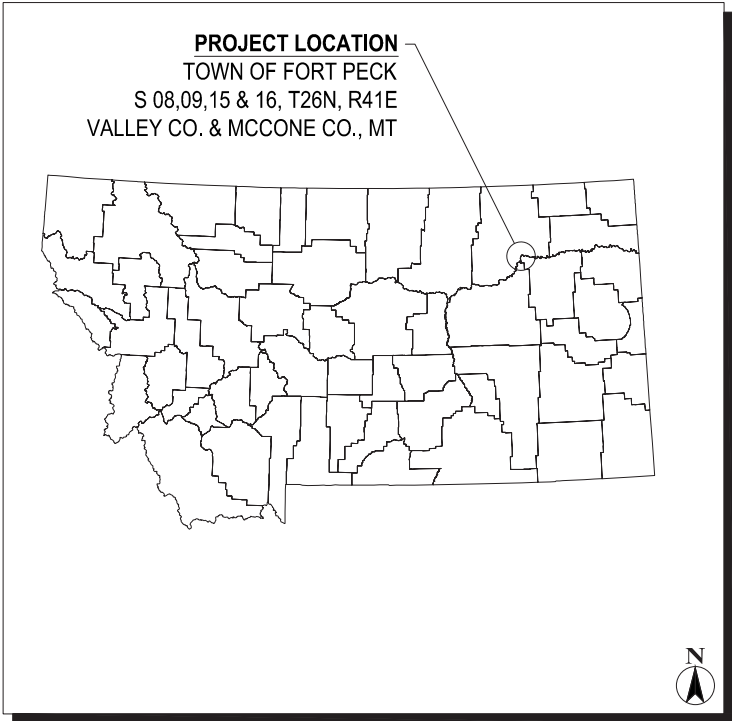


BID PLANS
FOR
FORT PECK FISH HATCHERY TRANSMISSION MAIN

PREPARED FOR
MONTANA FISH WILDLIFE & PARKS

VALLEY COUNTY, MONTANA



LOCATION MAP
NOT TO SCALE



SITE MAP
NOT TO SCALE



PROJECT OFFICIALS:
JOEY RENENGER, PE - FWP CONSTRUCTION SECTION SUPERVISOR
BARDELL MANGUM - DESIGN AND CONSTRUCTION BUREAU CHIEF
WADE GERAETS - FWP FORT PECK HATCHERY MANAGER
LUKE MILLER - FWP, FISH HATCHERY BUREAU CHIEF

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2	G-2	PLAN LEGEND
3	G-3	GENERAL NOTES
4	G-4	PROJECT SURVEY CONTROL
5	G-5	CORRIDOR SITE PLAN & KEY MAP
(DETAILS)		
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THIS PLAN CONTAINS 27 SHEETS		

QUALITY REVIEW :

BY: INTERSTATE ENGINEERING, INC.
PROJECT ENGINEER

APPROVED :

BY: *John R. Bach, P.E.*
INTERSTATE ENGINEERING, INC.
PROJECT ENGINEER

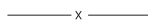
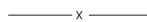
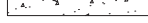
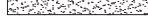
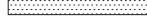
REVISION NO.	DATE	BY	DESCRIPTION
1	06/28/24	CRD	USACE COMMENTS
2	06/17/25	CRD	UPDATED GRND WTR INDICATOR PER GEOTECH

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G-1

1 OF 27

LEGEND

<u>EXST</u>	<u>ABBR</u>	<u>NEW</u>	<u>UTILITY</u>	<u>EXST</u>	<u>NEW</u>	<u>LINETYPE</u>
	MH		SEWER MANHOLE			FENCE (BARBED WIRE)
	MH		STORM MANHOLE			FENCE (WOOD)
	CB		STORM CATCH BASIN (CURB INLET)			FENCE (CHAIN LINE)
	CB		STORM CATCH BASIN (ROUND)			FLOWLINE
	FH		FIRE HYDRANT			GUARD RAIL
	BO		BLOW-OFF HYDRANT			RAILROAD
	CS		CURB STOP			CUT LIMITS
	W V		WATER VALVE BOX AND RISER			FILL LIMITS
	ARV		AIR RELIEF VALVE			CURB & GUTTER
	RED		REDUCER			RIP-RAP
			WELL			
	PP		POWER POLE			CONCRETE
	LP		LIGHT POLE			ASPHALT
	TR		POWER TRANSFORMER			GRAVEL
	TP		TELEPHONE PEDESTAL			SIGN
			UTILITY PEDESTAL (OTHER)			STREET SIGN
						MAIL BOX
						SOIL BORE HOLE & NUMBER
						PEDESTRIAN SIGNAL
						TRAFFIC SIGNAL PUMP
						RAILROAD CROSSING SIGNAL
						RAILROAD CROSSING
						RAILROAD CROSSING WITH ARM
						SPRINKLER HEAD
						STUMP
						TREE (DECIDUOUS)
						TREE (CONIFER)
						TREE LINE
						HEDGE
						DETAIL OR SECTION NUMBER
						SHEET NUMBER
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						
						

GENERAL CONSTRUCTION NOTES:

1.

THE GENERAL CONSTRUCTION NOTES APPLY TO THE UTILITY PROJECT IN ITS ENTIRETY, UNLESS NOTED OTHERWISE, CONSTRUCTION NOTES THAT HAVE BEEN INCLUDED PAGE BY PAGE SHALL BE CONSIDERED ADDITIONAL NOTES APPLICABLE TO THAT SECTION OF WORK.
2.

UNLESS NOTED OTHERWISE CONSTRUCTION SHALL BE COMPLETED IN ACCORDANCE WITH THE PROJECT DOCUMENTS. PLAN SHEET DETAILS SHALL TAKE PRECEDENCE OVER THE PROJECT SPECIFICATIONS.
3.

ITEMS NOT INCLUDED AS A PAY ITEM ON THE BID FORM SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER AND CONSIDERED INCIDENTAL TO THE COST OF CONSTRUCTION.
4.

EXISTING UTILITIES
- 4.1.

UTILITIES ARE DEPICTED ON THESE PLANS IN ACCORDANCE WITH THEIR ACHIEVED "QUALITY LEVEL" AS DEFINED IN THE AMERICAN SOCIETY OF CIVIL ENGINEER'S DOCUMENT ASCE 38, "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA" RELIANCE UPON THIS DATA FOR RISK MANAGEMENT PURPOSES DURING BIDDING DOES NOT RELIEVE THE EXCAVATOR OR UTILITY OWNER FROM FOLLOWING ALL APPLICABLE UTILITY DAMAGE PREVENTION STATUTES, POLICIES, AND/OR PROCEDURES DURING EXCAVATION. IT IS IMPORTANT THAT THE CONTRACTOR INVESTIGATES AND UNDERSTANDS THE SCOPE OF THE WORK BETWEEN THE PROJECT OWNER AND THEIR ENGINEER REGARDING THE SCOPE AND LIMITS OF THE UTILITY INVESTIGATIONS LEADING TO THESE UTILITY DEPICTIONS.
- 4.1.1.

UTILITY QUALITY LEVEL: A PROFESSIONAL OPINION OF THE QUALITY AND RELIABILITY OF UTILITY INFORMATION, SUCH RELIABILITY IS DETERMINED BY THE MEANS AND METHODS OF THE PROFESSIONAL. EACH OF THE FOUR EXISTING UTILITY DATA QUALITY LEVELS ARE ESTABLISHED BY DIFFERENT METHODS OF DATA COLLECTION AND INTERPRETATION.
- 4.1.2.

UTILITY QUALITY LEVEL "A": PRECISE HORIZONTAL AND VERTICAL LOCATION OF UTILITIES OBTAINED BY THE ACTUAL EXPOSURE (OR VERIFICATION OF PREVIOUSLY EXPOSED AND SURVEYED UTILITIES) AND SUBSEQUENT MEASUREMENT OF SUB-SURFACE UTILITIES, USUALLY AT A SPECIFIC POINT. MINIMALLY INTRUSIVE EXCAVATION EQUIPMENT IS TYPICALLY USED TO MINIMIZE THE POTENTIAL FOR UTILITY DAMAGE. A PRECISE HORIZONTAL AND VERTICAL LOCATION, AS WELL AS OTHER UTILITY ATTRIBUTES, IS SHOWN ON PLAN DOCUMENTS. ACCURACY IS TYPICALLY SET TO 15 MM VERTICAL AND TO APPLICABLE HORIZONTAL SURVEY AND MAPPING ACCURACY AS DEFINED OR EXPECTED BY THE PROJECT OWNER.
- 4.1.3.

UTILITY QUALITY LEVEL "B": INFORMATION OBTAINED THROUGH THE APPLICATION OF APPROPRIATE SURFACE GEO-PHYSICAL METHODS TO DETERMINE THE EXISTENCE AND APPROXIMATE HORIZONTAL POSITION OF SUBSURFACE UTILITIES. QUALITY LEVEL "B" DATA SHOULD BE REPRODUCIBLE BY SURFACE GEO-PHYSICS AT ANY POINT ON THE DEPICTION. THIS INFORMATION IS SURVEYED TO APPLICABLE TOLERANCES DEFINED BY THE PROJECT AND REDUCED ONTO PLAN DOCUMENTS.
- 4.1.4.

UTILITY QUALITY LEVEL "C": INFORMATION OBTAINED BY SURVEYING AND PLOTTING VISIBLE ABOVE-GROUND UTILITY FEATURES AND BY USING PROFESSIONAL JUDGEMENT IN CORRELATING THIS INFORMATION TO QUALITY LEVEL "D" INFORMATION.
- 4.1.5.

UTILITY QUALITY LEVEL "D": INFORMATION DERIVED FROM EXISTING RECORDS OR ORAL RECOLLECTIONS.
- 4.2.

THE UTILITIES SHOWN ON THESE PLANS ARE LOCATED APPROXIMATELY, HAVING AN ACHIEVED QUALITY LEVEL OF "C", THROUGH A COMBINATION OF FIELD SURVEY AND OWNER MAINTAINED MAPS. THE USE OF UTILITY LOCATIONS AND DEPTHS SHOWN HEREIN ARE FOR REFERENCE ONLY AND NOT FOR CONSTRUCTION PURPOSES. THE EXACT SIZE, LOCATION, MATERIAL AND DEPTH OF ALL UTILITIES SHALL BE DETERMINED ONSITE BEFORE CONSTRUCTION COMMENCES. ANY PARTY FAILING TO LOCATE UTILITIES RELATIVE TO THE CONSTRUCTION AREA AGREES TO BE FULLY RESPONSIBLE.
- 4.3.

CONTRACTOR IS RESPONSIBLE FOR LOCATING AND EXPOSING ALL UTILITIES PRIOR TO EXCAVATION WORK. THE CONTRACTOR SHALL CALL FOR UTILITY LOCATES PRIOR TO BEGINNING SAID WORK, AND BE RESPONSIBLE FOR PROTECTING ALL UNDERGROUND UTILITIES. CONTRACTOR SHALL COORDINATE ANY REQUIRED UTILITY RELOCATION WITH THE AFFECTED UTILITY OWNER.
- 4.4.

THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION, TEMPORARY SUPPORT, ADJUSTMENT, OR RELOCATION OF ANY UTILITIES AND STRUCTURES (OVERHEAD, UNDERGROUND, OR SURFACE) REQUIRED FOR INSTALLATION OF THE WATER AND/OR SEWER LINE AND APPURTENANCES. ANY UTILITY MODIFICATIONS SHALL BE COORDINATED WITH THE OWNER OF EACH UTILITY BEFORE CONSTRUCTION COMMENCES, UNLESS NOTED AS BEING RELOCATED BY THE UTILITY OWNER. ALL COSTS ASSOCIATED WITH SAID WORK SHALL BE INCIDENTAL TO THE CONTRACT AND NO ADDITIONAL COMPENSATION SHALL BE AWARDED FOR SUCH.
- 4.5.

CONTRACTOR SHALL FIELD VERIFY EXACT ELEVATIONS OF EXISTING STORM SEWER, SANITARY SEWER, POTABLE WATER, ELECTRIC, TELEPHONE, FIBER OPTIC, GAS, AND OTHER UTILITY CROSSINGS BEFORE PLACEMENT OF NEW WATER AND/OR SEWER PIPELINES.
- 4.6.

CONTRACTOR SHALL FIELD VERIFY ALL ELEVATION AND GRADES PRIOR TO BEGINNING WORK, AND SHALL NOTIFY ENGINEER OF ANY DISCREPANCIES BETWEEN DESIGN AND AS-CONSTRUCTED INFRASTRUCTURE IMPROVEMENTS.
5.

SITE PROTECTION AND/OR USE
- 5.1.

CONTRACTOR SHALL BE RESPONSIBLE FOR ACQUIRING ALL LAND, APPROVAL, AND/OR EASEMENTS NECESSARY FOR STAGING AND STORAGE OF CONSTRUCTION MATERIAL AND MACHINERY.
- 5.2.

THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY PERMITS REQUIRED TO PERFORM THIS WORK, INCLUDING PERMITS FROM THE MONTANA DEPARTMENT OF TRANSPORTATION (MDT), USACE, VALLEY COUNTY (APPROVED TRAFFIC CONTROL PLAN), MT DEQ (SWPPP), AND OR MT BUILDING STANDARDS DIVISION OF THE STATE DEPARTMENT OF LABOR AND INDUSTRY (ELECTRICAL PERMIT)
- 5.3.

THE CONTRACTOR IS RESPONSIBLE FOR, BUT NOT LIMITED TO, DEVELOPING, IMPLEMENTING AND MAINTAINING A SITE STORM WATER POLLUTION PREVENTION PLAN (SWPPP). CONTRACTOR SHALL SUBMIT THE PLAN TO THE OWNER/ENGINEER PRIOR TO FILING THE NOTICE OF INTENT WITH THE MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY (MDEQ) FOR THIS PROJECT, IF REQUIRED. CONTRACTOR SHALL EMPLOY A CERTIFIED SWPPP ADMINISTRATOR THROUGHOUT THE DURATION OF THE PROJECT. CONTRACTOR SHALL BE RESPONSIBLE FOR: PREPARING SWPPP; NEW PERMIT FEE; RENEWAL FEE (IF REQUIRED); FILING NOTICE OF INTENT (NOI); MAINTAINING SWPPP DOCUMENTS; AND FILING NOTICE OF TERMINATION (NOT) ONCE VEGETATION IS REESTABLISHED PER THE SWPPP REQUIREMENTS.

- 5.4.

ALL SALVAGEABLE MATERIALS SHALL BECOME THE PROPERTY OF THE OWNER. EXCESS EXCAVATED MATERIAL INCLUDING PIPE, STUMPS, ROOTS, AND ANY OTHER ITEMS THE OWNER DOES NOT WISH TO SALVAGE SHALL BECOME THE CONTRACTOR'S PROPERTY AND SHALL BE REMOVED FROM THE SITE AND DISPOSED OF PROPERLY, INCIDENTAL TO THE CONTRACT WITH NO ADDITIONAL COMPENSATION AWARDED FOR SUCH.
- 5.5.

THE CONTRACTOR SHALL PROTECT ALL PAVEMENT, SURFACING, DRIVEWAYS, CURBS, WALKS, BUILDINGS, UTILITY POLES, GUY WIRES, MAILBOXES, PLANTERS, AND OTHER SURFACE STRUCTURES AFFECTED BY CONSTRUCTION ACTIVITIES IN CONNECTION WITH PERFORMANCE OF THE CONTRACT TOGETHER WITH GRASS, SHRUBS, LAWN ORNAMENTS, ETC., OF YARDS CROSSED OR ADJACENT TO THE WORK FROM DAMAGE AND/OR DISTURBANCE. IF REMOVED OR OTHERWISE DAMAGED, THE CONTRACTOR SHALL RESTORE ALL SURFACE STRUCTURES TO THE ORIGINAL CONDITION OR BETTER AS DETERMINED BY THE OWNER/ENGINEER. ALL REPLACEMENT OF SUCH SURFACING AND SURFACE STRUCTURES SHALL BE MADE WITH NEW MATERIALS CONFORMING TO THE SPECIFICATIONS OR AS APPROVED BY THE OWNER/ENGINEER.
- 5.6.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGES TO STREETS, ROADS, HIGHWAYS, DITCHES, SHOULDERS, EMBANKMENTS, CULVERTS, BRIDGES, OR OTHER PUBLIC OR PRIVATE PROPERTY OR FACILITY THAT MAY BE DAMAGED BY MOVING, HAULING, OR OTHERWISE TRANSPORTING EQUIPMENT, MATERIALS TO OR FROM THE WORK. THE CONTRACTOR SHALL MAKE, WITHOUT DELAY, SATISFACTORY AND ACCEPTABLE ARRANGEMENTS WITH THE OWNER OF THE AGENCY HAVING JURISDICTION OVER THE DAMAGED PROPERTY CONCERNING REPAIR OR REPLACEMENT OR PAYMENT OF COSTS INCURRED IN CONNECTION WITH SAID DAMAGE.
- 5.7.

EXISTING LANDSCAPE AND IRRIGATION SYSTEMS ARE NOT SHOWN BUT SHALL BE PROTECTED BY THE CONTRACTOR. ANY DAMAGED COMPONENTS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
- 5.8.

CONTRACTOR SHALL MAINTAIN ACCESS FOR ALL PROPERTY OWNER(S) AND BUSINESSES, AND SHALL COORDINATE DETOURS AND TEMPORARY CLOSURES WITH AFFECTED PROPERTY OWNER(S).
- 5.9.

CONSTRUCTION ACTIVITIES REQUIRING ROAD CLOSURES OR TEMPORARY DISABLING OF FIRE HYDRANTS SHALL BE RELAYED TO THE LOCAL DISPATCH OFFICE BY THE CONTRACTOR TO ENSURE EMERGENCY SERVICES ARE NOTIFIED OF ALTERNATE ROUTES THROUGHOUT THE DURATION OF THE PROJECT.
- 5.10.

ALL TRAFFIC CONTROL DEVICES AND PLANS ARE SUBJECT TO REVIEW BY THE OWNER/ENGINEER AND THE MONTANA DEPARTMENT OF TRANSPORTATION, AND/OR YELLOWSTONE COUNTY AS APPLICABLE. ALL TRAFFIC CONTROL/DEVICES SHALL MEET THE REQUIREMENTS OF THE MUTCD, LATEST EDITION.
- 5.11.

CONTRACTOR SHALL KEEP THE PROJECT SITE CLEAN AND ORDERLY DURING THE COURSE OF CONSTRUCTION, AS APPROVED BY THE OWNER/ENGINEER.
- 5.12.

CONTRACTOR SHALL PROVIDE DUST CONTROL MEASURES THROUGHOUT THE COURSE OF CONSTRUCTION, AS APPROVED BY THE OWNER/ENGINEER AND AS REQUIRED BY THE SWPPP.
- 5.13.

CONSTRUCTION ACTIVITIES SHALL BE LIMITED TO PREVENT EXCESSIVE AMOUNTS OF OPEN TRENCH. OPEN TRENCH IS DEFINED AS AREAS ABSENT THE FOLLOWING CRITERIA; BACKFILL/COMPACTION PER THE SPECIFICATIONS, AND TEMPORARY SURFACE COURSE (IF REQUIRED) TO FINISH GRADE.
- 5.13.1.

THE MAXIMUM PERMISSIBLE DISTANCE OF OPEN TRENCH BETWEEN BACKFILLING/COMPACTION/TEMPORARY SURFACING OPERATIONS FROM THE END OF NEWLY INSTALLED PIPE SHALL NOT EXCEED 200 FEET IN EXISTING STREETS AND 500 FEET IN ALL OTHER AREAS, UNLESS OTHERWISE APPROVED BY OWNER/ENGINEER. SHORTER DISTANCES MAY BE REQUIRED BASED ON PROXIMITY TO SCHOOL BUILDINGS. REFER TO SECTION 31 23 33 TRENCHING AND BACKFILL FOR MORE INFORMATION.
- 5.13.2.

OPEN TRENCH OUTSIDE OF THESE LIMITS SHALL BE BACKFILLED, COMPACTED, AND HAVE TEMPORARY SURFACING INSTALLED TO FINISH GRADE PER THE SPECIFICATIONS AND BE OPEN AND ACCESSIBLE TO THE PUBLIC WITHIN TRAVELED ROADWAYS.
6.

NEW UTILITY INSTALLATION
- 6.1.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MEETING ALL O.S.H.A. STANDARDS FOR TRENCH EXCAVATION.
- 6.2.

UNLESS OTHERWISE NOTED, CONSTRUCTION LIMITS FOR WATER MAIN ARE WITHIN VALLEY COUNTY ACOE PROPERTY, COUNTY RIGHTS OF WAY, MONTANA DEPARTMENT OF TRANSPORTATION RIGHTS OF WAY, AND EXECUTED EASEMENTS.
- 6.3.

ALL WATER MAINS, SERVICES, VALVES, HYDRANTS, AND FITTINGS SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH THE DIVISION 33 - UTILITIES OF THE PROJECT SPECIFICATIONS.
- 6.4.

CONTRACTOR SHALL COORDINATE THE OPERATION OF EXISTING VALVES AND HYDRANTS WITH US ARMY CORPS OF ENGINEERS (USACE).
- 6.5.

THE EXACT TYPE AND SIZE OF EXISTING WATER MAIN/SERVICES ARE UNKNOWN. CONTRACTOR SHALL VERIFY SIZE, TYPE , AND LOCATION OF EXISTING MAINS/SERVICES AND ACQUIRE THE NECESSARY FITTINGS, VALVES, ADAPTORS, AND OTHER MATERIALS REQUIRED TO COMPLETE THE PROJECT. IF THE CONTRACTOR IS REQUIRED TO ACQUIRE/RETURN ANY FITTINGS, VALVES, ETC., THE COST OF SUPPLYING AND/OR RESTOCKING THE NECESSARY FITTINGS SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT.
- 6.6.

ALL SEWER SERVICE LATERAL INSTALLATION AND/OR REPAIRS NOT COVERED UNDER THE PROJECT DOCUMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH UNIFORM PLUMBING CODE AS ADOPTED BY MONTANA IN ARM 24.302.301 OR AS LOCALLY MODIFIED
- 6.7.

THE CONTRACTOR SHALL NOTIFY THE OWNER/ENGINEER WHEN ADDITIONAL WATER OR SEWER SERVICES ARE ENCOUNTERED THAT ARE NOT SHOWN ON THE PLANS, WHETHER THEY ARE ACTIVE OR INACTIVE.
7.

SURFACE RESTORATION
- 7.1.

ALL DISTURBED LANDSCAPE AREAS SHALL BE RE-LANDSCAPED WITH A MINIMUM 6 INCHES OF TOPSOIL AND RE-SEEDED IN ACCORDANCE WITH THE PROVISIONS OF SECTION 32 92 19 SEEDING OF THE PROJECT SPECIFICATIONS, UTILIZING A SEED MIX APPROVED BY THE OWNER/ENGINEER AND AFFECTED PROPERTY OWNER(S).
- 7.1.1.

CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING NEW LANDSCAPING UNTIL VEGETATION HAS BEEN FULLY ESTABLISHED, UNLESS OTHER ARRANGEMENTS ARE MADE AND APPROVED BY OWNER/ENGINEER.

8.

MISCELLANEOUS
- 8.1.

ALL PIPE HANGERS SHALL CONFORM TO MSS SP-58.
- 8.2.

FITTINGS FOR STEEL PIPE SHALL MEET AWWA C208 AND AWWA C200.
- 8.3.

FLANGED JOINTS SHALL MEET AWWA C207.
- 8.4.

STEEL PIPE AND ACCOMPANYING FITTINGS SHALL BE INSTALLED SATISFYING AWWA C604 AND AWWA M11 RESPECTIVELY.
- 8.5.

WELDED JOINTS: PROVIDE ELECTRODES OF THE QUALITY SPECIFIED IN AWWA C206.
- 8.6.

CARBON STEEL PIPING SHALL BE OF SEAMLESS CONSTRUCTION, MEET REQUIREMENTS OF AWWA C200, AND HAVE A MINIMUM YIELD STRESS OF 30,000 PSI.
- 8.7.

12" & 18" NPS CARBON STEEL PIPING SHALL HAVE A NOMINAL WALL THICKNESS OF 0.375".
- 8.8.

POWER HOUSE PIPING MAXIMUM OPERATING TEMPERATURE = 85°F, MAXIMUM WORKING PRESSURE = 100 PSIG, MAXIMUM TRANSIENT PRESSURE = 190 PSIG.
- 8.9.

POWER HOUSE PIPING REQUIRES 2" INSULATION TO PREVENT CONDENSATION
- 8.10.

THE 2018 INTERNATIONAL BUILDING CODE WAS NOTED AS THE CODE REGARDING THE PIPE STRESS ANALYSIS AND SUPPORT DESIGN.

