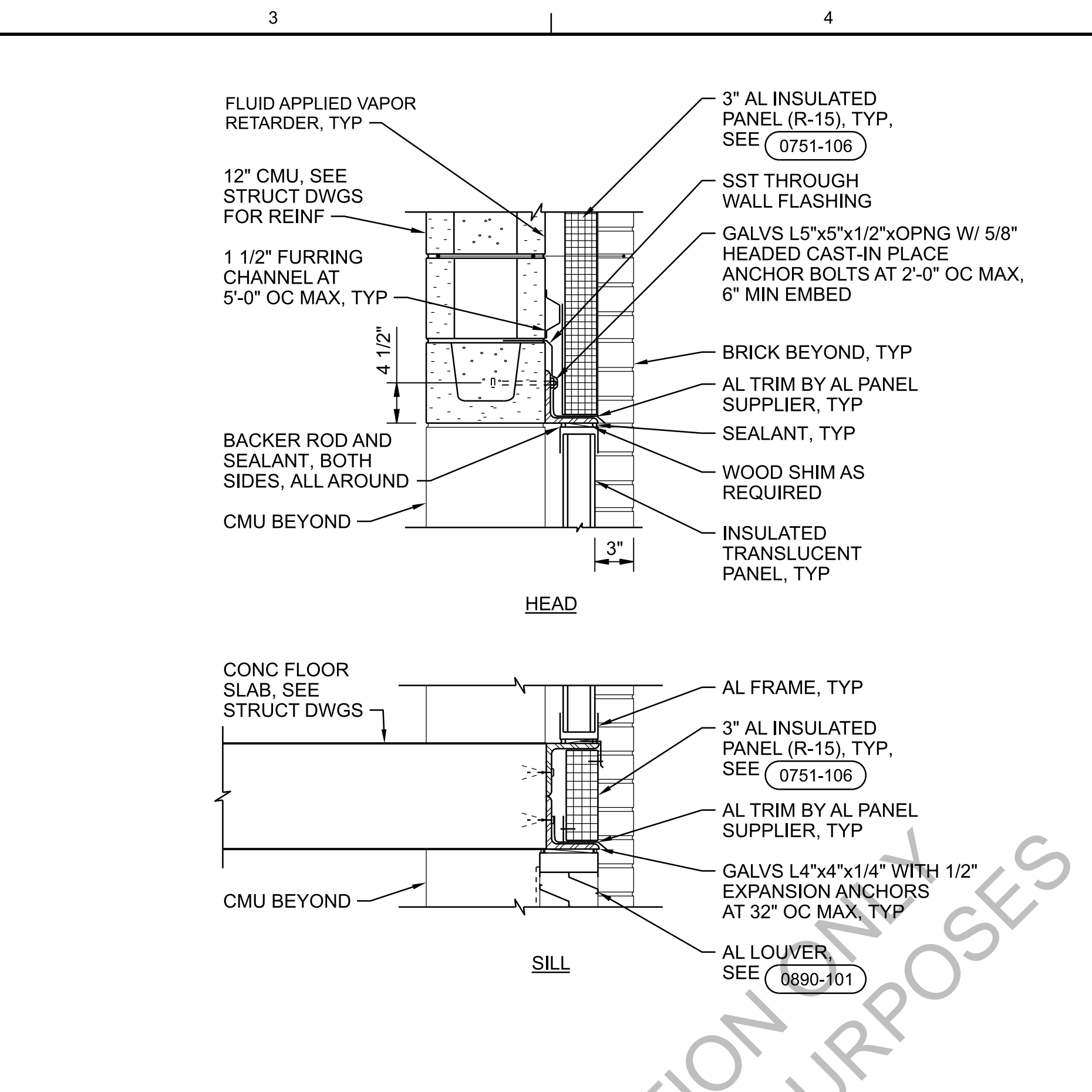
**DOOR JAMB DETAIL**  
NTS

0833-102



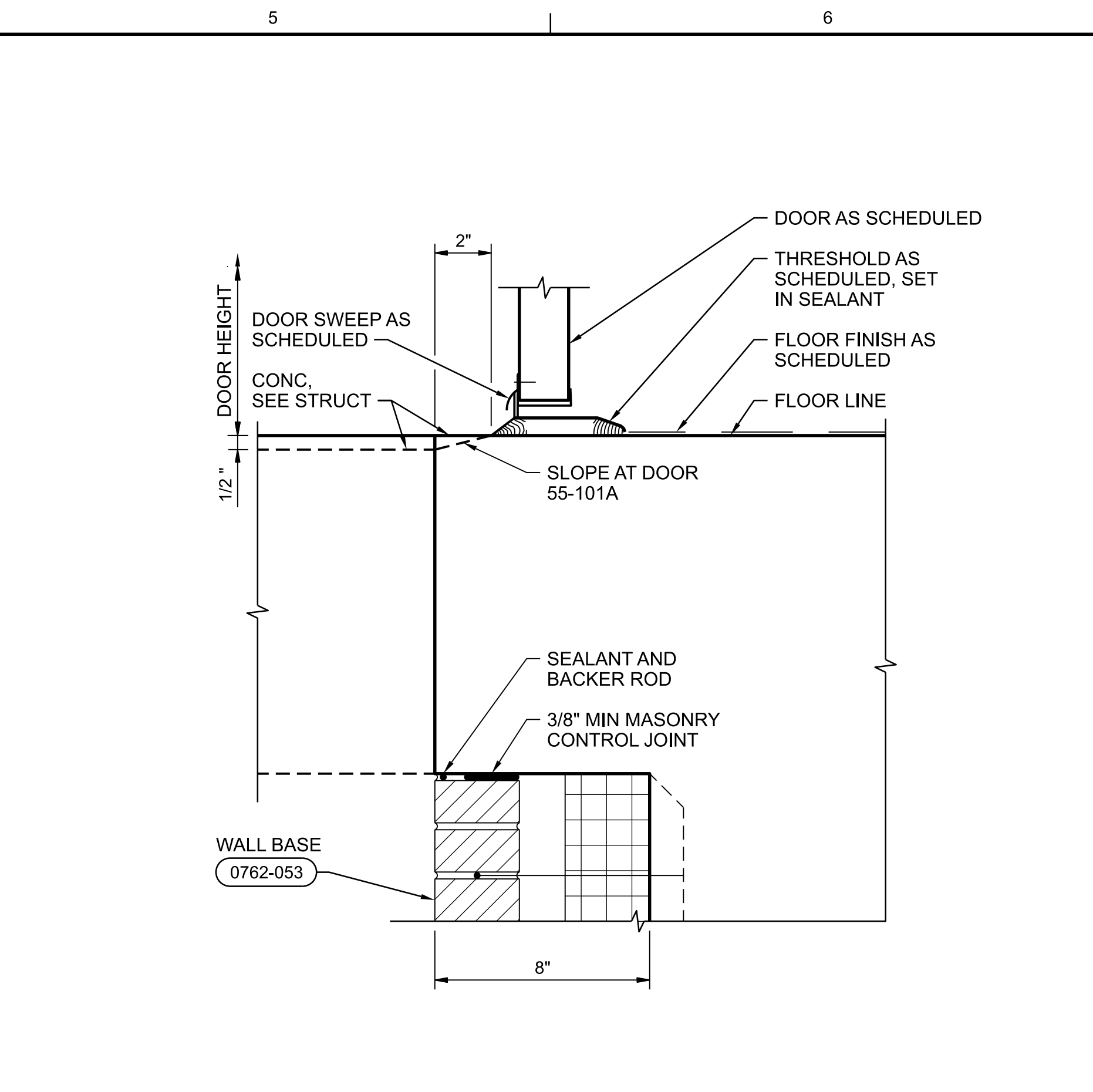
**ROLLUP DOOR JAMB AND SILL (INSULATED)**  
NTS

0833-103



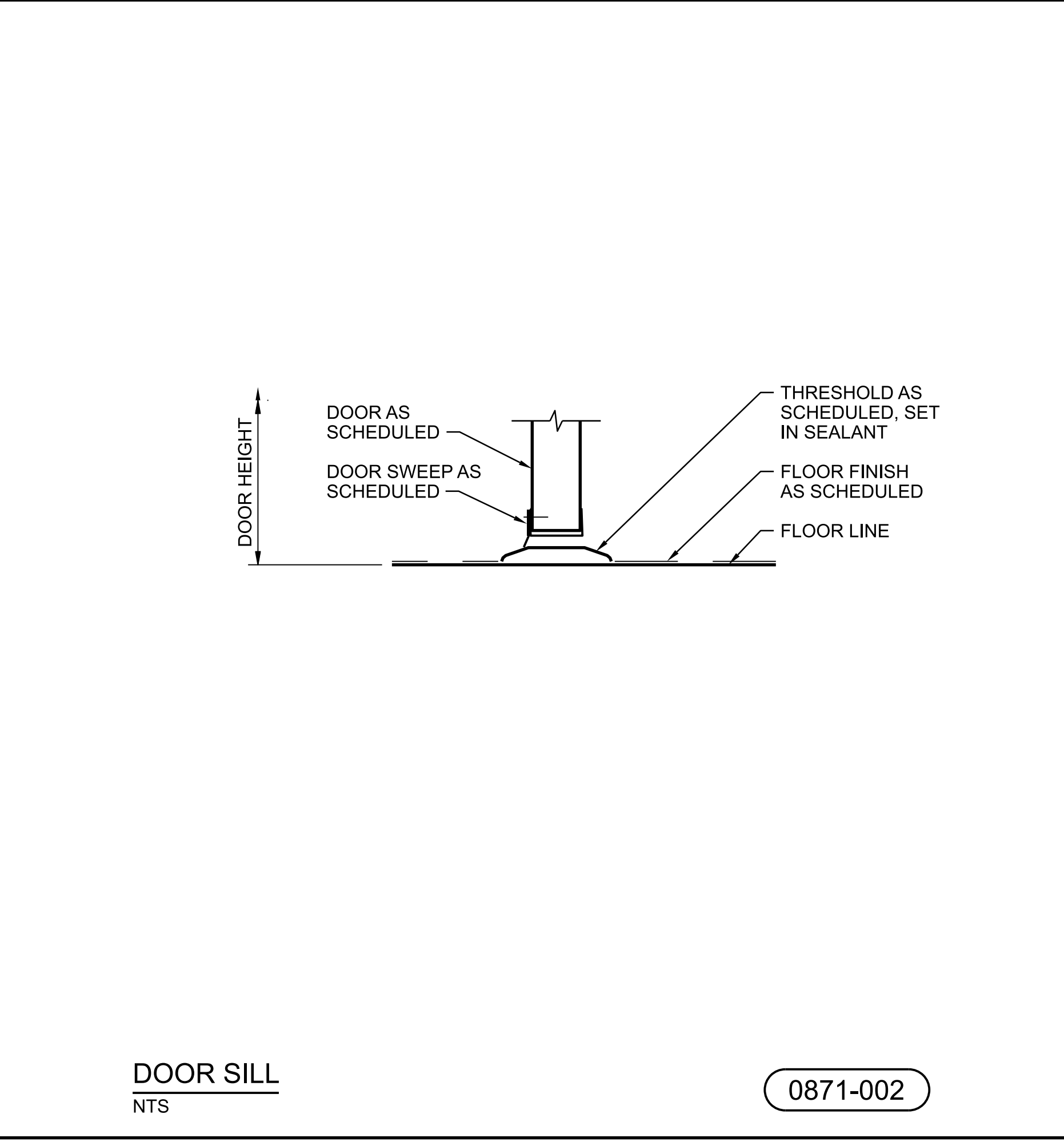
**WINDOW DETAIL**  
NTS

0845-101



**DOOR SILL**  
NTS

0871-001



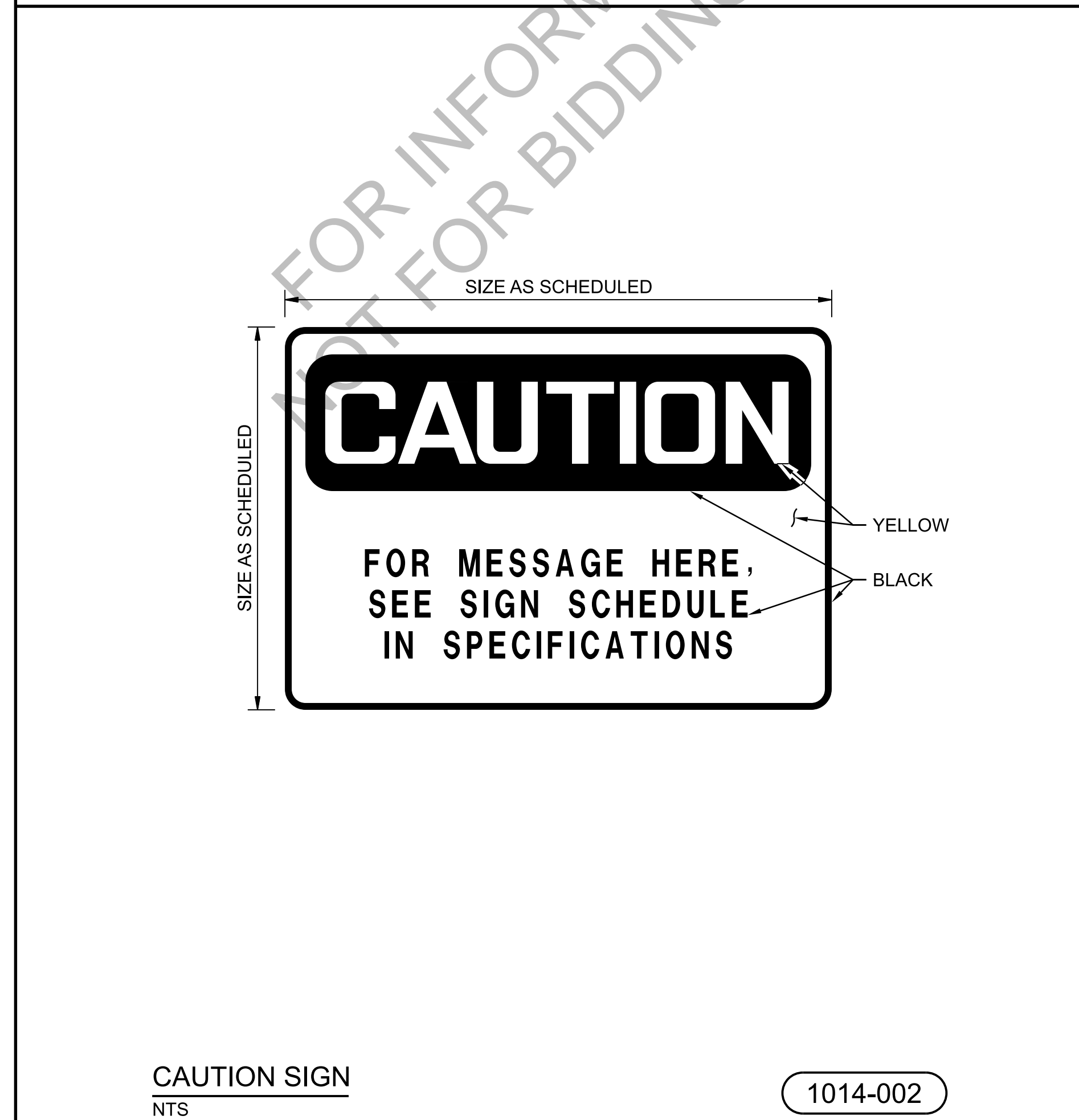
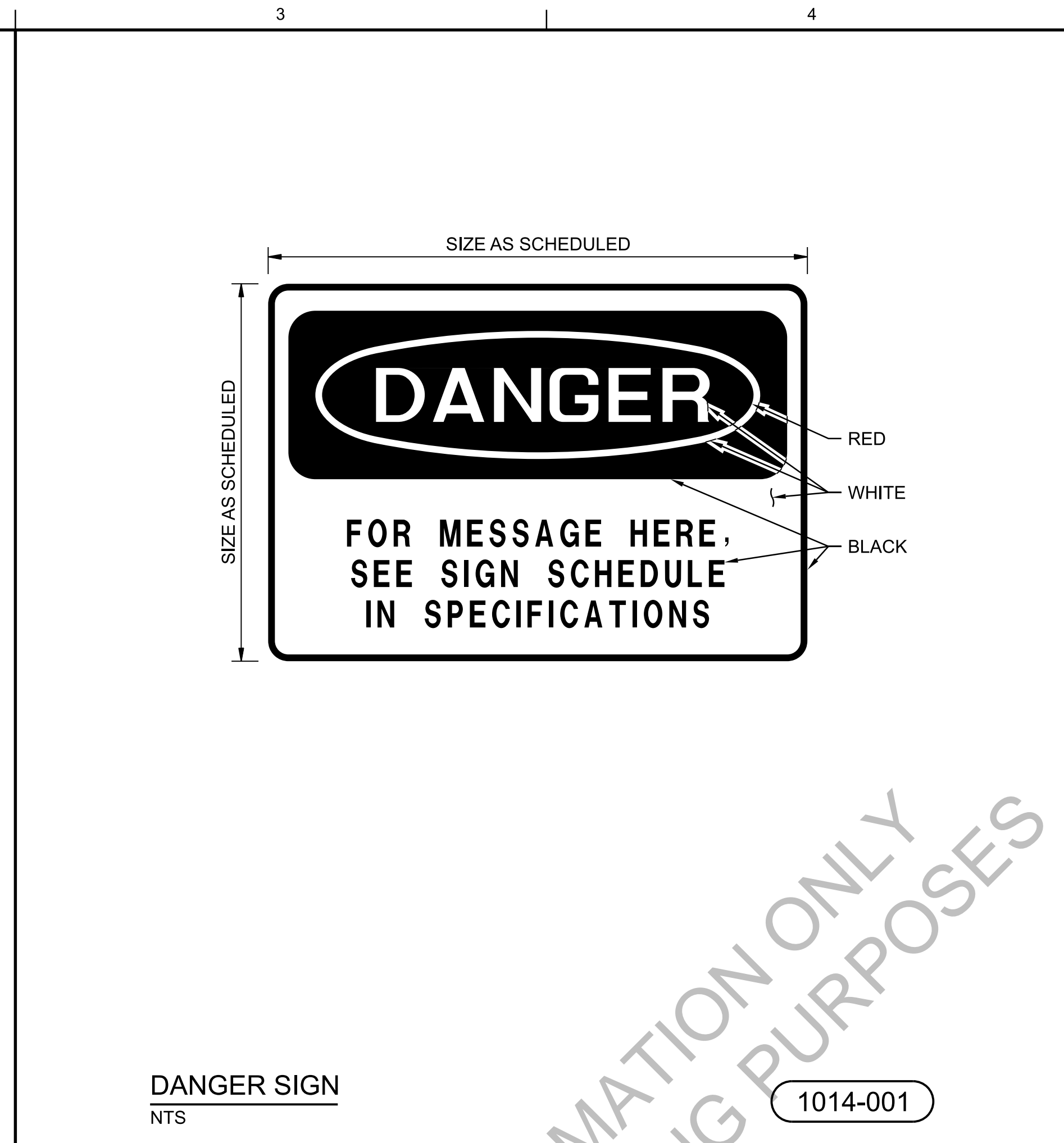
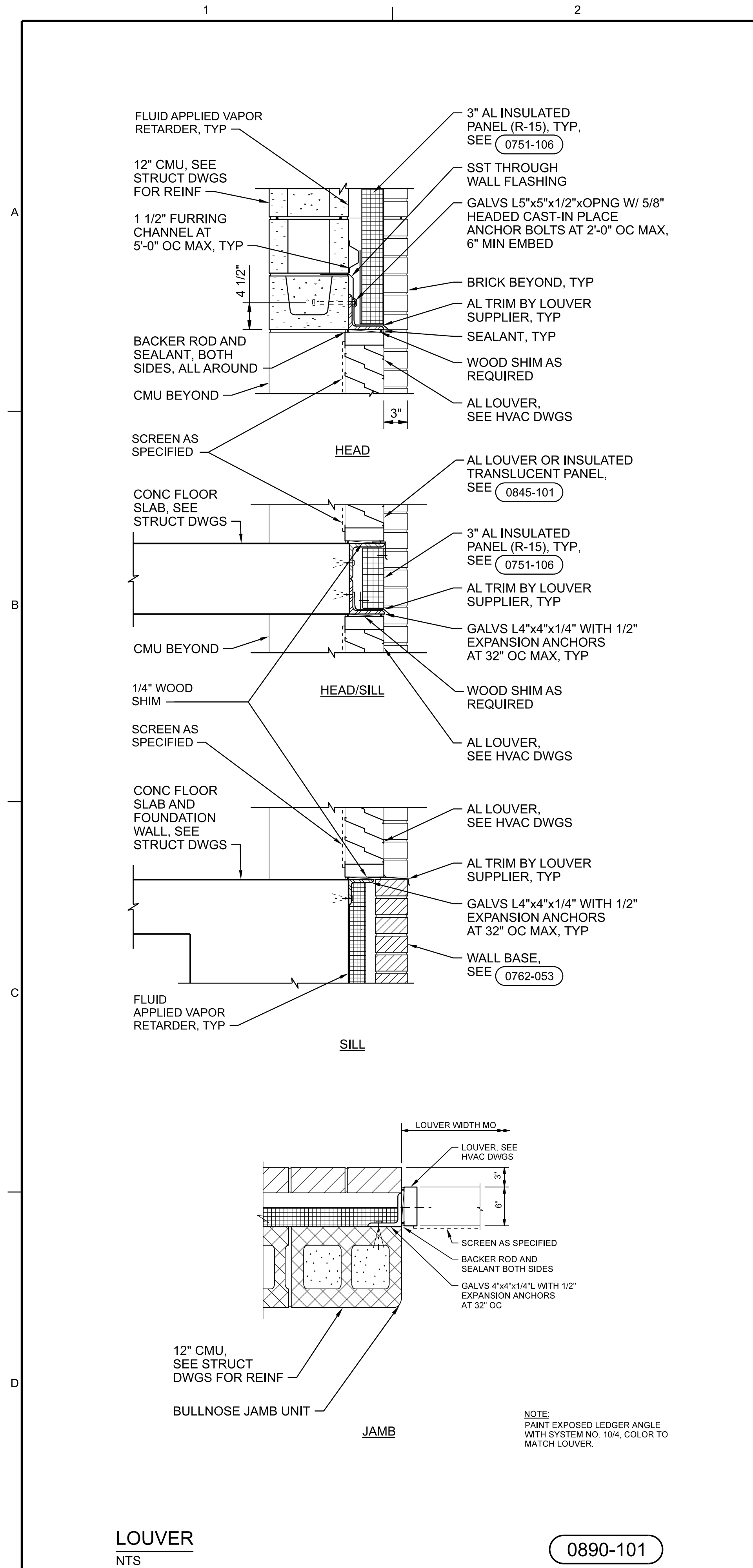
**DOOR SILL**  
NTS

0871-002

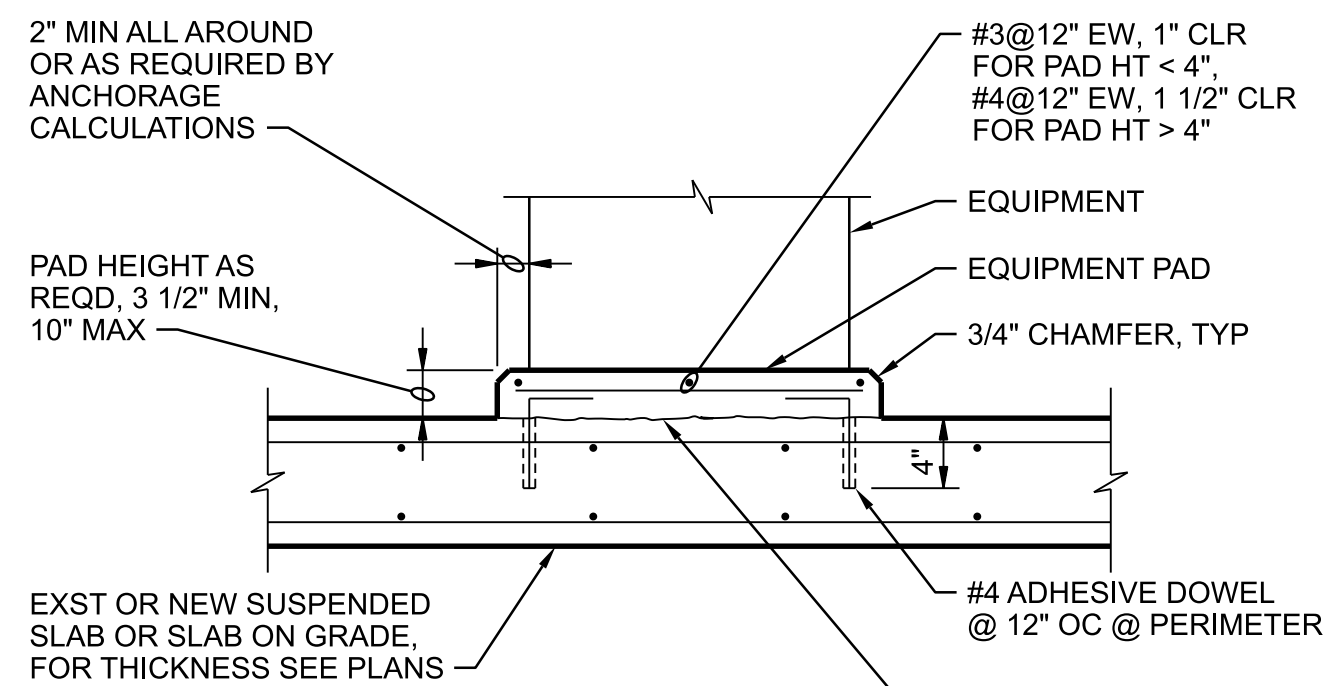
DL LYNCH		BY		APVD	
A DOLSAK		REVISION		APVD	
DL MICHALEK		CHK		DR	
RG SIEBERS		NO.		DATE	
DGSN		DGSN		DGSN	
Greater New Haven Water Pollution Control Authority New Haven, CT		PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL EAST SHORE WATER POLLUTION ABATEMENT FACILITY		SD - STANDARD DETAILS ARCHITECTURAL	
NTS		VERIFY SCALE		BAR IS ONE INCH ON ORIGINAL DRAWING.	
DATE		JULY 2023		PROJECT	
PROJ		E2X90000		DWG	
SHEET		86 of 96		SD-A-504	

**Jacobs**  
ARCHITECTURAL

BID READY

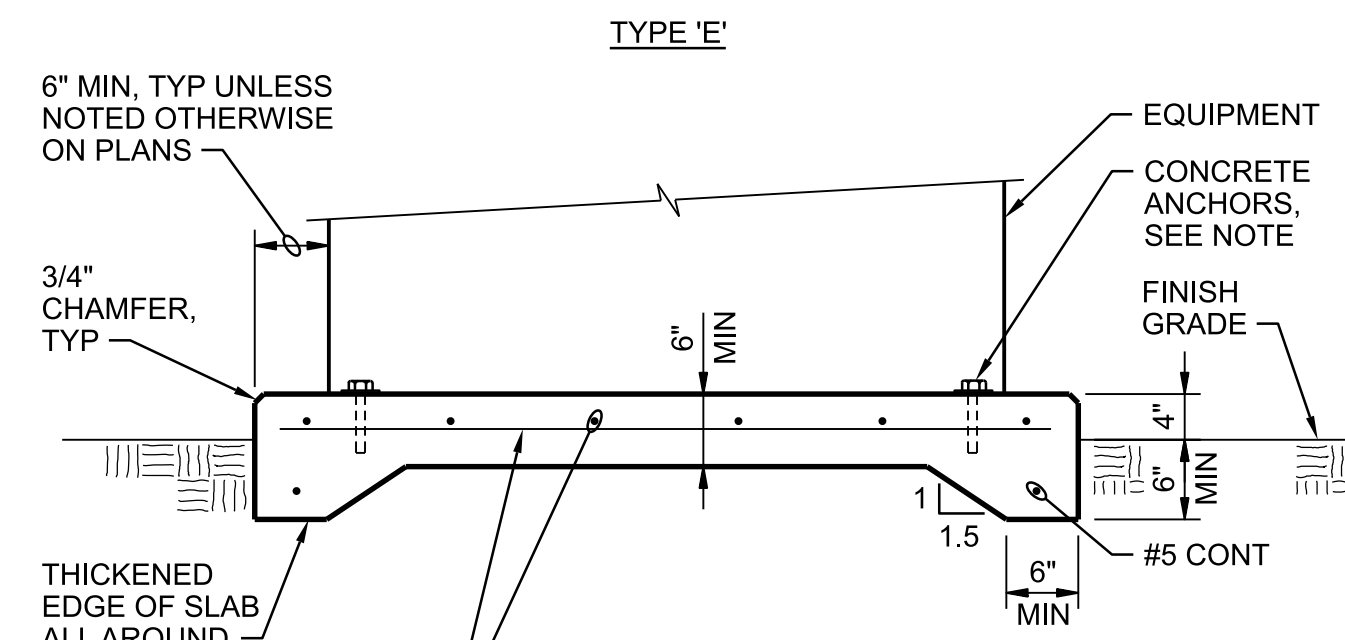


PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL		NO.		DATE		DGN		RG SIEBERS		DR		REVISION		BY		APVD	
EAST SHORE WATER POLLUTION ABATEMENT FACILITY												CHK		APVD		DL LYNCH	
Greater New Haven Water Pollution Control Authority New Haven, CT																A DOLSAK	
SD - STANDARD DETAILS																	
ARCHITECTURAL																	
NTS																	
VERIFY SCALE																	
BAR IS ONE INCH ON ORIGINAL DRAWING.																	
DATE		JULY 2023															
PROJ		E2X90000															
DWG		SD-A-505															
SHEET		87 of 96															



**NOTES:**

1. WHEN ANCHORAGE OF EQUIPMENT TO PAD IS REQUIRED, USE CONCRETE ANCHORS SPECIFIED.
2. CONCRETE PADS FOR ELECTRICAL EQUIPMENT SHALL BE 3 1/2" HIGH, UNLESS NOTED OTHERWISE.



