

FILE: G:\THE POINTE - NVGTE\WO-0.00 - SHEET INDEX.DWG
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 DRAWN BY: SSTOLIZ

SHEET INDEX		11/23/22 - SD PROGRESS SET				
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W1-1.10	SPA SECTIONS	<input checked="" type="checkbox"/>				
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W4-1.20	MECHANICAL ROOM LAYOUT PLAN	<input checked="" type="checkbox"/>				
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W4-1.31	MECHANICAL ROOM SECTIONS	<input checked="" type="checkbox"/>				
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W5-1.07	GENERAL DETAILS	<input checked="" type="checkbox"/>				
W5-1.08	GENERAL DETAILS	<input checked="" type="checkbox"/>				

SYMBOLS & ABBREVIATIONS LEGEND

ABBREVIATION	NAME	SYMBOL	ABBREVIATION	NAME	SYMBOL
X" PVC	X" DIA. PVC PIPE		NO	NORMALLY OPEN VALVE POSITION	
AV	AIR/VAC RELIEF VALVE		PG	PRESSURE GAUGE WITH ISOLATION VALVE	
BV	BALL VALVE		PSV	PRESSURE SUSTAINING VALVE	
BFV	BUTTERFLY VALVE		RD	REDUCER/ENLARGER	
CHK	CHECK VALVE		SMV	SAMPLING VALVE	
FD	FLOOR DRAIN		SV	SOLENOID VALVE	
FM	FLOW METER		ELECTRICAL LINES		
GPM	GALLONS PER MINUTE		AUTOMATED / ACTUATED VALVE		
GBV	GLOBE VALVE			DISCONNECT SWITCH	
NC	NORMALLY CLOSED VALVE POSITION			GAUGE COCK VALVE	
FLG	FLANGE			TEE	
ARROW INDICATES DIRECTION OF FLOW				CHEMICAL FEED PUMP	
TP	TEMPERATURE PROBE				

KEY	
	ISSUED FOR INFORMATION AND COORDINATION
	ISSUED FOR INFORMATION AND COORDINATION, AND PRICING
	ISSUED FOR CONSTRUCTION
	ISSUED FOR PRICING

NUMBERING SYSTEM:
 DISCIPLINE: W-WATER FEATURES
 EW-WATERFEATURE ELECTRICAL
 SERIES IDENTIFIER: FEATURE NUMBER
 DRAWING NUMBER: W1-1.01

A. General Requirements

- The Plans, Specifications and other contract documents will govern the Work. The Plans and Specifications and other contract documents are intended to be complimentary, to describe and provide for a complete project.
- All work shall be performed in accordance with current Local City Standards and Specifications and adopted building Codes.
- "Contractor" refers to the contractor or sub-contractor responsible for the installation and construction of the work contained in the W and WE series documents and is responsible for meeting all the requirements contained on the drawings, specifications and notes.
- The Contractor is responsible for coordinating all phases of work contained in these (W and WE series) construction documents with other construction trades and construction documents including but not limited to civil, structural, mechanical, electrical, and architectural trade work.
- Contractor is responsible for providing a complete installation of the systems included in these (W and WE series) documents including pool shells, piping, mechanical equipment and electrical equipment, electrical components and power.
- The Contractor is responsible for coordinating the installation and purchase of all the electrical components, including electrical devices, power panels, control panels etc. as indicated on the Water Feature Electrical (WE series) drawings for the complete operation of the systems.
- The Contractor shall notify the Engineer/Architect of any discrepancies, omissions or conflicts between various elements of the contract documents prior to proceeding with any work involved in the discrepancy, omission or conflict. Generally, the most stringent requirements shall govern the work.
- The Contractor shall verify the location of all existing utilities including cables, conduits, pipes, water lines, gas lines, etc. and shall take proper precautions to avoid damage to such components. In the event of a conflict or discrepancy, the contractor shall promptly notify the Owner and engineer and request for necessary relocation. Failure to follow this procedure places upon the contractor the responsibility of making repair or replace such damage at his own expense.
- The Contractor shall provide necessary safeguards and exercise caution against damage to existing and new structures, structural components and finishes. The contractor shall be responsible for any damage resulting from his operations and shall repair or replace such damage at his own expense.
- The Contractor shall verify all existing conditions, dimensions, elevations, and etc. on the site and shall coordinate the work to be performed with all trades.
- Shop drawings shall be submitted by the Contractor to be reviewed and approved by the Engineer/Architect prior to fabrication, erection, manufacturing of components or purchasing any materials.
- Temporary bracing shall be provided wherever necessary to provide protection to workers and structures. Bracing shall be designed to withstand all loads from soil, structures, wind, and construction operations. Such bracing shall be left in place as long as required for safety and protection. All bracing shall be the responsibility of the Contractor.
- The Contractor is responsible for safety and protection within and adjacent to the job site during construction.
- Failure to follow the plans and specifications constitutes change in project scope. The Engineer reserves the right to request replacement of any portion of the work deviating from the plans where written approval has not been obtained. Deviation from construction documents without written approval relieves the Engineer of all liability and Contractor assumes full liability.

B. Site Work

- Prior to construction the Contractor shall verify all site conditions, dimensions and elevations and shall coordinate the work performed by all trades.
- All equipment shall be mounted on vibration isolation pads to prevent noise & vibration transmission to adjacent spaces. Isolation couplings shall also be installed.
- Pipe layouts shown on the contract drawings represent the desired pipe routing, allowing for minor realignment required by field conditions. The Engineer of Record approval is required for all major rerouting of piping.
- All Pipe runs shall be installed with the least number of fittings and without air entrapping high points or reverse slopes.
- Piping shall be fully supported along its entire length to prevent pipe deflections and in accordance with contract specifications. All fittings shall be adequately supported to resist thrust, vibration and movement. Provide thrust blocks and bracing where needed.
- Contractor shall maintain an accurate as-built drawing indicating installed pipe, footings, foundations and slab layouts and elevations.
- All materials and installation of site piping, fittings, valves, concrete, shotcrete, etc shall meet the requirements indicated in the written specifications.

C. Concrete Work

- Concrete placement shall be in accordance with the latest edition of ACI-301 and ACI-302. When concrete is placed during hot weather conform to the latest edition of ACI 305R. When concrete is place during cold weather conform to the latest edition of ACI 308R.
- All work shall be in strict accordance with ACI 318, ACI 350 and local building codes.
- Contractor shall provide Owner with Concrete Supplier's statements of mix proportions, anticipated 28 day compressive strength and test reports.
- Concrete tests cylinders shall be made and stored in accordance with ASTM C-31. Records of test cylinders and test results shall be sent to the owner and the engineer of record for approval. If test cylinders are not prepared at time of concrete installation Contractor shall be fully responsible for obtaining core test samples and repairing concrete surface to the satisfaction of the engineer. All tests and samples shall be performed in accordance with ASTM standards and per the written specifications.
- Contractor shall coordinate location of penetrations with all other trades prior to placing concrete and install sleeves, block outs, etc. as required.
- All penetrations through walls or slabs subjected to water shall be installed with a mechanical water stop or link seal.
- Contractor shall be responsible for proper placement of all anchor bolts, imbeds, plates, and etc. as required.
- Concrete shall be responsible for the design, detailing, care, placement and removal of all formwork and shoring. Do not remove forms and shoring until structural members acquire sufficient strength to support their own weight plus construction loads.
- All expansion joints shown on the plans shall be installed without change to the number or location except with the written approval of the Engineer of Record.
- Joint sealant shall be either fiber expansion joint type conforming to ASTM D1751 or closed cell neoprene sponge rubber conforming to ASTM D1752.
- All concrete structures holding or retaining water shall have water stops or water bars placed at all construction joints to protect reinforcement.
- Concrete mixture shall meet the following requirements unless noted otherwise.
 - 28 day compressive strength: 5,000 psi
 - Portland cement type: Type V or Type I or II per ASTM C150 with C3A < 8%
 - Maximum water to cement ratio: 0.40
 - Maximum concrete slump: 4 inches (plus or minus 1")
 - Air entraining: as recommended by ACI 318 & ASTM C-260
 - Aggregate: normal weight conforming to ASTM C33 and that are clean, washed, non-friable and uniformly graded from coarse to fine.
 - Do not add calcium chloride to concrete mix
- See project specifications for additional Concrete requirements and admixtures.
- All concrete shall be water (damp) cured as described in project specifications unless the Engineer of Record has provided written approval of an alternative method.
- Contractor shall be responsible for the clean up and removal from the site of all concrete debris and associated materials upon completion of the work.

D. Shotcrete

- All shotcrete materials, proportioning and application shall conform to ACI 506.2.
- Shotcrete application shall meet all the requirements listed in the General Notes and in the project specifications.
- Contractor must have at least three (3) years experience in shotcrete application and shall provide the Engineer with at least five (5) projects of this type and size which he has completed in a satisfactory manner.
- Test panels shall be provided and tested per the written specifications. If test panels are not prepared at time of shotcrete installation Contractor shall be fully responsible for obtaining core test samples and repairing shotcrete surface to the satisfaction of the engineer. All tests and samples shall be performed in accordance with ASTM standards and per the written specifications.
- Install adequate ground wires prior to shotcrete application to be used as screens to establish thickness and surface planes of the shotcrete work. Place ground wires so they are tight and true to line and in a manner that they may be easily tightened.
- Shotcrete shall be kept damp for at least ten (10) days after being placed as described in the project specifications.
- The Contractor shall be responsible for the removal from the site of all shotcrete debris, debris rebound and construction waste materials upon completion of the work.
- Finished surfaces shall be cleaned to the approval of the Engineer of Record.

E. Reinforcement

- All reinforcing steel shall be new deformed billet steel bars Grade 60 per ASTM A615 unless noted otherwise.
- All deformed bar anchors shall conform to ASTM A496.
- All headed stud anchors shall conform to ASTM A108.
- All welded wire fabric shall conform to ASTM 185, lap one mesh tie.
- All reinforcing steel shall be detailed and placed in accordance with the ACI Detailing Manual and ACI Standards (latest addition)

- Reinforcing steel and embeds shall be properly tied into place prior to placing concrete.
- All splices in reinforcing bars shall lap a minimum of 52 bar diameters unless noted otherwise. All splices shall occur in a compression zone unless noted otherwise. Terminate all reinforcing bars with a 90 degree bend or with separate corner bars.
- Mechanical splices shall be positive connecting couplers and shall meet all applicable code requirements. Adjacent mechanical splices shall be staggered a minimum of 24 inches along the reinforcing bars. Tensile capacity of mechanical splices shall be 125% of the spliced bar.
- Horizontal reinforcement shall be continuous through construction and control joints.
- Tie wire shall be soft annealed steel, 18 gage minimum conforming to ASTM A82 with 2" cover (2.5" if subject to salt spray).
- Reinforcement placed in concrete structures holding or retaining water shall have water stops or water bars placed at all construction joints to protect reinforcement. Dowels through joints exposed to water shall be epoxy coated.
- Do not splice stirrups and ties.
- Do not weld reinforcing bars.
- Do not substitute reinforcing bars for deformed anchor bars or headed anchor studs.
- Reinforcing to be 2" clear from wet surfaces, UNO.
- Use epoxy coated reinforcing for Seawater Lagoon.

F. Pool Standards

- All work shall be in strict accordance with the Local Health Department swimming pool and spa requirements.
- Install backflow prevention device at all pool/spa connections to main potable supply line.
- Provide a potable water fill/makeup supply for each pool system with a 6 inch (15 cm) minimum air gap above the high water level in the chamber.
- All piping shall be adequately supported to prevent sagging and shaking of the piping system and supports shall be of isolation type to prevent vibration transmission to the structure.
- All circulation and treatment equipment that comes in contact with the pool water shall be NSF approved and meet potable water standards.
- All meters shall be capable of reading 1.5 times the designed flow rate for each pool system.
- All pool chemical dosing equipment shall be electrically interlocked to the pool's recirculation pumps such that dosing cannot continue when pumps are not in operation.
- Pool chemicals shall be stored in accordance with manufacturer's recommendations under roofed areas that are non-accessible to unauthorized persons.
- Provide hose bibs around the pool area for wash down. Hose bibs shall be equipped with atmospheric vacuum breakers.
- All Skimmers, weirs and overflow gutters are to be leveled within 3/16 inches (5 mm) of the design elevation.
- Access covers to skimmers, valve boxes, manholes, etc. in public finished areas shall be similar in material and color to the surrounding finish and be approved by the architect.
- Depth Markers and No Diving Markers shall be placed as indicated on the drawings and per local code requirements and indicate the depth within 3 inches (75 mm) of actual depth. Horizontal markers shall be slip resistant. "NO DIVING" in 4 inch (100mm) letters must be posted with pool rules for no diving pools.
- All tiles used to mark steps, benches and swim out areas shall be a contrasting color to the pool finish and shall be slip resistant.
- Surface treatment of wet deck areas shall be impervious and slip resistant. See architectural documents for materials. Wet deck includes the deck immediately around the pool and the first 15 feet (4.5 m) of walkways to sanitary facilities.
- Each pool shall be provided with a standard rule sign in a location that is visible from all areas of the pool. Additional signage maybe required. All signage shall meet the requirements of the Local Governing Agency.
- Contractor shall install a portable ADA lift. Per current ADA codes.
- Contractor shall provide two (2) portable vacuum systems and maintenance kits as specified in the project specifications.
- Provide two (2) sets of pool safety equipment for each pool. One set of safety equipment includes: one (1) life hook with a 15 foot (4.5 m) single piece pole and one (1) minimum 18 inch (450 mm) diameter life saving ring with rope.
- Provide one (1) pool vacuum system. Maxi-Sweep or equal.

G. Electrical Requirements

- All electrical work shall be in strict compliance with the latest edition of the National Electric Code (NEC) and local ordinances. The most stringent requirements shall take precedence.
- Pools shall be adequately grounded as required by the National Electric Code (NEC) including reinforcing, under water lights, handrails, anchors, etc.
- All pool chemical dosing equipment shall be electrically interlocked to the pool's recirculation pumps such that dosing cannot continue when pumps are not in operation.
- All lighting and outlets within the pool areas shall be GFCI rated.
- Control panels, power panels, and etc. shall be installed in locations where the panels are easily accessible and meet NEC code clearance requirements.
- Contractor shall verify all electrical loads (voltage, phase, connection requirements, and etc.) of equipment furnished before beginning rough in work. Notify the engineer if there are any discrepancies between equipment furnished and contract documents.
- Contractor shall insure that all components of the control system are fully operation and function as originally intended. Operation of the system shall meet the requirements as indicated in the control specifications and in the construction drawings.
- Additional deck lighting must be clear so that the inside of the light is visible during inspection.

H. Local Code Requirements

- Walls and floors will be slip resistant.
- Pool floors, walls, deck areas must be smooth but slip resistant.
- Deck drains are required for every 400 ft² of area and not more than 25 feet apart.
- Deck must have a slip-resistant surface that can be cleaned by hosing down and will give no discomfort to bare feet.
- The recirculation system must be operated at all times the facility is open for use and for not less than 3 hours after the facility is closed.
- Time clocks to govern the operation of the recirculation system must also govern the chemical dispensing equipment and heaters. Time clocks must reset immediately after any interruption of power.
- Inlets must not be installed less than 18 inches below the water level of the pool.
- Inlets must not extend from the pool wall or floor so as to create a hazard.
- Grates on bottom drains must be securely fastened in such a way that it cannot be removed without the use of a tool. Opening in grates must not exceed 1/2".
- Piping must be of a nontoxic material, resistant to corrosion and able to withstand operating pressures. All plastic piping and fittings used in the recirculation system must be imprinted with the name of the manufacturer and potable water mark of the NSF, or its equivalent.
- All pressure and suction lines must slope no less than 0.25% (3 inches per 100 feet).
- Filter plant shall be equipped with a drain so that all parts of the system may be drained.
- Opening in strainers must be no greater than 1/8 inch.
- An approved test kit shall be provided that will determine pH, disinfectant residuals, total alkalinity and cyanuric acid concentrations. The use of the DPD method of determining the level of residual chlorine or bromine is required.
- Facility must have a standard first-aid kit, filled, ready for use and two or more blankets reserved for emergency use.
- The maximum number of bathers permitted within the pool enclosure must be posted.
- All water feature equipment shall include installation and operation instructions by those who furnish the equipment.
- Treatment systems operated by time clocks must operate as outlined by all local codes.
- All treatment pumps must have a hair and lint strainer.
- Proper direction of rotation for all pumps shall be clearly indicated by an arrow on the pump data plate, on a separate plate attached to the pump, or cast into the pump itself.
- Pumps must have a minimum service factor of 1.15.
- All motors must have thermal overload protection and locked rotor protection, or equivalent, built in or in the line starter, to provide locked rotor and running protection.
- The motor frame must include adequate provisions for proper grounding.
- All valves must be located where they will be readily and easily accessible for maintenance and removal.
- Every filter must have means for air release.



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SHEET INDEX
 AND GENERAL
 NOTES

Date:	11/23/22	Scale:	
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Approved By:	CH20	Project No:	22035

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SPA LAYOUT
 PLAN

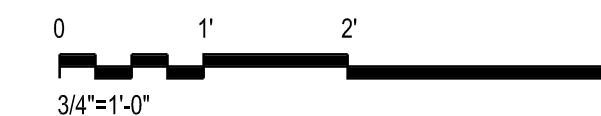
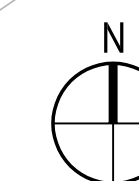
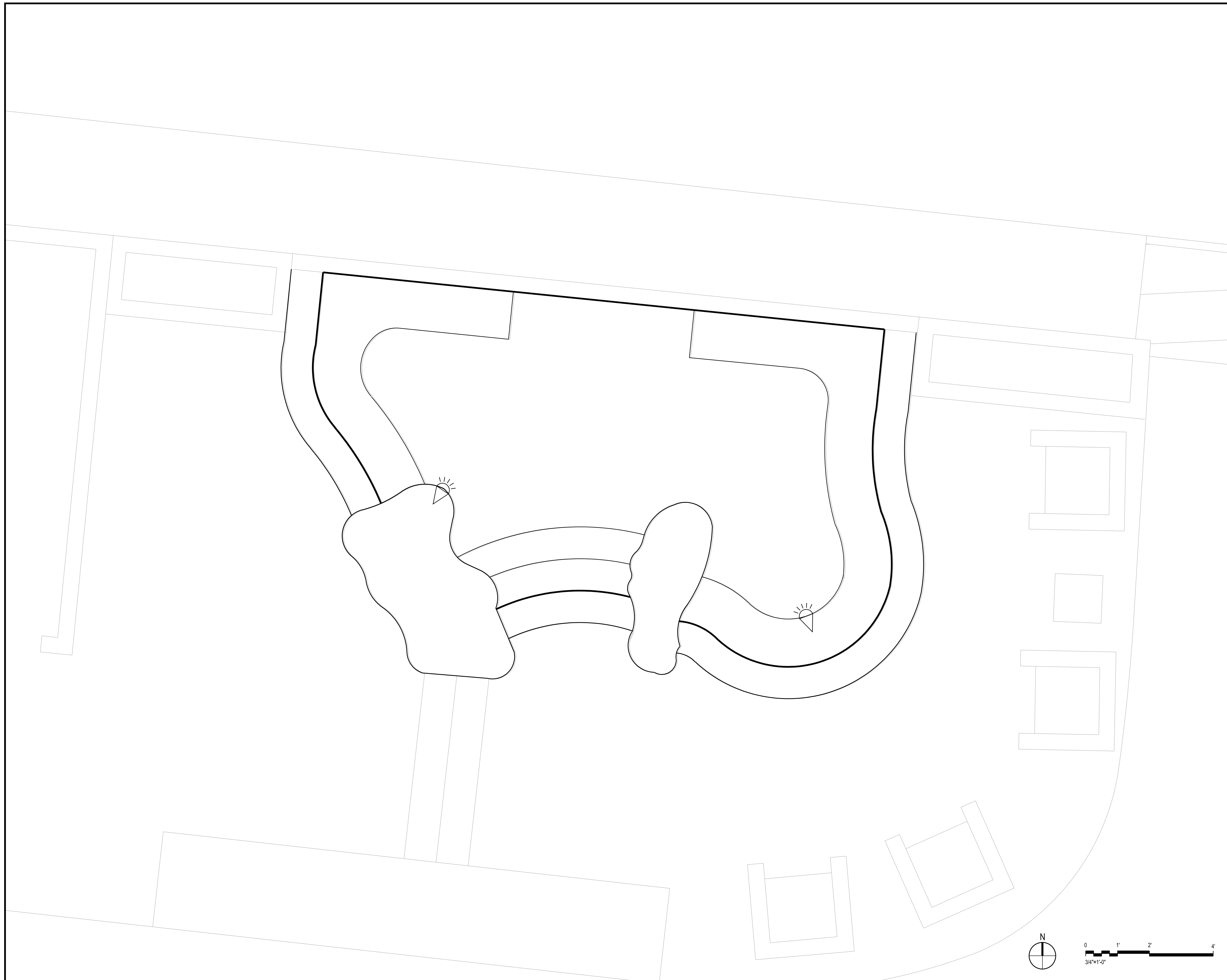
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Approved By:	CH20	Project No:	22035

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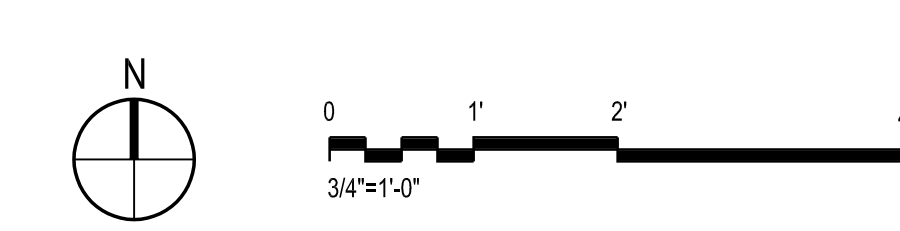
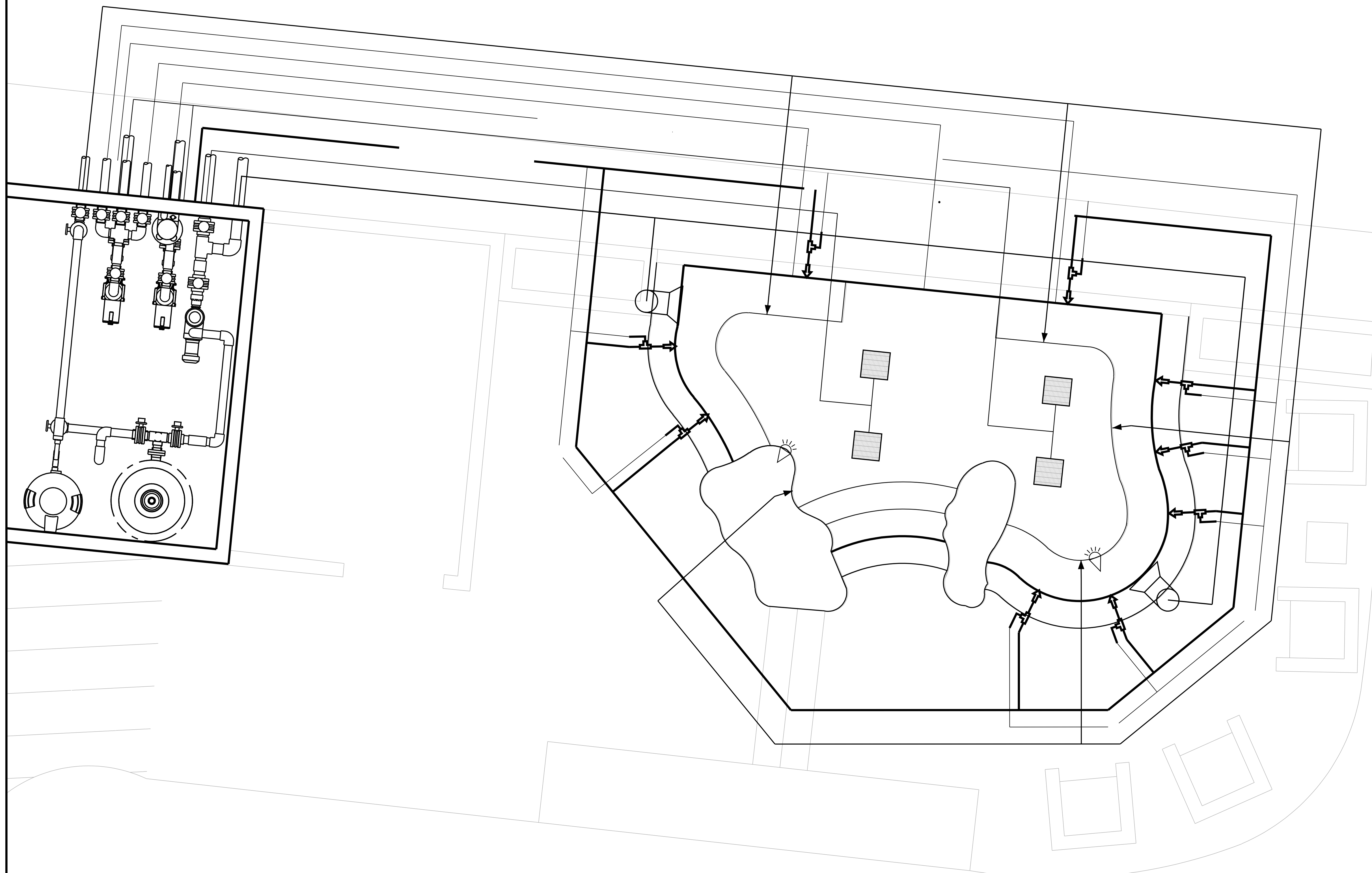
SPA PIPING
PLAN

Date:	11/23/22	Scale:	AS SHOWN
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Approved By:	CH20	Project No:	22035

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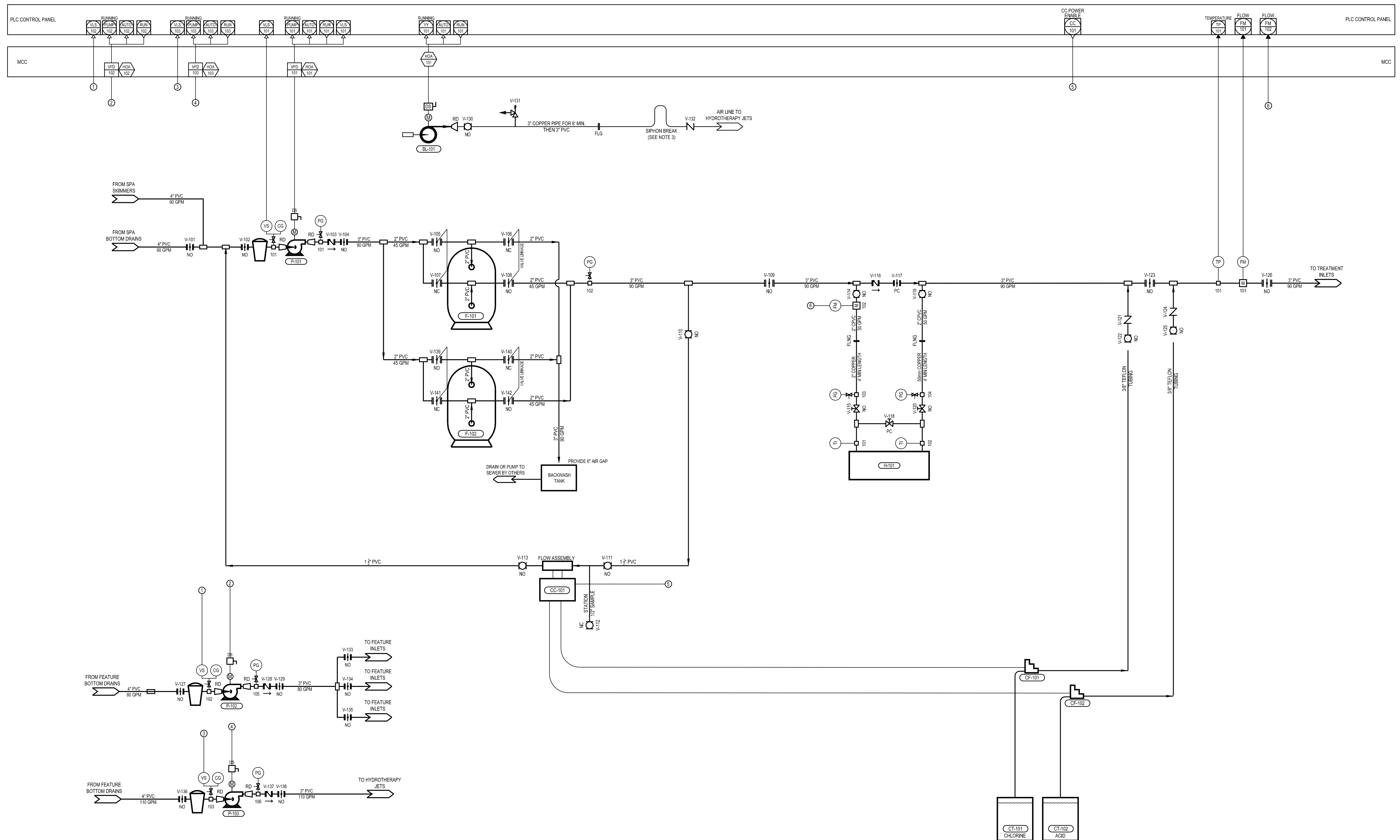
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**SPA
FILTRATION
FLOW DIAGRAM**