Rev	Date	By	Description
1	06/28/24	CRD	USACE COMMENTS
2	06/17/25	CRD	UPDATED GRND WTR INDICATOR PER GEOTECH

FORT PECK FISH HATCHERY TRANSMISSION MAIN MONTANA FISH WILDLIFE & PARKS VALLEY COUNTY, MONTANA		GENERAL NOTES	
Drawn By: CRD	Surveyed By: IEI	Project No: S18-00-053.01	Project Date: 08/10/2026
Checked By: JRB	Designed By: BAB/JRB		

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3 OF 27

G:\PROJECTS\2018\18-00\053 Fort Peck Fish Hatchery Water Line\CAD\SHEETS\G--LEGEND.dwg 7/17/2025

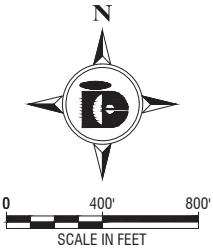
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CP-X

BASIS OF BEARING PER GPS OBSERVATION
LOCAL COORDINATE SYSTEM
US SURVEY FOOT

PROJECT CONTROL				
POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
4	63631.1070	92036.5400	2059.224	CP-7 RCP
519	64356.8630	91234.1170	2060.758	RP*CONTOL POINT
520	65061.5030	91797.7650	2057.474	MON*3" BC CORP OF ENGINEERS
522	64562.2950	91485.5330	2056.930	MON*3" BC CORP OF ENGINEERS
530	65262.7440	91418.8610	2054.823	MON*STATE CP 2" AC
523	64541.2170	91338.0820	2057.306	MON*2" AC ROW
525	62895.6380	92841.8230	2057.663	MON*3" BC CORP OF ENGINEERS
526	62500.3100	91942.4060	2135.623	MON*3" BC CORP OF ENGINEERS
17161	63412.9270	100230.2040	2072.005	BM*CORP MONUMENT



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FORT PECK FISH HATCHERY TRANSMISSION MAIN MONTANA FISH WILDLIFE & PARKS VALLEY COUNTY, MONTANA			
PROJECT SURVEY CONTROL			
Drawn By: CRD	Surveyed By: IEI	Project No: S18-00-053.01	Date: 08/10/2026
Checked By: JRB	Designed By: BAB/JRB		

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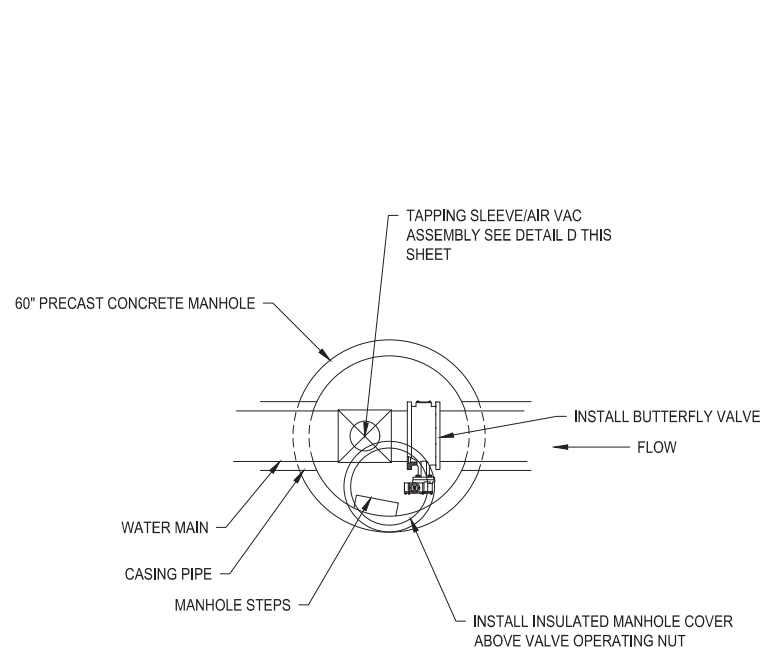
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FORT PECK FISH HATCHERY TRANSMISSION MAIN			
MONTANA FISH WILDLIFE & PARKS			
VALLEY COUNTY, MONTANA			
CORRIDOR SITE PLAN & KEY MAP			
Drawn By:	CRD	Surveyed By:	IEI
Checked By:	JRB	Designed By:	BAB/JRB
		Project No:	S18-00-053.01
		Date:	08/10/2026

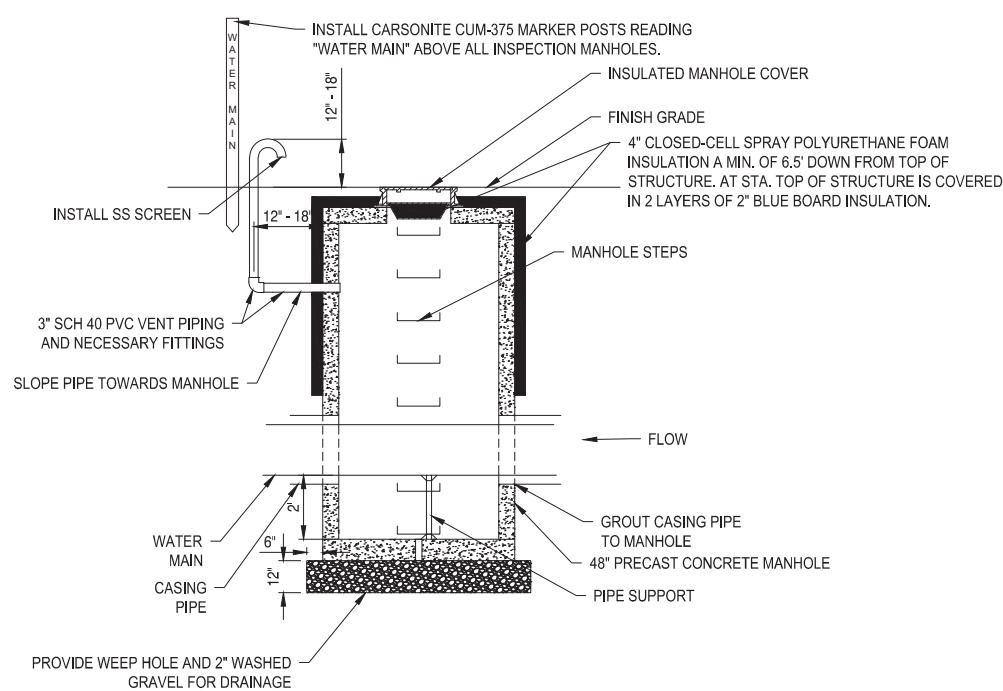
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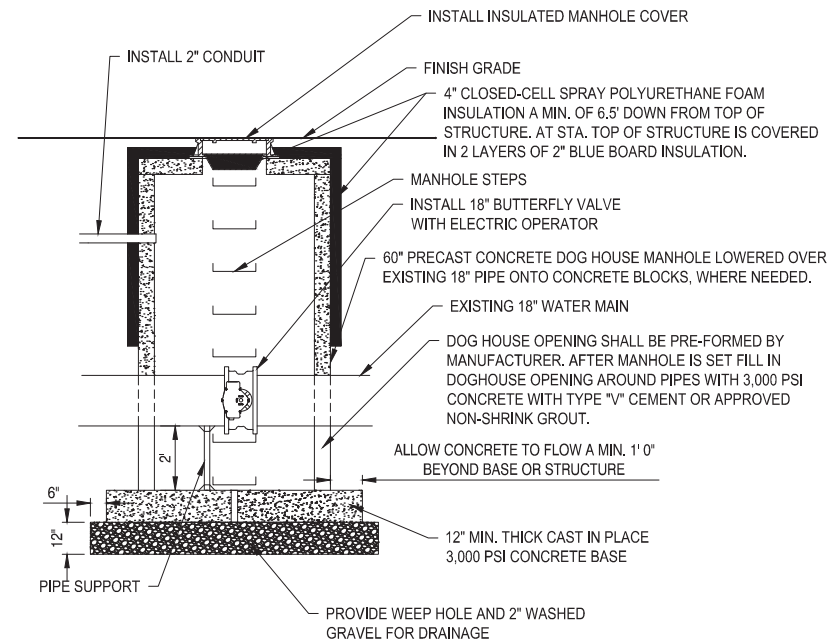
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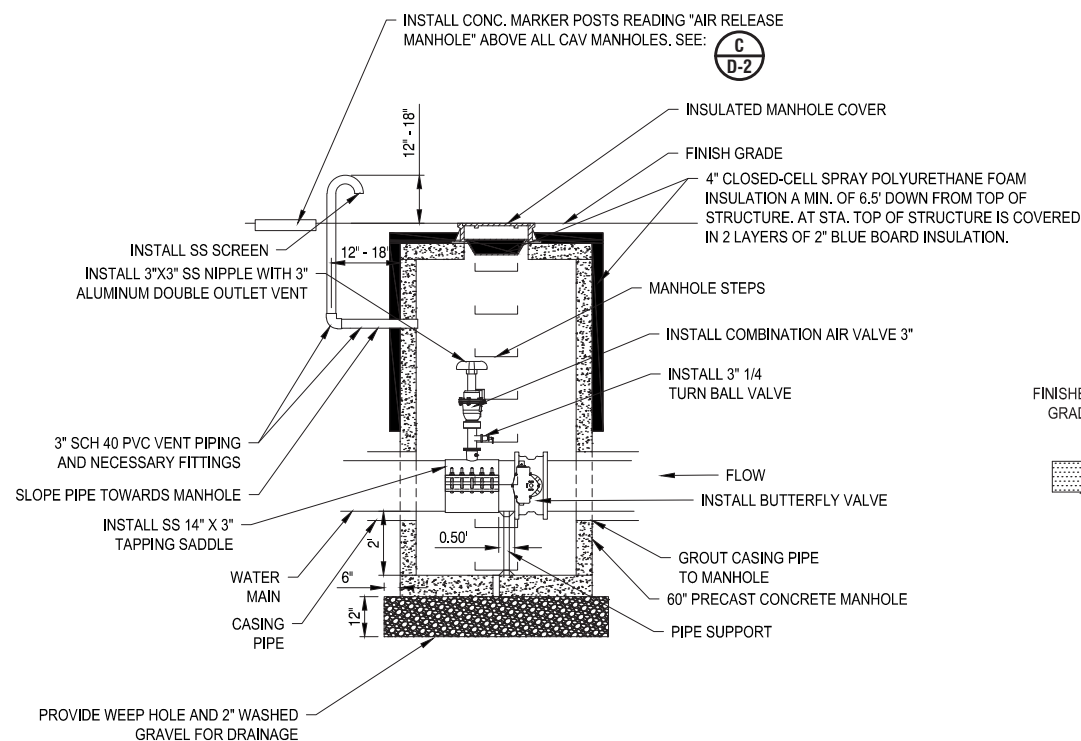
A D-1 COMBO AIR VAC MANHOLE PLAN
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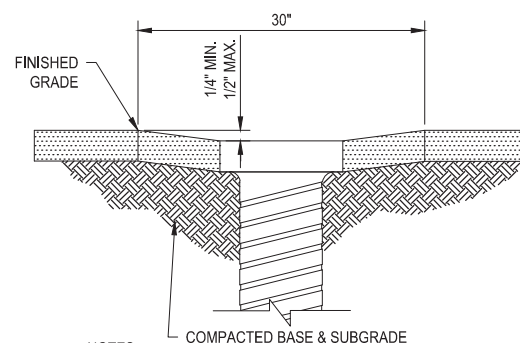
B D-1 INSPECTION MANHOLE DETAIL
(FOR MH # 2, 4, 6, 7, 8) SCALE: N.T.S.



C D-1 DOG HOUSE MANHOLE DETAIL
SCALE: N.T.S.

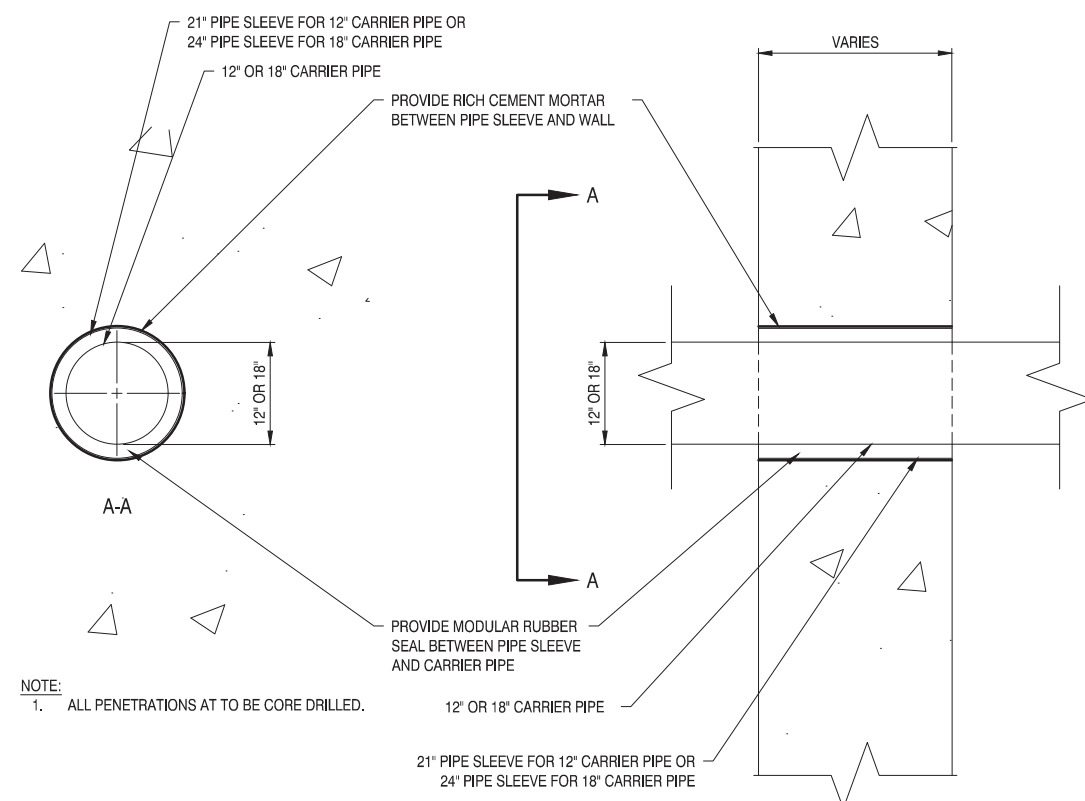


D D-1 COMBO AIR VAC MANHOLE PROFILE
(FOR MH # 1, 3, 5, 9, 10, 11, 12) SCALE: N.T.S.



- NOTES:**
1. ADJUST EXISTING WATER VALVES UPWARD OR DOWNWARD AS REQUIRED.
 2. FINAL ADJUSTMENT SHALL BE MADE BEFORE PAVING.
 3. NO PAYMENT SHALL BE MADE FOR ADJUSTMENT OF NEW VALVES TO FINAL GRADE.

E D-1 VALVE RISER DETAIL
SCALE: N.T.S.



- NOTE:**
1. ALL PENETRATIONS AT TO BE CORE DRILLED.

F D-1 GENERAL WALL PENETRATION DETAIL
SCALE: N.T.S.

Rev	No	Date	By	Description
1	A	06/28/24	CRD	USACE COMMENTS
2	A	06/17/25	CRD	UPDATED GRND WTR INDICATOR PER GEOTECH

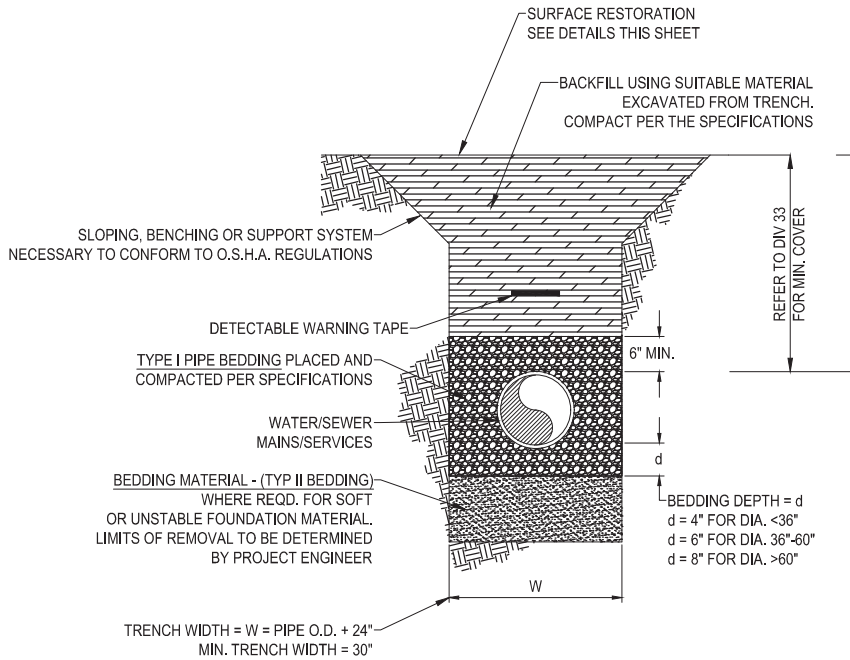
FORT PECK FISH HATCHERY TRANSMISSION MAIN	
MONTANA FISH WILDLIFE & PARKS	
VALLEY COUNTY, MONTANA	
MISC. WATER MAIN DETAILS	
Drawn By: CRD	Checked By: JRB
Surveyed By: IEI	Designed By: BAB/JRB
Project No: S18-00-053.01	Date: 08/10/2026

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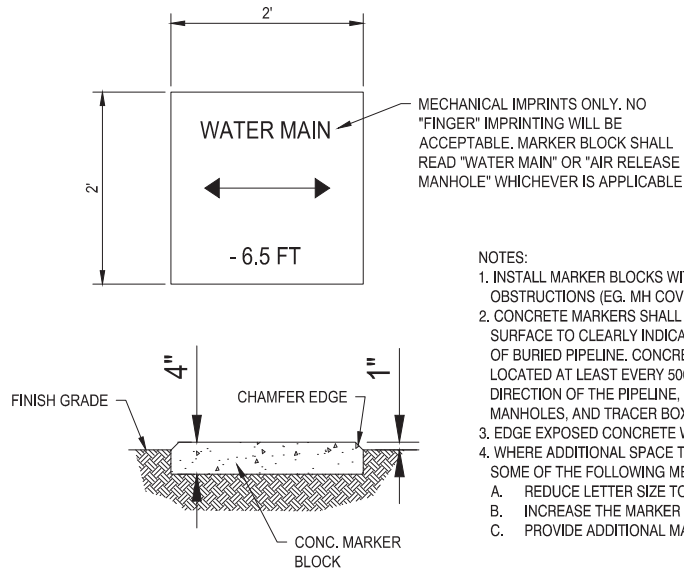
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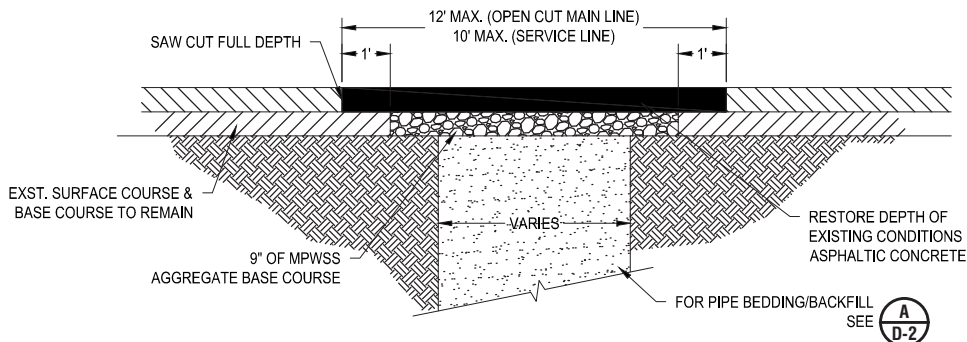
A
D-2 **PIPE BEDDING DETAIL**
SCALE: N.T.S.

- NOTES:**
1. TRENCHING AND EXCAVATION SHALL BE PERFORMED IN ACCORDANCE WITH THE PROVISIONS OF DIVISION 31 EARTHWORK AND DIVISION 33 UTILITIES.
 2. SEE CONTRACT SPECIFICATIONS FOR ANY MODIFICATIONS TO STANDARD TRENCH MATERIALS AND/OR TRENCH DESIGN FEATURES.
 3. PIPE INSTALLED VIA "OPEN CUT" METHODS SHALL BE FURNISHED AND INSTALLED WITH DETECTABLE WARNING TAPE. PIPE SHALL INCLUDE MAINS, SERVICES, AND HYDRANT LEADS AS APPLICABLE.
 4. DETECTABLE WARNING TAPE SHALL BE PLACED 24" TO 36" ABOVE THE PIPE, OR AS APPROVED BY OWNER/ENGINEER.
 5. TRACER WIRE SHALL BE INSTALLED ON ALL WATER MAINS, SERVICES, AND HYDRANT LEADS. REFER TO SECTION 33 05 00 COMMON WORK RESULTS FOR UTILITIES.



C
D-2 **WATERMAIN MARKER DETAIL**
SCALE: N.T.S.

- NOTES:**
1. INSTALL MARKER BLOCKS WITHIN 18" OF ANY SURFACE OBSTRUCTIONS (EG. MH COVER, VALVE RISER BOX, ETC.)
 2. CONCRETE MARKERS SHALL BE PROVIDED ON THE GROUND SURFACE TO CLEARLY INDICATE THE LOCATION AND DEPTH OF BURIED PIPELINE. CONCRETE MARKERS SHALL BE LOCATED AT LEAST EVERY 500 FEET AND/OR CHANGE IN DIRECTION OF THE PIPELINE, INSPECTION MANHOLES, C.A.V. MANHOLES, AND TRACER BOXES, OUTSIDE OF PAVED AREAS.
 3. EDGE EXPOSED CONCRETE WITH A 1 1/4" RADIUS TOOL.
 4. WHERE ADDITIONAL SPACE TO FIT THE LEGEND IS REQUIRED, SOME OF THE FOLLOWING METHODS SHALL BE EMPLOYED:
 - A. REDUCE LETTER SIZE TO 3" HIGH AND 2" WIDE.
 - B. INCREASE THE MARKER SIZE TO 30" X 30" MAXIMUM.
 - C. PROVIDE ADDITIONAL MARKERS PLACED SIDE BY SIDE.



- NOTE:**
1. WHEN THE EDGE OF THE ASPHALT CUT-BACK IS LESS THAN 2 ft FROM THE GUTTER OR 3 ft FROM AN EXISTING GATE VALVE SCHEDULED TO BE REMOVED, THE ASPHALT SHALL BE REMOVED TO THE GUTTER OR PAST THE EXISTING GATE VALVE (SUFFICIENT ENOUGH TO PROPERLY REMOVE THE EXISTING GATE VALVE) AND RESTORED AT THE DIRECTION OF THE ENGINEER. THE EXTRA SURFACE RESTORATION SHALL BE PAID AT THE APPLICABLE PRICE.
 2. PIPE BEDDING AND TRENCH BACKFILL TO BE INSTALLED PER SPECIFICATIONS.
 3. THE COST OF PIPE BEDDING SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE PIPE.
 4. THE CONTR. SHALL BE RESPONSIBLE FOR DETERMINING SAFE SLOPES AND PROVIDE TEMP. SHORING AS DEEMED NECESSARY TO PROVIDE SAFE WORKING CONDITIONS.
 5. DETAIL TO BE USED WHERE ASPHALT SURFACING EXISTS AND THE STREET IS NOT TO RECEIVE A FULL-WIDTH PAVEMENT REPLACEMENT.

D
D-2 **SURFACE RESTORATION DETAIL**
SCALE: N.T.S.

Rev	No	Date	By	Description
	1	06/28/24	CRD	USACE COMMENTS
	2	06/17/25	CRD	UPDATED GRND WTR INDICATOR PER GEOTECH

FORT PECK FISH HATCHERY TRANSMISSION MAIN MONTANA FISH WILDLIFE & PARKS VALLEY COUNTY, MONTANA		Project No: S18-00-053.01 Date: 08/10/2026	
Drawn By: CRD		Designed By: BAB/JRB	
Surveyed By: IEI		Checked By:	
MISC. WATER MAIN DETAILS			

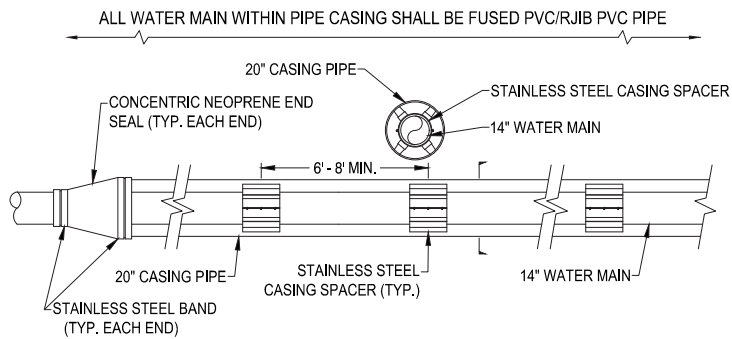
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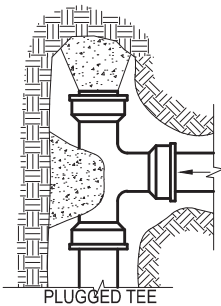
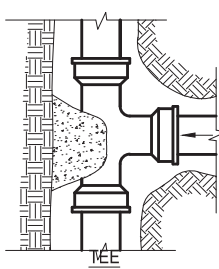
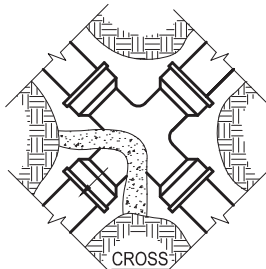
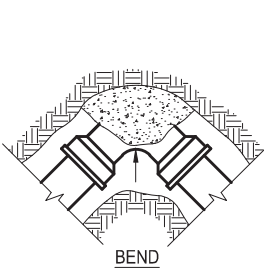
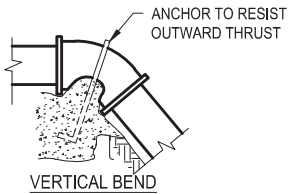
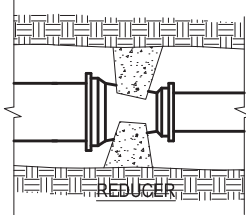
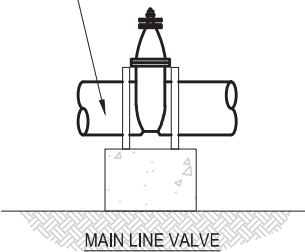
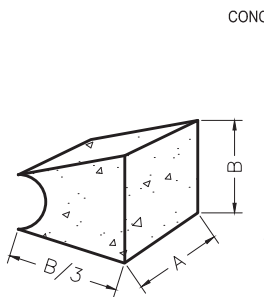
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NOTE:
1. CASING END SEALS (CONCENTRIC NEOPRENE SEAL AND STAINLESS STEEL BANDS) SHALL NOT BE REQUIRED AT LOCATIONS WHERE THE CASING TERMINATES IN A MANHOLE.

(BASE BID - STATIONS: 12+80 TO 14+30, 65+00 TO 127+33)

A
D-3 **CASING DETAIL**
SCALE: N.T.S.

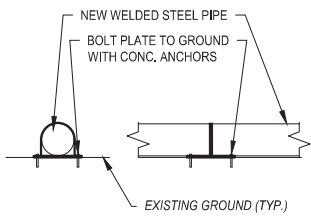


Standard Dimensions For Thrust Blocks								
Fitting Sizes	Tees/Dead Ends		90° Bend		45° Bend		22.5° Bend	
	A	B	A	B	A	B	A	B
4	2.16	1.44	2.57	1.71	1.89	1.26	1.35	0.90
6	3.24	2.16	3.85	2.57	2.83	1.89	2.02	1.35
8	4.32	2.88	5.14	3.42	3.78	2.52	2.70	1.80
10	5.40	3.60	6.42	4.28	4.72	3.15	3.37	2.25
12	6.48	4.32	7.71	5.14	5.67	3.78	4.05	2.70
14	7.56	5.04	8.99	5.99	6.61	4.41	4.72	3.15
16	8.64	5.76	10.27	6.85	7.56	5.04	5.40	3.60
18	9.72	6.48	11.56	7.71	8.50	5.67	6.07	4.05

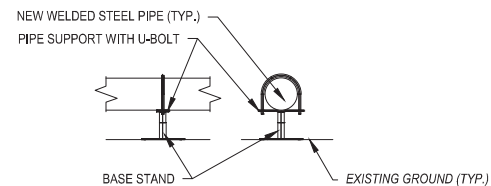
NOTES:
1. TABLE IS BASED ON MAIN PRESSURE OF 165 PSI AND SOIL BEARING PRESSURE OF 1000 PSF WITH A SAFETY FACTOR OF 1.5.
2. WRAP ALL FITTINGS WITH POLYETHYLENE.

C
D-3 **THRUST BLOCK DETAIL**
SCALE: N.T.S.

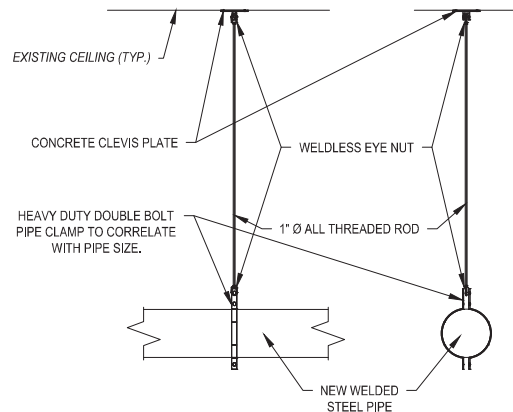
- NOTES:**
1. ALL PIPE HANGERS SHALL CONFORM TO MSS SP-58.
2. STEEL PIPE AND ACCOMPANYING FITTINGS SHALL BE INSTALLED SATISFYING AWWA C604 AND AWWA M11 RESPECTIVELY.
3. U-BOLT NOT REQUIRED ON ALL SUPPORTS. SEE PLAN SHEETS FOR SUPPORTS WITH U-BOLTS.
4. MAXIMUM VERTICAL PIPING LOAD = 3800 LBS DOWNWARD (NON-FACTORED LOAD).
5. A FACTOR OF SAFETY FOR SUPPORT SHALL BE 2 OR GREATER.
6. CONCRETE ANCHORS SHALL BE ADHESIVE ANCHOR SYSTEMS AND MUST BE QUALIFIED TO RESIST SUSTAINED TENSION LOADS.