**NOTE:**  
WHEN ANCHORAGE OF EQUIPMENT TO PAD IS REQUIRED, USE CONCRETE ANCHORS SPECIFIED.

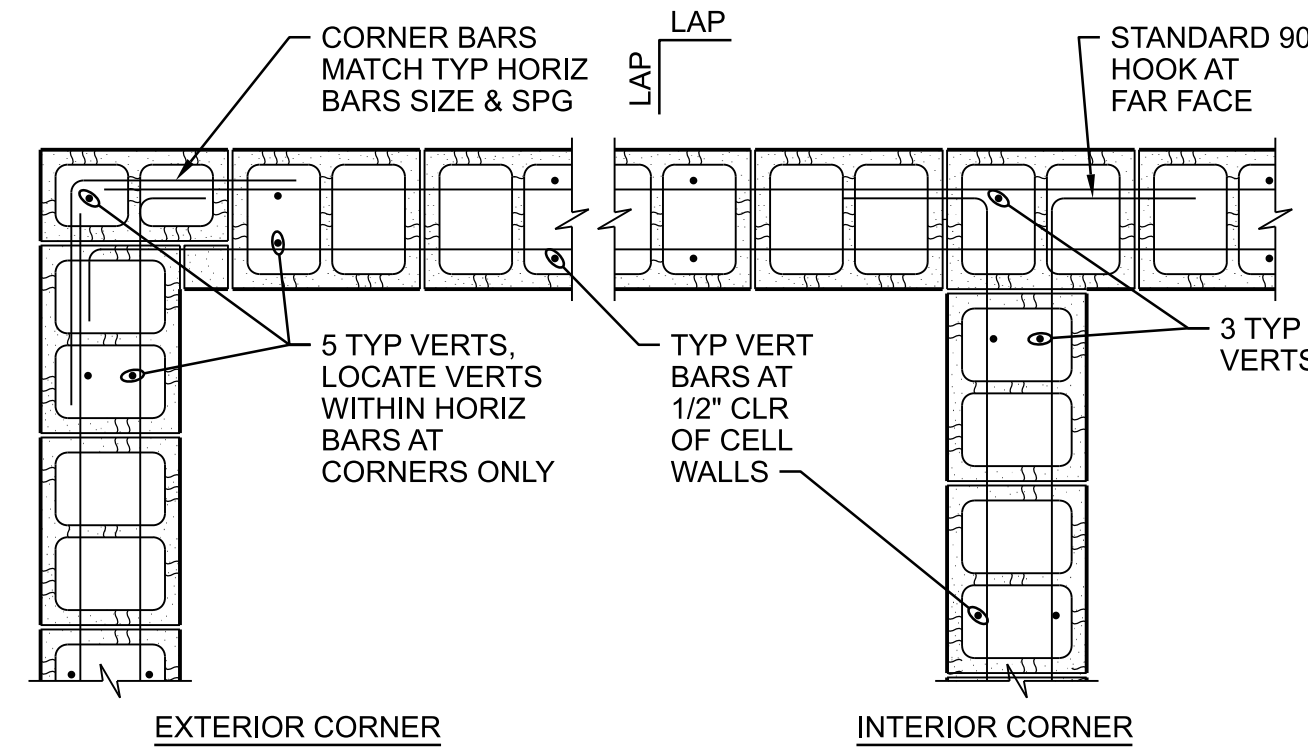
**NOTES:**

1. PAD SIZE SHALL BE MINIMUM INDICATED OR AS SHOWN ON THE PLANS OR AS INDICATED BY THE MANUFACTURER AND APPROVED BY THE ENGINEER.
2. THE SIZE, NUMBER, TYPE, LOCATION, AND THREAD PROJECTION OF THE ANCHOR BOLTS SHALL BE DETERMINED BY THE EQUIPMENT MANUFACTURER AND AS APPROVED BY THE ENGINEER. ANCHOR BOLTS SHALL BE HELD IN POSITION WITH A TEMPLATE OR OTHER ACCEPTABLE MEANS, MATCHING THE BASE PLATE, WHILE PAD IS BEING PLACED.
3. EQUIPMENT BASES SHALL BE INSTALLED LEVEL UNLESS INDICATED OTHERWISE.
4. WEDGES, SHIMS, OR LEVELING NUTS SHALL BE USED TO SUPPORT THE BASE WHILE THE GROUT IS PLACED. WEDGES OR SHIMS SHALL BE REMOVED AFTER GROUT IS SET AND PACK VOID WITH GROUT.
5. HEIGHT OF PADS SHALL BE MINIMUM REQUIRED FOR ANCHOR BOLT CLEARANCE TO KEEP ANCHOR BOLT ABOVE SUPPORTING SLAB (SEE TABLE BELOW). WHERE EQUIPMENT OR PIPING ELEVATION REQUIRE A PAD HEIGHT LESS THAN THE MINIMUM SHOWN, USE TYPE "B" EQUIPMENT PAD WITH BLOCKOUT.
6. AT CONTRACTOR'S OPTION, CONCRETE ANCHORS MAY BE USED IN LIEU OF CAST-IN-PLACE ANCHOR BOLTS FOR EQUIPMENT ANCHOR BOLTS LESS THAN 3/4" DIAMETER WHEN APPROVED BY THE EQUIPMENT MANUFACTURER AND APPROVED BY THE ENGINEER. ANCHORS SHALL BE INSTALLED WITH 4" MINIMUM EDGE DISTANCE IN EACH DIRECTION.

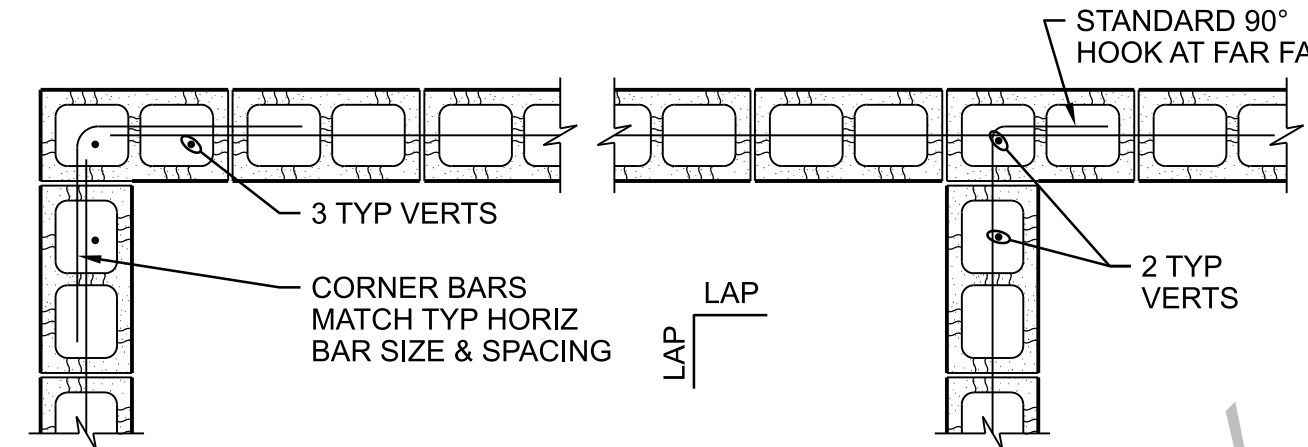
AB DIA (IN.)	1/2	5/8	3/4	7/8	1	1 1/4	1 3/8	1 1/2	1 3/4	2
MIN PAD HT (IN.)	7	8 1/2	10	11	12 1/2	15	16 1/2	18	21	24

CONCRETE EQUIPMENT PAD  
NTS

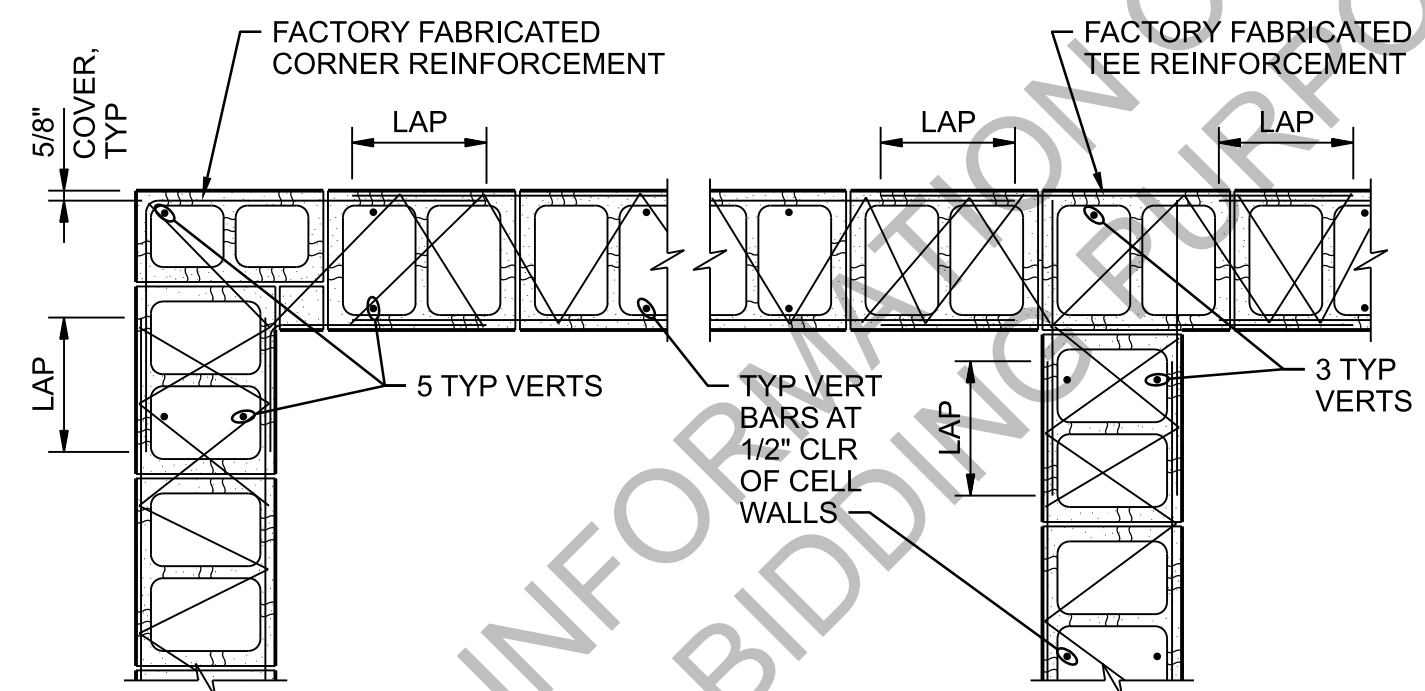
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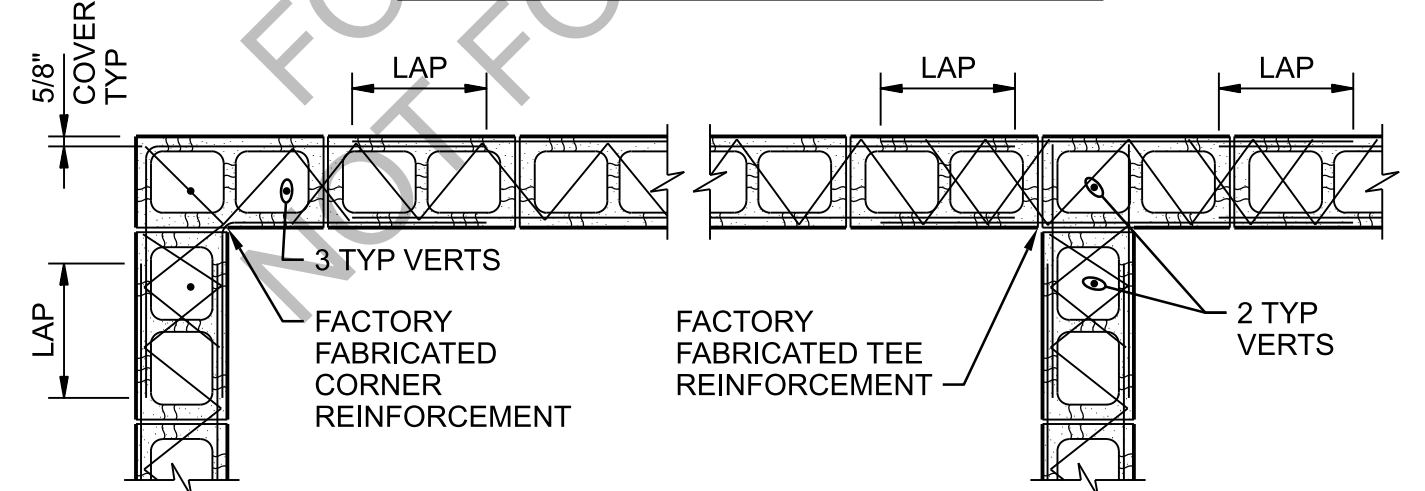
DOUBLE MAT PLAN FOR HORIZONTAL BARS



SINGLE MAT PLAN FOR HORIZONTAL BARS



DOUBLE MAT PLAN FOR JOINT REINFORCEMENT



SINGLE MAT PLAN FOR JOINT REINFORCEMENT

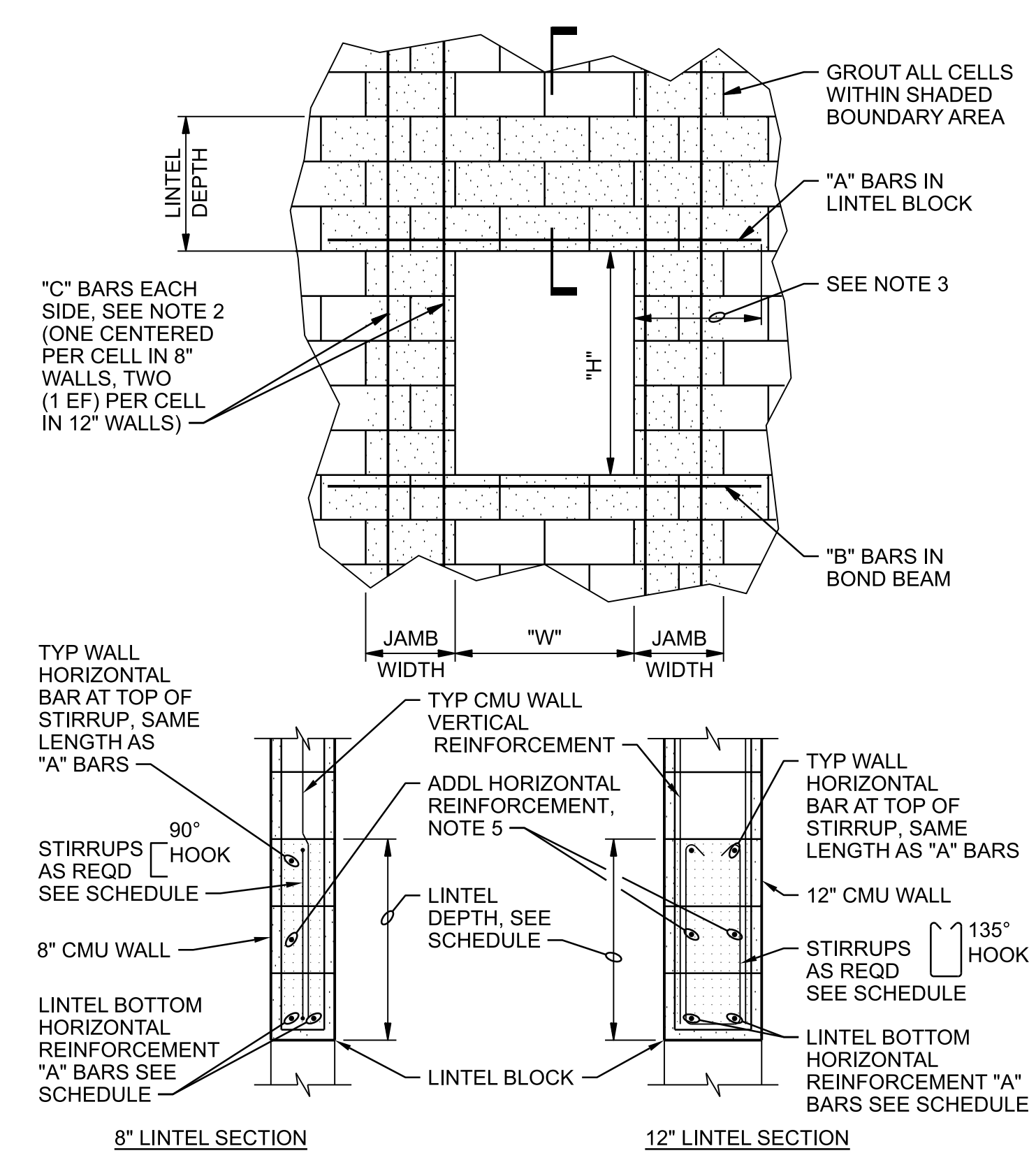
**NOTES:**

1. LAP = 1'-4" MINIMUM FOR JOINT REINFORCEMENT UNLESS NOTED OTHERWISE.
2. LAP=48 BAR DIAMETERS, BUT NOT LESS THAN 2'-0" FOR HORIZONTAL BARS UNLESS NOTED OTHERWISE.

0422-003 0422-005

REINFORCED MASONRY  
WALL CORNERS (SINGLE & DOUBLE MAT)  
NTS

0422-001



CMU OPENING REINFORCEMENT SCHEDULE						
8" WALLS						
W	LINTEL DEPTH	STIRRUP SIZE, SPG	"A" BARS	"B" BARS	"C" BARS	JAMB WIDTH
≤2'-8"	8"	-	1	1	1	8"
>2'-8"≤4'-0"	16"	-	2	1	1	8"
>4'-0"≤6'-0"	24"	#3@8"	2	1	2	16"
>6'-0"≤8'-0"	32"	#3@16"	2	2	3	24"
>8'-0"≤10'-0"	48"	#3@24"	2	2	3	24"
12" WALLS						
W	LINTEL DEPTH	STIRRUP SIZE, SPG	"A" BARS	"B" BARS	"C" BARS	JAMB WIDTH
≤2'-8"	8"	-	2	2	2	8"
>2'-8"≤4'-0"	16"	-	2	2	2	8"
>4'-0"≤6'-0"	24"	#3@8"	2	2	4	16"
>6'-0"≤8'-0"	32"	#3@16"	2	2	6	24"
>8'-0"≤10'-0"	48"	#3@24"	2	2	6	24"

**NOTES:**

1. USE BAR QUANTITIES AND SIZES GIVEN IN LINTEL SCHEDULE UNLESS OTHERWISE NOTED ON THE DRAWINGS.
2. EXTEND "C" BARS 48 BAR DIAMETERS, BUT NOT LESS THAN 2'-0" BEYOND TOP AND BOTTOM OF OPENING EXCEPT THAT WHEN "H" OR "W" EXCEEDS 2'-0", "C" BARS SHALL EXTEND FULL HEIGHT.
3. "A" AND "B" BARS SHALL EXTEND 48 BAR DIAMETERS, BUT NOT LESS THAN 2'-0" EACH SIDE OF THE OPENINGS. WHERE THERE IS LESS THAN 8'-0" BETWEEN ADJACENT OPENINGS, EXTEND REINFORCEMENT CONTINUOUS TO 2'-8" BEYOND FURTHEST OPENING.
4. FOR BAR SIZES, MATCH TYPICAL WALL REINFORCEMENT AS SHOWN ON ON THE GENERAL STRUCTURAL NOTES SHEETS.
5. FOR LINTEL DEPTHS EQUAL TO OR GREATER THAN 48" PROVIDE ADDITIONAL LAYER OF HORIZONTAL REINFORCEMENT AT 12" FROM BOTTOM OF LINTEL. MATCH SIZE OF TYPICAL WALL HORIZONTAL REINFORCEMENT.

CMU OPENING REINFORCED  
NTS

0422-003

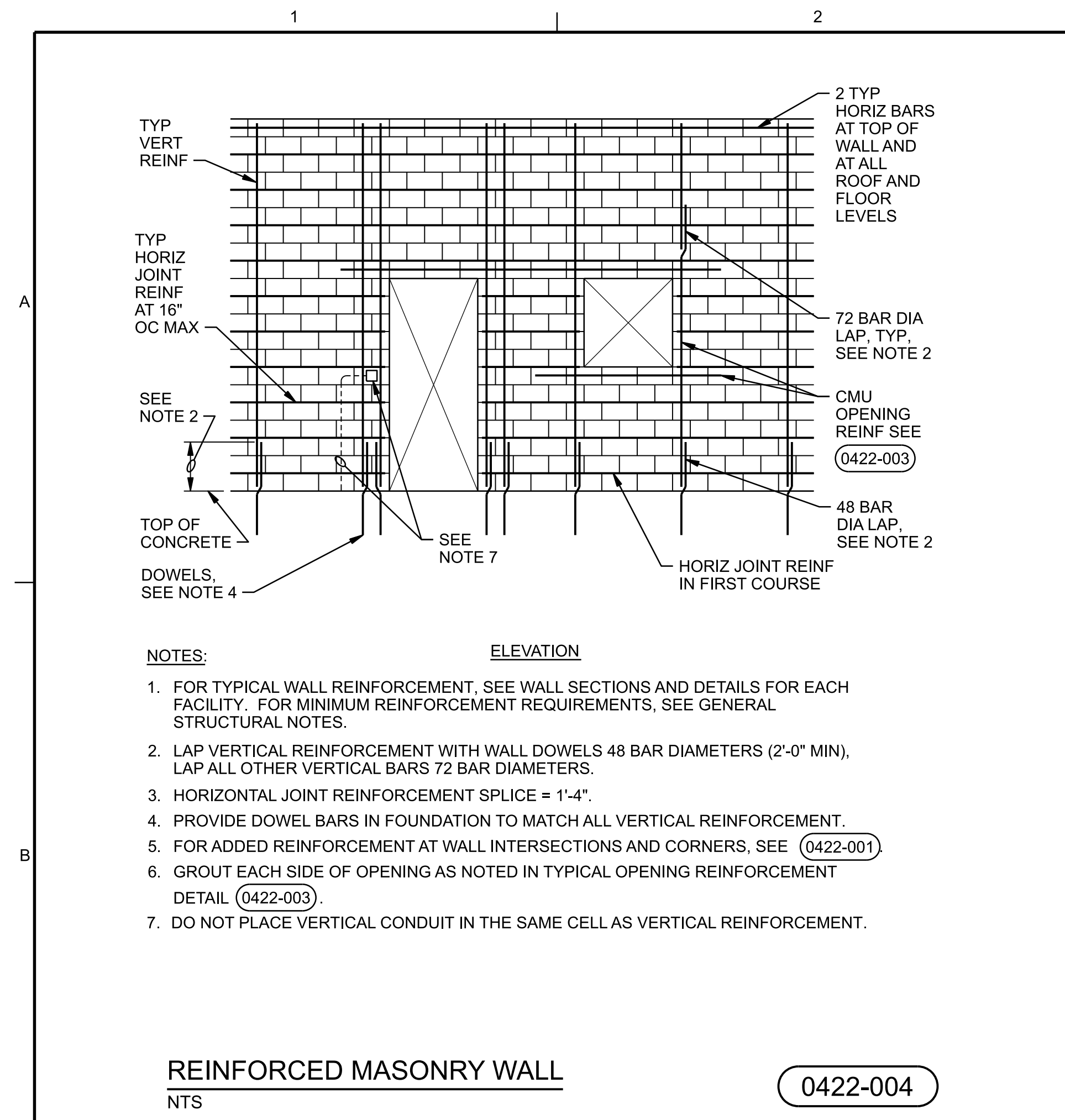
Jacobs  
SD - STANDARD DETAILS  
STRUCTURAL

NTS	
VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING.	
DATE	JULY 2023
PROJ	E2X90000
DWG	SD-S-501
SHEET	88 of 96