Date: 11/23/22 Scale: AS SHOWN
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Approved By: CH2O Project No: 22035

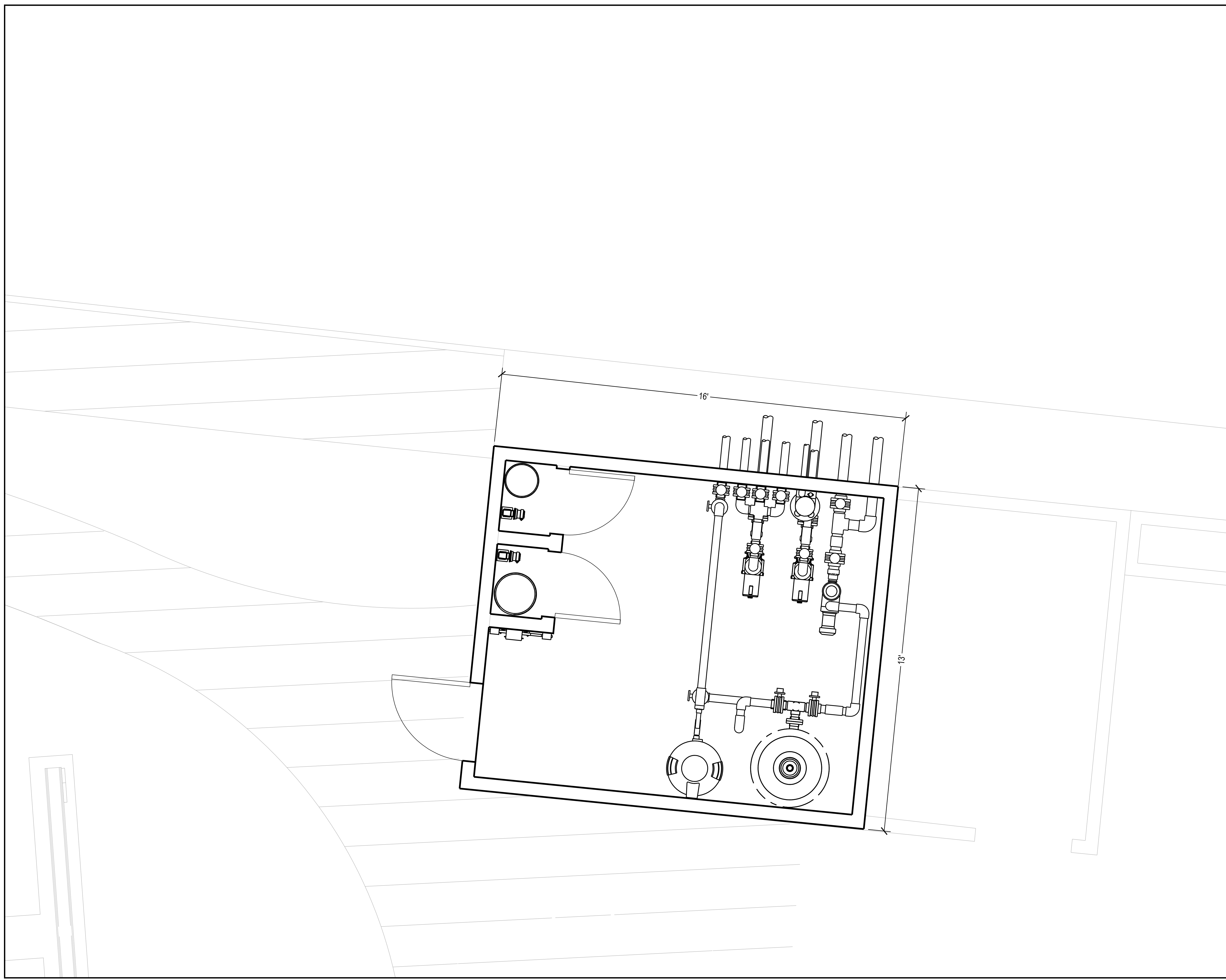
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ITEM TAG	DESCRIPTION	SPECIFICATION	KW	HP	RPM	VAC	PHASE	Hz
P-101	TREATMENT PUMP	PENTAIR INTELLIFLOX VSE, 90 GPM @ 65 TDH W/STRAINER BASKET	2.2	3	VAR	230	1	60
P-102	FEATURE PUMP	PENTAIR WATERFALL PUMP, 80 GPM @ 22 TDH W/STRAINER BASKET	0.7	1	VAR	230	1	60
P-103	FEATURE PUMP	PENTAIR WATERFALL PUMP, 110 GPM @ 20 TDH W/STRAINER BASKET	0.7	1	VAR	230	1	60
F-101, F-102	SAND FILTER	TRITON, TR-100C-3, 4.9 SQ. FT. PER FILTER, 3 INCH FLANGE CONNECTIONS						
H-101	HEATER	PENTAIR, MAX-E-THERM 460767, 250K BTUHR W/INTELLIVALVE	1.4		240	1		60
BL-101	BLOWER	ROTRON, DR148R50M, 30 SQFM @ 56 IN W20, W/ INTAKE MUFFLER	1.12	1.5		230	1	60
CF-101	CHLORINE FEED PUMP	STENNER, 85M1, MAX FEED RATE: 10 GPD	0.2		120	1		60
CF-102	pH FEED PUMP	STENNER, 85M1, MAX FEED RATE: 3 GPD	0.2		120	1		60
CT-101	CHLORINE TANK	30 GALLON CARBOY						
CT-102	ACID TANK	15 GALLON CARBOY						
CC-101	CHEMICAL CONTROLLER	BECS TECHNOLOGY, BECSYS3, INCLUDE INDUSTRIAL PROBES	1.1		120	1		60
FM-101, FM-102	FLOW METER	BLUE WHITE, F-3000XP, SIZED TO PIPE						
PG-101 THRU PG-106	PRESSURE GAUGE	WIKA (TYPE PER INSTALLATION), LIQUID FILLED 4 INCH (100mm) DIA.						
CG-101 THRU CG-103	COMPOUND GAUGE	WIKA (TYPE PER INSTALLATION), LIQUID FILLED 2 INCH (50mm) DIA, 0-30 Hg/30 PSI RANGE						
VS-101 THRU VS-103	VACUUM SWITCH	MERCIDIO VACUUM LIMIT SWITCH, ADJUSTABLE SET POINTS (2-3 IN Hg)						
TI-101, TI-102	THERMOMETER	TRERICE AX8, 7 INCH ADJUSTABLE ANGLE W/ THERMOWELL						
TP-101	TEMPERATURE PROBE	TRERICE BX PLUS, THERMOMETER W/ RTD AND THERMOWELL						

POOL GEOMETRY	
SURFACE AREA	152 SQUARE FEET
VOLUME	3,411.12 GALLONS
TREATMENT INFORMATION	
TURNOVER FLOW RATE	130 GPM
TURNOVER TIME	0.44 HOURS 26.22 MINUTES
EQUIPMENT TAG LEGEND	
EQUIPMENT CALL OUT	EQ-100
	IDENTIFICATION NUMBER

FILE: G:\THE POINTE - NVGTE\W4-1_20 - MECHANICAL ROOM LAYOUT.DWG
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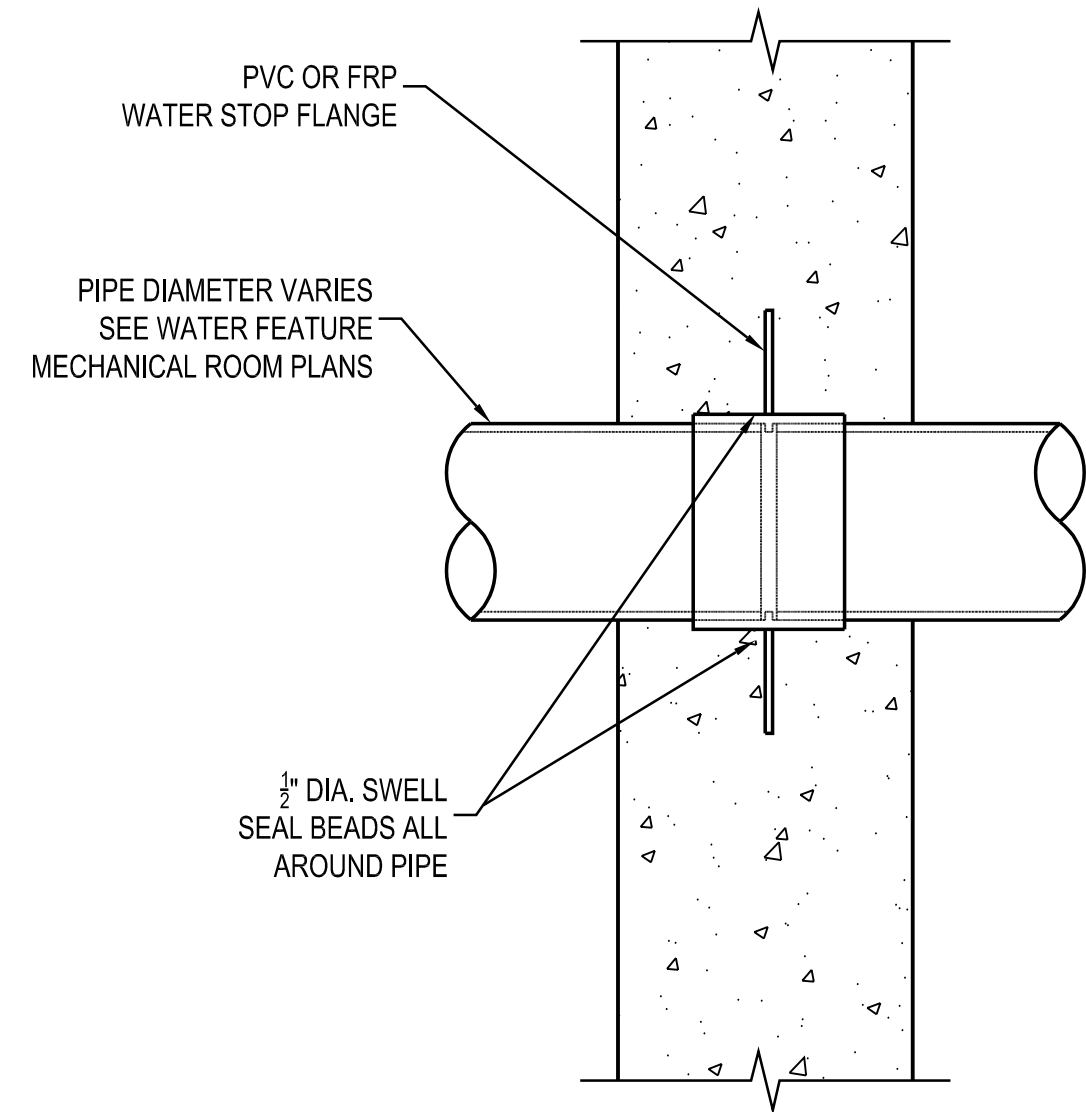
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Sheet Title:
 MECHANICAL
 ROOM LAYOUT

Date:	11/23/22	Scale:	AS SHOWN
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Approved By:	CH20	Project No:	22035

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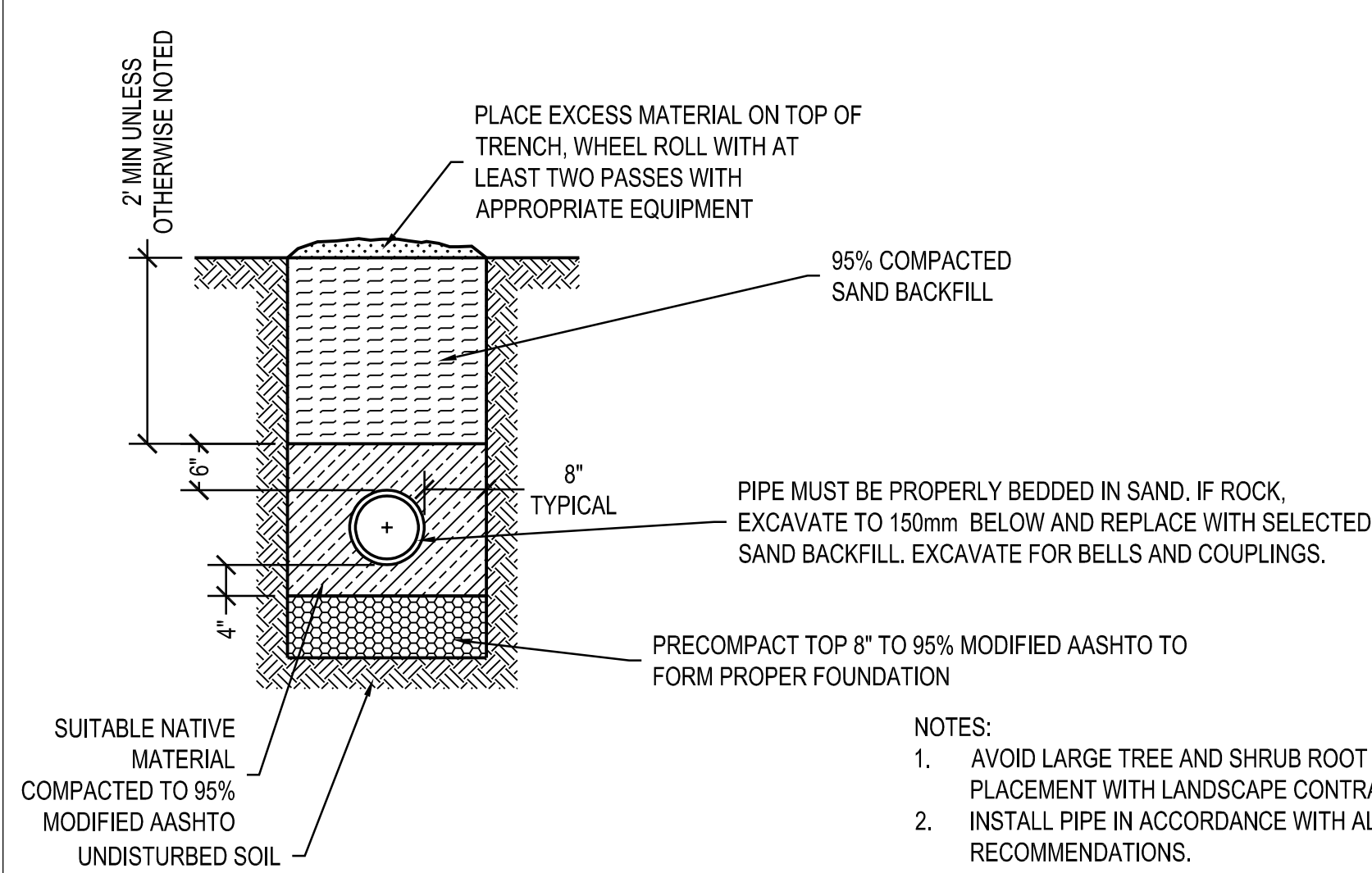


WATER STOP FLANGES REQUIRED THROUGH ALL STRUCTURES THAT CONTAIN WATER.

- GENERAL NOTES:
1. WATER STOPS WILL BE CAST IN PLACE.
 2. INSTALL AS PER MANUFACTURER'S RECOMMENDATIONS.
 3. SIZE FLANGE TO PIPE AS PER MANUFACTURER'S SPECIFICATIONS.
 4. WATER STOP FLANGES REQUIRED THROUGH ALL STRUCTURES THAT CONTAIN WATER.
 5. ASA MFG WATERSTOP FLANGE OR EQUIVALENT.

7 WATER STOP FLANGE

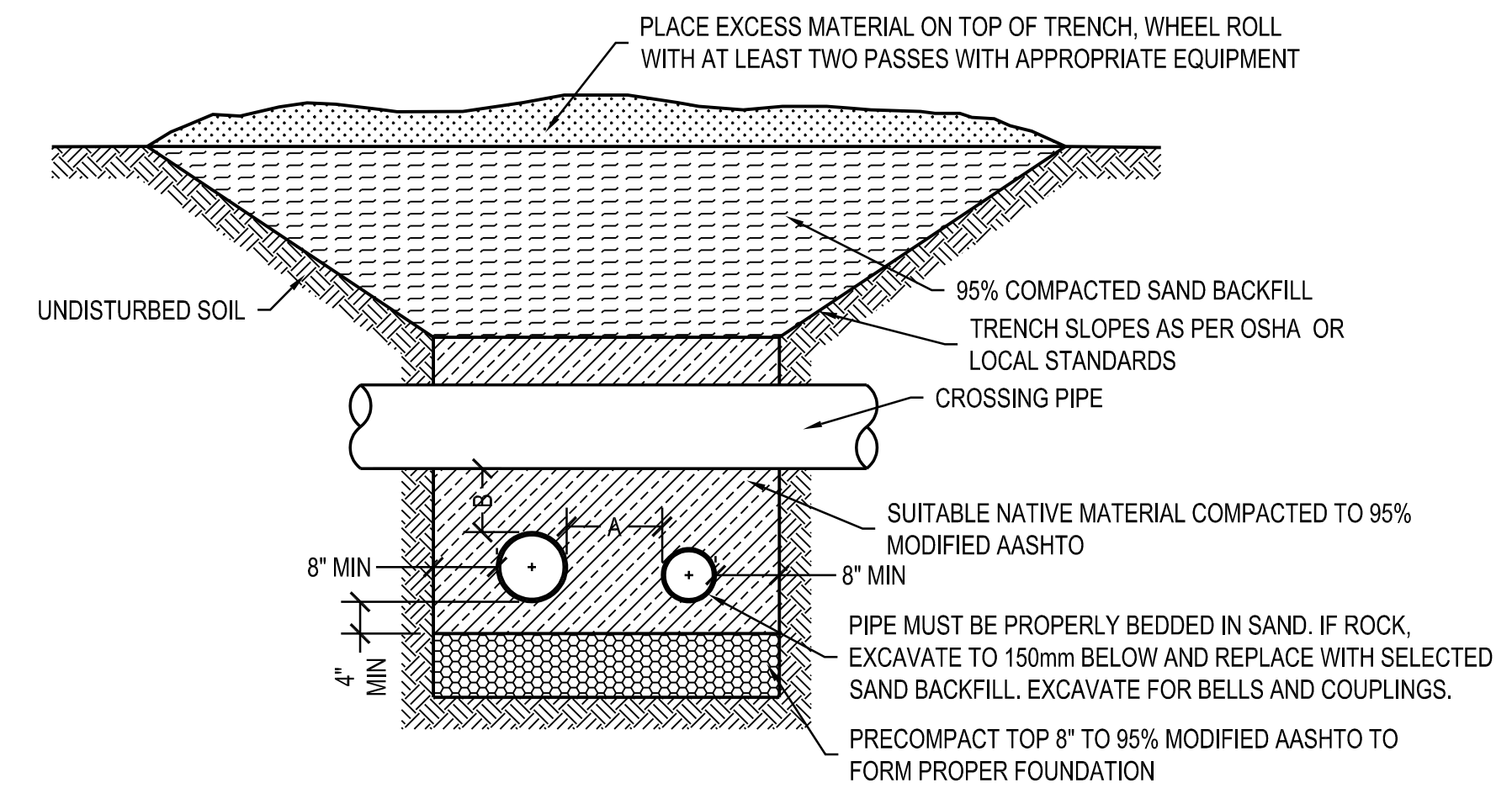
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- NOTES:
1. AVOID LARGE TREE AND SHRUB ROOT BALLS. COORDINATE PLACEMENT WITH LANDSCAPE CONTRACTOR.
 2. INSTALL PIPE IN ACCORDANCE WITH ALL MANUFACTURER'S RECOMMENDATIONS.
 3. PIPES RUNNING PARALLEL AND ABOVE OTHER PIPES ARE ALLOWED ONLY BY SPECIAL APPROVAL BY THE ENGINEER.
 4. ALL PIPES SHALL BE SLOPED TO LOCAL CODES, AS REQUIRED.

4 SHALLOW PIPE TRENCH IN LANDSCAPE

SCALE 1:20

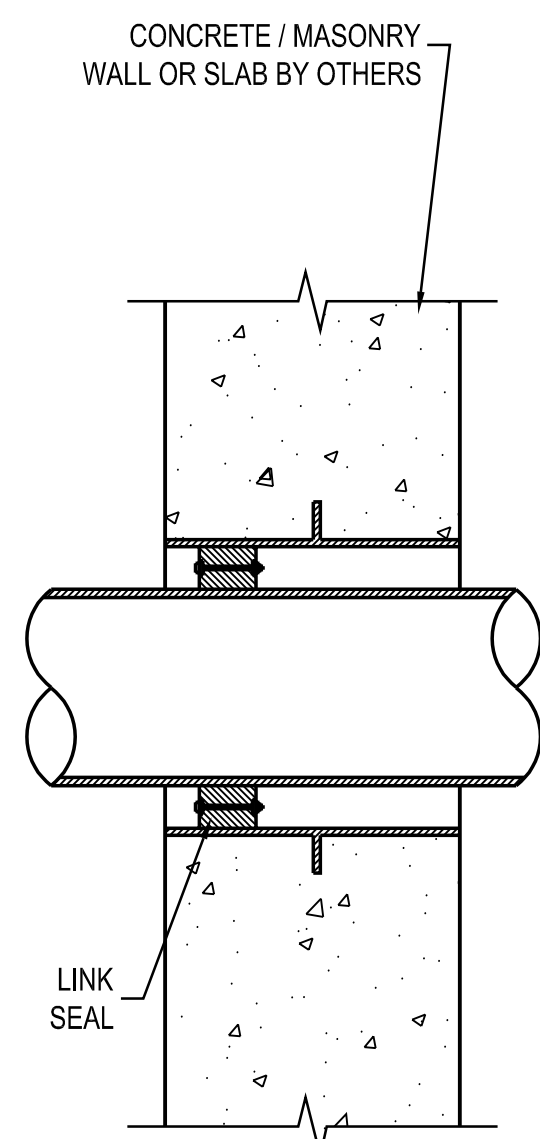


PIPE TRENCH DIMENSION		
PIPE DIAMETER (D)	"A"	"B"
1" - 3" (25mm - 80mm)	6" (150mm) MIN	6" (150mm) MIN
4" - 12" (100mm - 300mm)	12" (300mm) MIN	6" (150mm) MIN
12" - 24" (300mm - 600mm)	1.5 D	0.5 D

- NOTES:
1. THE LARGEST PIPE DIAMETER SHALL BE USED TO DETERMINE THE SPACING DIMENSION
 2. INSTALL PIPE IN ACCORDANCE WITH ALL MANUFACTURER'S RECOMMENDATIONS.
 3. PIPES RUNNING PARALLEL AND ABOVE OTHER PIPES ARE ALLOWED ONLY BY SPECIAL APPROVAL BY THE ENGINEER.
 4. ALL PIPES SHALL BE SLOPED TO LOCAL CODES, AS REQUIRED.

1 MULTIPLE PIPE WITH CROSSING PIPE TRENCH SECTION

SCALE 1:20



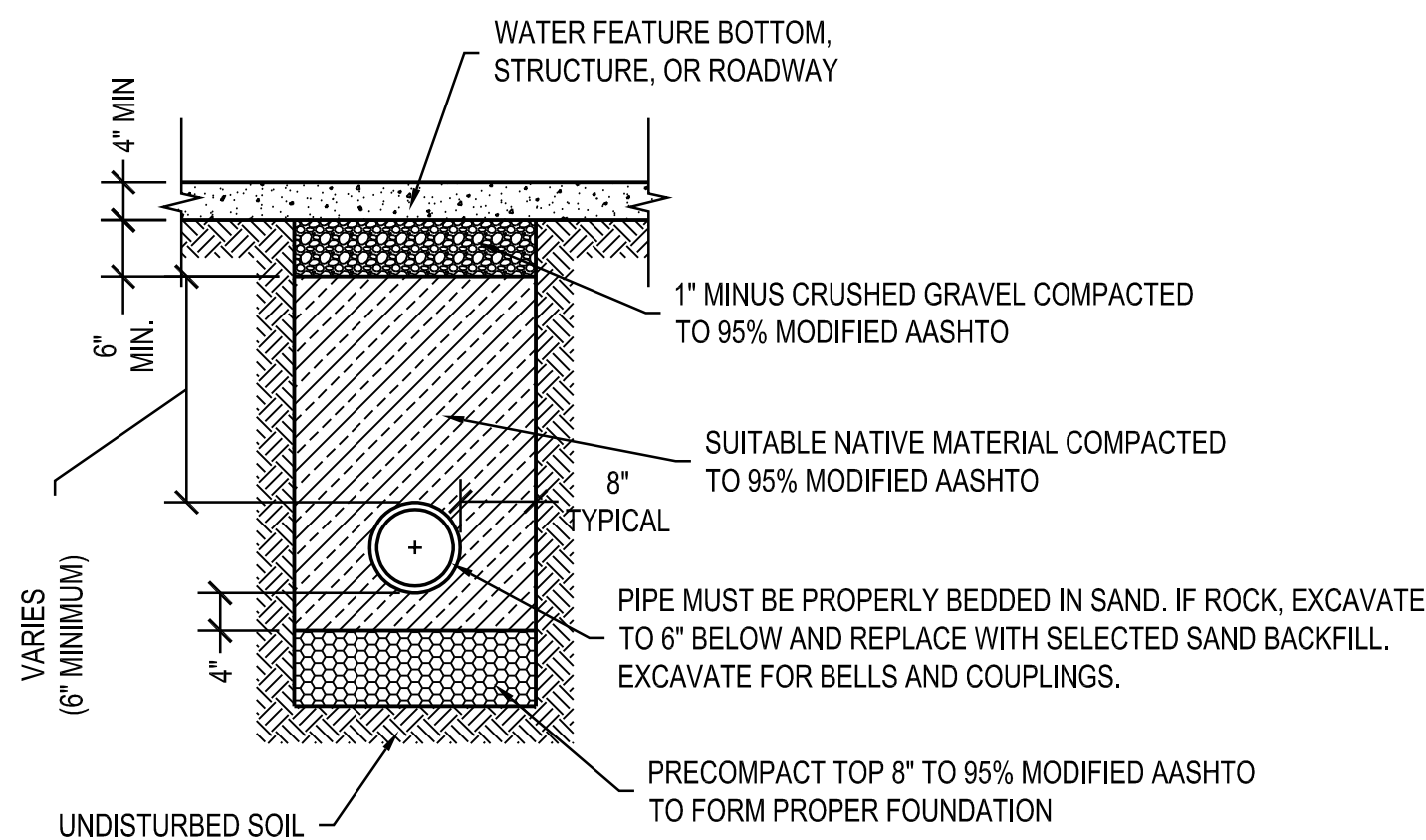
PVC NOMINAL PIPE SIZE		CAST OR CORE BIT DRILLED HOLE SIZE		PVC NOMINAL PIPE SIZE		CAST OR CORE BIT DRILLED HOLE SIZE	
[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]
1/2	21	2	51	10	250	14	356
3/4	26	2.5	64	12	300	16	406
1	33	3	76	14	350	18	457
1 1/4	42	3	76	16	400	20	508
1 1/2	48	3.5	89	18	450	22	559
2	60	4	102	20	500	24	610
2 1/2	73	4	102	24	600	28	711
3	90	5	127	30	750	34	864
4	110	6	152	36	900	40	1016
6	150	10	254	42	1100	46	1168
8	200	12	305	48	1200	52	1321

LINK SEALS REQUIRED THROUGH ALL EXTERIOR BLDG. WALLS & STRUCTURES THAT DO NOT CONTAIN WATER.

