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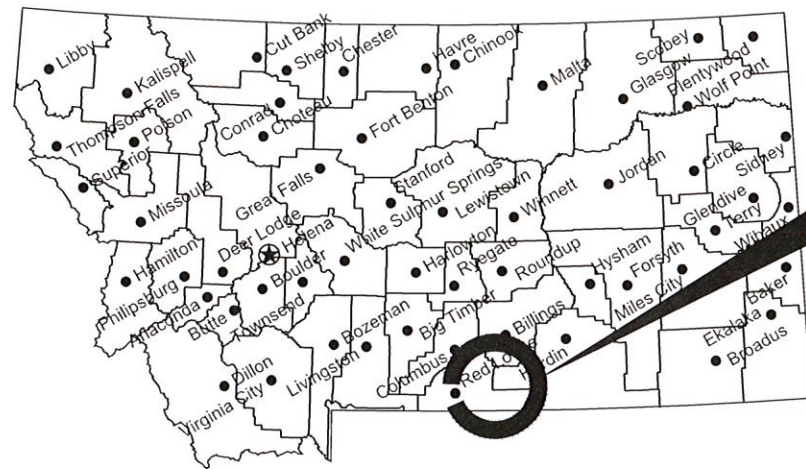
MONTANA FISH, WILDLIFE & PARKS

BLUEWATER SPRINGS TROUT HATCHERY

ARTESIAN WELL HEAD DEVELOPMENT

near Bridger, Carbon County, Montana

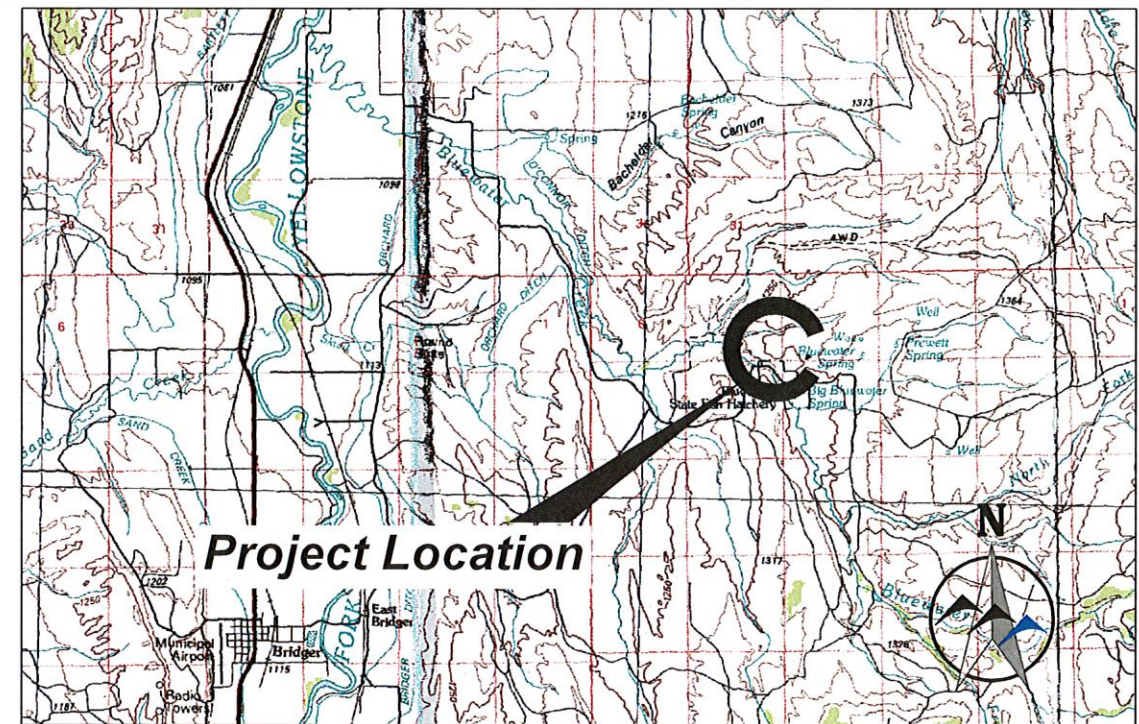
FWP PROJECT # 7113112



Project Location

Location Map

No Scale



Project Location

Vicinity Map

0 5000' 10000'
SCALE: 1" = 10000'
11" x 17" PAPER SIZE



**MONTANA FISH, WILDLIFE AND PARKS
DESIGN AND CONSTRUCTION**

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DRAWING INDEX

Sheet Number	Sheet Title	Sheet Number	Sheet Title	Sheet Number	Sheet Title
1	COVER	6	FLOOR PLAN	13	EAST & WEST FRAMING ELEVATION
2	GENERAL NOTES	7	A-A' PROFILE VIEW	14	ROOF FRAMING PLAN
3	EXISTING SITE LAYOUT	8	B-B' PROFILE VIEW	15	DETAILS
4	SITE PLAN	9	C-C' PROFILE VIEW	16	DETAILS
5	WATER LINE PLAN AND PROFILE	10	HELLAN AUTOMATIC SCREENS	E1 - E5	ELECTRICAL PLANS
		11	NORTH ELEVATION FRAMING		
		12	SOUTH ELEVATION FRAMING		



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**MONTANA FISH,
WILDLIFE & PARKS**

BLUEWATER SPRINGS TROUT HATCHERY
ARTESIAN WELL HEAD DEVELOPMENT - COVER

SHEET: 1 of 16

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GENERAL CONSTRUCTION NOTES

- UNLESS SPECIFICALLY SHOWN ON THE DRAWINGS, ALL WORK SHALL CONFORM TO MPWSS, LATEST EDITION, DEQ CIRCULARS 1 AND 4, AND THESE PLANS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PERMITS REQUIRED AND CONSTRUCTION TESTING FOR CONSTRUCTION ACTIVITIES.
- THE CONTRACTOR SHALL RESTORE ALL ROADWAY TO EQUAL OR BETTER CONDITION THAN EXISTED PRIOR TO CONSTRUCTION, AS DETERMINED BY THE OWNER AND THE ENGINEER.
- THE LOCATION, DEPTH AND SIZE OF EXISTING UTILITIES SHOWN ON THESE PLANS ARE APPROXIMATE. THE CONTRACTOR SHALL FIELD VERIFY THE EXISTENCE, LOCATION, DEPTH, SIZE, LINE AND GRADE OF EXISTING UTILITY CONNECTIONS PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE EXISTING FACILITIES DUE TO FAILURE TO LOCATE OR PROVIDE PROPER PROTECTION WHEN LOCATION IS KNOWN.
- ALL BACKFILL FOR UTILITY TRENCHES SHALL BE TYPE "A," UTILIZING TYPE 1 BEDDING, UNLESS DIRECTED OTHERWISE BY ENGINEER. SPECIFIED BEDDING SHALL BE FROM 4" BENEATH THE PIPE TO 6" ABOVE THE TOP OF PIPE (SEE MPWSS STANDARD DRAWING 02221-1). THE COST OF THIS ADDITIONAL BEDDING SHALL BE INCLUDED IN THE UNIT PRICE BID.
- PIPE BEDDING (TYPE 1) AND TRENCH BACKFILL (TYPE B) SHALL BE IN ACCORDANCE WITH MPW STANDARD SPECIFICATION 02221, STANDARD DRAWING 02221-1.
- THE CONTRACTOR IS RESPONSIBLE FOR CONTROLLING DUST AND EROSION DURING CONSTRUCTION AT CONTRACTOR'S EXPENSE. EROSION SHALL BE CONTROLLED IN ACCORDANCE WITH MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY REGULATIONS.
- ALL PROFILES REPRESENT EXISTING GROUND (DASHED LINE) AND FINISHED GRADE (SOLID LINE) ALONG THE ALIGNMENTS INDICATED ON THE PLANS. ELEVATIONS ARE FINISHED GROUND ELEVATIONS.
- ALL DISTURBED AREAS SHALL BE SEEDED BY THE CONTRACTOR USING A SEED MIX APPROVED BY THE OWNER OR THE LOCAL USDA OFFICE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF UTILITY (PHONE/POWER/CATV) INSTALLATION WITH LOCAL UTILITY COMPANIES.
- THE CONTRACTOR SHALL NOTIFY ONE CALL @ 1-800-424-5555 FOR ONSITE UTILITY LOCATION. ALL EXISTING UTILITIES SHALL BE MARKED BEFORE DIGGING.
- THE CONTRACTOR SHALL MAINTAIN SERVICE OF ALL EXISTING UTILITIES. IF SAID SERVICE IS DAMAGED, THE CONTRACTOR SHALL IMMEDIATELY REPAIR THE DAMAGE AT THE CONTRACTOR'S EXPENSE.
- THE CONTRACTOR SHALL NOTIFY THE ENGINEER A MINIMUM OF 48 HOURS PRIOR TO BEGINNING ANY WORK.
- ALL UTILITY CONDUITS FOR IRRIGATION, ELECTRICAL, GAS, PHONE, CATV, ETC. SHALL BE BURIED A MINIMUM 24" FROM FINISHED GRADE WITH TYPE A BACKFILL, UTILIZING TYPE 1 BEDDING, UNLESS DIRECTED OTHERWISE BY ENGINEER.
- IF THE CONTRACTOR DETERMINES THE NEED TO DISTURB MORE THAN 1.0 ACRE DURING THE CONSTRUCTION OF THE PROJECT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING AN MPDES PERMIT AND COMPLYING WITH ALL TERMS OF THE PERMIT. NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK.
- QUANTITIES SHOWN IN THESE PLANS ARE FOR INFORMATIONAL PURPOSES ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING ACTUAL QUANTITIES.
- ALL WATER PIPING BURIED OR EXPOSED TO BE PAINTED OR MARKED WITH THE COLOR BLUE. BURIED PIPE TO BE LOCATED WITH "WATER" TRACE TAPE.
- ALL BURIED FITTINGS, VALVES, AND APPURTENANCES TO BE ENCASED IN POLYETHYLENE WRAP AND HAVE CATHODIC PROTECTION (PROMAG H-1 20D2), OR BE COMPLETELY ENCASED IN CONCRETE.
- ALL WATER CONTACT MATERIALS AND CHEMICALS MUST MEET APPROPRIATE ANSI / AWWA OR ANSI / NSF STANDARDS. PROVIDE ALL CHEMICAL AND WATER CONTACT MATERIAL SUBMITTALS TO ENGINEER FOR APPROVAL PRIOR TO PROCUREMENT.
- SOLDERS AND FLUX CONTAINING MORE THAN 0.2 PERCENT LEAD AND PIPE FITTINGS CONTAINING MORE THAN 8 PERCENT LEAD MUST NOT BE USED ON SERVICE CONNECTIONS.
- CONTRACTOR TO COORDINATE ACCESS ROUTE AND STAGING AREA WITH OWNER
- ALL PROPOSED PIPE AND APPURTENANCES SHALL HAVE A MINIMUM BURY OF 6 FEET AND BE CERTIFIED LEAD-FREE AND DRINKING WATER SAFE.
- ALL 2-INCH HDPE PIPE BENDS SHALL BE INSTALLED WITH A MINIMUM BEND RADIUS OF 30 TIMES THE OUTSIDE PIPE DIAMETER.
- MAINTAIN AT LEAST A 10-FOOT OFFSET, EDGE-TO-EDGE FROM EXISTING GRAVITY SANITARY OR STORM SEWER, SEPTIC TANKS, OR SUBSOIL TREATMENT SYSTEM.
- ENGINEER'S STAMP IS ONLY APPLICABLE TO THE WATERLINE, PIPING AND HYDRAULICS OF THIS PROJECT.

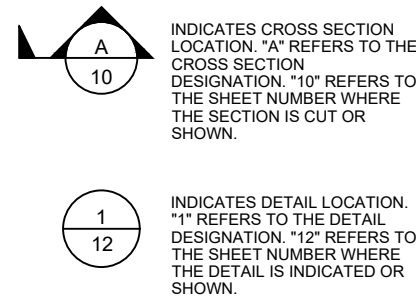
BLOCK LEGEND

EXISTING	PROPOSED	EXISTING	PROPOSED	EXISTING	PROPOSED

LINE STYLE LEGEND

EXISTING	PROPOSED	
		MAJOR CONTOUR
		MINOR CONTOUR
		OVERHEAD TELEPHONE
		OVERHEAD POWER
		NATURAL GAS
		IRRIGATION LINE
		FIBER OPTIC
		FORCEMAIN
		FENCE [CHAIN]
		FENCE [BARBED]
		FENCE [PRIVACY]
		FIRE LINE
		OVERHEAD TV
		RAW WATER
		SEWER
		STORM
		UNDERGROUND POWER
		UNDERGROUND TELEPHONE
		UNDERGROUND TV
		WATER

DRAWING NOTATION



ABBREVIATIONS

ACI	AMERICAN CONCRETE INSTITUTE	HWY	HIGHWAY
BAR	REBAR	INV	INVERT ELEVATION
BMP	BEST MANAGEMENT PRACTICES	LF	LINEAR FEET
BOT	BOTTOM	MH	MANHOLE
BVC	BEGIN VERTICAL CURVE	MJ	MECHANICAL JOINT
CFS	CUBIC FEET PER SECOND	O.C.	ON CENTER
CL	CENTERLINE	O.C.E.F.	ON CENTER EACH FACE
CMP	CORRUGATED METAL PIPE	OHP	OVERHEAD POWER
CONC	CONCRETE OR CONCENTRIC	PI	POINT OF INTERSECTION
CP	CONTROL POINT	POT	POINT ON TANGENT
CSP	CORRUGATED STEEL PIPE	PS	PIPE SUPPORT
CTR	CENTER	PT	POINT, POINT OF TANGENCY
CU FT	CUBIC FEET	PVC	POLYVINYL CHLORIDE
CULV	CULVERT	PWR	POWER
DI	DUCTILE IRON OR DRAIN INLET	RCP	REINFORCED CONCRETE PIPE
DIA	DIAMETER	R/W OR ROW	RIGHT OF WAY
EA	EACH	SAN	SANITARY
E.F.	EACH FACE	SST	STAINLESS STEEL
EL, ELEV	ELEVATION	STA	STATION
EOP	EDGE OF PAVEMENT	TBC	TOP BACK OF CURB
EVC	END VERTICAL CURVE	TYP	TYPICAL
FT	FOOT OR FEET	UG	UNDERGROUND
GPM	GALLONS PER MINUTE	WTR	WATER
HP	HORSEPOWER		

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**MONTANA FISH,
 WILDLIFE & PARKS**

202

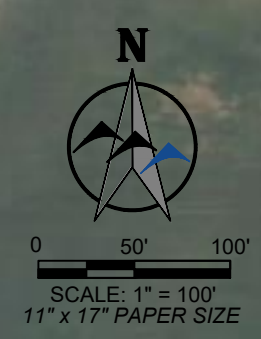
BLUEWATER SPRINGS TROUT HATCHERY
 ARTESIAN WELL HEAD DEVELOPMENT - GENERAL NOTES

SHEET: 2 of 16

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Point Table				
Point	Northing	Easting	Elevation	Description
122	395178.79	2148741.94	3979.16	CP3 Rebar
123	394965.11	2148279.54	3956.95	CP8 Rebar
124	394759.16	2149227.04	4000.15	CP10
125	394872.86	2149225.34	3995.60	CP11 Hub&Tack
126	394780.62	2148882.00	3984.68	CP12
127	394750.82	2148680.30	3978.26	CP13
129	394904.49	2148754.89	3981.53	CP 129
130	394780.51	2148881.86	3984.57	CP 126
131	394750.77	2148680.20	3978.07	CP 127