BID READY

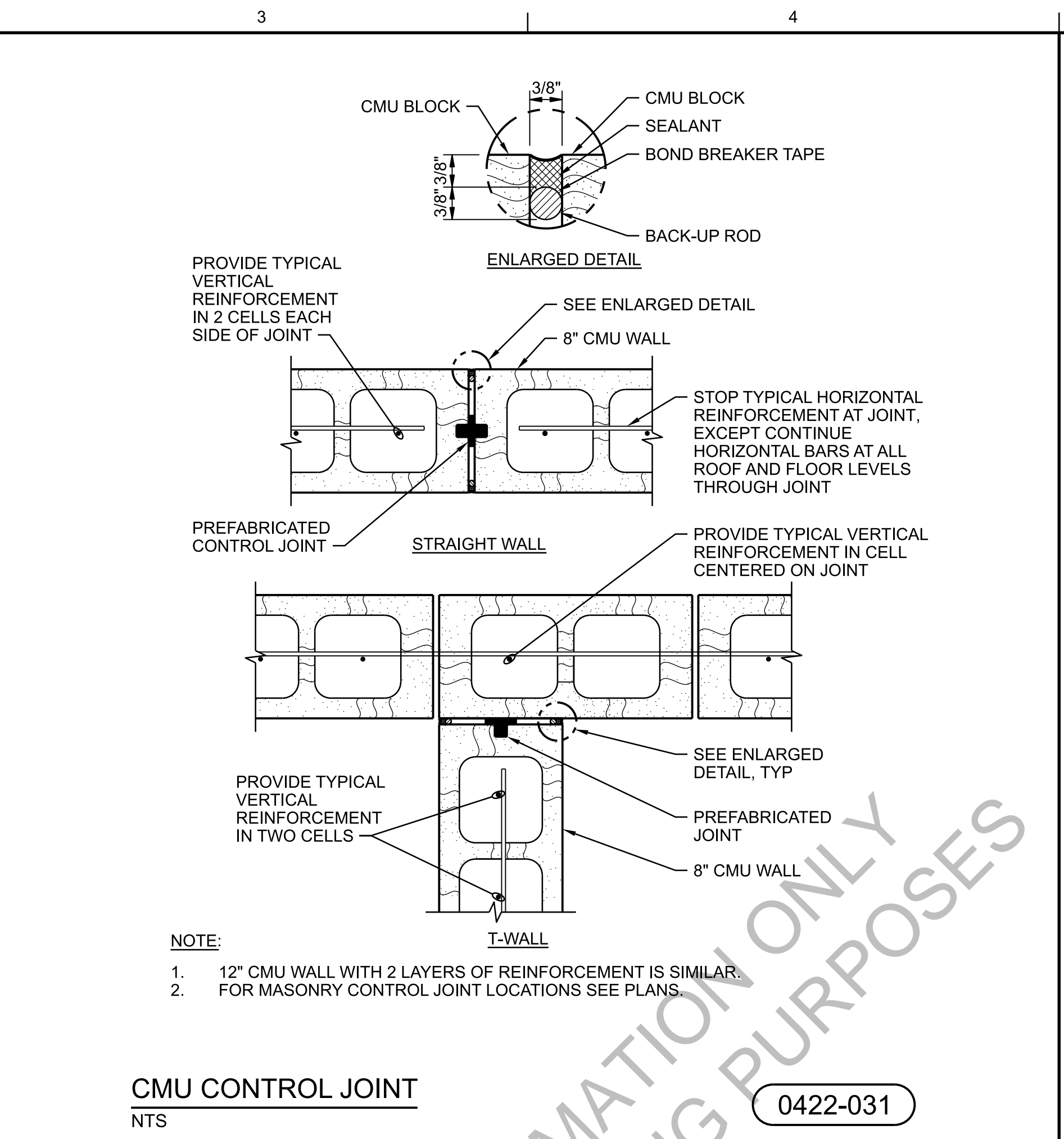
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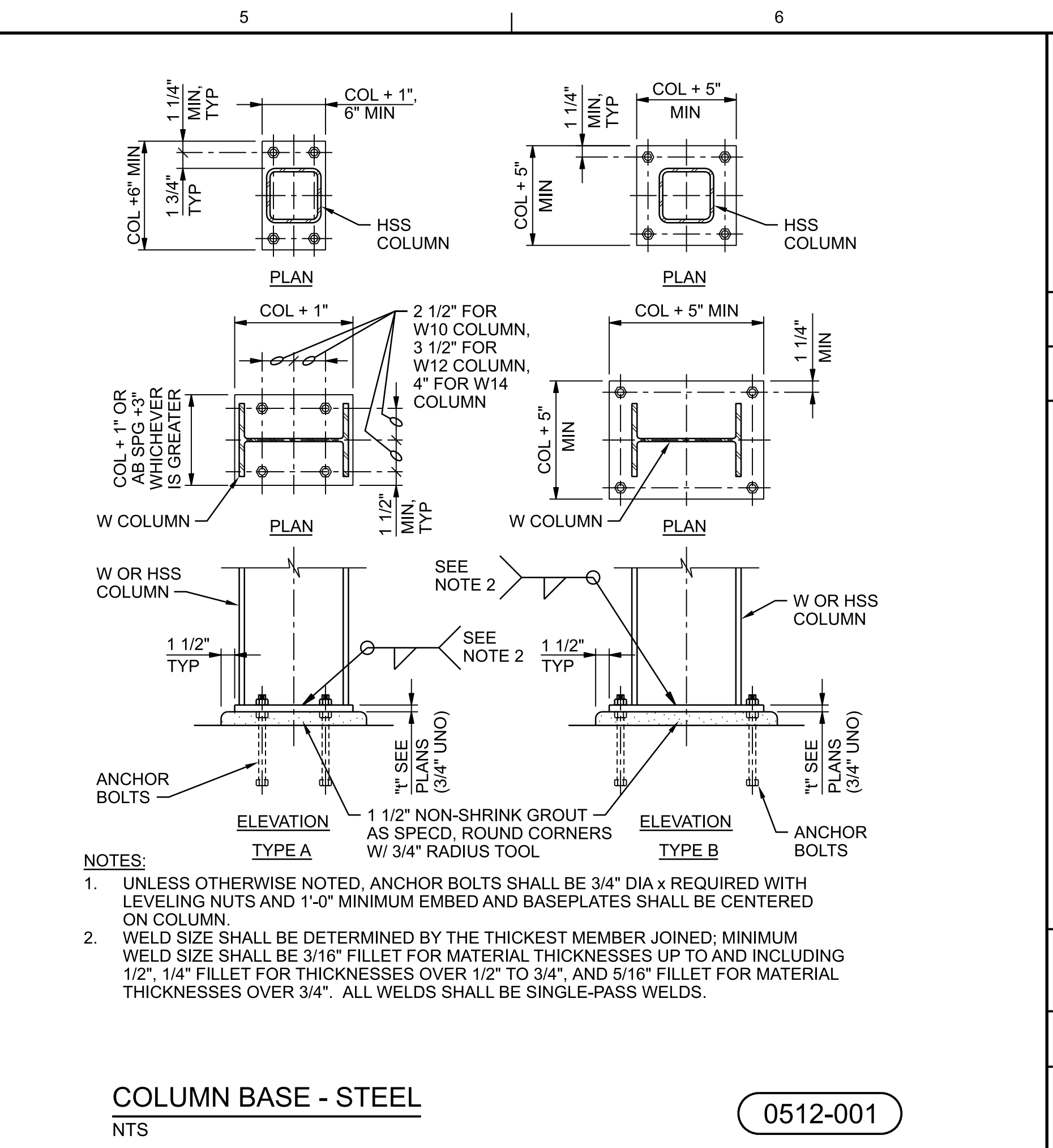
- NOTES:**
- FOR TYPICAL WALL REINFORCEMENT, SEE WALL SECTIONS AND DETAILS FOR EACH FACILITY. FOR MINIMUM REINFORCEMENT REQUIREMENTS, SEE GENERAL STRUCTURAL NOTES.
  - LAP VERTICAL REINFORCEMENT WITH WALL DOWELS 48 BAR DIAMETERS (2'-0" MIN), LAP ALL OTHER VERTICAL BARS 72 BAR DIAMETERS.
  - HORIZONTAL JOINT REINFORCEMENT SPLICE = 1'-4".
  - PROVIDE DOWEL BARS IN FOUNDATION TO MATCH ALL VERTICAL REINFORCEMENT.
  - FOR ADDED REINFORCEMENT AT WALL INTERSECTIONS AND CORNERS, SEE (0422-001).
  - GROUT EACH SIDE OF OPENING AS NOTED IN TYPICAL OPENING REINFORCEMENT DETAIL (0422-003).
  - DO NOT PLACE VERTICAL CONDUIT IN THE SAME CELL AS VERTICAL REINFORCEMENT.

**REINFORCED MASONRY WALL** (0422-004)  
NTS



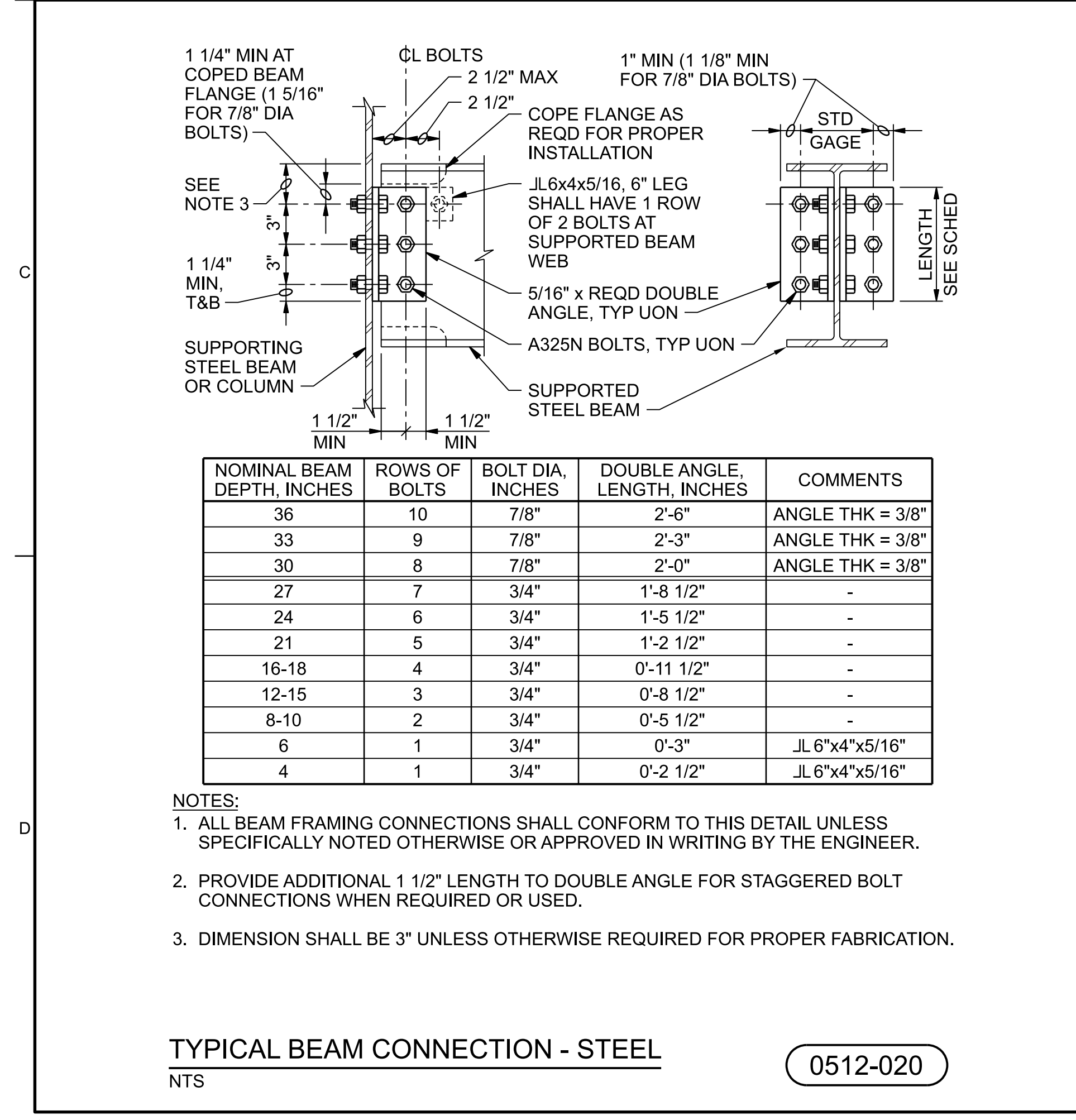
- NOTE:**
- 12" CMU WALL WITH 2 LAYERS OF REINFORCEMENT IS SIMILAR.
  - FOR MASONRY CONTROL JOINT LOCATIONS SEE PLANS.

**CMU CONTROL JOINT** (0422-031)  
NTS



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

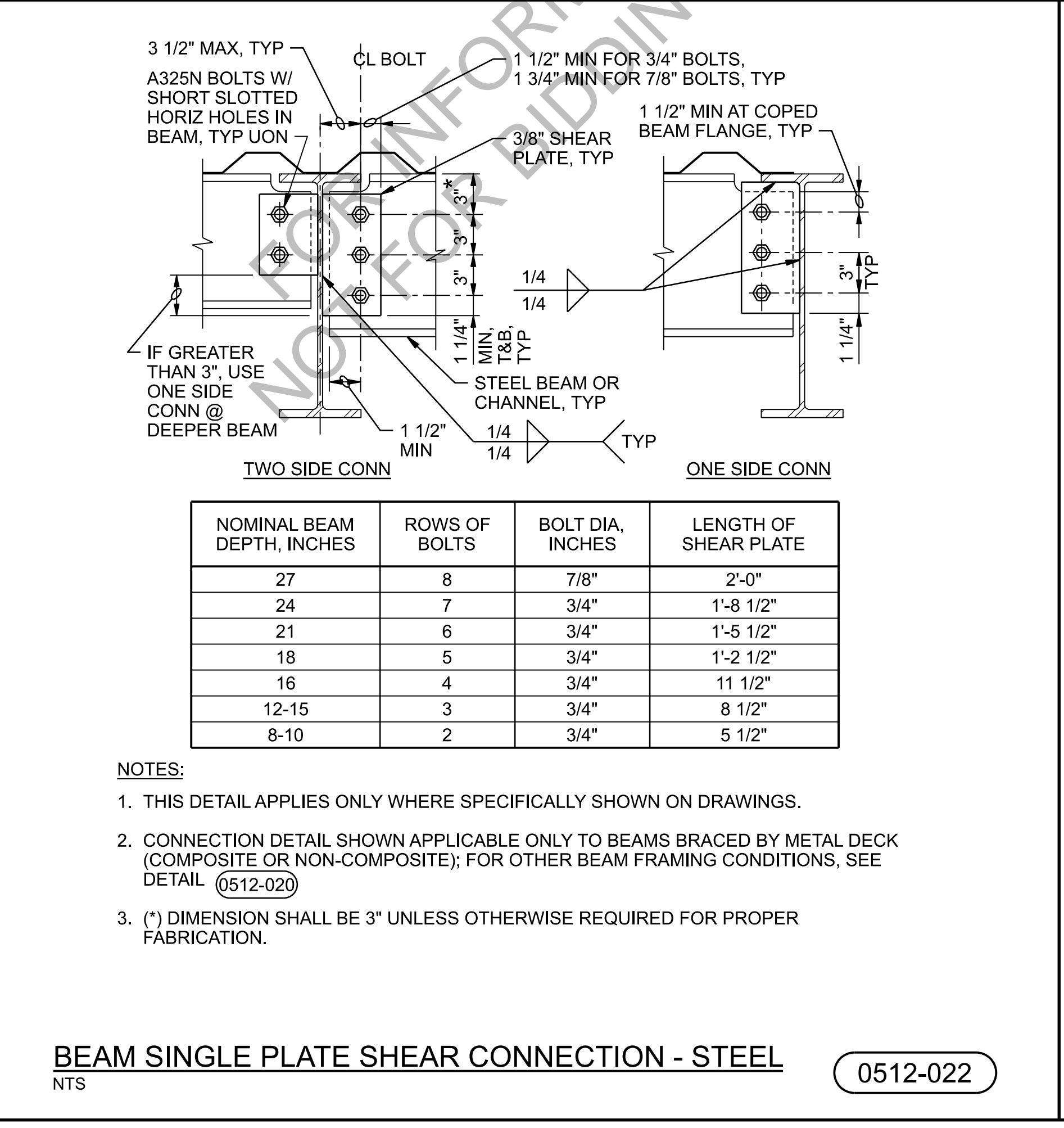
**COLUMN BASE - STEEL** (0512-001)  
NTS



NOMINAL BEAM DEPTH, INCHES	ROWS OF BOLTS	BOLT DIA, INCHES	DOUBLE ANGLE LENGTH, INCHES	COMMENTS
36	10	7/8"	2'-6"	ANGLE THK = 3/8"
33	9	7/8"	2'-3"	ANGLE THK = 3/8"
30	8	7/8"	2'-0"	ANGLE THK = 3/8"
27	7	3/4"	1'-8 1/2"	-
24	6	3/4"	1'-5 1/2"	-
21	5	3/4"	1'-2 1/2"	-
16-18	4	3/4"	0'-11 1/2"	-
12-15	3	3/4"	0'-8 1/2"	-
8-10	2	3/4"	0'-5 1/2"	-
6	1	3/4"	0'-3"	JL 6"x4"x5/16"
4	1	3/4"	0'-2 1/2"	JL 6"x4"x5/16"

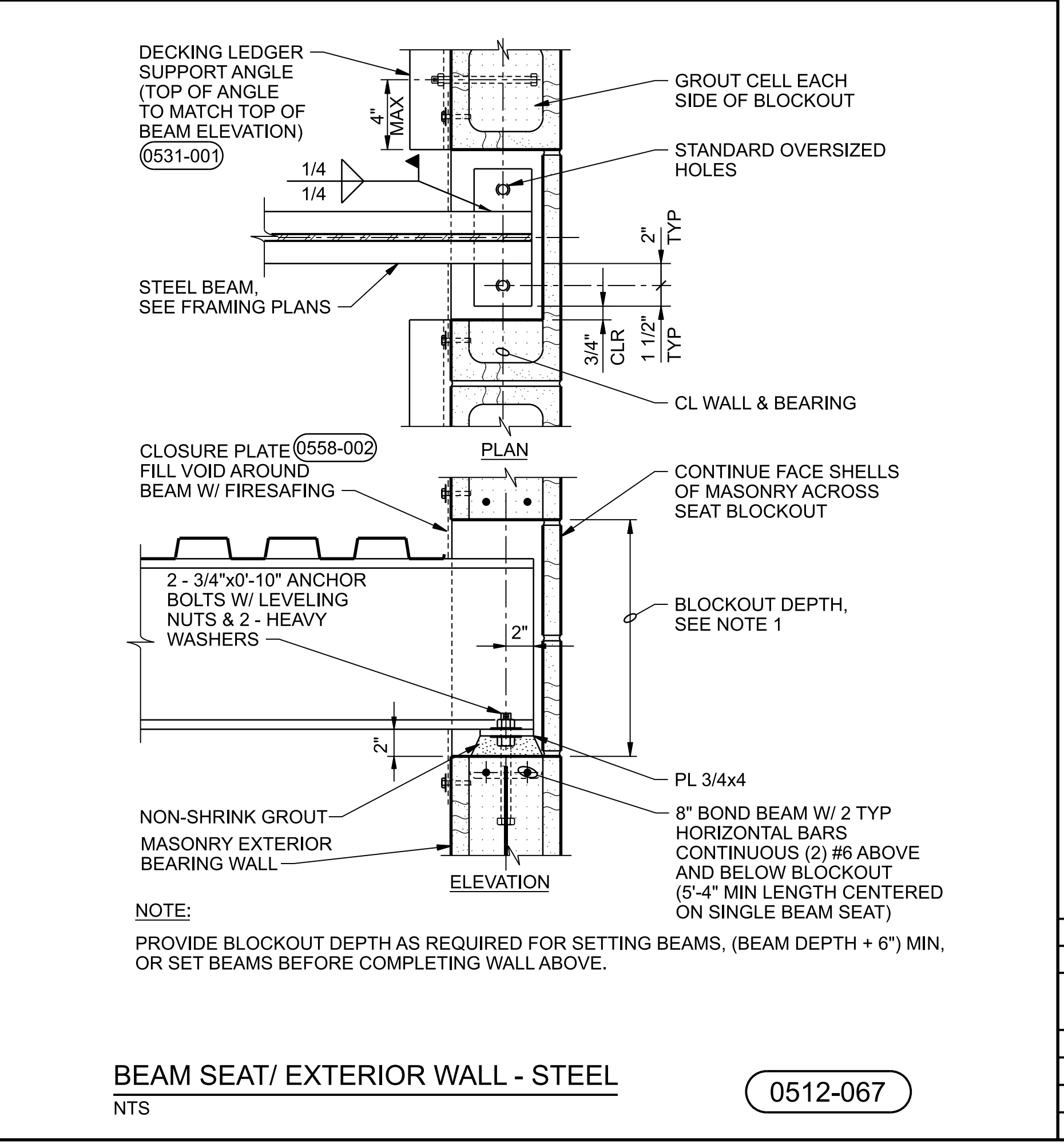
- NOTES:**
- ALL BEAM FRAMING CONNECTIONS SHALL CONFORM TO THIS DETAIL UNLESS SPECIFICALLY NOTED OTHERWISE OR APPROVED IN WRITING BY THE ENGINEER.
  - PROVIDE ADDITIONAL 1 1/2" LENGTH TO DOUBLE ANGLE FOR STAGGERED BOLT CONNECTIONS WHEN REQUIRED OR USED.
  - DIMENSION SHALL BE 3" UNLESS OTHERWISE REQUIRED FOR PROPER FABRICATION.

**TYPICAL BEAM CONNECTION - STEEL** (0512-020)  
NTS



- NOTES:**
- THIS DETAIL APPLIES ONLY WHERE SPECIFICALLY SHOWN ON DRAWINGS.
  - CONNECTION DETAIL SHOWN APPLICABLE ONLY TO BEAMS BRACED BY METAL DECK (COMPOSITE OR NON-COMPOSITE); FOR OTHER BEAM FRAMING CONDITIONS, SEE DETAIL (0512-020).
  - (\* DIMENSION SHALL BE 3" UNLESS OTHERWISE REQUIRED FOR PROPER FABRICATION.

**BEAM SINGLE PLATE SHEAR CONNECTION - STEEL** (0512-022)  
NTS



- NOTE:**
- PROVIDE BLOCKOUT DEPTH AS REQUIRED FOR SETTING BEAMS, (BEAM DEPTH + 6") MIN, OR SET BEAMS BEFORE COMPLETING WALL ABOVE.

**BEAM SEAT/ EXTERIOR WALL - STEEL** (0512-067)  
NTS

**JACOBS**  
 SD - STANDARD DETAILS  
**STRUCTURAL**

PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL  
 EAST SHORE WATER POLLUTION ABATEMENT FACILITY  
 Greater New Haven Water Pollution Control Authority  
 New Haven, CT

NO.	DATE	DR	REVISION	BY

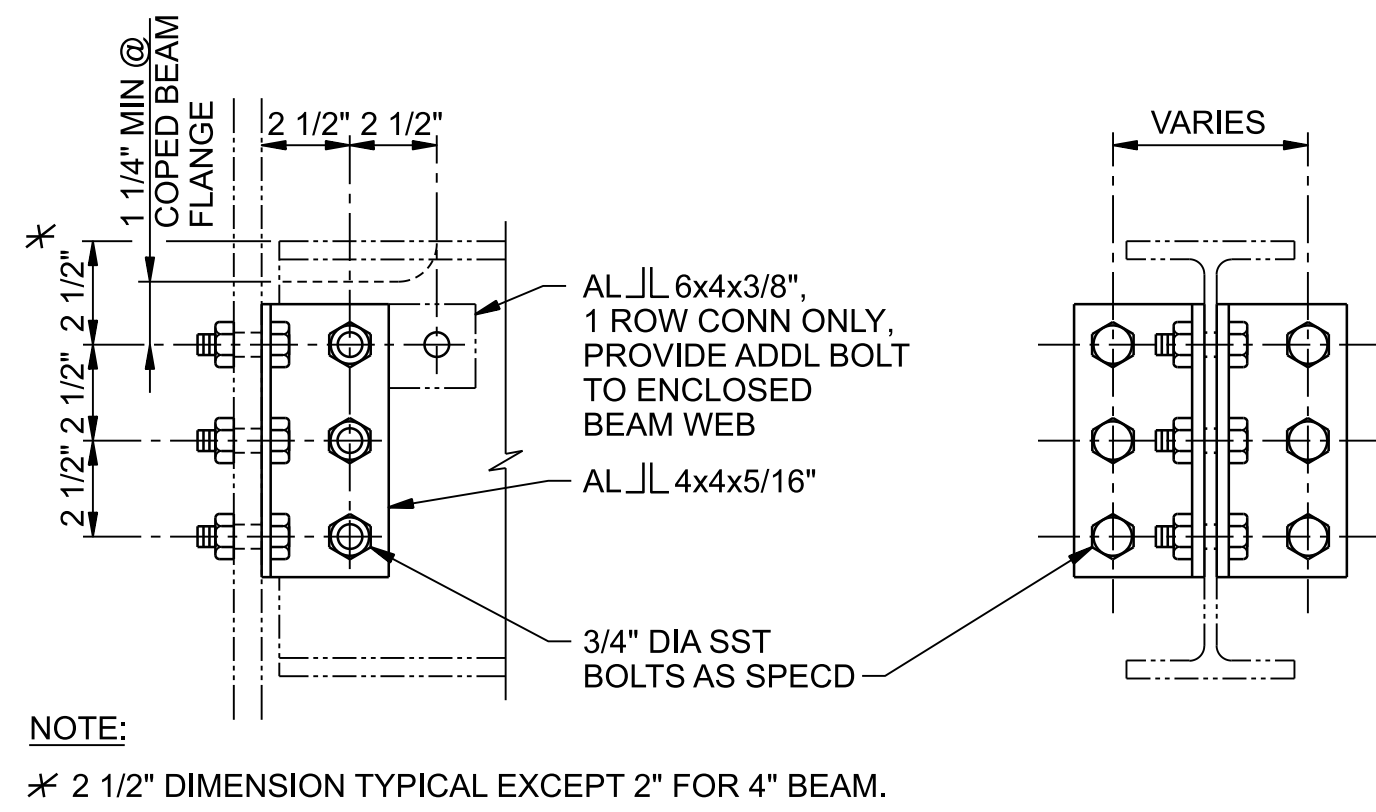
DSGN: J. CRIVELLO  
 CHK: PA. KARABAN  
 APVD: DL. LYNCH

NTS  
 VERIFY SCALE  
 BAR IS ONE INCH ON ORIGINAL DRAWING.