- GENERAL NOTES:
1. INSTALL LINK SEALS AS PER MANUFACTURER'S RECOMMENDATIONS.
 2. PROVIDE PLASTIC SLEEVE OR CAST IN PLACE OR CORE DRILLED HOLE. SIZED AS PER MANUFACTURER'S SPECIFICATIONS.
 3. LINK SEALS REQUIRED THROUGH ALL EXTERIOR BLDG. WALLS & STRUCTURES THAT DO NOT CONTAIN WATER.
 4. PIPE DIAMETER VARIES SEE WATER FEATURE MECHANICAL ROOM PLANS.

9 LINK SEAL

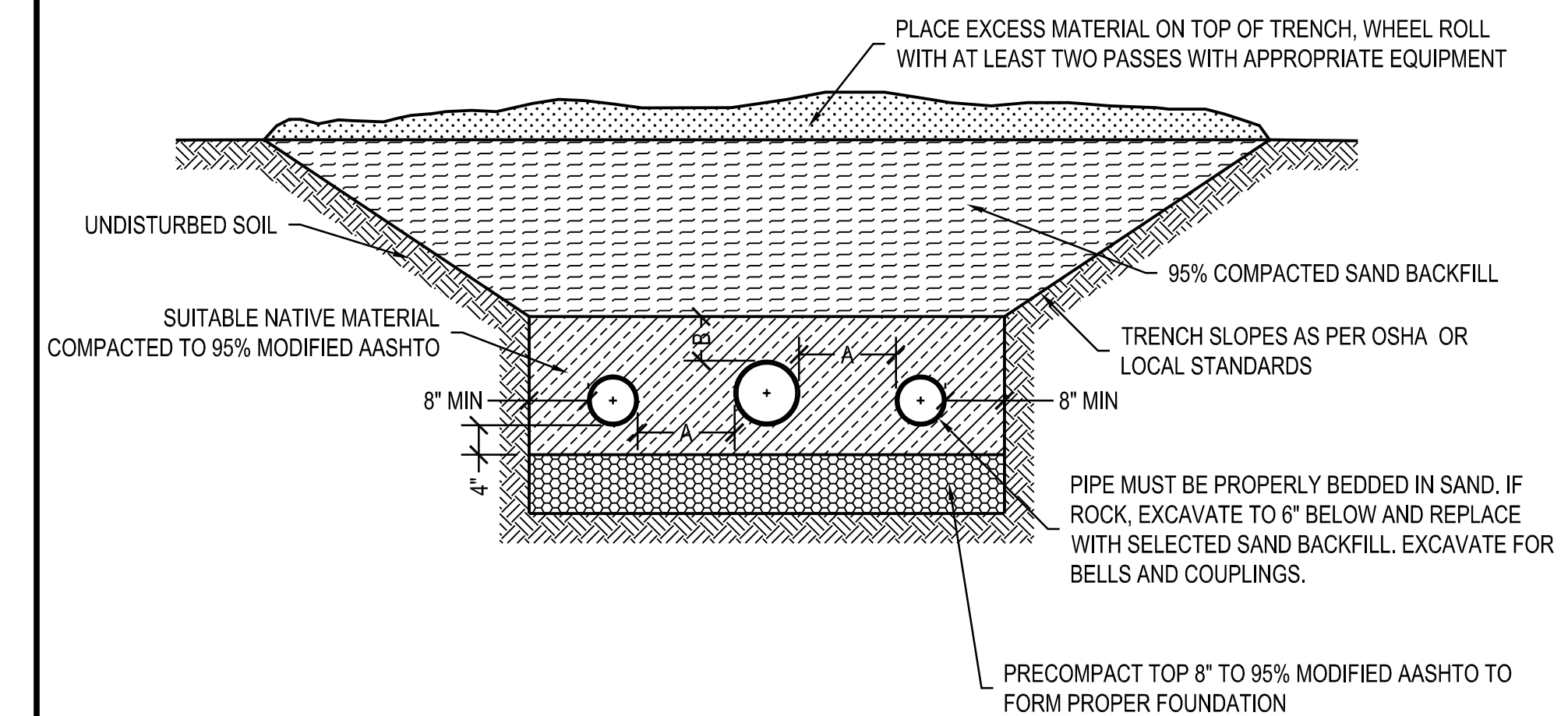
SCALE 1:10



- NOTES:
1. INSTALL PIPE IN ACCORDANCE WITH ALL MANUFACTURER'S RECOMMENDATIONS.
 2. PIPES RUNNING PARALLEL AND ABOVE OTHER PIPES ARE ALLOWED ONLY BY SPECIAL APPROVAL BY THE ENGINEER.
 3. ALL PIPES SHALL BE SLOPED TO LOCAL CODES, AS REQUIRED.

5 TYP. PIPE TRENCH BENEATH STRUCTURE

SCALE 1:20

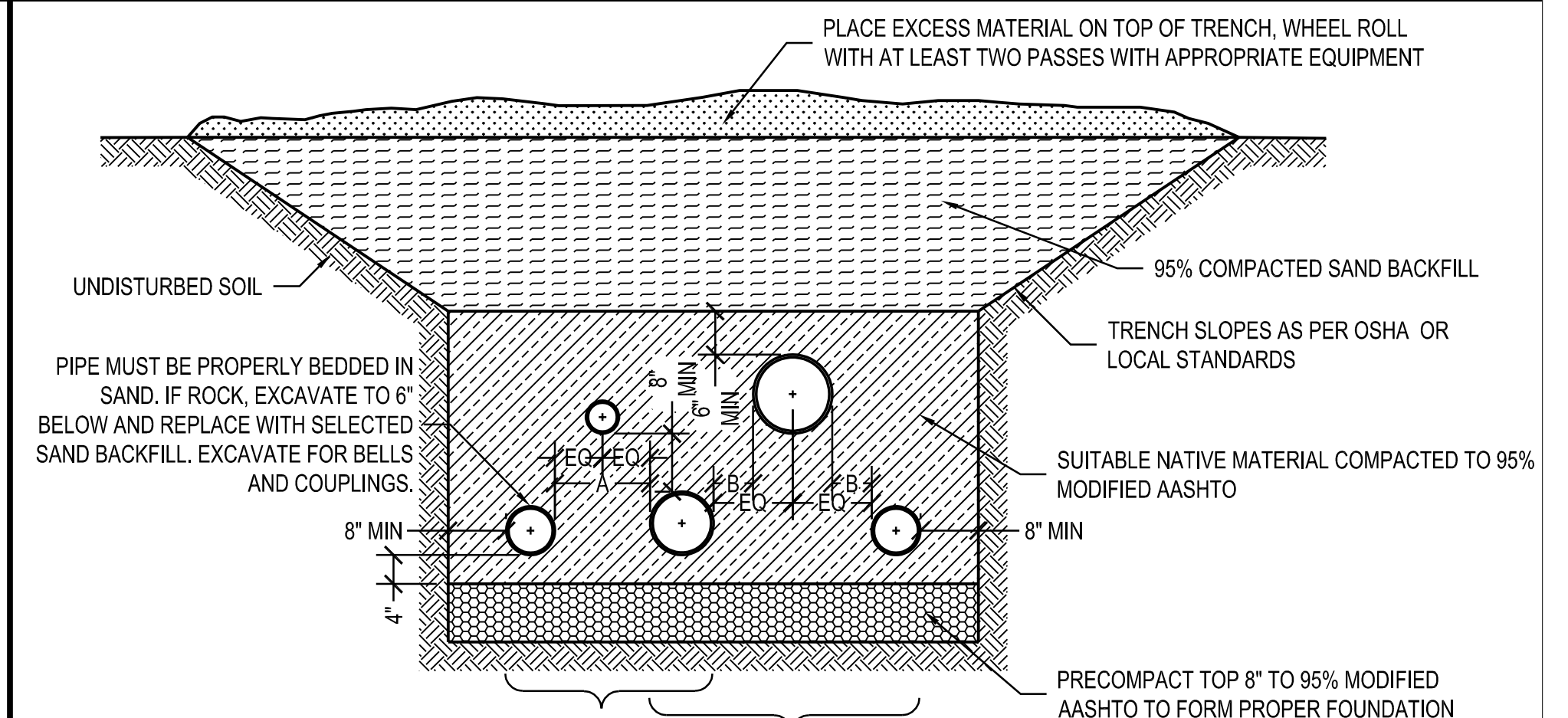
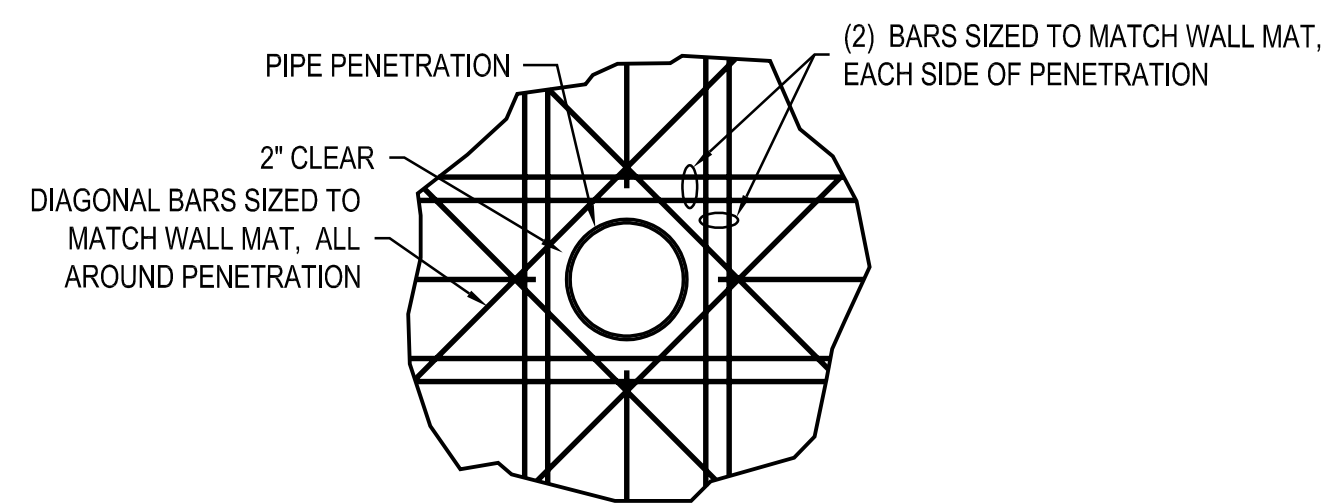


PIPE TRENCH DIMENSION		
PIPE DIAMETER (D)	"A"	"B"
1" - 3" (25mm - 80mm)	6" (150mm) MIN	6" (150mm) MIN
4" - 12" (100mm - 300mm)	12" (300mm) MIN	6" (150mm) MIN
12" - 24" (300mm - 600mm)	1.5 D	0.5 D

- NOTES:
1. THE LARGEST PIPE DIAMETER SHALL BE USED TO DETERMINE THE SPACING DIMENSION
 2. INSTALL PIPE IN ACCORDANCE WITH ALL MANUFACTURER'S RECOMMENDATIONS.
 3. PIPES RUNNING PARALLEL AND ABOVE OTHER PIPES ARE ALLOWED ONLY BY SPECIAL APPROVAL BY THE ENGINEER.
 4. ALL PIPES SHALL BE SLOPED TO LOCAL CODES, AS REQUIRED.

2 MULTIPLE PIPE TRENCH SECTION

SCALE 1:20



PIPE TRENCH DIMENSION		
PIPE DIAMETER (D)	"A"	"B"
1" - 3" (25mm - 80mm)	6" (150mm) MIN	6" (150mm) MIN
4" - 12" (100mm - 300mm)	12" (300mm) MIN	6" (150mm) MIN
12" - 24" (300mm - 600mm)	1.5 D	0.5 D

- NOTES:
1. THE LARGEST PIPE DIAMETER SHALL BE USED TO DETERMINE THE SPACING DIMENSION
 2. INSTALL PIPE IN ACCORDANCE WITH ALL MANUFACTURER'S RECOMMENDATIONS.
 3. PIPES RUNNING PARALLEL AND ABOVE OTHER PIPES ARE ALLOWED ONLY BY SPECIAL APPROVAL BY THE ENGINEER.
 4. ALL PIPES SHALL BE SLOPED TO LOCAL CODES, AS REQUIRED.

6 TYPICAL PIPE PENETRATION REINFORCING

SCALE 1:20

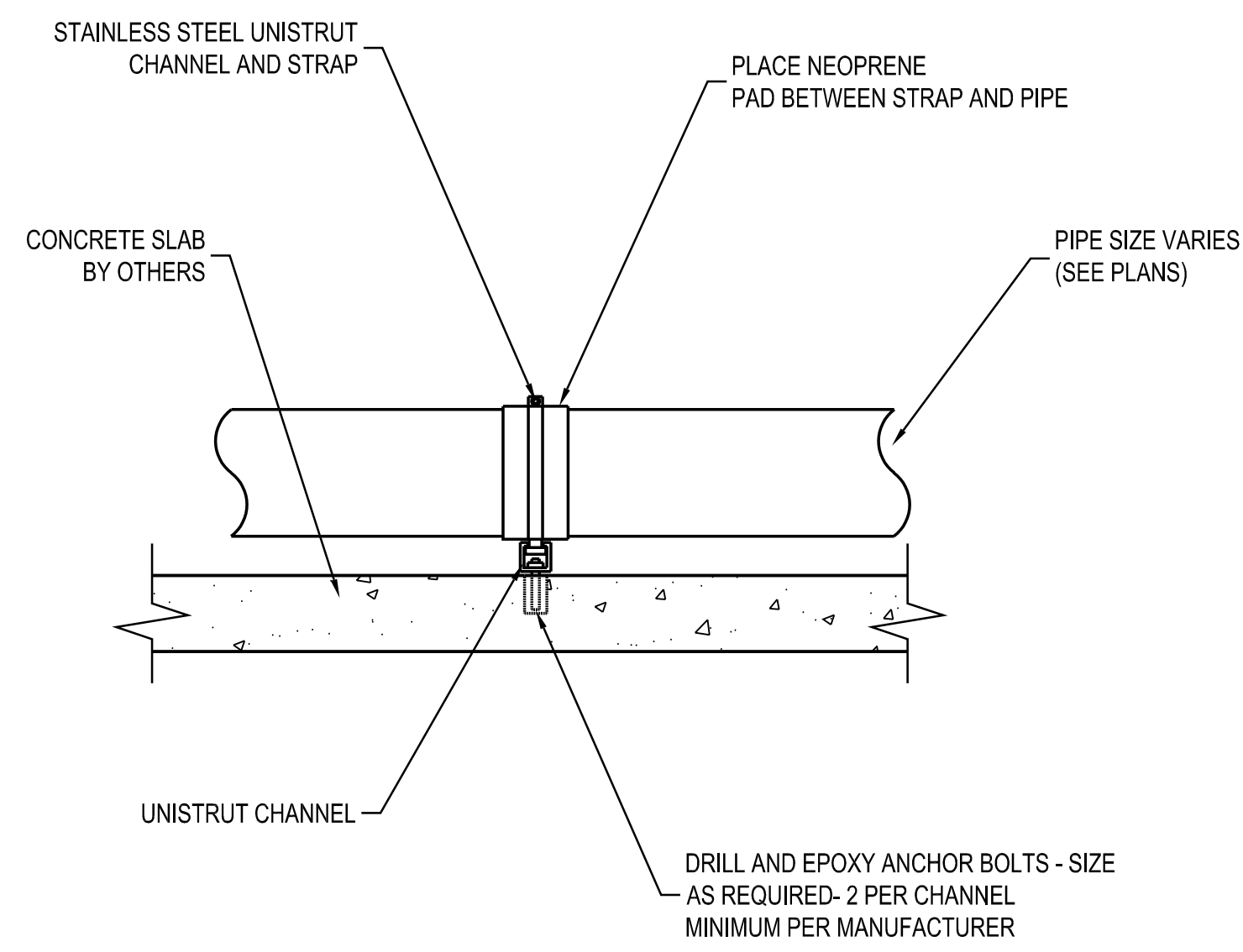
3 MULTIPLE PIPES & MULTIPLE LAYER TRENCH SECTION

SCALE 1:20

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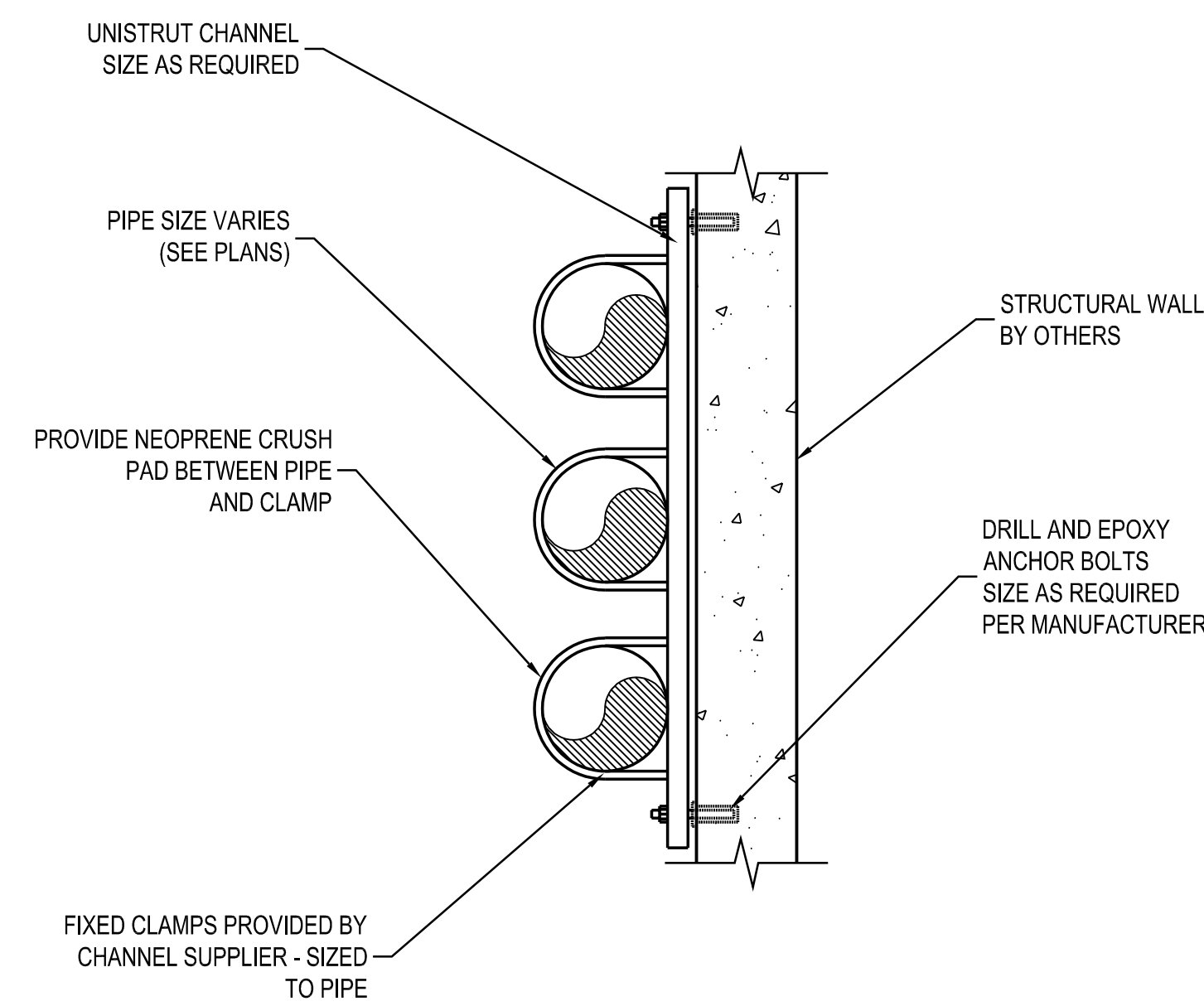
GENERAL DETAILS