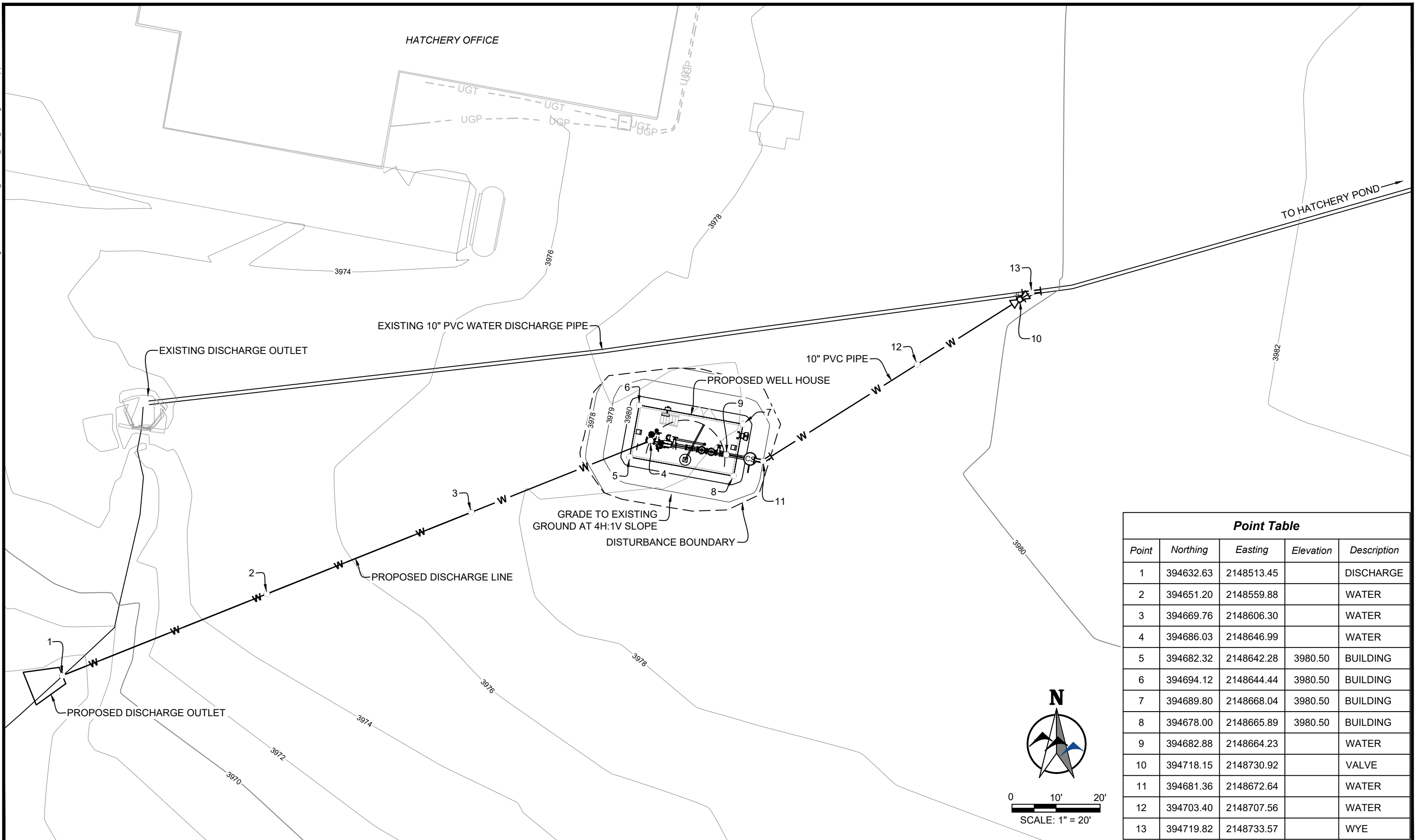


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MONTANA FISH, WILDLIFE & PARKS **BLUEWATER SPRINGS TROUT HATCHERY**
 ARTESIAN WELL HEAD DEVELOPMENT - EXISTING SITE LAYOUT

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Point Table				
Point	Northing	Easting	Elevation	Description
1	394632.63	2148513.45		DISCHARGE
2	394651.20	2148559.88		WATER
3	394669.76	2148606.30		WATER
4	394686.03	2148646.99		WATER
5	394682.32	2148642.28	3980.50	BUILDING
6	394694.12	2148644.44	3980.50	BUILDING
7	394689.80	2148668.04	3980.50	BUILDING
8	394678.00	2148665.89	3980.50	BUILDING
9	394682.88	2148664.23		WATER
10	394718.15	2148730.92		VALVE
11	394681.36	2148672.64		WATER
12	394703.40	2148707.56		WATER
13	394719.82	2148733.57		WYE

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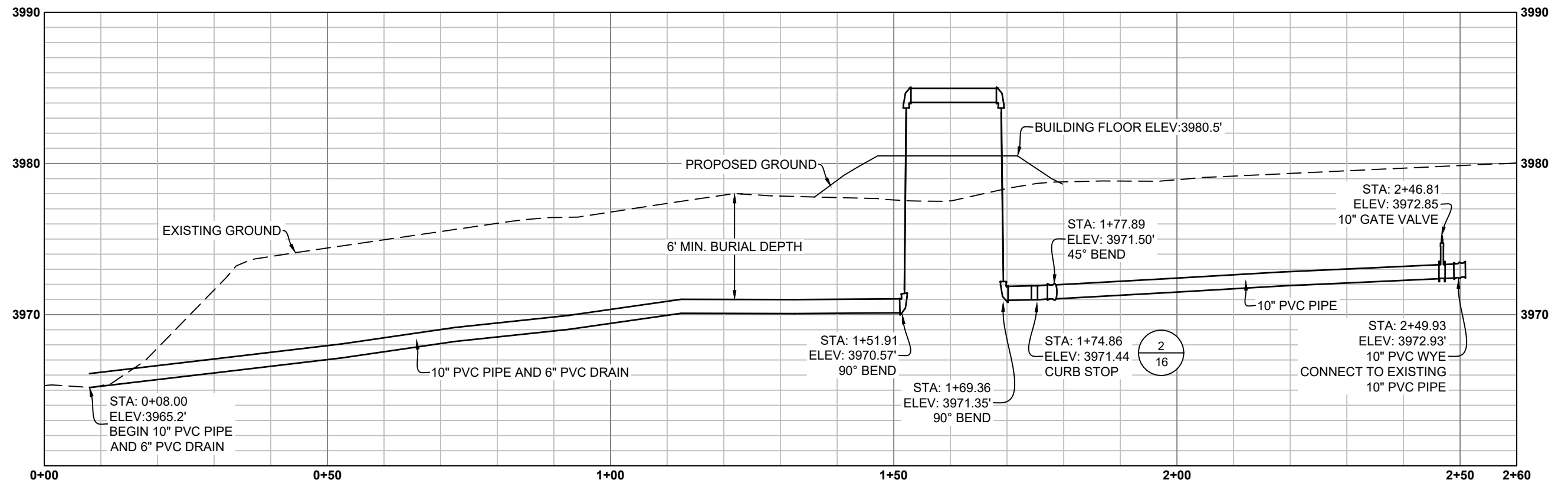
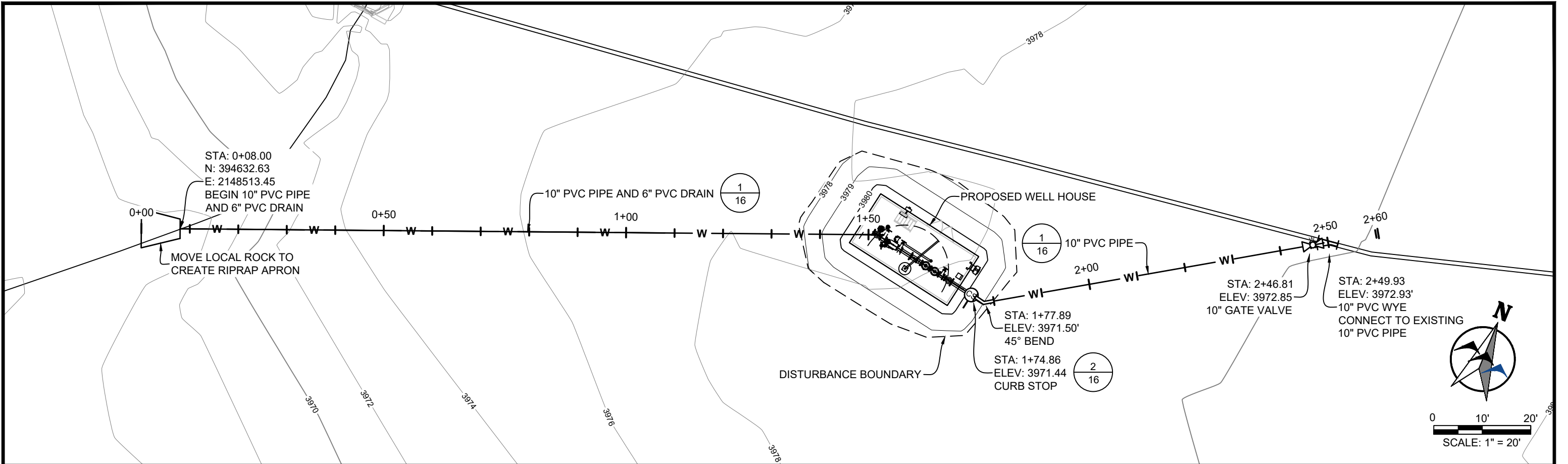


**MONTANA FISH,
 WILDLIFE & PARKS**

BLUEWATER SPRINGS TROUT HATCHERY
 ARTESIAN WELL HEAD DEVELOPMENT - SITE PLAN

SHEET: 4 of 16

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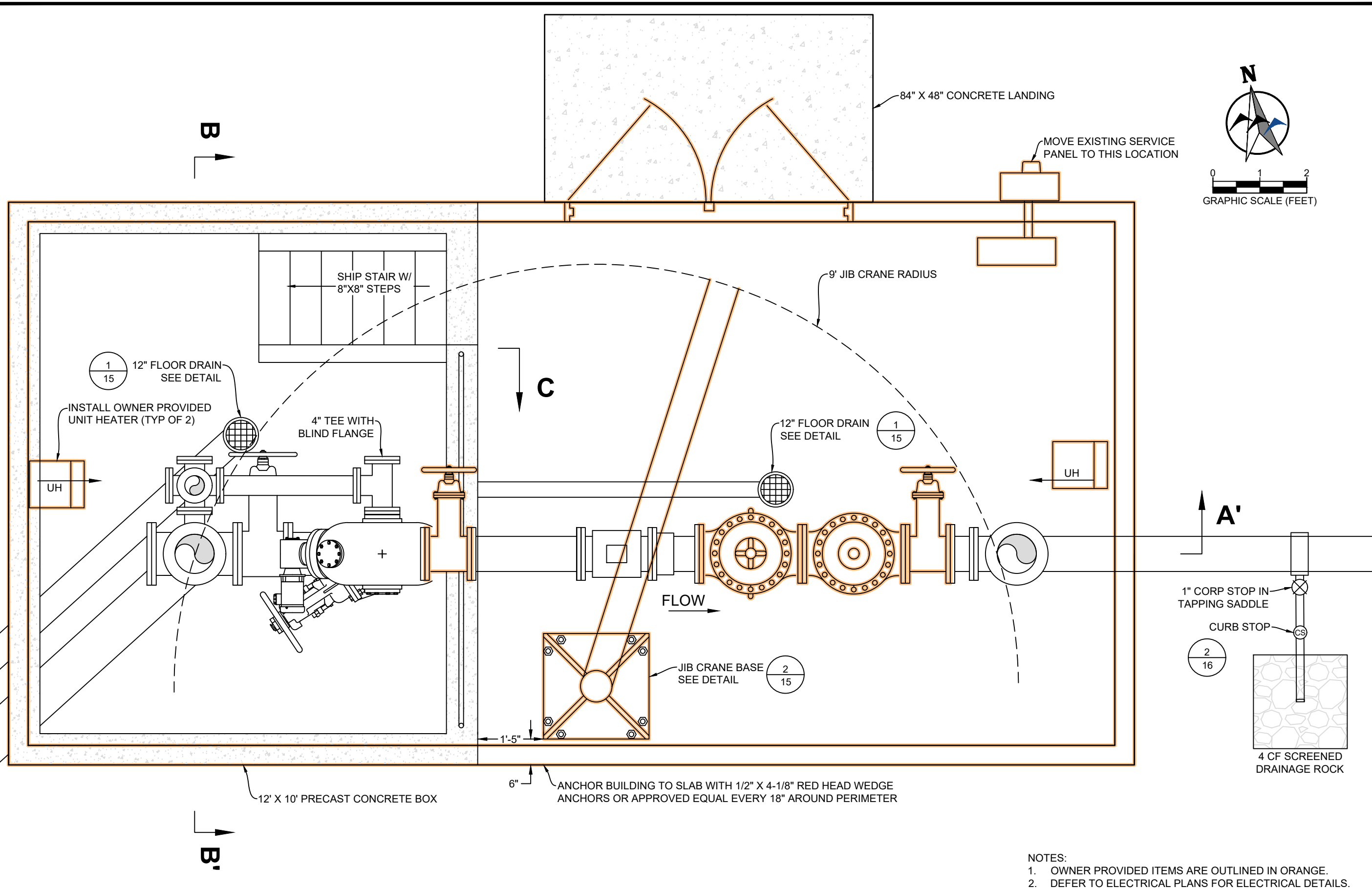
**MONTANA FISH,
 WILDLIFE & PARKS**

205

BLUEWATER SPRINGS TROUT HATCHERY
 ARTESIAN WELL HEAD DEVELOPMENT - WATER LINE PLAN AND PROFILE

SHEET: 5 of 16

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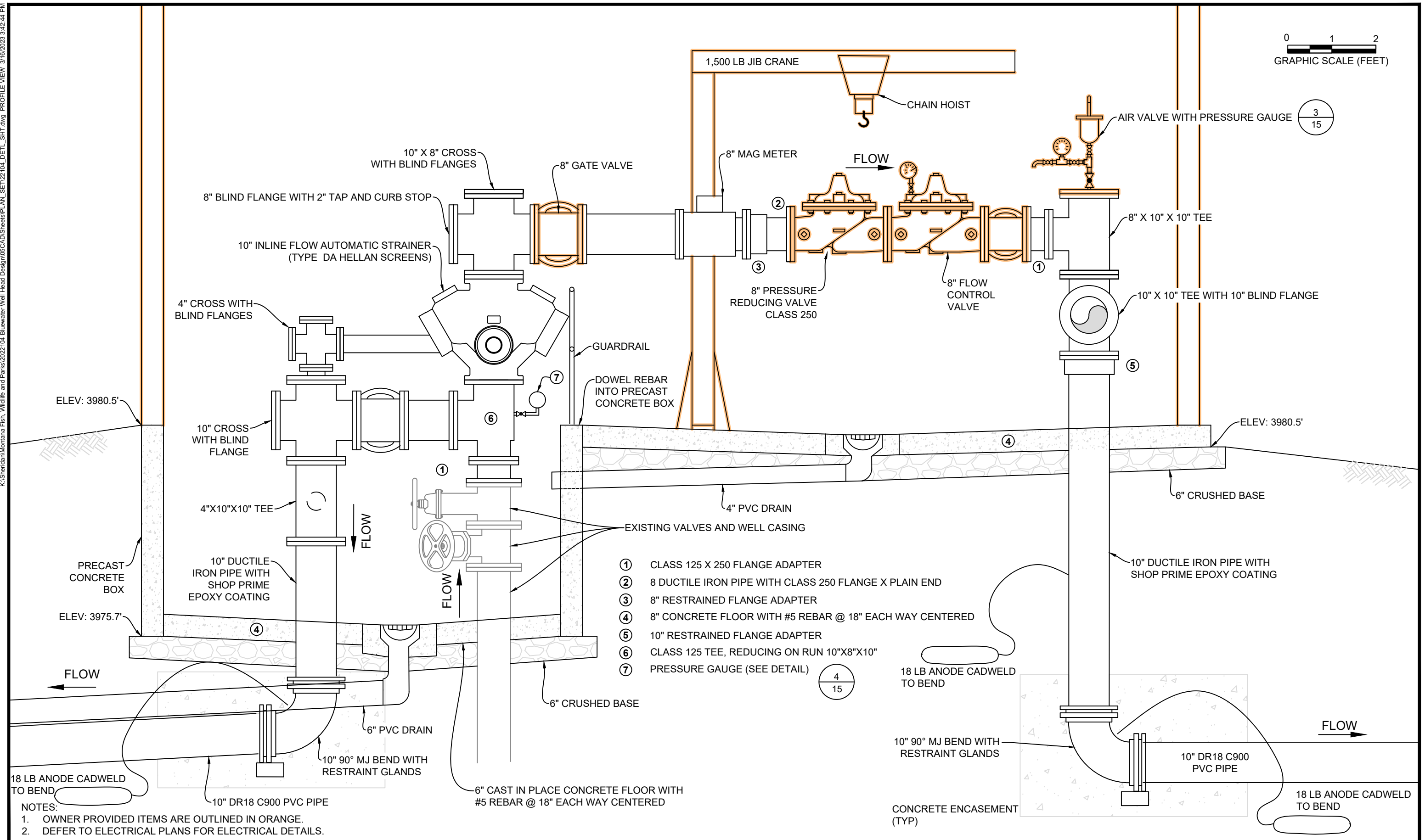


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BLUEWATER SPRINGS TROUT HATCHERY
 ARTESIAN WELL HEAD DEVELOPMENT - FLOOR PLAN