FLOOR SUPPORTS

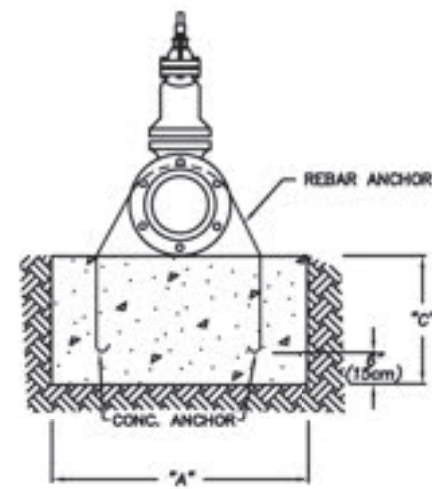
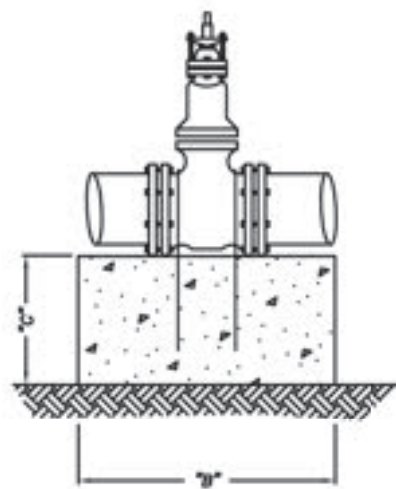


ELEVATED FLOOR SUPPORTS



CEILING HANGERS

B
D-3 **PIPE HANGERS AND SUPPORTS**
SCALE: N.T.S.



WALL SUPPORTS

NOTE:
COAT RODS WITH "KOPPERS"
BITUMASTIC NO. 50 COATING
OR EQUAL.

STANDARD THRUST BLOCK DIMENSIONS																
ANCHOR ROD SIZE	VALVE SIZE	100 PSI			150 PSI			200 PSI			250 PSI			300 PSI		
		"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"	"A"	"B"	"C"
3/4"	6" & 8"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-0"	2'-7"
3/4"	10"	2'-0"	2'-0"	2'-0"	2'-6"	2'-6"	2'-0"	2'-9"	2'-6"	2'-6"	3'-0"	3'-0"	3'-0"	3'-7"	3'-0"	3'-0"
3/4"	12"	2'-3"	2'-0"	2'-0"	3'-0"	3'-0"	2'-6"	3'-5"	3'-0"	3'-0"	4'-3"	3'-0"	3'-0"	5'-1"	3'-0"	3'-0"
1"	14"	2'-3"	2'-0"	2'-4"	3'-5"	3'-0"	3'-0"	4'-6"	3'-0"	3'-0"	4'-0"	4'-0"	4'-0"	4'-9"	4'-0"	4'-0"
1 1/8"	16"	3'-0"	3'-0"	2'-11"	4'-4"	3'-0"	3'-0"	4'-11"	4'-0"	4'-0"	5'-1"	4'-0"	4'-0"	6'-1"	4'-0"	4'-0"
1 1/4"	18"	3'-8"	3'-0"	3'-0"	5'-5"	3'-0"	3'-0"	5'-1"	4'-0"	4'-0"	6'-4"	4'-0"	4'-0"	5'-9"	5'-0"	5'-0"
1 3/8"	24"	4'-4"	4'-0"	4'-0"	6'-5"	4'-0"	4'-0"	6'-6"	5'-0"	5'-0"	6'-5"	6'-0"	6'-0"	7'-8"	6'-0"	6'-0"

NOTES:
1. PRESSURES SHOWN ABOVE ARE MAXIMUM WORKING PRESSURE IN SYSTEM.

D
D-3 **THRUST BLOCKING FOR WATER MAIN VALVES - 02660-3**
ATTRIBUTION: MPWSS STD DRAWING (SCALE: N.T.S.)

Rev	No	Date	By	Description
1	A	06/28/24	CRD	USACE COMMENTS
2	A	06/17/25	CRD	UPDATED GRND WTR INDICATOR PER GEOTECH

FORT PECK FISH HATCHERY TRANSMISSION MAIN
MONTANA FISH WILDLIFE & PARKS
VALLEY COUNTY, MONTANA

THRUST BLOCK DETAIL

Drawn By: CRD
Checked By: JRB
Surveyed By: IEI
Designed By: BAB/JRB
Project No: S18-00-053.01
Date: 08/10/2026

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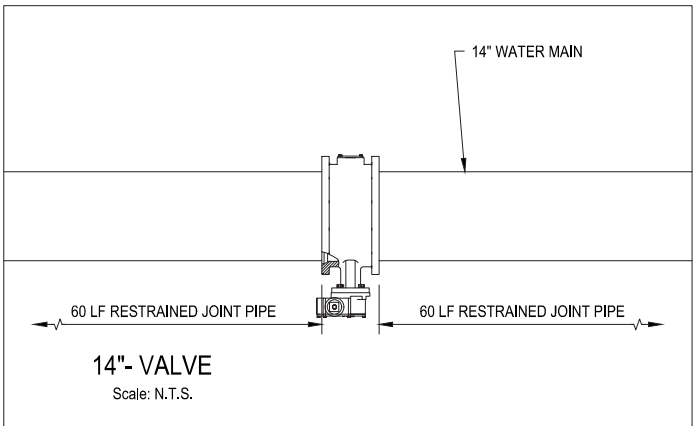
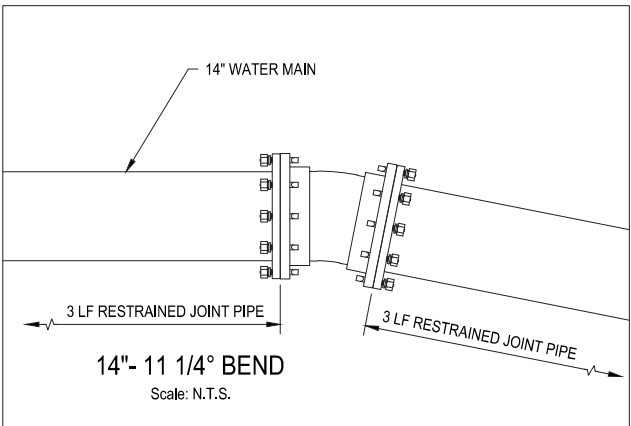
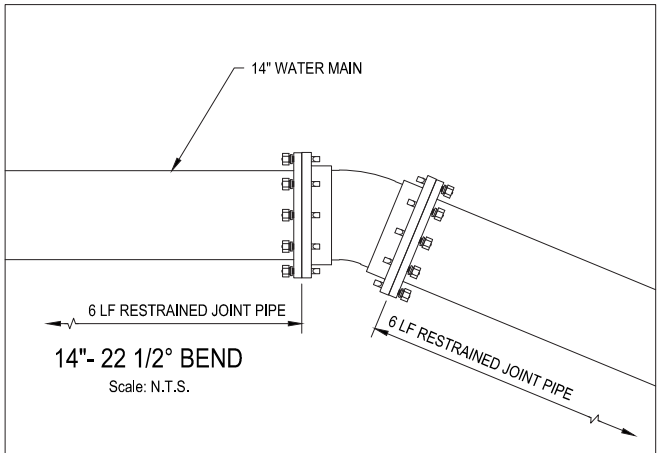
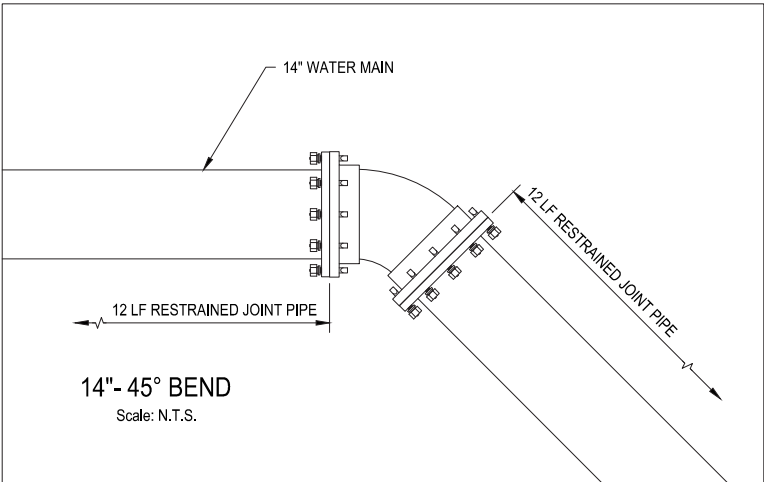
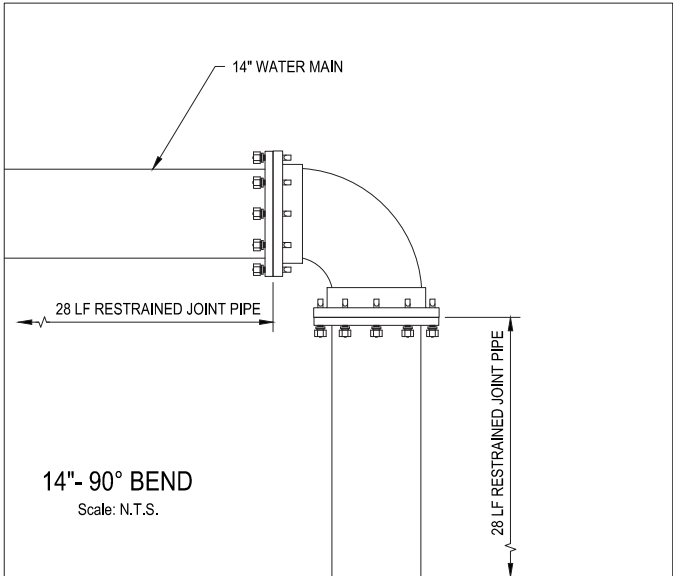
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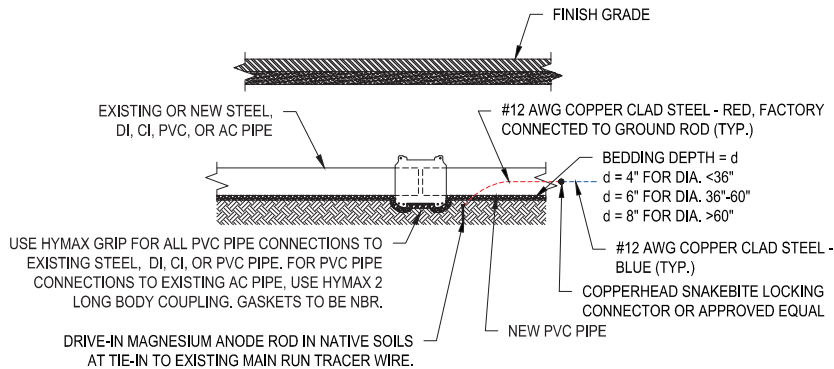
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JOINT RESTRAINT TABLE FOR FITTINGS; DISTANCE FROM FITTING (FT)							
FITTING SIZE (INCH)	TEE	VALVE	CAP	90° BEND	45° BEND	22.5° BEND	11.25° BEND
14	32	60	60	28	12	6	3
16	39	67	67	31	13	7	4
18	46	74	74	35	15	7	4

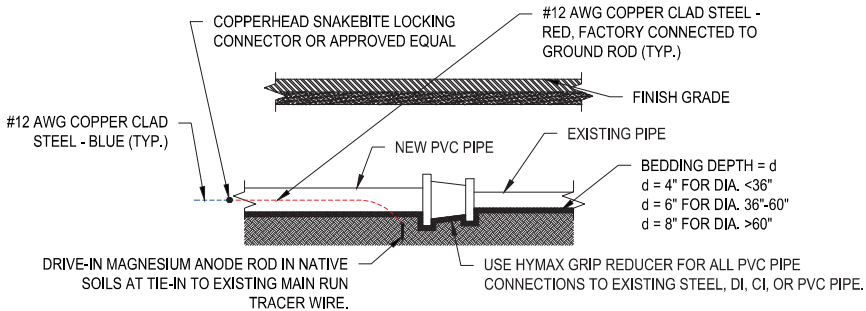
- NOTES:
- CONTRACTOR TO COORDINATE WITH ENGINEER ON JOINT RESTRAINT REQUIREMENTS FOR ITEMS INSTALLED AS NOT SHOWN ON THE PROJECT PLANS.
 - ALL JOINTS WITHIN THE CALCULATED LENGTH MUST BE RESTRAINED.
 - IF YOUR DISTANCE BETWEEN FITTINGS IS LESS THAN OR EQUAL TO THE CALCULATED RESTRAINT LENGTH, RESTRAIN ALL JOINTS BETWEEN THOSE FITTINGS.
 - CALCULATIONS ARE BASED ON THE FOLLOWING DESIGN CRITERIA:
 - PVC PIPE TYPE, 7 - FEET DEPTH OF BURY, SAFETY FACTOR - 1, SOIL CLASS -CL, TRENCH TYPE 3, 200 PSI TEST PRESSURE, AND A HORIZONTAL ALIGNMENT.
 - TEE FITTING CALCULATIONS ARE ASSUMING MAIN BRANCH AND LATERAL ARE THE SAME NOMINAL PIPE SIZE.
 - [HTTPS://RLC.EBAA.COM/CALCULATOR.PHP](https://rlc.ebaa.com/calculator.php)



A
D-4 **JOINT RESTRAINT DETAIL**
SCALE: N.T.S.



B
D-4 **CONNECT TO EXISTING SIMILAR SIZE WATER PIPE**
SCALE: N.T.S.

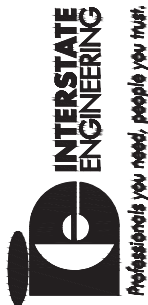


C
D-4 **CONNECT TO EXISTING DISSIMILAR SIZE WATER PIPE**
SCALE: N.T.S.

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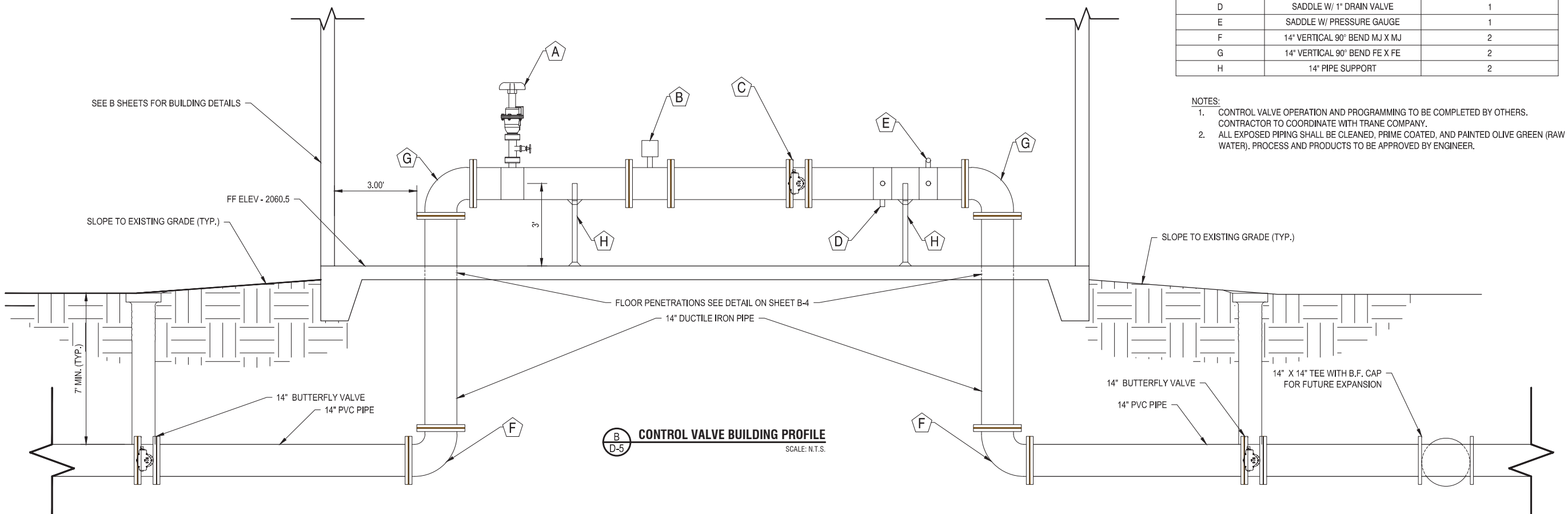
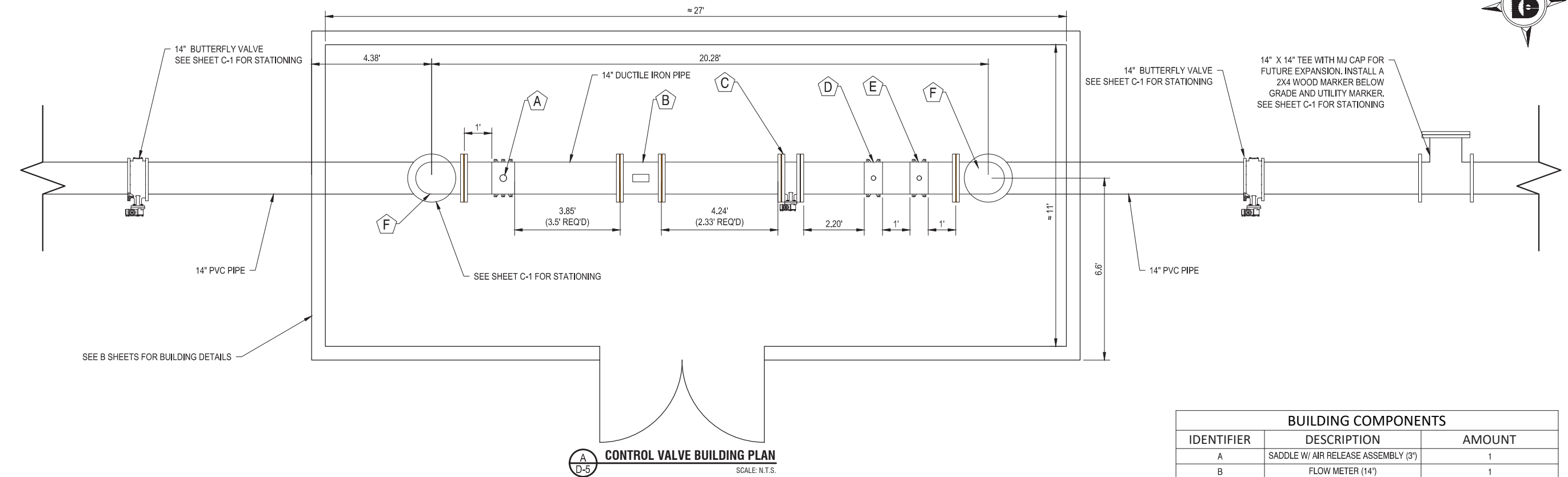
FORT PECK FISH HATCHERY TRANSMISSION MAIN		Project No:	S18-00-053.01
MONTANA FISH WILDLIFE & PARKS		Drawn By:	CRD
VALLEY COUNTY, MONTANA		Checked By:	JRB
JOINT RESTRAINT DETAIL		Designed By:	BAB/JRB
		Date:	08/10/2026

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BUILDING COMPONENTS		
IDENTIFIER	DESCRIPTION	AMOUNT
A	SADDLE W/ AIR RELEASE ASSEMBLY (3")	1
B	FLOW METER (14")	1
C	14" BUTTERFLY VALVE (W/ ELEC. OPERATOR)	1
D	SADDLE W/ 1" DRAIN VALVE	1
E	SADDLE W/ PRESSURE GAUGE	1
F	14" VERTICAL 90° BEND MJ X MJ	2
G	14" VERTICAL 90° BEND FE X FE	2
H	14" PIPE SUPPORT	2

- NOTES:
- CONTROL VALVE OPERATION AND PROGRAMMING TO BE COMPLETED BY OTHERS. CONTRACTOR TO COORDINATE WITH TRANE COMPANY.
 - ALL EXPOSED PIPING SHALL BE CLEANED, PRIME COATED, AND PAINTED OLIVE GREEN (RAW WATER). PROCESS AND PRODUCTS TO BE APPROVED BY ENGINEER.

Rev

No

1

By

CRD

Date

06/28/24

Description

USACE COMMENTS

Rev

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2

By

CRD

Date

06/17/25

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Drawn By:

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Checked By:

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Surveyed By:

IEI

Designed By:

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Project No:

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Date:

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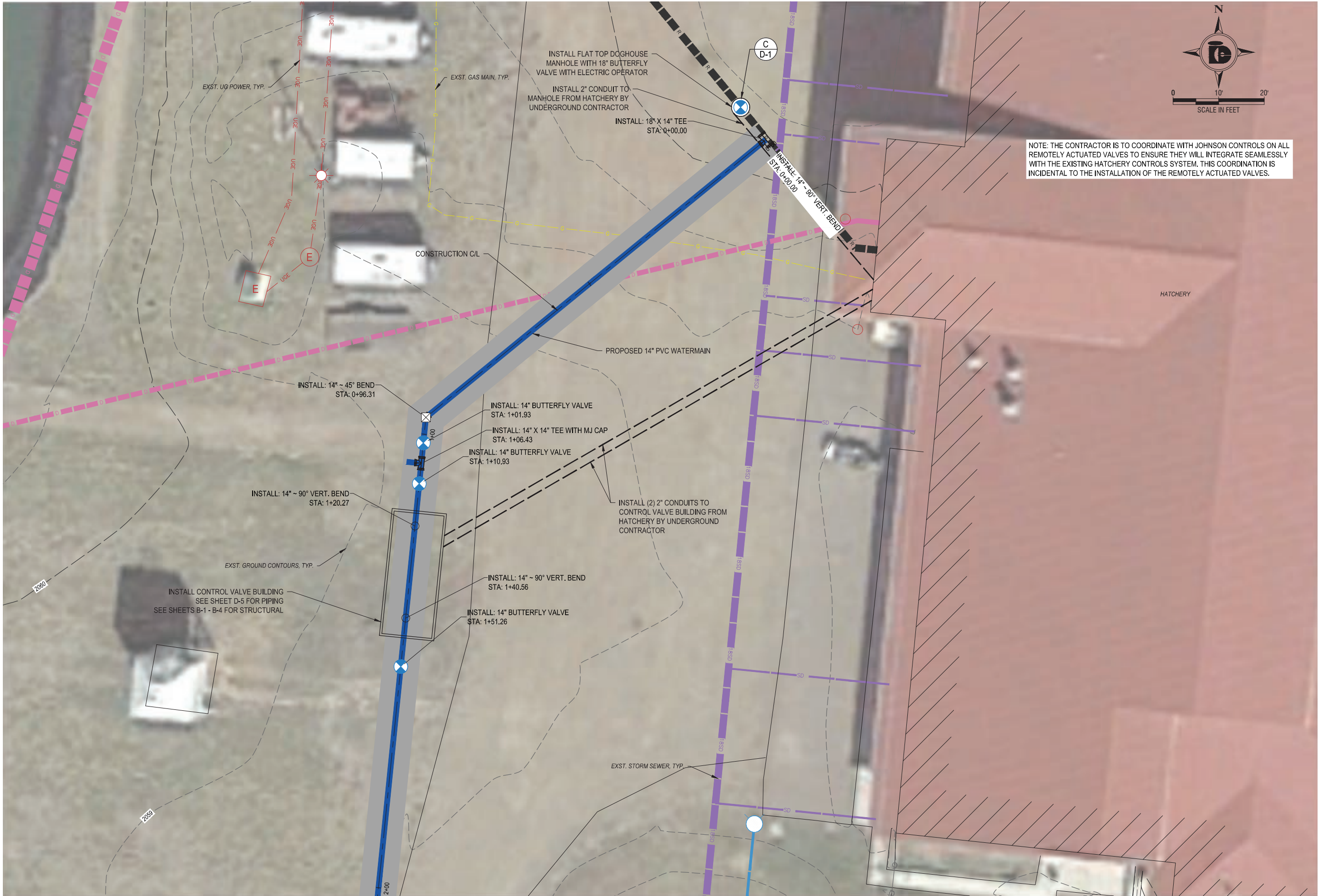
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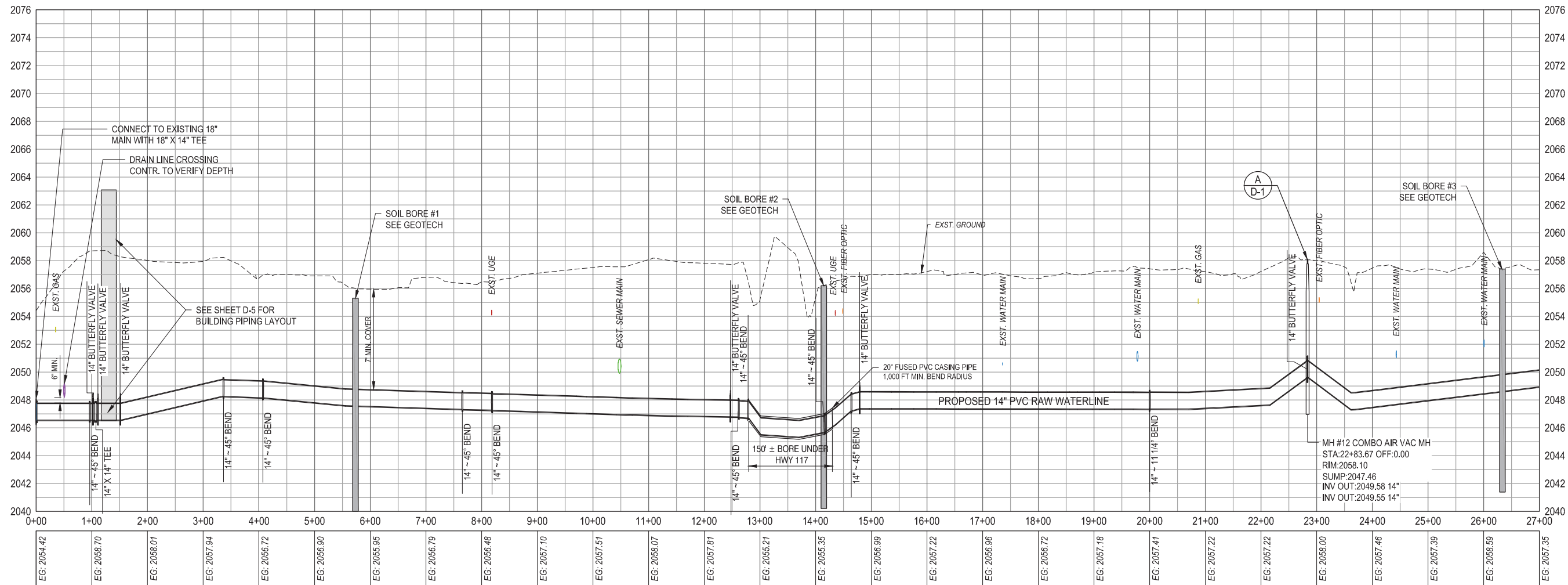
FORT PECK FISH HATCHERY TRANSMISSION MAIN MONTANA FISH WILDLIFE & PARKS VALLEY COUNTY, MONTANA				Project No: S18-00-053.01 Date: 08/10/2026
CONTROL VALVE BUILDING PLAN				
Drawn By: CRD	Surveyed By: JRB	IEI	Designed By: BAB/JRB	