W5-1.01



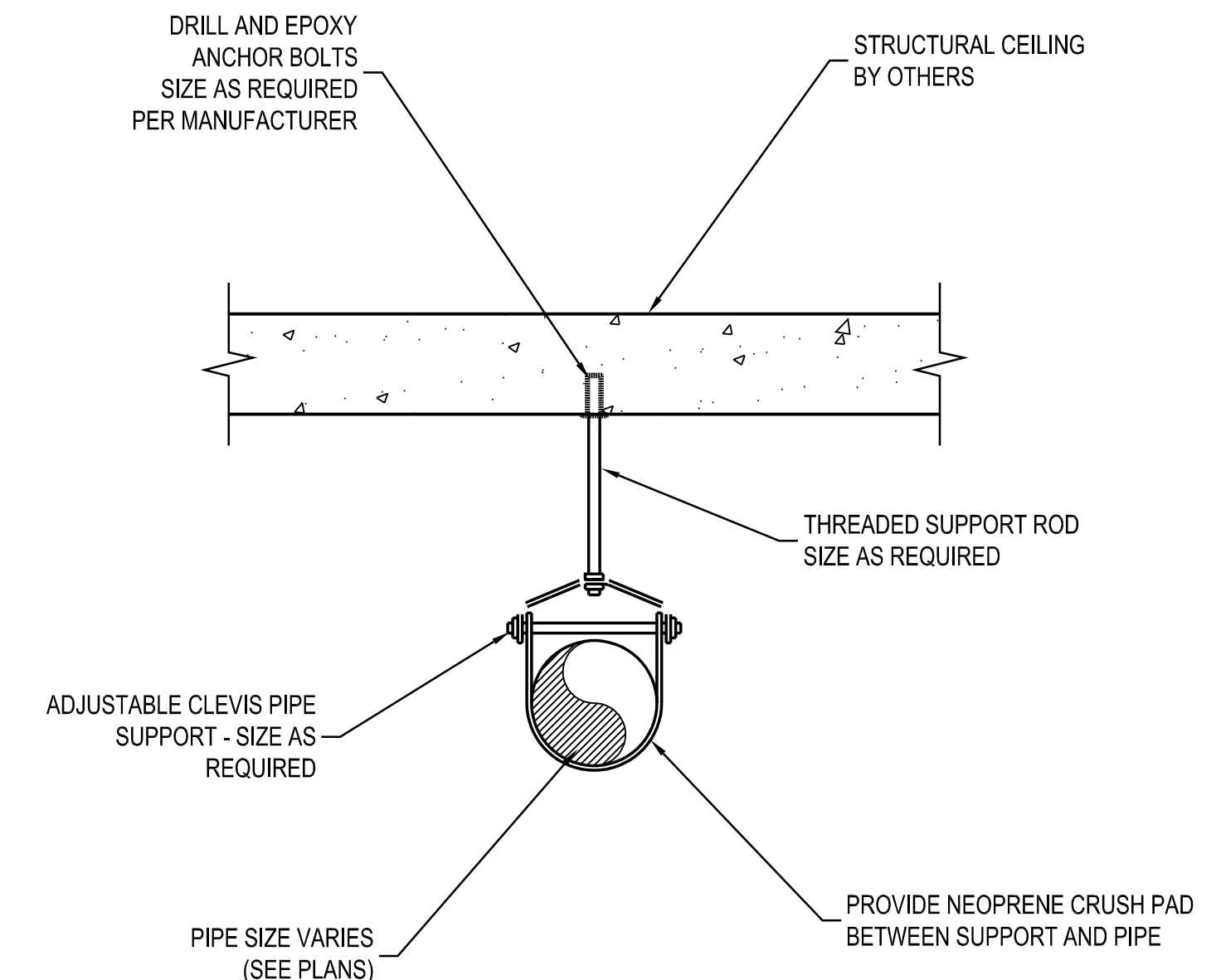
7 PIPE FLOOR SUPPORT

SCALE 1:10



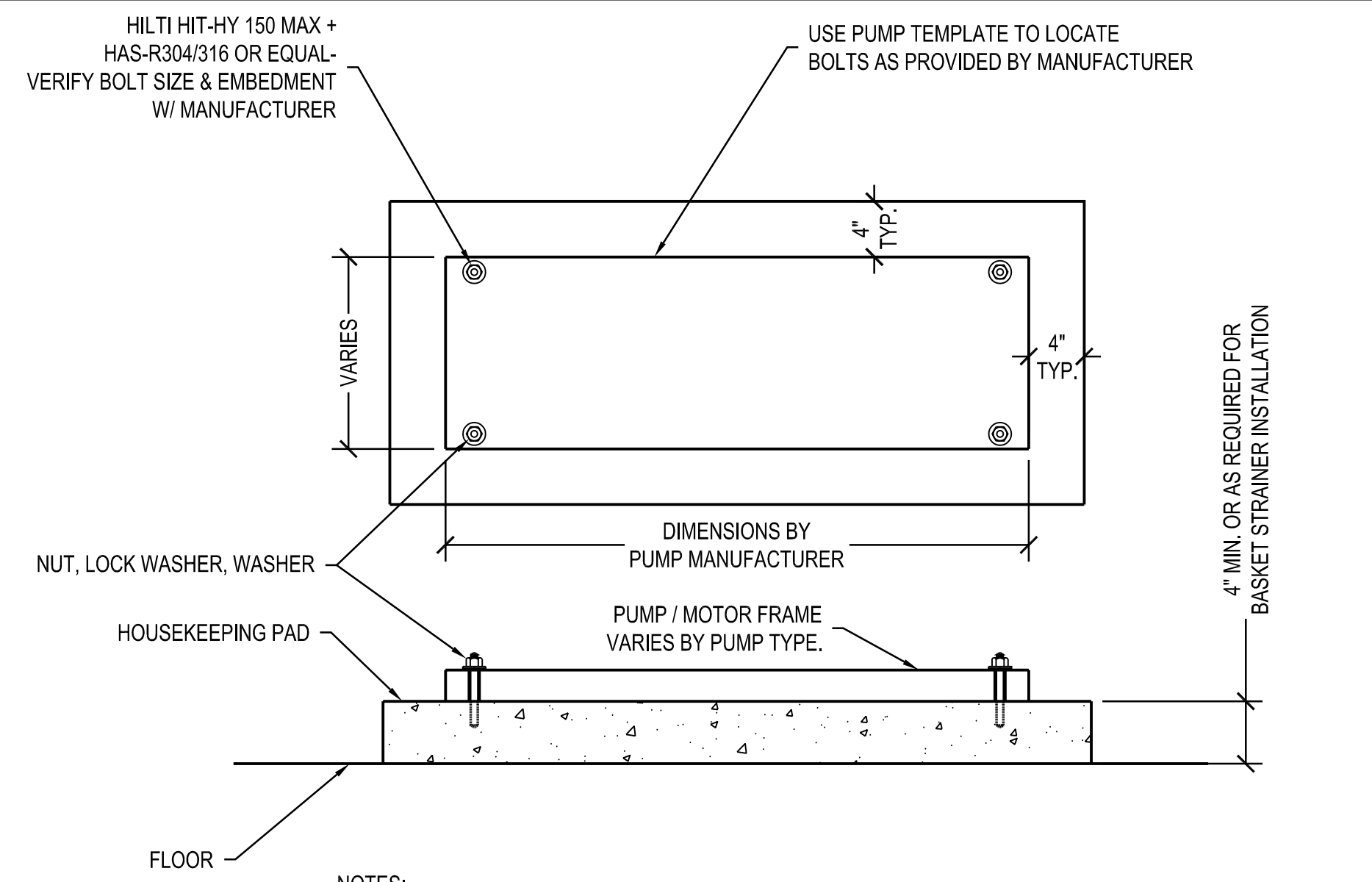
4 MULTIPLE PIPE WALL SUPPORT

SCALE 1:10



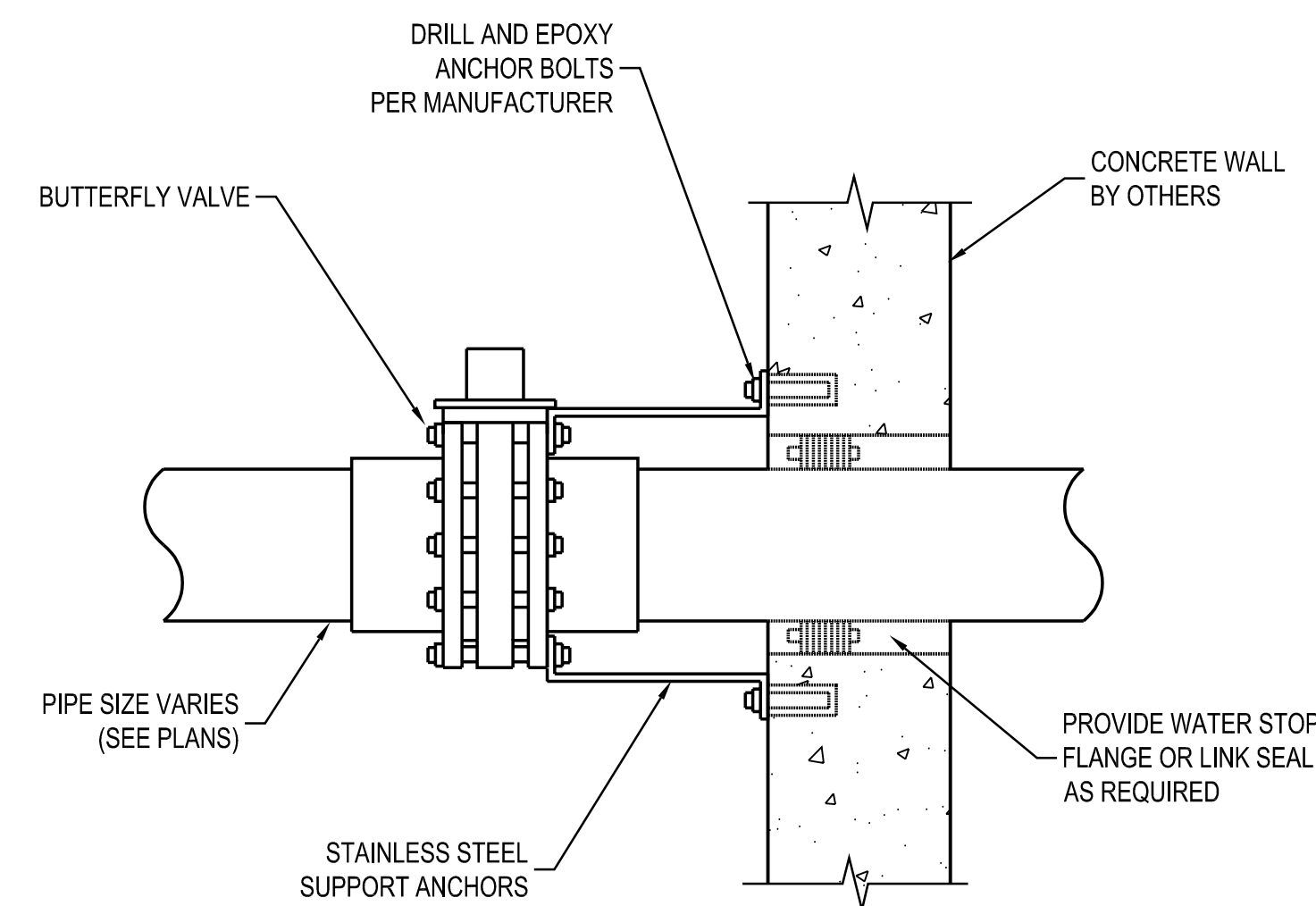
1 CEILING PIPE SUPPORT

SCALE 1:10



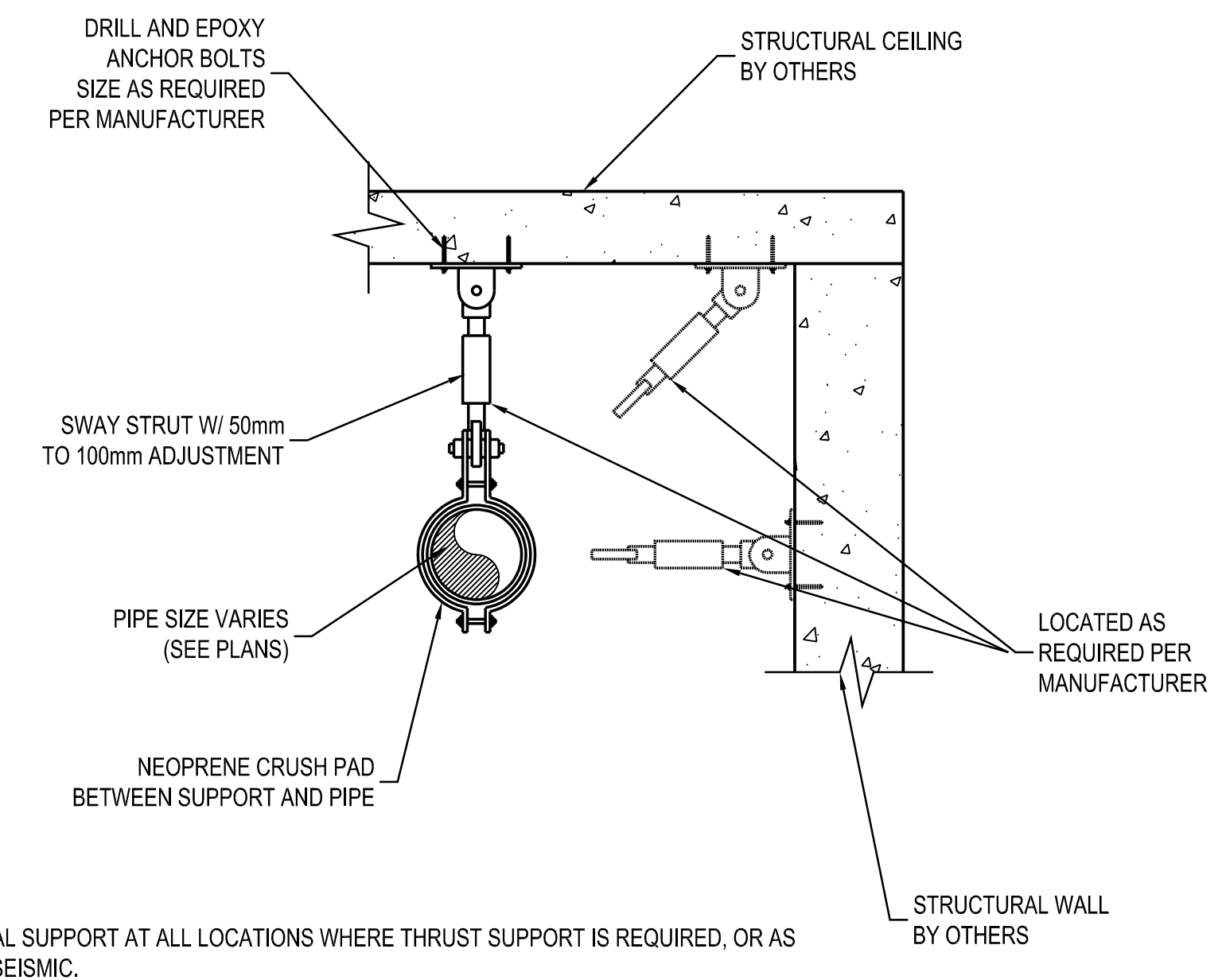
8 MOUNTING PADS

SCALE 1:10



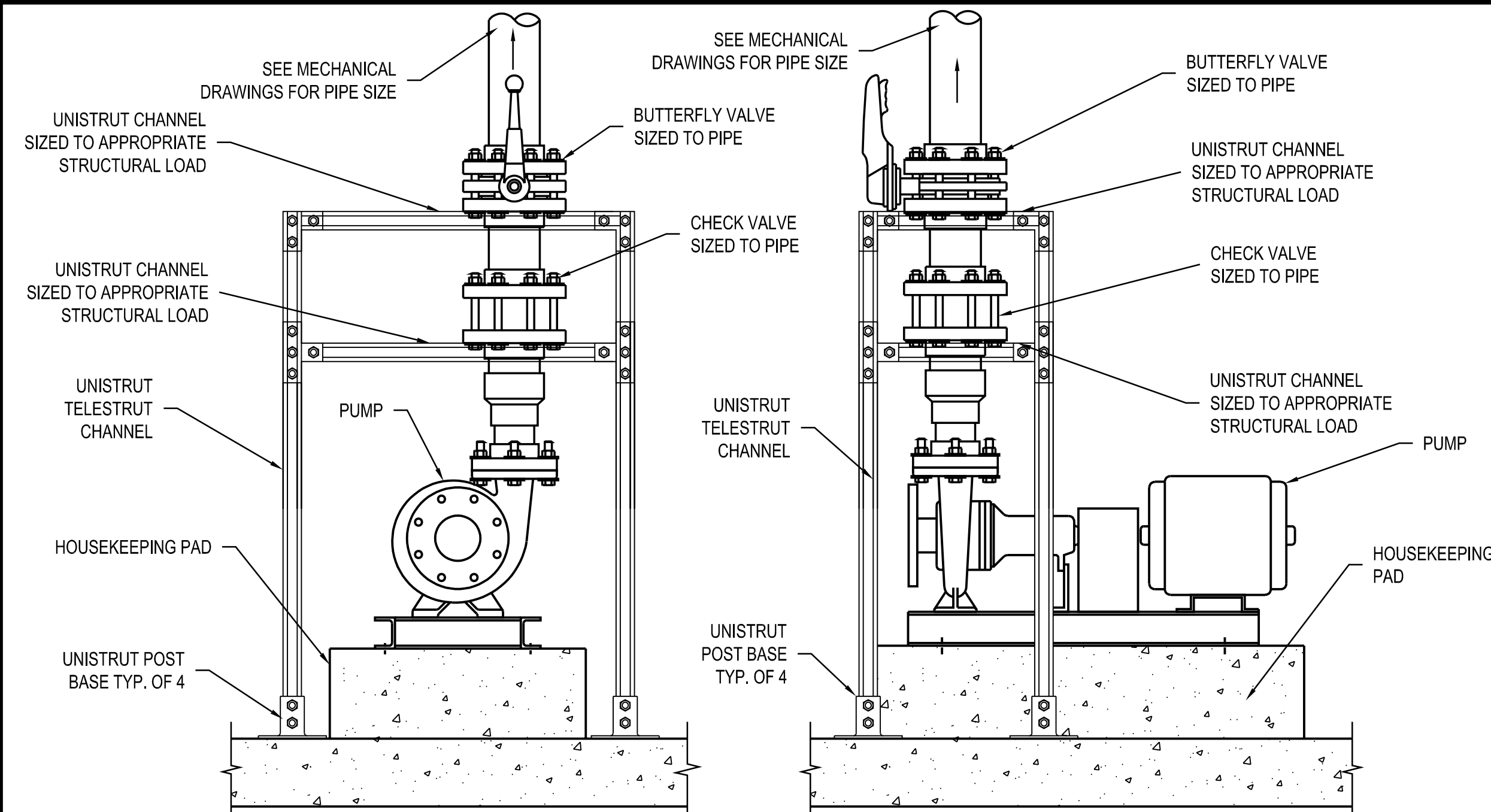
5 BUTTERFLY VALVE WALL SUPPORT

SCALE 1:10



2 LATERAL PIPE SUPPORT

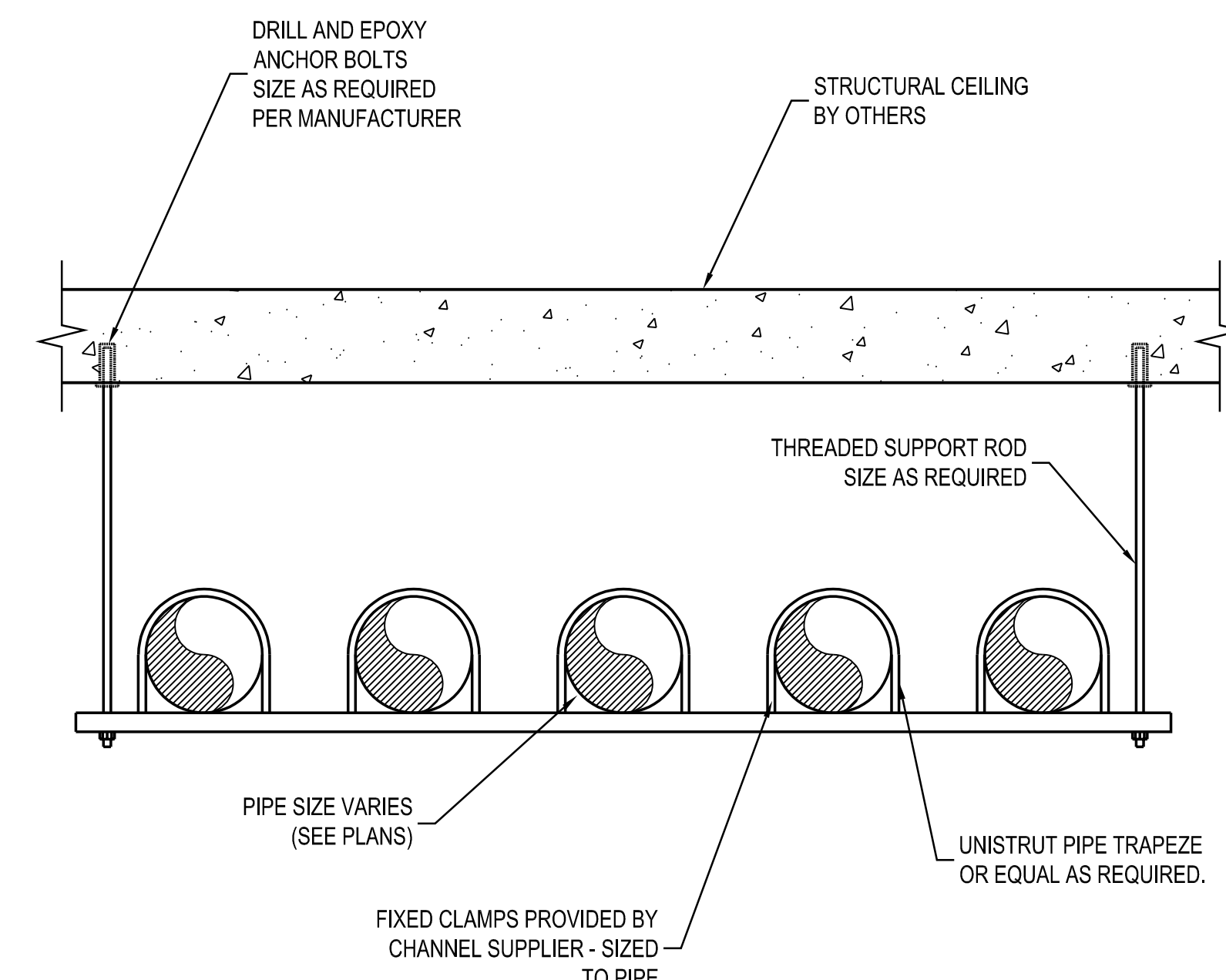
SCALE 1:10



9 DISCHARGE PIPE COLUMN SUPPORT DETAIL

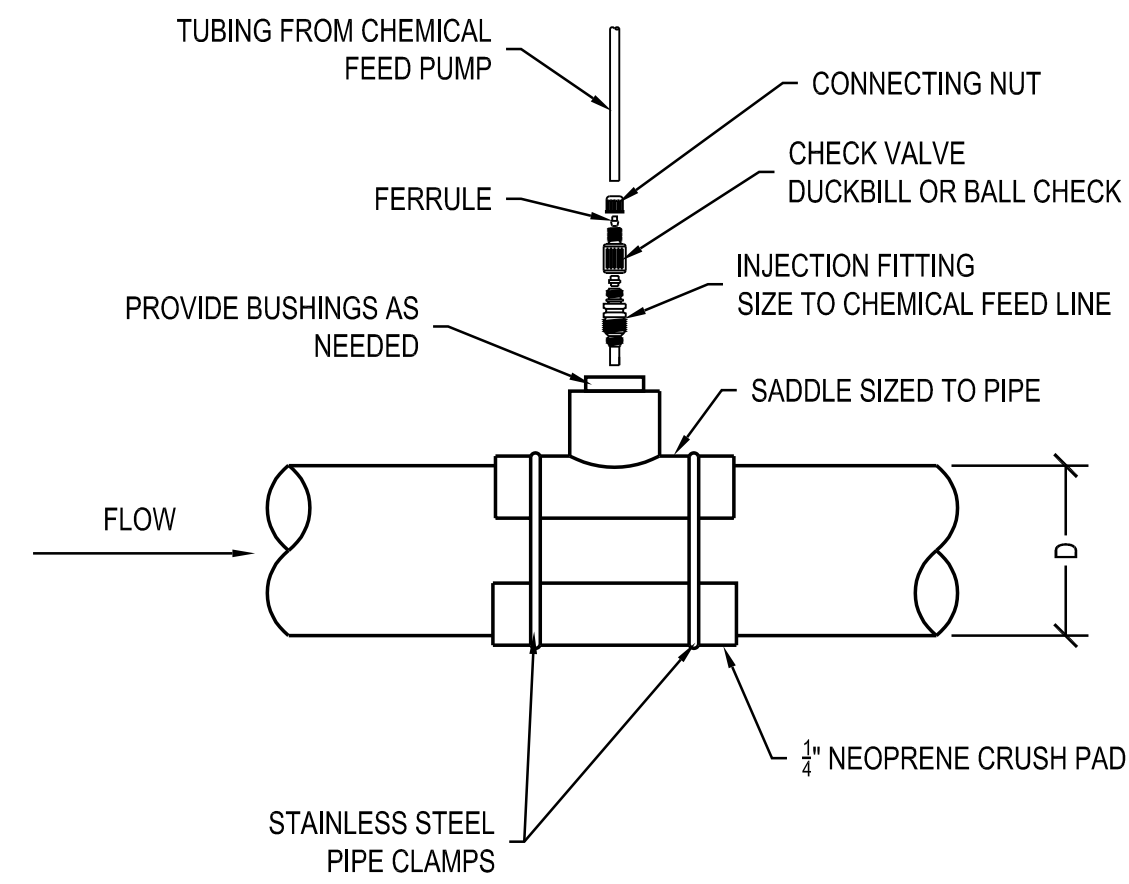
SCALE 1:10

- NOTES:
1. REINFORCE ALL HOUSEKEEPING PADS WITH T12 BARS @ 12" OC EACH WAY, EACH FACE, TOP & BOTTOM & THROUGHOUT - TYP. U.N.O.
 2. ALL ATTACHMENTS AND ANCHORAGE PER MANUFACTURER - TYPICAL
 3. UNISTRUT SHALL BE FRP. GALVANIZE MAY BE USED WITH ENGINEER'S APPROVAL.
 4. FASTENERS SHALL BE STAINLESS STEEL.
 5. CONTRACTOR MAY SUBMIT ALTERNATIVE MEANS AND METHODS FOR SUPPORTING DISCHARGE PIPE COLUMN, BUT ALTERNATIVE MUST BE APPROVED BY THE ENGINEER IN WRITING.



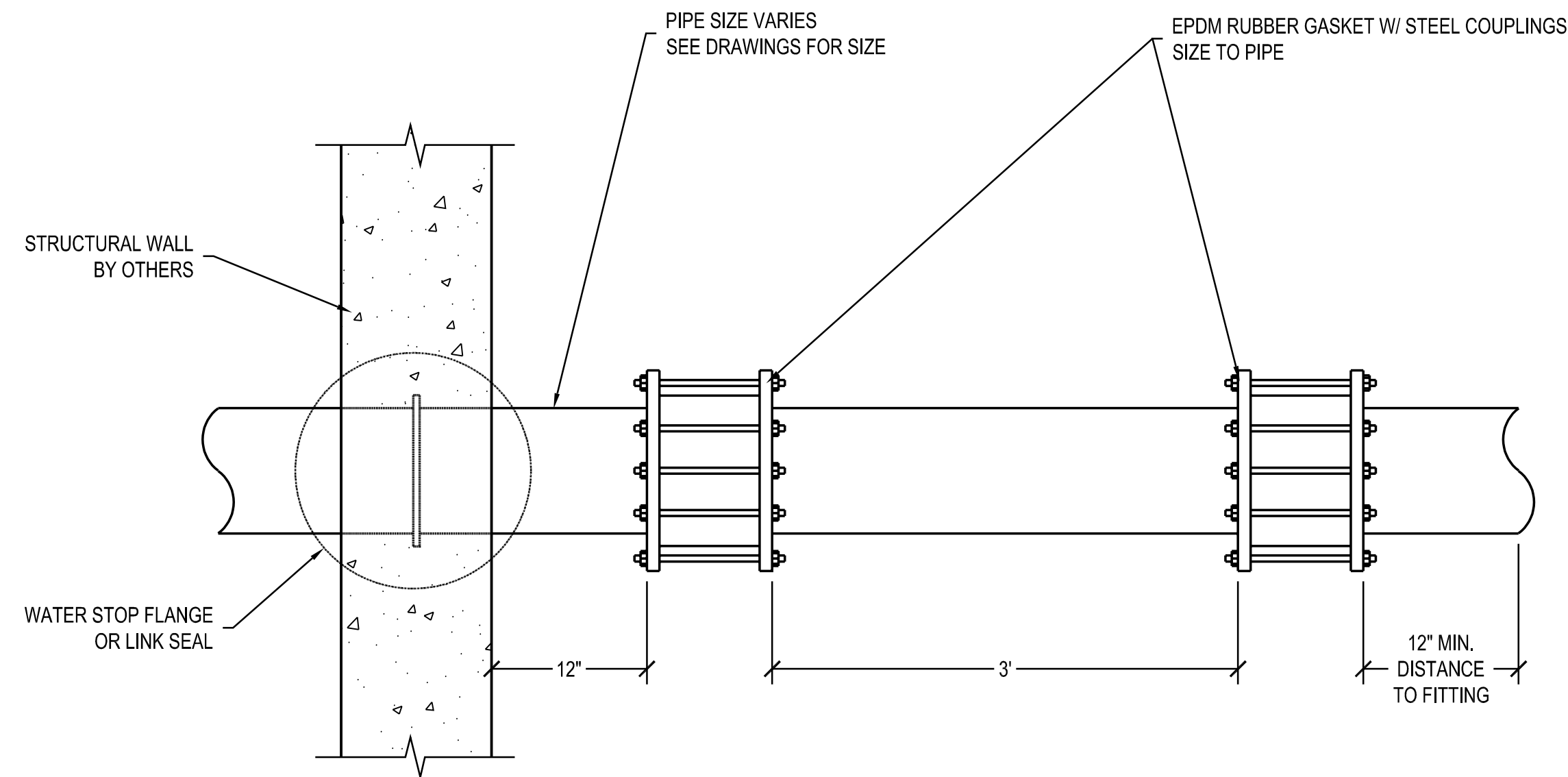
3 MULTIPLE PIPE CEILING SUPPORT

SCALE 1:10



NOTES:

1. THE CHLORINE INJECTION POINT SHOULD BE UPSTREAM OF THE ACID INJECTION POINT.
2. PROVIDE A MINIMUM OF 5 PIPE DIAMETERS (D) BETWEEN OZONE ORP SAMPLE LINE AND CHLORINE INJECTION POINT AND ANOTHER 5 PIPE DIAMETERS BETWEEN CHLORINE AND ACID INJECTION POINTS.
3. PROVIDE INJECTION FITTINGS AND CHECK VALVES FROM THE SAME MANUFACTURER OF THE CHEMICAL FEED PUMP OR CONFIRM COMPATIBILITY BETWEEN DIFFERENT SUPPLIERS.
4. INSTALL INJECTION POINT IN THE TOP HALF OF THE PIPE.