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- ① CLASS 125 X 250 FLANGE ADAPTER
- ② 8 DUCTILE IRON PIPE WITH CLASS 250 FLANGE X PLAIN END
- ③ 8\" RESTRAINED FLANGE ADAPTER
- ④ 8\" CONCRETE FLOOR WITH #5 REBAR @ 18\" EACH WAY CENTERED
- ⑤ 10\" RESTRAINED FLANGE ADAPTER
- ⑥ CLASS 125 TEE, REDUCING ON RUN 10\"X8\"X10\"
- ⑦ PRESSURE GAUGE (SEE DETAIL)

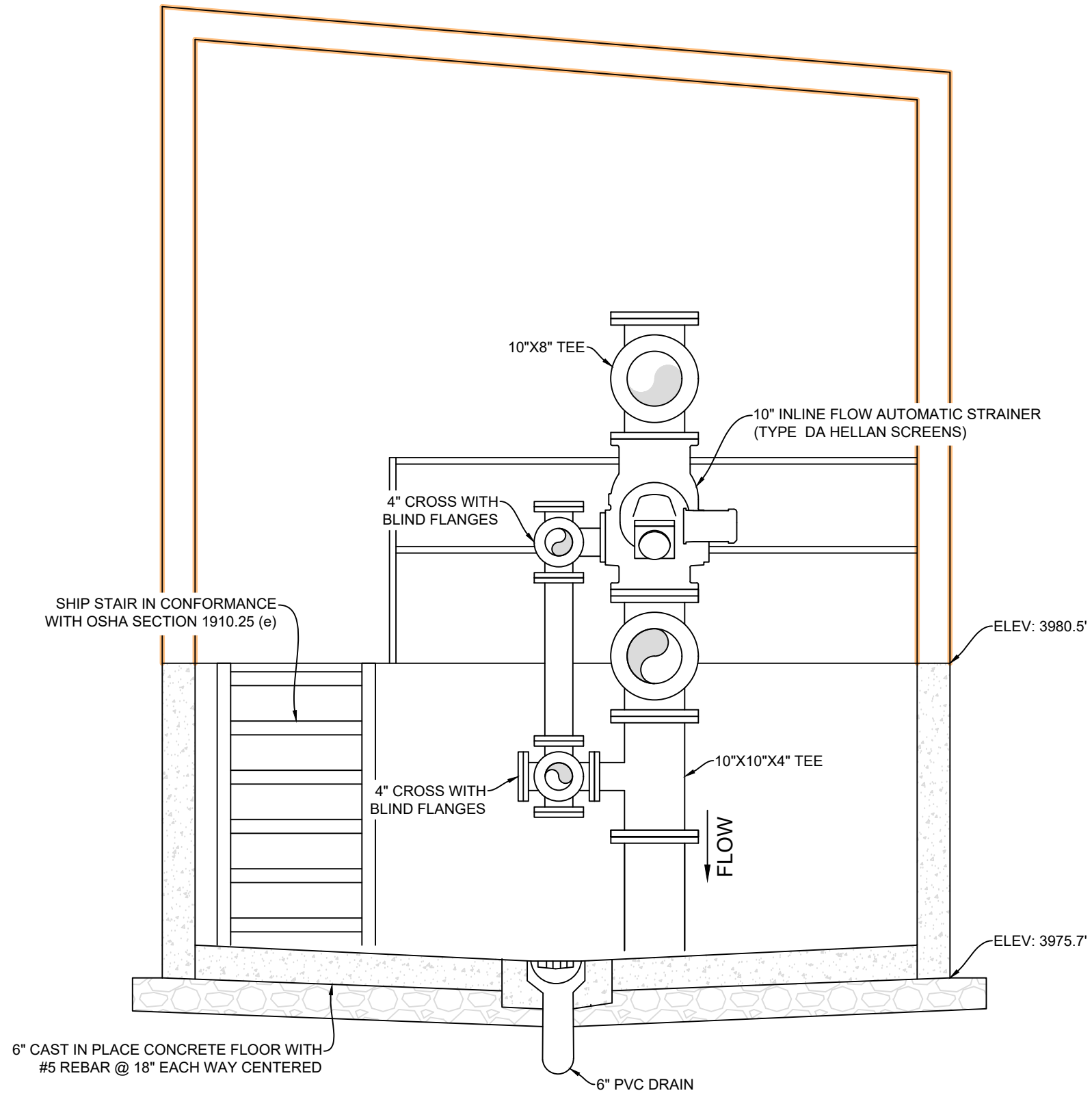
NOTES:
 1. OWNER PROVIDED ITEMS ARE OUTLINED IN ORANGE.
 2. DEFER TO ELECTRICAL PLANS FOR ELECTRICAL DETAILS.

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BLUEWATER SPRINGS TROUT HATCHERY
 ARTESIAN WELL HEAD DEVELOPMENT - A-A' PROFILE VIEW

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- NOTES:
1. OWNER PROVIDED ITEMS ARE OUTLINED IN ORANGE.
 2. DEFER TO ELECTRICAL PLANS FOR ELECTRICAL DETAILS.

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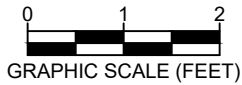
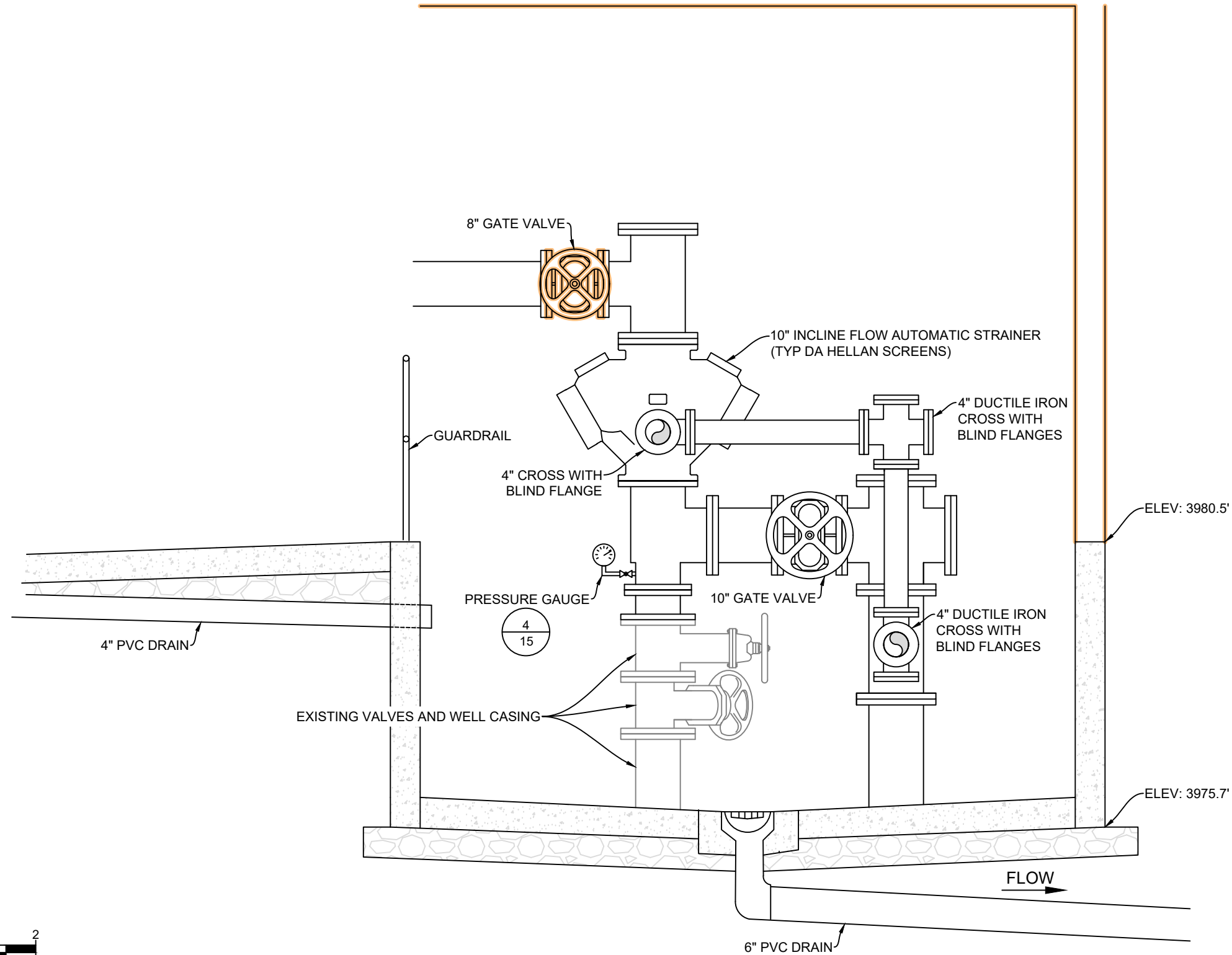


**MONTANA FISH,
WILDLIFE & PARKS**

BLUEWATER SPRINGS TROUT HATCHERY
ARTESIAN WELL HEAD DEVELOPMENT - B-B' PROFILE VIEW

SHEET: **8**
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16

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- NOTES:
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**MONTANA FISH,
WILDLIFE & PARKS**

BLUEWATER SPRINGS TROUT HATCHERY
ARTESIAN WELL HEAD DEVELOPMENT - C-C' PROFILE VIEW

SHEET: **9**
of
16

K:\Shridhan\Montana Fish, Wildlife and Parks\2022\2022\04 Bluewater Well Head Design\05CAD\Sheet\PLAN_SET\12104_DET1_SHT.dwg SCREEN DET 3/16/2023 3:42:44 PM

UNIQUE OPERATING FEATURES

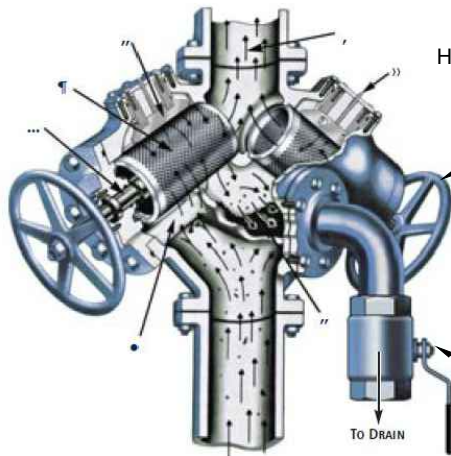
THE HELLAN STRAINER DESIGN PROVIDES SOLIDS REMOVAL WITHOUT INTERRUPTING THE FLUID FLOW

Instead of trapping solids in a basket which then must be removed for frequent clean-outs, the Hellan Strainer removes the solids from fluid without stopping the flow or disassembling the strainer. The sequence of operation is illustrated below.

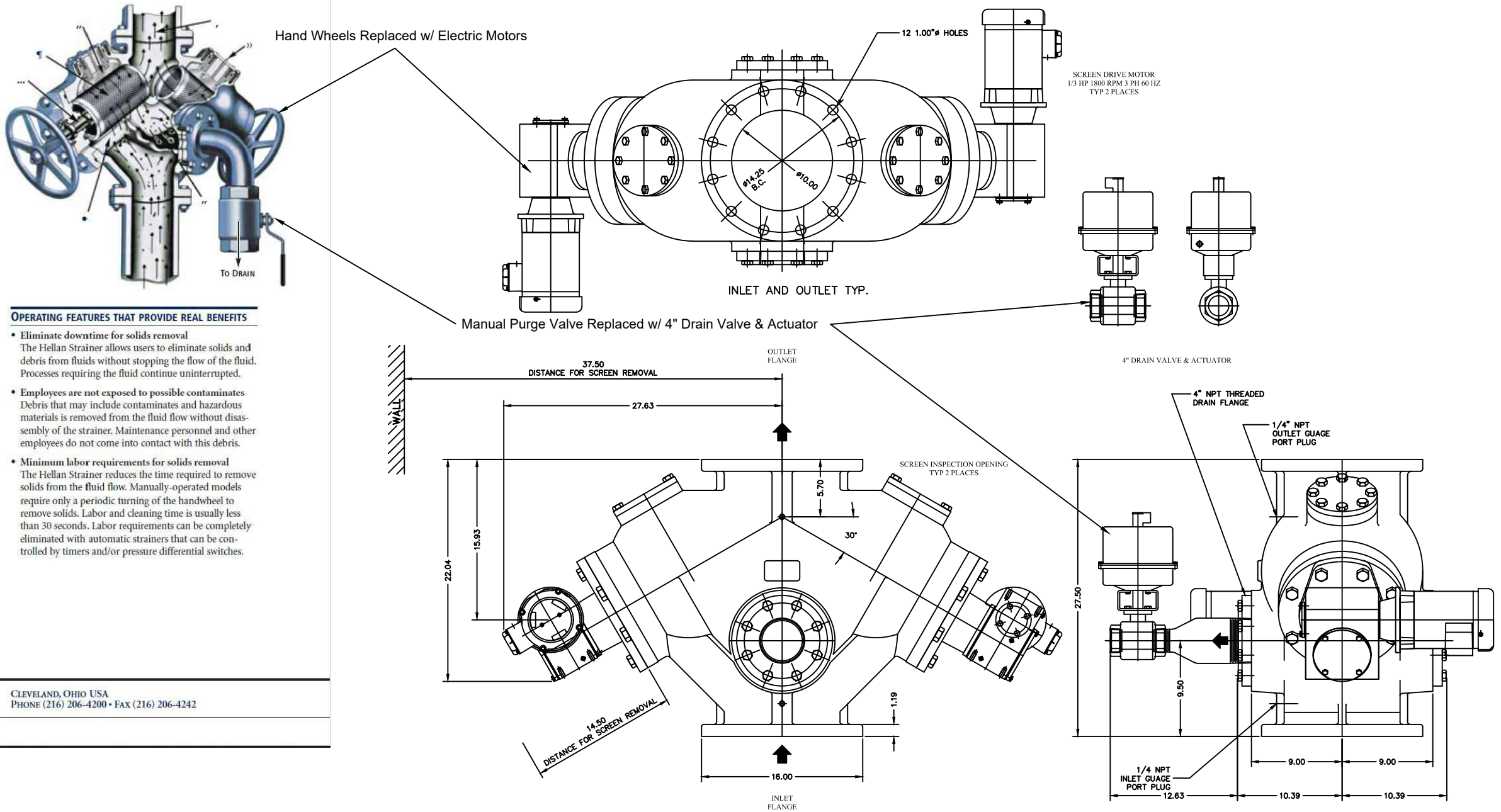
- 1 Fluid passes into the strainer and through a screen.
- 2 A deflection rib protects the screen from large objects.
- 3 The screened fluid flows out of the strainer and into service.
- 4 Rotating the screen, by either handwheel or motor, moves the outer screen surface against a scraper bar. The scraper bar removes collected debris from the screen's outer surface.
- 5 Debris moves to the sump area of the strainer where it is removed by periodic flushing.

SPECIAL FEATURES PROVIDE CONVENIENCE AND HIGH PERFORMANCE.

- » External scraper adjustment, if supplied.
- ... O-rings at the screen cover plate and shaft provide a tight seal while allowing operation at low torque.
- ⊗ Backwash system is available to remove debris from screen on low pressure applications except 2", 2-1/2" and 3" angle types and 3" D-type.
- Eductor is available at discharge for low-pressure applications.
- ⌘ Brush can replace solid scraper on all but 2" and 2-1/2" Angle-type and 2-1/2" and 3" D-type.



Hand Wheels Replaced w/ Electric Motors



OPERATING FEATURES THAT PROVIDE REAL BENEFITS

- **Eliminate downtime for solids removal**
The Hellan Strainer allows users to eliminate solids and debris from fluids without stopping the flow of the fluid. Processes requiring the fluid continue uninterrupted.
- **Employees are not exposed to possible contaminants**
Debris that may include contaminants and hazardous materials is removed from the fluid flow without disassembly of the strainer. Maintenance personnel and other employees do not come into contact with this debris.
- **Minimum labor requirements for solids removal**
The Hellan Strainer reduces the time required to remove solids from the fluid flow. Manually-operated models require only a periodic turning of the handwheel to remove solids. Labor and cleaning time is usually less than 30 seconds. Labor requirements can be completely eliminated with automatic strainers that can be controlled by timers and/or pressure differential switches.

