

550 S. 24th STREET W., SUITE 201, BILLINGS, MT 59102 | 406.894.2210

Montana Fish, Wildlife, and Parks Bluewater Springs Trout Hatchery Artesian Well Head Development Addendum # 1

To: All Plan Holders

From: Cody Wyatt, P.E., WWC Engineering

Date: May 15, 2022

Subject: Addendum #1 – Bluewater Springs Trout Hatchery Artesian Well Head

Development

Addendum #1 is hereby written and made a part of the Contract Documents for the above named project.

In addition to the changes described below, the following attachments shall be included in and be part of this Addendum #1:

- Pre-Bid Meeting Minutes
- Pre-Bid Meeting Attendance Sheet
- Updated Bid Form
- Updated Plan Set

Clarifications

- 1. There was a discrepancy in the plans regarding the floor slab and vault slab all slabs will 8 inches thick with #5 rebar at 18 inches on-center.
- 2. The 10" discharge pipe and 6" drain pipe have been installed by the Hatchery. 144 LF have been removed from Bid Items 9 and 10. Please note that the connection of these pipes will fall under Bid Item 8 and the end treatment of these pipes will fall under Bid Item 9 as described in SP-25.01, Measure and Pay
- 3. There is not an "American Made" requirement for materials on this project.

End of Addendum #1



1849 TERRA AVE, SHERIDAN, WY 82801 | 307.672.0761

Bluewater Springs Trout Hatchery Artesian Well Head Development Project FWP# 7113112

May 9, 2023 11:00 am, Bluewater Fish Hatchery near Bridger, MT

Introduction

- Tom Mannatt, Montana Fish, Wildlife and Parks
- Matt Wipf, Bluewater Spring Trout Hatchery
- Tristan Greve, WWC Engineering, Project Engineer

Project Description

- 1) The project includes construction of a well house, foundation, piping, equipment, and appurtenances as well as minor site work (excavation/grading) for an artesian well at the Bluewater Springs Fish Hatchery.
- Bid opening
 - a. 3:00 pm, May 23, 2023
 Office of Design and Construction
 1522 Ninth Avenue
 Helena, MT 59620-0701
- 3) Contract Time
 - a. 365 Consecutive Calendar Days
- 4) Questions
 - a. To Tom Mannatt at 406-841-4006 & tmannatt@mt.gov

Bidding Considerations

- 1) Incidentals
 - a. Well house extents
- 2) Owner-Provided materials
 - a. Building
 - b. Crane
 - c. Various Fittings and Appurtenances
- 3) Surveying
 - a. Engineer to provide initial survey.

- 4) Specifications
 - a. As specified or Montana Public Works Standard Specifications

Construction Considerations

- 1) Permits
 - a. Stormwater Small Construction General Permit
- 2) Schedule
 - a. Certain equipment is expected to take up to 12 weeks for delivery.
- 3) Access
- 4) Prevailing Wage

Questions/Concerns

- Electrical bid item to include all electrical work outside of the building
- Both slabs will be 8" thick with #5 rebar spaced at 18"
- Cast in place vault walls are an acceptable alternative to the precast box culvert
- Flowmeter could have an extended lead time as well
- The building was previously moved without a crane and the previous owner estimate it to weight approximately 4,500 lbs. There are lifting points on all four corners of the roof.
- Some of the owner-provided fittings will require welding for installation
- Does this project have an American-made requirement?

<u>Notes</u>

- For all bid questions, please ask Tom Mannatt and he will answer or direct them to the appropriate entity
- Please not that the fittings change from 300 psi to 150 psi
- Communication will be necessary with Engineer and Hatchery to coordinate surveying, CA, and turning water on and off
- A complete riprap apron is not necessary due the geology of the discharge location
- Potholing should be completed for the existing hatchery electrical line

Action Items

- Bid addenda will be released to address the following:
 - o Installation of discharge and drain line
 - o Slab and rebar discrepancies
 - o American-made requirement

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MONTANA FISH, WILDLIFE AND PARKS BLUEWATER SPRINGS TROUT HATCHERY ARTESIAN WELL HEAD **DEVELOPMENT** PRE-BID MEETING

MAY 9TH, 2023 AT 11:00 AM

| Name | Company | Email & Phone |
|-----------------------------|-------------------|-------------------------------------|
| Frank | Hinckley James | frank@hinc.us |
| Hinckley | | I _ |
| Charle Costes | Western Municipal | 307-272-0003 Scarfer BWMC-1, com |
| Steve Carrer | Construction | |
| | | 406-209-2991 |
| | mullennyum | Kari & millennium construct a Com |
| Low Ferry Son | Con Stone Non | 406-690-7252 |
| | Montana | 406 841 4006 |
| Von Ferguson Jom Mannatt | FOR DEC | tmannattemt.gov |
| | Plorust | matt. wiptonson |
| Matt WiDt | Montane FWP SFIT | 406-668-7443 |
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| FWP# | 7113112 |
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Montana Fish, Wildlife & Parks Design and Construction PO Box 200701 1522 Ninth Avenue Helena, Montana 59620-0701

The undersigned, having familiarized themselves with the conditions of the work and the contract documents as prepared by WWC Engineering; 1849 Terra Ave Sheridan, Wyoming 82801; Phone 307 672 0761, agrees to furnish all labor, materials, equipment, and services necessary to complete all general construction work, as bid herein, for a project entitled Bluewater Springs Trout Hatchery Artesian Well Head Development in accordance with the Contract Documents including all Addenda. The bidder agrees to perform all the work described below at the price shown as follows:

Reminder to Contractors: All Unit Prices <u>must</u> be filled in on the Bid Form for a valid bid (18-2-303 MCA).

Base Bid:

| Base Bid Item # | Description | Estimated Quantity | Unit Measure | Unit Price | Amount |
|--------------------|---------------------------------------|--------------------|-----------------|---------------|----------|
| 1 | Mobilization, Insurance, and Bonding | 1 | LS | | |
| 2 | Quality Control Testing | 1 | LS | | |
| 3 | Construction Surveying | 1 | LS | | |
| 4 | SWPPP Administration | 1 | LS | | |
| 5 | Miscellaneous Force Account | 1 | LS | \$10,000 | \$10,000 |
| 6 | Seeding | 90 | CY | | |
| 7 | Embankment | 10 | CY | | |
| 8 | Well House, Piping, and Appurtenances | 1 | LS | | |
| 9 | 10-Inch C900 DR 18 PVC | 75 | LF | | |
| 11 | Connect to Existing Water Main | 1 | EA | | |
| 12 | 10-Inch Gate Valve | 1 | EA | | |
| 13 | 1-Inch Drain | 1 | EA | | |
| 14 | Electrical | 1 | LS | | |

| 13 | 1-Inch Drain | | 1 | EA | | |
|------------|--------------|------------------|---|----|----|-------------------------|
| 14 | Electrical | | 1 | LS | | |
| TOTAL I | BID: | | | | | |
| | AND | /100 DOLLARS (\$ | | | | <u>).</u> |
| Contractor | r Name: | | | | Pa | ge 1 of 2 |

Revised 5/15/23

| Reviseu 5/15/25 | | | |
|---|--|--|--|
| And certifies that he is a duly and regularly licensed contractor registered with the Montana Department of Labor and Industry: | | | |
| FIRM NAME: | | | |
| TELEPHONE #: FAX#: | | | |
| BY: | | | |
| REGISTRATION #: | | | |
| BUSINESS ADDRESS: | | | |
| | | | |
| E-MAIL ADRESS: | | | |
| This bidder acknowledges receipt of the following addenda: | | | |
| ADDENDUM NO DATED: ADDENDUM NO DATED: ADDENDUM NO DATED: | | | |
| | | | |
| | | | |

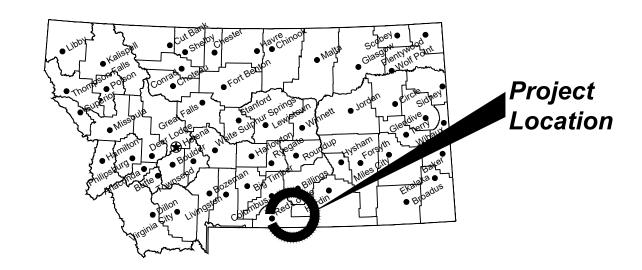
Contractor Name: ______ Page 2 of 2

MONTANA FISH, WILDLIFE & PARKS

BLUEWATER SPRINGS TROUT HATCHERY ARTESIAN WELL HEAD DEVELOPMENT

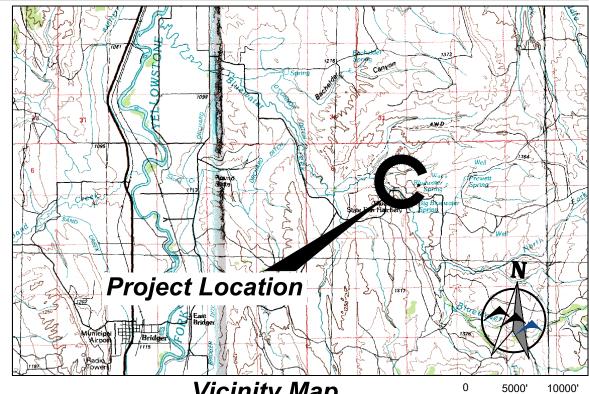
near Bridger, Carbon County, Montana

FWP PROJECT # 7113112



Location Map





Vicinity Map

| 0 | 5000' | 1000 |
|-------|------------|--------|
| | | |
| SCA | LE: 1" = 1 | 10000' |
| 11" x | 17" PAPE | R SIZE |

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

MAILING ADDRESS: PO BOX 200701 HELENA, MT 59620-0701 PHYSICAL ADDRESS: 1522 9th AVENUE HELENA, MT 59601

TEL 406.841.4000 FAX 406.841.4004

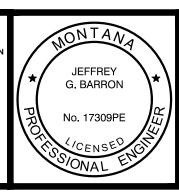
fwp.mt.gov/Doing Business/Design&Construction

| | Sheet List Table | | |
|--------------|---------------------|--|--|
| Sheet Number | Sheet Title | | |
| 1 | COVER | | |
| 2 | GENERAL NOTES | | |
| 3 | FXISTING SITE LAYOU | | |

A-A' PROFILE VIEW **B-B' PROFILE VIEW** C-C' PROFILE VIEW HELLAN AUTOMATIC SCREENS NORTH ELEVATION FRAMING SOUTH ELEVATION FRAMING

DRAWING INDEX

| 13 | EAST & WEST FRAMING ELEVATION |
|---------|-------------------------------|
| 14 | ROOF FRAMING PLAN |
| 15 | DETAILS |
| 16 | DETAILS |
| E1 - E5 | ELECTRICAL PLANS |
| | |
| | |



| CIG | | 3/17/2023 | TLG |
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| 3 | TLG | | 5/15/2023 | |
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| 3 | CRW | | 5/15/2023 | |
| | APPROVED BY: | DATE: | | APPROVED BY: |
| | | | | |



MONTANA FISH,

WATER LINE PLAN AND PROFILE

BLUEWATER SPRINGS TROUT HATCHERY

GENERAL CONSTRUCTION NOTES

- I. UNLESS SPECIFICALLY SHOWN ON THE DRAWINGS, ALL WORK SHALL CONFORM TO MPWSS, LATEST EDITION, DEQ CIRCULARS 1 AND 4, AND THESE PLANS.
- 2. 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.
- 5. 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.
- 8. PIPE BEDDING (TYPE 1) AND TRENCH BACKFILL (TYPE B) SHALL BE IN ACCORDANCE WITH MPW STANDARD SPECIFICATION 02221, STANDARD DRAWING 02221-1
- 7. 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.
- 8. 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.
- 0. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF UTILITY (PHONE/POWER/CATV) INSTALLATION WITH LOCAL UTILITY COMPANIES.
- 11. THE CONTRACTOR SHALL NOTIFY ONE CALL @ 1-800-424-5555 FOR ONSITE UTILITY LOCATION. ALL EXISTING UTILITIES SHALL BE MARKED BEFORE DIGGING.
- 2. 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.
- 13. THE CONTRACTOR SHALL NOTIFY THE ENGINEER A MINIMUM OF 48 HOURS PRIOR TO BEGINNING ANY WORK.
- 4. 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.
- 15. 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.
- 16. QUANTITIES SHOWN IN THESE PLANS ARE FOR INFORMATIONAL PURPOSES ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING ACTUAL QUANTITIES.
- 17. ALL WATER PIPING BURIED OR EXPOSED TO BE PAINTED OR MARKED WITH THE COLOR BLUE. BURIED PIPE TO BE LOCATED WITH "WATER" TRACE TAPE.
- 18. 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.
- 20. 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.
- 21. 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.
- 22. CONTRACTOR TO COORDINATE ACCESS ROUTE AND STAGING AREA WITH OWNER
- 23. ALL PROPOSED PIPE AND APPURTENANCES SHALL HAVE A MINIMUM BURY OF 6 FEET AND BE CERTIFIED LEAD-FREE AND DRINKING WATER SAFE.
- 24. ALL 2-INCH HDPE PIPE BENDS SHALL BE INSTALLED WITH A MINIMUM BEND RADIUS OF 30 TIMES THE OUTSIDE PIPE DIAMETER.
- 5. MAINTAIN AT LEAST A 10-FOOT OFFSET, EDGE-TO-EDGE FROM EXISTING GRAVITY SANITARY OR STORM SEWER, SEPTIC TANKS, OR SUBSOIL TREATMENT SYSTEM.

APPROVED BY:

APPROVED BY:

26. ENGINEER'S STAMP IS ONLY APPLICABLE TO THE WATERLINE, PIPING AND HYDRAULICS OF THIS PROJECT

DRAWING NOTATION



INDICATES CROSS SECTION LOCATION. "A" REFERS TO THE CROSS SECTION DESIGNATION. "10" REFERS TO THE SHEET NUMBER WHERE THE SECTION IS CUT OR SHOWN.

