

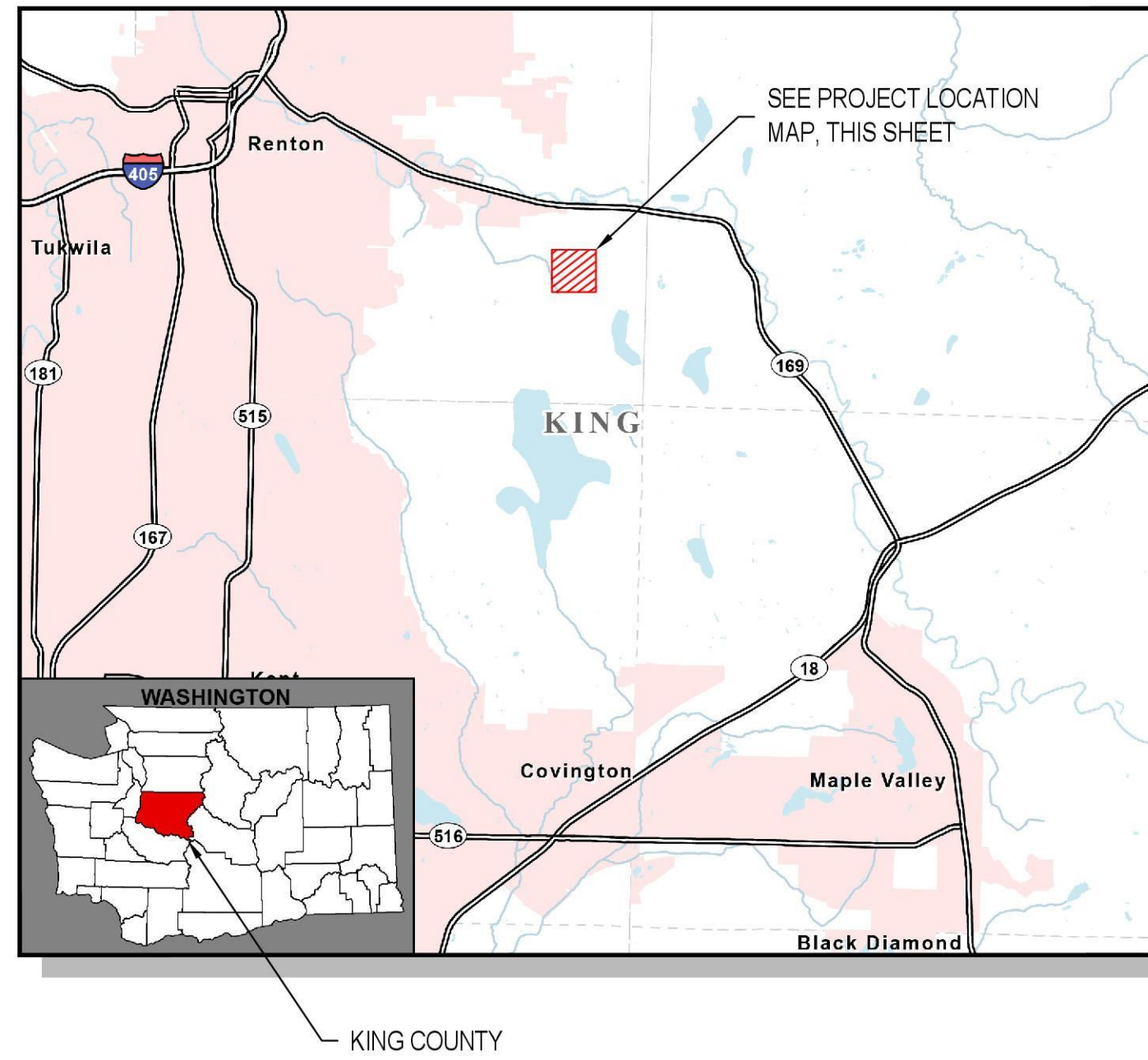


CEDAR RIVER WATER & SEWER DISTRICT

FAIRWOOD 2 RESERVOIR SEISMIC RETROFIT 22-0156

BID SET

PROJECT VICINITY MAP

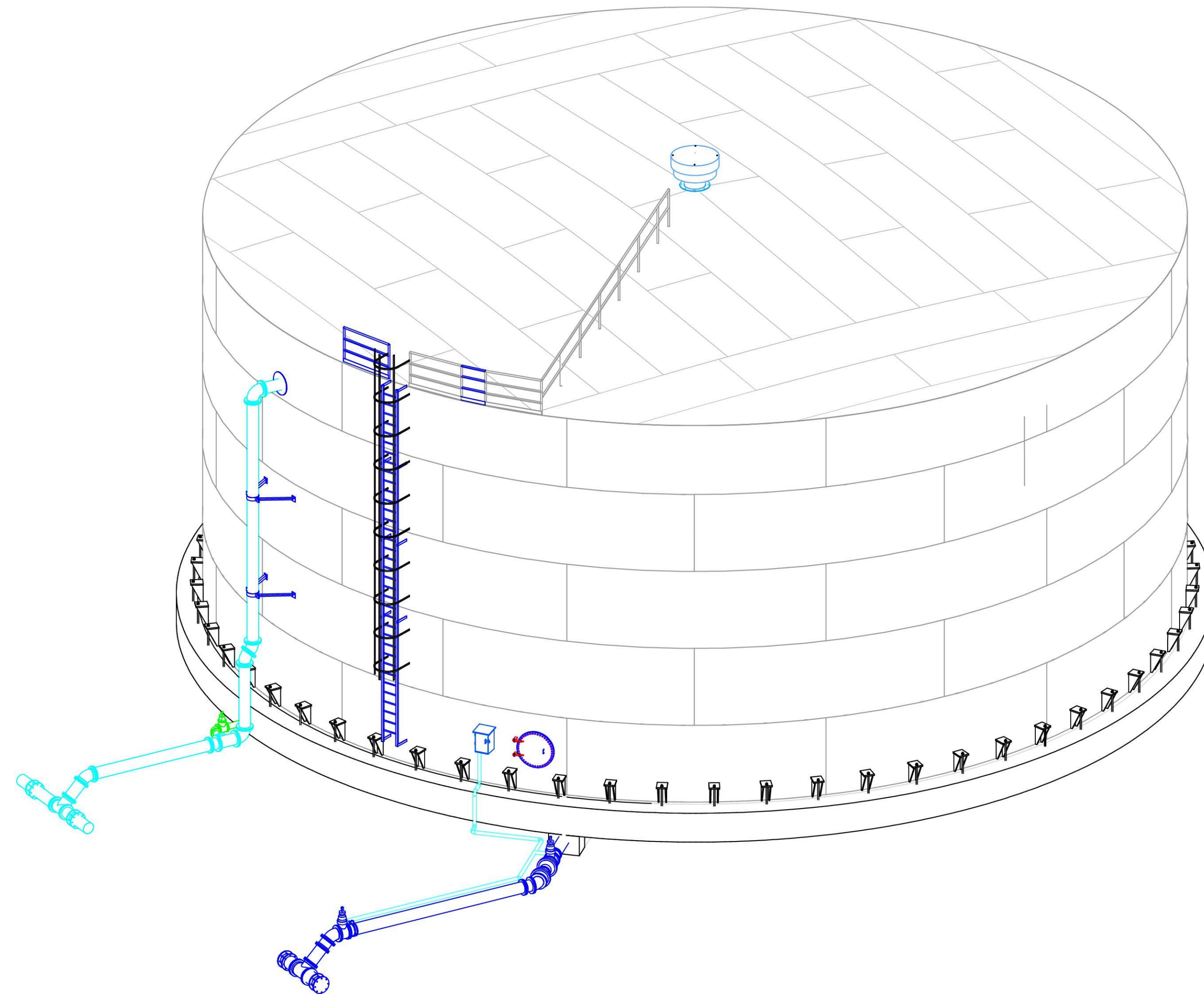


PROJECT LOCATION MAP



CALL 48 HOURS BEFORE YOU DIG
ONE CALL 811

REPORT ALL SPILLS
DEPT. OF ECOLOGY 1-800-258-5990



PROJECT DESCRIPTION

THIS PROJECT CONSISTS OF SEISMIC IMPROVEMENTS, STRUCTURAL AND MECHANICAL IMPROVEMENTS, AND REHABILITATION OF THE FAIRWOOD #2 RESERVOIR INCLUDING BUT NOT LIMITED TO FOUNDATION EXTENSION, IMPROVED RESERVOIR ANCHORING, AND OVERFLOW/DRAIN AIR GAP RETROFIT TO COMPLY WITH DOH REQUIREMENTS.

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CONTACT PERSONNEL

CONTACT	AGENCY	PHONE
DAVE MATZ, P.E. (PROJECT MANAGER)	RH2 ENGINEERING	253.327.1521
SEAN BAUER (GENERAL MANAGER)	CRWSD	425.433.6909
TODD TANDECKI (OPERATIONS MANAGER)	CRWSD	425.433.6903
24 HR. REPAIR	P.S.E	888.225.5773

**CEDAR RIVER
WATER & SEWER DISTRICT**

Commissioners
Charles Terwillegar
Steve Puryear
Ron Harmon



SURVEY NOTES

- EQUIPMENT USED: CARLSON CR2+ ROBOTIC TOTAL STATION AND TOPCON HIPER VR RTK/GPS
- THIS SURVEY WAS PERFORMED BY FIELD TRAVERSE WITH THE FINAL RESULTS MEETING OR EXCEEDING THE CURRENT TRAVERSE AND RELATIVE POSITIONAL ACCURACY STANDARDS CONTAINED IN W.A.C. 332-130-085 AND W.A.C. 332-130-090. THE RELATIVE POSITIONAL ACCURACY OF THE POSITIONS LOCATED HEREON MEETS OR EXCEEDS 2 CM (0.07 FT.) PLUS 50 PARTS PER MILLION BETWEEN ANY TWO TESTED POSITIONS. ALL MEASUREMENTS WERE MADE WITH A CARLSON CR2+ TOTAL STATION IN ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S SPECIFICATIONS.
- IN ACCORDANCE WITH THE REVISED CODE OF WASHINGTON (R.C.W.) 58.09 AND THE WASHINGTON ADMINISTRATIVE CODE (W.A.C.) 332-130, THIS SURVEY MAY DEPICT OCCUPATIONAL INDICATORS THAT DIFFER FROM THE DEEDED LOT LINES. THESE INDICATORS, IF AT ALL PRESENT, MAY REPRESENT A POTENTIAL FOR CLAIMS OF UNWRITTEN TITLE. THIS SURVEY DOES NOT PURPORT TO RESOLVE SUCH ITEMS.
- FIELD WORK PERFORMED IN MAY 2023, UNDER SITTS & HILL JOB NUMBER 20063-3.
- UTILITIES AS SHOWN HEREON ARE BASED ON FIELD SURVEY OBSERVATION OF UTILITY LOCATE SERVICES PERFORMED BY MT. VIEW LOCATE SERVICES IN APRIL, 2023 FOR THIS SURVEY. UTILITIES OTHER THAN SHOWN MAY EXIST ON THE SITE. THE SURVEYOR DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. THE SURVEYOR DOES CERTIFY THAT THEY ARE SHOWN AS ACCURATELY AS POSSIBLE FROM FIELD SURVEY AND PAINTED UTILITY LOCATE LINES. COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA IS CONSISTENT WITH QUALITY LEVEL 'B' OF THE ASCE STANDARD GUIDELINES 38-02.
- SITTS & HILL ENGINEERS, INC. HAS RELIED UPON TITLE INFORMATION NOTED IN COMMITMENTS FOR TITLE INSURANCE PREPARED BY STEWART TITLE GUARANTY COMPANY, GUARANTEE NUMBER G-6329-000013663, DATED APRIL 05, 2023. IN PREPARATION OF THIS SURVEY, SITTS AND HILL ENGINEERS, INC. HAS CONDUCTED NO INDEPENDENT TITLE SEARCH NOR IS SITTS AND HILL ENGINEERS, INC. AWARE OF ANY TITLE ISSUES AFFECTING THE SURVEYED PROPERTY OTHER THAN THOSE SHOWN ON THE MAP AND/OR DISCLOSED BY SAID TITLE COMPANY'S ORDER. SITTS & HILL ENGINEERS, INC. HAS RELIED WHOLLY ON SAID TITLE COMPANY'S REPORT AND THEREFORE QUALIFIES THE MAP'S ACCURACY AND COMPLETENESS TO THAT EXTENT.
- THIS SURVEY COMPLIES WITH W.A.C. 332-130-145. THE CONTOURS DEPICTED HEREON ARE BASED ON DATA FROM DIRECT FIELD MEASUREMENTS. SPOT ELEVATIONS ARE BASED ON DIRECT FIELD MEASUREMENTS AND ARE DEPICTED FOR REFERENCE. THE PURPOSE OF THIS TOPOGRAPHIC MAP IS TO SERVE AS A BASE MAP FOR CONTEMPLATED SITE IMPROVEMENTS AND DESIGN.
- THE UNDERGROUND UTILITY LOCATE SERVICE WAS UNABLE TO LOCATE THE ENTIRETY OF SEVERAL WATER LINES. IN THESE CASES A DASHED LINETYPE HAS BEEN SHOWN HEREON TO INDICATE THE APPROXIMATE DIRECTION OF THESE WATER LINES, EXTENDING FROM THE FURTHEST PAINTED LOCATE-MARK OBSERVED BY THE SURVEYOR. THESE DASHED LINES ARE APPROXIMATE AND ARE SHOWN FOR ILLUSTRATIVE PURPOSES ONLY.

HORIZONTAL DATUM:
WASHINGTON STATE PLANE COORDINATE SYSTEM, NORTH ZONE, NAD 83/2011
BASED ON GPS OBSERVATION UTILIZING THE WASHINGTON STATE REFERENCE NETWORK (WSRN)

VERTICAL DATUM:
NAVD 88
BASED ON GPS OBSERVATION UTILIZING THE WSRN WITH
NGS GEOID18 LOADED

TEMPORARY BENCHMARK - MAG NAIL NO. 3; EL. 677.79
DESCRIPTION: MAG NAIL IN ASPHALT; ACROSS FROM MAIN ENTRANCE TO SITE

SUBSURFACE UTILITY LEGEND

THE CLASSIFICATIONS FOR SUBSURFACE UTILITIES ARE OUTLINED AND EXPLAINED IN THE FOLLOWING LIST:

- | | |
|---|---|
| <p>UTILITY QUALITY LEVEL A - PRECISE HORIZONTAL AND VERTICAL LOCATION OF UTILITIES OBTAINED BY THE ACTUAL EXPOSURE OF (OR VERIFICATION OF PREVIOUSLY EXPOSED AND SURVEYED UTILITIES) AND SUBSEQUENT MEASUREMENT OF SUBSURFACE UTILITIES, USUALLY AT A SPECIFIC POINT. UNLESS OTHERWISE NOTED, QUALITY LEVEL A IS ONLY APPLICABLE AT POTHOLED LOCATIONS ON THE PLANS. AT ALL OTHER AREAS, THE UTILITY SHOULD BE ASSUMED TO BE QUALITY LEVEL B.</p> <p>UTILITY QUALITY LEVEL B - INFORMATION OBTAINED THROUGH THE APPLICATION OF APPROPRIATE SURFACE GEOPHYSICAL METHODS TO DETERMINE THE EXISTENCE AND APPROXIMATE HORIZONTAL POSITION OF SUBSURFACE UTILITIES.</p> <p>UTILITY QUALITY LEVEL C - INFORMATION OBTAINED BY SURVEYING AND PLOTTING VISIBLE ABOVE-GROUND UTILITY FEATURES</p> <p>UTILITY QUALITY LEVEL D - INFORMATION DERIVED FROM EXISTING RECORDS OR ORAL RECOLLECTIONS</p> | <p>UTILITY QUALITY LEVEL A - PRECISE HORIZONTAL AND VERTICAL LOCATION OF UTILITIES OBTAINED BY THE ACTUAL EXPOSURE OF (OR VERIFICATION OF PREVIOUSLY EXPOSED AND SURVEYED UTILITIES) AND SUBSEQUENT MEASUREMENT OF SUBSURFACE UTILITIES, USUALLY AT A SPECIFIC POINT. UNLESS OTHERWISE NOTED, QUALITY LEVEL A IS ONLY APPLICABLE AT POTHOLED LOCATIONS ON THE PLANS. AT ALL OTHER AREAS, THE UTILITY SHOULD BE ASSUMED TO BE QUALITY LEVEL B.</p> <p>UTILITY QUALITY LEVEL B - INFORMATION OBTAINED THROUGH THE APPLICATION OF APPROPRIATE SURFACE GEOPHYSICAL METHODS TO DETERMINE THE EXISTENCE AND APPROXIMATE HORIZONTAL POSITION OF SUBSURFACE UTILITIES.</p> <p>UTILITY QUALITY LEVEL C - INFORMATION OBTAINED BY SURVEYING AND PLOTTING VISIBLE ABOVE-GROUND UTILITY FEATURES</p> <p>UTILITY QUALITY LEVEL D - INFORMATION DERIVED FROM EXISTING RECORDS OR ORAL RECOLLECTIONS</p> |
|---|---|

NOTE: THE USE OF THE LINE TYPES PROVIDED ABOVE WAS A PRIMARY METHOD FOR INDICATING THE ACCURACY OF THE UTILITIES SHOWN WITHIN THESE PLANS. WHEN THE SOURCE OF THE INFORMATION WAS UNKNOWN OR THE METHOD FOR LOCATING THE UTILITIES WAS UNAVAILABLE, QUALITY LEVEL D WAS USED AS THE DEFAULT.

GENERAL NOTES

- ALL WORKMANSHIP, CONSTRUCTION AND MATERIALS SHALL BE PERFORMED OR SUPPLIED IN ACCORDANCE WITH THESE SPECIAL PROVISIONS, PLANS, CEDAR RIVER WATER & SEWER DISTRICT STANDARD DETAILS, AND THE WSDOT STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION, 2025 EDITION, AS ISSUED BY THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION AND THE AMERICAN PUBLIC WORKS ASSOCIATION, WHICH IS HERINAFTER REFERRED TO AS THE STANDARD SPECIFICATIONS.
- A PRECONSTRUCTION CONFERENCE IS REQUIRED PRIOR TO CONSTRUCTION, AND 48 HOURS ADVANCE NOTIFICATION PRIOR TO ACTUAL START OF WORK IS REQUIRED.
- THE EXISTING TOPOGRAPHIC AND PHYSICAL FEATURES SHOWN ON THESE PLANS ARE BASED ON A FIELD SURVEY BY SITTS & HILL ENGINEERS, INC., RECORD DRAWINGS, AND FIELD RECONNAISSANCE BY RH2 ENGINEERING.
- THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN ON THE PLANS WERE OBTAINED FROM AVAILABLE RECORDS BUT HAVE NOT BEEN EXPOSED AND MEASURED. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES PRIOR TO COMMENCING WORK TO AVOID DAMAGE OR DISTURBANCE, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE CAUSED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ALL UNDERGROUND UTILITIES. IT IS UNDERSTOOD THAT OTHER ABOVE GROUND AND UNDERGROUND FACILITIES NOT SHOWN ON THE PLANS MAY BE ENCOUNTERED DURING THE COURSE OF THE WORK.
- THE CONTRACTOR SHALL PROTECT BUILDINGS, FENCES, APPURTENANCES, ABOVE GROUND UTILITIES, AND OTHER PROPERTY ADJACENT TO ALL CONSTRUCTION AREAS. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR REPAIRING ALL DAMAGE CAUSED BY CONSTRUCTION ACTIVITIES.
- IN ACCORDANCE WITH THE DEPARTMENT OF ECOLOGY AIR QUALITY STANDARDS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONTROLLING ALL FUGITIVE DUST THAT MAY BE GENERATED BY THE CONSTRUCTION PROJECT.
- THE CONTRACTOR SHALL CONTAIN WORK TO WITHIN RIGHT-OF-WAY OR THE CONSTRUCTION LIMITS AS ILLUSTRATED IN THE PLANS.
- THE CONTRACTOR SHALL SECURE NECESSARY PERMITS PRIOR TO STARTING CONSTRUCTION. CEDAR RIVER WATER & SEWER DISTRICT WILL OBTAIN SOME OF THE REQUIRED PERMITS. SEE SPECIAL PROVISIONS FOR FURTHER INFORMATION REGARDING PERMITS.
- ONSITE EROSION CONTROL MEASURES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND BE IN PLACE PRIOR TO CONSTRUCTION. ANY PROBLEMS OCCURRING BEFORE FINAL ACCEPTANCE BY CEDAR RIVER WATER & SEWER DISTRICT SHALL BE CORRECTED BY THE CONTRACTOR. UPON FINAL ACCEPTANCE BY CEDAR RIVER WATER & SEWER DISTRICT, OR AS OTHERWISE DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL REMOVE ALL TEMPORARY, NON-DEGRADABLE EROSION CONTROL MEASURES.
- ANY REVISIONS TO PLANS MUST BE MADE BY THE ENGINEER AND APPROVED BY CEDAR RIVER WATER & SEWER DISTRICT PRIOR TO ANY IMPLEMENTATION IN THE FIELD.
- A COPY OF THE ISSUED FOR CONSTRUCTION PLANS MUST BE ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.
- MATERIALS SAMPLING AND TESTING SHALL BE AT A FREQUENCY AND MAGNITUDE AS SPECIFIED IN THE STANDARD SPECIFICATIONS OR DETERMINED BY THE ENGINEER. A PRIVATE AND INDEPENDENT TESTING LABORATORY SHALL PERFORM TESTING AND SAMPLING. CERTIFIED TEST REPORTS SHALL BE FURNISHED FOR ALL TESTS PERFORMED BY PRIVATE TESTING LABORATORIES. CEDAR RIVER WATER & SEWER DISTRICT WILL BE RESPONSIBLE FOR ACCEPTANCE TESTING.

SECTION AND DETAIL REFERENCES

THE FOLLOWING CONVENTIONS HAVE BEEN USED WITHIN THESE DRAWINGS TO REFER THE READER BETWEEN THE SECTION/DETAIL AND THE PLAN FROM WHICH IT IS REFERENCED.

- REFERENCE BUBBLES**
- | | |
|--|---|
| | PLAN REFERENCE BUBBLE - REFERS READER BACK TO THE PLAN FROM WHICH THE DETAIL OR SECTION ORIGINATED. |
| | DETAIL/SECTION REFERENCE BUBBLE - REFERS READER TO THE DRAWING ON WHICH THE DETAIL OR SECTION IS LOCATED. |

WHERE: ID = SECTION/DETAIL REFERENCE NUMBER
= DRAWING NUMBER ON WHICH DETAIL ORIGINATED OR RESIDES.

SECTION/DETAIL REFERENCE NUMBER CONVENTIONS:
SECTIONS OR ELEVATIONS SHOULD HAVE A LETTER REFERENCE NUMBER (A THROUGH ZZ).

LEGEND

EXISTING LEGEND

- | | |
|--|------------------------------|
| | MONUMENT |
| | REBAR CAP |
| | SET CONTROL POINT |
| | VERTICAL PIPE |
| | WATER METER |
| | FIRE HYDRANT |
| | WATER VALVE |
| | WATER MANHOLE/VAULT |
| | FENCE POST/COLUMN |
| | CATCH BASIN |
| | CULVERT DAYLIGHT |
| | POWER TRANSFORMER |
| | POWER METER |
| | LUMINAIRE |
| | JUNCTION BOX |
| | ROCKERY |
| | TREE (CONIFER) |
| | TREE (DECIDUOUS) |
| | SHRUB |
| | UNDERGROUND TELEPHONE |
| | UNDERGROUND POWER |
| | STORM DRAIN LINE |
| | WATER LINE |
| | EASEMENT |
| | PROPERTY LINE |
| | RIGHT OF WAY CENTERLINE |
| | RIGHT OF WAY LINE |
| | BUILDING EDGE |
| | BUILDING OVERHANG |
| | APPROX. TREE DRIP-LINE |
| | CHAIN LINK FENCE |
| | ASPHALT SURFACE |
| | CONCRETE SURFACE |
| | GRAVEL SURFACE |
| | LANDSCAPING |
| | POTHOLE BY AWARDED CONTRACTO |

ABBREVIATIONS

CONC	CONCRETE	N	NORTHING
CL	CENTERLINE	PE	POLYETHYLENE
DIAM	DIAMETER	PROP	PROPOSED
DI	DUCTILE IRON	PVC	POLYVINYL CHLORIDE
DWG	DRAWING	R	RIGHT
E	EASTING	RT	RIGHT
ELEV	ELEVATION	SPEC	SPECIFICATIONS
EX	EXISTING	STD	STANDARD
L	LEFT	TYP	TYPICAL
LT	LEFT	W	WATER
LF	LINEAR FEET		



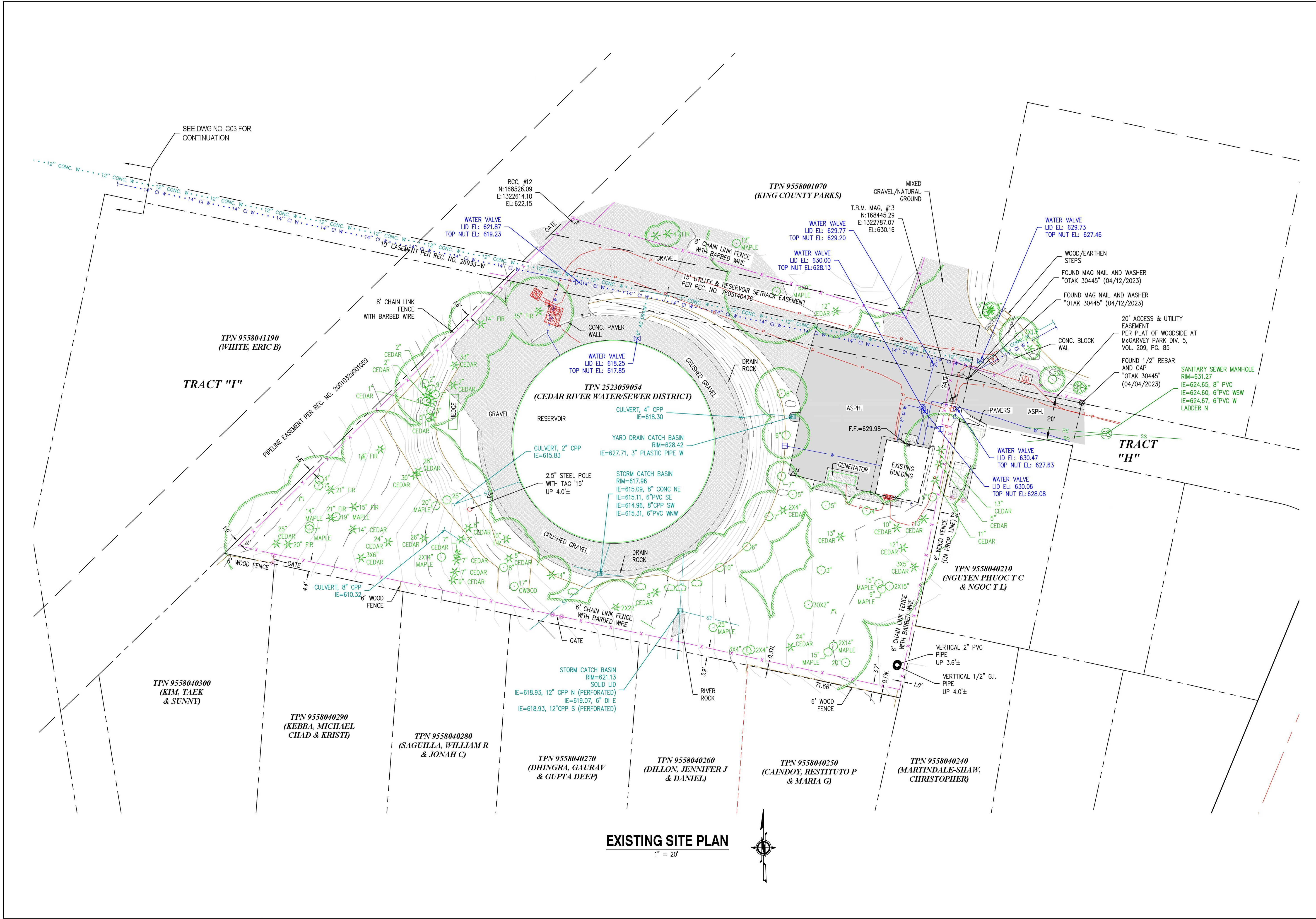
CEDAR RIVER WATER & SEWER DISTRICT
FAIRWOOD 2 RESERVOIR SEISMIC RETROFIT



GENERAL NOTES

NO.	DATE	DESCRIPTION	BY	REVIEW
1		BID SET		

SCALE: SHOWN	
0' 1' 2'	DRAWING IS FULL SCALE WHEN BAR MEASURES 2"
DWG NO.: G01	SHEET NO.: 02
	18



EXISTING SITE PLAN
1" = 20'