THE HELLAN[®] STRAINER COMPANY

CLEVELAND, OHIO USA
PHONE (216) 206-4200 • FAX (216) 206-4242

CUSTOMER		Cleveland Gear Company, Inc. Subsidiary of Veppar Corp. Cleveland, Ohio 44104 U.S.A.	
ORDER No.	CLEVELAND GEAR CO., INC. CLAIMS PROPRIETARY RIGHTS TO THE MATERIAL DISCLOSED HEREON. THIS DRAWING IS ISSUED FOR ENGINEERING INFORMATION ONLY AND MAY NOT BE REPRODUCED OR USED FOR MANUFACTURING PURPOSES WITHOUT WRITTEN PERMISSION FROM CLEVELAND GEAR, INC. REVISED UNLESS SO INDICATED.		
REFERENCE			
DRAWN M.S.D.	DATE	TITLE	HELLAN STRAINER - AUTOMATIC
CHECKED	DATE	10 INCH OUTLINE	
SCALE	1"=00 CLASS 125 CAST IRON		
CAD No.	1001DA-1_5064	REV. No.	1001DA-1
DWG No.		ISSUE	1

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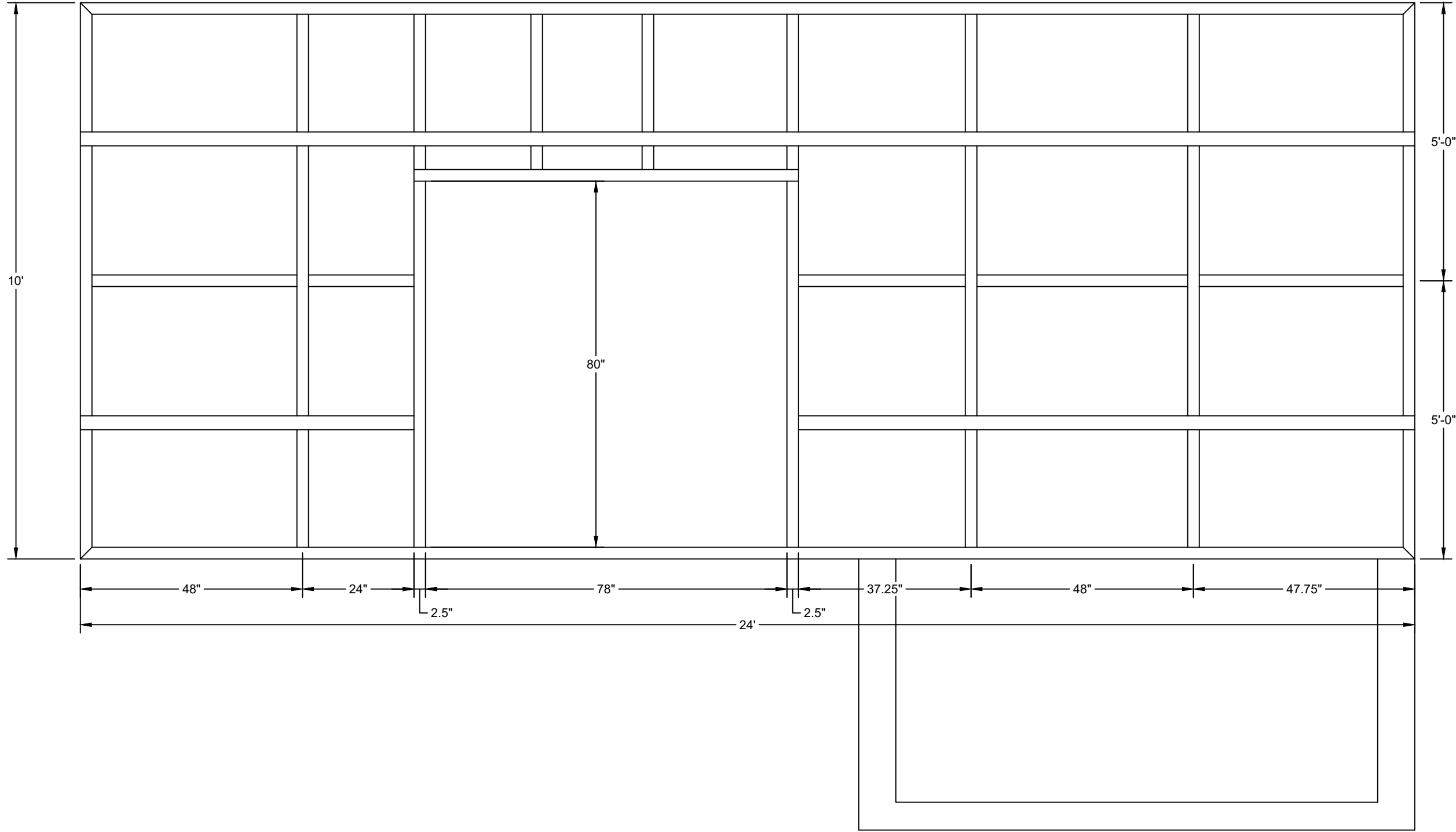


MONTANA FISH, WILDLIFE & PARKS

BLUEWATER SPRINGS TROUT HATCHERY
ARTESIAN WELL HEAD DEVELOPMENT - HELLAN AUTOMATIC SCREENS

SHEET: 10 of 16

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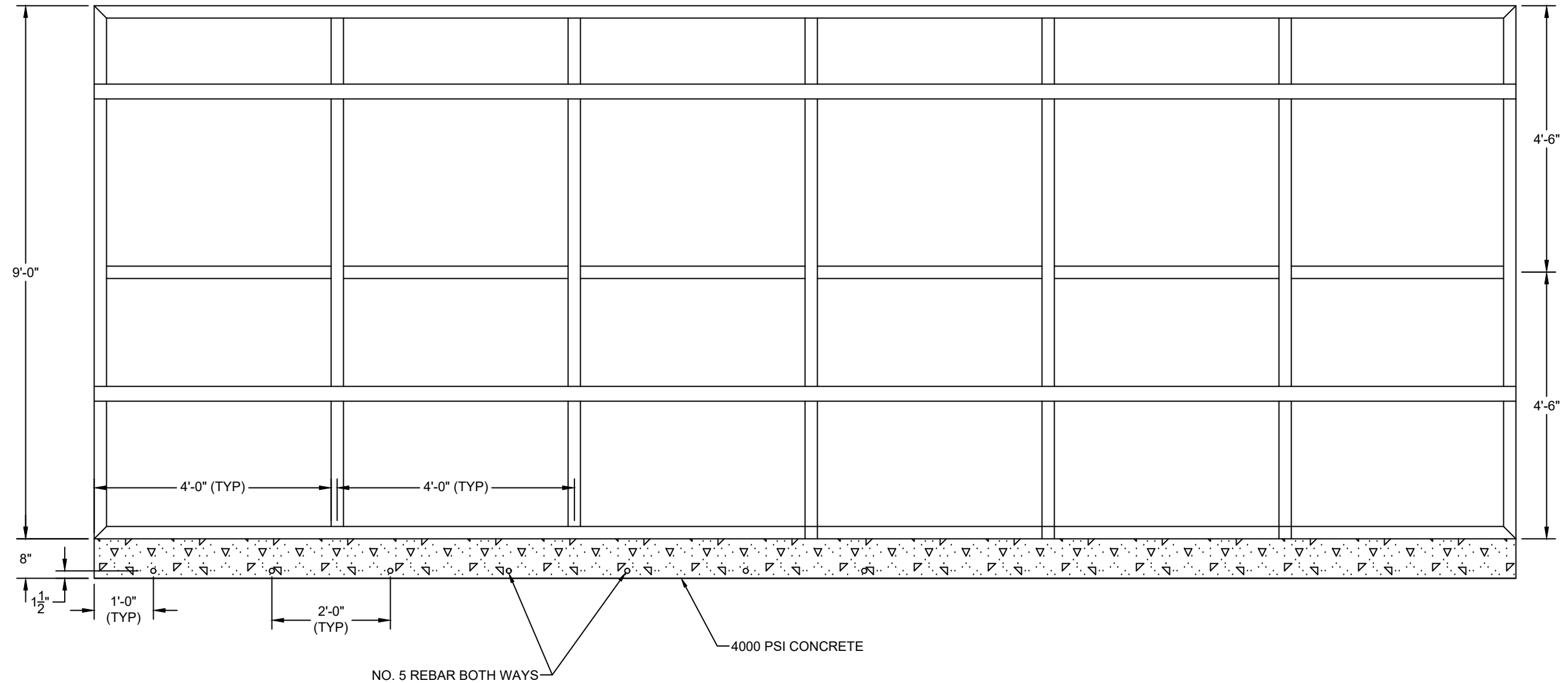


**MONTANA FISH,
WILDLIFE & PARKS**

BLUEWATER SPRINGS TROUT HATCHERY
ARTESIAN WELL HEAD DEVELOPMENT - NORTH ELEVATION FRAMING

SHEET: 11
of
16

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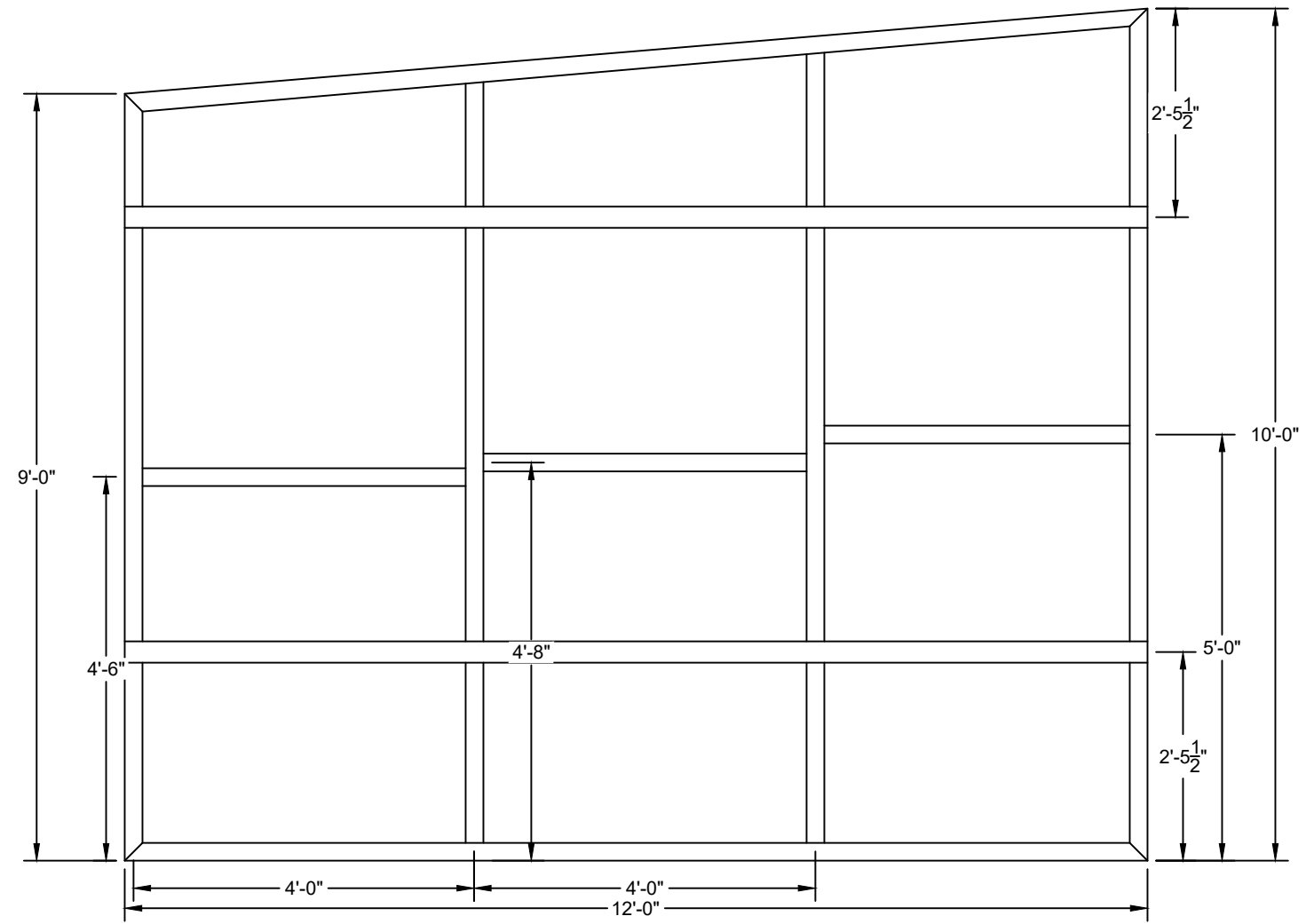


**MONTANA FISH,
WILDLIFE & PARKS**

BLUEWATER SPRINGS TROUT HATCHERY
ARTESIAN WELL HEAD DEVELOPMENT - SOUTH ELEVATION FRAMING

SHEET: 12
of
16

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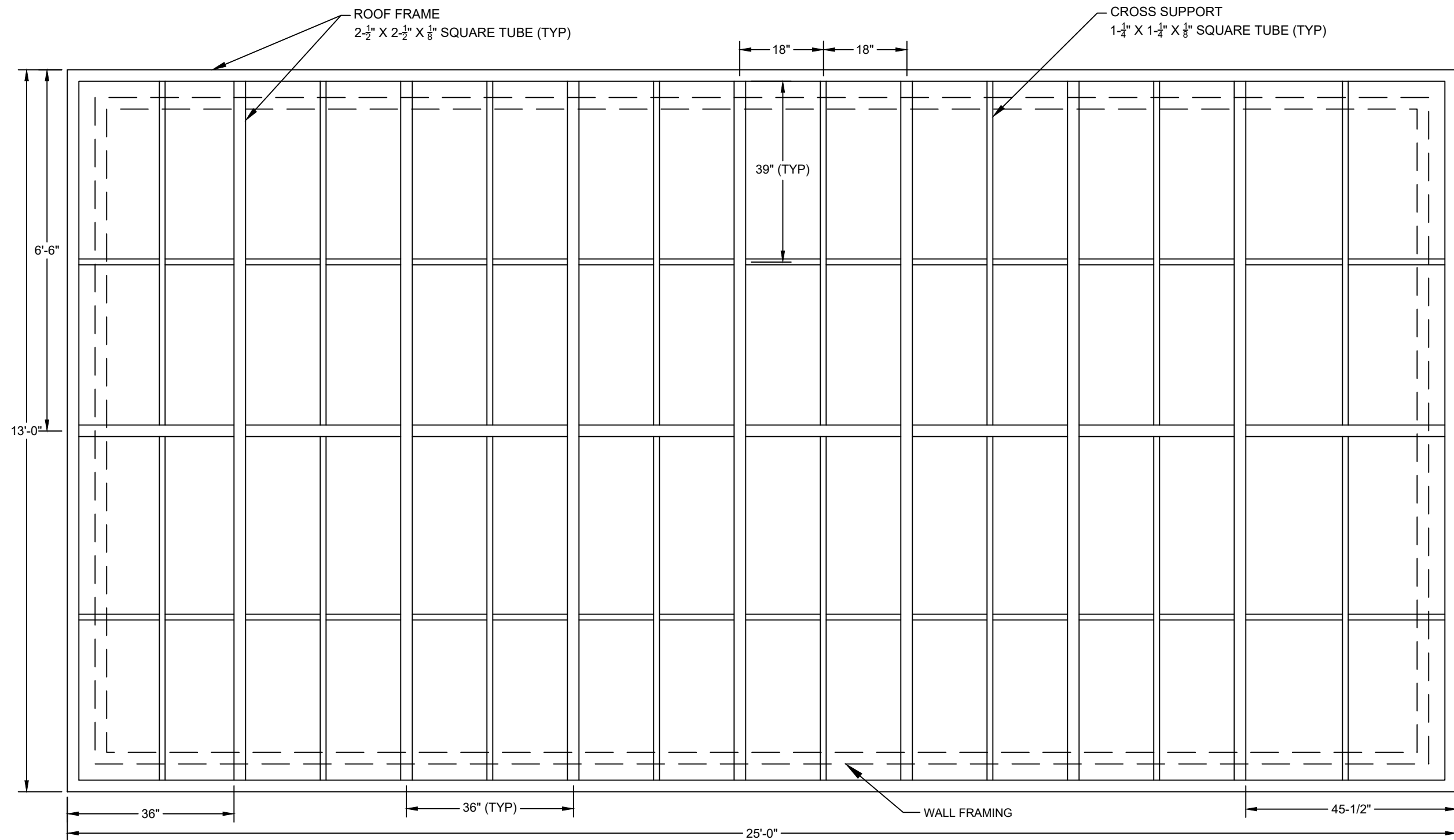
**MONTANA FISH,
WILDLIFE & PARKS**

213

BLUEWATER SPRINGS TROUT HATCHERY
ARTESIAN WELL HEAD DEVELOPMENT - EAST & WEST FRAMING ELEVATION

SHEET: **13**
of
16

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NOTE: BUILDING PROVIDED BY OWNER

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**MONTANA FISH,
WILDLIFE & PARKS**

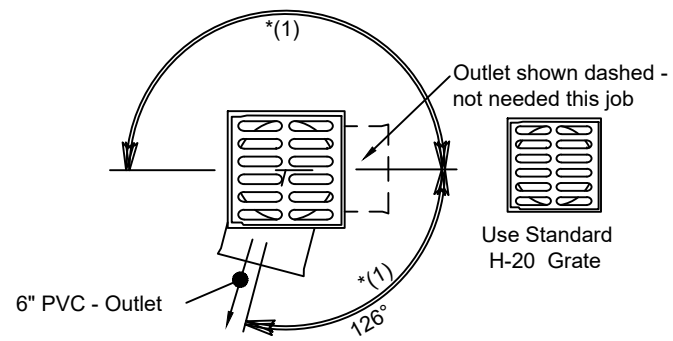
214

BLUEWATER SPRINGS TROUT HATCHERY
ARTESIAN WELL HEAD DEVELOPMENT - ROOF FRAMING PLAN

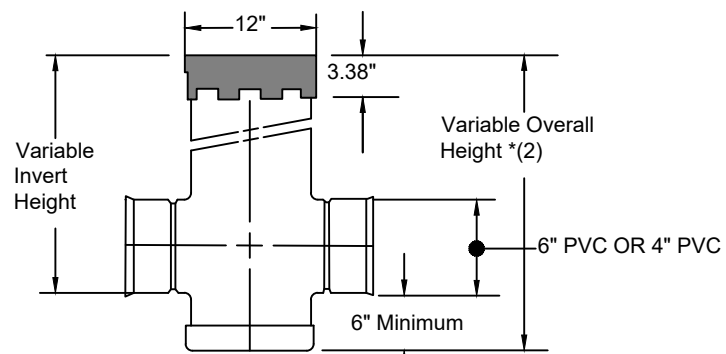
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16

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Part#/Prefix	Product Description	Available Outlets
2815AG__X	12" Custom Basin	4" thru 15"



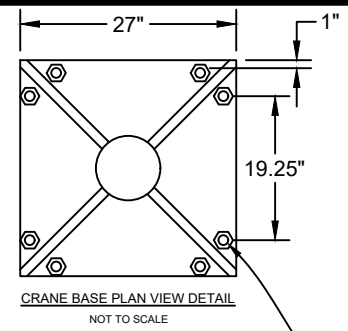
*(1) ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0° TO 359°.