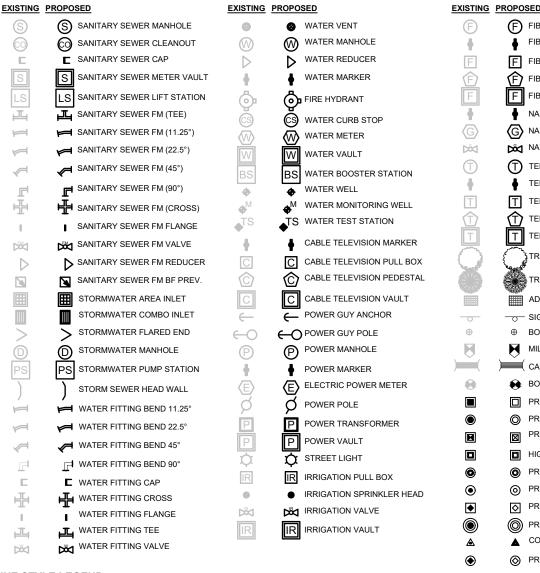


INDICATES DETAIL LOCATION.
"1" REFERS TO THE DETAIL
DESIGNATION. "12" REFERS TO
THE SHEET NUMBER WHERE
THE DETAIL IS INDICATED OR
SHOWN.

ABRREVIATIONS

| ACI BAR BMP | AMERICAN CONCRETE INSTITUTE REBAR BEST MANAGEMENT PRACTICES | HWY INV LF | HIGHWAY INVERT ELEVATION 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 | | |

BLOCK LEGEND



LINE STYLE LEGEND

| EXIS | TING | | PRO | POSED | |
|--------------------|---------------|---|------------|-------------|-----------------------|
| | | _ | | | MAJOR CONTOUR |
| | | _ | | | MINOR CONTOUR |
| OHT | OHT | _ | — онт — | — онт —— | OVERHEAD TELEPHONE |
| OHP | OHP | _ | — ОНР — | — ОНР ——— | OVERHEAD POWER |
| NG | —NG — | _ | — NG —— | — NG ——— | NATURAL GAS |
| | — – –IR – – — | _ | — IR —— | — IR —— | IRRIGATION LINE |
| FO · | —FO — | _ | — го — | — го —— | FIBER OPTIC |
| FM · | —FM — | _ | — FM — | — FM ——— | FORCEMAIN |
| _ o | o | _ | o | o | FENCE [CHAIN] |
| _ x | X | _ | — x — | x | FENCE [BARBED] |
| — [] | [] | _ | [] | | FENCE [PRIVACY] |
| F | —F | _ | — F — | — F —— | FIRE LINE |
| OHTV | — OHTV | _ | — онту — | — онту —— | OVERHEAD TV |
| RW · | | _ | RW | RW | RAW WATER |
| ss · | —ss — | _ | —— ss —— | —— ss ——— | SEWER |
| ST · | —st | _ | — sт — | — sт —— | STORM |
| UGP | UGP | _ | —— UGP —— | —— UGP ——— | UNDERGROUND POWER |
| UGT | UGT | _ | —— UGT —— | —— UGT ——— | UNDERGROUND TELEPHONE |
| UGTV | — UGTV | _ | —— ugтv —— | —— UGTV ——— | UNDERGROUND TV |
| $ \lor \lor \cdot$ | | _ | w | w | WATER |
| | | | | | |

| | · | TEEE! TIONE WINNINGEE |
|--------------|------------|-------------------------|
| • | • | TELEPHONE MARKER |
| T | T | TELEPHONE PULL BOX |
| (T) | ① | TELEPHONE PEDESTAL |
| | | TELEPHONE VAULT |
| | | TREE (DECIDUOUS) |
| | | TREE (CONIFER) |
| - Things | | ADA RAMP |
| -0 | -0- | SIGN |
| \oplus | \oplus | BOLLARD |
| | 8 | MILEPOST |
| | = | CATTLE GUARD |
| • | • | BORE LOCATION |
| | | PROP CORNER ALUMINUM C |
| lacktriangle | 0 | PROP CORNER BRASS CAP |
| | | PROP CORNER CHISELED X |
| | | HIGHWAY ROW MONUMENT |
| • | 0 | PROP CORNER IRON PIPE |
| • | 0 | PROP CORNER LEAD & TACK |
| • | \Diamond | PROP CORNER REBAR |
| | 0 | PROP CORNER STONE |
| <u>*</u> | A | CONTROL POINT |
| \odot | \otimes | PROP CORNER PLASTIC CAP |
| | | |
| CONTOUR | | |
| CONTOUR | | |
| HEAD TELEPH | ONE | |
| | | |

F FIBER OPTIC MANHOLE

F FIBER OPTIC PULL BOX

(F) FIBER OPTIC PEDESTAL

FIBER OPTIC VAULT

NATURAL GAS MARKER

(G) NATURAL GAS METER

NATURAL GAS VALVE

TELEPHONE MANHOLE

FIBER OPTIC MARKER

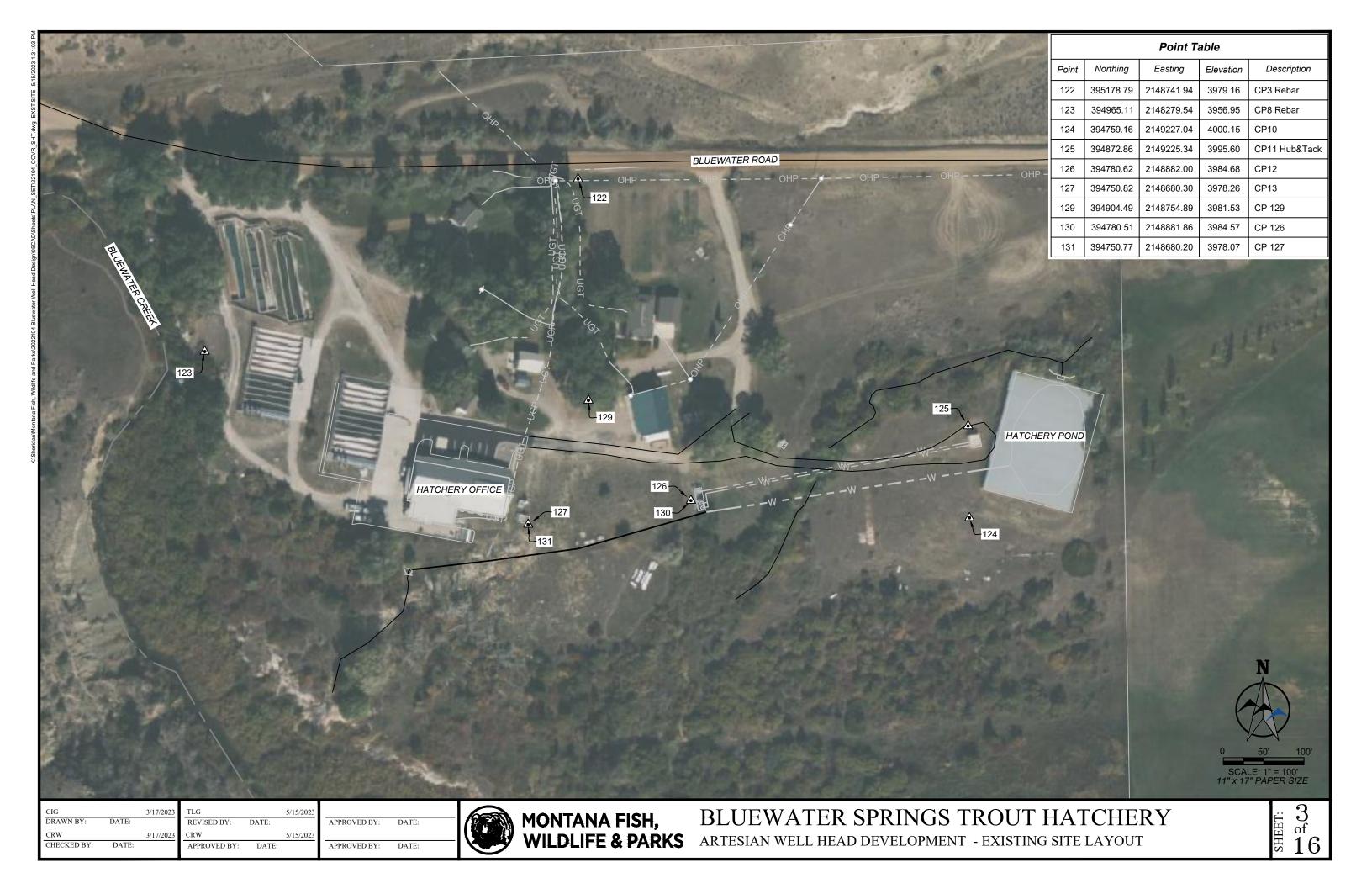
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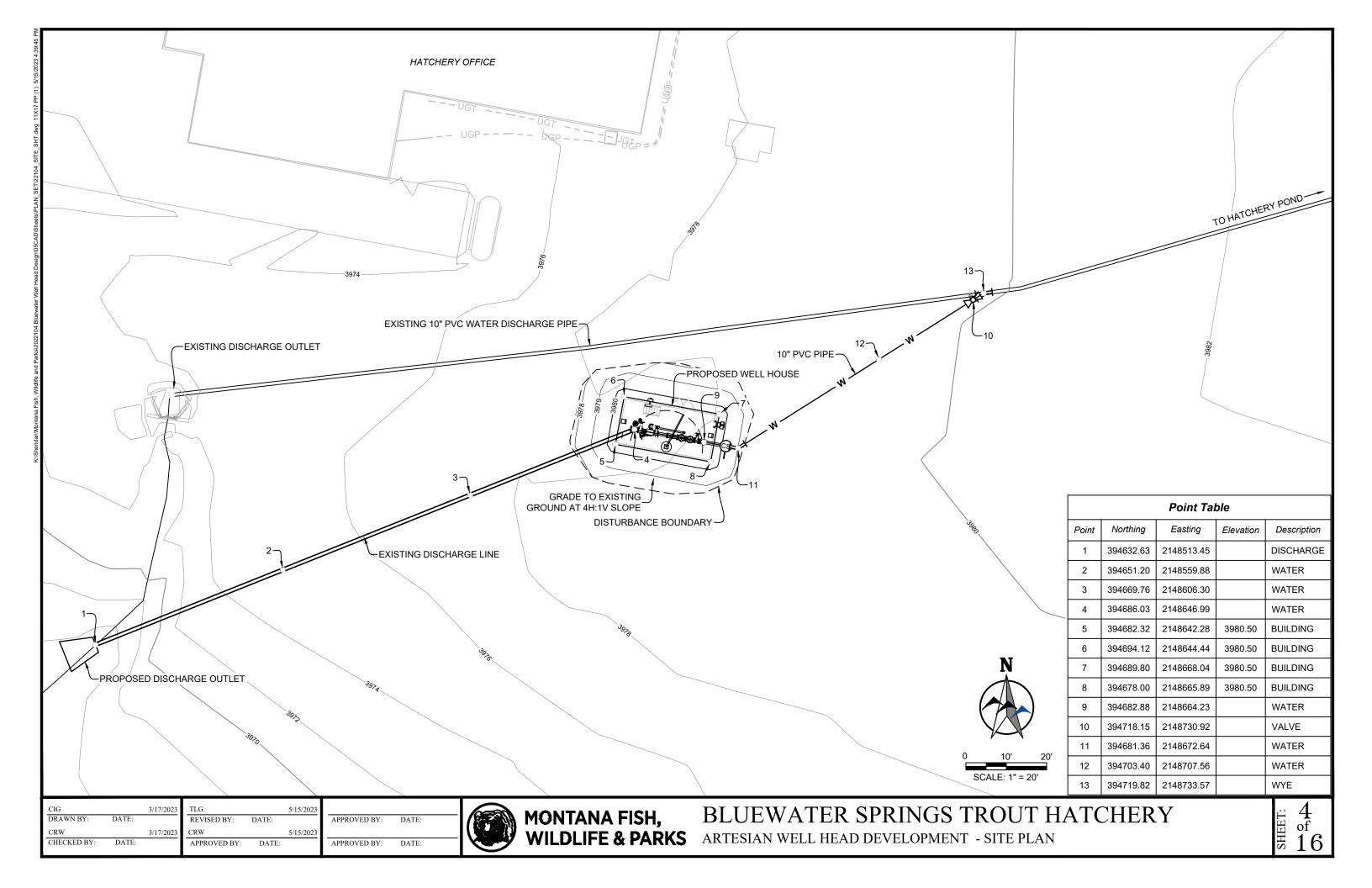
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| ı | CRW | | 5/15/202 |
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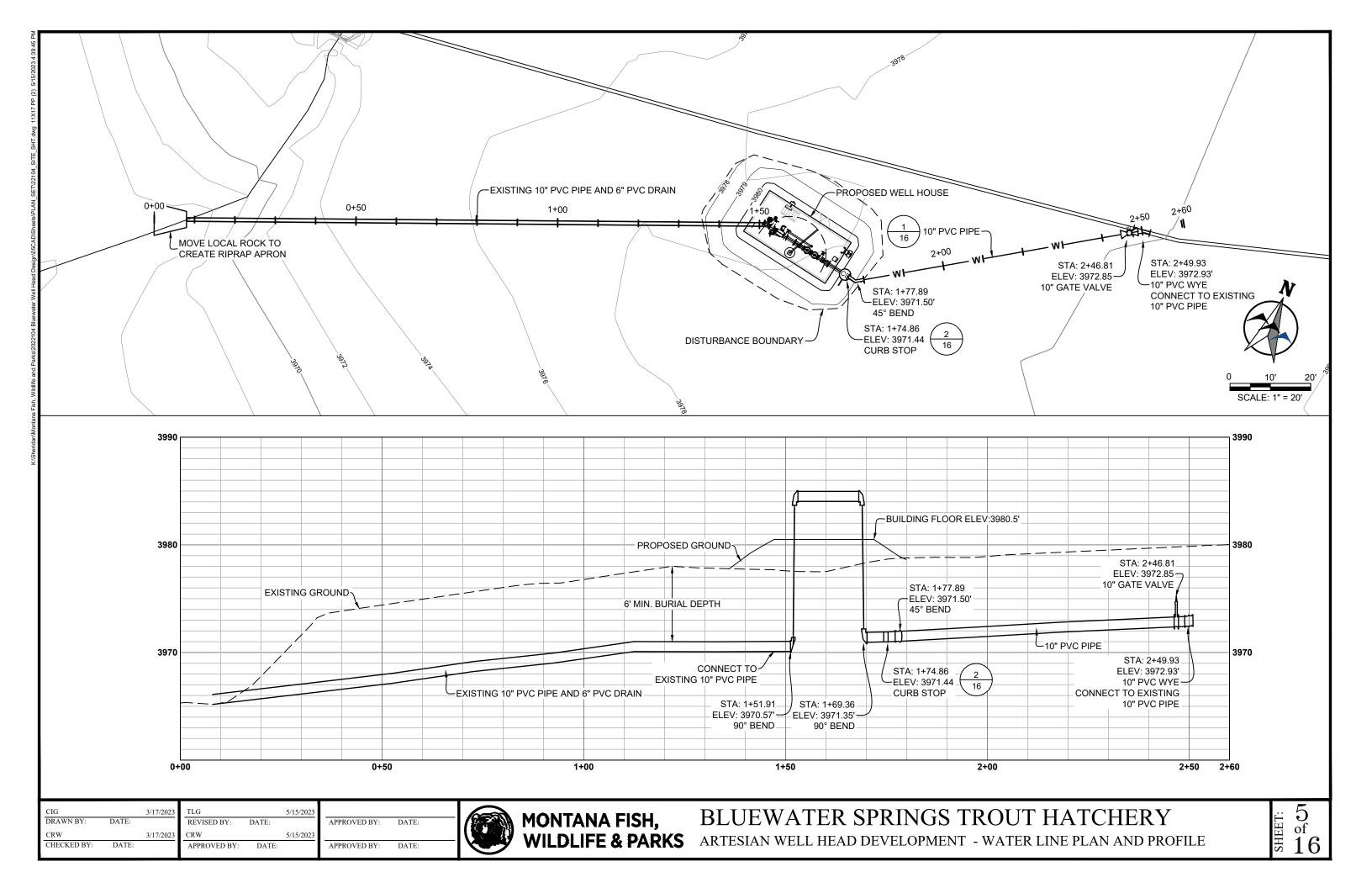
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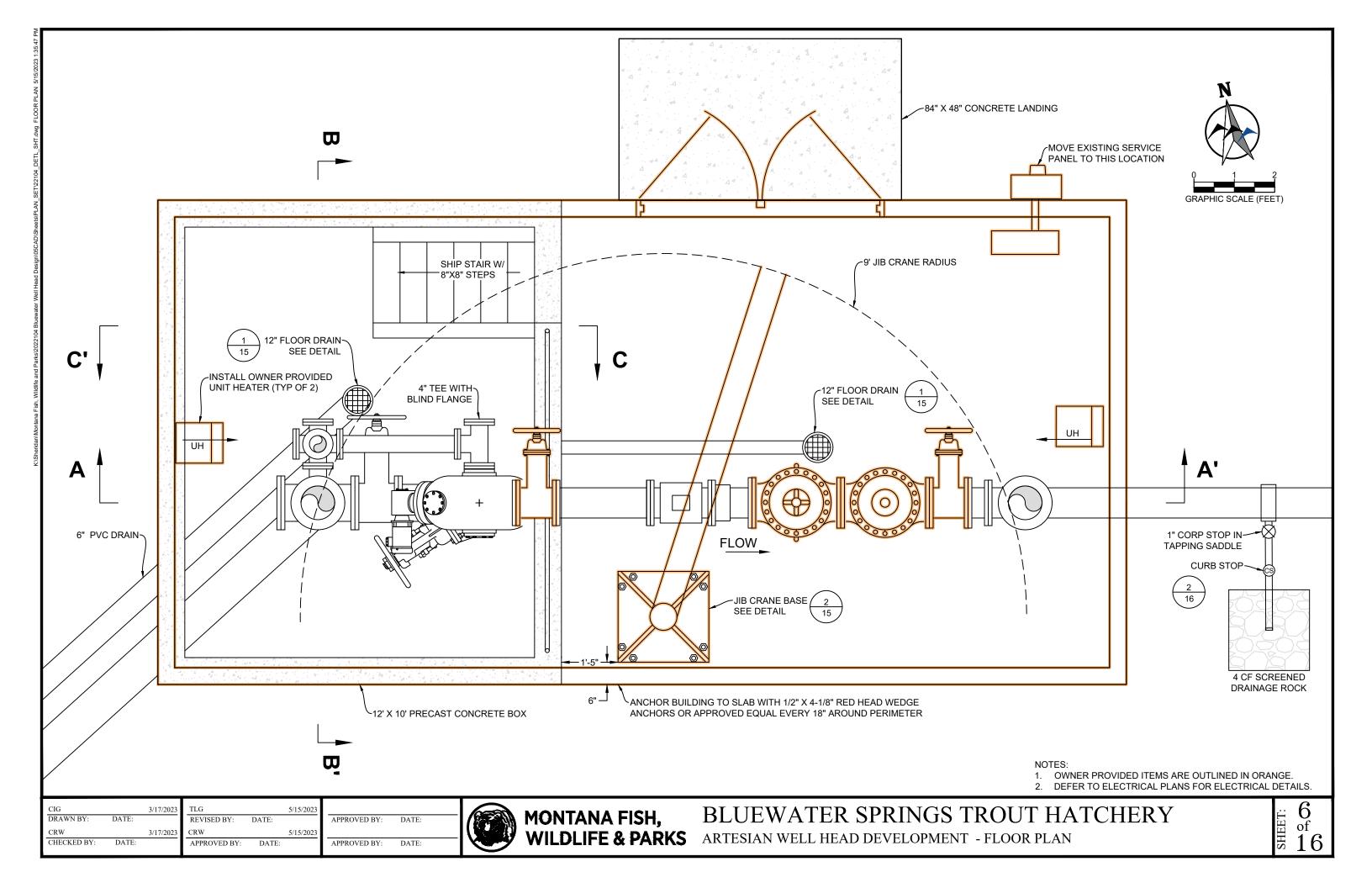
MONTANA FISH, WILDLIFE & PARKS