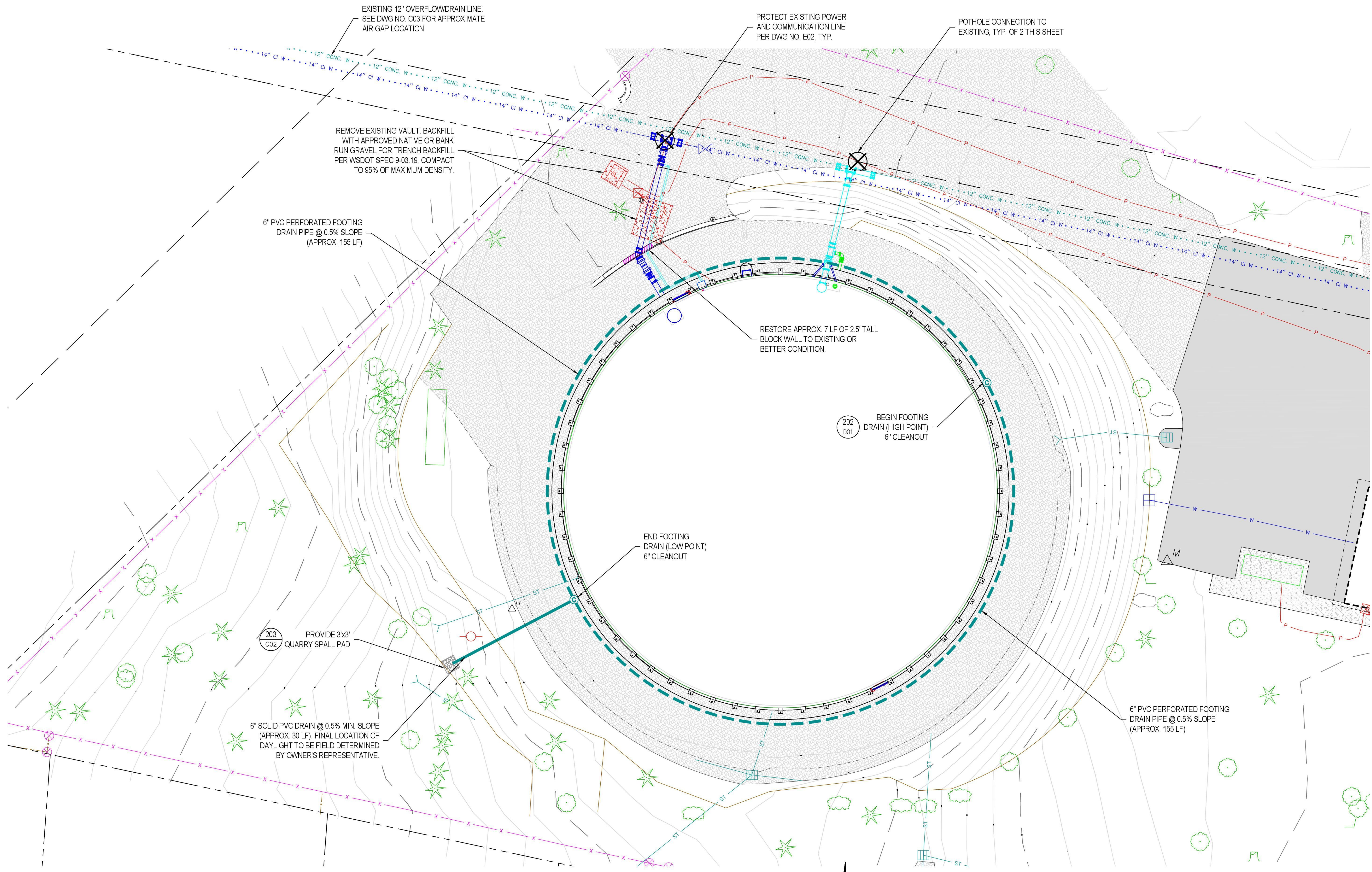


NO.	DATE	DESCRIPTION	BY	REVIEW

REVISIONS
BID SET

SCALE: SHOWN
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: C01 SHEET NO.: 03 18



PROPOSED SITE AND DRAINAGE PLAN
1" = 20'



RH2

STATE OF WASHINGTON
REGISTERED PROFESSIONAL ENGINEER
38889
SIGNED: 05/22/2026

DAVID J. MAZUR
STATE OF WASHINGTON
REGISTERED PROFESSIONAL ENGINEER
27844
SIGNED: 05/22/2026

CEDAR RIVER WATER & SEWER DISTRICT
FAIRWOOD 2 RESERVOIR SEISMIC RETROFIT

PROPOSED SITE AND DRAINAGE PLAN

NO.	DATE	DESCRIPTION	BY	REVIEW

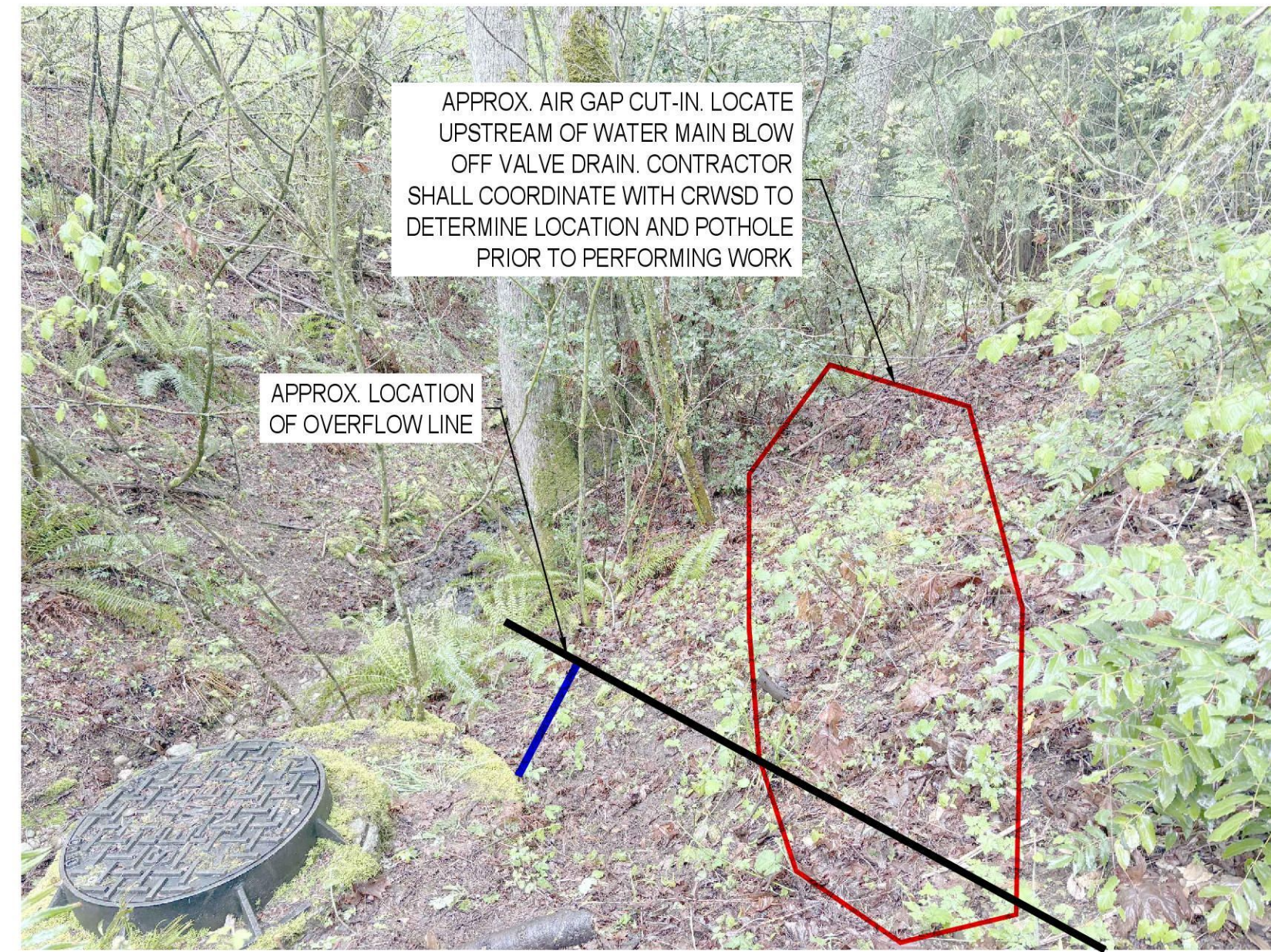
REVISIONS

BID SET

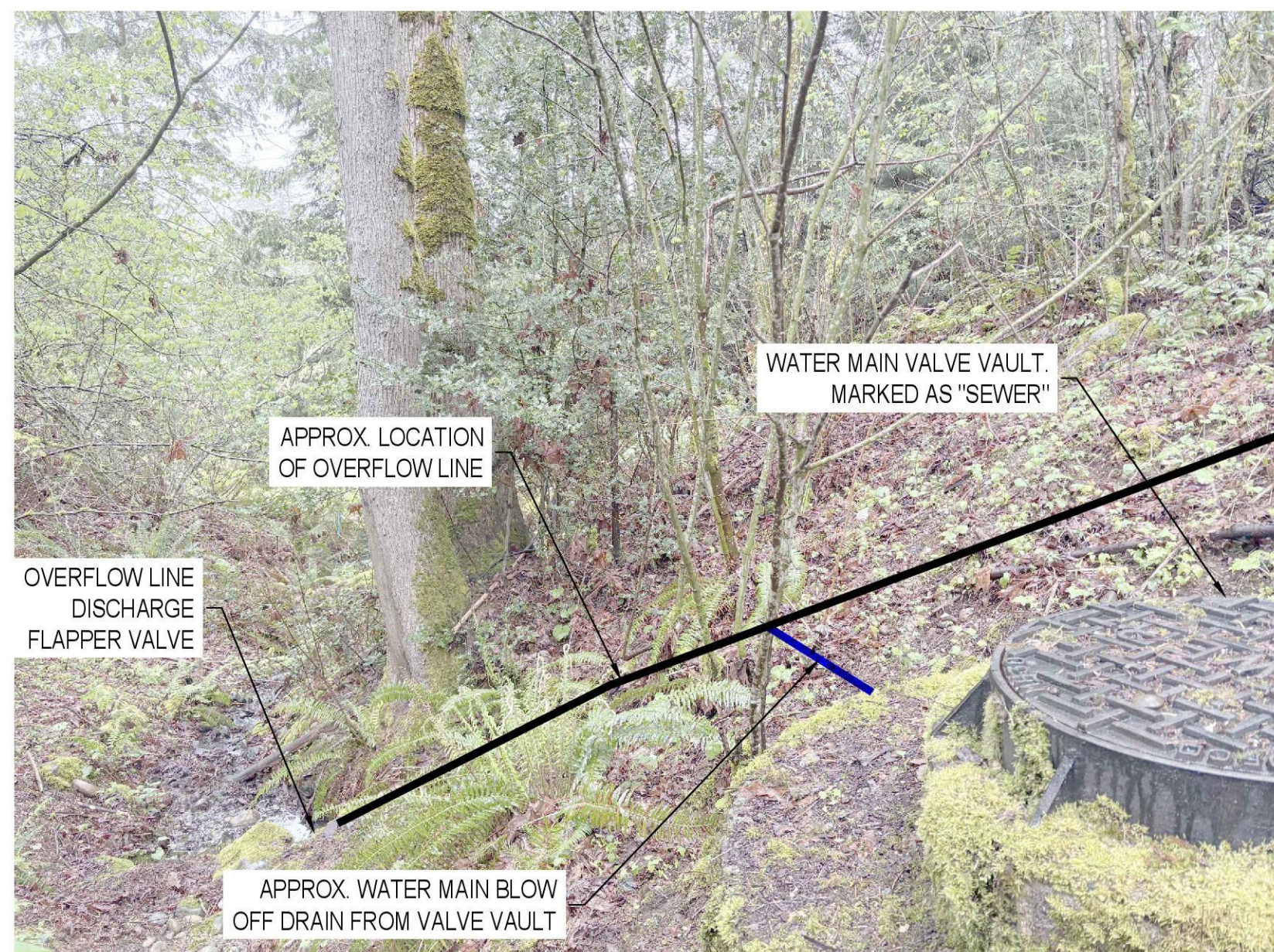
SCALE: SHOWN

DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

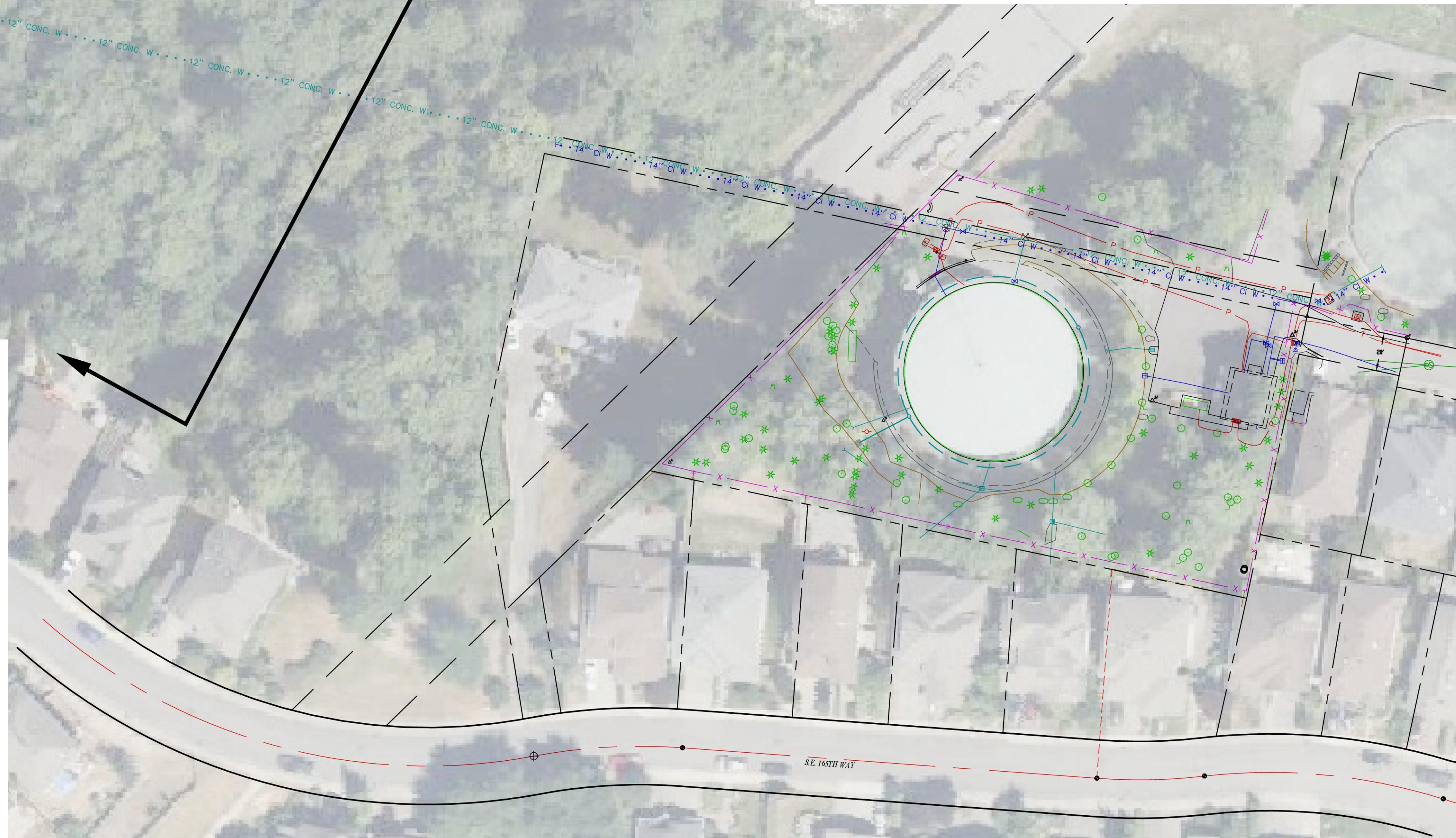
DWG NO.: **C02** SHEET NO.: **04** 18



EXISTING OVERFLOW LINE DISCHARGE PHOTO 2



EXISTING OVERFLOW LINE DISCHARGE PHOTO 1



FAIRWOOD RESERVOIRS
OVERFLOW LINE AIR GAP PLAN
NOT TO SCALE



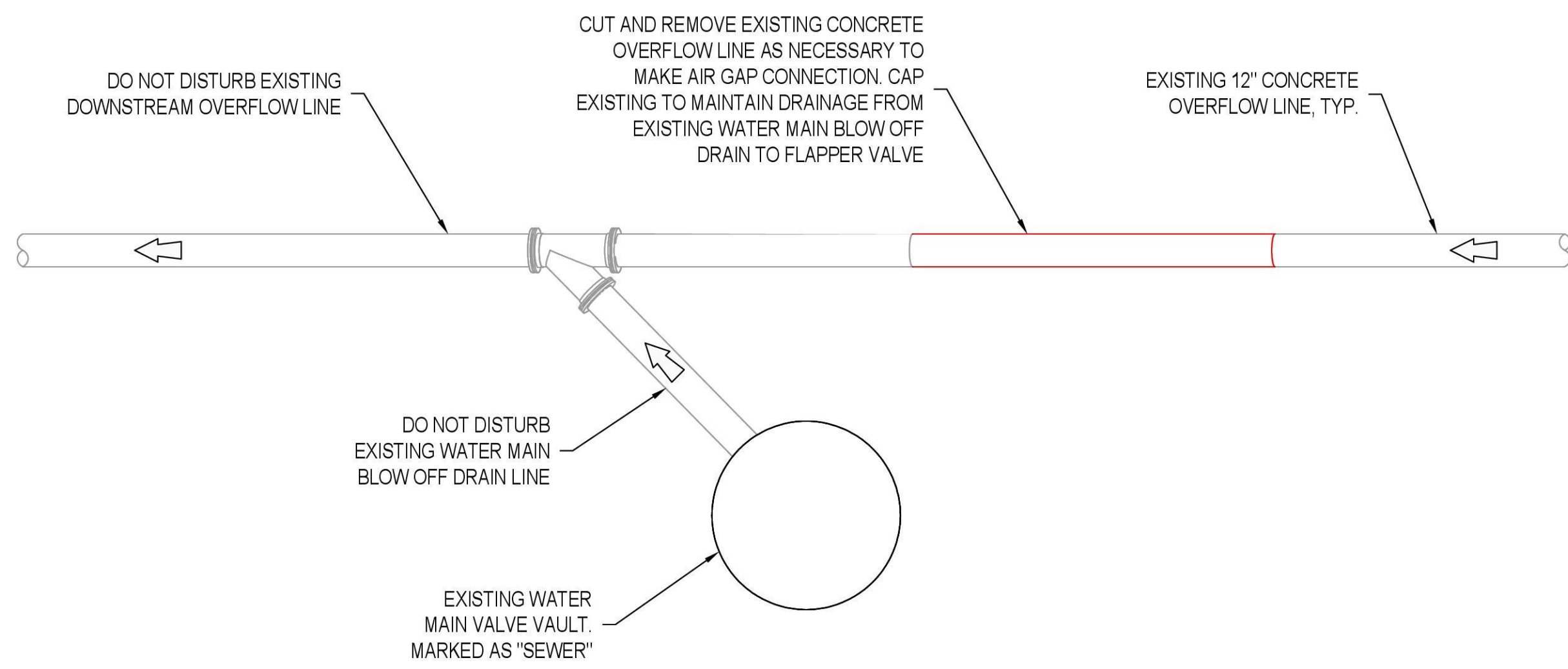
CEDAR RIVER WATER & SEWER DISTRICT
FAIRWOOD 2 RESERVOIR SEISMIC RETROFIT



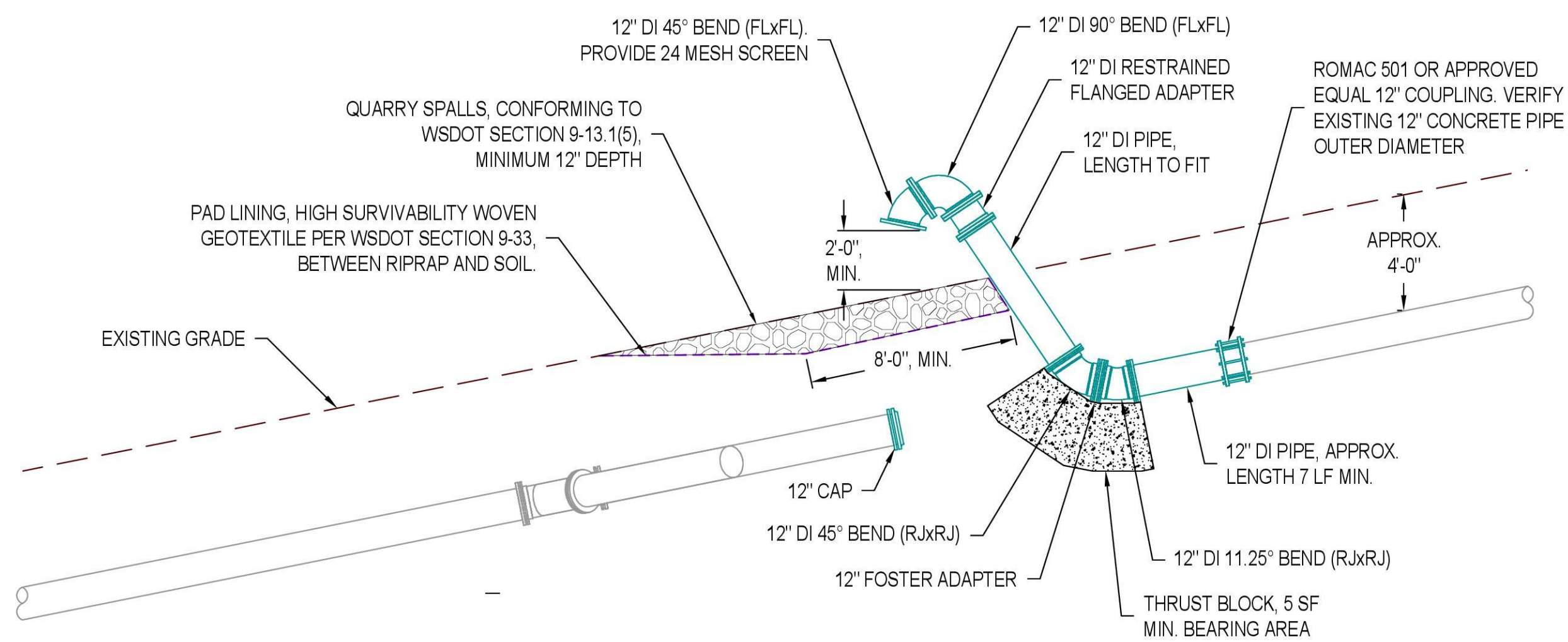
PROPOSED OVERFLOW LINE AIR GAP PLAN

NO.	DATE	DESCRIPTION	BY	REVIEW
REVISIONS				
BID SET				

ENGINEER: KJV	SWR DATE: Apr 23, 2026	CLIENT: CRWSD	JOB NO.: 22-0166
REVIEWED: DJM	PLOT DATE: May 22, 2026	FILE NAME: FWC-D-003.DWG	
DWG NO.: C03	SHEET NO.: 05	SCALE: SHOWN	
DRAWING IS FULL SCALE WHEN BAR MEASURES 2'		1" = 2'	
18			