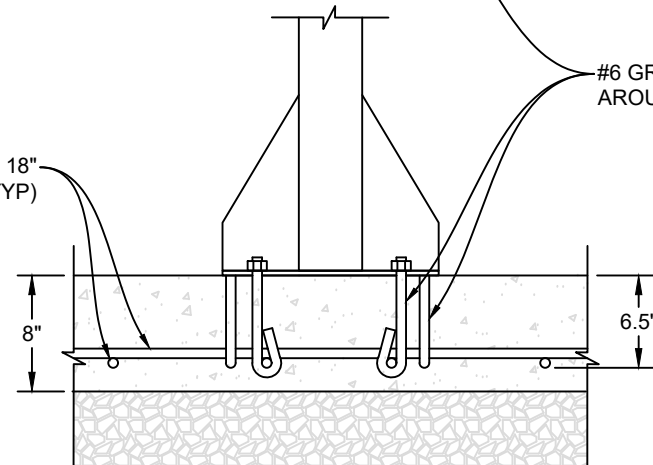
Notes:

- 1) The required angle is 126°
- 2) The maximum recommended overall height 10'
- 3) Nyoplast Supplier: Core & Main, Belgrade, MT - (406) 388-5980

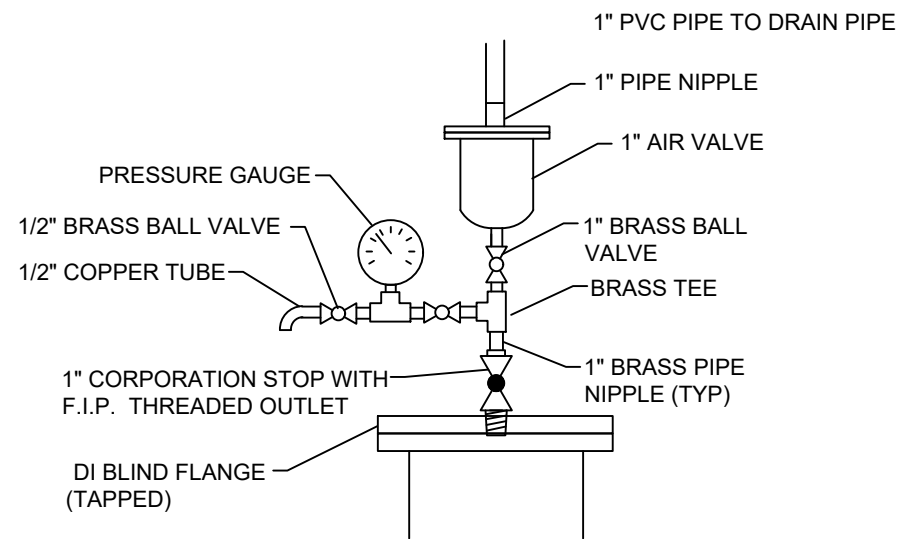
1
15 NYOPLAST 12" DRAIN BASIN DETAIL
NOT TO SCALE



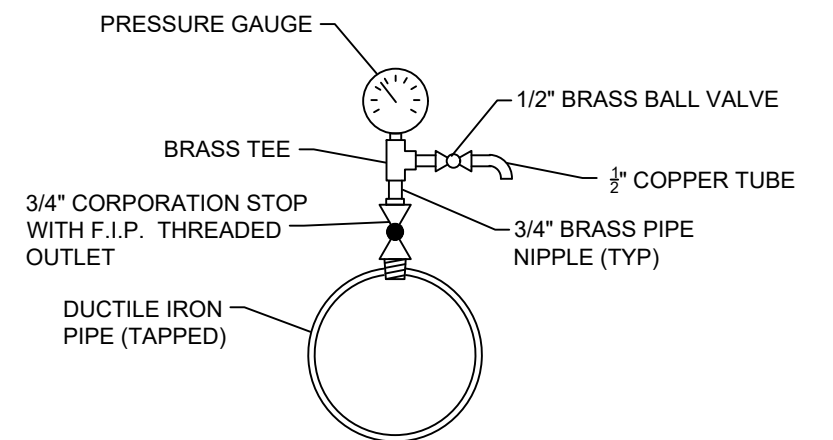
#5 GRADE 60 REBAR @ 18" CENTERED EACH WAY (TYP)



2
15 CRANE BASE SECTION VIEW DETAIL
NOT TO SCALE



3
15 AIR VALVE ASSEMBLY WITH PRESSURE GAUGE DETAIL
NOT TO SCALE



4
15 PRESSURE GAUGE ASSEMBLY DETAIL
NOT TO SCALE

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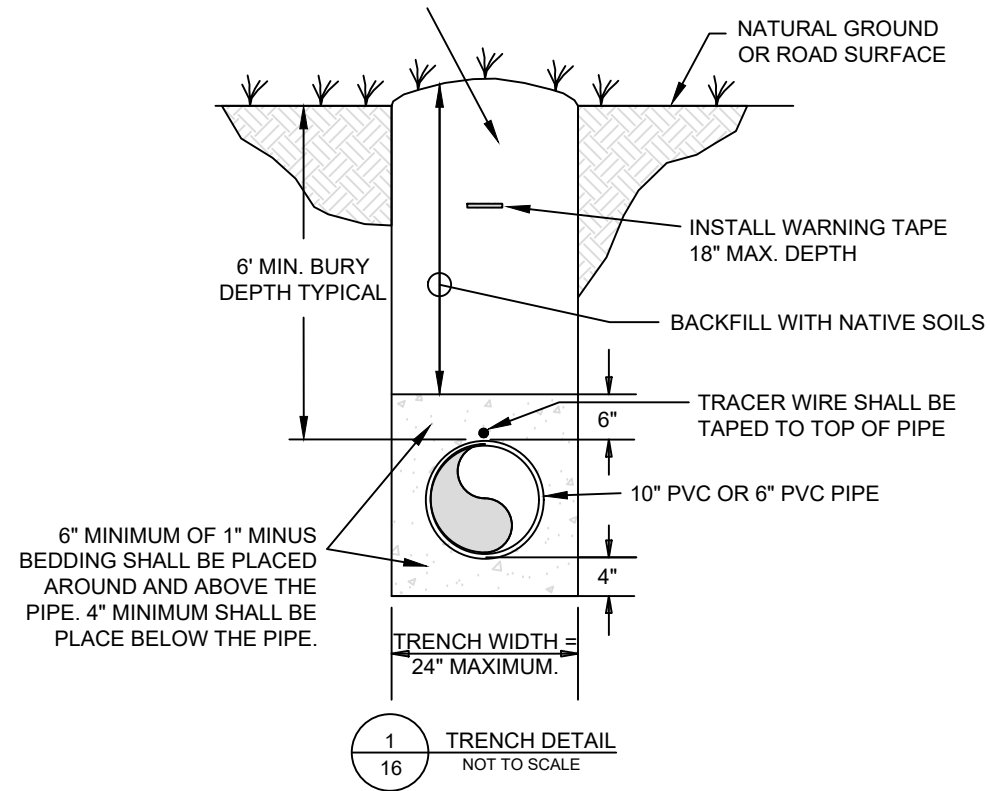
**MONTANA FISH,
WILDLIFE & PARKS**

BLUEWATER SPRINGS TROUT HATCHERY
ARTESIAN WELL HEAD DEVELOPMENT - DETAILS

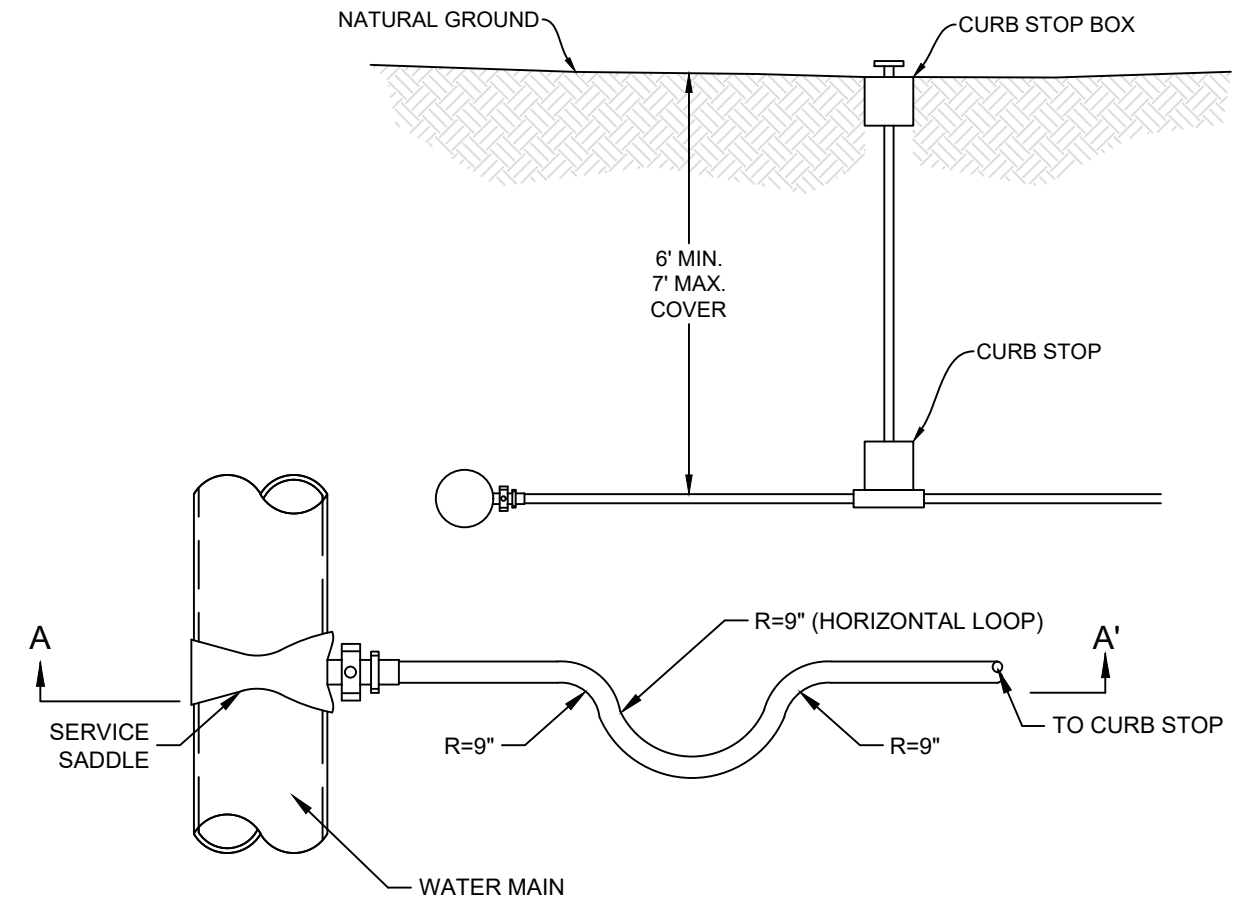
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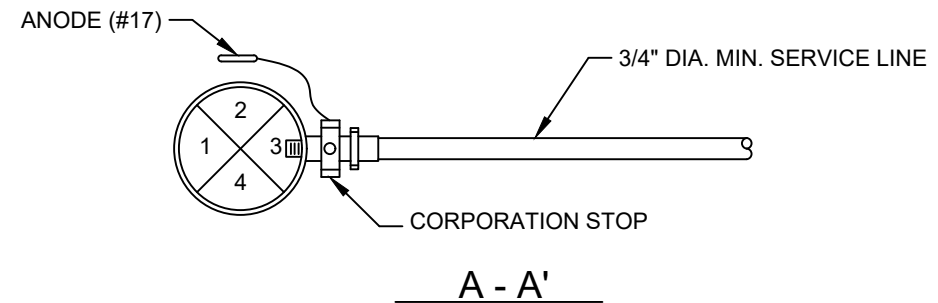
IN UNDEVELOPED AREAS REPLACE WITH NATIVE SOILS.
MOUND EXISTING SOILS OVER TRENCH AS SHOWN.



1
16 TRENCH DETAIL
NOT TO SCALE



TOP VIEW



A - A'

NOTE:

1. SERVICE CLAMPS OR SADDLES SHALL BE USED ON ALL PVC PIPE MAINS. TAPPING SADDLES SHALL BE MUELLER DR2S, FORD FC202, OR EQUIVALENT. ALL SADDLES SHALL HAVE CC TAPERED THREADS.
2. MUELLER CURB BOX NO. H-10302-99009-6" WITH 2 1/2" BUSHING - 18" EXTENSION, OR 24" EXTENSION, OR EQUAL. TOTAL LENGTH 6 1/2', RANGE 5 1/2' TO 6 1/2'
3. PROPERLY INSTALLED CORPORATION STOP SHOWING GOOSENECK IN SERVICE LINE. WATER SERVICE LINES SHALL BE TYPE "K" COPPER
4. CORPORATION STOPS SHALL BE CATHODICALLY PROTECTED USING A MINIMUM 17# PACKAGED ANODE. ANODES SHALL BE CONNECTED TO THE STOP BY A THERMITE WELD SPECIFIC FOR THE APPLICATION, OR BY COPPER GROUND ROD CLAMP OR TAPPING SADDLE BOLT, THEN TAR COATED. ALL CORPORATION STOPS SHALL HAVE CC TAPERED THREADS.
5. US POLY PIPE COMPRESSION FITTINGS SHALL BE ACCOMPANIED WITH STAINLESS STEEL INSERTS.