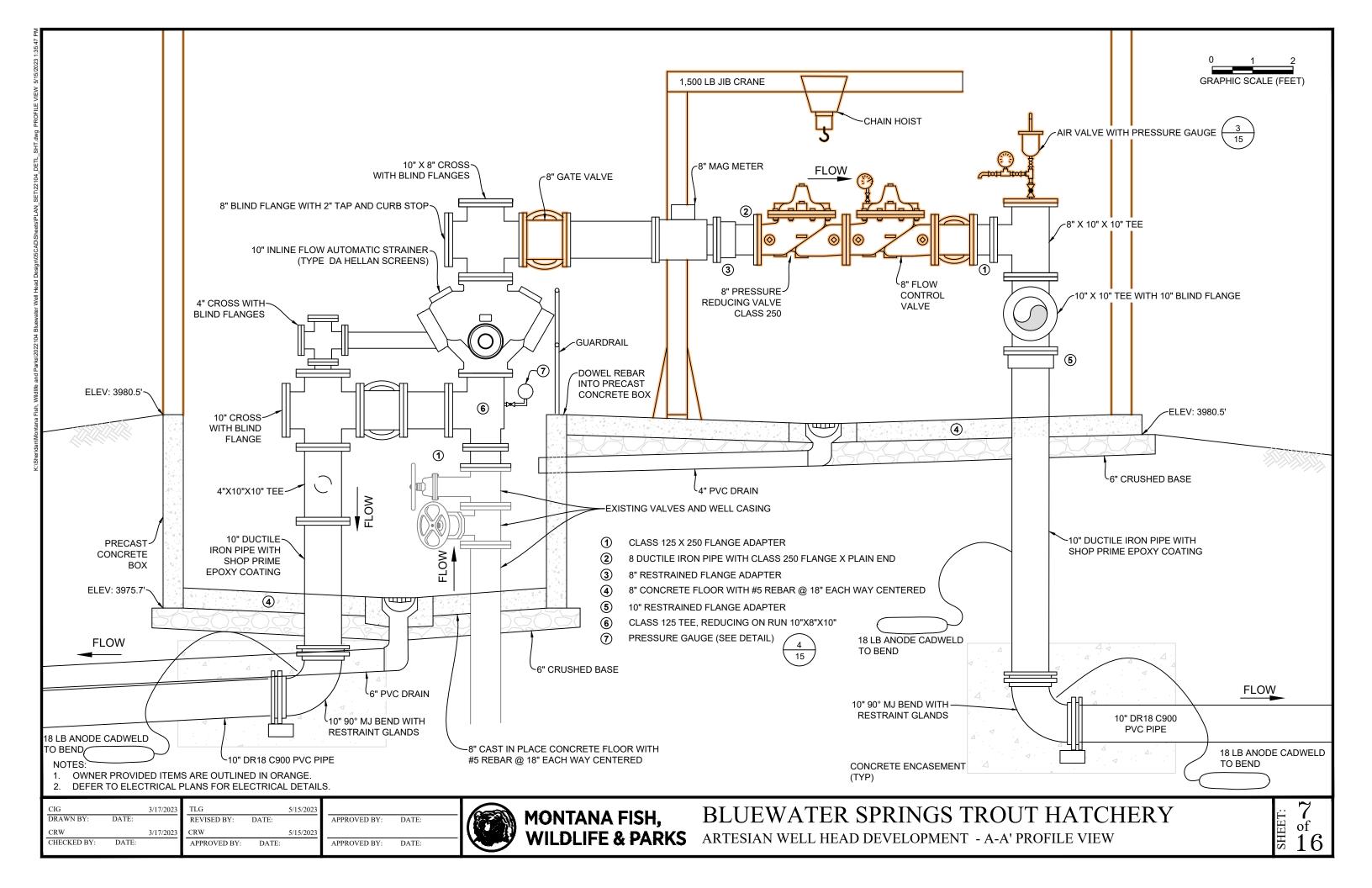
BLUEWATER SPRINGS TROUT HATCHERY

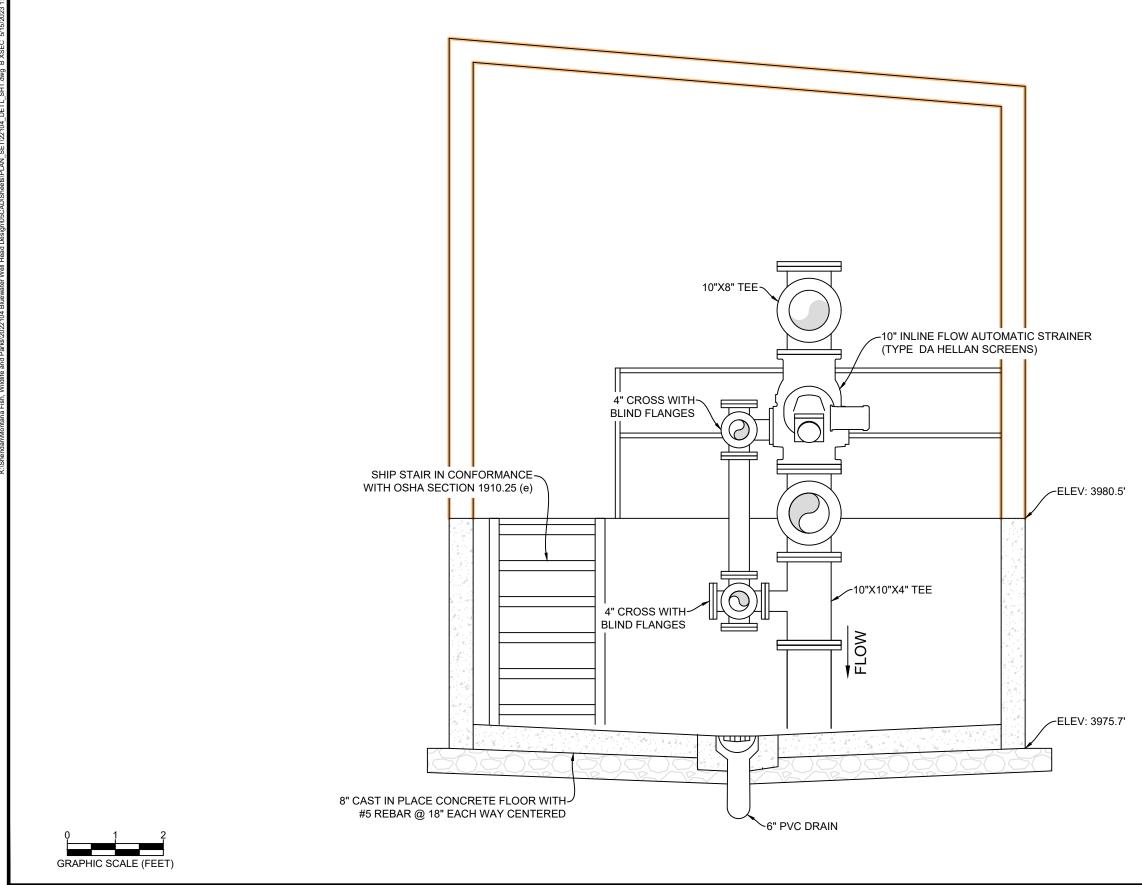












NOTES:

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

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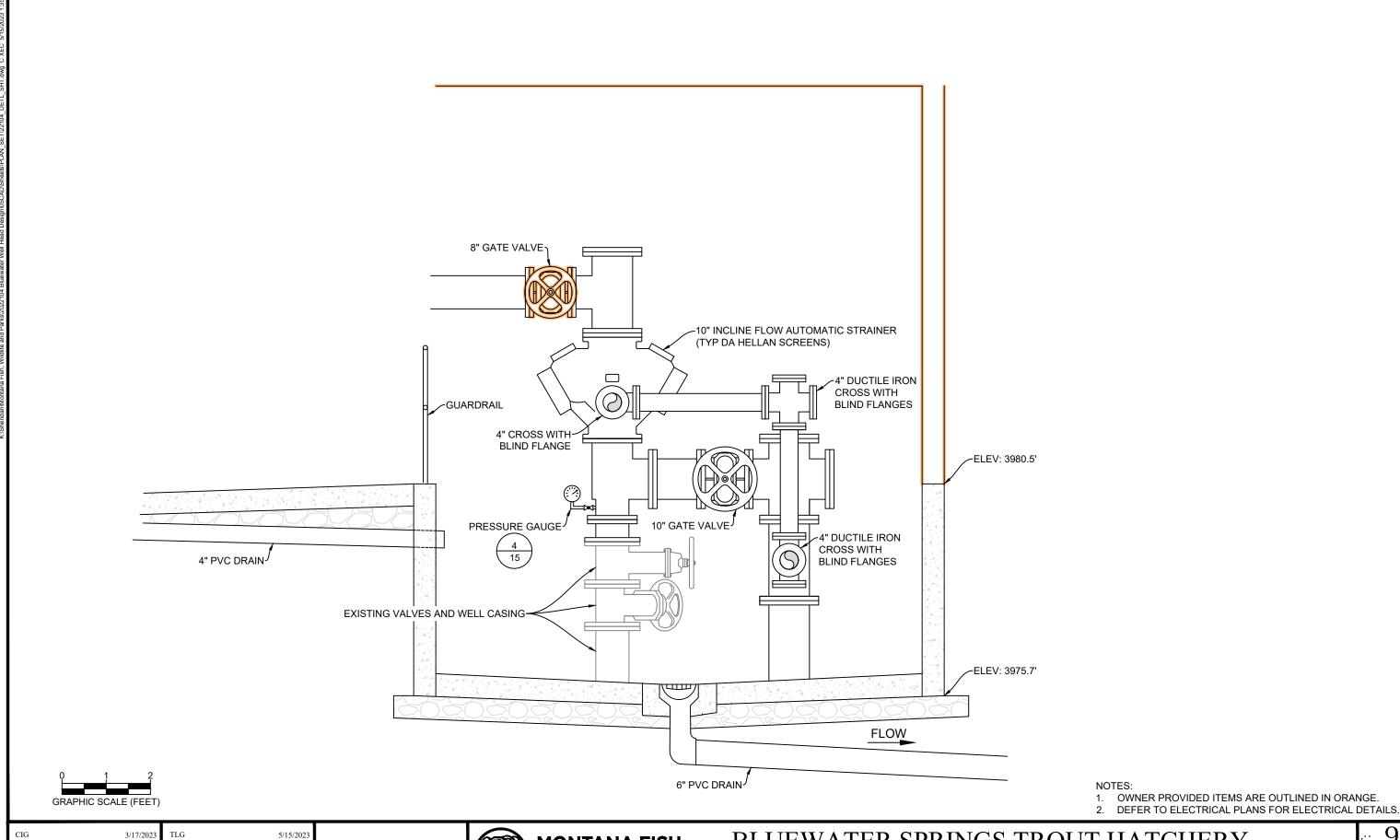
TLG 5/15/2023 REVISED BY: APPROVED BY: DATE:

APPROVED BY: APPROVED BY: DATE:



BLUEWATER SPRINGS TROUT HATCHERY MONTANA FISH, BLUEWATER SPRINGS TROUT HATCH ARTESIAN WELL HEAD DEVELOPMENT - B-B' PROFILE VIEW

 $\begin{array}{c} 8 \\ \text{of} \\ 16 \end{array}$



DRAWN BY:

CHECKED BY: DATE:

REVISED BY:

APPROVED BY: DATE:

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

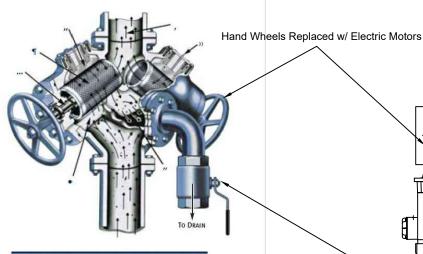
 $\begin{array}{c} 9 \\ \text{of } \\ 16 \end{array}$

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.

- ¶ Fluid passes into the strainer and through a screen.
- A deflection rib protects the screen from large objects.
- , The screened fluid flows out of the strainer and into service.
- " 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.
- " 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.

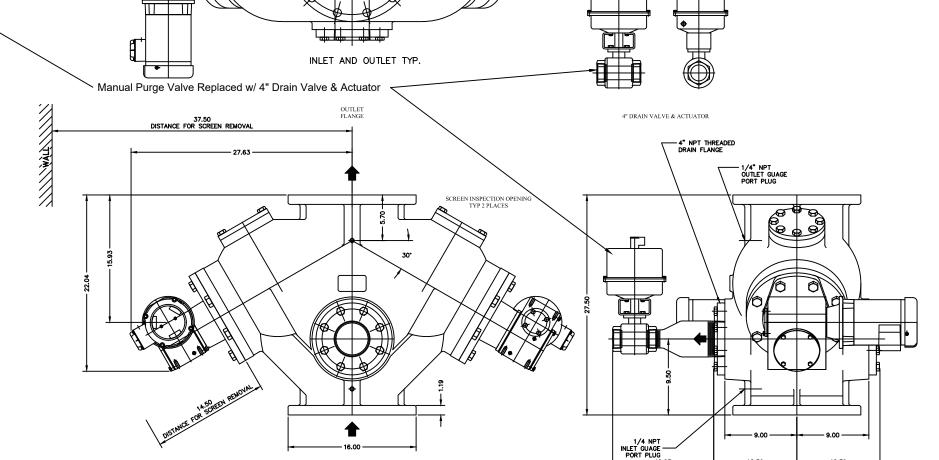


OPERATING FEATURES THAT PROVIDE REAL BENEFITS

- 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 contaminates Debris that may include contaminates 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

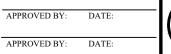
CLEVELAND, OHIO USA PHONE (216) 206-4200 • FAX (216) 206-4242



SCREEN DRIVE MOTOR 1/3 HP 1800 RPM 3 PH 60 HZ TYP 2 PLACES

| CIG | | 3/17/2023 |
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| DRAWN BY: | DATE: | |
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| CRW | | 3/17/2023 |

| TLG | | 5/15/2023 |
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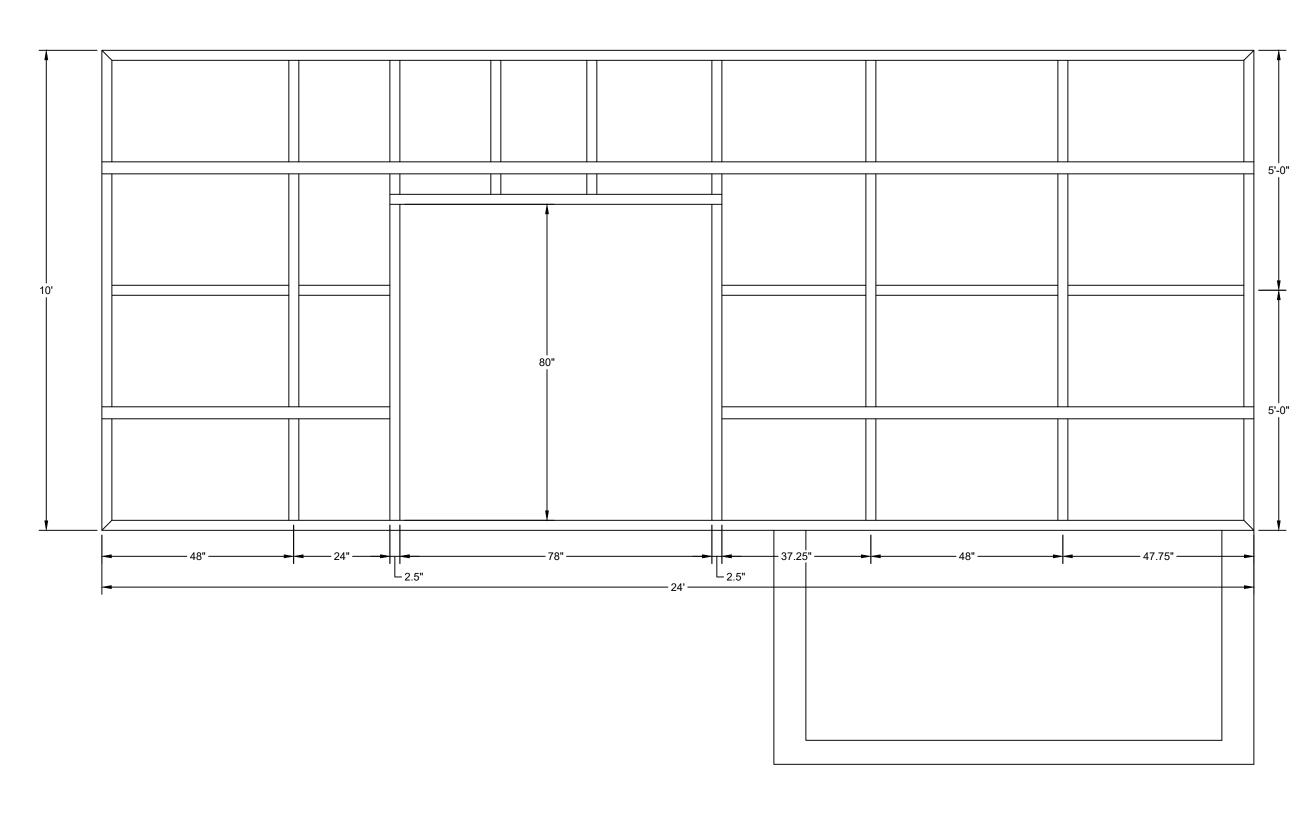


Cleveland Gear Company, Inc.
a Substidiary of Vesper Corp.
Cleveland, Ohio 44104 U.S.A.

TLE HELLAN STRAINER - AUTOMATIC 10 INCH OUTLINE CLASS 125 CAST IRON

1001DA-1

1"-00



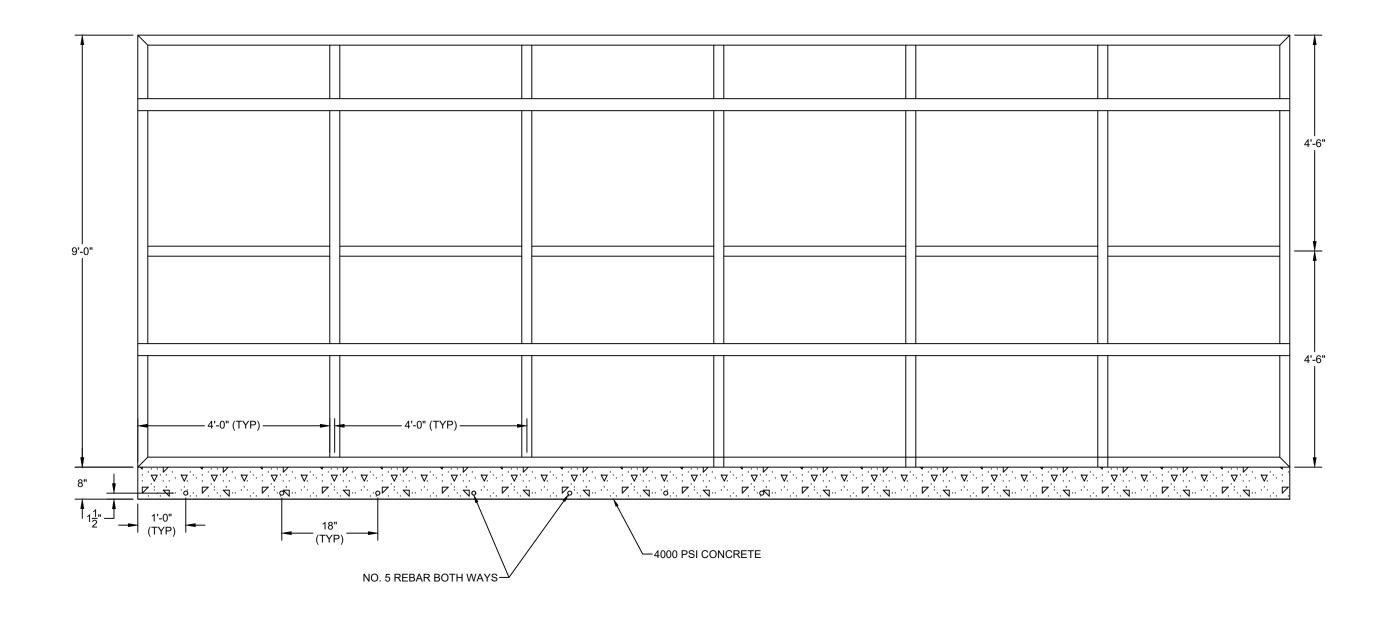
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BLUEWATER SPRINGS TROUT HATCHERY MONTANA FISH, BLUEWATER SPRINGS TROUT HATCHERY ARTESIAN WELL HEAD DEVELOPMENT - NORTH ELEVATION FRAMING