DATE: JULY 2023  
 PROJ: E2X90000  
 DWG: SD-S-502  
 SHEET: 89 of 96

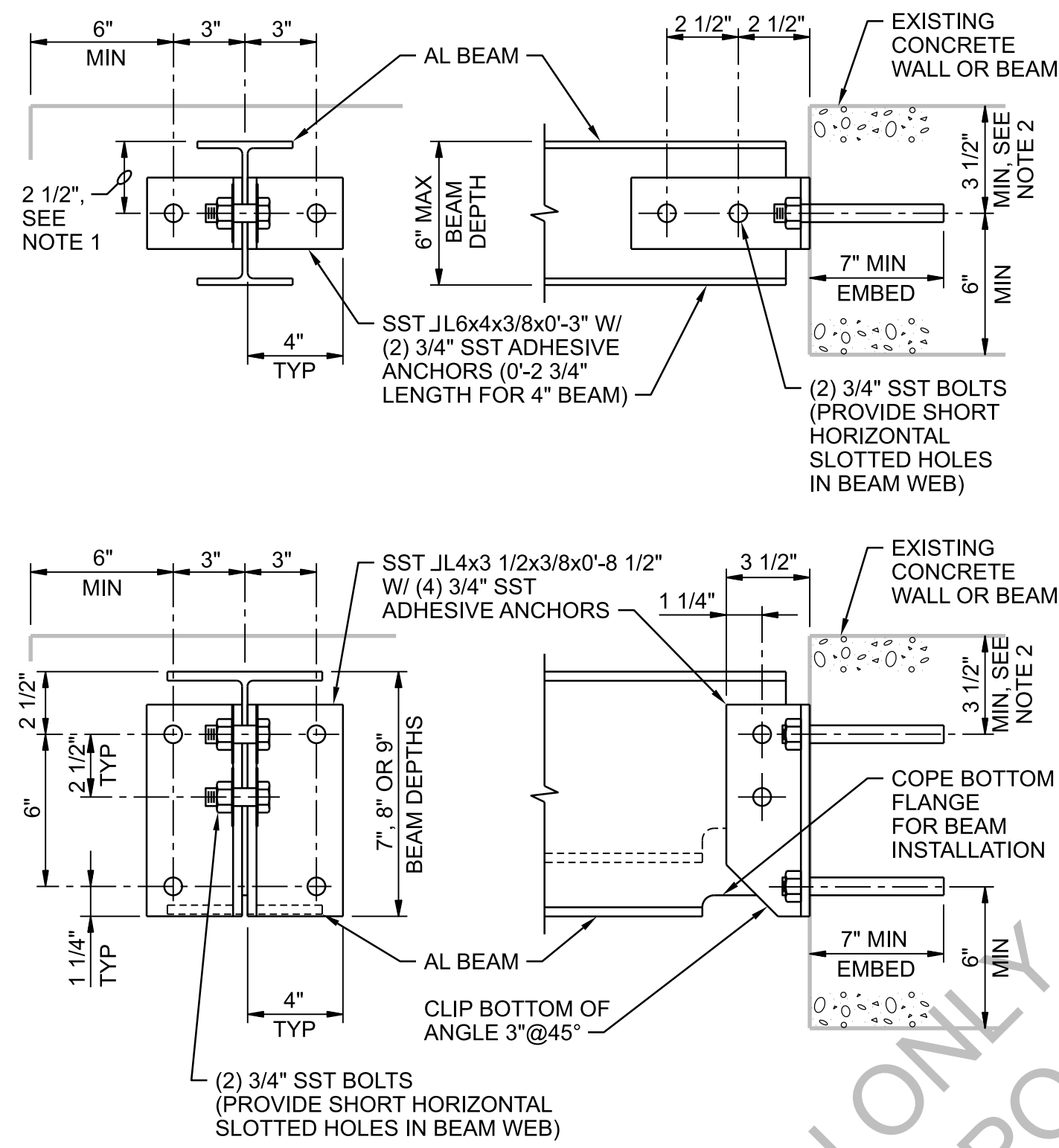
ALUMINUM		
NOMINAL BEAM DEPTH, INCHES	ROWS OF BOLTS	LENGTH OF ANGLE
10	3	7 1/2"
7-8-9	2	5"
5-6	1	3"
4	1	2 3/4"

NOTES:  
 1. NUMBER OF ROWS IS EQUAL TO NUMBER OF BOLTS TO ENCLOSED WEB.  
 2. ALL FRAMING CONNECTIONS SHALL CONFORM TO SCHEDULE UNLESS DETAILED OTHERWISE ON FRAMING PLANS.



TYPICAL BEAM CONNECTION - ALUMINUM  
NTS

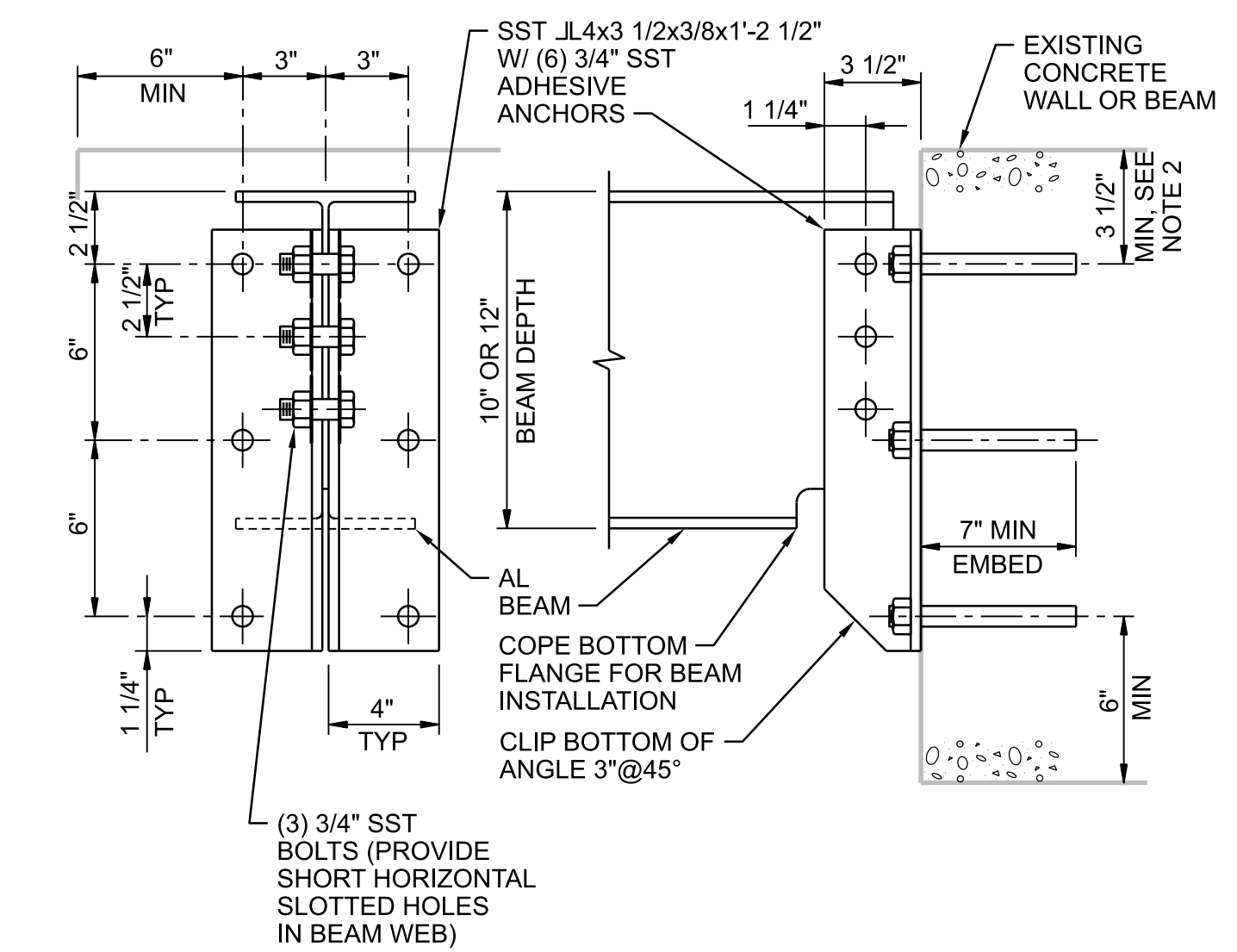
0514-020



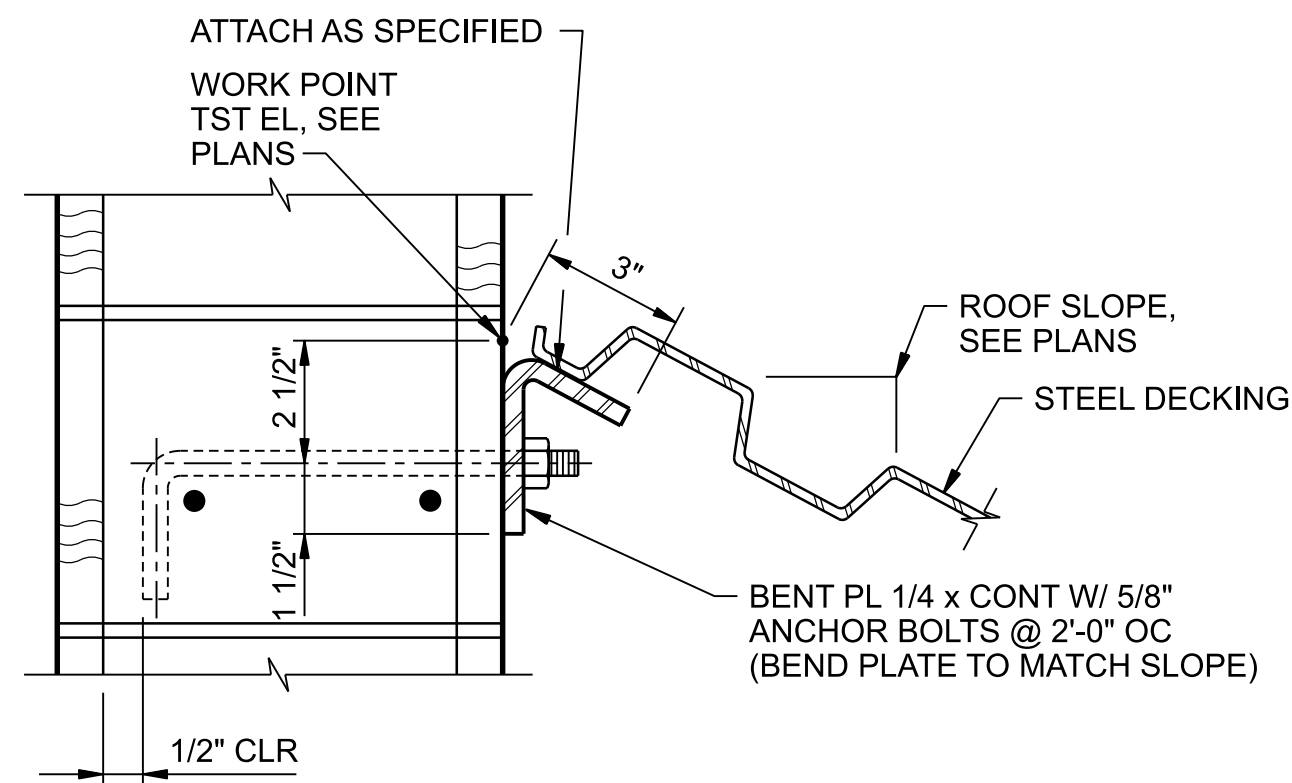
BEAM/WALL CONNECTION - ALUMINUM  
NTS

NTS

0514-056

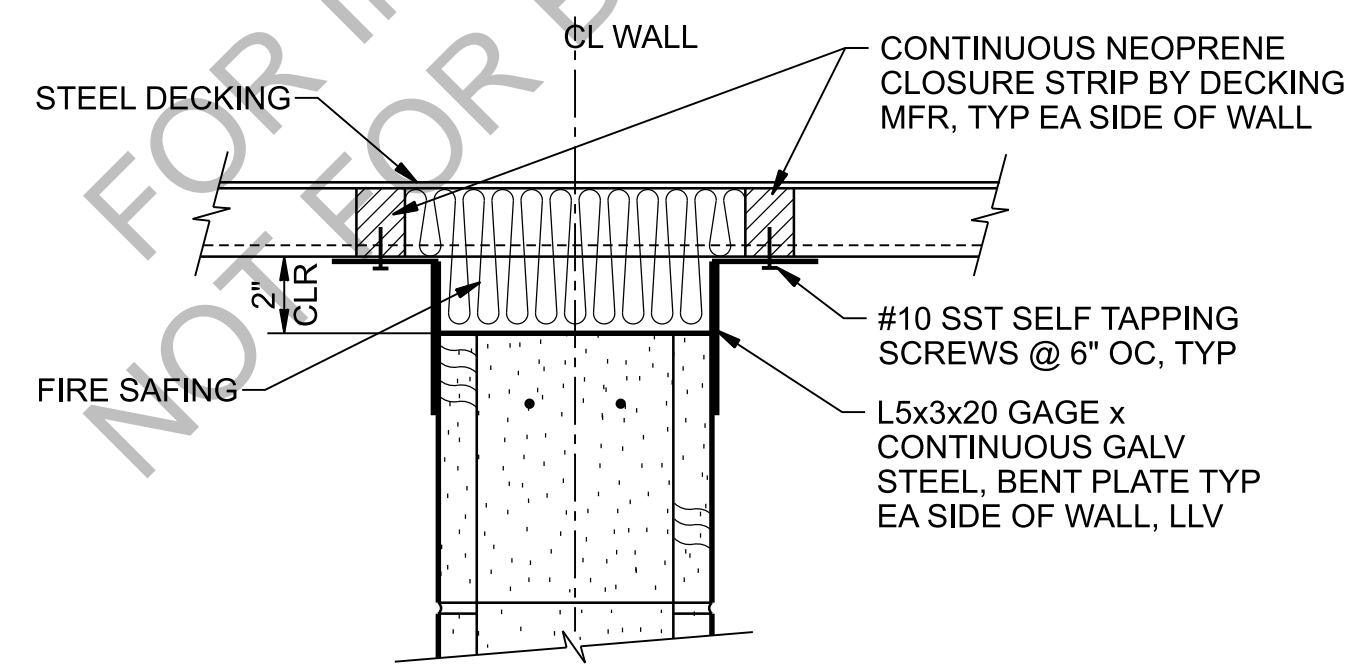


NOTES:  
 1. 2 1/2" DIMENSION TYPICAL EXCEPT 2" FOR 4" BEAMS.  
 2. DO NOT CUT EXISTING CONCRETE BEAM TOP REINFORCING DURING DRILL-IN ANCHOR INSTALLATION. FIELD LOCATE BEAM REINFORCING PRIOR TO FABRICATION WITH GROUND PENETRATING RADAR OR OTHER ACCEPTABLE MEANS. ADD LENGTH TO CLIP ANGLES AS REQUIRED TO LOWER ANCHORS TO CLEAR REINFORCING WHILE MAINTAINING SPACING AND EDGE DISTANCE AS SHOWN.  
 3. WHERE BOTH ENDS OF BEAM ARE ATTACHED TO A WALL, PROVIDE LONG HORIZONTALLY SLOTTED HOLES IN BEAM WEB AT ONE END. TIGHTEN NUTS SNUG TIGHT, BACK OFF 1/2 TURN, AND LOCK WITH DOUBLE NUT.  
 4. PROVIDE PROTECTION FOR DISSIMILAR MATERIALS PER SPECIFICATIONS.



DECKING LEDGER SUPPORT ANGLE  
NTS

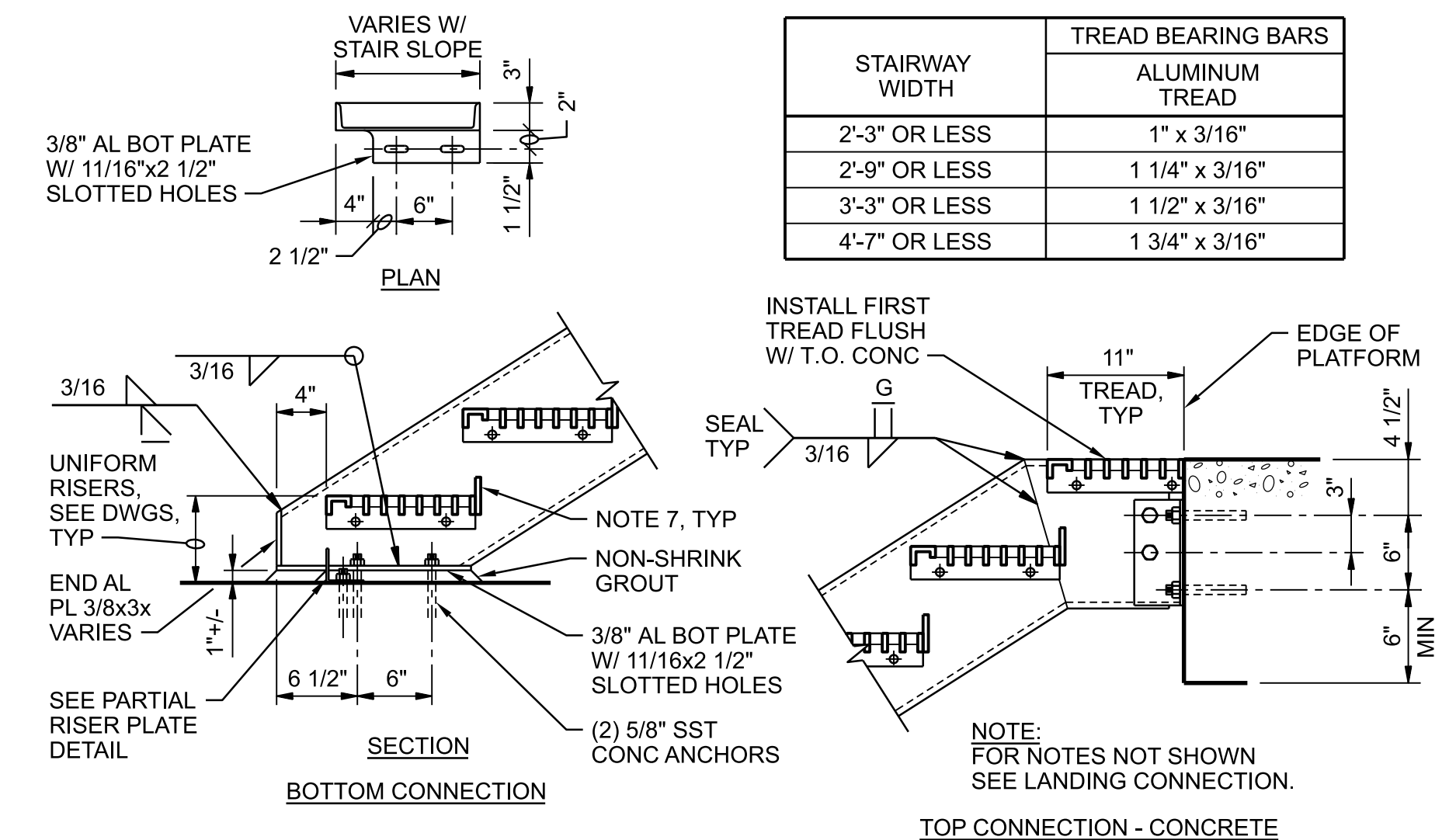
0531-001



NOTE:  
 NEOPRENE CLOSURE STRIPS NOT REQUIRED WHERE DECKING SPAN IS PARALLEL TO WALL.

METAL DECK/ NON-BEARING  
WALL CLOSURE PLATE  
NTS

0531-016



NOTES:  
 1. PROVIDE PROTECTION FOR DISSIMILAR METALS AND FOR ALUMINUM IN CONTACT WITH CONCRETE PER SPECIFICATIONS.  
 2. AMERICAN STANDARD C12X7.41 ALUMINUM STRINGERS TYPICAL EXCEPT WHERE OTHERWISE NOTED ON PLANS.  
 3. STAIR RAILING NOT SHOWN.  
 4. STAIR MANUFACTURER TO COORDINATE BOLTED TREADS AND RAILING CONNECTIONS.  
 5. ALL FASTENERS SHALL BE STAINLESS STEEL.  
 6. FIELD VERIFY DIMENSIONS AND ELEVATIONS PRIOR TO FABRICATION.  
 7. FOR RISER PLATE SEE PARTIAL RISER PLATE DETAIL UNLESS NOTED OTHERWISE. CLEARANCE BETWEEN TOP OF RISER PLATE AND BOTTOM OF TREAD TO BE 3 3/4" MAXIMUM. FOR STAIRS WITH PICKET RAILING EXTEND RISER PLATE PER FULL RISER PLATE DETAIL.

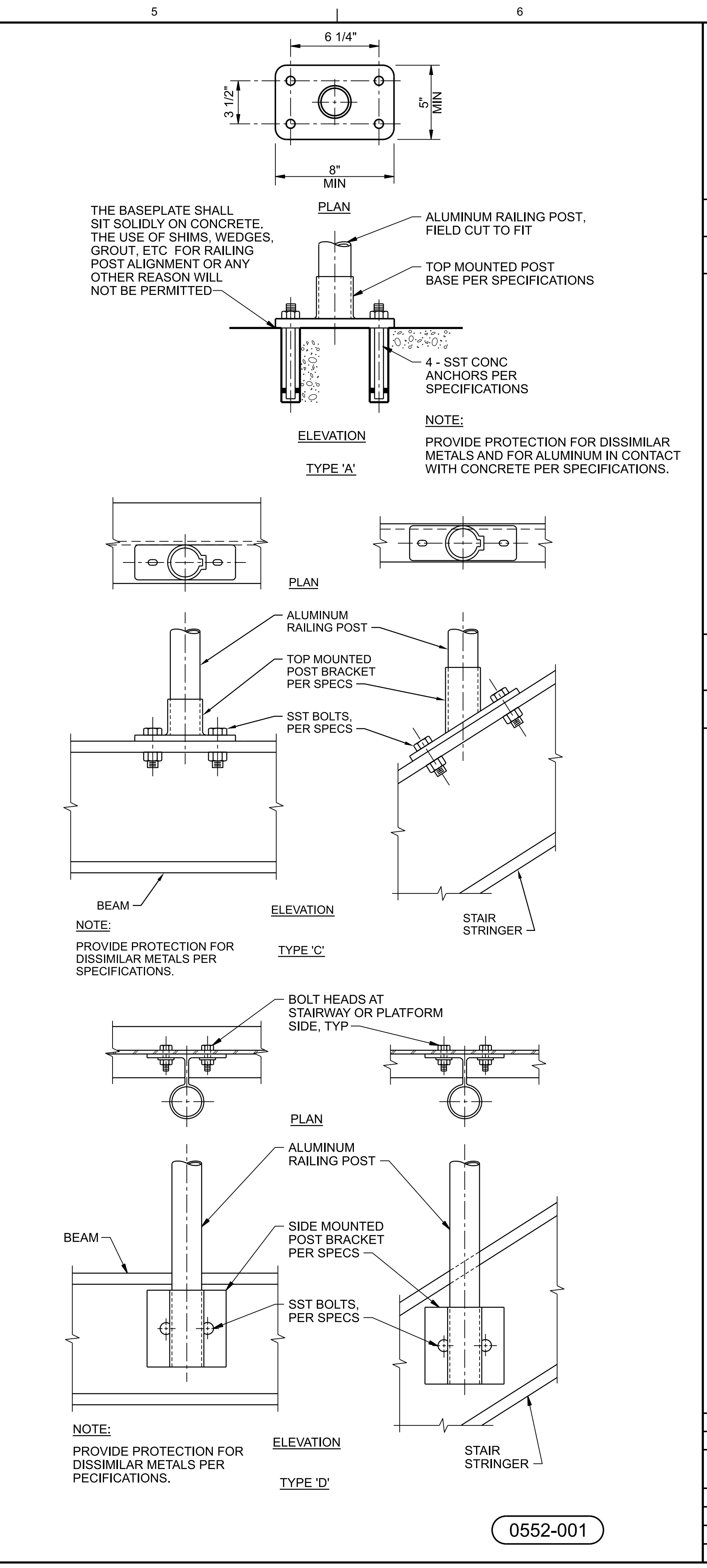
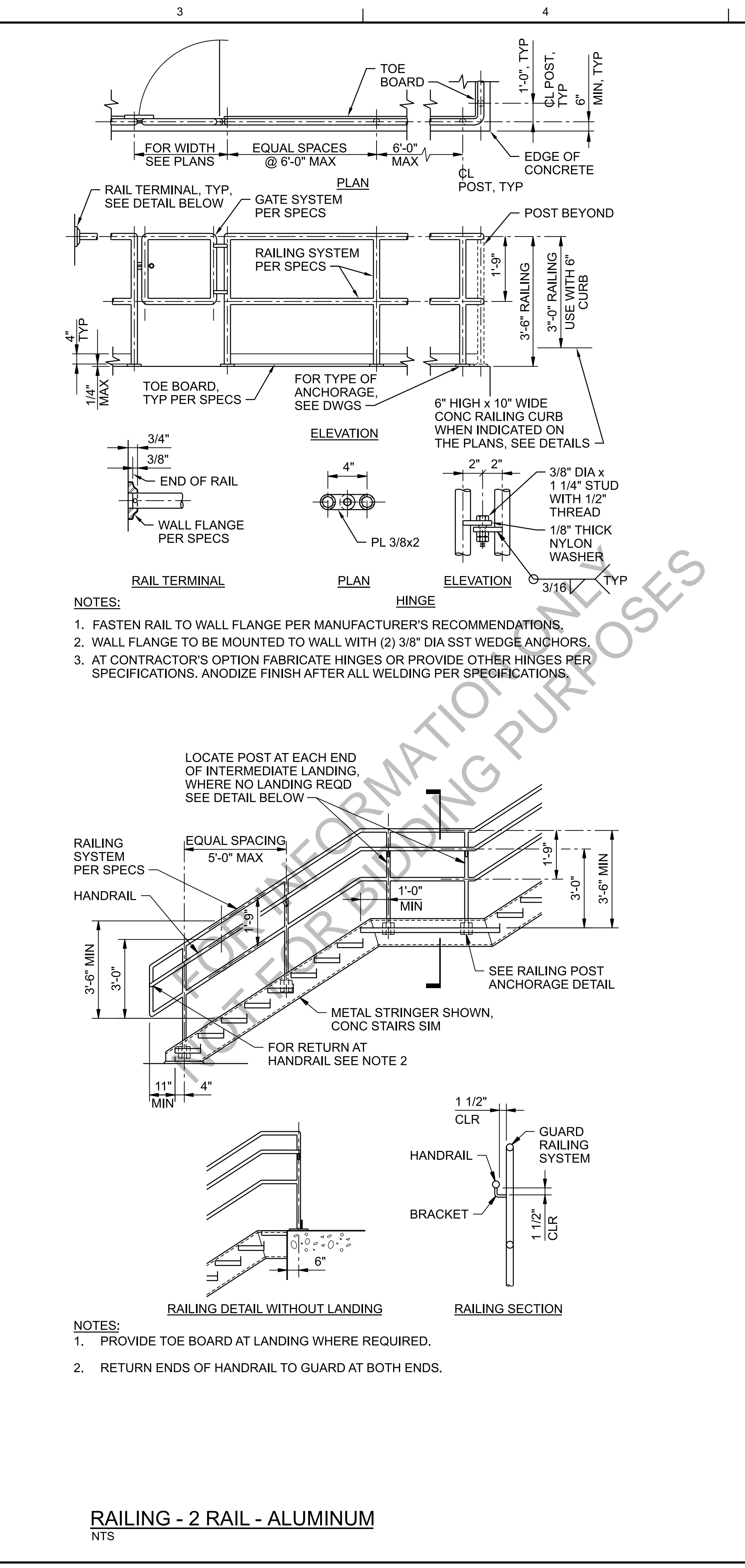
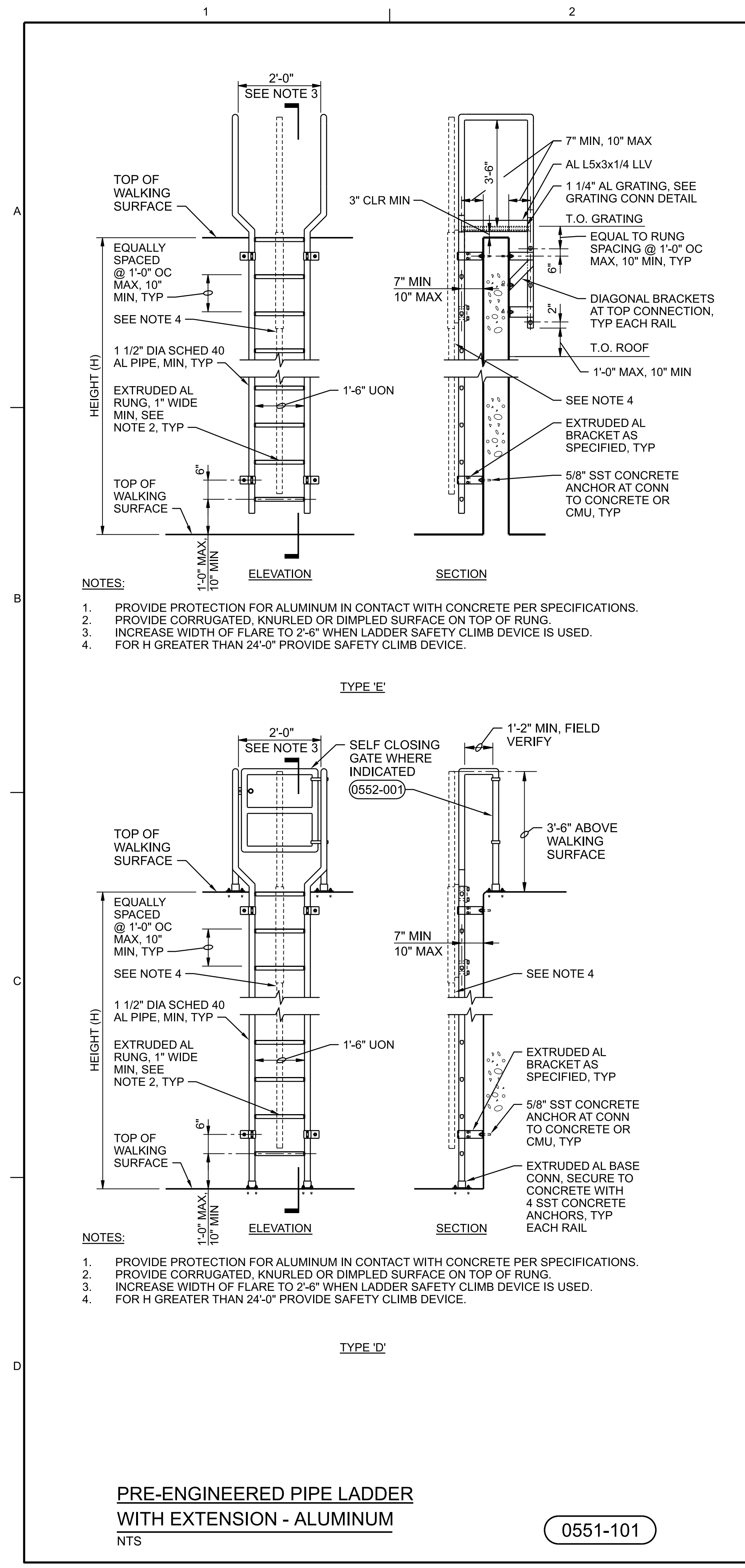
STAIR DETAILS - ALUMINUM  
NTS