2
16 CURB STOP DETAIL
NOT TO SCALE

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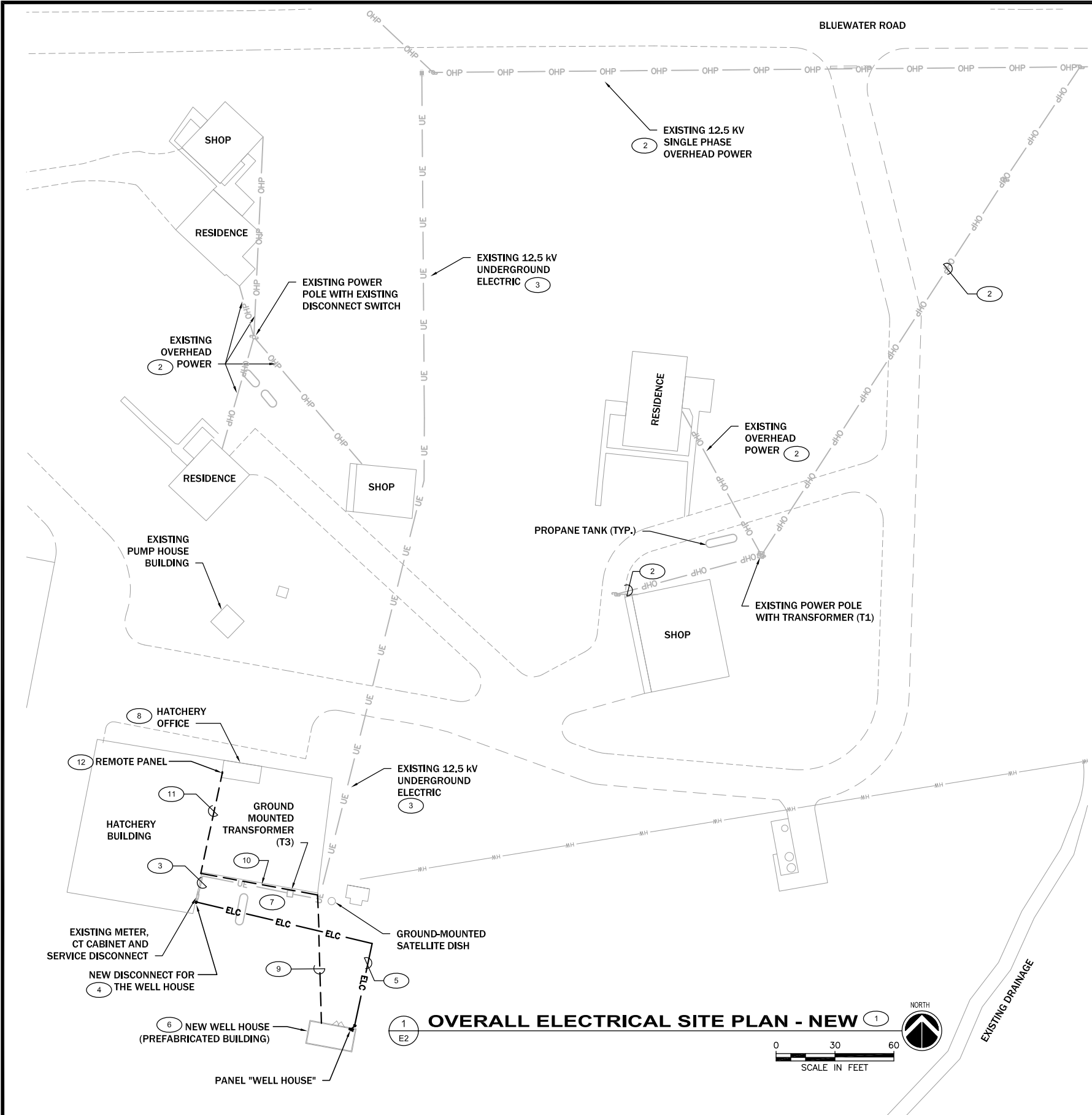
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**MONTANA FISH,
WILDLIFE & PARKS**

BLUEWATER SPRINGS TROUT HATCHERY
ARTESIAN WELL HEAD DEVELOPMENT - DETAILS

SHEET: 16
of
16



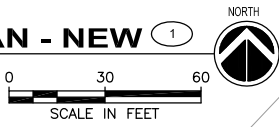
GENERAL ELECTRICAL SITE NOTES

1. SEE CIVIL SITE PLANS FOR ADDITIONAL SITE INFORMATION AND REQUIREMENTS. COORDINATE SITE WORK WITH OTHER TRADES.
2. ELECTRICAL TERMINATION AT SERVICE EQUIPMENT, AND ALL OTHER ELECTRICAL WORK AS INDICATED ON THIS DRAWING TO BE PERFORMED BY THE ELECTRICAL CONTRACTOR AS PART OF THEIR SCOPE OF WORK.
3. ALL CONDUITS, FOR ELECTRIC FEEDERS UNDER PAVEMENT AND LANDSCAPED AREAS SHALL BE SCHEDULE 80 PVC, UNLESS NOTED OTHERWISE. RUN ALL CONDUITS 24" MINIMUM BELOW FINISHED GRADE, UNLESS SPECIFICALLY NOTED OTHERWISE. COMPLY WITH THE NATIONAL ELECTRICAL CODE (NEC).
4. REFER TO ELECTRICAL DETAILS, E5, FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
5. REPAIR LANDSCAPE AND PARKING AREAS THAT ARE DISTURBED BY THIS SCOPE OF WORK. AREAS SHALL BE RETURNED TO THEIR ORIGINAL CONDITION, UNLESS NOTED OTHERWISE BY PROJECT SCOPE OF WORK. COORDINATE WITH THE GENERAL CONTRACTOR.
6. COORDINATE AND LOCATE ALL UTILITIES PRIOR TO ANY EXCAVATION. CALL FOR UTILITY LOCATES AND COORDINATION OF WORK PRIOR TO ALL EXCAVATIONS.
7. REFER TO PARTIAL POWER RISER DIAGRAM, E4, FOR ADDITIONAL INFORMATION REGARDING THE SERVICE TO THE WELL HOUSE WHICH IS A PART OF THIS SCOPE OF WORK.
8. PROVIDE ADEQUATELY SIZED PULLBOXES FOR POWER, AS NEEDED. STUB UP CONDUIT IN PULLBOX, CAP AND LABEL, AS NEEDED. PULLBOX COVER SHALL READ "ELECTRIC," AS APPROPRIATE. PROVIDE A PULLBOX AFTER (2) 90-DEGREE BENDS OR AN ACCUMULATION OF 120-DEGREES OF TOTAL PATHWAY DEVIATION FROM A STRAIGHT LINE BETWEEN EACH ACCESS POINT. LOCATE PULLBOXES SUCH THAT THERE IS A MAXIMUM OF 400'-0" BETWEEN EACH ACCESS POINT. DO NOT LOCATE IN TRAFFIC AREAS, UNLESS SPECIFICALLY MANUFACTURED TO HANDLE VEHICLE TRAFFIC.
9. REVIEW EXACT LOCATION OF PULLBOXES WITH THE CIVIL ENGINEER AND OWNER PRIOR TO START OF EXCAVATION. TYPICAL FOR ALL.
10. ALL CONDUIT ROUTING SHALL BE FIELD COORDINATED. CAP AND LABEL THE CONDUITS AT BOTH ENDS, AS NEEDED. TYPICAL FOR ALL SITE CONDUIT RUNS.
11. ELECTRICAL PERMIT SHALL BE OBTAINED FROM THE APPROPRIATE AUTHORITY HAVING JURISDICTION (AHJ) PRIOR TO BEGINNING WORK ON ANY ELECTRICAL WIRING, EQUIPMENT, ETC. ALL ELECTRICAL WIRING TO COMPLY WITH THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC).
12. ALL WIRING SHALL BE STANDARD COPPER FOR POWER, UNLESS NOTED OTHERWISE.

FLAG NOTES THIS SHEET:

1. COORDINATE INSTALLATION WITH THE SERVING UTILITY, NORTHWESTERN ENERGY (NWE).
2. EXISTING OVERHEAD ELECTRICAL LINES TO REMAIN. (TYPICAL)
3. EXISTING UNDERGROUND ELECTRICAL LINES TO REMAIN. (TYPICAL)
4. NEW DISCONNECT FOR SERVICE TO THE WELL HOUSE BUILDING. COORDINATE MOUNTING LOCATION ON THE EXTERIOR WALL OF THE HATCHERY BUILDING WITH THE EXISTING CONDITIONS AND LAYOUT OF THE EXISTING DISTRIBUTION EQUIPMENT. NEW DISCONNECT SHALL BE MOUNTED AS CLOSE TO THE EXISTING DISCONNECT AS POSSIBLE TO KEEP THEM GROUPED TOGETHER. PROVIDE LABEL ON THE NEW DISCONNECT TO CLEARLY INDICATE WHAT IT IS FEEDING. REFER ALSO TO PARTIAL POWER RISER DIAGRAM, E4, AND PANEL SCHEDULE, E3, FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
5. PROVIDE 1-1/2" WITH FEEDER FROM NEW DISCONNECT ON THE EXTERIOR OF THE HATCHERY BUILDING TO THE CAMLOCK CONNECTION SWITCH ON UNISTRUT MOUNT NEAR THE PREFABRICATED WELL HOUSE BUILDING. BUILDING HAS LIFTING HOOKS SO THAT IT MAY BE REMOVED, AS NEEDED, FOR MAINTENANCE ON THE EQUIPMENT. UNISTRUT MOUNT MUST BE LOCATED SO THAT IT WILL NOT OBSTRUCT REMOVAL OF THE BUILDING. ALSO PROVIDE CONNECTION FROM THE CAMLOCK CONNECTION PANEL WITH INTEGRAL DISCONNECT SWITCH TO THE PANEL INSIDE THE BUILDING. FIELD VERIFY LOCATION OF THE PANEL AT THE PREFABRICATED WELL HOUSE. REFER ALSO TO PARTIAL POWER RISER DIAGRAM, E4, FOR THE FEEDER SIZE AND ADDITIONAL INFORMATION AND REQUIREMENTS.
6. ELECTRICAL CONTRACTOR RESPONSIBLE FOR GETTING THE PREFABRICATED BUILDING INSPECTED AND APPROVED BY THE STATE OF MONTANA. THE PREFABRICATED BUILDING INTERIOR ELECTRICAL DEVICES, LIGHTING, WIRING, ETC. MUST BE CERTIFIED PRIOR TO FINAL INSTALLATION.
7. IN AREA WHERE NEW UNDERGROUND ELECTRICAL WILL BE INSTALLED NEAR THE EXISTING UNDERGROUND ELECTRICAL, HAND DIG SO AS NOT TO DAMAGE THE EXISTING UNDERGROUND INSTALLATION. CALL FOR UTILITY LOCATES TO VERIFY EXACT LOCATION OF THE EXISTING UNDERGROUND LINES. DAMAGE TO EXISTING LINES WILL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO REPAIR AND/OR REPLACE.
8. APPROXIMATE LOCATION OF THE OFFICE INSIDE THE HATCHERY BUILDING.
9. PROVIDE COMMUNICATIONS CONNECTION FOR THE MONITORING SIGNALS TO THE OFFICE INSIDE THE HATCHERY BUILDING. CABLE SHALL BE 2-CONDUCTOR, #22AWG SHIELDED CABLE; PROVIDE A CABLE FOR EACH SIGNAL. VERIFY THE CABLE REQUIREMENT WITH THE SYSTEM SUPPLIER. SIGNALS SHALL INCLUDE, HIGH AND LOW FLOW LEVELS; STRAINER CLEANING CYCLE, AND HIGH PRESSURE ALARM. COORDINATE WITH THE INSTALLER PRIOR TO ROUGH-INS. ROUTE IN CONDUIT FROM THE WELL HOUSE BUILDING TO THE CORNER OF THE HATCHERY NEAR THE EXISTING SATELLITE DISH. THERE IS AN EXISTING 1" PVC CONDUIT THAT RUNS FROM THE SATELLITE DISH, ALONG THE EXTERIOR OF THE BUILDING AND INTO THE HATCHERY. THE EXISTING 1" PVC CONDUIT SHALL BE UTILIZED FOR ROUTING OF THE COMMUNICATIONS CABLING FROM THE WELL HOUSE INTO THE HATCHERY.
10. EXISTING CONDUIT IS BROKEN AT APPROXIMATELY THIS LOCATION. REPAIR CONDUIT SO IT IS CONTINUOUS AND SEALED.
11. THE PVC CONDUIT DOES NOT CONTINUE INSIDE THE BUILDING. ELECTRICAL CONTRACTOR TO PROVIDE A 1" FROM THE POINT OF ENTRY INTO THE HATCHERY TO THE OFFICE AREA. FIELD VERIFY STUB-OUT LOCATION IN THE OFFICE PRIOR TO ROUGH-INS. FIELD COORDINATE ROUTING IN THE BUILDING WITH EXISTING CONDITIONS.
12. PROVIDE REMOTE ANNUNCIATOR IN THE OFFICE. THE ALARM DIALER SHALL BE AS MANUFACTURED BY SENSAPHONE, MODEL FGD-0800, OR APPROVED EQUIVALENT. FIELD COORDINATE LOCATION IN THE OFFICE WITH THE HATCHERY PERSONNEL. THE ALARM PANEL SHALL HAVE A WALL PLUG-IN TRANSFORMER WITH 6'-0" CORD TO PLUG INTO THE NEAREST RECEPTACLE. THE ALARM PANEL SHALL BE 8-CHANNEL INPUT WITH BATTERY BACKUP OPERATION; ALLOW FOR CUSTOM ALARM MESSAGES; AND HAVE THE CAPABILITY TO NOTIFY UP TO (4) PEOPLE BY VOICE PHONE CALL. THE TELEPHONE INTERFACE SHALL BE VIA AN RJ11 TELEPHONE JACK (MODULAR CORD TO BE PROVIDED WITH THE ALARM PANEL). THE SUCCESSFUL CONTRACTOR MUST SUBMIT A COMPLETE SHOP DRAWING SUBMITTAL FOR THE REMOTE ANNUNCIATOR TO INCLUDE CONNECTION DIAGRAMS; PROGRAMMING; CUSTOMIZATION CAPABILITIES; AND FULL OPERATING INSTRUCTIONS. THE ANNUNCIATOR SHALL BE COMPATIBLE WITH THE STRAINER CONTROL PANEL SYSTEM VIA CONNECTIONS FROM DRY CONTACTS IN THE STRAINER CONTROL PANEL. COORDINATE WITH THE STRAINER SYSTEM INSTALLER AND SYSTEM SUPPLIER FOR CONNECTIONS. THE ANNUNCIATOR SHALL PROVIDE INFORMATION ON HIGH AND LOW FLOW LEVELS FROM THE FLOWMETER; THE CLEANING CYCLE FROM THE STRAINER CONTROL PANEL; AND A HIGH PRESSURE ALARM.