EXISTING CONFIGURATION PLAN VIEW

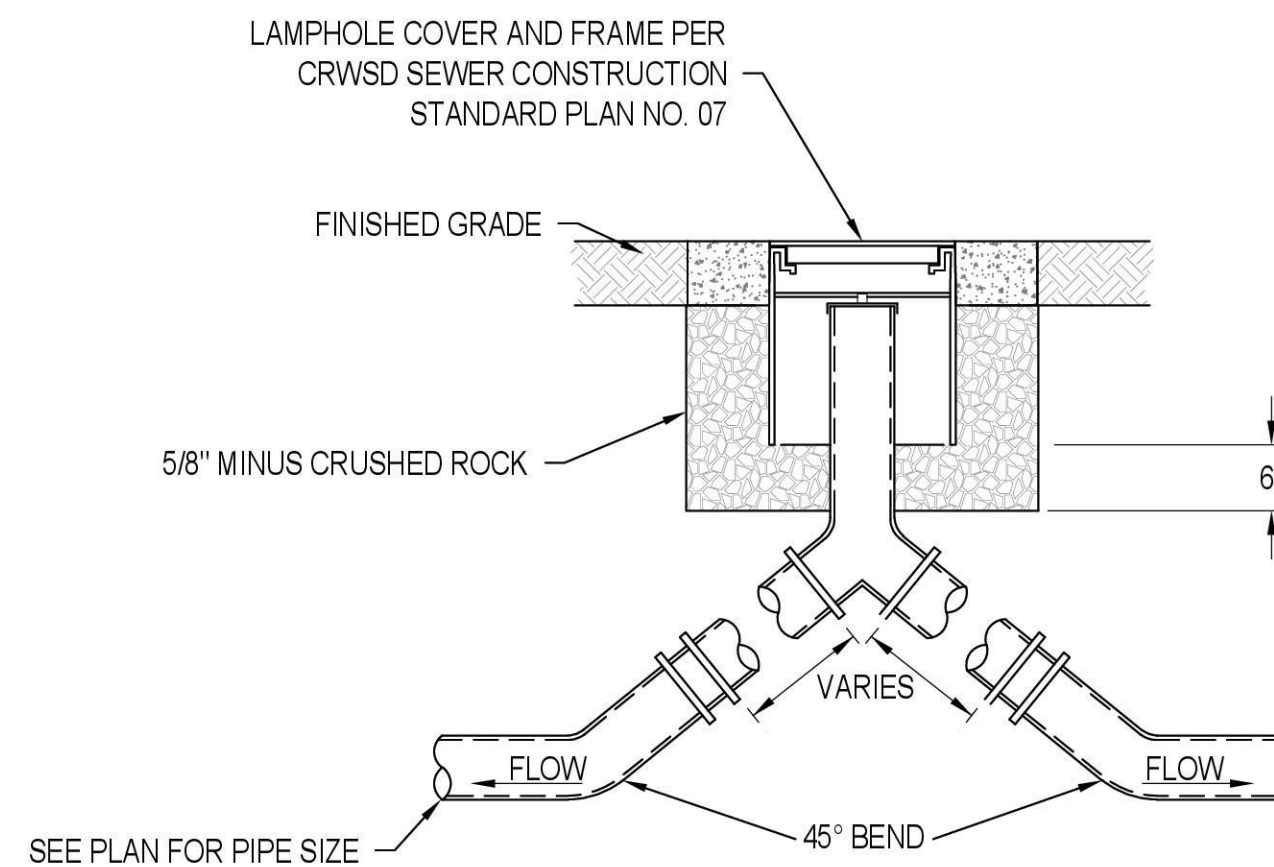


PROPOSED AIR GAP CONNECTION SECTION VIEW

AIR GAP CONNECTION DETAIL

NOT TO SCALE

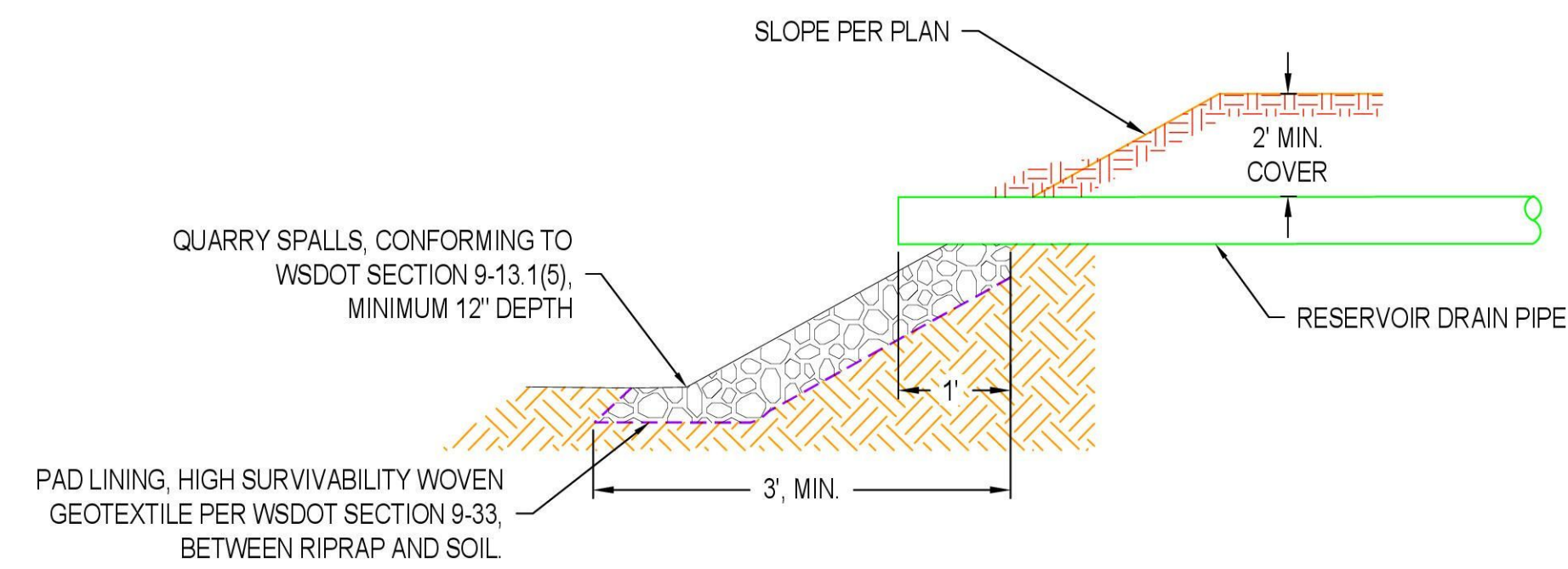
201
C03



6" HIGH POINT CLEANOUT

NOT TO SCALE

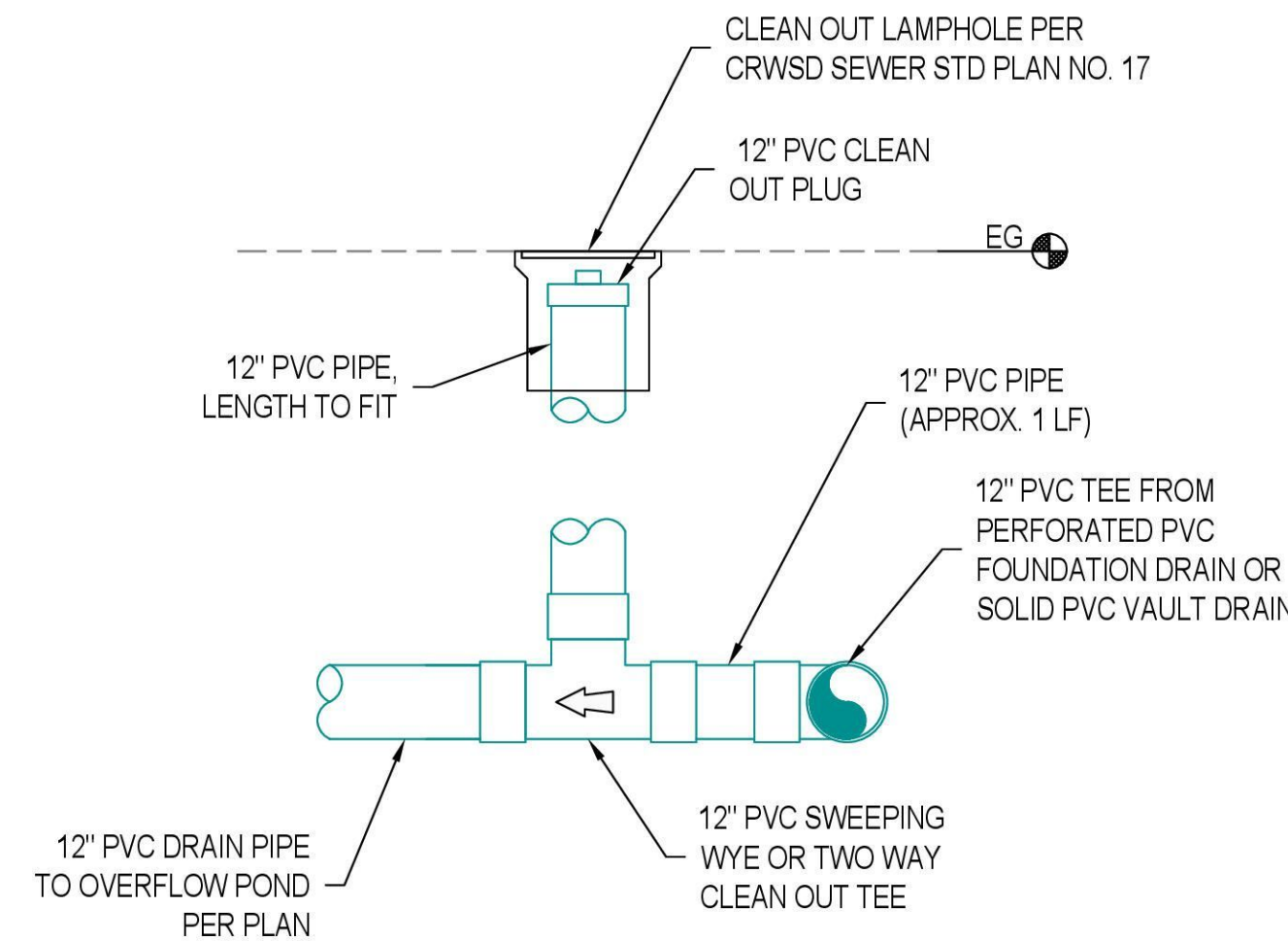
202
C02



FOOTING DRAIN OUTLET

NOT TO SCALE

203
C02



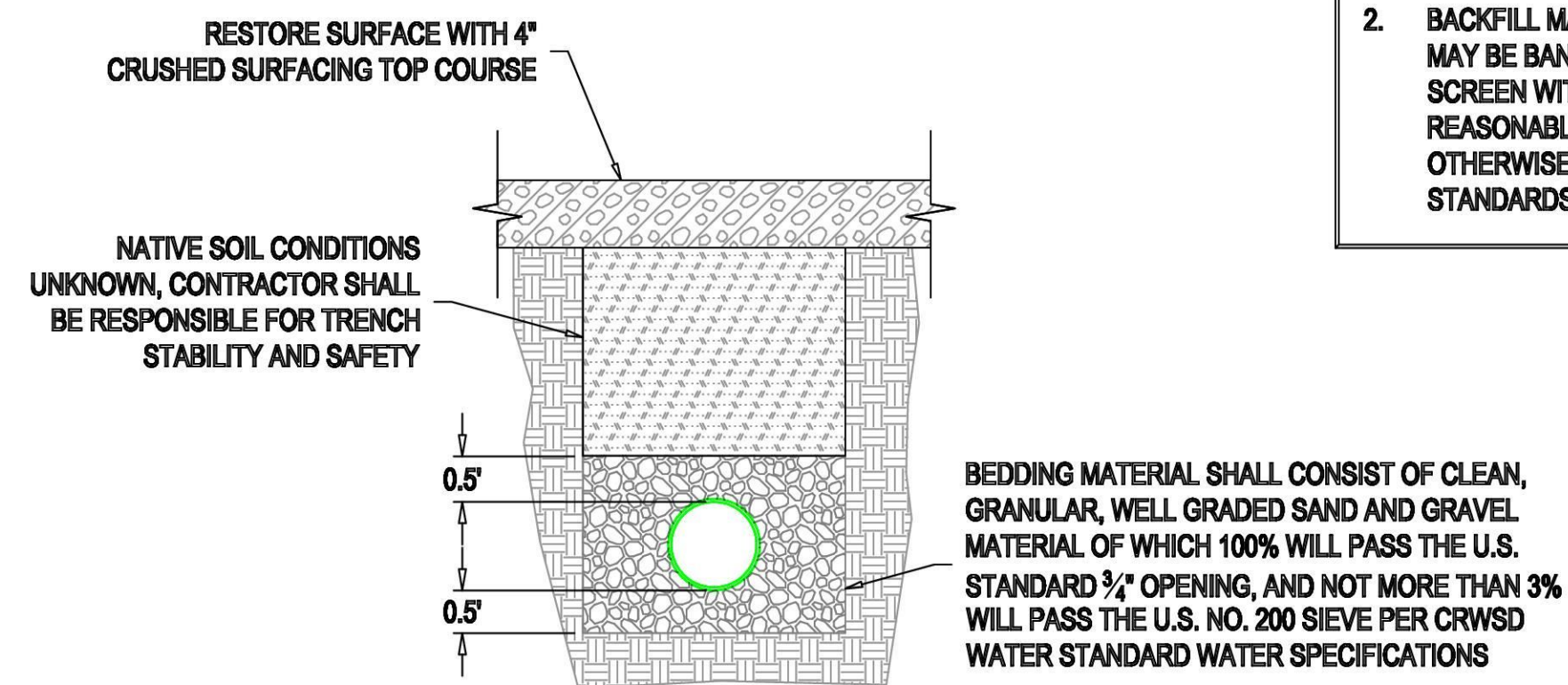
TYPICAL CLEANOUT DETAIL

NOT TO SCALE

204
C02

TRENCH NOTES

1. TRENCHING AND PIPE INSTALLATION SHALL MEET THE REQUIREMENTS OF WSDOT STANDARD SPECIFICATION AND THE CRWSD STANDARD SPECIFICATIONS FOR WATER WORKS CONSTRUCTION.
2. BACKFILL MATERIAL SHALL BE 100% 3" DIAMETER OR LESS, AND MAY BE BANK RUN WHICH HAS BEEN PASSED THROUGH A 3" SCREEN WITH A BINDER CONTENT OF NOT MORE THAN 20% AND REASONABLE GRADING FROM FINE TO COARSE (UNLESS OTHERWISE APPROVED BY THE ENGINEER) PER CRWSD STANDARDS.



TYPICAL TRENCH AND SURFACE RESTORATION DETAIL

NOT TO SCALE



CEDAR RIVER WATER & SEWER DISTRICT
FAIRWOOD 2 RESERVOIR SEISMIC RETROFIT



NO.	DATE	DESCRIPTION	BY	REVIEW
REVISIONS				
BID SET				

ENGINEER: KJV	DATE: APR 23, 2026	CLIENT: CRWSD	JOB NO.: 22-0156
REVIEWED: DJM	DATE: MAY 22, 2026	FILENAME: FWC-D-DET.DWG	
SCALE: SHOWN		DRAWING IS FULL SCALE WHEN BAR MEASURES 2"	
DWG NO.: D01	SHEET NO.: 06	18	

GENERAL

SCOPE
THE NOTES ON THIS SHEET AND THE STANDARD STRUCTURAL DETAILS ARE GENERAL AND APPLY TO THE ENTIRE PROJECT WHETHER SPECIFICALLY CALLED OUT OR NOT, EXCEPT WHERE THERE ARE SPECIFIC INDICATIONS TO THE CONTRARY ON STRUCTURAL SHEETS. IF THERE ARE QUESTIONS, THEY SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER AND ANSWERED IN WRITING PRIOR TO CONSTRUCTION.

APPLICABLE SPECIFICATIONS AND CODES

ALL MATERIALS, WORKMANSHIP, DESIGN, AND CONSTRUCTION SHALL CONFORM TO THE DRAWINGS, SPECIFICATIONS, ASCE 7-22 AND THE 2021 INTERNATIONAL BUILDING CODE.

GENERAL

LINES SHOWN ON DRAWINGS MAY BE ASSOCIATED WITH CAD MODELING AND MAY NOT REPRESENT REQUIRED OR ALLOWED JOINTS. SEE DETAILS FOR CLARIFICATION ON REQUIRED AND ALLOWED JOINTS.

APPLICABLE SHOP DRAWINGS AND STRUCTURAL CALCULATIONS SHALL BE STAMPED BY A PROFESSIONAL ENGINEER IN WASHINGTON STATE.

THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS OF EXISTING CONSTRUCTION AS REQUIRED TO COORDINATE NEW CONSTRUCTION. SUBMIT REQUIRED CHANGES FOR APPROVAL.

SAFETY

SAFETY AND STRUCTURAL STABILITY DURING CONSTRUCTION ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. STRUCTURES HAVE BEEN DESIGNED TO RESIST THE DESIGN LOADS ONLY AS COMPLETED STRUCTURE.

OPENINGS

OPENINGS FOR PIPES, DUCTS, CONDUITS, ETC. ARE NOT ALL SHOWN ON THE STRUCTURAL DRAWINGS. COORDINATE AND PROVIDE OPENINGS AS REQUIRED TO ACCOMMODATE ALL WORK SHOWN OR SPECIFIED IN TECH CONTRACT DOCUMENTS AND OTHERWISE REQUIRED FOR FURNISHING OF A FUNCTIONALLY COMPLETE PROJECT. REINFORCE AROUND OPENINGS PER STANDARD STRUCTURAL DETAILS UNLESS OTHERWISE SHOWN.

STANDARD DETAILS

THE STANDARD DETAILS DEPICT TYPICAL DETAILING TO BE USED ON THIS PROJECT. IF CONDITIONS ARE NOT EXPLICITLY SHOWN ON THE DRAWING THEY SHALL BE MADE SIMILAR TO THE STANDARD DETAILS. OBTAIN APPROVAL OF ENGINEER IN WRITING FOR SIMILAR CONDITIONS PRIOR TO CONSTRUCTION.

DEFERRED SUBMITTALS

THE FOLLOWING ITEMS HAVE BEEN DEFERRED FOR SUBMITTAL TO THE BUILDING OFFICIAL UNTIL AFTER ISSUANCE OF THE BUILDING PERMIT:

- MECHANICAL PIPING SUPPORTS AND LATERAL BRACING
- ANCHORAGE OF ELECTRICAL EQUIPMENT

SUBMITTAL DOCUMENTS FOR DEFERRED SUBMITTAL ITEMS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD, WHO SHALL REVIEW AND FORWARD THEM TO THE BUILDING OFFICIAL WITH A NOTATION INDICATING THAT THE DEFERRED SUBMITTAL DOCUMENTS HAVE BEEN REVIEWED AND FOUND TO BE IN GENERAL CONFORMANCE WITH THE DESIGN OF THE FACILITY.

THE DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED UNTIL THEIR DESIGN AND SUBMITTED DOCUMENTS HAVE BEEN APPROVED BY THE BUILDING OFFICIAL.

ABBREVIATIONS

ACI - AMERICAN CONCRETE INSTITUTE
AL - ALUMINUM
ASCE - AMERICAN SOCIETY OF CIVIL ENGINEERS
CHK - CHECKERED
CL - CENTERLINE
CLR - CLEAR
EA - EACH
EF - EACH FACE
EW - EACH WAY
FB - FLAT BAR
GR - GRADE
HORZ - HORIZONTAL
HDG - HOT-DIPPED GALVANIZED
IBC - INTERNATIONAL BUILDING CODE
LB - POUND
LLV - LONG LEG VERTICAL
MPH - MILES PER HOUR
O.C. - ON CENTER
PL - PLATE
PJF - PREMOLDED JOINT FILLER
PSF - POUNDS PER SQ FT
RB - ROUND BAR
RST - REINFORCING STEEL
SST - STAINLESS STEEL
T&B - TOP AND BOTTOM
VERT - VERTICAL

DESIGN CRITERIA

SITE LOCATION:
LATITUDE, LONGITUDE: 47.4162, -122.0741

DEAD LOADS:
GENERAL CONCRETE 150 PCF
GENERAL STEEL 490 PCF

LIVE LOADS:
WALKWAYS, STAIRS, GRATING 100 PSF, 300 LB CONCENTRATED
SLAB ON GRADE 250 PSF
ROOF LIVE LOAD 25 PSF

SNOW LOAD DATA:
GROUND SNOW LOAD, pg: 85 PSF (PER ASCE 7-22)
SNOW EXPOSURE FACTOR, Ce: 1.0
SNOW IMPORTANCE FACTOR, Is: 1.20
THERMAL FACTOR, Ct: 1.0
SLOPE FACTOR, Cs: 1.0
DRIFT SURCHARGE LOADS, pd: N/A
WIDTH OF SNOW DRIFTS, w: N/A

OTHER LOADS:

WIND DESIGN DATA:
BASIC WIND SPEED, V 109 MPH
RISK CATEGORY IV
WIND EXPOSURE B
APPLICABLE INTERNAL PRESSURE COEFFICIENT ±0.18
WIND PRESSURE FOR C&C N/A

EARTHQUAKE DESIGN DATA:
RISK CATEGORY(S) IV
RESERVOIR
SEISMIC IMPORTANCE FACTOR(S), Ie IV
RESERVOIR
MAPPED SPECTRAL RESPONSE PARAMETERS Sms = 1.64, Sm1 = 0.78
SITE CLASS D
DESIGN SPECTRAL RESPONSE PARAMETERS Sds = 1.09, Sd1 = 0.52
SEISMIC DESIGN CATEGORY D
BASIC SEISMIC FORCE RESISTING SYSTEM(S) STEEL PLATE RESERVOIR
RESERVOIR
DESIGN BASE SHEAR(S) 5435 KIPS
RESERVOIR
SEISMIC RESPONSE COEFFICIENT(S) Ai = 0.389, Ac = 0.118
RESERVOIR
RESPONSE MODIFICATION FACTOR(S), R Ri = 3.0, Rc = 1.5
RESERVOIR
ANALYSIS PROCEDURES USED AWWA D100-21 SECTION 13
RESERVOIR

GEOTECHNICAL INFORMATION:
THE FOLLOWING GEOTECHNICAL REPORT WAS USED FOR THIS PROJECT:

TECHNICAL MEMORANDUM BY RH2 ENGINEERING, INC.
REPORT DATE: OCTOBER 2021
ALLOWABLE SOIL BEARING: 2000 PSF
SOIL SITE CLASS: C TO D

REINFORCED CONCRETE

DESIGN STANDARDS AND REFERENCES:
GENERAL CONCRETE STRUCTURES: ACI 318-19

CONCRETE MIX DESIGNS:
SPEC 3.31 STRUCTURAL CONCRETE: F'C = 4500 PSI
SPEC 3.31.32 HYDRAULIC CONCRETE: F'C = 4500 PSI
REINFORCING STEEL: Fy = 60 KSI UNLESS NOTED OTHERWISE

CONCRETE COVER PROTECTION UNLESS OTHERWISE NOTED:
FOOTINGS AND OTHER UNIFORMED SURFACES CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3"

FORMED SURFACES EXPOSED TO EARTH (WALLS BELOW GRADE), WATER OR WEATHER (#6 BARS OR LARGER): 2"

COLUMN TIES OR SPIRALS AND BEAM STIRRUPS: 2"

SLABS AND INTERIOR FACES: 2"

SEE DRAWINGS FOR EXCEPTIONS

REINFORCING STEEL

REINFORCING STEEL SHALL BE DETAILED (INCLUDING HOOKS AND BENDS) IN ACCORDANCE WITH ACI 318-19 AND 318-14 LAP ALL REINFORCEMENTS IN ACCORDANCE WITH THE "REINFORCING SPLICE AND DEVELOPMENT LENGTH SCHEDULE" - SEE THIS SHEET. PROVIDE CORNER BARS AT ALL WALL INTERSECTIONS PER STRUCTURAL DETAILS. LAP ADJACENT MATS OF WELDED WIRE FABRIC A MINIMUM OF 8" AT SIDES AND ENDS.

ABSOLUTELY NO WELDING OF REINFORCING BARS OR TORCHING TO BEND REINFORCING BARS SHALL BE ALLOWED WITHOUT SPECIFIC APPROVAL FROM THE STRUCTURAL ENGINEER.

NO BARS PARTIALLY EMBEDDED IN HARDENED CONCRETE SHALL BE FIELD BENT UNLESS SPECIFICALLY DETAILED OR APPROVED BY THE STRUCTURAL ENGINEER.

EMBEDDED ITEMS AND PENETRATIONS
REFER TO OTHER DISCIPLINE DRAWINGS PRIOR TO CONSTRUCTION FOR EMBEDDED ITEMS AND PENETRATIONS NOT SHOWN ON STRUCTURAL DRAWINGS. AS REQUIRED TO ACCOMMODATE ALL WORK SHOWN OR SPECIFIED IN THE CONTRACT DOCUMENTS AND OTHERWISE REQUIRED FOR THE FURNISHING OF A FUNCTIONALLY COMPLETE PROJECT REINFORCE AROUND OPENINGS PER STANDARD STRUCTURAL DETAILS UNLESS OTHERWISE SHOWN.

JOINTS

CONTINUOUS WATERSTOP SHALL BE INSTALLED IN JOINTS SUBJECT TO STATIC WATER PRESSURE.

CONTRACTOR SHALL SUBMIT CONCRETE PLACEMENT PLAN IDENTIFYING JOINT TYPES, JOINT LOCATIONS AND CONCRETE PLACEMENT SEQUENCE.

CHAMFERS

PROVIDE 3/4" CHAMFERS AT ALL EXPOSED EDGES (AND 1/2" CHAMFERS AT JOINTS AS SHOWN) NOT ALL CHAMFERS MAY BE SHOWN ON DRAWINGS.

REINFORCEMENT SPLICE AND DEVELOPMENT SCHEDULE						
BAR	Ld, MINIMUM STRAIGHT DEVELOPMENT LENGTHS				MINIMUM LAP SPLICE LENGTHS	Ldh, MINIMUM HOOKED DEVELOPMENT LENGTHS
	BOT MIN	BOT OTHER	TOP MIN	TOP OTHER	CLASS B	
#3	14"	21"	18"	27"	1.3xLd	7"
#4	18"	27"	24"	35"	1.3xLd	9"
#5	23"	34"	30"	44"	1.3xLd	12"
#6	27"	41"	35"	53"	1.3xLd	14"
#7	40"	59"	51"	77"	1.3xLd	16"
#8	45"	68"	59"	88"	1.3xLd	18"
#9	51"	76"	66"	99"	1.3xLd	21"
#10	57"	86"	74"	111"	1.3xLd	23"
#11	63"	95"	82"	123"	1.3xLd	26"

REFERENCE: ACI 318-14 CHAPTER 25
 1.) REINFORCEMENT Fy = 60 KSI, CONCRETE F'C = 4500 PSI
 2.) REINFORCEMENT UNCOATED, NORMAL WEIGHT CONCRETE
 3.) "MIN" IF: CLEAR SPACING OF BARS OR WIRES BEING DEVELOPED OR LAP SPLICED NOT LESS THAN BAR DIA., CLEAR COVER AT LEAST BAR DIA., AND STIRRUPS OR TIES THROUGHOUT Ld NOT LESS THAN CODE MIN
 4.) "OTHER" IF: DOES NOT MEET REQUIREMENTS FOR MIN DEVELOPMENT LENGTH
 5.) "BOT" IF: LESS THAN 12" FRESH CONCRETE PLACED BELOW HORZ. REINFORCEMENT
 6.) "TOP" IF: MORE THAN 12" FRESH CONCRETE PLACED BELOW HORZ. REINFORCEMENT
 7.) CONTACT ENGINEER FOR ADJUSTED PARAMETERS

CONCRETE ANCHORS

ANCHOR BOLTS NOT SPECIFIED BY ENGINEER SHALL BE DESIGNED AND CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER RETAINED BY THE CONTRACTOR, IN ACCORDANCE WITH APPLICABLE PROJECT AND CODE REQUIREMENTS. SUBMIT AS A SHOP DRAWING FOR REVIEW AND APPROVAL BY THE ENGINEER. COORDINATE LOCATION, SIZE AND EMBEDMENT PRIOR TO CASTING CONCRETE.

ALL CAST IN PLACE AND POST-INSTALLED ANCHOR INDICATED IN THE STRUCTURAL DOCUMENTS SHALL COMPLY WITH CHAPTER 17 OF ACI 318 AND CHAPTER 19 OF ALL THE IBC. ALL EXPANSION AND ADHESIVE ANCHORS SHALL HAVE THE ICC REPORT SHOWING EQUIVALENT LOAD CAPACITY. SUBMIT AND INSTALL PER THE ICC EVALUATION REPORT

CONCRETE ANCHORS SHALL BE EITHER HILTI HIT-RE 500-V3 INJECTABLE MORTAR OR SIMPSON STRONG-TIE SET-XP ANCHORING ADHESIVE ADHESIVE ANCHORS AS SPECIFIED. WHERE SIZE IS CALLED OUT ON THE DRAWINGS, PROVIDE MINIMUM EMBEDMENT DEPTHS AS SHOWN ON THE FOLLOWING TABLES. PROVIDE MINIMUM EDGE DISTANCES AND SPACING AS SHOWN ON THE FOLLOWING TABLES UNLESS SPECIFICALLY DETAILED OTHERWISE. SPECIAL INSPECTION REQUIRED.

INSTALL ANCHORS IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

NOTIFY OWNER 48 HOURS IN ADVANCE OF INSTALLATION OF ALL ANCHORS.

WHERE SIZE IS NOT CALLED OUT, ANCHOR SHALL BE SELECTED BASED ON DESIGN LOADS. IF THE MINIMUM EDGE DISTANCE AND/OR MINIMUM SPACING CAN NOT BE ACHIEVED, REFER TO PRODUCT INFORMATION FOR REDUCTION IN ALLOWABLE LOADS.