NOTES:

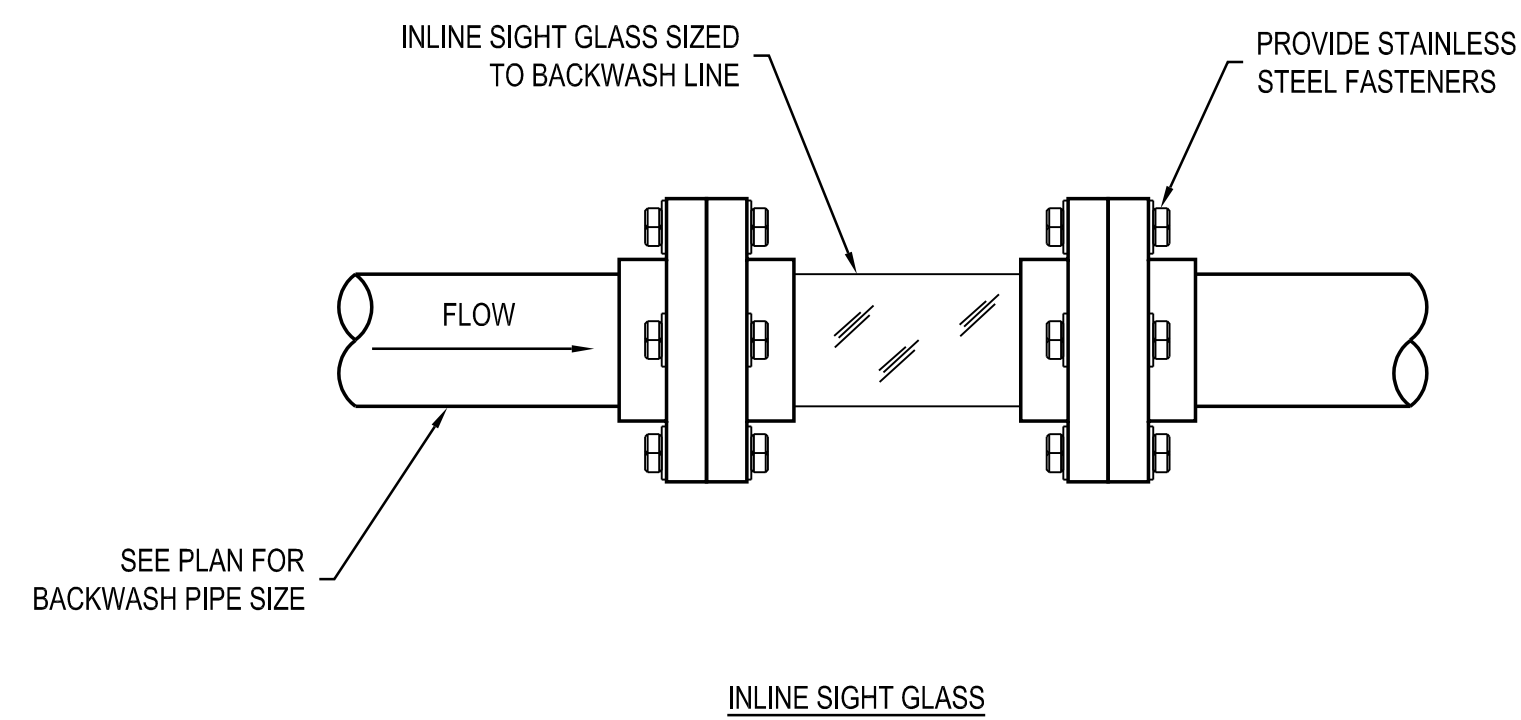
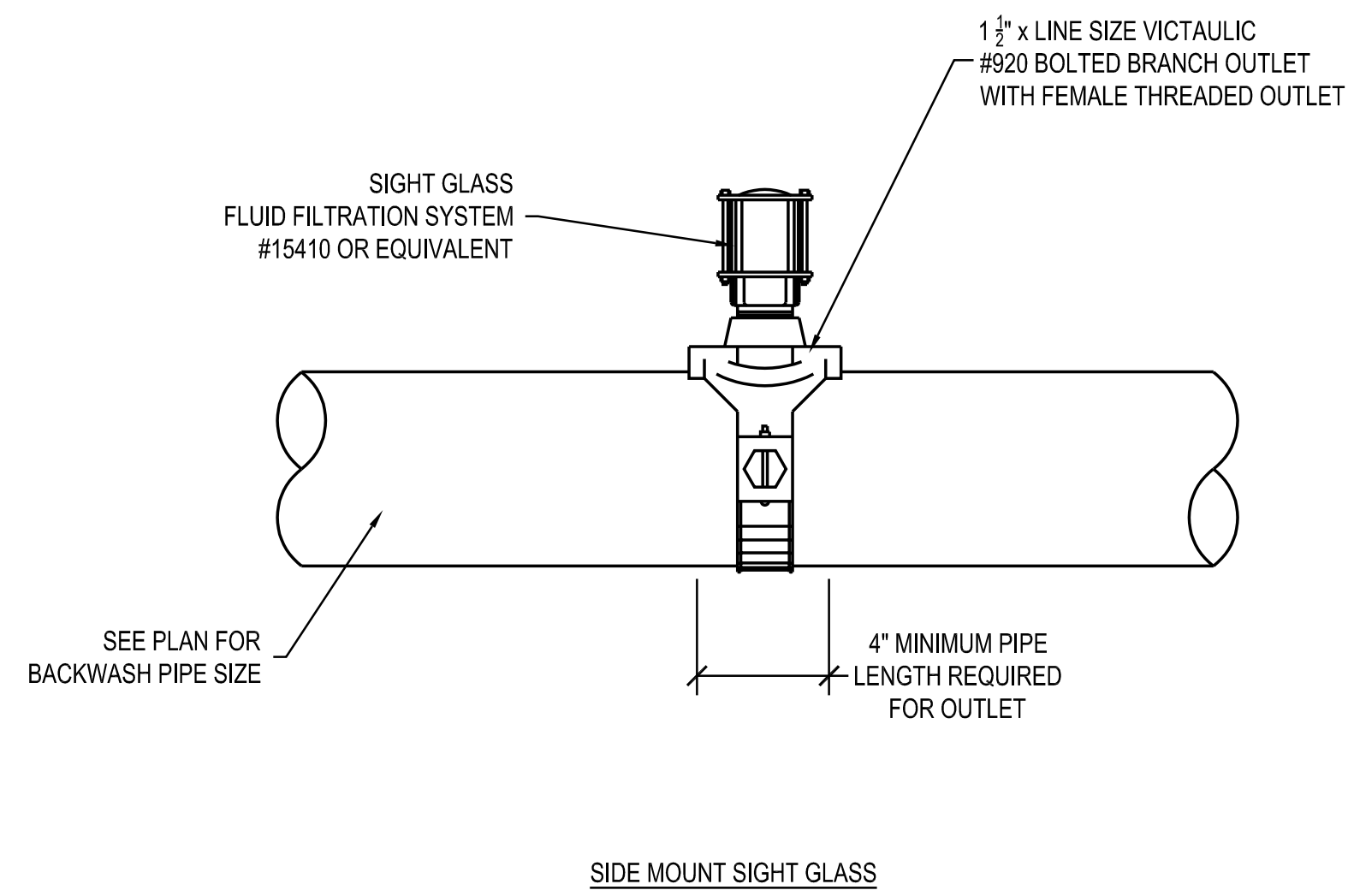
1. PROVIDE THRUST BLOCKING OR LATERAL SUPPORTS ON THE FIRST FITTING AFTER STEEL COUPLINGS.
2. PROVIDE STEEL COUPLINGS AT LOCATIONS OF STRUCTURAL EXPANSION JOINTS AND ADJACENT TO RIGID CONCRETE OR MASONRY EXTERIOR WALL / FOUNDATIONS.
3. FLEXIBLE COUPLINGS MAY BE OMITTED IF THE CONTRACTOR CAN SHOW THAT THE SUPPORTING GROUND HAS BEEN PROPERLY COMPACTED TO 95% MODIFIED AASHTO AND IS WILLING TO WARRANTY AGAINST DIFFERENTIAL SETTLEMENT. APPROVAL TO OMIT THE COUPLINGS SHALL BE OBTAINED IN WRITING FROM THE ENGINEER.

7 TYPICAL CHEMICAL INJECTION INSTALLATION

SCALE 1:5

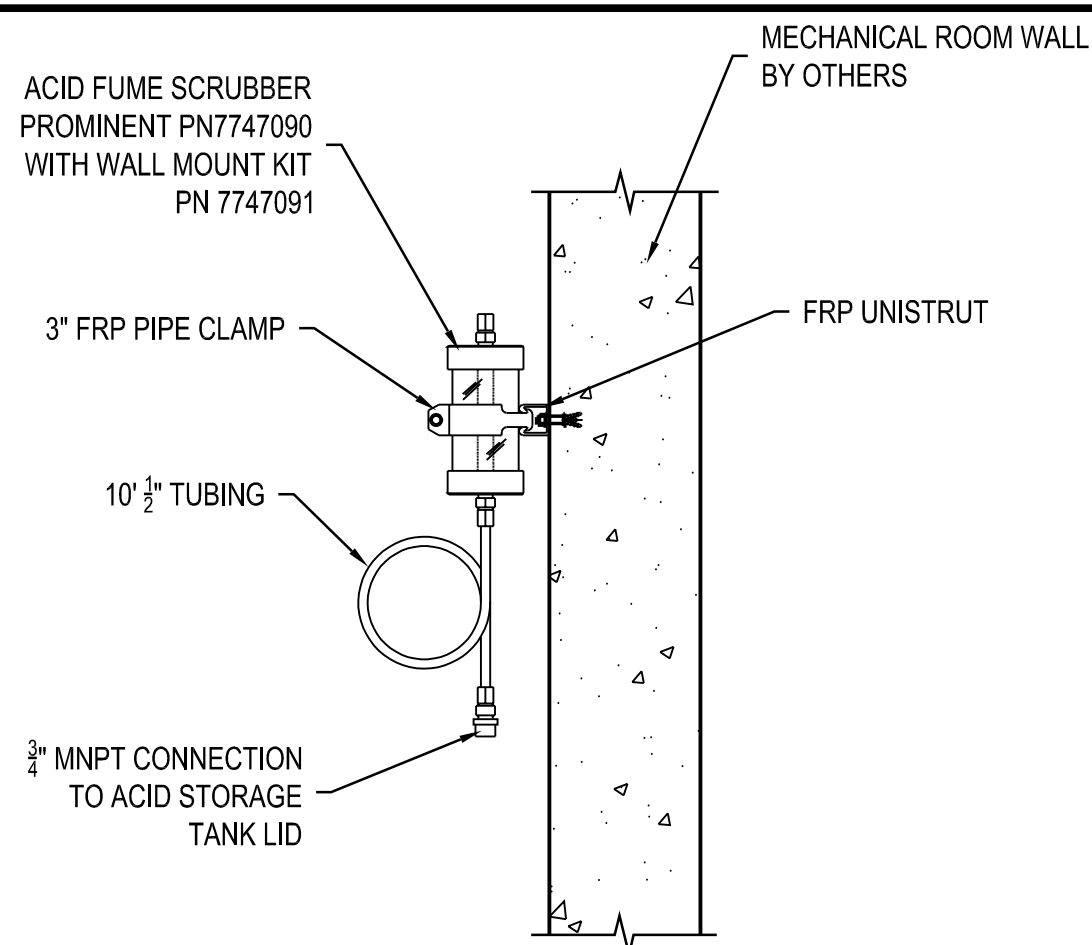
4 FLEXIBLE COUPLING

SCALE 1:10



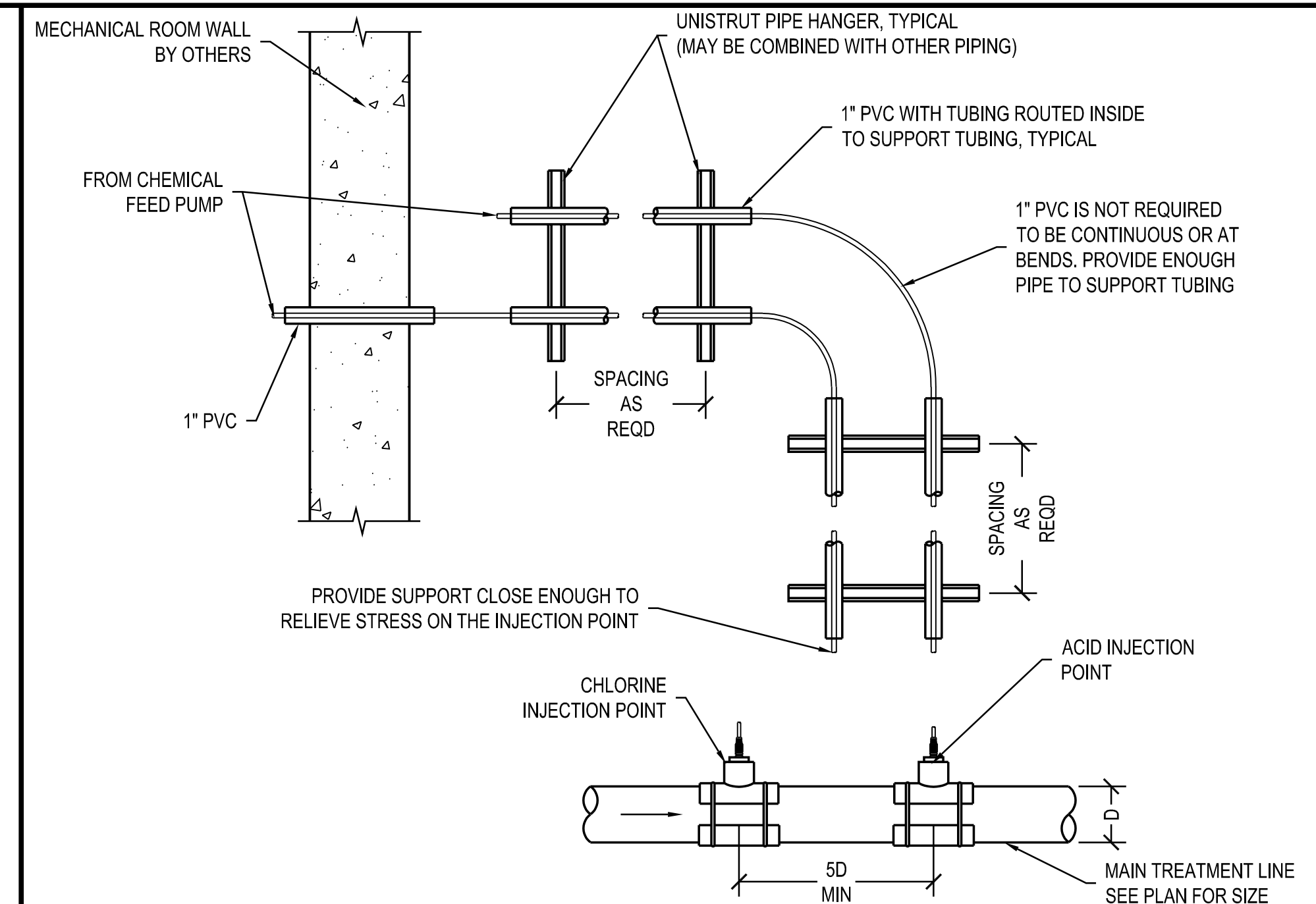
NOTES:

1. PROVIDE SIGHT GLASS FOR ALL FILTERS. IF BACKWASH LINE IS COMBINED ONE SIGHT GLASS MAY BE SUFFICIENT.
2. FOR 1 1/2" AND 2" BACKWASH LINES USE A HAYWARD SP1072S
3. FOR 3", 4" OR 6" BACKWASH LINES USE WMS AQUATICS IN-LINE SIGHT GLASS
4. FOR 8" AND LARGER USE A SIDE MOUNTED SIGHT GLASS
5. IF THE BACKWASH LINES EMPTY INTO A BACKWASH TANK WITHIN THE ROOM THEN THE SIGHT GLASS MAY BE OMITTED.



NOTES:

1. ACID FUME SCRUBBER MAY BE MOUNTED DIRECTLY TO THE TANK LID. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION.
2. PROVIDE ONE SCRUBBER UNIT FOR EVERY 60 GALLONS OF ACID STORAGE.
3. WHEN MULTIPLE UNITS ARE REQUIRED PROVIDE SUFFICIENT LENGTH OF FRP UNISTRUT TO SUPPORT MULTIPLE UNITS.

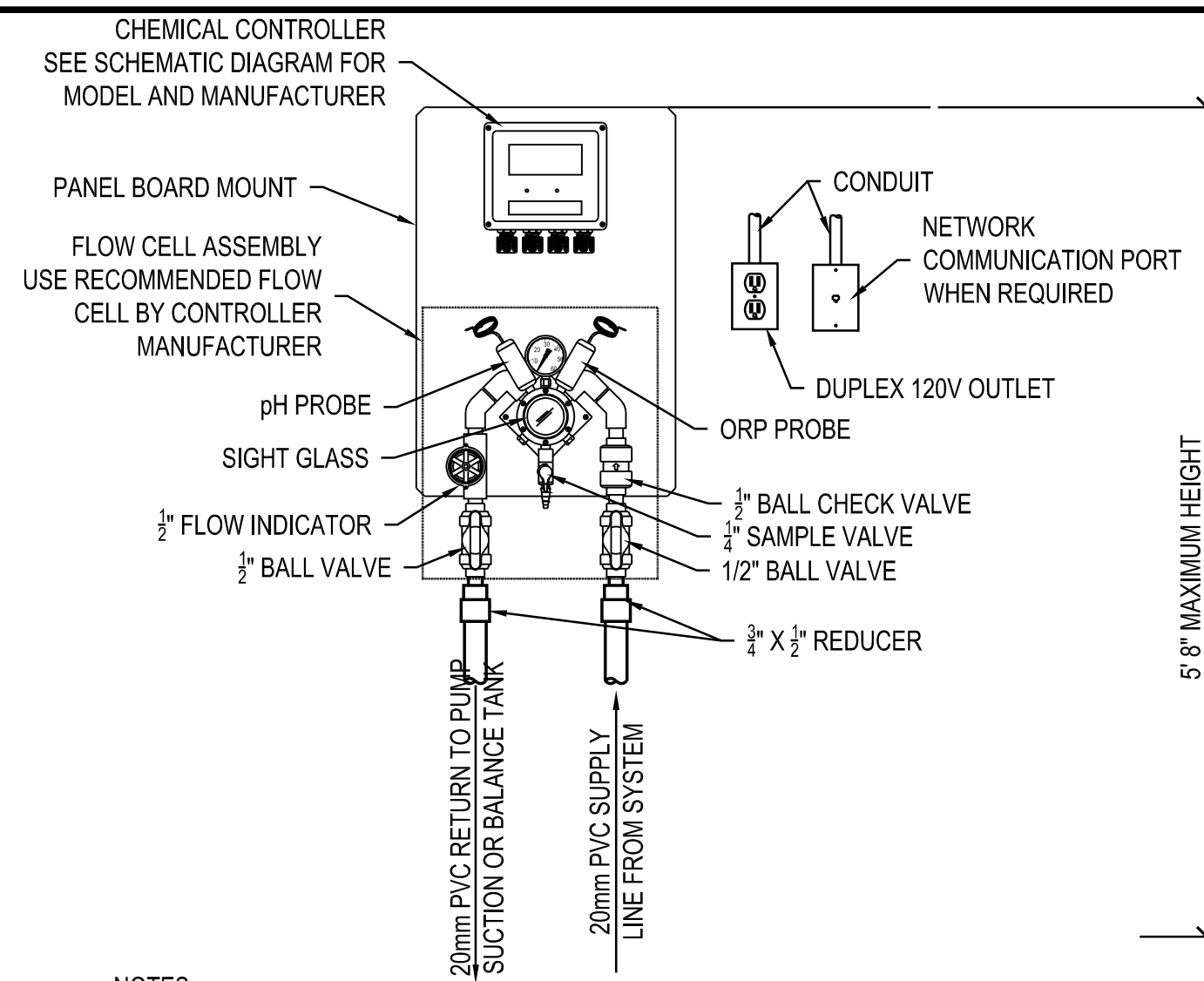


5 TYP. ACID FUME SCRUBBER INSTALLATION

SCALE 1:10

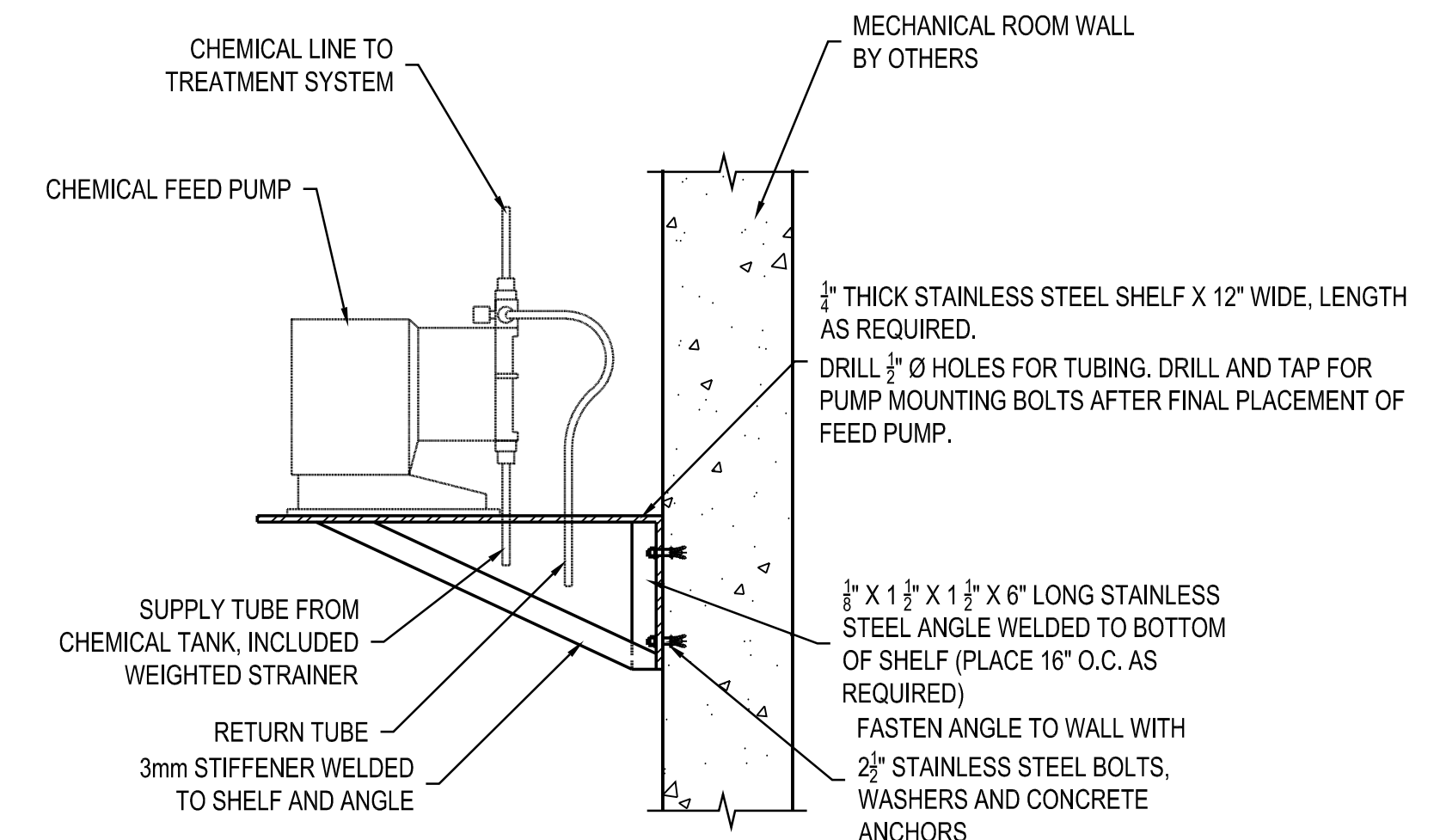
2 TYPICAL CHEMICAL TUBING SUPPORT

SCALE 1:10



NOTES:

1. CONTROL WIRING TO CHEMICAL FEED PUMPS SHOULD BE ROUTED IN CONDUIT.
2. FOR FLOW CELL ASSEMBLIES WITH 10mm TUBING CONNECTIONS, PROVIDE 20mm PVC HARD PIPE TO CELL THEN TRANSITION AFTER THE ISOLATION BALL VALVE TO TUBING.
3. PROVIDE A DUPLIX OUTLET WITHIN 1.5m OF THE CONTROLLER.
4. PROVIDE A NETWORK COMMUNICATION PORT WITHIN 5' FEET OFF THE CONTROLLER, WHEN REQUIRED.



NOTES:

1. ACCEPTABLE OPTION: INSTALL PER MANUFACTURER'S RECOMMENDATIONS USING WALL MOUNTING INSTRUCTIONS.
2. ACCEPTABLE OPTION: PROVIDE A PRE-MANUFACTURED SHELF UNITS CAPABLE OF WITHSTANDING THE CHEMICAL STORAGE AREA ENVIRONMENT.
3. CHEMICAL FEED PUMPS SHOULD NOT BE INSTALLED DIRECTLY OVER CHEMICAL TANKS.

9 TYPICAL BACKWASH SIGHT GLASS

SCALE 1:5

6 TYP. CHEMICAL CONTROLLER INSTALLATION

SCALE 1:10

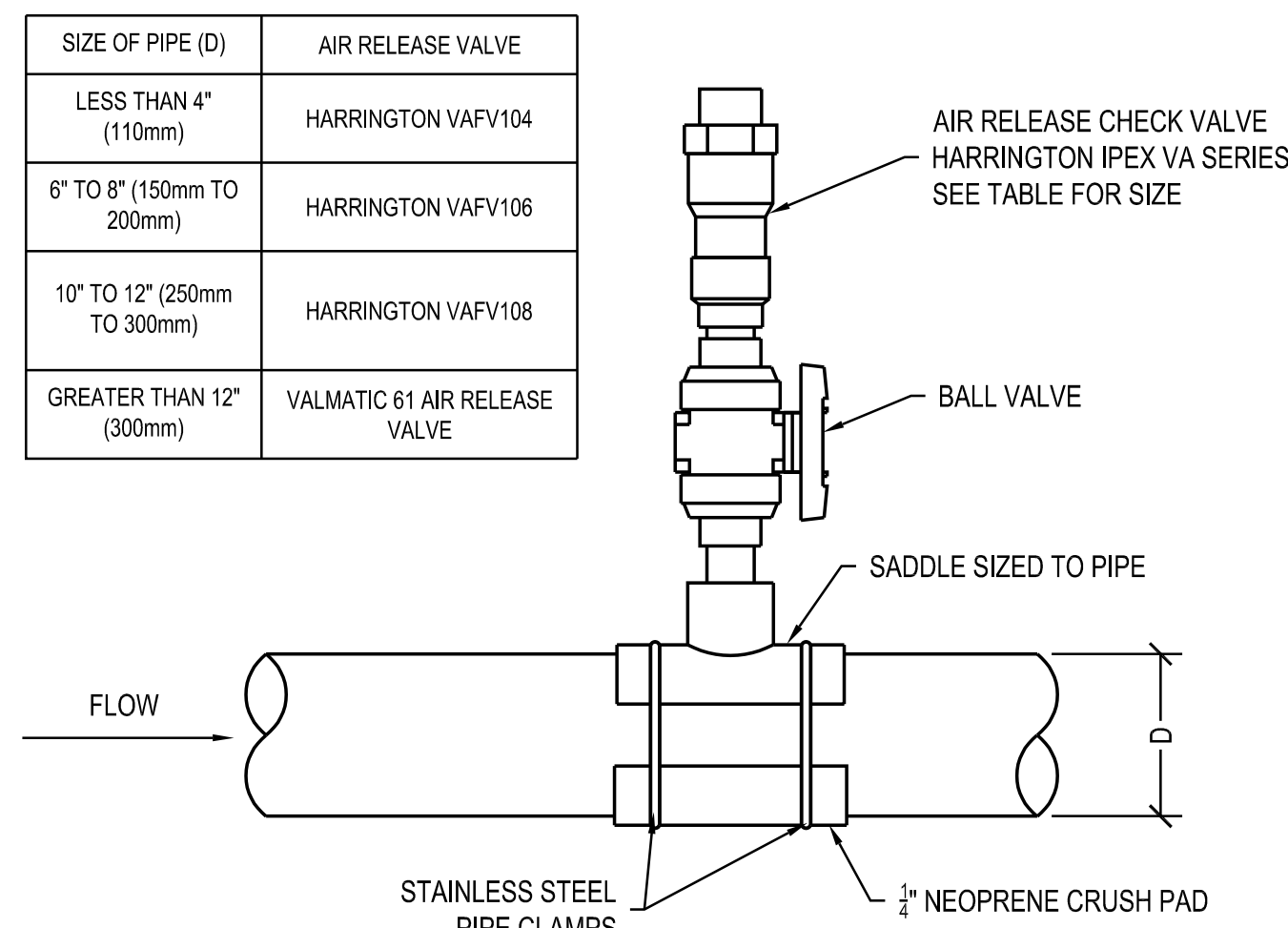
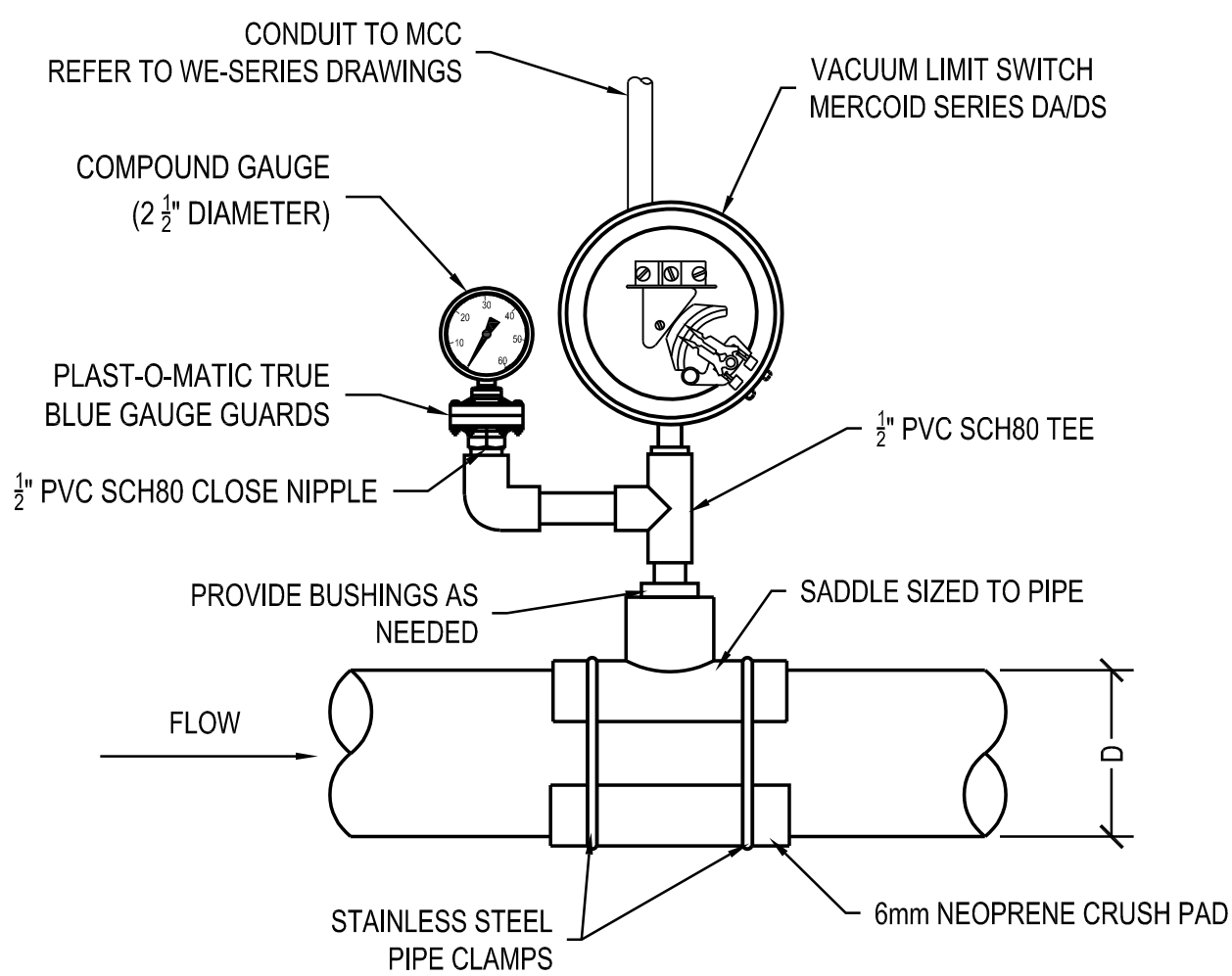
3 TYP. CHEMICAL FEED PUMP INSTALLATION