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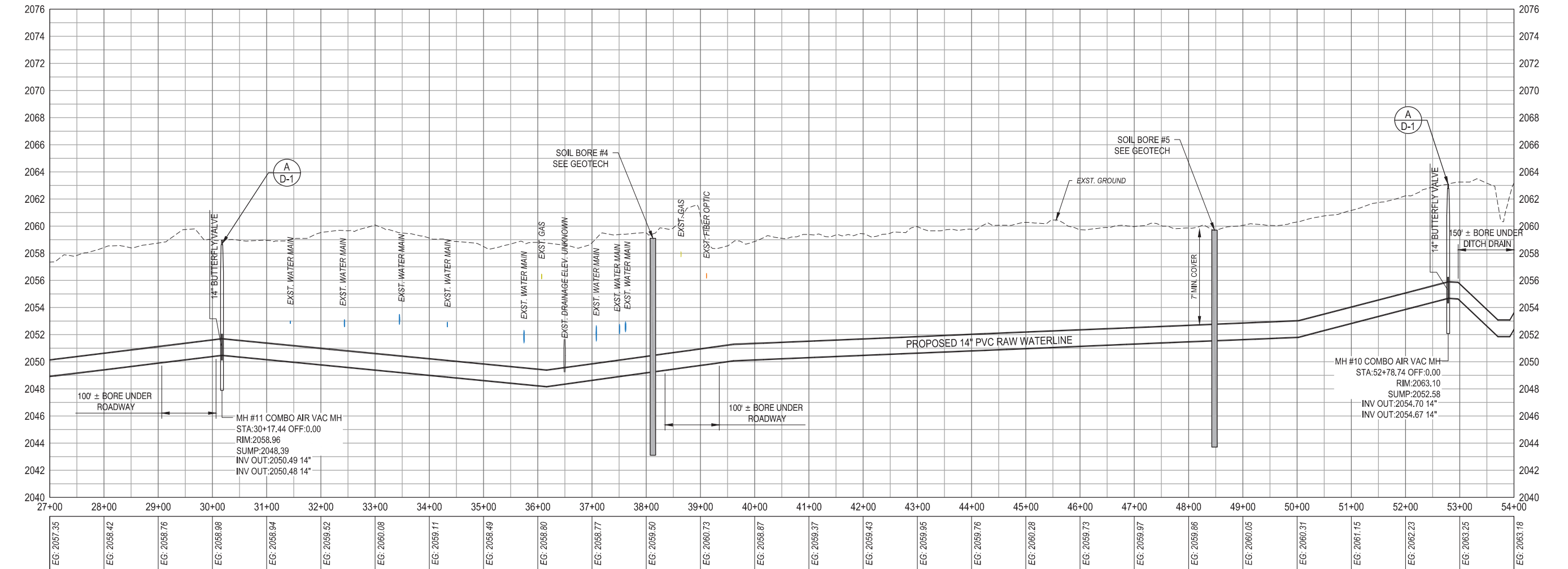
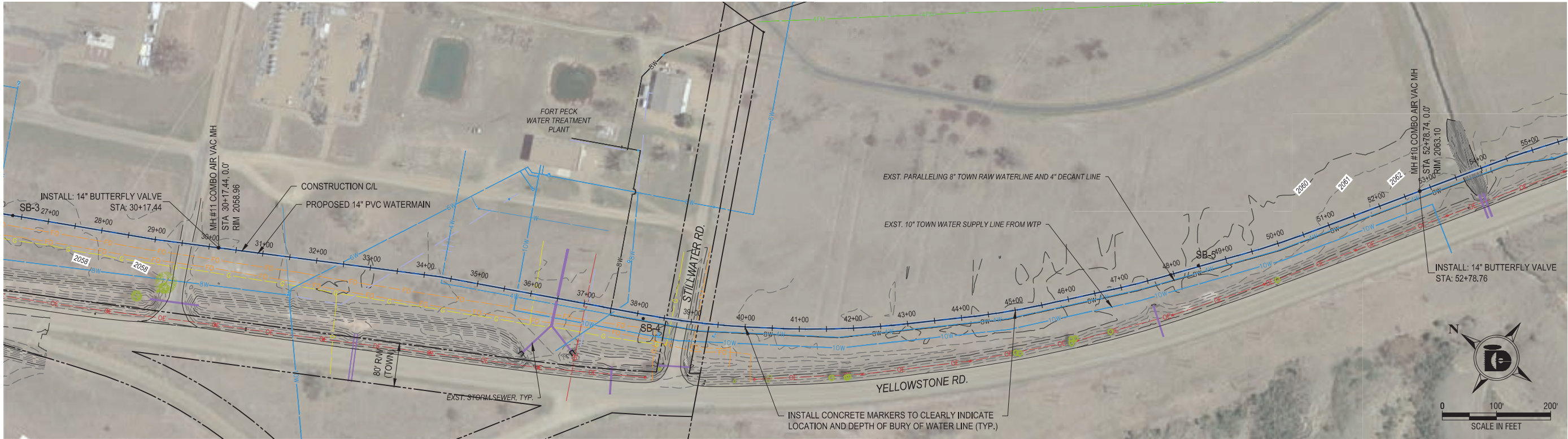
FORT PECK FISH HATCHERY TRANSMISSION MAIN MONTANA FISH WILDLIFE & PARKS VALLEY COUNTY, MONTANA				Project No: S18-00-053.01 Date: 08/10/2026
TRANSMISSION MAIN PLAN & PROFILE				
Drawn By: CRD	Surveyed By: IEI	Checked By: JRB	Designed By: BAS/JRB	

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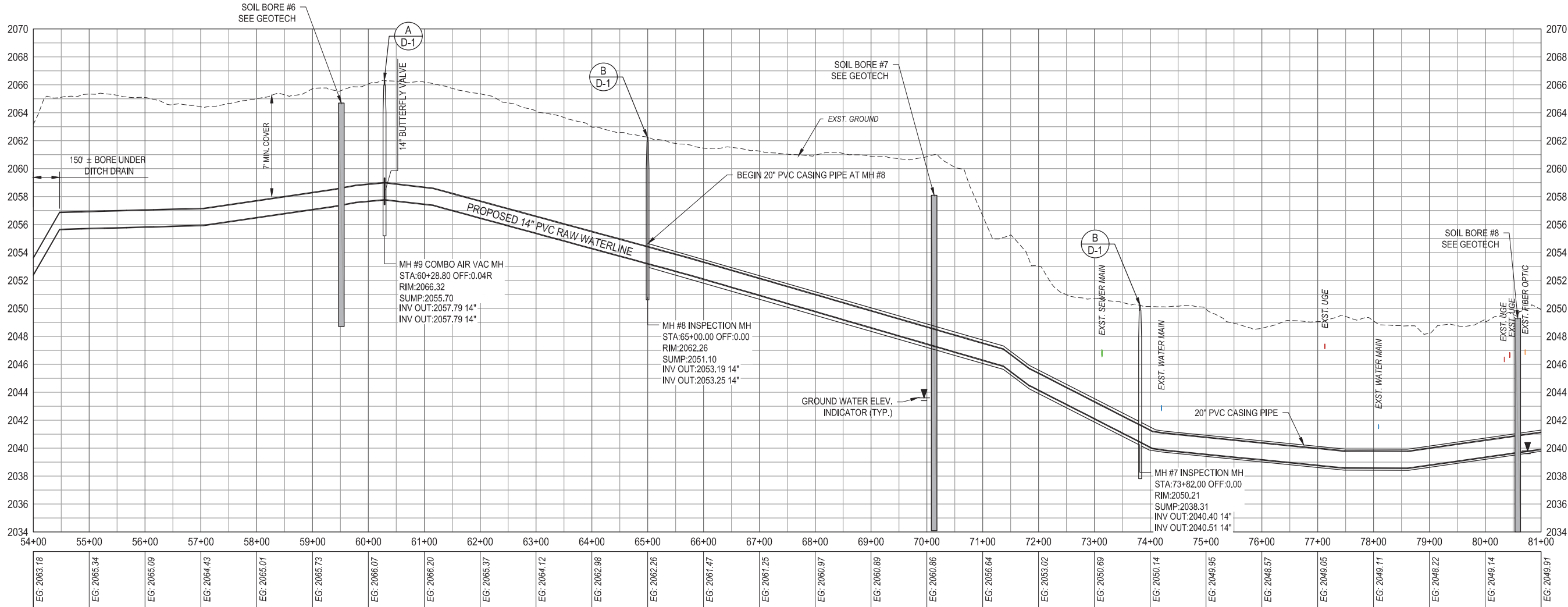
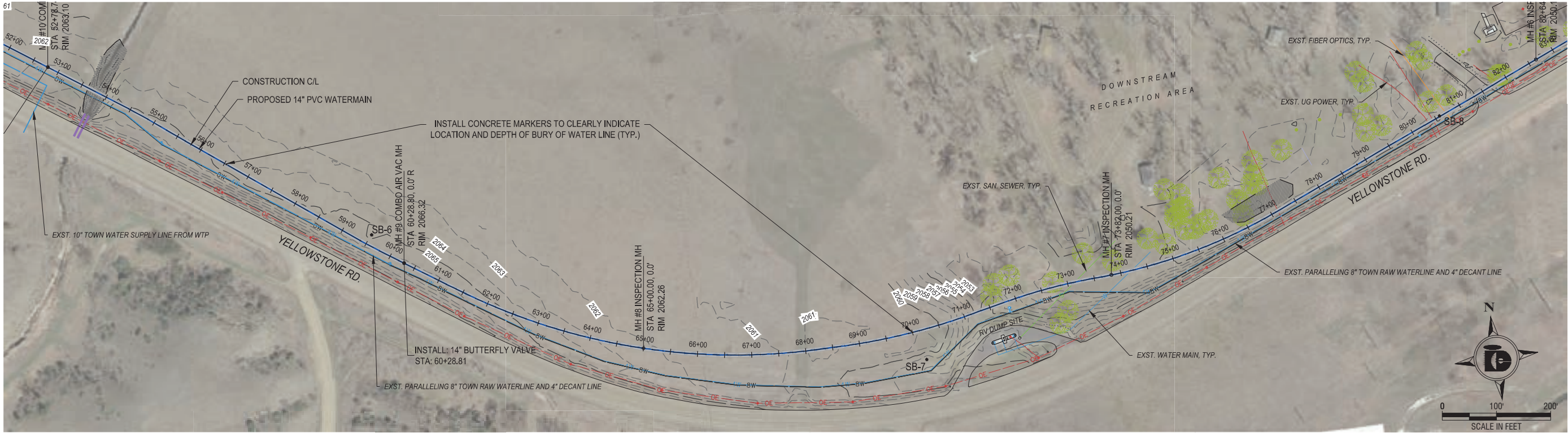
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TRANSMISSION MAIN PLAN & PROFILE				
Drawn By: CRD	Surveyed By: IEI	Checked By: JRB	Designed By: BAB/JRB	

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Rev	No	Date	By	Description
1	A	06/28/24	CRD	USACE COMMENTS
2	A	06/17/25	CRD	UPDATED GRND WTR INDICATOR PER GEOTECH

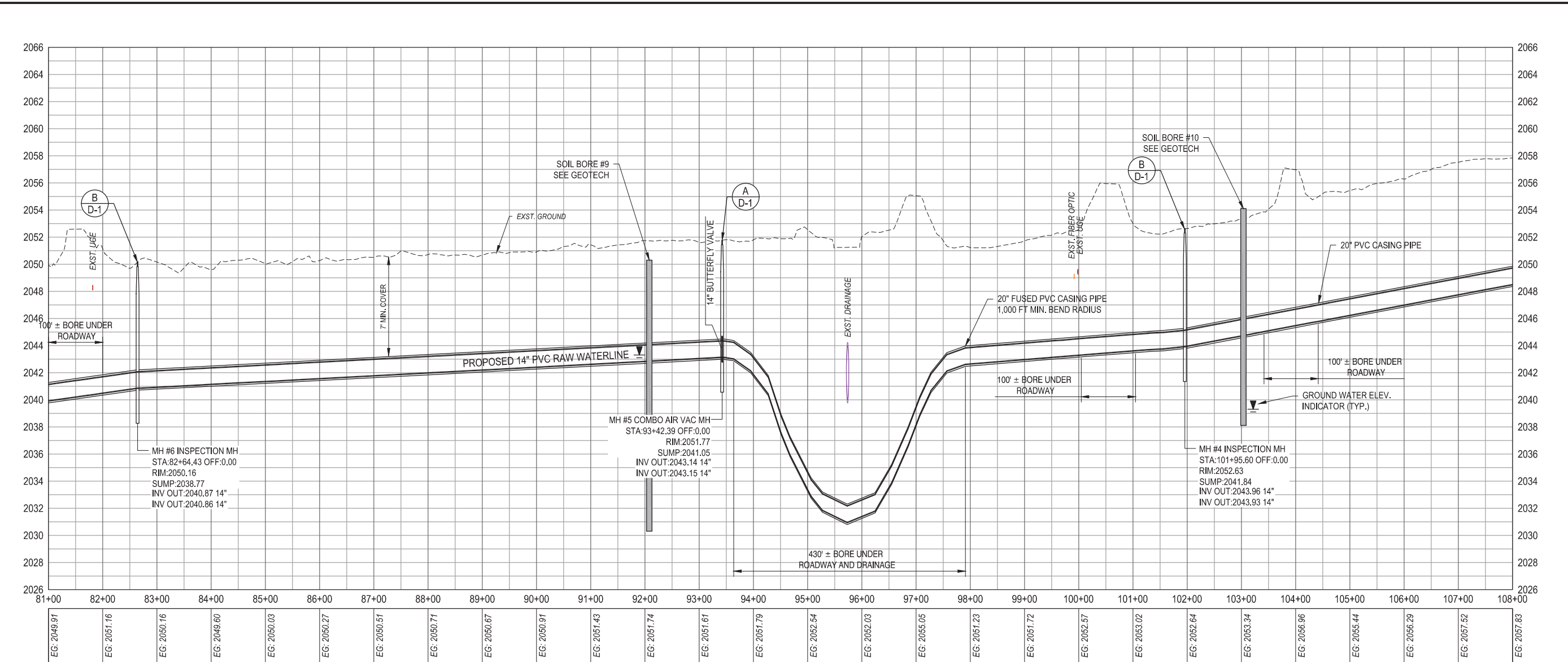
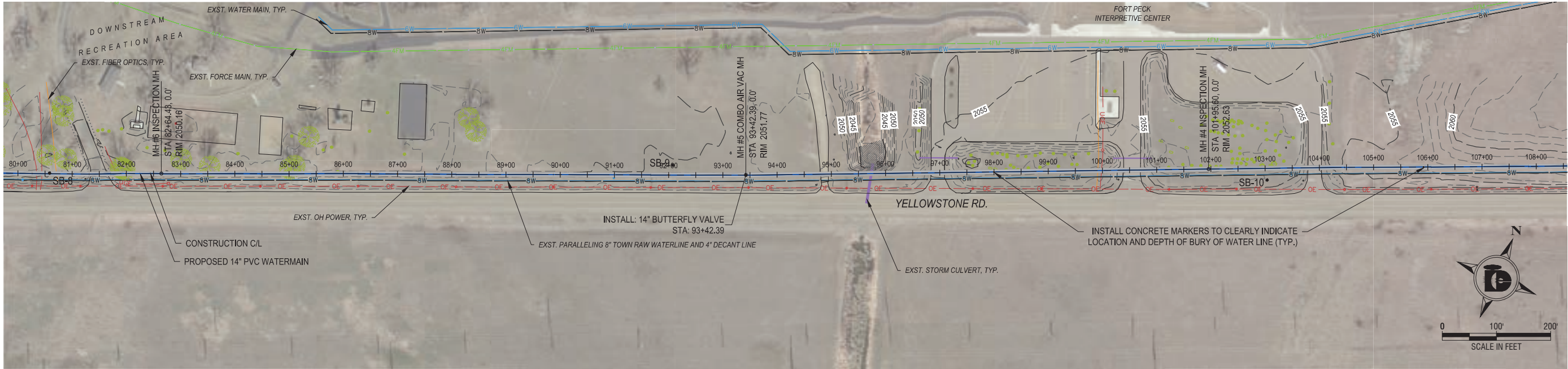
FORT PECK FISH HATCHERY TRANSMISSION MAIN	
MONTANA FISH WILDLIFE & PARKS	
VALLEY COUNTY, MONTANA	
TRANSMISSION MAIN PLAN & PROFILE	
Drawn By: CRD	Checked By: JRB
Surveyed By: IEI	Project No: S18-00-053.01
Designed By: BAB/JRB	Date: 08/10/2026

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ELEVATIONS BASED ON LOCAL COORDINATE SYSTEM

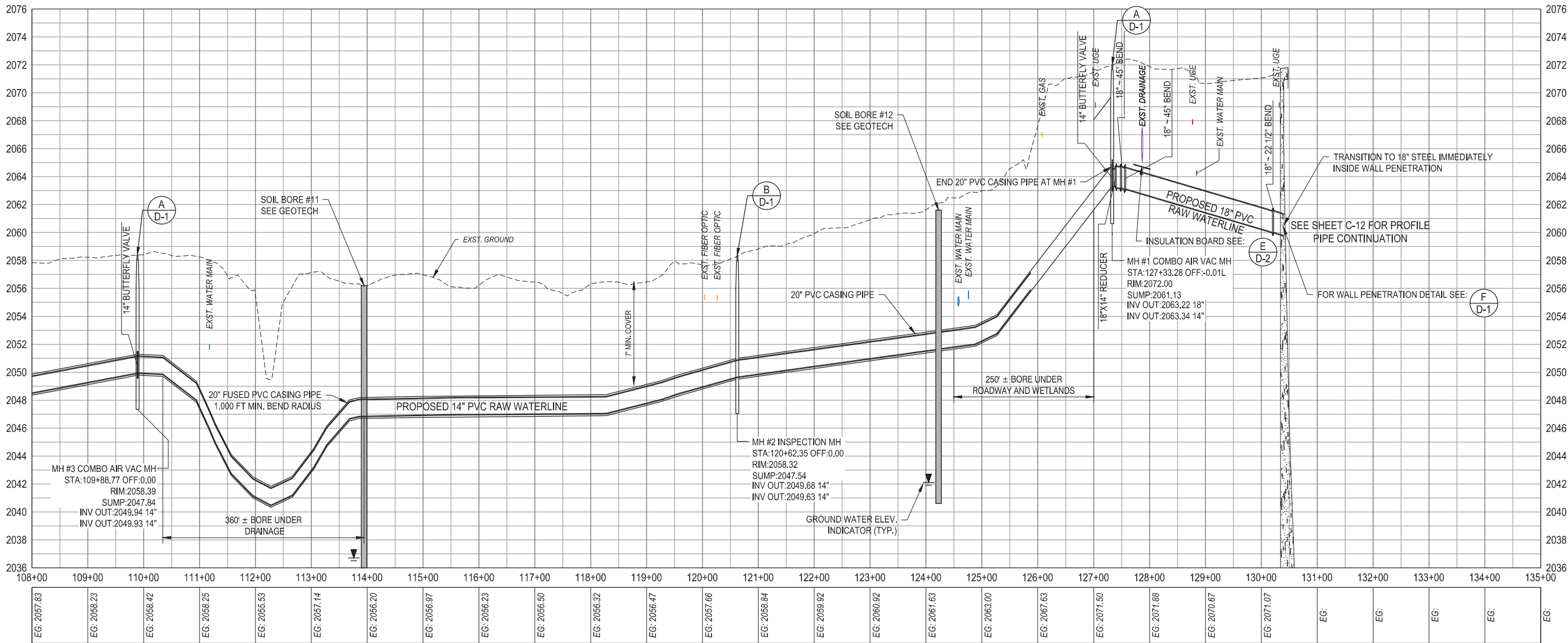
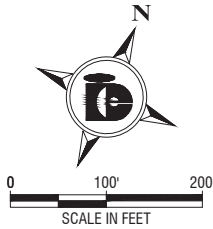
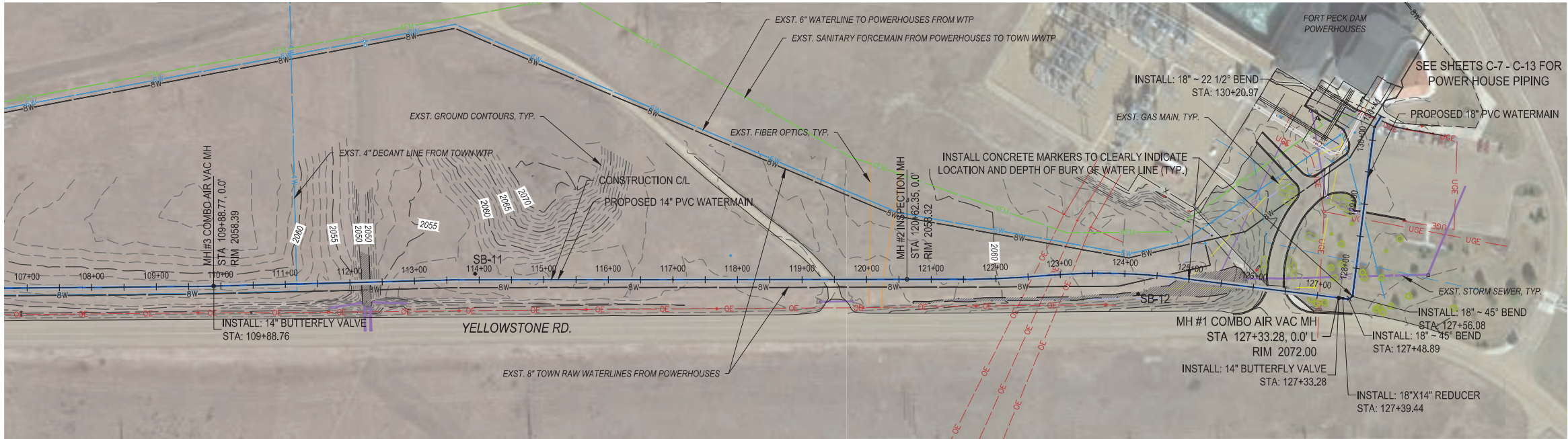
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TRANSMISSION MAIN PLAN & PROFILE			
Drawn By:	CRD	Surveyed By:	IEI
Checked By:	JRB	Designed By:	BAB/JRB
Project No: S18-00-053.01		Date: 08/10/2026	

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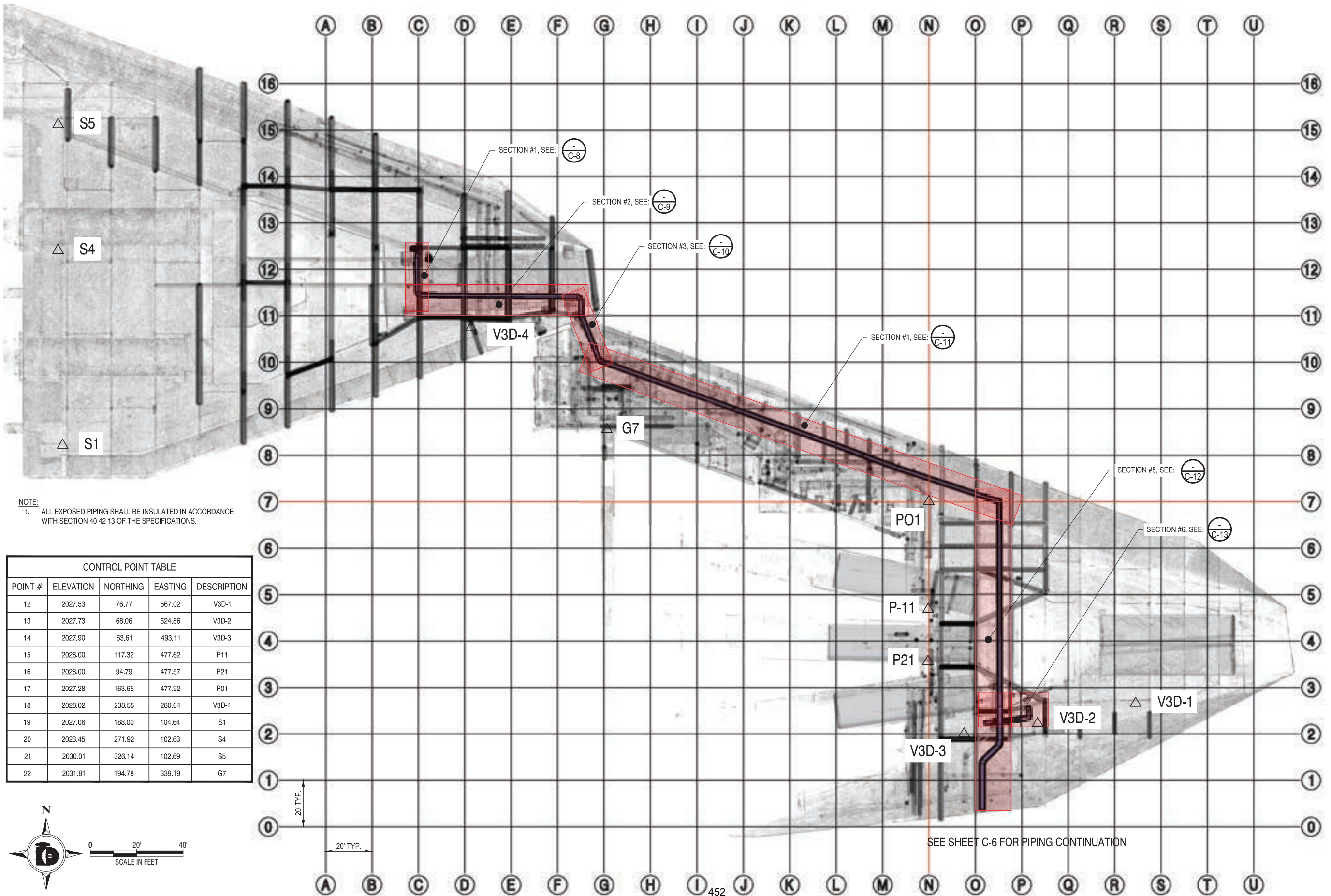
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TRANSMISSION MAIN PLAN & PROFILE	
Drawn By: CRD	Surveyed By: IEI
Checked By: JRB	Designed By: BAB/JRB
Project No: S18-00-053.01	
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NOTE:
1. ALL EXPOSED PIPING SHALL BE INSULATED IN ACCORDANCE WITH SECTION 40 42 13 OF THE SPECIFICATIONS.