CONCRETE ANCHORS					
HILTI HIT-RE 500-V3 AND SIMPSON STRONG-TIE SET-XP					
DIA. OF ROD (INCHES) OR REBAR SIZE NO.	MIN. EDGE DISTANCE (INCHES)	MIN. EMBEDMENT (INCHES)	MIN. ANCHOR SPACING (INCHES)	ALLOWABLE LOAD BASED ON BOND STRENGTH (POUNDS)	
				TENSION	SHEAR
1/2	2-1/2	2-3/4	2-1/2	1,027	2,210
5/8	3-1/8	3-1/8	3-1/8	1,312	2,827
3/4	3-3/4	3-1/2	3-3/4	1,556	3,351
7/8	4-3/8	3-1/2	4-3/8	1,556	3,351
#4	2-1/2	4-1/2	2-1/2	1,520	3,618
#5	3-1/8	5-5/8	3-1/8	1,775	5,494
#6	3-3/4	6-3/4	3-3/4	2,225	7,570
#7	4-3/8	7-7/8	4-3/8	2,440	9,428
#8	5	9	5	4,520	11,507



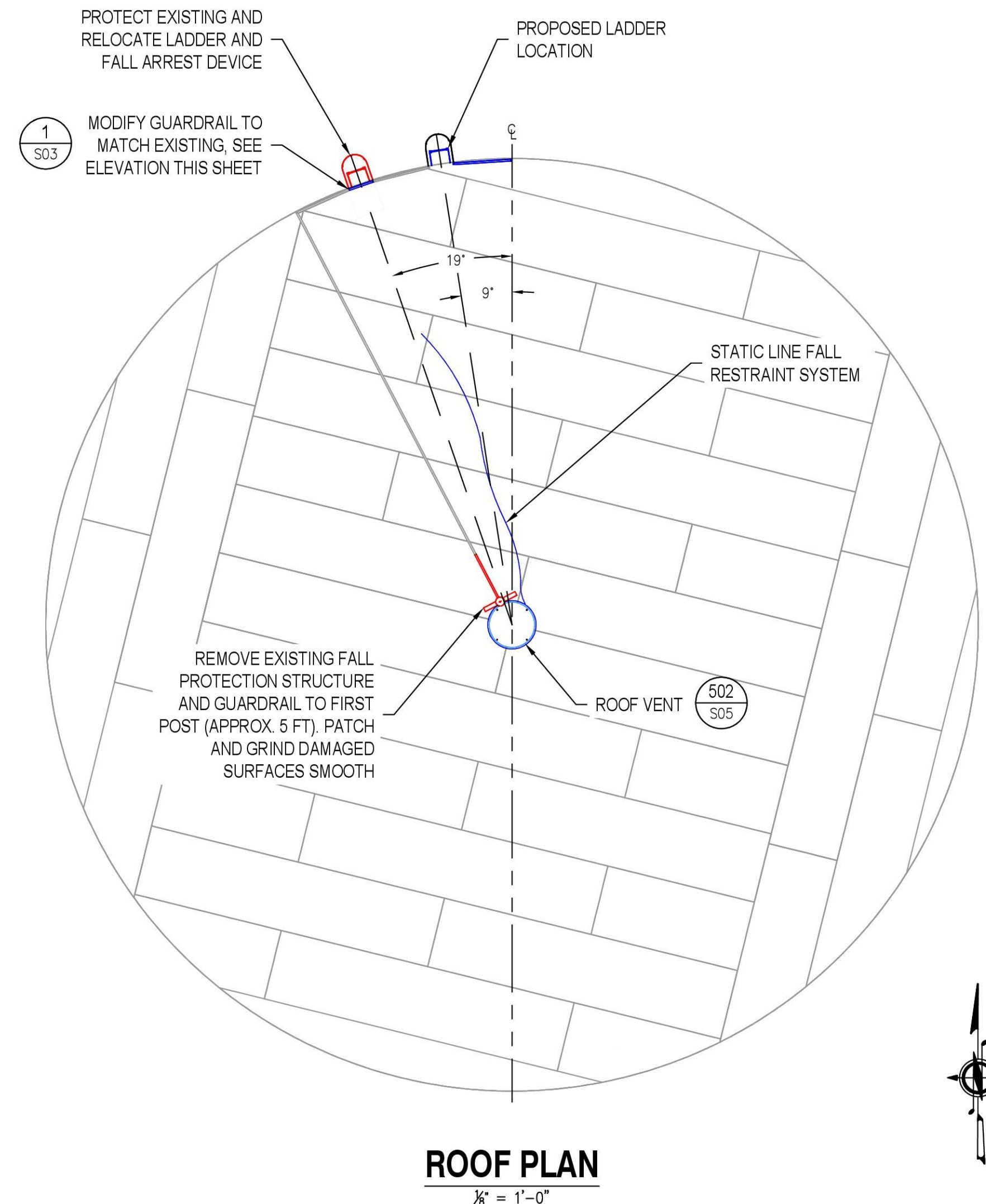
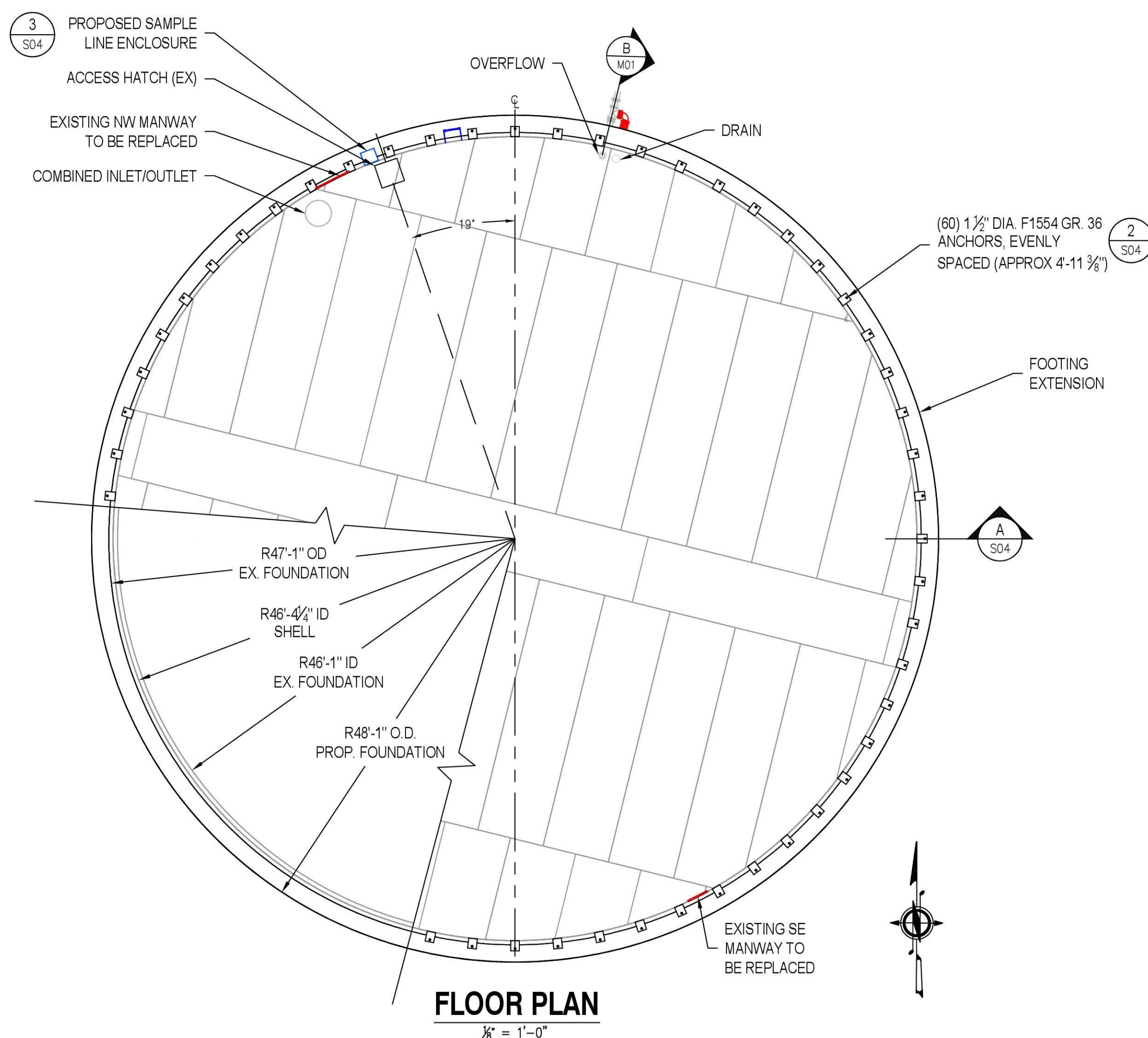
SIGNED: 05/22/2026

CEDAR RIVER WATER & SEWER DISTRICT
FAIRWOOD 2 RESERVOIR SEISMIC RETROFIT



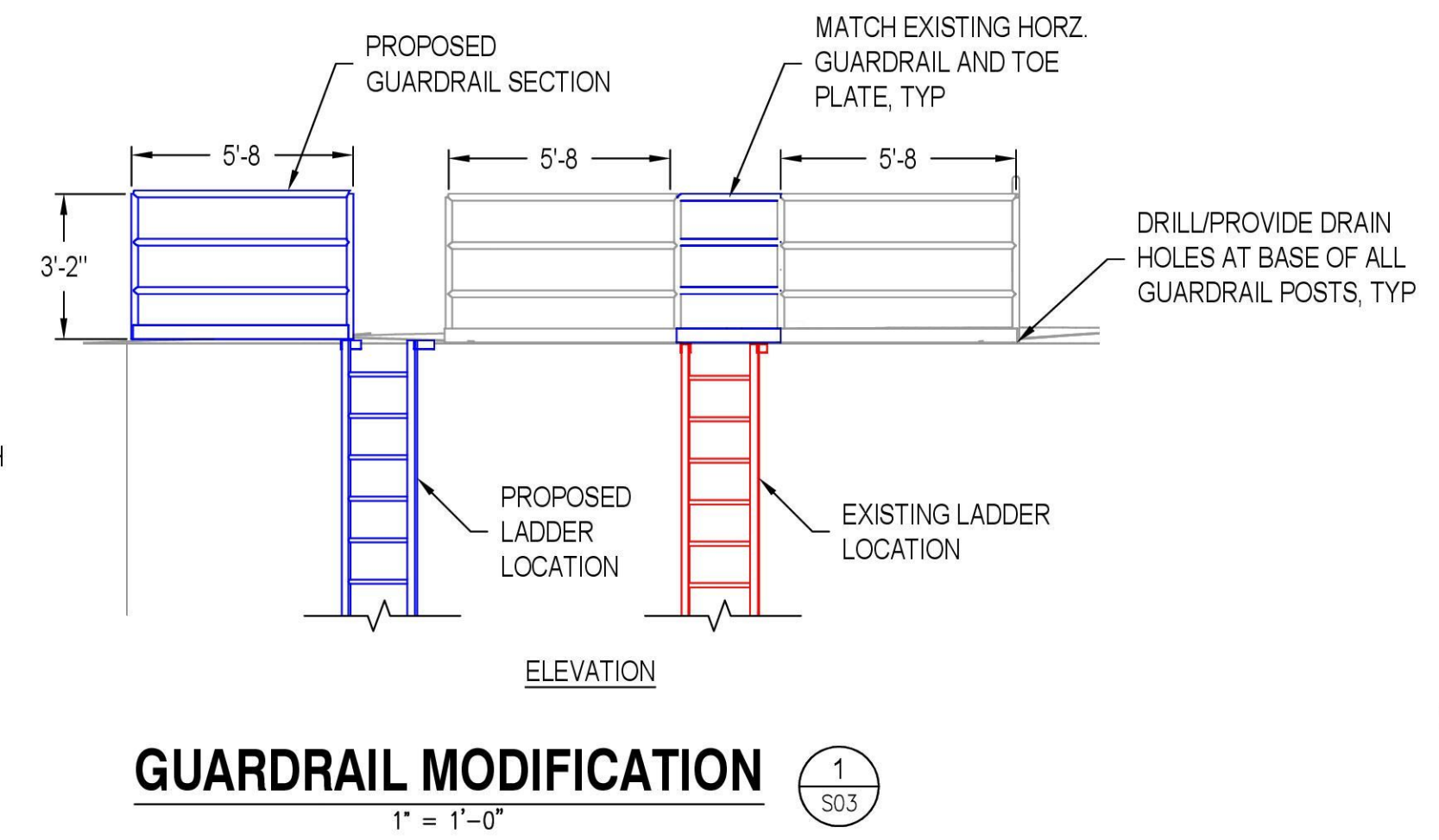
STRUCTURAL NOTES 1

ENGINEER: CPC	DATE: May 22, 2026	CLIENT: CRWSD	JOB NO.: 22-0166	NO.	DATE	DESCRIPTION	BY	REVIEW
REVIEWED: JMC	PLOT DATE: May 22, 2026	FILENAME: FWC-D-STRT01.DWG						
REVISIONS								
BID SET								
SCALE: SHOWN								
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"								
DWG NO.: S01			SHEET NO.: 07			18		

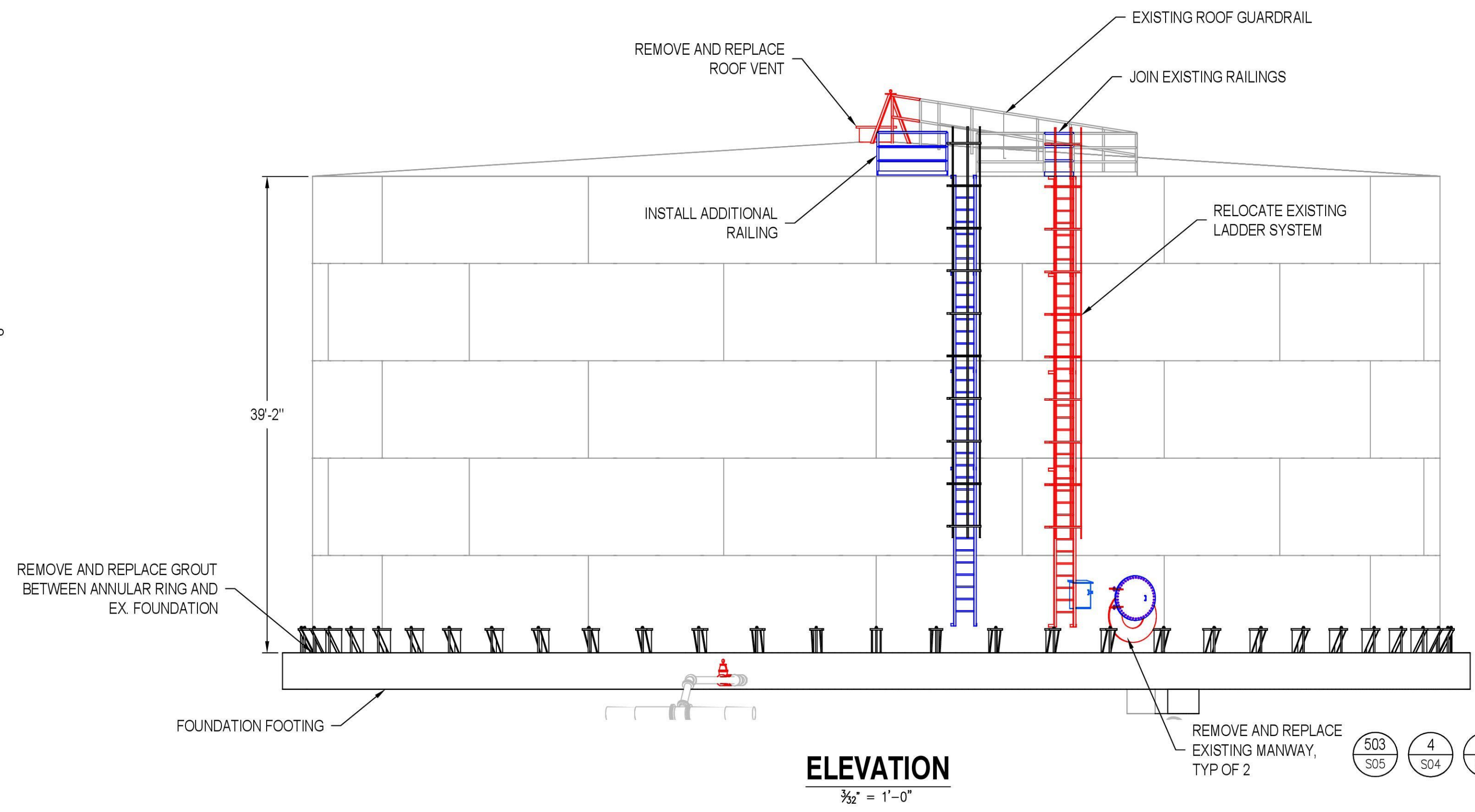


NOTE:
 PROVIDE SEAL WELDED NOZZLE AND FLANGE FOR PROPOSED ROOF VENT ATTACHMENT.

EXISTING ROOF VENT



NOTES:
 1.) GUARDRAILS SHALL HAVE SMOOTH TRANSITIONS BETWEEN VERTICAL AND HORIZONTAL POSTS.
 2.) CONTRACTOR TO VERIFY ALL EXISTING DIMENSIONS.



NO.	DATE	DESCRIPTION	BY	REVIEW
1	05/22/2026	BID SET		

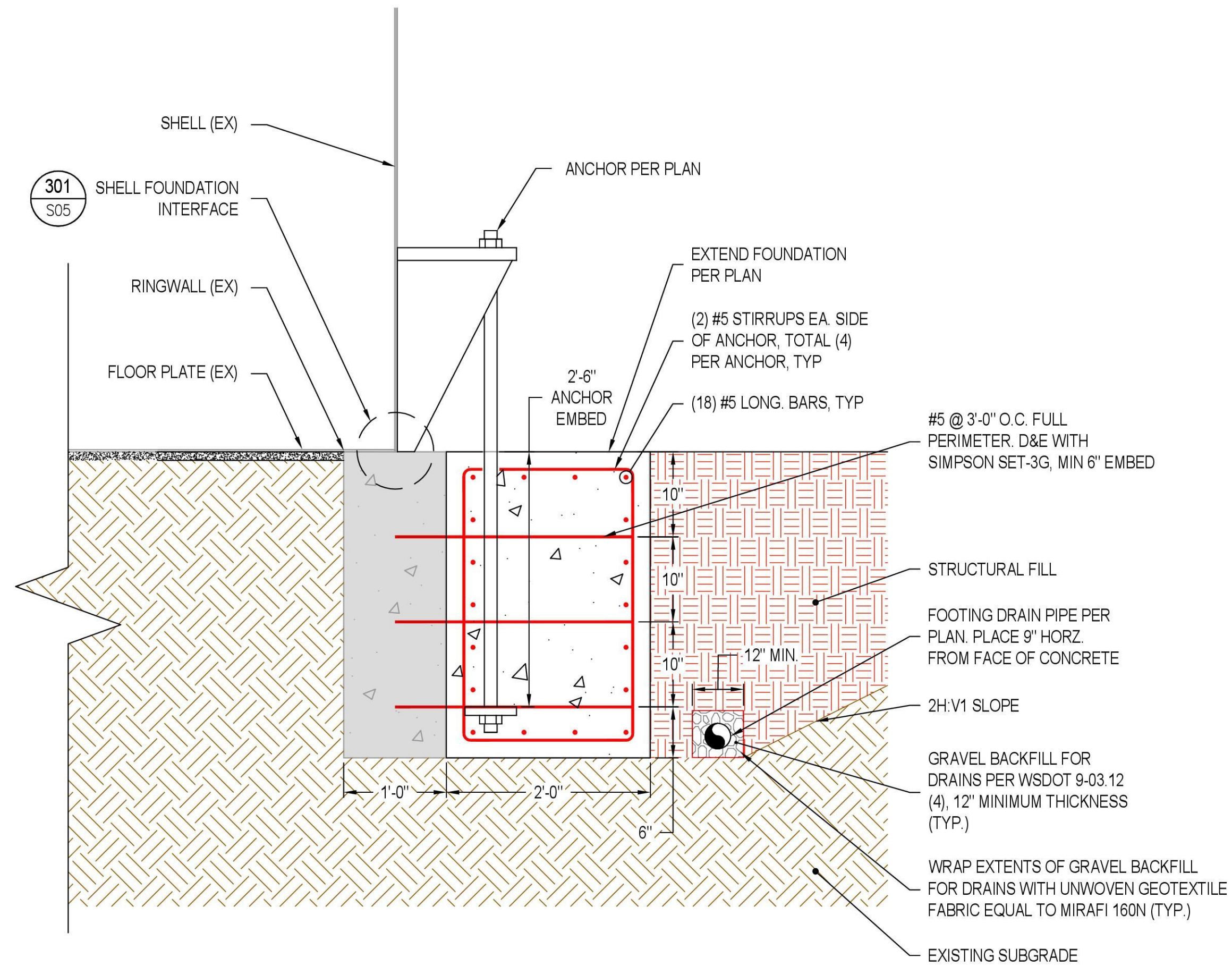
ENGINEER: CPC
 REVIEWED: JMC
 SW: DATE: May 22, 2026
 PLOT DATE: May 22, 2026
 CLIENT: CRWSD
 FILENAME: FWC-D-STR03.DWG
 JOB NO.: 22-0156

REVISIONS

SCALE: SHOWN

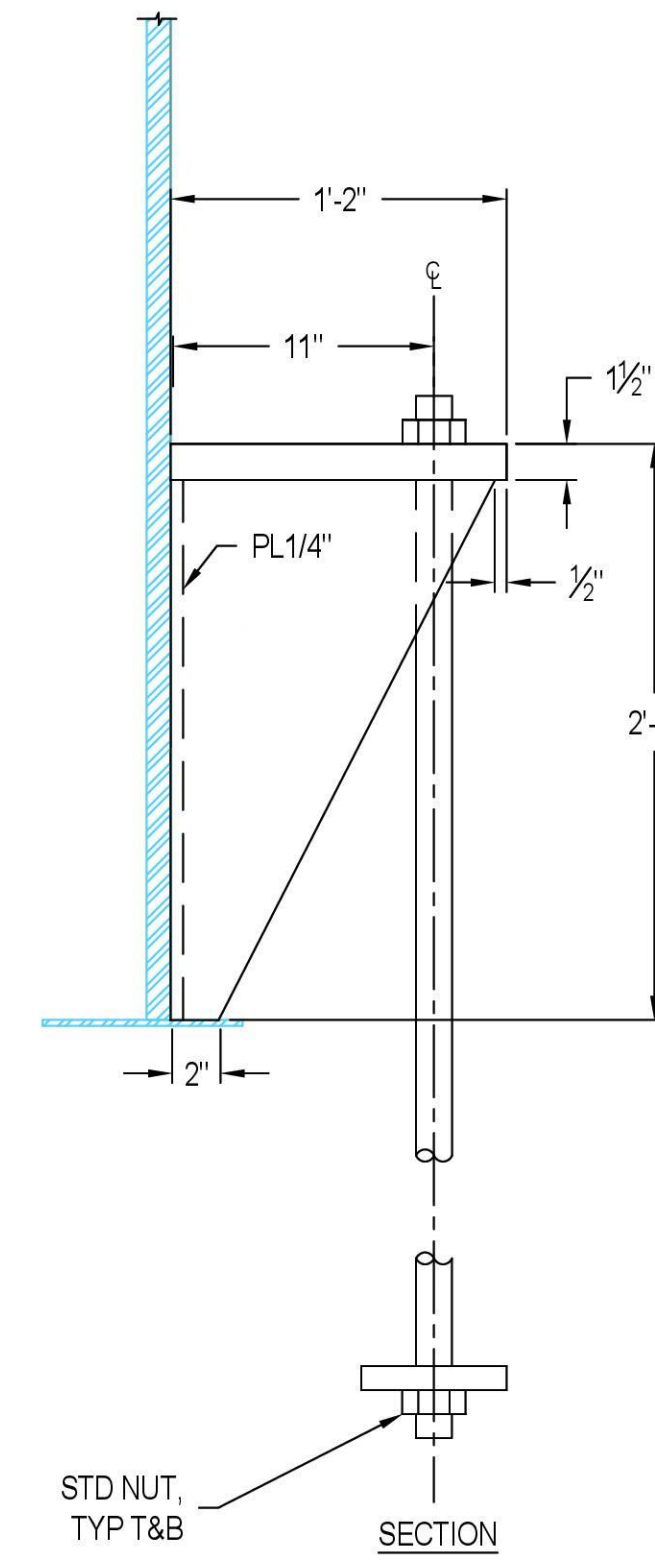
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: S03 SHEET NO.: 09 18



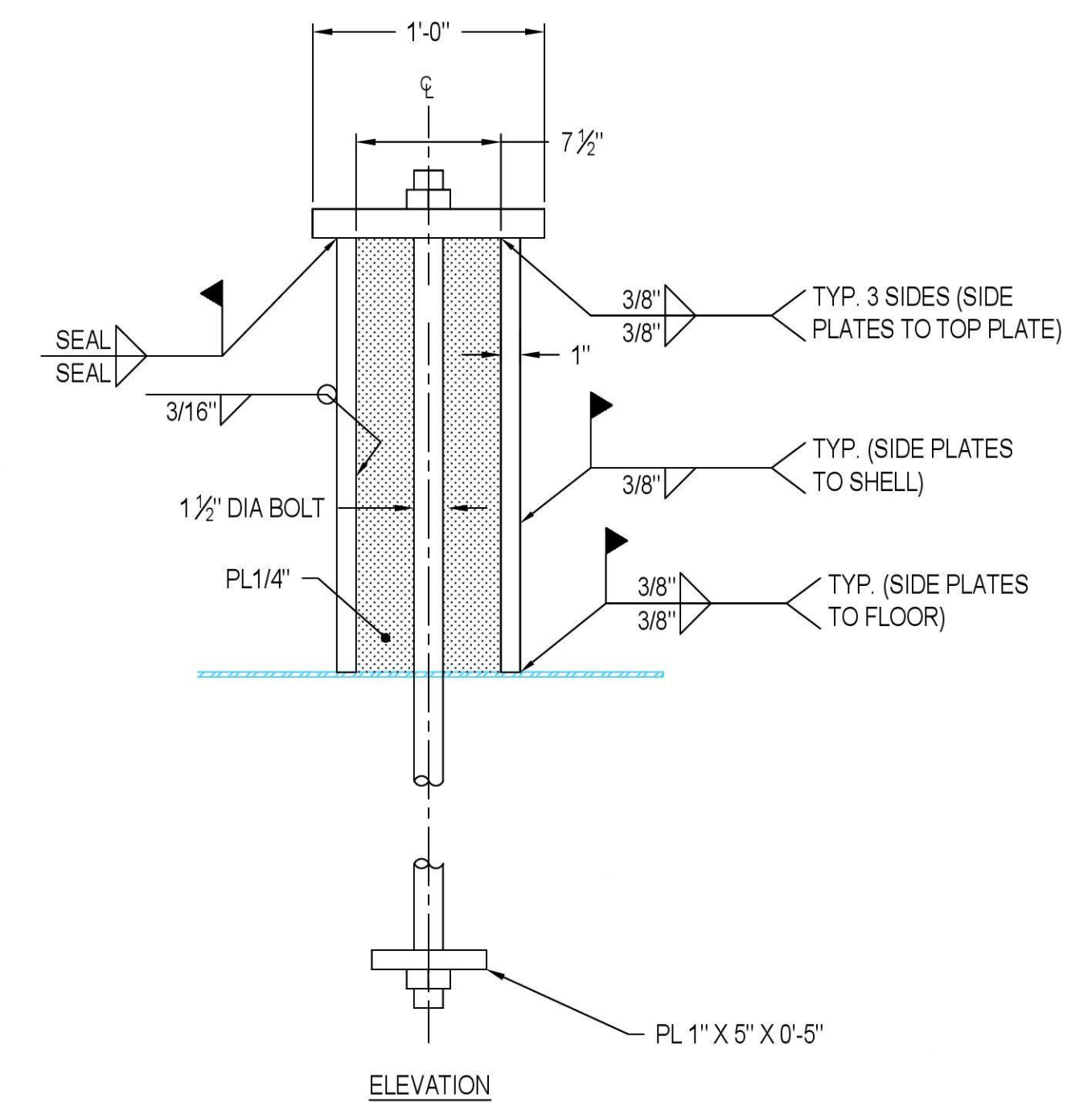
PROPOSED FOUNDATION SECTION
1" = 1'-0"