0551-001

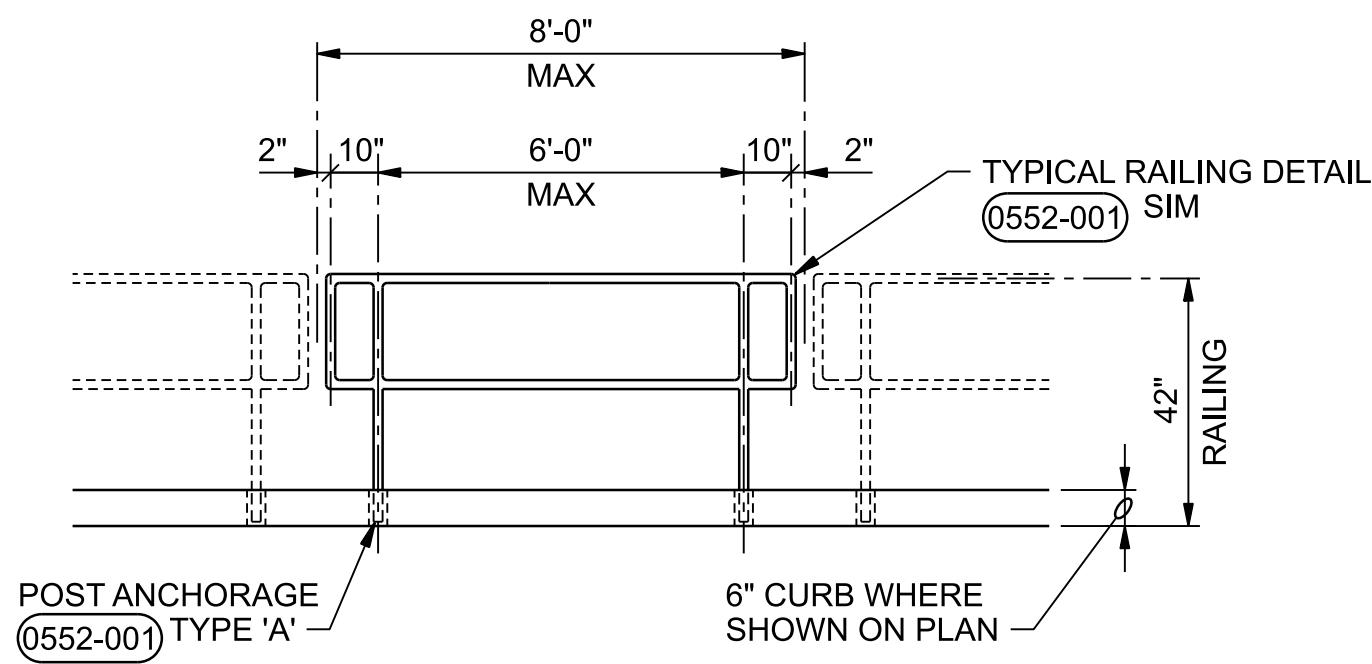
PROCESS AIR COMPRESSOR SYSTEM  
FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION  
ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

**Jacobs**  
SD - STANDARD DETAILS  
STRUCTURAL

NTS	
VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING.	
DATE	JULY 2023
PROJ	E2X90000
DWG	SD-S-503
SHEET	90 of 96

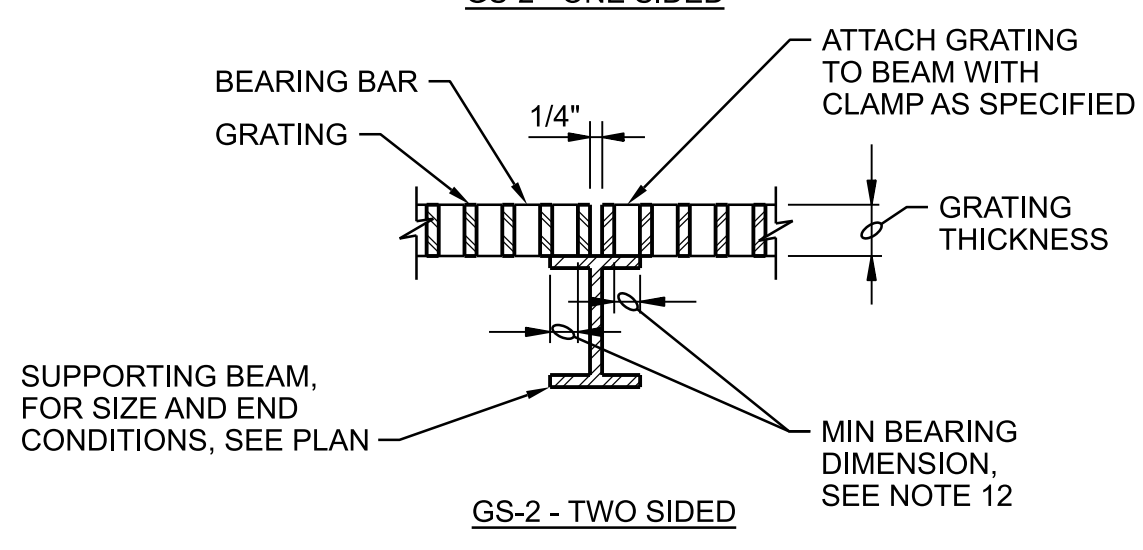
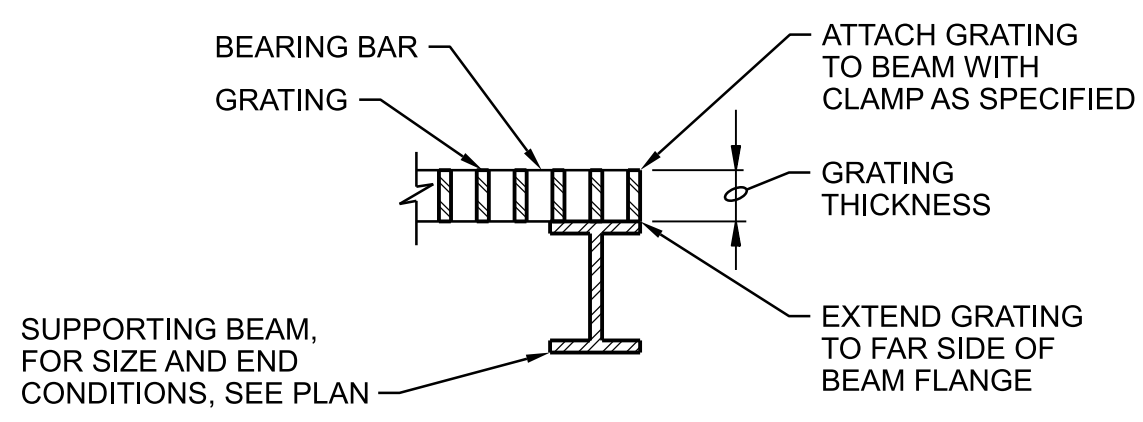
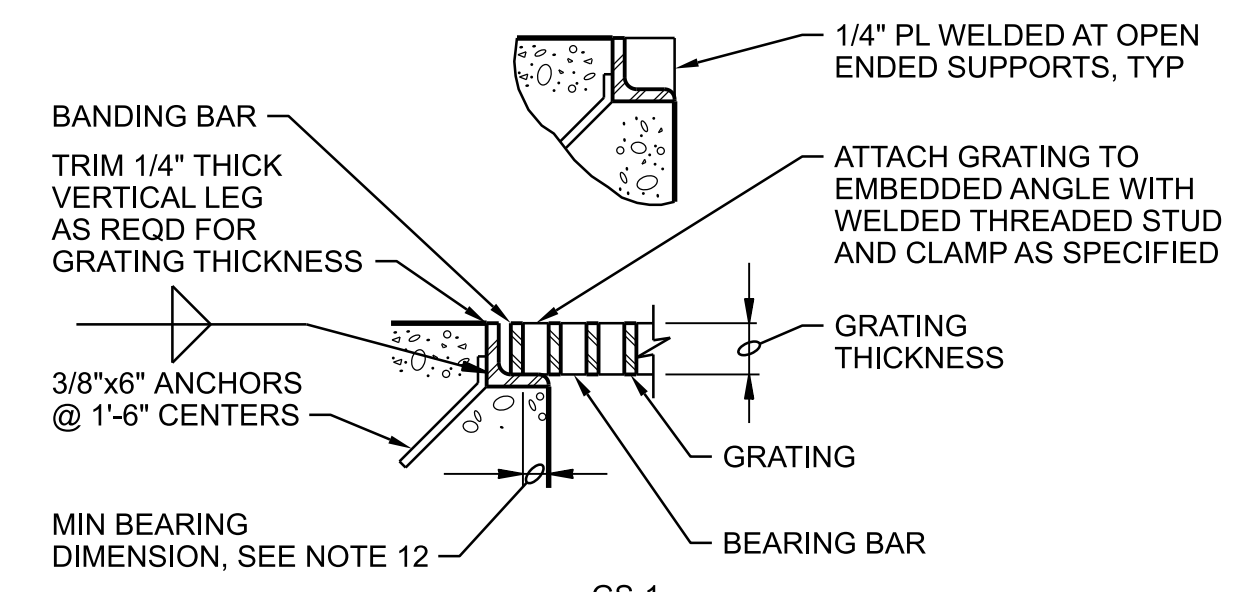


NO.	DATE	DR	PA KARABAN	CHK	J. CRIVELLO	BY	APVD	DL LYNCH
NO.	DATE	DSGN	DR LANGE	DR	PA KARABAN	CHK	J. CRIVELLO	BY
PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL EAST SHORE WATER POLLUTION ABATEMENT FACILITY Greater New Haven Water Pollution Control Authority New Haven, CT								
<b>Jacobs</b> SD - STANDARD DETAILS <b>STRUCTURAL</b>								
NTS								
VERIFY SCALE								
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DWG	SD-S-504							
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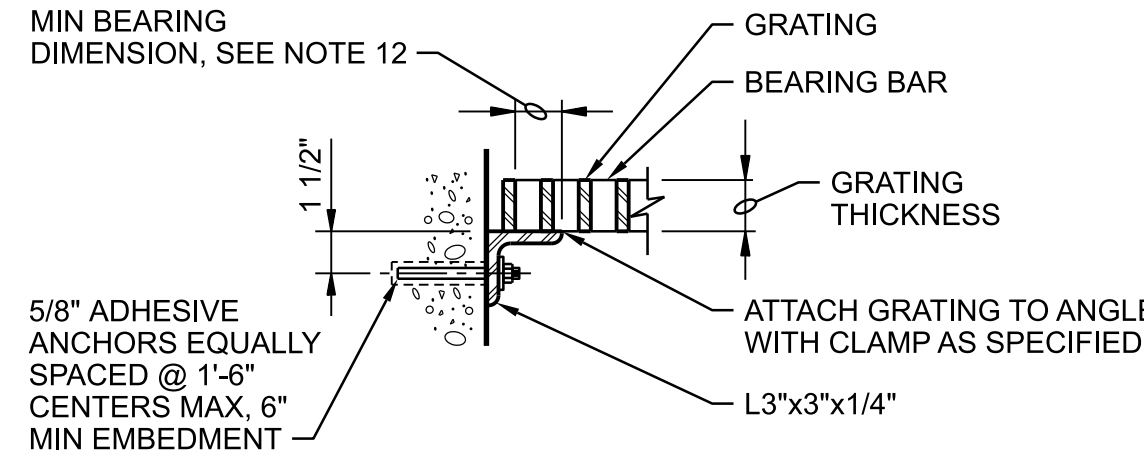


- NOTES:**
- DETAIL SHOWN AT CURBED OPENING. WHERE NO CURB, PROVIDE 6" EDGE DISTANCE AND STIFFENED KICK PLATE ATTACHED TO REMOVABLE RAILING.
  - FABRICATE REMOVABLE RAILING IN MAXIMUM 8'-0" SECTIONS WITH 2 POSTS EACH SECTION.

**RAILING - REMOVABLE TWO RAIL - ALUMINUM** (0552-004)  
NTS



**STANDARD GRATING**  
NTS

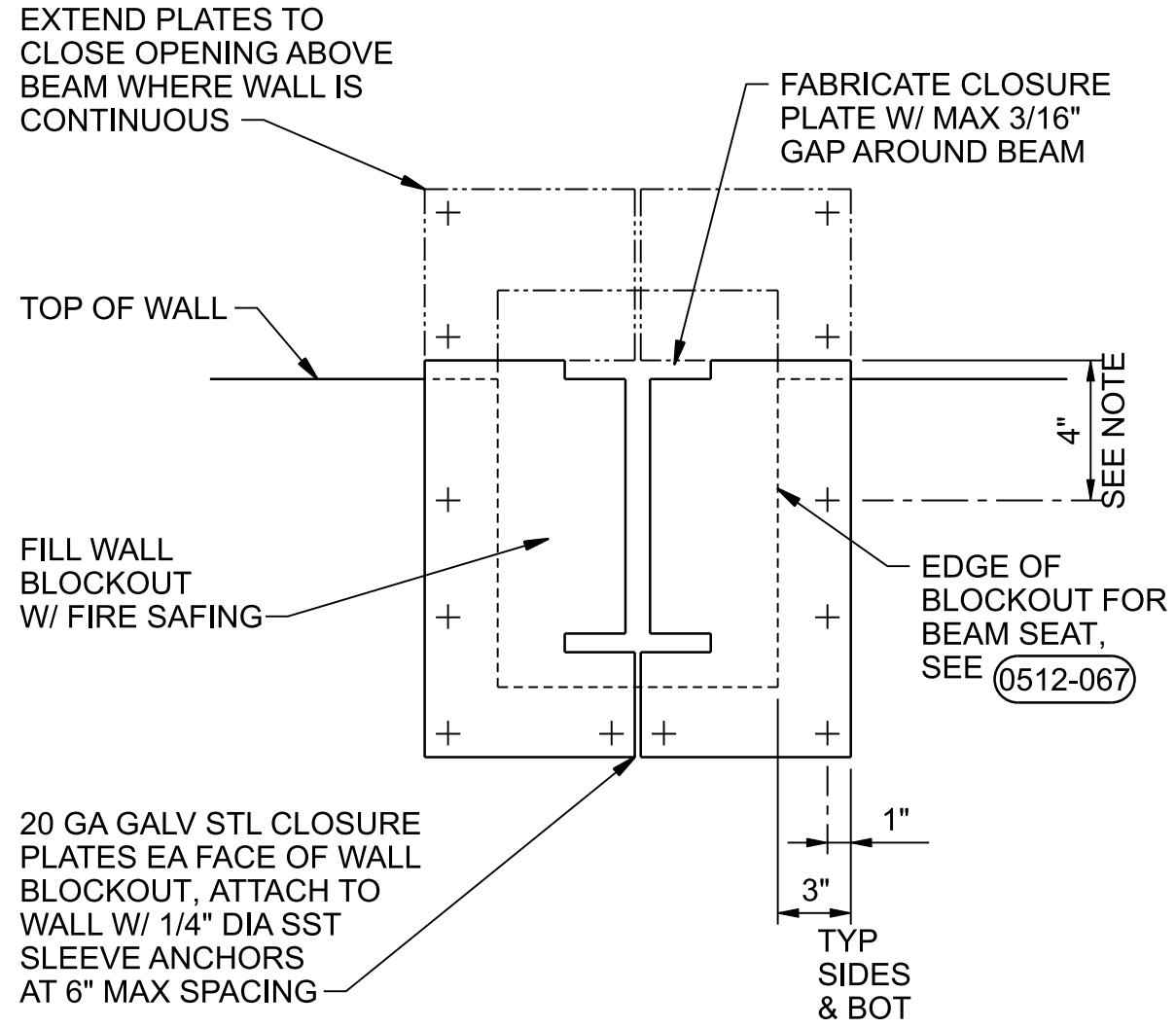


- NOTES:**
- USE GS-3 ONLY FOR LIGHT DUTY GRATING, TYPE 'A'.
  - INSTALL ANCHORS MAXIMUM 4" FROM EACH END.
  - WHEN ANCHOR IS WITHIN 4" OF A CONCRETE EDGE, UTILIZE MANUFACTURER'S LOW-TORQUE INSTALLATION PROCEDURES.

LIGHT DUTY GRATING TYPE 'A' (100 PSF)		
GRATING THICKNESS TABLE		
MAXIMUM SPAN	STEEL	ALUMINUM
3'-6"	1"	1 1/4"
4'-0"	1"	1 1/2"
4'-6"	1"	1 3/4"
5'-0"	1 1/4"	1 3/4"
5'-6"	1 1/4"	2"
6'-0"	1 1/2"	2 1/4"
6'-6"	1 1/2"	2 1/4"
7'-0"	1 3/4"	2 1/2"

- GENERAL NOTES:**
- GRATING SHALL BE LIGHT DUTY GRATING UNLESS OTHERWISE NOTED ON DRAWINGS.
  - GRATING SPAN IS INDICATED BY  $\longleftrightarrow$ , SEE PLAN.
  - INDIVIDUAL GRATING SECTIONS SHALL NOT EXCEED 3'-0" IN WIDTH OR WEIGH MORE THAN 150 POUNDS, UNLESS INDICATED OTHERWISE. FOR TYPES 'A' & 'B' GRATING. TYPE 'C' GRATING SHALL HAVE A MINIMUM WIDTH OF 2'-0" REGARDLESS OF WEIGHT.
  - SHOP DRAWINGS BASED ON FIELD DIMENSIONS SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO FABRICATION.
  - MATERIAL FOR SUPPORTS OF STEEL AND ALUMINUM GRATING TO BE SAME AS GRATING, EXCEPT METAL SUPPORTS THAT ARE TO BE EMBEDDED IN CONCRETE SHALL BE TYPE 316 STAINLESS STEEL.
  - UNLESS NOTED OTHERWISE ON PLANS, GRATING THICKNESS SHALL BE AS TABULATED IN "GRATING THICKNESS TABLE" FOR APPLICABLE GRATING TYPE.
  - FOR SERRATED BEARING BARS, INCREASE GRATING THICKNESSES SHOWN IN TABLES BY 1/4".
  - BEARING BAR THICKNESS FOR GRATING TO BE 3/16" MINIMUM. SEE SPECIFICATIONS FOR SPACING OF BEARING AND CROSS BARS.
  - BAND ALL EDGES. MATCH DEPTH OF BEARING BAR.
  - TYPE OF MATERIAL USED SHALL BE AS SHOWN ON PLANS OR AS SPECIFIED. THIS STANDARD DETAIL INCLUDES 2 TYPES, ALTHOUGH BOTH MAY NOT BE INCLUDED IN PROJECT.
  - THE HORIZONTAL CLEARANCE BETWEEN THE GRATING AND GRATING SUPPORTS SHALL NOT BE LESS THAN 1/4" NOR GREATER THAN 1/2" AND AS SPECIFIED.
  - MINIMUM BEARING HORIZONTAL DIMENSION = 1" FOR GRATING DEPTH 2 1/4" OR LESS. MINIMUM BEARING HORIZONTAL DIMENSION = 2" FOR GRATING DEPTH GREATER THAN 2 1/4"

(0553-001)



**NOTE:**  
FOR DETAIL (0512-067) CLOSURES, LOCATE ANCHORS SO THEY DO NOT CONFLICT WITH LEDGER ANGLE.

**BEAM SEAT CLOSURE PLATE** (0512-067)  
NTS

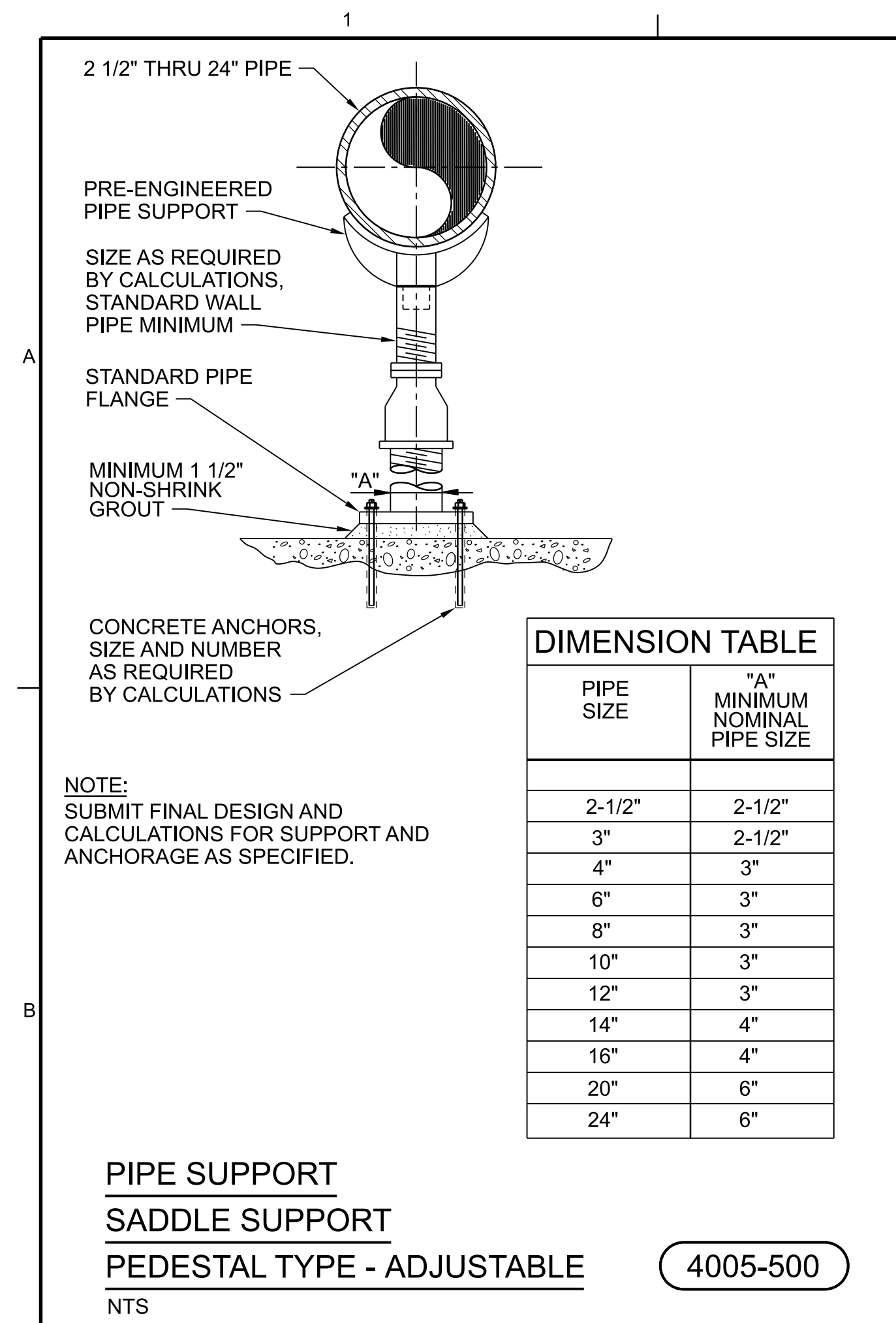
**Jacobs**  
SD - STANDARD DETAILS  
**STRUCTURAL**