CONTROL POINT TABLE				
POINT #	ELEVATION	NORTHING	EASTING	DESCRIPTION
12	2027.53	76.77	567.02	V3D-1
13	2027.73	68.06	524.86	V3D-2
14	2027.90	63.61	493.11	V3D-3
15	2028.00	117.32	477.62	P11
16	2028.00	94.79	477.57	P21
17	2027.28	163.65	477.92	P01
18	2028.02	238.55	280.64	V3D-4
19	2027.06	188.00	104.64	S1
20	2023.45	271.92	102.63	S4
21	2030.01	326.14	102.69	S5
22	2031.81	194.78	339.19	G7

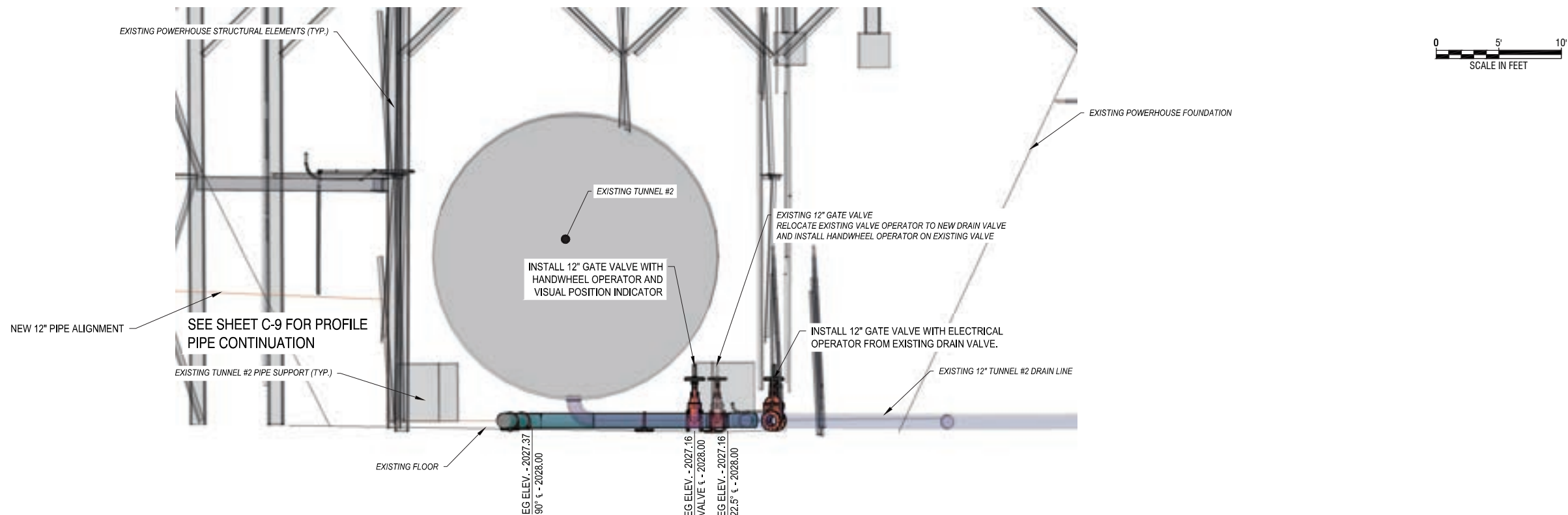
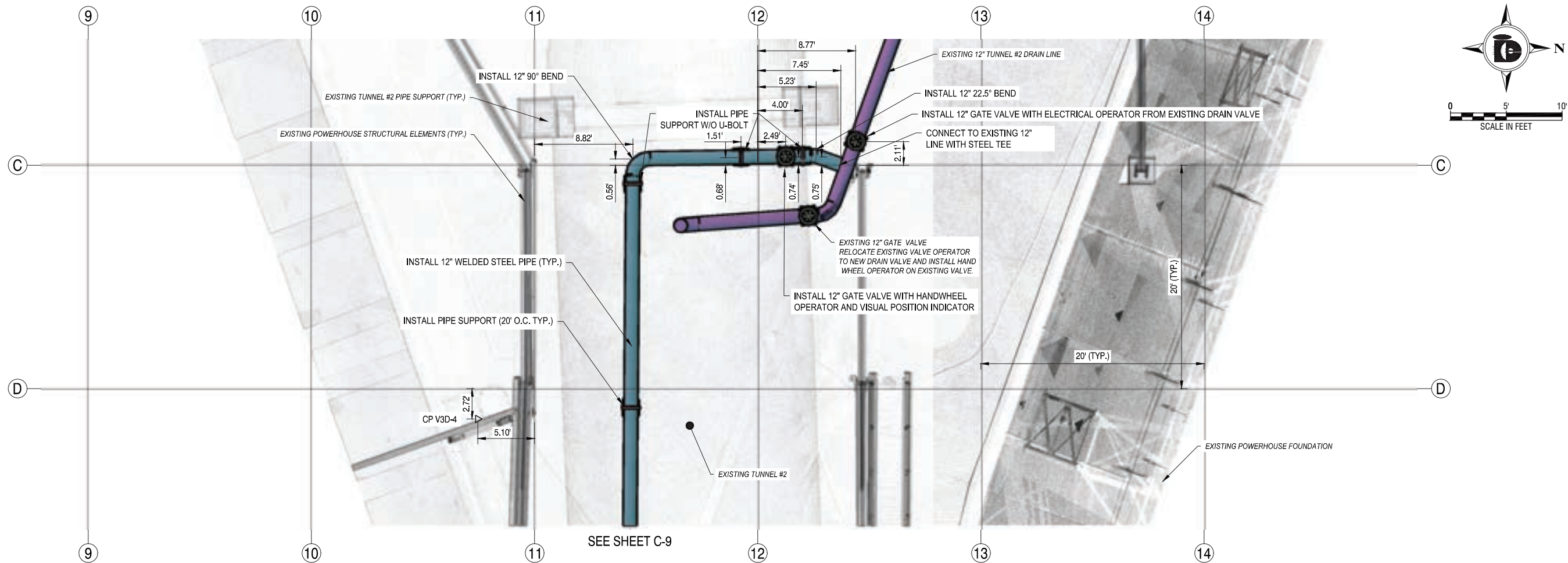
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FORT PECK FISH HATCHERY TRANSMISSION MAIN MONTANA FISH WILDLIFE & PARKS VALLEY COUNTY, MONTANA			
POWER HOUSE CONTROL PLAN & KEY MAP			
Drawn By: CRD	Surveyed By: JRB	Project No: S18-00-053.01	Project Date: 08/10/2026
Checked By: JRB	Designed By: BAB/JRB	IEI	

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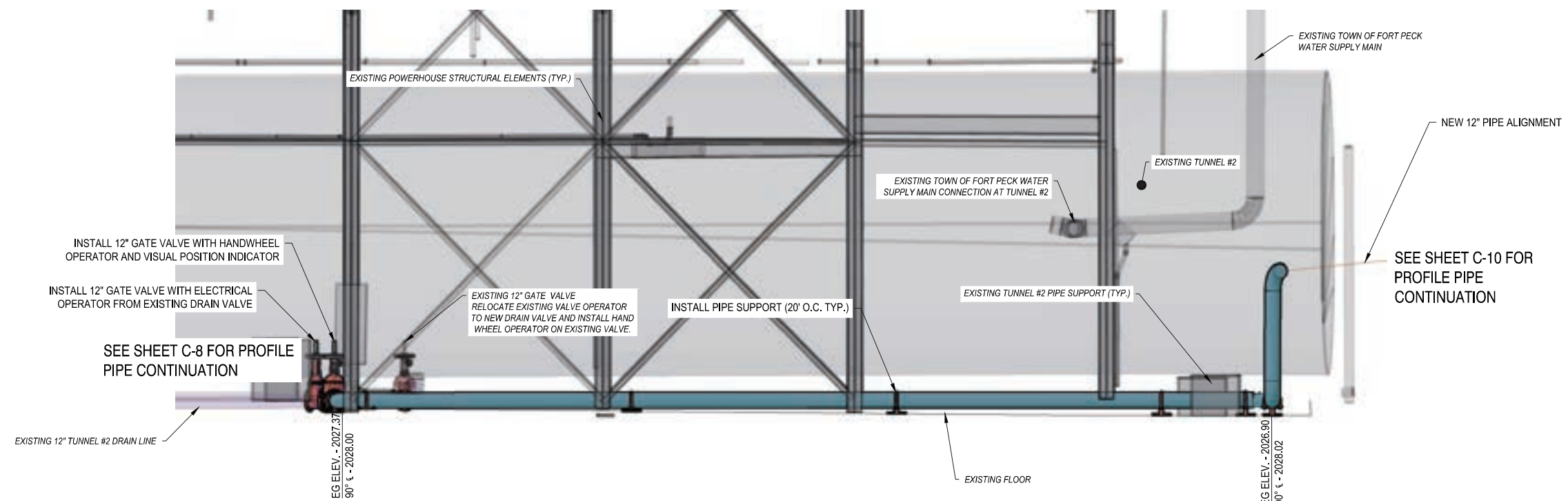
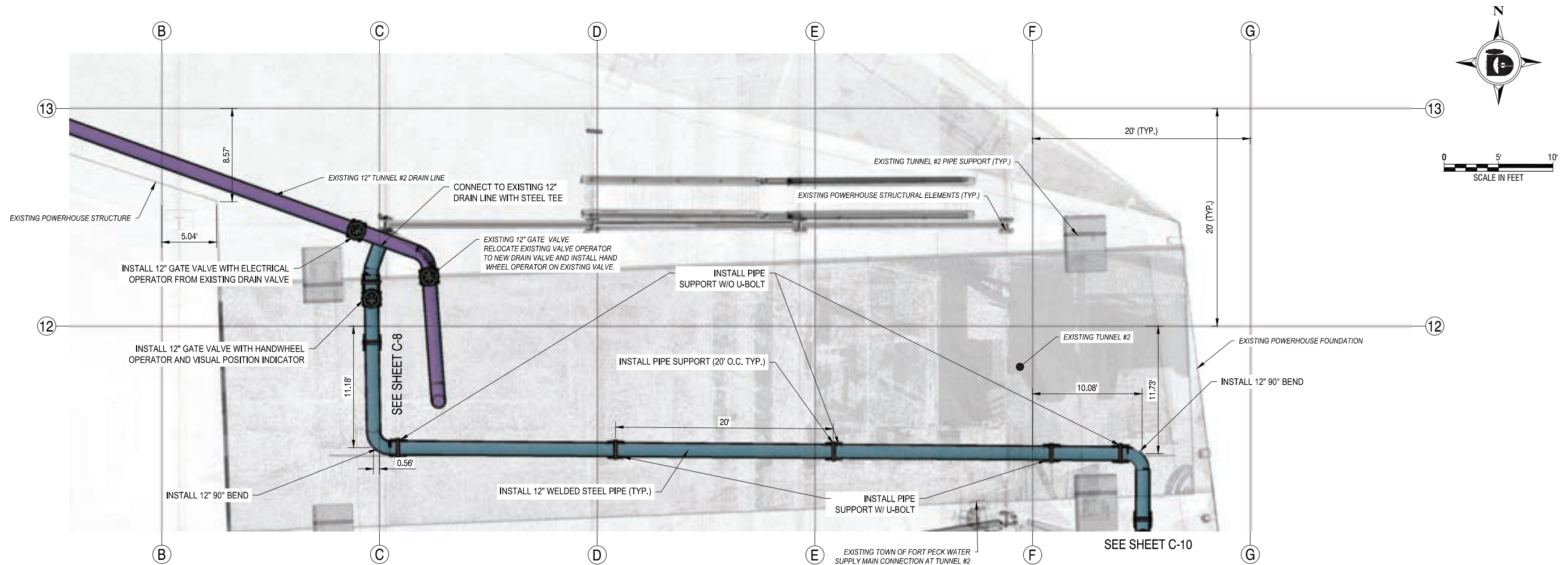
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FORT PECK FISH HATCHERY TRANSMISSION MAIN		Project No: S18-00-053.01	
MONTANA FISH WILDLIFE & PARKS		Date: 08/10/2026	
VALLEY COUNTY, MONTANA		Drawn By: CRD	
POWER HOUSE-SEC. 1		Checked By: JRB	
		Designed By: BAB/JRB	
		Surveyed By: IEI	

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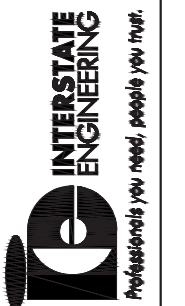


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FORT PECK FISH HATCHERY TRANSMISSION MAIN MONTANA FISH WILDLIFE & PARKS VALLEY COUNTY, MONTANA		Project No: S18-00-053.01 Date: 08/10/2026	
Drawn By: CRD	Surveyed By: JRB	Checked By: JRB	Designed By: BAB/JRB
POWER HOUSE-SEC. 2		Project No: S18-00-053.01 Date: 08/10/2026	

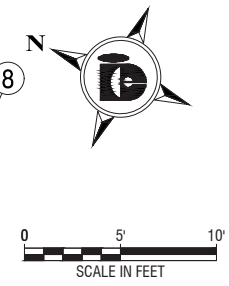
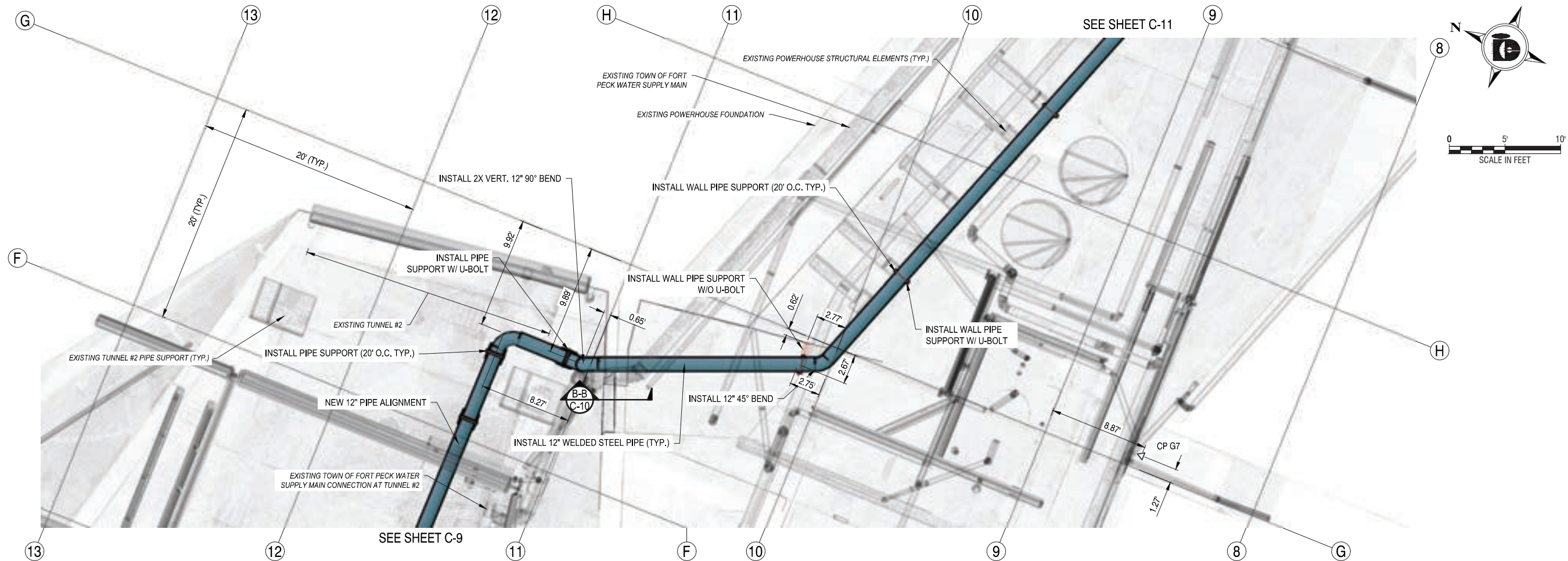
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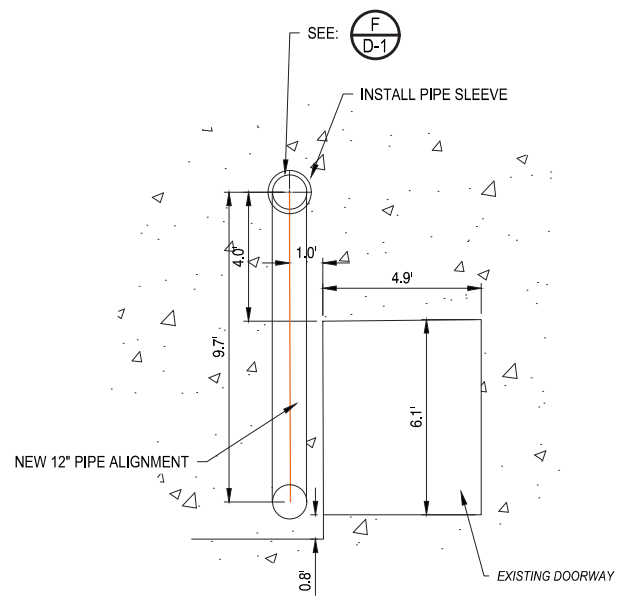
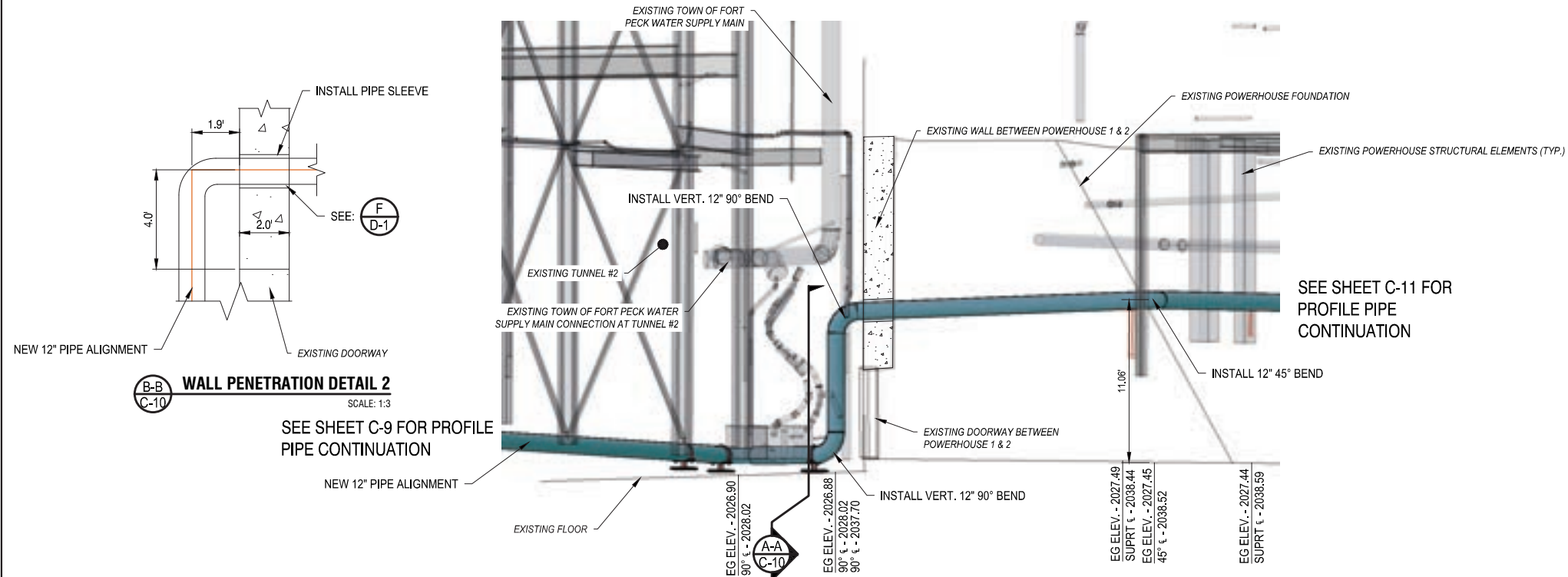
C-9

19 OF 27

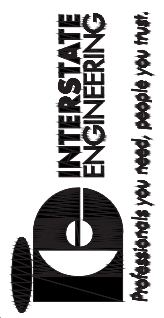


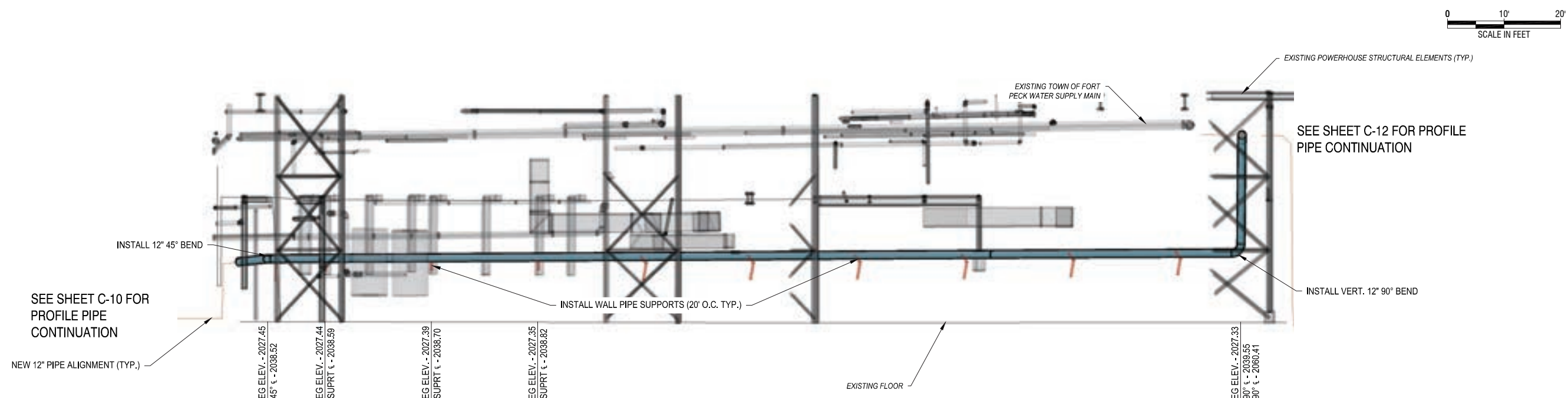
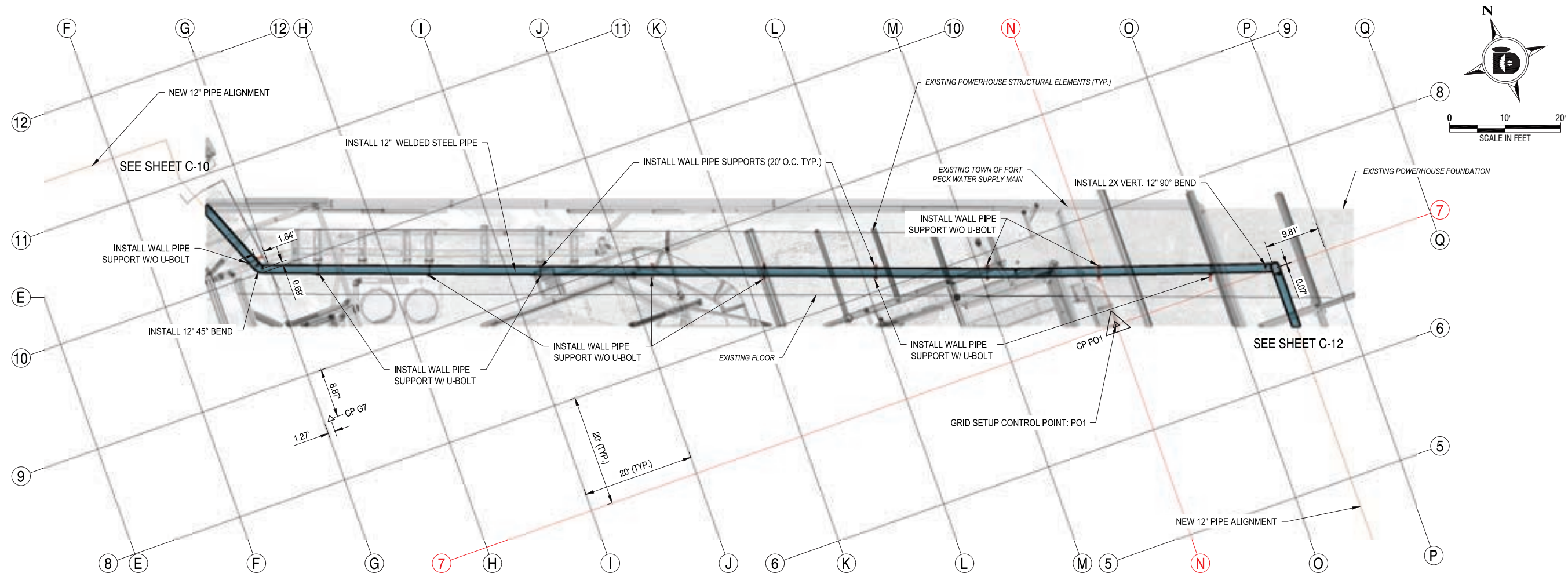
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FORT PECK FISH HATCHERY TRANSMISSION MAIN MONTANA FISH WILDLIFE & PARKS VALLEY COUNTY, MONTANA			
POWER HOUSE-SEC. 3		Project No: S18-00-053.01	Date: 08/10/2026
Drawn By: CRD	Surveyed By: JRB	IEI	BAB/JRB
Checked By:	Designed By:		



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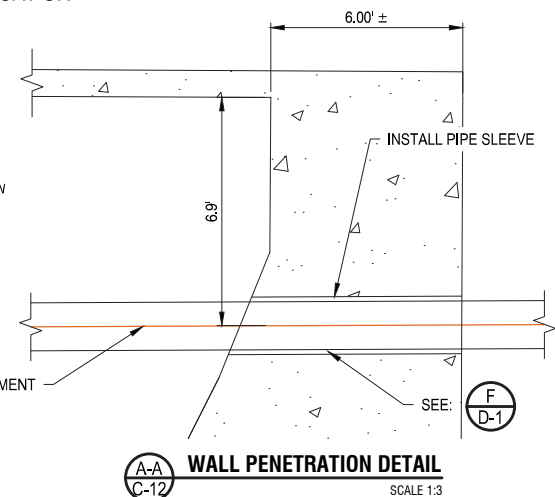
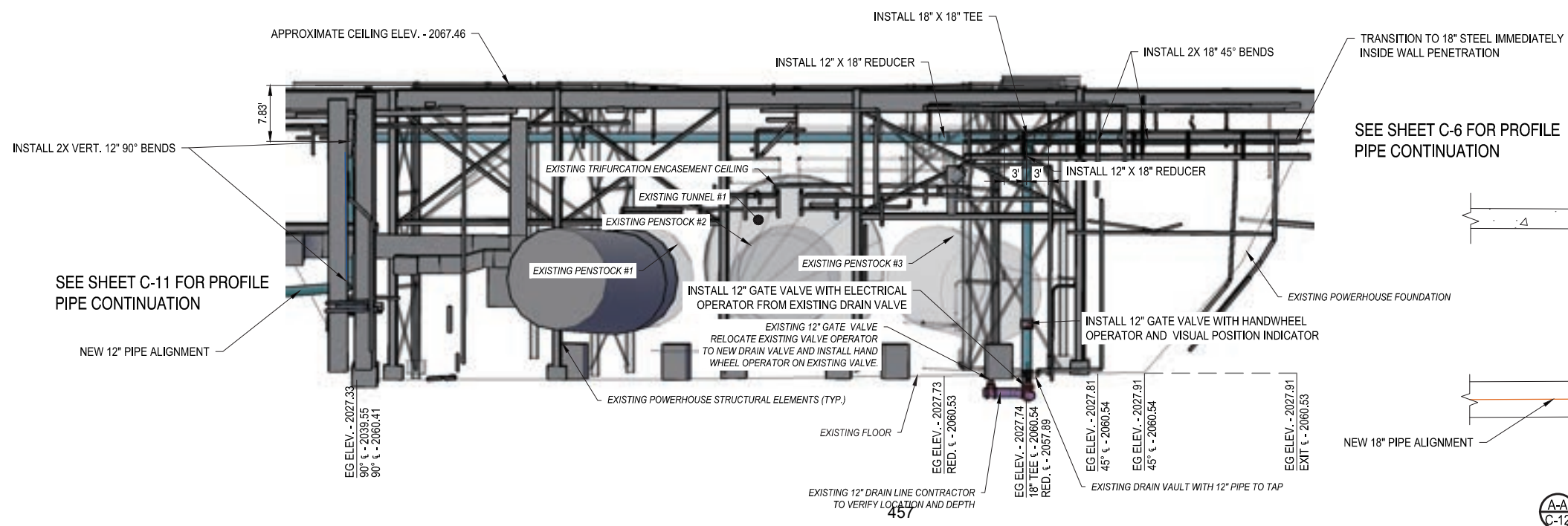
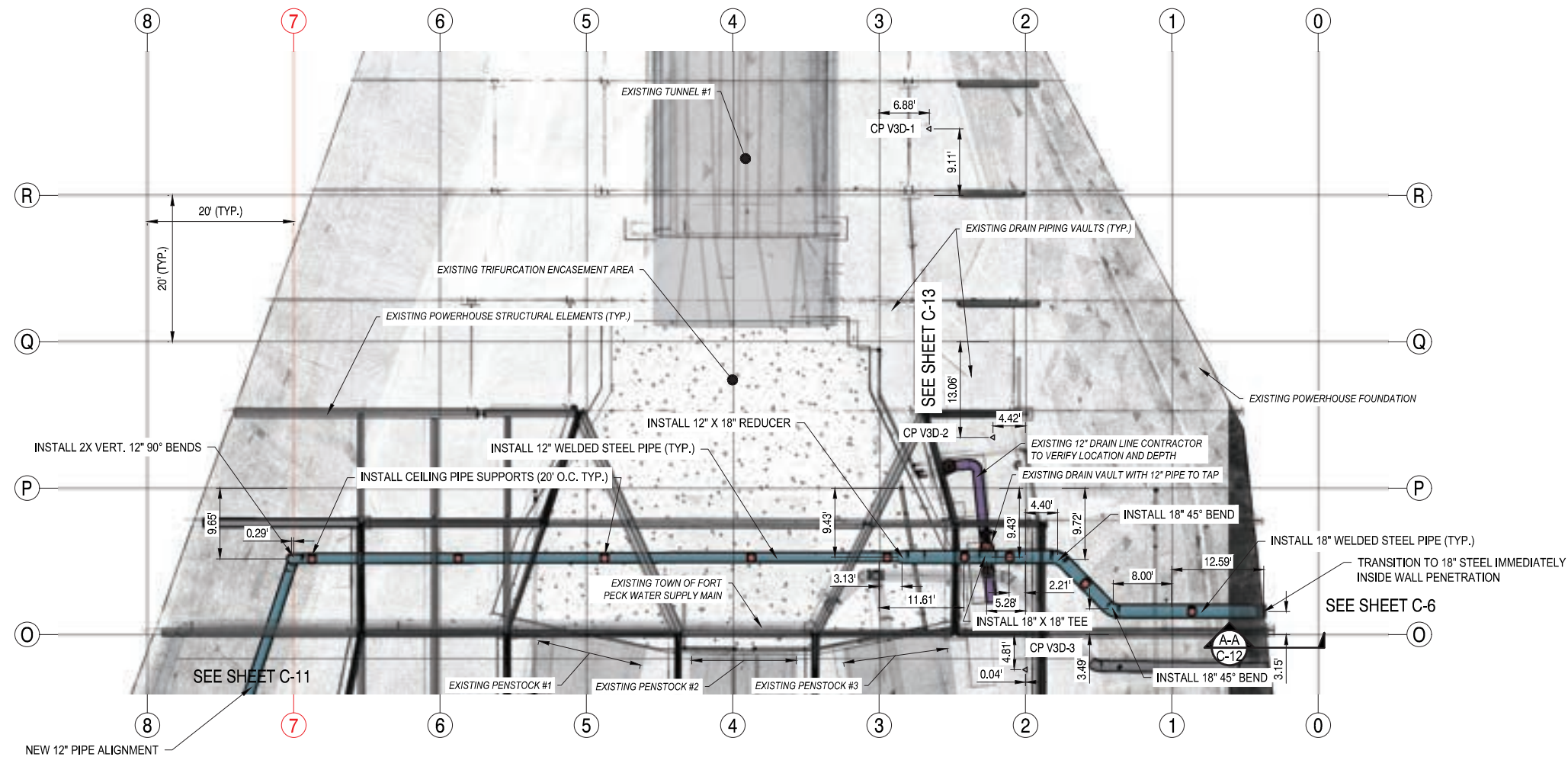
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2	A	06/17/25	CRD	UPDATED GRID WTR INDICATOR PER GEOTECH