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

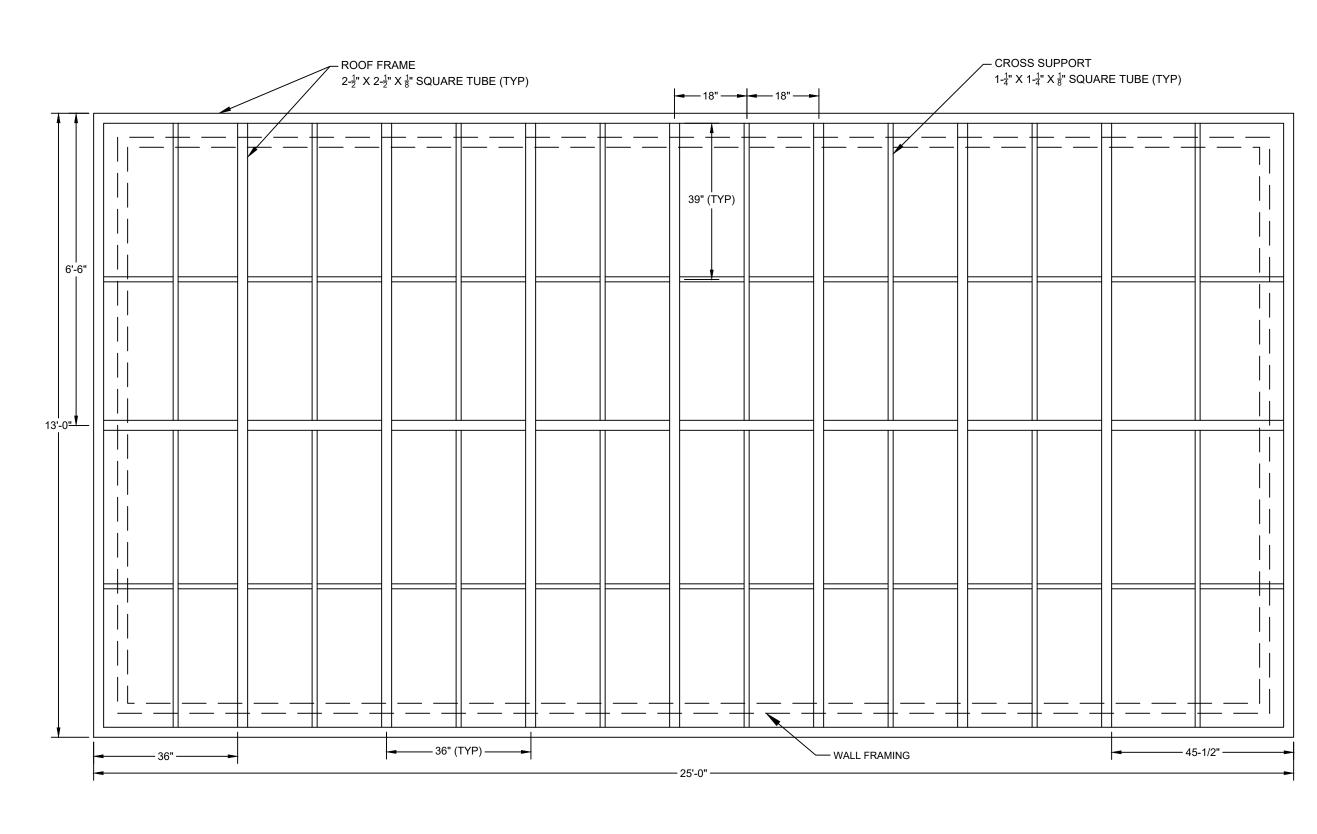
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BLUEWATER SPRINGS TROUT HATCHERY MONTANA FISH, BLUEWATER SPRINGS TROUT HATCHERY ARTESIAN WELL HEAD DEVELOPMENT - EAST & WEST FRAMING ELEVATION $\begin{array}{c} \text{SHEET:} \\ \text{16} \\ 16 \end{array}$



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5/15/2023 APPROVED BY: DATE:

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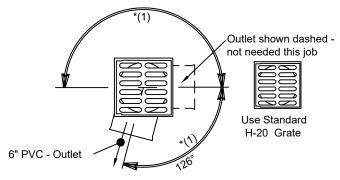


BLUEWATER SPRINGS TROUT HATCHERY MONTANA FISH, BLUEWATER SPRINGS TROUT HATCHE ARTESIAN WELL HEAD DEVELOPMENT - ROOF FRAMING PLAN

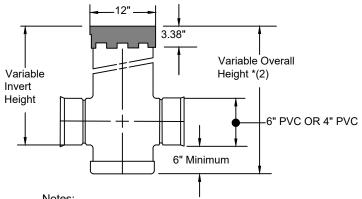
Part#/Prefix

Product Description Available Outlets

4" thru 15"

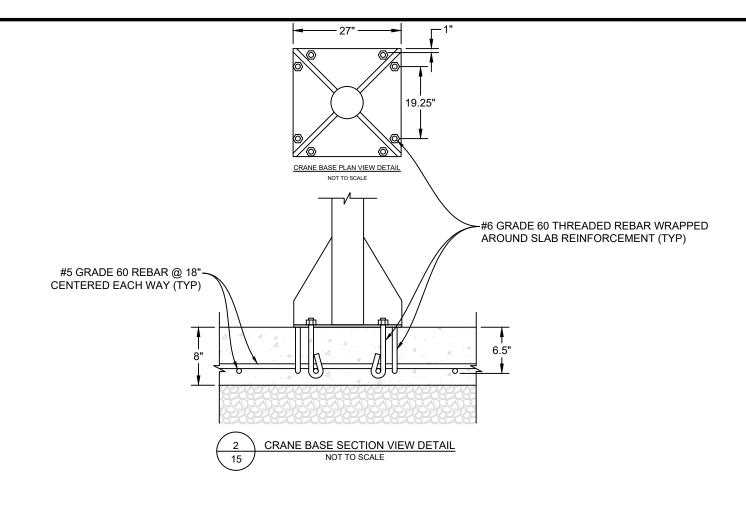


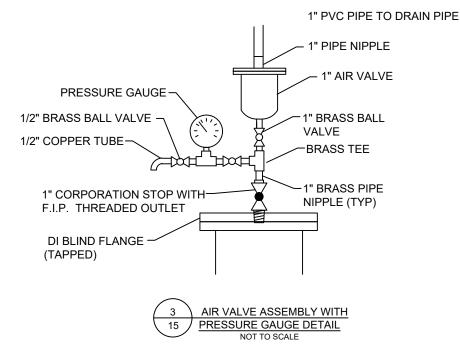
*(1) ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0° TO 359°.

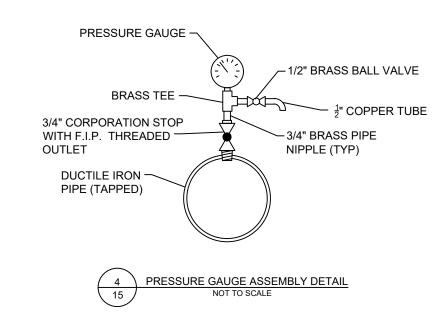


- Notes:
- The required angle is 126°
- The maximum recommended overall height 10'
- Nyoplast Supplier: Core & Main, Belgrade, MT -(406) 388-5980

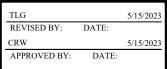


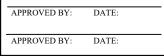




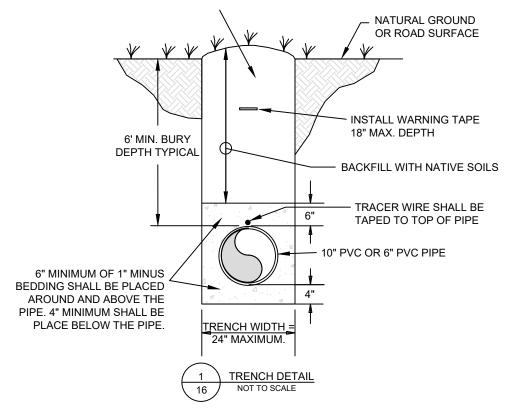


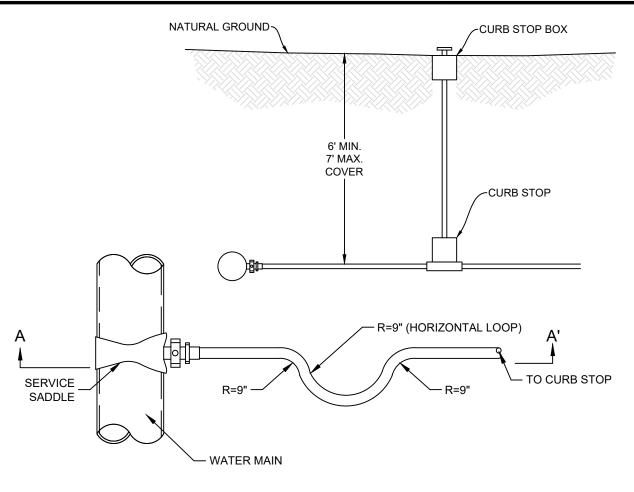
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ANODE (#17) ANODE (#17) 3/4" DIA. MIN. SERVICE LINE CORPORATION STOP A - A'

NOTE:

- . 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.
- 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.

| $\overline{2}$ | CURB STOP DETAIL |
|----------------|------------------|
| 16 | NOT TO SCALE |

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BASIC ELECTRICAL REQUIREMENTS

SUMMARY OF WORK:
FURNISH ALL LABOR AND MATERIALS AND PERFORM ALL OPERATIONS NECESSARY FOR
THE INSTALLATION OF COMPLETE AND OPERATING ELECTRICAL SYSTEMS SUBJECT TO
THE CONDITIONS OF THE CONTRACT. PROVIDE SATISFACTORY OPERATION OF ALL
EQUIPMENT AND CONTROLS TO THE ENGINEER UPON REQUEST.

EXAMINATION OF SITE: CONTRACTOR IS STRONGLY ENCOURAGED TO VISIT THE SITE BEFORE SUBMITTING BID. NO EXTRAS WILL BE ALLOWED FOR LACK OF KNOWLEDGE OF EXISTING CONDITIONS.

COORDINATION:
COORDINATE AND ORDER THE PROGRESS OF WORK TO CONFORM TO THE OWNER'S SCHEDULE AND THE PROGRESS OF THE WORK OF THE OTHER TRADES. SCHEDULE PLAN WORK SO THAT THE DURATION OF THE INTERRUPTIONS ARE KEPT TO A MINIMUM. ELECTRICAL DRAWINGS ARE DIAGRAMMATIC AND BECAUSE OF THE SMALL SCALE, IT IS NOT POSSIBLE TO INDICATE EVERY REQUIRED OFFSET, FITTING, ETC. VERIFY ALL SPACE REQUIREMENTS, COORDINATE WITH OTHER TRADES, AND INSTALL THE SYSTEMS IN THE SPACE PROVIDED WITHOUT EXTRA CHARGES TO THE OWNER

VERIFY ALL EQUIPMENT IS READY FOR ELECTRICAL CONNECTIONS. COORDINATE ALL ELECTRICAL CONNECTIONS WITH THE START-UP OF THE EQUIPMENT. THIS CONTRACTOR SHALL PLAN HIS WORK TO PROCEED WITH MINIMUM INTERFERENCE WITH OTHER TRADES AND IT SHALL BE HIS RESPONSIBILITY TO INFORM THE GENERAL CONTRACTOR OF ALL PROVISIONS REQUIRED FOR INSTALLATION OF THE ELECTRICAL WOR

QUALITY ASSURANCE:
PERFORM WORK IN ACCORDANCE WITH GOOD COMMERCIAL PRACTICE. PERFORM WORK IN ACCORDANCE WITH ALL APPLICABLE STATE AND LOCAL STANDARDS. THE QUALITY APPEARANCE OF THE RINSHED WORK SHALL BE OF EQUAL IMPORTANCE WITH SELECTRICAL EFFICIENCY. THE ENGINEER MAY REJECT WORK IF WORKMANSHIP AND APPEARANCE ARE NOT SATISFACTORY. INSTALL FOUIPMENT AND MATERIALS IN CCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS, UNIESS SPECIFICALLY INDICATED OTHERWISE, OR WHERE LOCAL CODES OR REGULATIONS TAKE PRECEDENCE.

REGULATORY AND CODE REQUIREMENTS:
APPLY FOR AND PAY FOR ALL PERMITS, FEES, LICENSES AND INSPECTIONS FOR THIS DIVISION OF WORK. COMPLY WITH STATE AND LOCAL CODE REQUIREMENTS AND ORDINANCES. COMPLY WITH REQUIREMENTS OF THE UTILITY COMPANIES. IN THE CASE OF DIFFERENCES BETWEEN THESE REQUIREMENTS AND ORDINANCES. THE MOS TRINGENT SHALL GOVERN. CALL FOR INSPECTIONS REQUIRED BY LOCAL BUILDING INSPECTION AUTHORITY.

WORK SHALL MEET THE REQUIREMENTS OF THE PLANS AND SHALL MEET NO LESS THAN HE MINIMUM REQUIREMENTS AND LATEST CODES AND STANDARDS OF THE FOLLOWING: ANSI, NEC, NEMA, NFPA, OSHA, UL, UBC, LOCAL FIRE MARSHAL, AND SERVING UTILITIES.

PLANS AND SPECIFICATIONS GO HAND IN HAND, WHAT IS REQUIRED IN ONE IS REQUIRED IN BOTH, WHERE CONFLICTS BETWEEN THESE SPECIFICATIONS AND PLANS EXIST, THE MOST STRINGENT REQUIREMENTS SHALL APPLY.

RESPONSIBILITY:
BE RESPONSIBLE FOR THE INSTALLATION OF SATISFACTORY AND COMPLETE SYSTEMS IN
ACCORDANCE WITH THE INTENT OF THE DRAWINGS. PROVIDE, AT NO EXTRA COST, ALL
INCIDENTAL ITEMS REQUIRED FOR COMPLETION OF THE WORK, EVEN THOUGH THEY ARE
NOT SPECIFICALLY MENTIONED OR INDICATED ON THE DRAWINGS.

