

DURHAM WATER RESOURCE
RECOVERY FACILITY
PHASE 6B DIGESTER
PROJECT NO. 7203



CLEAN WATER SERVICES
TIGARD, OREGON

CONFORMED DRAWINGS
STANDARD DETAILS

Jacobs.

Standard Details Conformed Drawings

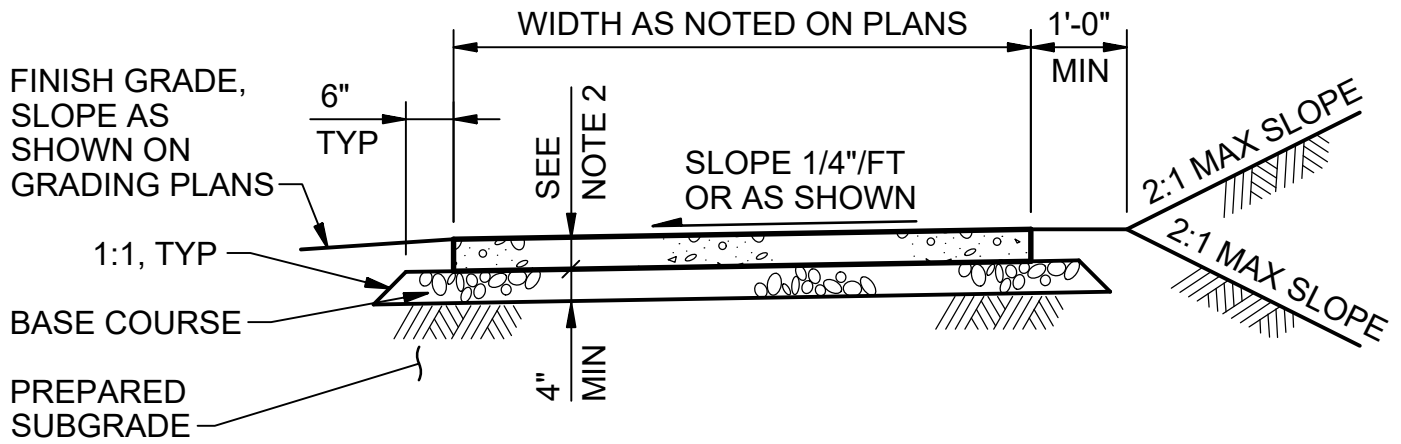


DETAIL NO.	DETAIL TITLE
2000	
2010	TYPICAL CONCRETE SIDEWALK
2220	ASPHALT CONCRETE PAVEMENT
2240	GRAVEL SURFACING
2253	CONCRETE CURB
2254	TRANSITION CURB
2260	CONCRETE VALLEY GUTTER
2310	TYPICAL TRENCH
2320	SURFACE RESTORATION
2335	TRENCH PIPE CROSSING
2440	EXTERIOR CLEANOUT
2480	PRECAST TRENCH DRAIN
2955	REMOVABLE GUARD POST
3000	
3051	FORM SNAP-TIE HOLE
3131	WALL CONSTRUCTION JOINT SPACING
3142	SLAB CONSTRUCTION JOINT
3151	WALL VERTICAL CONSTRUCTION JOINT
3154	WALL BASE CONSTRUCTION JOINT
3265	ADHESIVE DOWEL
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3356	CONCRETE EQUIPMENT PAD - TYPE 'F' (DETAIL 3 OF 6)
3356	CONCRETE EQUIPMENT PAD - TYPE 'G' (DETAIL 4 OF 6)
3356	CONCRETE EQUIPMENT PAD - TYPE 'H' (DETAIL 5 OF 6)
3356	CONCRETE EQUIPMENT PAD - NOTES (DETAIL 6 OF 6)
3380	CONCRETE CURB
4000	
4002	CMU OPENING REINFORCEMENT

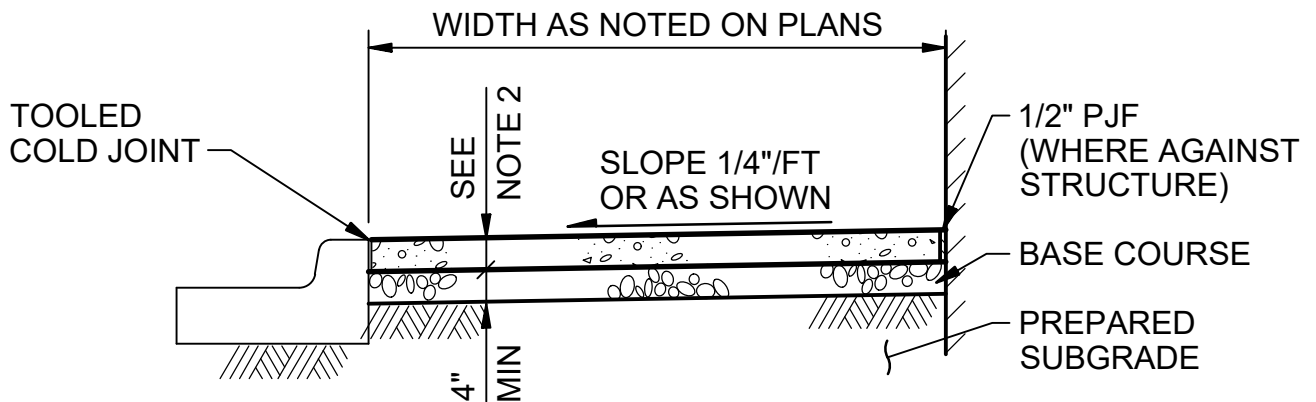
DETAIL NO.	DETAIL TITLE
5000	
5020	TYPICAL BEAM CONNECTION - STEEL
5040	BEAM COLUMN CONNECTION - STEEL
5056	BEAM/WALL CONNECTION - STEEL (DETAIL 1 OF 2)
5056	BEAM/WALL CONNECTION - STEEL (DETAIL 2 OF 2)
5076	TYPICAL BEAM CONNECTION - ALUMINUM
5087	BEAM/WALL CONNECTION - ALUMINUM (DETAIL 1 OF 2)
5087	BEAM/WALL CONNECTION - ALUMINUM (DETAIL 2 OF 2)
5511	STAIR DETAILS - ALUMINUM (DETAIL 1 OF 5)
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5511	STAIR DETAILS - ALUMINUM (DETAIL 4 OF 5)
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5521	RAILING - 3 RAIL - ALUMINUM (DETAIL 1 OF 5)
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5521	RAILING POST ANCHORAGE TYPE 'A' - ALUMINUM (DETAIL 3 OF 5)
5521	RAILING POST ANCHORAGE TYPE 'C' - ALUMINUM (DETAIL 4 OF 5)
5521	RAILING POST ANCHORAGE TYPE 'D' - ALUMINUM (DETAIL 5 OF 5)
5522	WALL HANDRAIL - ALUMINUM
5525	RAILING - REMOVABLE THREE RAIL - ALUMINUM
5566	STANDARD GRATING (DETAIL 1 OF 4)
5566	STANDARD GRATING (DETAIL 2 OF 4)
5566	STANDARD GRATING (DETAIL 3 OF 4)
5566	STANDARD GRATING (DETAIL 4 OF 4)
5576	CHECKERED FLOOR PLATE - ALUMINUM (DETAIL 1 OF 4)
5576	CHECKERED FLOOR PLATE - ALUMINUM (DETAIL 2 OF 4)
5576	CHECKERED FLOOR PLATE - ALUMINUM (DETAIL 3 OF 4)
5576	CHECKERED FLOOR PLATE - ALUMINUM (DETAIL 4 OF 4)
5578	CHECKERED ALUMINUM HINGED FLOOR PLATE
10000	
10207	LOUVER HEAD (JAMB SIMILAR)
10208	LOUVER SILL
10401	DANGER SIGN
10402	CAUTION SIGN
10403	NO THRU TRAFFIC SIGN
10404	RIGHT TURN ONLY SIGN

DETAIL NO.	DETAIL TITLE
13000	
13217	THERMAL MASS FLOW ELEMENT INSTALLATION
13258	DIGESTER RADAR LEVEL TRANSMITTER
13360	TEMPERATURE TRANSMITTER - WALL MOUNT
13361A	THERMOWELL INSTALLATION
13361B	THERMOWELL INSTALLATION
13930	INSULATED FLANGES
13932	INSULATED BOLTS AT TAPPED VALVE FLANGES
13933	EXISTING DUCTILE IRON PIPE CONNECTION
15000	
15101	DUCT WALL PENETRATION
15106	DUCT TRANSITION
15154	POST HYDRANT
15182	TYPE 2 FLUSHING CONNECTION
15184	REFRIGERANT PIPING
15186	WATER FLUSHED PUMP SEAL
15191	LINE DRAIN AND VALVE INSTALLATION
15192	HOSE STATION
15200	PUMP GAGE ASSEMBLY
15205	PIPE HIGH POINT VENT
15412	FLOOR PENETRATION - DRY AREA
15501	PIPE SUPPORT SADDLE SUPPORT PEDESTAL TYPE - NON-ADJUSTABLE
15502	PIPE SUPPORT FLANGE SUPPORT PEDESTAL TYPE - NON-ADJUSTABLE
15505	PIPE SUPPORT WALL MOUNTED
15508	PIPE SUPPORT WALL MOUNTED MEDIUM
15510	VERTICAL PIPE SUPPORT
15516	DOUBLE TEE PIPE HANGAR
15520A	PIPE SUPPORT (FIXED) SHEET 1 OF 2
15520B	PIPE SUPPORT (FIXED) SHEET 2 OF 2
15521A	PIPE SUPPORT (SLIDES) SHEET 1 OF 2
15521B	PIPE SUPPORT (SLIDES) SHEET 2 OF 2
15600	DUCTILE IRON WALL PIPE
15601	EXISTING WALL PIPE CONNECTION
15602	MECHANICAL JOINT WALL PIPE FOR DIP
15604	TYPE B PIPE SLEEVE
15605	STAINLESS STEEL WALL PIPE
15607	WALL PIPE PENETRATION SEAL
15609	ROOF PENETRATION SEAL
15611	PIPE PENETRATION
15620	FLOOR SLEEVE
15622	DUCTILE IRON FLOOR PIPE
15625	STAINLESS STEEL FLOOR PIPE
15630	INSULATED PIPE THROUGH EXISTING WALL
15640	BURIED GATE VALVE BOX
15720A	HOSE RACKS
15720B	HOSE RACKS
15801	LOUVER/PLENUM CONNECTION
15804	DUCTWORK SUPPORT

DETAIL NO.	DETAIL TITLE
16000	
16100	CONDUIT RACKING SYSTEM
16106	INTERIOR WALL PENETRATION
16108	WATERTIGHT WALL CONDUIT SEAL
16110	SLAB PENETRATION
16152	DEVICE MOUNTING, WALL OR COLUMN
16158A	DEVICE MOUNTING, CONTROL STATION PEDESTAL
16158B	DEVICE MOUNTING, EQUIPMENT PEDESTAL
16167	CONDUIT SUPPORT ON STRUCTURE
16200	PLUG/RECEPTACLE DISCONNECT SWITCH
16201	POLE LIGHT/BASE
16202	STEEL WALKWAY LIGHTING POLE MOUNT TO STEEL
16325	TRENCH AND CONDUIT PLACEMENT
16353	TYPICAL MANHOLE
16354	MANHOLE DETAIL NOTES
16457	GROUNDING, GENERAL STAIRWAY
16711C	DRY TYPE TRANSFORMER INSTALLATION
17000	
17217	ULTRASONIC FLOW METER, CLAMP-ON
17220	ROTAMETER
17249	INTRINSICALLY-SAFE RELAY FOR HAZARDOUS AREA
17302	PRESSURE INSTRUMENT - BLOCK AND BLEED
17304A	PRESSURE INSTRUMENT INSTALLATION - DIAPHRAGM SEAL MOUNTING
17304B	REMOTE PRESSURE INSTRUMENT INSTALLATION
17304C	PRESSURE INSTRUMENT INSTALLATION - DIAPHRAGM SEAL MOUNTING
17305A	PRESSURE CONNECTION INSTALLATION
17305B	PRESSURE CONNECTION INSTALLATION
17310	PRESSURE DIFFERENTIAL TRANSMITTER
17380A	FIELD INSTRUMENT MOUNTING - STANCHION
17380B	CANVAS FLAP FOR SUNSHIELD
17388A	WALL MOUNTED INSTRUMENTS - CONCRETE WALL
17388B	CANVAS FLAP FOR SUNSHIELD



TYPICAL SECTION



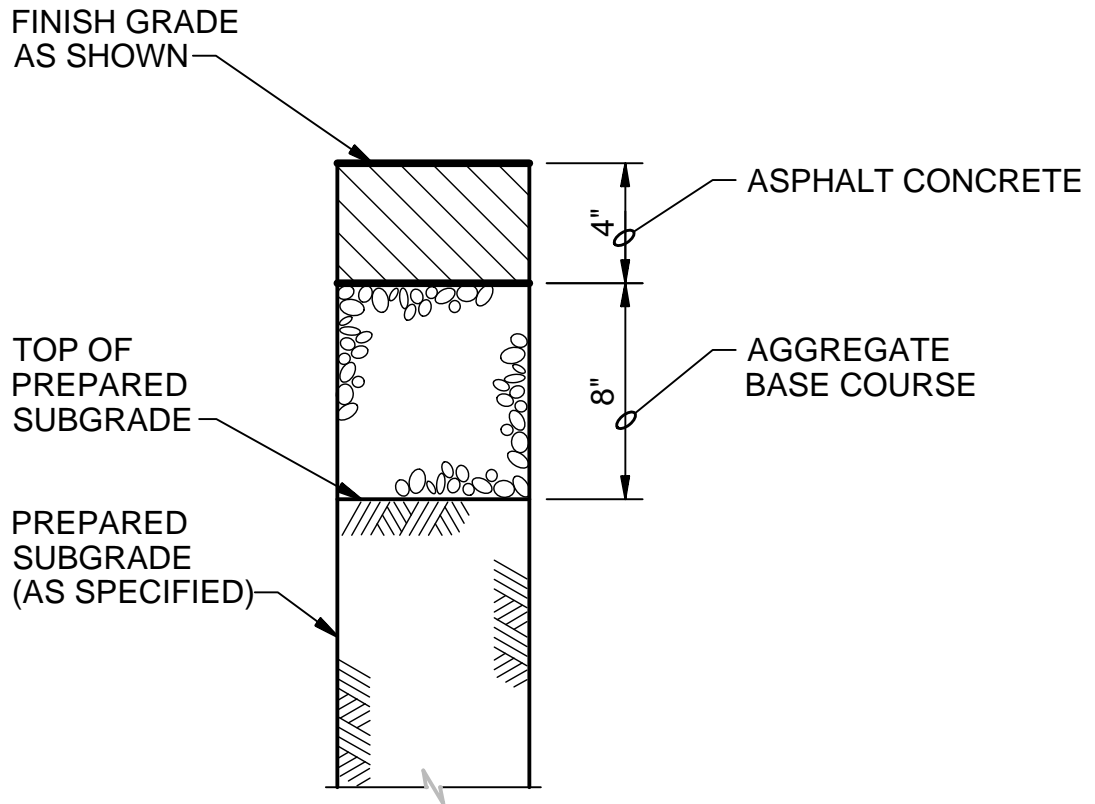
TYPICAL CURB SECTION

NOTES:

1. SIDEWALKS 8 FEET AND WIDER SHALL HAVE A LONGITUDINAL CONTRACTION JOINT AT THE MIDPOINT.
2. CONCRETE DEPTH FOR STANDARD SIDEWALKS SHALL BE NOMINAL 4" MINIMUM, THICKNESS IN DRIVEWAY SHALL BE 6" MINIMUM.

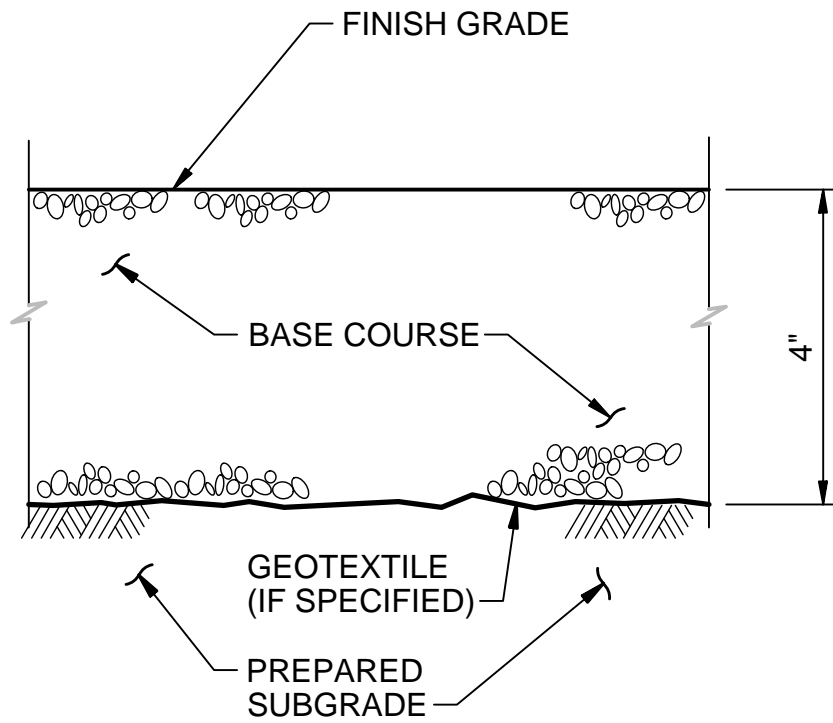
TYPICAL CONCRETE SIDEWALK

NTS



ASPHALT CONCRETE PAVEMENT

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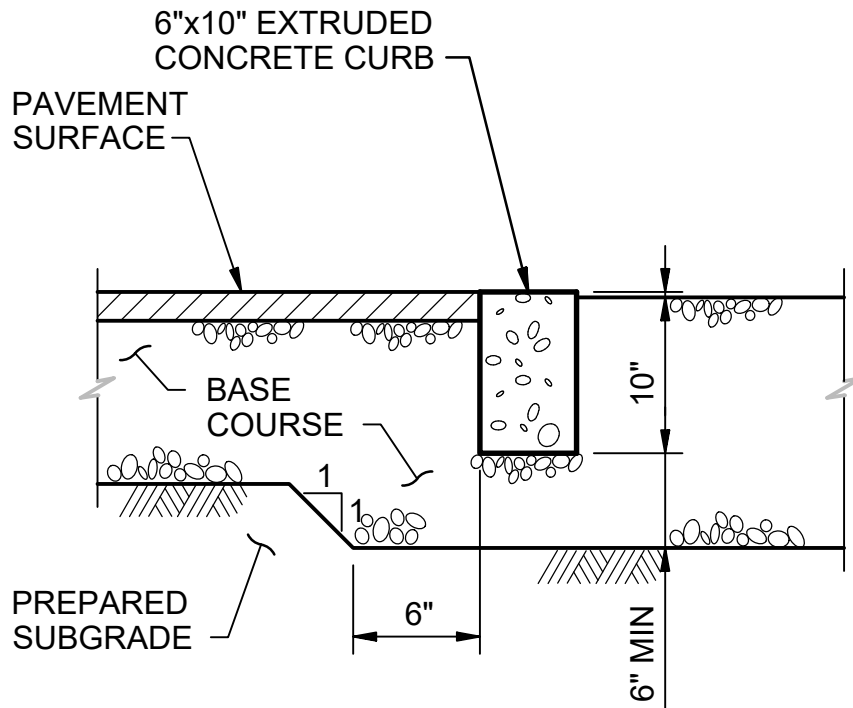


GRAVEL SURFACING

NTS

CLEAN WATER SERVICES
DURHAM WRRF
PHASE 6B DIGESTER

2240



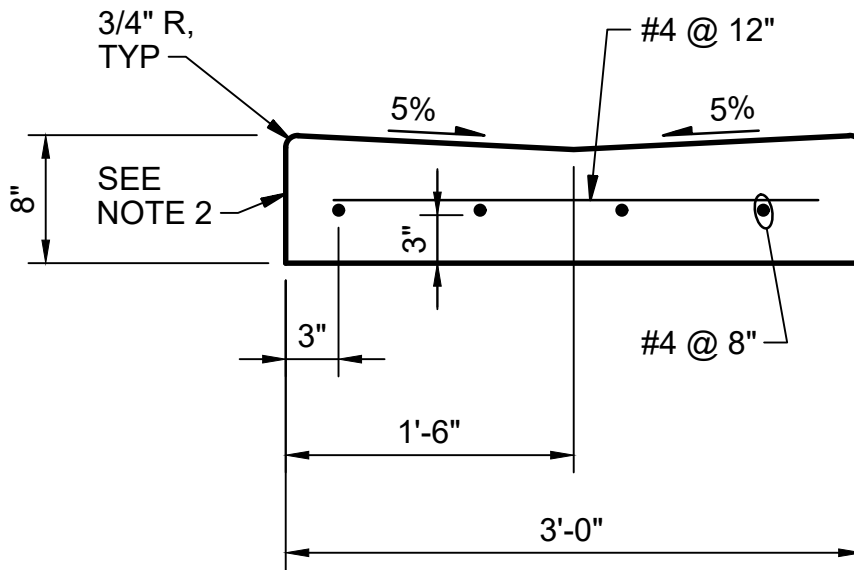
TRANSITION CURB

NTS

CLEAN WATER SERVICES
DURHAM WRRF
PHASE 6B DIGESTER

2254



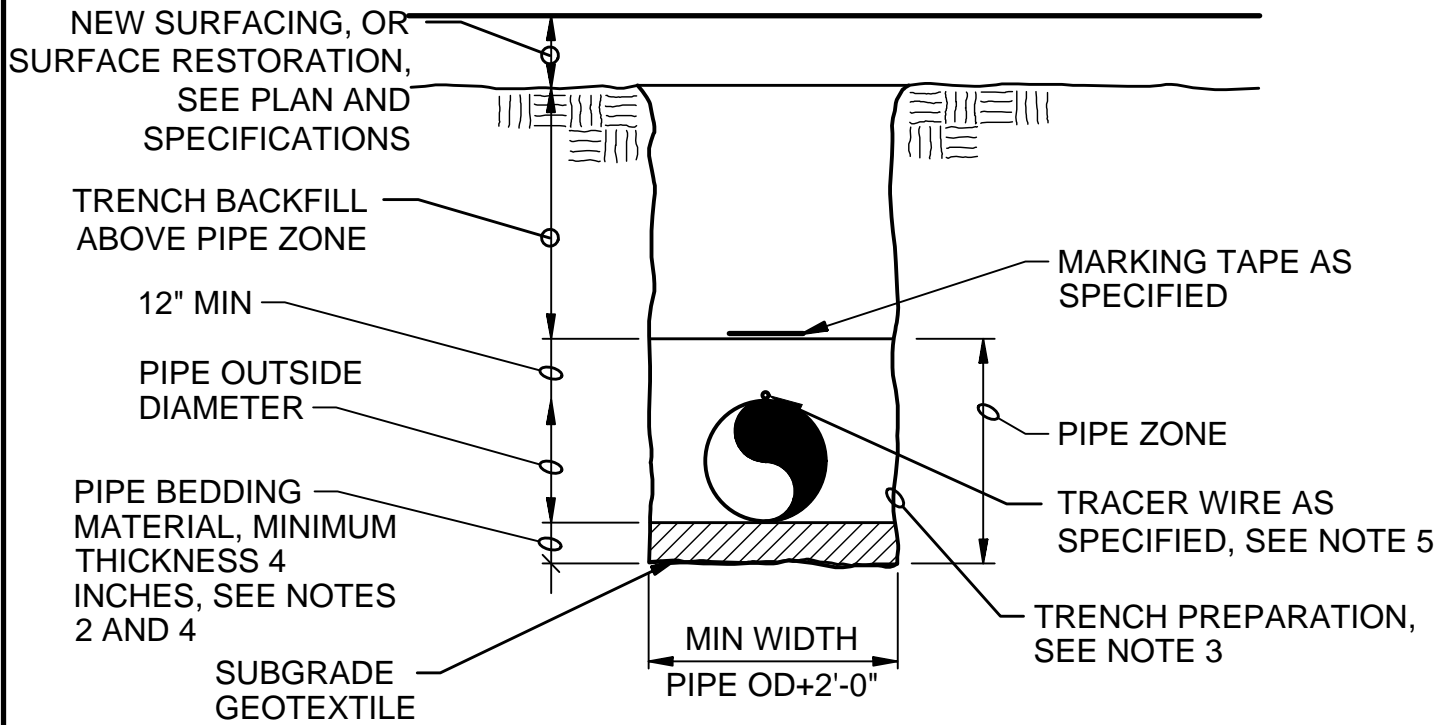


NOTES:

1. PLACE PREMOLDED FILLER AGAINST VERTICAL FACE WHERE VALLEY GUTTER ABUTS CONCRETE.
2. PROVIDE 3" MINIMUM COVER ON ALL REINFORCING STEEL..

CONCRETE VALLEY GUTTER

NTS

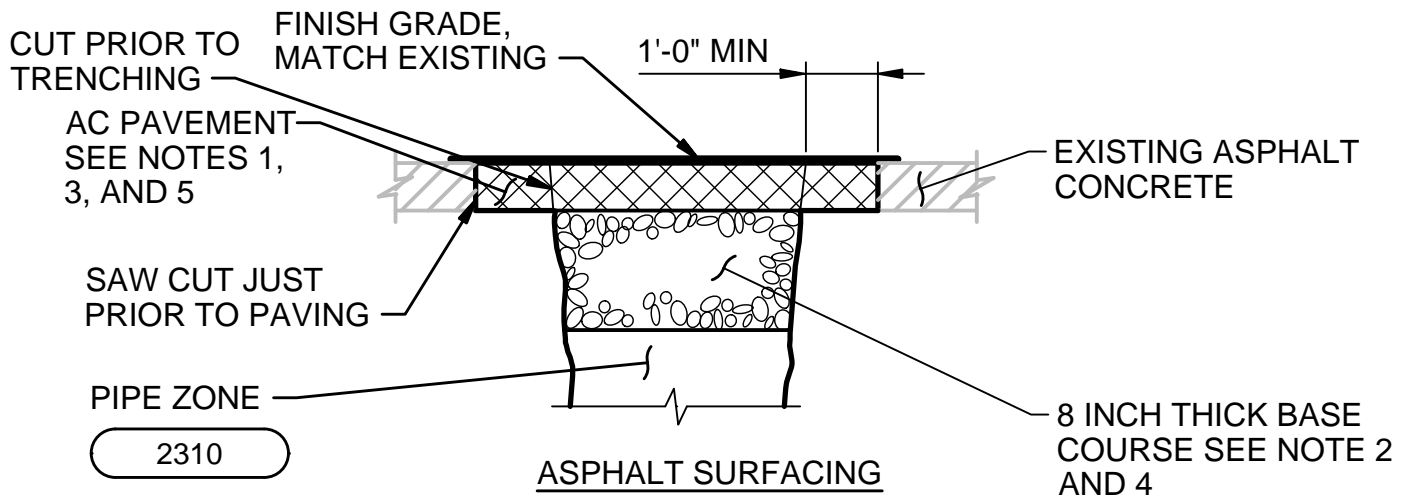


NOTES:

1. VERTICAL TRENCH WALLS ARE SHOWN FOR ILLUSTRATION PURPOSES ONLY, EXCAVATE AS NEEDED FOR CONSTRUCTION AND SLOPE AND/OR PROVIDE ADEQUATE SHORING FOR SAFETY AND CONFORMANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL CODES AND REGULATIONS. DO NOT EXCEED AVAILABLE WORK AREA.
2. PIPE ZONE AND BACKFILL MATERIAL AS SHOWN OR SPECIFIED SHALL EXTEND TO THE EDGE OF THE EXCAVATED TRENCH UNLESS SHOWN OTHERWISE.
3. PIPE SHALL BE CENTERED IN TRENCH. DIMENSION SHOWN IS CLEAR SPACE BETWEEN PIPE WALL AND TRENCH WALL OR SHORING.
4. INSTALL BOTTOM 6-INCHES OF BEDDING MATERIAL AND COMPACT PER SPECIFICATIONS. PRIOR TO INSTALLING THE PIPE, SCARIFY TOP 1 INCH TO 2 INCHES OF COMPACTED BEDDING MATERIAL WITH A RAKE OR BY OTHER MEANS TO PROVIDE A CUSHION BEFORE LAYING EACH SECTION OF PIPE.
5. PROVIDE VALVE BOXES FOR TRACER WIRE TERMINATION AS SPECIFIED IN SECTION 02320 TRENCH BACKFILL.

TYPICAL TRENCH

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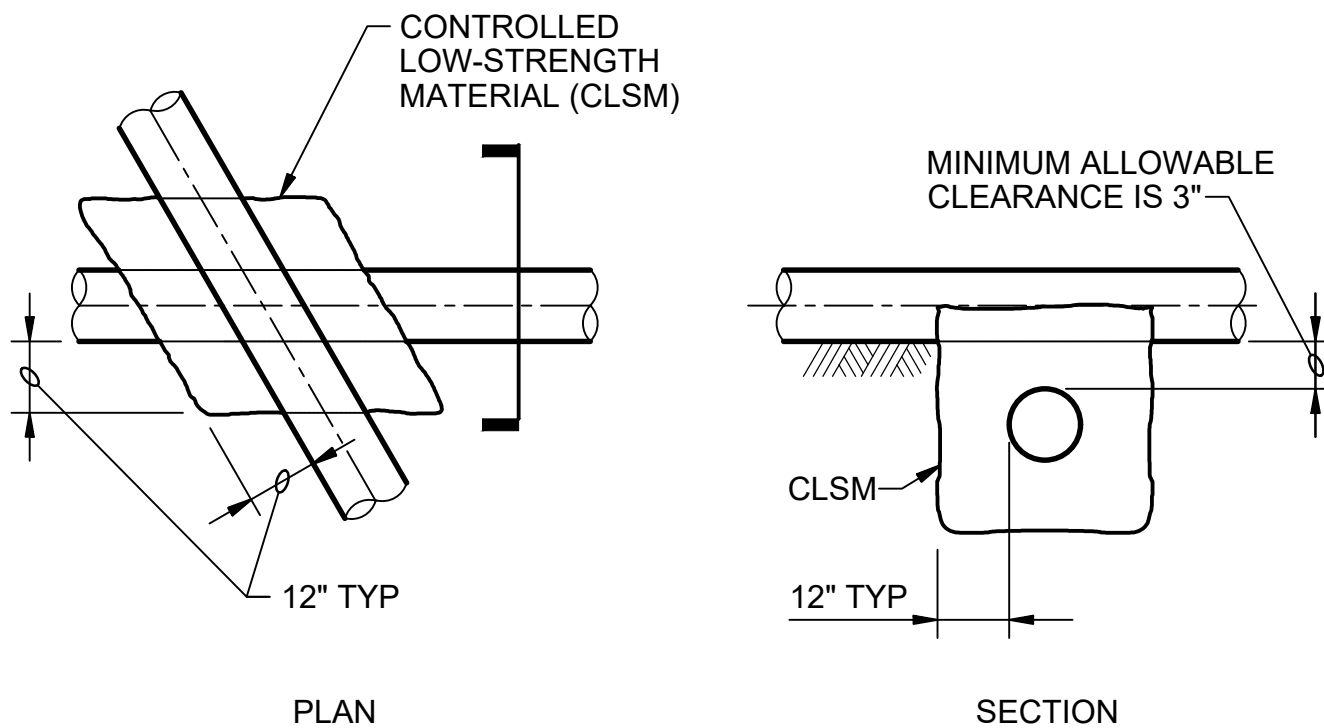


NOTES:

1. ASPHALT CONCRETE: LEVEL 1 1/2-INCH ACP PER ODOT SPEC SECTION 744.
2. AGGREGATE BASE: 1-INCH MINUS PER ODOT SPEC SECTION 744.
3. SUBMIT ASPHALT CONCRETE MIX DESIGN CONFORMING TO APPLICABLE ODOT SPECIFICATIONS.
4. SUBMIT BASE COURSE SOURCE TEST RESULTS CONFORMING TO APPLICABLE ODOT SPECIFICATIONS.
5. MATCH EXISTING PAVEMENT THICKNESS OR 4-INCH PAVEMENT THICKNESS, WHICHEVER IS GREATER.

SURFACE RESTORATION

NTS

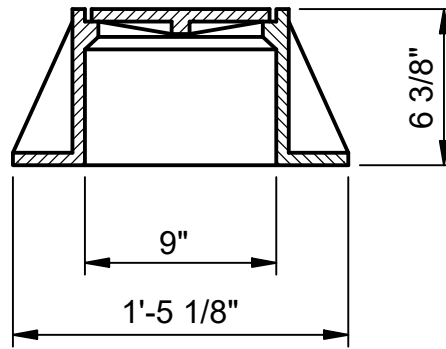


NOTES:

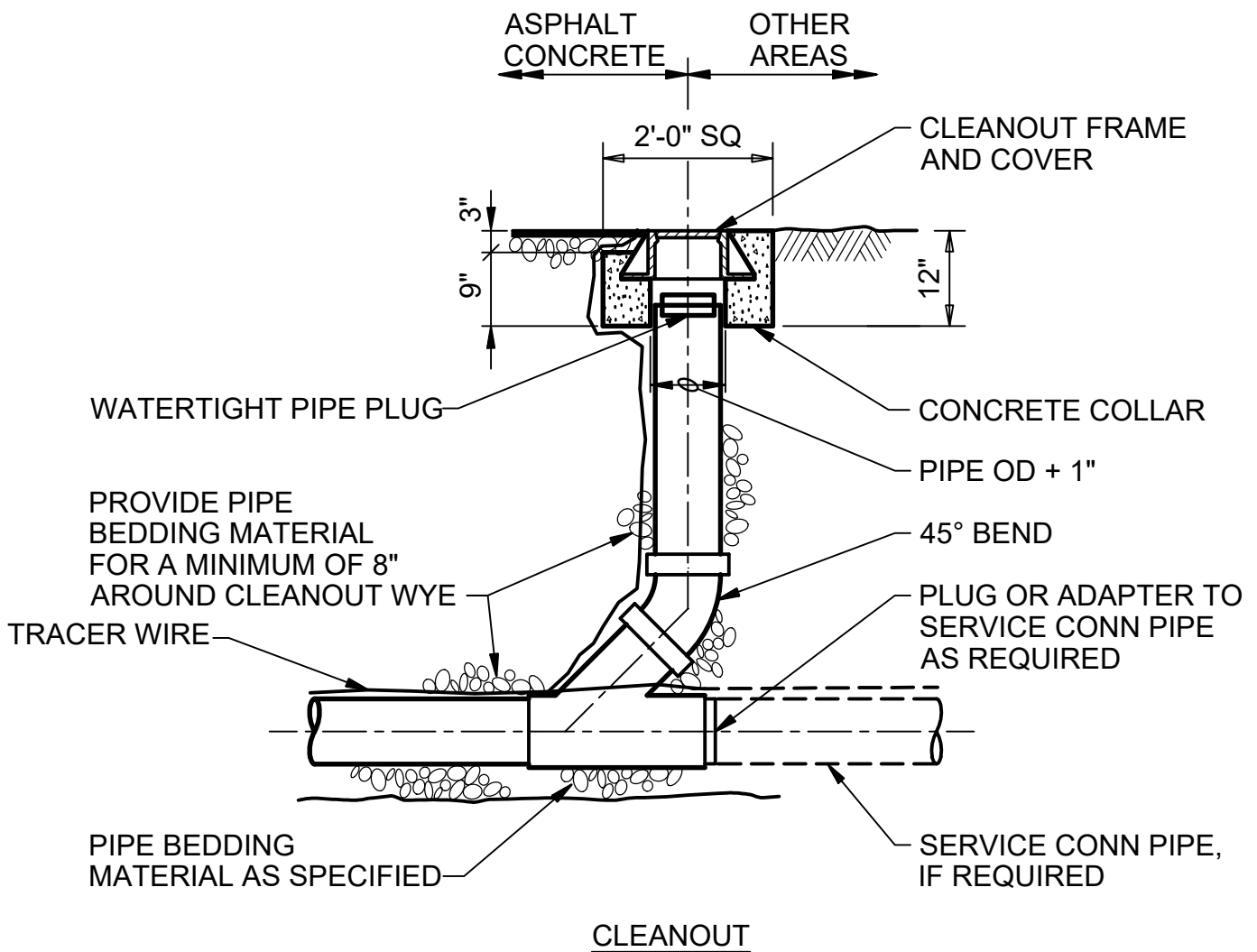
1. CLSM SUPPORT IS REQUIRED:
 - A. WHEN A NEW PIPELINE IS CROSSING OVER AN EXISTING PIPELINE AND THE CLEARANCE BETWEEN THEM IS LESS THAN 12".
 - B. AT ALL PIPE CROSSINGS WHERE A NEW PIPELINE IS CROSSING UNDER AN EXISTING PIPELINE.

TRENCH PIPE CROSSING

NTS



CLEANOUT FRAME AND COVER



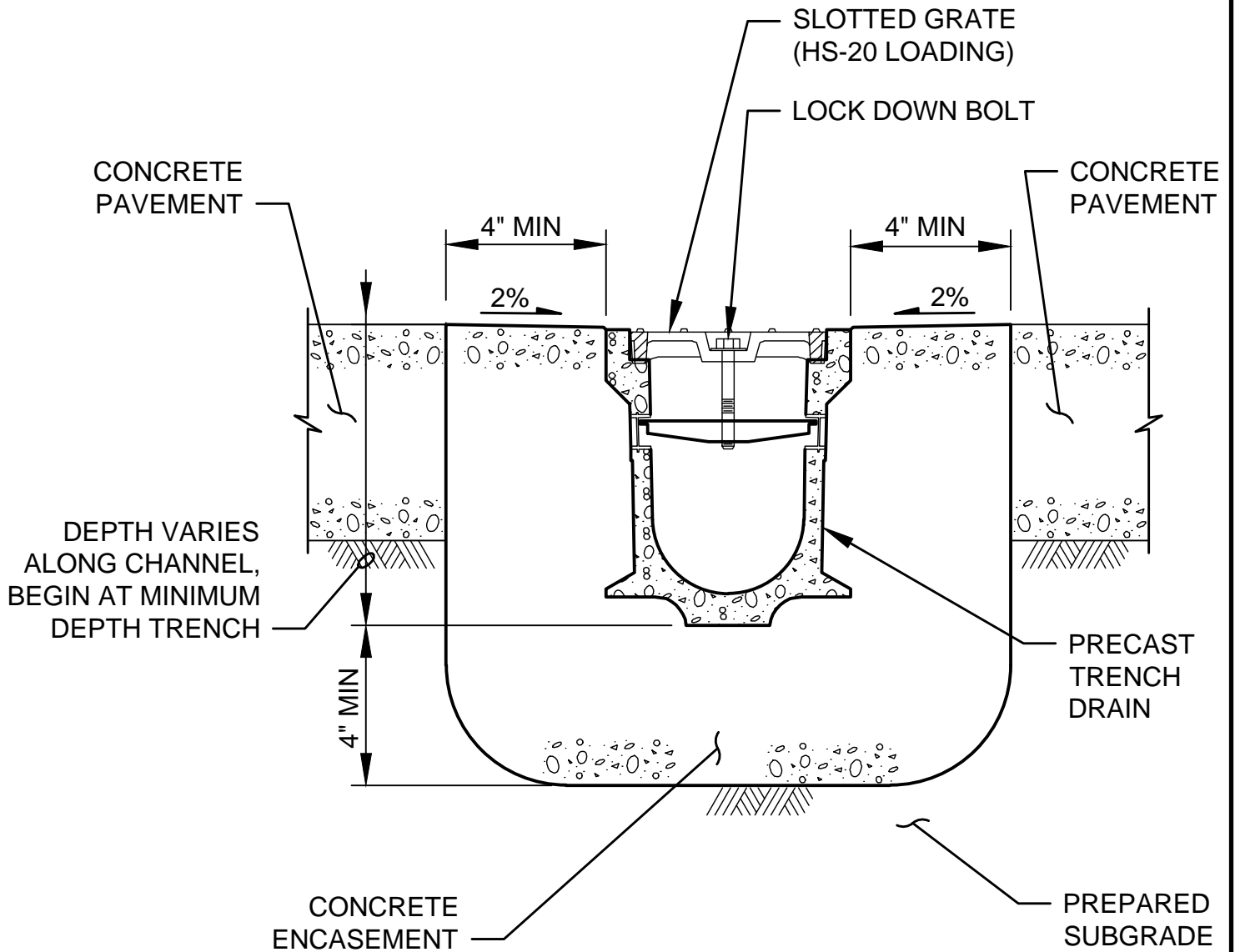
CLEANOUT

EXTERIOR CLEANOUT

NTS

CLEAN WATER SERVICES
 DURHAM WRRF
 PHASE 6B DIGESTER

2440

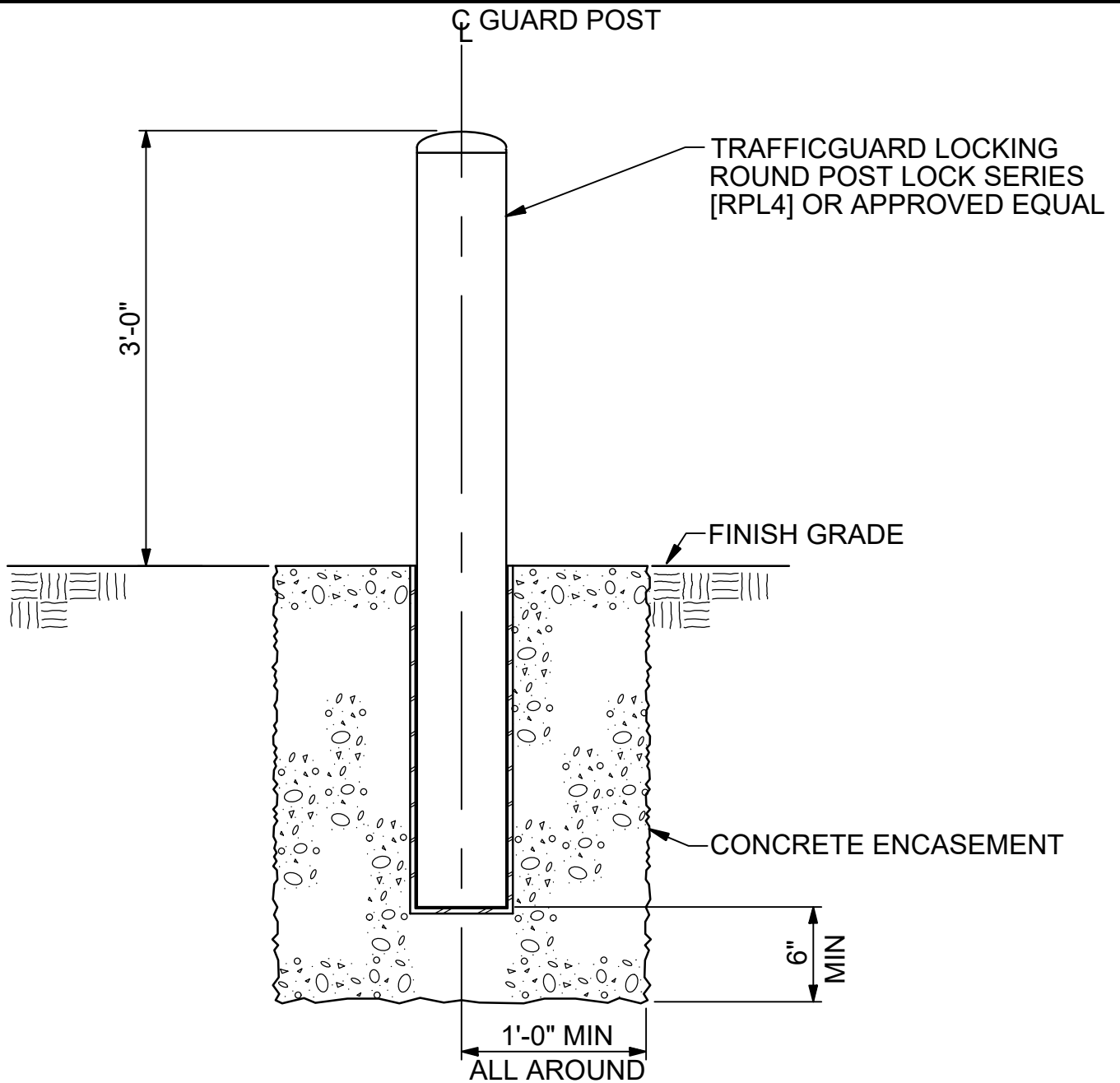


NOTES:

1. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
2. MAKE AND MODEL: S-2502 POLYDRAIN OR APPROVED EQUAL.

PRECAST TRENCH DRAIN

NTS

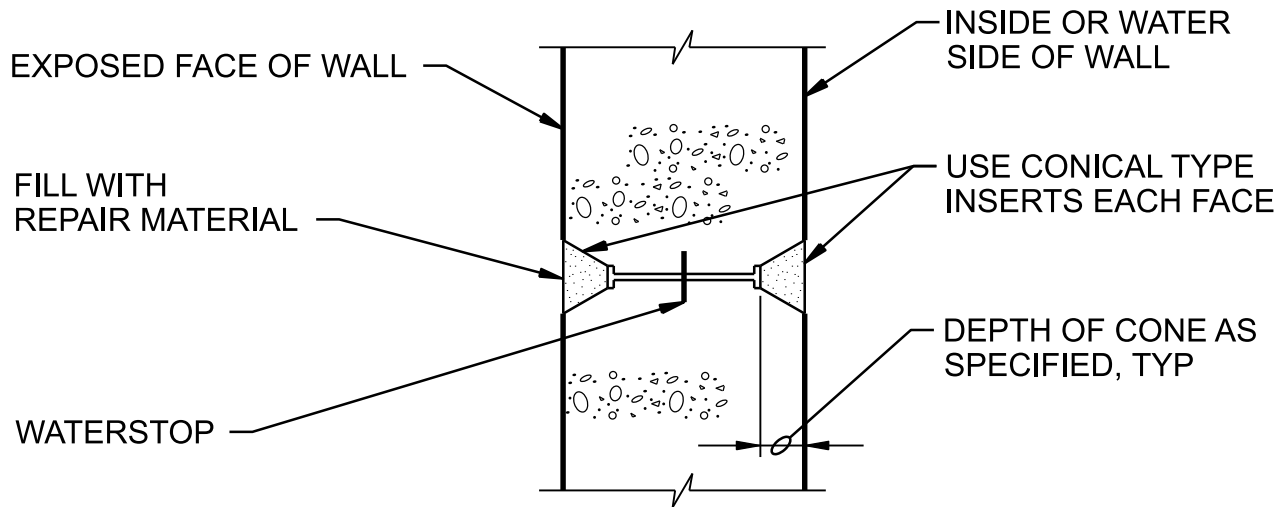


REMOVABLE GUARD POST

NTS

CLEAN WATER SERVICES
DURHAM WRRF
PHASE 6B DIGESTER

2955

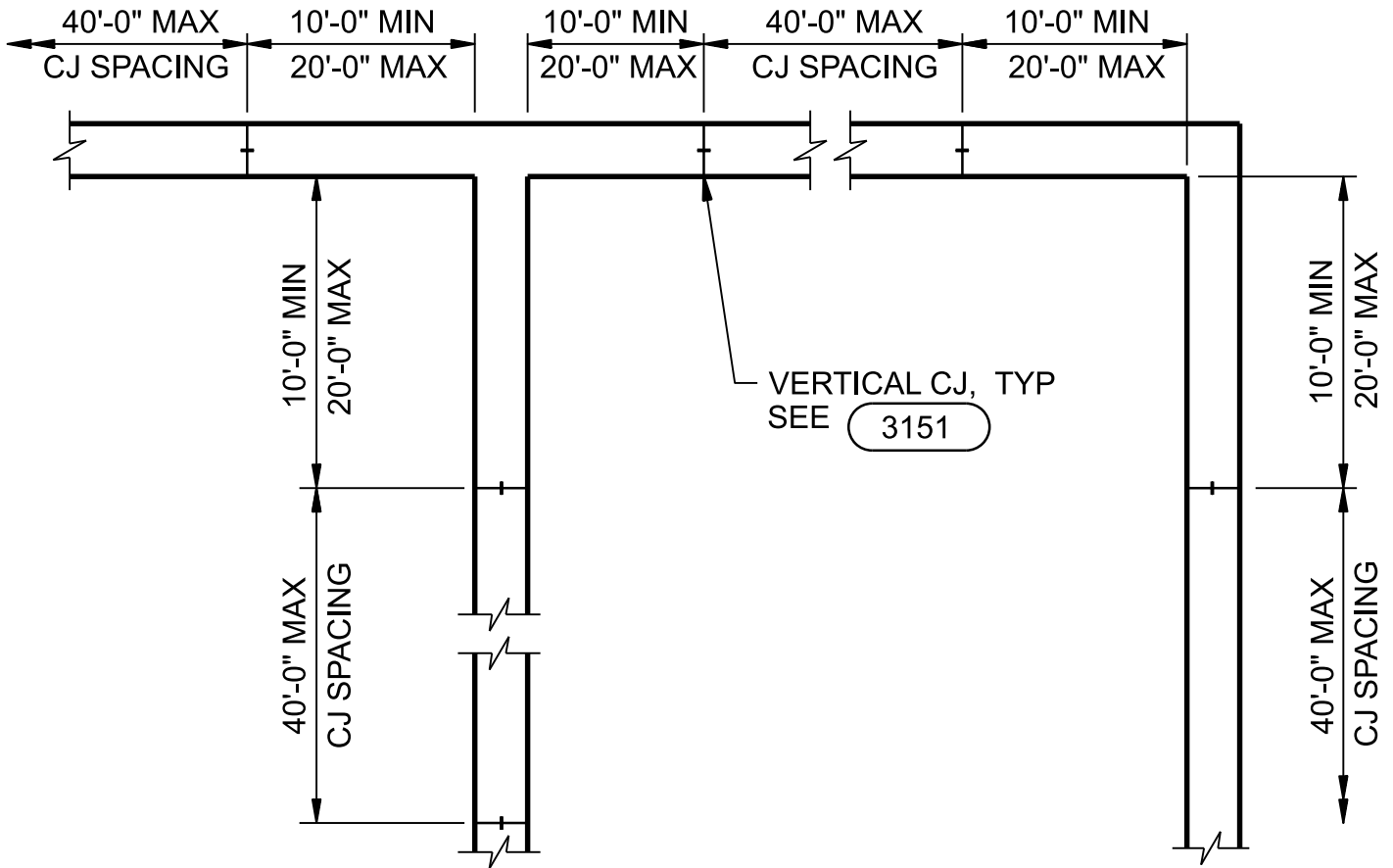


NOTE:

THE SPACING OF FORM TIES ON EXPOSED PORTIONS OF WALLS SHALL BE APPROXIMATELY EQUAL HORIZONTALLY AND VERTICALLY AND SHALL BE UNIFORM IN EACH DIRECTION.

FORM SNAP-TIE HOLE

NTS



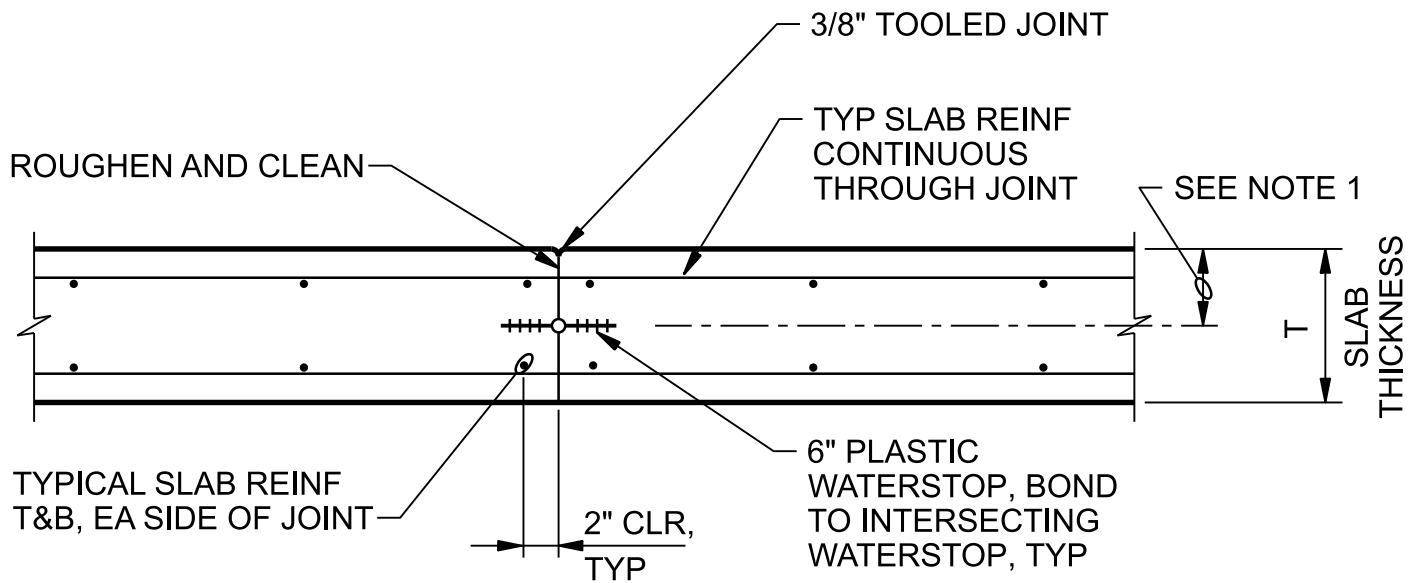
PLAN

NOTES:

1. COORDINATE CONSTRUCTION JOINT LOCATIONS AND TIME BETWEEN CONCRETE POURS WITH SPECIFICATION 033000.
2. LOCATE WALL CONSTRUCTION JOINTS AS SHOWN, UNLESS INDICATED OTHERWISE.

WALL CONSTRUCTION JOINT SPACING

NTS

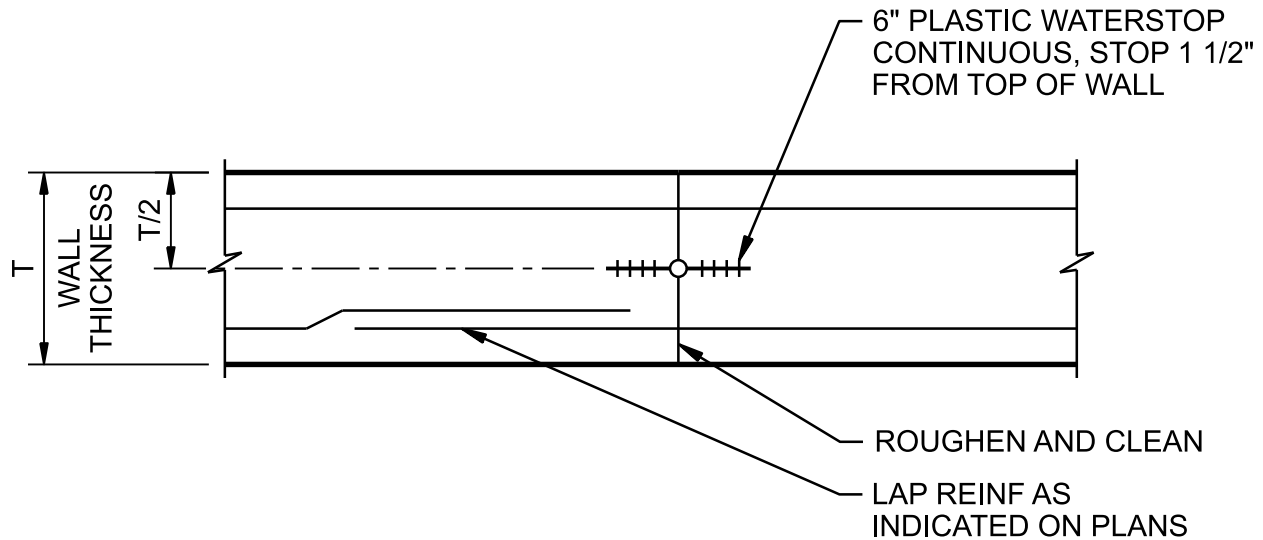


NOTE:

1. WATERSTOP DEPTH = $T/2$ OR 6 1/2" MAXIMUM WHEN USED IN CONJUNCTION WITH DETAIL 3154.

SLAB CONSTRUCTION JOINT

NTS



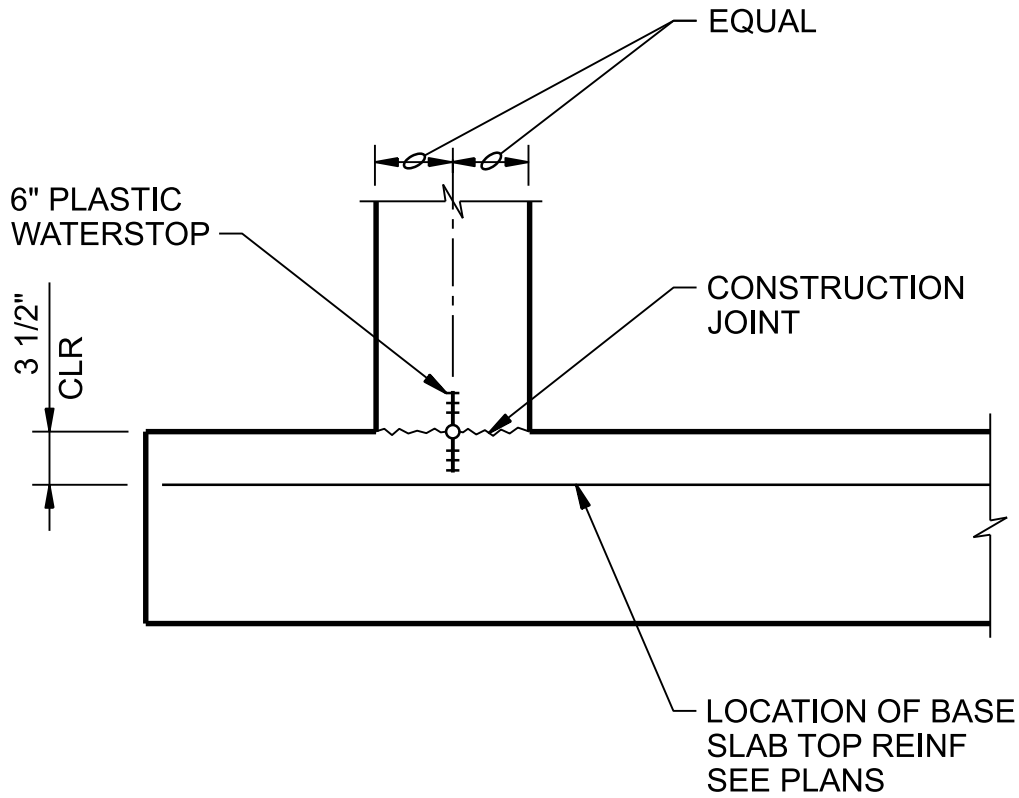
PLAN

NOTES:

1. ALL REINFORCEMENT CONTINUOUS ACROSS JOINT.
2. FOR LOCATIONS, SEE (3131)

WALL VERTICAL CONSTRUCTION JOINT

NTS

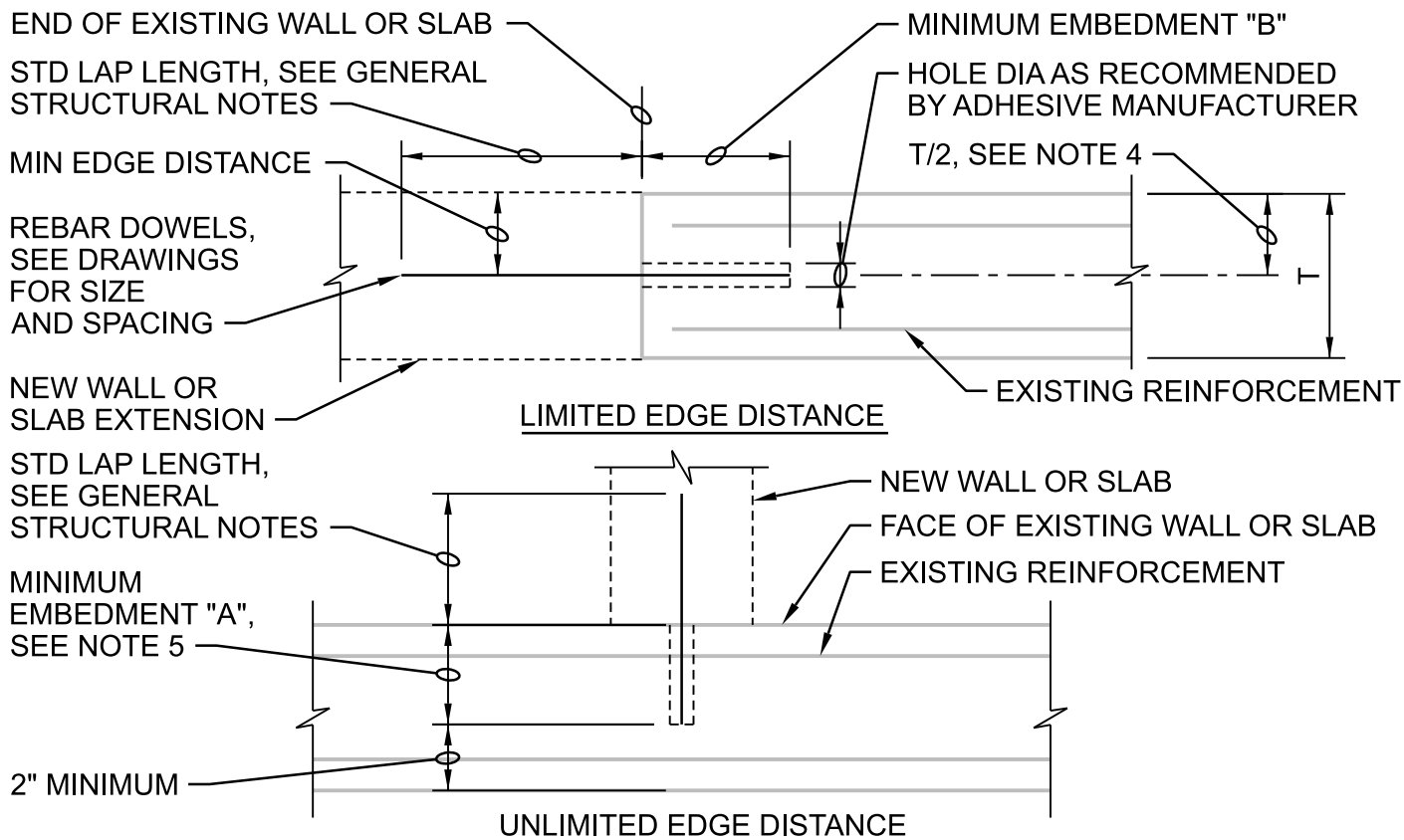


NOTES:

1. FOR WALLS WITH SINGLE MAT OF REINFORCING LOCATE WATERSTOP ON LIQUID FACE, 1" CLEAR OF REINFORCEMENT.
2. SECURE WATERSTOP IN-PLACE AS SPECIFIED.

WALL BASE CONSTRUCTION JOINT

NTS



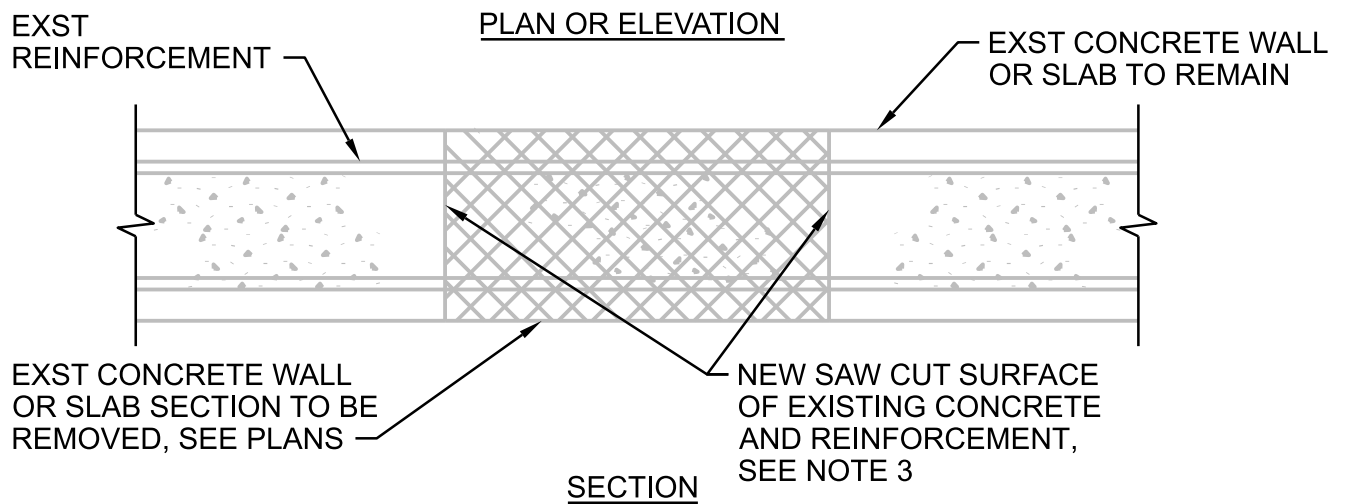
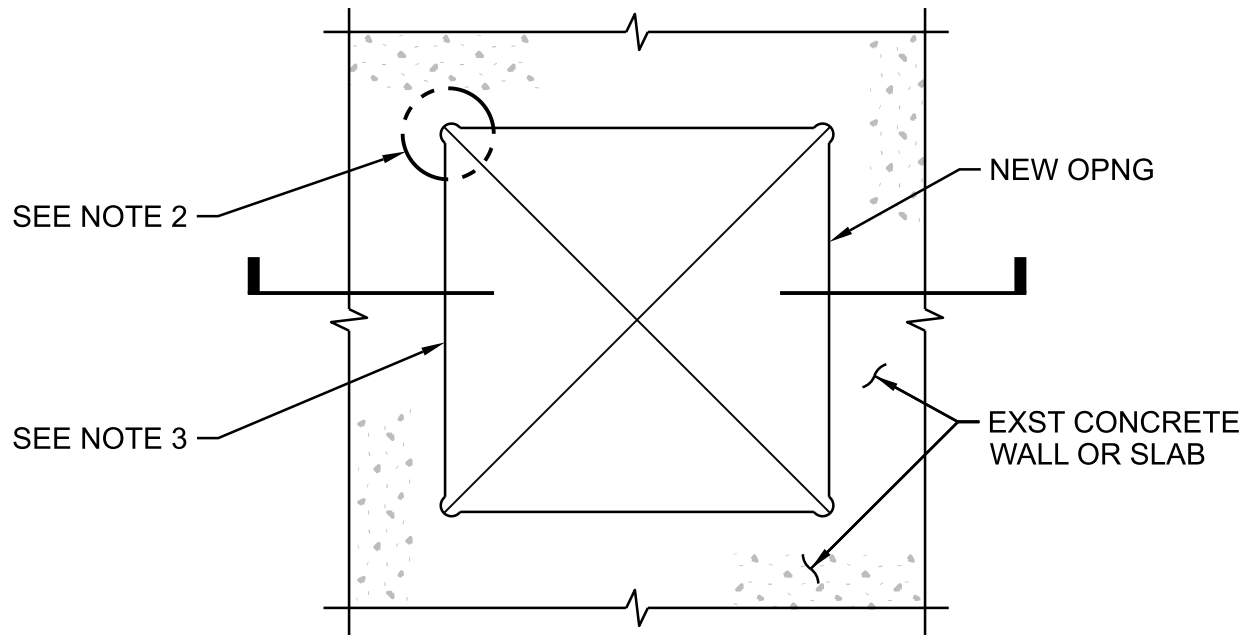
DOWEL SIZE	MINIMUM EDGE DISTANCE	MINIMUM EMBEDMENT "A"	MINIMUM EMBEDMENT "B"
#3	2 1/2"	5"	8"
#4	3 1/2"	7"	11"
#5	4"	8"	13"
#6	5"	10 1/2"	16"
#7	6"	12 1/2"	20"
#8	7"	14"	22"
#9	7 1/2"	15"	24"

NOTES:

1. CONFORM TO REQUIREMENTS OF SPECIFICATION SECTION 03125, CONCRETE DOWELING.
2. FOLLOW ADHESIVE MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION.
3. USE MINIMUM EMBEDMENTS SHOWN, EXCEPT USE MANUFACTURER'S MINIMUM RECOMMENDED EMBEDMENT IF GREATER.
4. LOCATE DOWELS CENTERED IN WALL OR SLAB UNLESS OTHERWISE NOTED ON DRAWINGS. WHERE 2 ROWS OF DOWELS INDICATED, STAGGER SPACING & LOCATE ALTERNATING DOWELS AT MINIMUM EDGE DISTANCE FROM OPPOSITE FACES.
5. PROVIDE MINIMUM EMBEDMENT "A" SHOWN IN TABLE UNLESS SHORTER EMBEDMENT DEPTH IS CALLED OUT ON DRAWINGS.