FORT PECK FISH HATCHERY TRANSMISSION MAIN MONTANA FISH WILDLIFE & PARKS VALLEY COUNTY, MONTANA		Project No: S18-00-053.01 Date: 08/10/2026	
Drawn By: CRD	Surveyed By: IEI	Designed By: BAB/JRB	Checked By: JRB
POWER HOUSE-SEC. 4			

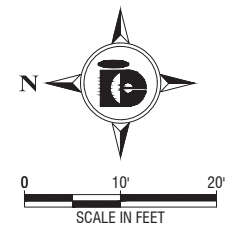
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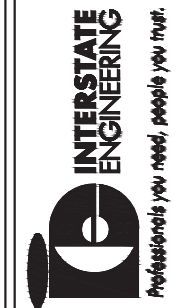
0 10' 20'
SCALE IN FEET

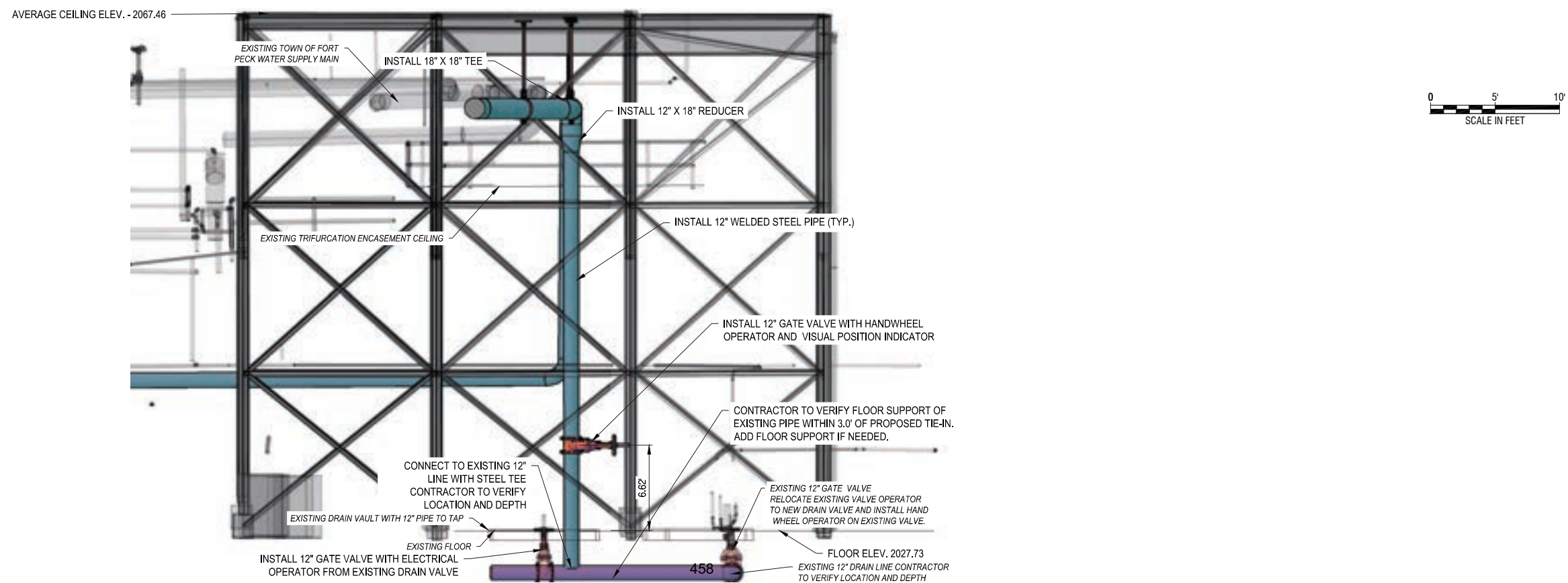
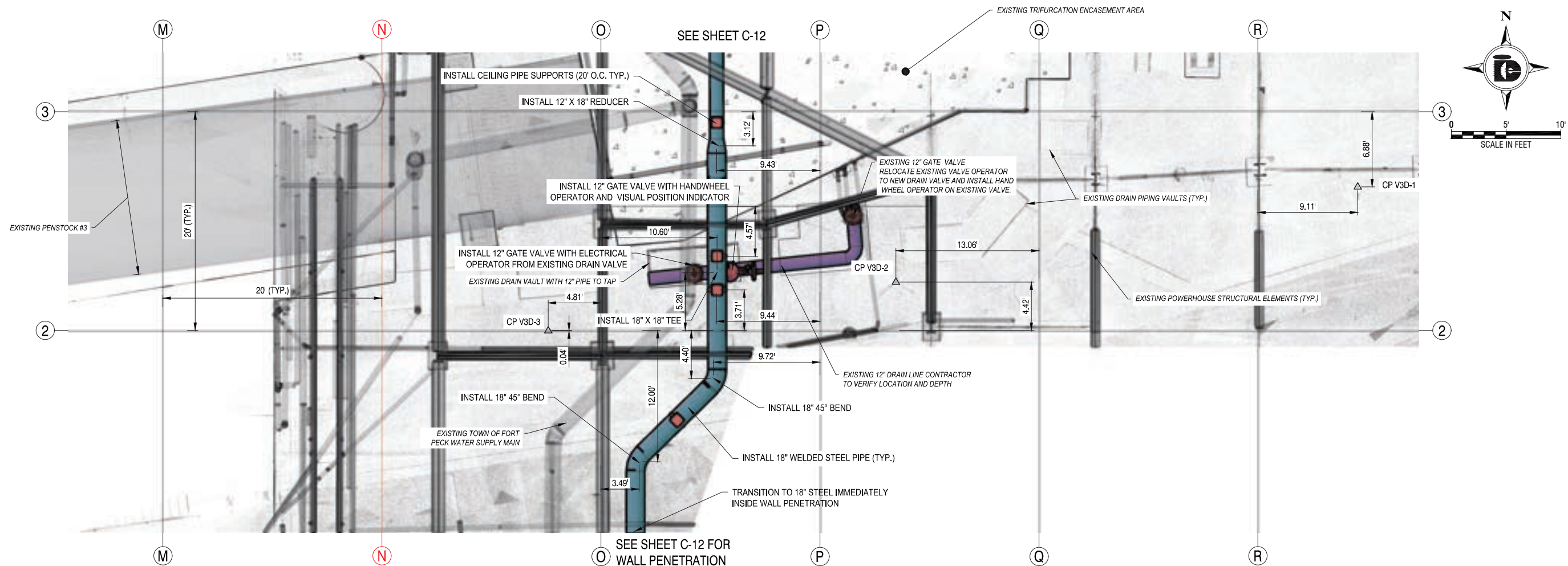


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FORT PECK FISH HATCHERY TRANSMISSION MAIN		Project No:	S18-00-053.01
MONTANA FISH WILDLIFE & PARKS		Drawn By:	CRD
VALLEY COUNTY, MONTANA		Checked By:	JRB
POWER HOUSE-SEC. 5		Designed By:	BAB/JRB
		Date:	08/10/2026

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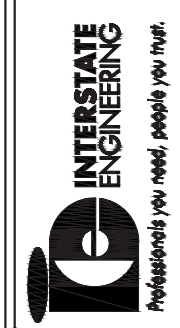


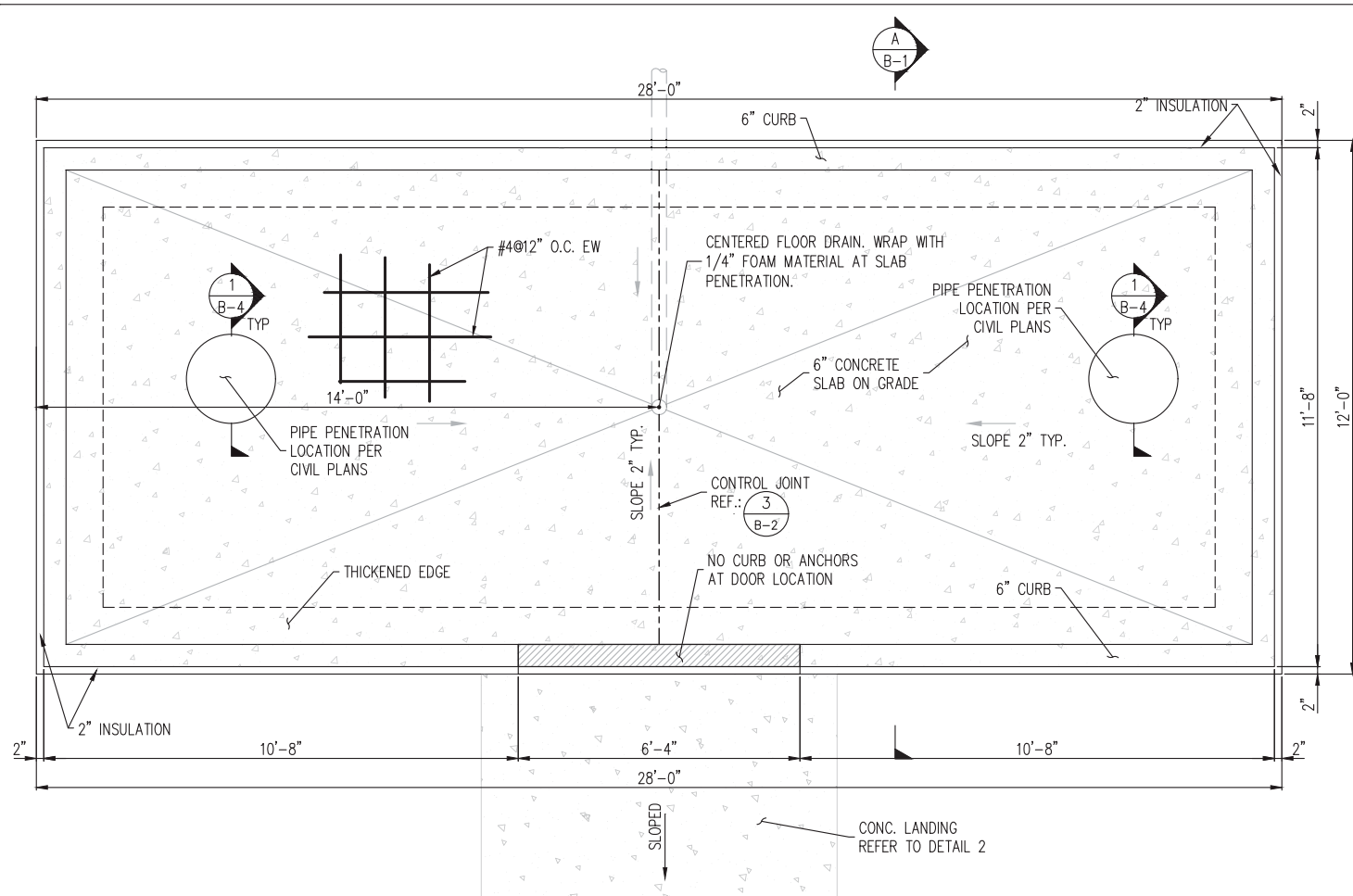
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MONTANA FISH WILDLIFE & PARKS		Date:	08/10/2026
VALLEY COUNTY, MONTANA		Drawn By:	CRD
POWER HOUSE-SEC. 6		Checked By:	JRB
		Surveyed By:	IEI
		Designed By:	BAB/JRB

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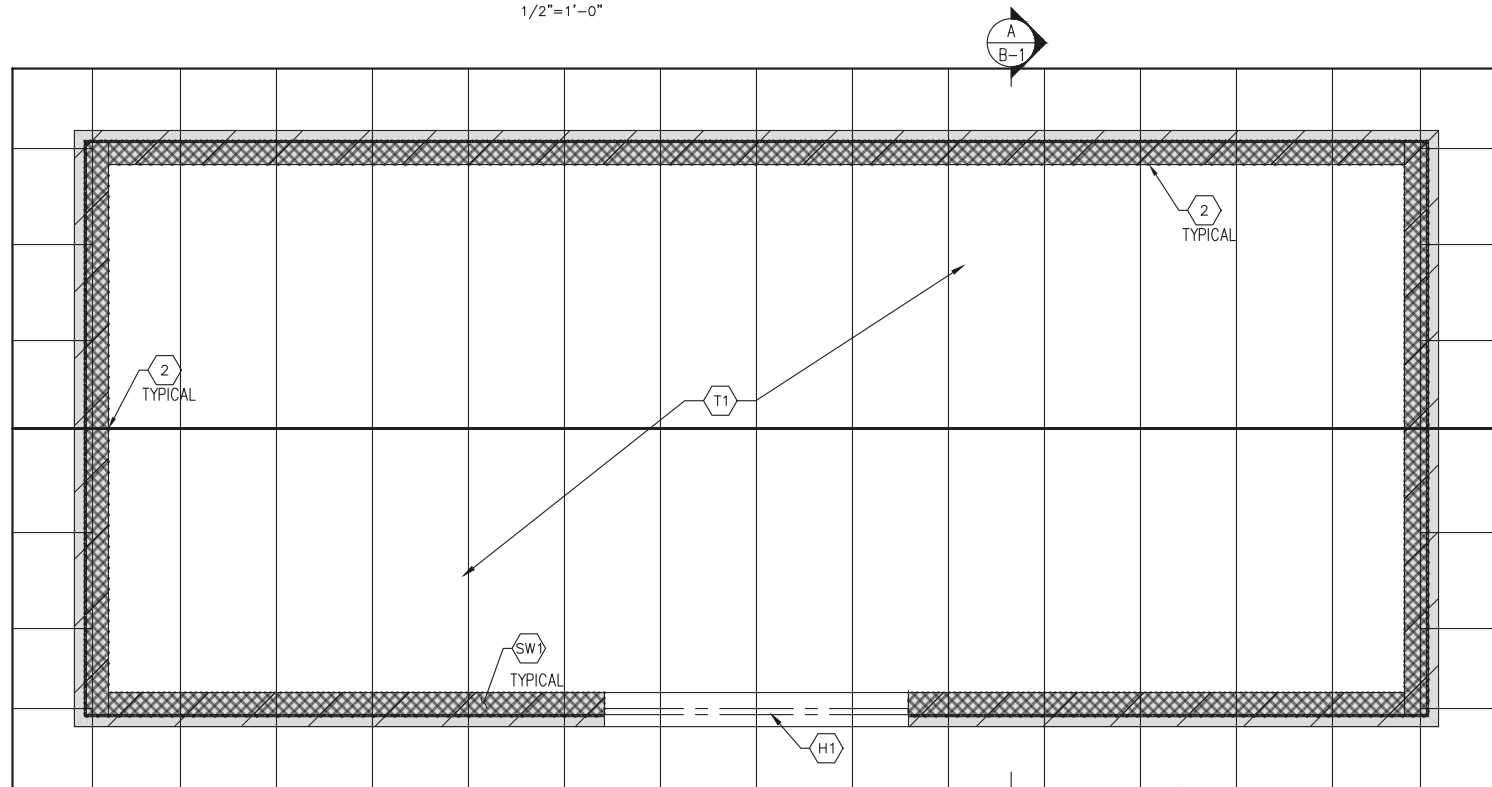
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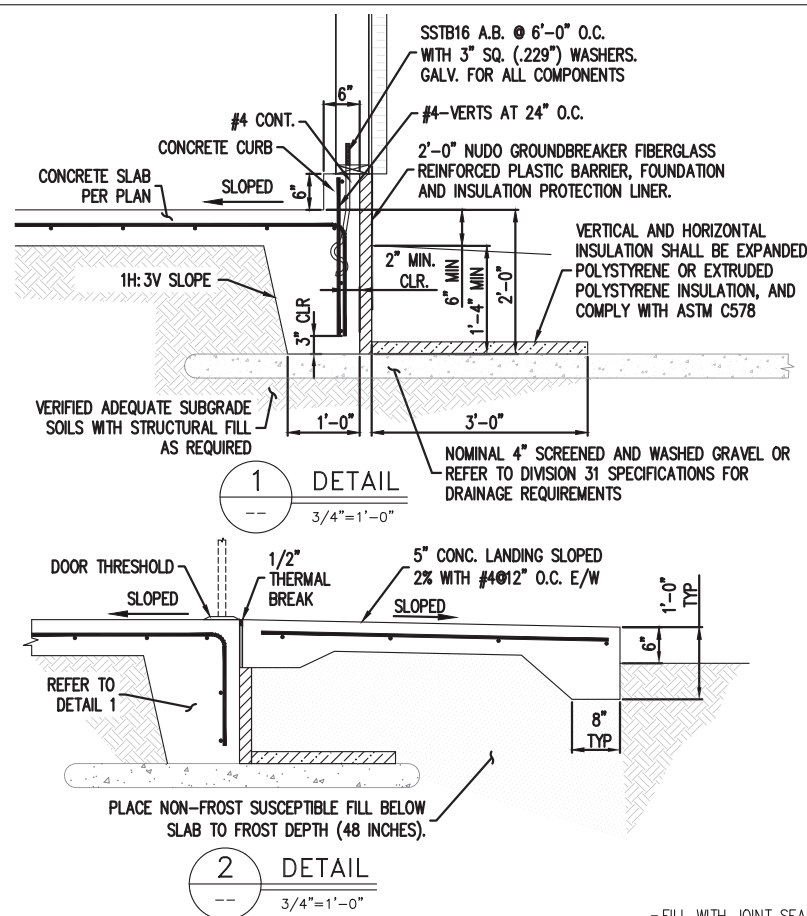
FOUNDATION PLAN

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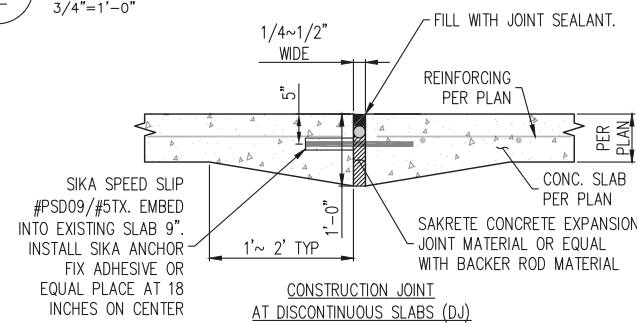
ROOF PLAN

1/2"=1'-0"



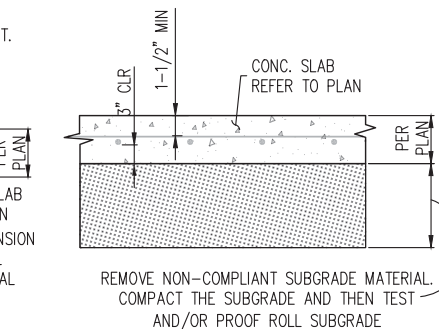
2 DETAIL

3/4"=1'-0"



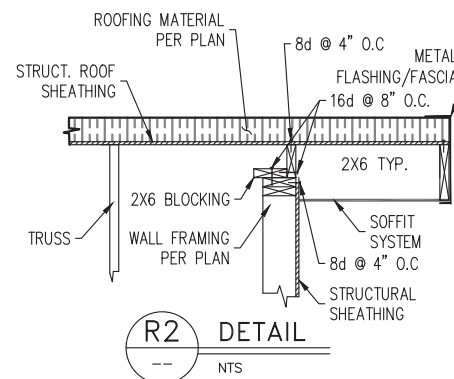
3 DETAILS

3/4"=1'-0"



R2 DETAIL

1/2"=1'-0"



R1 DETAIL

1/2"=1'-0"

FRAMING KEYNOTES

(T1) TRUSSES SPACED AT 2'-0" MAX. WITH A MIN. OF 19/32" PLYWOOD STRUCTURAL 1 SHEATHING. EDGE NAIL W/8D R.S. @ 6" O.C. AT JOINTS, 8" O.C. FIELD NAIL

(OR) TYPICAL 2x6 OUT RIGGERS @ 2'-0" O.C., TYPICAL AT GABLE ENDS, REFER TO: (R2) B-2

SHEAR WALL KEYNOTES

(SW1) SHEAR WALL 15/32" STRUCTURAL 1 RATED PLYWOOD ONE SIDE WITH 8d NAILS, FIELD NAIL @ 6" O.C. EDGE NAIL @ 4" O.C. BLOCKING AT JOINTS. 2x6 STUDS @ 16" O.C. TYPICAL

HARDWARE KEYNOTES

(2) TRUSS TIES/HOLDDOWNS REFER TO: (R1) B-2

LEGEND

(SW) LOAD BEARING WALL & SHEAR WALL - REFER TO KEYNOTE

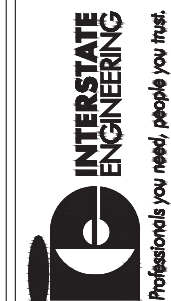
HEADER SCHEDULE

HEADER SYMBOL	# OF TRIMMERS PER SIDE	# OF KING STUDS PER SIDE	TYPE AND SIZE OF HEADER REQUIRED (MINIMUMS)
(H1)	1 - 2x6	2 - 2x6	3 PLY 2x10

Rev	No	Date	By	Description

FORT PECK FISH HATCHERY TRANSMISSION MAIN				Project No: STB-00-053.01
MONTANA FISH WILDLIFE & PARKS				Drawn By: KAS
VALLEY COUNTY, MONTANA				Surveyed By: JRB
CONTROL VALVE BUILDING STRUCTURAL PLANS				Designed By: JRB
				Date: 08/04/2022

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DIVISION 01

STRUCTURAL STABILITY DURING CONSTRUCTION

- THE STRUCTURAL DRAWINGS ILLUSTRATE THE COMPLETED STRUCTURE WITH ALL ELEMENTS IN THEIR FINAL POSITIONS, PROPERLY SUPPORTED AND BRACED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONSTRUCTION MEANS AND METHODS.
- THE CONTRACTOR, IN THE PROPER SEQUENCE, SHALL PROVIDE PROPER SHORING AND BRACING AS MAY BE REQUIRED DURING CONSTRUCTION TO ACHIEVE THE FINAL COMPLETED STRUCTURE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SITE SAFETY ISSUES AS MANDATED BY FEDERAL, STATE AND LOCAL LAWS AND REGULATIONS. THE CONTRACTOR SHALL EMPLOY A COMPETENT PERSON AS DEFINED IN OSHA REGULATIONS TO IDENTIFY SAFETY ISSUES. THE CONTRACTOR SHALL EMPLOY A QUALIFIED PERSON AS DEFINED IN OSHA REGULATIONS TO SPECIFY THE RESOLUTION OF SAFETY ISSUES.
- THE CONTRACTOR SHALL EMPLOY A QUALIFIED PROFESSIONAL SHORING SUBCONTRACTOR TO DESIGN AND SUPPLY SHORING SYSTEMS AS REQUIRED.
- THE STRUCTURAL STEEL FRAME IS NON-SELF-SUPPORTING PER AISC CODE OF STANDARD PRACTICE. TEMPORARY BRACING SHALL REMAIN IN PLACE UNTIL ALL FLOORS, WALLS, ROOF AND ANY OTHER SUPPORTING ELEMENTS ARE IN PLACE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING AND SPECIFYING ANY MODIFICATIONS TO THE STRUCTURE REQUIRED FOR COMPLIANCE WITH OSHA REGULATIONS AND GENERALLY ACCEPTED PRINCIPLES OF CONSTRUCTION. THE CONTRACTOR SHALL PROPOSE ALL SUCH MODIFICATIONS TO THE ENGINEER FOR REVIEW PRIOR TO CONSTRUCTION.
- THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURES DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT ARE NOT LIMITED TO, BRACING AND SHORING FOR LOADS IMPOSED DURING CONSTRUCTION, ETC.
- THE COST OF ADDITIONAL DESIGN OR REVIEW WORK BY THE ENGINEER DUE TO SELECTION OF AN OPTION BY THE CONTRACTOR, OR DUE TO ERRORS OR OMISSIONS IN CONSTRUCTION BY THE CONTRACTOR, SHALL BE BORNE BY THE CONTRACTOR.
- ANY ENGINEERING DESIGN PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW SHALL BEAR THE SEAL AND SIGNATURE OF THE ENGINEER OF RECORD FOR THE DESIGN.

STRUCTURAL CONSTRUCTION OBSERVATION:

IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSPECT ALL STRUCTURAL WORK FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ADEQUATE FACILITIES FOR THE STRUCTURAL CONSTRUCTION OBSERVED, TO ALLOW HIM TO PERFORM HIS WORK SAFELY AND EFFICIENTLY.

SPECIAL INSPECTIONS:

SPECIAL INSPECTIONS IN ACCORDANCE WITH CHAPTER 17 OF THE 2021 IBC IS REQUIRED FOR THE FOLLOWING:

- REQUIRED SPECIAL INSPECTIONS AND TESTS OF SOILS – TABLE 1705.6
- REQUIRED SPECIAL INSPECTIONS AND TESTS OF CONCRETE CONSTRUCTION – TABLE 1705.3

DIVISION 03 – CONCRETE

FORMWORK

- REFERENCES
 - ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE"
 - ACI 347 "GUIDE TO FORMWORK FOR CONCRETE"
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR DESIGN, CONSTRUCTION AND BRACING OF ALL FORMWORK AND SHORING.
- PROVIDE 3/4" X 3/4" CHAMFER ON ALL EXPOSED EXTERIOR CORNERS, UNLESS OTHERWISE SPECIFIED.

REINFORCING STEEL

- REFERENCES
 - ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE"
 - ACI "DETAILING MANUAL"
 - CRSI MSP-1 "MANUAL OF STANDARD PRACTICE"
- REINFORCING STEEL: ASTM A615 GRADE 60 DEFORMED BARS UNLESS OTHERWISE SPECIFIED. ASTM A706 DEFORMED BARS WHERE SPECIFIED ONLY.
- PROVIDE MINIMUM CONCRETE COVER OVER REINFORCING STEEL AS FOLLOWS UNLESS OTHERWISE SPECIFIED:
 - 3 INCHES FOR CONCRETE CAST AGAINST EARTH
 - 2 INCHES OTHERWISE, EXCEPT 1-1/2 INCHES TO TOP OF SLAB FOR EXTERIOR AND 3/4 INCHES FOR INTERIOR SLABS
- ADD #5 5'-0" DIAGONAL EACH FACE AT ALL RE-ENTRANT CORNERS UOS.
- SECURE ALL REINFORCING, INCLUDING DOWELS, IN POSITION WITH BAR SUPPORTS PER CRSI BEFORE CONCRETE PLACEMENT.
- LAP REINFORCING STEEL PER THE SCHEDULE BELOW UNLESS OTHERWISE SPECIFIED (UOS) ON THE DRAWINGS.