AT ALL TIMES DURING THE PERFORMANCE OF THIS CONTRACTOR, PROPERLY PROTECT WORK FROM DAMAGE AND PROTECT THE OWNER'S PROPERTY FROM INJURY OR LOSS. MAKE GOOD ANY DAMAGE, INJURY, OR LOSS, EXCEPT SUCH AS MAY BE DIRECTLY DOT TO THE ERRORS IN THE PROPOSAL DOCUMENTS OR CAUSED BY REPRESENTATIVES OF THE OWNER. ADEQUATELY PROTECT ADJACENT PROPERTY AS PROVIDED BY LAW AND THE DOCUMENTS. PROVIDE AND MAINTAIN PASSAGEWAYS, GUARD FENCES, LIGHTS, AND OTHER FACILITIES, AS REQUIRED FOR PROTECTION.

WORKMANSHIP:
WORK UNDER THIS CONTRACT SHALL BE PERFORMED BY WORKMEN SKILLED IN THE
PARTICULAR TRADE INCLUDING WORK NECESSARY TO PROPERLY COMPLETE THE
INSTALLATION IN A WORKMANLIKE MANNER TO PRESENT A NEAT AND FINISHED
APPEARANCE.

SHOP DRAWINGS:
SUBMIT SHOP DRAWINGS FOR ALL MATERIALS AND EQUIPMENT SHOWING ANY CHANGES
REQUIRED IN ANY DISTRIBUTION EQUIPMENT, PANELBOARDS, ELECTRICAL WIRING,
SPACE ALLOCATION, ETC.

PROVIDE PRODUCT DATA WITH MANUFACTURER'S CATALOG INFORMATION SHOWING RATINGS, DIMENSIONS, CONFIGURATIONS AND CONSTRUCTION. ALSO PROVIDE MANUFACTURER'S INSTALLATION INSTRUCTIONS.

OPERATION AND MAINTENANCE DATA:
AT THE COMPLETION OF WORK, SUBMIT (3) TYPED AND HARD-BOUND COPIES OF AN OPERATING AND MAINTENANCE MANUAL TO THE ENGINEER FOR APPROSCHEDULING ANY SYSTEM DEMONSTRATION FOR THE OWNER.

WARRANTIES: PROVIDE A WRITTEN WARRANTY TO THE OWNER COVERING THE ENTIRE ELECTRICAL WORK TO BE FREE FROM DEFECTIVE MATERIALS, EQUIPMENT AND WORKMANSHIP FOR A PERIOD OF ONE YEAR AFTER DATE OF ACCEPTANCE.

CLEAN-UP AND CLOSE-OUT: KEEP THE PREMISES FREE FROM ACCUMULATION OF WASTE MATERIAL OR RUBBISH CAUSED BY THIS CONTRACTOR'S WORK OR HIS EMPLOYEES

UPON COMPLETION OF WORK, REMOVE MATERIALS, SCRAPS AND DEBRIS RELATIVE TO THIS CONTRACTOR'S WORK AND LEAVE THE PREMISES, INCLUDING CRAWL SPACES AND CHASES, IN CLEAN AND ORDERLY CONDITION.

CLEAN EXPOSED SURFACES OF DISCONNECT SWITCHES, MOTOR STARTERS, PANELS AND OTHER EXPOSED ITEMS OF GREASE, DIRT OR OTHER FOREIGN MATERIAL. REMOVE RUBBISH AND DEBRIS RESULTING FROM THE OPERATIONS OF THIS CONTRACTOR AND LEAVE SPACES CLEAN AND READY FOR USE.

BASIC MATERIALS AND METHODS

MOTORS AND STARTERS: ALL MOTORS, STARTERS AND OTHER ELECTRICAL CONTROL EQUIPMENT SHALL BE LISTED PER THE REQUIREMENTS OF THE NEC.

SEALING:
MAINTAIN ALL CEILING, FLOOR AND WALL PROTECTION RATINGS FOR FIRE AND SMOKE,
SEAL ALL CONDUIT AND ENCLOSURE PENETRATIONS TO COMPLY WITH UL ASSEMBLY
AND BUILDING CODE REQUIREMENTS, ALL SEALANTS AND CONSTRUCTIONS SHALL BE
APPROVED PRIOR TO APPLICATION, ALL OPENINGS SHALL BE SEALED DAILY,

RACEWAYS: RACEWAYS SHALL BE CONCEALED AND APPROVED FOR USE AND LOCATION.

DRY LOCATIONS - GRC, IMC, EMT.

UNDERGROUND - GRC, PVC

IN SLAB ON GRADE

FLEXIBLE CONDUIT - GALVANIZED STEEL, LIQUIDTIGHT.

JUNCTION AND PULL BOXES: SIZE PER THE NEC.
DRY LOCATIONS - STEEL WITH COVERS.
WET LOCATIONS - CAST ALUMINUM.
UNDERGROUND - CAST METAL OR NONMETALLIC.
IN SLAB ON GRADE - CAST METAL OR NONMETALLIC.

COUPLINGS AND CONNECTORS: INDENTER TYPE CONNECTORS PROHIBITED GRC - THREADED

WIRING DEVICES AND PLATES: ALL RATINGS SHALL MATCH BRANCH CIRCUIT AND LOAD CHARACTERISTICS. VERIFY RECEPTACLES ARE WEATHERPROOF, IN-USE TYPE, AS REQUIRED.

WIRE:
COPPER ONLY WITH THHN/THWN TYPE INSULATION IN RACEWAY. ALUMINUM CONDUCTORS IN
RACEWAY ALLOWED ONLY WITH PRIOR APPROVAL OF THE ENGINEER. UL LISTED LUGS AND
CONNECTORS, NEC APPROVED COLOR CODING. ALL WIRE SHALH AVEA AN INSULATION
VOLTAGE RATING OF 600 VOLTS; AND AN INSULATION TEMPERATURE RATING OF 75 DEGREES C.

WIRE COLORS: BLACK, RED. AND BLUE FOR CIRCUITS AT 120/240V, SINGLE OR THREE PHASE

<u>SUPPORTS AND HANGERS:</u> SUPPORTS AND HANGERS MUST BE UL LISTED AND APPROVED BY LOCAL INSPECTORS.

ANCHORS: HOLLOW MASONRY - TOGGLE BOLT.

SOLID MASONRY - EXPANSION BOLT

- MACHINE SCREWS, BOLTS, WELDING, WOOD - WOOD SCREWS.

GROUNDING: IN STRICT ACCORDANCE WITH THE NEC AND UTILITY COMPANY REGULATIONS. PROVIDE COPPER EQUIPMENT GROUNDING CONDUCTOR IN ALL RACEWAYS.

PERMANENTLY ATTACH EQUIPMENT AND GROUNDING CONDUCTORS PRIOR TO ENERGIZING

NAMEPLATES:
PROVIDE ON ALL PANELS, DISCONNECTS, CONTROLLERS, AND EQUIPMENT. NAMEPLATES
SHALL HAVE 3/16" HIGH LETTERS ENGRAVED WITH CONTRASTING COLOR FILL. DEVICE PLATE
ENGRAVING SHALL BE 1/8" HIGH LETTERS WITH CONTRASTING COLOR FILL.

DIRECTORY, CIRCUIT BREAKERS, (MULTIPLE POLE INTERNAL TRIP, BOLT-ON), DEAD FRONT. DEOGRAPHOOR CONSTRUCTION, LOCKING DOORS, ULLISTING, ETC. PROVIDE TYPEWRITTEN PANEL DIRECTORIES IN ALL PANELS AFFECTED BY THE SCOPE OF WORK. FOR PANELBOARDIS WHICH ARE EXISTING, PROVIDE UPDATED AND COMPLETE TYPEWRITTEN DIRECTORY. CIRCUİT BREAKERS SHALL BE COMPATIBLE WITH THE EXISTING PANEL TYPE AND UL LISTED.

ENCLOSED SWITCHES:
UNLESS SPECIFICALLY NOTED OTHERWISE, PROVIDE NEMA KS 1 TYPE GD WITH EXTERNALLY
OPERABLE HANDLE INTERLOCKED TO PREVENT OPENING FRONT COVER WITH SWITCH IN TH
'ON' POSITION: ENCLOSED LOAD INTERRUPTER KNIFE SWITCH. HANDLE LOCKABLE IN THE
'OFF' POSITION.

SWITCH SHALL BE HORSEPOWER RATED FOR AC, AS INDICATED ON THE DRAWINGS. SHORT CIRCUIT CURRENT RATING SHALL BE UL LISTED FOR 10,000 RMS SYMMETRICAL AMPERES MINIMUM, UNLESS NOTED OTHERWISE ON THE PLAN DRAWINGS.

ENCLOSURE SHALL BE NEMA KS 1 TO MEET THE CONDITIONS, FABRICATE THE ENCLOSURE FROM STEEL FINISHED WITH THE MANUFACTURER'S STANDARD GRAY ENAMEL. PROVIDE NEMA 1 FOR INTERIOR DRY LOCATIONS, NEMA 4X FOR INTERIOR WET (CORROSIVE) LOCATIONS, AND NEMA 3F FOR EXTERIOR LOCATIONS, FURNISH SWITCHES WITH ENTIRELY COPPER CURRENT CARRYING PARTS.

EQUIPMENT: SEE PLANS FOR CONNECTION OF EQUIPMENT, INCLUDING PANELS, CONTROLLERS, ETC. PROVIDE FLEXIBLE CONDUIT (WITH EQUIPMENT GROUND CONDUCTOR) CONNECTION AT ALL MOTORS.

ELECTRICAL CONTRACTOR SHALL COORDINATE EXACT LOCATION OF ALL FOLIPMENT ELECTRICAL CONTRACTOR SHALL COORDINATE EXACT LOCATION OF ALL EQUIPMENT REQUIRING ELECTRICAL CONNECTION. ELECTRICAL CONTRACTOR SHALL DRITAIN SUBMITTALS TO COORDINATE DISCONNECT MEANS, SPECIFICATIONS, AND VOLTAGE REQUIREMENT SHORT TO ROUGH-IN. VERIFY REQUIREMENTS FOR ALL EQUIPMENT. IF DISCREPANCES OCCUR, NOTIFY THE ELECTRICAL ENGINEER IMMEDIATELY.

ELECTRICAL CONTRACTOR IS TO REVIEW AND COORDINATE WITH ALL DRAWINGS INCLUDING ELECTIFICAL CONTRACTION IS OF REVIEW AND COORDINATE WITH ALL DRAWNINGS, INCLUDIMS ALL EQUIPMENT SCHEDULES TO ENSURE THAT ALL CONNECTIONS FOR THE EQUIPMENT ARE PROVIDED. DEVICE LOCATIONS SHALL BE COORDINATED WITH THE APPROPRIATE CONTRACTOR/SUPPLIER PRIOR TO COMMENCEMENT OF WORK OF ELECTRICAL ROUGH-INS.

ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING TO PROVIDE 120V POWER. IF NEEDED, TO ACCOMMODATE ANY LOW VOLTAGE REQUIREMENTS THAT EQUIPMENT MAY HAVE.

INSTALL DISCONNECT SWITCHES, CONTROLLERS, ETC, TO COMPLETE ALL EQUIPMENT WIRING

DRAWINGS AND MEASUREMENTS:
CONTRACT DRAWINGS FOR ELECTRICAL WORK ARE IN PART DIAGRAMMATIC, INTENDED TO CONTRACT DEAWINGS FOR ELECTRICAL WORK ARE IN PART DIAGRAMMATIC, IN INDICED TO CONVEY THE SCOPE OF WORK AND INDICATE GENERAL ARRANGEMENT OF EQUIPMENT, CONDUITS, AND APPROXIMATE SIZES AND LOCATIONS OF EQUIPMENT AND OUTLETS. ELECTRICAL TRADES SHALL FOLLOW THESE DRAWINGS IN LAYING OUT THEIR WORK; CONSULT GENERAL CONSTRUCTION DRAWINGS TO FAMILIARIZE THEMSELVES WITH ALL CONDITIONS AFFECTING THEIR WORK; AND SHALL VERIFY SPACES IN WHICH THEIR WORK WILL BE INSTALLED. COORDINATE WORK WITH OTHER TRADES AS JOB CONDITIONS REASONABLY DESCRIBED.

WHERE JOB CONDITIONS REQUIRE REASONABLE CHANGES IN INDICATED LOCATIONS AND ARRANGEMENT, MAKE SUCH CHANGES WITHOUT EXTRA COST TO OWNER.

THE DRAWINGS ARE $\underline{\text{NOT}}$ INTENDED TO BE SCALED FOR ROUGH-IN MEASUREMENTS AND ARE NOT TO SERVE AS SHOP DRAWINGS.

NO MORE THAN THREE PHASE CONDUCTORS, TWO SWITCH LEGS, ONE NEUTRAL AND ONE GROUND SHALL BE INSTALLED PER RACEWAY UNLESS PRIOR APPROVAL IS OBTAINED FROM THE ENGINEER.

ALL RACEWAYS SHALL BE CONCEALED IN FINISHED SPACES. UNLESS NOTED OTHERWISE. RACEWAYS IN NON-FINISHED SPACES, SUCH AS THE WELL HOUSE ENCLOSURE, SHALL BE PERMITTED TO BE EXPOSED. ALL EXPOSED RACEWAYS SHALL BE ROUTED PLUMB AND SQUARE TO ENCLOSURE SURFACES.

OWNER SUPPLIED EQUIPMENT:
COORDINATE ELECTRICAL CONNECTIONS FOR OWNER-SUPPLIED EQUIPMENT WITH OWNER, MANUFACTURER DATA, AND EQUIPMENT NAMEPLATE INFORMATION.