A
S03

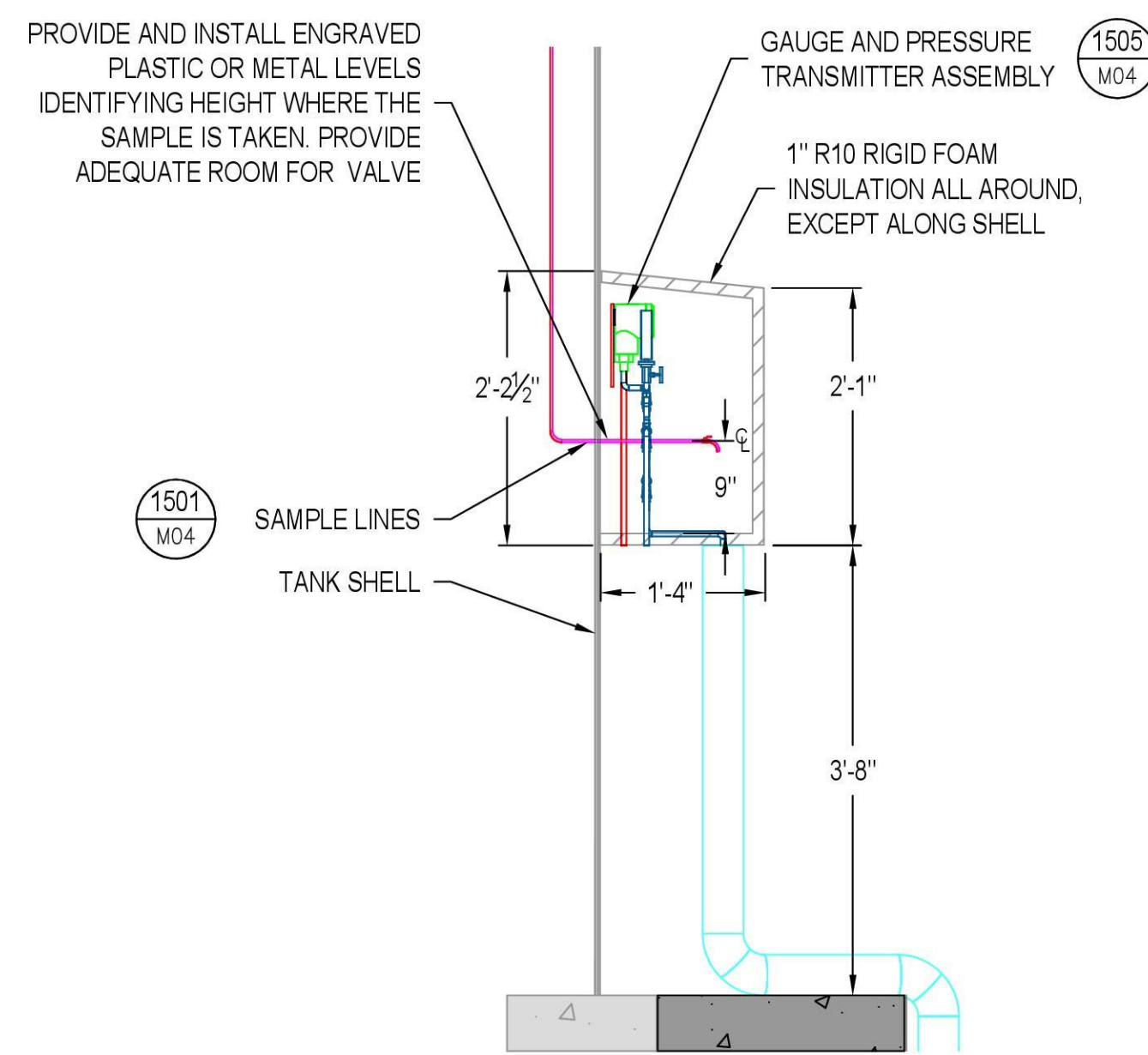


ANCHOR CHAIRS
1 1/2" = 1'-0"

2
S03



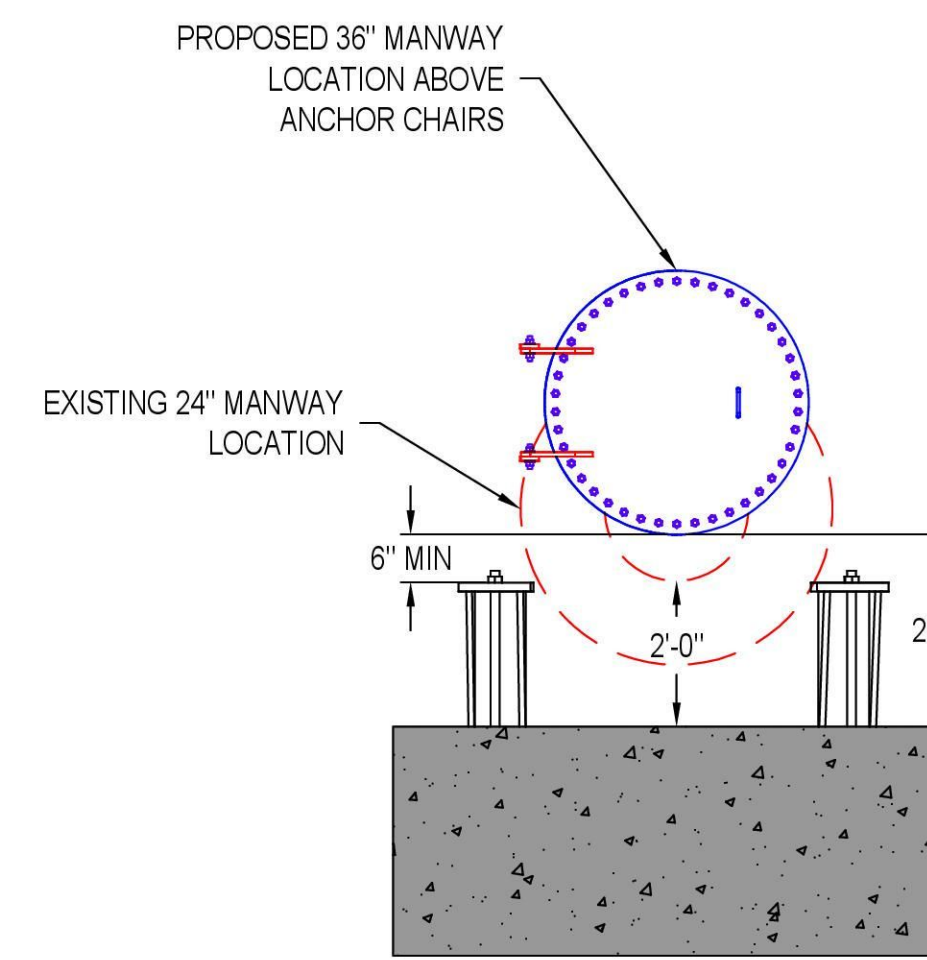
- NOTES:
- 1.) INTERIOR FACE OF CHAIR PLATES TO BE COATED PRIOR TO WELDING/INSTALLING TO RESERVOIR SHELL.
 - 2.) NEW ANCHORS AND CHAIRS TO BE COATED WITH RESERVOIR.
 - 3.) INTERIOR/EXTERIOR SHELL AREAS AFFECTED BY SEAL WELDING SHALL BE RECOATED.



SAMPLE LINE ENCLOSURE ELEVATIONS

3/8" = 1'-0"

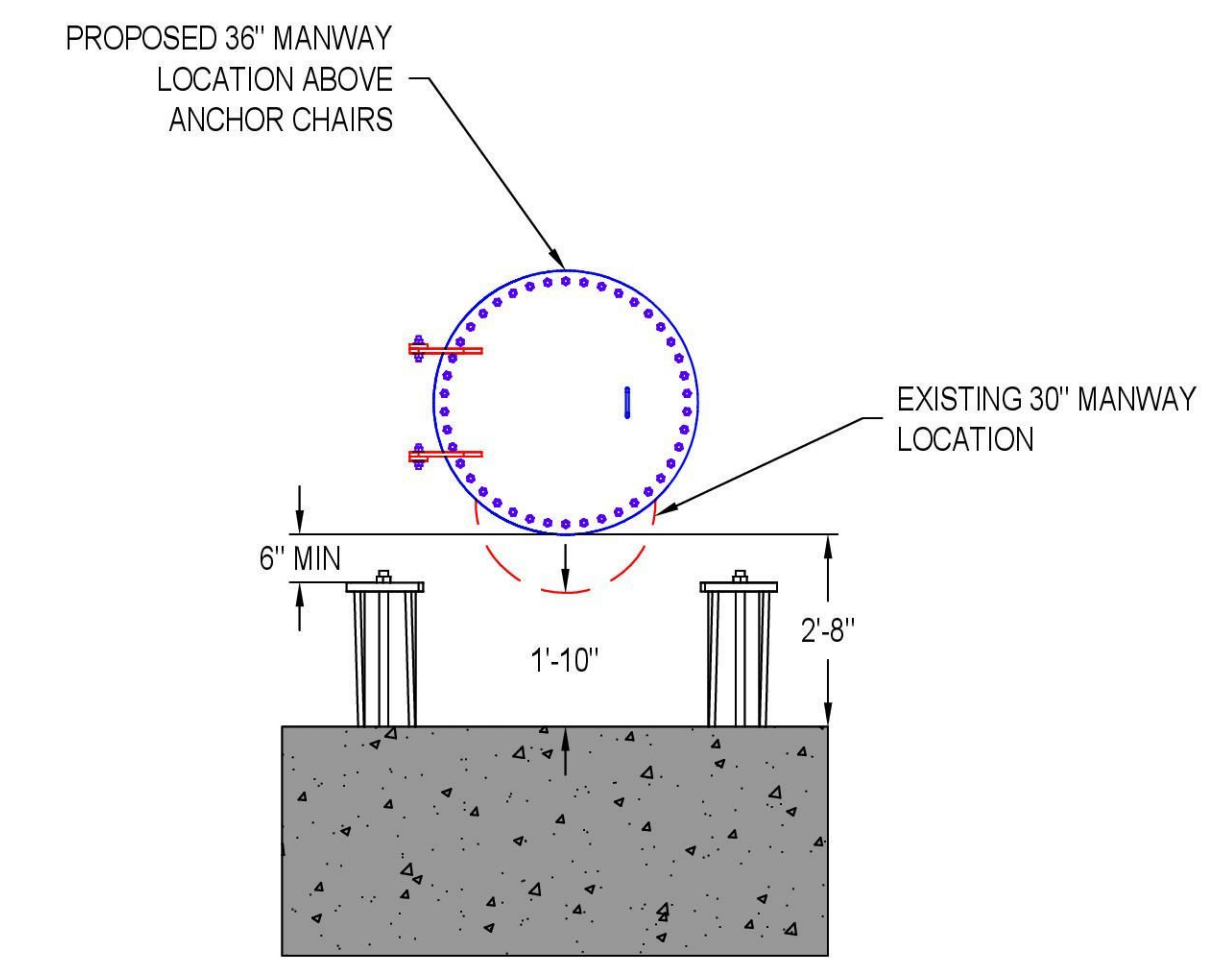
3
S03



SE MANWAY RELOCATION

3/8" = 1'-0"

4
S03



NW MANWAY RELOCATION

3/8" = 1'-0"

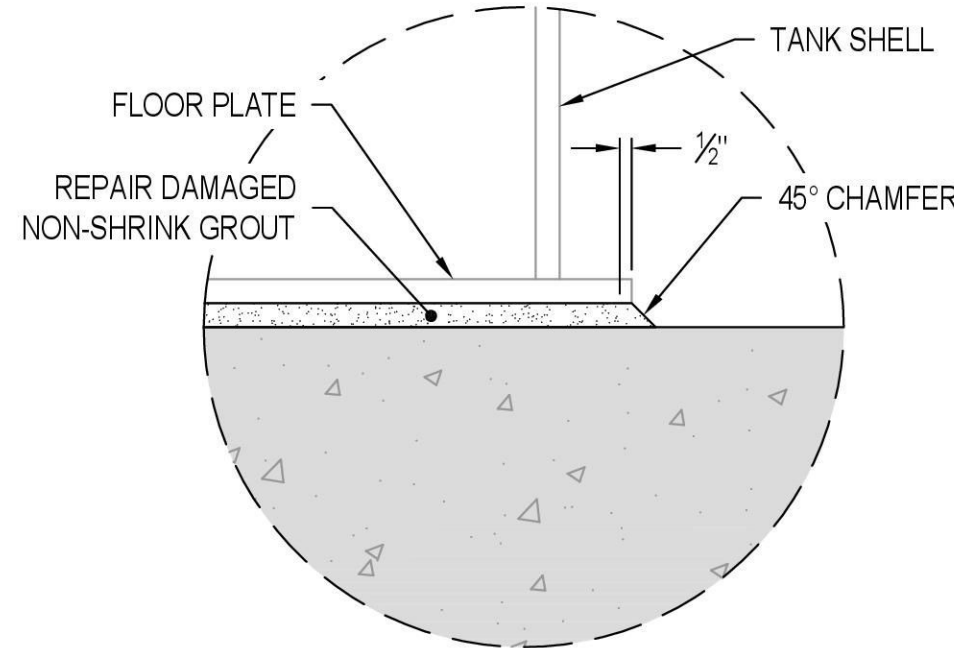
5
S03



NO.	DATE	DESCRIPTION	BY	REVIEW
1				
2				
3				
4				
5				

ENGINEER	CLIENT	JOB NO.
CPC	CRWSD	22-0166
REVIEWED	DATE	FILE NAME
JMC	May 22, 2026	FVCD-STRA-DWG
DWG NO.	SHEET NO.	TOTAL SHEETS
S04	10	18

SCALE: SHOWN
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"
DWG NO.: S04 SHEET NO.: 10 TOTAL SHEETS: 18

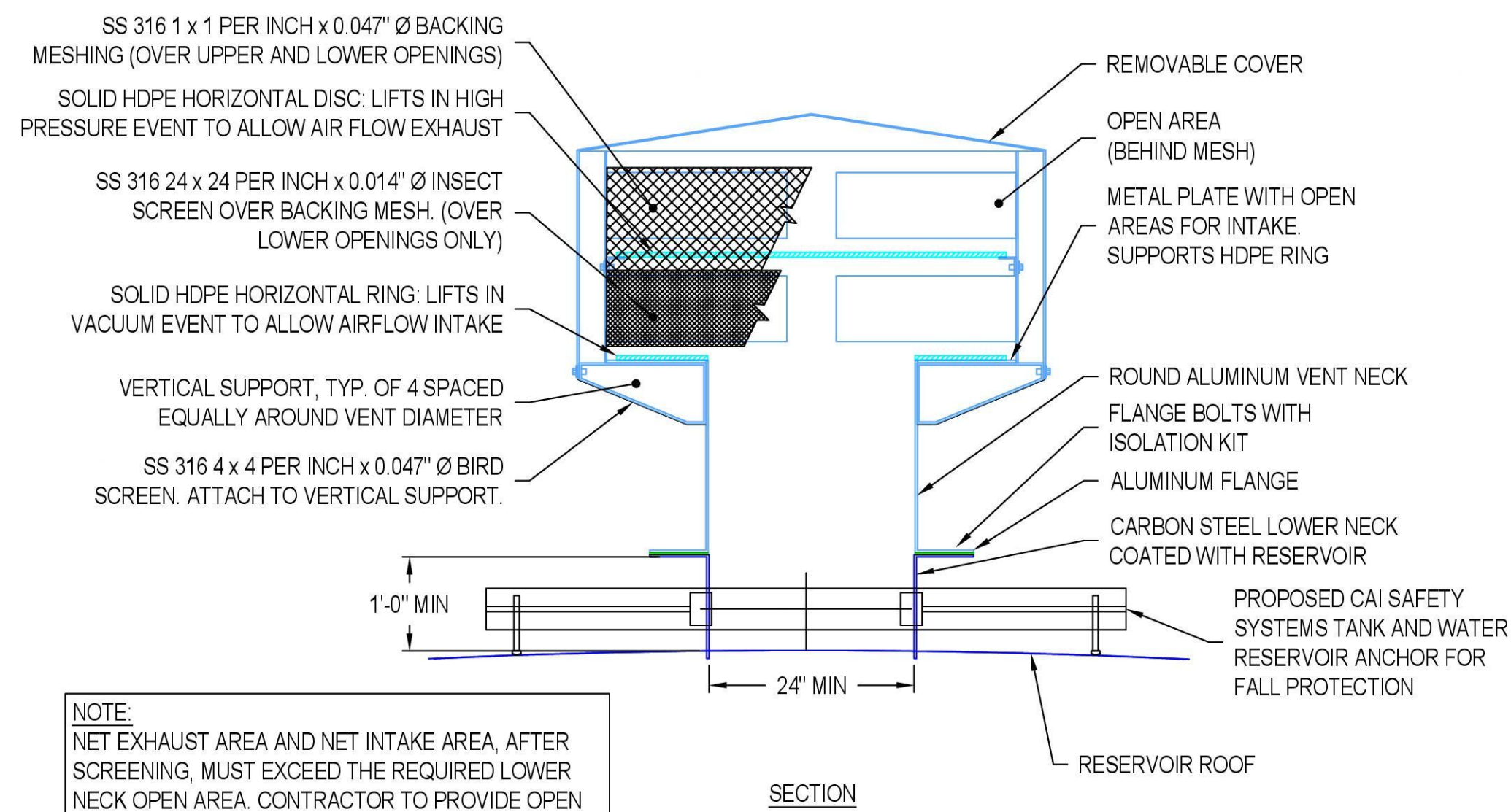


NOTE:
 1.) CONTRACTOR TO VERIFY LOCATIONS OF EXISTING GROUT DAMAGE
 2.) CRACKED OR LOOSE GROUT SHALL BE REMOVED AND REPAIRED PER DETAIL.

SHELL FOUNDATION INTERFACE

1/2" = 1'-0"

301
TYP

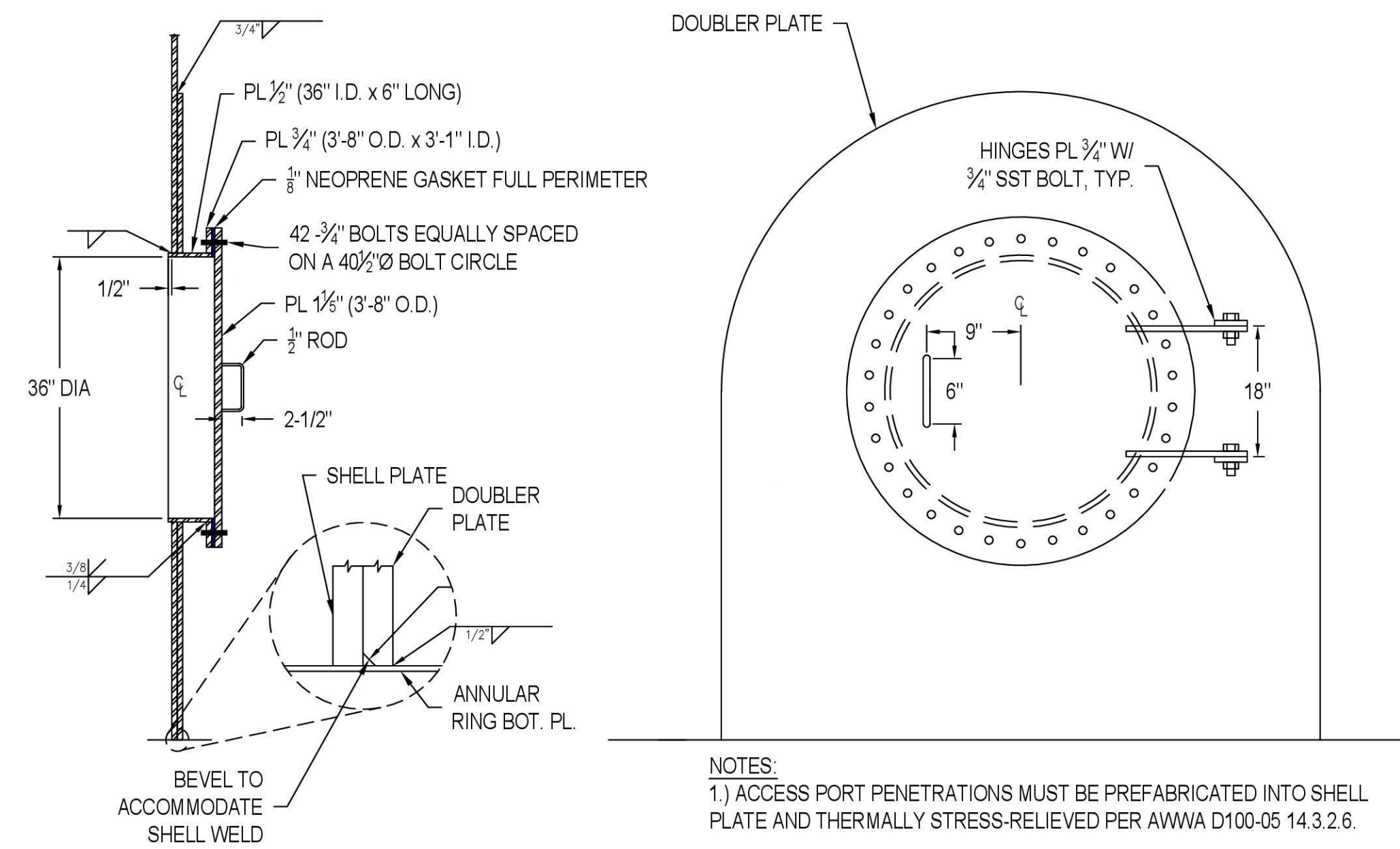


NOTE:
 NET EXHAUST AREA AND NET INTAKE AREA, AFTER SCREENING, MUST EXCEED THE REQUIRED LOWER NECK OPEN AREA. CONTRACTOR TO PROVIDE OPEN AREA CALCULATIONS WITH SUBMITTAL. THE TANK CONTRACTOR SHALL ENSURE ROOF FRAMING DOES NOT REDUCE THE REQUIRED OPEN AREA.

ROOF VENT

NTS

502
TYP



NOTES:
 1.) ACCESS PORT PENETRATIONS MUST BE PREFABRICATED INTO SHELL PLATE AND THERMALLY STRESS-RELIEVED PER AWWA D100-05 14.3.2.6.
 2.) DOUBLER PLATE MAY BE INSTALLED ON INTERIOR OR EXTERIOR OF SHELL TO AVOID CONFLICTS WITH ANCHORS.

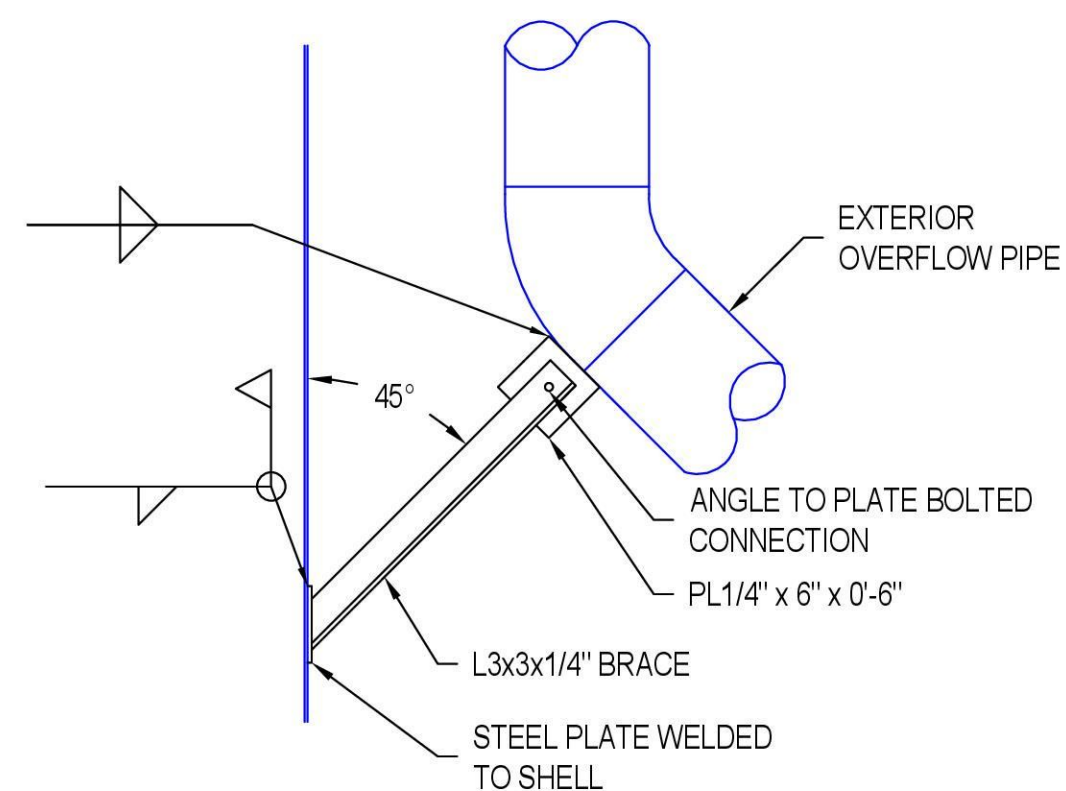
SECTION THROUGH 36" Ø ACCESS PORT

TYPICAL ACCESS PORT COVER

ACCESS PORT DETAILS

NTS

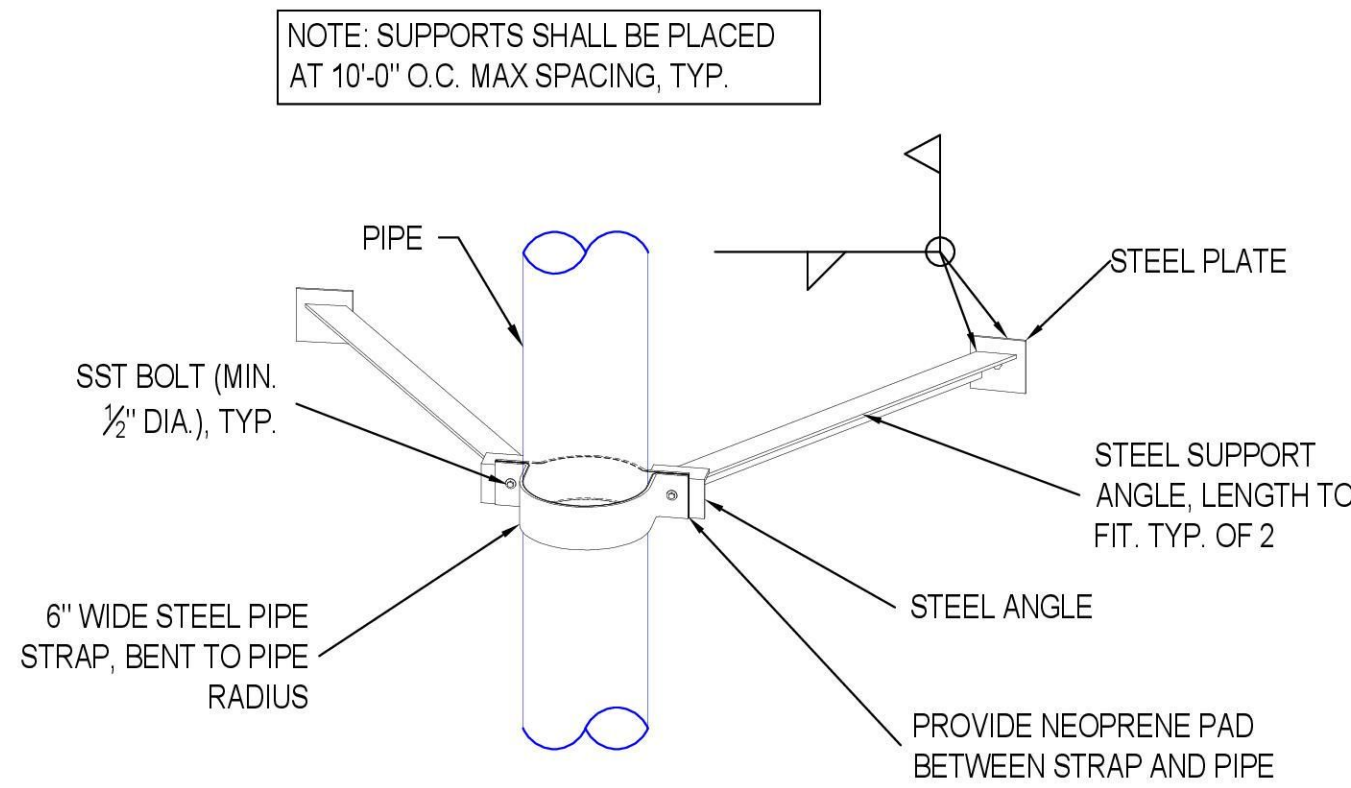
503
TYP



BASE PIPE SUPPORT

NTS

504
TYP



NOTE: SUPPORTS SHALL BE PLACED AT 10'-0" O.C. MAX SPACING, TYP.