OVERALL ELECTRICAL SITE PLAN - NEW



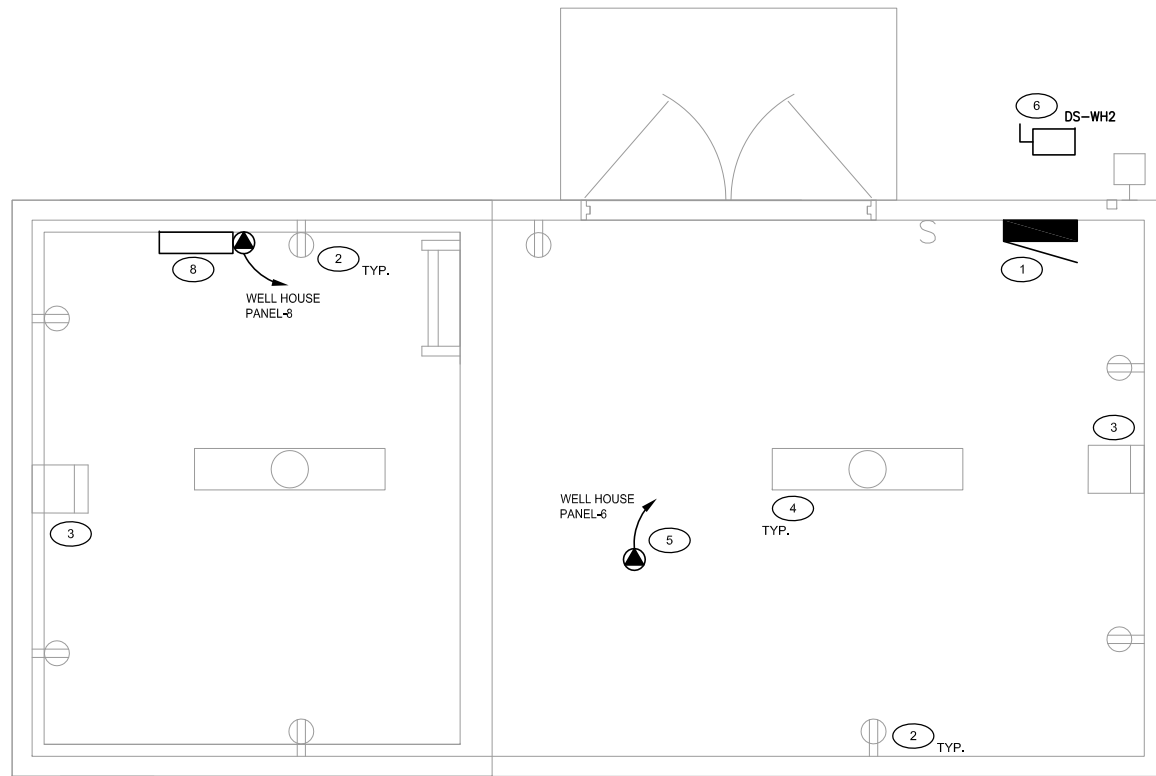
TESla Engineering, LLC
 ELECTRICAL ENGINEERING CONSULTANTS
 P.O. BOX 504
 Vaughn, Montana 59487
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Bluewater Springs Trout Hatchery
 Artesian Well Head Development - Overall Electrical Site Plan

SHEET: **E2**
of 5



1 ENLARGED WELL HOUSE PLAN - REFERENCE **7**
 1/4" = 1'-0"
 PLAN NORTH
 SCALE IN FEET

GENERAL ELECTRICAL NOTES

- REFER TO FLAG NOTES, THIS SHEET, FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
- WELL HOUSE IS A PREFABRICATED BUILDING ALREADY PURCHASED BY THE OWNER. ENLARGED PLAN IS SHOWN FOR GENERAL LAYOUT ONLY. ELECTRICAL CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS WITH THE BUILDING ON THE SITE.
- REFER TO CIVIL PLANS FOR ADDITIONAL INFORMATION ON THE PIPING AND EQUIPMENT LAYOUT IN THE WELL HOUSE BUILDING
- ALL 240V, SINGLE PHASE AND 120V FEEDERS ARE (2#12, 1#12G)1/2", UNLESS SPECIFICALLY NOTED OTHERWISE. REFER ALSO TO THE PANEL SCHEDULE(S), THIS SHEET, AND THE PARTIAL POWER RISER DIAGRAMS, E4, FOR ADDITIONAL INFORMATION ON THE FEEDERS.
- COORDINATE ALL DEVICE AND EQUIPMENT LOCATIONS WITH THE OWNER AND/OR SYSTEM SUPPLIER/ INSTALLER.
- ALL MOTORS SHALL HAVE A LOCAL DISCONNECTING MEANS LOCATED AT THE MOTOR, OR A MAXIMUM OF 5'-0" AWAY WITHIN SIGHT OF THE MOTOR.
- FIELD COORDINATE MOUNTING OF ELECTRICAL BOXES, PANELS, DEVICES, ETC. AND ROUTING OF CONDUITS WITH OTHER TRADES.
- REFER ALSO TO ELECTRICAL DETAILS, E5, FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
- FIELD COORDINATE ROUTING OF ALL CONDUITS. CONDUIT ROUTING SHALL NOT INTERFERE WITH THE PIPING.
- EQUIPMENT PROVIDED AS PART OF THE WELL HOUSE IS SHOWN IN LIGHT LINE WEIGHT. NEW EQUIPMENT, FEEDERS, ETC. ARE SHOWN IN DARKER LINE WEIGHT.

FLAG NOTES THIS SHEET:

- LOCATION OF THE SERVICE ENTRANCE EQUIPMENT (PANEL) FOR THE PREFABRICATED WELL HOUSE BUILDING. FIELD VERIFY LOCATION WITH THE BUILDING ON SITE. COORDINATE LOCATION WITH THE CIVIL PLANS. PANEL SHALL BE RELOCATED FROM THE EXISTING LOCATION.
- GFI RECEPTACLE LOCATED THROUGHOUT THE BUILDING. (TYPICAL)
- WALL-MOUNTED HEATER. TYPICAL FOR (2) HEATERS.
- LIGHT FIXTURE. TYPICAL FOR (2) FIXTURES IN THE PREFABRICATED BUILDING.
- APPROXIMATE LOCATION OF THE FLOWMETER. FIELD VERIFY EXACT LOCATIONS. COORDINATE EXACT POWER REQUIREMENTS WITH THE SYSTEM INSTALLER. PROVIDE 120V CIRCUIT IN THE PANEL PROVIDED WITH THE BUILDING, AS REQUIRED.
- NEW SERVICE ENTRANCE LOCATION FOR THE WELL HOUSE BUILDING. COORDINATE LOCATION FOR THE CAMLOCK CONNECTION SWITCH WITH INTEGRAL DISCONNECT SWITCH WITH THE PREFABRICATED BUILDING LAYOUT AND PANEL LOCATION ON THE INTERIOR. REFER TO DISCONNECT SCHEDULE, THIS SHEET, FOR SPECIFICATION OF THE CAMLOCK PANEL. ALSO REFER TO PARTIAL POWER RISER DIAGRAM, E4, AND WELL HOUSE EQUIPMENT DETAIL, E5, FOR ADDITIONAL INFORMATION AND REQUIREMENTS FOR THE CAMLOCK CONNECTION PANEL.
- ELECTRICAL CONTRACTOR RESPONSIBLE FOR GETTING THE PREFABRICATED BUILDING INSPECTED AND APPROVED BY THE STATE OF MONTANA. THE PREFABRICATED BUILDING INTERIOR ELECTRICAL INSTALLATION MUST BE CERTIFIED PRIOR TO COMPLETION OF THE PROJECT.
- CONTROL PANEL PROVIDED WITH THE PACKAGED STRAINER SYSTEM. THE CONTROL PANEL WILL CONTAIN INTEGRAL CIRCUIT BREAKERS TO FEED THE LOADS ASSOCIATED WITH THE SYSTEM. PANEL WILL HAVE DRY CONTACTS TO PROVIDE REMOTE HIGH AND LOW LEVEL SIGNALS; STRAINER CLEANING CYCLE NOTIFICATION; AND HIGH PRESSURE ALARM TO THE FACILITY OFFICE. ELECTRICAL CONTRACTOR TO VERIFY AND COORDINATE CONNECTIONS WITH THE SUPPLIER / INSTALLER OF THE SYSTEM. PROVIDE CONNECTION TO CIRCUIT, AS INDICATED.

DISCONNECT SCHEDULE

RM. NO.	DISC CODE	TYPE (GE)	VOLTAGE	PHASE	AMPS	NEMA TYPE	FUSE TYPE (BUSSMAN)	FUSE SIZE	NON-FUSED	REMARKS
EXTERIOR - HATCHERY	DS-WH1	HD	240	1	200	3R	FRN-R	125		NOTES 1,2
EXTERIOR - WELL HOUSE	DS-WH2	-	120/240	1	200	3R	FRN-R	125		NOTES 3,4
NOTES:										
1. PROVIDE SERVICE-ENTRANCE RATED DISCONNECT SWITCH.										
2. WALL MOUNT ON THE EXTERIOR WALL OF THE HATCHERY BUILDING, NEXT TO THE EXISTING SERVICE ENTRANCE EQUIPMENT (METER, CT CABINET, AND DISCONNECT SWITCH). MAINTAIN NEC REQUIRED WORKING SPACE AROUND EQUIPMENT AND DISCONNECTS.										
3. PROVIDE CAMLOCK CONNECTION SWITCH WITH INTEGRAL DISCONNECT AS MANUFACTURED BY POWER ASSEMBLIES, MODEL NO. CCS-02SFSL-2, OR APPROVED EQUIVALENT. SWITCH SHALL BE FUSIBLE AND RATED FOR 200A WITH 125A FUSES; SINGLE-THROW; AND SWITCHED NEUTRAL.										
4. UNISTRUT-MOUNT NEAR THE PRE-FABRICATED WELL HOUSE BUILDING. LOCATE AS NEAR TO THE PANEL LOCATION INSIDE AS POSSIBLE TO MINIMIZE THE FEEDER LENGTH INTO THE PANEL IN THE BUILDING. FIELD COORDINATE LOCATION.										

PANEL SCHEDULE WELL HOUSE PANEL (REFERENCE)

NAME		WELL HOUSE PANEL				ROOM NUMBER	PUMP HOUSE					
MFGR.	-	AMPS	125	AIC	10,000	PHASE CONDUCTORS		1				
TYPE	LOAD CENTER	MAINS	MLO	OCB	125	NEUTRAL CONDUCTORS		1				
WIDTH	14"	VOLTLL	240	MCA	65	GROUND WIRE		6				
DEPTH	3 3/4"	VOLTLN	120	FEED LGTH	30	CONDUIT SIZE		1-1/2"				
MOUNTING	FLUSH	PHASE	1	CONAMPS	65	CONDUIT RUNS		1				
FEED	TOP	WIRES	3	REMARKS		PERCENT VOLTAGE DROP		0.1%				
BREAKER		LOAD		CIRCUIT		LOAD		BREAKER				
AMPS	POLES	VA	LOAD CODE	CIRCUIT NO.	L1	L2	CIRCUIT NO.	LOAD CODE	VA	LOAD	POLES	AMPS
30	2	2500	5	1		5000	2	5	2500	UNIT HEATER	2	30
-	-	2500	5	3	5000		4	5	2500	-	-	-
20	1	300	1	5		800	6	5	500	FLOWMETER	1	20
20	1	720	2	7	2820		8	5	2100	STRAINER CONTROL PANEL	1	30
20	1	720	2	9		720	10			SPARE	1	20
20	1			11	0		12			SPARE	1	20

PANEL SCHEDULE SHOWN FOR REFERENCE ONLY. PANEL PROVIDED WITH PREFABRICATED BUILDING. CIRCUITS AND LOADS MAY VARY. CIRCUITS DESIGNATED WITH ASTERISKS ARE PART OF THIS SCOPE OF WORK. CIRCUIT DESIGNATED WITH A DOUBLE ASTERISK (**) WILL REQUIRE A NEW CIRCUIT BREAKER COMPATIBLE WITH THE PANEL. FIELD VERIFY CIRCUIT(S) BEING MODIFIED. REFER ALSO TO CIVIL PLANS FOR LOCATIONS OF THE EQUIPMENT REQUIRING 120V CONNECTION.



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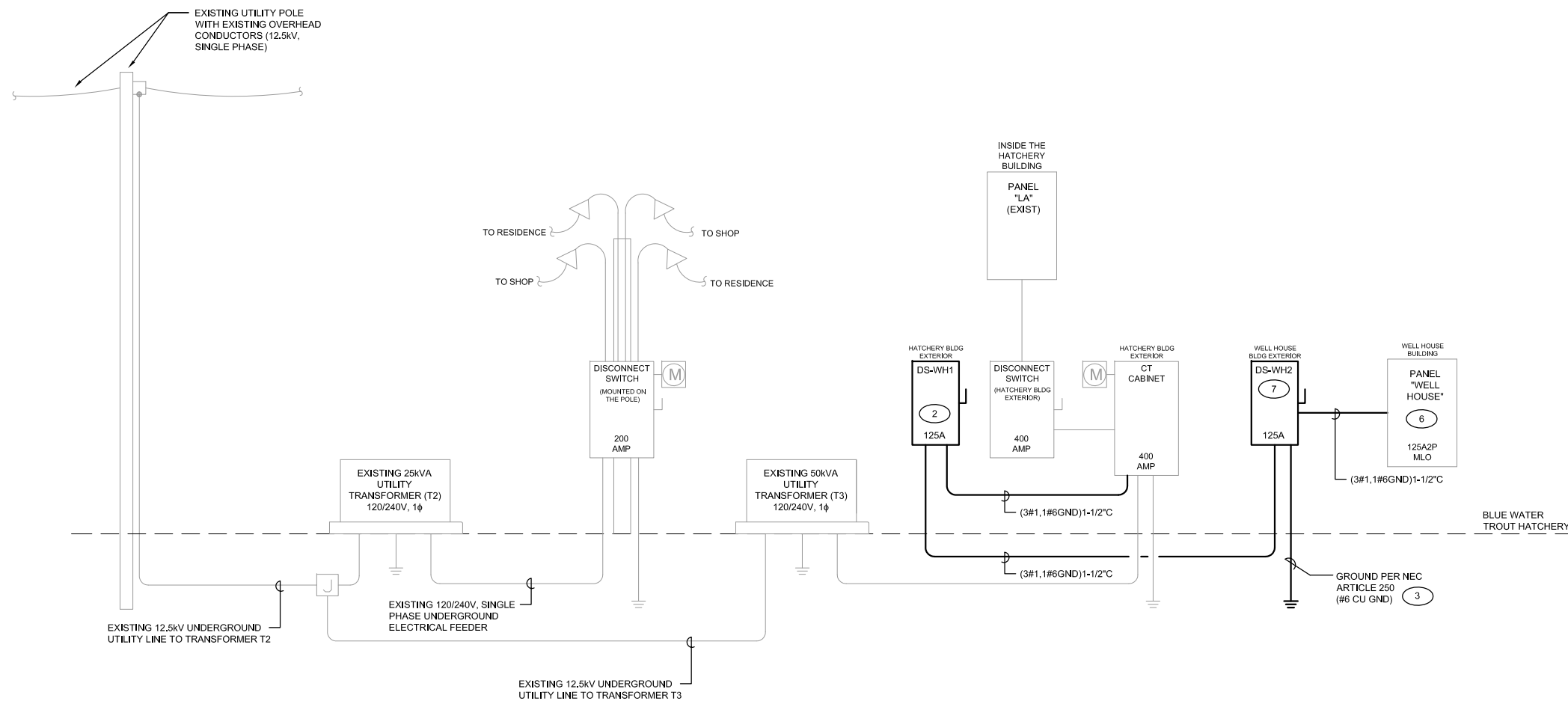
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MONTANA FISH, WILDLIFE & PARKS

Bluewater Springs Trout Hatchery
 Artesian Well Head Development - Enlarged Well House Plan & Schedules

SHEET: **E3** of **5**



1 PARTIAL POWER RISER DIAGRAM 1 4 5
 E4 NOT TO SCALE 12.5kV 1PH - 120/240V 1PH 3W SN

GENERAL RISER DIAGRAM NOTES:

- COORDINATE ALL ELECTRIC SERVICE REQUIREMENTS WITH THE LOCAL SERVING UTILITY, NORTHWESTERN ENERGY.
- PROVIDE DISCONNECTS, GROUND RODS, ETC. CONFORMING WITH UTILITY COMPANY REGULATIONS AND NEC STANDARDS.
- ALL WIRING SHALL BE IN ACCORDANCE WITH THE LATEST VERSION OF THE NATIONAL ELECTRICAL CODE (NEC).
- GROUND IN STRICT ACCORDANCE WITH NEC ARTICLE 250.
- VERIFY LOCATIONS OF ALL UTILITY SERVICE EQUIPMENT AND THE UTILITY REQUIREMENTS PRIOR TO BIDDING.
- ALL CONDUITS NOT SHOWN SIZED ON THE DRAWINGS SHALL BE SIZED TO NOT EXCEED 40% FILL AND SHALL COMPLY WITH NEC REQUIREMENTS.
- SEE FLAG NOTES, THIS SHEET, FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
- SERVICE INSTALLATION SHALL BE IN ACCORDANCE WITH NFPA 70 AND UTILITY REQUIREMENTS.
- REFER ALSO TO ELECTRICAL DETAILS, E5, AND ELECTRICAL SCHEDULE(S), E3, FOR ADDITIONAL INFORMATION.
- EXISTING EQUIPMENT IS SHOWN IN LIGHT LINE WEIGHT. NEW EQUIPMENT, FEEDERS, ETC. ARE SHOWN IN DARKER LINE WEIGHT.
- ELECTRICAL CONTRACTOR SHALL PROVIDE TEMPORARY CONNECTIONS TO MAINTAIN SERVICES TO THE ELECTRICAL INSTALLATION. ALL POWER OUTAGES MUST BE COORDINATED WITH THE OWNER AND APPROVED AT LEAST 72 HOURS PRIOR TO SCHEDULED OUTAGE.