ADHESIVE DOWEL

NTS



NEW OPENING IN EXISTING WALL OR SLAB

NOTES:

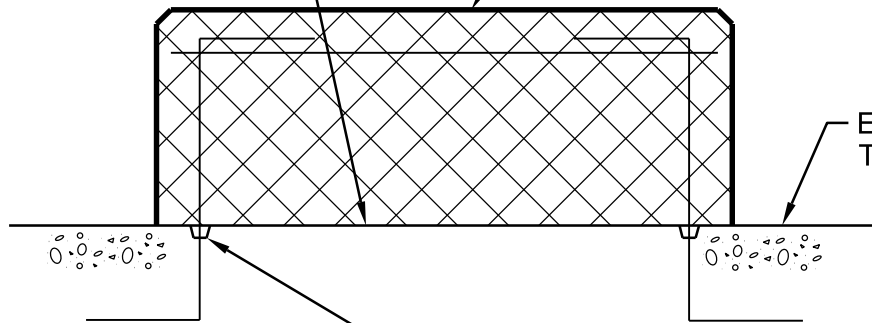
1. SUPPORT ADJACENT ELEVATED SLABS AND CUT SLAB SECTION UNTIL CUTTING OPERATION IS COMPLETE.
2. CORE DRILL CORNERS TO DIAMETER REQUIRED TO PREVENT OVER CUTTING OF REINFORCEMENT AND CONCRETE BEYOND OPENING.
3. PREPARE AND PROTECT EXPOSED STEEL REINFORCEMENT, SEE (3273)

SURFACE TREATMENT OF NEW OPENINGS IN EXISTING CONCRETE

NTS

FINISH SLAB OR WALL UNDER REMOVED CONCRETE TO MATCH EXISTING ADJACENT CONCRETE FINISH, REPAIR ROUGH OR DAMAGED SURFACES AS NOTED

SAW-CUT AND CHIP TO REMOVE EXISTING CONCRETE TO BE REMOVED, USE CARE NOT TO DAMAGE EXISTING ADJACENT CONCRETE SURFACES TO REMAIN



EXISTING CONCRETE TO REMAIN

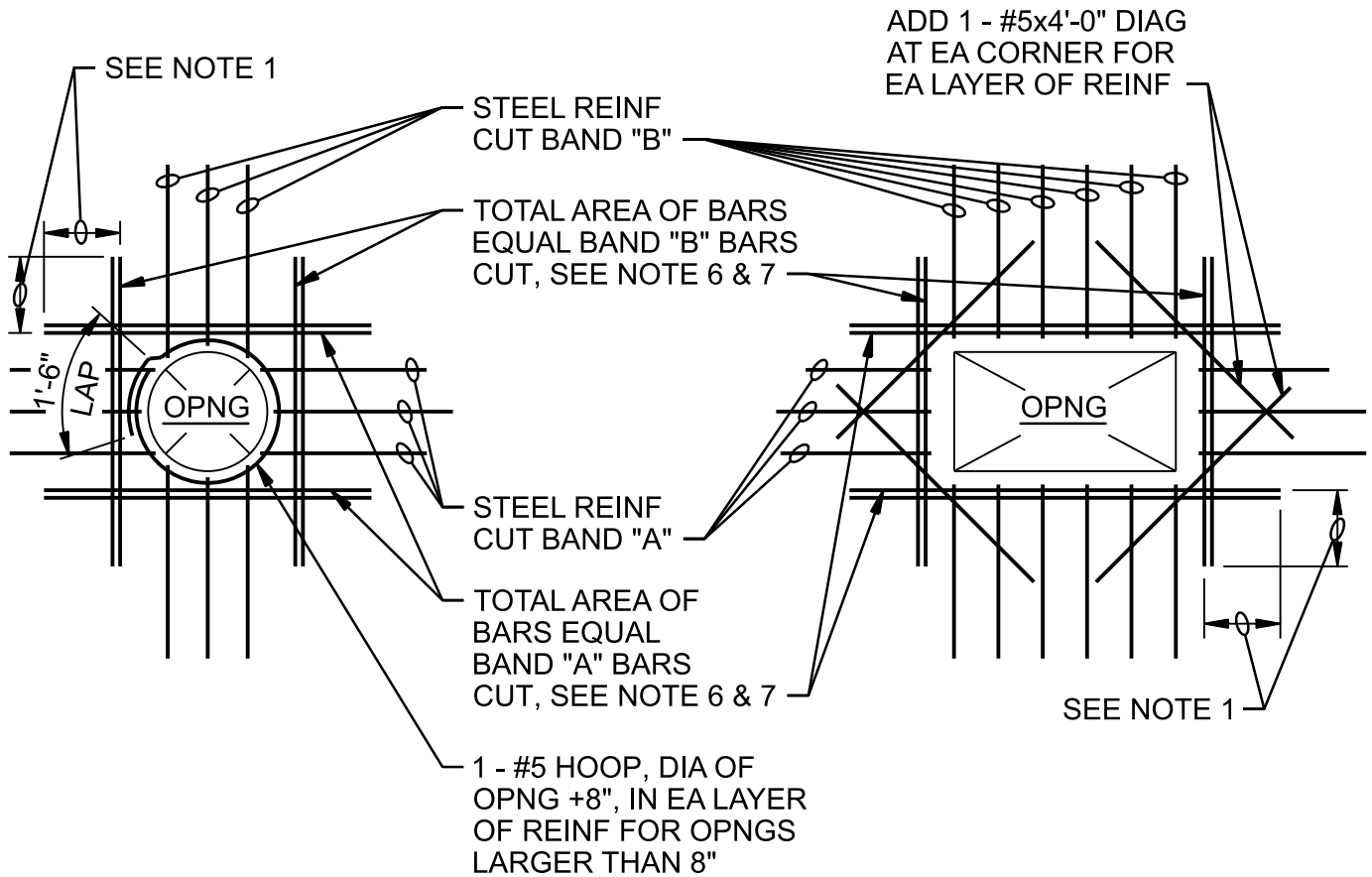
CORE DRILL 2" DIAMETER HOLE, 1 1/2" DEEP, AND CHIP AND GRIND TO REMOVE EXISTING REINFORCEMENT AND EQUIPMENT ANCHORS TO 1 1/2" MIN BELOW TOP OF EXISTING CONCRETE TO REMAIN, CLEAN AND SOAK, AND PATCH WITH REPAIR MATERIAL

NOTES:

1. REMOVE CONCRETE OUT TO SOUND CONCRETE.
2. IF CHIPPING INTO THE SURFACE OF THE EXISTING SLAB OR WALL TO REMAIN IS REQUIRED, MAKE EDGES PERPENDICULAR TO THE SURFACE. DO NOT FEATHER EDGES.
3. FILL DEFECTIVE AREA WITH AN APPROVED PREPACKAGED REPAIR MATERIAL TO MATCH APPEARANCE OF ADJACENT CONCRETE SURFACES.
4. DEMONSTRATE METHODS FOR REPAIR USING ACTUAL MATERIALS, METHODS, AND CURING PROCEDURES REQUIRED BY MATERIAL MANUFACTURERS. CONSULT WITH BONDING AGENT MANUFACTURER AND REPAIR MATERIAL MANUFACTURER ON TECHNIQUES.

CONCRETE DEMOLITION

NTS

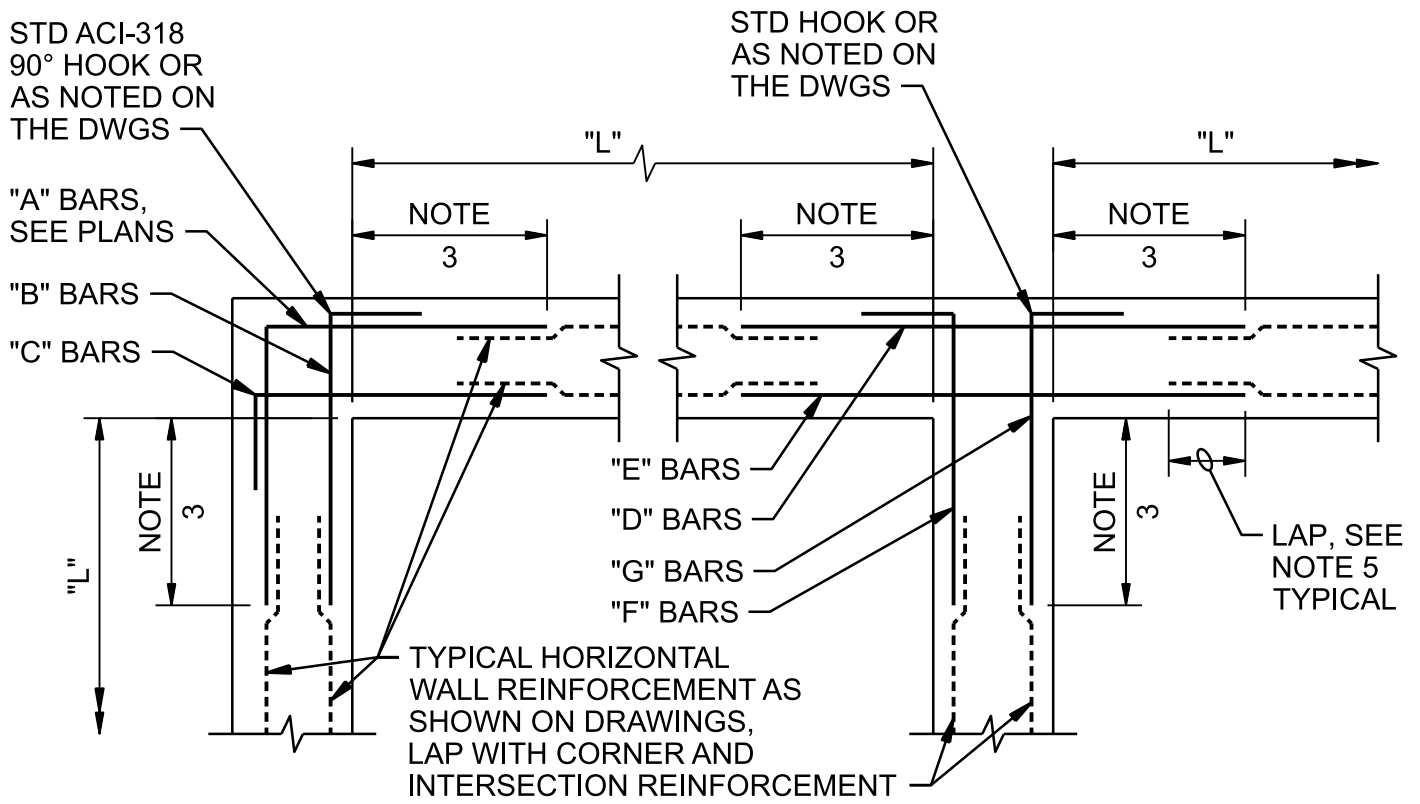


NOTES:

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

OPENING REINFORCING

NTS



DOUBLE REINFORCEMENT MAT

TYPICAL WALL CORNER AND INTERSECTION REINFORCING

NTS

DETAIL 1 OF 2

CLEAN WATER SERVICES
DURHAM WRRF
PHASE 6B DIGESTER

3303



NOTES:

1. TYPICAL HORIZONTAL WALL CORNER AND INTERSECTION REINFORCEMENT LAYOUT IS SHOWN TO AVOID CONGESTION AND PERMIT PROPER PLACEMENT, FOR SIZE AND SPACING SEE PLANS. ALL HORIZONTAL REINFORCEMENT AT CORNERS AND INTERSECTIONS SHALL BE FABRICATED AND INSTALLED WITH SPLICES LOCATED WHERE SHOWN REGARDLESS OF BAR SIZE AND SPACING.
2. WHERE THE CORNER OR INTERSECTION REINFORCEMENT SIZE AND SPACING IS NOT SHOWN, NOTED OR TABULATED ON THE PLANS, THE SIZE AND SPACING SHALL BE THE SAME AS THE WALL HORIZONTAL REINFORCEMENT SHOWN ON THE WALL SECTIONS OR AS NOTED FOR THE REINFORCEMENT BETWEEN THE CORNERS OR INTERSECTIONS.
3. EXCEPT WHERE OTHERWISE SHOWN ON THE DRAWINGS, THE LENGTH INDICATED AS "NOTE 3" SHALL BE THE LESSER OF $L/4$, 10 FEET, OR 1.0 TIMES THE HEIGHT OF THE WALL, EXCEPT THAT IN NO CASE SHALL IT BE LESS THAN A LAP LENGTH.
4. L = LENGTH OF WALL PARALLEL TO THE BAR LENGTH IN QUESTION.
5. EXCEPT WHERE OTHERWISE SHOWN ON THE DRAWINGS, THE LENGTH INDICATED AS "NOTE 5" SHALL BE EQUAL TO ONE "LAP LENGTH" AS REQUIRED BY THE GENERAL STRUCTURAL NOTES. USE THE LAP LENGTH AS REQUIRED FOR THE SMALLER OF THE TWO REINFORCEMENT BARS BEING SPLICED.
6. UNLESS OTHERWISE NOTED, "B" AND "C" BARS ARE THE SAME SIZE AND SPACING AND "F" AND "G" BARS ARE THE SAME SIZE AND SPACING.

TYPICAL WALL CORNER AND INTERSECTION REINFORCING

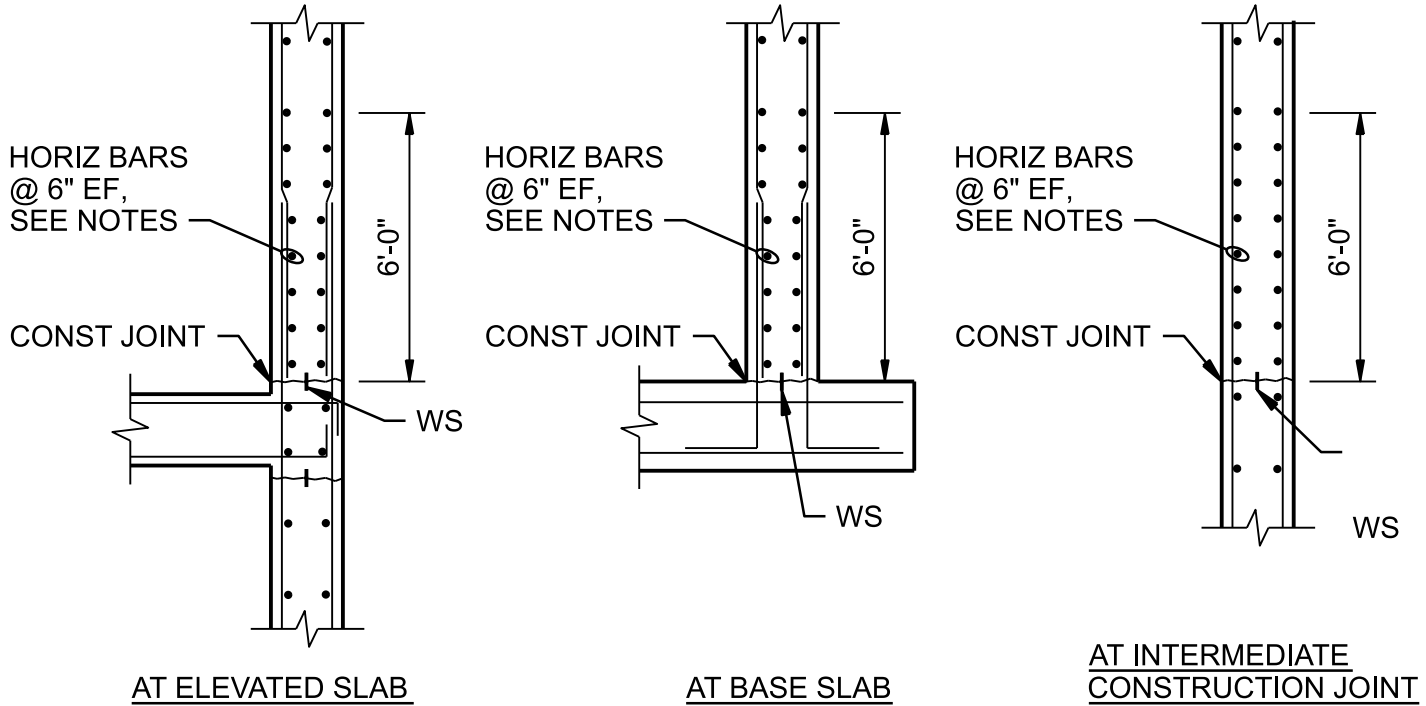
NTS

DETAIL 2 OF 2

CLEAN WATER SERVICES
DURHAM WRRF
PHASE 6B DIGESTER

3303

Jacobs



NOTES:

1. PROVIDE HORIZONTAL BARS AT 6" SPACING EACH FACE IN THE FIRST 6'-0" ABOVE ALL HORIZONTAL WALL CONSTRUCTION JOINTS IN LIQUID CONTAINING AND BELOW-GRADE STRUCTURES. WHERE TYPICAL WALL HORIZONTAL BARS ARE AT 12" SPACING, PROVIDE ADDITIONAL BARS FOR 6" SPACING.
2. HORIZONTAL BAR SIZE FOR THE 6'-0" ZONE SHALL BE THE TYPICAL WALL HORIZONTAL BAR SIZE SHOWN ON THE DRAWINGS OR THE MINIMUM BAR SIZE IN THE TABLE BELOW, WHICHEVER IS GREATER.

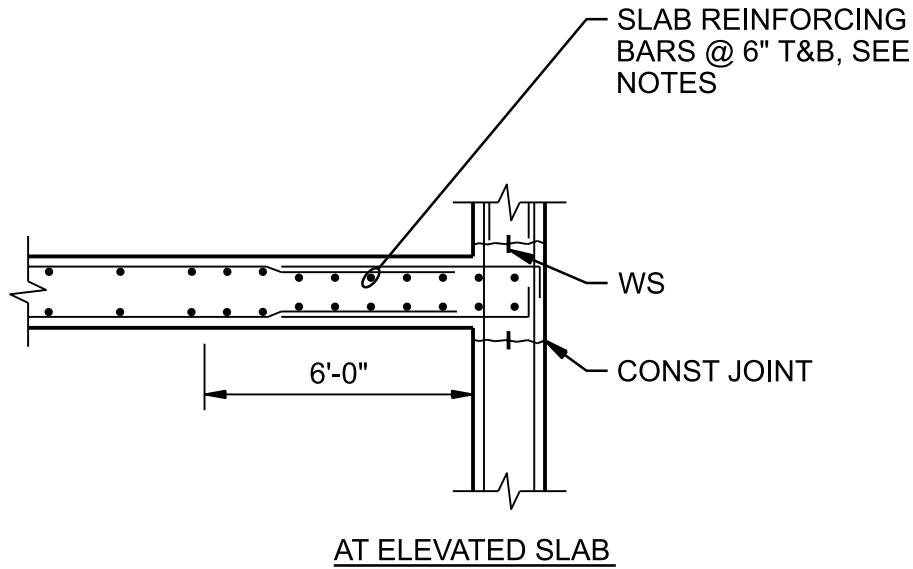
WALL THICKNESS (INCHES)	MINIMUM BAR SIZE
10	#5
12, 14	#6
16, 18, 20	#7
≥22	#8

3. PROVIDE CORNER BARS AT 6" SPACING EACH FACE TO LAP WITH THE BARS SHOWN ABOVE, SEE 3303.

**ADDITIONAL REINFORCING
AT HORIZONTAL CONSTRUCTION JOINT**

NTS

DETAIL 1 OF 2



NOTES:

1. THIS DETAIL APPLIES TO STRUCTURAL ELEMENTS THAT ARE PART OF HYDRAULIC STRUCTURES OR PART OF BELOW-GRADE STRUCTURES. WHERE SPACING OF TYPICAL SLAB BARS IS GREATER THAN 6", PROVIDE ADDITIONAL BARS FOR NET SPACING OF 6" MAXIMUM.
2. BAR SIZE FOR THE 6'-0" ZONE SHALL BE THE TYPICAL SLAB BAR SIZE SHOWN ON THE DRAWINGS OR THE MINIMUM BAR SIZE IN THE TABLE BELOW, WHICHEVER IS GREATER.

SLAB THICKNESS (INCHES)	MINIMUM BAR SIZE
$H \leq 10"$	#5
$10" > H \leq 14"$	#6
$14" > H \leq 20"$	#7
$H > 20"$	#8

ADDITIONAL REINFORCING
AT HORIZONTAL CONSTRUCTION JOINT

NTS

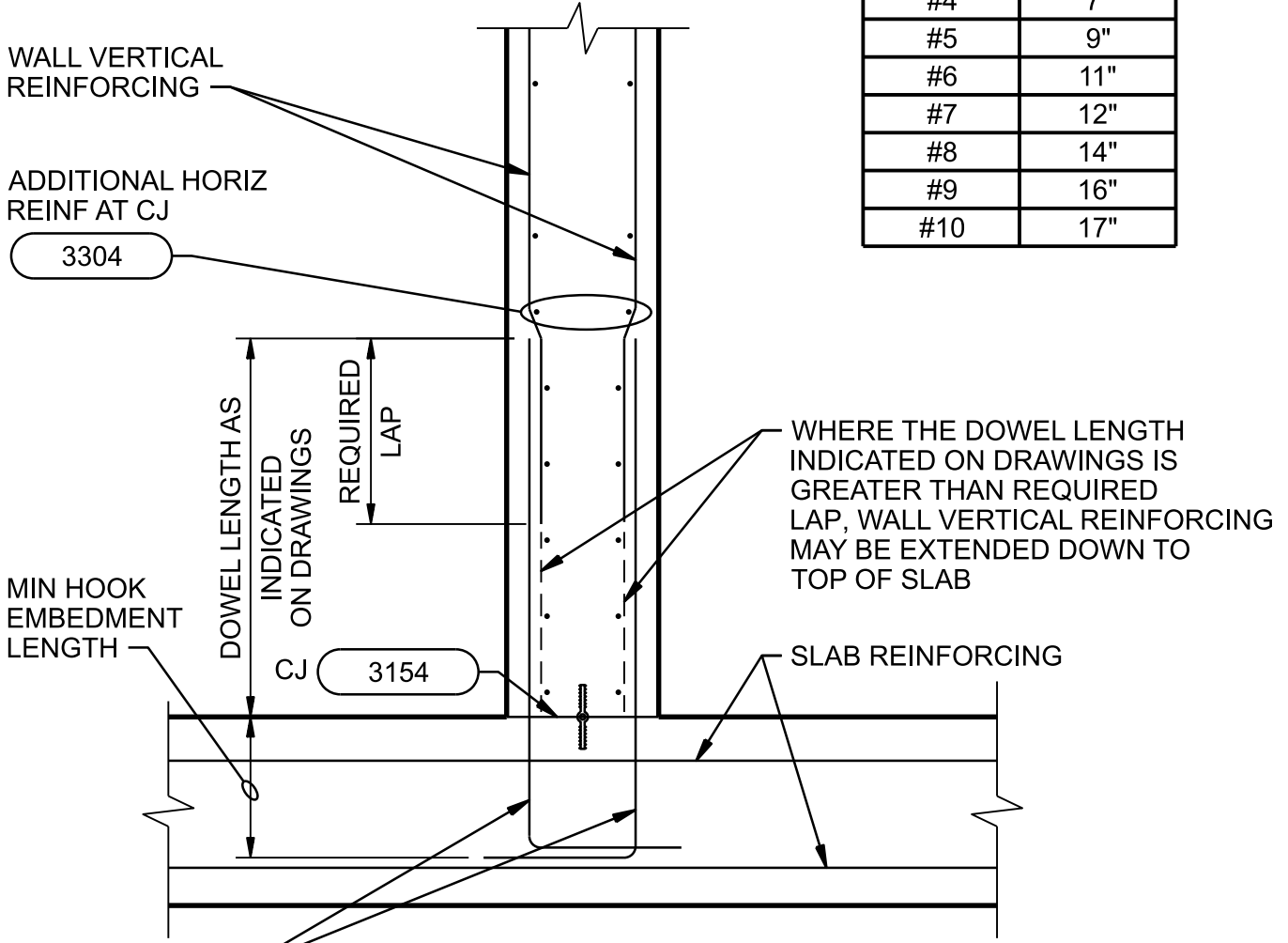
DETAIL 2 OF 2

CLEAN WATER SERVICES
DURHAM WRRF
PHASE 6B DIGESTER

3304

Jacobs

ACI MINIMUM HOOK EMBEDMENT LENGTH	
BAR SIZE	MIN EMBED
#4	7"
#5	9"
#6	11"
#7	12"
#8	14"
#9	16"
#10	17"



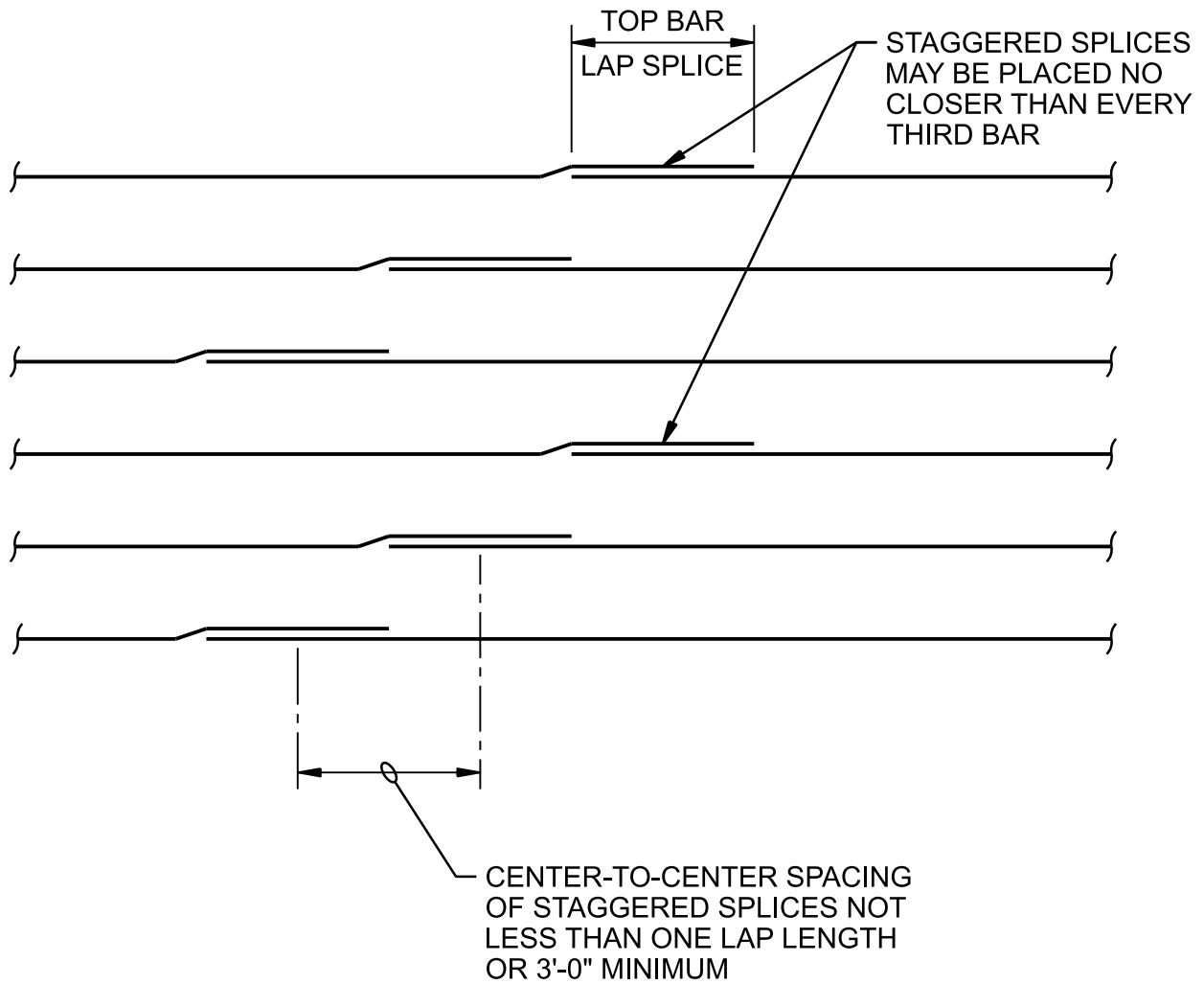
WALL SECTION

NOTE:

UNLESS NOTED OTHERWISE, ALL DOWEL HOOKS SHALL EXTEND TO AND BE TIED OFF TO BOTTOM MAT OF SLAB REINFORCING.

VERTICAL WALL REINFORCING / DOWEL PLACEMENT

NTS

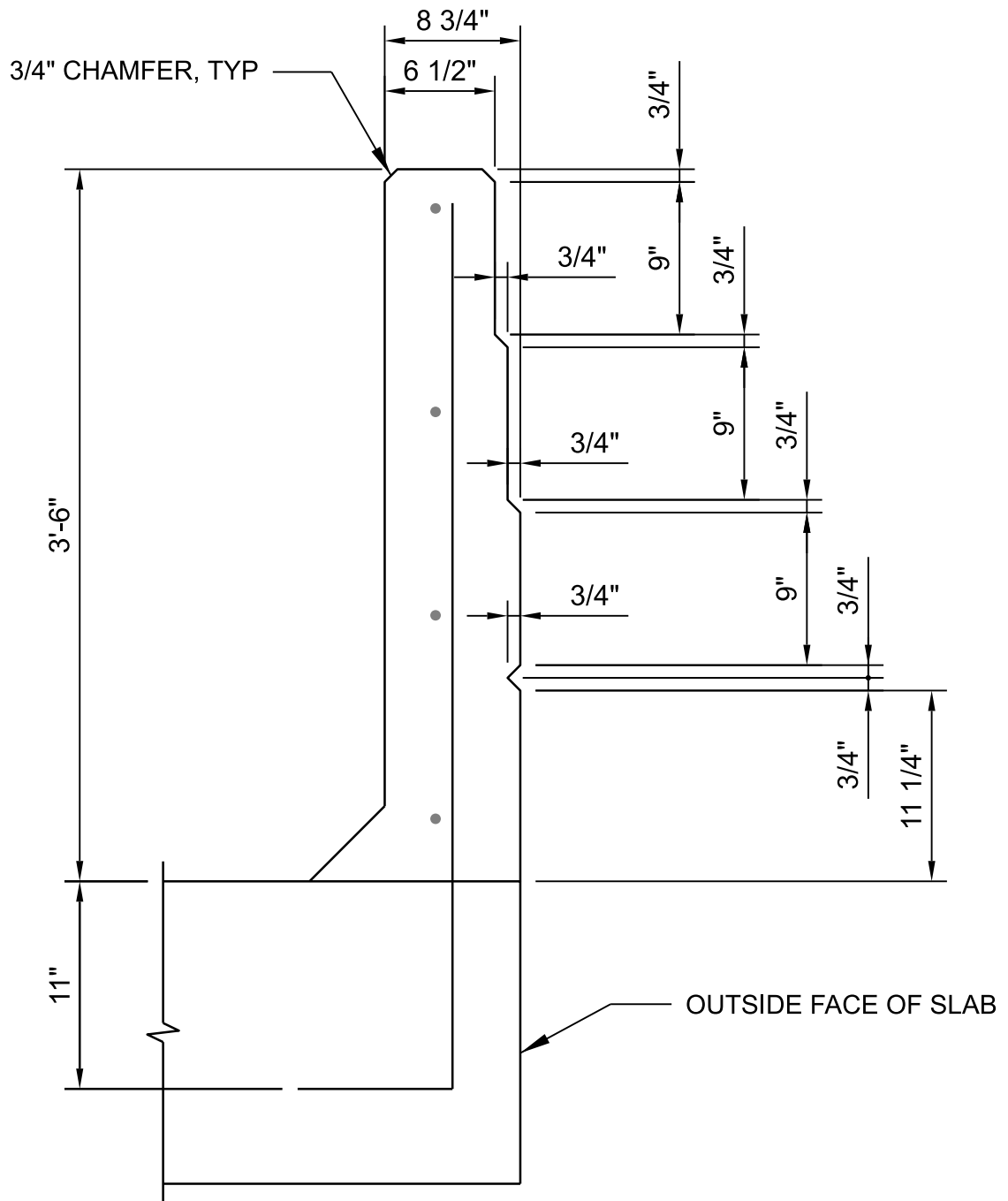


NOTE:

1. VERTICAL BARS NOT SHOWN FOR CLARITY.
2. SPLICES AT EACH FACE OF WALL MAY OCCUR AT SAME LOCATION.

CIRCULAR TANK HORIZONTAL
WALL REINFORCEMENT STAGGERED SPLICES

NTS

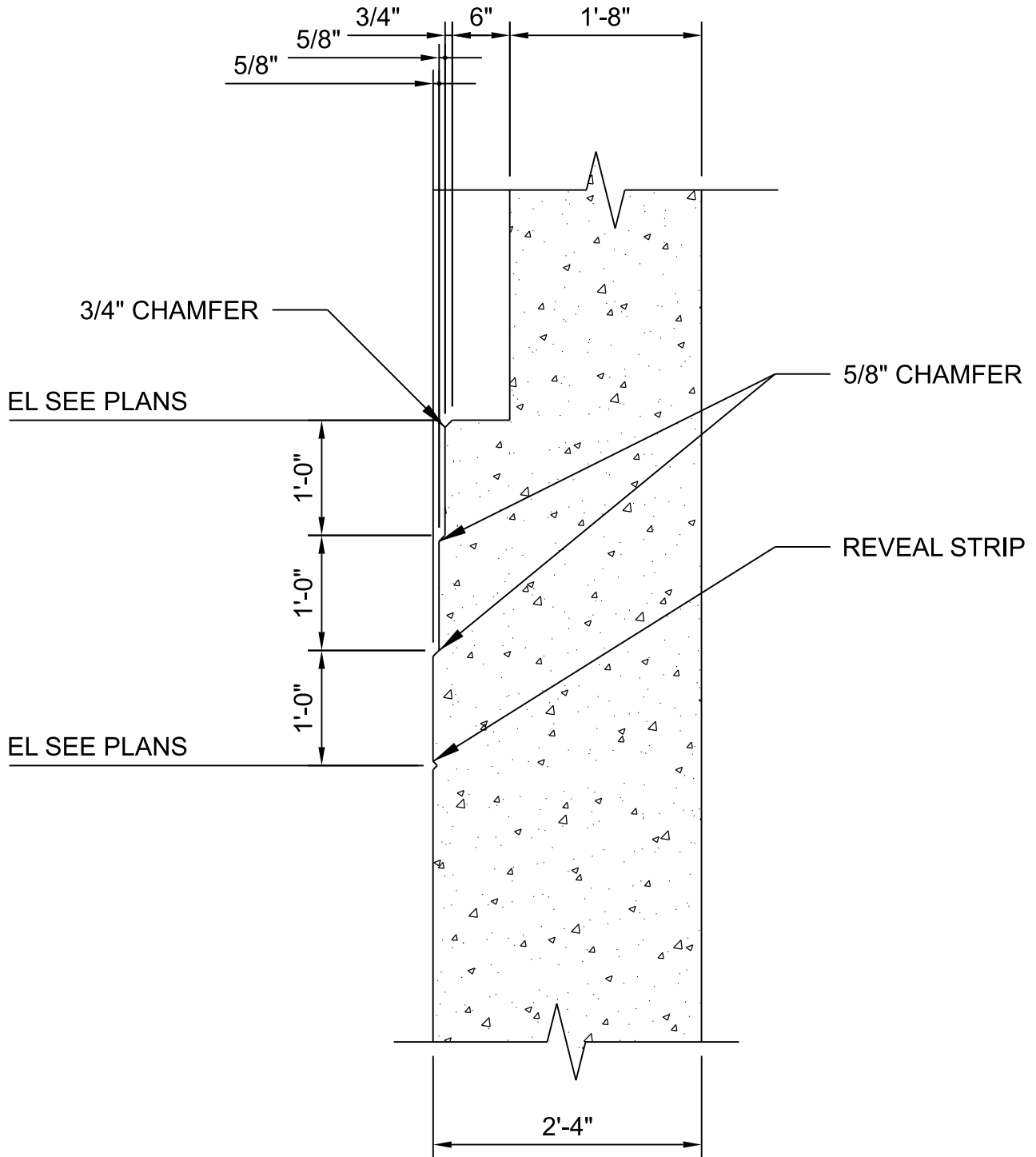


PARAPET DETAIL

NTS

CLEAN WATER SERVICES
DURHAM WRRF
PHASE 6B DIGESTER

3310

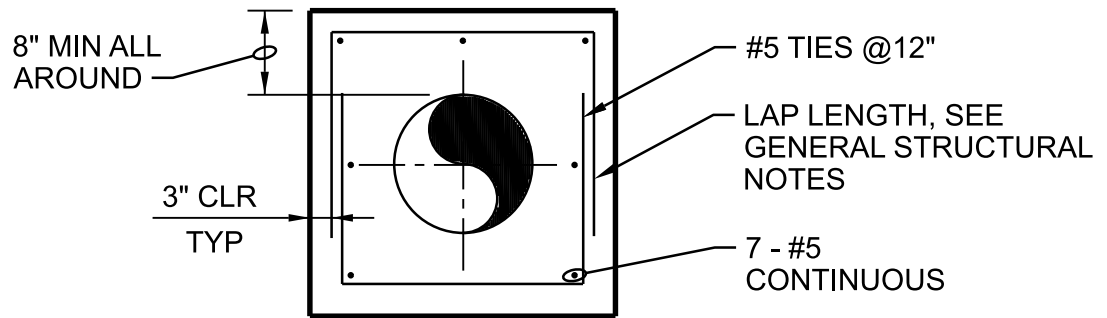
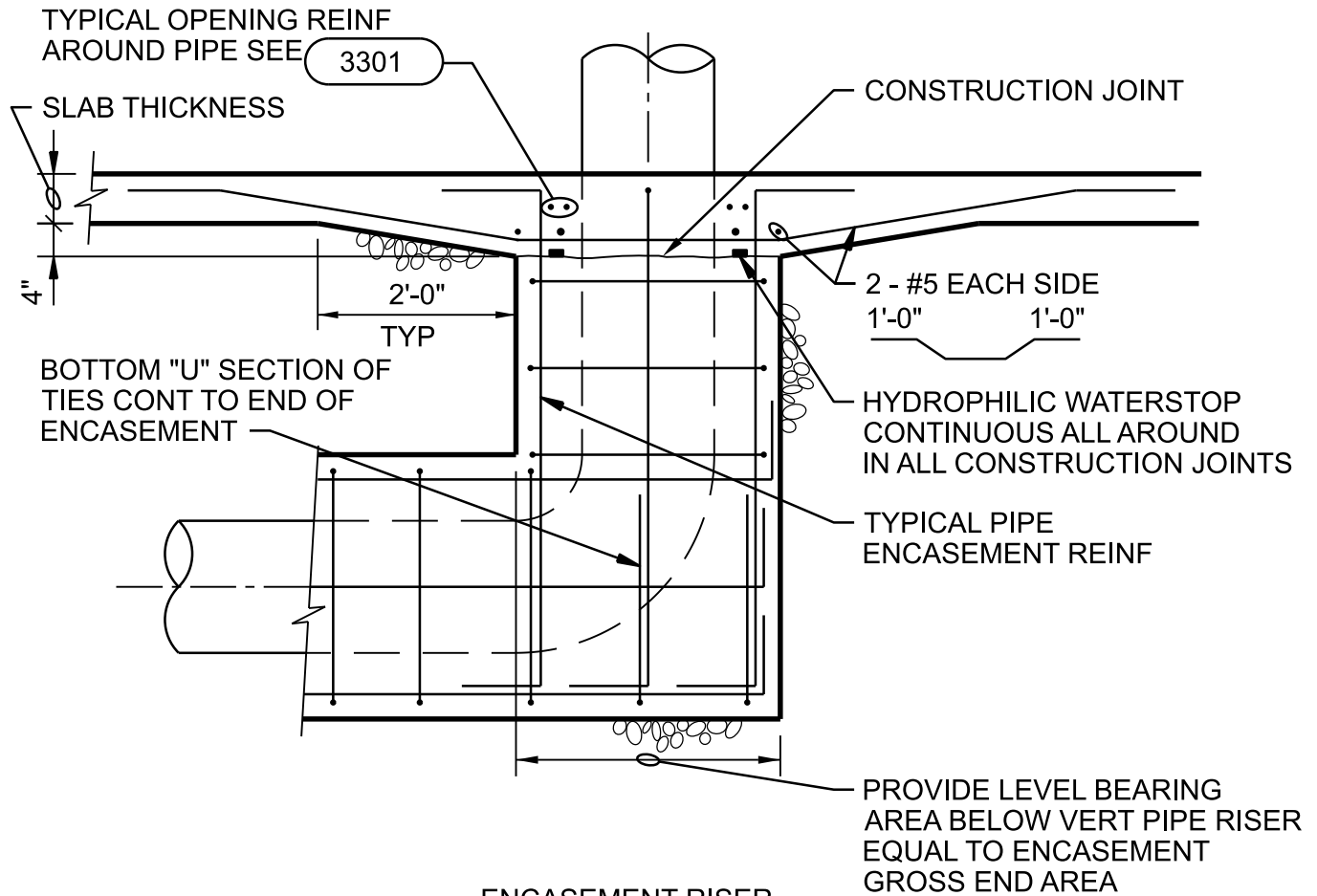


KNEEWALL DETAIL

NTS

CLEAN WATER SERVICES
DURHAM WRRF
PHASE 6B DIGESTER

3311



NOTES:

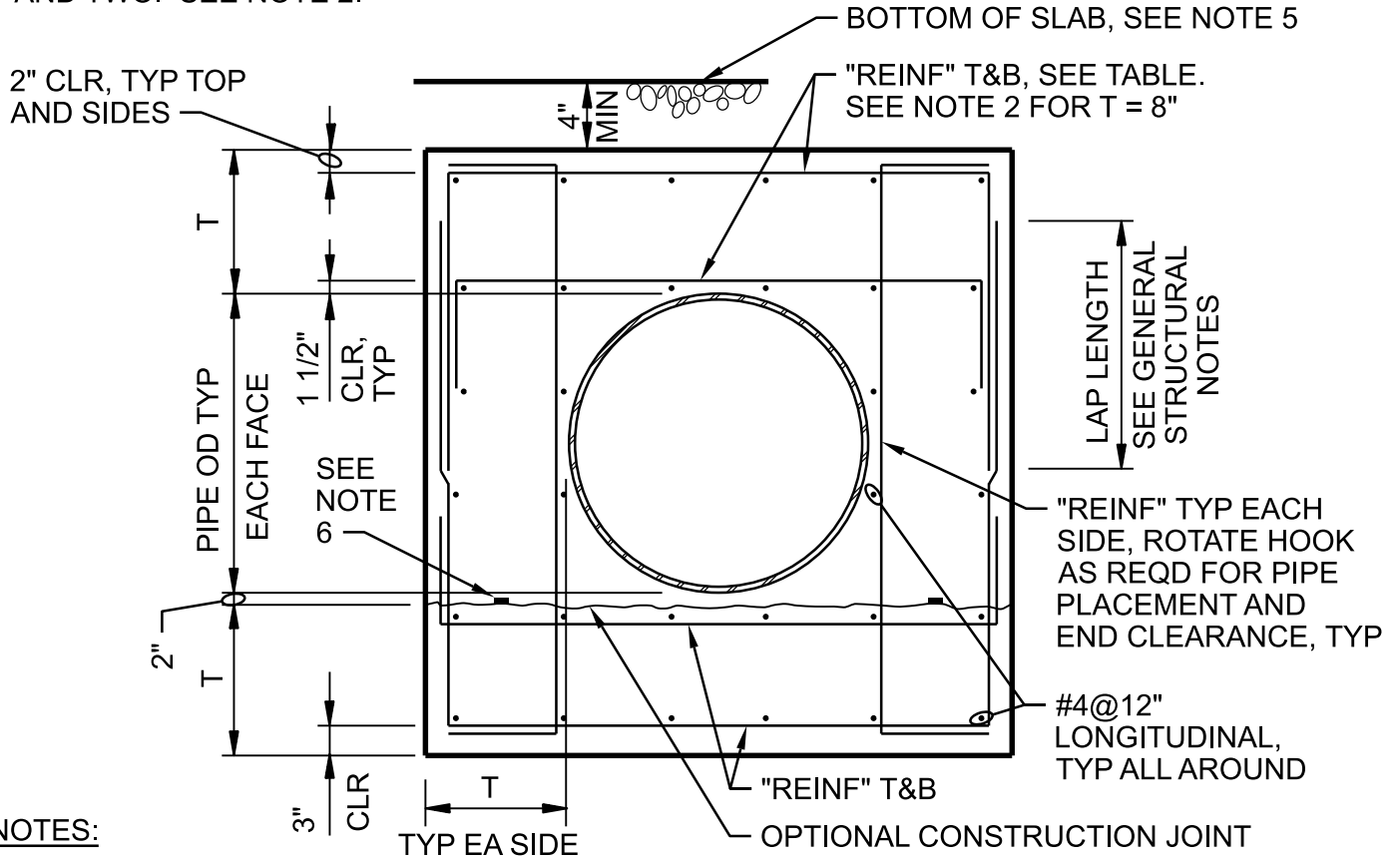
1. SECTION APPLIES TO PIPES W/ DIAMETERS 18" AND SMALLER.

PIPE ENCASEMENT

NTS

PIPE ENCASEMENT TABLE								
PIPE DIA (IN.)	H=10 FEET		H=20 FEET		H=30 FEET		H=40 FEET	
	T (in)	REINF	T (in)	REINF	T (in)	REINF	T (in)	REINF
20 THRU 30	8	#5@12"	10	#5@12"	10	#5@12"	10	#6@12"
36 THRU 42	10	#5@12"	10	#6@12"	10	#7@12"	10	#6@6"
48 THRU 54	10	#6@12"	10	#7@12"	10	#7@6"	12	#7@6"
UP TO 60	10	#6@12"	10	#6@6"	14	#7@6"	14	#7@6"

HEAVY DARK LINE INDICATES BREAK BETWEEN ONE LAYER OF REINFORCEMENT AND TWO. SEE NOTE 2.

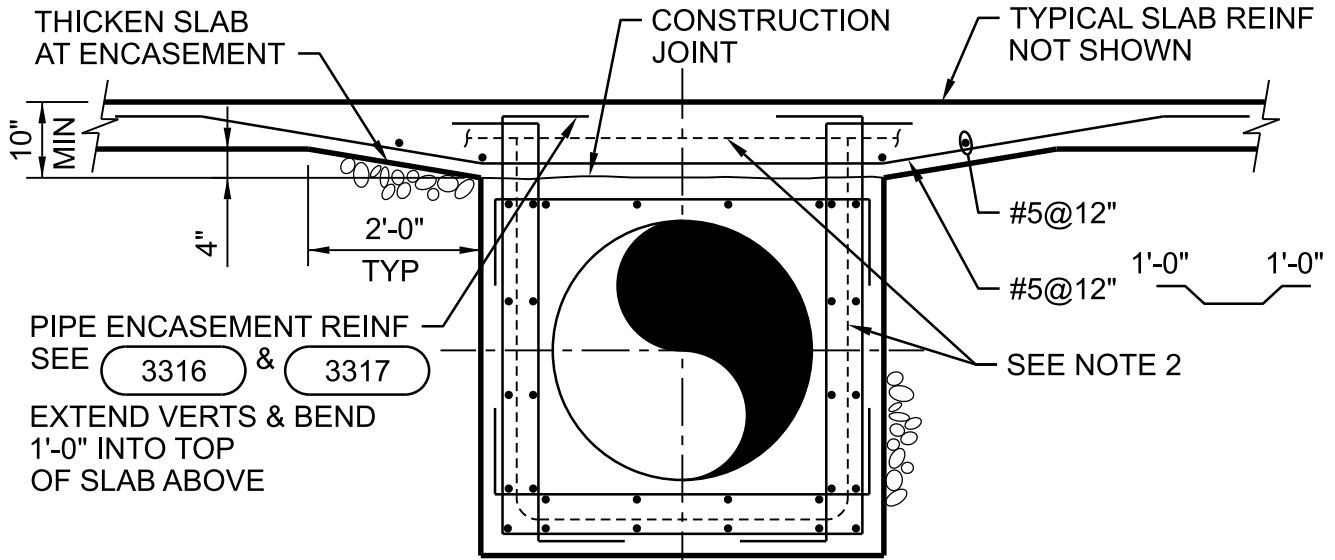


NOTES:

1. THIS DETAIL APPLIES TO PIPE DIAMETER OF 20" AND LARGER. FOR SMALLER THAN 20", SEE DETAIL **3316**.
2. FOR T=8" REINFORCEMENT SHALL BE ONE LAYER AND CENTERED IN SLABS OR WALLS. SIM **3316**.
3. FOR ENCASEMENT AT PIPE RISER, SEE **3316**.
4. "H" IS FILL HEIGHT OR WATER DEPTH OR COMBINATION ABOVE PIPE.
5. WHEN PIPE ENCASEMENT CLOSER THAN 4" TO SLAB ABOVE, TIE SLAB & ENCASEMENT TOGETHER. SEE **3318**.
6. HYDROPHILIC WATERSTOP CONTINUOUS ALL AROUND IN ALL CONSTRUCTION JOINTS.

PIPE ENCASEMENT

NTS



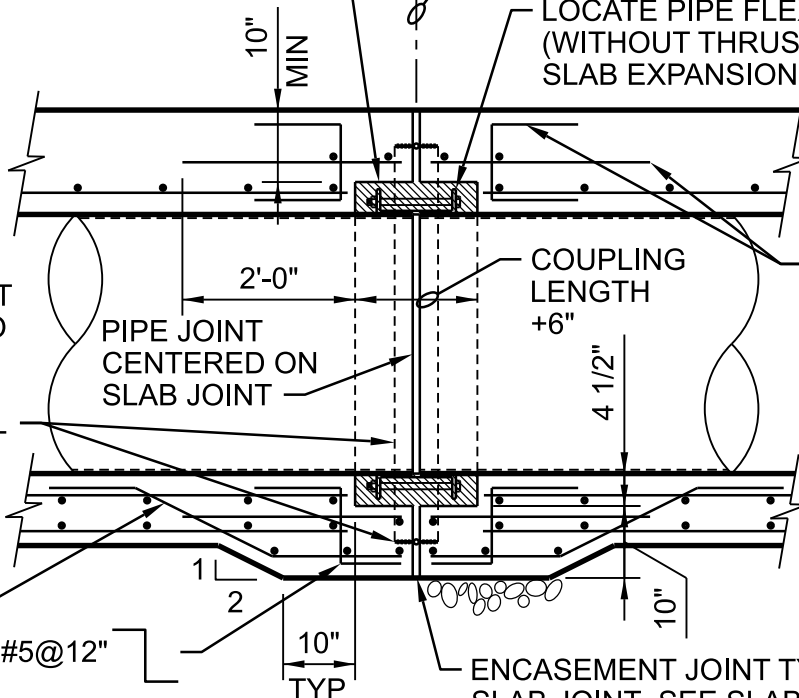
CLOSED CELLULAR SPONGE RUBBER ALL AROUND COUPLING TO ALLOW JOINT MOVEMENT (1" MIN)

SECTION

CL SLAB EXP, CONTRACTION OR CONTROL JOINT, SEE PLANS FOR LOCATION & JOINT TYPE

LOCATE PIPE FLEX COUPLING (WITHOUT THRUST TIES) AT ALL SLAB EXPANSION & CONTROL JOINTS

6" PLASTIC WATERSTOP IN ENCASEMENT JOINT. WELD TO WATERSTOP IN SLAB JOINT FOR CONT SEAL



#5@12" TYPICAL ENCASEMENT REINF DISCONTINUOUS AT JOINT

#5@12", TYP

#5@12"

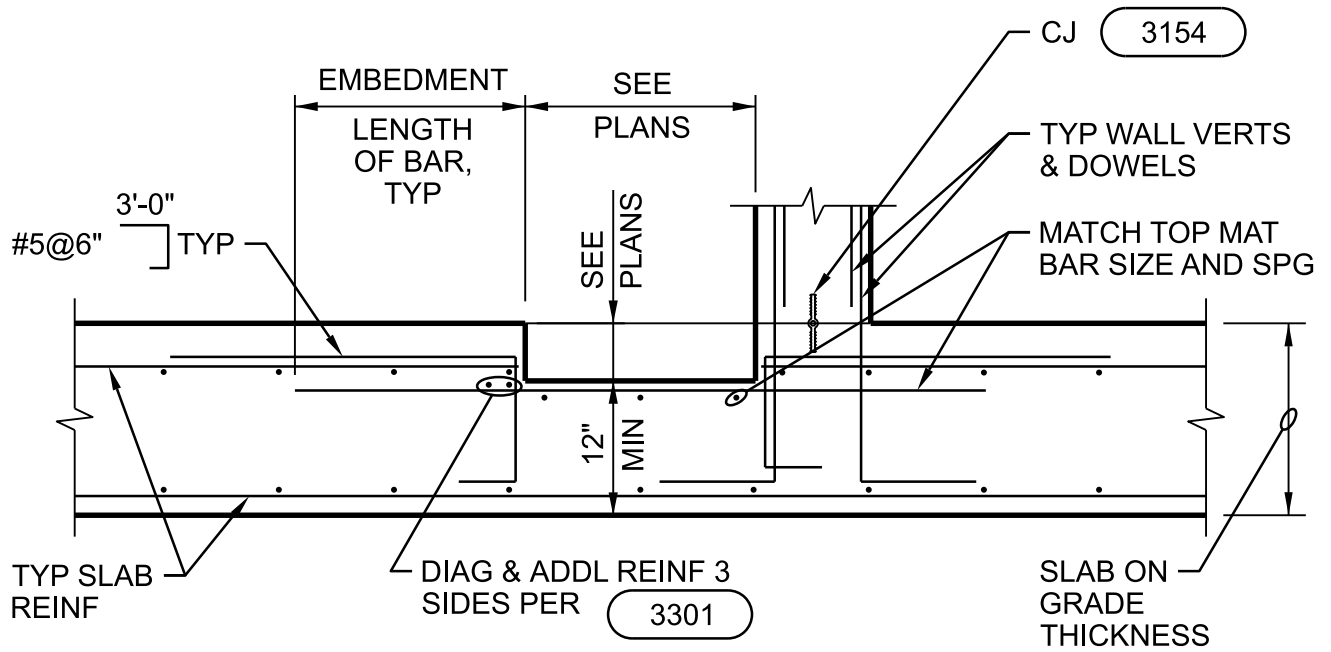
JOINT DETAIL

NOTES:

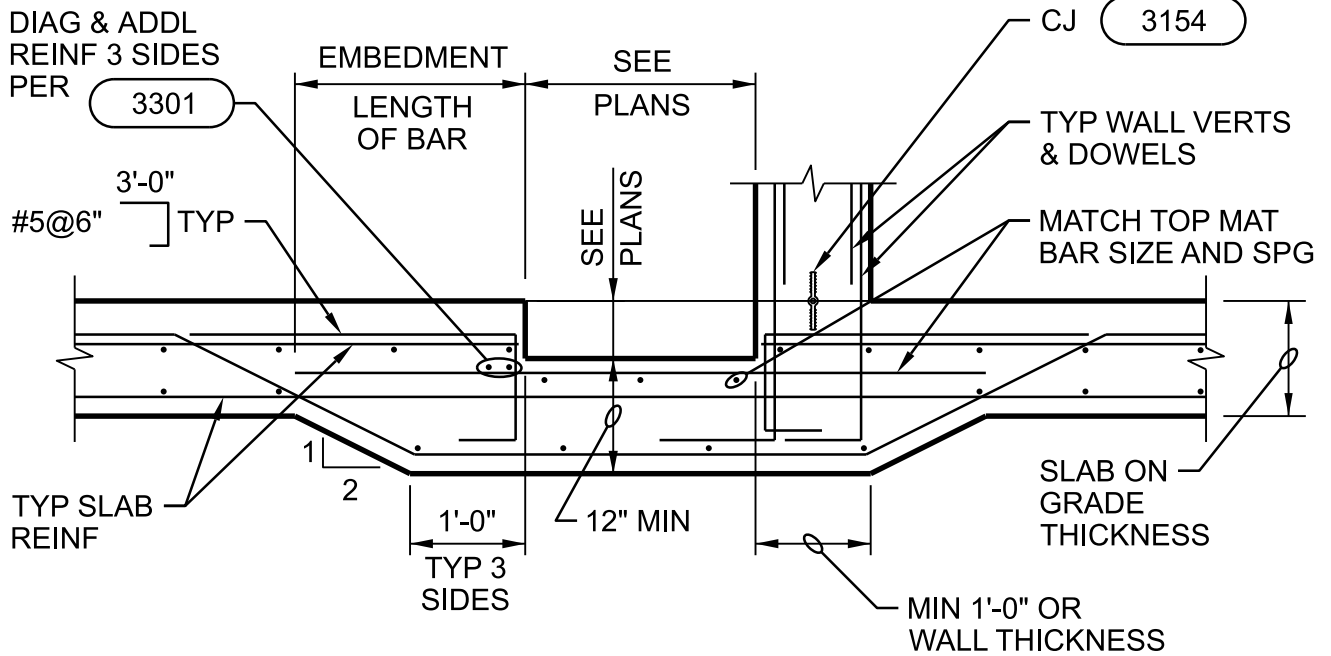
1. TIE PIPE ENCASEMENT TO SLAB AS SHOWN WHEN DISTANCE BETWEEN PIPE ENCASEMENT AND BOTTOM OF SLAB IS LESS THAN 4".
2. 6" PLASTIC WS IN ENCASEMENT JOINTS. WELD TO WS IN SLAB JOINTS.

PIPE ENCASEMENT AT SLAB

NTS



TYPICAL SLAB - TYPE 'A'



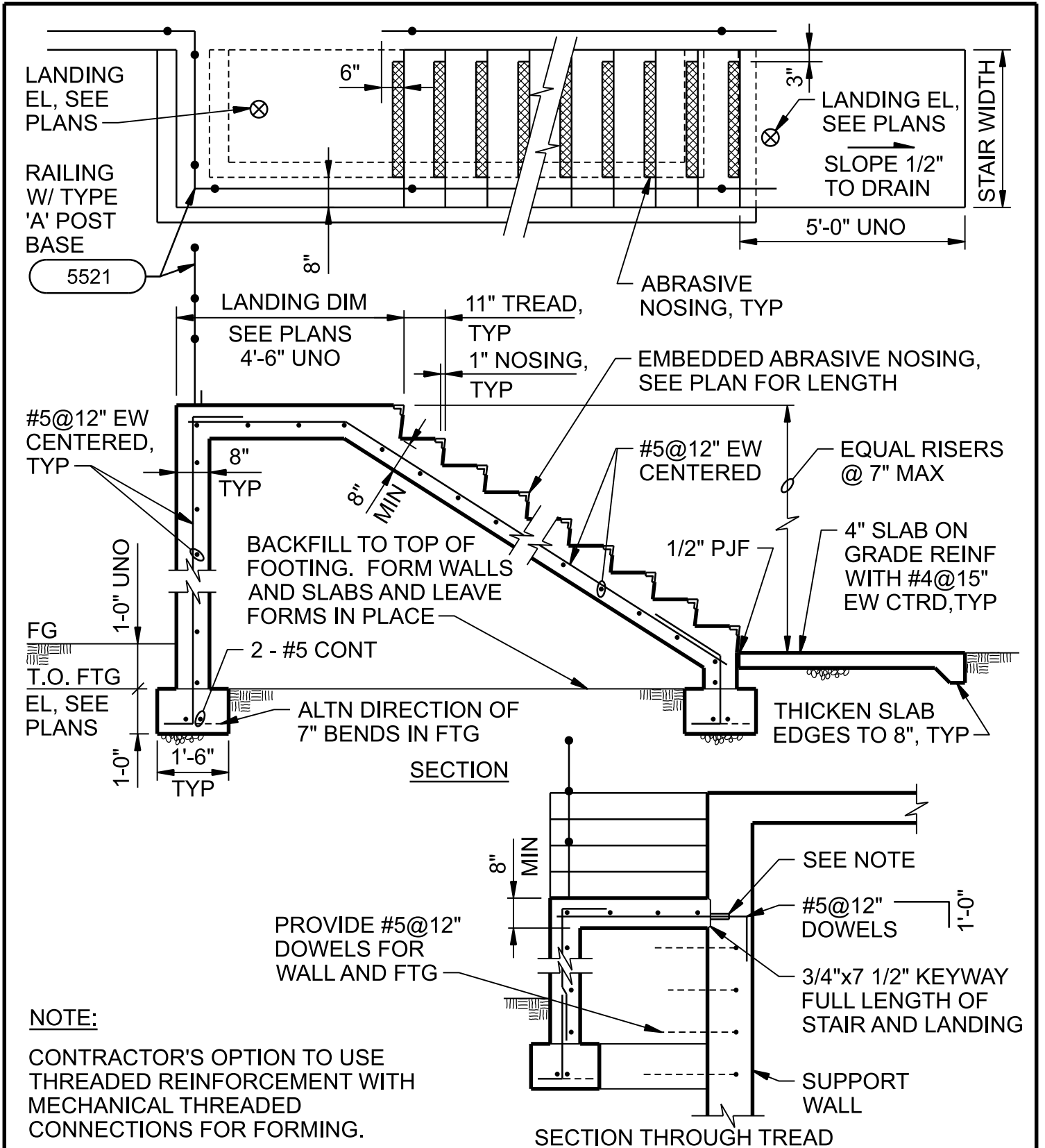
THICKENED SLAB - TYPE 'B'

NOTES:

- 1. REBAR LOCATION SHALL ACCOMMODATE GRATING CONNECTIONS WHERE REQUIRED. SEE DETAIL 3566

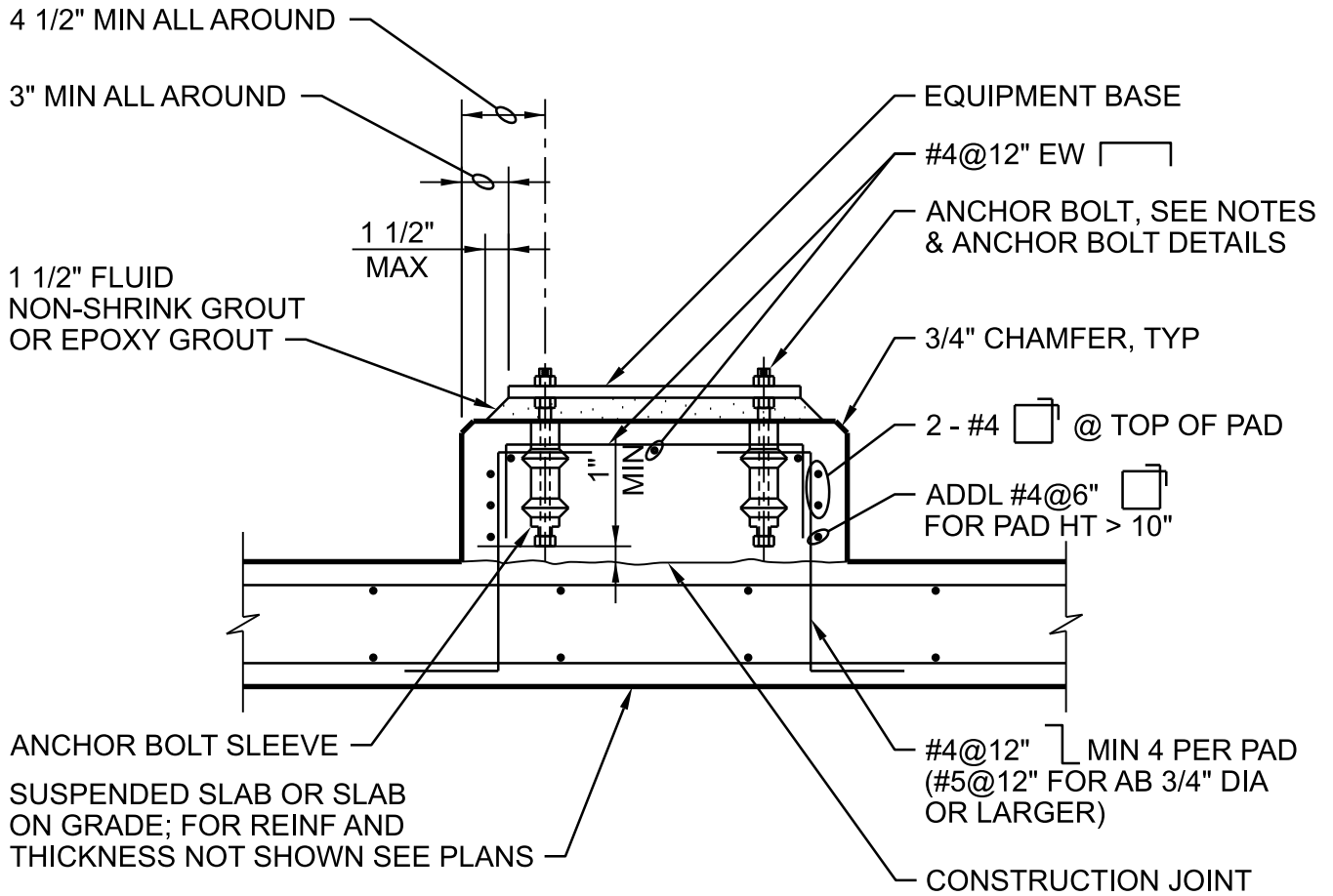
IN-SLAB SUMP REINFORCEMENT

NTS



CONCRETE STAIR - WITH CLOSURE WALL

NTS



TYPE 'A'

GENERAL NOTE:

FOR GENERAL NOTES SEE DETAIL 6 OF 6.

CONCRETE EQUIPMENT PAD - TYPE 'A'

NTS

DETAIL 1 OF 6

CLEAN WATER SERVICES
 DURHAM WRRF
 PHASE 6B DIGESTER

3356

2" MIN ALL AROUND
OR AS REQUIRED BY
ANCHORAGE
CALCULATIONS

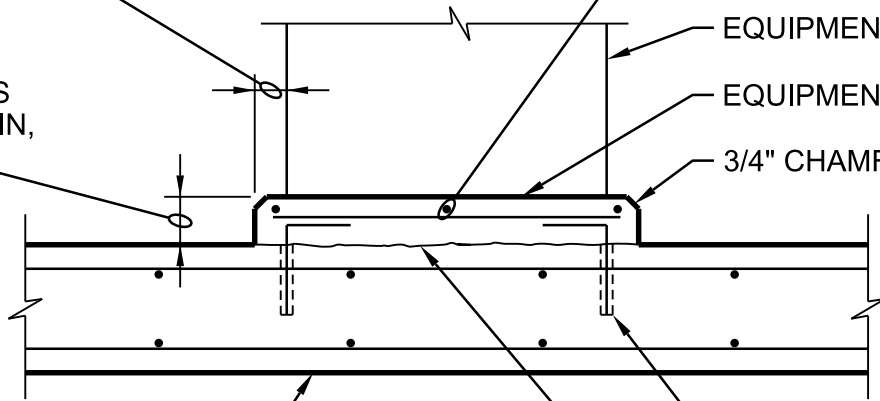
#3@12" EW, 1" CLR
FOR PAD HT < 4",
#4@12" EW, 1 1/2" CLR
FOR PAD HT > 4"

PAD HEIGHT AS
REQD, 3 1/2" MIN,
10" MAX

EQUIPMENT

EQUIPMENT PAD

3/4" CHAMFER, TYP



EXST OR NEW SUSPENDED
SLAB OR SLAB ON GRADE,
FOR THICKNESS SEE PLANS

#4 ADHESIVE DOWEL
@ 12" OC @ PERIMETER
WITH 6" MIN EMBEDMENT

CONSTRUCTION JOINT,
ROUGHEN & CLEAN PRIOR
TO PLACING PAD

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.

TYPE 'E'

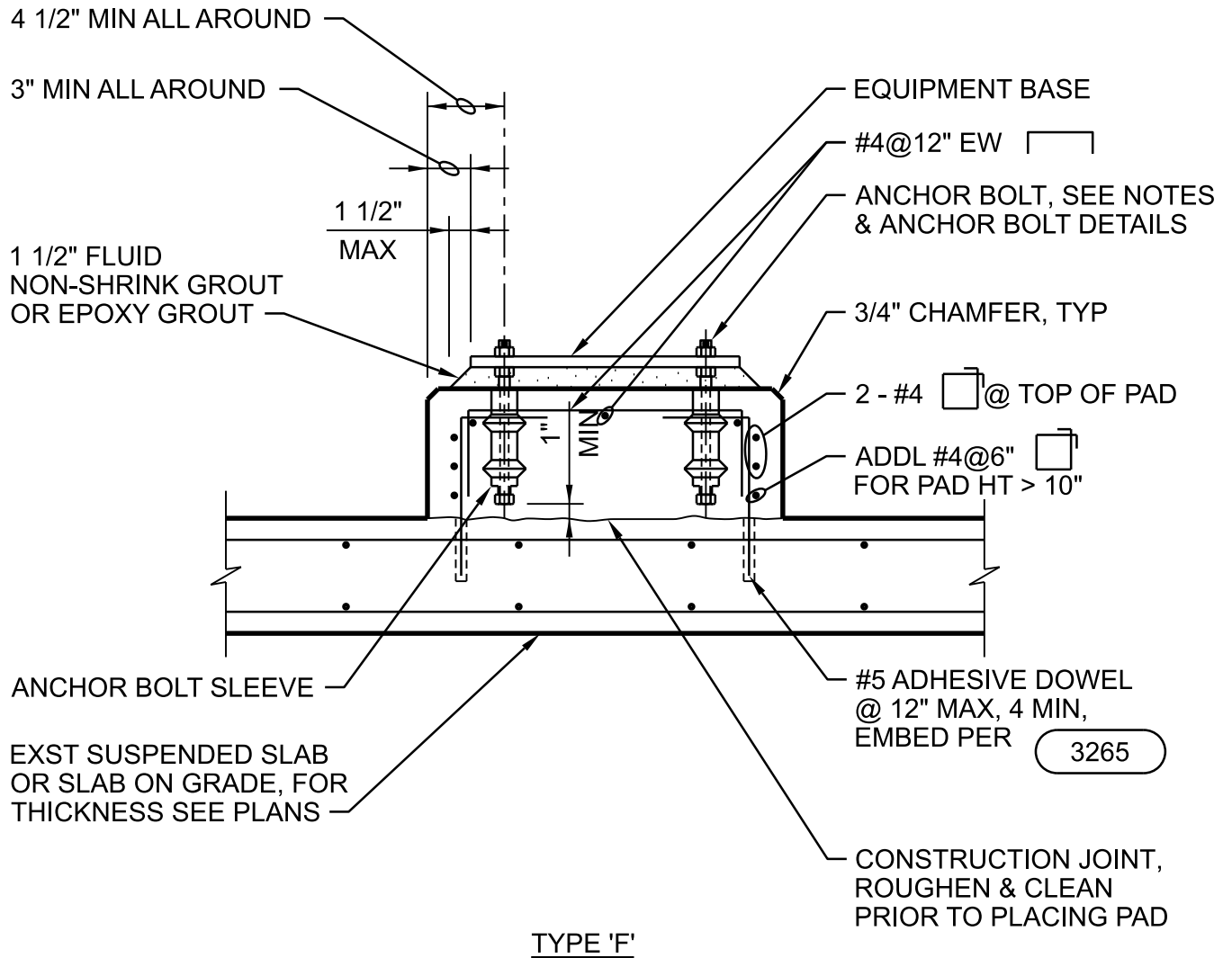
GENERAL NOTE:

FOR GENERAL NOTES SEE DETAIL 6 OF 6.

CONCRETE EQUIPMENT PAD - TYPE 'E'

NTS

DETAIL 2 OF 6



GENERAL NOTE:
FOR GENERAL NOTES SEE DETAIL 6 OF 6.