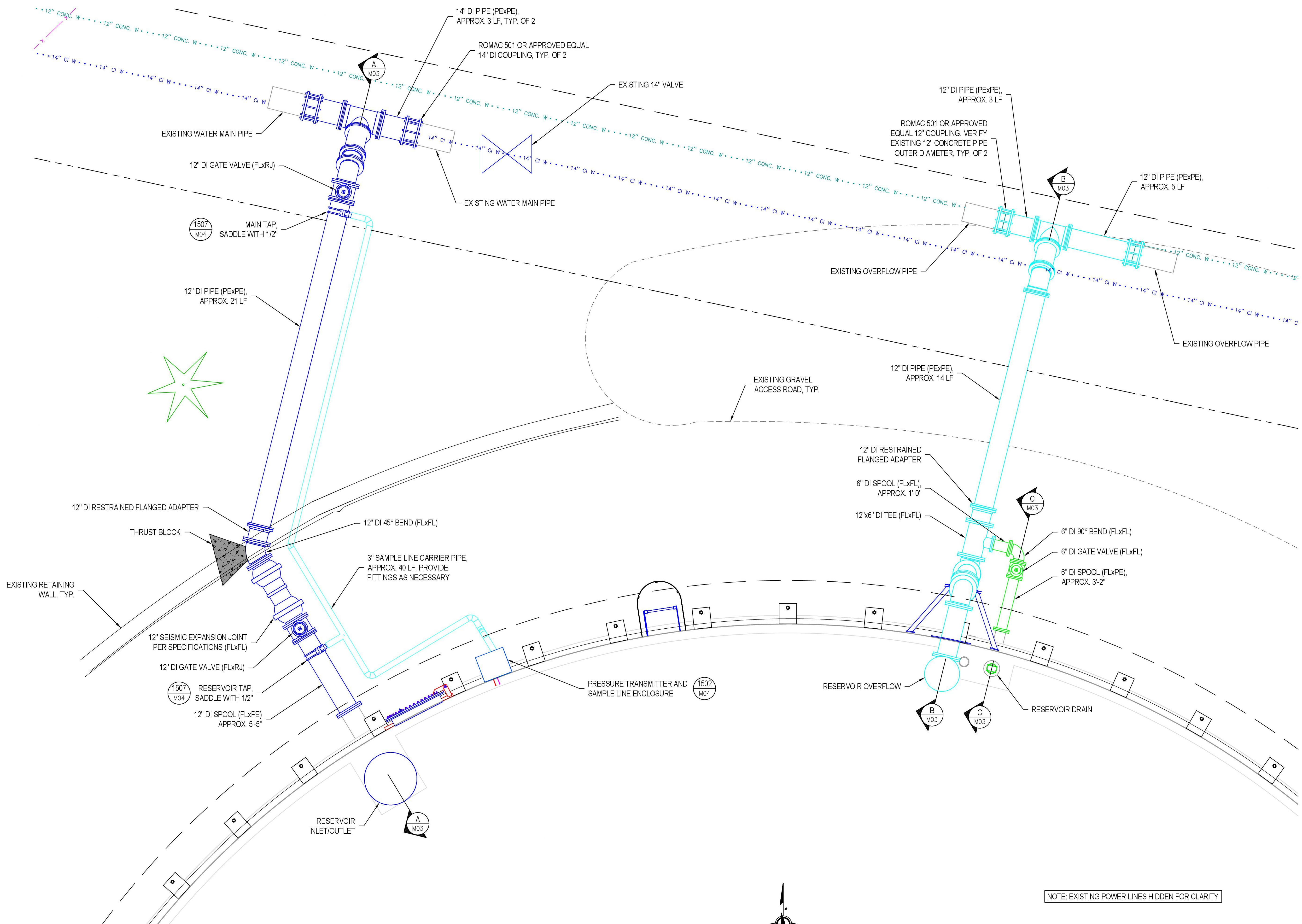
PIPE SUPPORT

NTS

501
TYP



NO.	DATE	DESCRIPTION	BY	REVIEW



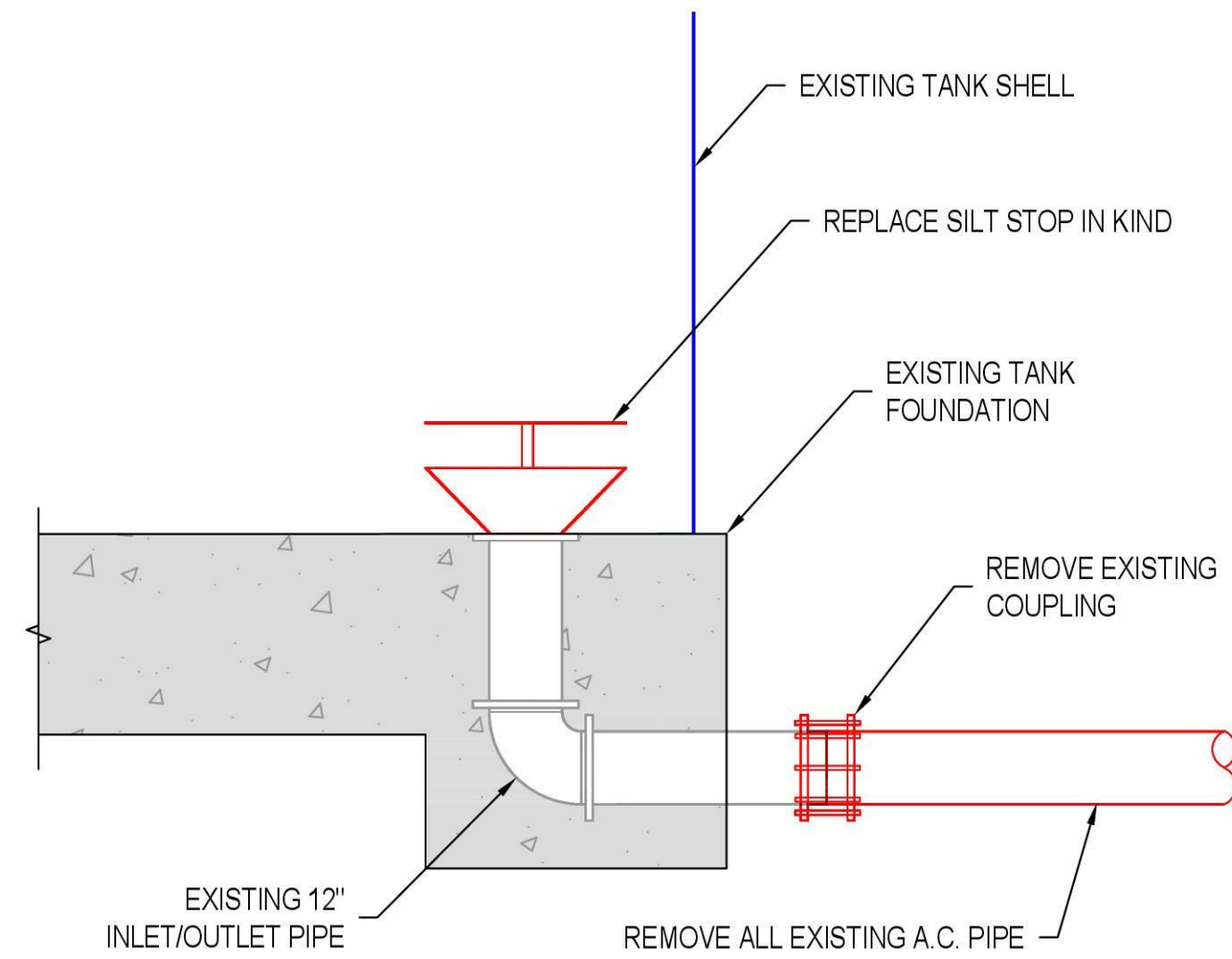
NOTE: EXISTING POWER LINES HIDDEN FOR CLARITY

PROPOSED MECHANICAL PLAN
 $\frac{3}{8}" = 1'-0"$

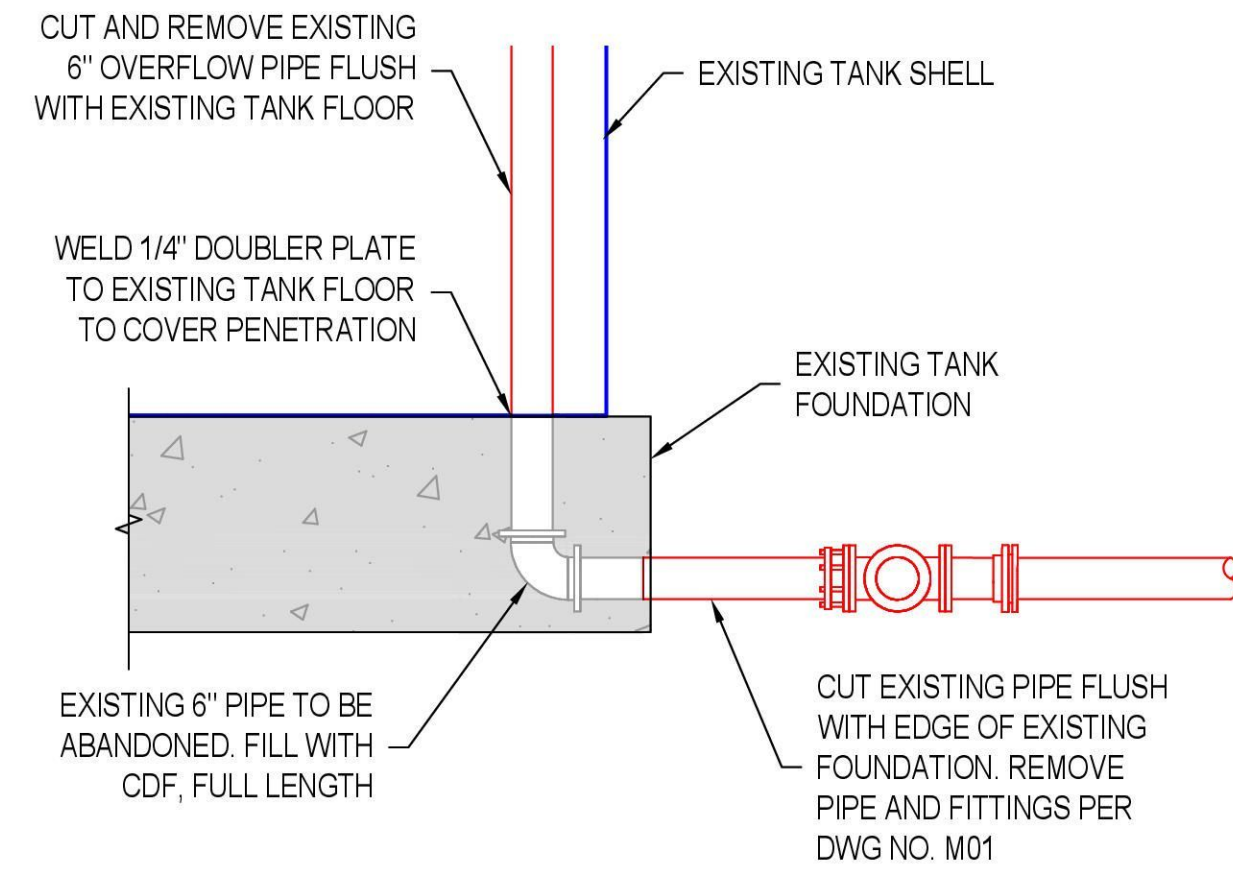


NO.	DATE	DESCRIPTION	BY	REVIEW
REVISIONS				
BID SET				

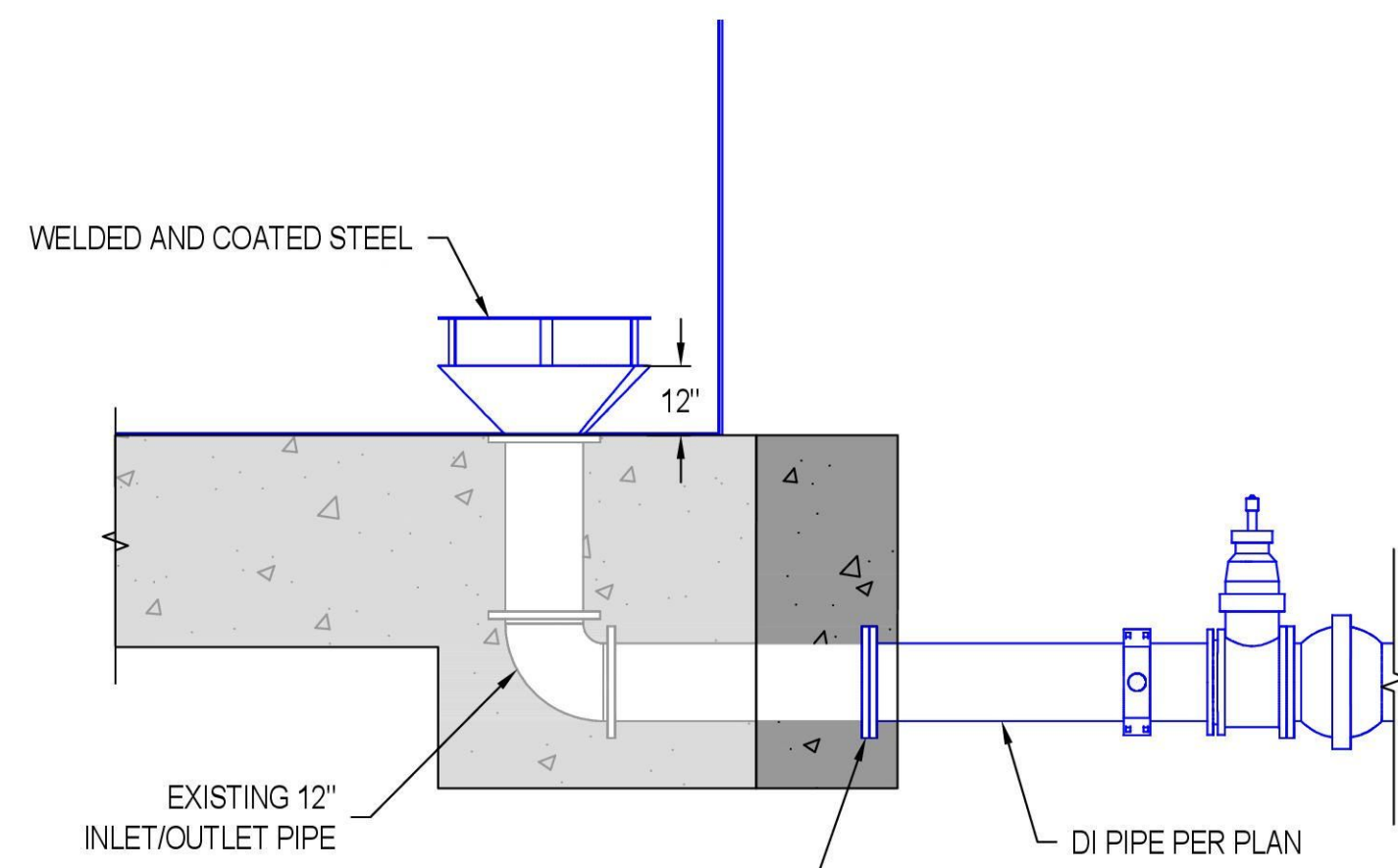
ENGINEER: KJV	DATE: Apr 23, 2026	CLIENT: CRWSD	PROJECT NO.: 22-0166
REVIEWER: DJM	DATE: May 22, 2026	FILENAME: FV2-D-M01.DWG	
DWG NO.: M02		SHEET NO.: 13	



INLET/OUTLET PIPE DEMO DETAIL
3/8" = 1'-0"



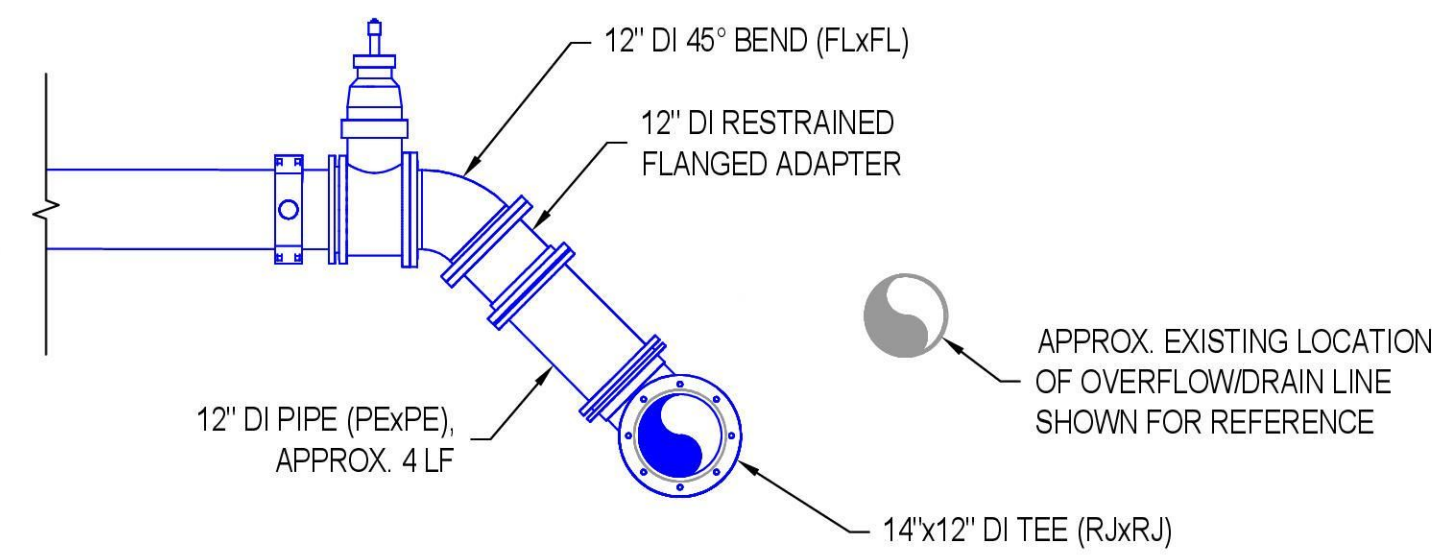
OVERFLOW PIPE DEMO DETAIL
3/8" = 1'-0"



FIELD WELD 12" COMPATIBLE STEEL SLIP-ON FLANGE ONTO EXISTING PIPE. WELD ALL AROUND INSIDE AND OUT. PRESSURE TEST WELD. COAT FLANGE (EXCEPT FACE OF FLANGE) WITH COATING SYSTEM EQUAL TO THAT OF PIPE.

INLET/OUTLET PIPE ELEVATION
3/8" = 1'-0"

A
M02



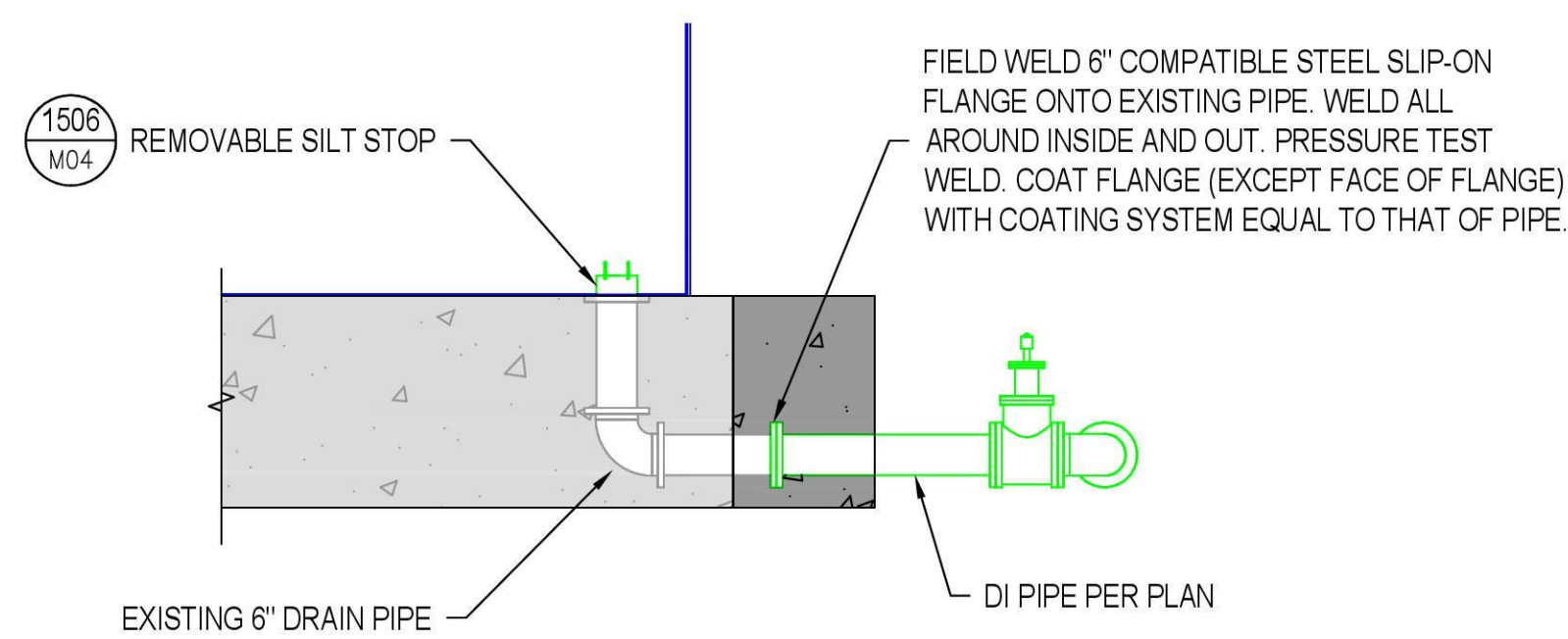
12" DI 45° BEND (FLxFL)

12" DI RESTRAINED FLANGED ADAPTER

12" DI PIPE (PEXPE), APPROX. 4 LF

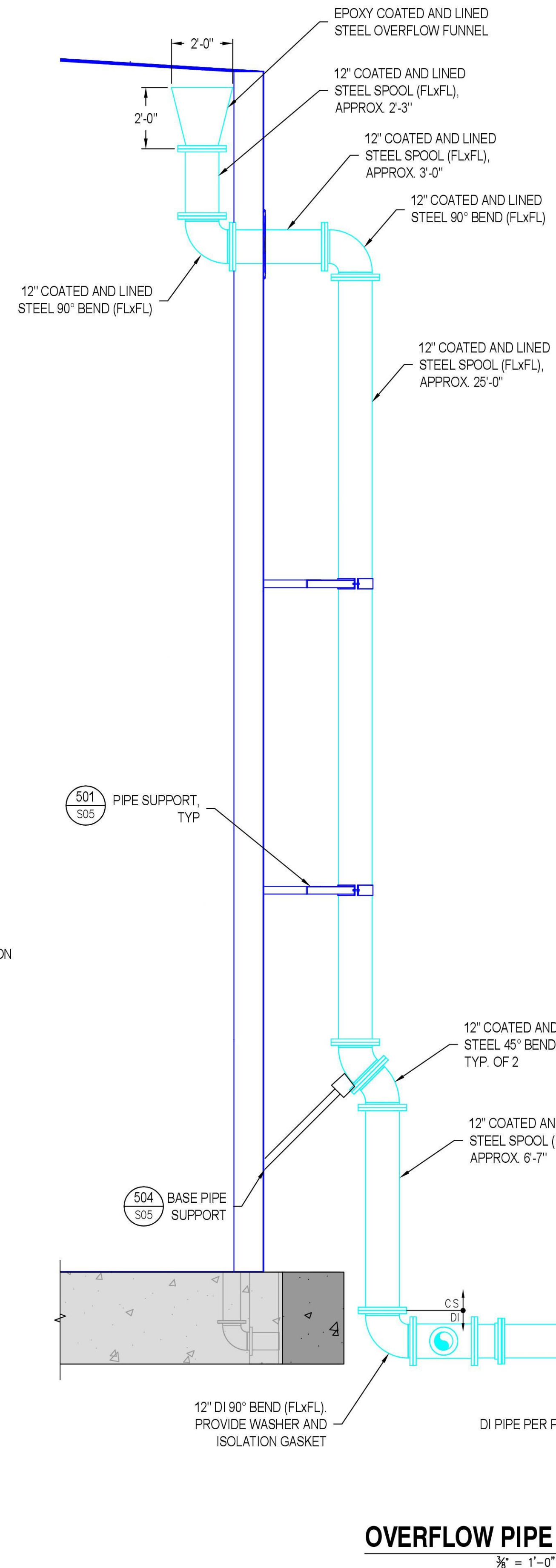
14"x12" DI TEE (RjxRj)

APPROX. EXISTING LOCATION OF OVERFLOW/DRAIN LINE SHOWN FOR REFERENCE

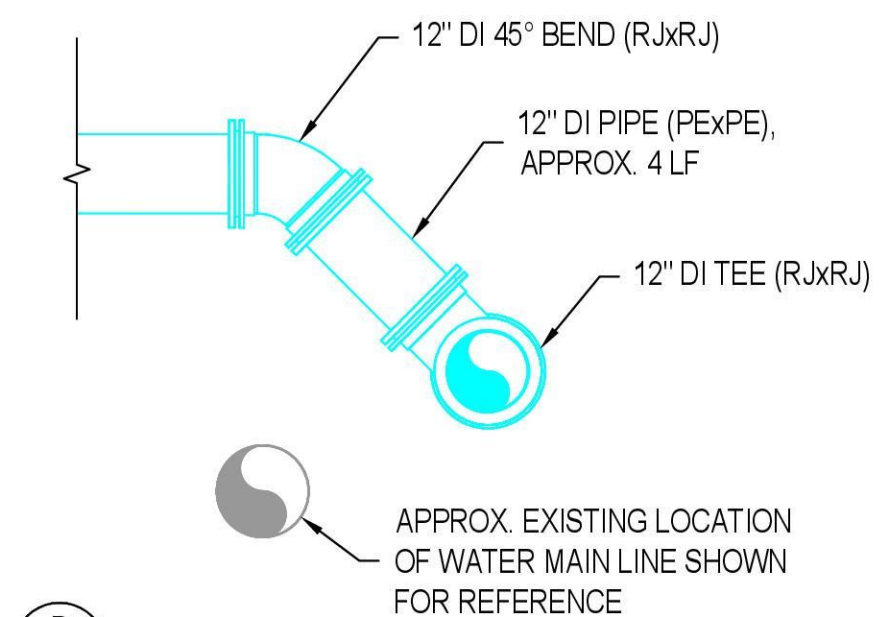


DRAIN PIPE ELEVATION
3/8" = 1'-0"