PROCESS AIR COMPRESSOR SYSTEM  
FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION  
ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

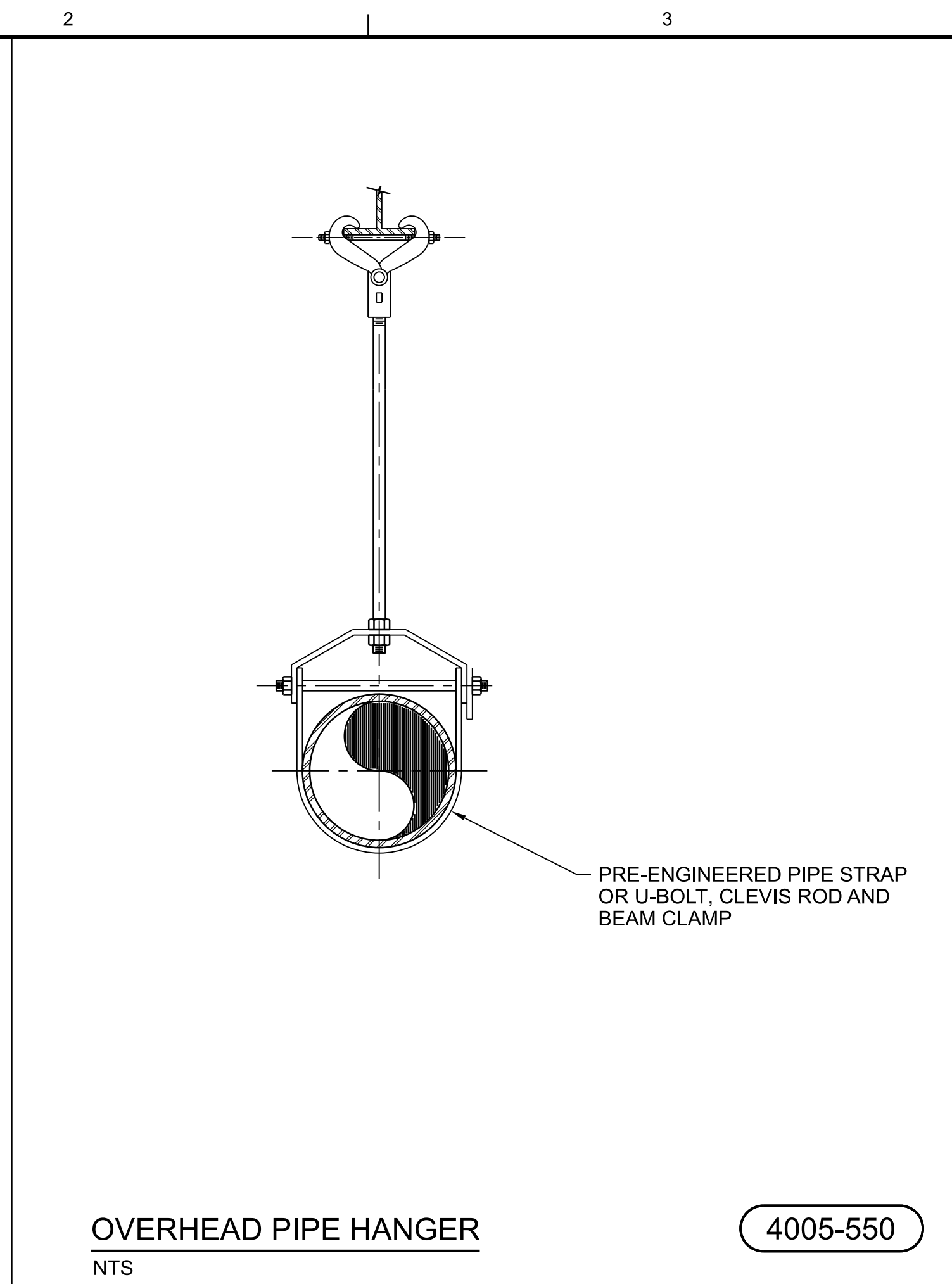
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VERIFY SCALE  
BAR IS ONE INCH ON ORIGINAL DRAWING.  
DATE JULY 2023  
PROJ E2X90000  
DWG SD-S-505  
SHEET 92 of 96

NO. DATE DSGN DR LANGE PA KARABAN J CRIVELLO DL LYNCH  
REVISION CHK APVD BY APVD

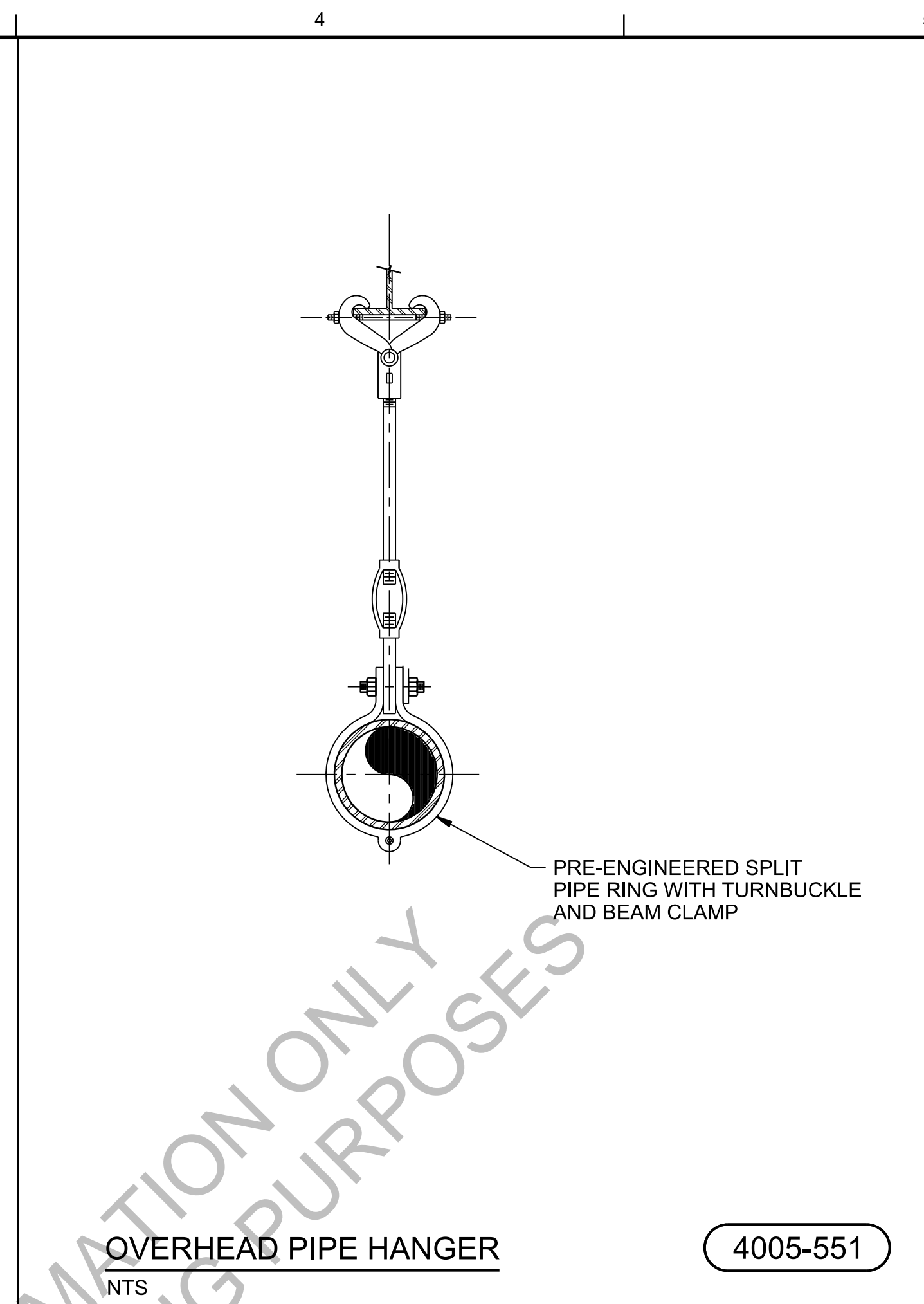
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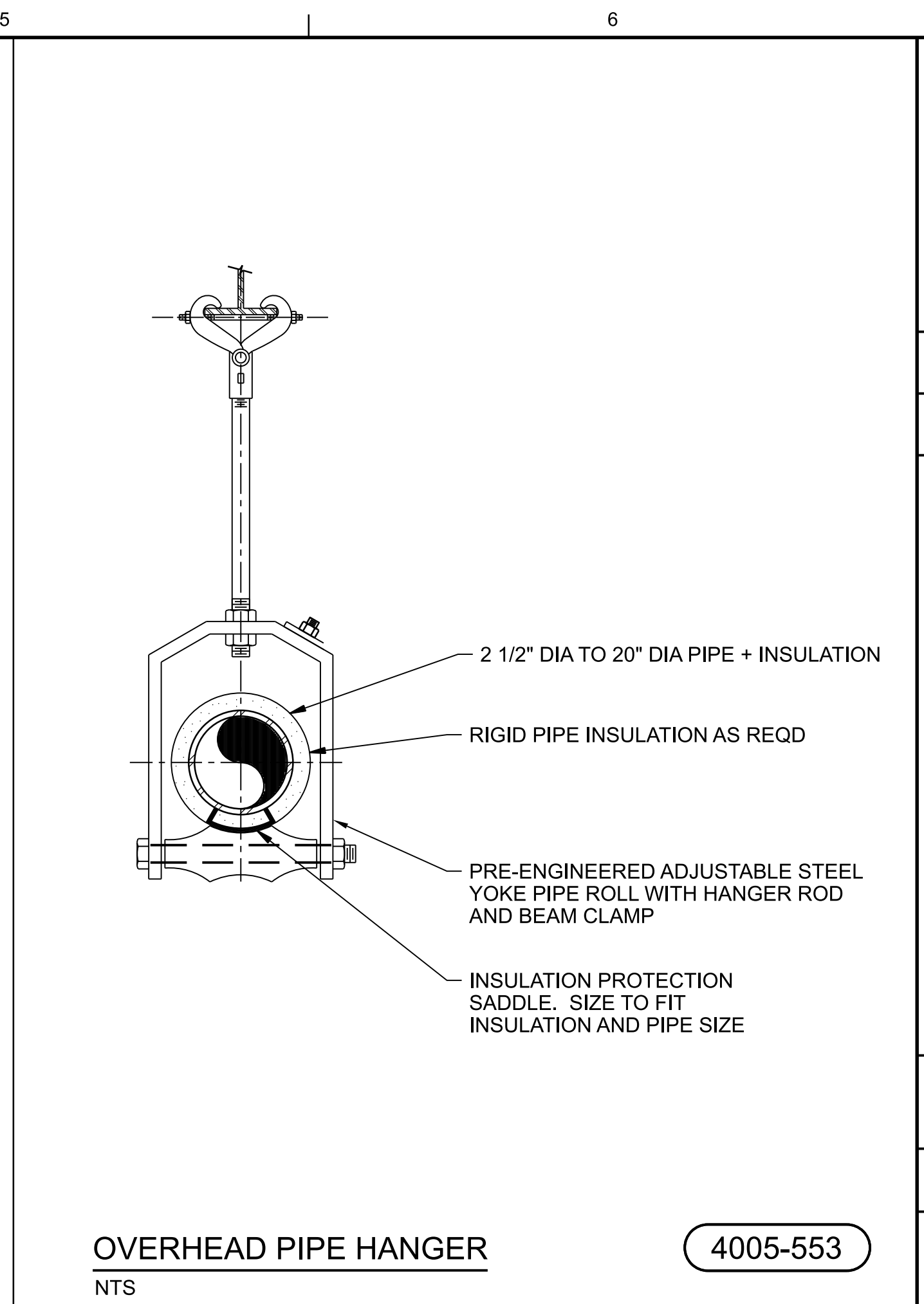
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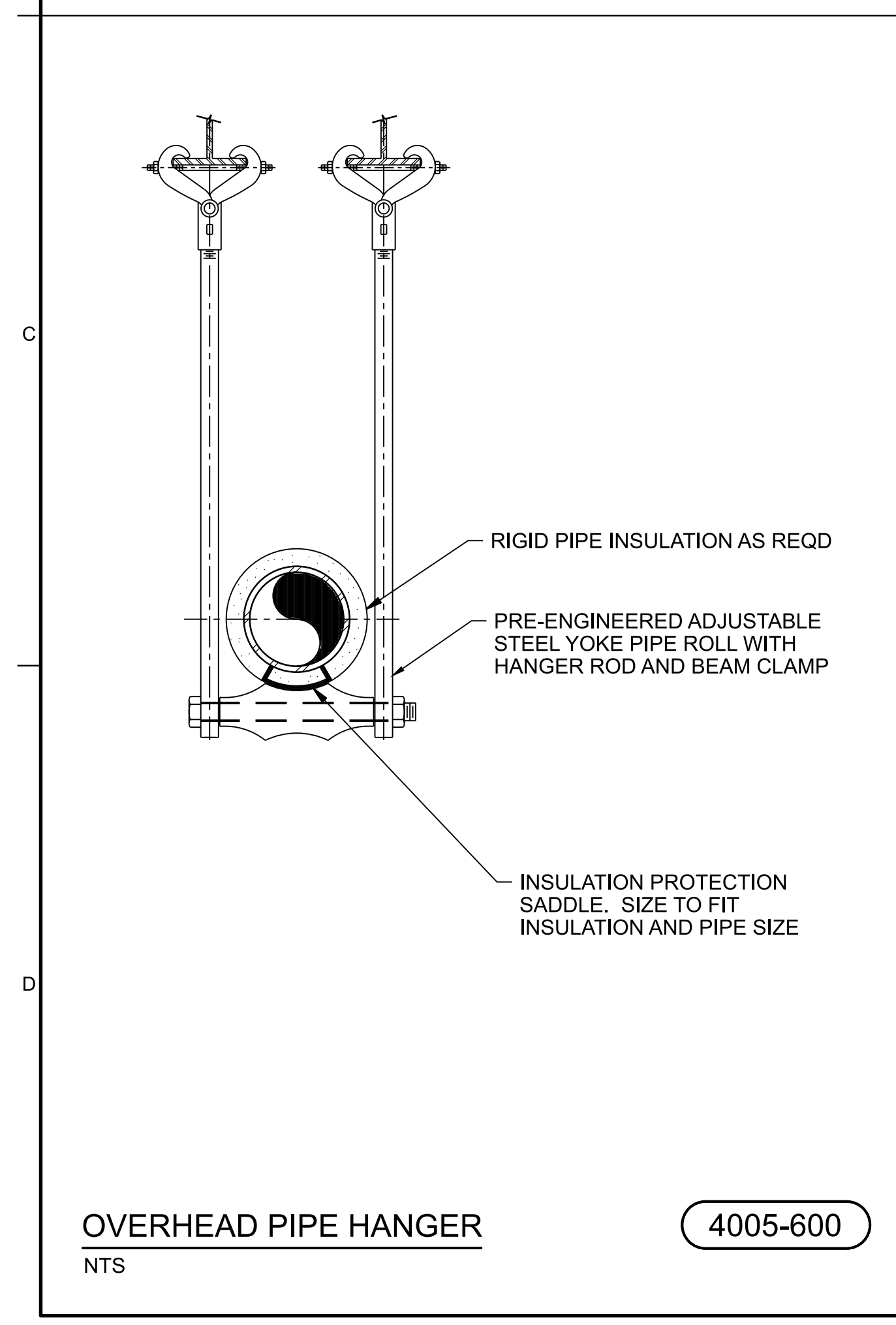
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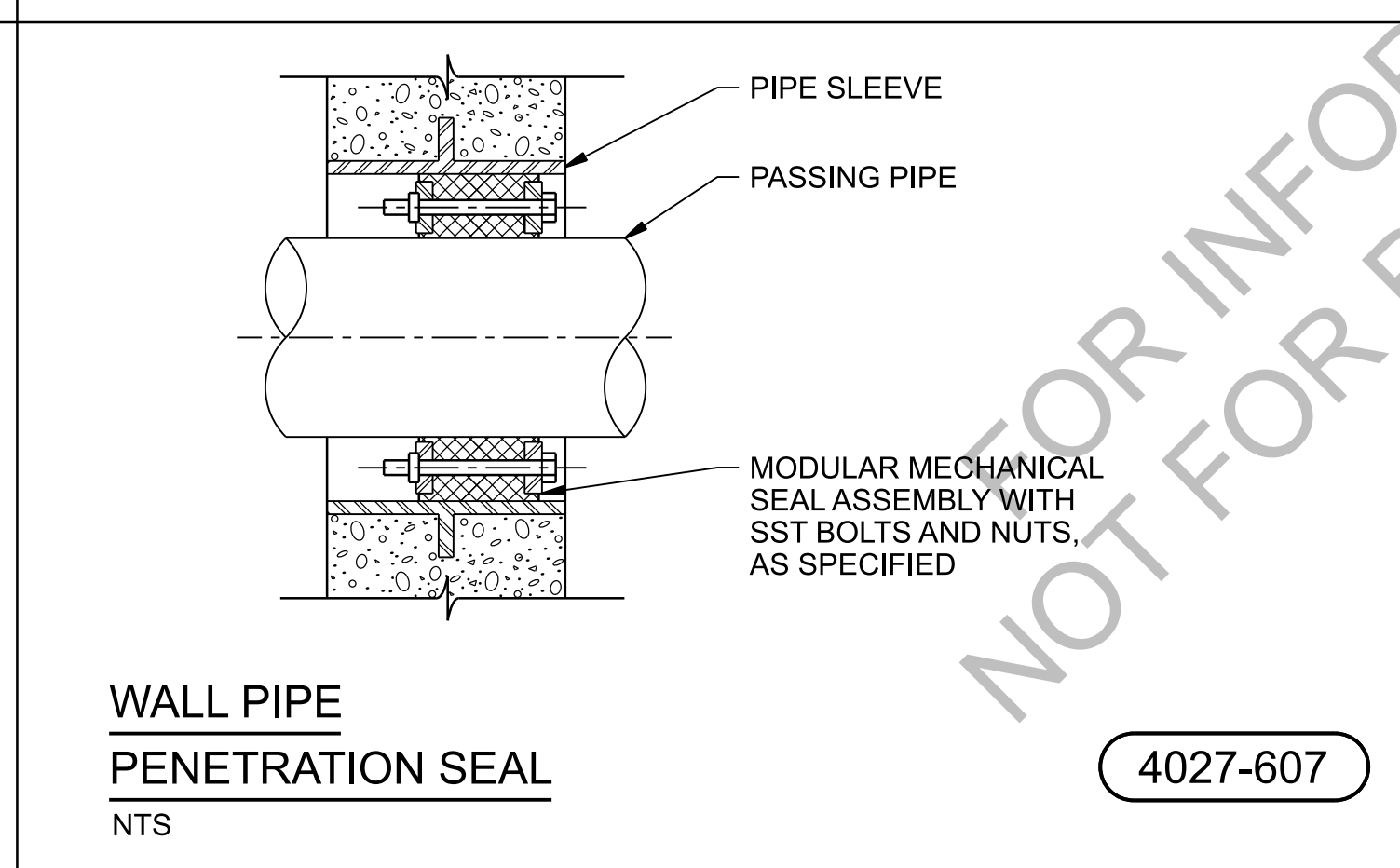
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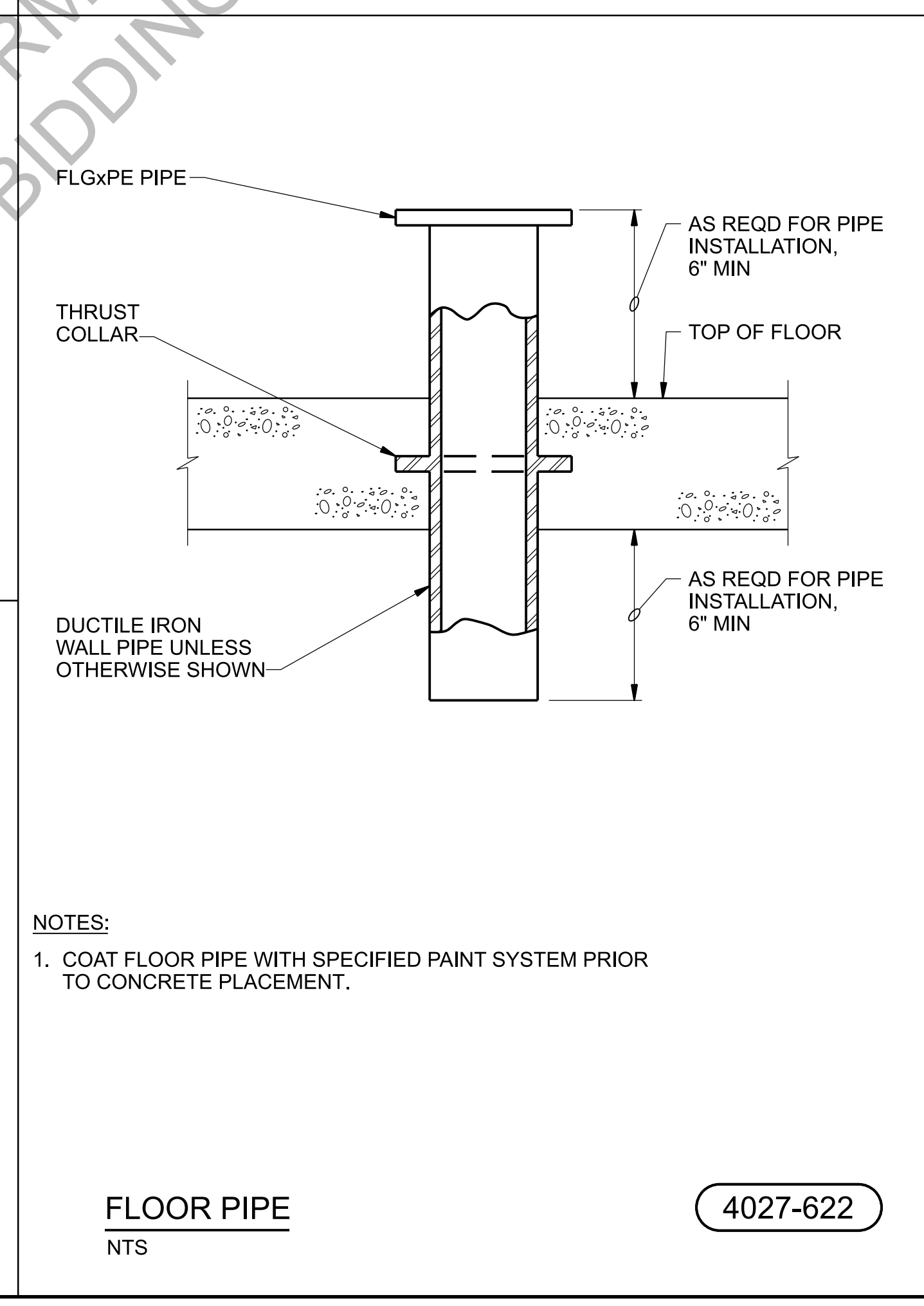
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4005-600



4027-607



4027-622

NO.	DATE	DSGN	DR	CHK	REVISION	BY	APVD
			K BAIRD	SA KORCSMAROS		N JOHNSON	DL LYNCH

PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

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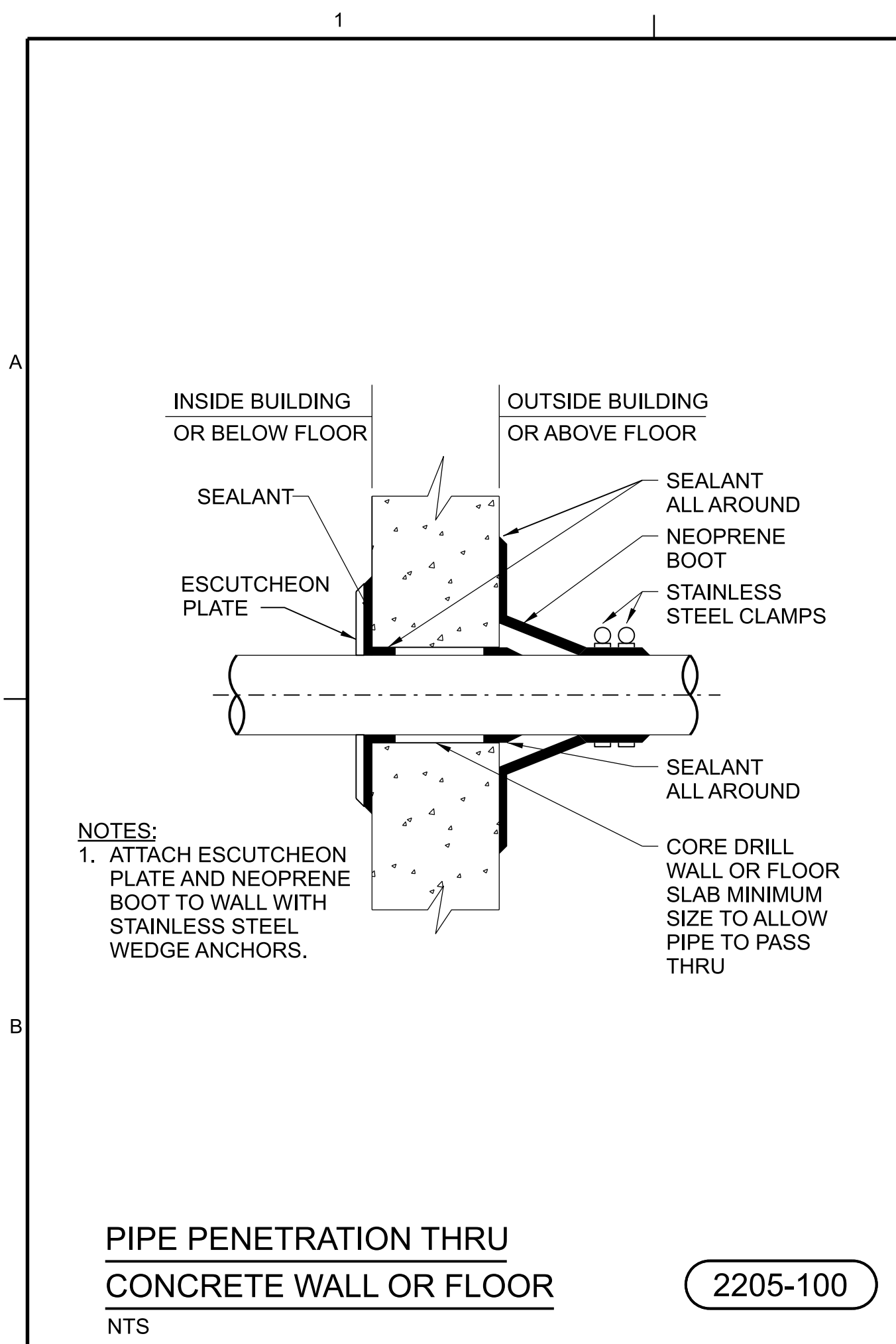
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SD - STANDARD DETAILS  
PROCESS MECHANICAL