SCALE 1:10

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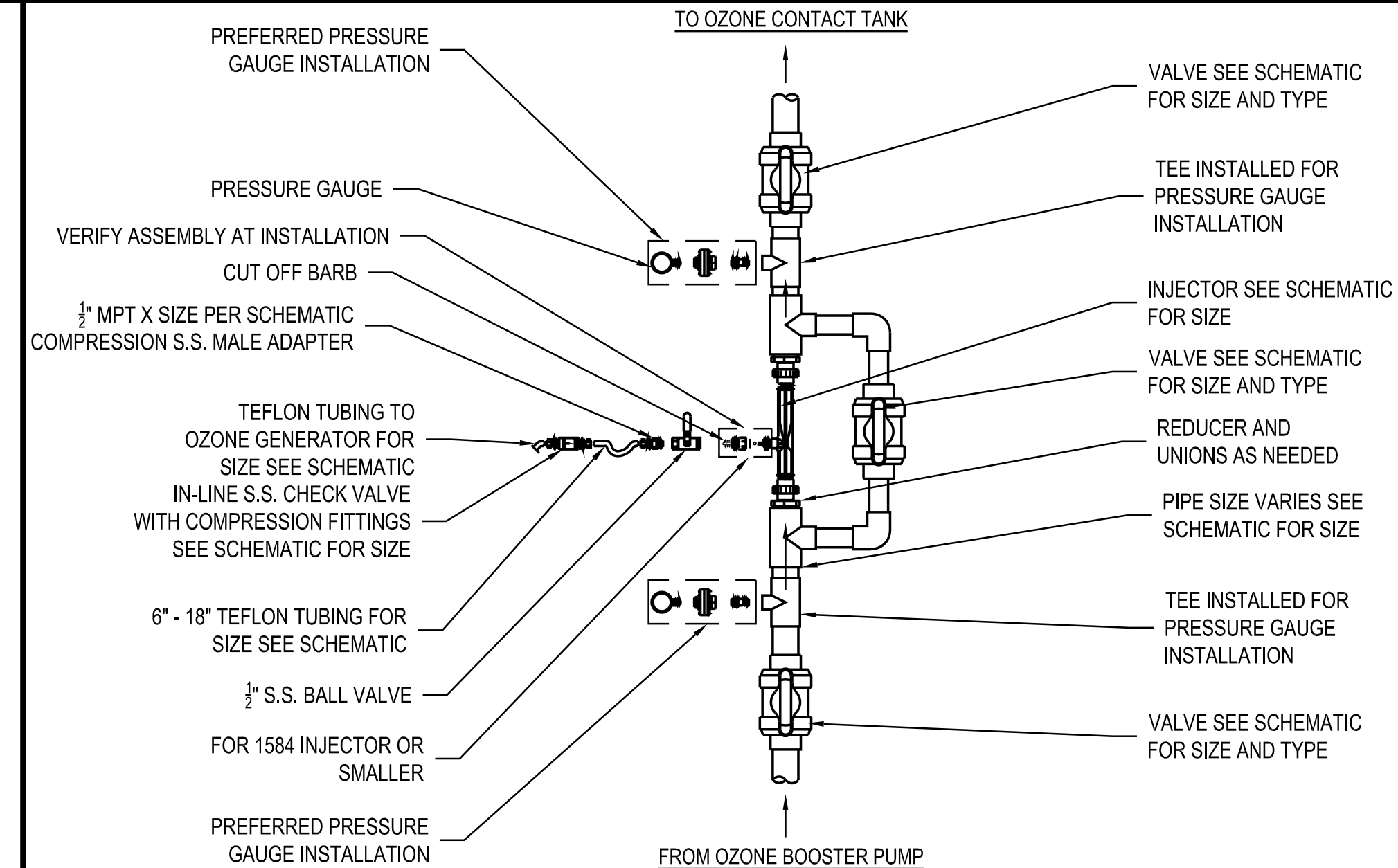
GENERAL DETAILS

W5-1.03



NOTES:

1. PROVIDE AIR RELEASE CHECK VALVE IN HIGH POINTS OF PIPE IN THE MECHANICAL ROOM.
2. PLUMB DISCHARGE TO NEARBY FLOOR DRAIN.



7 TYPICAL VACUUM LIMIT SWITCH INSTALLATION

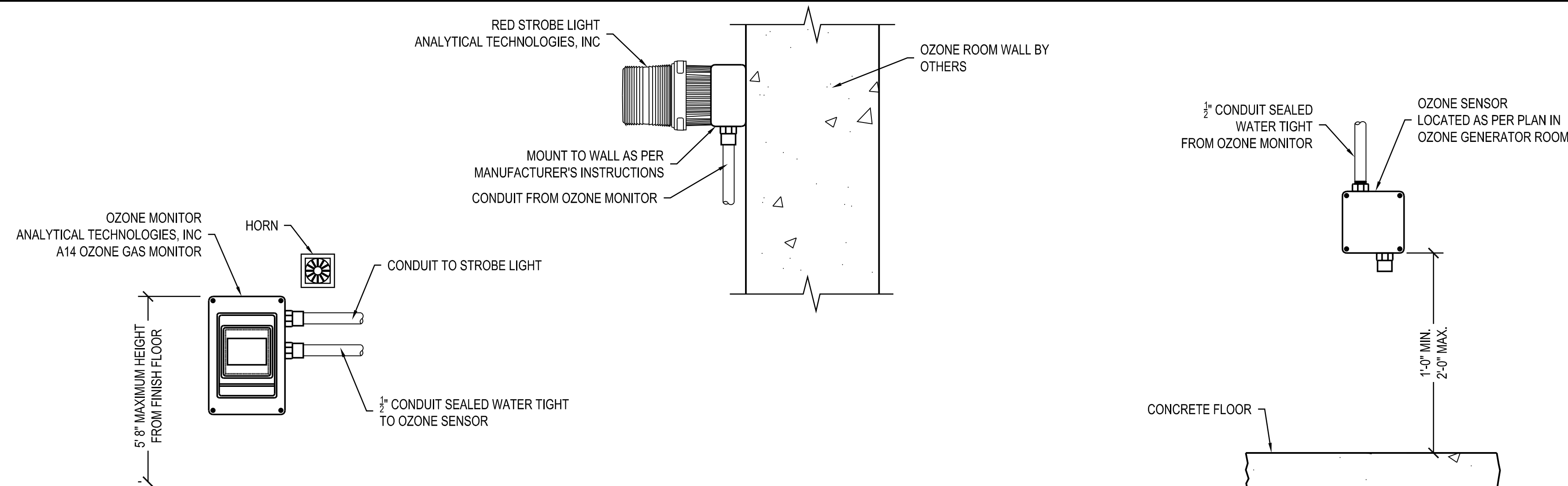
SCALE 1:5

4 TYPICAL AIR RELEASE VALVE

SCALE 1:5

1 TYPICAL OZONE INJECTOR INSTALLATION

SCALE 1:10



NOTES:

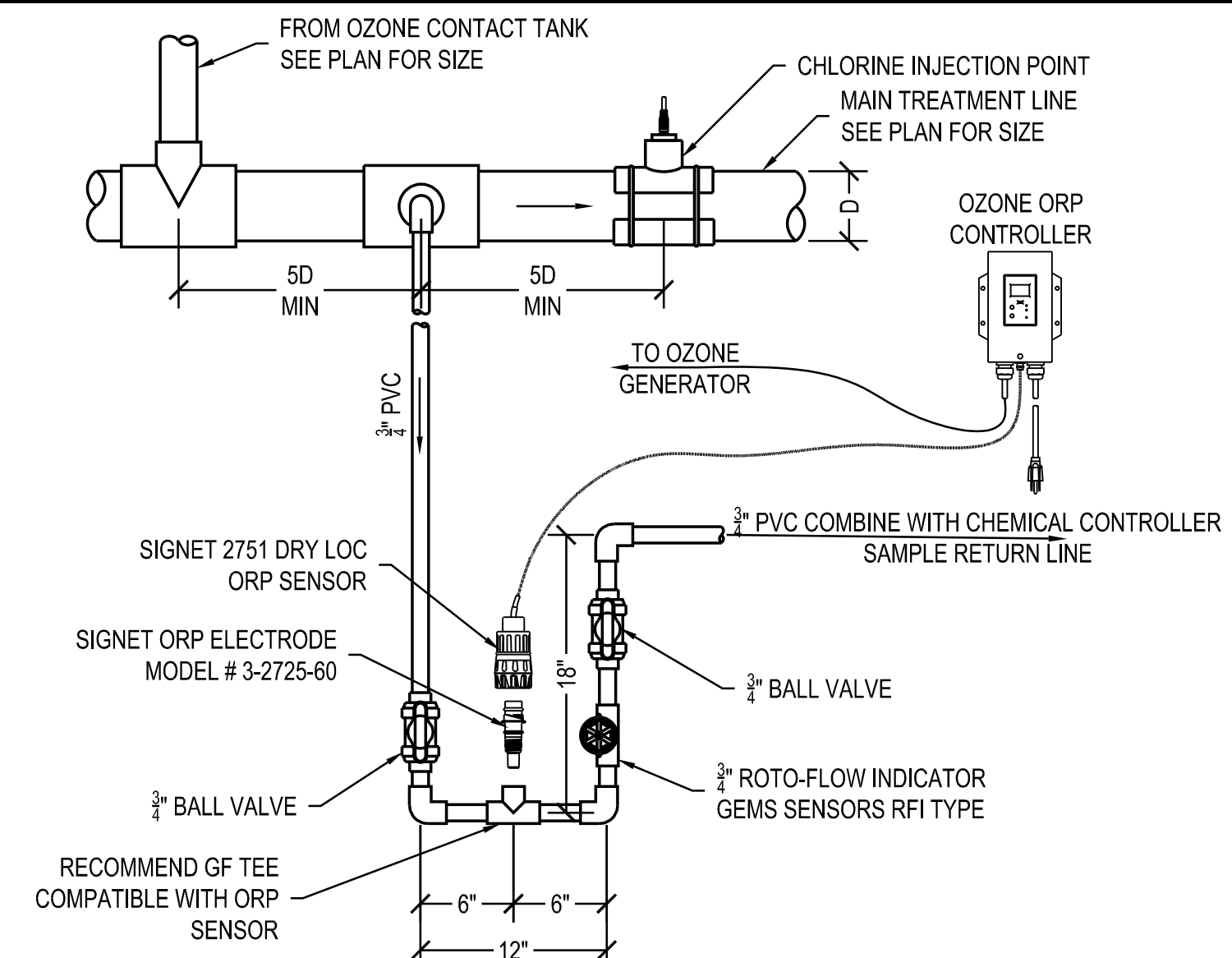
1. MOUNT OZONE MONITOR OUTSIDE OF ROOM WHERE THE SENSOR IS LOCATED.
2. MONITOR SHOULD BE MOUNTED 70-INCHES MAX ABOVE THE FLOOR.
3. PROVIDE HORN AND STROBE LIGHT OPTIONS.
4. ALL CONDUIT CONNECTIONS SHOULD BE WATER TIGHT.
5. LOCATED STROBE ABOVE DOOR TO OZONE ROOM.

8 AMBIENT OZONE MONITOR INSTALLATION

SCALE 1:5

2 TYPICAL OZONE ORP SENSOR INSTALLATION

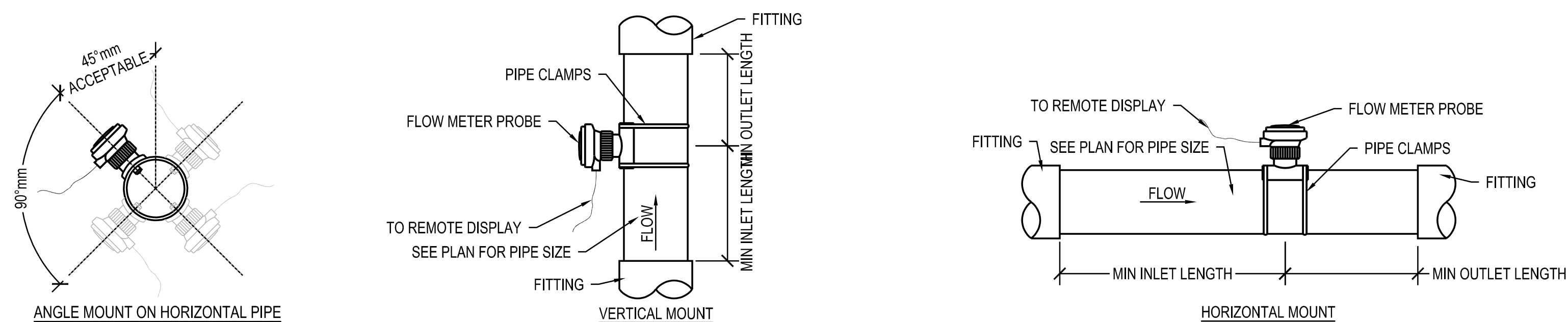
SCALE 1:10



NOTES:

1. OZONE ORP SENSOR SHALL BE INSTALLED IN A SIDE STREAM LOOP AS SHOWN IN THIS DETAIL.
2. ASSEMBLY SHALL BE ANCHORS TO A WALL OR UNISTRUT SUPPORT STRUCTURE.
3. THE SAMPLE LINE SHALL BE LOCATED A MINIMUM OF 5 PIPE DIAMETERS DOWNSTREAM OF THE OZONE LOOP RETURN AND A MINIMUM OF 5 PIPE DIAMETERS UPSTREAM OF THE CHLORINE INJECTION POINT.

TYPE OF DISTURBANCE	MIN INLET PIPE LENGTH	MIN OUTLET PIPE LENGTH
FLANGE	10 X INSIDE PIPE DIAMETER	5 X INSIDE PIPE DIAMETER
REDUCER	15 X INSIDE PIPE DIAMETER	5 X INSIDE PIPE DIAMETER
90° ELBOW	20 X INSIDE PIPE DIAMETER	5 X INSIDE PIPE DIAMETER
TWO 90° ELBOW - 1 DIRECTION	25 X INSIDE PIPE DIAMETER	5 X INSIDE PIPE DIAMETER
TWO 90° ELBOW - 2 DIRECTIONS	40 X INSIDE PIPE DIAMETER	5 X INSIDE PIPE DIAMETER
PUMP OR GATE VALVE	50 X INSIDE PIPE DIAMETER	5 X INSIDE PIPE DIAMETER

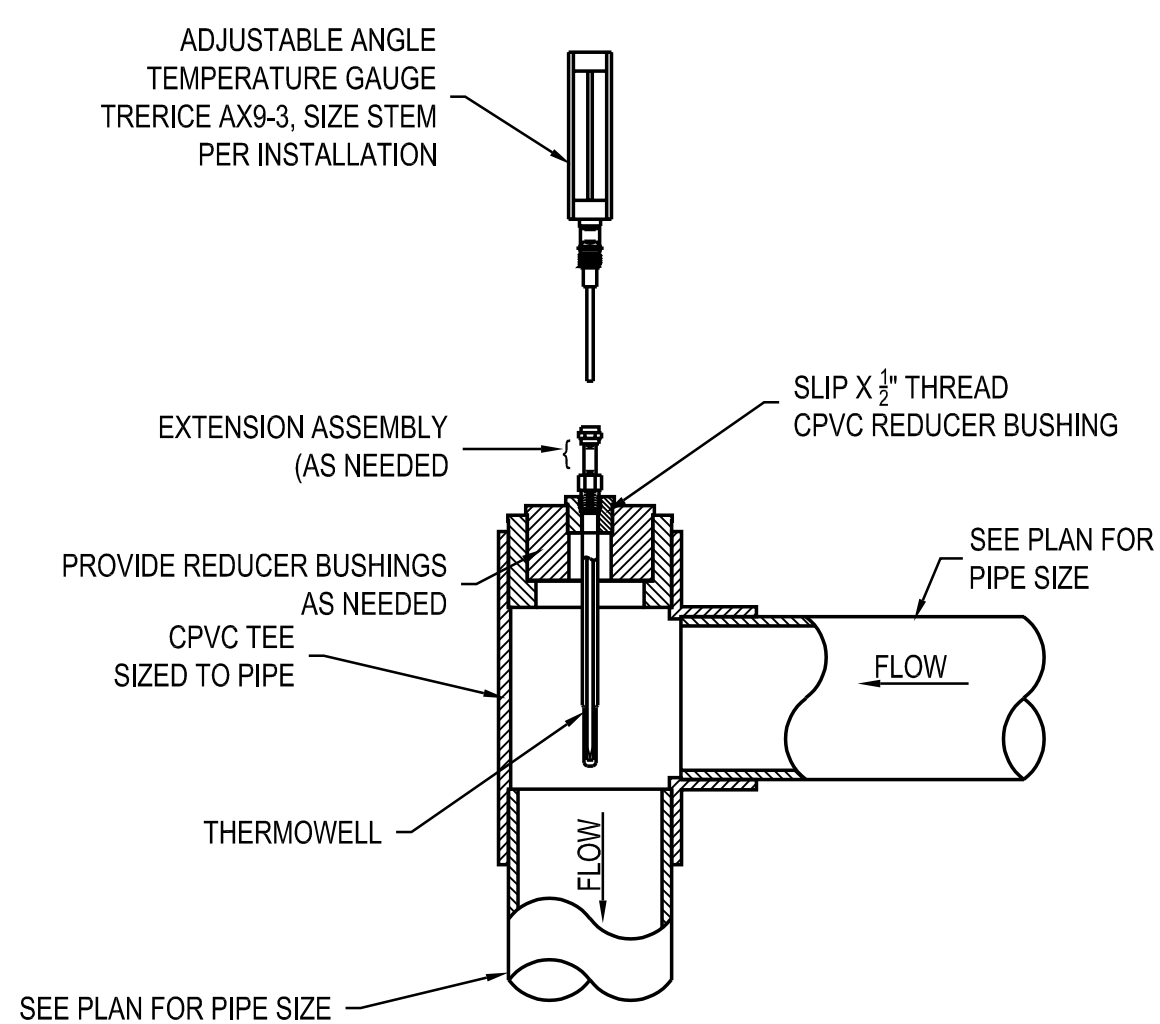


9 TYPICAL FLOW METER INSTALLATION

SCALE 1:10

3 TYP. TEMPERATURE GAUGE INSTALLATION

SCALE 1:10



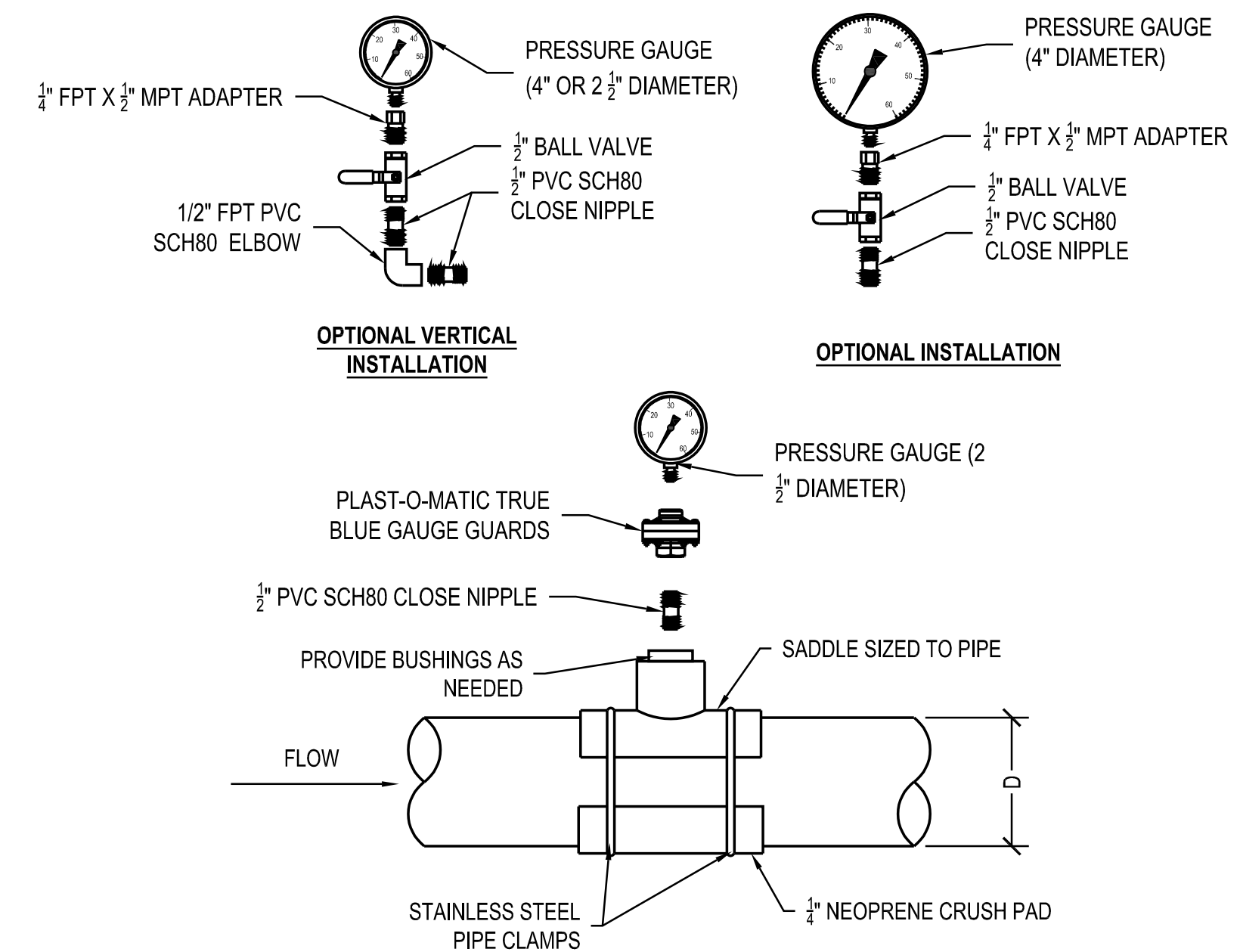
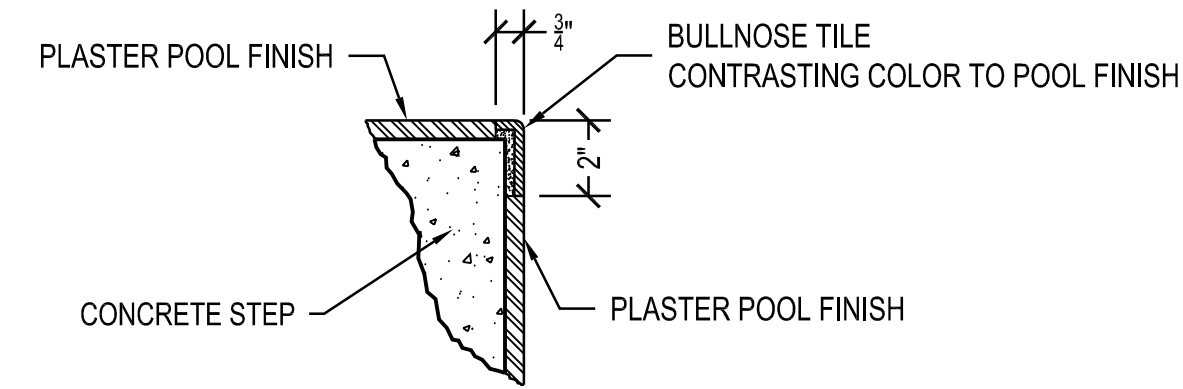
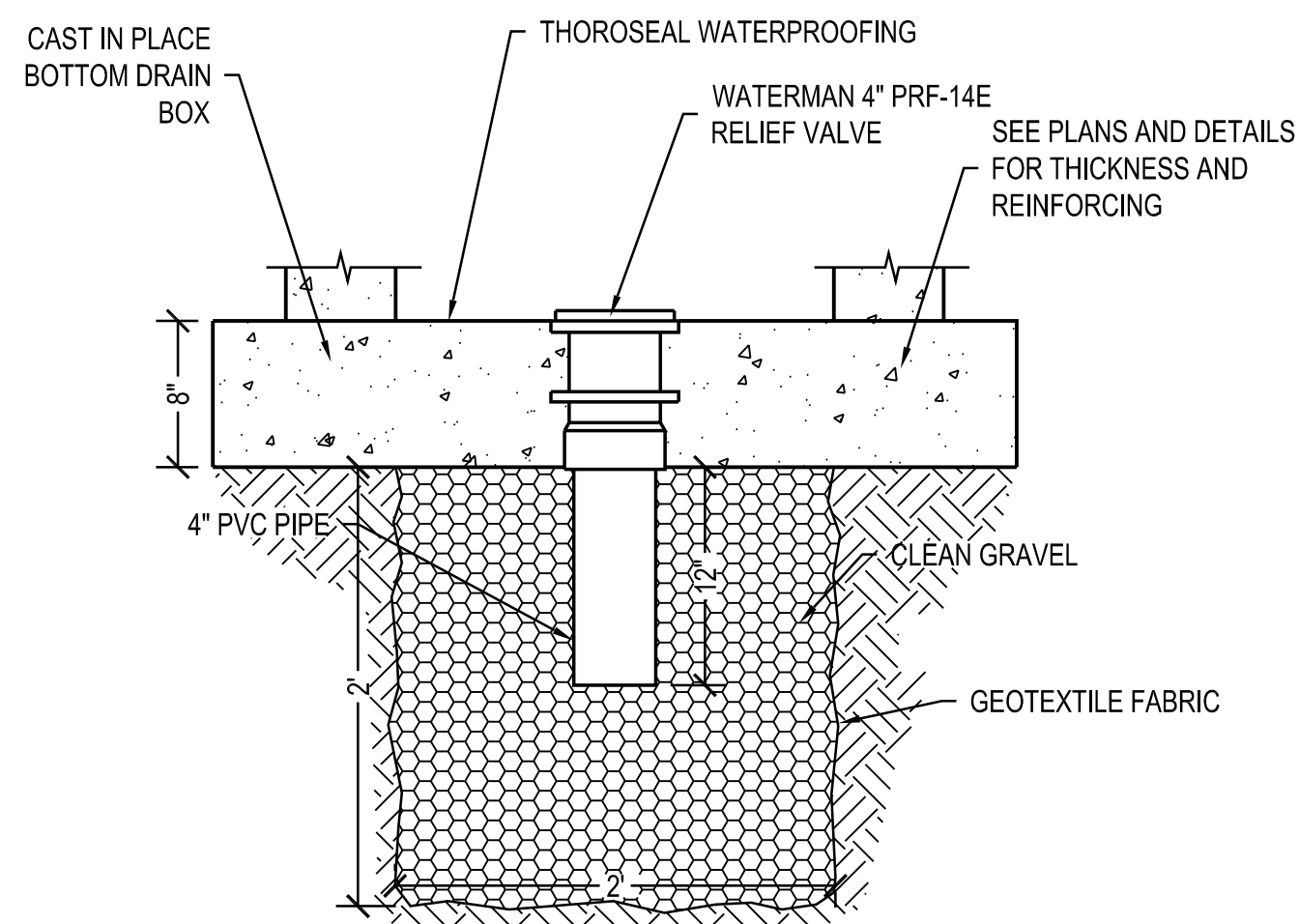
NOTES:

1. GAUGE MAY BE INSTALLED IN A STRAIGHT TEE WITH THE GAUGE IN THE BRANCH LEG.
2. PROVIDE A TRERICE BX9-3 GAUGE WITH INTEGRATE RTD WHEN NEEDED.
3. USE CPVC OR COPPER PIPE FOR HIGH WATER TEMPERATURE APPLICATIONS, SEE PLANS

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GENERAL DETAILS

W5-1.04



7 TYP. HYDROSTATIC RELIEF VALVE INSTALLATION

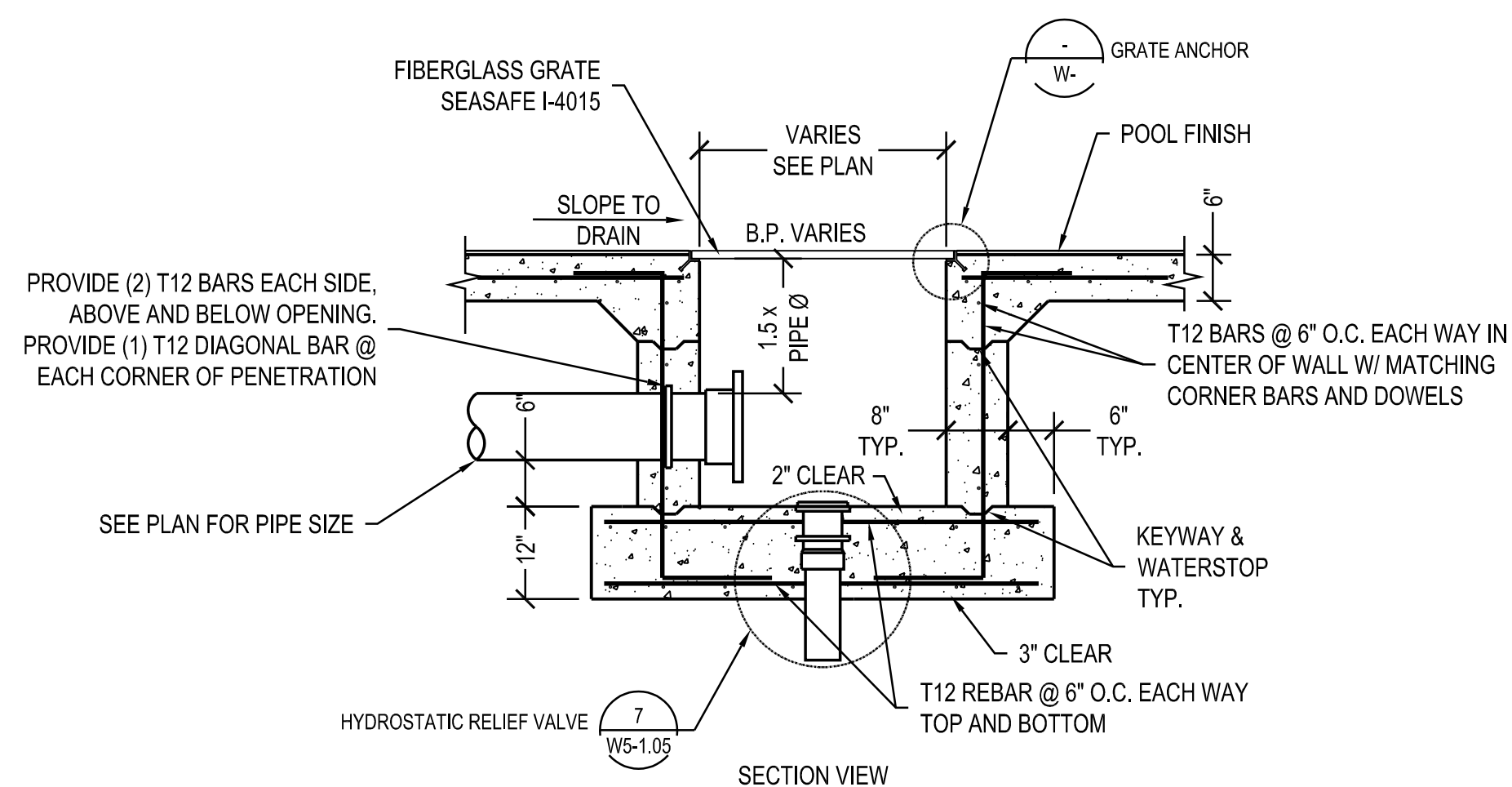
SCALE 1:10

4 TYP. STAIR TREAD MARKER

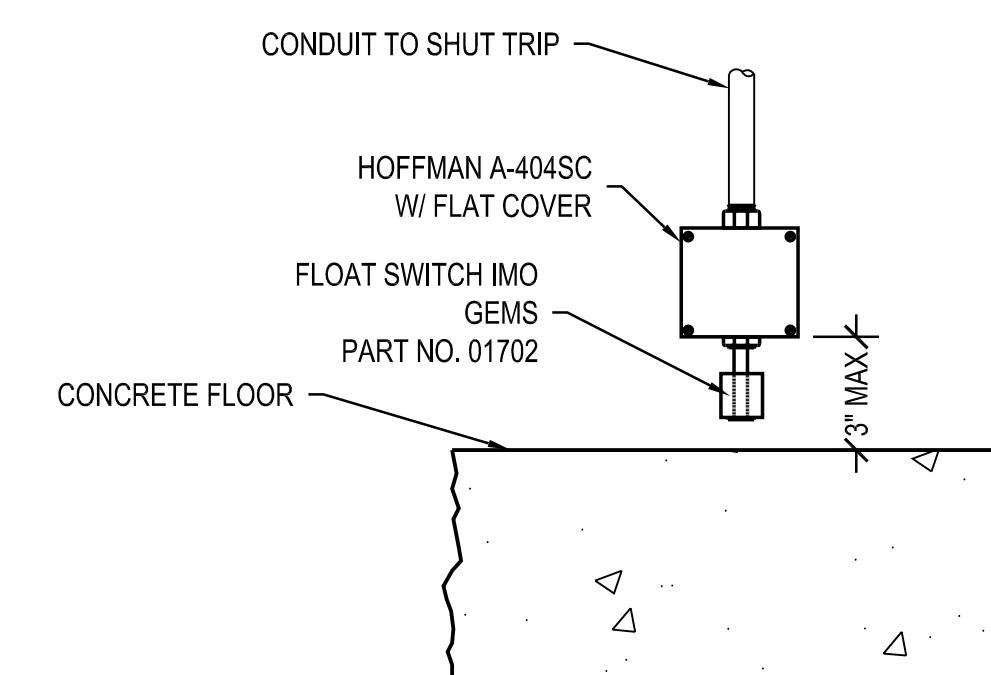
SCALE 1:5

1 TYPICAL PRESSURE GAUGE INSTALLATION

SCALE 1:5



- NOTES:
1. CONTRACTOR SHALL INSTALL ANCHOR IN ACCORDANCE WITH ALL MANUFACTURER'S RECOMMENDATIONS FOR INSTALLATION FOR PROPER EMBEDMENT.
 2. STANDARD DEPTH HANDRAIL ANCHORS SHALL BE USED WITH TYPICAL INSTALLATIONS WHERE THE POOL OR DECK FINISH OR COPING IS ONE 1\"/>
 - 3. ALL METAL ANCHORS SHALL BE PROPERLY BONDED AS PER APPLICABLE CODES.



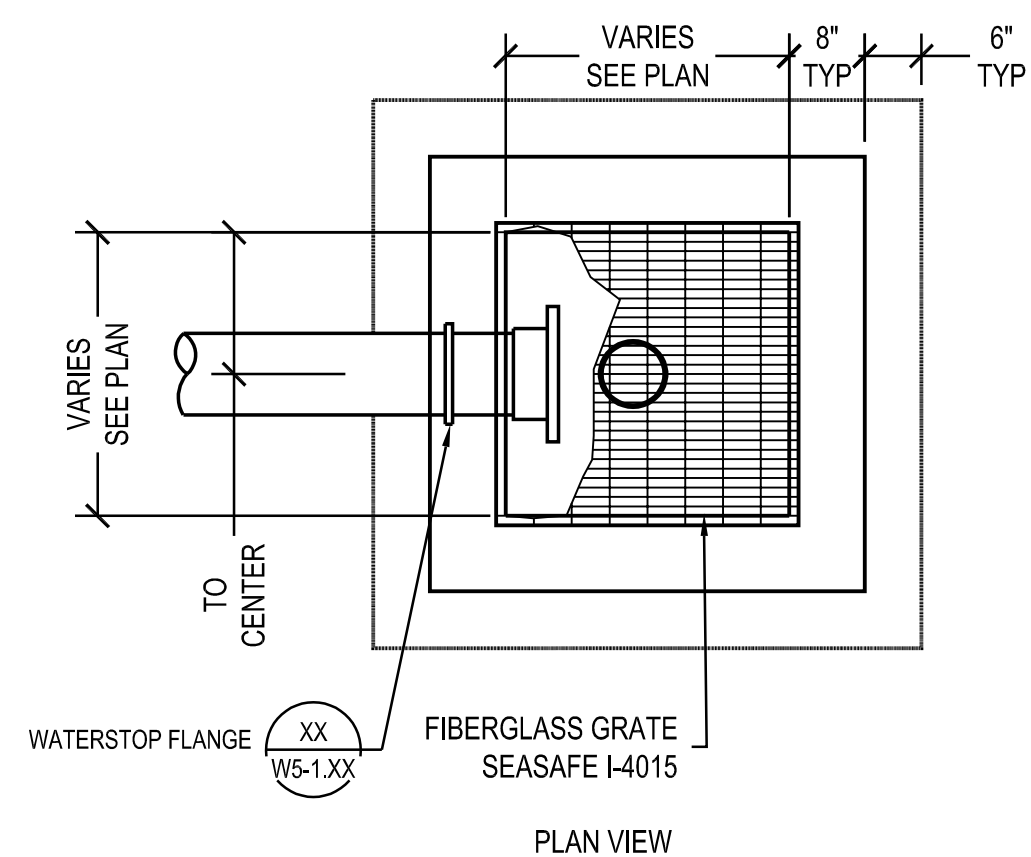
- NOTES:
1. PROVIDE FLOAT SWITCH IN LOWEST POINT IN THE MECHANICAL ROOM.
 2. REFER TO THE WE-SERIES DRAWINGS FOR CONNECTION TO THE SHUNT TRIP.
 3. CONTACT INFORMATION FOR THE FLOAT SWITCH: GEMS SENSORS, INC V: (860) 747-3000 WWW.GEMSSENSORS.COM

5 TYPICAL HANDRAIL ANCHOR

SCALE 1:5

2 SHUNT TRIP FLOAT SWITCH INSTALLATION

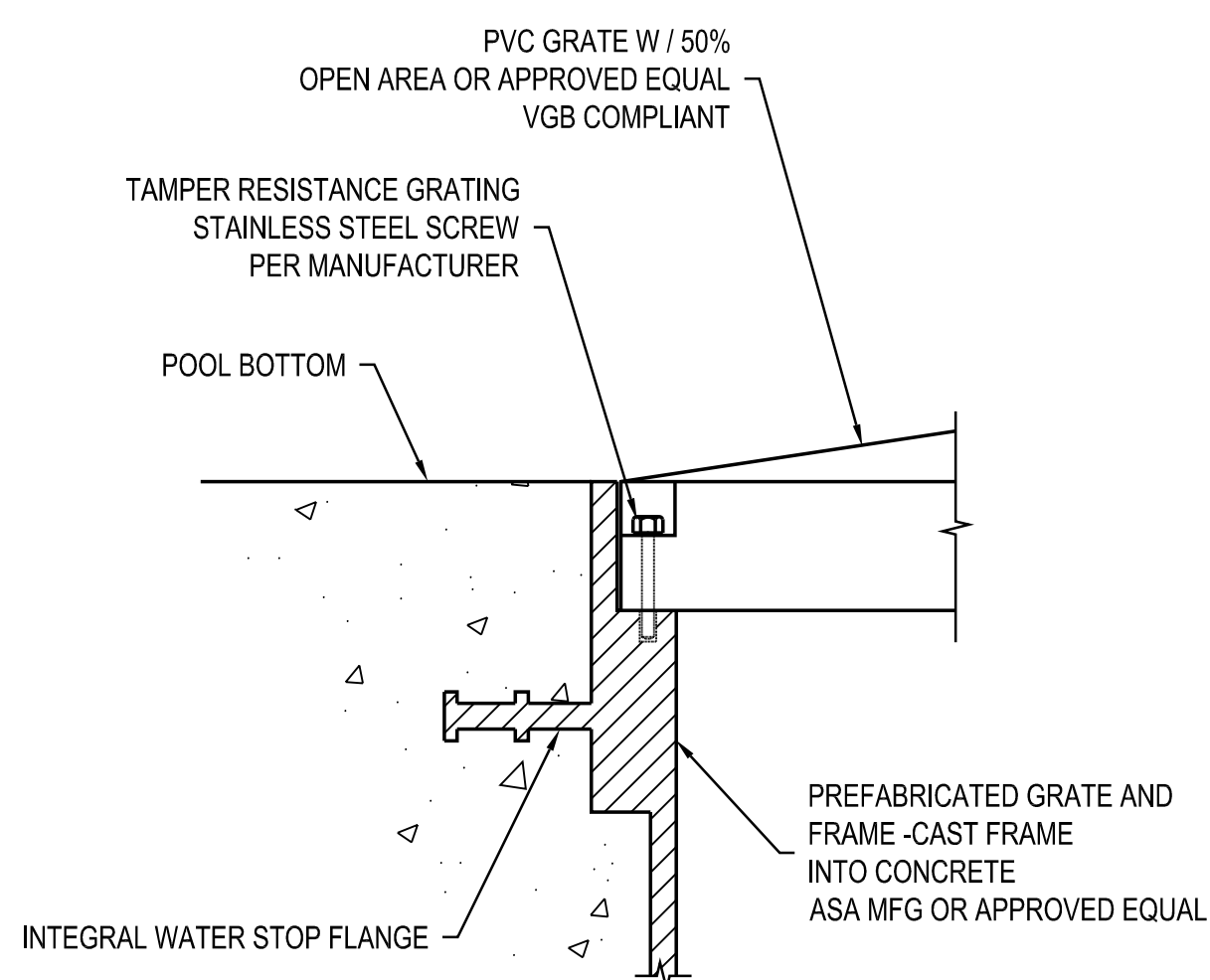
SCALE 1:5



- NOTES:
- 1) ALL STRUCTURES BELOW GROUND WATER WILL REQUIRE HYDROSTATIC RELIEF VALVE.
 - 2) PREFABRICATED GRATE AND FRAME.
 - 3) FRAME TO BE CAST INTO CONCRETE.
 - 4) ANCHOR GRATE TO FRAME AS PER MANUFACTURER'S SPECIFICATIONS WITH MECHANICAL FASTENERS.
 - 5) DRAIN BOX MAY BE CONSTRUCTED MONOLITHIC WITH POOL SHELL

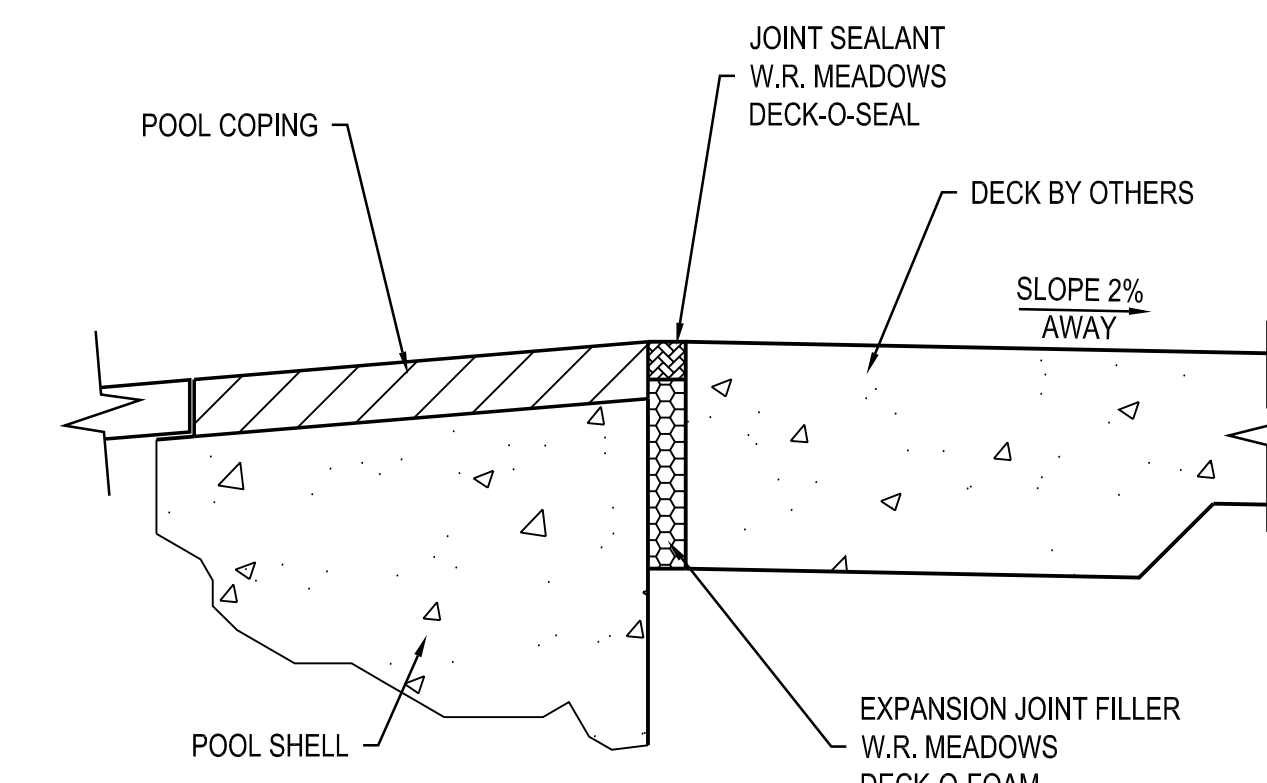
9 CAST IN PLACE BOTTOM DRAIN

SCALE 1:20



6 TYP. PREFAB. GRATE INSTALLATION

SCALE 1:5



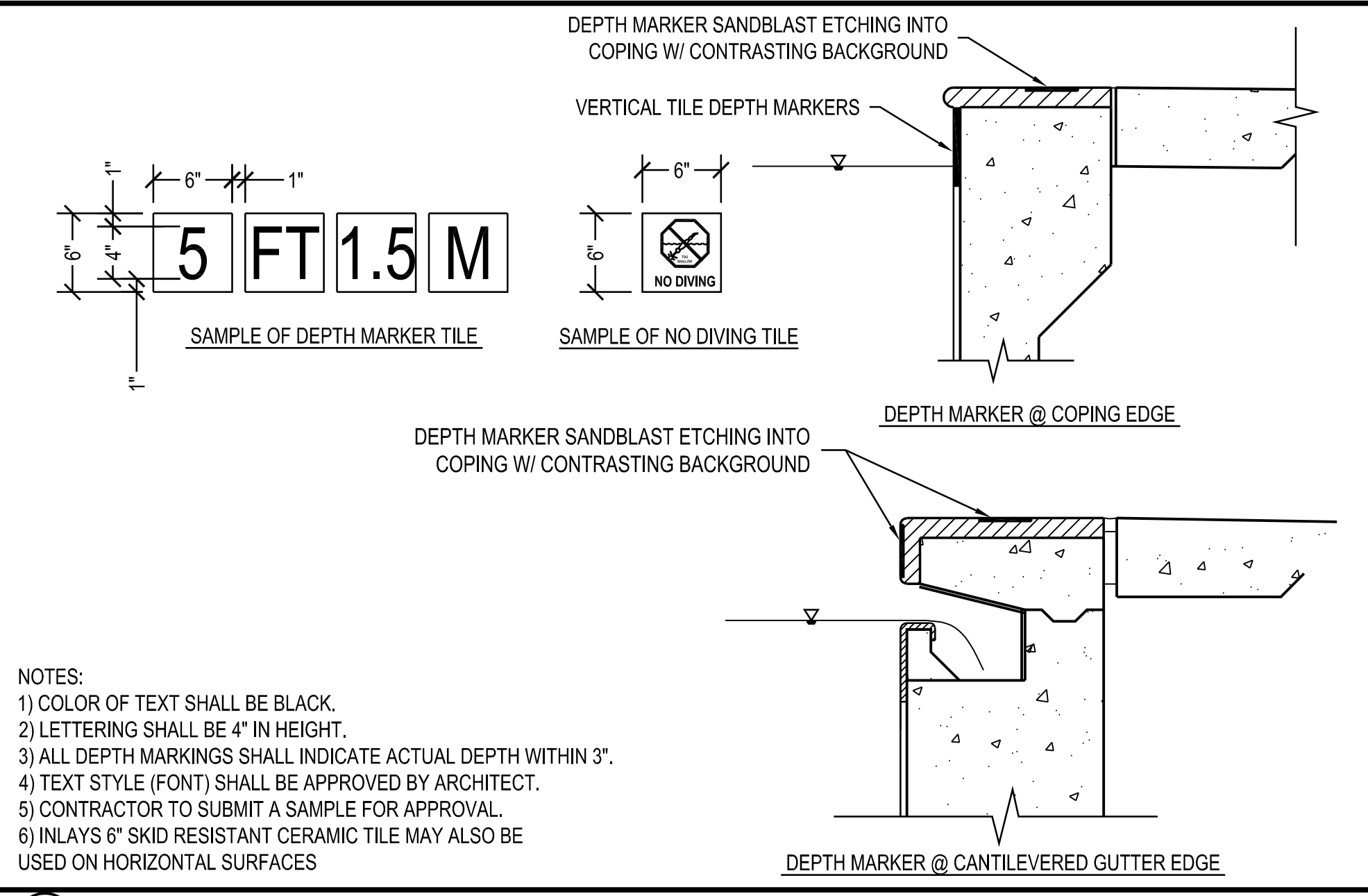
3 JOINT DETAIL

SCALE 1:5

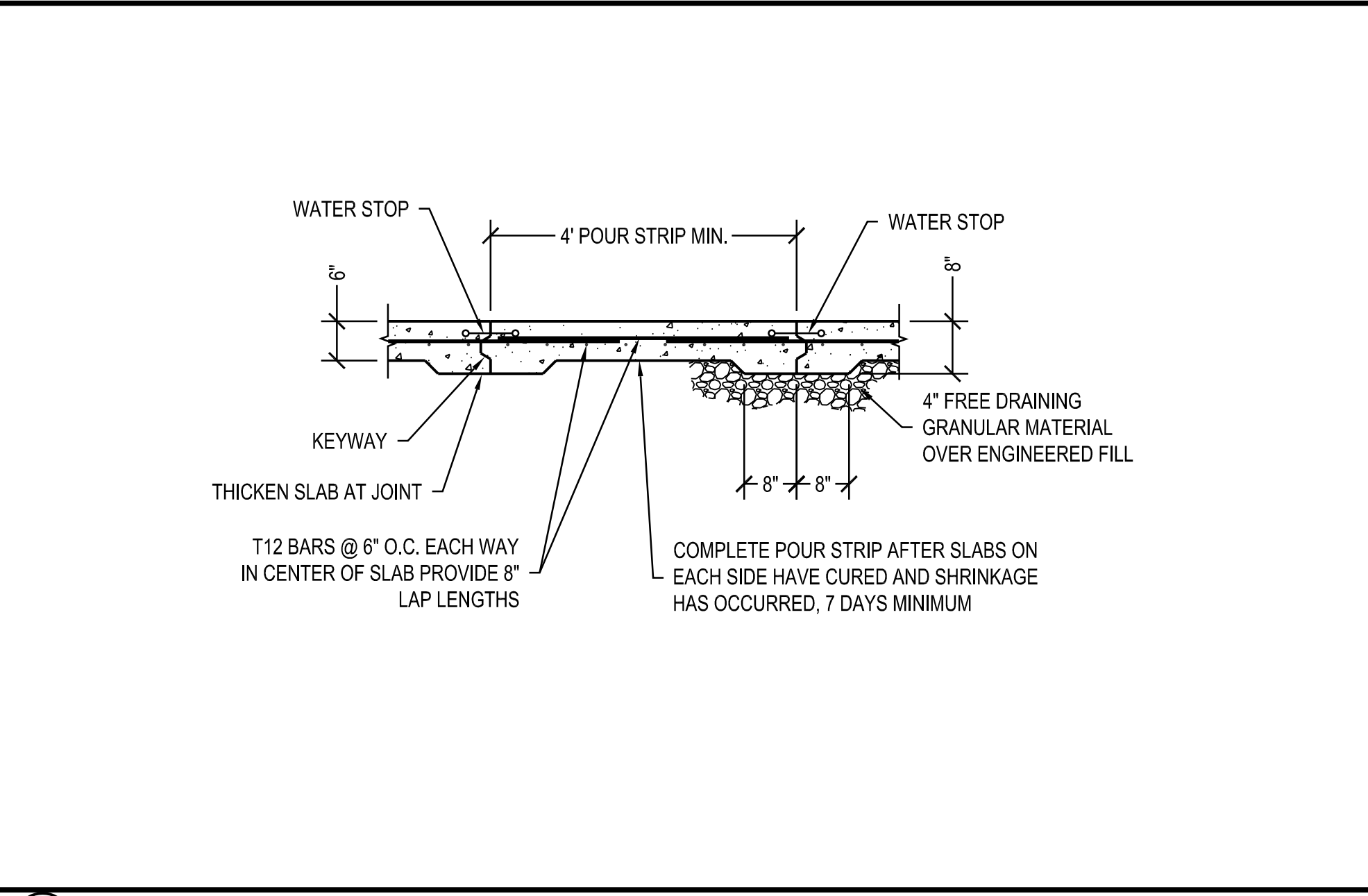
S. STOLTZ
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GENERAL DETAILS