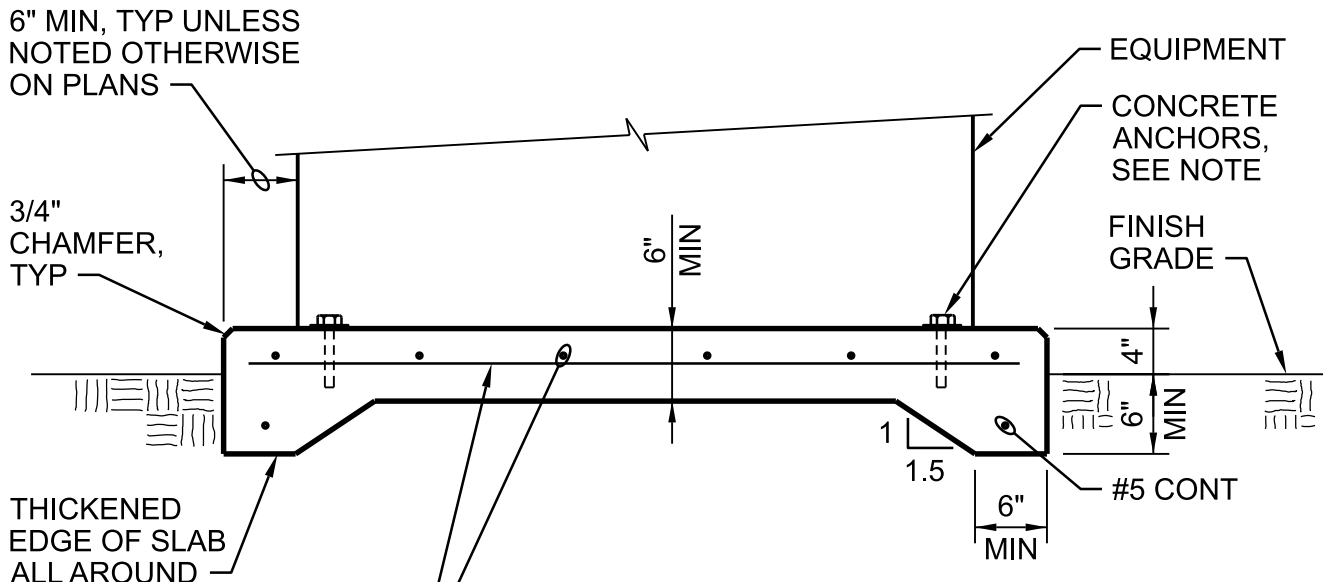
CONCRETE EQUIPMENT PAD - TYPE 'F'

NTS

DETAIL 3 OF 6

CLEAN WATER SERVICES
DURHAM WRRF
PHASE 6B DIGESTER

3356



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

TYPE 'G'

GENERAL NOTE:
 FOR GENERAL NOTES SEE DETAIL 6 OF 6

CONCRETE EQUIPMENT PAD - TYPE 'G'

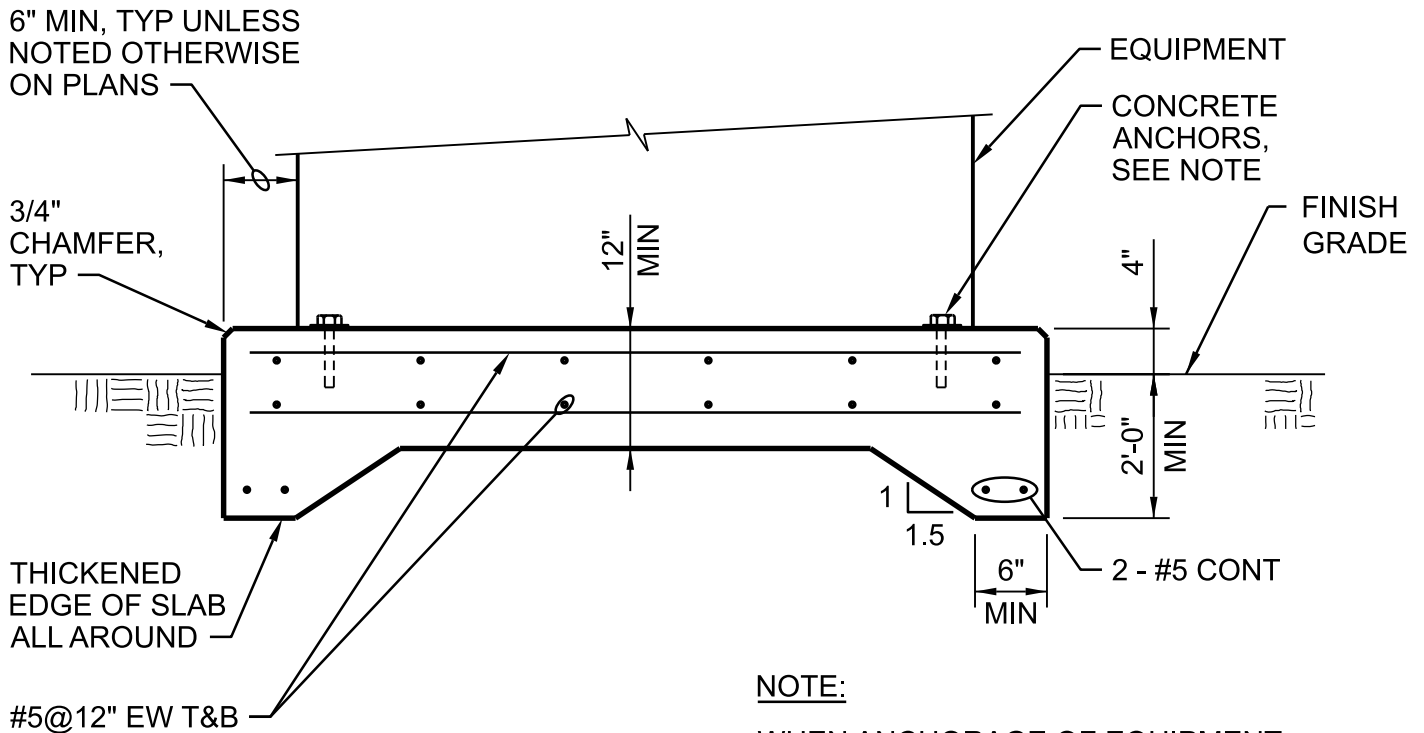
NTS

DETAIL 4 OF 6

CLEAN WATER SERVICES
 DURHAM WRRF
 PHASE 6B DIGESTER

3356





NOTE:

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

TYPE 'H'

GENERAL NOTE:

FOR GENERAL NOTES SEE DETAIL 6 OF 6.

CONCRETE EQUIPMENT PAD - TYPE 'H'

NTS

DETAIL 5 OF 6

CLEAN WATER SERVICES
 DURHAM WRRF
 PHASE 6B DIGESTER

3356

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. 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, OR GREATER AS REQUIRED BY CALCULATIONS, IN EACH DIRECTION.

CONCRETE EQUIPMENT PAD - NOTES

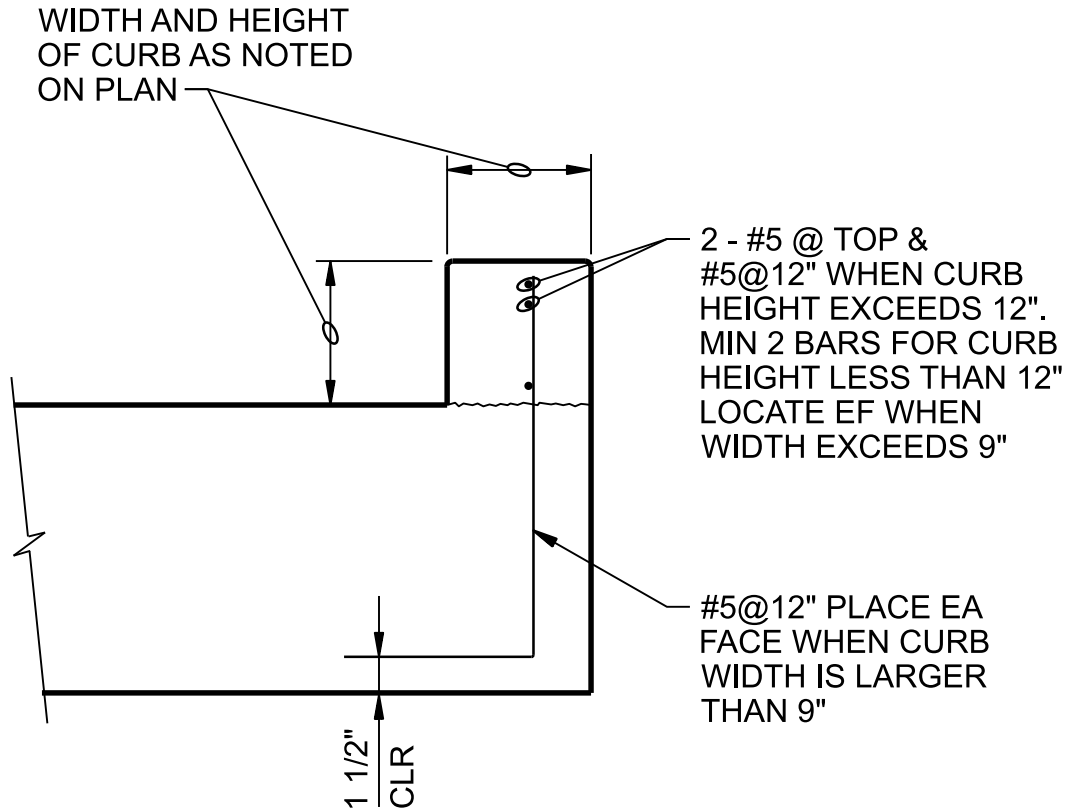
NTS

DETAIL 6 OF 6

CLEAN WATER SERVICES
DURHAM WRRF
PHASE 6B DIGESTER

3356

Jacobs



CONCRETE CURB

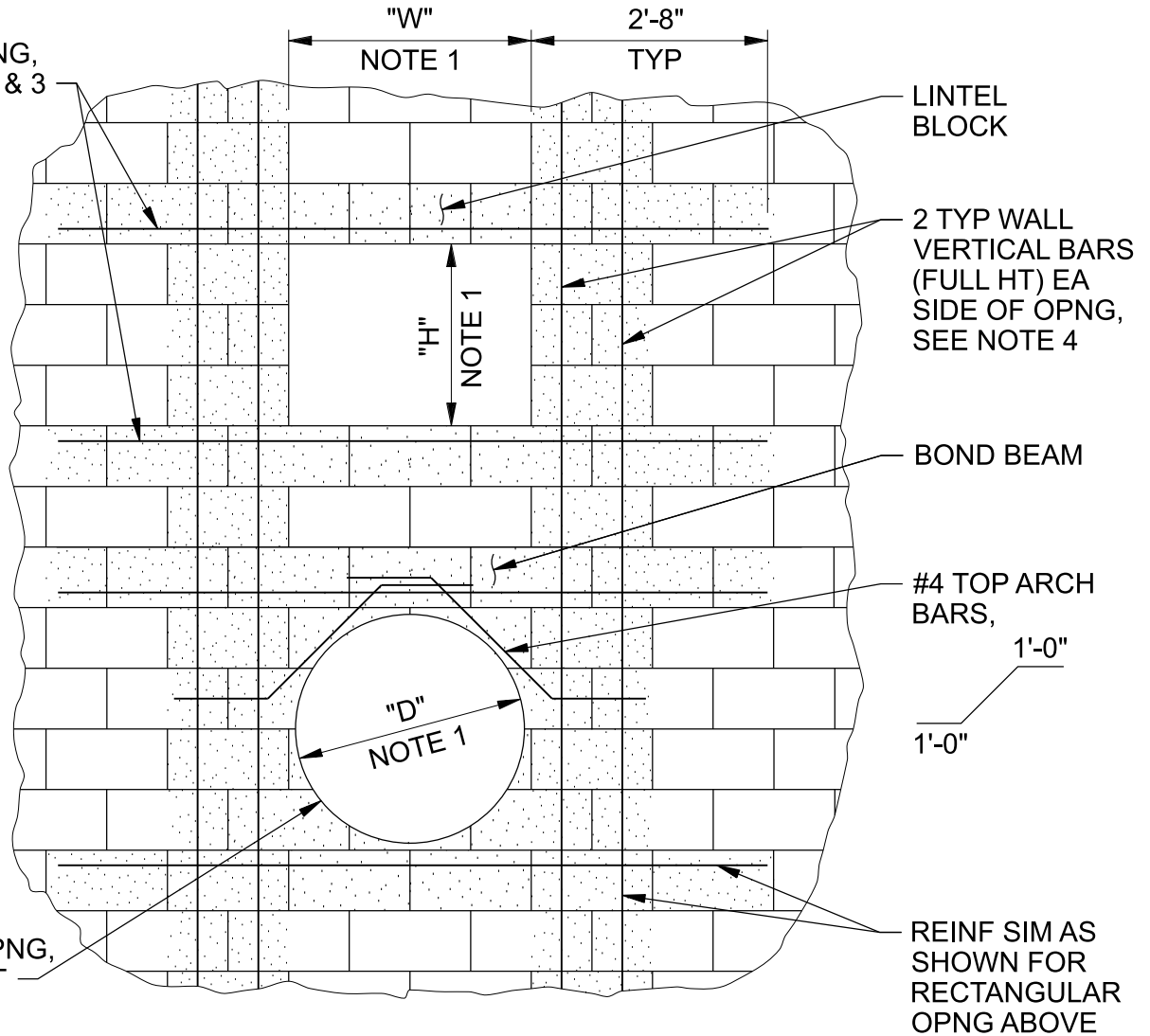
NTS

CLEAN WATER SERVICES
DURHAM WRRF
PHASE 6B DIGESTER

3380



2 - #5 ABOVE
& BELOW OPNG,
SEE NOTES 2 & 3



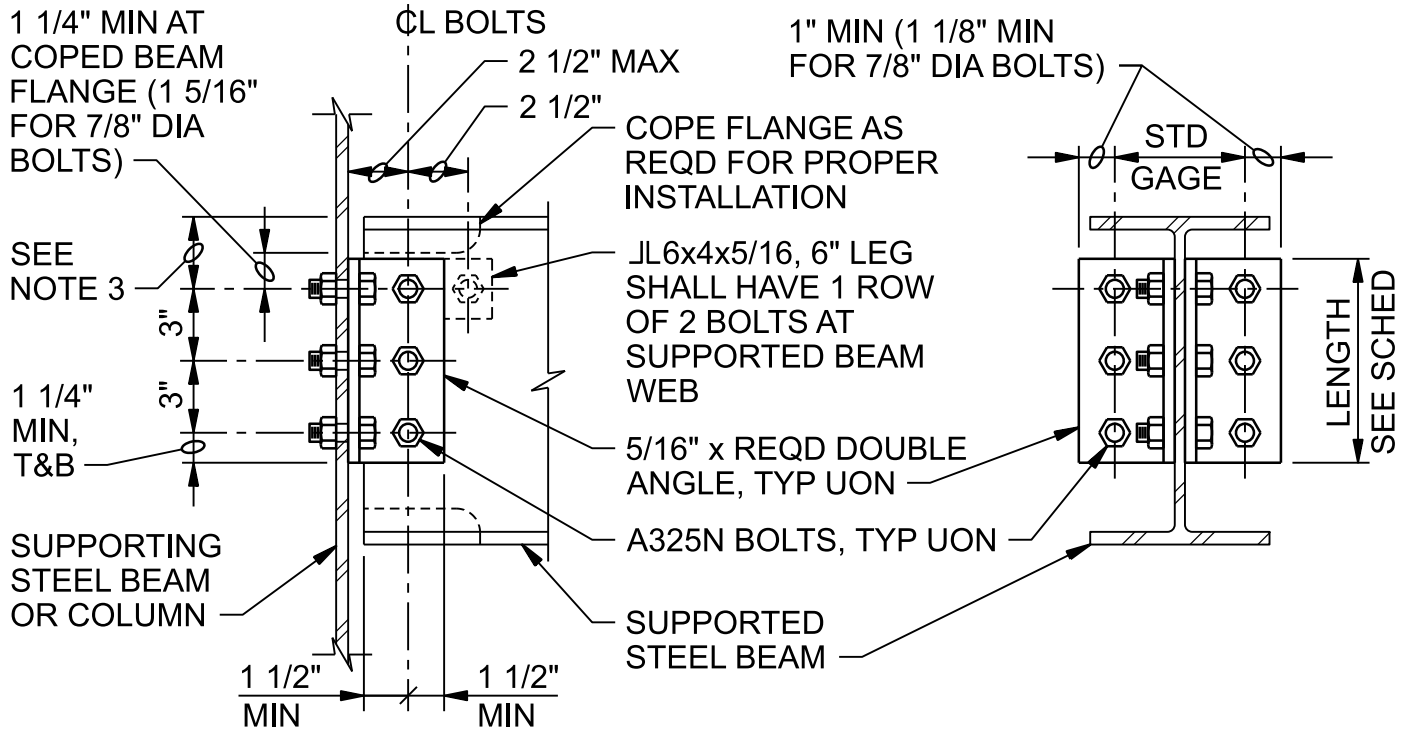
SAW CUT
BLOCK FOR
CIRCULAR OPNG,
SOLID GROUT

NOTES:

1. TYPICAL FOR ALL OPENINGS WITH (W, H, OR D) 2'-0" OR GREATER AND 4'-0" OR LESS, UNLESS NOTED OTHERWISE. SEE PLANS FOR LARGER OPENINGS.
2. AT ADJACENT OPENINGS WITH LESS THAN 8'-0" WALL BETWEEN, CONTINUE HORIZONTAL REINFORCEMENT TO 2'-8" BEYOND FURTHEST OPENING.
3. LOCATE VERTICAL BARS CENTERED IN 2 ADJACENT CELLS IN 8" WALLS, AND EACH FACE IN SINGLE GROUT CELL IN 12" WALLS. LAP 48 BAR DIAMETERS WITH MATCHING FOUNDATION DOWELS.
4. LOCATE #4 ARCH BARS CENTERED IN 8" WALLS, AND EACH FACE IN 12" WALLS.

CMU OPENING REINFORCEMENT

NTS



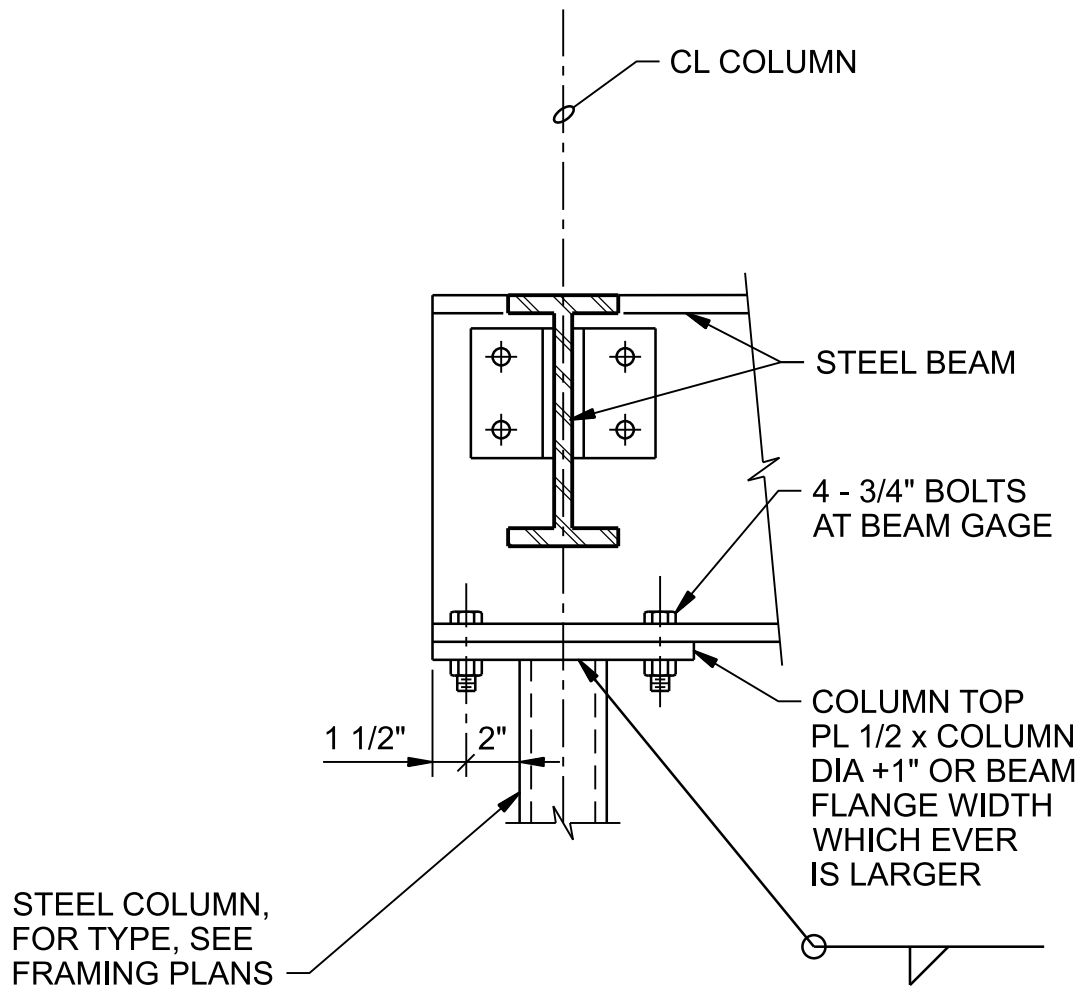
NOMINAL BEAM DEPTH, INCHES	ROWS OF BOLTS	BOLT DIA, INCHES	DOUBLE ANGLE, LENGTH, INCHES	COMMENTS
36	10	7/8"	2'-6"	ANGLE THK = 3/8"
33	9	7/8"	2'-3"	ANGLE THK = 3/8"
30	8	7/8"	2'-0"	ANGLE THK = 3/8"
27	7	3/4"	1'-8 1/2"	-
24	6	3/4"	1'-5 1/2"	-
21	5	3/4"	1'-2 1/2"	-
16-18	4	3/4"	0'-11 1/2"	-
12-15	3	3/4"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

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

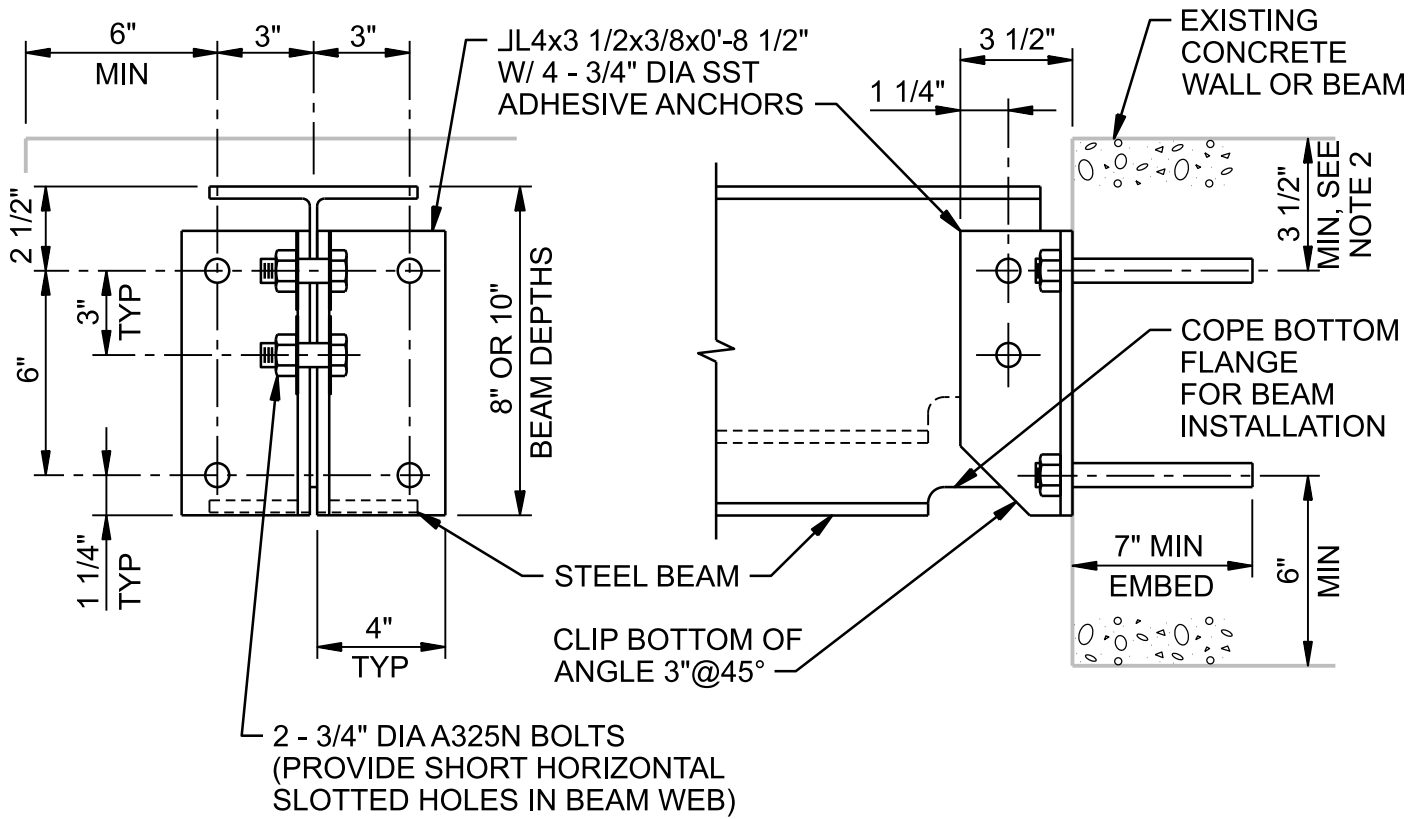
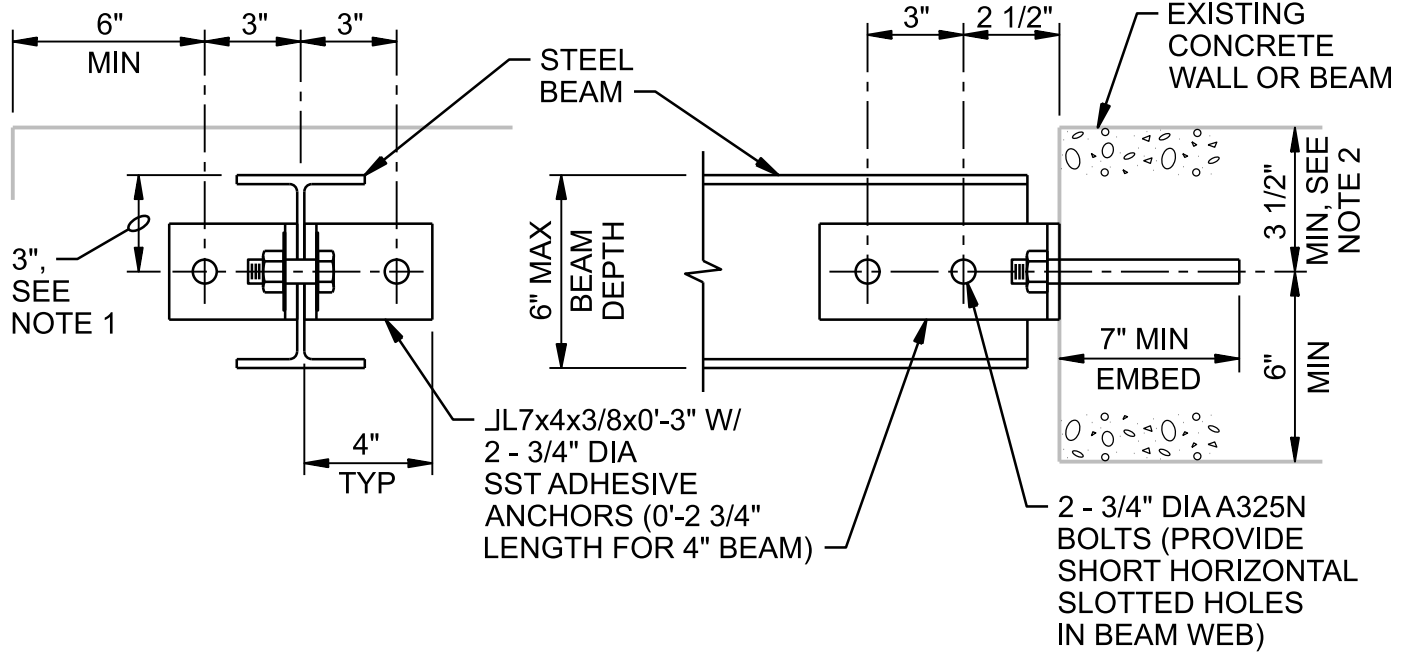
TYPICAL BEAM CONNECTION - STEEL

NTS



BEAM COLUMN CONNECTION - STEEL

NTS



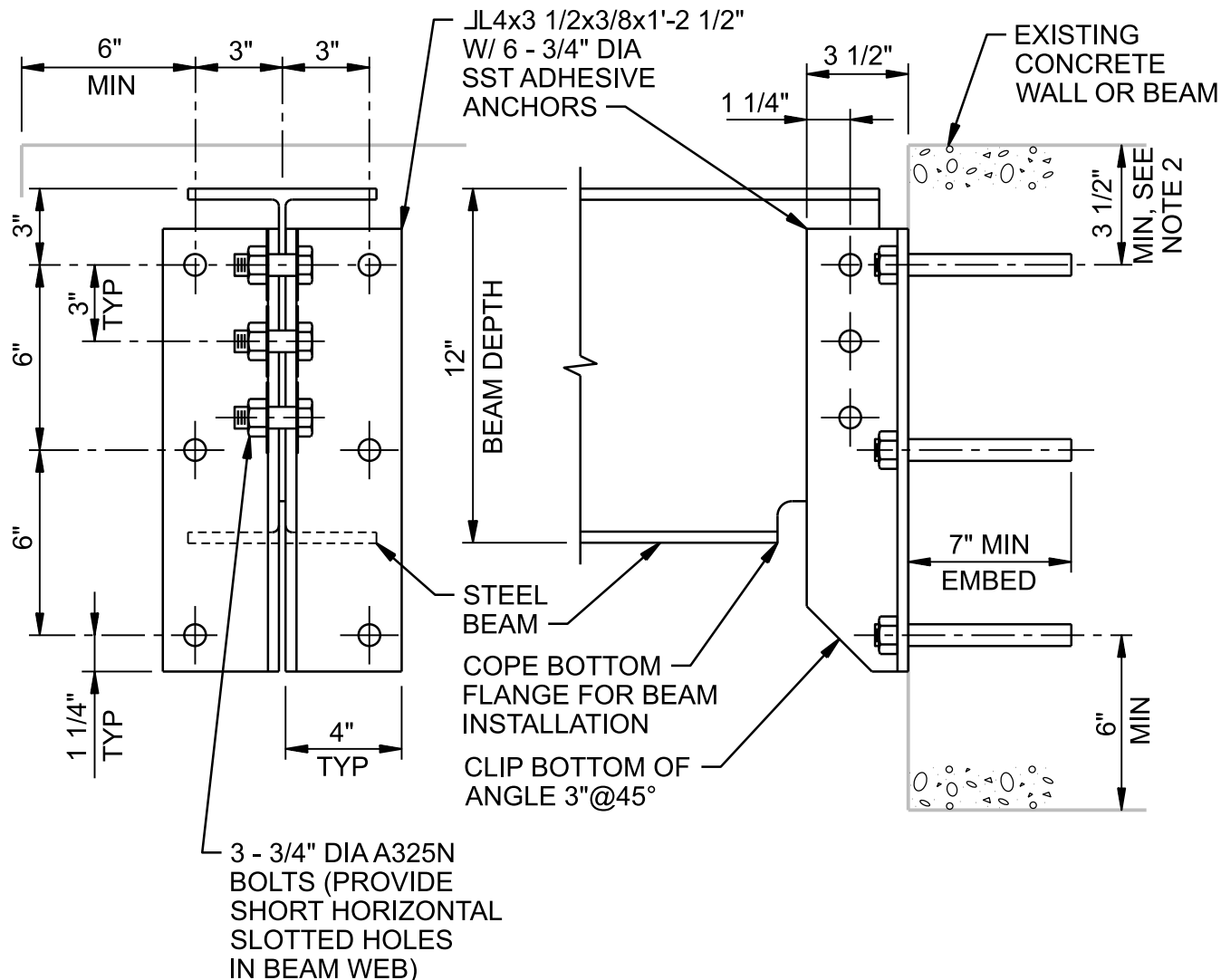
BEAM/WALL CONNECTION - STEEL

NTS

DETAIL 1 OF 2

CLEAN WATER SERVICES
DURHAM WRRF
PHASE 6B DIGESTER

5056



NOTES:

1. 3" DIMENSION TYPICAL EXCEPT 2 1/2" FOR 5" BEAMS AND 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.

BEAM/WALL CONNECTION - STEEL

NTS

DETAIL 2 OF 2

CLEAN WATER SERVICES
DURHAM WRRF
PHASE 6B DIGESTER

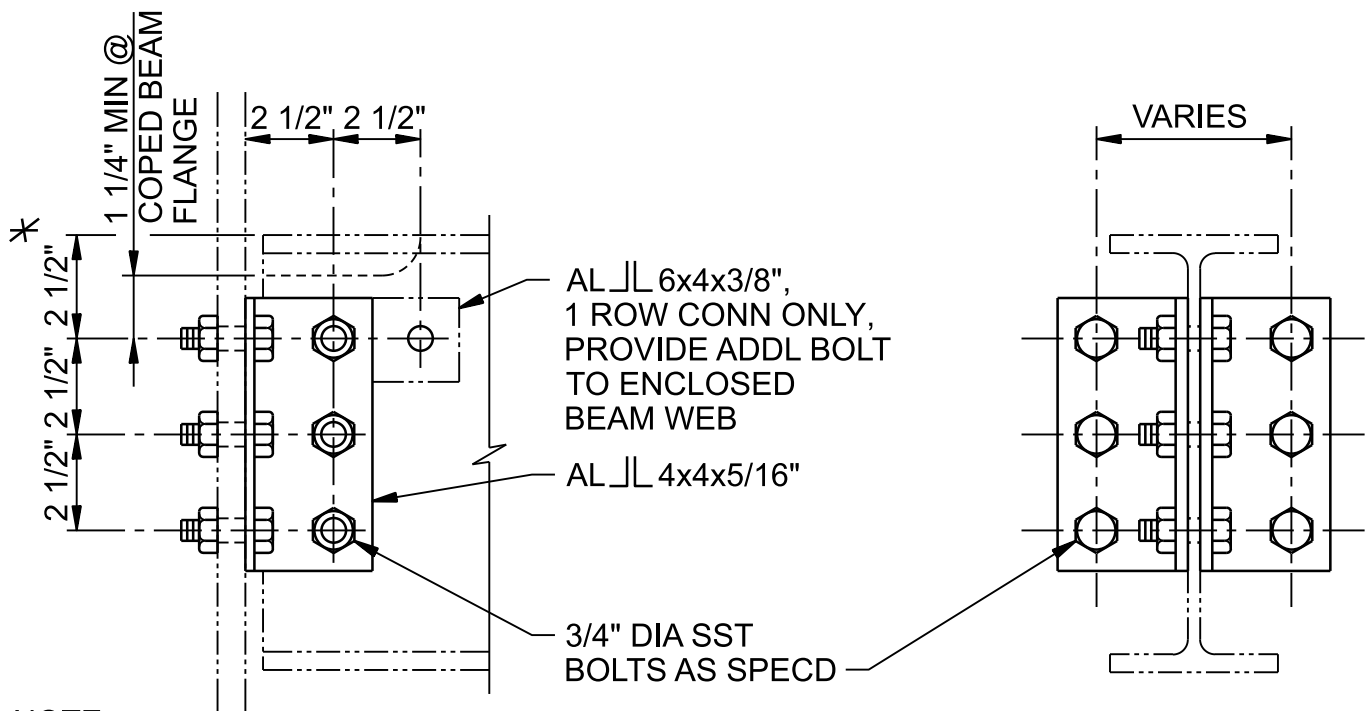
5056

JACOBS

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.

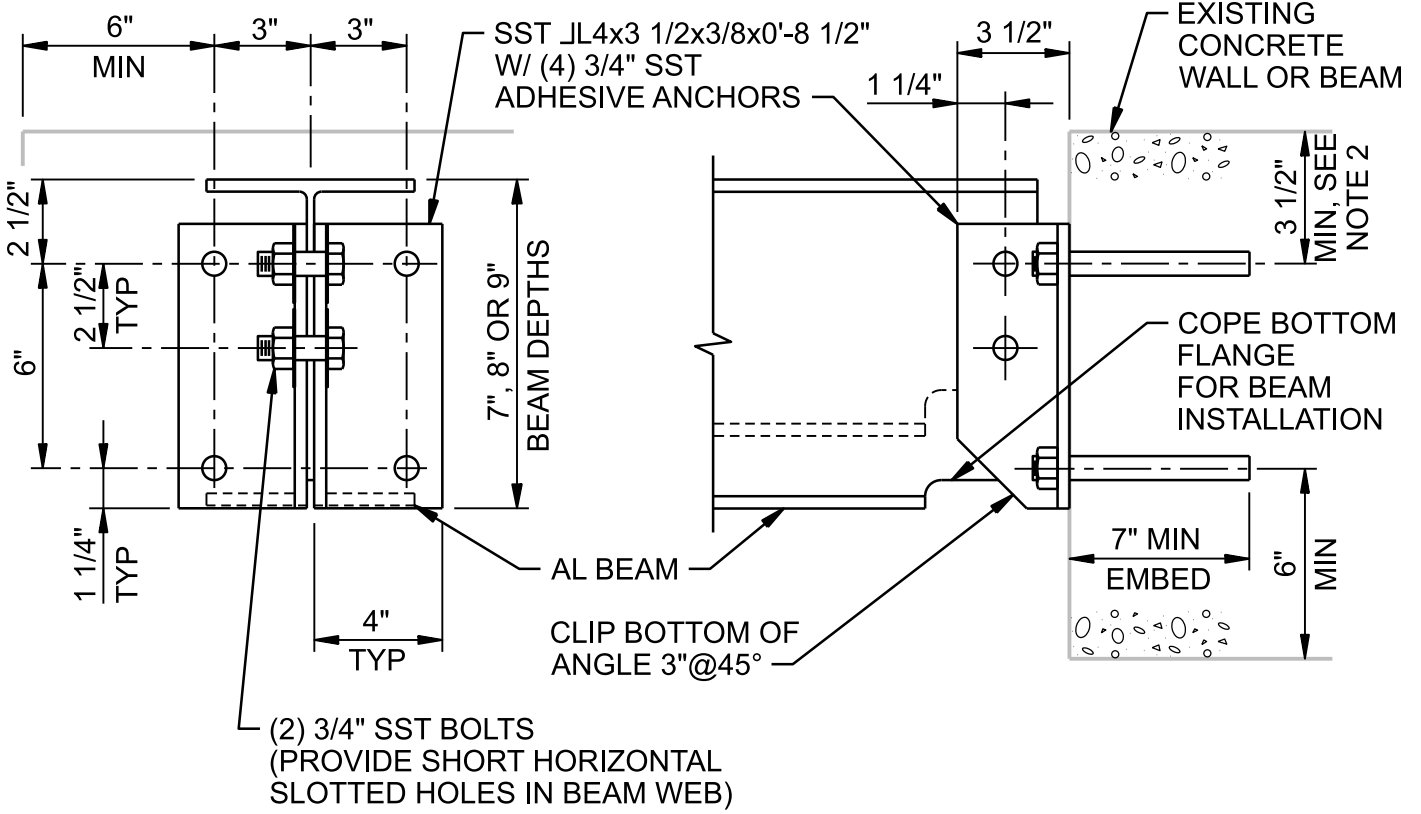
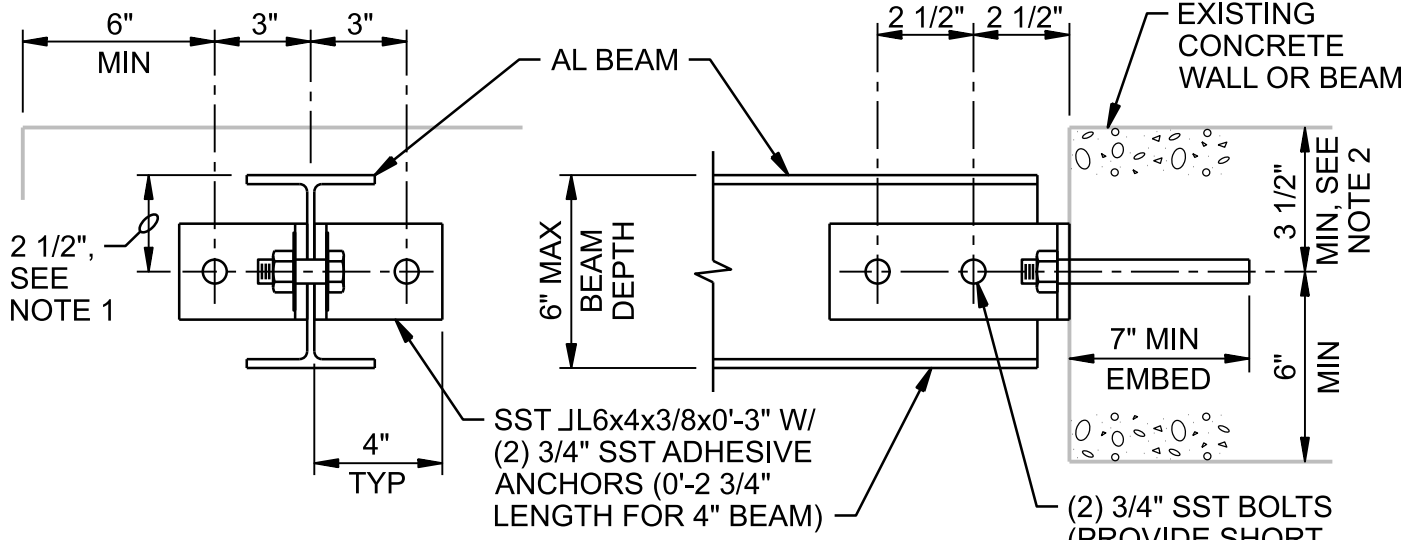


NOTE:

* 2 1/2" DIMENSION TYPICAL EXCEPT 2" FOR 4" BEAM.

TYPICAL BEAM CONNECTION - ALUMINUM

NTS



BEAM/WALL CONNECTION - ALUMINUM

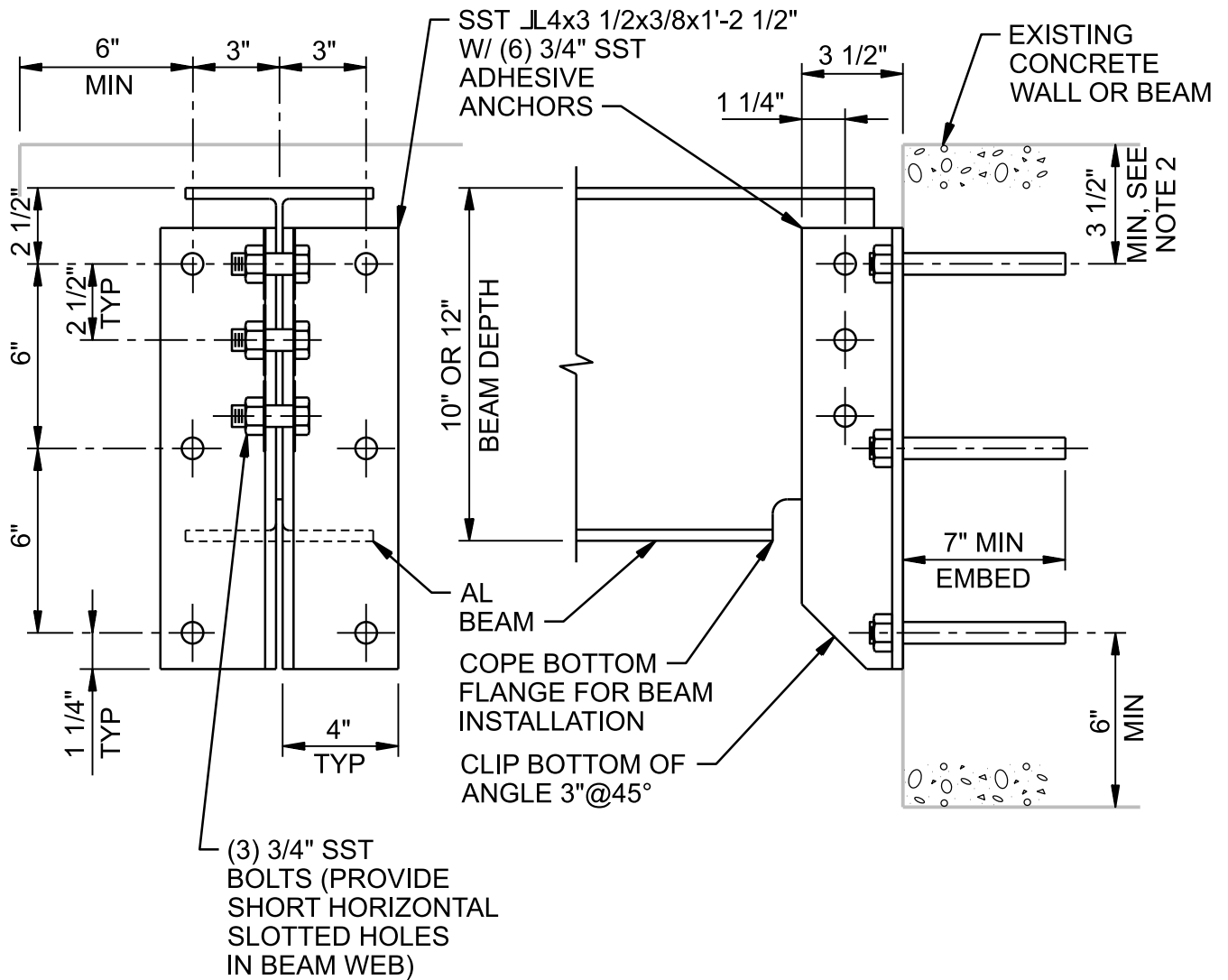
NTS

DETAIL 1 OF 2

CLEAN WATER SERVICES
 DURHAM WRRF
 PHASE 6B DIGESTER

5087





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.

BEAM/WALL CONNECTION - ALUMINUM

NTS

DETAIL 2 OF 2

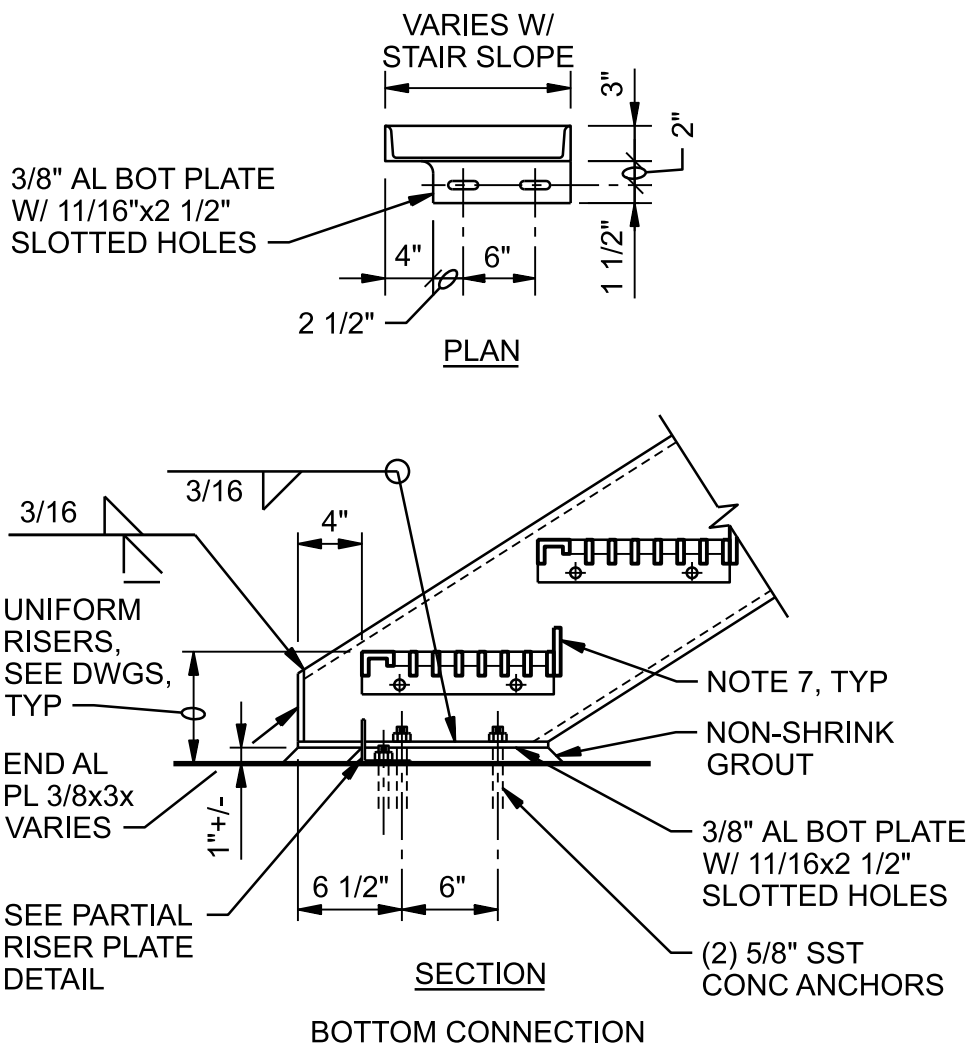
CLEAN WATER SERVICES
 DURHAM WRRF
 PHASE 6B DIGESTER

5087

JACOBS

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.



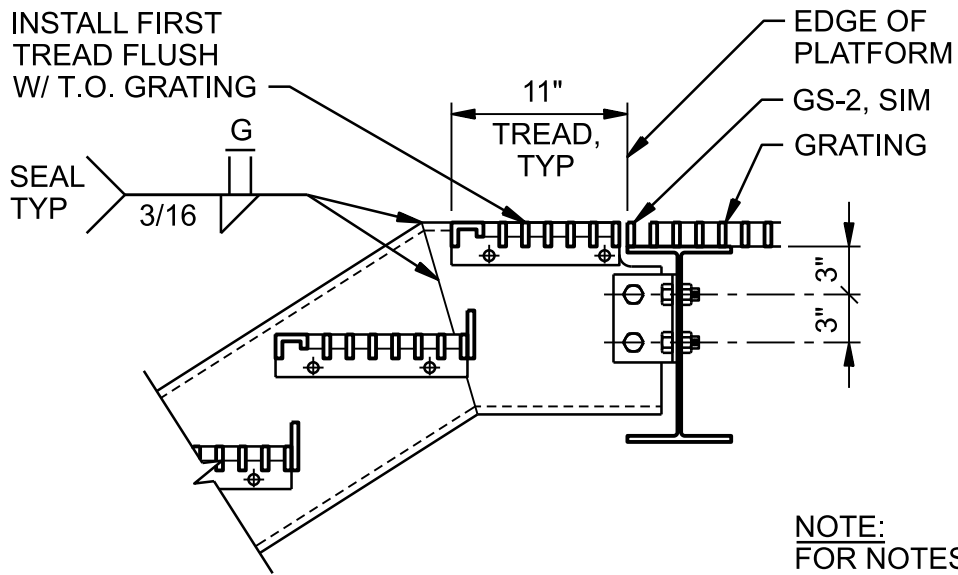
STAIR DETAILS - ALUMINUM

NTS

DETAIL 1 OF 5

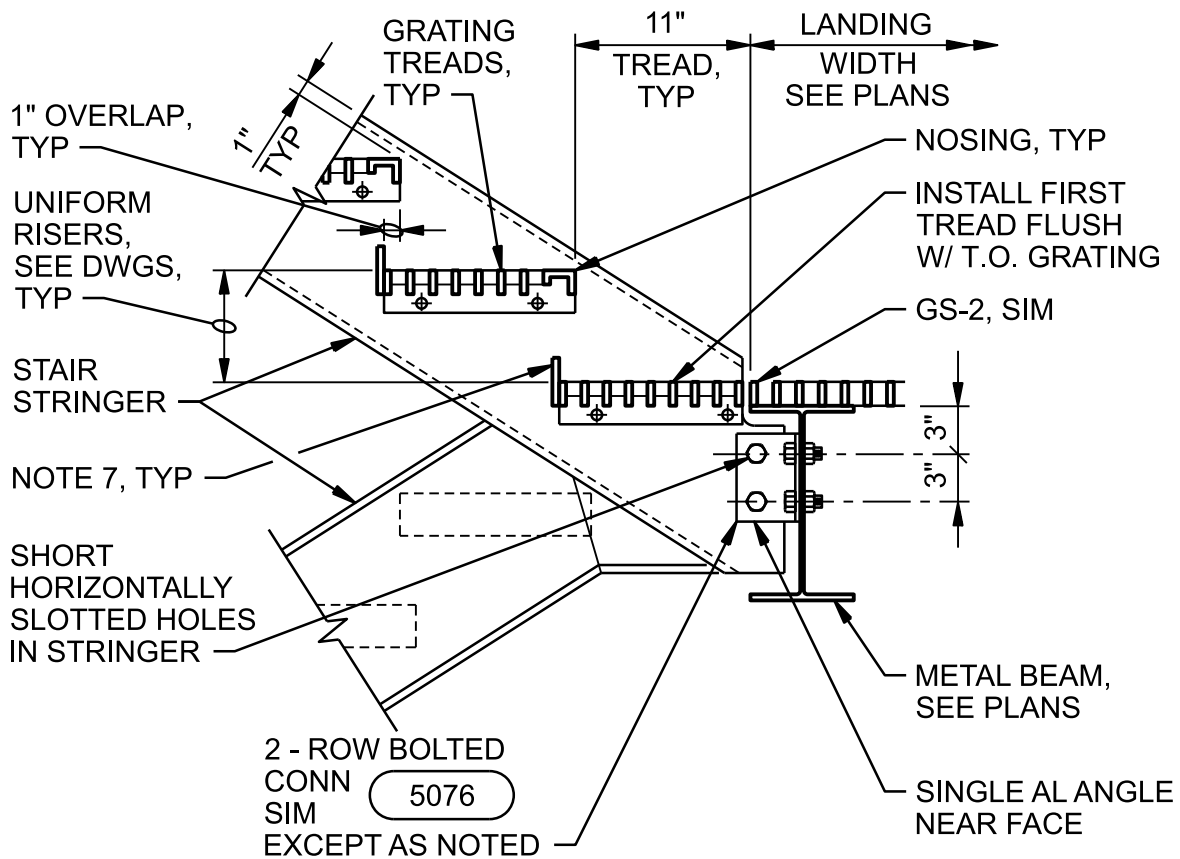
CLEAN WATER SERVICES
 DURHAM WRRF
 PHASE 6B DIGESTER

5511



TOP CONNECTION - ALUMINUM

NOTE:
FOR NOTES NOT SHOWN
SEE LANDING CONNECTION.



LANDING CONNECTION - ALUMINUM

STAIR DETAILS - ALUMINUM

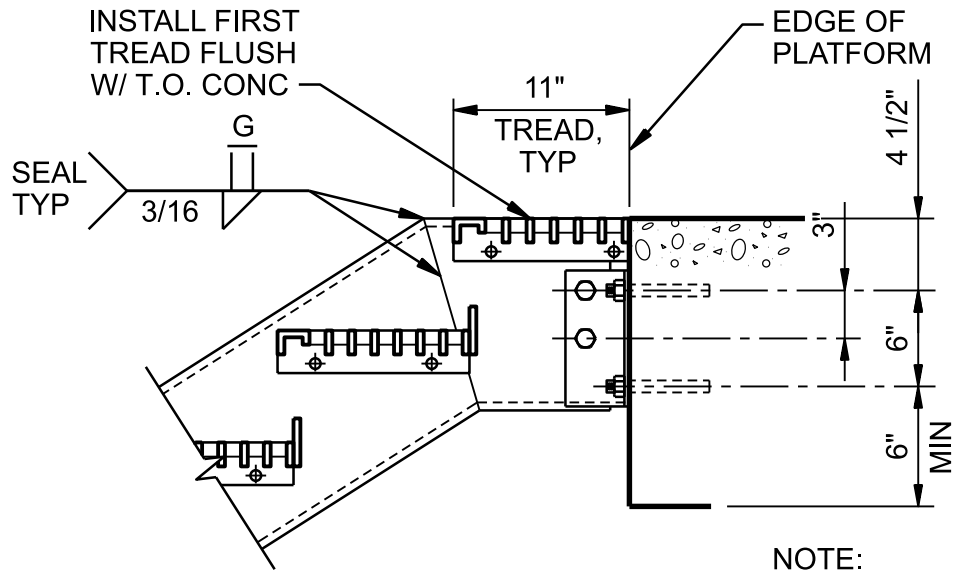
NTS

DETAIL 2 OF 5

CLEAN WATER SERVICES
DURHAM WRRF
PHASE 6B DIGESTER

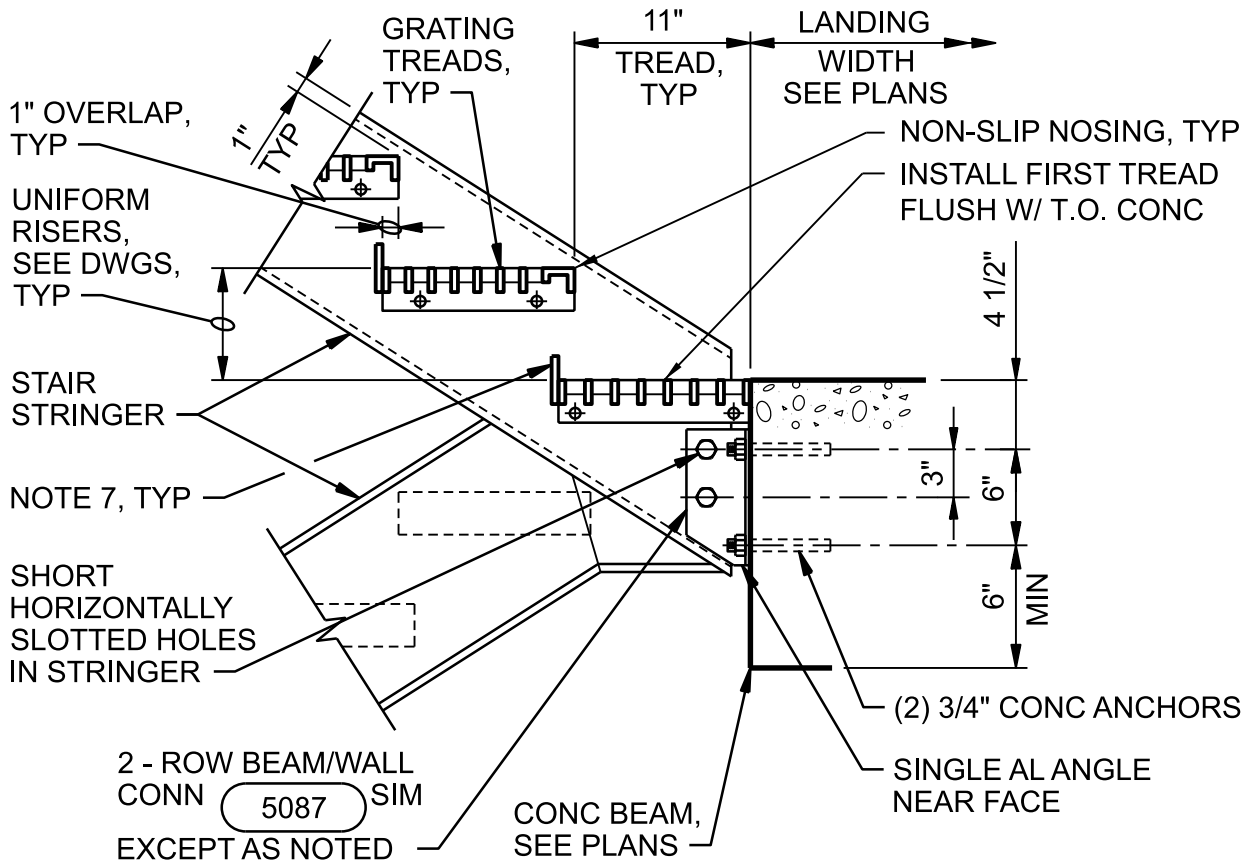
5511

JACOBS



NOTE:
FOR NOTES NOT SHOWN
SEE LANDING CONNECTION.

TOP CONNECTION - CONCRETE



LANDING CONNECTION - CONCRETE

STAIR DETAILS - ALUMINUM

NTS

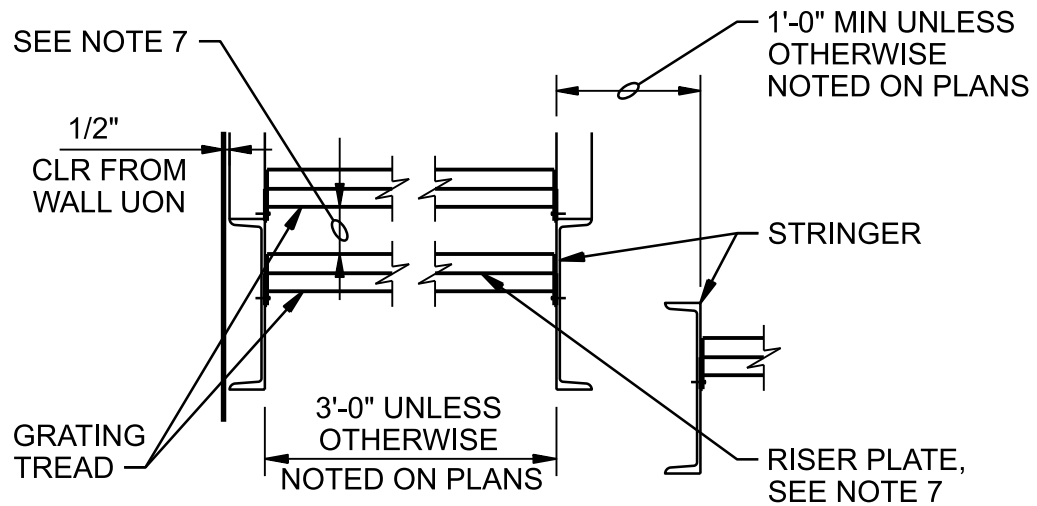
DETAIL 3 OF 5

CLEAN WATER SERVICES
DURHAM WRRF
PHASE 6B DIGESTER

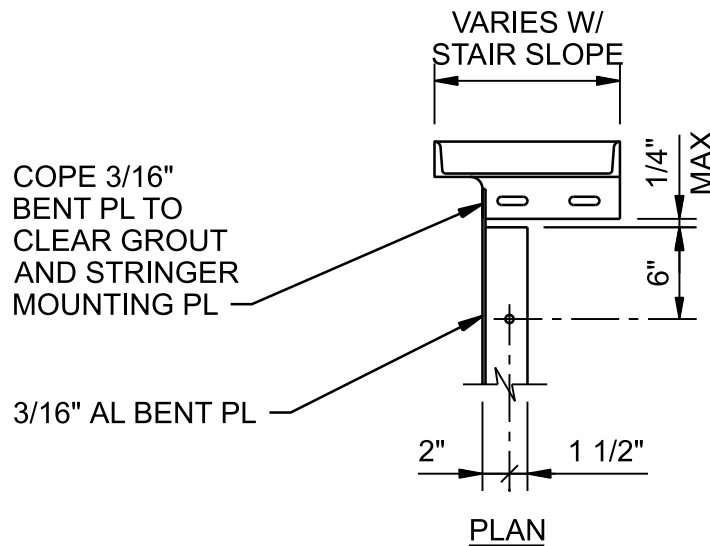
5511

JACOBS

STAIRWAY WIDTH	TREAD BEARING BARS
	ALUMINUM TREAD
2'-3" OR LESS	1" x 3/16"
2'-9" OR LESS	1 1/4" x 3/16"
3'-3" OR LESS	1 1/2" x 3/16"
4'-7" OR LESS	1 3/4" x 3/16"



STAIR TREADS



BOTTOM CLOSURE PLATE

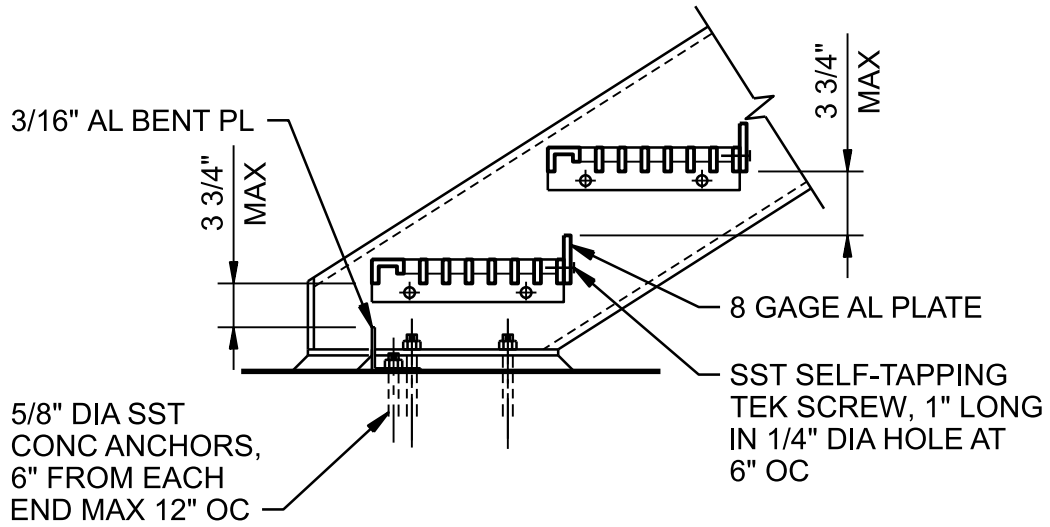
STAIR DETAILS - ALUMINUM

NTS

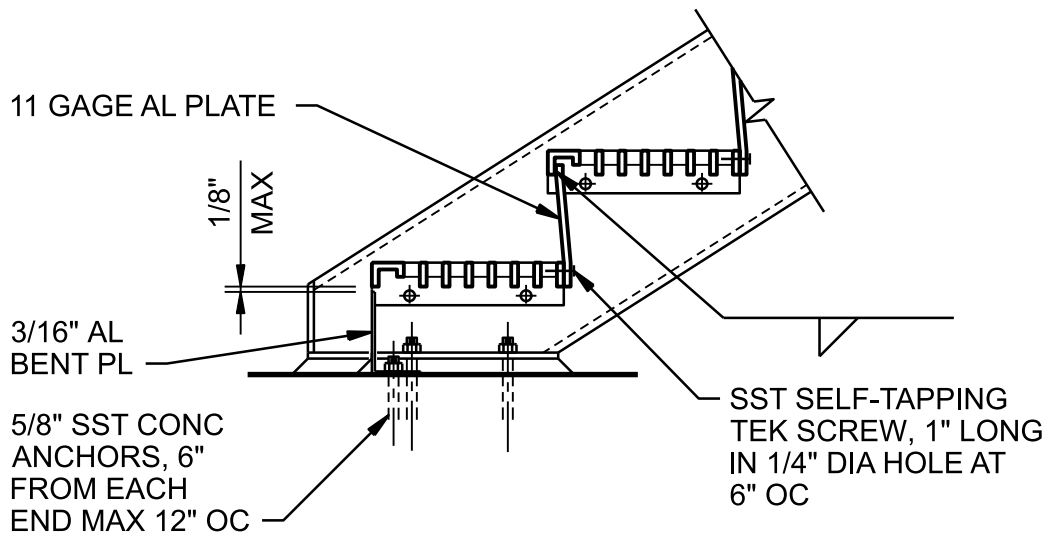
DETAIL 4 OF 5

CLEAN WATER SERVICES
 DURHAM WRRF
 PHASE 6B DIGESTER

5511



PARTIAL RISER PLATE



FULL RISER PLATE

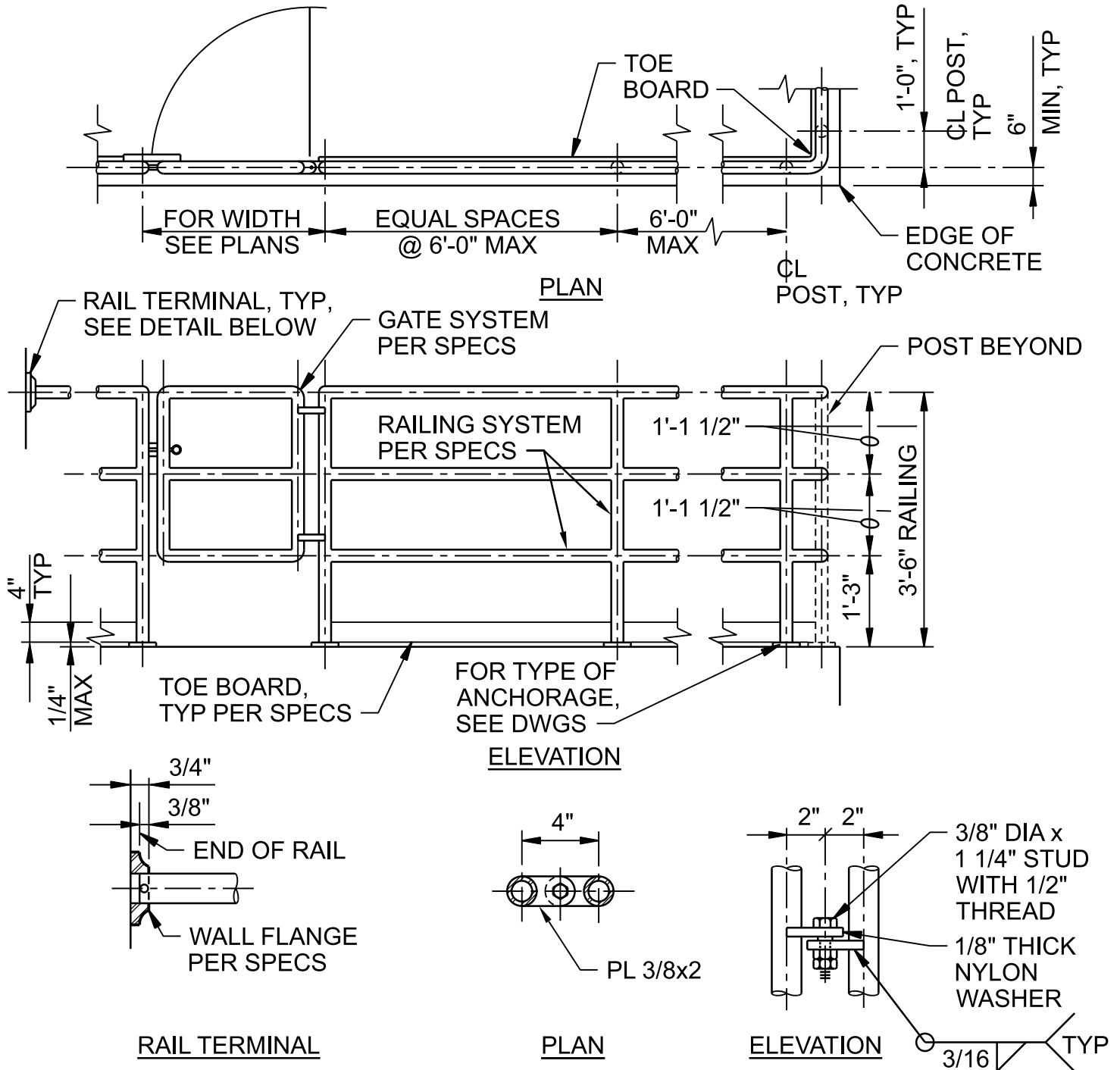
STAIR DETAILS - ALUMINUM

NTS

DETAIL 5 OF 5

CLEAN WATER SERVICES
DURHAM WRRF
PHASE 6B DIGESTER

5511



NOTES:

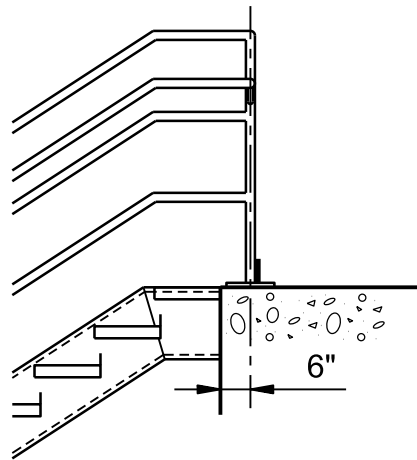
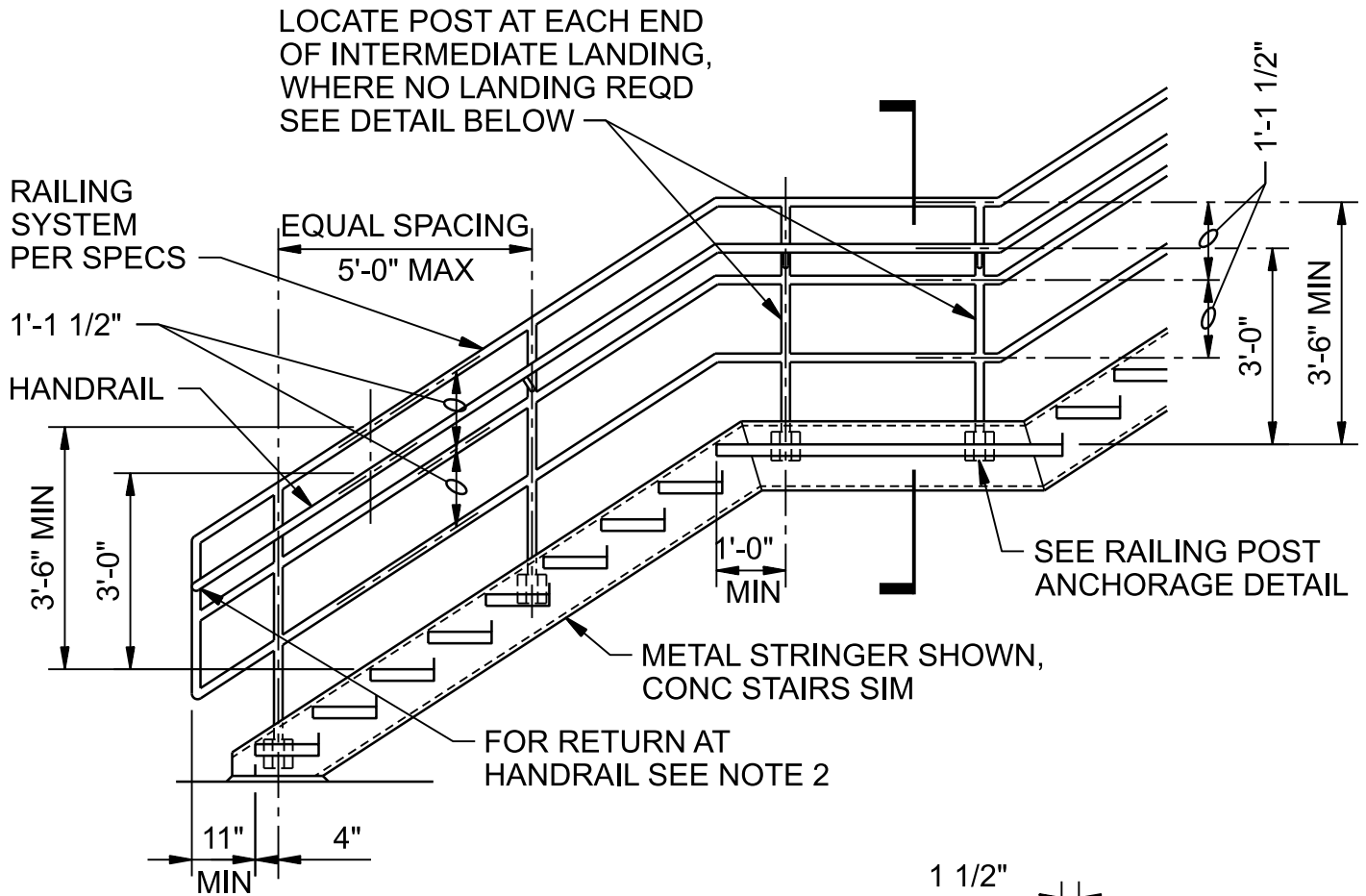
1. FASTEN RAIL TO WALL FLANGE PER MANUFACTURER'S RECOMMENDATIONS.
2. WALL FLANGE TO BE MOUNTED TO WALL WITH (2) 3/8" DIA SST ANCHORS.
3. AT CONTRACTOR'S OPTION FABRICATE HINGES OR PROVIDE OTHER HINGES PER SPECIFICATIONS. ANODIZE FINISH AFTER ALL WELDING PER SPECIFICATIONS.