VERIFY SCALE  
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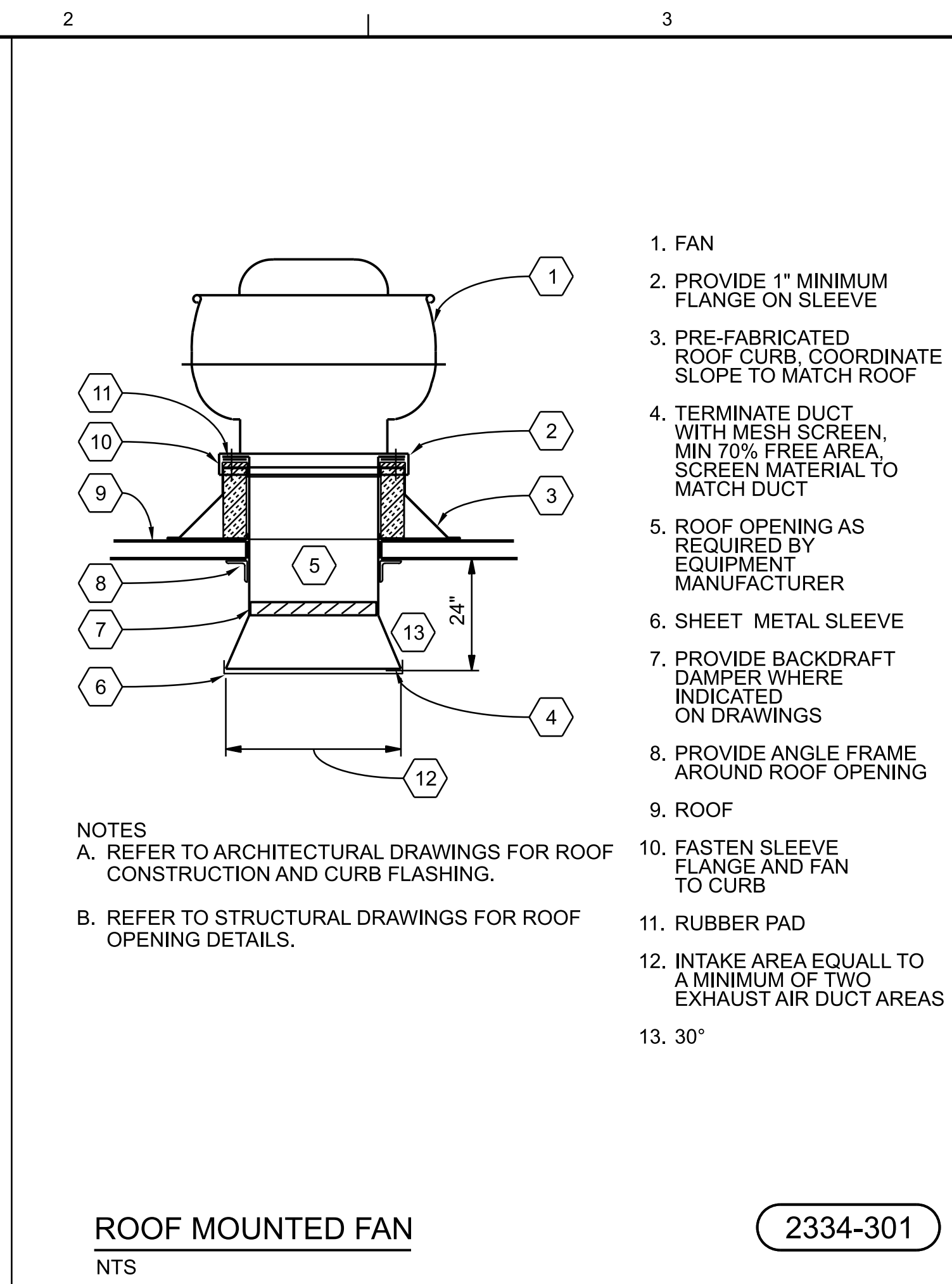
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BID READY



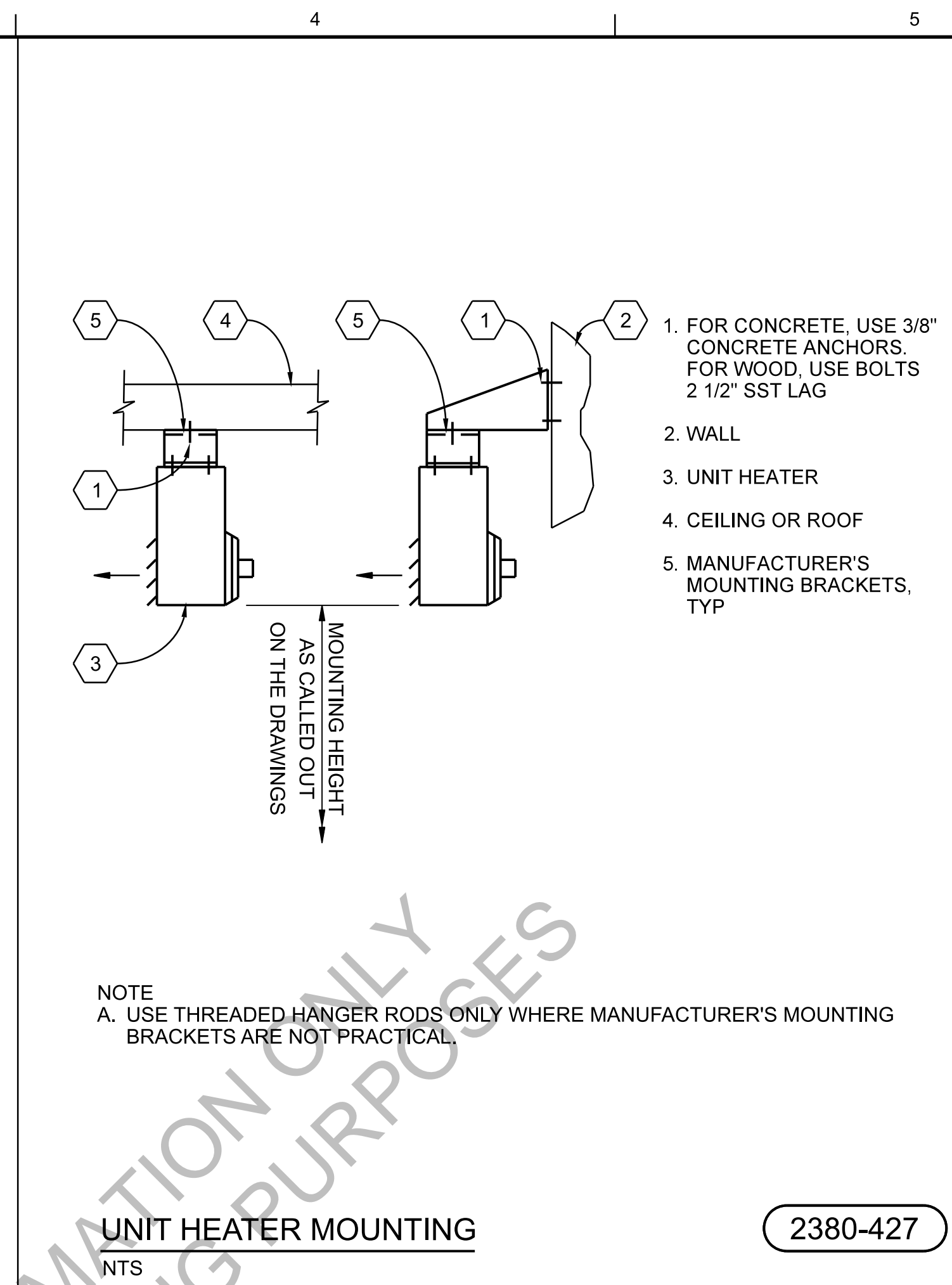
**PIPE PENETRATION THRU CONCRETE WALL OR FLOOR**  
NTS

2205-100



**ROOF MOUNTED FAN**  
NTS

2334-301



**UNIT HEATER MOUNTING**  
NTS

2380-427

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**Jacobs**

SD - STANDARD DETAILS  
HVAC

VERIFY SCALE  
BAR IS ONE INCH ON ORIGINAL DRAWING.

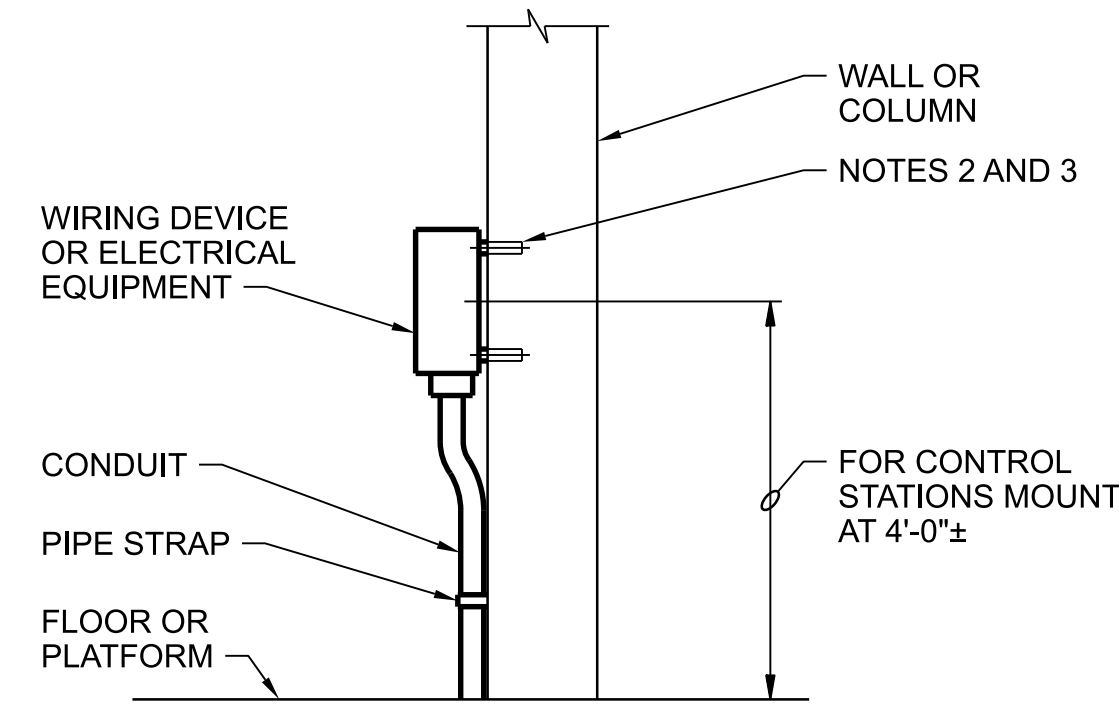
DATE	JULY 2023
PROJ	E2X90000
DWG	SD-H-501
SHEET	94 of 96

NO.	DATE	DR	CHK	APVD	BY	APVD
		M SHAFIQUZZAMAN	SA KORCSMAROS	M LUDWIG	DL LYNCH	

PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
New Haven, CT

**BID READY**

1 2

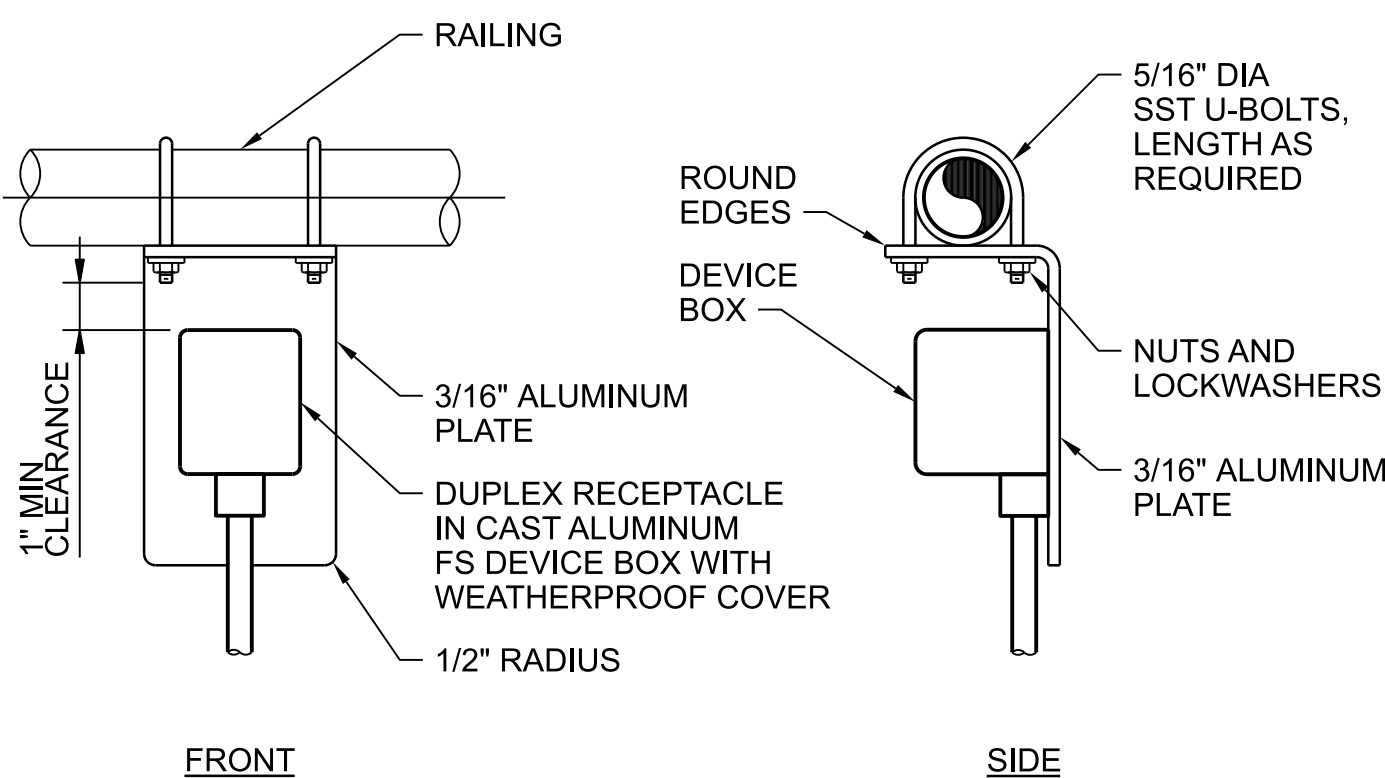


NOTES:

1. ALL MOUNTING HARDWARE SHALL BE STAINLESS STEEL. USE WASHER AND SPLIT-LOCK WASHERS UNDER ALL NUTS.
2. ON CONCRETE WALLS USE STAINLESS STEEL CONCRETE ANCHORS. MOUNT ENCLOSURE ON 1/2" SPACERS OF 1/2" SCHEDULE 80 PVC CONDUIT.
3. BOXES 6 INCHES SQUARE AND LESS SHALL BE SUPPORTED BY TWO ANCHORS. LARGER BOXES SHALL BE SUPPORTED BY AT LEAST FOUR.

DEVICE MOUNTING, WALL OR COLUMN  
NTS

2605-002



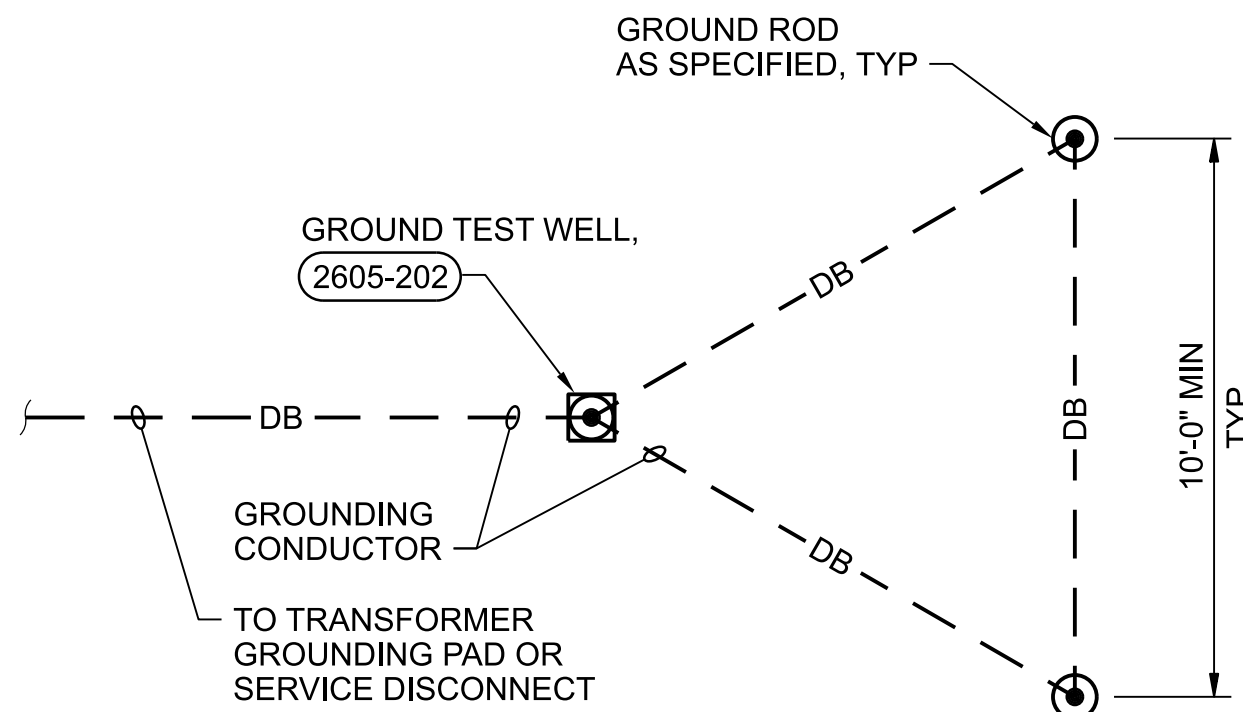
NOTES:

1. THIS DETAIL SHALL BE USED FOR MOUNTING OF ALL WIRING DEVICES AND JUNCTION BOXES 4 INCHES SQUARE AND LESS ON RAILING WHETHER DETAIL IS CALLED OUT OR NOT.
2. ALL HARDWARE TO BE STAINLESS STEEL. USE WASHER AND SPLIT LOCKWASHERS WITH ALL NUTS.
3. ALL EDGES AND THE ENDS OF ALL U-BOLTS WHICH HAVE BEEN CUT SHALL BE FILED SMOOTH.

DEVICE MOUNTING, ON RAILING  
NTS

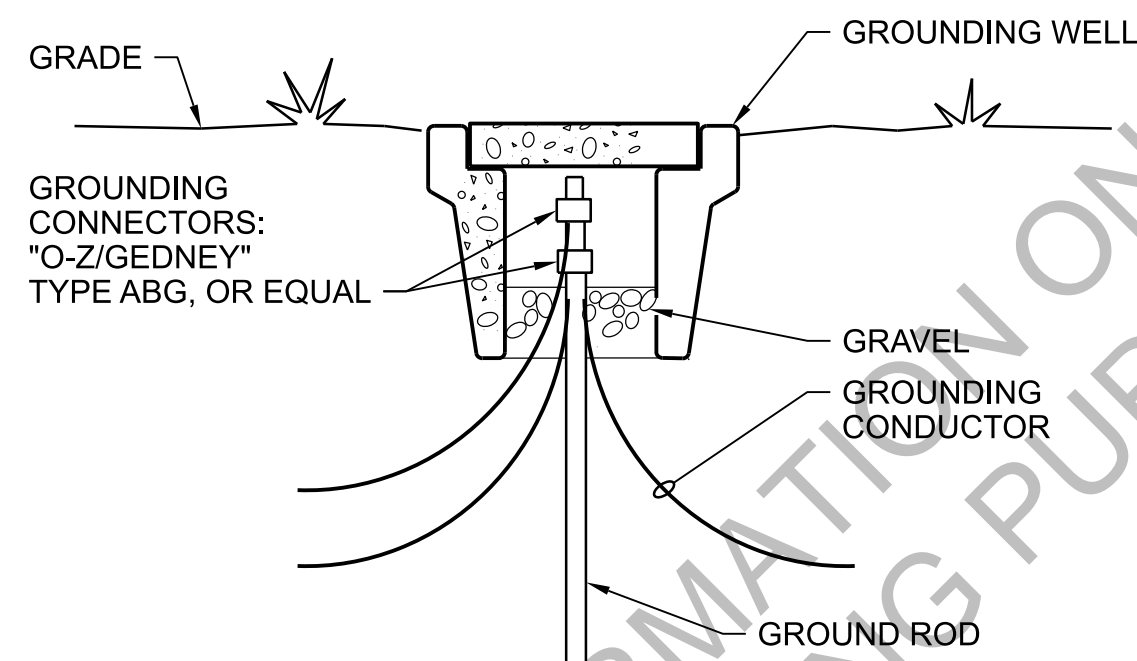
2605-006

3 4



GROUND TRIANGLE  
NTS

2605-201



GROUND TEST WELL  
NTS

2605-202

PAD DIMENSIONS

1. CONTRACTOR SHALL VERIFY PAD DIMENSIONS ARE COMPATIBLE WITH THE TRANSFORMER DIMENSIONS, BEFORE ORDERING THE CONCRETE PAD.

CONDUIT INSTALLATION

1. MV 13.8KV IS LEFT SIDE AND THE LV (480V) IS THE RIGHT SIDE
2. EACH CONDUIT SHOULD EXTEND A MINIMUM OF 3" TO A MAXIMUM OF 6" ABOVE THE TOP OF THE CONCRETE AND SHALL HAVE GROUNDING BUSHINGS OR PVC END BELLS. ALL PVC CONDUITS EXTENDING AS HIGH AS POSSIBLE IS PREFERRED TO MINIMIZE THE POSSIBILITY OF WATER ENTERING THE CONDUITS. ELBOW RADIUS SHALL BE 24" MIN OR LARGER IF REQUIRED TO MAINTAIN THE MIN. BEND REQUIREMENTS ON THE CABLE TO BE USED.

GROUNDING & BONDING

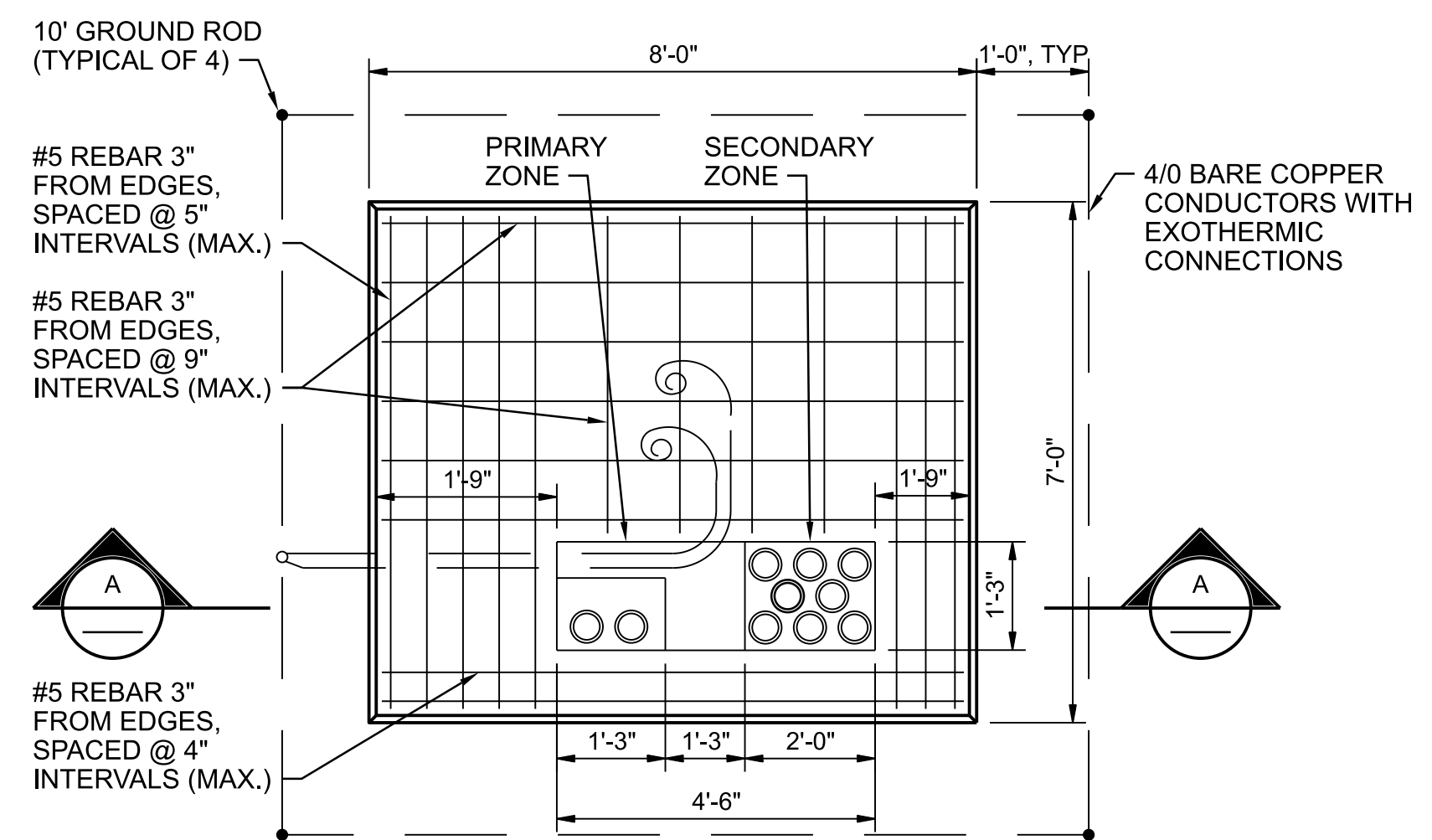
1. FOUR COPPERCLAD GROUND RODS & #4/0 COPPER GROUND WIRE SHALL BE INSTALLED. ALL CONNECTIONS BELOW GRADE BE EXOTHERMIC.
2. THE GROUND GRID 'TAILS' SHALL BE BROUGHT, BELOW GRADE, INTO THE FOUNDATION WINDOW AS SHOWN.
3. THE GROUND RODS, PRIMARY NEUTRALS, SECONDARY NEUTRALS, TRANSFORMER TANK AND CONDUITS SHALL ALL BE EFFECTIVELY BONDED TOGETHER.
4. ALL GROUNDING AND BONDING SHALL BE DONE WITH COPPER WIRE. THE MINIMUM CONDUCTOR SIZE FOR BONDING METAL CONDUITS IS #4 AWG BARE COPPER; ALUMINUM WIRE IS NOT ACCEPTABLE.
5. GROUNDING BUSHINGS SHALL BE USED FOR BONDING ALL METAL CONDUITS.
6. THE GROUND GRID AND ASSOCIATED CONNECTIONS REQUIRE INSPECTION PRIOR TO BACKFILLING THE AREA.