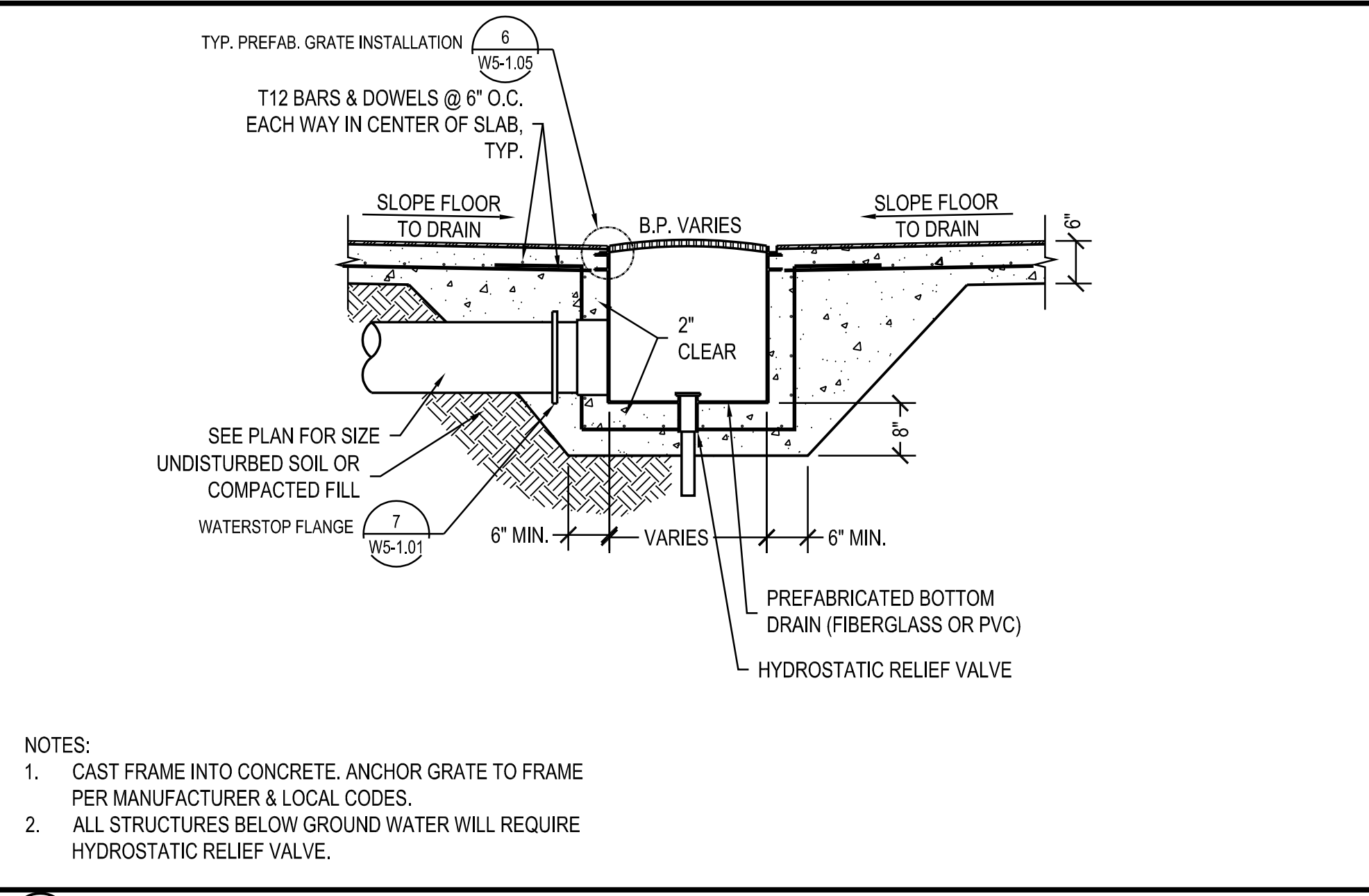
W5-1.05



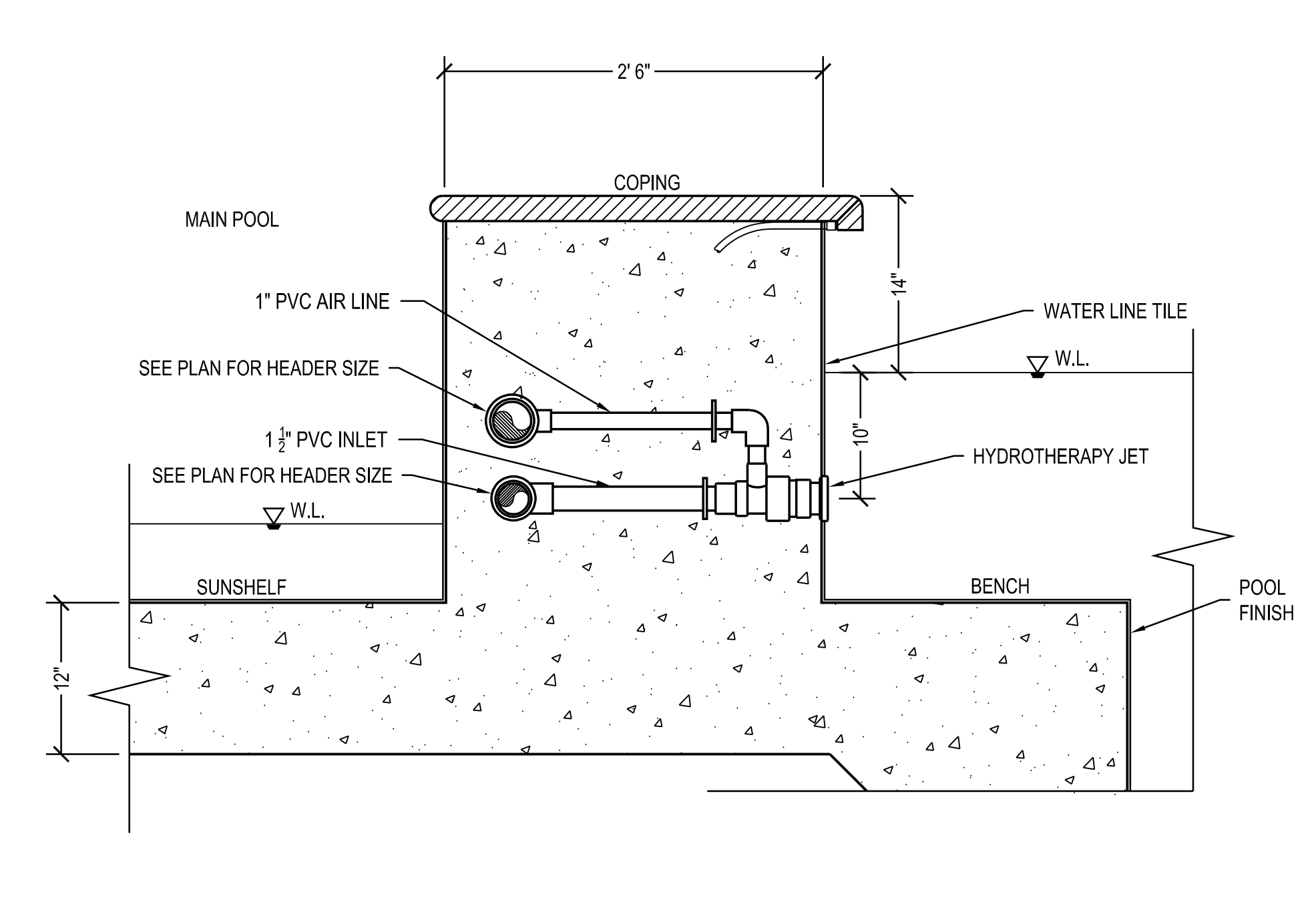
7 DEPTH / NO DIVING MARKER SCALE 1:10



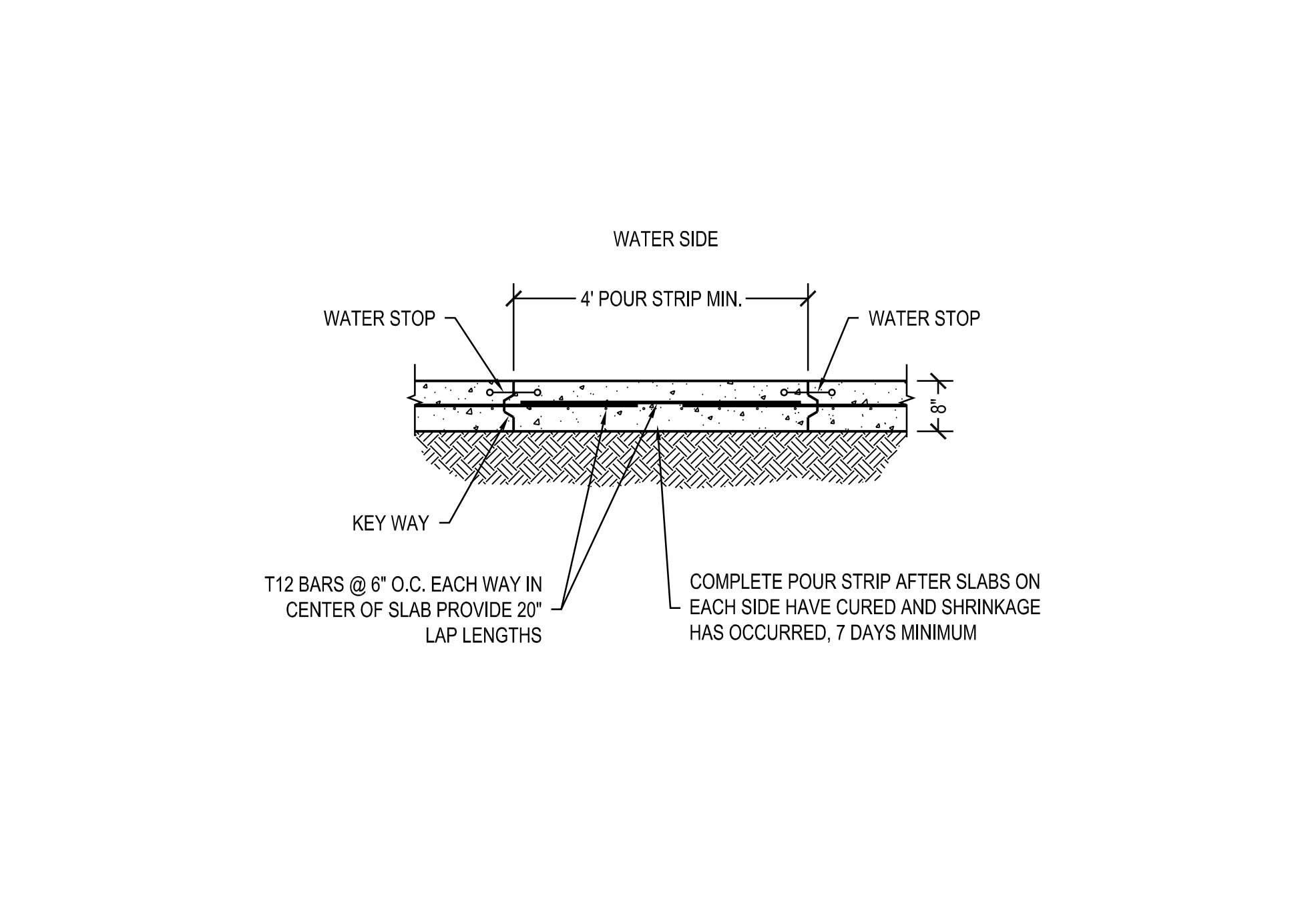
4 TYPICAL POUR STRIP DETAIL @ FLOOR SCALE 1:20



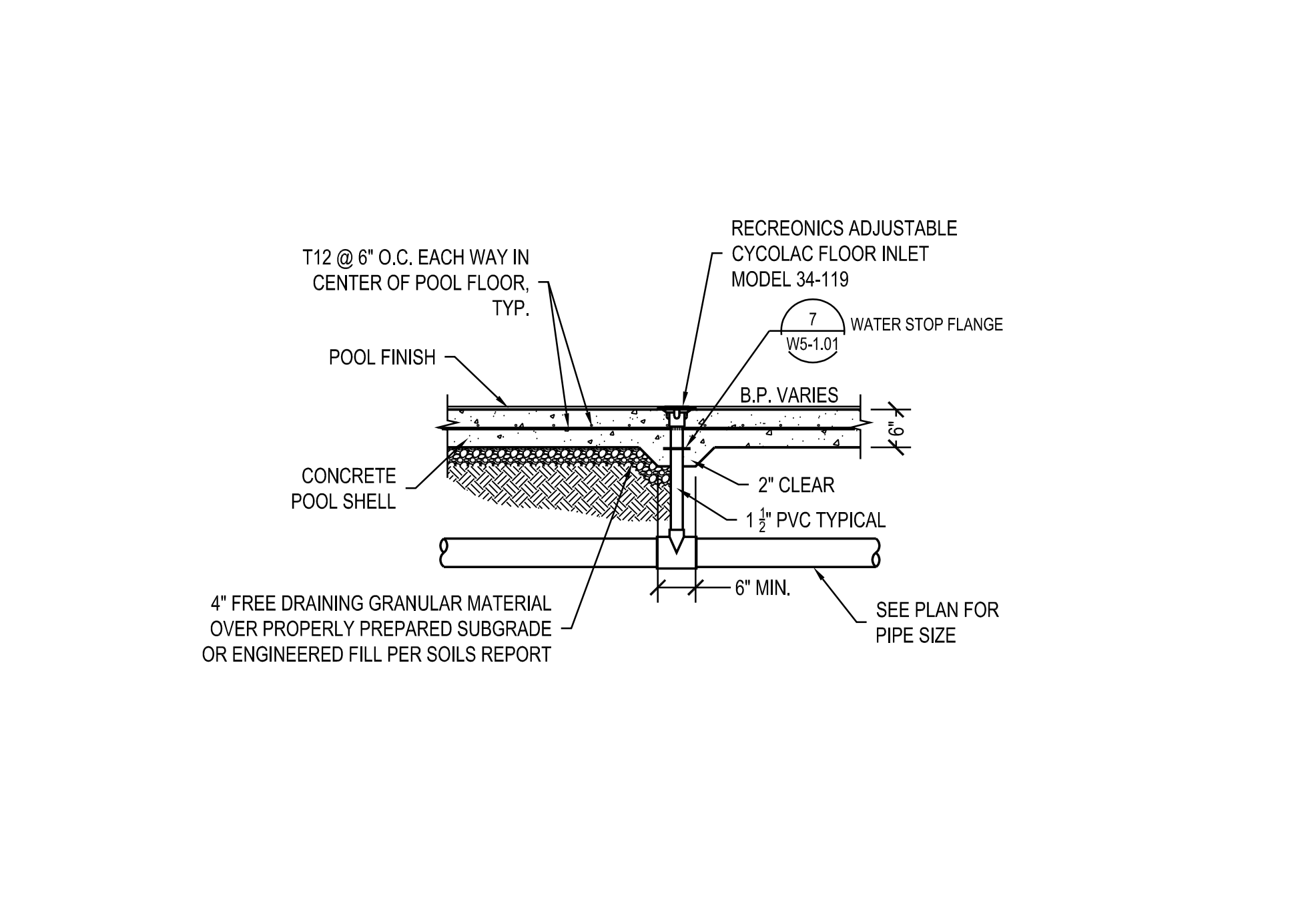
1 PREFABRICATED BOTTOM DRAIN SCALE 1:20



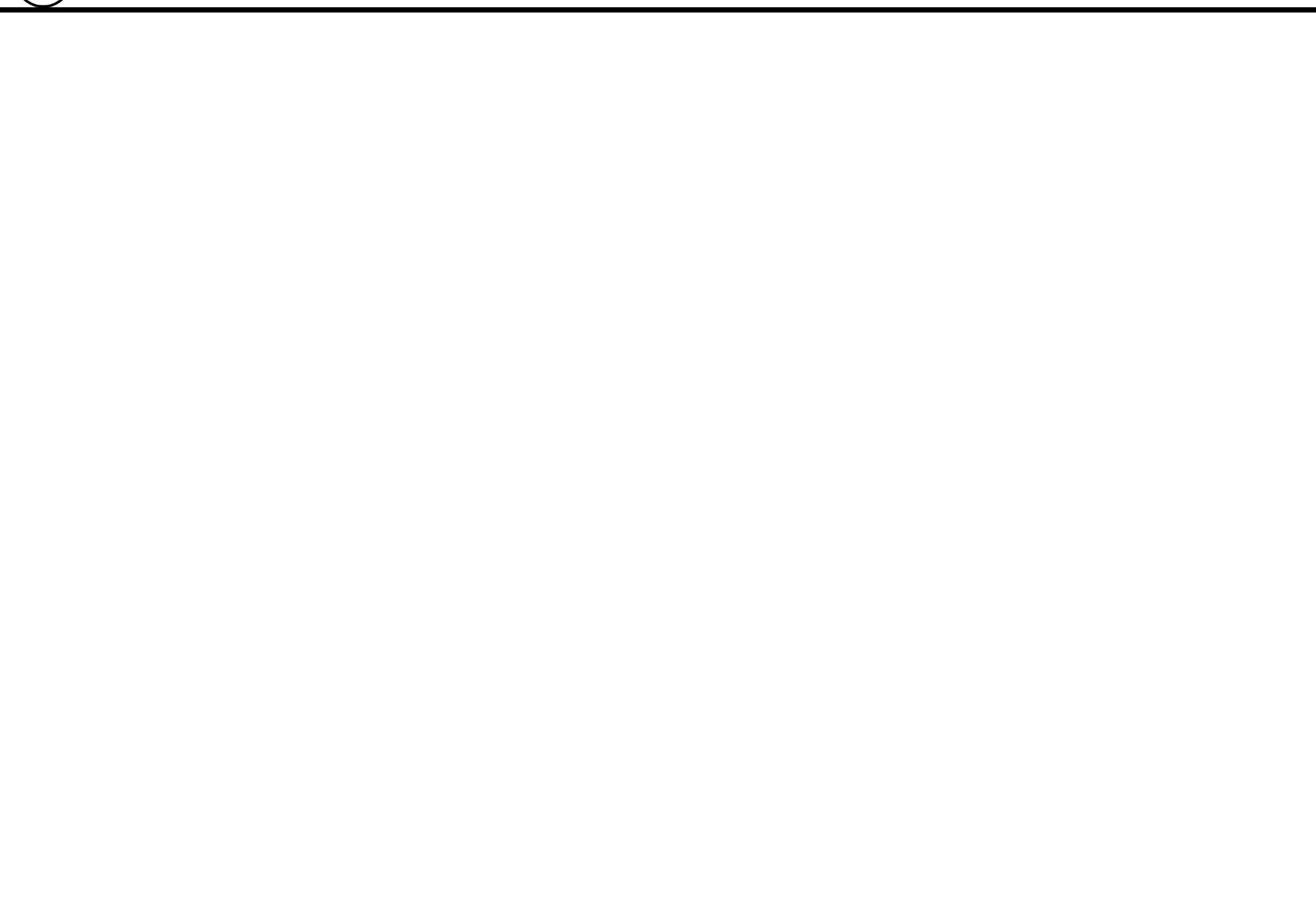
8 TYPICAL HYDROTHERAPY JET SCALE 1:10



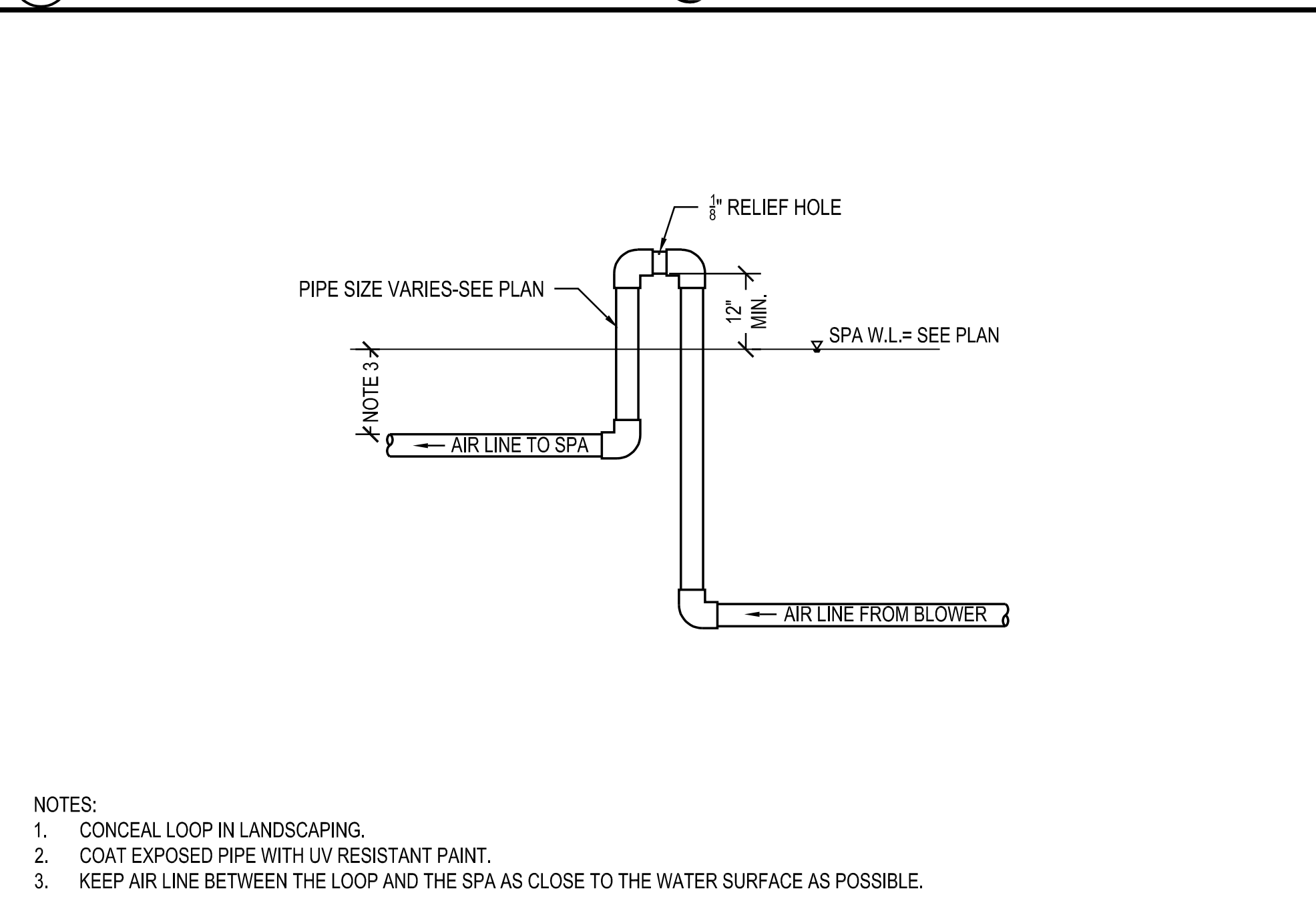
5 TYPICAL POUR STRIP DETAIL @ WALL SCALE 1:20



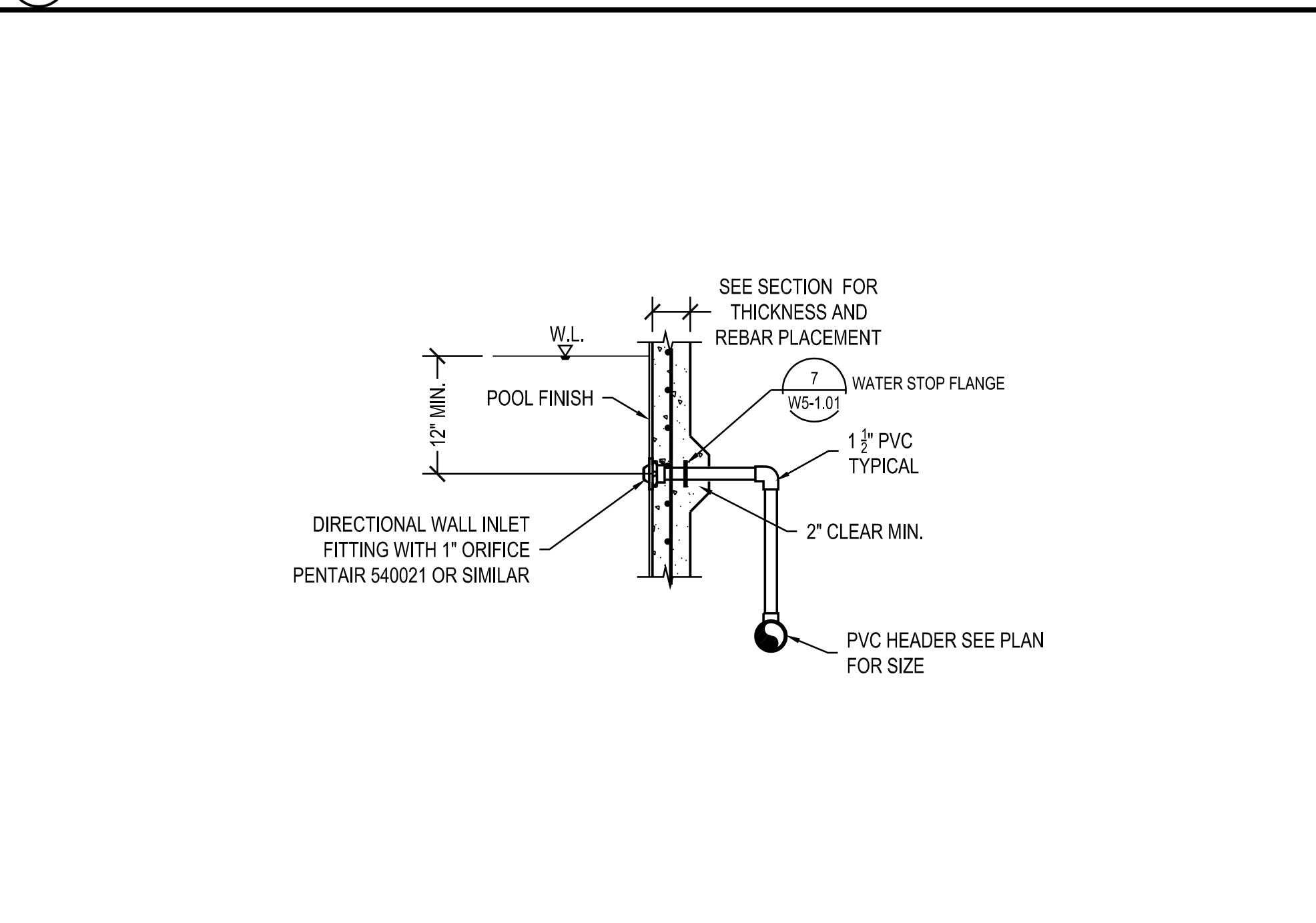
2 FLOOR INLET JET SCALE 1:20



9 -- SCALE 1:10



6 TYPICAL SPA SIPHON BREAK SCALE 1:20



3 WALL INLET JET SCALE 1:20

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GENERAL DETAILS

W5-1.06