RAILING - 3 RAIL - ALUMINUM

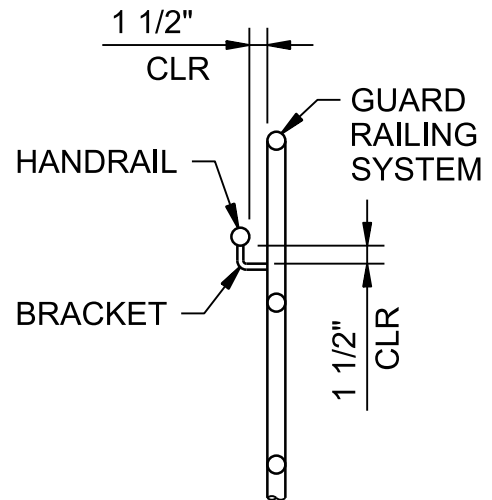
NTS

DETAIL 1 OF 5

5521



RAILING DETAIL WITHOUT LANDING



RAILING SECTION

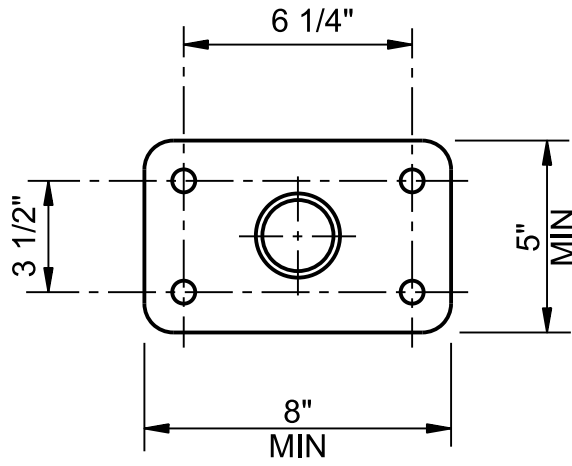
NOTES:

1. PROVIDE TOE BOARD AT LANDING WHERE REQUIRED.
2. RETURN ENDS OF HANDRAIL TO GUARD AT BOTH ENDS.

RAILING - 3 RAIL STAIR - ALUMINUM (IBC)

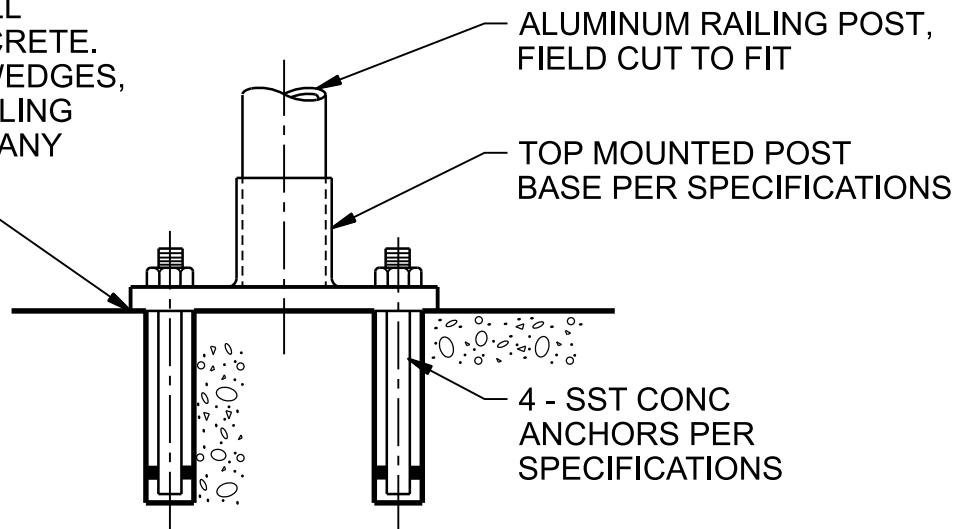
NTS

DETAIL 2 OF 5



PLAN

THE BASEPLATE SHALL SIT SOLIDLY ON CONCRETE. THE USE OF SHIMS, WEDGES, GROUT, ETC FOR RAILING POST ALIGNMENT OR ANY OTHER REASON WILL NOT BE PERMITTED



ELEVATION

TYPE 'A'

NOTE:

PROVIDE PROTECTION FOR DISSIMILAR METALS AND FOR ALUMINUM IN CONTACT WITH CONCRETE PER SPECIFICATIONS.

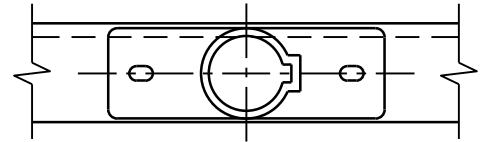
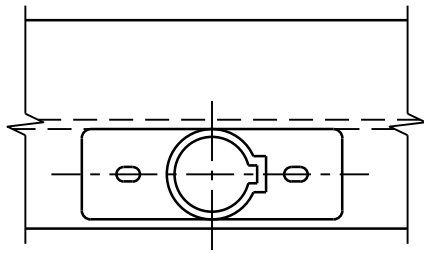
RAILING POST ANCHORAGE TYPE 'A' - ALUMINUM

NTS

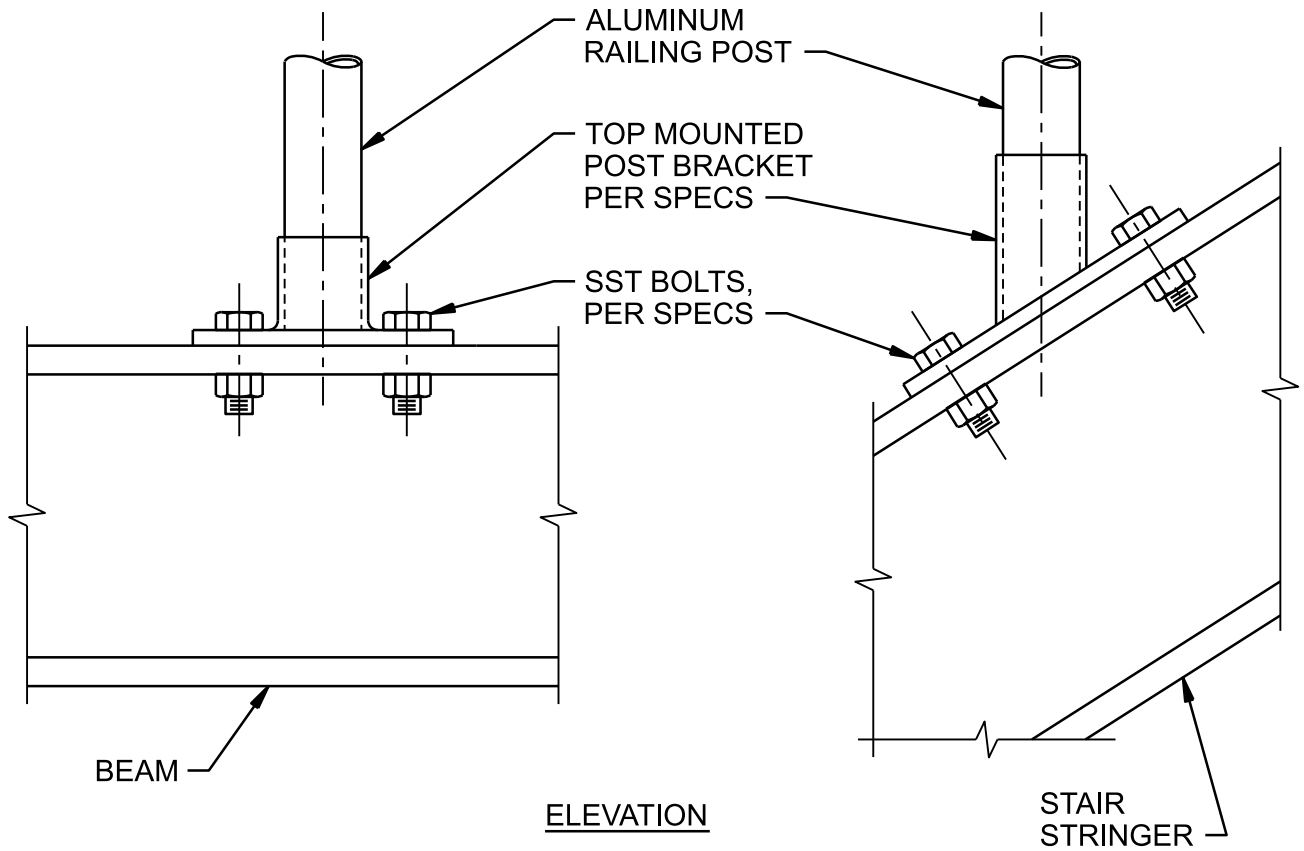
DETAIL 3 OF 5

CLEAN WATER SERVICES
 DURHAM WRRF
 PHASE 6B DIGESTER

5521



PLAN



ELEVATION

TYPE 'C'

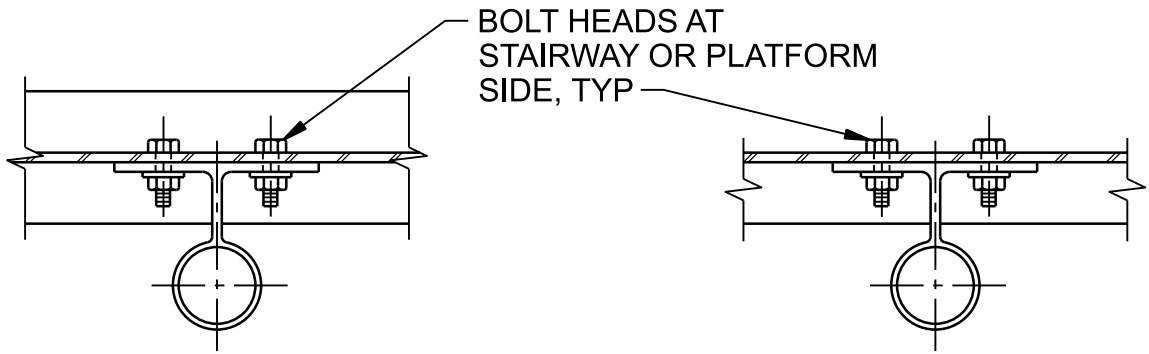
NOTE:

PROVIDE PROTECTION FOR DISSIMILAR METALS PER SPECIFICATIONS.

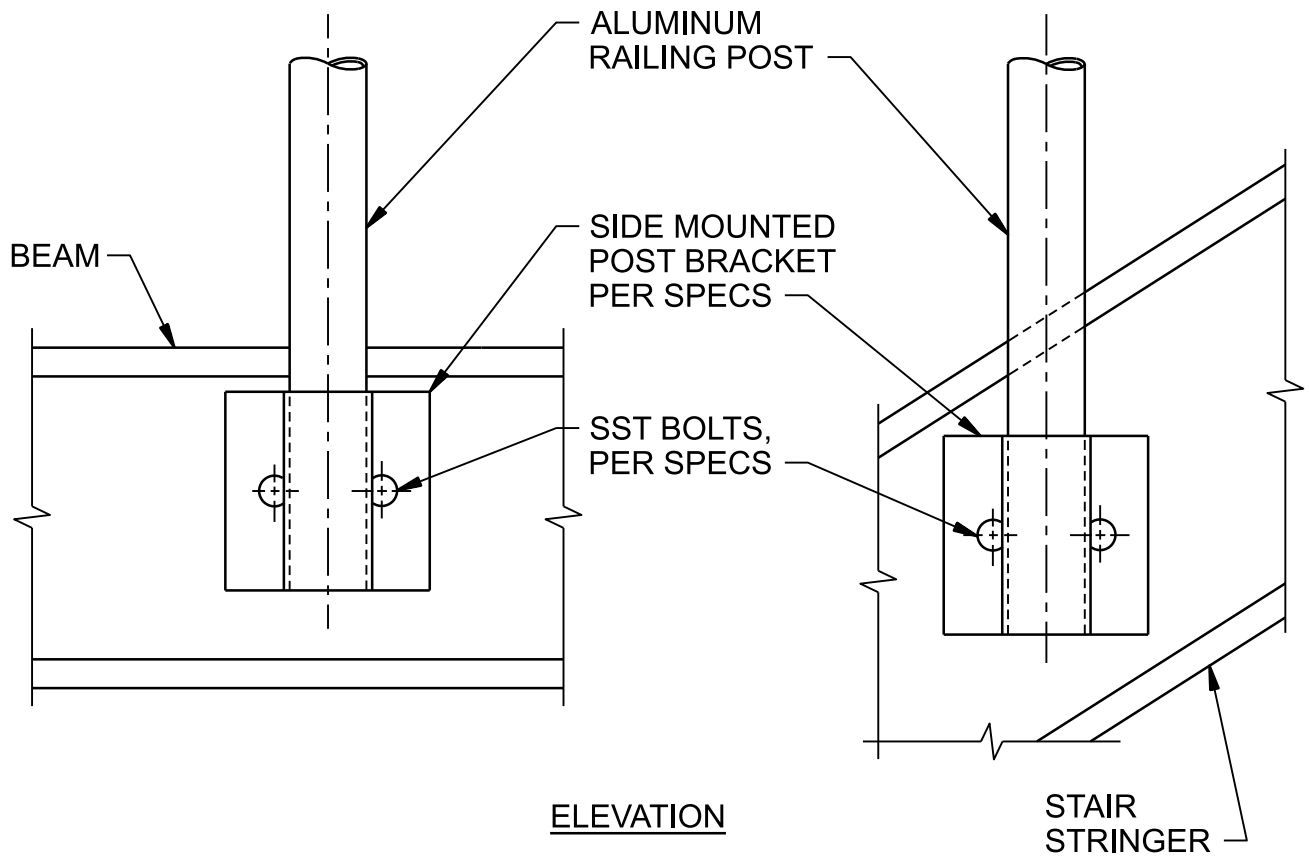
RAILING POST ANCHORAGE TYPE 'C' - ALUMINUM

NTS

DETAIL 4 OF 5



PLAN



ELEVATION

TYPE 'D'

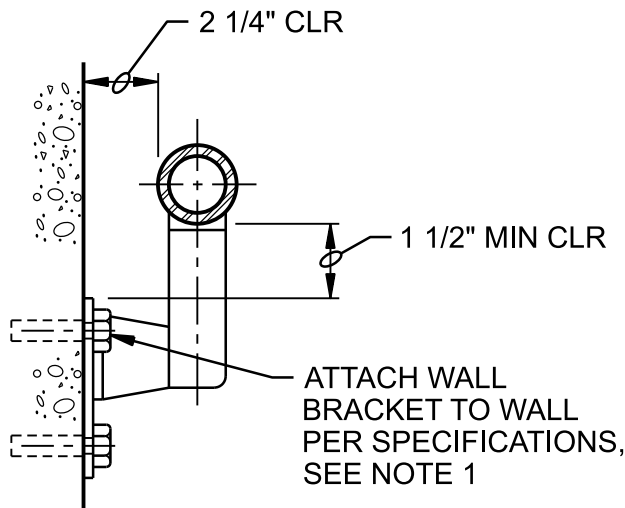
NOTE:

PROVIDE PROTECTION FOR DISSIMILAR METALS PER SPECIFICATIONS.

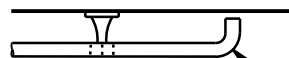
RAILING POST ANCHORAGE TYPE 'D' - ALUMINUM

NTS

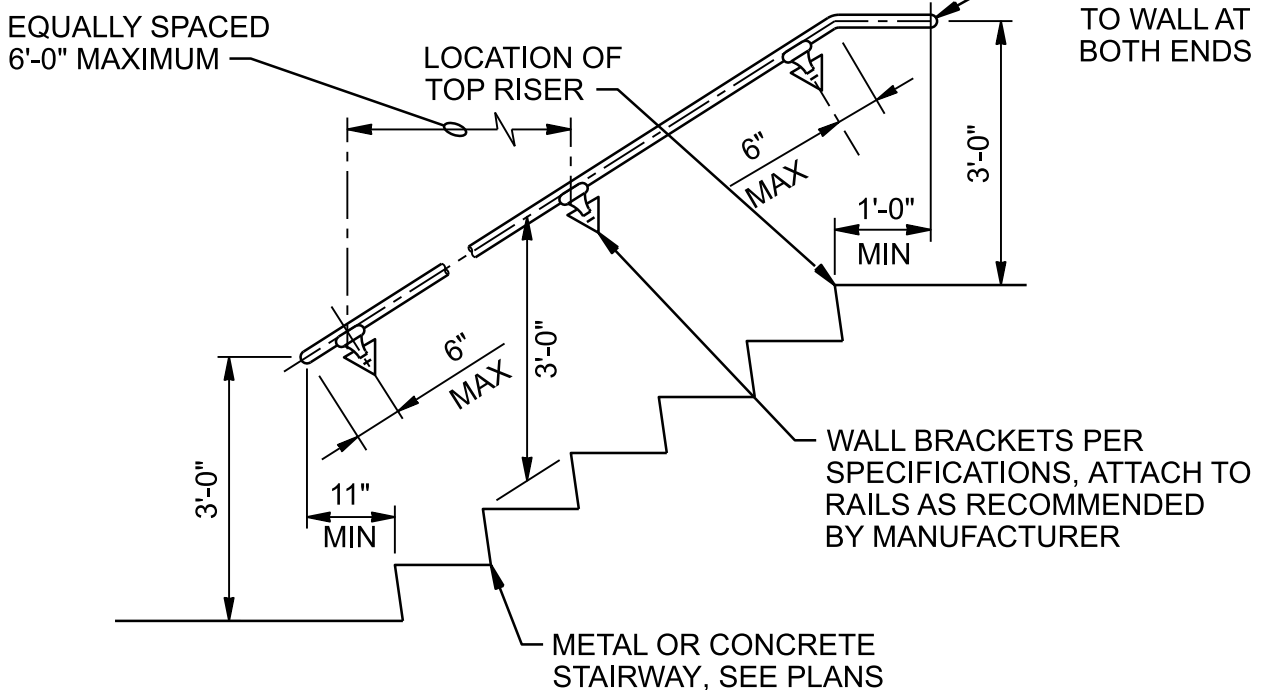
DETAIL 5 OF 5



WALL BRACKET DETAIL



PLAN

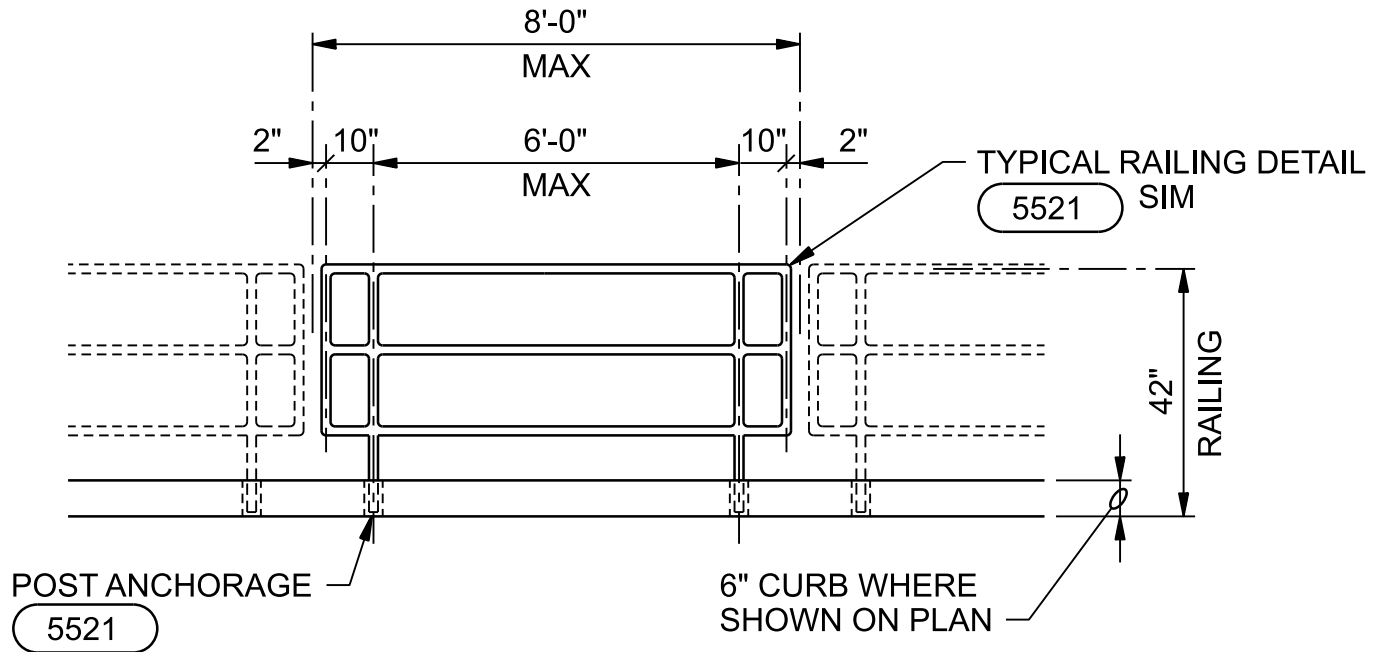


NOTES:

1. FOR ANCHORAGE TO WOOD OR METAL STUD FRAMING PROVIDE SOLID BLOCKING.
2. PROVIDE PROTECTION FOR DISSIMILAR METALS AND FOR ALUMINUM IN CONTACT WITH CONCRETE PER SPECIFICATIONS.

WALL HANDRAIL - ALUMINUM

NTS



NOTES:

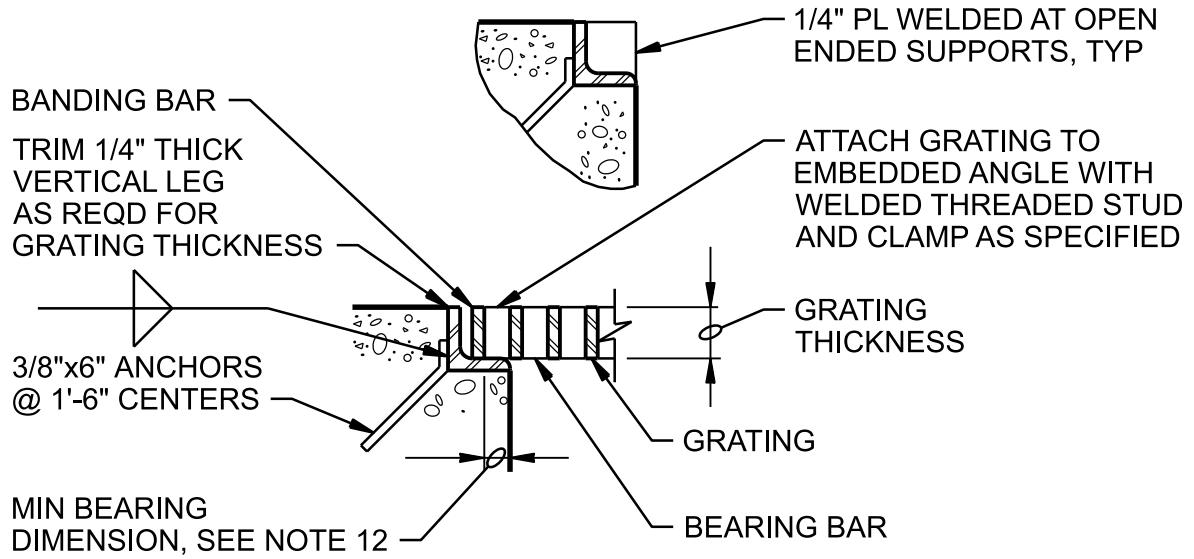
1. DETAIL SHOWN AT CURBED OPENING. WHERE NO CURB, PROVIDE 6" EDGE DISTANCE AND STIFFENED KICK PLATE ATTACHED TO REMOVABLE RAILING.
2. FABRICATE REMOVABLE RAILING IN MAXIMUM 8'-0" SECTIONS WITH 2 POSTS EACH SECTION.

RAILING - REMOVABLE THREE RAIL - ALUMINUM

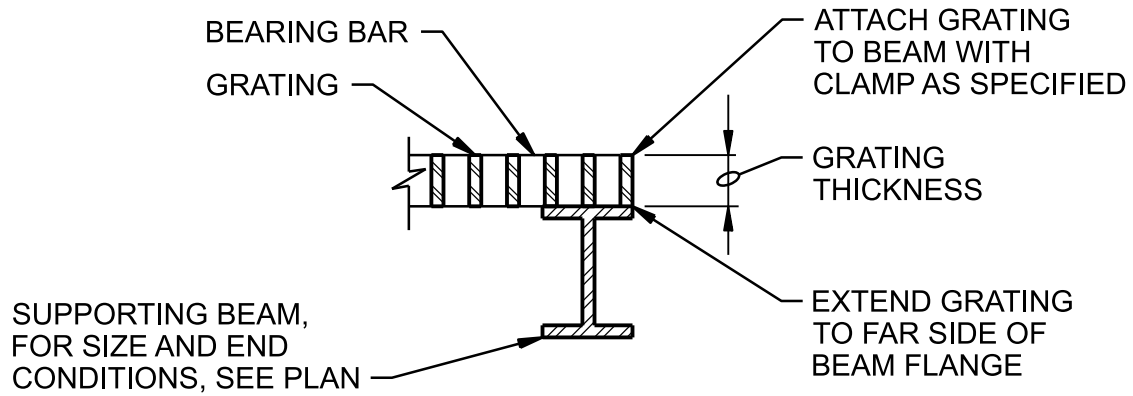
NTS

CLEAN WATER SERVICES
 DURHAM WRRF
 PHASE 6B DIGESTER

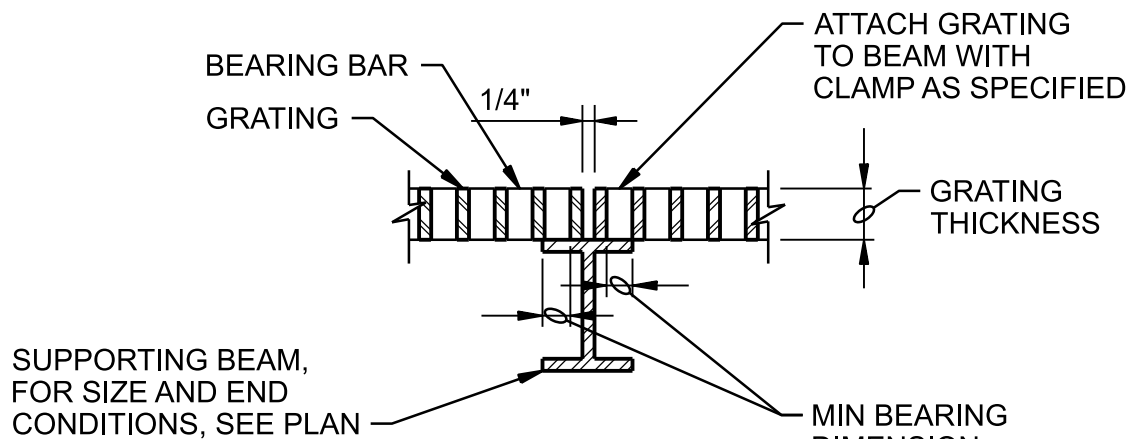
5525



GS-1



GS-2 - ONE SIDED



GS-2 - TWO SIDED

STANDARD GRATING

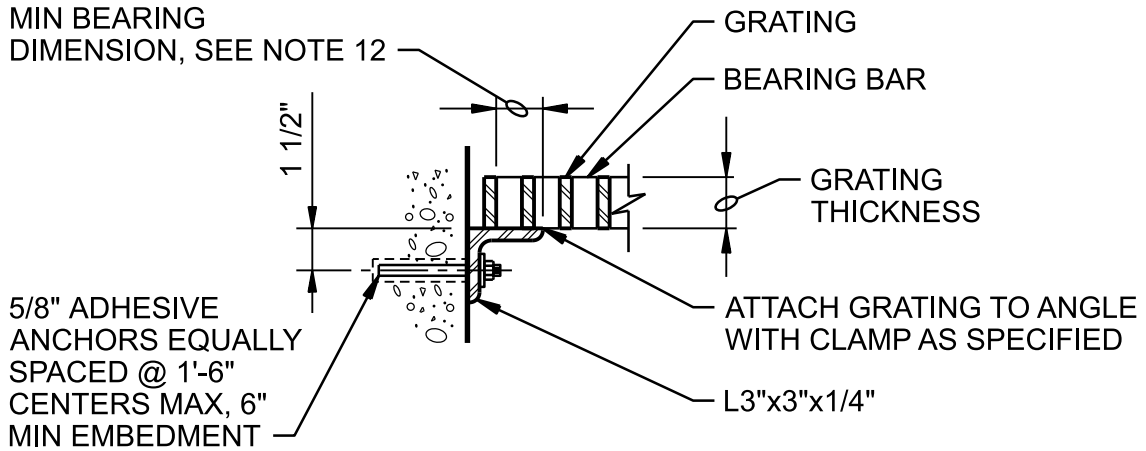
NTS

DETAIL 1 OF 4

CLEAN WATER SERVICES
 DURHAM WRRF
 PHASE 6B DIGESTER

5566

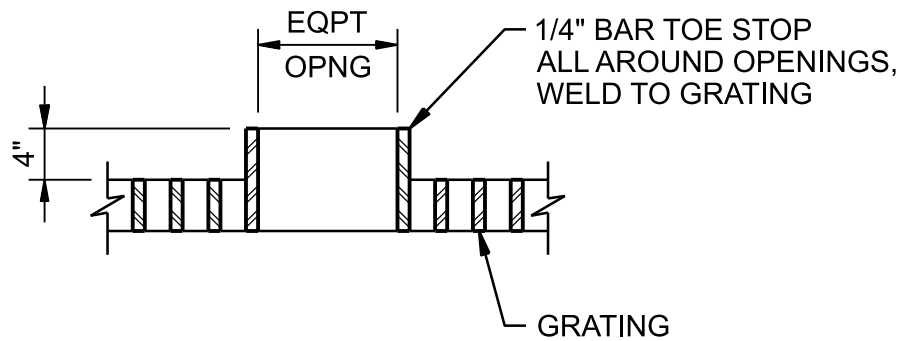
JACOBS



NOTES:

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

GS-3



EQUIPMENT OPENINGS

STANDARD GRATING


NTS

DETAIL 2 OF 4

CLEAN WATER SERVICES
 DURHAM WRRF
 PHASE 6B DIGESTER

5566

GENERAL NOTES:

1. GRATING SHALL BE LIGHT DUTY GRATING UNLESS OTHERWISE NOTED ON DRAWINGS.
2. GRATING SPAN IS INDICATED BY , SEE PLAN.
3. 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.
4. SHOP DRAWINGS BASED ON FIELD DIMENSIONS SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO FABRICATION.
5. 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.
6. UNLESS NOTED OTHERWISE ON PLANS, GRATING THICKNESS SHALL BE AS TABULATED IN "GRATING THICKNESS TABLE" FOR APPLICABLE GRATING TYPE.
7. BEARING BAR THICKNESS FOR GRATING TO BE 3/16" MINIMUM. SEE SPECIFICATIONS FOR SPACING OF BEARING AND CROSS BARS.
8. BAND ALL EDGES. MATCH DEPTH OF BEARING BAR.
9. 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.
10. THE HORIZONTAL CLEARANCE BETWEEN THE GRATING AND GRATING SUPPORTS SHALL NOT BE LESS THAN 1/4" NOR GREATER THAN 1/2" AND AS SPECIFIED.
11. 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"
12. ALL GRATING SHALL BE NON-SLIP, SLIPNOT OR EQUAL

STANDARD GRATING

NTS

DETAIL 3 OF 4

CLEAN WATER SERVICES
DURHAM WRRF
PHASE 6B DIGESTER

5566

Jacobs

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"

MEDIUM DUTY GRATING TYPE 'B' (500 PSF)		
GRATING THICKNESS TABLE		
MAXIMUM SPAN	STEEL	ALUMINUM
< 2'-0"	1"	1"
2'-6"	1"	1 1/4"
3'-0"	1 1/4"	1 1/2"
3'-6"	1 1/4"	1 3/4"
4'-0"	1 1/2"	2"
4'-6"	1 3/4"	2 1/4"
5'-0"	1 3/4"	2 1/2"
5'-6"	2"	DO NOT USE ALUMINUM GRATING
6'-0"	2 1/4"	
6'-6"	2 1/2"	

HEAVY DUTY GRATING TYPE 'C' (H 20 WHEEL LOAD)		
GRATING THICKNESS TABLE		
MAXIMUM SPAN	STEEL	ALUMINUM
1'-0"	2"x3/16"	DO NOT USE ALUMINUM GRATING
1'-8"	2 1/2"x1/4"	
2'-0"	2 1/2"x3/8" OR 3"x1/4"	
2'-6"	3"x3/8" OR 4"x1/4"	
3'-3"	3 1/2"x3/8"	
4'-0"	4"x3/8"	
5'-0"	4 1/2"x3/8"	

STANDARD GRATING

NTS

DETAIL 4 OF 4

CLEAN WATER SERVICES
DURHAM WRRF
PHASE 6B DIGESTER

5566



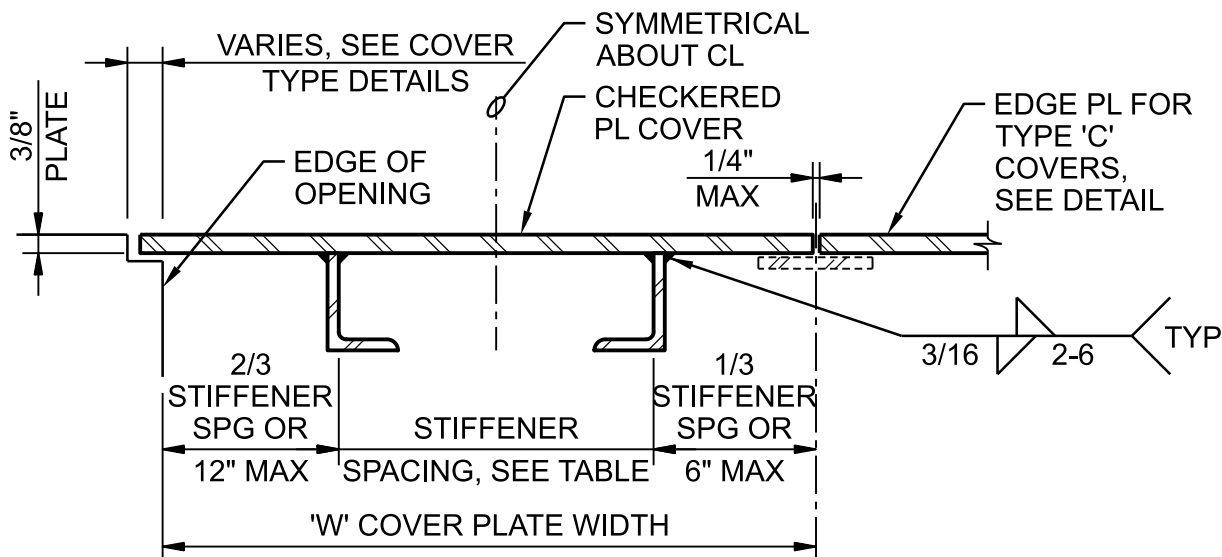


TABLE			
OPENING SPAN LENGTH 'L'	STIFFENER SIZE	MAX STIFFENER SPACING	MAX PLATE WIDTH 'W'
L < 2'-6"	NONE	-	5'-0"
2'-6" ≤ L < 3'-6"	L2x1 1/2x1/4	1'-6"	4'-0"
3'-6" ≤ L < 4'-0"	L2 1/2x1 1/2x1/4	1'-6"	4'-0"
4'-0" ≤ L < 4'-6"	L2 1/2x1 1/2x1/4	1'-3"	4'-0"
4'-6" ≤ L < 5'-0"	L3x2x1/4	1'-6"	4'-0"
5'-0" ≤ L < 5'-6"	L3x2x1/4	1'-3"	3'-0"
5'-6" ≤ L < 6'-0"	L3 1/2x2 1/2x1/4	1'-6"	3'-0"
6'-0" ≤ L < 6'-6"	L3 1/2x2 1/2x1/4	1'-3"	2'-6"
6'-6" ≤ L < 7'-0"	L4x3x1/4	1'-3"	2'-6"
7'-0" ≤ L < 7'-6"	L4x3x1/4	1'-0"	2'-0"

NOTES:

1. STIFFENERS TO BE PLACED LONG LEG VERTICAL.
2. SPAN DIRECTION OF PLATE TO BE PARALLEL TO STIFFENERS, AND SHALL BE SHORT DIMENSION OF OPENING UNLESS NOTED OTHERWISE ON PLANS.
3. MAXIMUM ALLOWABLE UNIFORM DESIGN LOAD = 300psf.
4. MAXIMUM WEIGHT OF COVER PLATE TO BE 125 POUNDS.
5. COVER PLATES AND STIFFENERS ARE ALUMINUM PLATES AND ANGLES.
6. ALL COVER PLATES TO HAVE A MINIMUM OF TWO EYES AS SHOWN IN LIFTING EYE DETAILS.
7. ALL CHECKERED FLOOR PLATES SHALL BE NON-SLIP, SLIPNOT, OR EQUAL.

COVER STIFFENERS

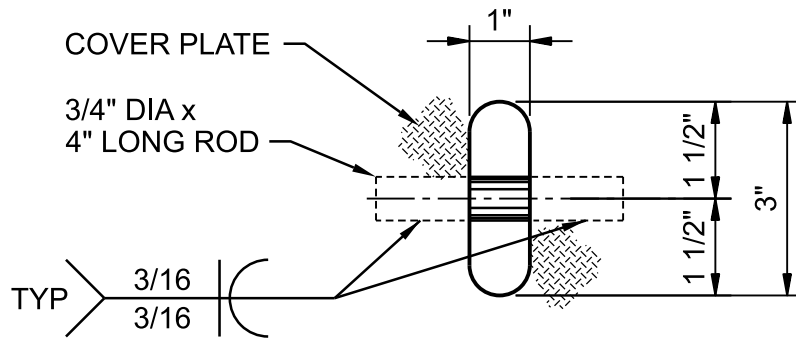
CHECKERED FLOOR PLATE - ALUMINUM

NTS

DETAIL 1 OF 4

CLEAN WATER SERVICES
 DURHAM WRRF
 PHASE 6B DIGESTER

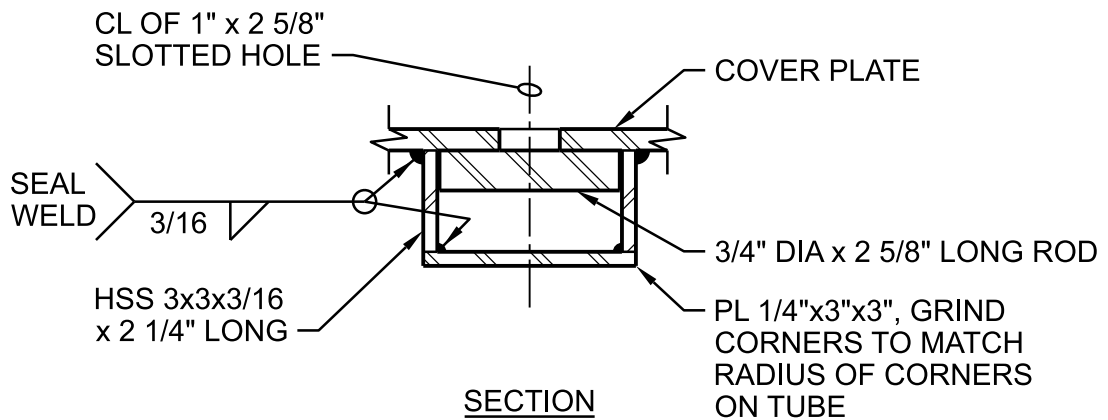
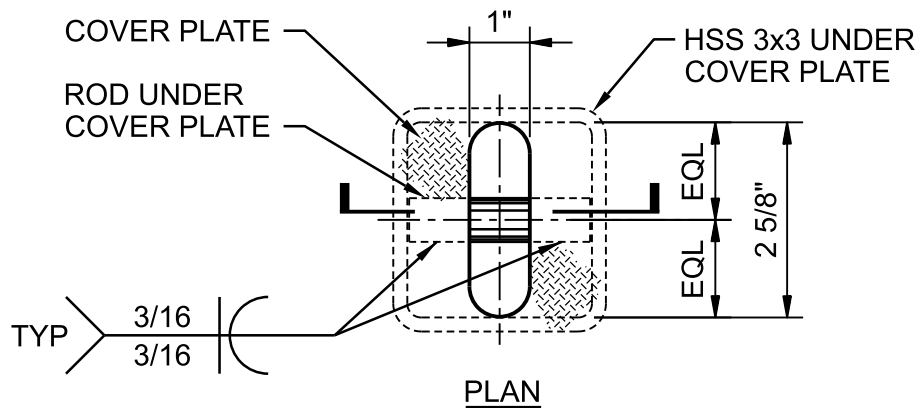
5576



NOTE:

THIS DETAIL IS APPLICABLE TO TYPES 'A' AND 'B' COVERS AND OTHER COVERS NOT INTENDED TO BE AIRTIGHT.

LIFTING EYE TYPE 'A'



NOTE:

THIS DETAIL IS APPLICABLE TO TYPE 'C' COVERS AND OTHER AIRTIGHT COVERS.

LIFTING EYE TYPE 'B'

CHECKERED FLOOR PLATE - ALUMINUM

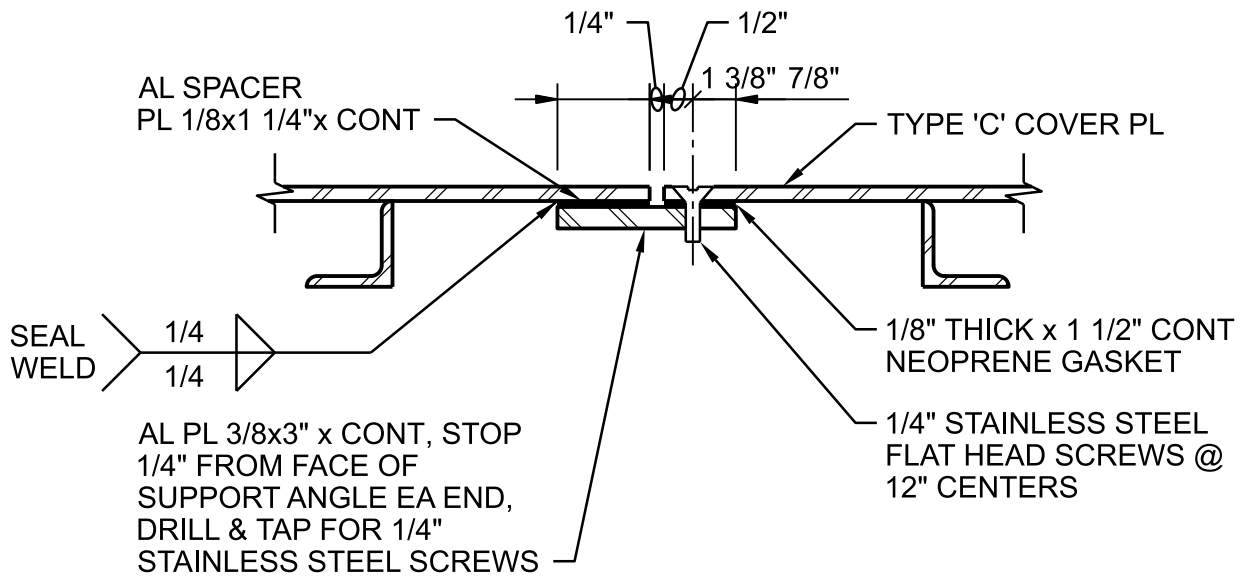
NTS

DETAIL 2 OF 4

CLEAN WATER SERVICES
 DURHAM WRRF
 PHASE 6B DIGESTER

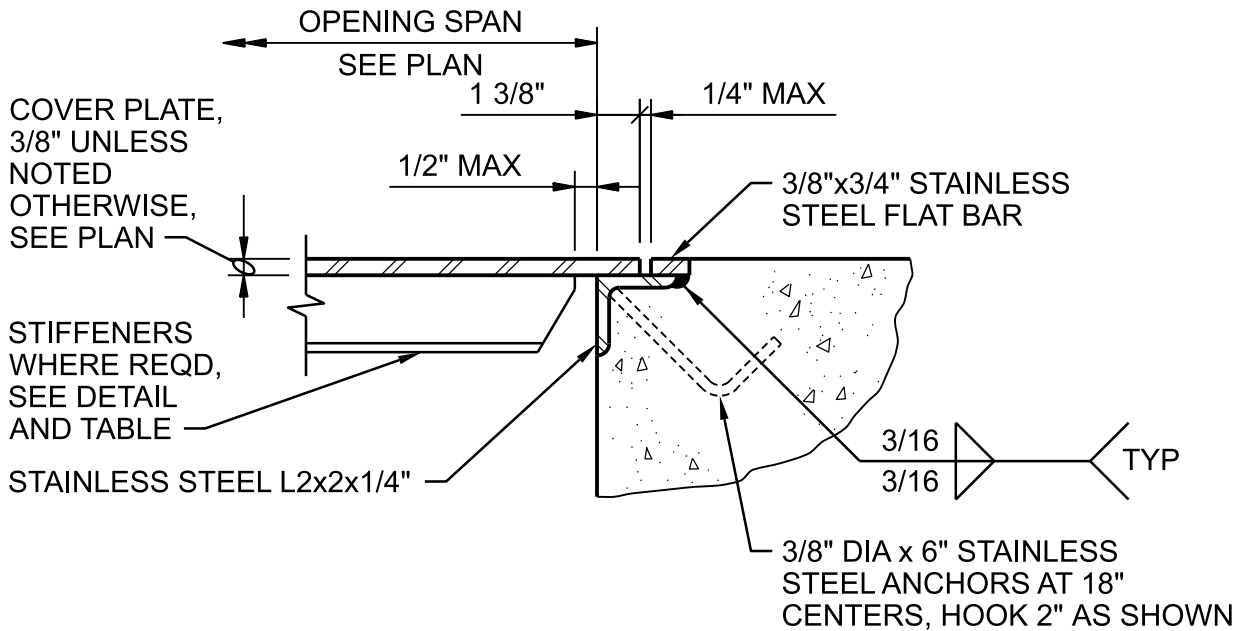
5576

JACOBS



NOTE:
THIS DETAIL IS APPLICABLE TO TYPE 'C'
COVERS AND OTHER AIR TIGHT COVERS.

EDGE PLATE DETAIL



COVER TYPE 'A'

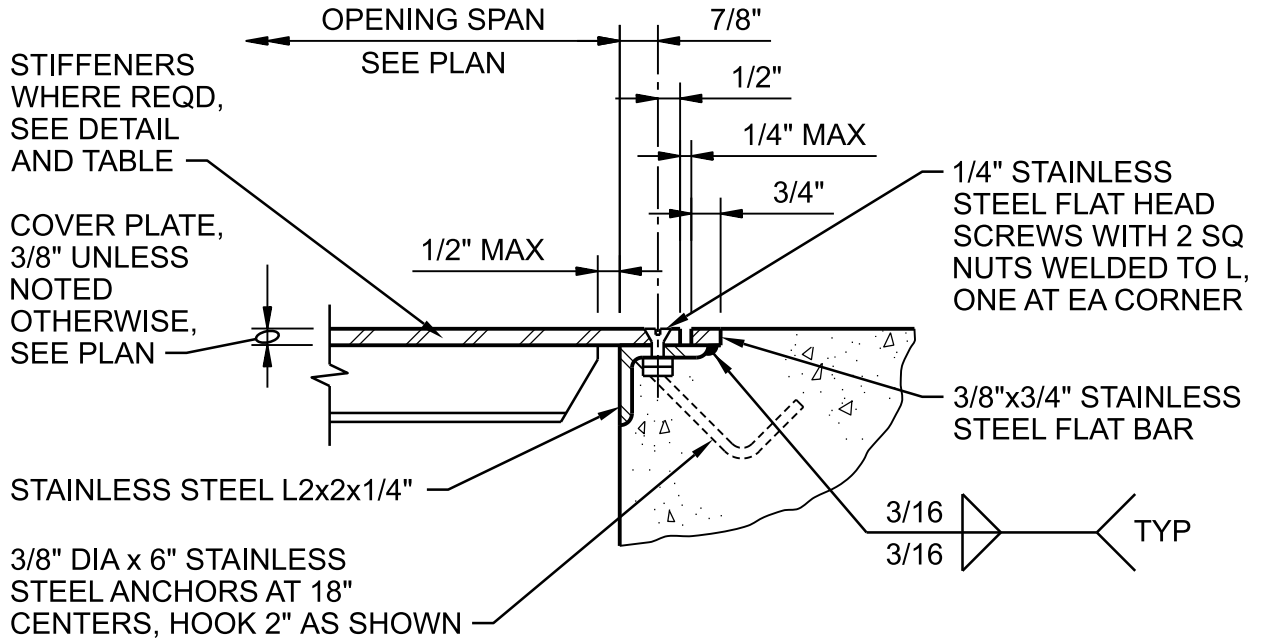
CHECKERED FLOOR PLATE - ALUMINUM

NTS

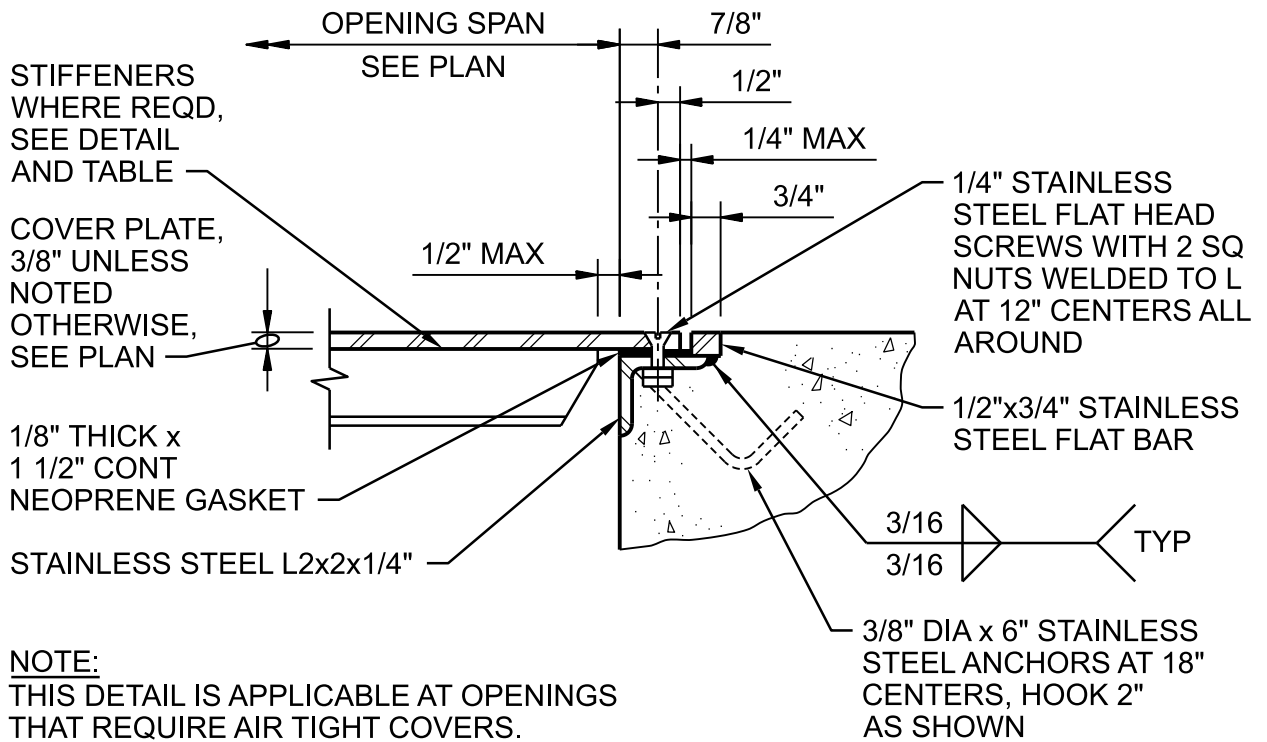
DETAIL 3 OF 4

CLEAN WATER SERVICES
DURHAM WRRF
PHASE 6B DIGESTER

5576



COVER TYPE 'B'



NOTE:
THIS DETAIL IS APPLICABLE AT OPENINGS THAT REQUIRE AIR TIGHT COVERS.

COVER TYPE 'C'

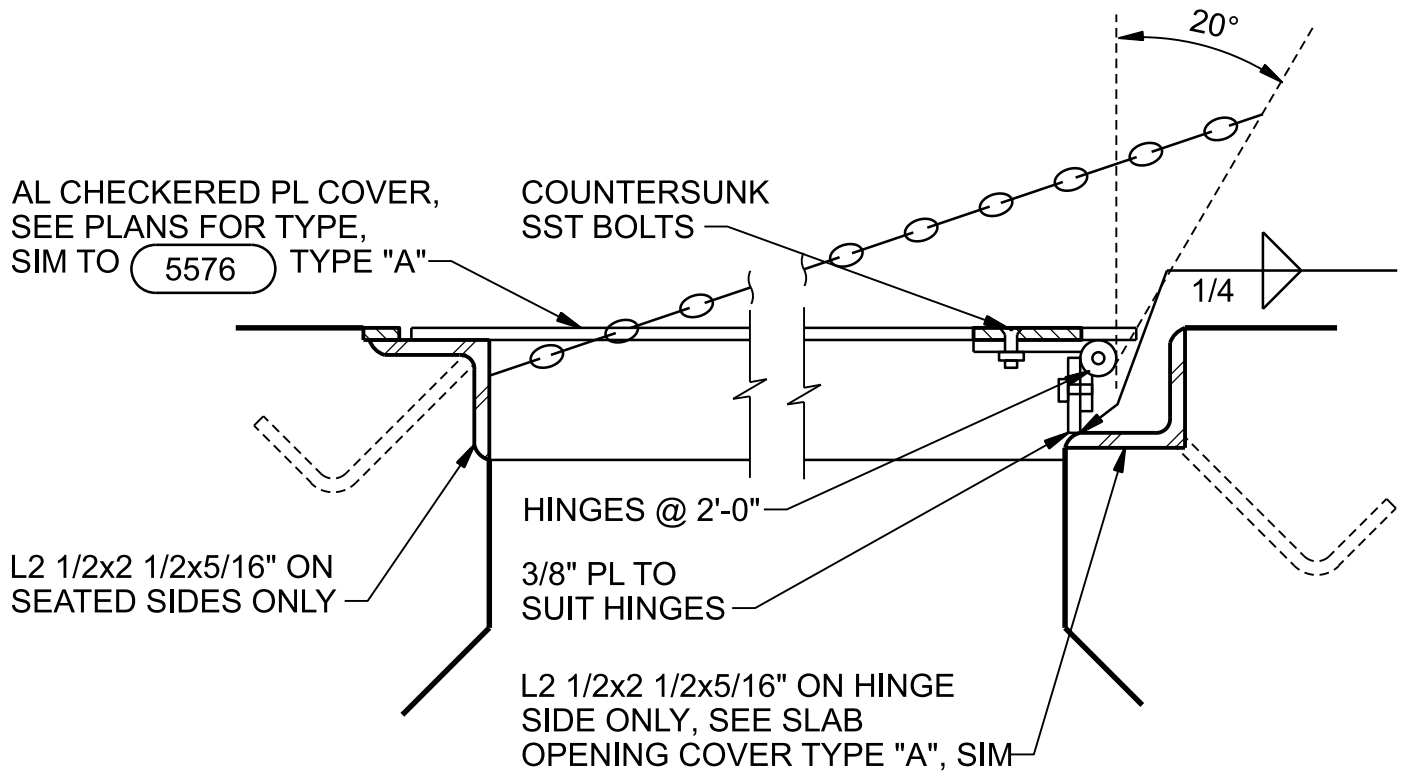
CHECKERED FLOOR PLATE - ALUMINUM

NTS

DETAIL 4 OF 4

CLEAN WATER SERVICES
DURHAM WRRF
PHASE 6B DIGESTER

5576



NOTES:

1. INSTALL SST CHAIN. TACK WELD OR BOLT TO PL AND FRAME. CHAIN TO STOP PL AT 20° PAST VERTICAL.
2. HINGES TO BE STAINLESS STEEL FULL MORTISE BUTT HINGES WITH STAINLESS STEEL BOLTS.
3. MAX WEIGHT TO BE 80 POUNDS.
4. SEE LIFTING EYE DETAILS AND PLANS FOR TYPE.

CHECKERED ALUMINUM HINGED FLOOR PLATE

NTS

EXISTING BATT INSULATION. MODIFY BOTTOM OF INSULATION AS REQUIRED FOR NEW LOUVER SIZE

REMOVE EXISTING GYPSUM BOARD ABOVE LOUVER AND REPLACE WITH NEW GYPSUM BOARD TO MATCH EXISTING GYPSUM BOARD TO REMAIN ON EACH SIDE. FINISH FACE OF GYPSUM BOARD FACES TO MATCH, PREP AND FINISH AS REQUIRED. MATCH EXISTING FINISH

LOUVER MANUFACTURER'S STANDARD CLIP

SCREEN AS SPECIFIED

LOUVER AS SPECIFIED

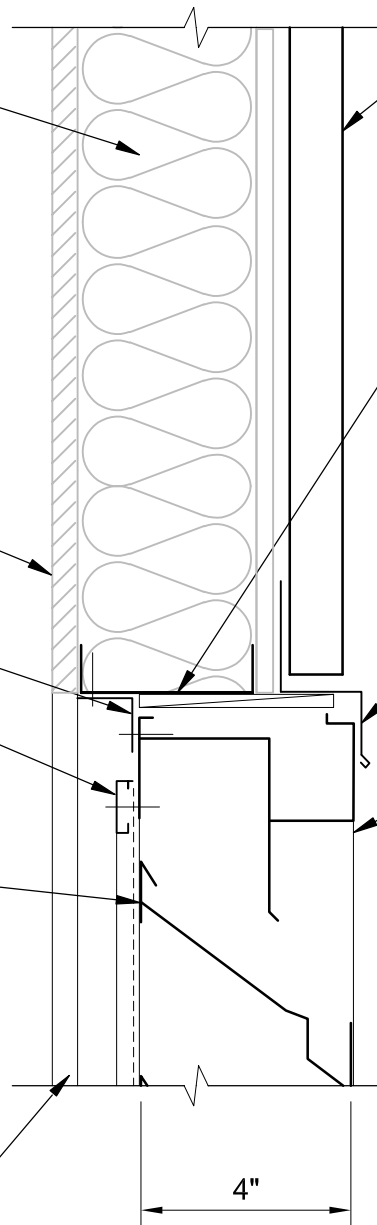
EXISTING GYPSUM BOARD TO REMAIN AND BE PROTECTED. IF GYPSUM BOARD IS WRAPPED INTO OPENING REMOVE AND REPLACE

PRE-FINISHED METAL SIDING, MATCH PROFILE AND COLOR OF EXISTING THAT WAS REMOVED

MODIFY/BOLSTER EXISTING LIGHT GAUGE METAL FRAMING PER SPEC SECTION 05410 AS REQUIRED FOR NEW LOUVER SIZE/CODE. INSTALL NEW TOP FRAMING MEMBER AS REQUIRED

EXISTING METAL FLASHING TO BE REMOVED AND REINSTALLED

EXISTING TRIM TO BE REMOVED AND REPLACED WITH NEW TRIM TO MATCH PROFILE, AND COLOR. SIZE AS REQUIRED FOR NEW LOUVER

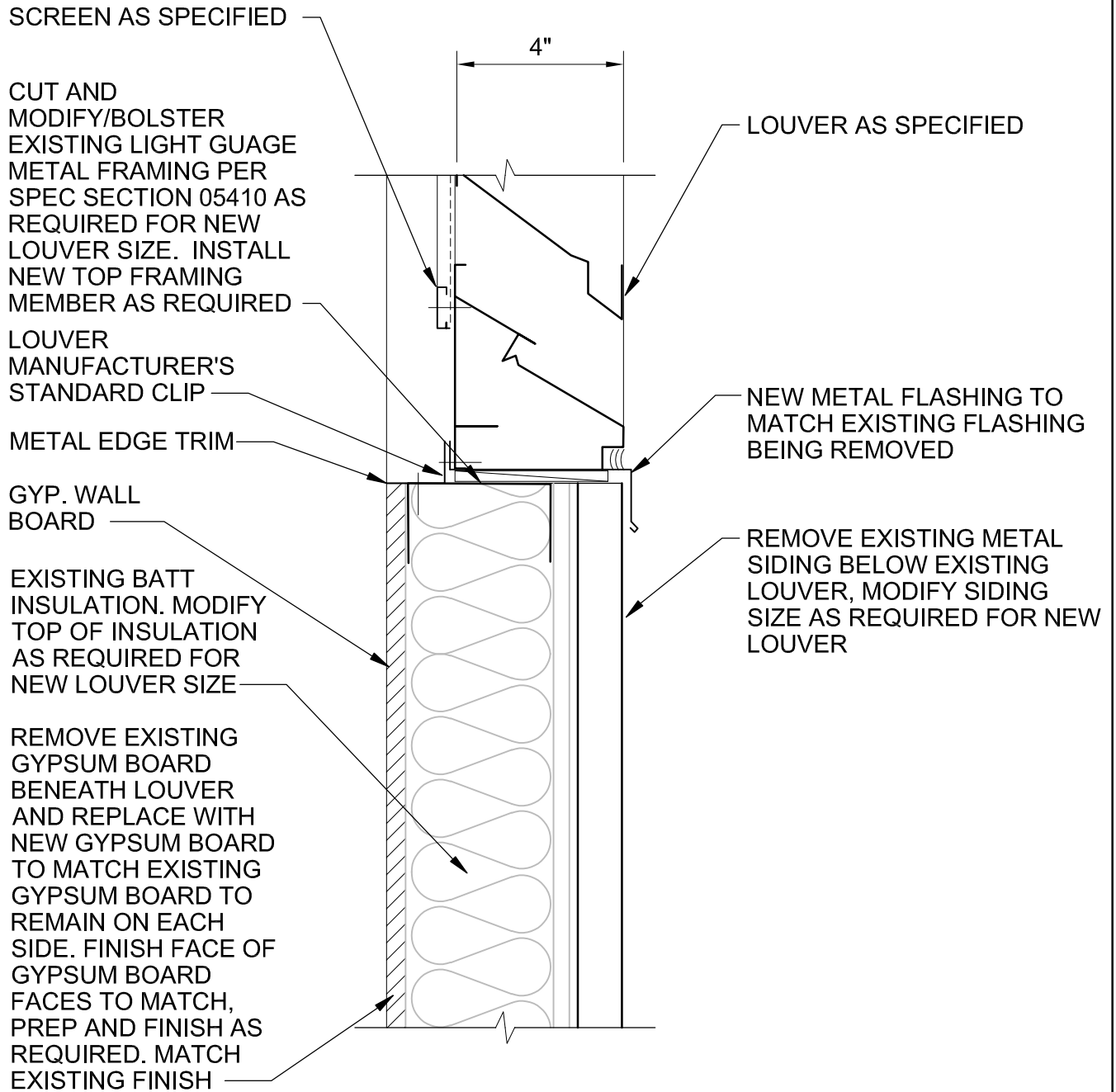


(JAMB SIMILAR)

HEAD

LOUVER HEAD (JAMB SIMILAR)