PAD MOUNTED TRANSFORMER CONCRETE BASE AND GROUNDING DETAIL  
NTS

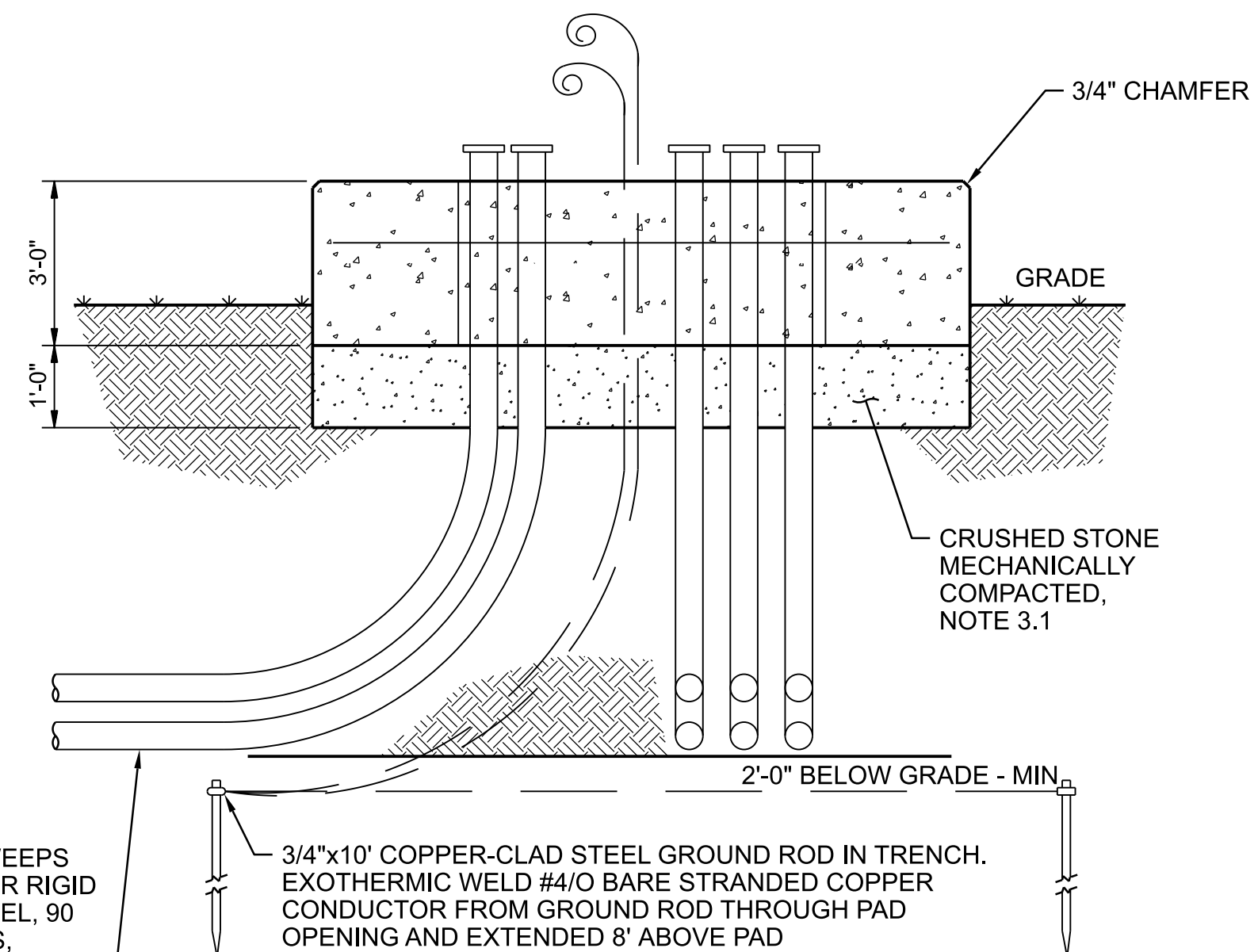
CONCRETE & REINFORCING

1. A COMPACTED BASE OF CRUSHED STONE OF 12" MINIMUM DEPTH SHALL BE INSTALLED ON A LEVEL COMPACTED SUB-GRADE WITH A MINIMUM SOIL BEARING CAPACITY OF 1,000 POUNDS PER SQUARE FOOT.
2. CONCRETE SHALL CONFORM WITH ACI BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE; AND SHALL HAVE A MINIMUM ULTIMATE STRENGTH (FC) OF 3,000 PSI AT 28 DAYS, A MAXIMUM OF 1 1/2" COARSE AGGREGATE, AND AIR ENTRAINMENT FOR A TOTAL AIR CONTENT OF 3% - 6% BY VOLUME.
3. REINFORCING STEEL SHALL BE NEW, FORMED BARS MEETING ASTM A615 SPECIFICATIONS FOR GRADE NO. 60 STEEL. THE REINFORCING SHOWN IS TYPICAL FOR FIELD FABRICATION.
4. A PRE-CAST FOUNDATION WILL REQUIRE LIFTING EYES AND MAY REQUIRE ADDITIONAL REINFORCING TO HANDLE THE STRESSES OF TRANSPORTATION AND SETTING IN PLACE.
5. THE TOP SURFACE SHALL BE SMOOTH AND LEVEL WITH A 3/4" MIN. CHAMFER ALONG THE UPPER EDGES.

5 6



PLAN  
NTS



A SECTION  
NTS

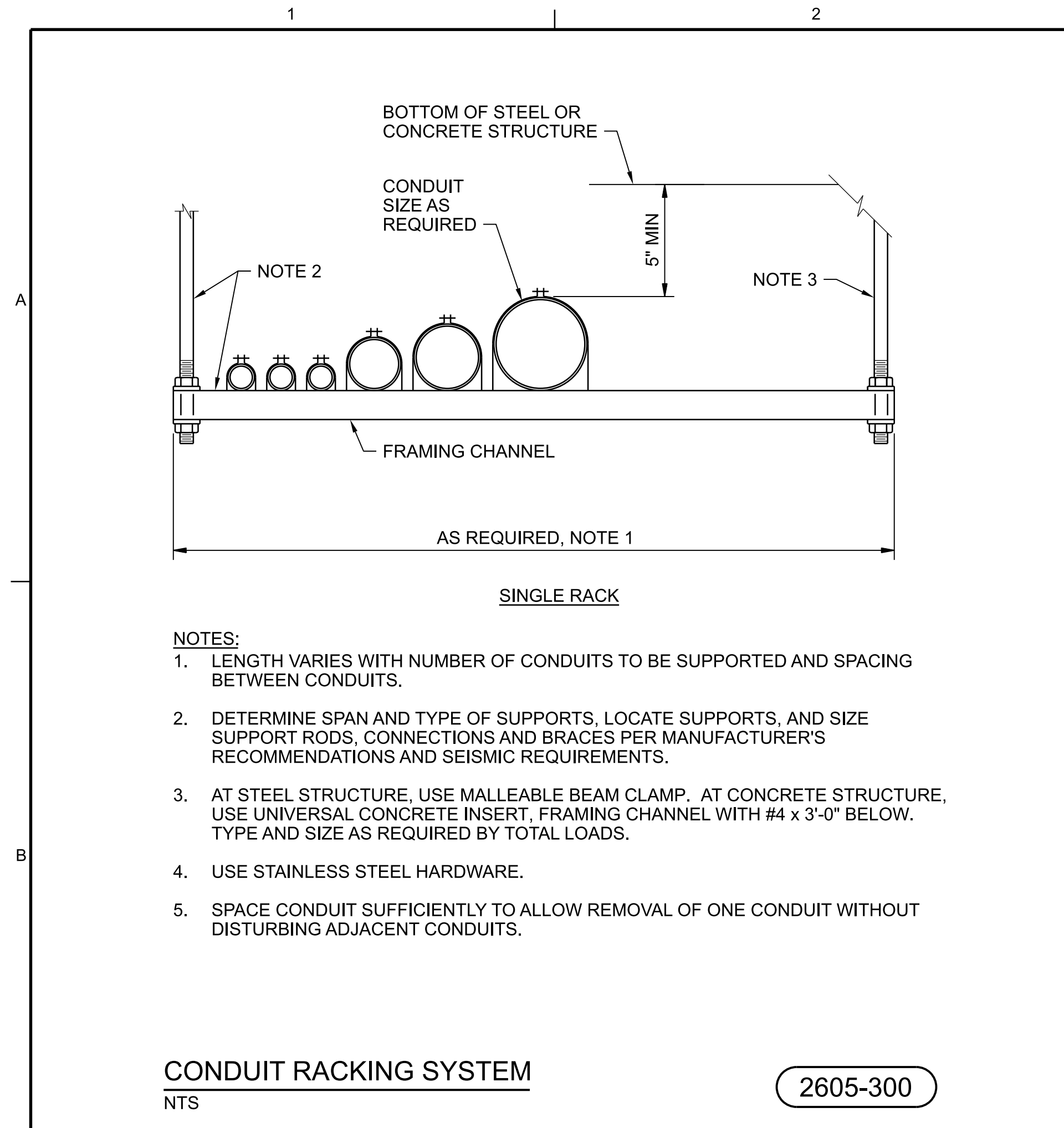
ALL CONDUIT SWEEPS SHALL BE PVC OR RIGID GALVANIZED STEEL, 90 DEGREES BENDS, WITH A 24" RADIUS MIN.

2605-270

Jacobs  
SD - STANDARD DETAILS  
ELECTRICAL

NTS	
VERIFY SCALE	
BAR IS ONE INCH ON ORIGINAL DRAWING.	
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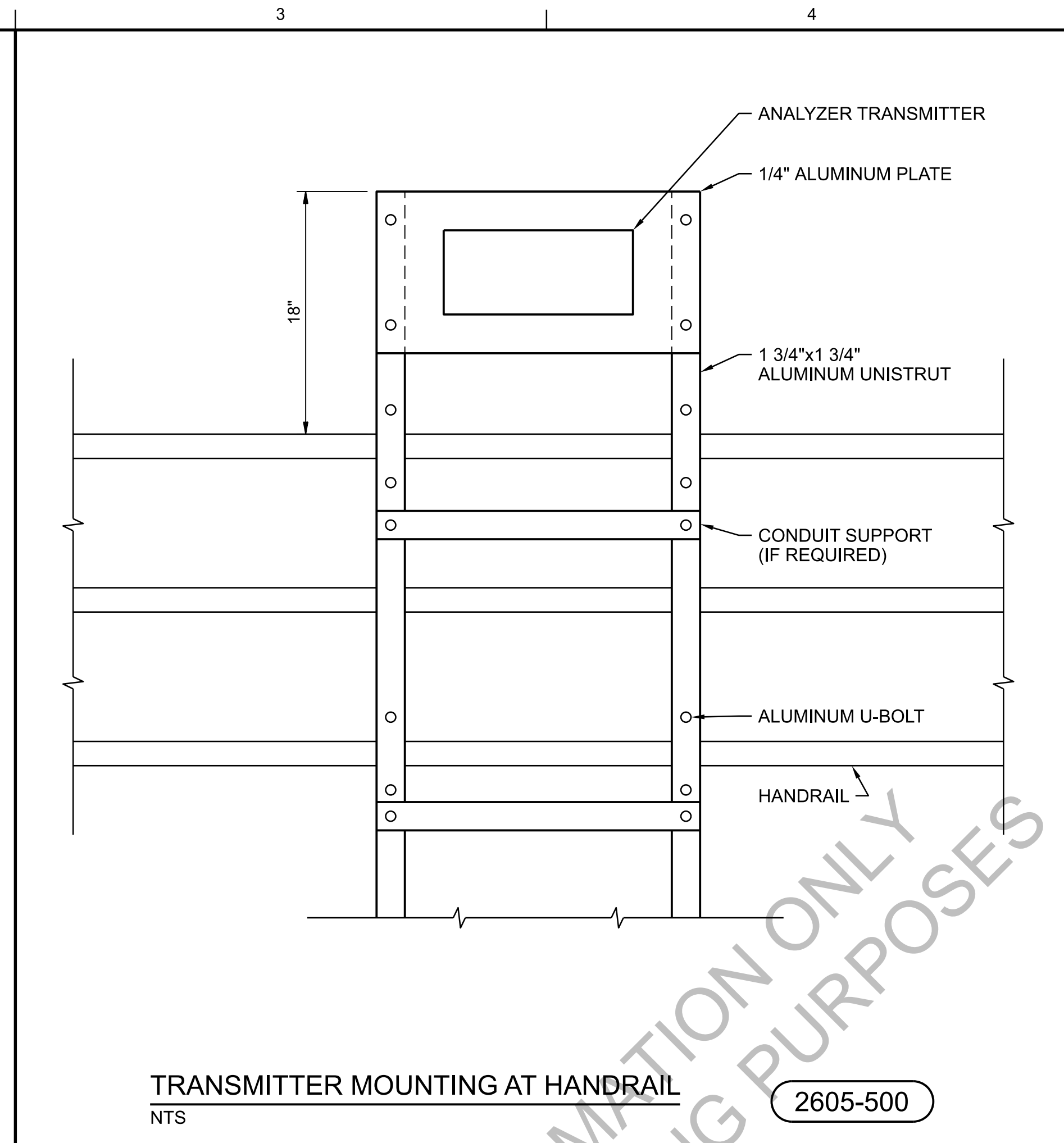
BID READY



- NOTES:**
1. LENGTH VARIES WITH NUMBER OF CONDUITS TO BE SUPPORTED AND SPACING BETWEEN CONDUITS.
  2. DETERMINE SPAN AND TYPE OF SUPPORTS, LOCATE SUPPORTS, AND SIZE SUPPORT RODS, CONNECTIONS AND BRACES PER MANUFACTURER'S RECOMMENDATIONS AND SEISMIC REQUIREMENTS.
  3. AT STEEL STRUCTURE, USE MALLEABLE BEAM CLAMP. AT CONCRETE STRUCTURE, USE UNIVERSAL CONCRETE INSERT, FRAMING CHANNEL WITH #4 x 3'-0" BELOW. TYPE AND SIZE AS REQUIRED BY TOTAL LOADS.
  4. USE STAINLESS STEEL HARDWARE.
  5. SPACE CONDUIT SUFFICIENTLY TO ALLOW REMOVAL OF ONE CONDUIT WITHOUT DISTURBING ADJACENT CONDUITS.

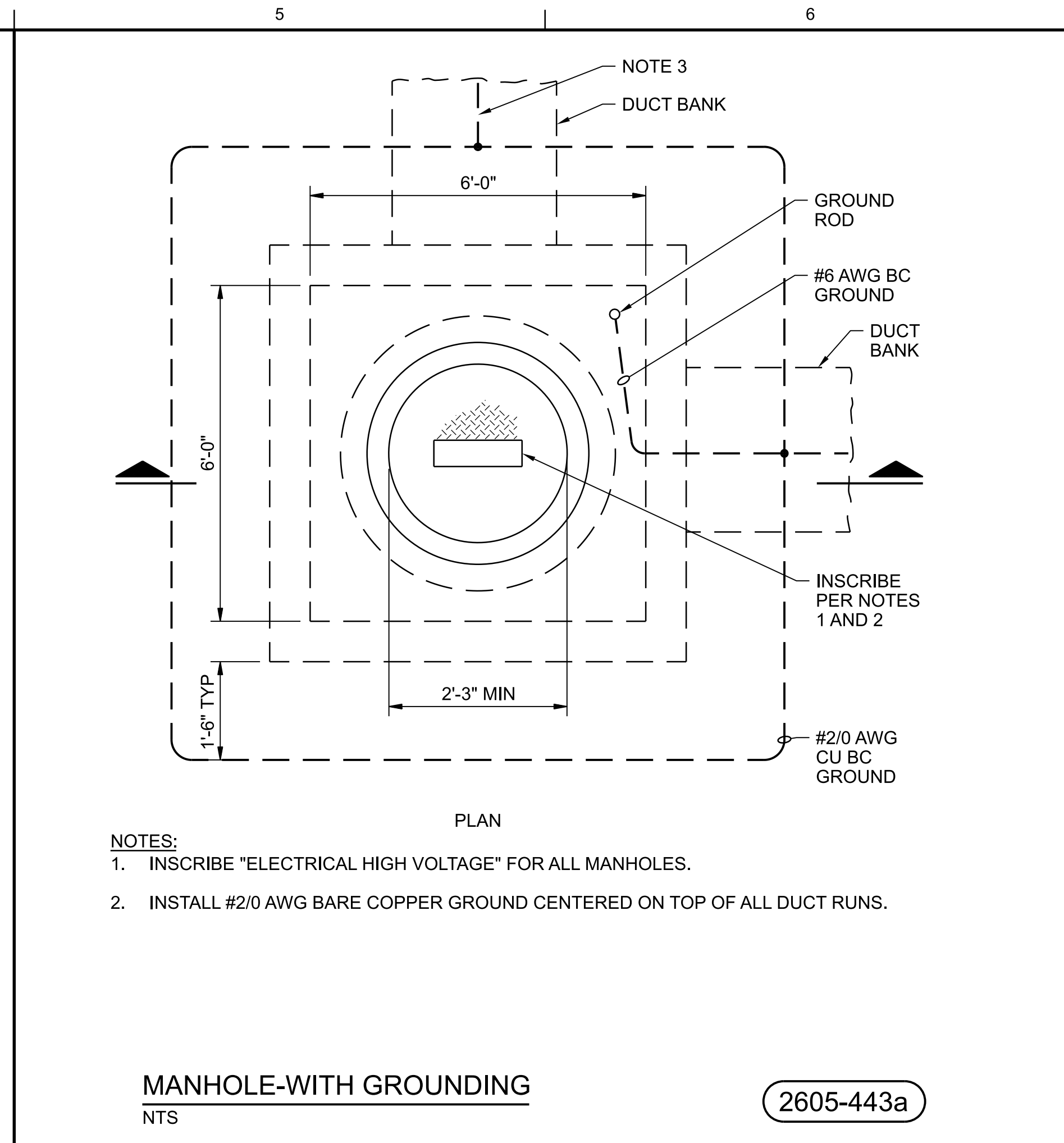
**CONDUIT RACKING SYSTEM**  
NTS

2605-300



**TRANSMITTER MOUNTING AT HANDRAIL**  
NTS

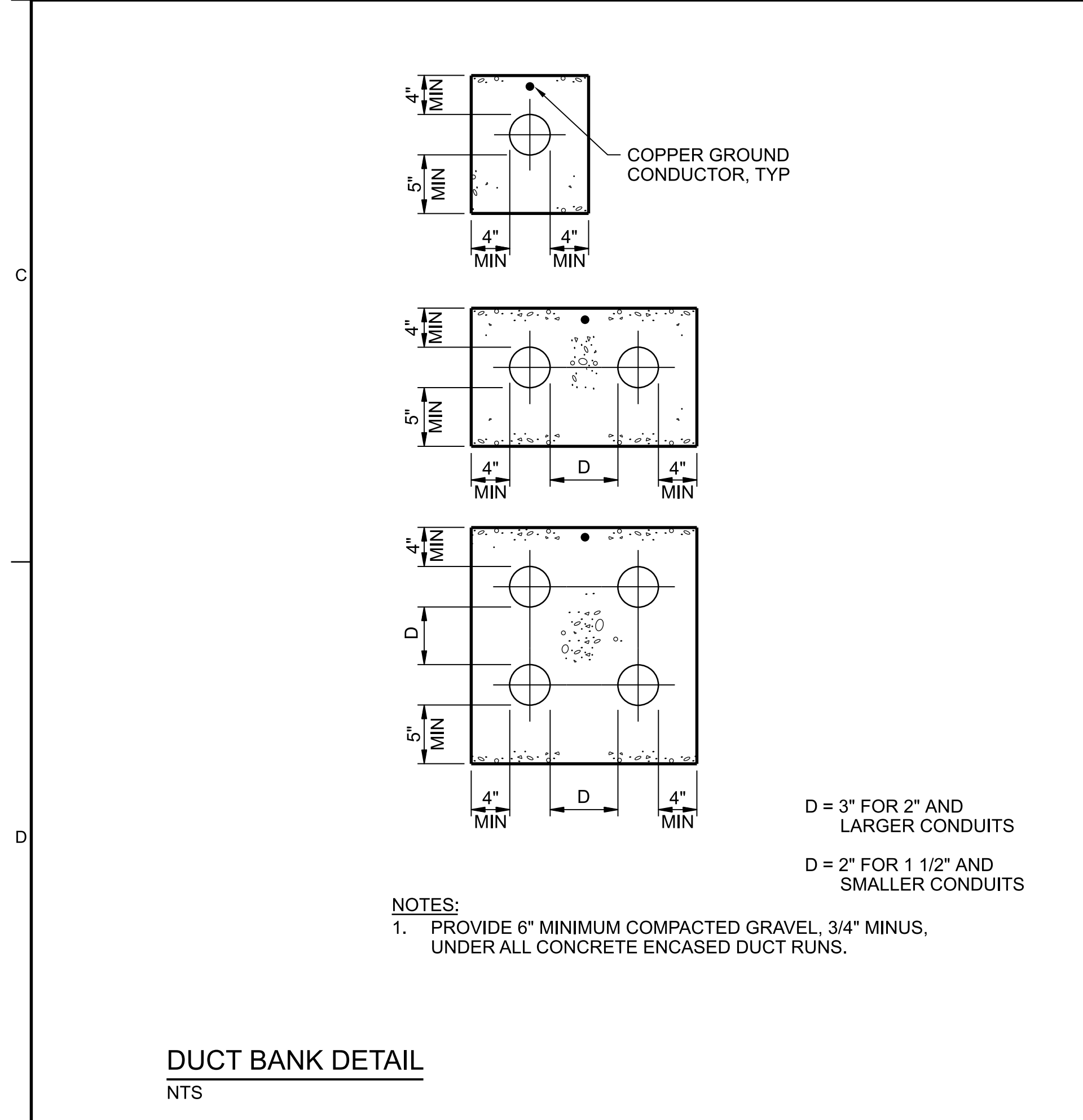
2605-500



- NOTES:**
1. INSCRIBE "ELECTRICAL HIGH VOLTAGE" FOR ALL MANHOLES.
  2. INSTALL #2/0 AWG BARE COPPER GROUND CENTERED ON TOP OF ALL DUCT RUNS.

**MANHOLE-WITH GROUNDING**  
NTS

2605-443a

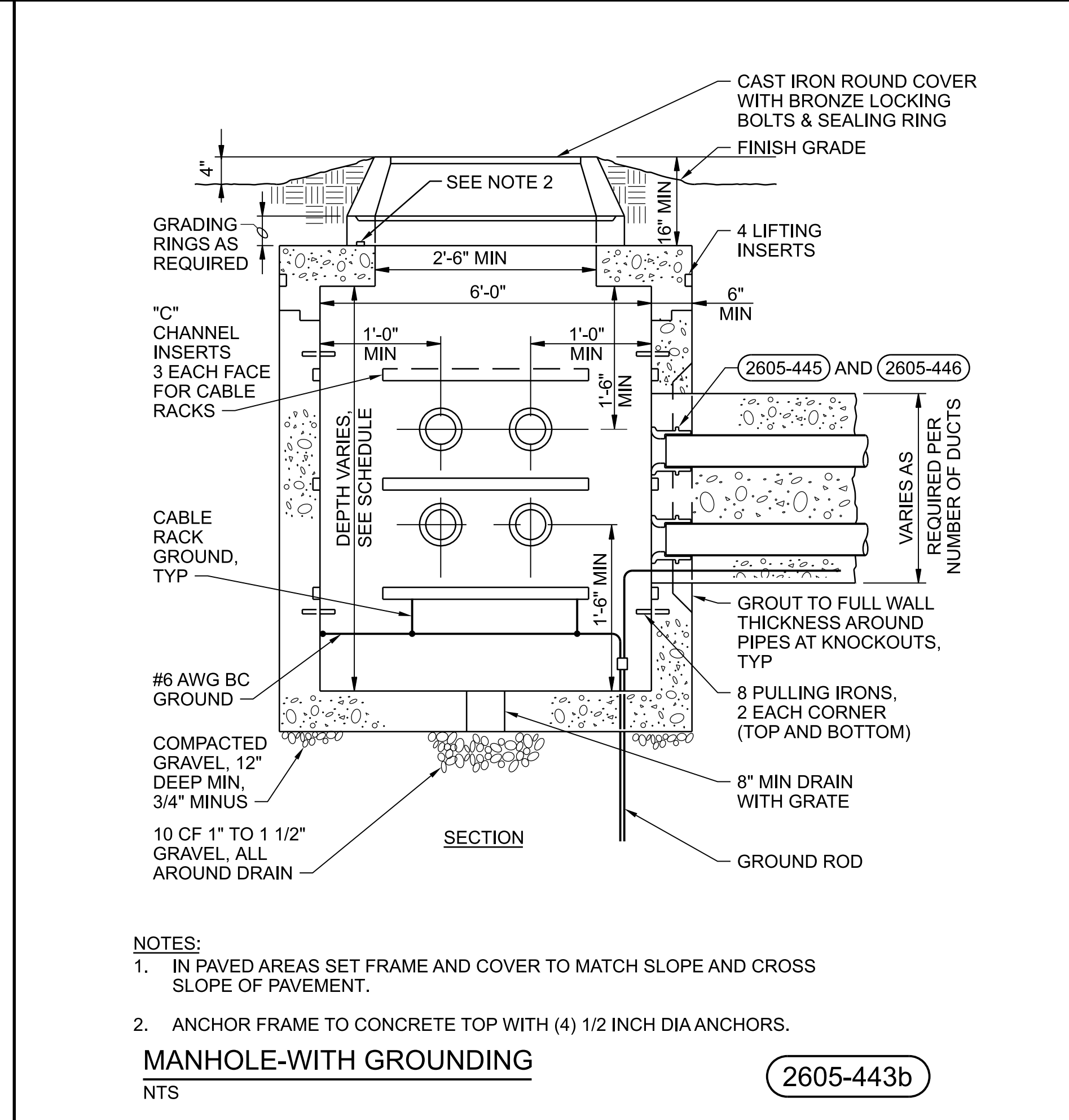


- NOTES:**
1. PROVIDE 6" MINIMUM COMPACTED GRAVEL, 3/4" MINUS, UNDER ALL CONCRETE ENCASED DUCT RUNS.

D = 3" FOR 2" AND LARGER CONDUITS  
D = 2" FOR 1 1/2" AND SMALLER CONDUITS

**DUCT BANK DETAIL**  
NTS

2605-400



- NOTES:**
1. IN PAVED AREAS SET FRAME AND COVER TO MATCH SLOPE AND CROSS SLOPE OF PAVEMENT.
  2. ANCHOR FRAME TO CONCRETE TOP WITH (4) 1/2 INCH DIA ANCHORS.

**MANHOLE-WITH GROUNDING**  
NTS

2605-443b

J.BROSNAN		DL LYNCH	
D. MUNZER		APVD	
D. MICHALEK		CHK	
D. MUNZER		DR	
D. MUNZER		DSGN	
NO.		DATE	
REVISION		BY	
APVD		APVD	

PROCESS AIR COMPRESSOR SYSTEM FOR LOW LEVEL NITROGEN REMOVAL  
EAST SHORE WATER POLLUTION ABATEMENT FACILITY  
Greater New Haven Water Pollution Control Authority  
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**Jacobs**  
SD - STANDARD DETAILS  
**ELECTRICAL**

NTS  
VERIFY SCALE  
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