C
M02



OVERFLOW PIPE ELEVATION
3/8" = 1'-0"



12" DI 45° BEND (RjxRj)

12" DI PIPE (PEXPE), APPROX. 4 LF

12" DI TEE (RjxRj)

APPROX. EXISTING LOCATION OF WATER MAIN LINE SHOWN FOR REFERENCE

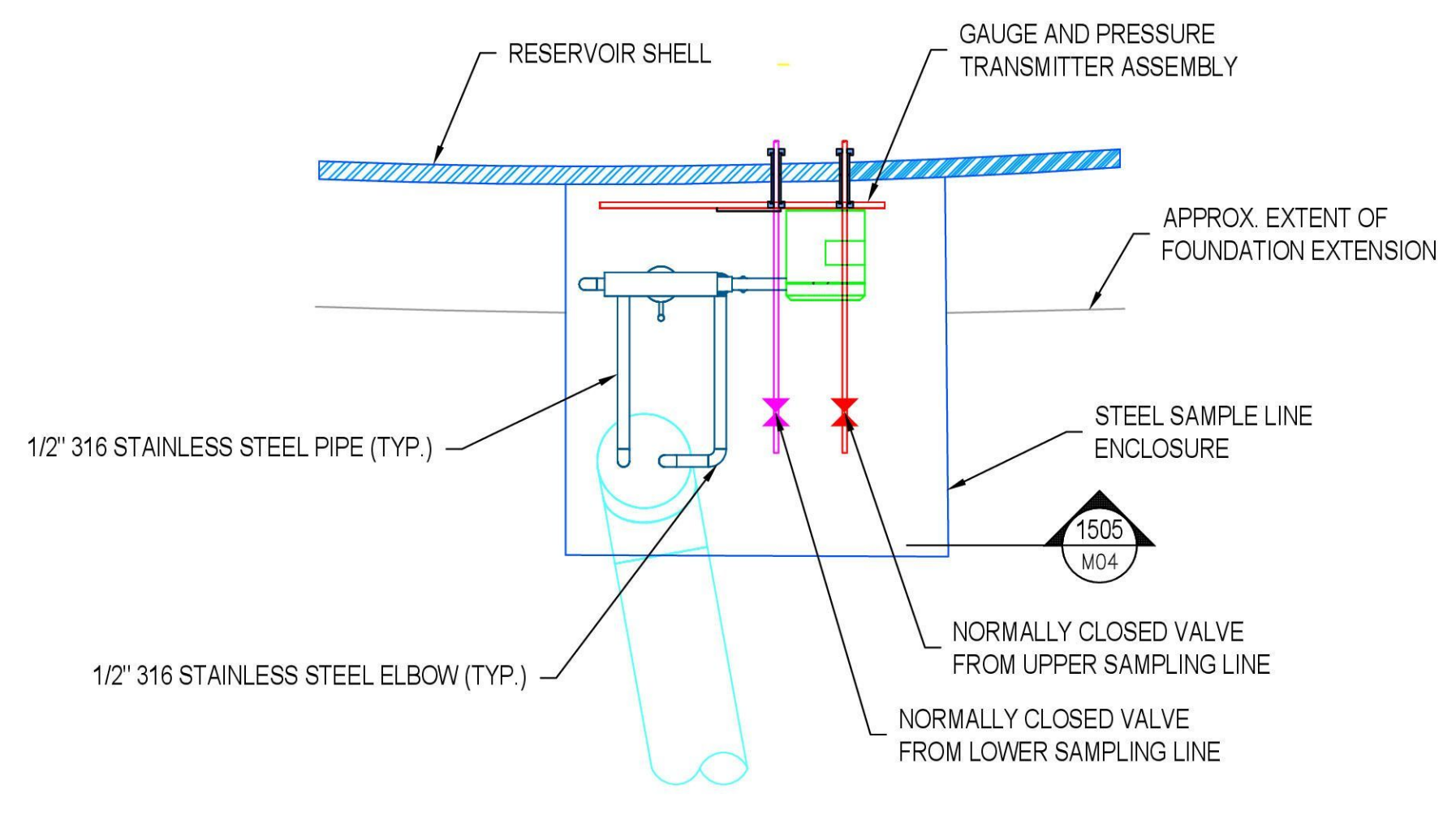
NO.	DATE	DESCRIPTION	BY	REVIEW

ENGINEER: LLB	DATE: May 14, 2026	CLIENT: CRWSD	JOB NO.: 22-0166
REVIEWER: DJM	DATE: May 22, 2026	FILE NAME: FVCD-M02.DWG	
REVISIONS			
BID SET			
SCALE: SHOWN			
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"			
DWG NO.: M03	SHEET NO.: 14	18	

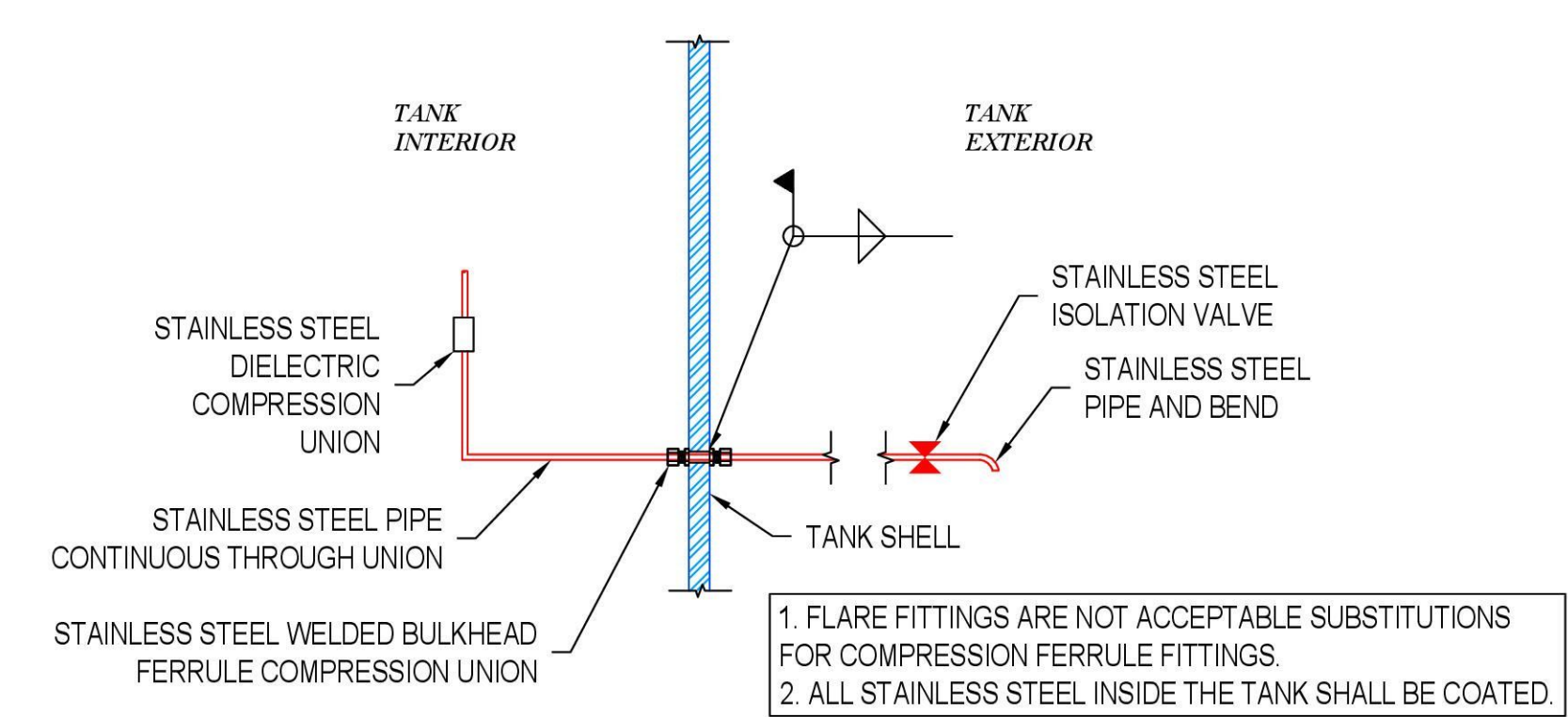


NO.	DATE	DESCRIPTION	BY	REVIEW

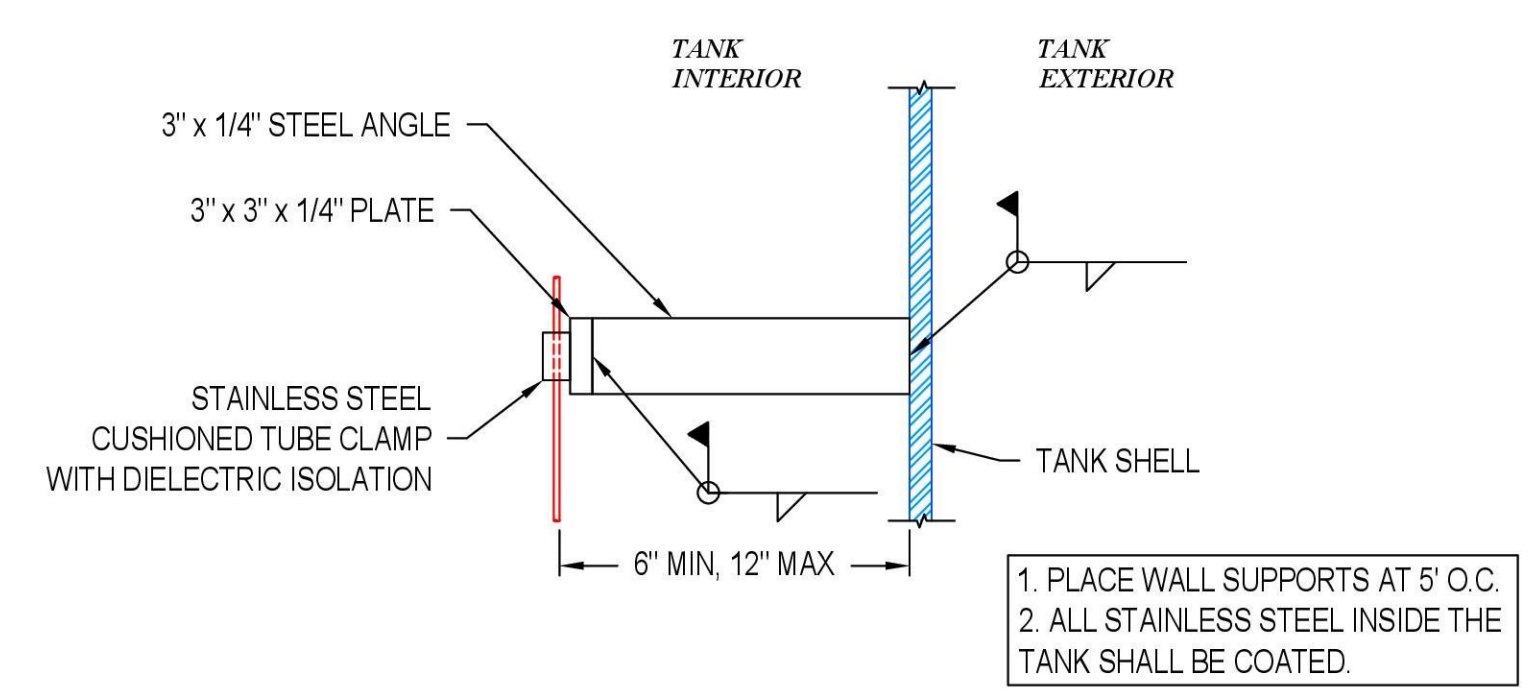
ENGINEER: KVV	DATE: May 14, 2026	CLIENT: CRWSD	JOB NO.: 22-0166
REVIEWER: DJM	DATE: May 22, 2026	FILENAME: FVCD-M03.DWG	
REVISIONS			
BID SET			
SCALE: SHOWN			
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"			
DWG NO.: M04	SHEET NO.: 15	18	



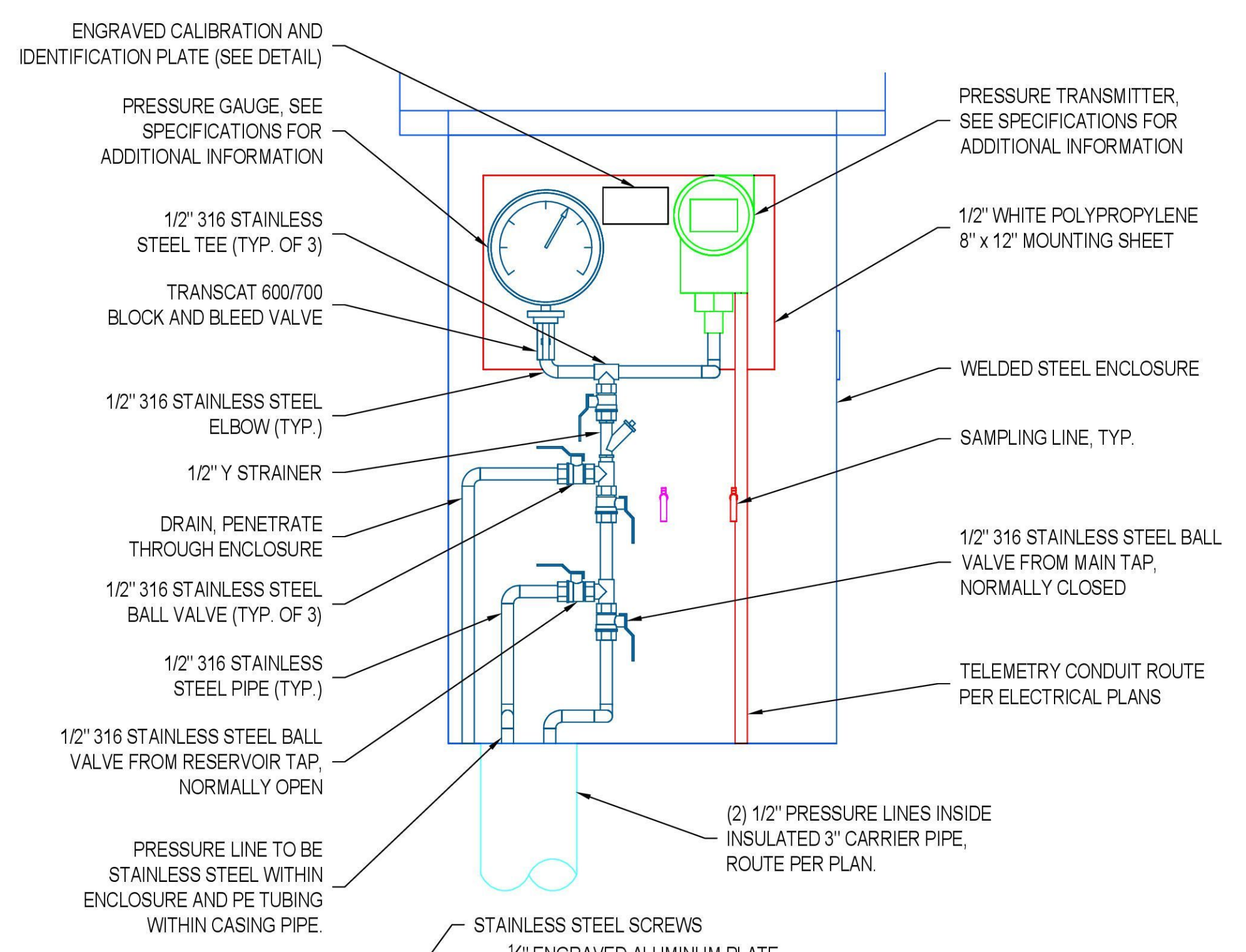
PRESSURE TRANSMITTER AND SAMPLING LINE ENCLOSURE PLAN
NOT TO SCALE
1502 TYP.



TYPICAL SHELL PENETRATION FOR SAMPLING LINES - ELEVATION
NOT TO SCALE
1503 TYP.

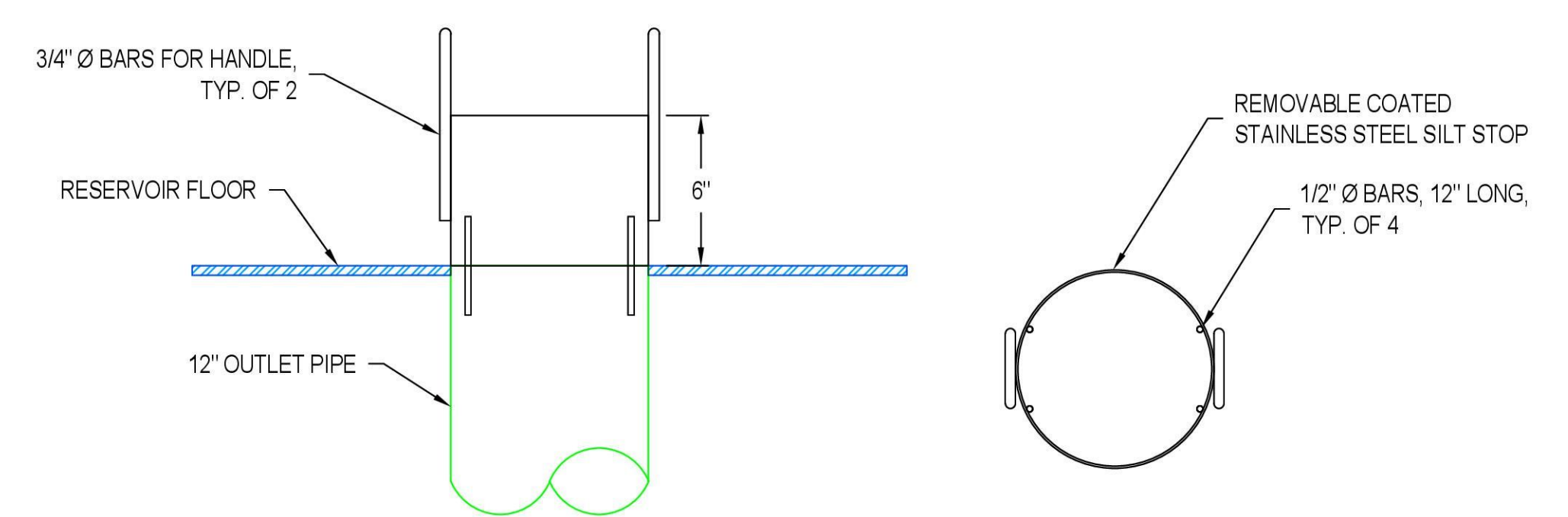


WATER QUALITY SAMPLING LINE SHELL SUPPORT - ELEVATION
NOT TO SCALE
1504 TYP.

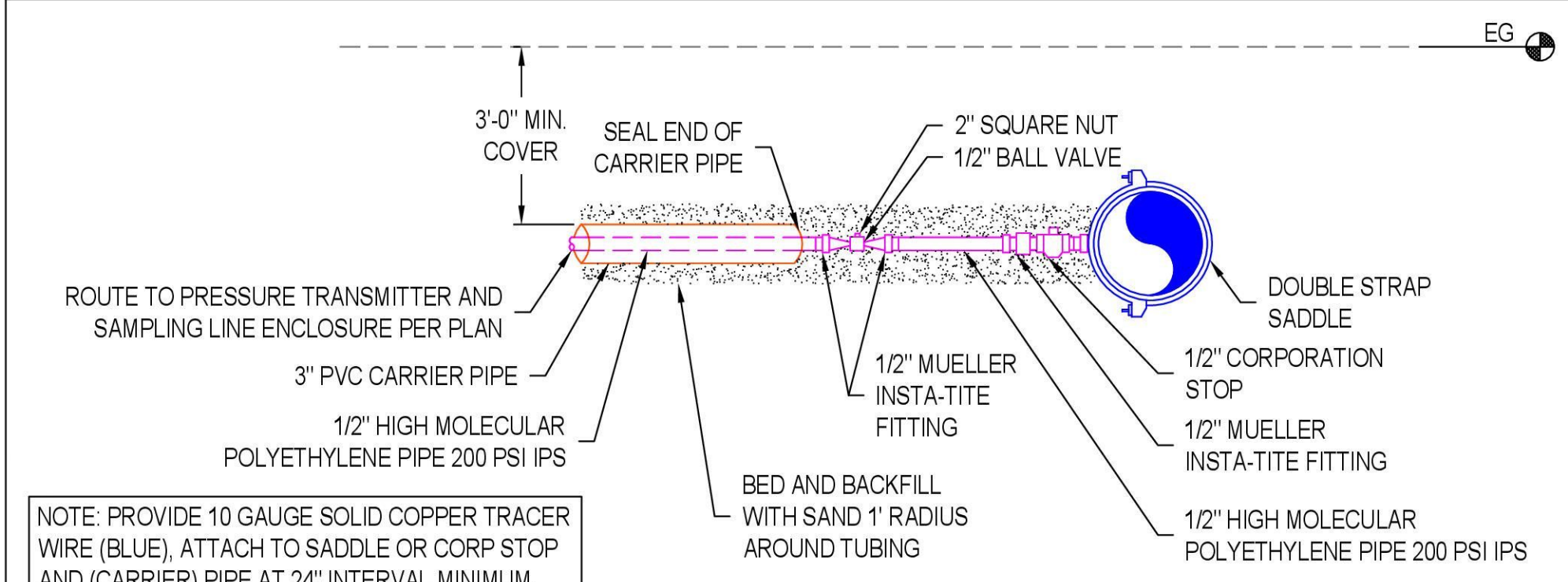


GAUGE AND PRESSURE TRANSMITTER ASSEMBLY SECTION VIEW
NOT TO SCALE
1505 TYP.

(DESCRIPTION - P&ID TAG)
NORMAL PRESSURE RANGE: XXX-XXX PSI
NOTE: SEE SPECIFICATIONS FOR DESCRIPTION, P&ID TAG, AND PRESSURE RANGE INFO
IDENTIFICATION AND CALIBRATION PLATE DETAIL

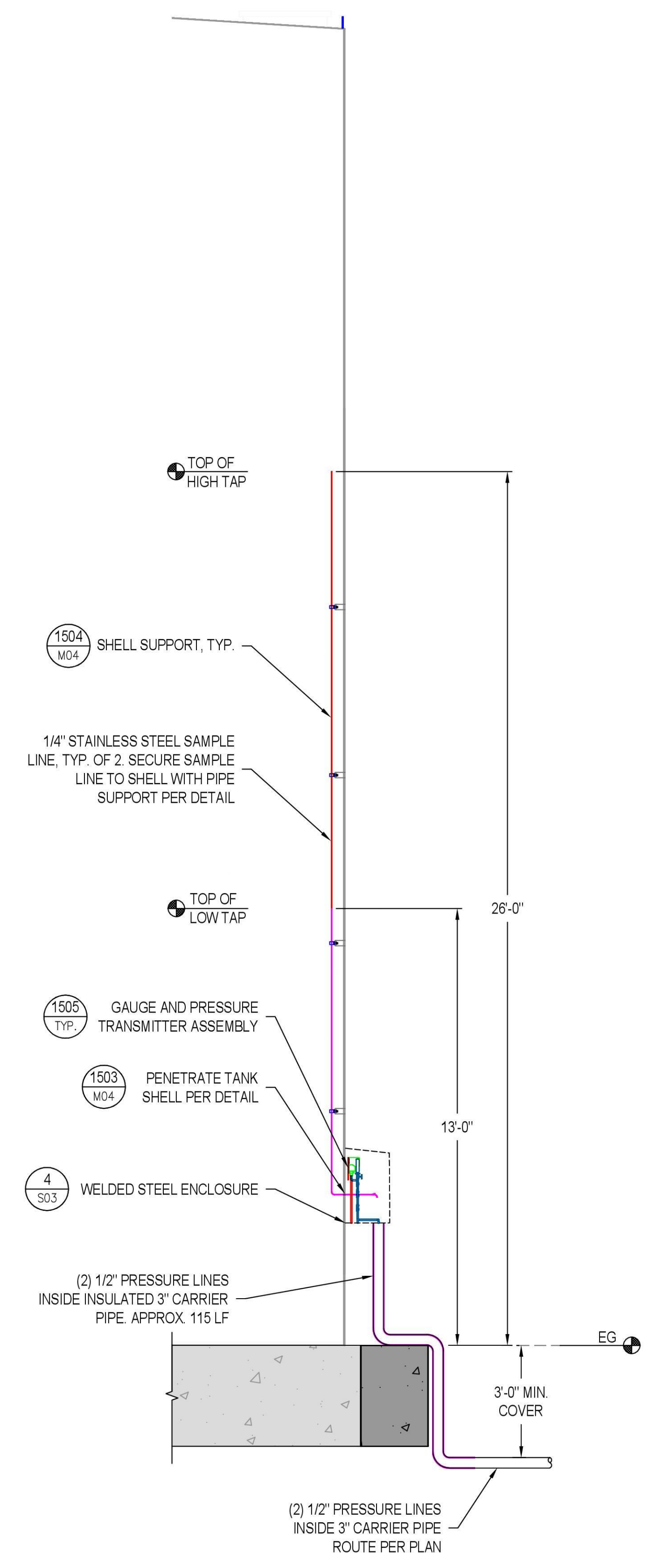


REMOVABLE SILT STOP
NOT TO SCALE
1506 MO2



SADDLE WITH 1/2" TAP DETAIL
NOT TO SCALE
1507 MO2

NOTE: PROVIDE 10 GAUGE SOLID COPPER TRACER WIRE (BLUE), ATTACH TO SADDLE OR CORP STOP AND (CARRIER) PIPE AT 24" INTERVAL MINIMUM.



RESERVOIR SAMPLE LINE ELEVATIONS
1501 TYP.

ONE-LINE DIAGRAM SYMBOLS

Table of symbols for one-line diagrams including circuit breaker, fuse, plug-in connection, run time meter, motor operation counter, SSRVS, variable frequency drive, motor starter, and transformer.

PANELBOARDS, SWITCHES, AND EQUIPMENT

Table of symbols for panelboards, switches, and equipment including service entrance, surface mounted panelboard, flushed mounted panelboard, field control station, equipment mounting stand, heater, and equipment connection.

RECEPTACLES AND JUNCTION BOX SYMBOLS

Table of symbols for receptacles and junction boxes including ceiling junction box, wall junction box, floor junction box, duplex wall receptacle, double duplex, and clock.

SWITCH OUTLETS

Table of symbols for switch outlets including standard switch, 3-way switch, 3-position switch, single-pole, double-pole, three way, four way, dimmer, and occupancy sensor.

LIGHTING FIXTURES/DEVICES

Table of symbols for lighting fixtures and devices including fluorescent fixture, wall/ceiling mounted fixture, emergency light with self contained battery, surface or pendant mounted fixture, recessed fixture, motion detector, and photo control cell.

FIRE SYSTEM SYMBOLS

Table of symbols for fire system including heat detector, smoke detector, fire alarm dispatch strobe alarm, fire alarm audible/visual alarm, and fire alarm manual pull station.

ADDITIONAL SYMBOLS

Table of additional symbols including sound system speaker, sound system volume control, and doorbell.

VALVE SYMBOLS

Table of symbols for valves including pilot valve solenoid, valve, check valve, and control valve.