<u>SUBSTITUTIONS:</u> ALL SUBSTITUTIONS TO BE APPROVED BY OWNER, AND ENGINEER.

INSTALLATION: INSTALL WORK IN ACCORDANCE WITH STATE AND LOCAL STANDARDS.

RACEWAY ROUTING, WHEN SHOWN, IS IN APPROXIMATE LOCATIONS. FIELD COORDINATE ROUTING. CUT CONDUIT SQUARE USING SAW OR PIPE CUTTER; DEBURR CUT ENDS.

INSTALL SUITABLE PULLSTRING OR CORD IN EACH EMPTY RACEWAY. INSTALL SUITABLE CAPS TO PROTECT INSTALLED CONDUIT AGAINST ENTRANCE OF DIRT AND MOISTURE.

| SYMBOL | | DESCRIPTION | \bot |
|---------------------|--------------------|--|--------|
| ₩ / ₩ | MOTOR CONNEC | | ┛┡ |
| | SPECIAL EQUIPM | | ┨┟ |
| | BRANCH CIRCUIT | PANELS | ┨┟ |
| <u> </u> | METER | | ┨┟ |
| * | NORMALLY CLOS | ED RELAY CONTACT | ╛┡ |
| # | NORMALLY OPEN | RELAY CONTACT | ┛┡ |
| | FUSE WITH RATIN | lG | 4 |
| \bigcirc | MOLDED CASE C | IRCUIT BREAKER | ╛┟ |
| _ | SWITCH AND FUS | BE UNIT | ┛┖ |
| ⊸ → | CONDUIT UP; CO | NDUIT DOWN | ┛┖ |
| Ф | | (SEE NOTES FOR REQUIREMENTS) | ┛┖ |
| ∯ ^{GFI} | | CIRCUIT INTERRUPTER OUTLET | ┙┖ |
| ∯ ^{WP} | WEATHER PROOF | IN USE OUTLET | IJ L |
| # | FOURPLEX OUTLE | ET | |
| ۵ | SPECIAL PURPOS | BE OUTLET/CONNECTION | |
| 0 J | JUNCTION BOX (| J-BOX) | _l L |
| РВ | PULL BOX | | |
| Ò | HORSEPOWER R | ATED DISCONNECT SWITCH | |
| Ň | FUSED DISCONN | ECT SWITCH | |
| VFD | VARIABLE FREQU | JENCY DRIVE | |
| Ą | COMBINATION M | OTOR STARTER/DISCONNECT | |
| \boxtimes | STARTER/CONTA | CTOR | 7 I |
| P | THERMOSTAT, B | Y MECHANICAL | 7 I |
| SS | SOFT START | | 7 I |
| TS FS | TAMPER SWITCH | ; FLOW SWITCH | 7 I |
| FACP | FIRE ALARM CON | TROL PANEL | 7 I |
| E | FIRE ALARM MAN | IUAL STATION | |
| | FIRE ALARM HOR | N/STROBE | |
| Z∠ | FIRE ALARM HOR | IN; FIRE ALARM STROBE | |
| (H) (SD | FIRE ALARM HEA | T DETECTOR; SMOKE DETECTOR | |
| © <u></u> | FIRE ALARM DUC | T SMOKE DETECTOR | _l L |
| ● F/S | FIRE/SMOKE DAM | IPER | |
| ⊽ | DATA OUTLET | | |
| I | CONDUIT STUB | | |
| □□ | HORN/STROBE F | OR ALARMS | |
| ww | TRANSFORMER (| RISER DIAGRAM DWG) | |
| \vdash | TRANSFORMER (| PLAN DWG) | |
| <u> </u> | GROUND CONNE | CTION | |
| \ | CIRCUIT (CONCE | ALED AS SPECIFIED) | |
| | | | 71 [|
| -OHP- | OVERHEAD POW | ER | 71 [|
| -UE- | UNDERGROUND | ELECTRICAL | 71 |
| -ELC- | ELECTRICAL DIS | TRIBUTION | 71 |
| -com- | UNDERGROUND | TELECOMMUNICATIONS | 7 I |
| | HOME RUN TO PA | ANEL. NUMBER OF WIRES INDICATED | 7 I |
| / | AS FOLLOWS: OR(| | |
| / | MARKS IS TWO W | /IRE PLUS A GROUND. | |
| | OTHERWISE. 30/ | AMP WITH #12 WIRE, UNLESS NOTED 3 INDICATES 30 AMP, 3 POLE ETC. | |
| | | | |
| | MOUN' | TING HEIGHTS | |
| DE | SCRIPTION | HEIGHT | |
| CONTROL | - dwa- | 42* | |
| DISCONNECT S' | WITCH | 54" TO HANDLE | |

| 3 | FLAG NOTE SYMBOL | мсв | MAIN CIRCUIT BREAKER |
|-----------------|--|---------------|---|
| P 1 | EQUIPMENT MARK, SEE PLANS AND SCHEDULES | MCC | MOTOR CONTROL CENTER |
| | | MCP, DDC | MECHANICAL CONTROL PANEL; DIRECT DIGITAL CONTROLS |
| 1PH | SINGLE PHASE | MDB | MAIN DISTRIBUTION BOARD |
| 1P | SINGLE POLE | MDP | MAIN DISTRIBUTION PANEL |
| 3PH | THREE PHASE | MFR | MANUFACTURER |
| 4W | FOUR-WIRE | MH | MANHOLE OR MOUNTING HEIGHT |
| A/C | AIR CONDITIONING | MLO | MAIN LUGS ONLY |
| AC | ABOVE COUNTER | MOCP | MINIMUM OVERCURRENT PROTECTION |
| ADDL | ADDITIONAL | MT, MTD, MTG | MOUNT, MOUNTED, MOUNTING |
| AFF | ABOVE FINISHED FLOOR | NA, N/A | NOT APPLICABLE |
| AFG | ABOVE FINISHED GRADE | NEC | NATIONAL ELECTRICAL CODE |
| AHJ | AUTHORITY HAVING JURISDICTION | NL | NIGHT LIGHT |
| AMP | AMPERE | NO. | NUMBER |
| BKR, CB | CIRCUIT BREAKER | OD, O.D. | OUTSIDE DIAMETER |
| BLDG | BUILDING | Р | POLE |
| С | CONDUIT | PB | PULLBOX |
| CKT | CIRCUIT | PF | POWER FACTOR |
| CLNG | CEILING | PH | PHASE |
| CU | COPPER | PLC | PROGRAMMABLE LOGIC CONTROLLER |
| DPDT, DPST | DOUBLE POLE, DOUBLE THROW; DOUBLE POLE SINGLE THROW | PMR | PER MANUFACTURER'S RECOMMENDATIONS |
| DS | DISCONNECT SWITCH | PNL | PANEL |
| DWG | DRAWING | PWR | POWER |
| E.C., EC | ELECTRICAL CONTRACTOR | RCP, RCPT | RECEPTACLE(S) |
| EF | EXHAUST FAN | RM | ROOM |
| EM | EMERGENCY | SCH | SCHEDULE |
| EPO | EMERGENCY POWER OFF | SQ. FT. | SQUARE FEET |
| EWC | ELECTRIC WATER COOLER | SPST | SINGLE POLE, SINGLE THROW |
| EX, EXIST | EXISTING | SWBD, SWGR | SWITCHBOARD, SWITCHGEAR |
| FLA | FULL LOAD AMPS | T.C., TC, TCP | TEMPERATURE CONTROL CONTRACTOR; TEMP. CONTROL PANEL |
| GFCI, GFI | GROUND FAULT CIRCUIT INTERRUPTER | TDC | TELEPHONE/DATA CONTRACTOR |
| GND | GROUND | TGB | TELEPHONE GROUND BAR |
| HOA | HAND-OFF-AUTO | TTB | TELEPHONE TERMINAL BOARD, 4'H x 4'W X 3/4"D (UNO) |
| HP | HORSEPOWER | TYP. | TYPICAL |
| HO, H.O. | HIGH OUTPUT | UG | UNDERGROUND |
| ID, I.D. | IDENTIFICATION AND/OR INSIDE DIAMETER (REFER TO CONTEXT) | UH | UNIT HEATER |
| G | ISOLATED GROUND | U.N.O., UNO | UNLESS NOTED OTHERWISE |
| JB, J-BOX | JUNCTION BOX | V, VA | VOLT, VOLT-AMPERE |
| kV | KILOVOLT | w | WALL-MOUNTED DEVICE, WATT |
| kVA | KILOVOLT AMPERE | WG | WIRE GUARD |
| kW | KILOWATT | WH | WATER HEATER; G-GAS, E=ELECTRIC |
| LTG, LTS | LIGHTING, LIGHTS | WP | WEATHERPROOF-IN-USE |
| LP | LIGHTING PANELBOARD | XFMR | TRANSFORMER |
| LV | LOW VOLTAGE | XP | EXPLOSION-PROOF |
| | MECHANICAL CONTRACTOR | | |
| M.C., MC | | | |
| M.C., MC MCA | MINIMUM CIRCUIT AMPS | | |

ELECTRICAL LEGEND

DESCRIPTION

| 1,100,11111 | OILIOIIIO |
|-----------------------------------|--|
| DESCRIPTION | HEIGHT |
| CONTROL | 42" |
| DISCONNECT SWITCH | 54" TO HANDLE |
| CONVENIENCE OUTLET | 18" TO CENTER |
| ALARM HORN | 90" A.F.G., UNLESS NOTED OTHERWISE |
| MANUAL MOTOR STARTER SWITCH | 42" |
| PANELBOARDS, CABINETS (TO TOP) | 72" |
| MOUNTING HEIGHTS TO BOTTOM OF BOX | AND ABOVE FINISHED FLOOR/GRADE, UNLESS |

WORK SPACE NOTE

MAINTAIN NEC REQUIRED WORK SPACE AROUND ALL ELECTRICAL EQUIPMENT.
ADVISE OTHER TRADES OF REQUIREMENTS AND COORDINATE WORK TO AVOID AND PREVENT CONFLICTS.

COORDINATION NOTE

IT IS ABSOLUTELY NECESSARY THAT ALL TRADES COORDINATE WITH EACH OTHER AND VERIFY THERE ARE NO CONFLICTS IN THE LOCATIONS OF CONDUITS, ELECTRICAL BOXES, EQUIPMENT AND OTHER ITEMS THROUGHOUT THIS PROJECT BEFORE FINAL PLACEMENT OF MATERIALS.

| | ELECTRICAL SHEET INDEX |
|---|--------------------------------------|
| | |
| 1 | ELECTRICAL REQUIREMENTS AND LEGEND |
| | |
| 2 | OVERALL ELECTRICAL SITE PLAN |
| | |
| 3 | ENLARGED WELL HOUSE PLAN & SCHEDULES |
| | |
| 4 | POWER RISER DIAGRAM |
| | |
| 5 | ELECTRICAL DETAILS |
| | |
| | |

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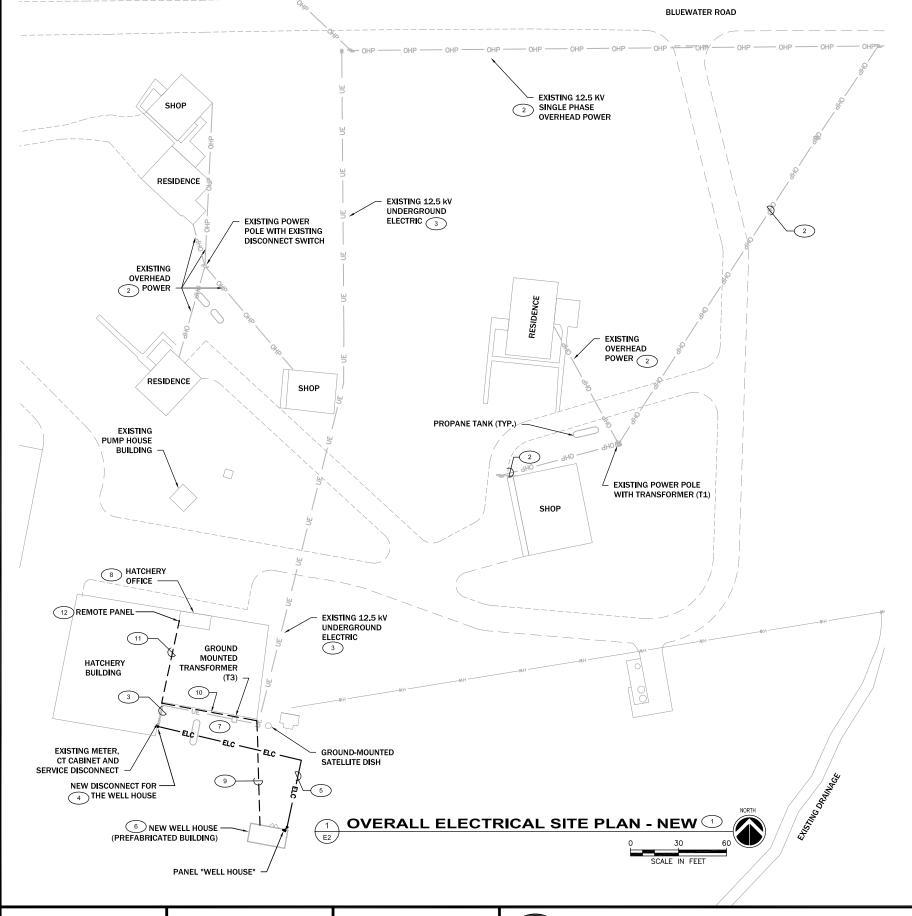
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Bluewater Springs Trout Hatchery Artesian Well Head Development - Electrical Requirements and Legend 5



GENERAL ELECTRICAL SITE NOTES

- SEE CIVIL SITE PLANS FOR ADDITIONAL SITE INFORMATION AND REQUIREMENTS. COORDINATE SITE WORK WITH OTHER TRADES.
- 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.
- 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.
- 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 MANUPACTURED TO HANDLE VEHICLE TRAFFIC.
- REVIEW EXACT LOCATION OF PULLBOXES WITH THE CIVIL ENGINEER AND OWNER PRIOR TO START OF EXCAVATION.
 TYPICAL FOR ALL.
- 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 TO PARTIAL POWER RISER DIAGRAM, E4, AND PANEL SCHEDULE, E3, FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
- PROVIDE 1-1/2°C 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 COUPMENT. 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 MONITANA. 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 WEAR 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 MATCHERY.
- 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°C 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.
- 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 HIN TRANSFORMER WITH 6-70" CORD TO P LUG INTO THE NEARBEST RECEPTACLE. THE ALARM PANEL SHALL HAVE A WALL PLUG HIN THE NEARBEST 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 FHONE CALL. THE TELEPHONE INTERFACE SHALL BE VIA AN R.11 TELEPHONE JACK (MODILAR 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 SUPPLIED FOR CONNECTION REQUIREMENTS. THE ANNUNCIATOR SHALL PROVIDE INFORMATION ON HIGH AND LOW FLOW LEVELS FROM THE FLOWMETER. THE CLEANING CYCLE FROM THE STRAINER CONTROL PAND A HIGH PRESSURE ALARM.