NTS



LOUVER SILL

NTS



DANGER SIGN

NTS

CLEAN WATER SERVICES
DURHAM WRRF
PHASE 6B DIGESTER

10401

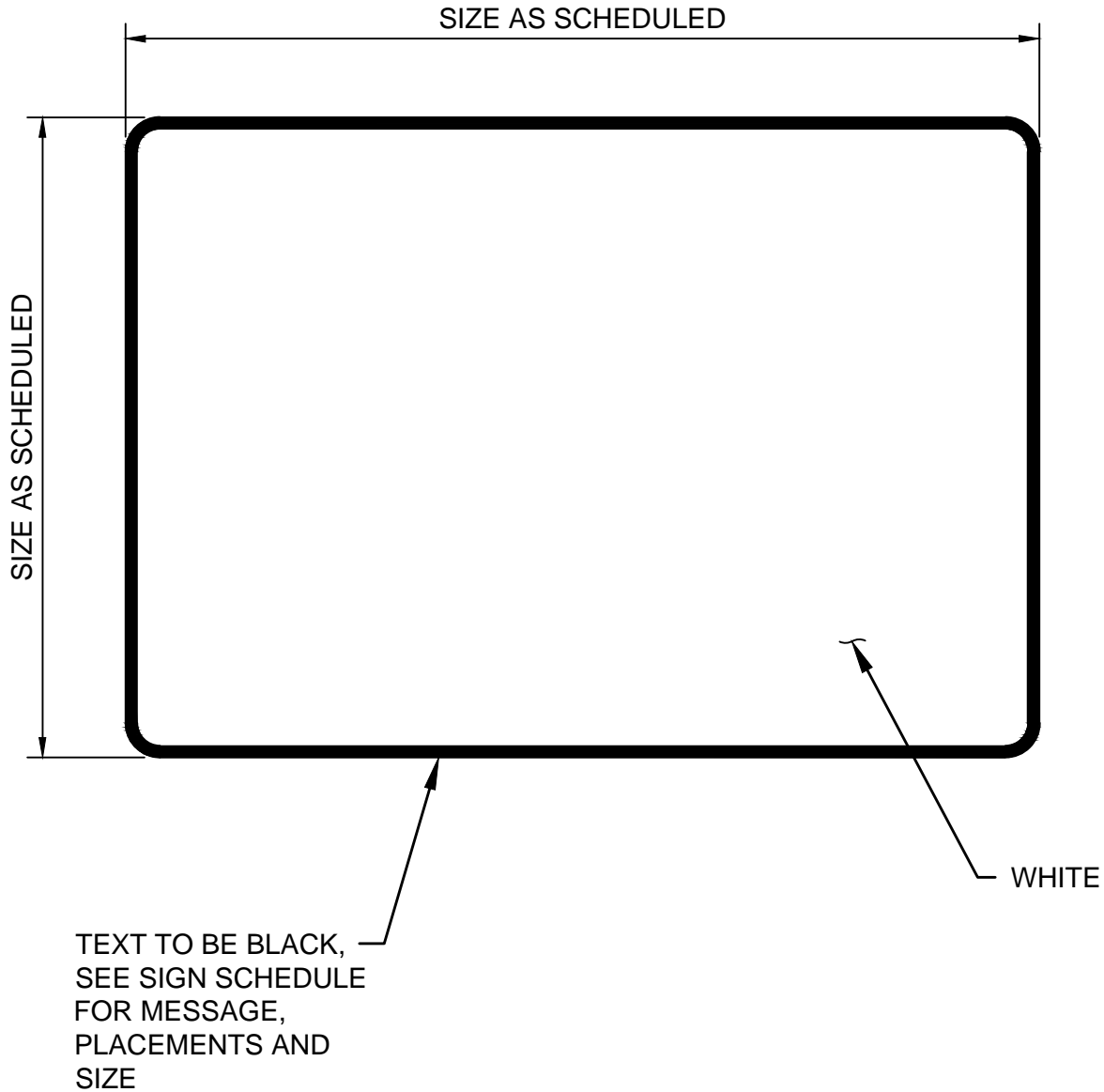


CAUTION SIGN

NTS

CLEAN WATER SERVICES
DURHAM WRRF
PHASE 6B DIGESTER

10402

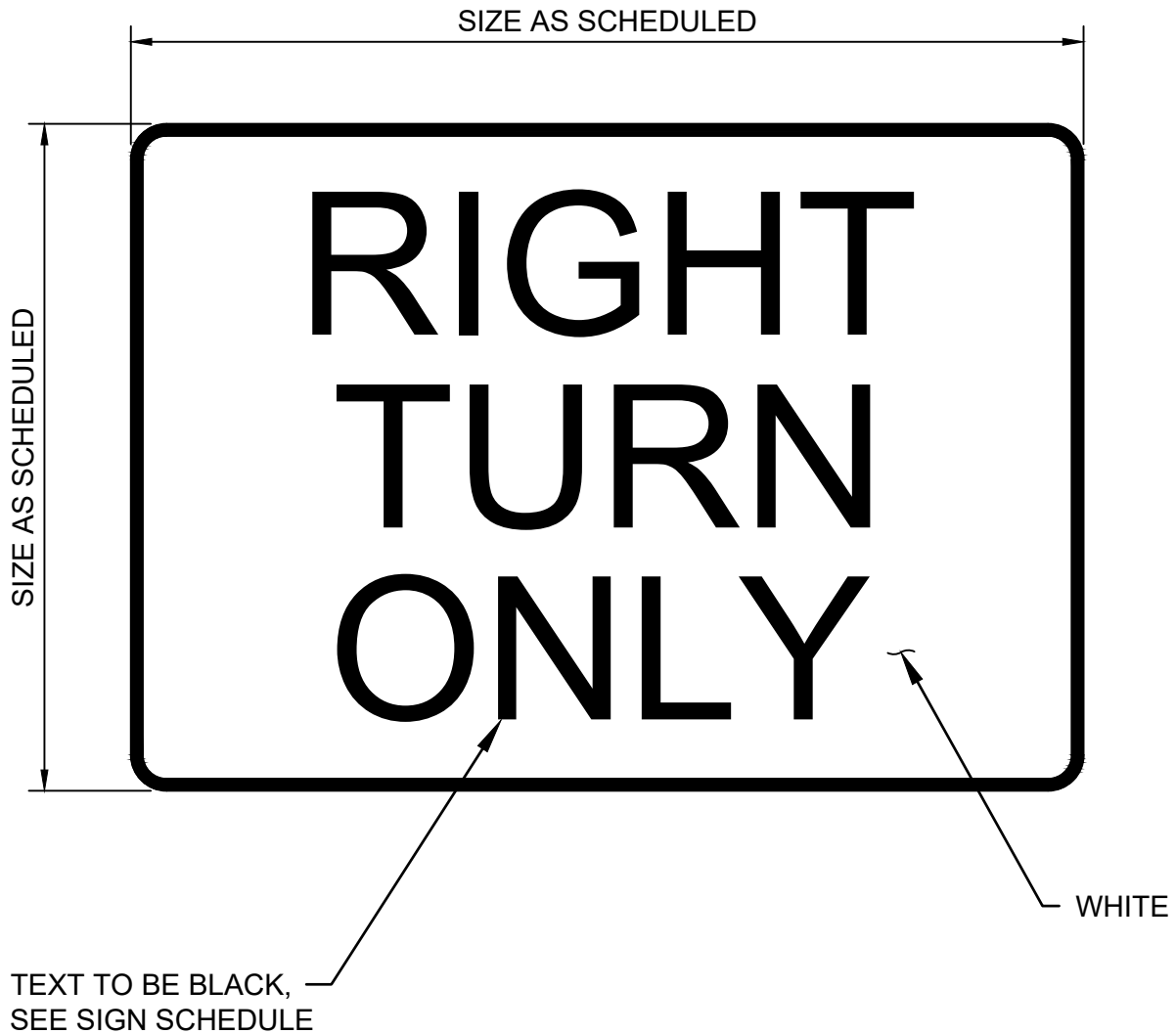


NO THRU TRAFFIC SIGN

NTS

CLEAN WATER SERVICES
DURHAM WRRF
PHASE 6B DIGESTER

10403

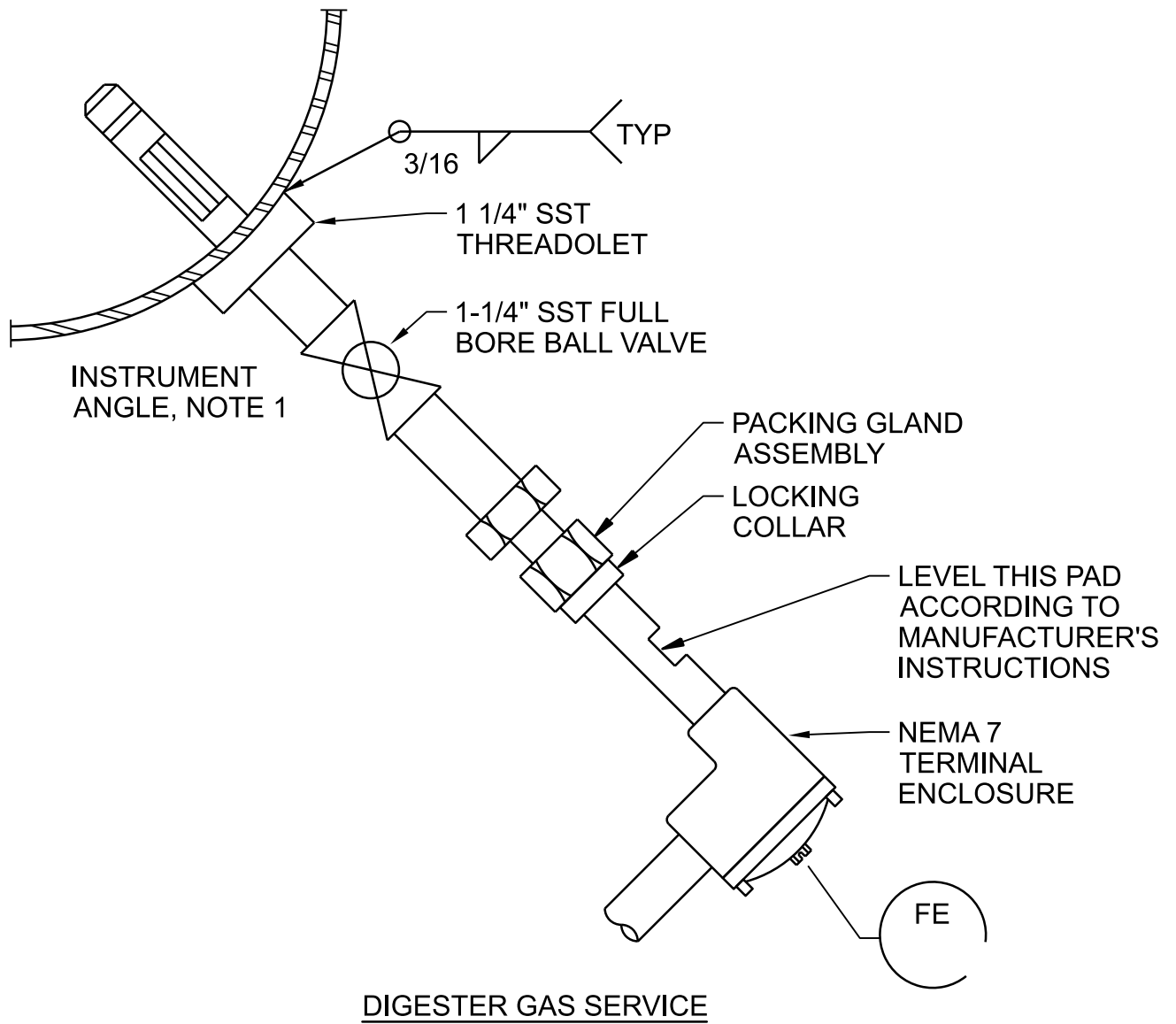


RIGHT TURN ONLY SIGN

NTS

CLEAN WATER SERVICES
DURHAM WRRF
PHASE 6B DIGESTER

10404

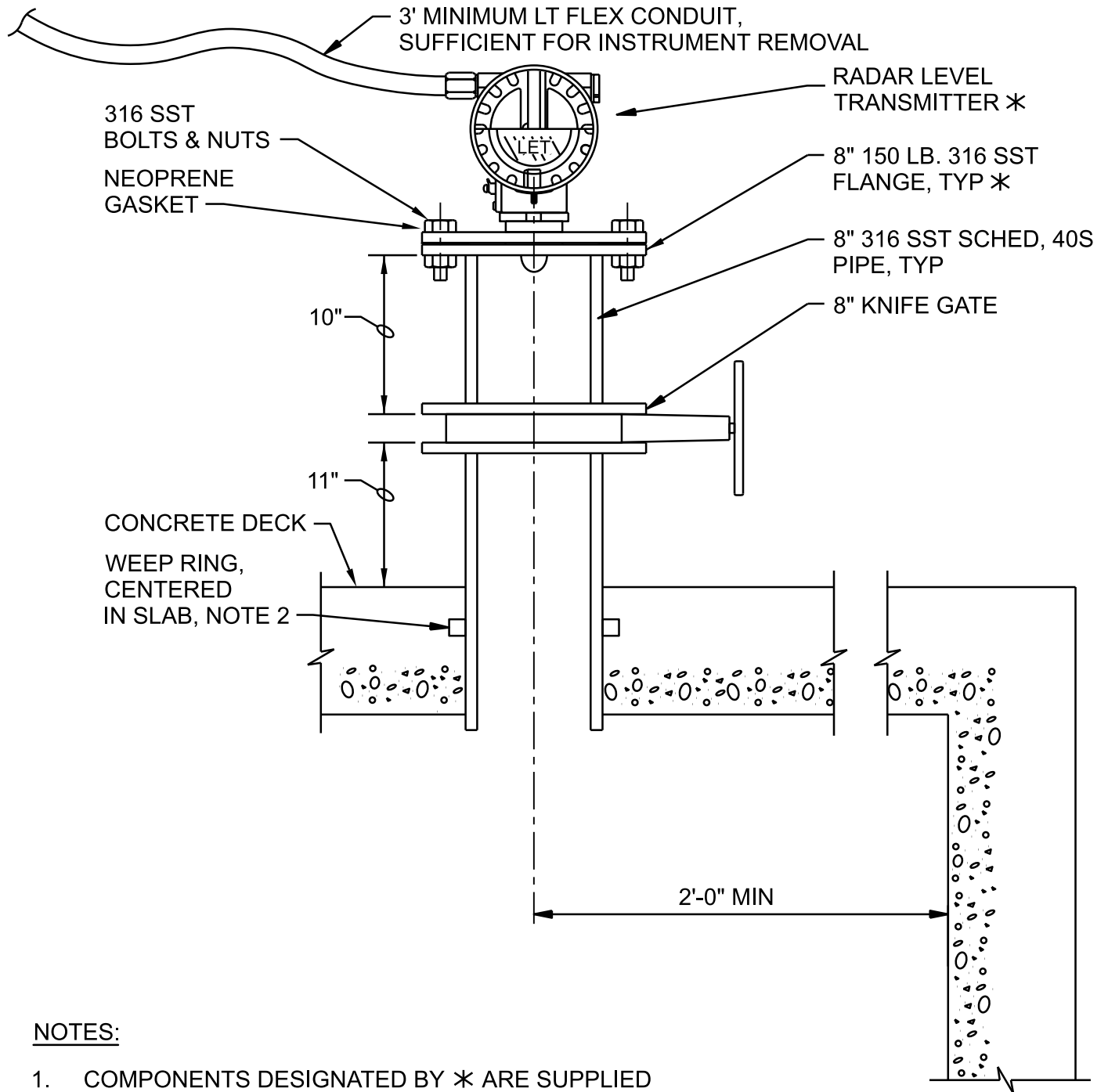


NOTES:

1. REFER TO MANUFACTURERS RECOMMENDATIONS FOR APPROPRIATE ANGLE OF INSTRUMENT WHEN USED WITH WET DIGESTER GAS.

THERMAL MASS FLOW ELEMENT INSTALLATION

NTS



NOTES:

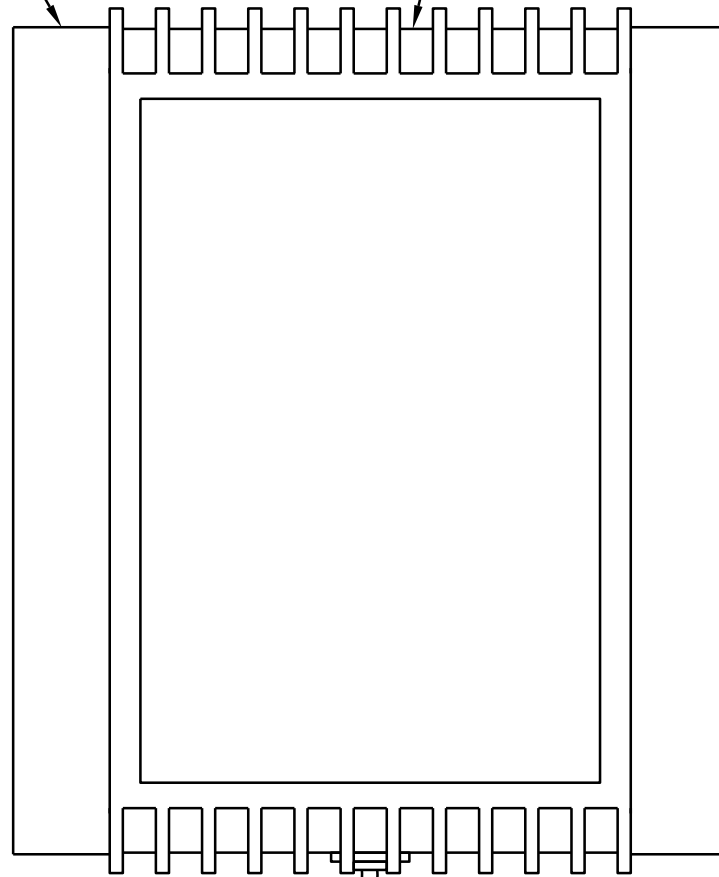
1. COMPONENTS DESIGNATED BY * ARE SUPPLIED BY INSTRUMENT MANUFACTURER.
2. 316 SST WEEP RING 10" DIAMETER, 1/4" THICK, WELDED BOTH SIDES.

DIGESTER RADAR LEVEL TRANSMITTER

NTS

DECORATIVE
WALL BOX
MOUNT DIRECTLY
TO WALL

TEMPERATURE ELEMENT AND
TRANSMITTER INSIDE



SIGNAL WIRE
TO PLC

NOTES:

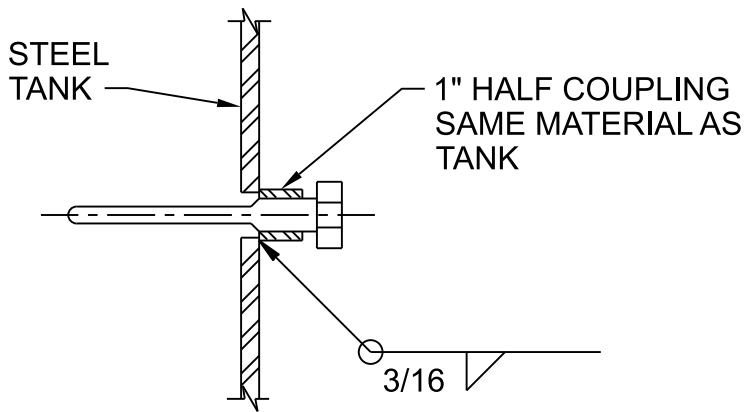
1. INSTALL TRANSMITTER IN AN ACCESSIBLE LOCATION.

TEMPERATURE TRANSMITTER - WALL MOUNT

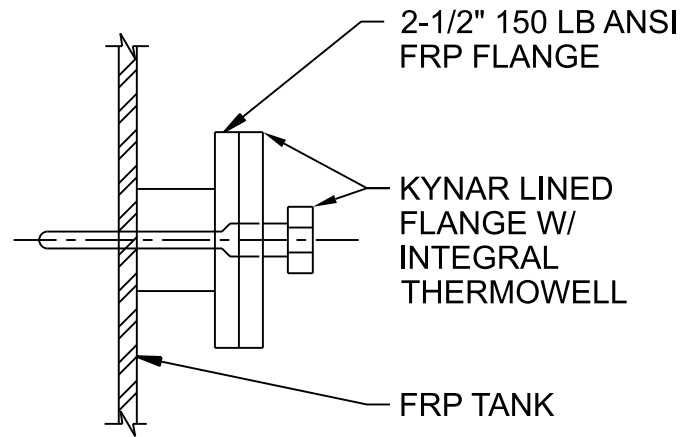
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CLEAN WATER SERVICES
DURHAM WRRF
PHASE 6B DIGESTER

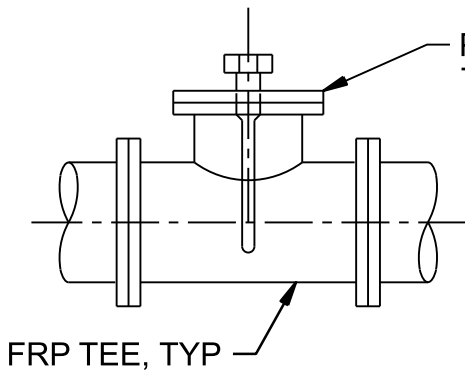
13360



STEEL TANK

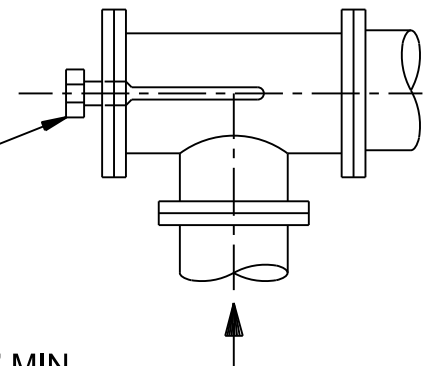


FRP TANK



THERMOWELL WITH
1" MALE NPT, TYP

FRP PIPE



SOLVENT WELD TEE

2-1/2" MIN

SOLVENT WELD BY 1"
FEMALE NPT BUSHING

PROVIDE REDUCERS FOR
LINES SMALLER THAN 2-1/2"

1" MALE NPT
TITANIUM THERMOWELL

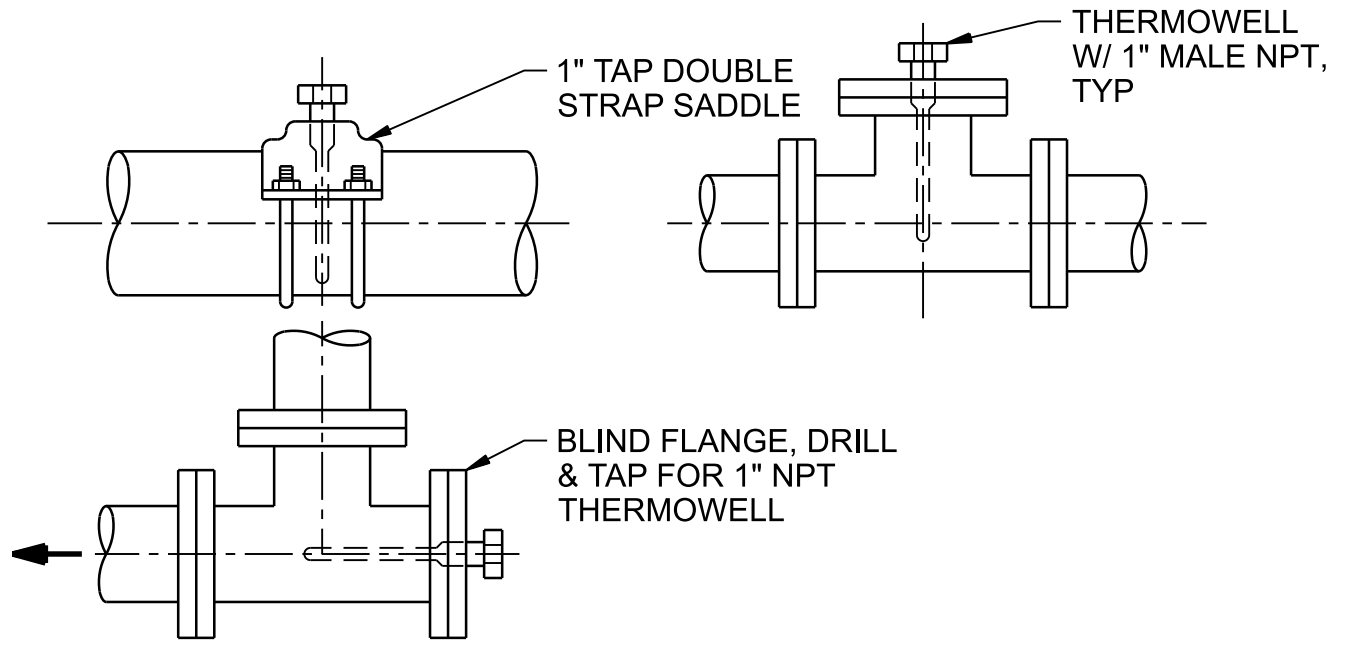
CPVC PIPE

NOTES:

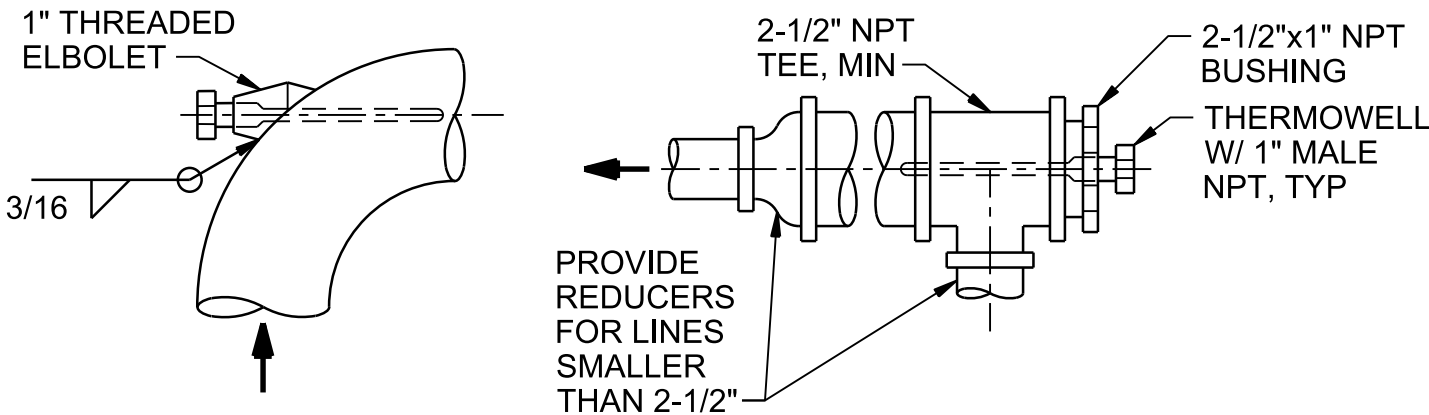
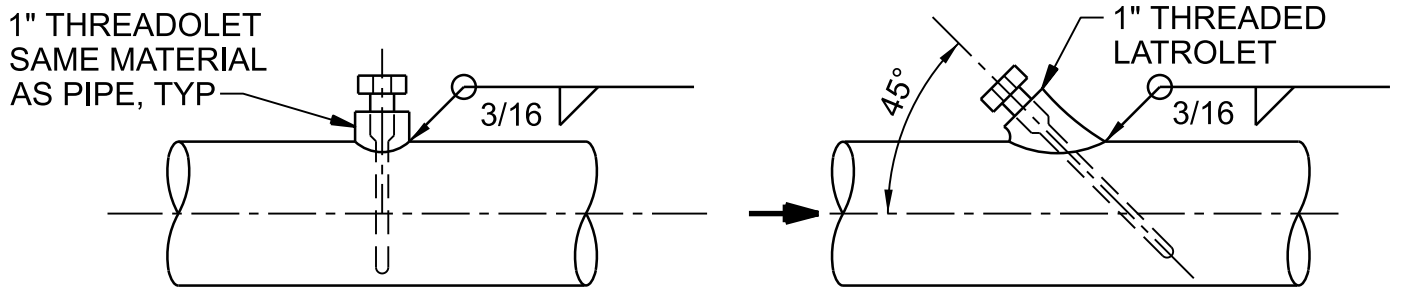
1. FOLLOW THERMOWELL MANUFACTURER INSTALLATION REQUIREMENTS FOR INSERTION DEPTH.
2. FOLLOW TEMPERATURE INSTRUMENT MANUFACTURER REQUIREMENTS FOR INSERTION INTO THERMOWELL.

THERMOWELL INSTALLATION

NTS



CEMENT LINED STEEL, CAST IRON AND DUCTILE IRON PIPE

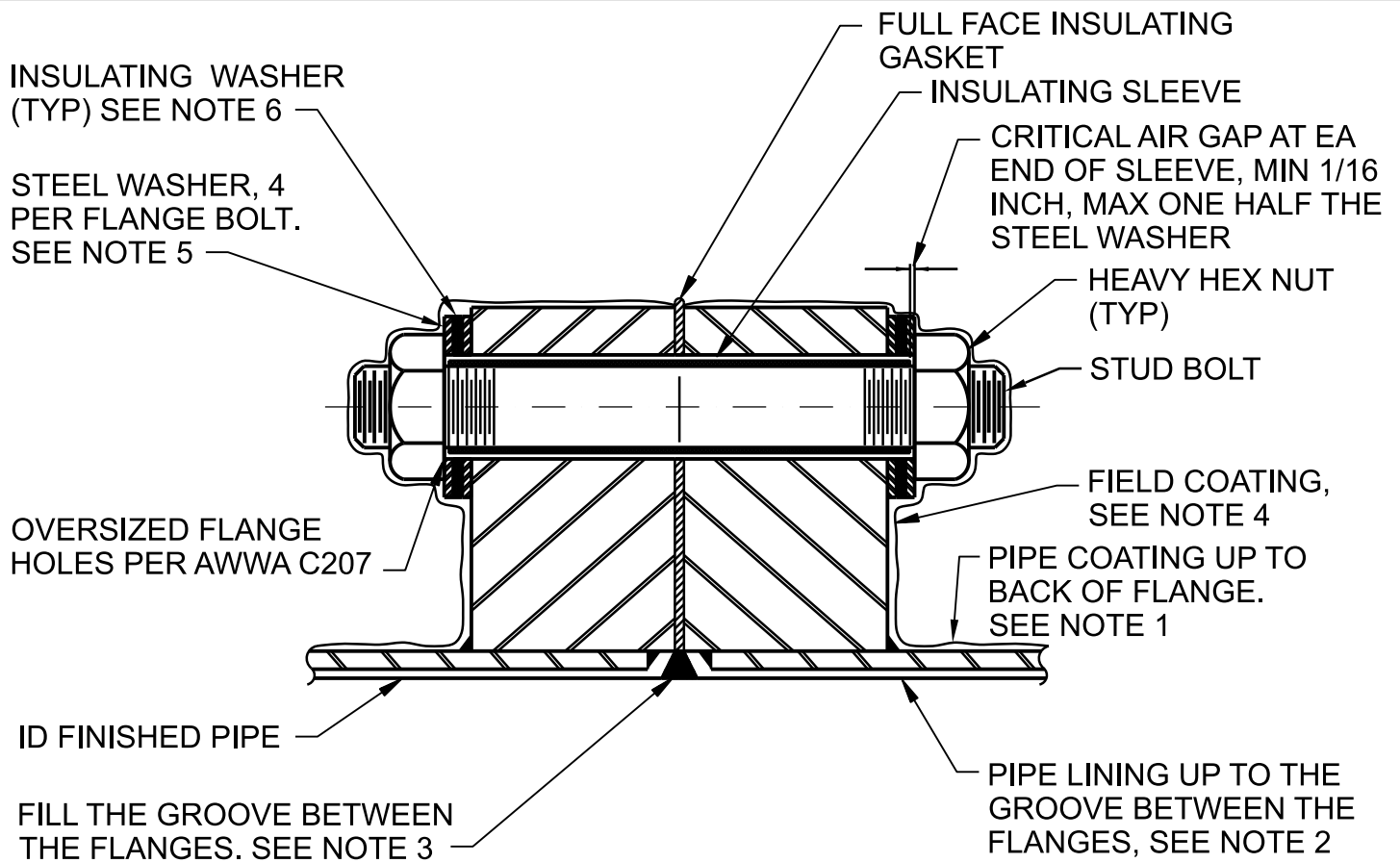


NOTES: STEEL AND STAINLESS STEEL PIPE

1. FOLLOW THERMOWELL MANUFACTURER INSTALLATION REQUIREMENTS FOR INSERTION DEPTH.
2. FOLLOW TEMPERATURE INSTRUMENT MANUFACTURER REQUIREMENTS FOR INSERTION INTO THERMOWELL.

THERMOWELL INSTALLATION

NTS

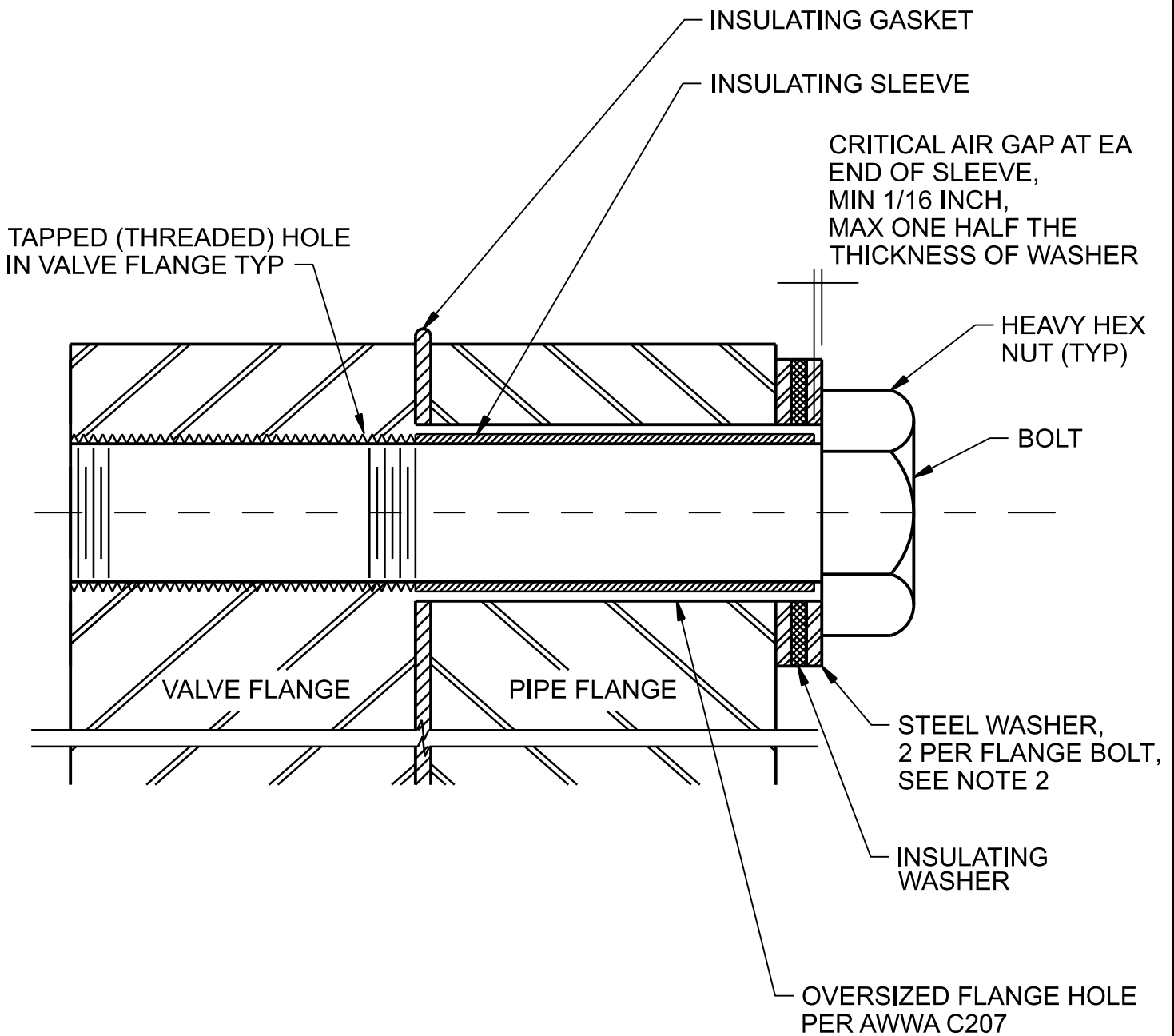


NOTES:

1. THE PIPE COATING ON EACH SIDE OF THE INSULATED FLANGE SHALL BE THE SAME IN TYPE, THICKNESS, AND QUALITY UP TO THE BACK SIDE OF THE RESPECTIVE FLANGE.
2. THE LINING ON THE PIPE SHALL BE THE SAME IN TYPE, THICKNESS, AND QUALITY UP TO THE INSULATED FLANGE JOINT.
3. FOR PIPE LARGER THAN 24 INCH DIAMETER , FILL THE INSULATED FLANGE'S INTERNAL GAP WITH A MATERIAL COMPATIBLE WITH THE PIPE LINING.
4. COAT JOINTS AS SPECIFIED AFTER INSTALLATION.
5. SEE 13932 FOR INSULATED BOLTS AT TAPPED VALVE FLANGES.
6. FOR PIPE SMALLER THAN 36 INCH DIAMETER, DELETE INNER STEEL WASHERS.
7. FOR BURIED OR SUBMERGED INSULATING FLANGE, DO NOT INSTALL INSULATING WASHER ON PROTECTED SIDE OF FLANGE.

INSULATED FLANGES

NTS

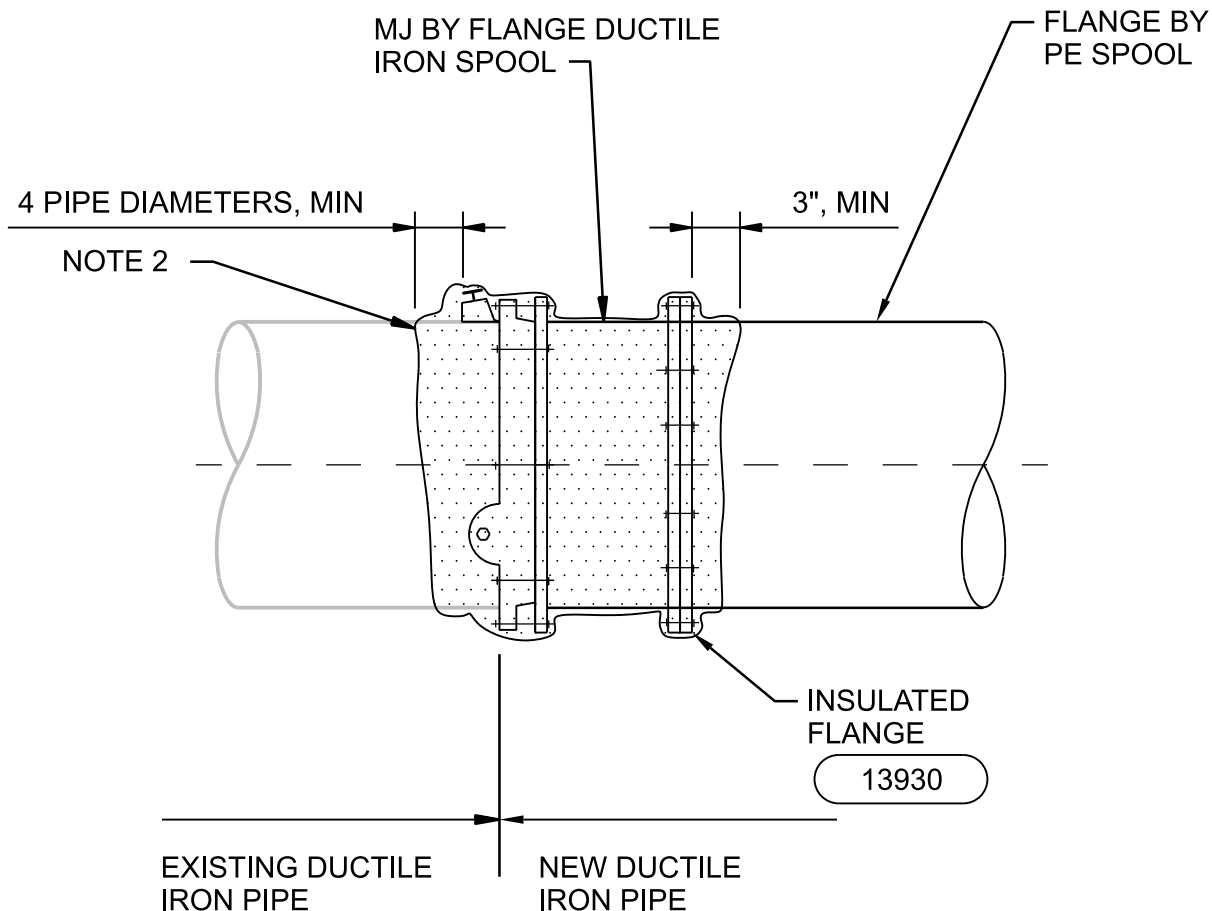


NOTES:

1. COAT COMPLETED JOINT AS SPECIFIED AFTER INSULATION.
2. FOR PIPE SMALLER THAN 36 INCH DIAMETER, DELETE INNER STEEL WASHER.

INSULATED BOLTS AT TAPPED VALVE FLANGES

NTS

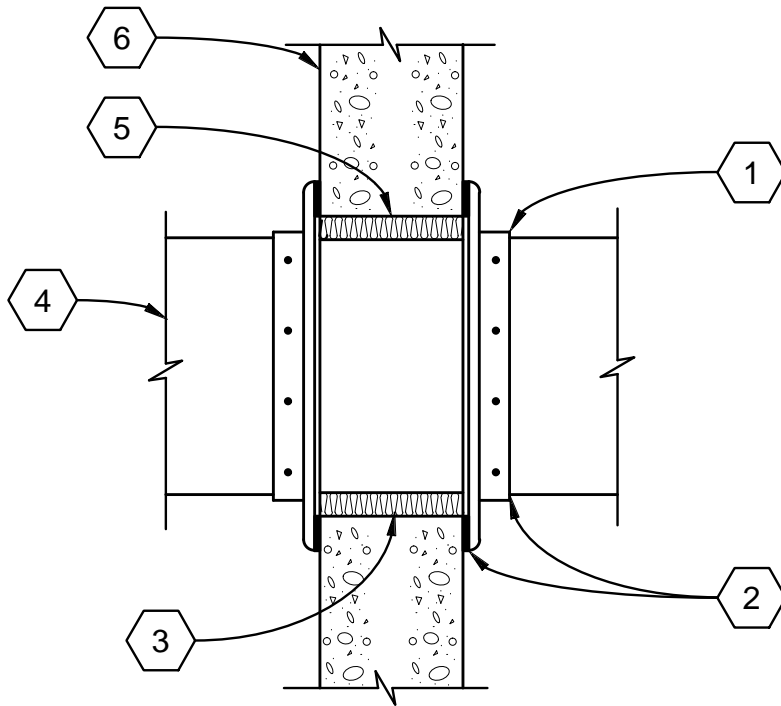


NOTES:

1. APPLY EPOXY COATING ONTO EXISTING PIPE'S CEMENT LINING FOR A DISTANCE OF 4 PIPE DIAMETERS PER SECTION 09900, SYSTEM NO. 2.
2. COAT EXTERIOR OF METAL SURFACES WITH WAX TAPE SYSTEM IN ACCORDANCE WITH SECTION 09900, SYSTEM NO. 8.

EXISTING DUCTILE IRON PIPE CONNECTION

NTS



1. 2" ANGLE CLOSURE COLLAR SAME MATERIAL AS DUCT
2. CAULK WITH WATERPROOF SILICONE RUBBER SEALANT, TYP
3. PACK ANULLAR OPENING WITH MINERAL WOOL UNLESS RATED THEN PACK WITH FIRE SAFEING
4. SHEET METAL DUCT
5. 1" MAX CLEARANCE
6. WALL

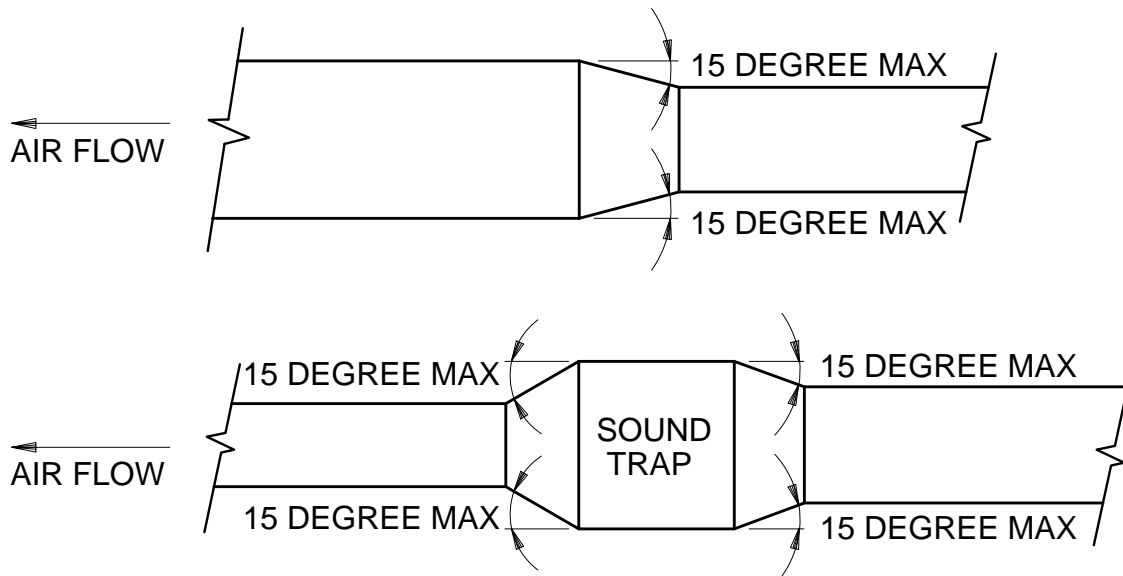
DUCT WALL PENETRATION

NTS

CLEAN WATER SERVICES
 DURHAM WRRF
 PHASE 6B DIGESTER

15101

Jacobs

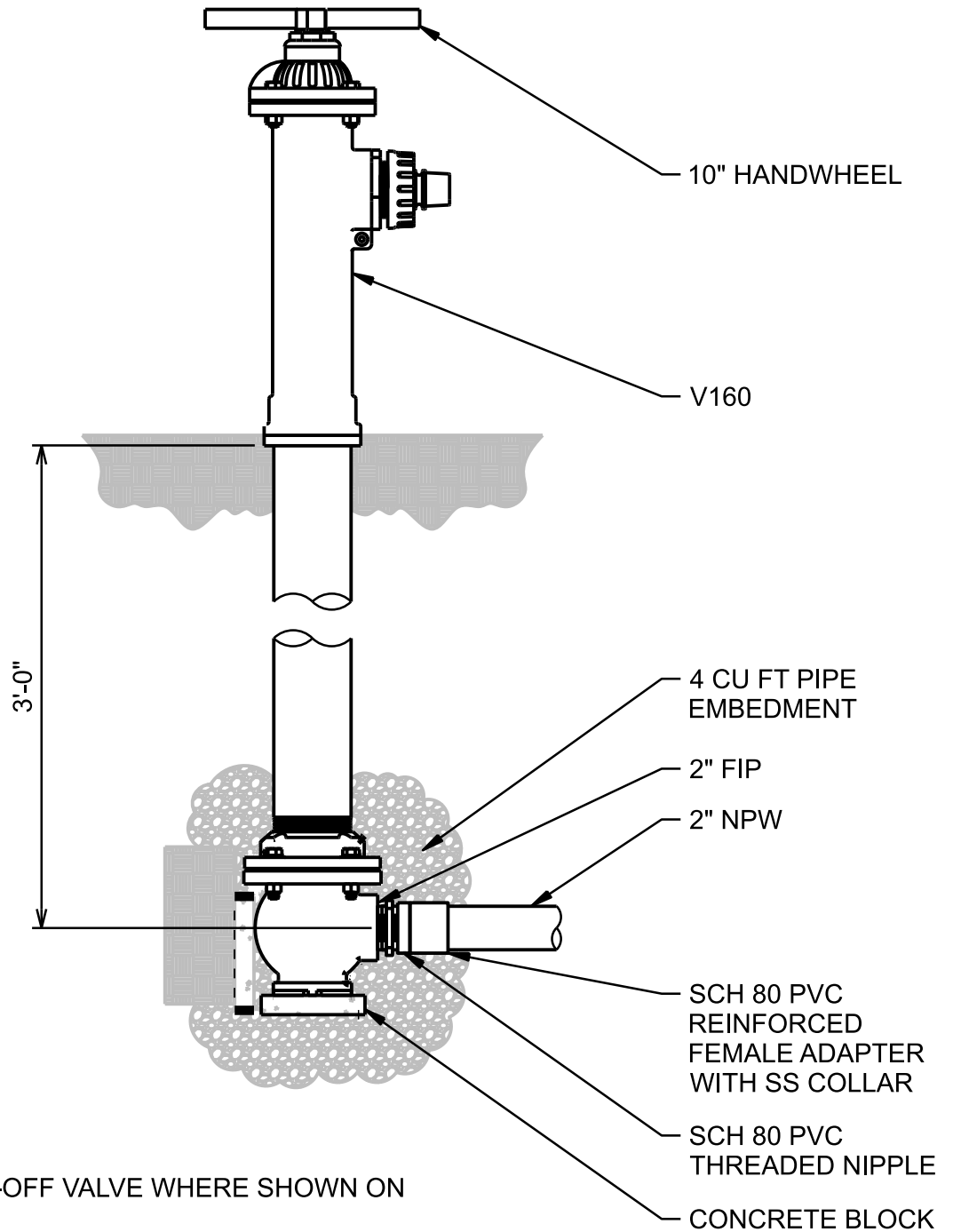


NOTE:

A. UNLESS OTHERWISE INDICATED ON PLANS, ABRUPT TRANSITIONS ARE NOT ALLOWED.

DUCT TRANSITION

NTS



NOTES:

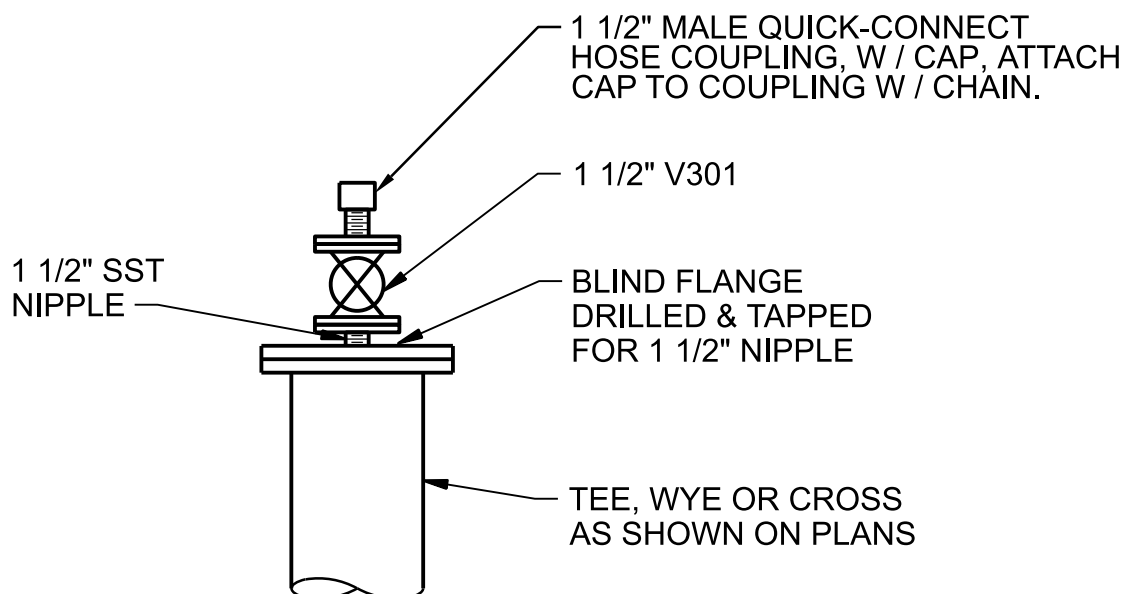
1. PROVIDE SHUT-OFF VALVE WHERE SHOWN ON PLANS.
2. FIELD COAT HYDRANT SAFETY BLUE WITH COATING SYSTEM NO. 4.

POST HYDRANT

NTS

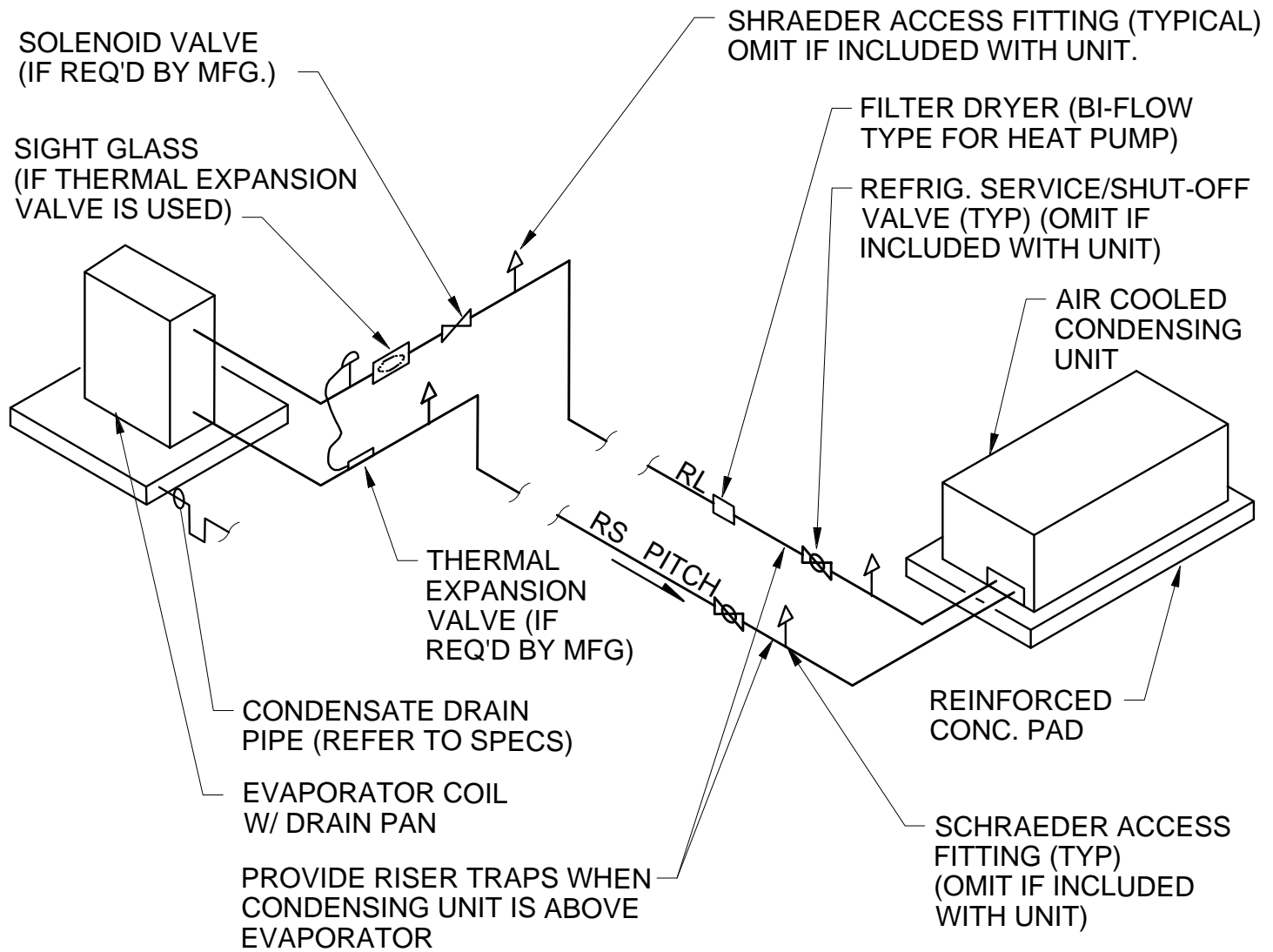
CLEAN WATER SERVICES
 DURHAM WRRF
 PHASE 6B DIGESTER

15154



TYPE 2 FLUSHING CONNECTION

NTS

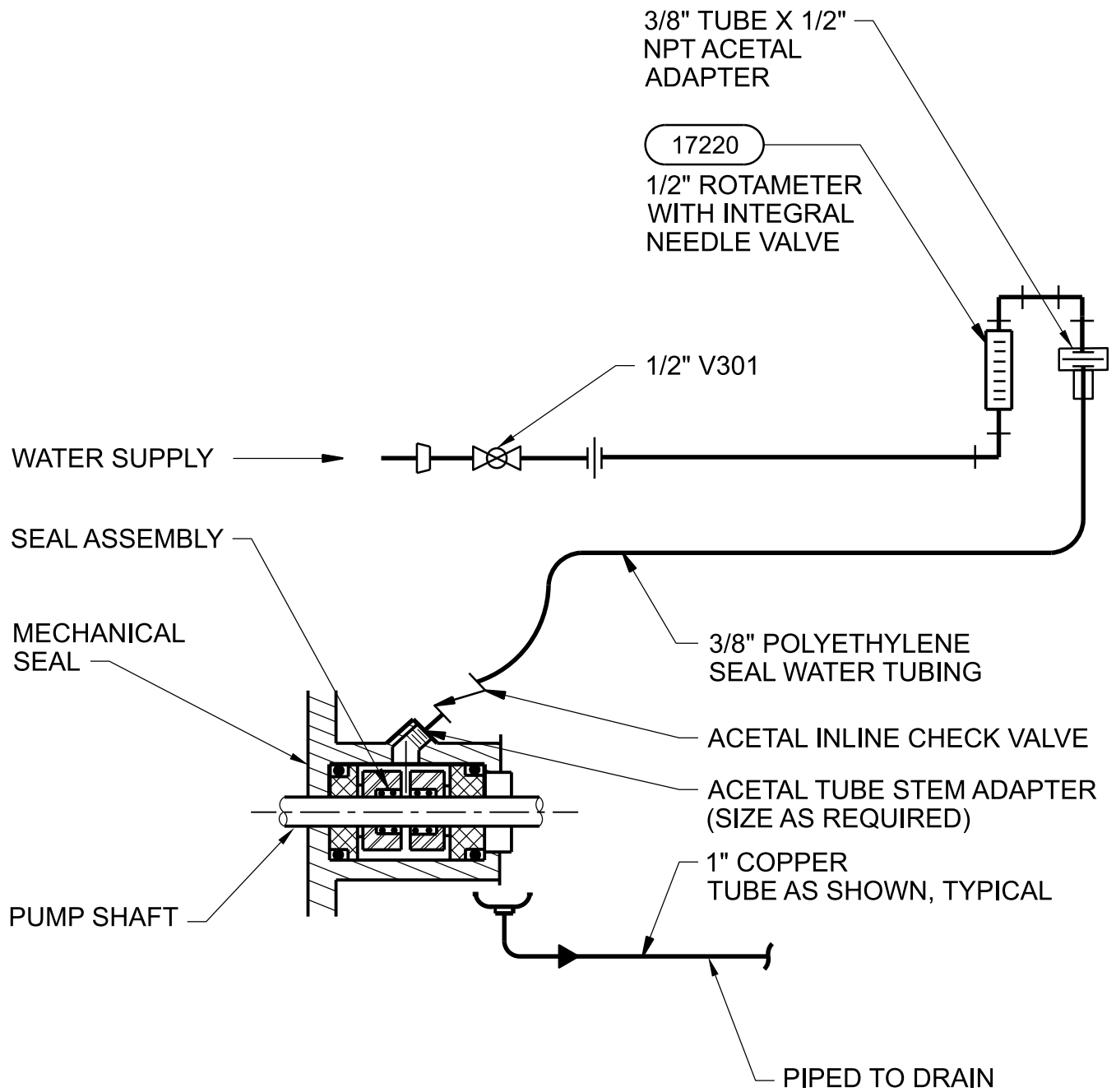


NOTES:

1. CONTRACTOR SHALL SUBMIT A REFRIGERANT PIPING DIAGRAM APPROVED BY THE CONDENSING UNIT MANUFACTURER BEFORE PROCEEDING WITH WORK. (REFER TO SPECIFICATIONS FOR REFRIGERANT PIPING INSTALLATION REQUIREMENTS)
2. REFRIGERANT PIPING SHALL BE SIZED PER MANUFACTURER OPTIMUM PERFORMANCE RATING.

REFRIGERANT PIPING

NTS



NOTE:

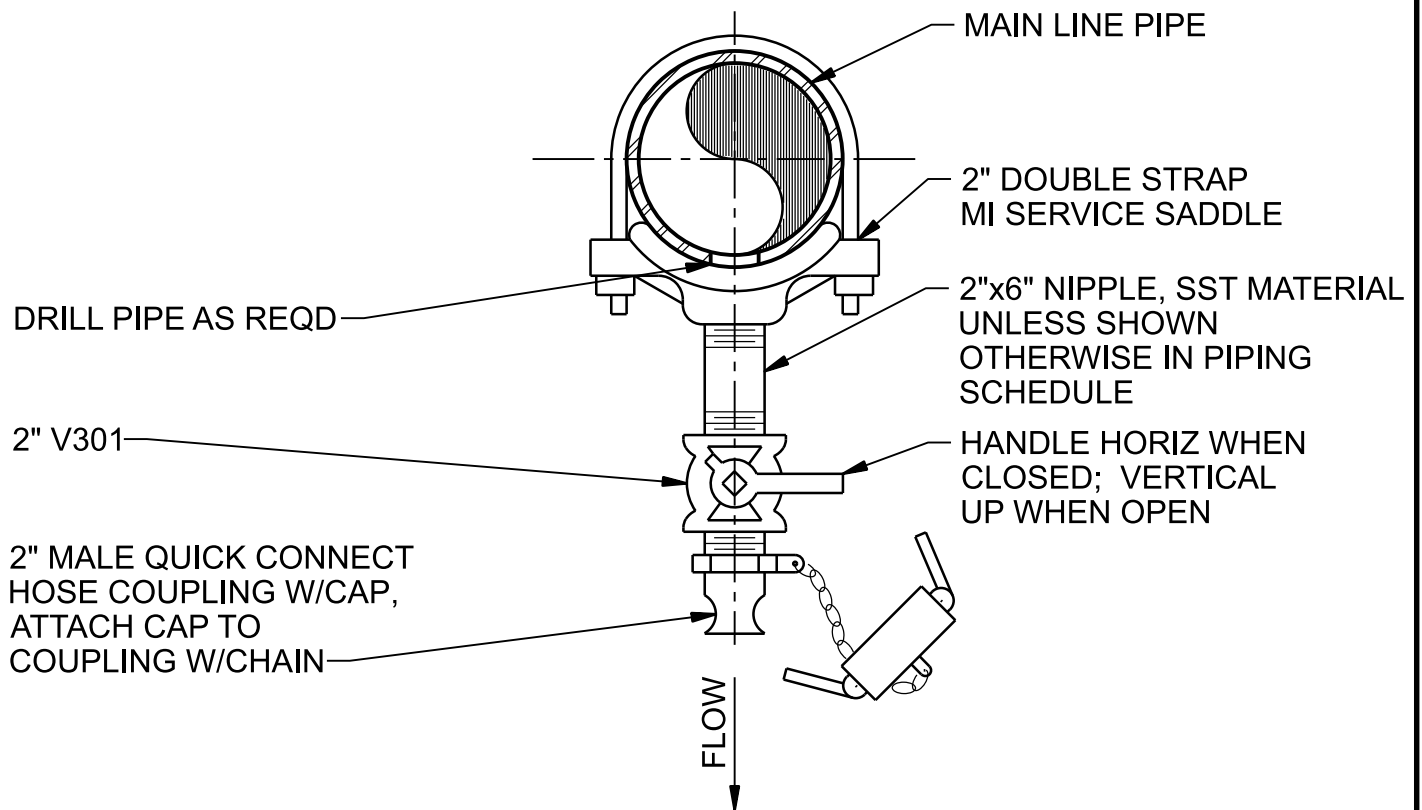
1. SEAL WATER COMPONENTS SEE SPECIFICATION 15205, PROCESS PIPING SPECIALTIES, AND 17901, INSTRUMENT LIST.

WATER FLUSHED PUMP SEAL

NTS

CLEAN WATER SERVICES
DURHAM WRRF
PHASE 6B DIGESTER

15186

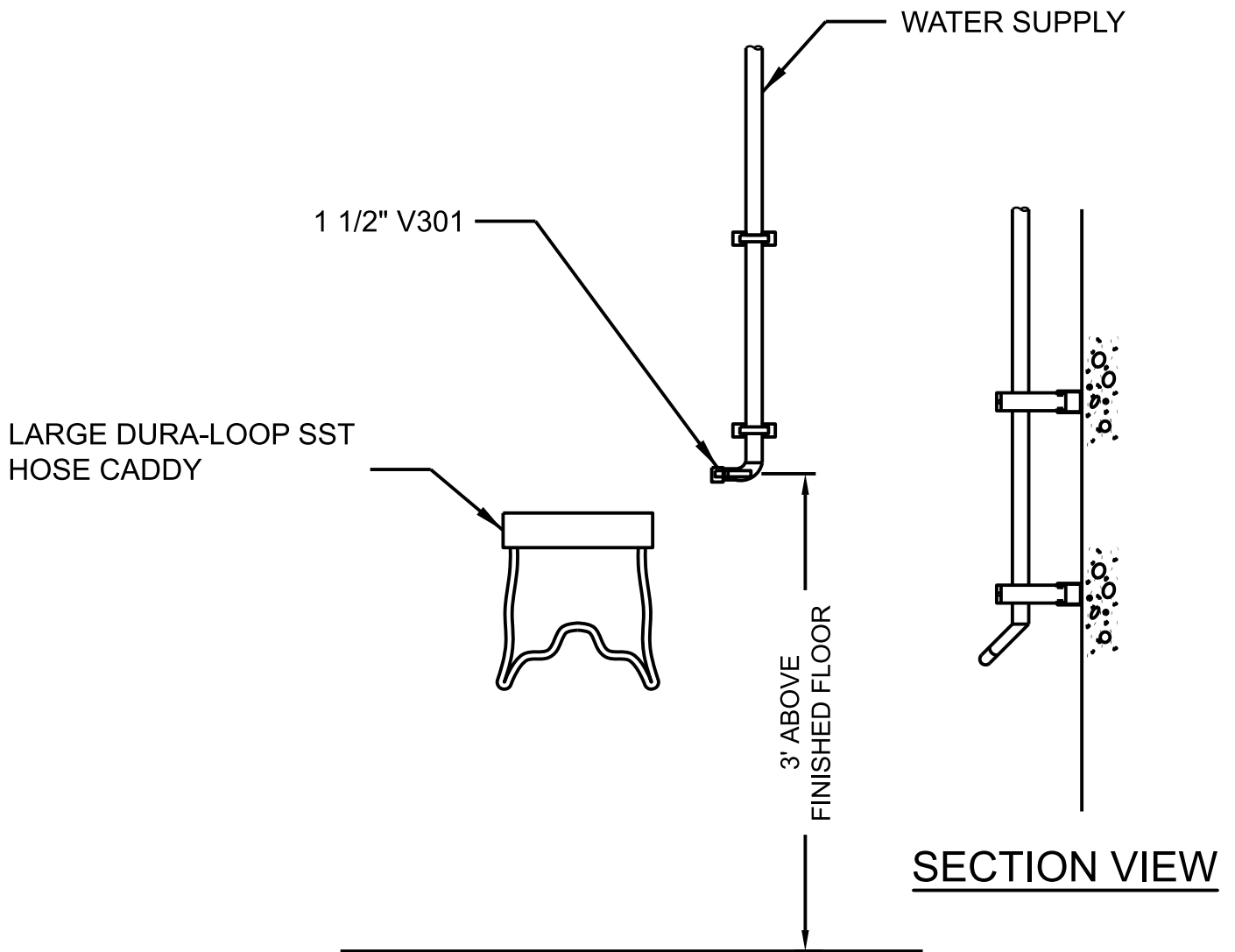


NOTES:

1. FOR LINE SIZE 2" AND SMALLER, FITTINGS AND VALVES SHALL BE SAME SIZE AS LINE.

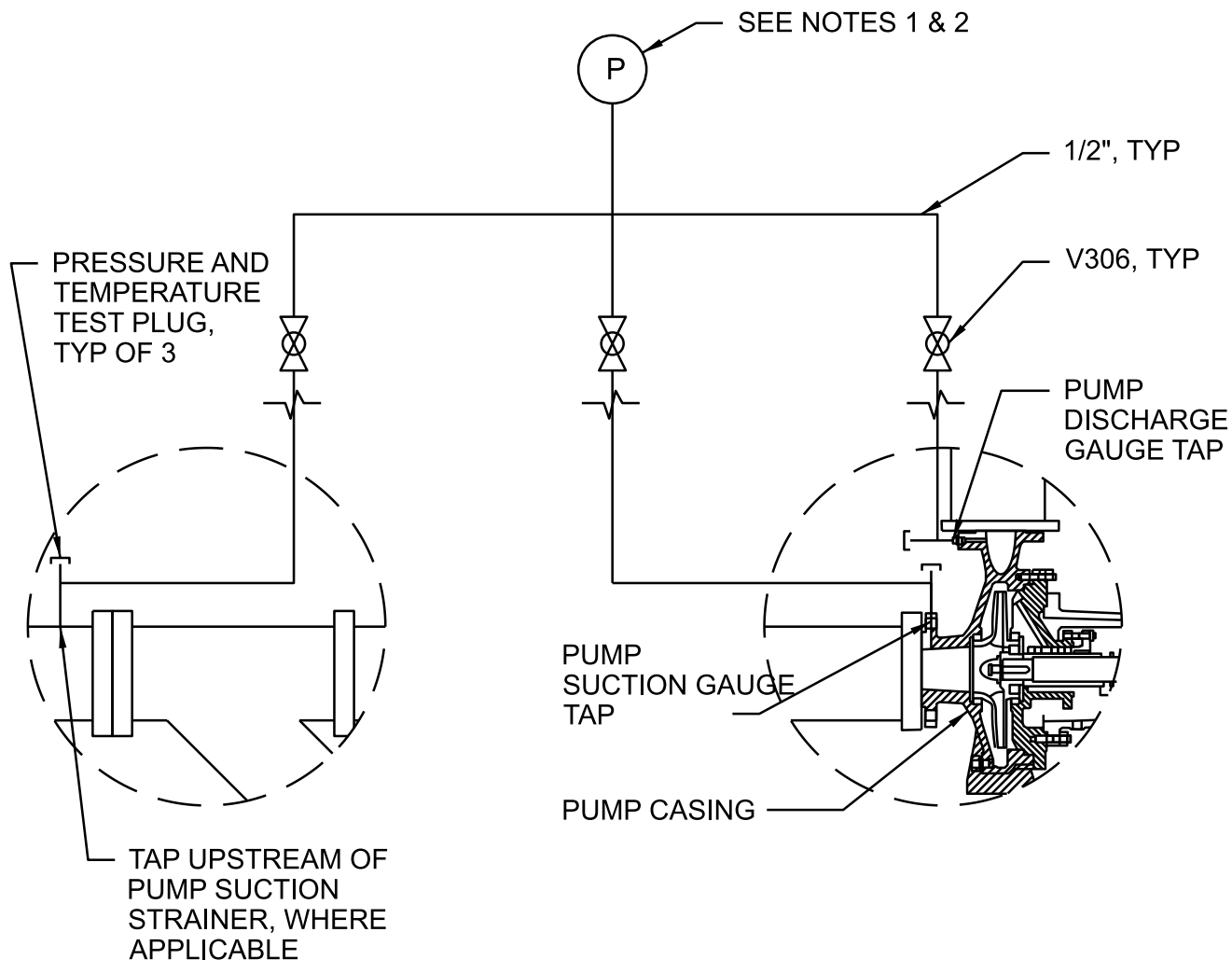
LINE DRAIN AND VALVE INSTALLATION

NTS



HOSE STATION

NTS



NOTES:

1. PROVIDE PRESSURE GAUGE AS SPECIFIED ON THE P&ID INSTRUMENT SCHEDULE.
2. INSTALL PRESSURE GAUGE 5FT AFF.
3. ALL TUBING AND FITTINGS TO BE 316 SST.
4. SEE DETAIL 17305B FOR TUBING CONNECTIONS TO PIPE. WHERE GAUGE TAPS ARE NOT AVAILABLE ON THE PUMP CASING, CONNECT TUBING TO PIPE AS CLOSE AS POSSIBLE TO THE PUMP SUCTION AND DISCHARGE.

PUMP GAUGE ASSEMBLY

NTS

1" SST VENT
PIPE UNLESS
NOTED OTHERWISE

UNION

1" V306
BALL VALVE

SST
NIPPLE

DOUBLE STRAP
SERVICE SADDLE
FOR CLDI PIPE OR
THREDOLET
WELDED TO
STEEL PIPE

NPT x NPT
COUPLING

CAST BRASS NPSM x NPT,
MALE x MALE,
NIPPLE ADAPTER
WITH HEXAGONAL
WRENCH FEATURE.