REINFORCING BAR LAP SCHEDULE		
REBAR SIZE	DEVELOPMENT LENGTH	
	OTHER BAR	TOP BAR
#4	19"	25"
#5	24"	32"
#6	29"	38"
#8	48"	63"

REF: ACI 25.4

DOWEL OR ROD ADHESIVE

- DOWELING ADHESIVE: "HIT-HY 200-A" EPOXY AS MANUFACTURED BY HILTI.
- INSTALL IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS AND SPECIFICATIONS, AND LATEST ICC EVALUATION SERVICES, INC. ES REPORT (ESR-3187).

CONCRETE ACCESSORIES

- REFERENCES
 - ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE".
- EXPANSION JOINT MATERIAL:
 - ASTM D994 ASPHALT FIBER TYPE.
 - ASTM D1752, TYPE 1 (SPONGE RUBBER) OR CLOSED CELL PLASTIC FOAM, (PVC OR POLYETHYLENE) PREFORMED FILLERS.
- JOINT SEALANT: SILICONE BASE SUCH AS DOW 888 UNLESS OTHERWISE SPECIFIED.

CONCRETE BONDING AGENT

- STRUCTURAL BONDING AGENT FOR CONCRETE: THREE-COMPONENT WATER BASED EPOXY RESIN/PORTLAND CEMENT TYPE "ARIMATEC 110 EPOCHEM" BY Sika CORP OR "DURALPREP A.C." AS MANUFACTURED BY EUCLID CHEMICAL CO.

DIVISION 03 – CONCRETE (CONT')

CONCRETE MATERIALS

- PORTLAND CEMENT: ASTM C150 TYPE II OR V
- FLY ASH: ASTM C618 CLASS C OR F INCLUDING TABLE 3 SPECIFICATIONS
 - A. CONTENT BY WEIGHT: 15% MINIMUM EXCEPT SLABS – 25% MAXIMUM
- NORMAL WEIGHT AGGREGATES: ASTM C33, CLASS 35 OR GREATER
- WATER: POTABLE, IN CONFORMANCE WITH ASTM C94
- WATER-REDUCING ADMIXTURE: ASTM C494
- AIR-ENTRAINING ADMIXTURE: ASTM C260
- STRUCTURAL CONCRETE: – SEE MIXES BELOW

STRUCTURAL CONCRETE MIXES					
CLASS/USE	f'c 28 DAY COMPRESSIVE STRENGTH	MAXIMUM W/ (C+P) RATIO	MAXIMUM AGGREGATE SIZE	TOTAL AIR CONTENT	SLUMP RANGE
FOUNDATIONS	4,000 PSI	0.45	3/4"	3.0-5.0%	3"-5"
EXTERIOR SLABS	4,000 PSI	0.45	3/4"	5.0-7.0%	4"-6"

CAST-IN-PLACE CONCRETE

- COORDINATE WITH OTHER TRADES TO ENSURE ALL GROUNDING, SLEEVES, EMBEDMENTS AND OTHER ITEMS ARE INSTALLED BEFORE CONCRETE PLACEMENT. IF CUTTING REINFORCEMENT APPEARS NECESSARY TO INSTALL SUCH ITEMS, CONTACT THE ENGINEER.
- PLACE CONCRETE AT A UNIFORM RATE AS CLOSE AS POSSIBLE TO FINAL POSITION TO PREVENT MIX SEGREGATION.
- CONSIDER CONCRETE SHRINKAGE IN PLACEMENT SEQUENCE. IF NOT SPECIFICALLY DETAILED, CONSTRUCTION JOINTS MUST BE APPROVED BY THE ENGINEER – BOTH TYPE AND LOCATION.
- CONSOLIDATE ALL CONCRETE PLACEMENTS WITH THE AID OF MECHANICAL VIBRATION.
- PLACE CONCRETE IN A CONTINUOUS OPERATION WITHOUT INTERRUPTIONS. THE LAYER METHOD MAY BE USED PROVIDED LAYER/LIFT THICKNESS RANGE IS 12 TO 30 INCHES WITH NO MORE THAN 30 MINUTES ELAPSING BETWEEN PLACING OF ADJACENT LAYERS – VIBRATE TO MELD LAYERS TOGETHER TO AVOID A HORIZONTAL PLANE OF WEAKNESS.
- LAYER/LIFT THICKNESS IN WALLS SHOULD NOT BE GREATER THAN 36 INCHES.
- FLOAT AND BROOM FINISH EXTERIOR CONCRETE SURFACES. INTERIOR SLABS TO BE SMOOTH FINISH. THE ADDITION OF FREE WATER AS A FINISHING AID IS PROHIBITED.
- PROTECT AND CURE ALL CONCRETE BEGINNING IMMEDIATELY AFTER FINISHING OR STRIPPING FORMS. THIS INCLUDES FORMED SURFACES IF FORMS ARE STRIPPED WITHIN 72 HOURS OF CONCRETE PLACEMENT.
- CONCRETE CONTRACTOR SHALL PROVIDE WRITTEN NOTIFICATION TO THE STEEL ERECTOR INDICATING THE DATE WHEN CONCRETE SUPPORTING BUILDING COLUMNS HAS ATTAINED AT LEAST 75 PERCENT OF THE SPECIFIED COMPRESSIVE STRENGTH.
- FIELD REPAIR OR MODIFICATION OF ANCHOR RODS MUST BE APPROVED BY THE ENGINEER.
- INSPECTION AND TESTING PER DIVISION-01.

CONCRETE ANCHORS

- CAST IN PLACE ANCHORS: REFERENCE THE ANCHOR ROD SCHEDULE AND/OR DETAIL DRAWINGS.
- ANCHOR RODS: ASTM F1554, GRADE 36 AND/OR 55 UNLESS OTHERWISE SPECIFIED.HOT DIP GALVANIZE IN ACCORDANCE WITH ASTM F2329. INSTALL BY TEMPLATING PRIOR TO CONCRETE PLACEMENT.
- POST INSTALLED ADHESIVE (CHEMICAL) SET ANCHORS: SEE DRAWINGS FOR TYPE
 - A. HAS-E ZINC PLATED ROD (ISO 898 CLASS 5.8) BY HILTI.
 - B. SUPER HAS ZINC PLATED ROD (ASTM A193 GRADE B7) BY HILTI.
 - C. STAINLESS HAS ROD (ASTM F593, 304/316) BY HILTI. REFERENCE SECTION 'C' FOR ADHESIVE.
 - D. INSTALL IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS AND LATEST ICC EVALUATION SERVICE, INC ES REPORT (ESR-3187).
- EMBEDDED STEEL ANCHORAGE: HOT DIP GALVANIZE EXTERIOR ASSEMBLY PER ASTM A123.
 - A. PLATES, ROLLED SHAPES: ASTM A36, Fy=60 KSI
 - B. HEADED ANCHOR STUDS: ASTM A108 GRADE 1010-1020 TYPE B, Fu=60 KSI
 - C. DEFORMED BAR: ASTM A706, GRADE 60
- POST INSTALLED MECHANICAL ANCHORS:
 - A. "HILTI KWIK BOLT-12" EXPANSION ANCHOR BY HILTI, INC.
 - B. INSTALL IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS AND LATEST ICC EVALUATION SERVICES, INC ES REPORT (ESR-1917).
- INSPECTION AND TESTING PER DIVISION-01.

DIVISION 6–WOOD SPECIFICATION

- ALL LUMBER SPECIES AND GRADES TO BE AS FOLLOWS:
 - A. JOISTS, RAFTERS AND STRINGERS: HEM-FIR #2 AND BETTER
 - B. BUCKS, BLOCKING, BRIDGING, AND MISC.: DOUGLAS FIR OR HEM/FIR #2 AND BETTER.
 - C. STUDS: STUD GRADE
 - D. SILLS, SLEEPERS, PLATES, AND NAILING BLOCKS EMBEDDED IN CONCRETE: PRESSURE TREATED HEM FIR.
 - E. POSTS, BEAMS, AND HEADERS: HEM-FIR #2 OR BETTER
 - F. DECKING – NOT EXPOSED: HEM/FIR COMMERCIAL AND BETTER GRADE.
 - G. DECKING – EXPOSED: SELECT AND BETTER GRADE.
 - H. GLUED – LAMINATED BEAMS: PER PLAN
 - I. STRUCTURAL 1 SHEATHING – OSB OR PLYWOOD SHEATHING 32/16 APA SPAN RATING, EXPOSURE 1
 - J. LAMINATED LUMBER (LVL) 3100 Fb, 2.0E MINIMUM, UNLESS NOTED.
- ALL JOIST OR BEAMS FRAMING INTO (NOT BEARING ON) BEAMS, HEADERS OR ORDERS SHALL BE SUPPORTED WITH "U" TYPE "SIMPSON" OR EQUAL JOIST OR BEAM HANGERS. ALL POST/BEAM AND POST/FOOTING CONNECTIONS TO BE MADE WITH "SIMPSON" POST CAP AND BASE EXCEPT WHERE NOTED OTHERWISE ON DRAWINGS.
- ALL EXTERIOR WALL AND INTERIOR BEARING WALL OPENINGS SHALL BE PER THE HEADER SCHEDULE.
- BLOCK SOLID BETWEEN JOISTS AND RAFTERS AT BEARING WALLS
- BEAMS, GIRDERS, AND JOISTS SUPPORTING BEARING WALLS OR OTHER CONCENTRATED LOADS, SHALL NOT BE NOTCHED EXCEPT AS SPECIFICALLY NOTED ON DRAWINGS.
- ALL JOISTS SHALL HAVE A MINIMUM OF 2" BEARING AT SUPPORTS. LAPPING JOISTS SHALL HAVE 6" LAPS CENTERED OVER INTERIOR SUPPORTS.
- LEDGERS AND TUD WALL FOUNDATION SILL PLATES SHALL BE BOLTED TO CONCRETE WITH ANCHOR BOLTS OF SIZE AND MINIMUM SPACING AS SHOWN ON THE DRAWINGS. AT LEAST TWO BOLTS SHALL BE PROVIDED FOR EACH PIECE WITH ONE BOLT WITHIN 1'-0" OF EACH END.
- PLYWOOD TO BE EXTERIOR GRADE WITH EXTERIOR GLUE. MINIMUM PLYWOOD NAILING OF ROOF AND WALL SHEATHING (WHICH ARE NOT SHEAR WALLS OR SHEAR DIAPHRAGMS VERIFY WITH JOIST PLANS) 8D COM. AT 6" O.C. AT EDGE AND 12" O.C. INTERMEDIATE SUPPORTS. (FLOORS AT 10" O.C. INTERMEDIATE SUPPORTS). INSTALL ROOF AND FLOOR SHEATHING WITH FACE GRAIN PERPENDICULAR TO SUPPORTS. STAGGER JOINTS. PLYWOOD I.D. INDEX FOR FLOORS AND ROOF 32/16.

DIVISION 6–ROUGH CARPENTRY

LUMBER:

UNLESS OTHERWISE SPECIFIED, EACH PIECE OF LUMBER TO BEAR A GRADE MARK, STAMP, OR OTHER IDENTIFYING MARKS INDICATING GRADES OF MATERIAL, AND RULES OR STANDARDS UNDER WHICH PRODUCED. IDENTIFYING MARKS IN ACCORDANCE WITH RULE OR STANDARD UNDER WHICH MATERIAL IS PRODUCED, INCLUDING REQUIREMENTS FOR QUALIFICATIONS AND AUTHORITY OF THE INSPECTION ORGANIZATION, USAGE OF AUTHORIZED IDENTIFICATION, AND INFORMATION INCLUDED IN THE IDENTIFICATION. INSPECTION AGENCY FOR LUMBER APPROVED BY THE BOARD OF REVIEW, AMERICAN LUMBER STANDARDS COMMITTEE, TO GRADE SPECIES USED.STRUCTURAL MEMBERS: SPECIES AND GRADE AS LISTED IN THE AF&PA, NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION HAVING DESIGN STRESSES AS SHOWN.

LUMBER OTHER THAN STRUCTURAL:

UNLESS OTHERWISE SPECIFIED, SPECIES GRADED UNDER THE GRADING RULES OF AN INSPECTION AGENCY APPROVED BY BOARD OF REVIEW, AMERICAN LUMBER STANDARDS COMMITTEE. FRAMING LUMBER: MINIMUM EXTREME FIBER STRESS IN BENDING OF 1100. FURRING, BLOCKING, NAILERS AND SIMILAR ITEMS 100 MM (4 INCHES) AND NARROWER STANDARD GRADE; AND, MEMBERS 150 MM (6 INCHES) AND WIDER, NUMBER 2 GRADE.

SIZES:

SIZE TO CONFORM TO PROD. STD. PS20. SIZE REFERENCES ARE NOMINAL SIZES, UNLESS OTHERWISE SPECIFIED, ACTUAL SIZES WITHIN MANUFACTURING TOLERANCES ALLOWED BY STANDARD UNDER WHICH PRODUCED.

MOISTURE CONTENT:

AT TIME OF DELIVERY AND MAINTAINED AT THE SITE BOARDS AND LUMBER 2 INCHES AND LESS IN THICKNESS SHALL BE 19 PERCENT OR LESS. LUMBER OVER 2 INCHES THICK SHALL BE 25 PERCENT OR LESS.

PRESERVATIVE TREATMENT:

DO NOT TREAT HEART REDWOOD AND WESTERN RED CEDAR. PRODUCTS CONTAINING CHROMIUM OR ARSENIC WILL NOT BE PERMITTED. PROVIDE PRODUCTS WITH WATERBORNE OR BORON-BASED PRESERVATIVES.

PLYWOOD/SHEATHING

PLYWOOD SHALL COMPLY WITH PROD. STD. PS 1 AND APA E30. PLYWOOD SHALL BEAR THE MARK OF A RECOGNIZED ASSOCIATION OR INDEPENDENT INSPECTION AGENCY THAT MAINTAINS CONTINUING CONTROL OVER QUALITY OF PLYWOOD WHICH IDENTIFIES COMPLIANCE BY VENEER GRADE, GROUP NUMBER, SPAN RATING WHERE APPLICABLE, AND GLUE TYPE. SHEATHING SHALL BE APA RATED EXPOSURE 1 OR EXTERIOR; PANEL GRADE CD OR BETTER. WALL SHEATHING SHALL BE A MINIMUM 11/32 INCH THICK WITH SUPPORTS 16 INCHES ON CENTER AND 15/32 INCH THICK WITH SUPPORTS 24 INCHES ON CENTER UNLESS SPECIFIED OTHERWISE. MINIMUM 48 INCHES WIDE AT CORNERS WITHOUT CORNER BRACING OF FRAMING.

ROOF SHEATHING:

ROOF SHEATHING SHALL BE A MINIMUM OF 11/32 INCH THICK WITH SPAN RATING 24/0 OR 1215/32 INCH THICK WITH SPAN RATING FOR SUPPORTS 16 INCHES ON CENTER UNLESS SPECIFIED OTHERWISE.

MINIMUM 19/32 INCH THICK OR SPAN RATING OF 40/20 OR 23/32 INCH THICK OR SPAN RATING OF 48/24 FOR SUPPORTS 24 INCHES ON CENTER.

INSTALLATION

FRAMING AND MISCELLANEOUS WOOD MEMBERS SHALL CONFORM TO APPLICABLE REQUIREMENTS OF THE WITH APA STANDARDS FOR INSTALLATION OF PLYWOOD.

PROTECTION

PROTECT ROUGH CARPENTRY FROM WEATHER. IF ROUGH CARPENTRY BECOMES WET, APPLY EPA-REGISTERED BORATE TREATMENT COMPLYING WITH EPA REGISTERED LABEL.

DIVISION 7 – FLASHINGS

- GENERAL: INSTALL SHEET METAL FLASHING AND COPING TO WITHSTAND WIND LOADS, STRUCTURAL MOVEMENT, THERMALLY INDUCED MOVEMENT, AND EXPOSURE TO WEATHER WITHOUT FAILING, RATTLING, LEAKING, AND FASTENER DISENGAGEMENT.
- THERMAL MOVEMENTS: PROVIDE SHEET METAL FLASHING AND TRIM THAT ALLOW FOR THERMAL MOVEMENTS RESULTING FROM THE MAXIMUM EXPECTED CHANGE IN AMBIENT AND SURFACE TEMPERATURES BY PREVENTING BUCKLING, OPENING OF JOINTS, HOLE ELONGATION, OVERSTRESSING OF COMPONENTS, FAILURE OF JOINT SEALANTS, FAILURE OF CONNECTIONS, AND OTHER DETRIMENTAL EFFECTS.
- WATER INFILTRATION: PROVIDE SHEET METAL FLASHING AND TRIM THAT DO NOT ALLOW WATER INFILTRATION TO BUILDING INTERIOR.
- AIR BARRIER SEAMS, JOINTS SHALL BE SEALED INCLUDING SEALING TRANSITIONS AND CHANGES IN MATERIAL ESPECIALLY BETWEEN NEW AND EXISTING BUILDING

FLASHING MATERIALS

- PROVIDE MATERIALS AND TYPES OF FASTENERS, SOLDER, WELDING RODS, PROTECTIVE COATINGS, SEPARATORS, SEALANTS, AND OTHER MISCELLANEOUS ITEMS AS REQUIRED FOR COMPLETE SHEET METAL FLASHING AND TRIM INSTALLATION.
- FASTENERS: WOOD SCREWS, ANNULAR THREADED NAILS, SELF-TAPPING SCREWS, SELF-LOCKING RIVETS AND BOLTS, AND OTHER SUITABLE FASTENERS DESIGNED TO WITHSTAND DESIGN LOADS.
 - EXPOSED FASTENERS: HEADS MATCHING COLOR OF SHEET METAL BY MEANS OF PLASTIC CAPS OR FACTORY-APPLIED COATING.
 - FASTENERS FOR FLASHING AND TRIM: BLIND FASTENERS OR SELF-DRILLING SCREWS, GASKETED, WITH HEX WASHER HEAD.
 - BLIND FASTENERS: HIGH-STRENGTH ALUMINUM OR STAINLESS-STEEL RIVETS.
- SEALING TAPE: PRESSURE-SENSITIVE, 100 PERCENT SOLIDS, POLYSOBUTYLENE COMPOUND SEALING TAPE WITH RELEASE-PAPER BACKING. PROVIDE PERMANENTLY ELASTIC, NONSAG, NONTXIC, NONSTAINING TAPE.
- ELASTOMERIC SEALANT: ASTM C 920, ELASTOMERIC POLYURETHANE POLYMER SEALANT; OF TYPE, GRADE, CLASS, AND USE CLASSIFICATIONS REQUIRED TO SEAL JOINTS IN SHEET METAL FLASHING AND TRIM AND REMAIN WATERTIGHT.
- BUTYL SEALANT: ASTM C 1311, SINGLE-COMPONENT, SOLVENT-RELEASE BUTYL RUBBER SEALANT, POLYSOBUTYLENE PLASTICIZED, HEAVY BODIED FOR HOOKED-TYPE EXPANSION JOINTS WITH LIMITED MOVEMENT.
- EPOXY SEAM SEALER: TWO-PART, NONCORROSIVE, ALUMINUM SEAM-CEMENTING COMPOUND, RECOMMENDED BY ALUMINUM MANUFACTURER FOR EXTERIOR NONMOVING JOINTS, INCLUDING RIVETED JOINTS.

FLASHING FABRICATION, GENERAL

- GENERAL: CUSTOM FABRICATE SHEET METAL FLASHING AND TRIM TO COMPLY WITH RECOMMENDATIONS IN SMACNA'S "ARCHITECTURAL SHEET METAL MANUAL" THAT APPLY TO DESIGN, DIMENSIONS, METAL, AND OTHER CHARACTERISTICS OF ITEM INDICATED. SHOP FABRICATE ITEMS WHERE PRACTICABLE. OBTAIN FIELD MEASUREMENTS FOR ACCURATE FIT BEFORE SHOP FABRICATION.

DIVISION 7 – THERMAL PROTECTION

MINIMUM PERFORMANCE REQUIREMENTS:

INSULATION MATERIALS, INCLUDING FACINGS, SUCH AS VAPOR BARRIERS OR BREATHER PAPERS INSTALLED WITHIN FLOOR-CEILING ASSEMBLIES, ROOF-CEILING ASSEMBLIES, WALL ASSEMBLIES, CRAWL SPACES AND ATTICS SHALL HAVE A FLAME-SPREAD INDEX NOT TO EXCEED 25 WITH AN ACCOMPANYING SMOKE-DEVELOPED INDEX NOT TO EXCEED 450 WHEN TESTED IN ACCORDANCE WITH ASTM E 84. ALL AIR BARRIER SEAMS, JOINTS SHALL BE SEALED INCLUDING SEALING TRANSITIONS AND CHANGES IN MATERIAL.

REFER TO 2021 INTERNATIONAL ENERGY CONSERVATION CODE (2021 IECC) WITH MONTANA AMENDMENTS. SEMI-HEATED STRUCTURE < 64°F

SWINGING DOORS: U FACTOR=0.37 OR LESS

WALLS BELOW GRADE: R-20 FOR 24 INCHES

WALL ABOVE GRADE: R-20 CI

ROOF: R-30 CI

CI=CONTINUOUS INSULATION

DIVISION 7 – INSULATED METAL WALL PANEL

PRODUCTS

MANUFACTURER:ALL WEATHER INSULATED PANELS, 929 ALDRIDGE RD, VACAVILLE, CA 95688, TELEPHONE: 888-970-AMP, WEBSITE: WWW.AWPPANELS.COM

PERFORMANCE REQUIREMENTS

- GENERAL: PROVIDE METAL PANEL SYSTEM MEETING PERFORMANCE REQUIREMENTS AS DETERMINED BY SPECIFICATION.
- BASIS OF DESIGN: ALL WEATHER INSULATED PANELS, DM40.

INSULATED METAL WALL PANELS

- THE INSULATED METAL WALL PANEL SHALL HAVE A SIDE JOINT WITH A DOUBLE TONGUE AND GROOVE OFFSET DESIGN, PERMITTING EXTERIOR SIDE INSTALLATION AND FASTENERS COMPLETELY CONCEALED WITHIN SIDE JOINT. THE CONCEALED FASTENERS SHALL POSITIVELY LOCK THE FACE SHEET OF THE PANEL TO THE STRUCTURAL SUPPORTS AND PROVIDE POSITIVE RESISTANCE TO NEGATIVE WIND LOADS. A SINGLE 3/8 INCH CONTINUOUS BEAD OF APPROVED NON-SKINNING BUTYLOID GUN GRADE SEALANT EQUIVALENT TO SCHNEE-MOREHEAD 5430 ACRYL-R0 SHALL BE APPLIED IN THE FEMALE SIDE AT THE PANEL JOINT PRIOR TO ENGAGEMENT AS SHOWN ON THE PANEL SHOP/ERECTION DRAWINGS.
- PROVIDE INSULATED METAL PANEL WITH MINIMUM R VALUE:20
- PROVIDE INSULATED METAL PANEL WITH MINIMUM THICKNESS: 2.5"
- THE INSULATED METAL PANEL SHALL BE 40" WIDE WITH A ROLL-FORMED OFFSET DOUBLE TONGUE AND GROOVE SIDE JOINT.
- THE EXTERIOR PROFILE SHALL BE STANDARD EMBOSSED WITH LIGHTLY PLANKED MESA RIDGS ON 2.22 CENTERS
- FACING THICKNESS: 24 GA
- FINISH: FLUOROPOLYMER (PVDF) TWO-COAT SYSTEM WITH 1.0 MIL DRY FILM THICKNESS
- COLOR: AS SELECTED BY OWNER

METAL PANEL INSTALLATION

- MANUFACTURER SHALL PROVIDE PANEL CONTRACTOR WITH WRITTEN INSTRUCTIONS FOR RECOMMENDED PRODUCT STORAGE AND HANDLING AS WELL AS STANDARD INSTALLATION PROCEDURES.

DIVISION 7 – STANDING SEAM ROOF PANEL

PRODUCTS:

ALL WEATHER INSULATED PANELS
929 ALDRIDGE RD, VACAVILLE, CA 95688,
TELEPHONE: 888-970-AMP
WEBSITE: WWW.AWPPANELS.COM

PERFORMANCE REQUIREMENTS

- GENERAL: PROVIDE METAL PANEL SYSTEM MEETING PERFORMANCE REQUIREMENTS AS DETERMINED BY SPECIFICATION.
- BASIS OF DESIGN: ALL WEATHER INSULATED PANELS: STANDING SEAM (SR2).

INSULATED METAL ROOF PANELS

- THE INSULATED METAL ROOF PANEL SHALL HAVE A SIDE JOINT WITH A 2 INCH TRAPEZOIDAL STANDING SEAM RIB UTILIZING A CONTINUOUS BEAD OF SEALANT EQUIVALENT TO SCHNEE-MOREHEAD 5430 ACRYL-R APPLIED TO THE ADJACENT SEAM OVERLAP. THE PANELS SHALL BE FASTENED WITH X-14 HEX HEAD SEALING WASHERED FASTENERS INSTALLED THROUGH PRE-PUNCHED THERMALLY-BROKEN SR SERIES PANEL CLIPS. THE CLIP ASSEMBLY SHALL POSITIVELY LOCK THE FACE AND LINER SHEET OF THE PANEL TO THE STRUCTURAL SUPPORTS AND PROVIDE POSITIVE RESISTANCE TO NEGATIVE WIND LOADS. AN ADDITIONAL MINIMUM 1/4 INCH CONTINUOUS BEAD OF APPROVED NON-SKINNING BUTYLOID GUN GRADE SEALANT EQUIVALENT TO SCHNEE-MOREHEAD 5430 ACRYL-R MAY BE APPLIED AT THE LINER SIDE EDGE OF THE ROOF PANEL JOINT PRIOR TO ENGAGEMENT AS SHOWN ON THE PANEL SHOP/ERECTION DRAWINGS
- PROVIDE INSULATED METAL PANEL WITH MINIMUM R VALUE:30
- PROVIDE INSULATED METAL PANEL WITH MINIMUM THICKNESS: 4"
- THE INSULATED METAL PANEL SHALL BE 40" WIDE WITH STANDING SEAM TRAPEZOIDAL RIB WITH FACING THICKNESS:24 GA. FINISH: FLUOROPOLYMER (PVDF) TWO-COAT SYSTEM WITH THICKNESS: 1.0 MIL DRY FILM THICKNESS
- COLOR: AS SELECTED BY OWNER FROM MANUFACTURER'S STANDARD COLORS

METAL ROOF PANEL ACCESSORIES

- FLASHINGS: THE INSULATED METAL PANEL MANUFACTURER SHALL FURNISH EITHER THE FORMED METAL FLASHINGS OR THE FLAT STOCK IN THE SAME GAUGE, COLOR, AND PAINT FINISH SYSTEM AS THE PANEL FACINGS
- PANEL FASTENERS: SELF-DRILLING OR SELF-TAPPING SCREWS AND OTHER ACCEPTABLE FASTENERS RECOMMENDED BY PANEL MANUFACTURER. WHERE EXPOSED FASTENERS CANNOT BE AVOIDED, SUPPLY CORROSION-RESISTANT FASTENERS WITH HEADS MATCHING COLOR OF METAL PANELS BY FACTOR-APPLIED COATING, WITH WEATHER TIGHT SEALING WASHERS.
- SEALANT: PROVIDE NON-SKINNING BUTYL SEALANT AND/OR BUTYL TAPE SEALANT IN ACCORDANCE TO MANUFACTURER'S STANDARDS
- PANEL SEAMER: PANEL SEAMER SPECIFICALLY DESIGNED TO BE USED WITH THE SR2 PANEL SHALL BE ORDERED THROUGH DI SEAMERS AT WWW.AMPSEAMERS.COM.