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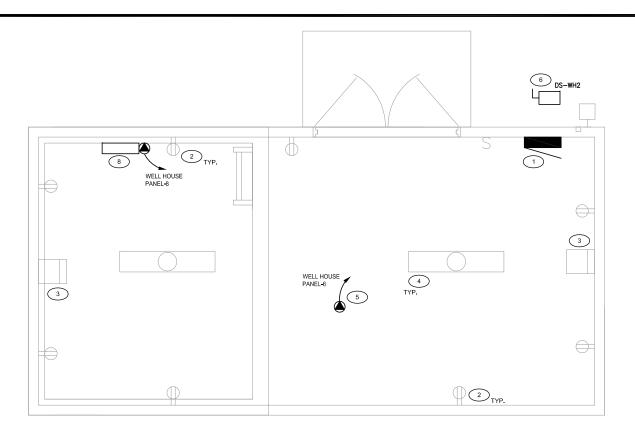
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MONTANA FISH, WILDLIFE & PARKS Bluewater Springs Trout Hatchery Artesian Well Head Development - Overall Electrical Site Plan



| | | PLAN NORTH | | | |
|----------------|--|---------------|-----|------------|----|
| $\overline{1}$ | ENLARGED WELL HOUSE PLAN - REFERENCE $^{	extstyle 	exts$ | |) 1 | 2 | 4 |
| E3 | 1/4" = 1'-0" | | SCA | ALE IN FEE | ET |

| 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 | E-ENTRAN | CE RATED DIS | CONNECTS | WITCH. | | | | | |
| 2. | 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. | | | | | | | MANUFACTURED BY P A WITH 125A FUSES; SI | | | ODEL NO. CCS-02SFSL-2, OR ITCHED NEUTRAL. |
| 4. | UNISTRUT-MOUNTHE FEEDER LEN | | | | | | | PANEL LOC | CATIONINSI | DE AS POSSIBLE TO MINIMIZE |

GENERAL ELECTRICAL NOTES

- 2. 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.
- 3. REFER TO CIVIL PLANS FOR ADDITIONAL INFORMATION ON THE PIPING AND EQUIPMENT LAYOUT IN THE WELL HOUSE BUILDING
- 4. 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.
- 5. COORDINATE ALL DEVICE AND EQUIPMENT LOCATIONS WITH THE OWNER AND/OR SYSTEM SUPPLIER/ INSTALLER.
- 6. ALL MOTORS SHALL HAVE A LOCAL DISCONNECTING MEANS LOCATED AT THE MOTOR, OR A MAXIMUM OF 5'-0"
- FIELD COORDINATE MOUNTING OF ELECTRICAL BOXES, PANELS, DEVICES, ETC. AND ROUTING OF CONDUITS WITH OTHER TRADES.
- 8. REFER ALSO TO ELECTRICAL DETAILS, E5. FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
- 9. 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:

- 1 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.
- 2 GFI RECEPTACLE LOCATED THROUGHOUT THE BUILDING. (TYPICAL)
- 3 WALL-MOUNTED HEATER. TYPICAL FOR (2) HEATERS.
- 4 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
- 6 NEW SERVICE ENTRANCE LOCATION FOR THE WELL HOUSE BUILDING. COORDINATE LOCATION FOR THE CAMLOCK NEW SERVICE ENTRANCE LOCATION FOR IT IN WELL FLOUSE BUILDING. COORDINATION TO THE CAMBOOK 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.
- 7 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.
- 8 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.

| | | PANEL SCH | HEDU | ILE | WEL | L HO | USE F | PANE | L (RE | FEI | REN | CE) | | | |
|----------|----------|-------------------|--------|------|---------|-----------|--------|------|---------|-----------|-------------|------------------------|-------|------|---|
| NAME | WELL HO | USE PANEL | | | | | | | | ROOM | NUMBER | PUMP HOUSE | | | 1 |
| MFGR. | - | | AMPS | | 125 | AIC | 10,000 | | | PHASE CO | NDUCTORS | | | 1 | ٦ |
| TYPE | LOAD CEN | NTER | MAINS | 11 | MLO | OCP | 125 | | | NEUTRAL (| CONDUCTORS | | | 1 | 1 |
| WIDTH | 14" | | VOLTLL | | 240 | MCA | 65 | | | GROUND W | /IRE | | | 6 | 1 |
| DEPTH | 3 3/4" | | VOLTLN | | 120 | FEED LGTH | 30 | | | CONDUITS | IZE | | 1-1 | 1/2" | 1 |
| MOUNTING | FLUSH | | PHASE | | 1 | CONAMPS | 65 | | | CONDUITR | UNS | | | 1 | 1 |
| FEED | TOP | | WIRES | | 3 | REMARKS | | | | PERCENT V | OLTAGE DROP | | 0.1 | 1% | 1 |
| BREAK | KER | | | LOAD | CIRCUIT | | LOAD | | CIRCUIT | LOAD | | | BREA | AKER | ٦ |
| AMPS | POLES | LOAD | VA | CODE | NO. | L1 | | L2 | NO. | CODE | VA | LOAD | POLES | AMPS | 1 |
| 30 | 2 | UNIT HEATER | 2500 | 5 | 1 | | | 5000 | 2 | 5 | 2500 | UNIT HEATER | 2 | 30 | ٦ |
| - | - | - | 2500 | 5 | 3 | 5000 | | | 4 | 5 | 2500 | - | - | - | 1 |
| 20 | 1 | LTS - WELL HOUSE | 300 | 1 | 5 | | | 800 | 6 | 5 | 500 | FLOWMETER | 1 | 20 | 1 |
| 20 | 1 | RCPT - WELL HOUSE | 720 | 2 | 7 | 2820 | | | 8 | 5 | 2100 | STRAINER CONTROL PANEL | 1 | 30 | ٦ |
| 20 | 1 | RCPT - WELL HOUSE | 720 | 2 | 9 | | | 720 | 10 | | | SPARE | 1 | 20 | 1 |
| 20 | 1 | SPARE | | | 11 | 0 | | | 12 | | | SPARE | 1 | 20 | 1 |

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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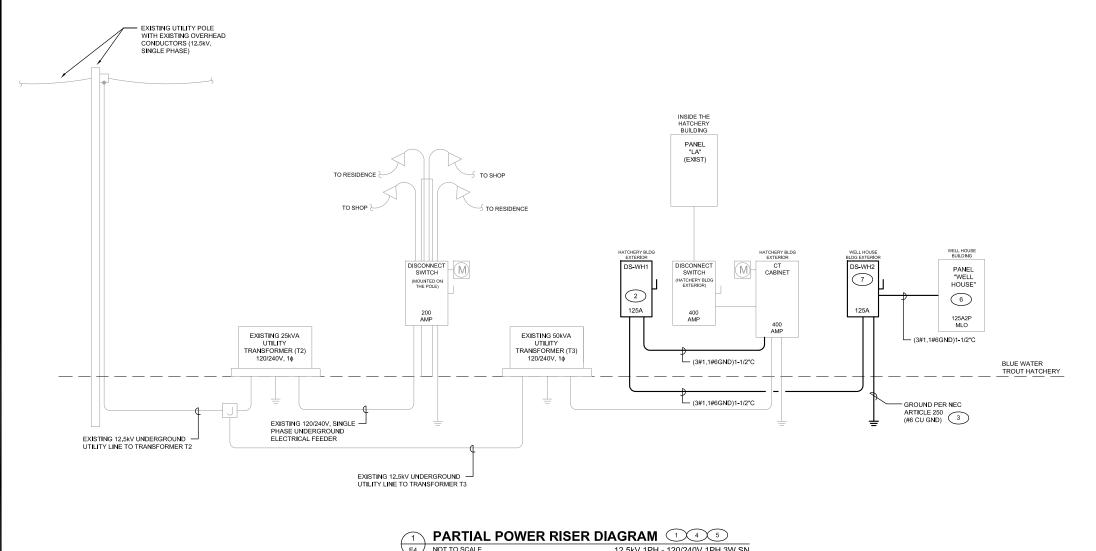
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MONTANA FISH, Bluewater Springs Trout Hatchery
WILDLIFE & PARKS Artesian Well Head Development - Enlarged Well House Plan & Schedules 5 MONTANA FISH,



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).
- 4. GROUND IN STRICT ACCORDANCE WITH NEC ARTICLE 250.
- 5. 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.
- 7. SEE FLAG NOTES, THIS SHEET, FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
- 3. SERVICE INSTALLATION SHALL BE IN ACCORDANCE WITH NFPA 70 AND UTILITY REQUIREMENTS.
- 9. REFER ALSO TO ELECTRICAL DETAILS, E5, AND ELECTRICAL SCHEDULE(S), E3, FOR ADDITIONAL
- . EXISTING EQUIPMENT IS SHOWN IN LIGHT LINE WEIGHT. NEW EQUIPMENT, FEEDERS, ETC. ARE SHOWN IN
- 11.

 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.
- 2 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.
- 3 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.
- 4 REFER ALSO TO OVERALL ELECTRICAL SITE PLAN, E2, FOR ADDITIONAL INFORMATION REGARDING THE INCOMING SERVICE.
- 5 ELECTRICAL CONTRACTOR TO PROVIDE TEMPORARY SERVICE, AS REQUIRED, DURING CONSTRUCTION.
- 6 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.
- 7 PROVIDE CAMLOCK CONNECTION SWITCH WITH INTEGRAL DISCONNECT. REFER TO DISCONNECT SCHEDULE, E3, AND ELECTRICAL DETAILS, E5, FOR SPECIFICATION OF THE CAMLOCK SWITCH. UNISTRUT 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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MONTANA FISH, WILDLIFE & PARKS

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:
- 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 O7 WARRANT

- 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

- 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.
- 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.
- Field (temporary) wiring connections:

E. Enclosure:

- 1 Wall-mount
- NEMA 3R rated.
- Material: Carbon steel or aluminum.
- Finish: ANSI 61 Gray or uncoated aluminum
- Lockable latches on front door.
- F. Standards: UL 1773 Standard for Termination Boxes.

PART 3 EXECUTION

3.01 EXAMINATION

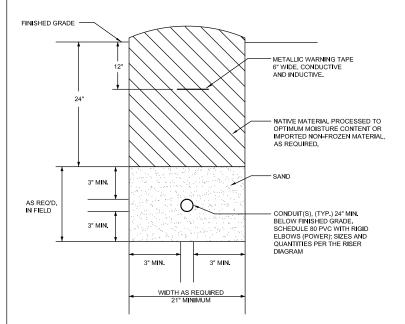
- A. Coordinate project with existing conditions. Notify Engineer, in writing, if unsatisfactory conditions exist.
- B. Install as indicated and in accordance with the manufacturer's recommendations and instructions.
- C. Connect as indicated on the one-line diagram.

3.02 INSTALLATION

- A. Procedures for Installation:
- 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.

END OF SECTION

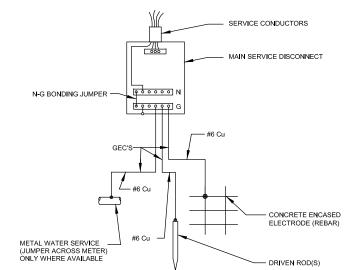
TEO 03.15.2023 DRAWN BY: DATE: TEO 03.15.2023 CHECKED BY: DATE: APPROVED BY: DATE: APPROVED BY: DATE:



NOTES:

- 1. DEPTHS NOTED ARE MINIMUM BURIAL.
- 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
- (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
- 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.

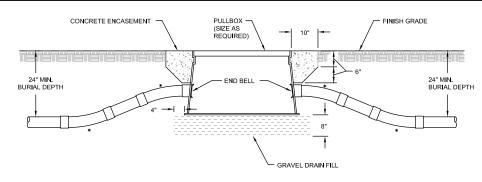






MONTANA FISH,

WILDLIFE & PARKS



* 22-1/2 36" RADIUS SWEEP ELBOW

3 TYPICAL PULLBOX ENTRY - REFERENCE

PACK 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.
- 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 BRONZED, 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.
- 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 REDED. REFER TO THE OVERALL ELECTRICAL SITE PLAN, E2, AND THE ENLARGED WELL HOUSE PLAN & SCHEDULES, E3, FOR ADDITIONAL INFORMATION. USE FLEX CONNECTORS, EC, 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



FINISHED GRADE



TESla Engineering, LLC

ELECTRICAL ENGINEERING CONSULTANTS
P.O. BOX 504
Vaughn, Montana 59487
Phone (406) 964-8523

Bluewater Springs Trout Hatchery Artesian Well Head Development - Electrical Details

DISCONNECT

(1)

(2)