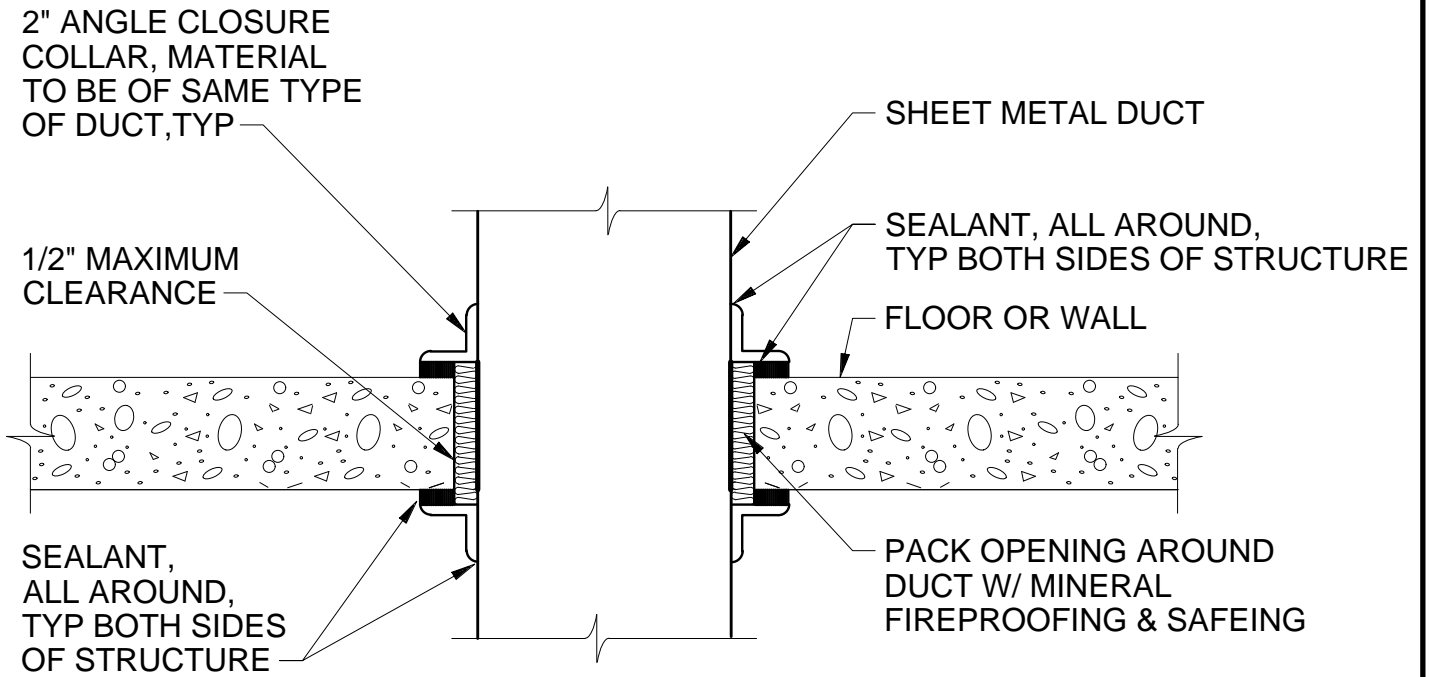
ROUTE TO HUB DRAIN OR
SCUPPER IF WITHIN 20-FEET,
IF FURTHER THAN 20-FEET
HORIZONTAL DISTANCE
FROM VENT CONNECTION
TERMINATE 3'-0" ABOVE FLOOR

PIPE HIGH POINT VENT

NTS

CLEAN WATER SERVICES
DURHAM WRRF
PHASE 6B DIGESTER

15205

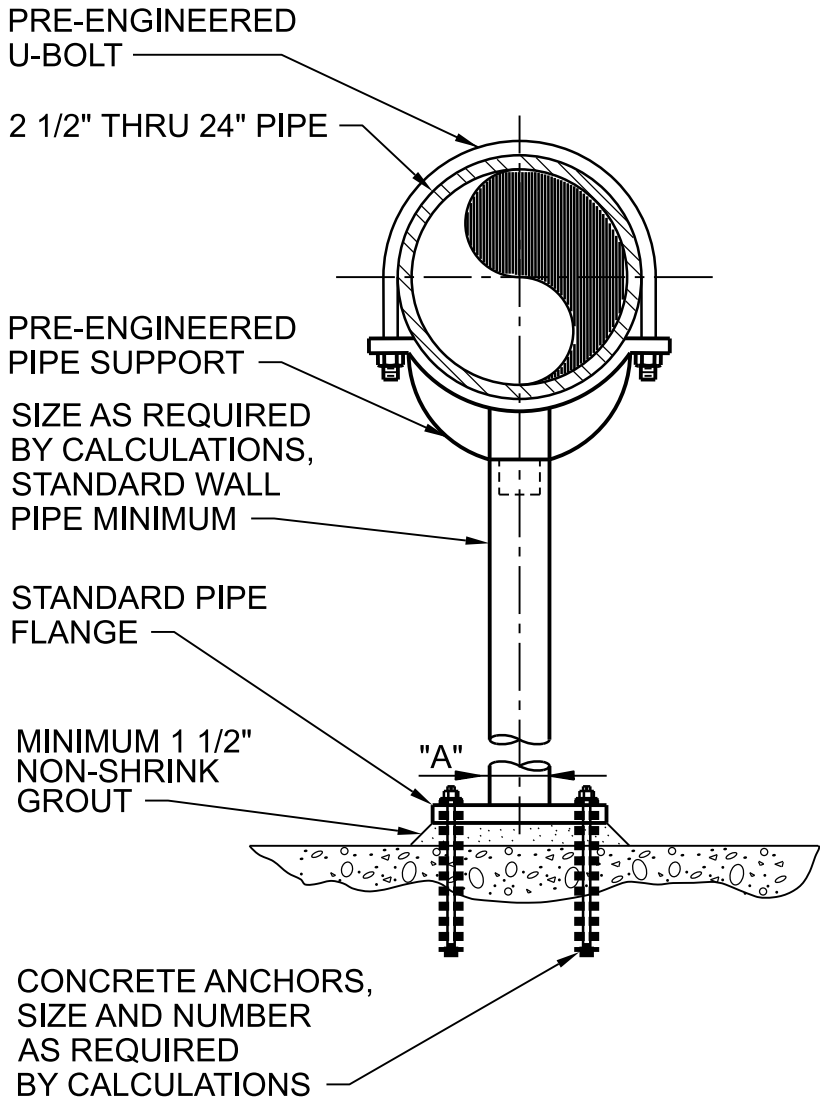


NOTES:

1. WALL PENETRATION SIMILAR.
2. 2" ANGLE CLOSURE COLLAR OF SAME MATERIAL AS DUCT.

FLOOR PENETRATION - DRY AREA

NTS



DIMENSION TABLE	
PIPE SIZE	"A" MINIMUM NOMINAL PIPE SIZE
2-1/2"	2-1/2"
3"	2-1/2"
4"	3"
6"	3"
8"	3"
10"	3"
12"	3"
14"	4"
16"	4"
20"	6"
24"	6"

NOTES:

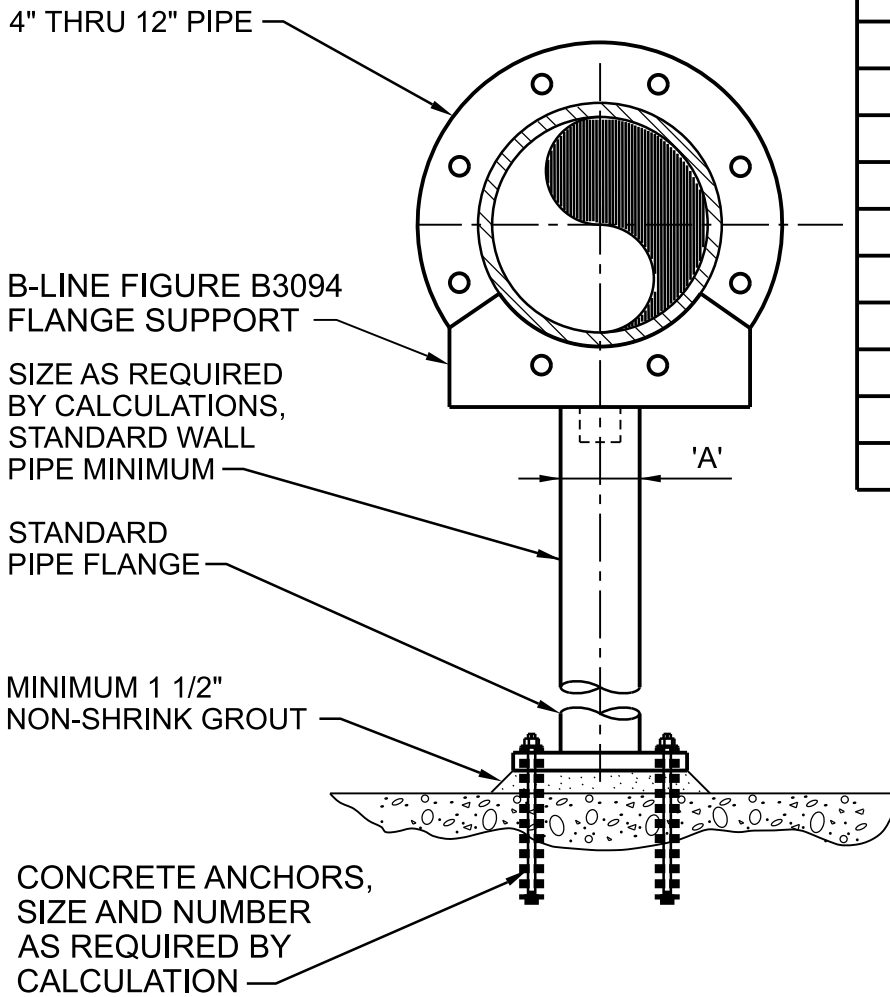
1. SUBMIT FINAL DESIGN AND CALCULATIONS FOR SUPPORT AND ANCHORAGE AS SPECIFIED.
2. ALL MATERIALS SHALL BE PER THE AREA CLASSIFICATION AND MATERIALS OF CONSTRUCTION TABLE LOCATED ON DRAWINGS.

PIPE SUPPORT

SADDLE SUPPORT PEDESTAL TYPE - NON-ADJUSTABLE

NTS

DIMENSION TABLE	
PIPE SIZE	"A" MINIMUM NOMINAL PIPE SIZE
2-1/2"	2-1/2"
3"	2-1/2"
4"	3"
6"	3"
8"	3"
10"	3"
12"	3"
14"	3"
16"	3"
20"	4"
24"	4"



NOTES:

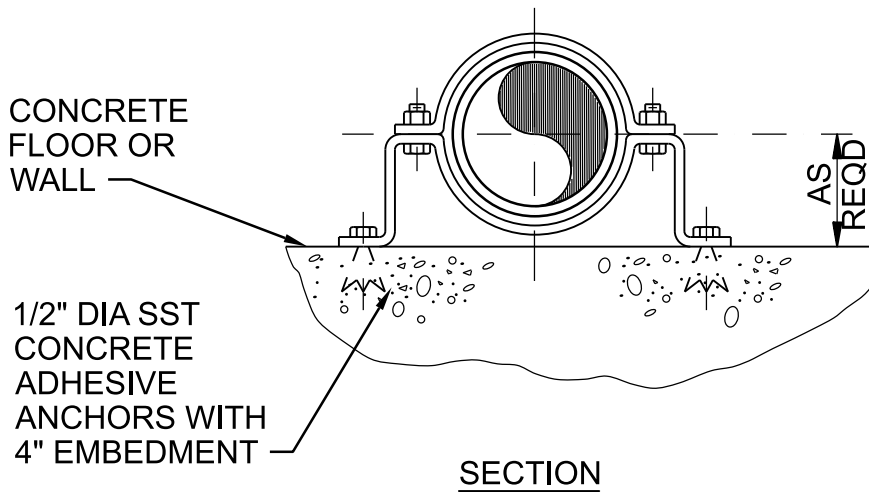
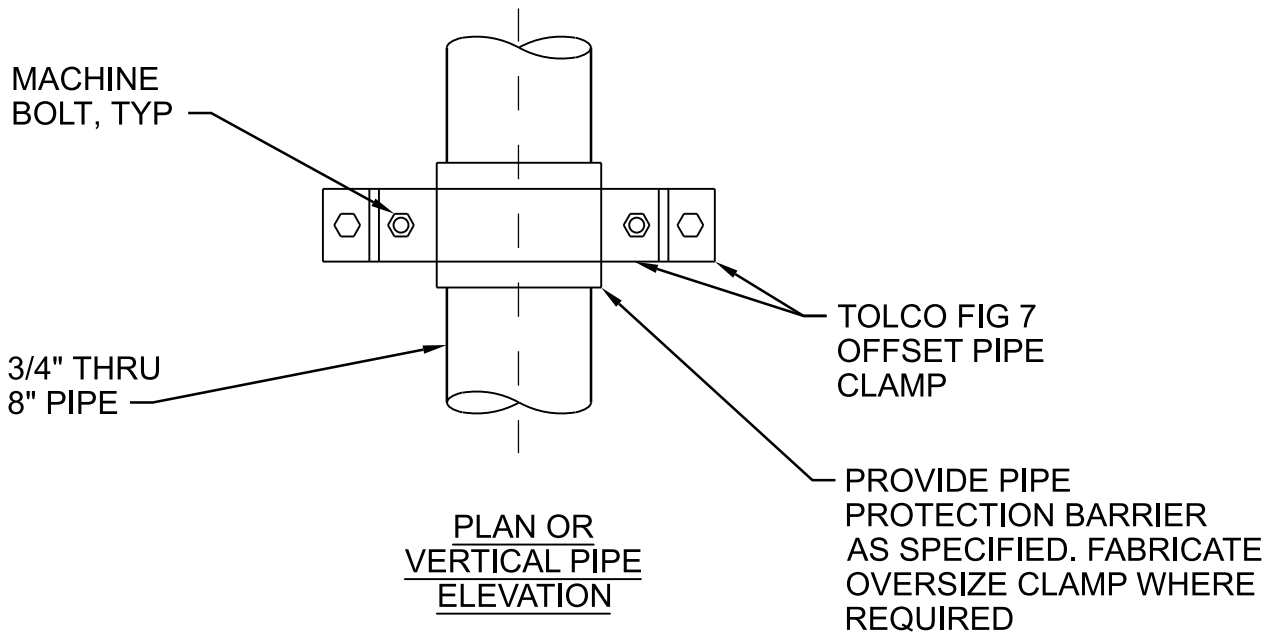
1. SUBMIT FINAL DESIGN AND CALCULATIONS FOR SUPPORT AND ANCHORAGE AS SPECIFIED, FOR PIPES LESS THAN 4" IN DIAMETER.
2. ALL MATERIALS SHALL BE PER THE AREA CLASSIFICATION AND MATERIALS OF CONSTRUCTION TABLE LOCATED ON DRAWINGS.

FLANGE SUPPORT PEDESTAL TYPE - NON-ADJUSTABLE

NTS

CLEAN WATER SERVICES
 DURHAM WRRF
 PHASE 6B DIGESTER

15502



NOTE:

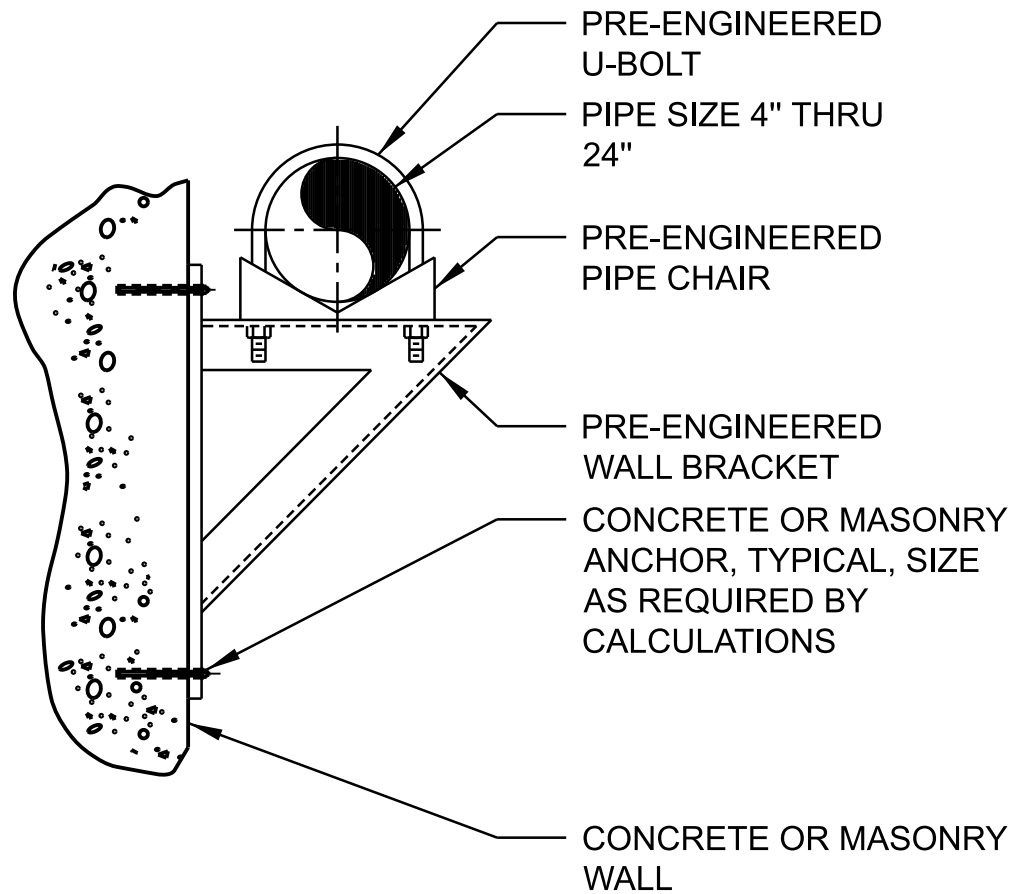
1. FOR MATERIAL, PAINTING AND COATING SEE SPECIFICATION 15060, PIPING SUPPORT SYSTEMS.

PIPE SUPPORT - WALL MOUNTED

NTS

CLEAN WATER SERVICES
 DURHAM WRRF
 PHASE 6B DIGESTER

15505



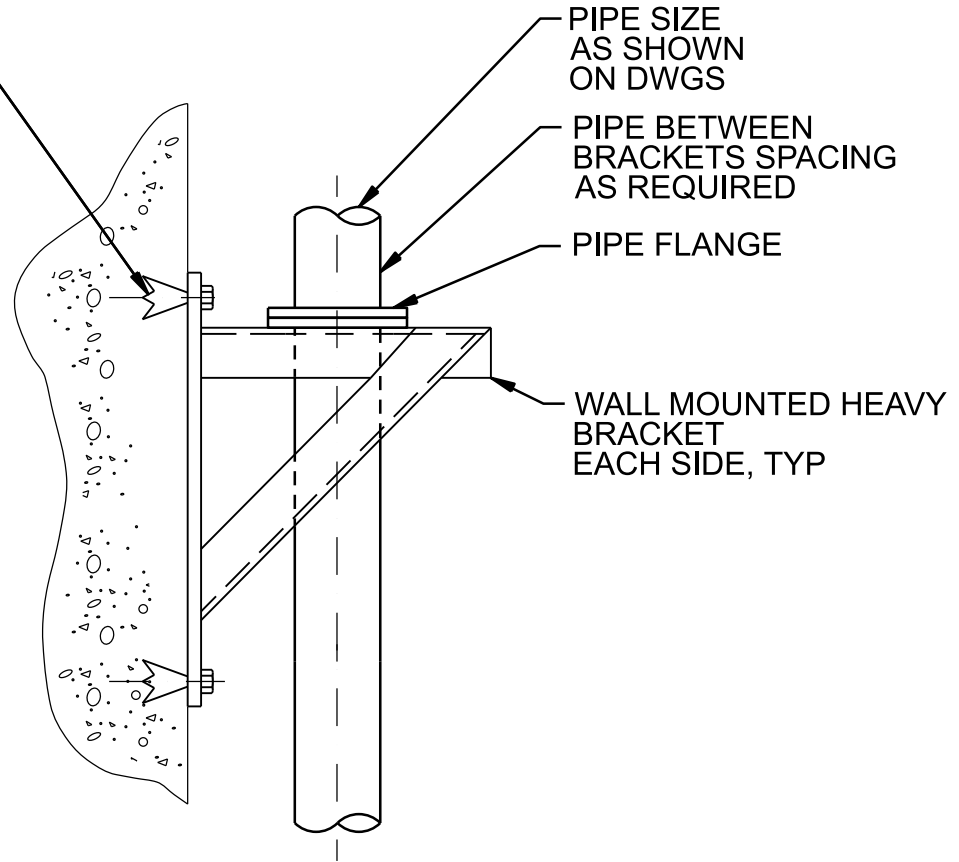
NOTES:

1. WALL BRACKET SHALL BE MEDIUM HEAVY AS REQUIRED BY CALCULATIONS.
2. SUBMIT FINAL DESIGN AND CALCULATIONS FOR SUPPORT AND ANCHORAGE AS SPECIFIED.
3. ALL MATERIALS SHALL BE PER THE AREA CLASSIFICATION AND MATERIALS OF CONSTRUCTION TABLE LOCATED ON DRAWINGS.

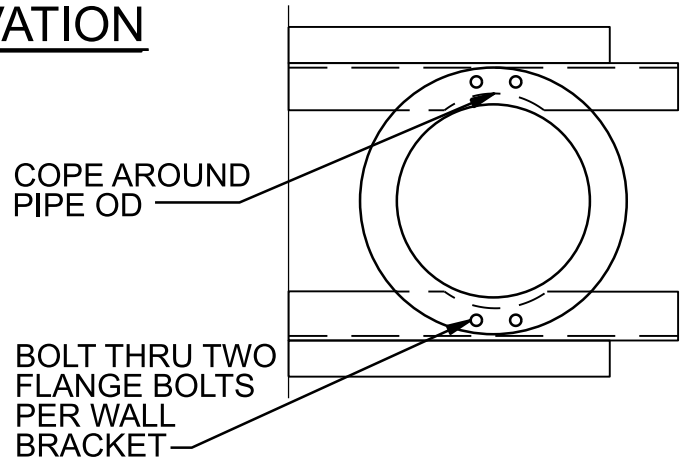
PIPE SUPPORT - WALL MOUNTED MEDIUM

NTS

CONCRETE ANCHOR, SIZE AS REQ'D BY MFR, (2 EA BRACKET)



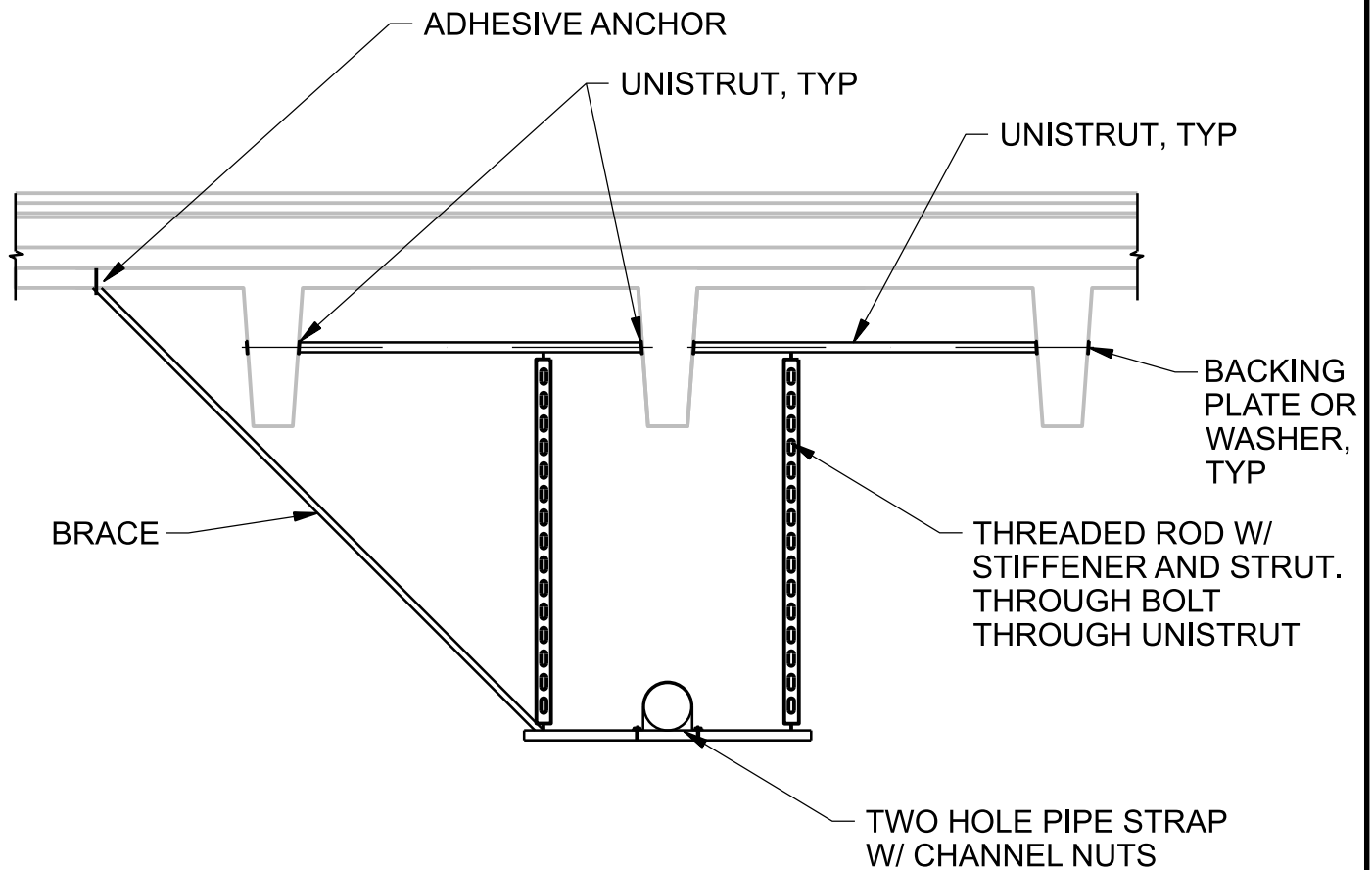
SIDE ELEVATION



TOP PLAN

VERTICAL PIPE SUPPORT

NTS



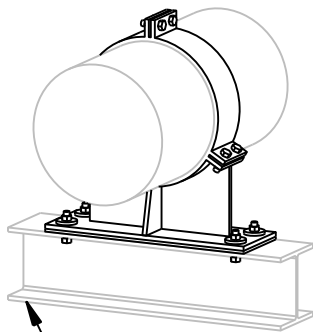
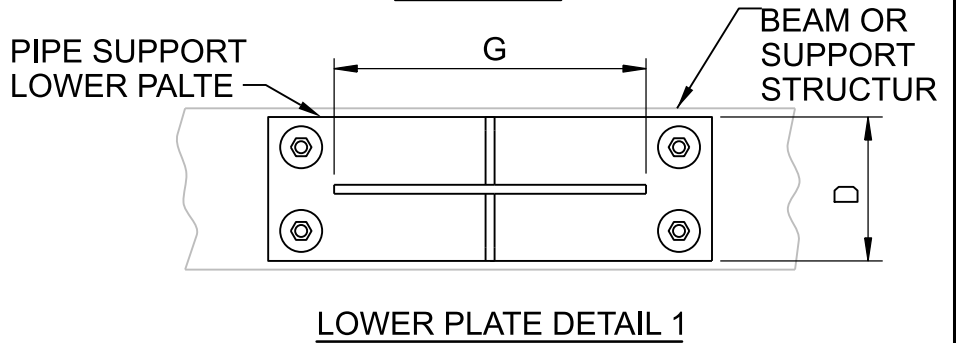
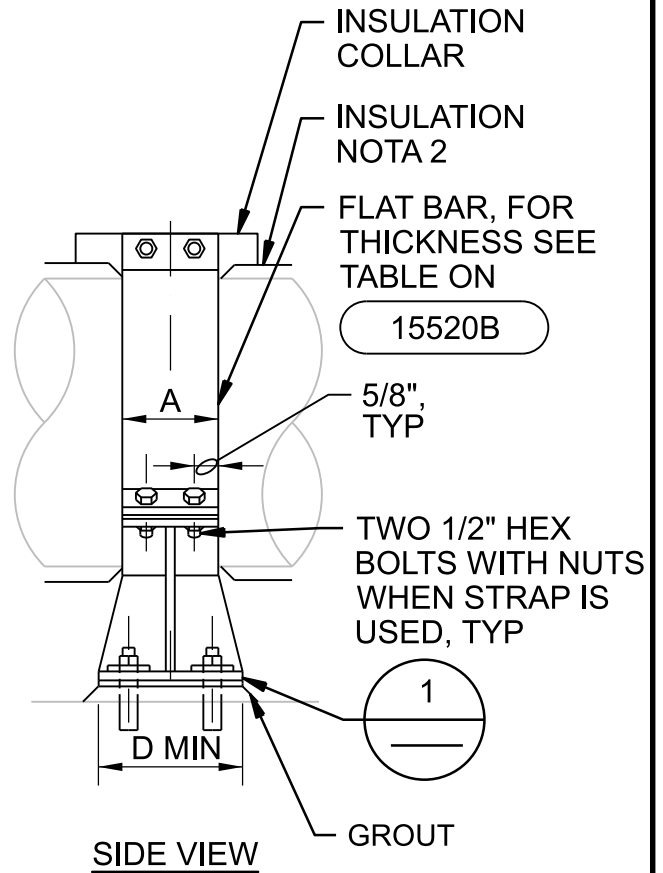
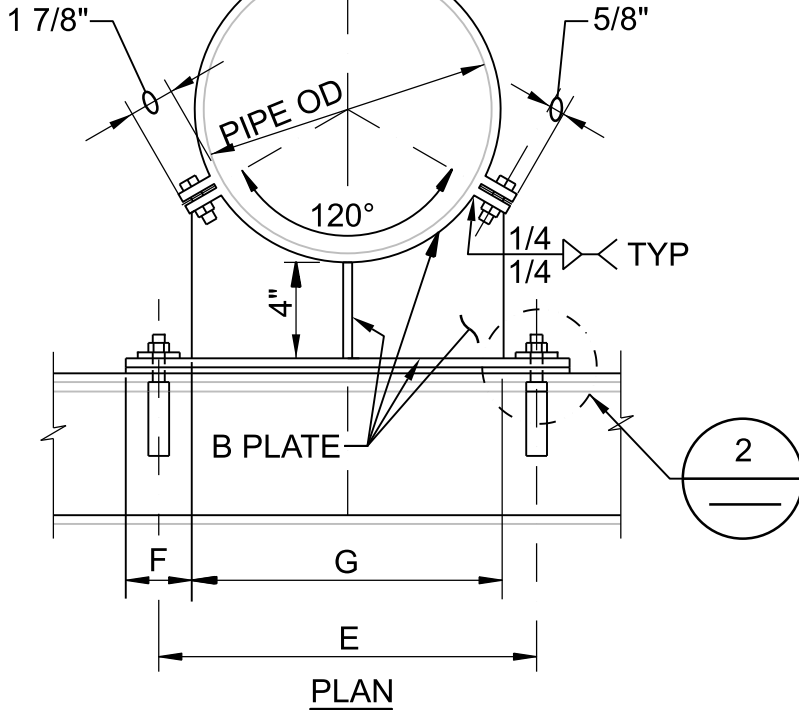
NOTES:

1. FIELD X-RAY AND LOCATE DOUBLE TEE REINFORCING PRIOR TO DRILLING. DO NOT CUT DOUBLE TEE REINFORCING.
2. THROUGH BOLT THROUGH DOUBLE TEE STEM.
3. SUBMIT CALCULATIONS STAMPED BY A PROFESSIONAL ENGINEER CERTIFIED IN THE STATE OF THE PROJECT.
4. ALL MATERIALS SHALL BE PER THE AREA CLASSIFICATION AND MATERIALS OF CONSTRUCTION TABLE LOCATED ON DRAWINGS.

DOUBLE TEE PIPE HANGER

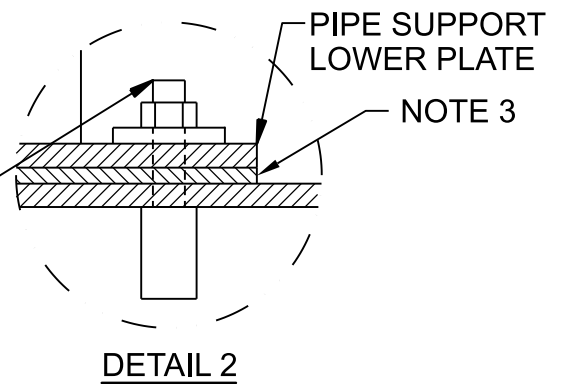
NTS

ONE LAYER OF
EXPANSION JOINT
FILLER WRAP
AROUND PIPE



USE SUPPORT TO
SUSPEND PIPE
FROM OVERHEAD
STRUCTURE WHERE
NOTED ON DRAWINGS

C DIAMETER
ANCHOR BOLT
W/2 HEX
NUTS FOR
LEVELING AFTER
INSTALLATION,
TYP OF 4



PIPE SUPPORT (FIXED)

NTS

SHEET 1 OF 2

15520A

DIMENSION IN INCHES (NOTE 2)								
NOMINAL PIPE SIZE								FLAT BAR
	A	B	C	D	E	F	G	
6"	4	3/8	5/8	6	16	3	10	1/4
8"	4	3/8	5/8	6	17	3	11	1/4
10"	4	3/8	5/8	6	18	3	12	1/4

NOTES:

1. 1/4" SPACER BLOCK. DRILL TO MATCH BOLT HOLE LOCATIONS IN PIPE SUPPORT LOWER PLATE.
2. MINMUM DIMENSIONS ONLY. PROVIDE FINAL PIPE SUPPORT DESIGN IN ACCORDANCE WITH 15200, PROCESS PIPING GENERAL AND 016212, ANCHORAGE AND BRACING.

PIPE SUPPORT (FIXED)

NTS

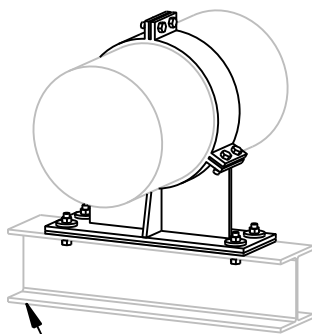
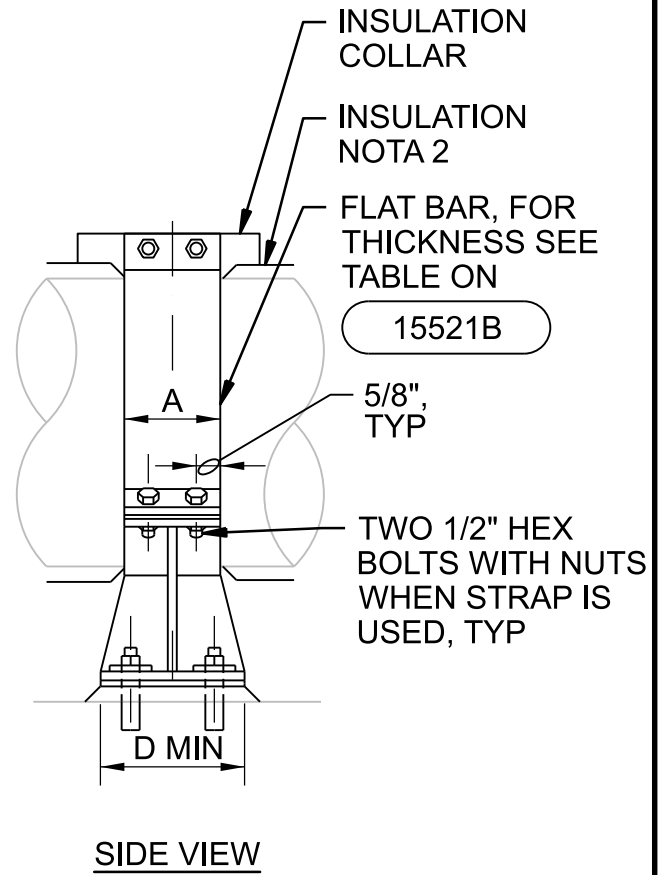
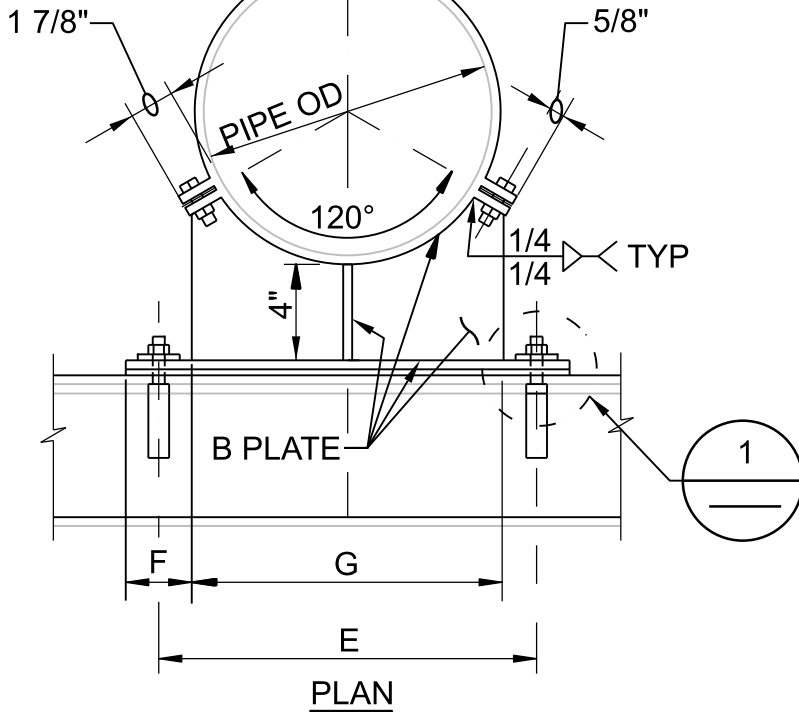
SHEET 2 OF 2

CLEAN WATER SERVICES
 DURHAM WRRF
 PHASE 6B DIGESTER

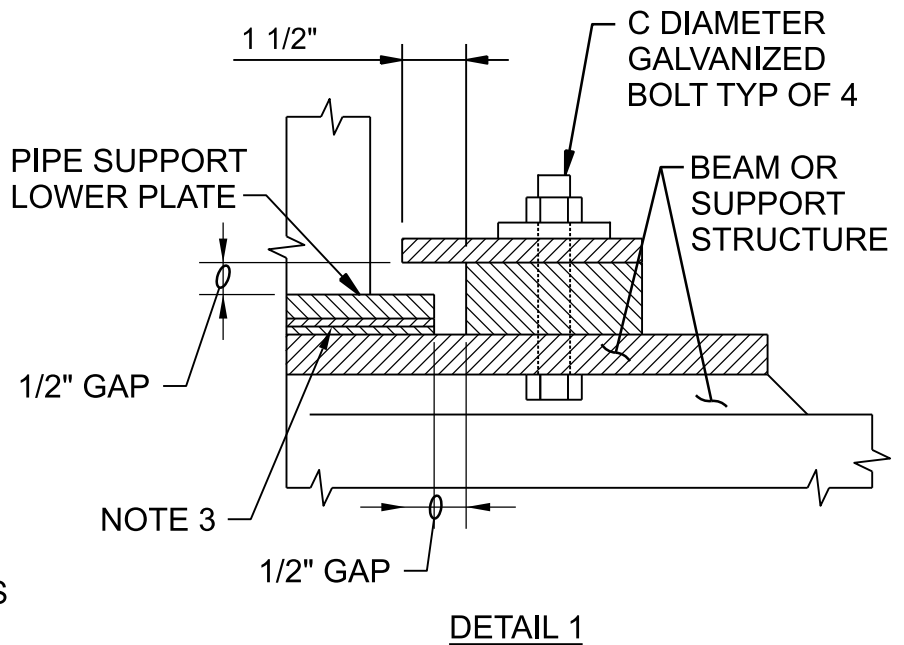
15520B



ONE LAYER OF
EXPANSION JOINT
FILLER WRAP
AROUND PIPE



USE SUPPORT TO
SUSPEND PIPE
FROM OVERHEAD
STRUCTURE WHERE
NOTED ON DRAWINGS



PIPE SUPPORT (SLIDES)

NTS

SHEET 1 OF 2

15521A

DIMENSION IN INCHES (NOTE 2)								
NOMINAL PIPE SIZE								FLAT BAR
	A	B	C	D	E	F	G	
6"	4	3/8	5/8	6	16	3	10	1/4
8"	4	3/8	5/8	6	17	3	11	1/4
10"	4	3/8	5/8	6	18	3	12	1/4

NOTES:

1. 1/4" SPACER BLOCK. DRILL TO MATCH BOLT HOLE LOCATIONS IN PIPE SUPPORT LOWER PLATE.
2. MINMUM DIMENSIONS ONLY. PROVIDE FINAL PIPE SUPPORT DESIGN IN ACCORDANCE WITH 15200, PROCESS PIPING GENERAL AND 016212, ANCHORAGE AND BRACING.

PIPE SUPPORT (SLIDES)

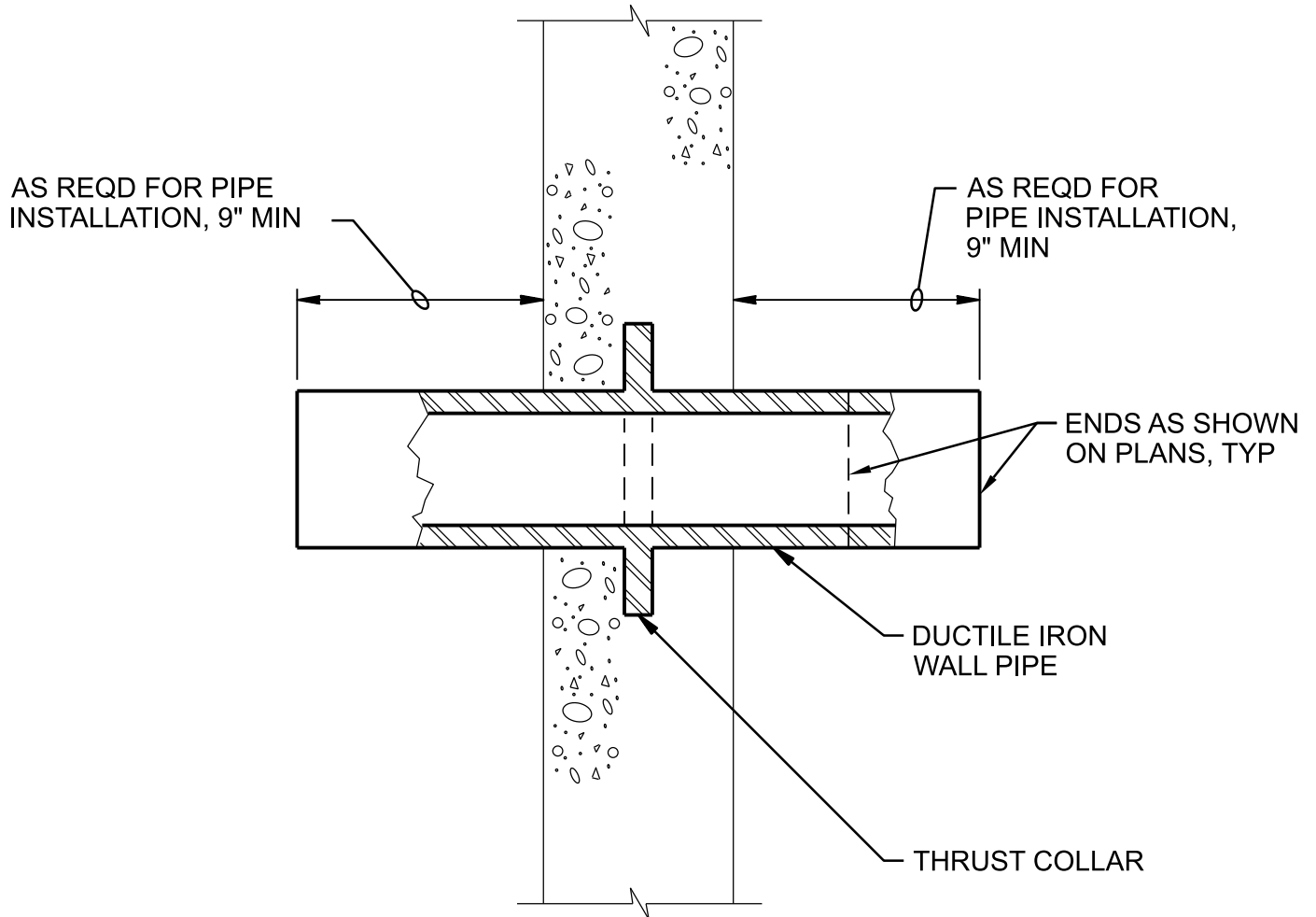
NTS

SHEET 2 OF 2

CLEAN WATER SERVICES
 DURHAM WRRF
 PHASE 6B DIGESTER

15521B



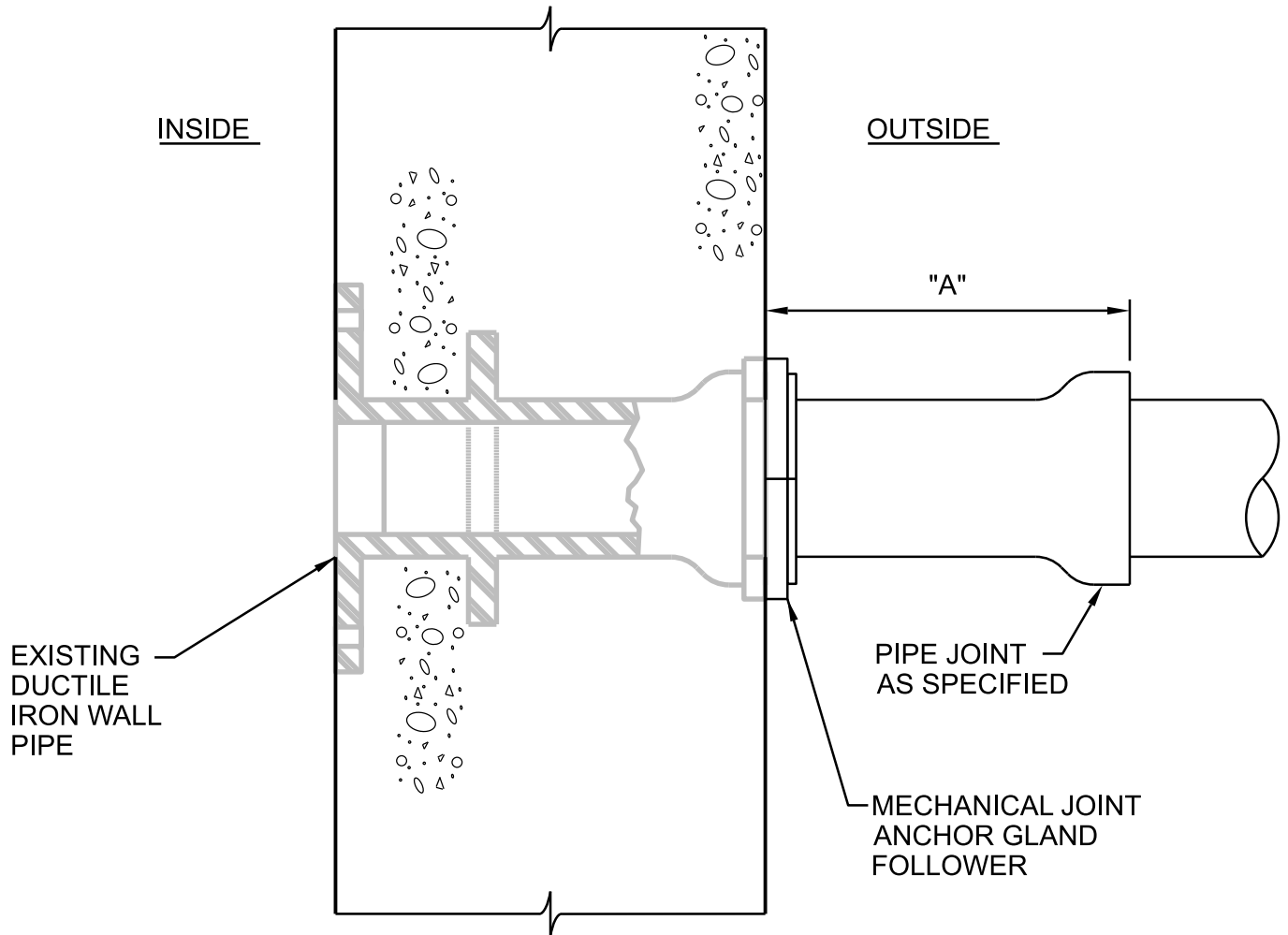


NOTES:

1. COAT WALL PIPE WITH SPECIFIED PAINT SYSTEM PRIOR TO CONCRETE PLACEMENT.

DUCTILE IRON WALL PIPE

NTS



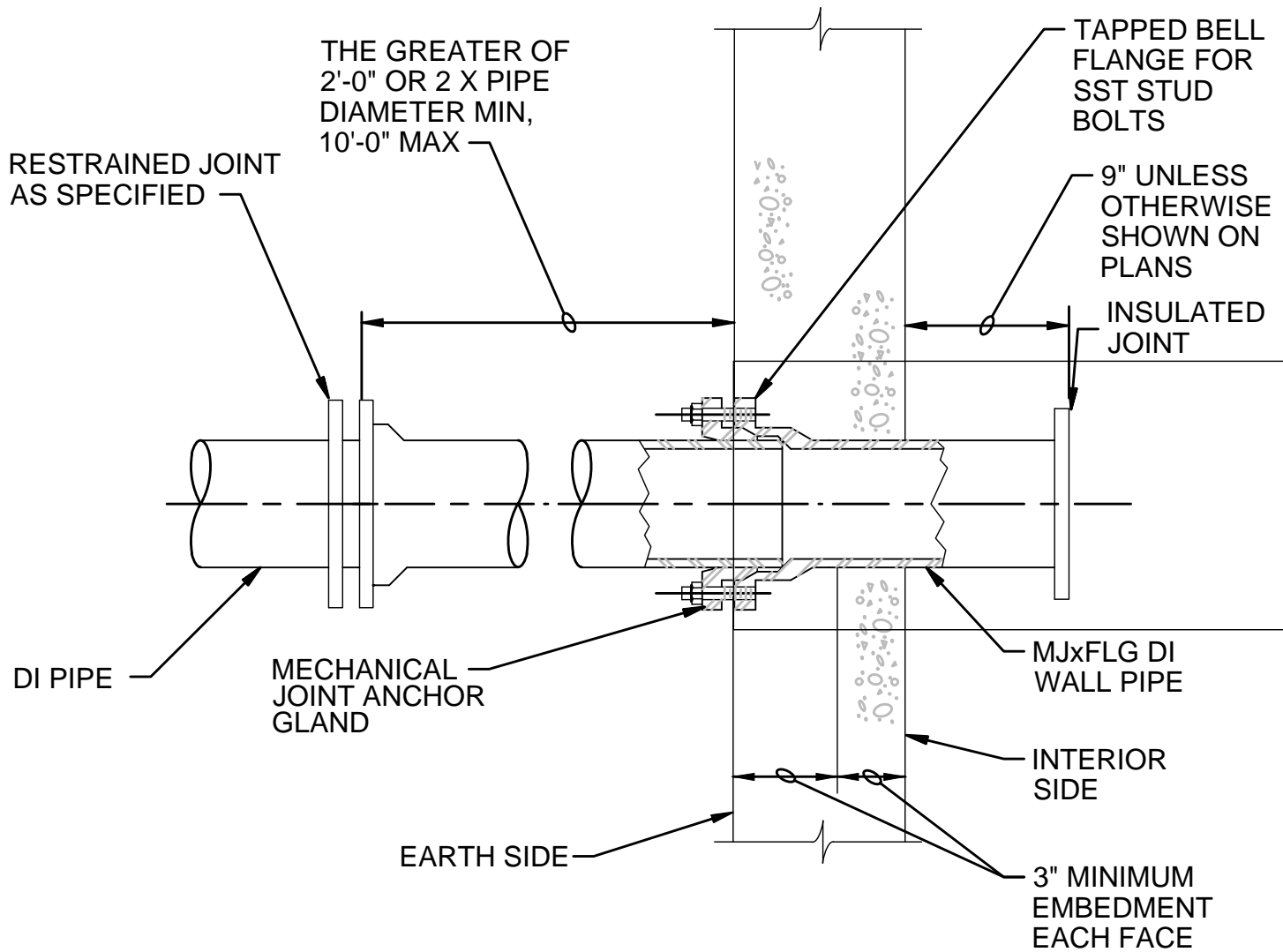
A = PIPE DIAMETERS 18" AND SMALLER: INSTALL SECOND JOINT WITHIN 18" OF THE FIRST JOINT.
 PIPE DIAMETERS LARGER THAN 18": INSTALL SECOND JOINT WITHIN 1.5 PIPE DIAMETERS OF THE FIRST JOINT.

EXISTING WALL PIPE CONNECTION

NTS

CLEAN WATER SERVICES
 DURHAM WRRF
 PHASE 6B DIGESTER

15601



NOTES:

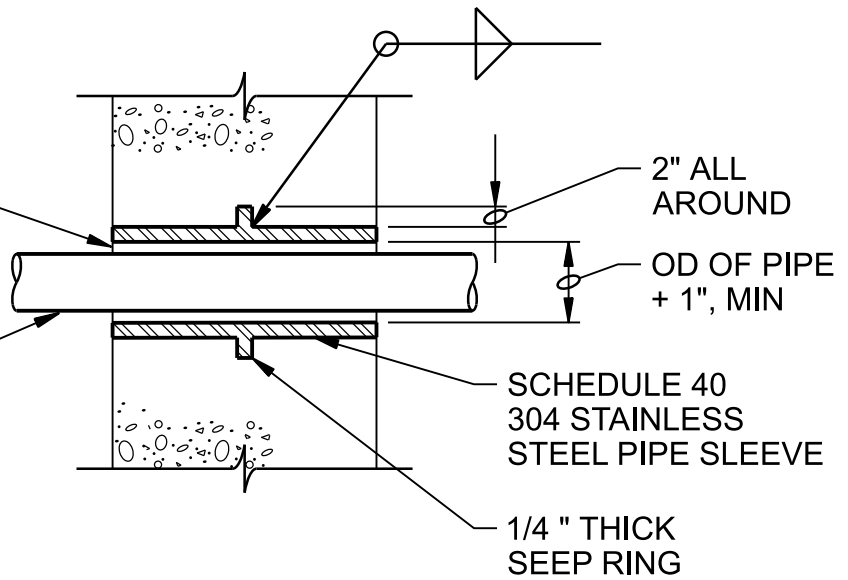
- 1. COAT WALL PIPE WITH SPECIFIED PAINT SYSTEM PRIOR TO CONCRETE PLACEMENT.

MECHANICAL JOINT WALL PIPE FOR DIP

NTS

FILL ANNULAR SPACE
WITH WATERPROOF
DOW CORNING 732 RTV
SILICONE SEALANT,
JOINT SHALL BE
WATERTIGHT

PASSING PIPE

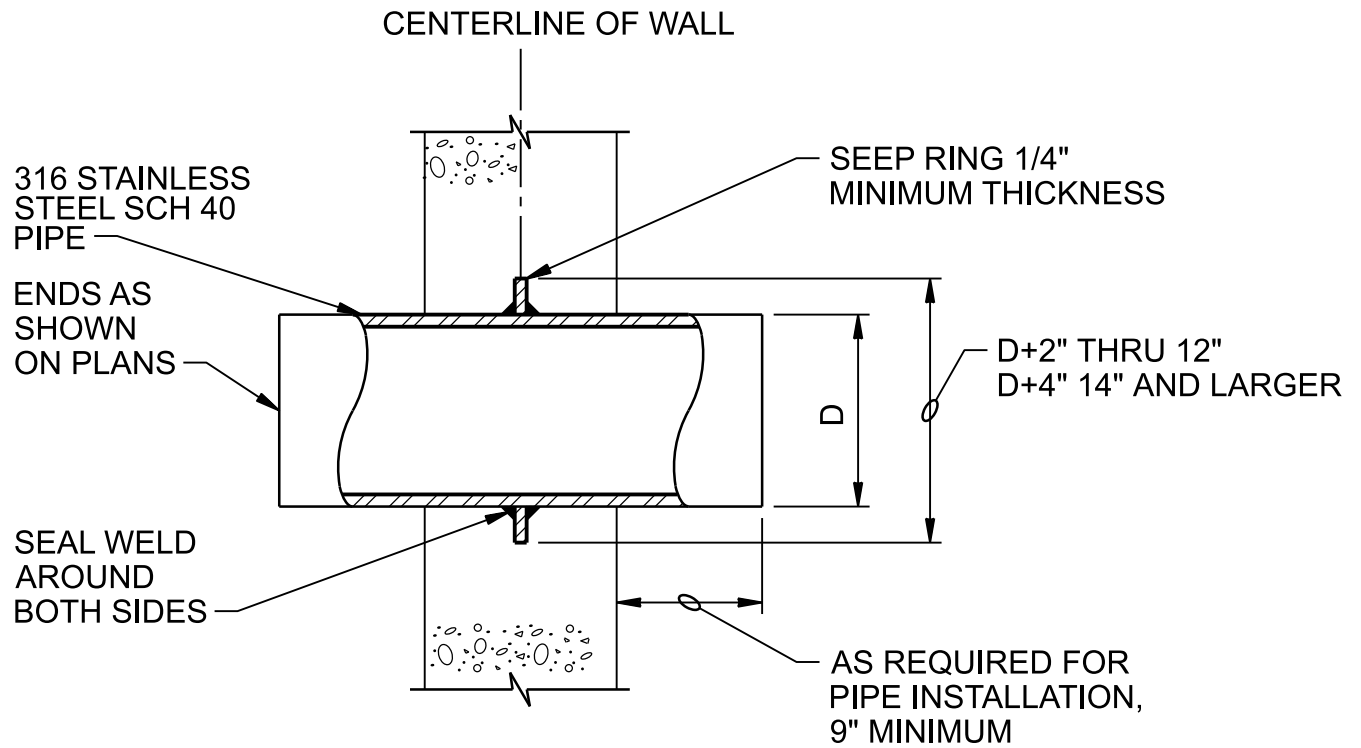


NOTES:

1. DO NOT USE WHERE SUBJECT TO HYDROSTATIC PRESSURE.

TYPE B PIPE SLEEVE

NTS



STAINLESS STEEL WALL PIPE

NTS

CLEAN WATER SERVICES
DURHAM WRRF
PHASE 6B DIGESTER

15605

FILL WITH
NON-SHRINK
GROUT

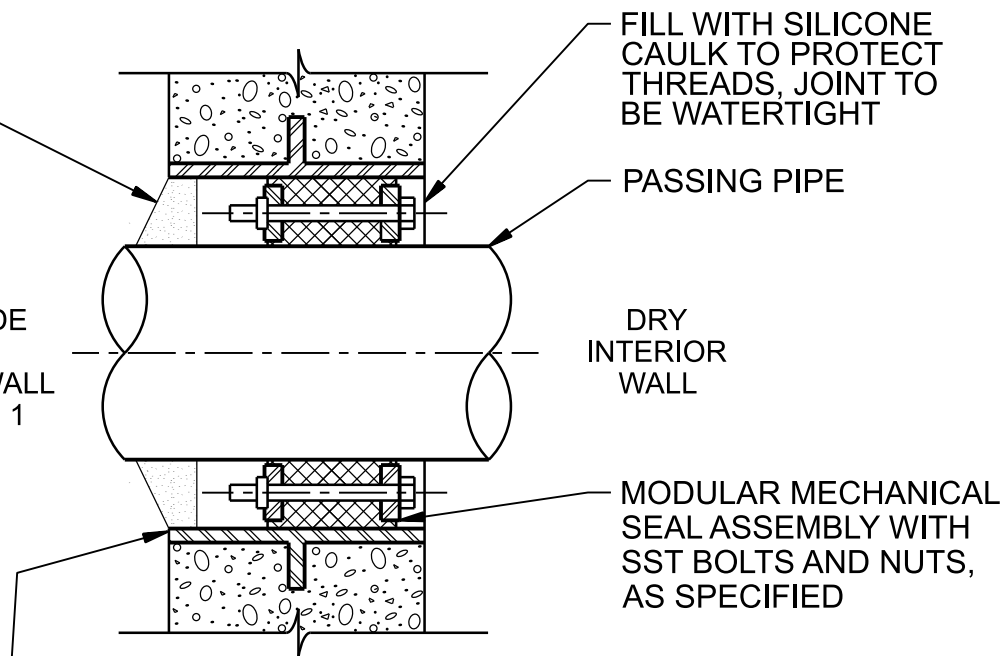
FILL WITH SILICONE
CAULK TO PROTECT
THREADS, JOINT TO
BE WATERTIGHT

PASSING PIPE

WATER SIDE
OR
EXTERIOR WALL
SEE NOTE 1

DRY
INTERIOR
WALL

MODULAR MECHANICAL
SEAL ASSEMBLY WITH
SST BOLTS AND NUTS,
AS SPECIFIED



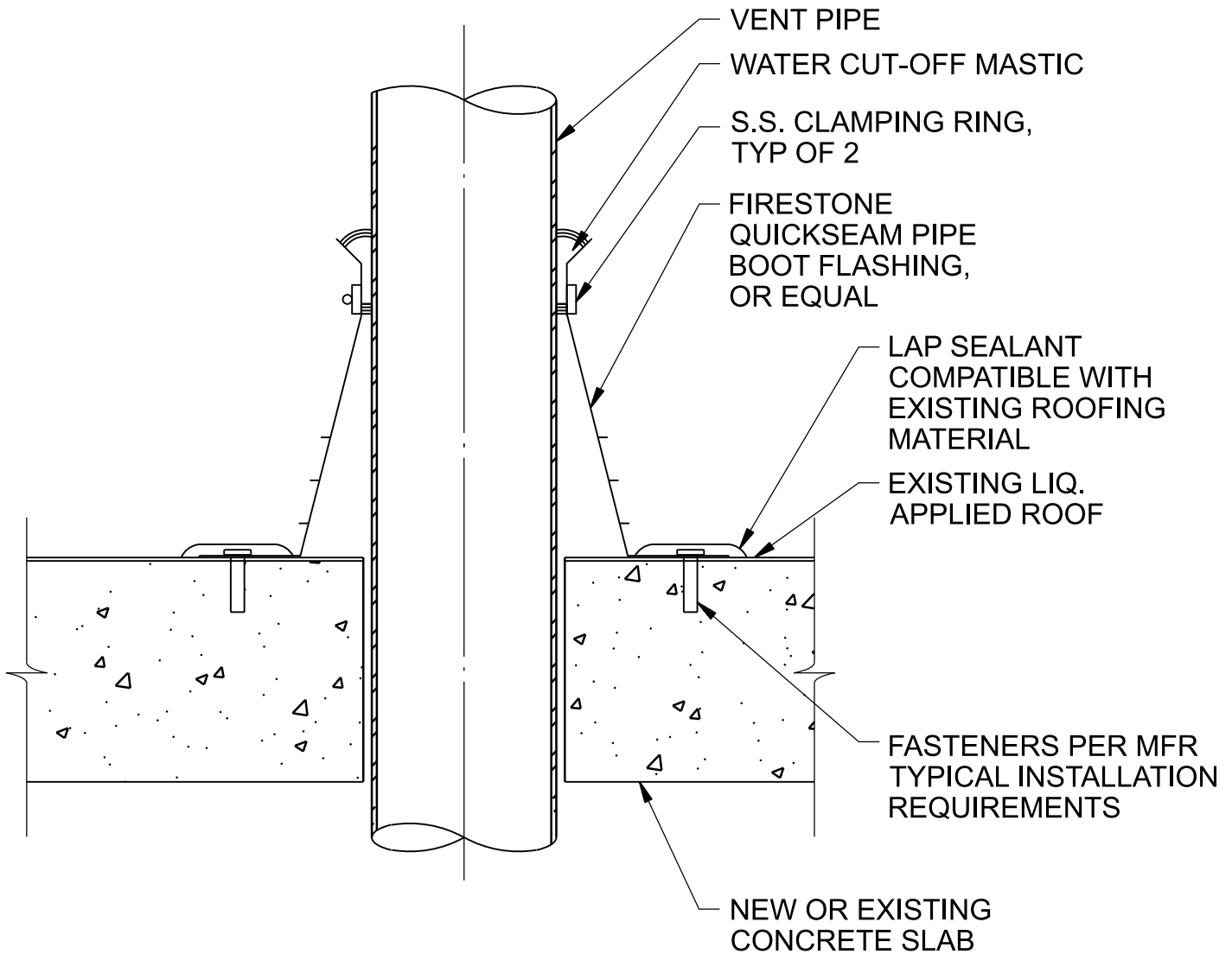
FOR NEW WALLS, PROVIDE 304 STAINLESS STEEL, SCH 40 PIPE SLEEVE. FOR EXISTING WALLS, OMIT PIPE SLEEVE AND CORE DRILL TO DIAMETER RECOMMENDED BY MECHANICAL SEAL ASSEMBLY MANUFACTURER. INSIDE SURFACE MUST BE SMOOTH. PREPARE AND COAT EXPOSED STEEL REINFORCEMENT WITH SYSTEM NO.7. GROUT FILL AND / OR MACHINE AS NECESSARY FOR SMOOTHNESS

NOTES:

1. WHERE PIPE PASSES THROUGH INTERIOR WALL, GROUT IS NOT REQUIRED.
2. ALL MATERIALS SHALL BE PER THE AREA CLASSIFICATION AND MATERIALS OF CONSTRUCTION TABLE LOCATED ON DRAWINGS.
3. FOR EXISTING WALLS, FIELD X-RAY AND LOCATE CONCEALED REINFORCEMENT OR CONDUITS PRIOR TO CORING NEW HOLE. LOCATE NEW PIPE IN AREAS FREE OF REINFORCEMENT OR CONDUIT.

WALL PIPE PENETRATION SEAL

NTS

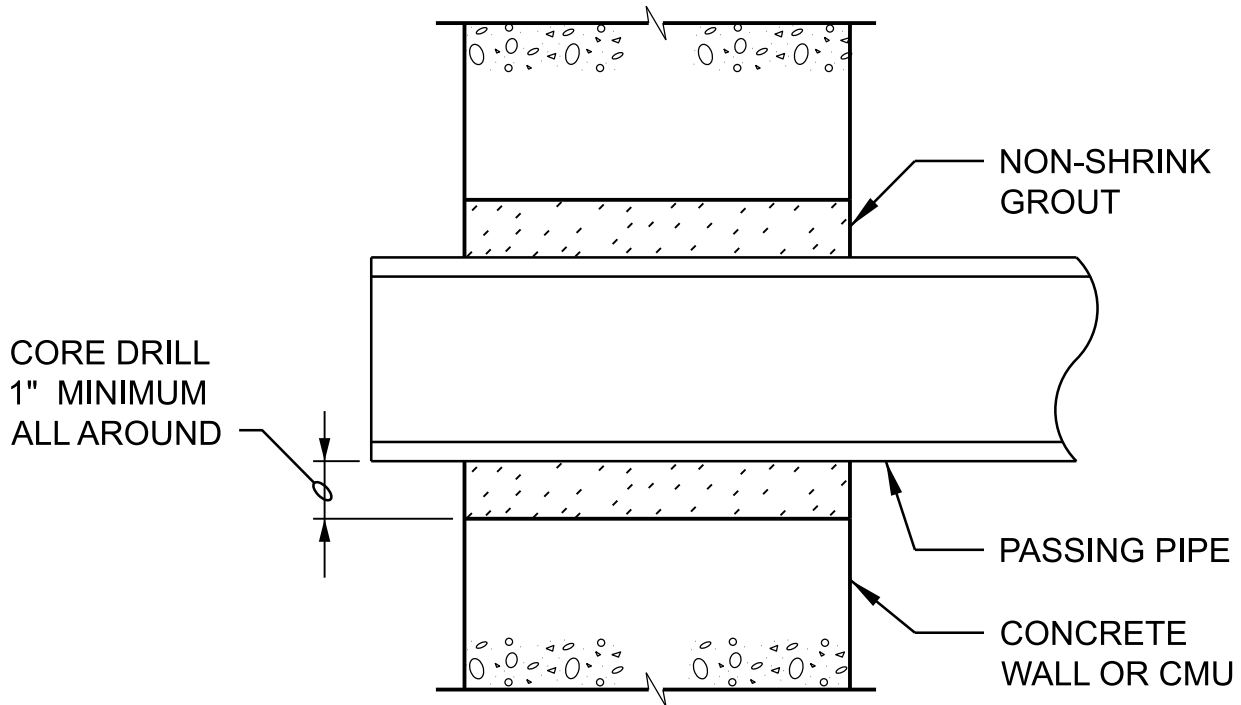


NOTES:

1. FOR EXISTING CONCRETE, FIELD X-RAY AND LOCATE CONCEALED REINFORCEMENT OR CONDUITS PRIOR TO CORING NEW HOLE. LOCATE NEW PIPE IN AREAS FREE OF REINFORCEMENT OR CONDUIT.
2. PREPARE AND COAT EXPOSED STEEL REINFORCEMENT WITH PAINT SYSTEM NO. 7.

ROOF PENETRATION SEAL

NTS

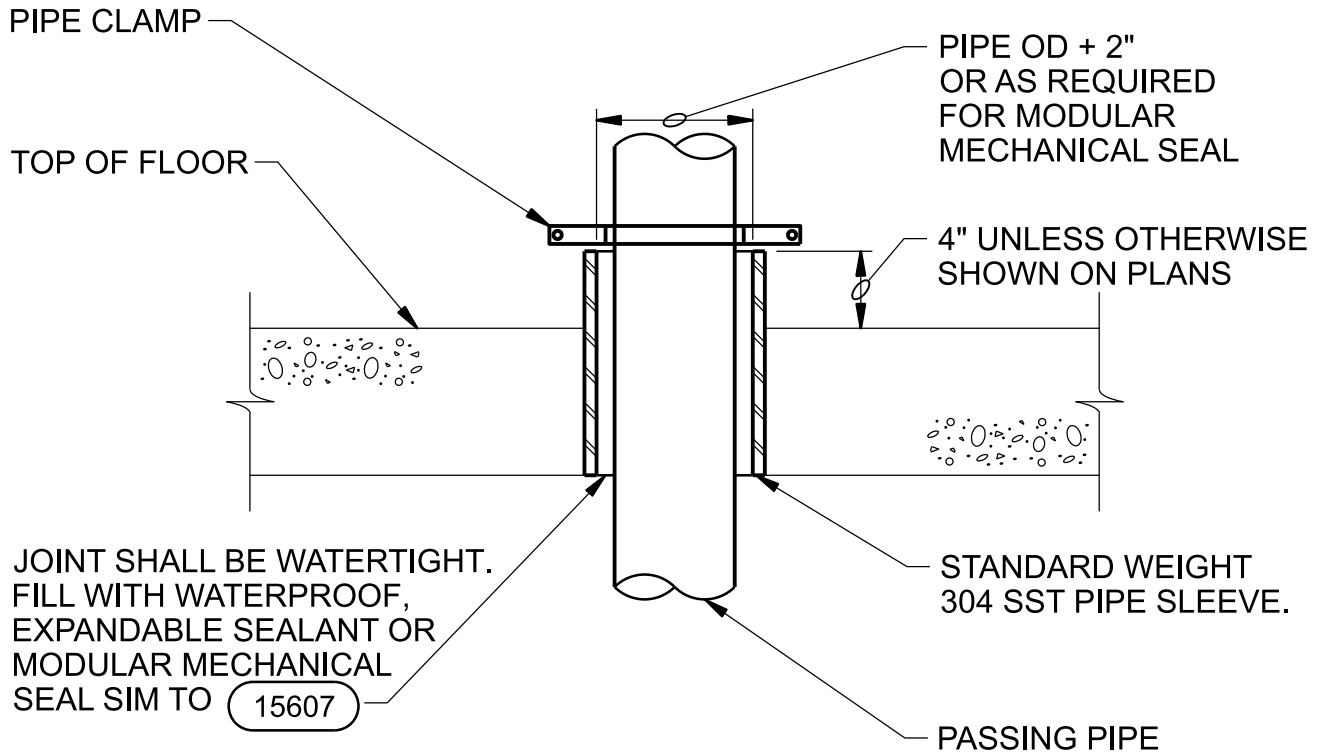


NOTES:

1. IF PASSING PIPE IS INSULATED STOP INSULATION THROUGH WALL .

PIPE PENETRATION

NTS



FLOOR SLEEVE

NTS

CLEAN WATER SERVICES
DURHAM WRRF
PHASE 6B DIGESTER

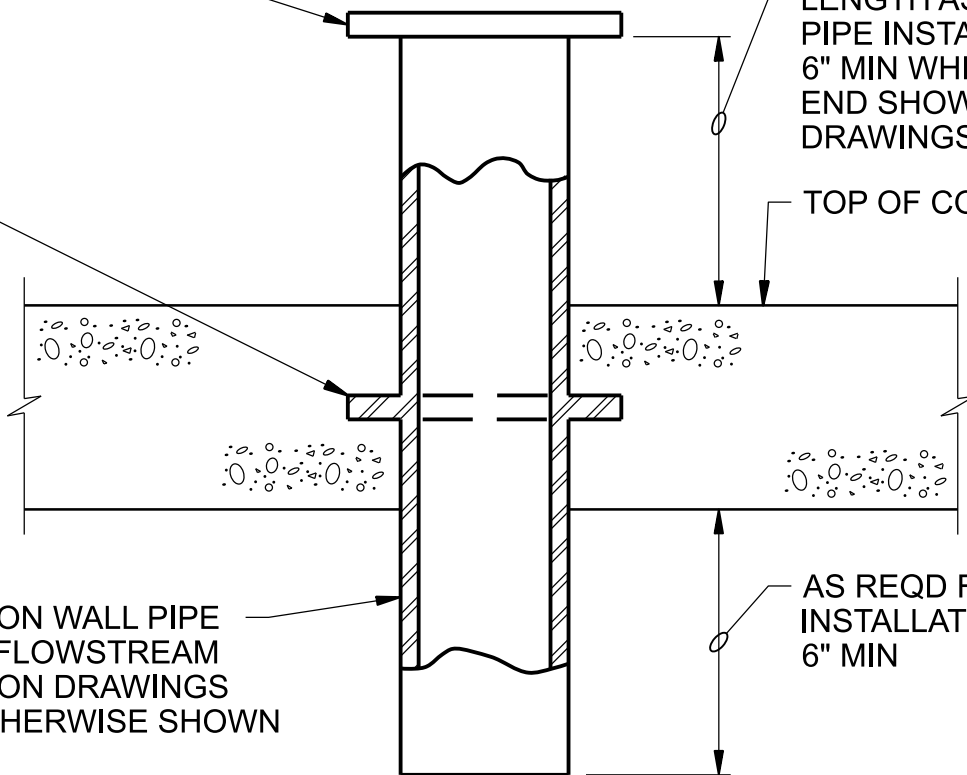
15620

FLANGED, MECHANICAL OR
PLAIN END AS SHOWN
ON DRAWINGS, TYP

SEEP RING,
CENTERED
IN SLAB

LENGTH AS REQD FOR
PIPE INSTALLATION,
6" MIN WHERE FLANGED
END SHOWN ON
DRAWINGS

TOP OF CONC SLAB



DUCTILE IRON WALL PIPE
TO MATCH FLOWSTREAM
INDICATED ON DRAWINGS
UNLESS OTHERWISE SHOWN
(NOTE 2)

AS REQD FOR PIPE
INSTALLATION,
6" MIN

NOTES:

1. COAT FLOOR PIPE WITH SPECIFIED PAINT SYSTEM PRIOR TO CONCRETE PLACEMENT.
2. DO NOT ALLOW WALL PIPE OR SEEP RING TO COME INTO CONTACT WITH REINFORCING STEEL. PROVIDE 2" CLEAR MINIMUM.