FLAG NOTES - RISER DIAGRAM:

- COORDINATE ALL NEW ELECTRICAL SERVICE REQUIREMENTS WITH UTILITY COMPANY AND OWNER PRIOR TO BID AND ADJUST BID ACCORDINGLY. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE DISCONNECTS; GROUNDING; AND THE FEEDERS.
- PROVIDE AND INSTALL DISCONNECT SWITCH AT THE MAIN SERVICE ENTRANCE ON THE HATCHERY BUILDING. GROUP THE NEW DISCONNECT WITH THE EXISTING DISCONNECT SO THEY ARE TOGETHER. NEW DISCONNECT FOR THE WELL HOUSE BUILDING TO BE FED FROM THE LUGS IN THE EXISTING CT CAN. COORDINATE CONNECTION WITH THE SERVING UTILITY.
- CONNECT THE GROUND TO ALL AVAILABLE GROUNDING ELECTRODES INCLUDING REBAR AND DRIVEN GROUND ROD. REFER ALSO TO GROUNDING ELECTRODE SYSTEM DETAIL, E5, FOR ADDITIONAL INFORMATION. GROUND RODS MUST HAVE A RESISTANCE TO GROUND OF 25 OHMS OR LESS OR ADDITIONAL RODS SHALL BE ADDED. MINIMUM (2) GROUND RODS SPACED A MINIMUM OF 10'-0" APART.
- REFER ALSO TO OVERALL ELECTRICAL SITE PLAN, E2, FOR ADDITIONAL INFORMATION REGARDING THE INCOMING SERVICE.
- ELECTRICAL CONTRACTOR TO PROVIDE TEMPORARY SERVICE, AS REQUIRED, DURING CONSTRUCTION.
- PANEL "WELL HOUSE" IS PROVIDED WITH THE PREFABRICATED BUILDING. REFER ALSO TO ENLARGED WELL HOUSE PLAN & SCHEDULES, E3, FOR ADDITIONAL INFORMATION ON THE SERVICE AT THE NEW WELL HOUSE.
- PROVIDE CAMLOCK CONNECTION SWITCH WITH INTEGRAL DISCONNECT. REFER TO DISCONNECT SCHEDULE, E3, AND ELECTRICAL DETAILS, E5, FOR SPECIFICATION OF THE CAMLOCK SWITCH. UNSTRUT MOUNT NEAR THE BUILDING. FIELD COORDINATE EXACT LOCATION. REFER ALSO TO WELL HOUSE ELECTRICAL EQUIPMENT DETAIL, E5, FOR ADDITIONAL INFORMATION ON MOUNTING OF THE CAMLOCK PANEL.

LOAD JUSTIFICATION	
MAXIMUM DEMAND LOAD FOR PREVIOUS 12 MONTHS ON METER FOR TRANSFORMER T3 (AUGUST 2022)	5.9 kVA
MAXIMUM DEMAND LOAD X 1.25 (PER NEC 220.87)	7.4 kVA
NEW LOAD ADDED FOR THE PREFABRICATED BUILDING	17.8 kVA
TOTAL LOAD (HATCHERY BUILDING AND NEW WELL HOUSE FED FROM TRANSFORMER T3)	25.2 kVA = 105.0 AMPS

NOTE: THE EXISTING 50kVA TRANSFORMER IS SUFFICIENT FOR THE EXISTING LOADS IN THE HATCHERY BUILDING AND THE NEW PREFABRICATED WELL HOUSE BUILDING WHICH IS A PART OF THIS SCOPE OF WORK.



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Bluewater Springs Trout Hatchery
 Artesian Well Head Development - Power Riser Diagram

SHEET: E4 of 5

SECTION 262820
CAMLOCK CONNECTION SWITCH

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes Camlock connection switch specifications.

1.02 REFERENCES

- A. National Electrical Manufacturers Association:
 1. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).
- B. Underwriters Laboratories, Inc.:
 1. UL 1773 - Standard for Termination Boxes.

1.03 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years documented experience.
- B. A complete factory assembled unit shall be provided an installed.

1.04 REGULATORY REQUIREMENTS

A. The Camlock connection switch shall be UL labeled as a complete assembly.

1.05 SUBMITTALS

- A. Product Data: Submit wiring device manufacturer's catalog information showing dimensions, configurations, front and side elevation view, line and load connection details, conduit entry locations, and construction.
- B. Assembly ratings, including short-circuit rating, voltage, enclosure type, and continuous amperage rating
- C. Manufacturer's installation instructions and connection details.

1.06 CLOSEOUT SUBMITTALS

A. Project Record Documents: Record actual locations, sizes, and configurations of equipment connections.

1.07 WARRANTY

- A. Manufacturer's Warranty: Manufacturer agrees to repair or replace components of the Camlock connection switch that fail in materials or workmanship within specified warranty period.
 1. Warranty Period: 12 months from date of final acceptance.

1.08 COORDINATION

- A. Coordinate project with existing conditions.
- B. Obtain and review shop drawings, product data, manufacturer's wiring diagrams, and manufacturer's instructions for equipment furnished under other sections.
- C. Determine connection locations and requirements.
- D. Sequence rough-in of electrical connections to coordinate with installation of equipment.
- E. Sequence electrical connections to coordinate with start-up of equipment.

PART 2 PRODUCTS

2.01 CAMLOCK CONNECTION SWITCH

- A. Manufacturers:
 1. Power Assemblies, LLC (basis of design).
 2. Substitutions: Per the Project Manual.
- B. General
 1. Camlock Connection Switches are defined as complete switching units with mail camlocks input or female output connectors wired to a switch for quick connection use.
 2. In the event the Contractor is furnishing the Camlock Connection Switch, the Contractor shall be responsible for the equipment until it has been installed, inspected, tested, and accepted in accordance with the requirements of the Project Manual and specifications.
- C. Ratings:
 1. Voltage and amperage: As indicated on the Drawings.
- D. Construction:
 1. All equipment shall be new.
 2. Camlock Connection Switch enclosure shall be NEMA 3R.:
 - a. Unit shall be constructed of carbon steel-coated or aluminum.
 - b. Wall-mount type enclosure will have mounting holds in back of enclosure for mounting and mounting hardware shall be included.
 - c. CAM connectors shall be UL/CSA Listed single-pole and rated at 200A at 600VAC. CAM connectors shall be color-coded to visualize appropriate voltages. CAM connectors shall be provided for each phase in the appropriate configuration to support required amperage and provided for neutral, if required.
 3. Field (temporary) wiring connections:
- E. Enclosure:
 1. Wall-mount.
 2. NEMA 3R rated.
 3. Material: Carbon steel or aluminum.
 4. Finish: ANSI 61 Gray or uncoated aluminum
 5. Lockable latches on front door.
- F. Standards: UL 1773 - Standard for Termination Boxes.

PART 3 EXECUTION

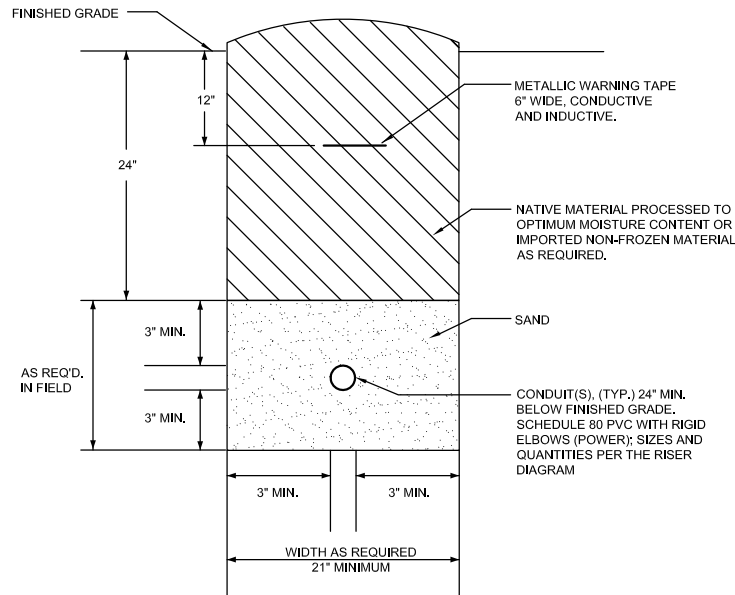
3.01 EXAMINATION

- A. Coordinate project with existing conditions. Notify Engineer, in writing, if unsatisfactory conditions exist.
- B. Install as indicated and in accordance with the manufacturer's recommendations and instructions.
- C. Connect as indicated on the one-line diagram.

3.02 INSTALLATION

- A. Procedures for Installation:
 1. Camlock connection switch shall be installed as shown on the drawings. In addition, the installation shall:
 - a. Meet the requirements of Local Codes, the National Electrical Code, and the National Electrical Contractors Association's "Standard of Installation."
 - b. Only use copper wire conductors for all field wiring.
 - c. All terminations must be torqued according to the label provided.

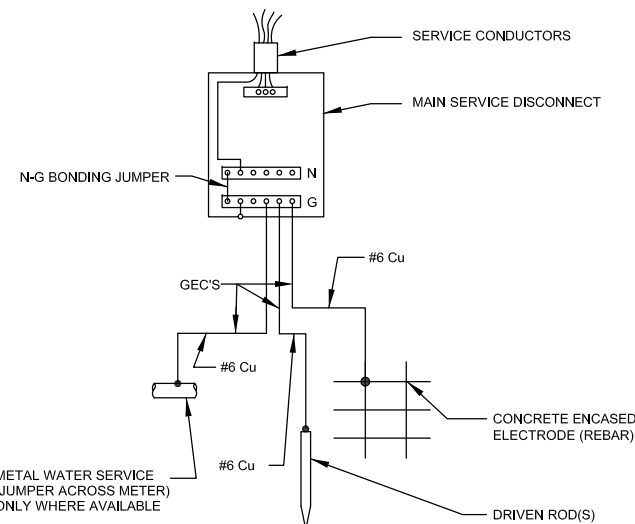
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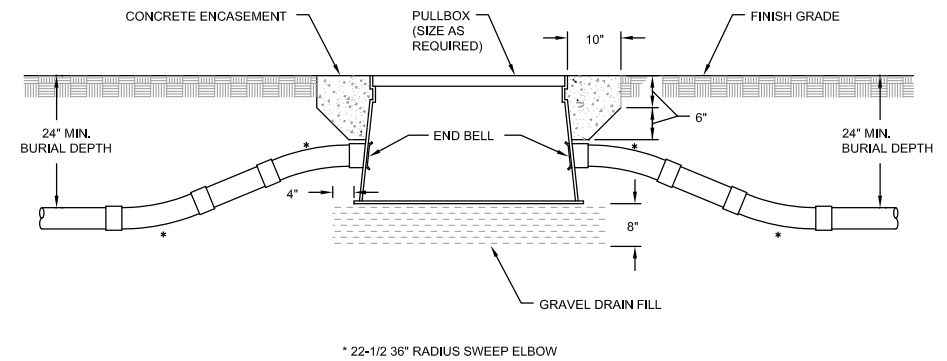
NOTES:

1. DEPTHS NOTED ARE MINIMUM BURIAL.
2. DEPTHS ARE SPECIFIED FROM FINISHED GRADE. WHERE SURROUND GRADE IS NOT DISTURBED THE DEPTHS ARE FROM EXISTING GRADE.
3. OVER-EXCAVATE TRENCHES AS NECESSARY TO ALLOW FOR:
 - (a) SAND BEDDING
 - (b) LOOSE AND SANDY SOILS. OR
 - (c) WHERE MORE THAN ONE CABLE WILL BE INSTALLED IN TRENCH AND LAYING OF FIRST CABLE MAY CAUSE TRENCH DAMAGE AND REDUCTION IN DEPTH.
4. SAND BEDDING SHALL BE FREE OF ORGANIC AND ROCK MATERIALS.
5. EXCAVATION, BACK FILL AND COMPACTION ARE PART OF THIS CONTRACT. INCLUDING JOINT-USE TRENCHES.
6. WIRING CONSISTS OF INSULATED CONDUCTORS INSTALLED IN DUCTS. CONDUCTOR INSULATION TYPE USE SHALL BE USED FOR LOW VOLTAGE CIRCUITS AND SERVICE ENTRANCE. INSULATION FOR MEDIUM VOLTAGE CIRCUITS SHALL BE EPR. MEDIUM VOLTAGE CIRCUITS SHALL HAVE DRAIN WIRE INSULATION SHIELDING. ALL CONDUCTORS SHALL BE COPPER.

1 POWER DUCTBANK - REFERENCE
E5 NOT TO SCALE



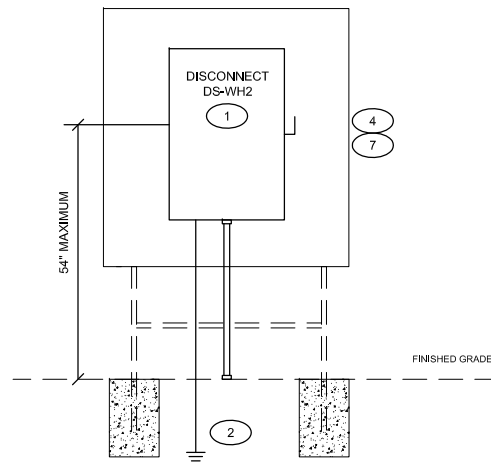
2 GROUNDING ELECTRODE SYSTEM
E5 NOT TO SCALE



3 TYPICAL PULLBOX ENTRY - REFERENCE
E5 NOT TO SCALE

RACK DETAIL FLAG NOTES:

1. CAMLOCK CONNECTION SWITCH WITH INTEGRAL DISCONNECT SWITCH FOR THE WELL HOUSE BUILDING ELECTRICAL SERVICE. REFER TO PARTIAL POWER RISER DIAGRAM, E4, FOR ADDITIONAL INFORMATION AND REQUIREMENTS. THIS DETAIL IS APPLICABLE FOR THE DISCONNECT ON THE PREFABRICATED WELL HOUSE BUILDING. REFER ALSO TO SPECIFICATION, THIS SHEET, FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. GROUND RODS MUST HAVE A RESISTANCE TO GROUND OF 25 OHMS OR LESS OR ADDITIONAL RODS SHALL BE ADDED. MINIMUM (2) GROUND RODS SPACED A MINIMUM OF 10'-0" APART.
3. ALL CONDUIT AND FITTINGS TO BE GRAY, SCHEDULE 80 PVC CONDUIT.
4. PROVIDE POWDER-COATED BRONZE, 3/16" STEEL PLATE, HEIGHT, AS REQUIRED, WELDED TO 4" SQUARE STEEL POSTS WITH CAPS, BURIED 3'-0" BELOW GRADE, ENCASED IN CONCRETE. ALL STEEL SHALL BE POWDER-COATED BRONZE, SIZED AS REQUIRED. COORDINATE LOCATIONS OF THE POSTS, BOARD AND ELECTRICAL ITEMS WITH OWNER AND UTILITY. SUBMIT ALL MATERIALS FOR APPROVAL. MOUNT THE CAMLOCK CONNECTION SWITCH WITH INTEGRAL DISCONNECT ON THE PLATE. DIMENSIONS SHALL BE ADEQUATE TO ACCOMMODATE ALL THE EQUIPMENT. USE FLEX CONNECTORS. MOUNTING SHALL BE SUCH THAT IT IS A STURDY, STAND-ALONE RACK THAT CAN WITHSTAND A MINIMUM 60mph WIND WITH GUSTS TO 100mph. DISCONNECT FOR THE ELECTRICAL SERVICE SHALL BE IN AN ACCESSIBLE LOCATION. TYPICAL ELEVATION IS SHOWN. FIELD MODIFY, AS NECESSARY. VERIFY DIMENSIONS OF ALL EQUIPMENT WITH WHAT IS BEING SUPPLIED PRIOR TO FABRICATION OF THE BACKBOARD.
5. ALL SCREWS, NUTS, BOLTS, STRAPS, AND SIMILAR CONNECTORS SHALL BE STEEL. PROVIDE NEOPRENE PAD AND/OR FIBER WASHERS BETWEEN DISSIMILAR METALS. (TYPICAL)
6. ALL BOXES, FITTINGS AND PIPES TO BE NEMA 3R RATED.
7. UNISTRUT MOUNT SHALL BE CLOSE TO THE THE EXTERIOR OF THE BUILDING TO MINIMIZE THE CONNECTION TO THE PANEL INSIDE, BUT NOT INTERFERE WITH THE ABILITY TO REMOVE THE BUILDING FOR EQUIPMENT MAINTENANCE, AS NEEDED. REFER TO THE OVERALL ELECTRICAL SITE PLAN, E2, AND THE ENLARGED WELL HOUSE PLAN & SCHEDULES, E3, FOR ADDITIONAL INFORMATION. USE FLEX CONNECTORS, E.C. TO COORDINATE LOCATION OF THE UNISTRUT MOUNT WITH THE OWNER, AND BUILDING INSTALLER. DISCONNECT FOR THE ELECTRICAL SERVICE SHALL BE IN AN ACCESSIBLE LOCATION. TYPICAL ELEVATION IS SHOWN. FIELD MODIFY, AS NECESSARY. VERIFY DIMENSIONS OF ALL EQUIPMENT PRIOR TO INSTALLATION.



4 WELL HOUSE ELECTRICAL EQUIPMENT DETAIL
E5 NOT TO SCALE



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MONTANA FISH, WILDLIFE & PARKS
221

Bluewater Springs Trout Hatchery
Artesian Well Head Development - Electrical Details

SHEET: **E5** of **5**