ABBREVIATIONS

Table of abbreviations for electrical symbols including SPDT, DPST, WP, GFI, P, C, J, PC, CJ, CKT., C.O., N.L., AL, CU, HOA, RTM, OC, MRIL, SFIL, SFTR, OTIL, MOIL, and instrument meter abbreviations.

RACEWAY LEGEND

Table of raceway legends including proposed power, telephone, instrumentation, fiber optics, and building or facility plan legends.

INDICATE TYPE BY LETTER

Table of symbols for indicating type by letter including V, AH, and instrument meter symbols.

INSTRUMENT METER

Table of instrument meter symbols including ammeter, ampere-hour, power factor, voltmeter, volt ammeter, varmeter, varhour meter, wattmeter, and watthour meter.

BUILDING OR FACILITY PLAN LEGEND

Table of building or facility plan legends including 480 volt exposed raceway, 120/208/240 volt exposed raceway, control or instrumentation exposed raceway, conduit run, flexible conduit, and callouts.

ONE-LINE DIAGRAM INFORMATION

Table of one-line diagram information including existing equipment and conduit, proposed equipment and conduit, grounding equipment and conductors, and conduit, wiring or equipment to be removed.

LADDER LOGIC SYMBOL LEGEND

Table of ladder logic symbols including indicator light, limit switch, time delay contact, relay contact, pressure switch, and flowswitch.

LADDER LOGIC LINETYPES

Table of ladder logic linetypes including component installed inside enclosure, component installed on front of enclosure, and field connected component.

GENERAL NOTES

General notes for the drawing including: 1. THIS IS A STANDARD LEGEND... 2. THESE DRAWINGS ARE DIAGRAMMATIC ONLY... 3. NOTIFY THE ENGINEER IMMEDIATELY IF CONFLICTS IN EQUIPMENT LOCATIONS ARE DISCOVERED...



Project title: CEDAR RIVER WATER & SEWER DISTRICT FAIRWOOD 2 RESERVOIR SEISMIC RETROFIT. Includes a vertical 'ELECTRICAL LEGEND' label and a logo for the district.

Revisions table with columns for revision number, date, description, and reviewer. Includes a 'BID SET' stamp and a scale bar.



DEMOLITION LEGEND

⊠ EQUIPMENT TO BE REMOVED BY CONTRACTOR

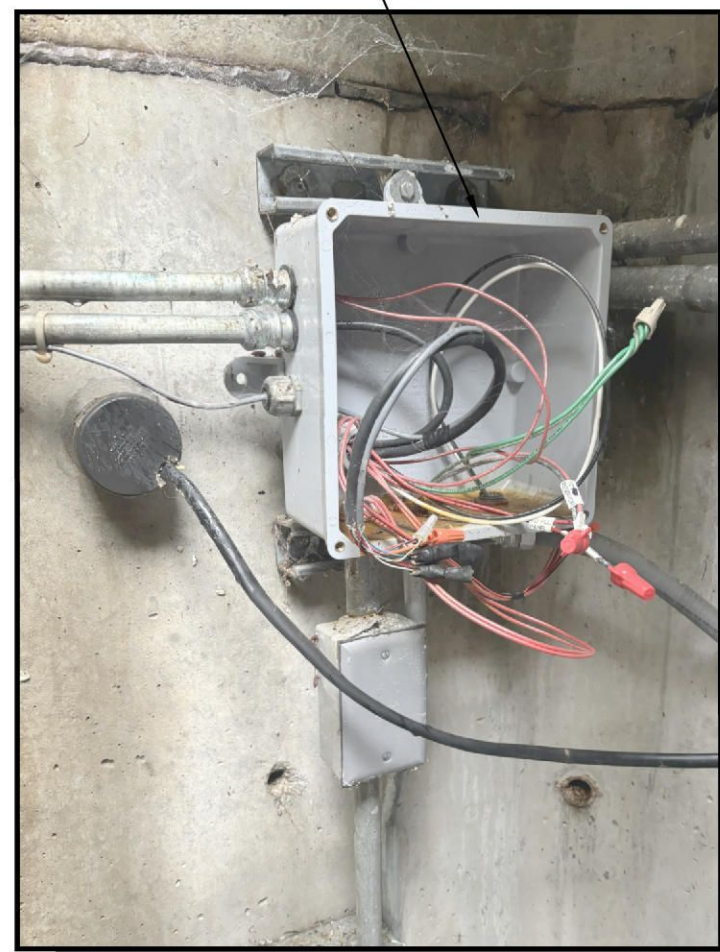
ELECTRICAL NOTES

1. EXISTING CONDUIT BETWEEN THE EXISTING VAULT AND EXISTING BUILDING SHALL BE CONNECTED TO PROPOSED HANDHOLE. EXTEND IF NECESSARY. EXISTING VAULT PRESSURE TRANSMITTER CONDUCTORS SHALL BE REMOVED FROM EXISTING CONDUIT. PROPOSED PRESSURE TRANSMITTER CONDUCTORS SHALL BE RAN INSIDE THE EXISTING CONDUIT AND TERMINATED AT THE SAME LOCATION AS THE EXISTING CONDUCTORS.
2. EXISTING CONDUIT BETWEEN THE EXISTING VAULT AND EXISTING UPPER RESERVOIR VAULT SHALL BE CONNECTED TO PROPOSED HANDHOLE. EXTEND IF NECESSARY. CONDUIT CONTAINS CABLING FOR EXISTING PRESSURE TRANSMITTER LOCATED IN UPPER RESERVOIR VAULT.
3. EXISTING CONDUIT BETWEEN THE EXISTING VAULT AND EXISTING FAIRWOOD #2 RESERVOIR SHALL BE CONNECTED TO PROPOSED HANDHOLE. EXTEND IF NECESSARY.
4. SEE CONSTRUCTION PHASING PLAN ON THIS SHEET FOR MORE DETAILS.
5. SEE DWG NO. E03 FOR HANDHOLE DETAIL.

CONSTRUCTION PHASING PLAN

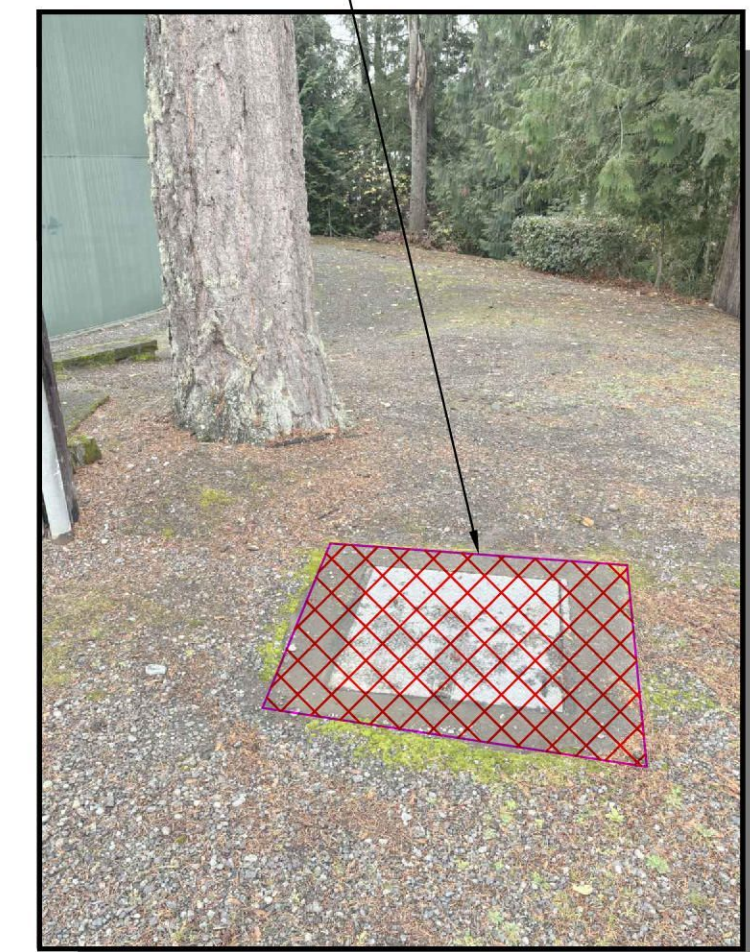
1. REMOVE ALL EXISTING ELECTRICAL EQUIPMENT THAT IS LOCATED INSIDE THE EXISTING VAULT, AND DISCONNECT AND REMOVE ALL EXISTING CONDUCTORS THAT ARE CONNECTED TO THE EXISTING ELECTRICAL EQUIPMENT. EXISTING CONDUCTORS FOR THE FLOOD SWITCH AND INTRUSION SWITCH SHALL BE DISCONNECTED FROM THE EXISTING TELEMETRY PANEL. THE EXISTING JUNCTION BOX INSIDE THE VAULT (SEE IMAGE BELOW) AND EXISTING CONDUITS THAT PENETRATE THE EXISTING VAULT SHALL REMAIN UNTOUCHED.
2. ALL REMAINING EXISTING CONDUCTORS INSIDE EXISTING CONDUIT GOING BETWEEN THE EXISTING VAULT AND EXISTING BUILDING SHALL BE PULLED BACK TO THE SOURCE, SO THAT ALL EXISTING CONDUITS PENETRATING THE EXISTING VAULT ARE EMPTY.
3. INSTALL PROPOSED HANDHOLE AS SHOWN ON PLANS. ALL THREE EXISTING CONDUITS INDICATED IN ELECTRICAL NOTES ABOVE SHALL BE REROUTED TO THE PROPOSED HANDHOLE. PROPOSED CONDUIT (J1) SHALL BE INSTALLED FROM THE PROPOSED HANDHOLE TO THE PROPOSED PRESSURE TRANSMITTER AS SHOWN ON PLANS.
4. REMOVE EXISTING VAULT AND ALL REMAINING EQUIPMENT.
5. REMAINING EXISTING CONDUCTORS AND THE PROPOSED CONDUCTORS THAT ARE CALLED OUT FOR (J1) SHALL BE PULLED THROUGH THE EXISTING CONDUIT MENTIONED IN STEP 2. ONCE ALL CONDUCTORS ARE INSIDE PROPOSED HANDHOLE, THEY SHALL BE ROUTED THROUGH THE APPROPRIATE CONDUITS TO GET BACK TO THE EQUIPMENT THEY WERE CONNECTED TO PREVIOUSLY. THE PROPOSED CONDUCTORS INSIDE (J1) SHALL BE ROUTED TO THE PROPOSED PRESSURE TRANSMITTER.
6. ALL EQUIPMENT SHALL BE TESTED TO VERIFY CONNECTIONS.

EXISTING JUNCTION BOX TO REMAIN UNTOUCHED DURING STEP 1 OF PHASING PLAN



EXISTING JUNCTION BOX
NTS

EXISTING ABANDONED UTILITY VAULT SHALL BE REMOVED

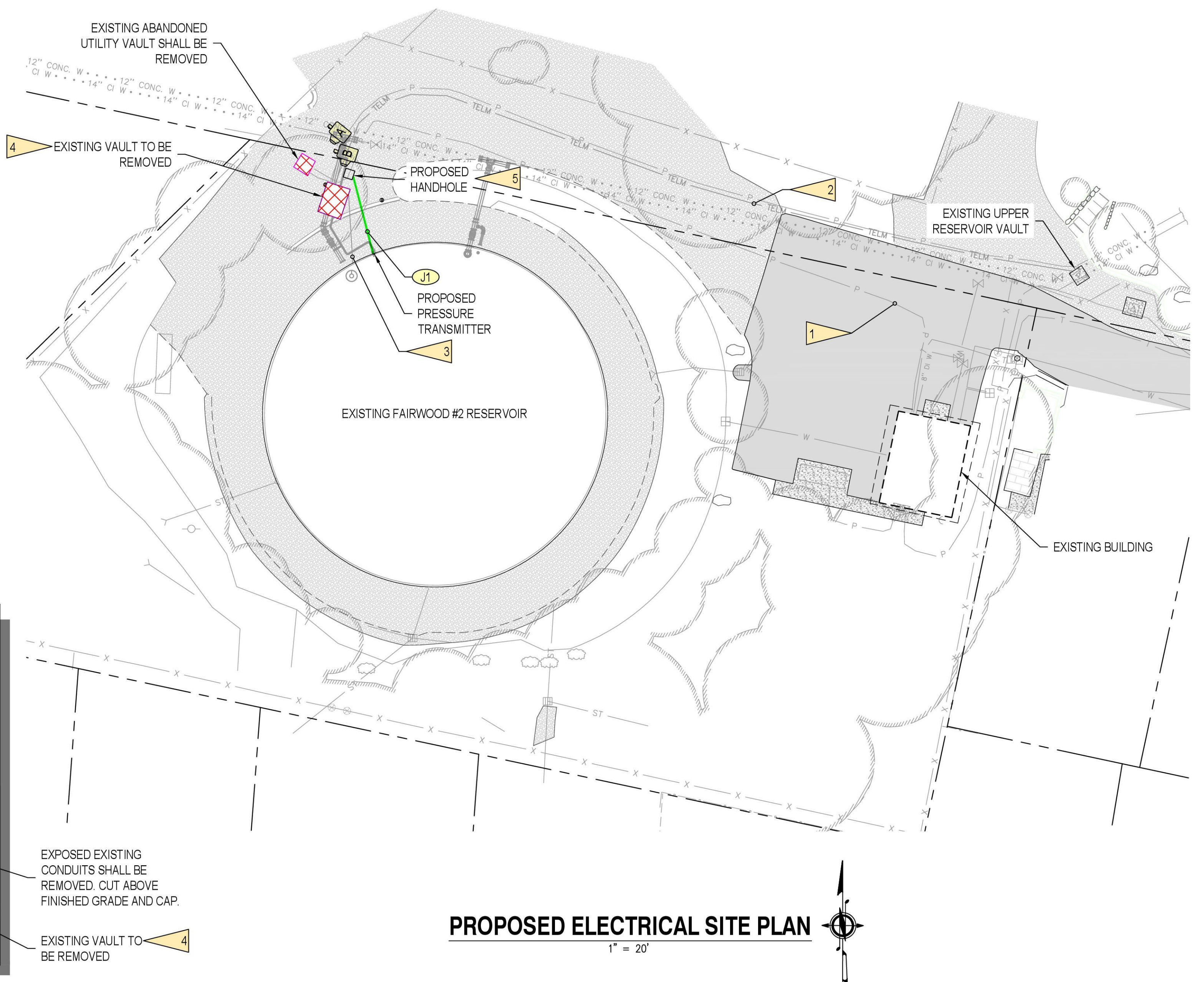


EXISTING UTILITY VAULT (A)
NTS

EXISTING ABANDONED UTILITY CABINET SHALL BE REMOVED



EXISTING UTILITY CABINET AND VAULT (B)
NTS



PROPOSED ELECTRICAL SITE PLAN
1" = 20'

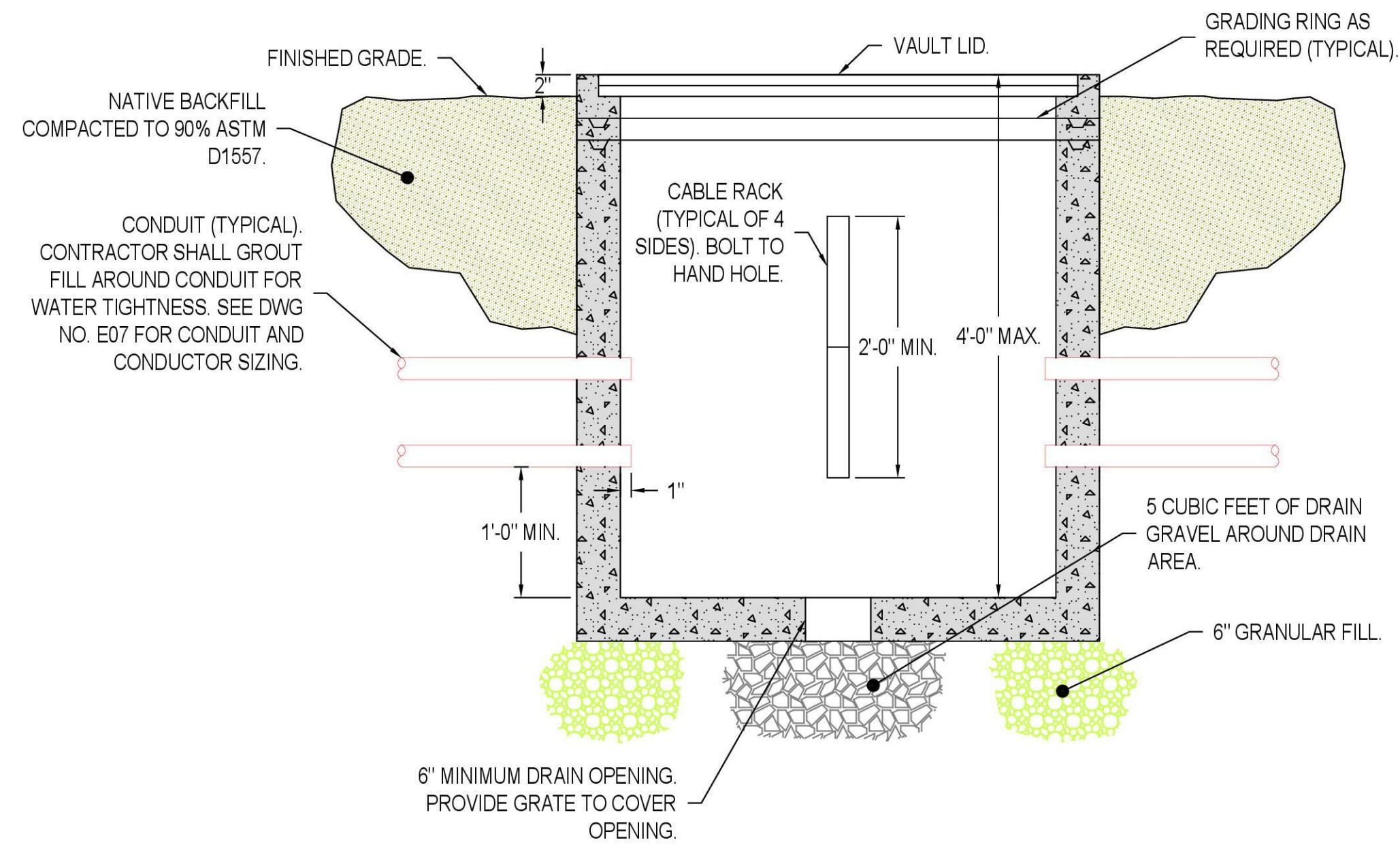
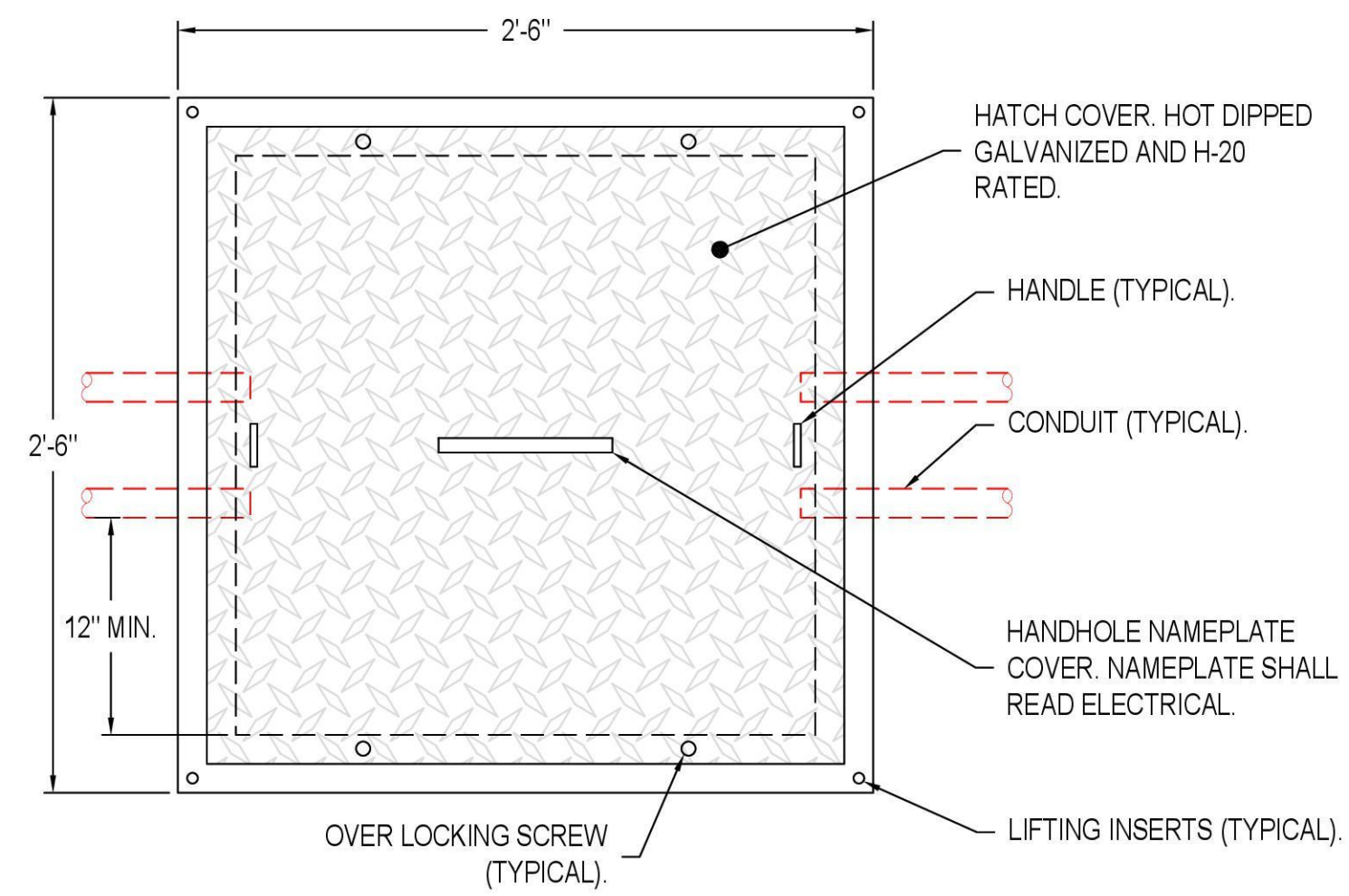
CONDUIT AND CONDUCTOR SCHEDULE

CIRCUIT	SOURCE	DESTINATION	TRADE SIZE	(QUANTITY) CONDUCTORS	NOTES
(J1)	PROPOSED HANDHOLE	PROPOSED PRESSURE TRANSMITTER	1"	(1) - 2-CONDUCTOR SHIELDED CABLE	CONDUIT USED OUTDOORS SHALL BE PVC-GRS. CONDUCTORS SHALL CONSIST OF (2) - #16 AWG, 7 STRAND COPPER CONDUCTORS WITH A 100 PERCENT FOIL SHIELDING AND TINNED COPPER DRAIN WIRES. CONDUCTORS SHALL BE ROUTED THROUGH EXISTING CONDUIT BETWEEN EXISTING VAULT AND EXISTING BUILDING ONCE INSIDE PROPOSED HANDHOLE. CONDUCTORS SHALL BE TERMINATED IN SAME LOCATION AS THE EXISTING VAULT PRESSURE TRANSMITTER CONDUCTORS WERE TERMINATED AT.

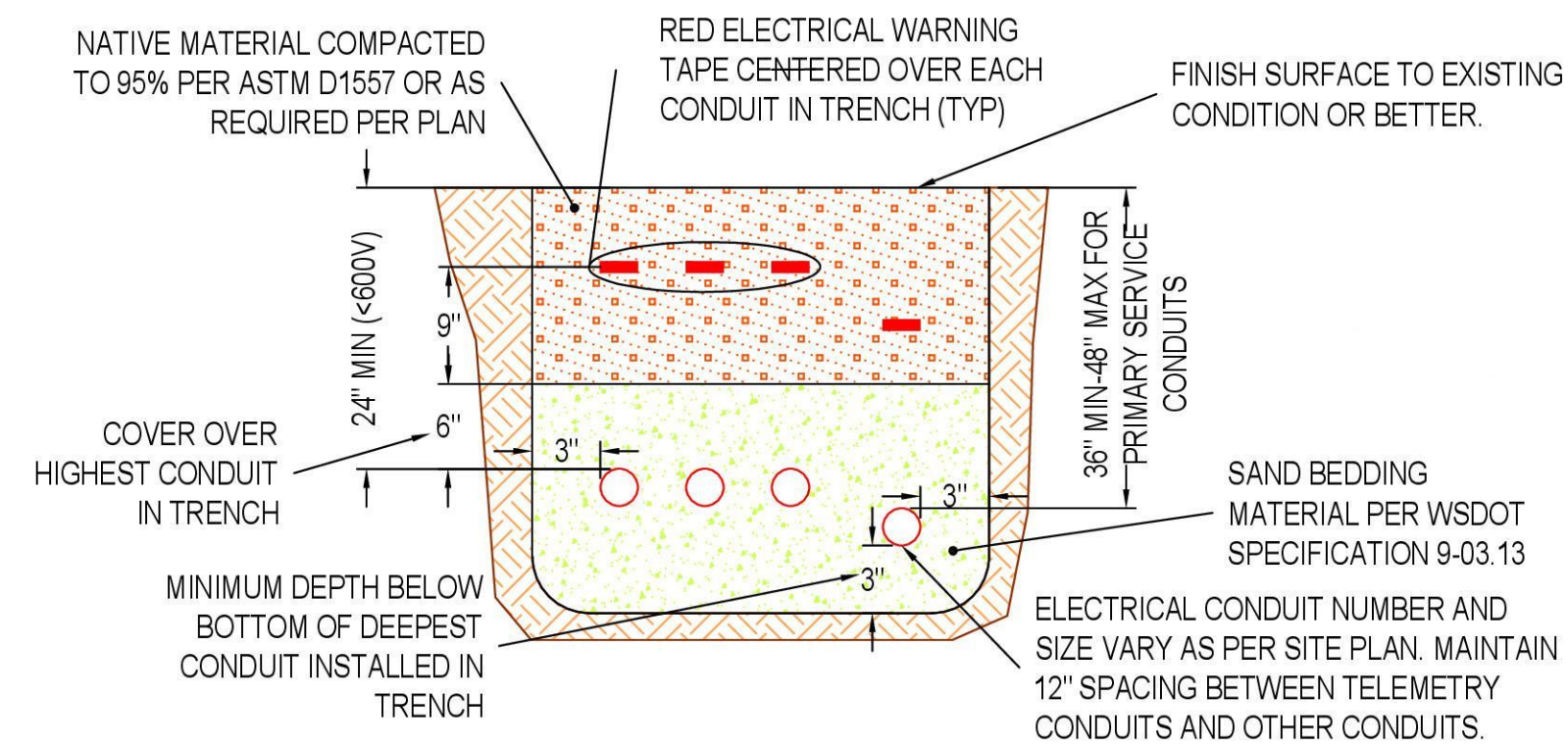
ENGINEER: CLC
REVIEWER: MVB
DATE: _____
NO. _____
DESCRIPTION: _____
BY: _____
REVIEW: _____

SCALE: SHOWN
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"

DWG NO.: E02
SHEET NO.: 17
18



HANDHOLE DETAIL
NOT TO SCALE



TYPICAL ELECTRICAL TRENCH DETAIL
NOT TO SCALE

NOTE: BURY DEPTH OF CONDUIT AND HORIZONTAL SPACING SHALL BE CONFIRMED WITH SERVING UTILITY BEFORE CONSTRUCTION.



NO.	DATE	DESCRIPTION	BY	REVIEW

SCALE: SHOWN	
DRAWING IS FULL SCALE WHEN BAR MEASURES 2"	
DWG NO.: E03	SHEET NO.: 18