DUCTILE IRON FLOOR PIPE

NTS

FLANGED, MECHANICAL OR
PLAIN END AS SHOWN
ON DRAWINGS, TYP

SEEP RING
1/4" MINIMUM
THICKNESS,
CENTERED IN SLAB

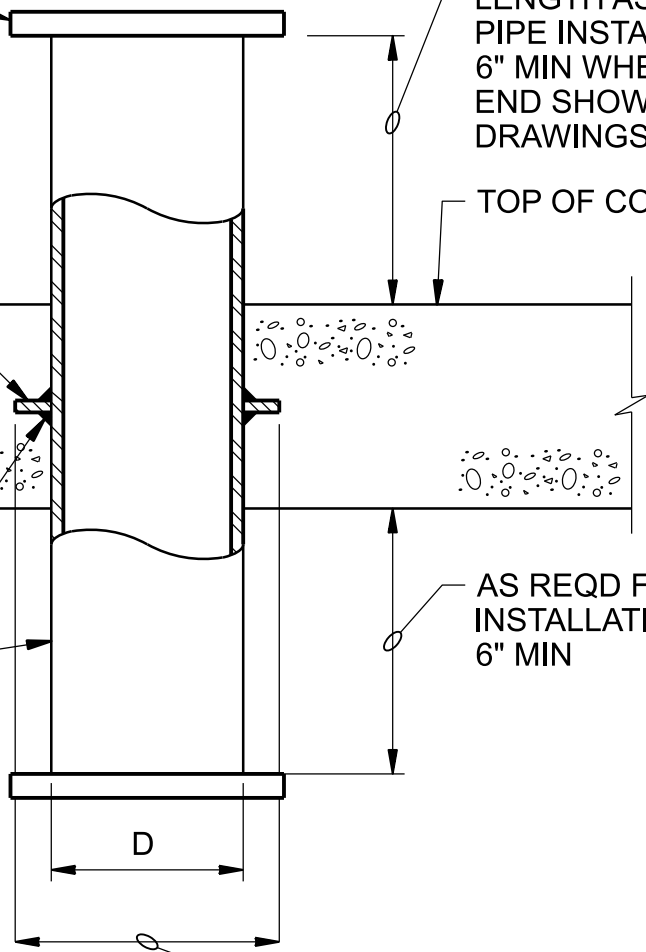
LENGTH AS REQD FOR
PIPE INSTALLATION,
6" MIN WHERE FLANGED
END SHOWN ON
DRAWINGS

TOP OF CONC SLAB

SEAL WELD AROUND
BOTH SIDES

316 STAINLESS STEEL,
SCH 40 WALL PIPE

AS REQD FOR PIPE
INSTALLATION,
6" MIN



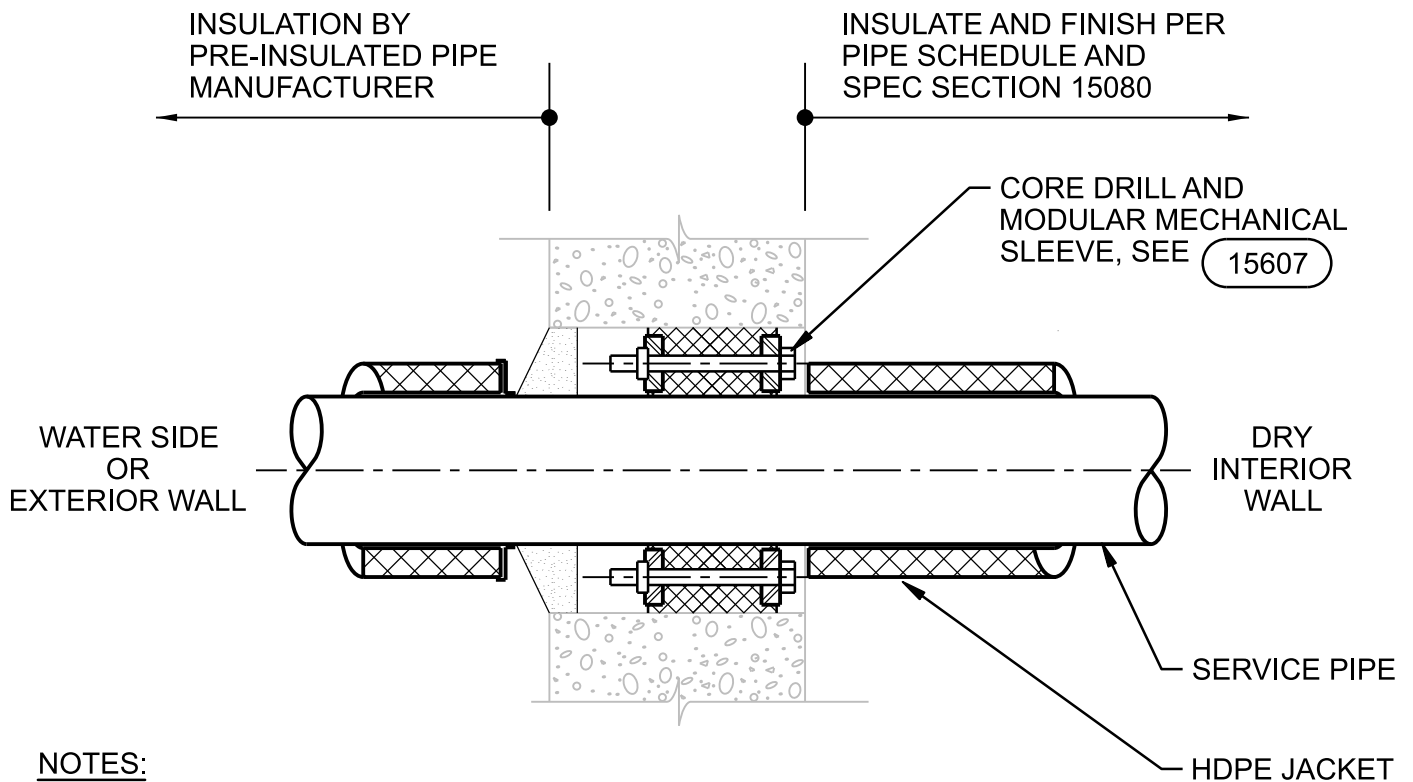
D+2" THRU 12"
D+4" 14" AND LARGER

NOTES:

- DO NOT ALLOW WALL PIPE OR SEEP RING TO COME INTO CONTACT WITH REINFORCING STEEL. PROVIDE 2" CLEAR MINIMUM.

STAINLESS STEEL FLOOR PIPE

NTS



NOTES:

1. FIELD X-RAY AND LOCATE CONCEALED REINFORCEMENT OR CONDUITS PRIOR TO CORING NEW HOLE. LOCATE NEW SERVICE PIPE IN AREAS FREE OF REINFORCEMENT OR CONDUIT.
2. PREPARE AND COAT EXPOSED STEEL REINFORCEMENT WITH PAINT SYSTEM NO. 7.

INSULATED PIPE THROUGH EXISTING WALL

NTS

CLEAN WATER SERVICES
 DURHAM WRRF
 PHASE 6B DIGESTER

15630

SET COVER OF VALVE BOX
AND CONC PAD 1/4" BELOW
GRADE IN PAVEMENT OR
SHOULDER, AND FLUSH WITH
GRADE ELSEWHERE

CAST IRON LID

PROVIDE 1'-6" SQ x 4"
THICK CONC PAD

FINISHED GRADE

COMPACTED
BACKFILL

CAST IRON VALVE BOX,
SLIDING TYPE,
UPPER SECTION

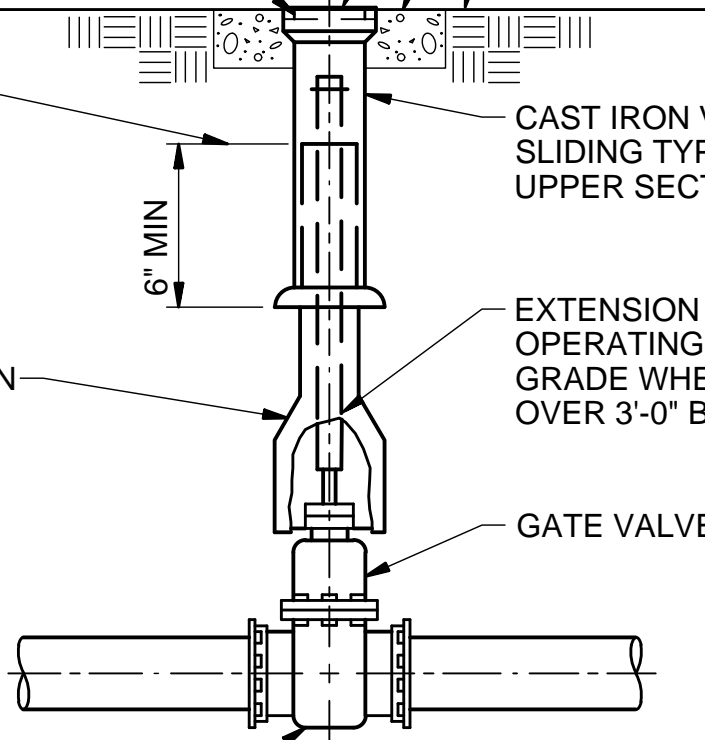
6" MIN

CAST IRON
VALVE BOX
LOWER SECTION

EXTENSION ROD REQD W/ 2"
OPERATING NUT 1'-0" BELOW
GRADE WHEN VALVE IS
OVER 3'-0" BELOW GRADE

GATE VALVE

VALVE SIZE SHOWN ON
PLANS, ENDS AS SPECIFIED

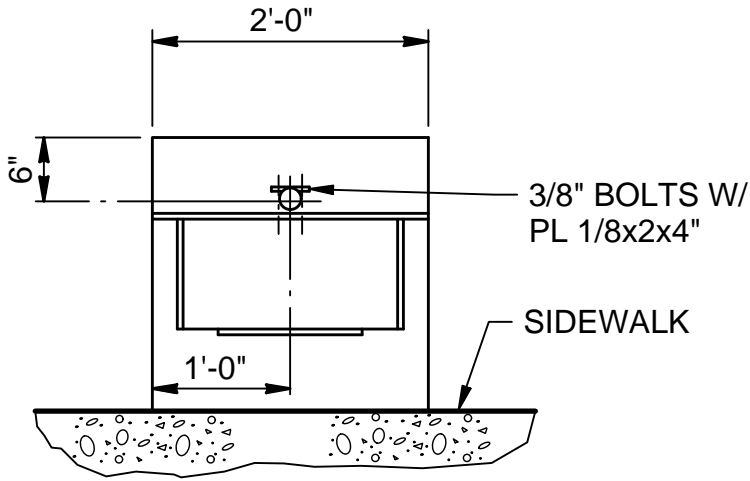


BURIED GATE VALVE BOX

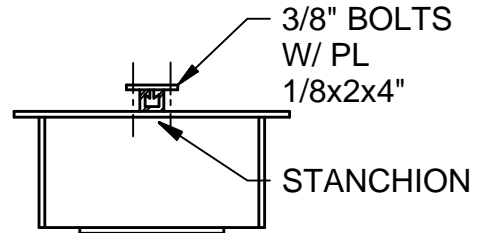
NTS

CLEAN WATER SERVICES
DURHAM WRRF
PHASE 6B DIGESTER

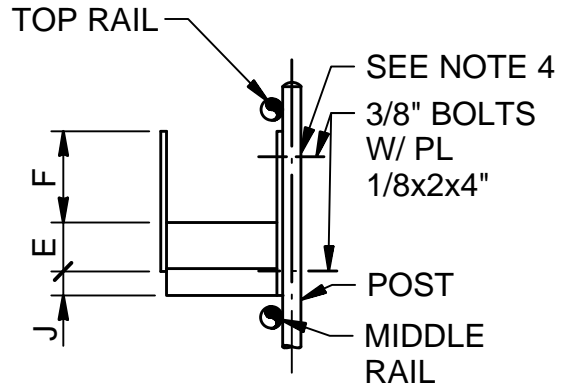
15640



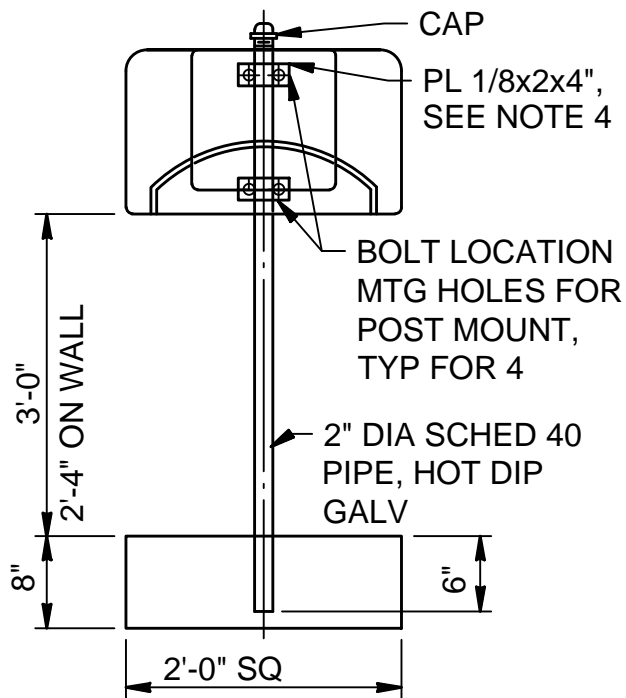
PLAN-POST MOUNT



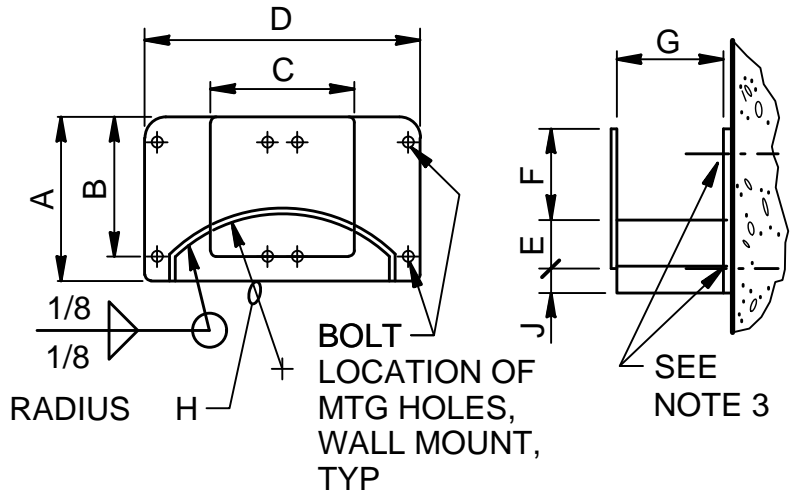
STANCHION MOUNTED



HANDRAIL POST MOUNTED



SECTION



WALL MOUNTED

HOSE RACKS

NTS

SHEET 1 OF 2

15720A

CLEAN WATER SERVICES
DURHAM WRRF
PHASE 6B DIGESTER

JACOBS

DIMENSION IN INCHES

RACK TYPE	DIMENSION IN INCHES								
	A	B	C	D	E	F	G	H	J
TYPE B-1 1/2" HOSE	14	12	12	24	4	8	10	13	2

NOTES:

1. INTERIOR UNITS SHALL BE FABRICATED FROM 1/8" A-36 STEEL PLATE AND ENTIRE UNIT SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.
2. EXTERIOR UNITS SHALL BE FABRICATED FROM 3/16" 6061-T6 ALUMINUM ALLOY PLATE.
3. ATTACH TO CONCRETE WALL WITH (4) - 3/8" STAINLESS STEEL STUD TYPE WEDGE ANCHORS.
4. ATTACH TO VERTICAL HANDRAIL OR INDIVIDUAL POST WITH PLATES AND (4)- 3/8" STAINLESS STEEL BOLTS.
5. ATTACH TO STEEL COLUMN WITH (4)- 3/8" ROUND HEAD BOLTS, ONE IN EACH CORNER. INSERT DOUBLE SPACER NUTS BETWEEN COLUMN AND HOSE RACK.

HOSE RACKS

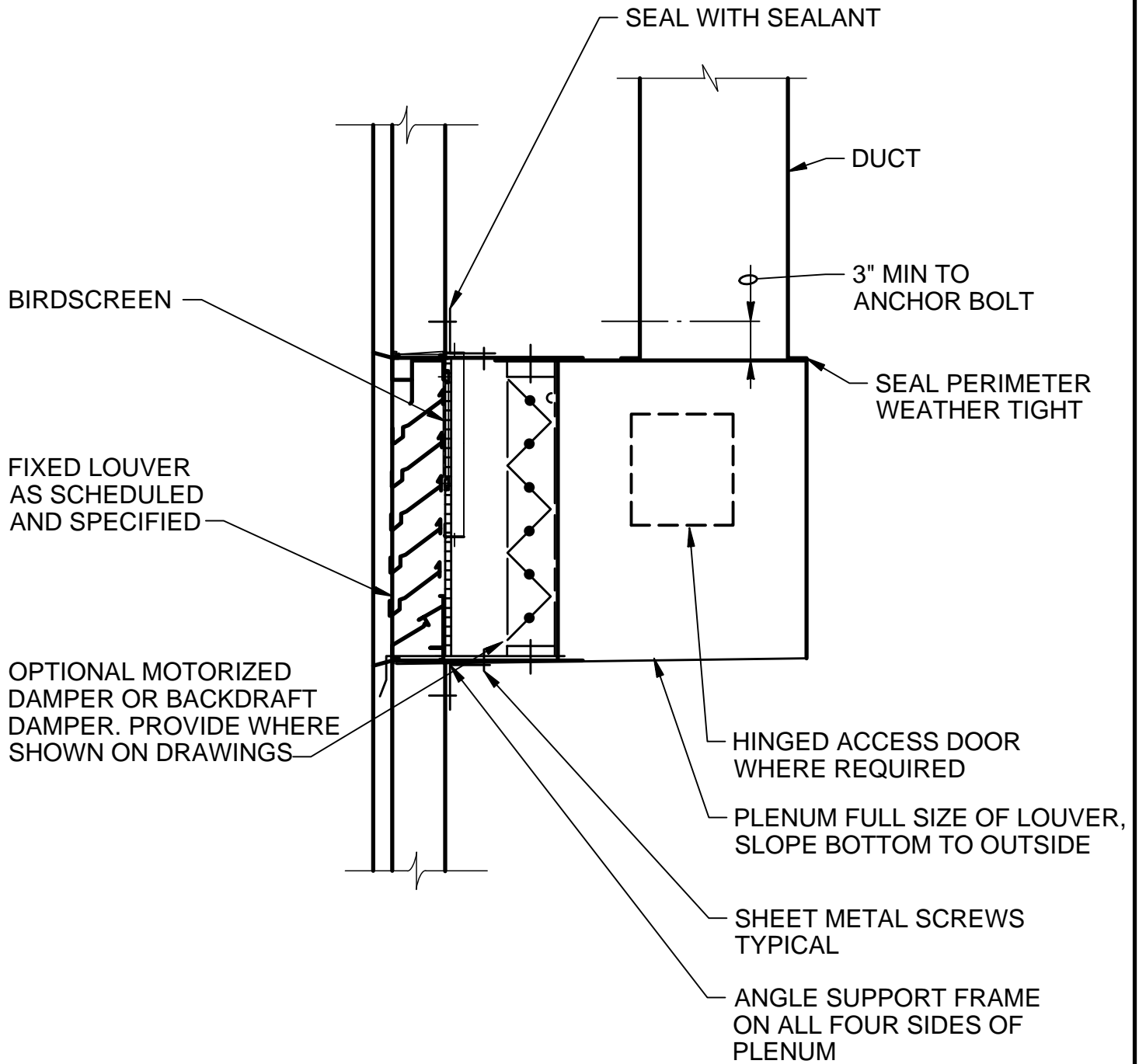
NTS

SHEET 2 OF 2

15720B

CLEAN WATER SERVICES
 DURHAM WRRF
 PHASE 6B DIGESTER



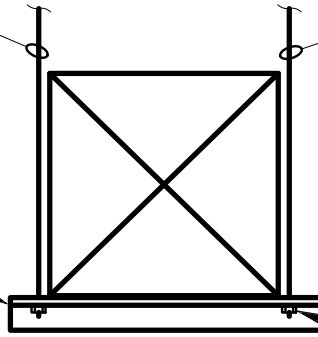


LOUVER/PLENUM CONNECTION

NTS

ALL-THREAD ROD

KINDORF HANGER WITH ALL THREAD ROD IN TRAPEZE CONFIGURATION

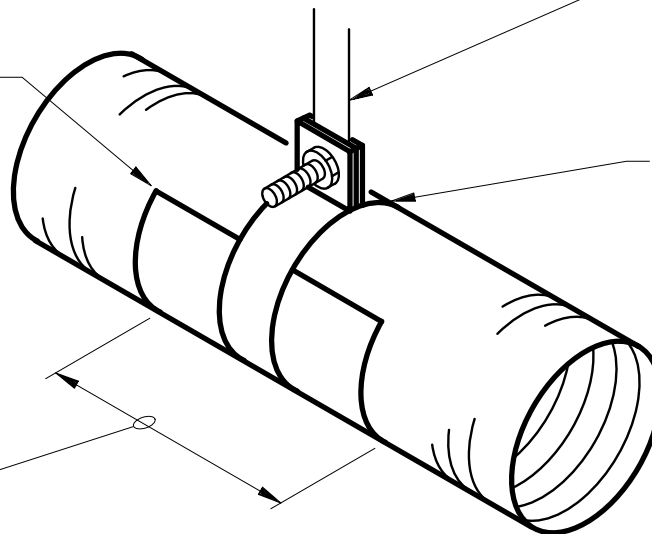


ATTACH TO STRUCTURE WITH BEAM CLAMPS OR MASONRY EXPANSION BOLTS

NUT WITH LOCK WASHER

RECTANGULAR DUCTWORK

STAINLESS STEEL SHEET METAL SADDLE



ATTACH TO STRUCTURE PER SMACNA RECOMMENDATIONS

1" MIN BAND CLAMP

LENGTH EQUALS DIAMETER OF DUCT

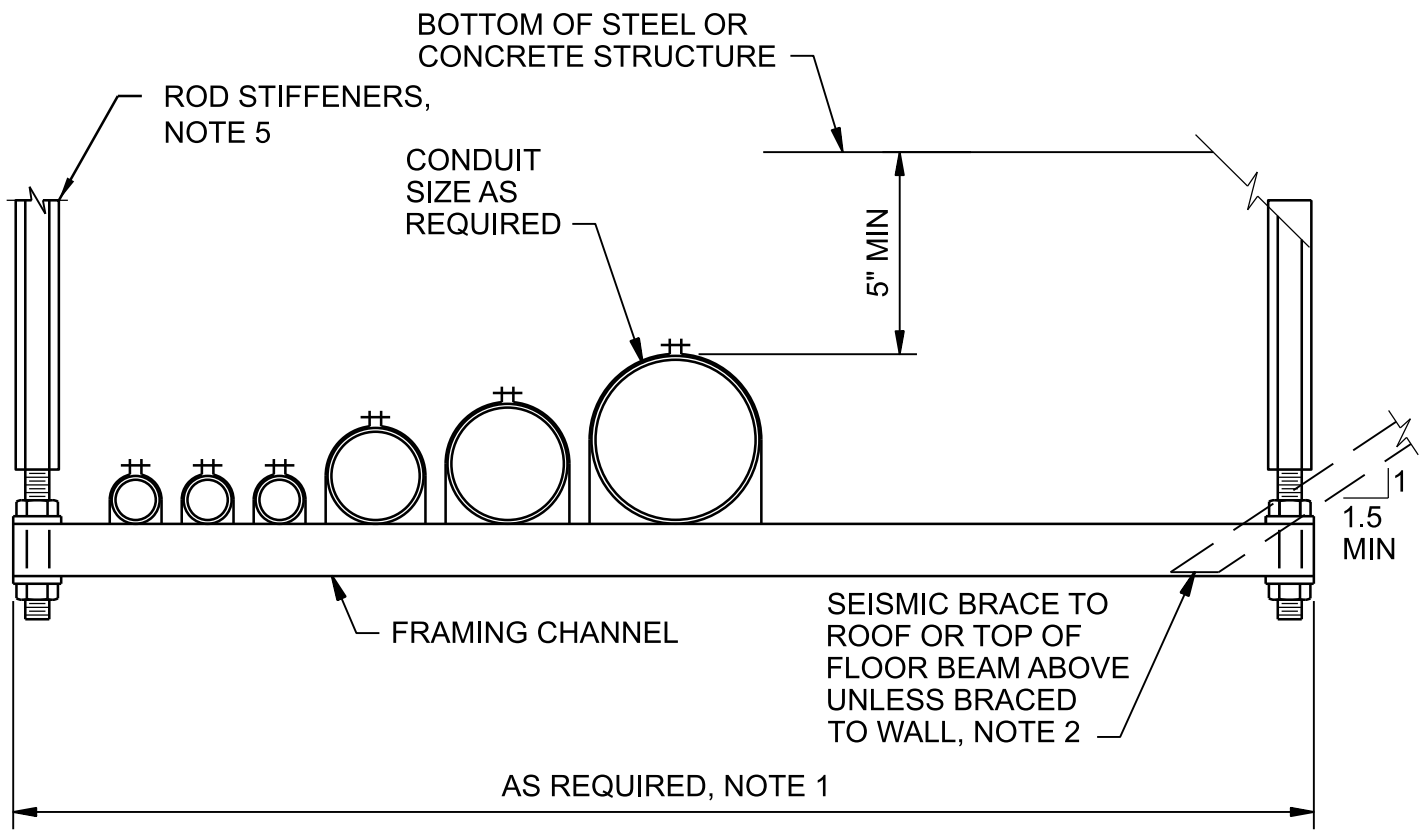
RIGID/FLEXIBLE ROUND DUCTWORK

NOTES:

1. DO NOT USE POWDER POWERED FASTENING SYSTEMS TO ATTACH SUPPORTS TO STRUCTURE.
2. SUPPORT SYSTEM MUST NOT DAMAGE DUCT, INSULATION, OR CAUSE DUCT SHAPE DEFORMATION.
3. HANGER SIZES SHALL BE IN ACCORDANCE WITH SMACNA, LATEST EDITION.

DUCTWORK SUPPORT

NTS



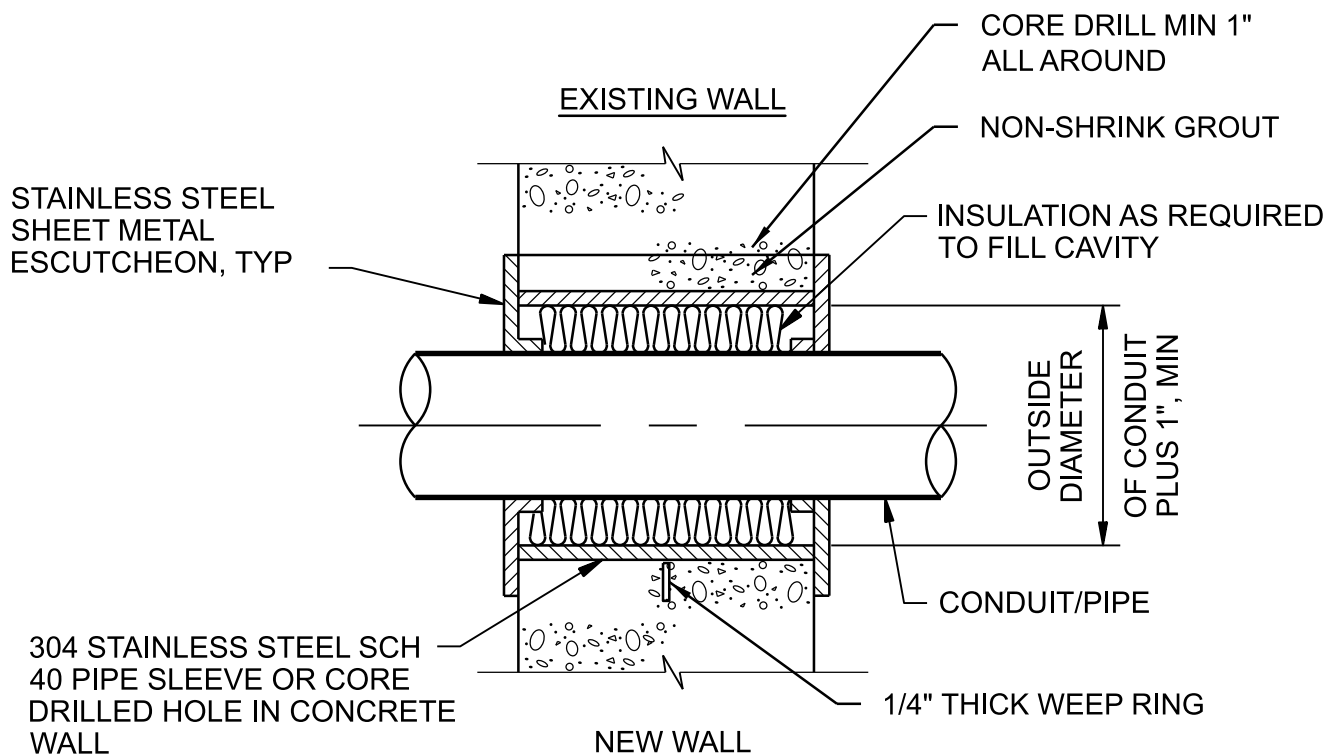
SINGLE RACK

NOTES:

1. LENGTH VARIES WITH NUMBER OF CONDUITS TO BE SUPPORTED AND SPACING BETWEEN CONDUITS.
2. SUBMIT FINAL DESIGN AND CALCULATIONS FOR SUPPORT AND ANCHORAGE AS SPECIFIED.
3. SEE AREA CLASSIFICATION AND MATERIALS OF CONSTRUCTION TABLE FOR HARDWARE.
4. SPACE CONDUIT SUFFICIENTLY TO ALLOW REMOVAL OF ONE CONDUIT WITHOUT DISTURBING ADJACENT CONDUITS.
5. PROVIDE WHITE STRUT PLASTIC END CAPS ON THE ENDS OF ALL STRUTS.

CONDUIT RACKING SYSTEM

NTS

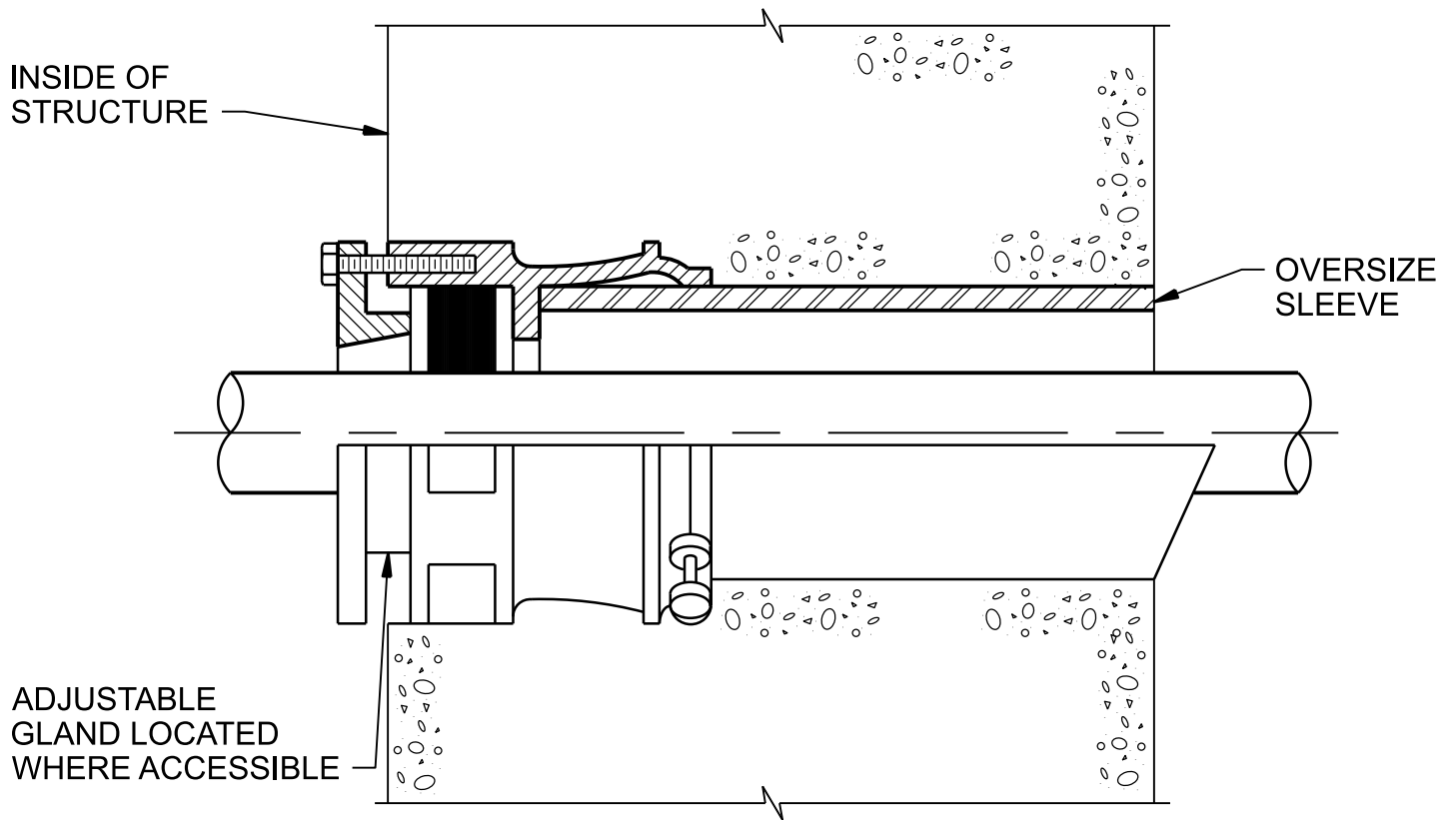


NOTES:

1. CONDUITS OR PIPES WHICH INDIVIDUALLY PASS THRU AN INTERIOR WALL SHALL BE INSTALLED IN ACCORDANCE WITH THIS DETAIL. IF WALL IS A FIRE WALL, FILL CAVITY WITH FIRE STOP SEALANT AS SPECIFIED.
2. FOR EXISTING WALLS, FIELD X-RAY AND LOCATE CONCEALED REINFORCEMENT OR CONDUITS PRIOR TO CORE DRILLING. LOCATE NEW CONDUIT IN AREAS FREE OF REINFORCEMENT OR CONDUIT.
3. PREPARE AND COAT EXPOSED STEEL REINFORCEMENT WITH SYSTEM NO. 7.

INTERIOR WALL PENETRATION

NTS



NOTES:

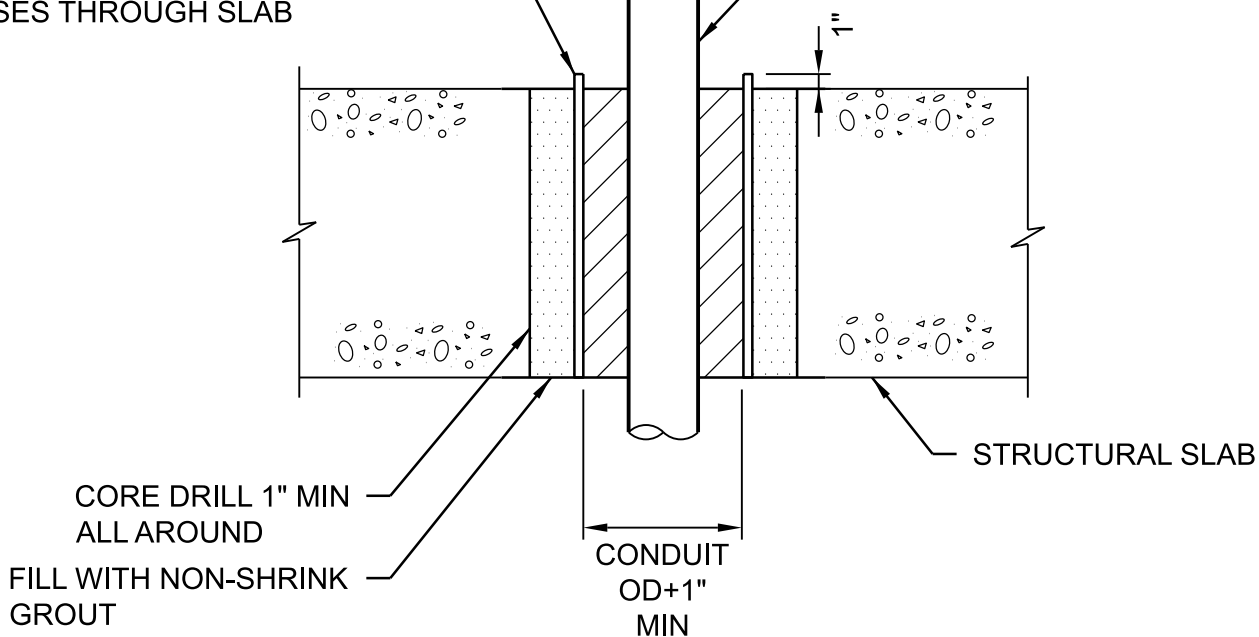
1. USE WATERTIGHT CONDUIT SEAL WHERE CONDUIT PENETRATIONS OF BUILDING EXTERIOR WALLS ARE MADE BELOW OR ABOVE GRADE.

WATERTIGHT WALL CONDUIT SEAL

NTS

PROVIDE A 304 STAINLESS STEEL SLEEVE SCH 40 AND FILL WITH A SUITABLE PLASTIC EXPANDABLE COMPOUND WHERE CONDUIT PASSES THROUGH SLAB

CONDUIT. FOR TYPE REQUIRED, SEE SPECIFICATIONS

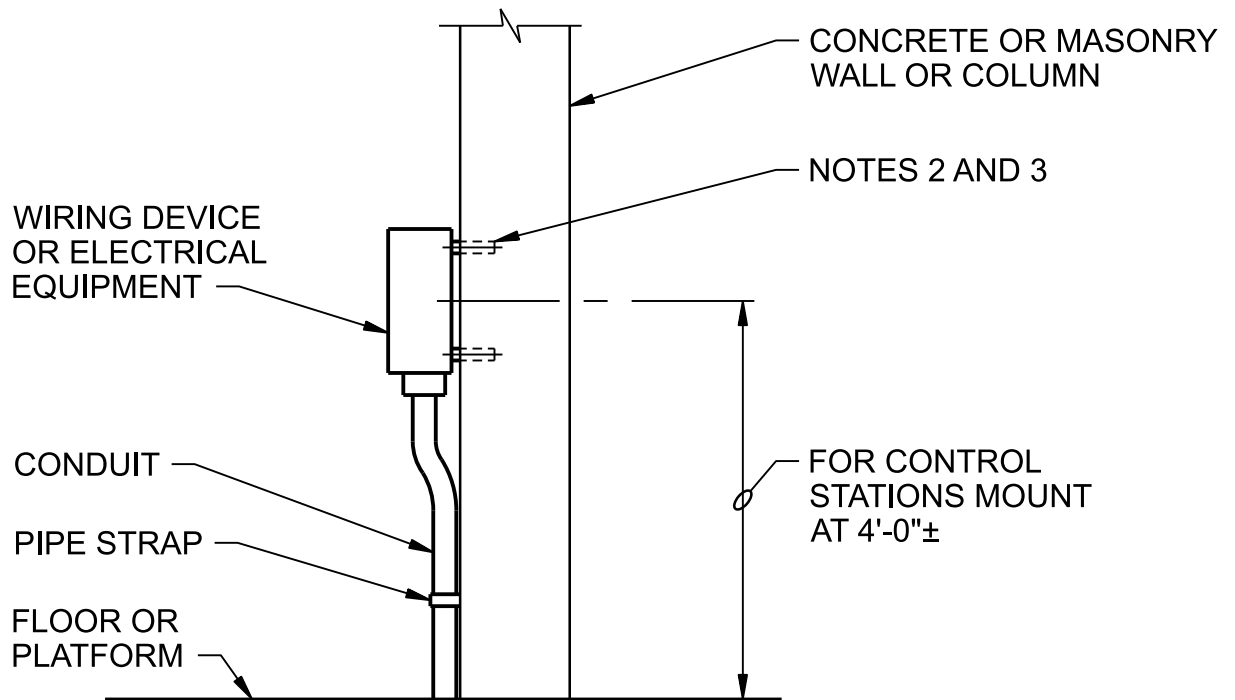


NOTES:

1. ALL CONDUITS THROUGH CONCRETE FLOOR SLABS AND EQUIPMENT PADS SHALL BE INSTALLED IN ACCORDANCE WITH THIS DETAIL.
2. FIELD X-RAY AND LOCATE CONCEALED REINFORCEMENT OR CONDUITS PRIOR TO CORE DRILLING. LOCATE NEW CONDUIT IN AREAS FREE OF REINFORCEMENT OR CONDUIT.
3. PREPARE AND COAT EXPOSED STEEL REINFORCEMENT WITH SYSTEM NO. 7.

SLAB PENETRATION

NTS

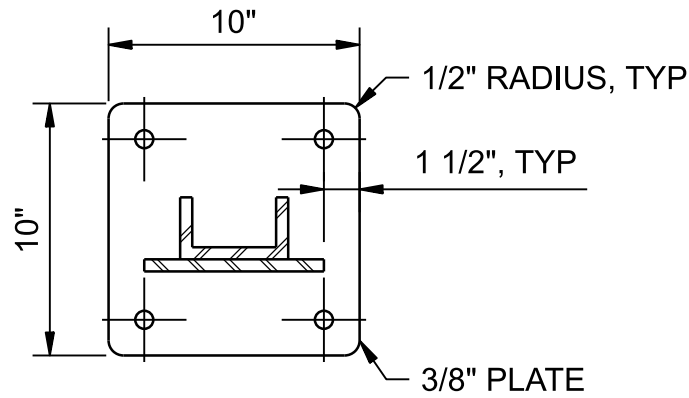


NOTES:

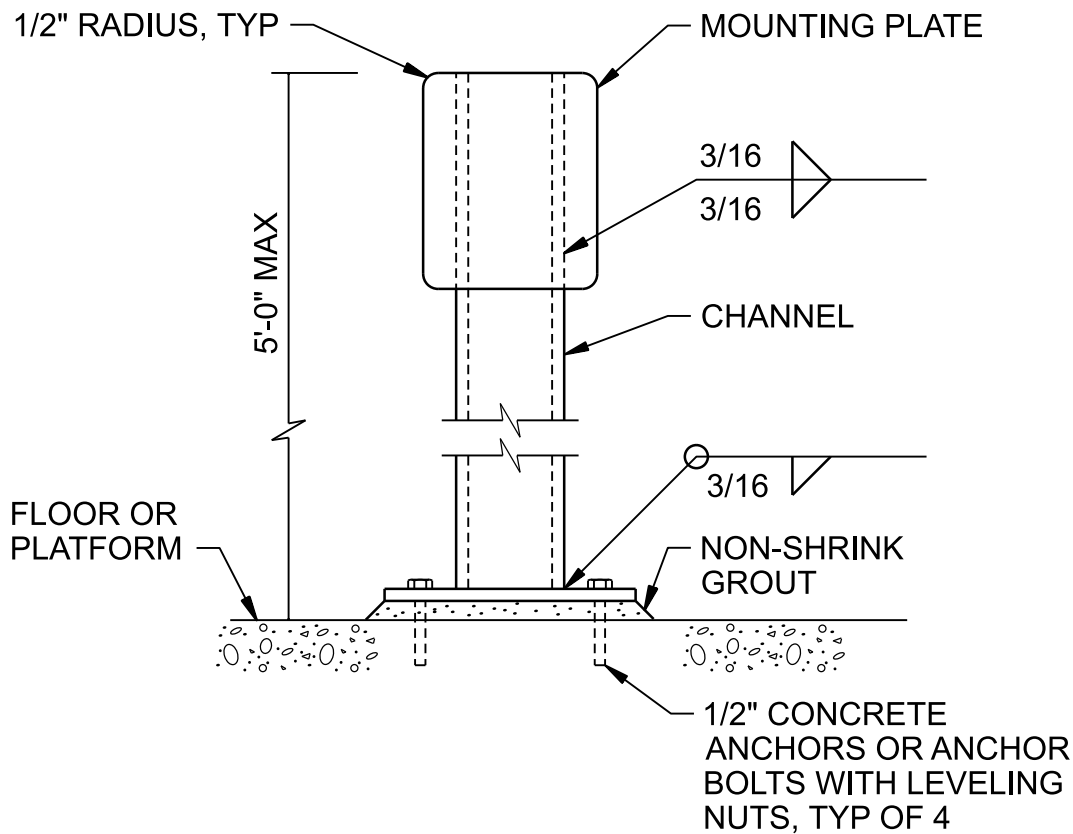
1. ALL MOUNTING HARDWARE SHALL BE PER AREA CLASSIFICATION AND MATERIALS OF CONSTRUCTION TABLE. USE BOTH WASHER AND LOCK WASHERS UNDER ALL NUTS.
2. ON CONCRETE WALLS USE STAINLESS STEEL CONCRETE ANCHORS. MOUNT ENCLOSURE ON SPACERS OF MIN 1/2" SCHEDULE 80 PVC CONDUIT.
3. BOXES 6 INCHES SQUARE AND SMALLER SHALL BE SUPPORTED BY TWO ANCHORS, MIN. LARGER BOXES SHALL BE SUPPORTED AS REQUIRED BY CALCULATION; FOUR ANCHORS MIN.
4. SUBMIT FINAL DESIGN AND CALCULATIONS FOR SUPPORT AND ANCHORAGE AS SPECIFIED.

DEVICE MOUNTING, WALL OR COLUMN

NTS



PLAN



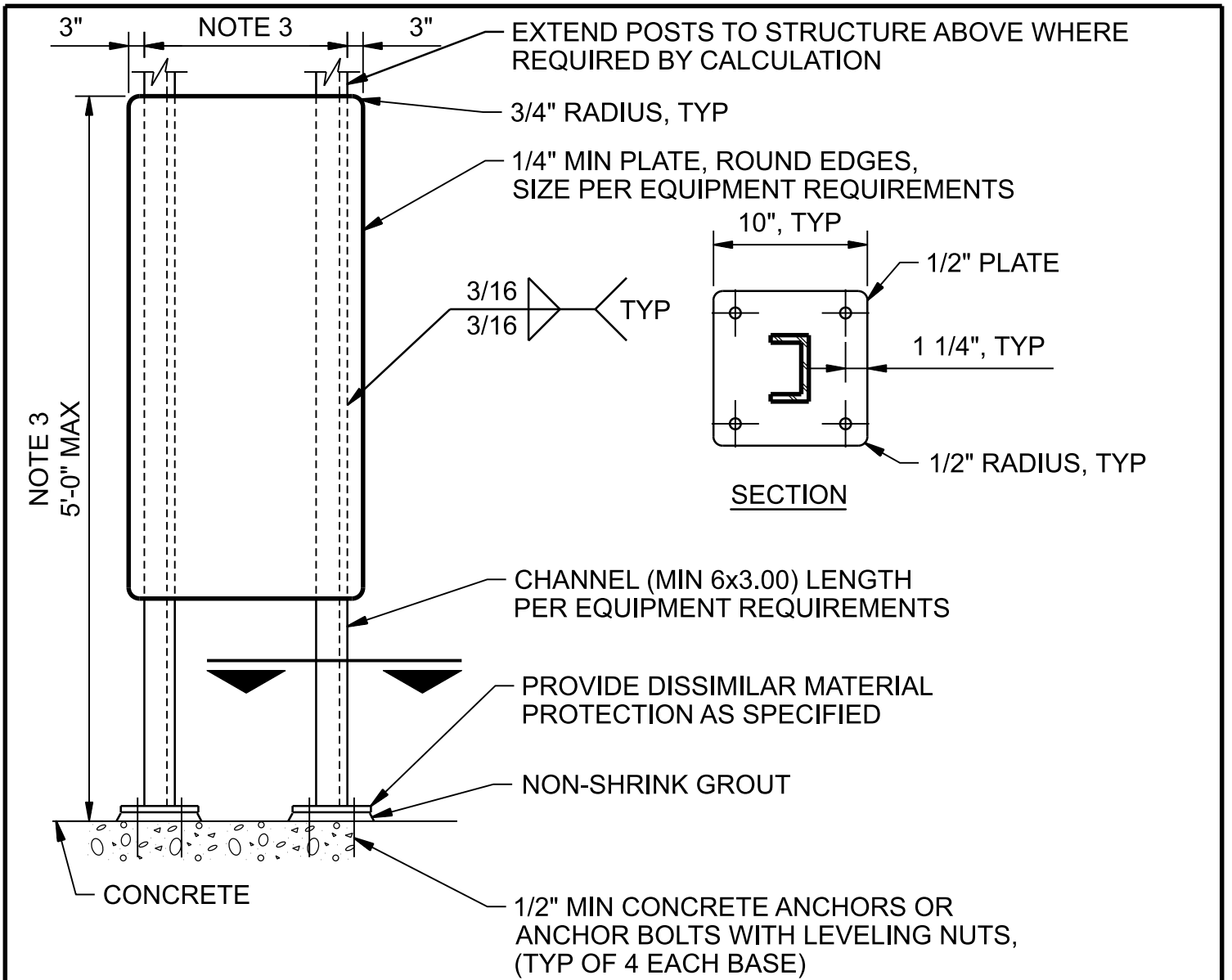
ELEVATION

NOTES:

1. SEE AREA CLASSIFICATION AND MATERIALS OF CONSTRUCTION TABLE FOR ASSEMBLY AFTER FABRICATION.
2. SEE AREA CLASSIFICATION AND MATERIALS OF CONSTRUCTION TABLE FOR MOUNTING HARDWARE. USE WASHERS AND SPLIT-LOCK WASHERS UNDER ALL NUTS AND BOLTS.

DEVICE MOUNTING, CONTROL STATION PEDESTAL

NTS



NOTES:

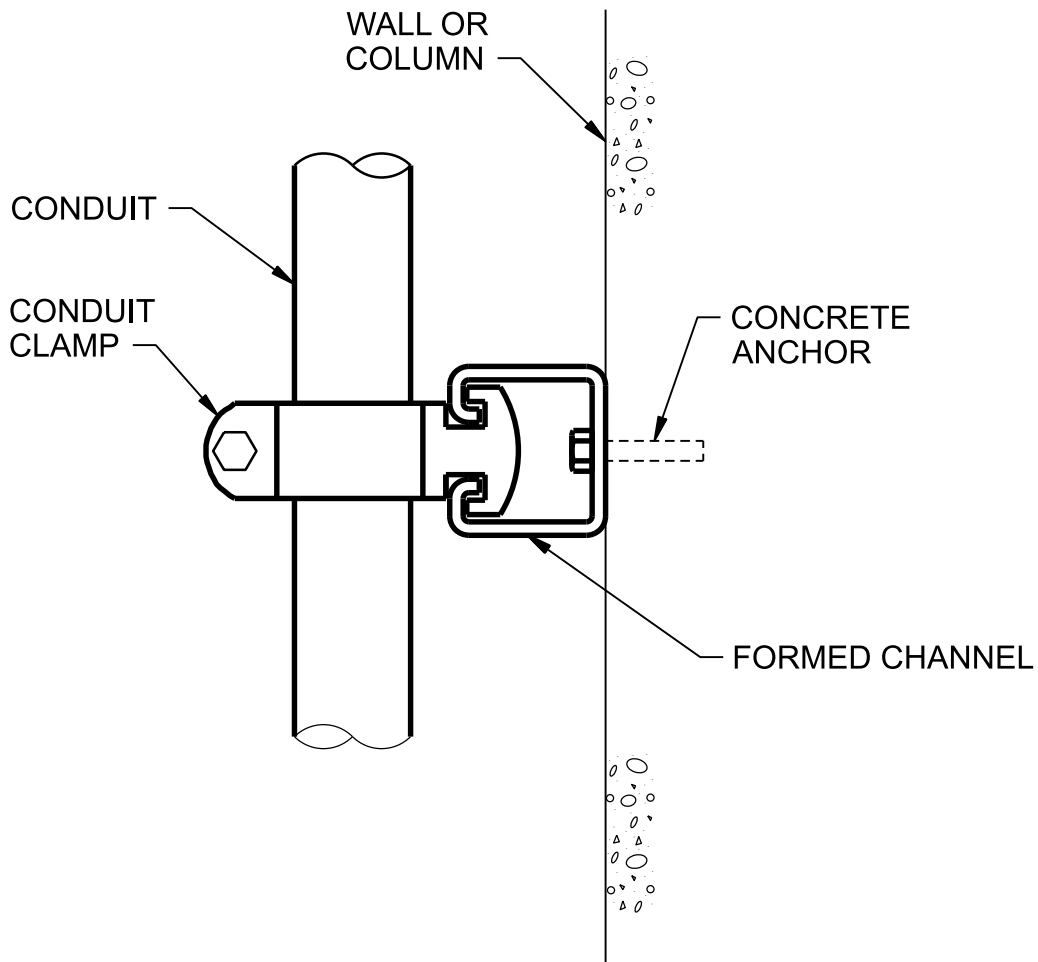
1. SEE AREA CLASSIFICATION AND MATERIALS OF CONSTRUCTION TABLE FOR MOUNTING HARDWARE. USE WASHER AND SPLIT LOCK WASHER UNDER ALL NUTS.
2. MINIMUM COMPONENT AND CONNECTION SIZES SHOWN. FURNISH LARGER SIZES AS REQUIRED BY CALCULATIONS.
3. SUBMIT FINAL DESIGN AND CALCULATIONS FOR SUPPORT AND ANCHORAGE AS SPECIFIED.

DEVICE MOUNTING, EQUIPMENT PEDESTAL

NTS

CLEAN WATER SERVICES
 DURHAM WRRF
 PHASE 6B DIGESTER

16158B

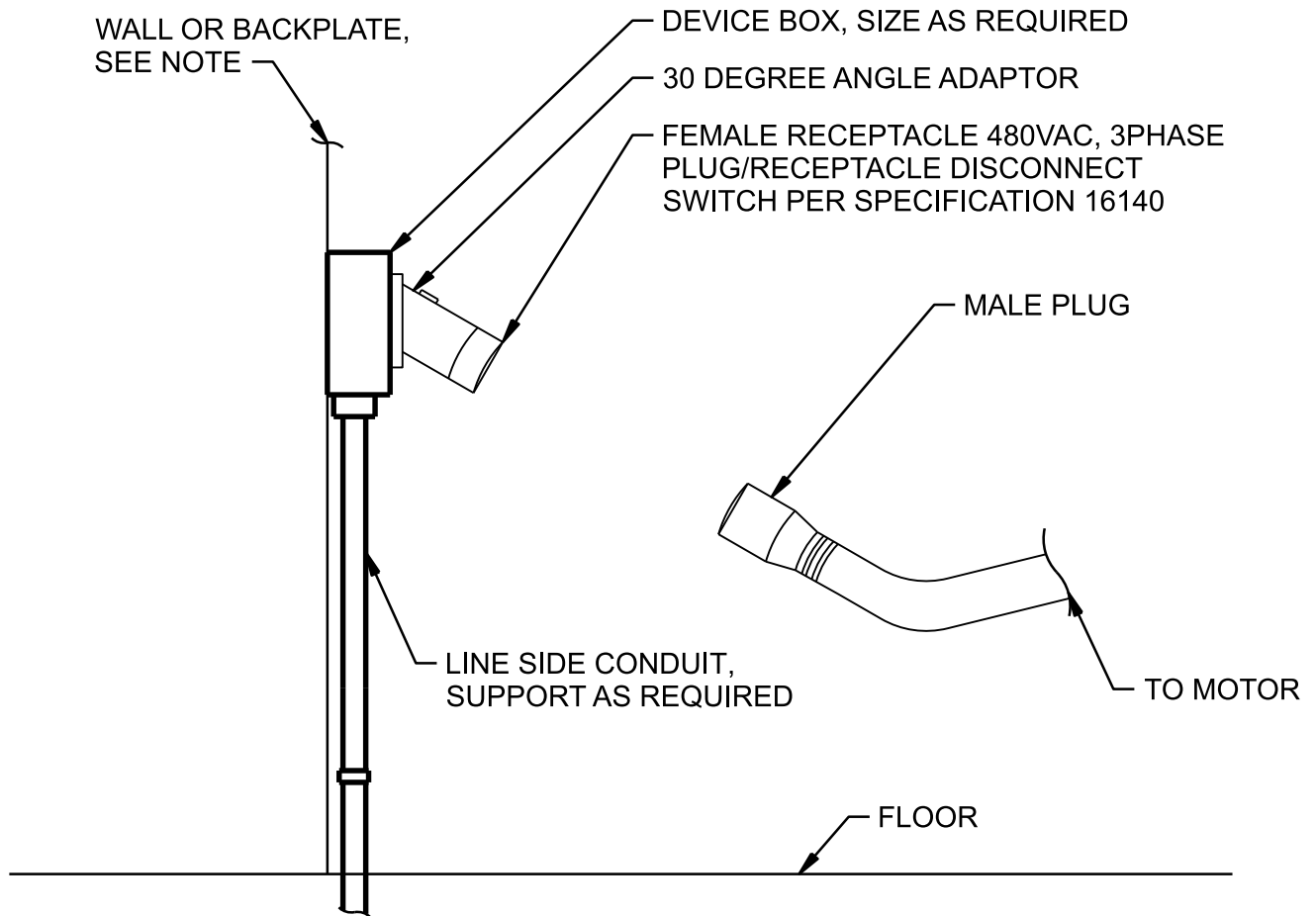


NOTES:

1. SUPPORT ALL EXPOSED CONDUITS ON FORMED CHANNELS. SEE AREA CLASSIFICATION AND MATERIALS OF CONSTRUCTION TABLE ON THE GENERAL SHEETS FOR MATERIAL TYPE.
2. SUBMIT FINAL DESIGN AND CALCULATIONS FOR SUPPORT AND ANCHORAGE AS SPECIFIED.
3. PROVIDE WHITE STRUT PLASTIC END CAPS ON THE ENDS OF ALL STRUTS.

CONDUIT SUPPORT ON STRUCTURE

NTS



NOTE

1. MOUNT BOX ON WALL OR ON PEDESTAL/STANCHION AS INDICATED ON DRAWINGS.

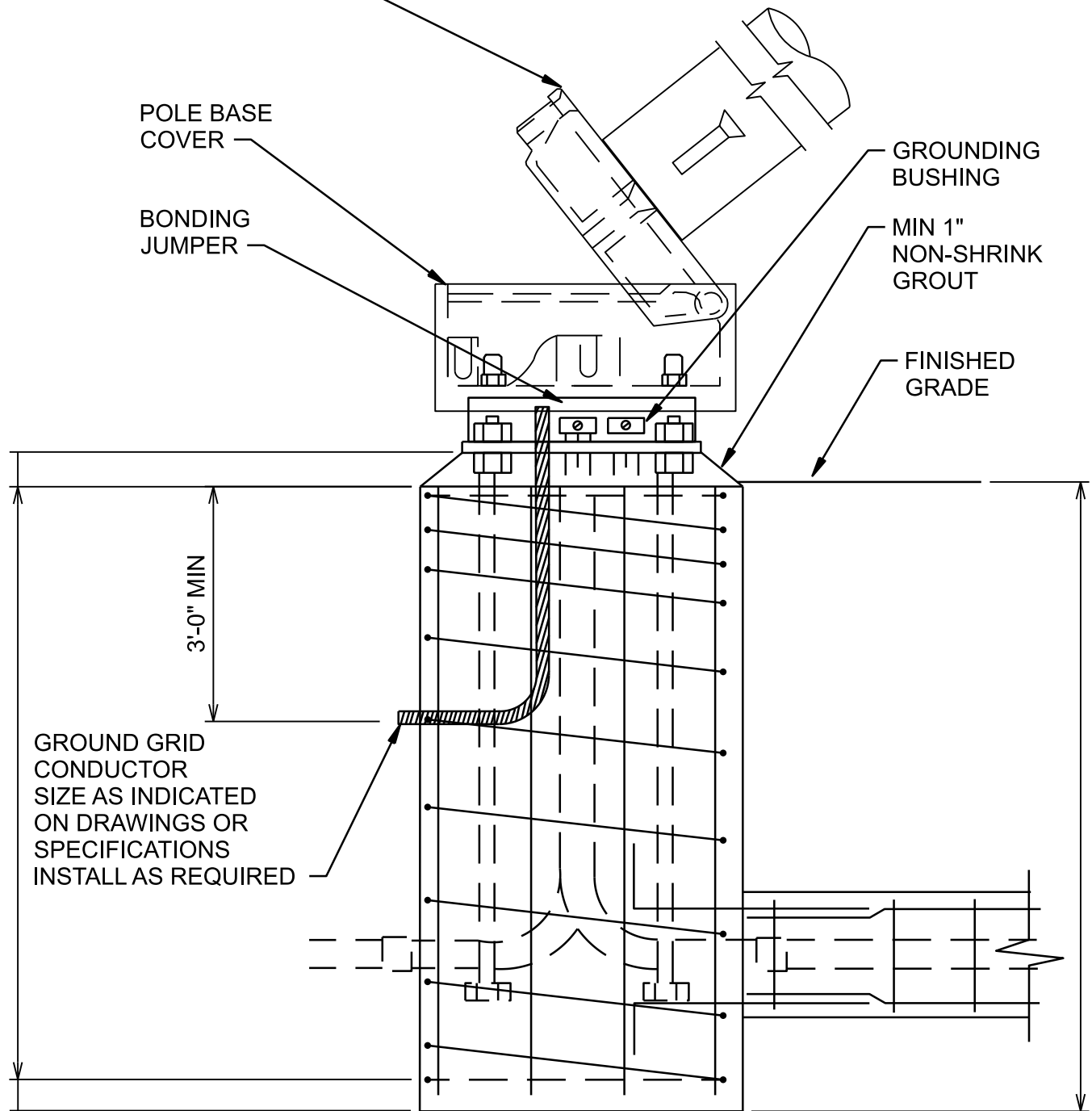
PLUG/RECEPTACLE DISCONNECT SWITCH

NTS

CLEAN WATER SERVICES
 DURHAM WRRF
 PHASE 6B DIGESTER

16200

ORIENTATE HINGE TO LAY-DOWN
POLE IN UNOBSTRUCTED AREA



POLE BASE
COVER

BONDING
JUMPER

GROUNDING
BUSHING

MIN 1"
NON-SHRINK
GROUT

FINISHED
GRADE

3'-0" MIN

GROUND GRID
CONDUCTOR
SIZE AS INDICATED
ON DRAWINGS OR
SPECIFICATIONS
INSTALL AS REQUIRED

NOTES:

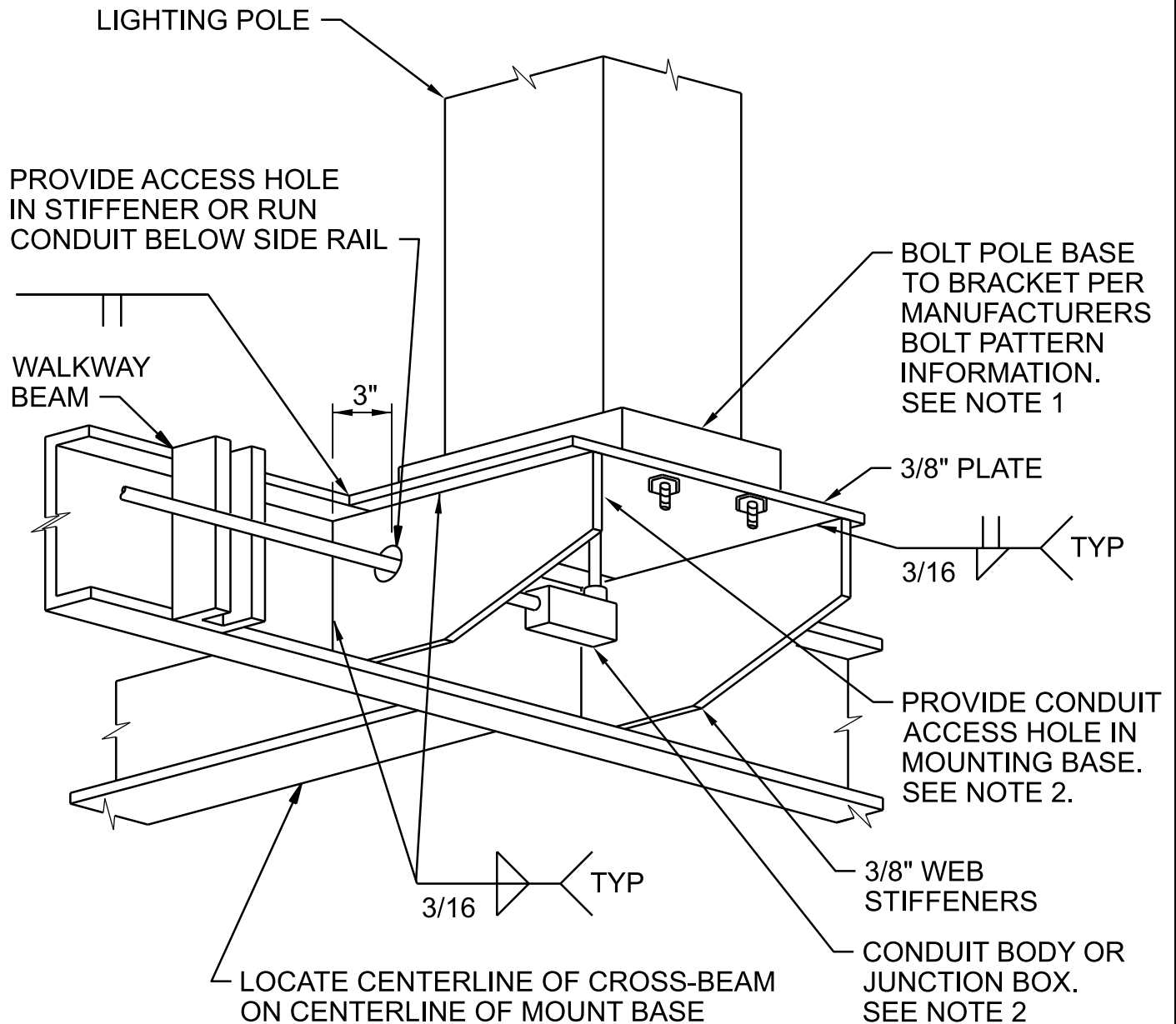
1. CONTRACTOR TO PROVIDE FOOTING DESIGN.
2. ANCHOR BOLT LENGTHS SHALL BE DETERMINED VIA FINAL DESIGN CALCULATIONS FOR SUPPORT AND ANCHORAGE. CONTRACTOR SHALL PROVIDE DESIGN CALCULATIONS AS REQUIRED. REFER TO POLE MANUFACTURER'S INSTALLATION DETAILS FOR BOLT PATTERN.