METAL PANEL INSTALLATION

- MANUFACTURER SHALL PROVIDE PANEL CONTRACTOR WITH WRITTEN INSTRUCTIONS FOR RECOMMENDED PRODUCT STORAGE AND HANDLING AS WELL AS STANDARD INSTALLATION PROCEDURES.

Rev	No	Date	By	Description

FORT PECK FISH HATCHERY TRANSMISSION MAIN				
MONTANA FISH WILDLIFE & PARKS				
VALLEY COUNTY, MONTANA				
CONTROL VALVE BUILDING NOTES				
Drawn By: _____	K/AS	Surveyed By: _____	IEI	Project No: S18-00-053.01
Checked By: _____	JRB	Designed By: _____	SRS	Date: 08/04/2022

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DIVISION 8-DOOR HARDWARE

MANUFACTURERS (ALTERNATES TO BE CONSIDERED)

- A. BUTTS: BOMMER, HAGER, STANLEY
- B. EXIT DEVICES: VON DUPRIN, ADVANTEX
- C. DOOR CLOSERS: NORTON
- D. LOCKSETS: BEST
- E. THRESHOLDS & WEATHERSTRIP: NATIONAL GUARD, REESE, ZERO
- F. STOPS & DOOR TRIM: GLYNN JOHNSON, TRIMCO, ROCKWOOD
- G. O/H STOPS: GLYNN JOHNSON, RIXSON

MATERIALS AND FABRICATION

- A. HAND OF DOOR: THE DRAWINGS SHOW THE DIRECTION OF SLIDE, SWING, OR HAND OF EACH DOOR LEAF. FURNISH EACH ITEM OF HARDWARE FOR PROPER INSTALLATION AND OPERATION OF THE DOOR MOVEMENT AS SHOWN.
- B. BASE METALS: PRODUCE HARDWARE UNITS OF THE BASIC METAL AND FORMING METHOD INDICATED USING THE MANUFACTURER'S STANDARD METAL ALLOY, COMPOSITION, TEMPER, AND HARDNESS.
- C. FASTENERS: MANUFACTURE HARDWARE TO CONFORM TO PUBLISHED TEMPLATES GENERALLY PREPARED FOR MACHINE SCREW INSTALLATION. DO NOT PROVIDE HARDWARE WHICH HAS BEEN PREPARED FOR SELF-TAPPING SCREWS EXCEPT AS SPECIFICALLY INDICATED.

BUTTS, HINGES, AND PIVOTS

- A. TEMPLATES: PROVIDE ONLY TEMPLATE PRODUCED UNITS.
- B. SCREWS: FURNISH PHILLIPS FLAT-HEAD ALL PURPOSE OR MACHINE SCREWS FOR INSTALLATION OF UNITS EXCEPT FURNISH PHILLIPS FLAT-HEAD ALL PURPOSE WOOD SCREWS FOR INSTALLATION OF UNITS INTO WOOD. FINISH SCREW HEADS TO MATCH SURFACE OF HINGES OR PIVOTS.
- C. HINGE PINS: EXCEPT AS OTHERWISE INDICATED PROVIDE HINGE PINS AS FOLLOWS:
 - 1. STEEL HINGES: STEEL PINS
 - 2. NON-FERROUS HINGES: STAINLESS STEEL PINS
 - 3. EXTERIOR DOORS: NON-REMOVABLE PINS
 - 4. INTERIOR DOORS:NON-RISING PINS
 - 5. TIPS: FLAT BUTTON AND MATCHING PLUG FINISHED TO MATCH LEAVES
- D. NUMBER OF HINGES: PROVIDE NUMBER OF HINGES INDICATED BUT NOT LESS THAN 3 HINGES PER DOOR LEAF FOR DOORS 90" OR LESS IN HEIGHT AND 1 ADDITIONAL HINGE FOR EACH 30' OF ADDITIONAL HEIGHT.
- E. SIZE OF HINGE LEAVES: 4.5" HIGH, EXCEPT 5' FOR DOORS OVER 3'6" WIDE.
- F. WIDTH OF HINGES: SHALL BE SUFFICIENT TO CLEAR TRIM PROJECTION WHEN DOOR SWINGS 180 DEGREES.
- H. ALL HINGES SHALL BE MADE OF STEEL AND HAVE STEEL BALL BEARINGS WHERE SPECIFIED.

KEYING

- A. KEYS REQUIRED: FURNISH QUANTITY OF KEYS AS REQUIRED BY OWNER.

CYLINDRICAL TYPE LOCKSETS

- A. ALL LOCKSETS AND LATCHSETS SHALL HAVE STEEL CYLINDRICAL CASES WITH INTERIOR PARTS MADE OF STEEL OR BRASS. LATCH RETRACTORS SHALL BE MADE OF A FORGED STEEL MATERIAL.
- B. ALL STEEL PARTS SHALL BE BRONZE PLATED OR COATED WITH ZINC-DICHROMATE TO RESIST RUSTING AND CORROSION.
- C. LOCKSETS AND CYLINDERS SHALL HAVE 7 PINS.
- D. FURNISH WROUGHT BOXES WITH ALL LOCK STRIKES.
- E. STRIKES LIPS SHALL NOT PROJECT MORE THAN 1/8" BEYOND THE FRAME AT SINGLE DOORS OR FACE OF THE INACTIVE.
- F. LEAF AT PAIRS OF DOORS.

DEADLOCKS

- A. DEADLOCKS SHALL BE CYLINDRICAL TYPE WITH INTERIOR PARTS MADE OF STEEL OR BRONZE.
- B. ALL STEEL PARTS SHALL BE BRONZE PLATED OR COATED WITH ZINC-DICHROMATE TO RESIST RUSTING AND CORROSION.

CLOSER AND DOOR CONTROL DEVICES

- A. ALL OUTSWINGING DOORS TO BE SUPPLIED WITH HEAVY DUTY PARALLEL ARM AT HEAVY DUTY CLOSERS.

MISCELLANEOUS DOOR TRIM UNITS

- A. MATERIAL SHALL BE BRASS, BRONZE OR STAINLESS STEEL AS APPROPRIATE FOR REQUIRED FINISH. BRASS BRONZE MATERIAL TO BE 0.050" MINIMUM THICKNESS AND STAINLESS STEEL TO BE 0.050" MINIMUM THICKNESS. EDGES OF PLATES TO BE BEVELED AND POLISHED EXCEPT LOWER EDGE CAN BE SQUARE.

INSTALLATION

- A. FURNISH ALL ITEMS OF HARDWARE WITH ATTACHMENT SCREWS, BOLTS, NUTS, ETC., AS REQUIRED TO ATTACH HARDWARE TO TYPE OF MATERIAL INVOLVED AND WITH FINISH TO MATCH HARDWARE WITH WHICH THEY ARE TO BE USED. MAKE ALL ATTACHMENTS TO METAL BY TEMPLATE MACHINE SCREWS. RUN WEATHERSTRIPPING OR SOUNDSTRIPPING FULL HEIGHT OF BOTH JAMBS AND FULL WIDTH OF HEAD. RUN THRESHOLDS FULL WIDTH OF OPENING. RUN DOOR BOTTOMS FULL WIDTH OF DOORS. SET THRESHOLDS IN CAULKING BY SEALANT CONTRACTOR.

DIVISION 8-STEEL DOOR AND FRAMES

MANUFACTURERS (ALTERNATES TO BE CONSIDERED)

- A. CECO DOOR.
- B. CURRIES.
- C. DCI HOLLOW METAL.
- D. REPUBLIC DOORS & FRAMES.
- E. STEELCRAFT.

MATERIALS

- A. DOORS, FRAMES, FRAME ANCHORS, AND HARDWARE REINFORCINGS FOR EACH OF THE LEVELS AND MODELS SPECIFIED SHALL BE PROVIDED TO MEET THE REQUIREMENTS OF THE PERFORMANCE LEVELS SPECIFIED. THE MATERIAL USED IN MANUFACTURING THESE PRODUCTS AND COMPONENTS SHALL COMPLY WITH ANSI/SDI A250.8. HARDWARE REINFORCING ON DOORS AND FRAMES SHALL COMPLY WITH ANSI/SDI A250.6. THE PHYSICAL PERFORMANCE LEVELS SHALL BE IN ACCORDANCE WITH ANSI/SDI A250.4.
- B. ALL STEELS USED TO MANUFACTURE DOORS, FRAMES, ANCHORS, AND ACCESSORIES SHALL MEET AT LEAST ONE OR MORE OF THE FOLLOWING REQUIREMENTS:
 - 1. COLD ROLLED STEEL SHALL CONFORM TO ASTM A1008 AND A568.
 - 2. HOT ROLLED, PICKLED AND OILED STEEL SHALL COMPLY WITH ASTM A1011 AND A568.
 - 3. HOT DIPPED ZINC COATED STEEL SHALL BE OF THE ALLOYED TYPE AND COMPLY WITH ASTM A924 AND A653.
 - 4. STEEL SHEET, ELECTROLYTIC ZINC-COATED SHALL CONFORM TO ASTM A591.

FRAMES

- A. PROVIDE LEVELS AND MODELS IN ACCORDANCE WITH ANSI/SDI A250.8 AS INDICATED BELOW.
- B. EXTERIOR FRAMES: PROVIDE IN ACCORDANCE WITH ANSI/SDI A250.8 IN THE FRAME CONFIGURATION AND DEPTH AS INDICATED ON THE DRAWINGS. MINIMUM THICKNESS AS FOLLOWS: LEVEL 4 MAXIMUM-DUTY: FOR USE WITH 0.067 INCH MINIMUM STEEL FRAME THICKNESS.
- C. PROVIDE UNITS OF GALVANIZED STEEL.
- D. PROVIDE WELDED UNIT TYPE FRAMES WITH A MINIMUM OF THREE ANCHORS PER JAMB SUITABLE FOR THE ADJOINING WALL CONSTRUCTION. FRAMES OVER 7 FEET 6 INCHES SHALL BE PROVIDED WITH ADDITIONAL ANCHORS PER JAMB.
- E. PREPARE ALL FRAMES FOR ALL MORTISE TEMPLATE HARDWARE AND REINFORCED ONLY FOR SURFACE MOUNTED HARDWARE. DRILLING AND/OR TAPPING SHALL BE COMPLETED BY OTHERS.
- F. MINIMUM HARDWARE REINFORCING GAGES SHALL COMPLY WITH TABLE 4 OF ANSI/SDI A250.8. PROVIDE GLAZING STOPS AND BEADS WHERE GLAZED LIGHTS IF INDICATED.

DOORS

- A. INTERIOR DOORS: PROVIDE INTERIOR DOORS IN ACCORDANCE WITH ANSI/SDI A250.8 AND IN THE CONFIGURATION AND SIZES AS INDICATED BELOW:
 - 1. LEVEL 4 - MAXIMUM-DUTY 1-3/4 INCHES - FULL FLUSH
- B. EXTERIOR DOORS: PROVIDE EXTERIOR DOORS IN ACCORDANCE WITH ANSI/SDI A250.8 AND IN THE CONFIGURATION AND SIZE AS INDICATED ON THE DOOR SCHEDULE:
 - 1. LEVEL 4 - MAXIMUM-DUTY 1-3/4 INCHES FULL FLUSH
- C. FACE STEEL SHEET SHALL MEET THE FOLLOWING
 - 1. LEVEL 4 - 0.067 INCH MINIMUM THICKNESS
- D. END CLOSURE: THE TOP AND BOTTOM OF THE DOORS SHALL BE CLOSED WITH CHANNELS OR CLOSURES. THE CHANNELS OR CLOSURES SHALL HAVE A MINIMUM MATERIAL THICKNESS OF 0.042 INCH.
- E. CORE: PROVIDE IN ACCORDANCE WITH ANSI/SDI A250.8.
- F. DOOR EDGE DESIGN: PROVIDE IN ACCORDANCE WITH ANSI/SDI A250.8.
- G. MINIMUM HARDWARE REINFORCING GAGES SHALL COMPLY WITH TABLE 4 OF ANSI/SDI A250.8.

FABRICATION

- A. FABRICATE DOORS AND FRAMES IN ACCORDANCE WITH ANSI/SDI A250.8.
- B. PRIME FINISH: DOORS AND FRAMES SHALL BE THOROUGHLY CLEANED, AND CHEMICALLY TREATED TO ENSURE MAXIMUM PAINT ADHESION. ALL SURFACES OF THE DOOR AND FRAME EXPOSED TO VIEW SHALL RECEIVE A FACTORY APPLIED COAT OF RUST INHIBITING PRIMER, EITHER AIR-DRIED OR BAKED-ON. THE FINISH SHALL MEET THE REQUIREMENTS FOR ACCEPTANCE STATED IN ANSI/SDI A250.10 "TEST PROCEDURE AND ACCEPTANCE CRITERIA FOR PRIME PAINTED STEEL SURFACES FOR STEEL DOORS AND FRAMES."
- C. FACTORY APPLIED FINISH: MEET THE PERFORMANCE REQUIREMENTS AND ACCEPTANCE CRITERIA AS STATED IN ANSI/SDI A250.3. COLOR SHALL BE:
 - 1. AS SELECTED FROM THE MANUFACTURERS STANDARD COLORS WITH OWNERS APPROVAL.
- D. DESIGN CLEARANCES: FABRICATE DOORS AND FRAMES TO MAINTAIN THE FOLLOWING CLEARANCES:
 - 2.1. THE CLEARANCE BETWEEN THE DOOR AND FRAME SHALL BE 1/8 INCH IN THE CASE OF BOTH SINGLE SWING AND PAIRS OF DOORS.
 - 2.2. THE CLEARANCE BETWEEN THE MEETING EDGES OF PAIRS OF DOORS SHALL BE 3/16 INCH PLUS OR MINUS 1/16 INCH. FOR FIRE RATED APPLICATIONS, THE CLEARANCES BETWEEN THE MEETING EDGES OF PAIRS OF DOORS SHALL BE 1/8 INCH PLUS OR MINUS 1/16 INCH.
 - 2.3. THE CLEARANCE MEASURED FROM THE BOTTOM OF THE DOOR TO THE BOTTOM OF THE FRAME (UNDERCUT) SHALL BE A MAXIMUM OF 3/4 INCH UNLESS OTHERWISE SPECIFIED. FIRE DOOR UNDERCUTS SHALL COMPLY WITH ANSI/NFPA 80, "FIRE DOORS AND FIRE WINDOWS."
 - 2.4. THE CLEARANCE BETWEEN THE FACE OF THE DOOR AND THE STOP SHALL BE 1/16 INCH TO 3/32 INCH.
 - 2.5. ALL CLEARANCES SHALL BE, UNLESS OTHERWISE SPECIFIED IN THIS DOCUMENT, SUBJECT TO A TOLERANCE OF PLUS OR MINUS 1/32 INCH.
 - 2.6. THE CLEARANCE AT THE BOTTOM SHALL BE 3/4 INCH.
 - 2.7. THE CLEARANCE BETWEEN THE FACE OF THE DOOR AND DOORSTOP SHALL BE 1/16 INCH TO 1/8 INCH.
 - 2.8. ALL CLEARANCES SHALL BE, UNLESS OTHERWISE SPECIFIED, SUBJECT TO A TOLERANCE OF PLUS OR MINUS 1/32 INCH.

EXAMINATION

- A. VERIFY THAT PROJECT CONDITIONS ARE SUITABLE BEFORE BEGINNING INSTALLATION OF FRAMES. DO NOT BEGIN INSTALLATION UNTIL CONDITIONS HAVE BEEN PROPERLY PREPARED. VERIFY THAT COMPLETED OPENINGS TO RECEIVE FRAMES ARE OF CORRECT SIZE AND THICKNESS.

INSTALLATION

- A. INSTALL FRAMES PLUMB, LEVEL, RIGID, AND IN TRUE ALIGNMENT IN ACCORDANCE WITH ANSI A250.11. DOORS SHALL BE INSTALLED AND FASTENED TO MAINTAIN ALIGNMENT WITH FRAMES TO ACHIEVE MAXIMUM OPERATIONAL EFFECTIVENESS AND APPEARANCE. DOORS SHALL BE ADJUSTED TO MAINTAIN PERIMETER CLEARANCES SPECIFIED. SHIMMING SHALL BE PERFORMED BY THE INSTALLER AS NEEDED TO ASSURE THE PROPER CLEARANCES ARE ACHIEVED.

DIVISION 31 - EARTHWORK

GENERAL

- 1. ALL EXISTING IMPROVEMENTS SHALL REMAIN UNLESS NOTED OTHERWISE.
- 2. THE CONTRACTOR SHALL KEEP ALL ACCESS ROADS FREE FROM MUD AND DEBRIS AT ALL TIMES.
- 3. THE EXISTING UTILITIES SHOWN HEREON ARE FROM INFORMATION PROVIDED BY THE OWNER AND MUST BE CONSIDERED AS APPROXIMATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATIONS OF ALL EXISTING UTILITIES WITHIN PROJECT LIMITS BY VISUAL INSPECTION AND UTILITY LOCATE PRIOR TO COMMENCING WORK.
- 4. THE CONTRACTOR SHALL ASSUME COMPLETE RESPONSIBILITY FOR CONTROLLING ALL SEDIMENTATION AND EROSION OF THE PROJECT AREA. THE CONTRACTOR SHALL REFER TO THE EROSION CONTROL PLAN COUPLED WITH THE CONTRACTOR'S SELF-PREPARED STORM WATER MANAGEMENT PLAN. THE OWNER AND/OR THE COUNTY MAY AT THEIR OPTION DIRECT THE CONTRACTOR IN HIS METHODS AS DEEMED FIT TO PROTECT PROPERTY AND IMPROVEMENTS. ANY DEPOSITING OF SILT, MUD, OR DEBRIS ON NEW OR EXISTING PAVEMENT OR IN NEW OR EXISTING STORM SEWERS OR SWALES SHALL BE REMOVED AFTER EACH RAINFALL AND AFFECTED AREAS CLEANED TO THE SATISFACTION OF THE OWNER OR THE GOVERNING AUTHORITY.
- 5. FINISH SPOT ELEVATIONS ARE SHOWN AT TOP OF NEW PAVEMENT, SIDEWALKS, FLOWLINES, OR GROUND AS INDICATED.
- 6. CONTRACTOR SHALL BACKFILL ALL UTILITY TRENCHES WITH COMPACTED GRANULAR MATERIAL OR FLOWABLE FILL UNLESS SPECIFIED OTHERWISE.
- 7. EXISTING UTILITIES SHOWN ON THESE DRAWINGS WERE EITHER FIELD SURVEYED VIA VISIBLE STRUCTURES OR DRAWN BASED ON AVAILABLE RECORD DRAWINGS OR MAPS. UTILITY RECORD DRAWINGS OR MAPS ARE PROVIDED IN THIS DRAWING SET FOR REFERENCE ONLY. OTHER UTILITIES MAY BE PRESENT OR THE UTILITIES SHOWN MAY NOT BE IN THE EXACT LOCATION AS DELINEATED ON THESE DRAWINGS. THE CONTRACTOR SHALL FIELD VERIFY, THROUGH POT-HOLING, ALL EXISTING UTILITIES THAT MAY BE IMPACTED DUE TO CONSTRUCTION.
- 8. THE CONTRACTOR SHALL COORDINATE WITH OWNER ON AVAILABLE CONSTRUCTION STAGING AREAS AND DESIGNATED CONSTRUCTION PARKING. CONSTRUCTION STAGING AREAS SHALL INCLUDE CONSTRUCTION OF A CHAIN LINK FENCE AROUND THE FULL PERIMETER.
- 9. THE CONTRACTOR SHALL CLEAR, GRUB AND CLEAN THE SITE AS REQUIRED TO DO THE WORK AS NOTED ON THE PLANS. THE CONTRACTOR SHALL EXCAVATE AND GRADE TO THE ELEVATIONS SHOWN IN THE PLANS OR ESTABLISHED BY THE ENGINEER AND IN ACCORDANCE WITH THE PROJECT GEOTECHNICAL ENGINEERING STUDY, IF APPLICABLE. UNSUITABLE SUBGRADE AND FILL MATERIAL SHALL BE EXCAVATED AND REPLACED WITH AN APPROVED STRUCTURAL BACKFILL MATERIAL. FILL EMBANKMENT, ENGINEERED/STRUCTURAL/SUB-BALLAST, ASPHALT PAVING, RIPRAP/QUARRY SPALLS SHALL CONFORM TO TO MDT STANDARD AND SUPPLEMENTAL SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2020 EDITION
- 10. THE SITE SHALL BE GRADED TO DRAIN SURFACE WATER AWAY FROM FOUNDATION WALLS, IN ACCORDANCE WITH LOCAL BUILDING CODE PROVISIONS OR APPROVED PRACTICE. IN SOILS OTHER THAN GW, GP, SW, SP, GM, AND SM (UNIFIED SOIL CLASSIFICATION SYSTEM, ASTM D2487), A LAYER OF SCREENED AND WASHED GRAVEL OR CRUSHED STONE SHALL BE PLACED BENEATH THE HORIZONTAL INSULATION AND DRAINED TO DAYLIGHT, OR AN APPROVED FOUNDATION DRAINAGE SYSTEM SHALL BE PROVIDED.
- 11. THE FOUNDATION SHALL BEAR ON APPROVED STRUCTURAL FILL AND APPROVED DEPTH. EXISTING SUBGRADE SOILS WITHIN THE AREA OF THE FOUNDATION MAY BE UNSUITABLE AND WILL TO BE REMOVED AND REPLACED WITH STRUCTURAL FILL. A ON-SITE INSPECTION BY THE GEOTECHNICAL ENGINEER WILL BE REQUIRED TO DETERMINE THE SUBGRADE SOILS AT THE FOUNDATION LOCATION. REFER TO EXISTING REFERENCE PLANS (SEE DESIGN CRITERIA) FOR ADDITION INFORMATION.

DESIGN CRITERIA

LIVE LOADS

ROOF LOAD	20 PSF
BUILDING FLOOR LOAD	125 PSF

SNOW LOADS

ROOF SNOW LOAD	30 PSF
SNOW EXPOSURE FACTOR, CE	1.0
SNOW EXPOSURE FACTOR, CI	1.1
SNOW LOAD IMPORTANCE FACTOR, I	1.0

WIND LOADS

BASIC WIND SPEED (3-SECOND GUST)	110 MPH
WIND IMPORTANCE FACTOR, I	1.0
WIND EXPOSURE	TERRAIN CAT. C

SEISMIC LOADS

SEISMIC IMPORTANCE FACTOR, I	1.0
RISK CATEGORY	II
MAPPED SPECTRAL RESPONSE ACCELERATIONS	
S _s	0.13G
S ₁	0.057G
SITE CLASS	D
SPECTRAL RESPONSE COEFFICIENTS	
S _{ps}	0.138G
S _{pi}	0.091G
SEISMIC DESIGN CATEGORY	B
GEOTECHNICAL INFORMATION	
ALLOWABLE SOIL BEARING	1500 PSF
FROST DEPTH	36 INCHES

CODES:

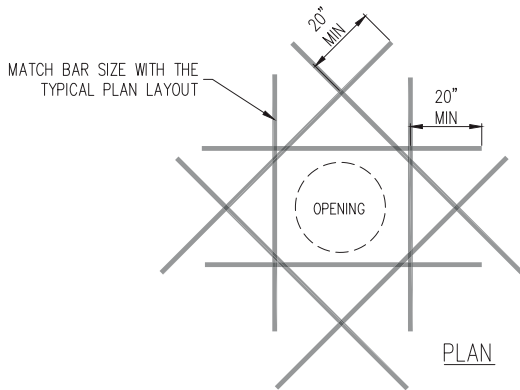
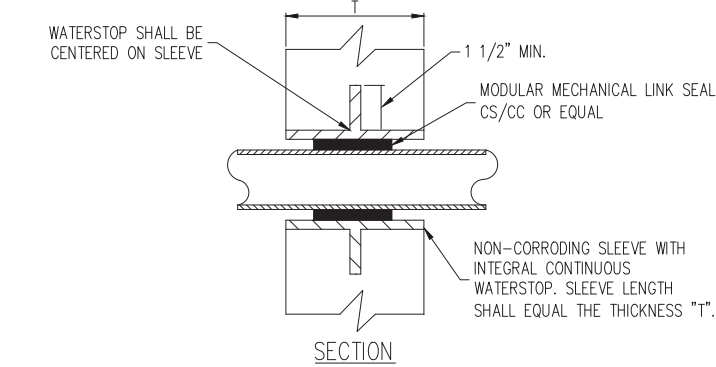
2021 INTERNATIONAL BUILDING CODE WITH LOCAL AMENDMENTS
ICC A117.1 ACCESSIBILITY, 2017 EDITION
UNIFORM PLUMBING CODE, 2021 EDITION
INTERNATIONAL MECHANICAL CODE, 2021 EDITION
INTERNATIONAL FUEL GAS CODE, 2021 EDITION
NATIONAL ELECTRICAL CODE, 2020 EDITION

GEOTECHNICAL REPORT

AMERICAN ENGINEERING TESTING, INC.
REPORT OF GEOTECHNICAL EXPLORATION
FORT PECK FISH HATCHERY TRANSMISSION MAIN
FORT PECK, MONTANA
AET NO. 37-20591

EXISTING REFERENCE PLANS

FORT PECK FISH HATCHERY - MARCH 2003
STRUCTURAL NOTES AND SCHEDULES SHEET SO.01
DRAWING CODE: MFP209-170



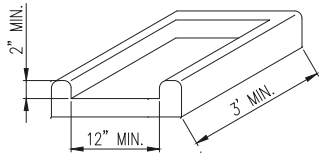
PIPE PENETRATION DETAILS

- 1. PIPE PENETRATION SEAL DETAILS: ALL PIPES, VENTS AND CONDUITS THROUGH FLOORS, WALLS OR ROOF SLABS OF WATER OR WASTEWATER TREATMENT, STORAGE OR HANDLING STRUCTURES SHALL BE SEALED WITH A MODULAR MECHANICAL SEAL AND SLEEVE AS SHOWN.
- 2. THIS DETAIL SHALL APPLY TO ALL OPENINGS WHICH, DUE TO THEIR SIZE, RESULT IN THE INTERRUPTION OF REINFORCING STEEL OR HAVE A DIAMETER OR, IN THE CASE OF RECTANGULAR OPENINGS, A DIMENSION GREATER THAN 6 INCHES. THE DETAIL SHOWN APPLIES TO ALL LAYERS OF REINFORCING STEEL IN THE STRUCTURAL ELEMENT THROUGH WHICH THE OPENING PASSES.
- 3. A MINIMUM OF 2" CLEAR SHALL BE MAINTAINED BETWEEN THE REINFORCING STEEL AND THE EDGE OF THE OPENING OR SLEEVE.
- 4. DB = BAR DIAMETER.
- 5. THE ANNULUS OF PENETRATIONS WHICH DO NOT REQUIRE MODULAR MECHANICAL SEALS SHALL BE ROPED AND CAULKED.



SPLASH BLOCKS

PRECAST CONCRETE SPLASH BLOCKS SHALL BE FURNISHED AND INSTALLED BELOW EACH DOWN SPOUT AND ROOF DRAIN NOZZLE. THE COST OF THE SPLASH BLOCK SHALL BE INCLUDED IN THE PRICE BID FOR THE CONSTRUCTION OF THE ROOF DRAIN SYSTEM OR ROOF GUTTER AND DOWN SPOUT SYSTEM.



DETAIL - CONCRETE SPLASH BLOCK
N.T.S.



Rev	No	Date	By	Description

FORT PECK FISH HATCHERY TRANSMISSION MAIN MONTANA FISH WILDLIFE & PARKS VALLEY COUNTY, MONTANA				Project No: <u>S18-00-053.01</u>
CONTROL VALVE BUILDING NOTES				Date: <u>08/04/2022</u>
Drawn By: <u>KAS</u>	Surveyed By: <u>IEI</u>			
Checked By: <u>JRB</u>	Designed By: <u>SRS</u>			

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