POLE LIGHT/BASE

NTS

CLEAN WATER SERVICES
DURHAM WRRF
PHASE 6B DIGESTER

16201

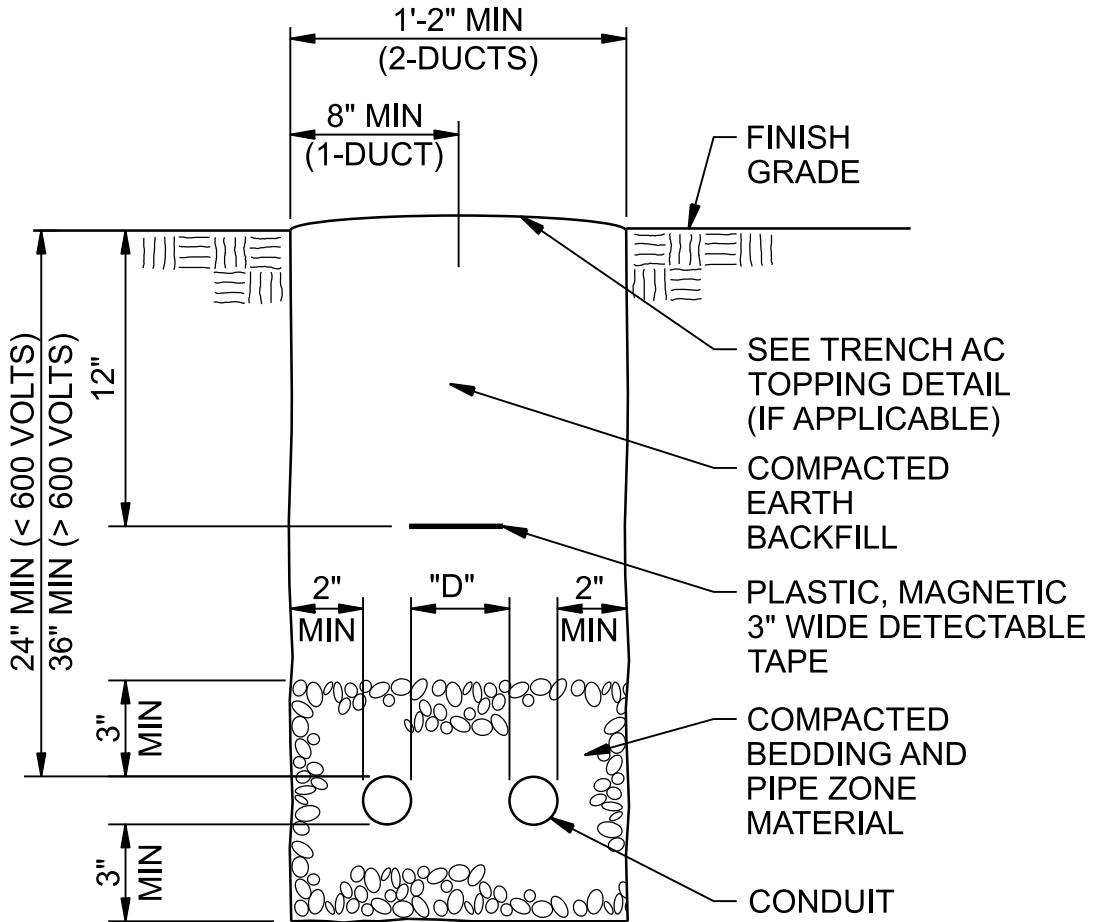


NOTES:

1. PROVIDE 2" EDGE DISTANCE FOR POLE BASE BOLTS IN MOUNTING PLATE.
2. COORDINATE CONDUIT ACCESS HOLES AND JUNCTION BOX REQUIREMENTS WITH MANUFACTURER.
3. COMPLETE ALL WELDING PRIOR TO PAINTING.
4. COORDINATE CONNECTION TO WALKWAY WITH CLARIFIER BRIDGE MANUFACTURER.

STEEL WALKWAY LIGHTING POLE MOUNT TO STEEL

NTS



D = 3" MIN FOR 2" AND LARGER CONDUIT

D = 2" MIN FOR 1 1/2" AND SMALLER CONDUIT

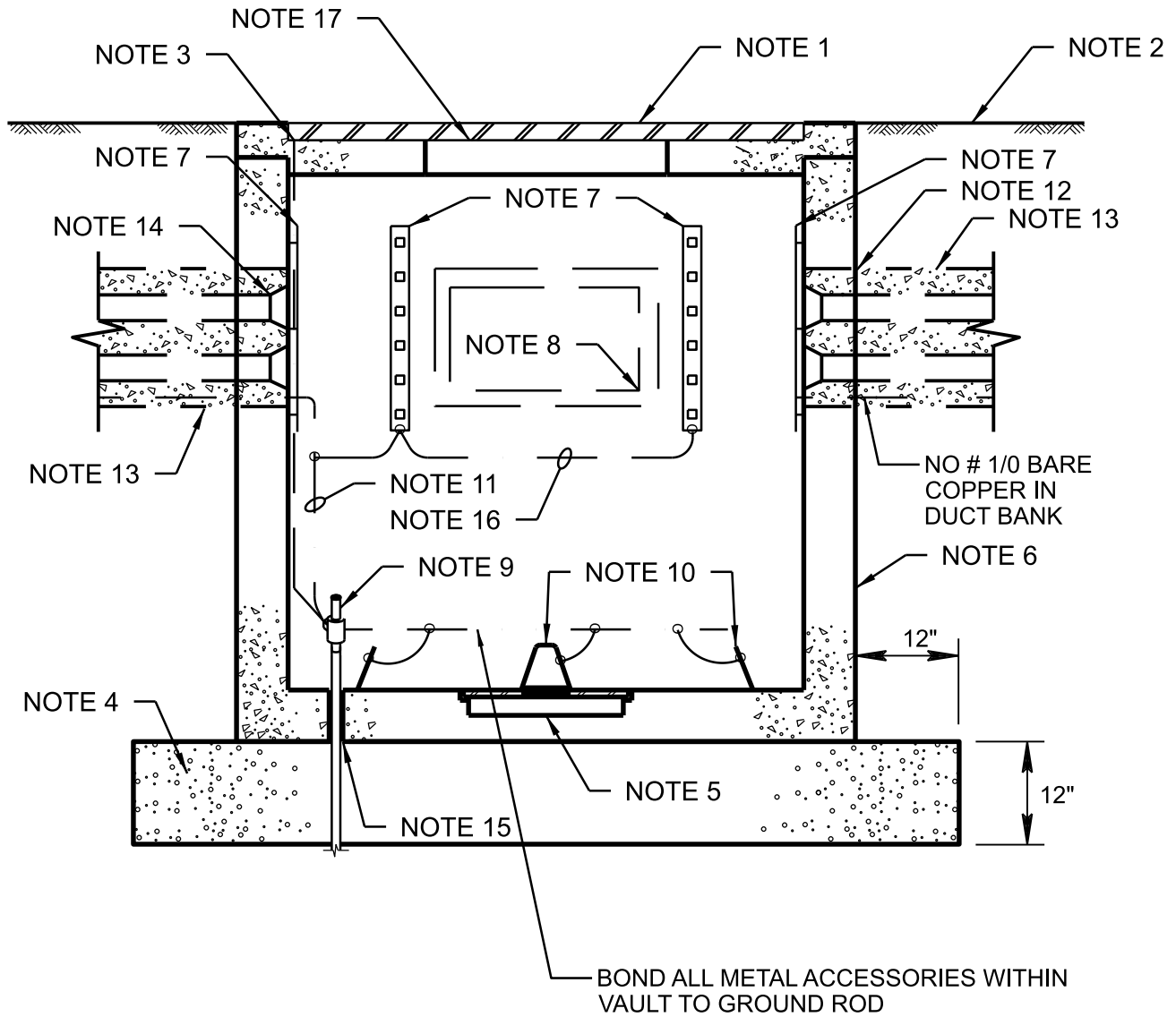
TRENCH AND CONDUIT PLACEMENT

NTS

CLEAN WATER SERVICES
 DURHAM WRRF
 PHASE 6B DIGESTER

16325

Jacobs



NOTE:

1. FOR NOTE TEXT, (16354).

TYPICAL MANHOLE

NTS

CLEAN WATER SERVICES
 DURHAM WRRF
 PHASE 6B DIGESTER

16353

MANHOLE DETAIL NOTES:

1. PROVIDE SQUARE, TRAFFIC RATED HINGED LID, SEE SCHEDULE ON DRAWING FOR LID DETAILS.
2. FINISHED GRADE.
3. BOND HINGED LID TO GROUND ROD PER MANUFACTURER'S RECOMMENDATIONS.
4. 3/4"-0 AGGREGATE WITH DRAIN ROCK IN THE MIDDLE.
5. 3" DEEP SUMP WITH 18"X18" C.I. FRAME AND GRATE
U.S. FOUNDRY CAT, #USF 4605 OR EQUAL.
6. PRE-CAST CONCRETE (4000 PSI AT 28 DAYS) ELECTRIC MANHOLE AS MANUFACTURED BY U.S. PRE-CAST, BROOKS, OR EQUAL.
7. STAINLESS STEEL HOOKS AND FRP CABLE RACKS. CABLE RACKS AS MANUFACTURED BY UNDERGROUND DEVICES, INC. OR APPROVED EQUAL.
8. CONCRETE KNOCKOUT, ONE PER SIDE.
9. COPPER CLAD GROUND ROD, 3/4"X10'0", BY BLACKBURN, OR EQUAL. GROUND ROD CLAMP TYPE GRC58 BY BURNDY OR EQUAL.
10. PULLING IRON INSTALLED ON FLOOR.
11. #1/0 BARE COPPER CONTINUOUS GROUND CONDUCTOR.
12. DRY PACK ALL OPENINGS WITH NON-SHRINK GROUT. CONDUIT INSTALLATIONS SHALL BE WATERTIGHT.
13. DUCT BANK CONCRETE ENCASEMENT.
14. TERMINATE ALL CONDUITS IN MANHOLE WITH END BELLS.
15. GROUND ROD HOLE.
16. #6 BARE COPPER GROUND CONDUCTORS.
17. THE TEXT SHALL BE STICK WELDED ONTO THE LID WITH 4" UPPERCASE CHARACTERS. THE TEXT SHALL INCLUDE THE IDENTIFICATION NUMBER SHOWN ON THE DRAWINGS, SEE SPEC 16075.

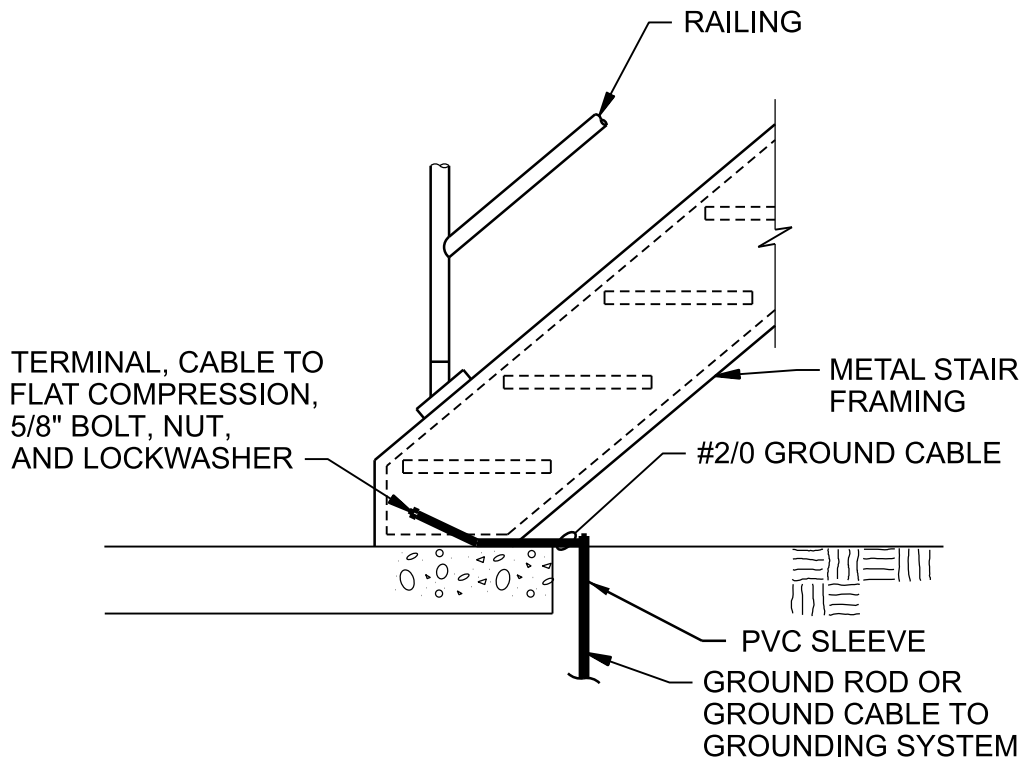
MANHOLE DETAIL NOTES

NTS

CLEAN WATER SERVICES
DURHAM WRRF
PHASE 6B DIGESTER

16354

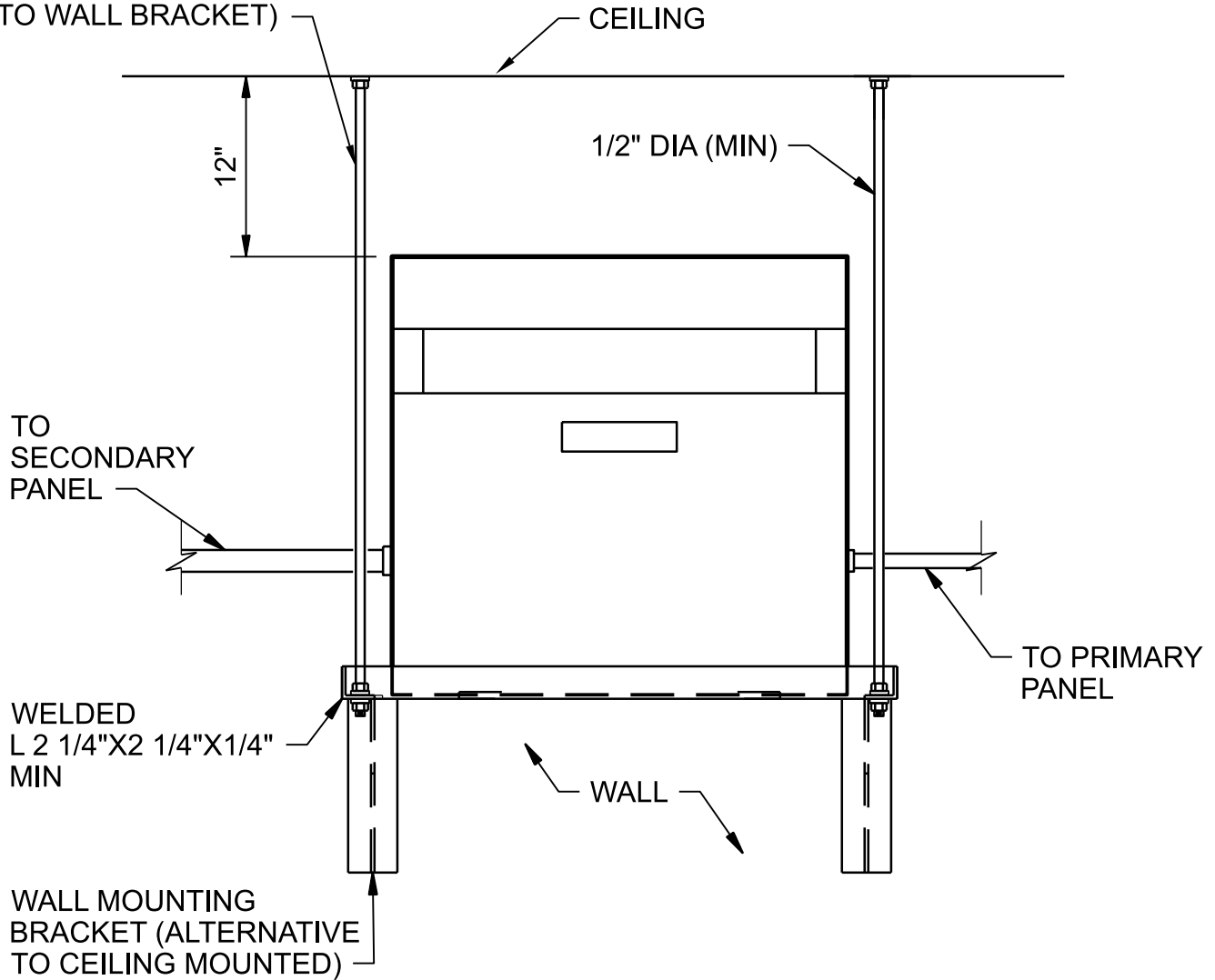
Jacobs



GROUNDING, GENERAL STAIRWAY

NTS

CEILING ATTACHED
RODS (4 MIN) TO
FRAME (ALTERNATIVE
TO WALL BRACKET)



NOTES:

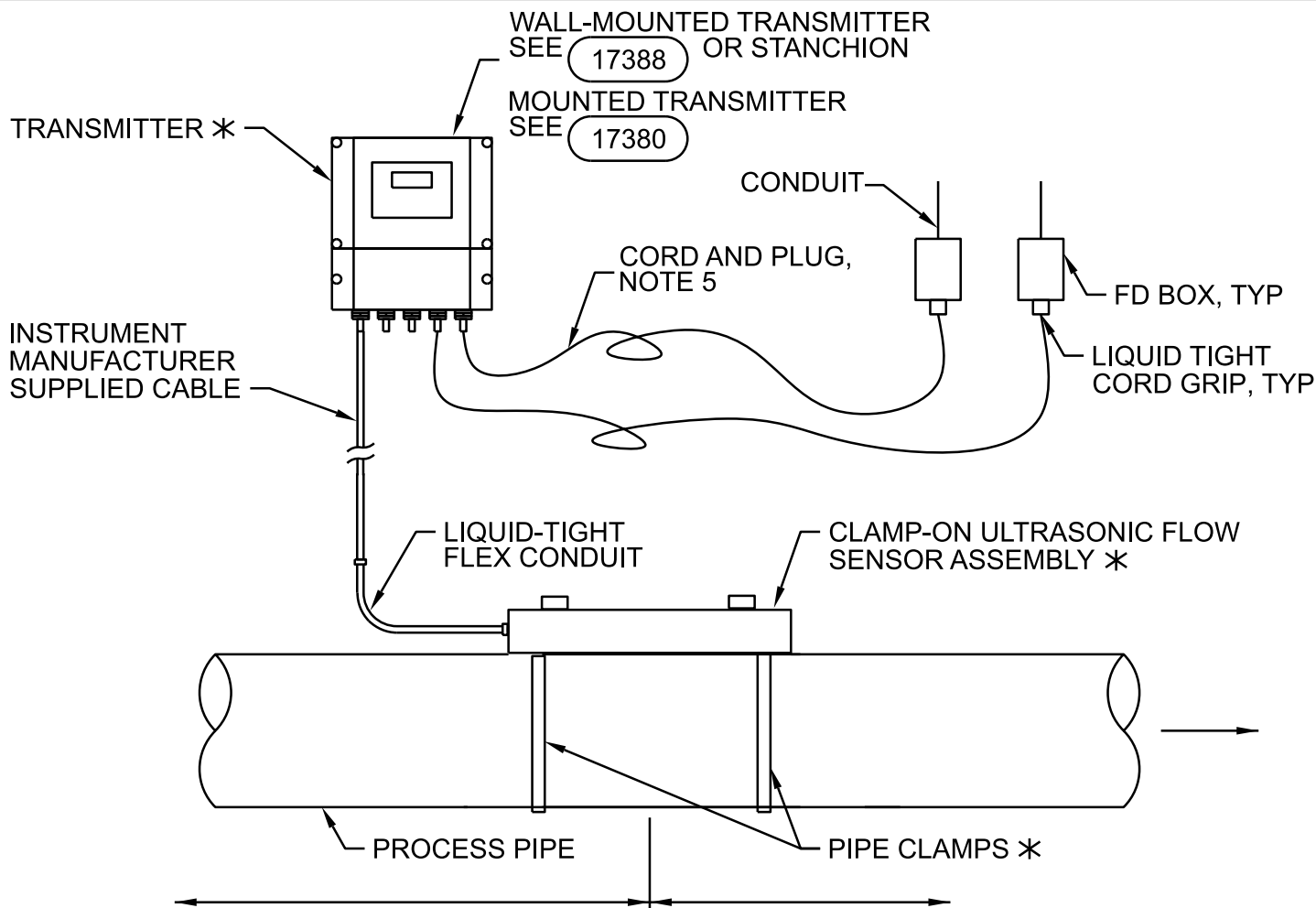
1. WHERE WALL MOUNTING BRACKETS ARE USED THEY SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. PROVIDE REINFORCING OF THE WALL TO ASSURE THAT IT IS CAPABLE OF SUPPORTING THE LOAD.

DRY TYPE TRANSFORMER INSTALLATION

NTS

CLEAN WATER SERVICES
DURHAM WRRF
PHASE 6B DIGESTER

16711C



NOTES:

1. COMPONENTS DESIGNATED BY * ARE SUPPLIED BY INSTRUMENT MANUFACTURER.
2. LOCATE SENSOR ASSEMBLY MINIMUM 10 PIPE DIAMETERS UPSTREAM STRAIGHT PIPE. REFER TO MANUFACTURER FOR MINIMUM DOWNSTREAM STRAIGHT PIPE REQUIREMENTS.
3. MEASURE PIPE OUTSIDE DIAMETER, INSIDE DIAMETER, AND RECORD TYPE OF PIPE LINING ACCURATELY AND USE MEASUREMENTS FOR FLOW METER CALIBRATION.
4. ON HORIZONTAL PIPE MOUNT FLOW ELEMENT ON SIDE OF PIPE.
5. POWER CORD AND PLUG: BRAD CONNECTIVITY 3P FEMALE STRAIGHT 6 FT 16/3 AWG PVC CORD (PN 1300060221); BRAD CONNECTIVITY 3P FEMALE STRAIGHT 12 INCH #16 AWG PVC LEADS (PN 1300130202), NO EXCEPTIONS

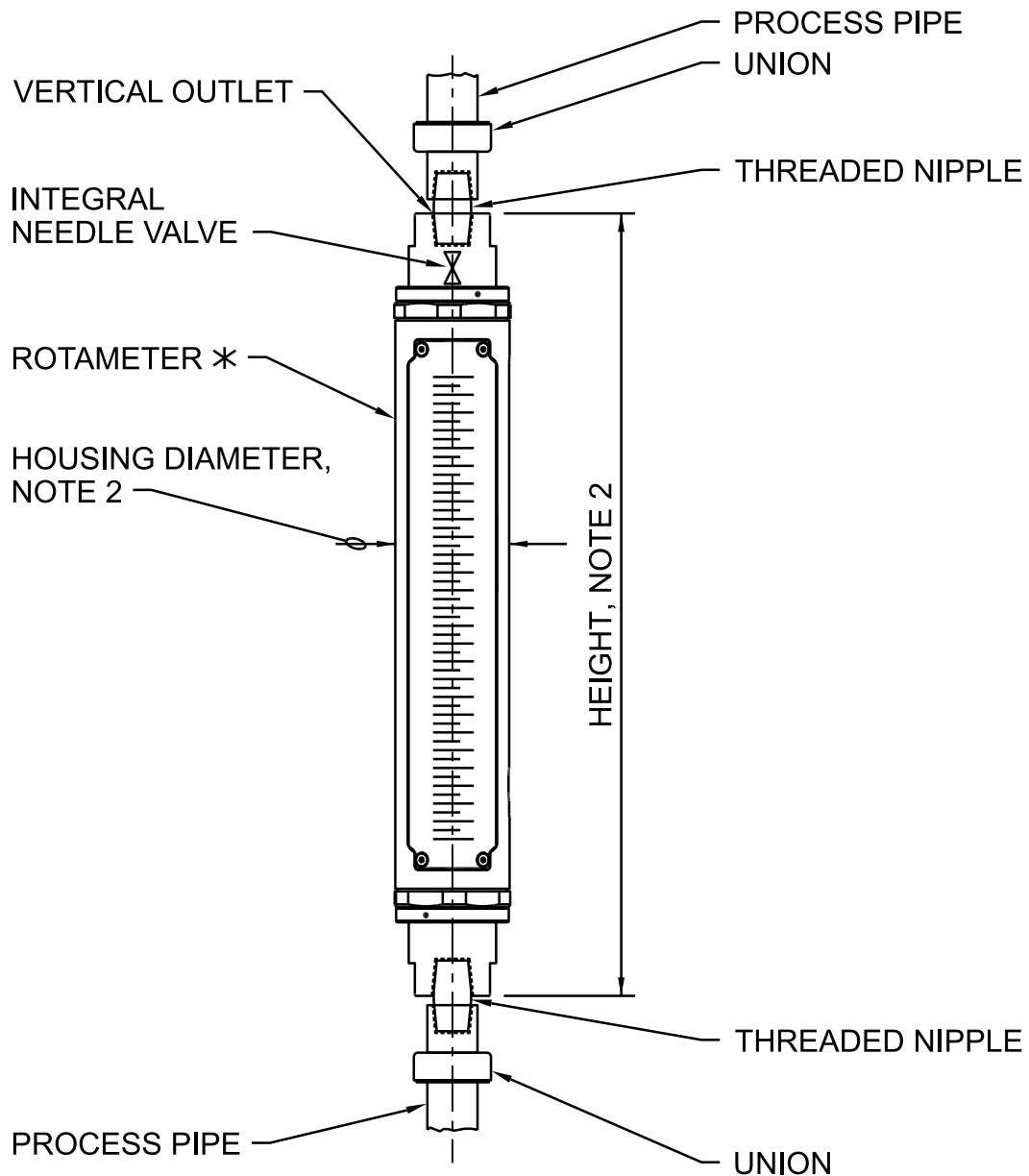
ANALOG CORD AND PLUG: BRAD CONNECTIVITY 2P FEMALE STRAIGHT 6 FT 16/2 AWG PVC CORD (PN 1300060091); BRAD CONNECTIVITY 2P FEMALE STRAIGHT 12 INCH #16 AWG PVC LEADS (PN 1300130076), NO EXCEPTIONS

ULTRASONIC FLOW METER, CLAMP-ON

NTS

CLEAN WATER SERVICES
 DURHAM WRRF
 PHASE 6B DIGESTER

17217

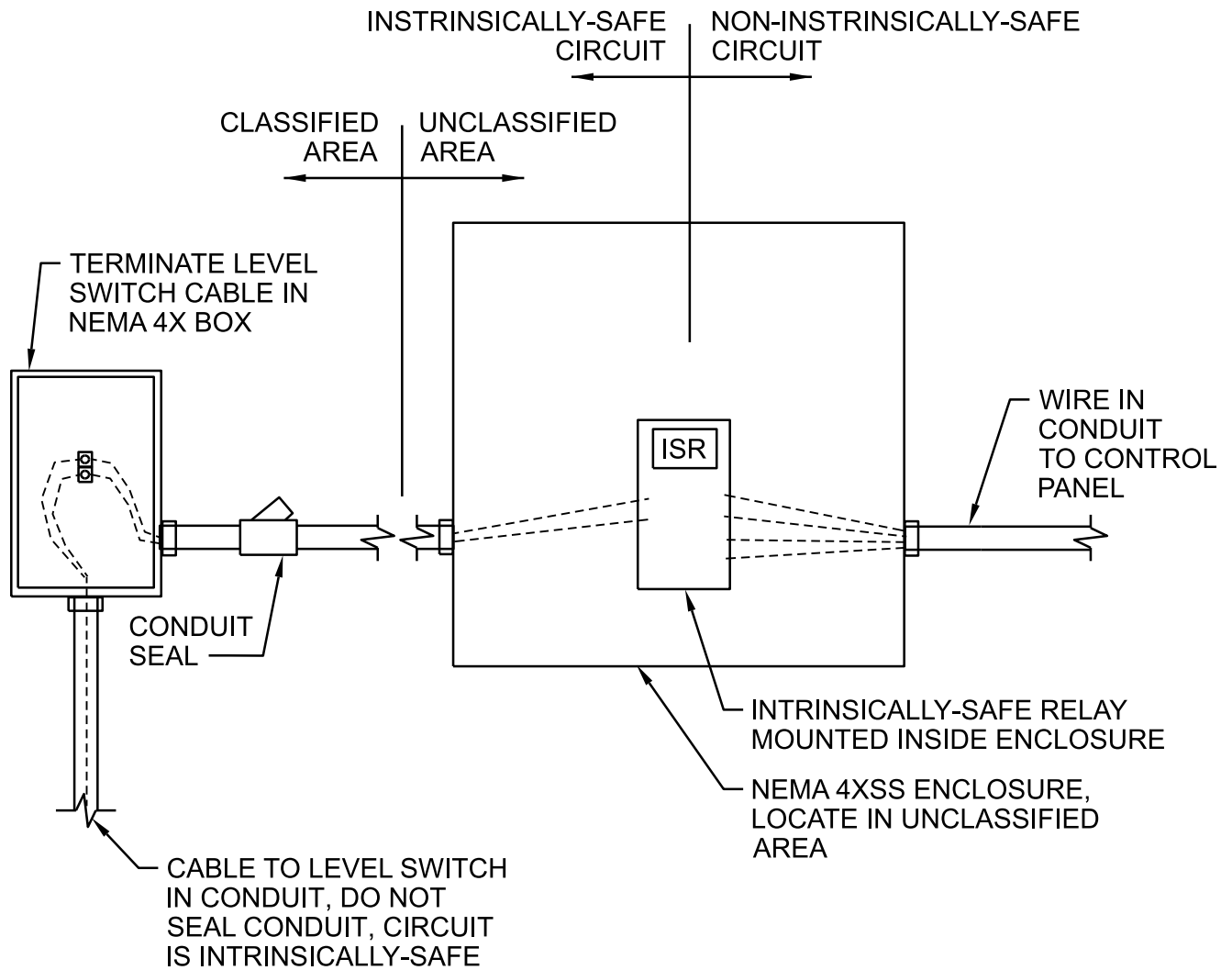


NOTES:

1. COMPONENTS DESIGNATED BY * ARE SUPPLIED BY INSTRUMENT MANUFACTURER.
2. FLOW METER SIZE IS BASED ON FLOW. SEE INSTRUMENT LIST FOR FLOW REQUIREMENTS.

ROTAMETER

NTS

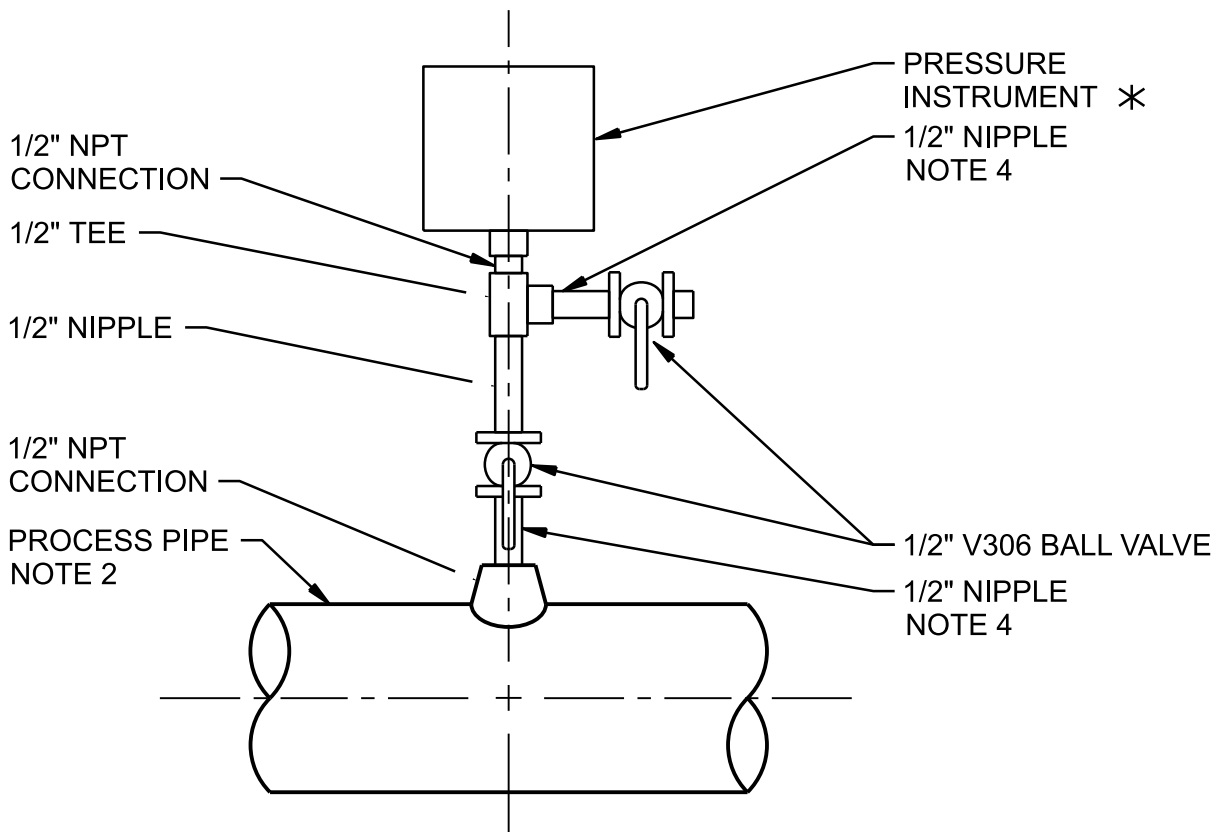


INTRINSICALLY-SAFE RELAY FOR HAZARDOUS AREA

NTS

CLEAN WATER SERVICES
 DURHAM WRRF
 PHASE 6B DIGESTER

17249



NOTES:

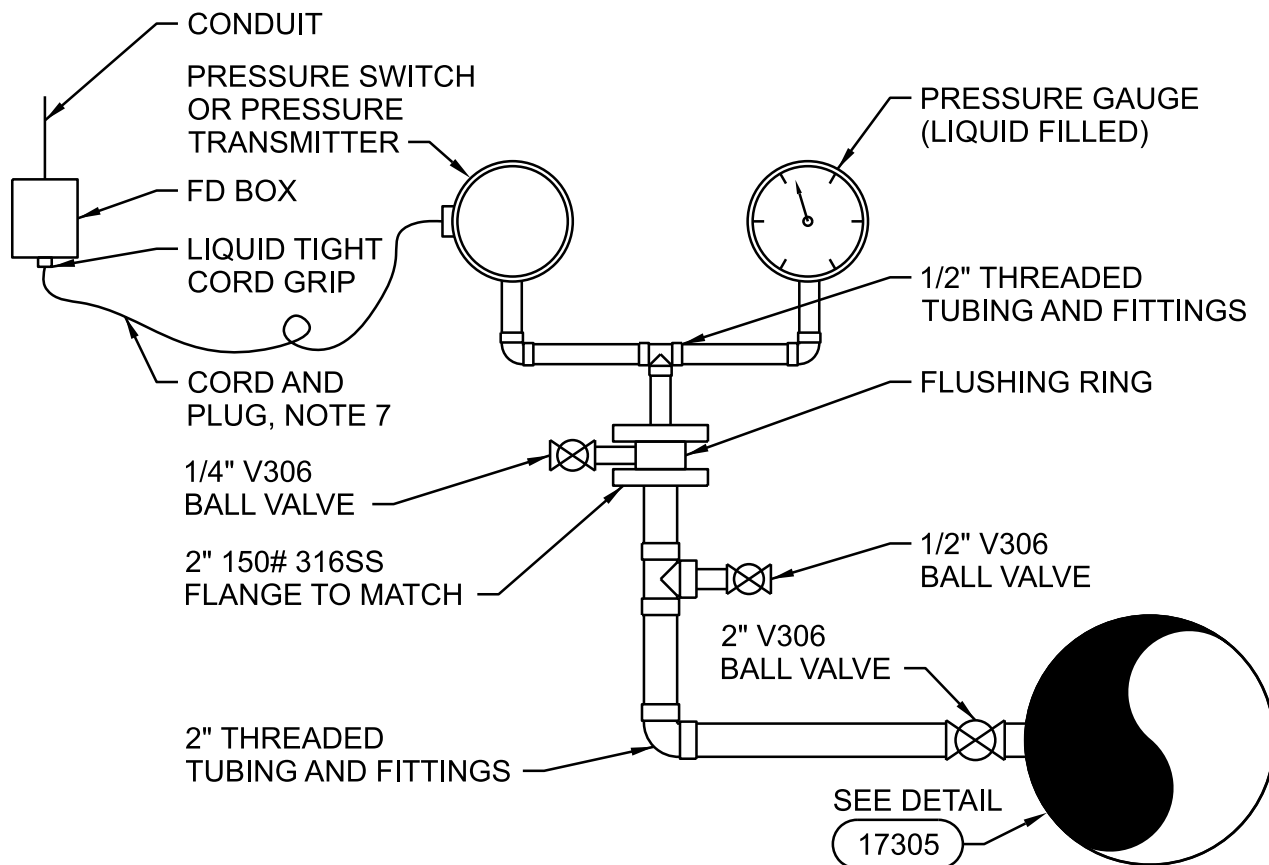
1. COMPONENTS DESIGNATED BY * ARE SUPPLIED BY INSTRUMENT MANUFACTURER.
2. FOR PROCESS PIPE MOUNTING, SEE (17305).
3. ALL TUBING AND FITTINGS TO BE 316 STAINLESS STEEL.
4. SELECT NIPPLE LENGTH AS REQUIRED FOR BALL VALVE OPERATION.
5. INSTALL PRESSURE INSTRUMENTS IN A VERTICAL ORIENTATION FOR VIEWING EASE.
6. SUPPORT INSTRUMENT AS NECESSARY, IF WALL MOUNTED PIPE, SEE (17388), IF FLOOR STAND, SEE (17380).

PRESSURE INSTRUMENT - BLOCK AND BLEED

NTS

CLEAN WATER SERVICES
 DURHAM WRRF
 PHASE 6B DIGESTER

(17302)



NOTES:

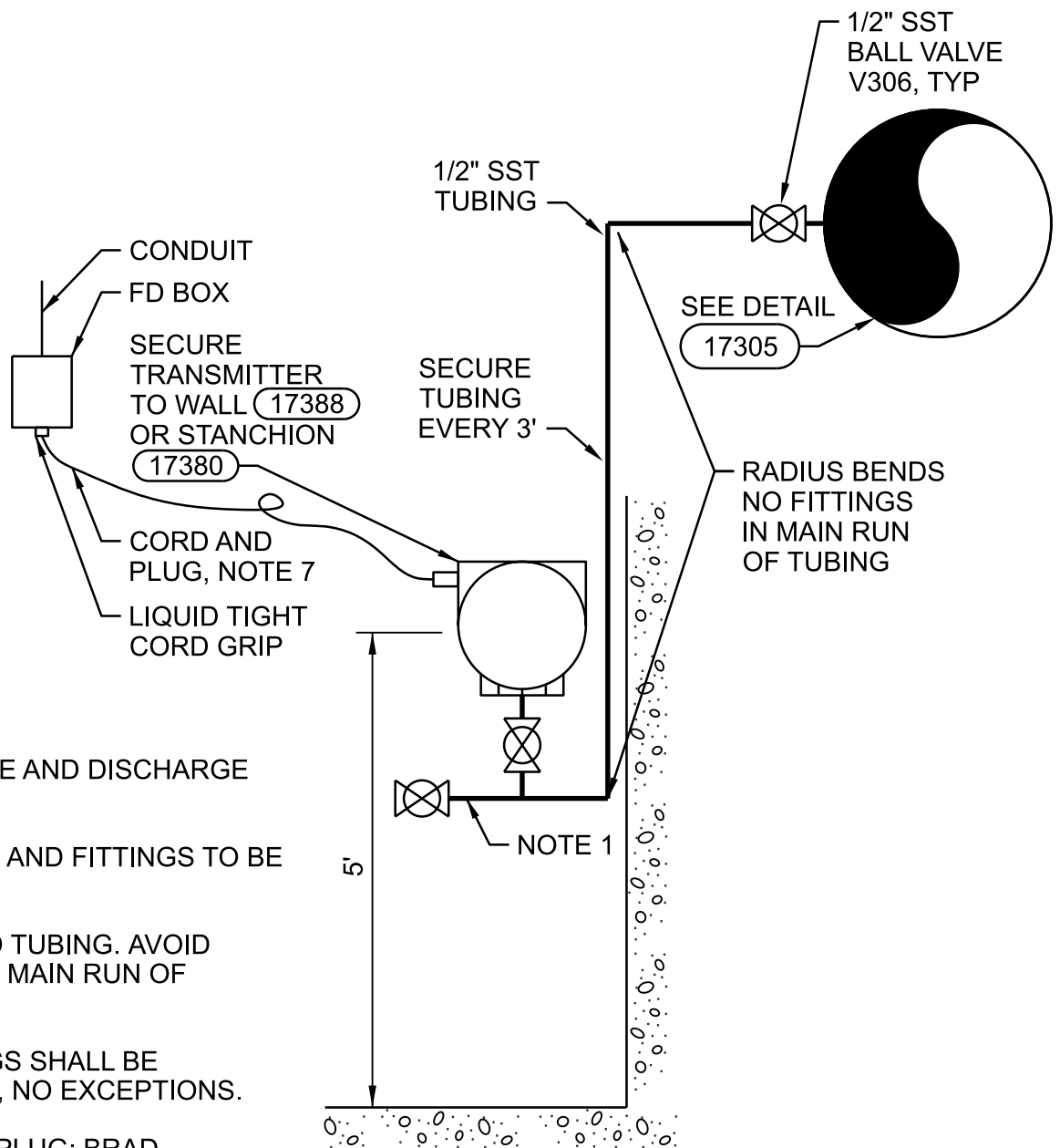
1. LOCATE PROCESS TAP ON SIDE OF PIPE FOR LIQUIDS SERVICE. LOCATE PROCESS TAP ON TOP OF PIPE FOR AIR/GAS SERVICE.
2. INDICATOR AND SWITCH INSTALLATION SHOWN. FOR SINGLE INSTRUMENT INSTALLATIONS, MOUNT DEVICE DIRECTLY ABOVE DIAPHRAGM SEAL.
3. INSTALL PRESSURE INSTRUMENTS IN A VERTICAL ORIENTATION FOR VIEWING EASE.
4. DIAPHRAGM SEAL, PRESSURE INSTRUMENTS, AND TUBING TO BE FACTORY ASSEMBLED AND FILLED BY INSTRUMENT SUPPLIER.
5. ALL TUBING AND FITTINGS TO BE 316 STAINLESS STEEL.
6. SUPPORT INSTRUMENT AS NECESSARY, IF WALL MOUNTED PIPE, SEE (17388) IF FLOOR STAND, SEE (17380).
7. FOR NON-CCLASSIFIED APPLICATIONS. CORD AND PLUG: BRAD CONNECTIVITY 2P FEMALE STRAIGHT 6 FT 16/2 AWG PVC CORD (PN 1300060091); BRAD CONNECTIVITY 2P FEMALE STRAIGHT 12 INCH #16 AWG PVC LEADS (PN 1300130076), NO EXCEPTIONS.

PRESSURE INSTRUMENT INSTALLATION
DIAPHRAGM SEAL MOUNTING

NTS

CLEAN WATER SERVICES
 DURHAM WRRF
 PHASE 6B DIGESTER

(17304A)



NOTES:

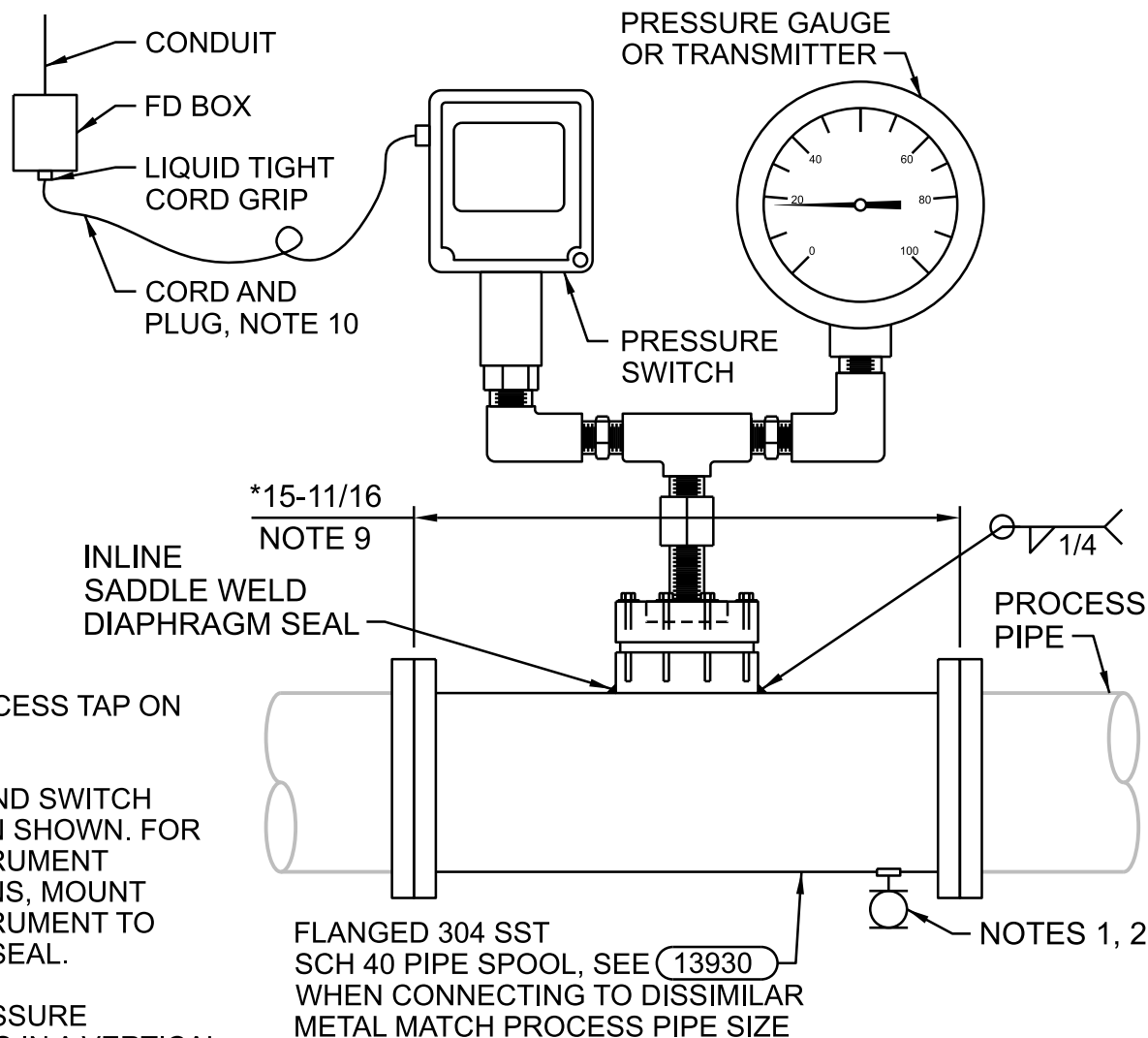
1. SECURE TEE AND DISCHARGE VALVE.
2. ALL TUBING AND FITTINGS TO BE 316 SST.
3. FIELD BEND TUBING. AVOID FITTINGS IN MAIN RUN OF TUBING.
4. ALL FITTINGS SHALL BE SWAGELOK, NO EXCEPTIONS.
5. CORD AND PLUG: BRAD CONNECTIVITY 2P FEMALE STRAIGHT 6 FT 16/2 AWG PVC CORD (PN1300060091); BRAD CONNECTIVITY 2P FEMALE STRAIGHT 12 INCH #16 AWG PVC LEADS (PN 1300130076), NO EXCEPTIONS.

REMOTE PRESSURE INSTRUMENT INSTALLATION

NTS

CLEAN WATER SERVICES
 DURHAM WRRF
 PHASE 6B DIGESTER

17304B



NOTES:

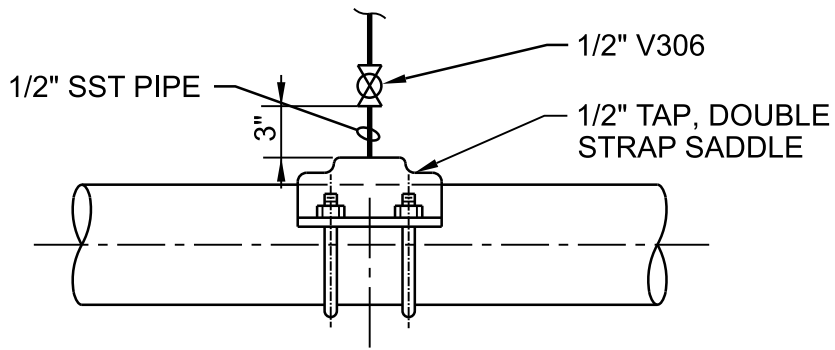
1. LOCATE PROCESS TAP ON TOP OF PIPE.
2. INDICATOR AND SWITCH INSTALLATION SHOWN. FOR SINGLE INSTRUMENT INSTALLATIONS, MOUNT SINGLE INSTRUMENT TO DIAPHRAGM SEAL.
3. INSTALL PRESSURE INSTRUMENTS IN A VERTICAL ORIENTATION.
4. DIAPHRAGM SEAL, PRESSURE INSTRUMENTS, AND TUBING TO BE FACTORY ASSEMBLED AND FILLED BY THE INSTRUMENT SUPPLIER.
5. ALL TUBING AND FITTINGS TO BE STAINLESS STEEL.
6. PROVIDE PIPE SPOOL OR FLANGED ASSEMBLY FOR 3" AND SMALLER PIPE PER SPECIFICATION 17401.
7. PROVIDE 1-1/2" DRAIN CONNECTION FOR PIPE SIZE 4" AND GREATER. OMIT DRAIN FOR 3" AND SMALLER.
8. LOCATE BALL VALVE BELOW DIAPHRAGM SEAL WHEN PROCESS PIPE IS ORIENTATED VERTICALLY.
9. *MATCH THE SPOOL LENGTH OF THE EXISTING DSL PIPE SPOOLS.
10. CORD AND PLUG: BRAD CONNECTIVITY 2P FEMALE STRAIGHT 6 FT 16/2 AWG PVC CORD (PN 1300060091); BRAD CONNECTIVITY 2P FEMALE STRAIGHT 12 INCH #16 AWG PVC LEADS (PN 1300130076), NO EXCEPTIONS

PRESSURE INSTRUMENT INSTALLATION
DIAPHRAGM SEAL MOUNTING

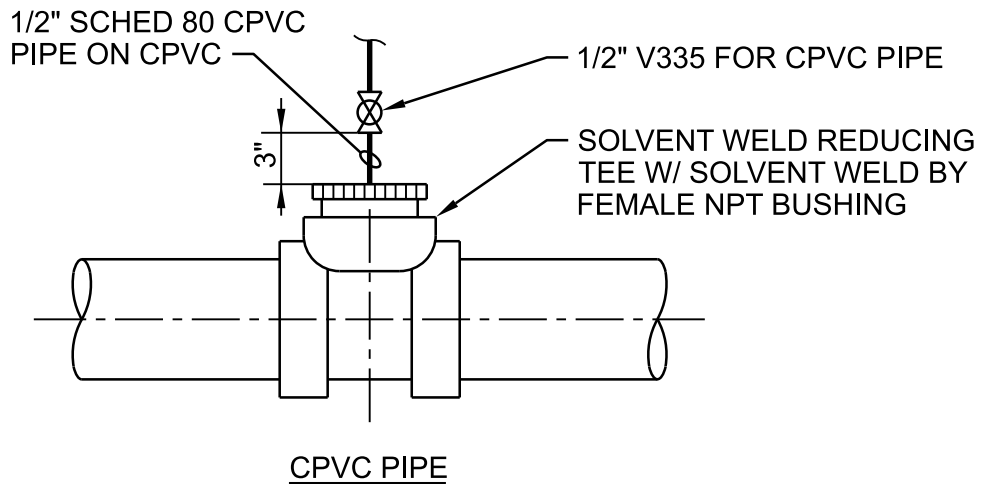
NTS

CLEAN WATER SERVICES
 DURHAM WRRF
 PHASE 6B DIGESTER

17304C



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



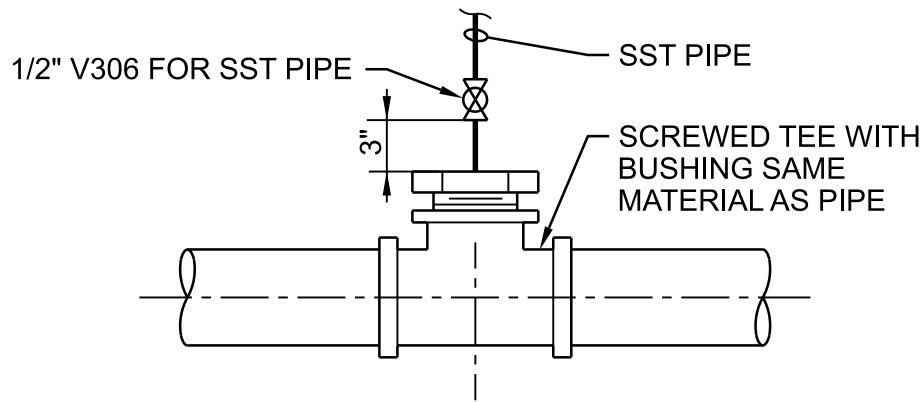
PRESSURE CONNECTION INSTALLATION

NTS

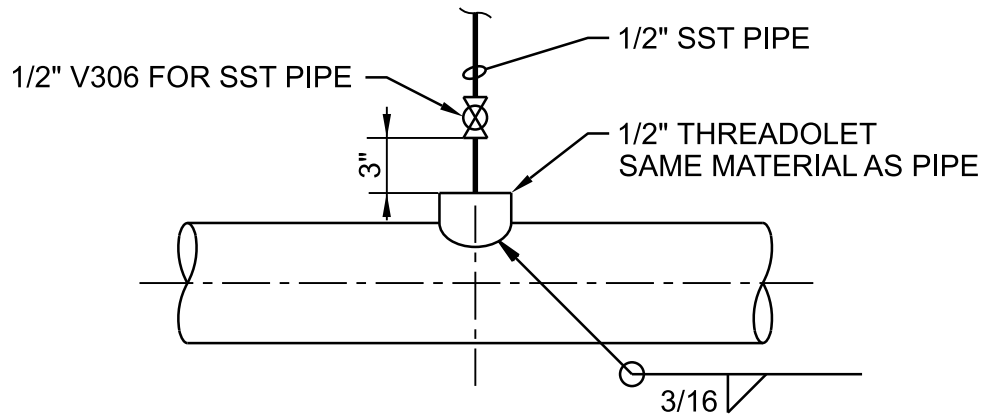
CLEAN WATER SERVICES
DURHAM WRRF
PHASE 6B DIGESTER

17305A

Jacobs



STEEL & SST PIPE 3 1/2" & SMALLER



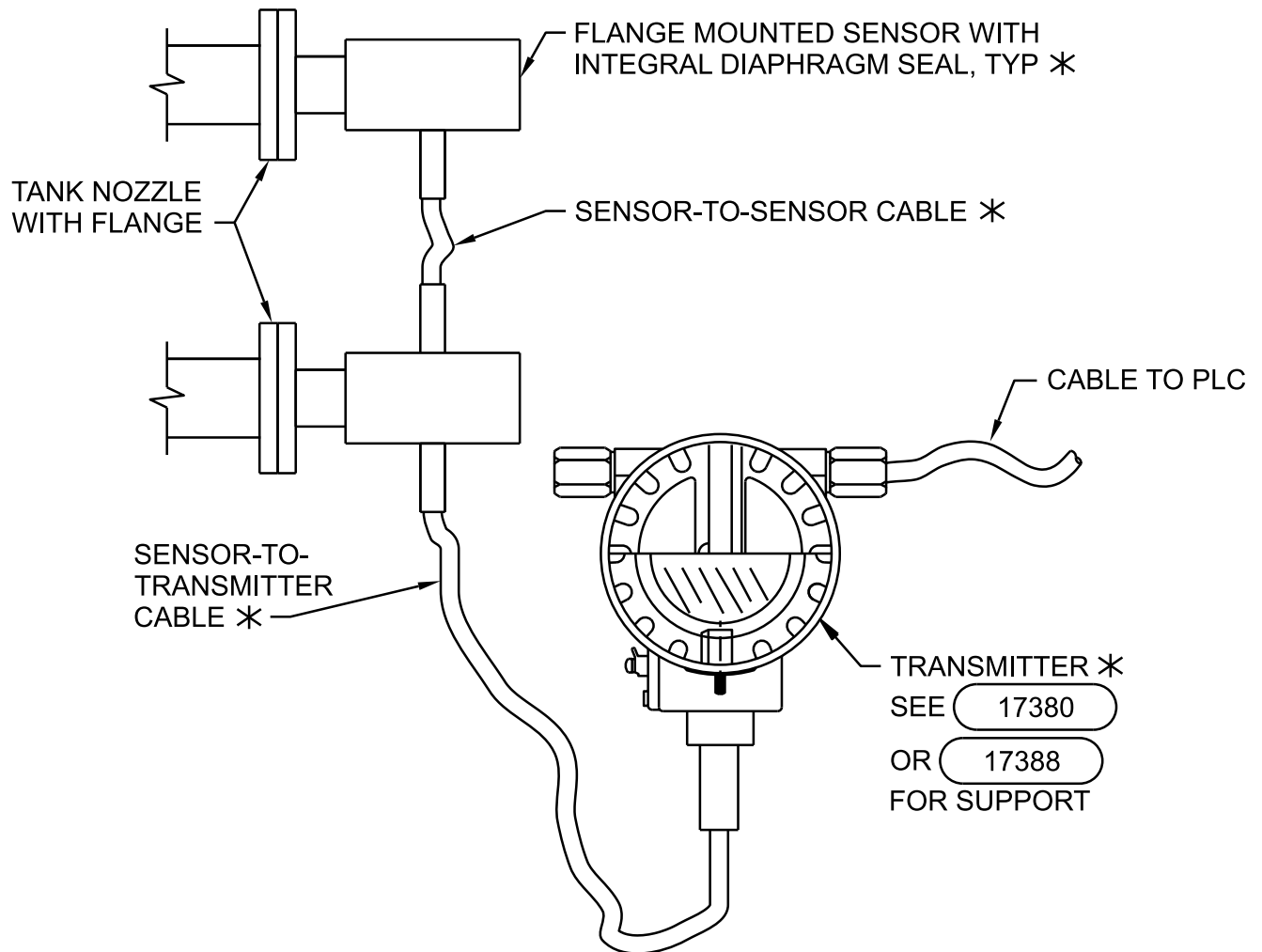
STEEL & SST PIPE 4" & LARGER

PRESSURE CONNECTION INSTALLATION

NTS

CLEAN WATER SERVICES
DURHAM WRRF
PHASE 6B DIGESTER

17305B



NOTES:

1. COMPONENTS DESIGNATED BY * ARE SUPPLIED BY THE INSTRUMENT MANUFACTURER.
2. PROVIDE PHYSICAL PROTECTION AND SUPPORT OF SENSOR CABLES.

PRESSURE DIFFERENTIAL TRANSMITTER

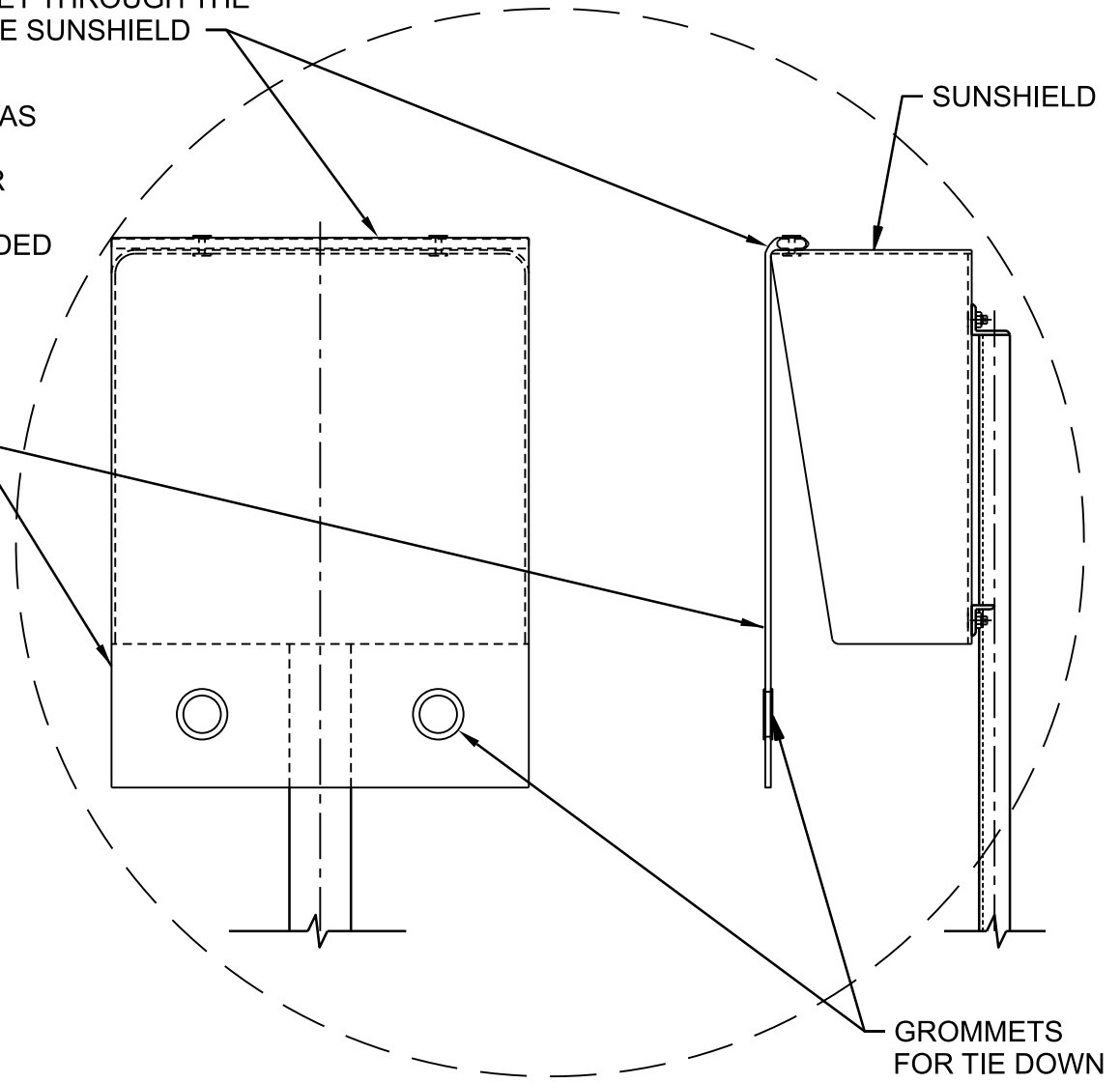
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CLEAN WATER SERVICES
DURHAM WRRF
PHASE 6B DIGESTER

17310

ALUMINIUM FLAT BAR (1/8" BY 1/2" CUT TO LENGTH). CANVAS SHOP WILL NEED TO SEW IN THE SLOT FOR THE ALUMINIUM FLAT BAR TO GO INTO. POP RIVET THROUGH THE FLAT BAR INTO THE SUNSHIELD

SUNBRELLA CANVAS IN A COMMERCIAL SHADE FABRIC OR EQUAL. CUT TO DIMENSIONS NEEDED FOR A GIVEN SUNSHIELD. BE SURE TO HAVE THE CANVAS SEAMED ALL THE WAY AROUND

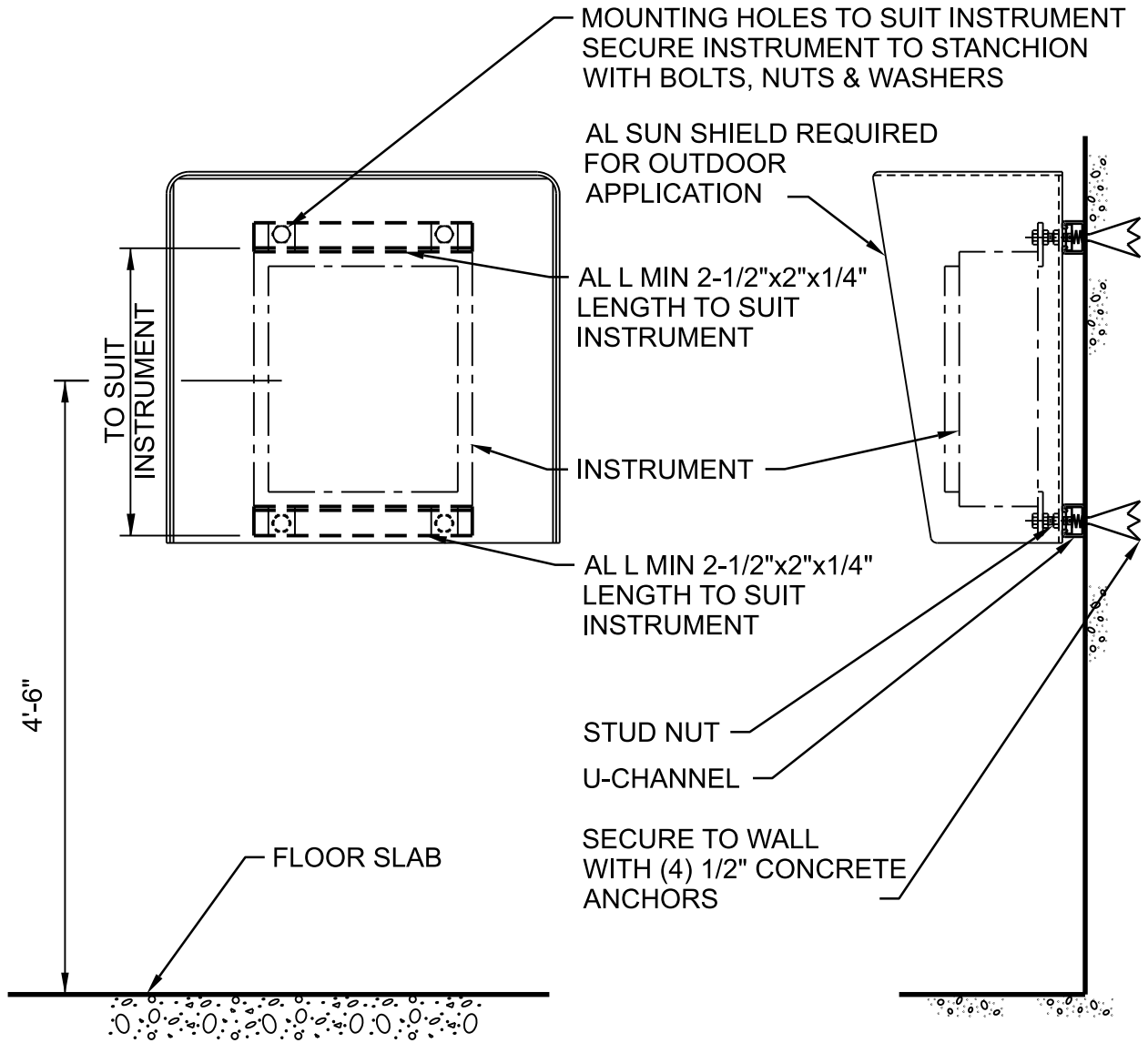


NOTES:

1. ROUND OFF ALL EXPOSED EDGES AND CORNERS.
2. PAINT ALUMINUM IN CONTACT WITH CONCRETE ACCORDING TO 09 90 00.
3. CANVAS FLAP REQUIRED WHEN SUNSHIELD IS PROVIDED.

CANVAS FLAP FOR SUNSHIELD

NTS



NOTES:

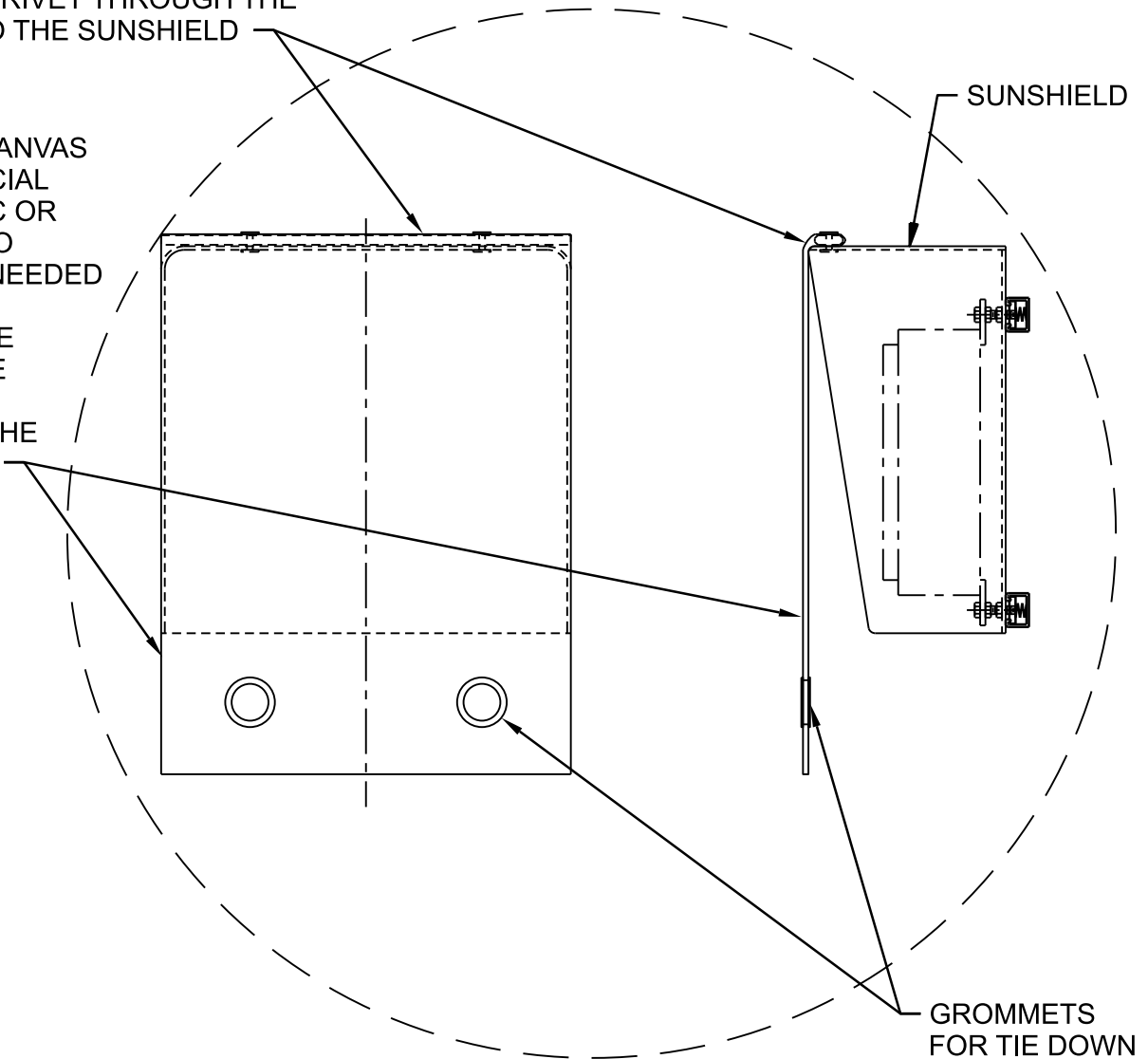
1. IF MOUNTED TO PRE-CAST WALLS, MOUNT TO EMBEDDED U-CHANNELS. DO NOT USE CONCRETE ANCHORS.
2. SUNSHIELD REQUIRED FOR OUTDOOR APPLICATIONS.

WALL MOUNTED INSTRUMENTS - CONCRETE WALL

NTS

ALUMINIUM FLAT BAR (1/8" BY 1/2" CUT TO LENGTH). CANVAS SHOP WILL NEED TO SEW IN THE SLOT FOR THE ALUMINIUM FLAT BAR TO GO INTO. POP RIVET THROUGH THE FLAT BAR INTO THE SUNSHIELD

SUNBRELLA CANVAS IN A COMMERCIAL SHADE FABRIC OR EQUAL. CUT TO DIMENSIONS NEEDED FOR A GIVEN SUNSHIELD. BE SURE TO HAVE THE CANVAS SEAMED ALL THE WAY AROUND



NOTES:

1. ROUND OFF ALL EXPOSED EDGES AND CORNERS.
2. PAINT ALUMINUM IN CONTACT WITH CONCRETE ACCORDING TO 09 90 00.
3. CANVAS FLAP REQUIRED WHEN SUNSHIELD IS PROVIDED.

CANVAS FLAP FOR SUNSHIELD

NTS