MEMORANDUM – ADDENDUM NO. 1

To: Interested Vendors

From: Cindy Clack

Date: 12/15/2025

Re: RFB2026-10 Covered Bridge Road Water Main Extension -- Addendum No 1

Please see below for questions/answers that have been received to date. (Addendum includes a total of 27 pages)

Questions/Answers:

Q1. Would Barrow County consider adding an allowance to this project for covering the power to the site from Jackson EMC and an allowance for the Scada System?

A1. After consideration, no allowance will be added. These items will remain under the Interconnection Water Vaults pay item.

Q2. Can you please confirm vault size and location of transducer in backflow vault.

A2. See updated Sheet 9, Detail MV-1 for vault dimensions. Correct callout on Sheet 6 for 6'x6' control valve vault. See updated electrical plan set, Sheet E-3.

Q3. Per Excavation 3.02 B we are not to excavate under drip line. Are we to clear all trees to ROW to keep planned alignment?

A3. All trees in ROW where excavation is occurring shall be cleared. Trees which straddle ROW shall have limbs overhanging ROW trimmed by Contractor. Any trees outside ROW and/or project limits of disturbance shall not be disturbed.

Q4. If rock is anticipated as in the Jack and Bore can a line Rock Excavation line item be added

A4. Trench Rock Removal added as Bid Item 3. See updated Spec Section 01 02 50, Part 3.05 and updated Bid Schedule.

Q5. Clarification on system intergrader SCAD antenna installation requirements, per note #9 on sheet E-2 of construction plans.

A5. There will be no contractor requirements for antenna mounting, as it is included with the SCADA enclosure.

Q6. Section 33 12 19 WATER UTILITY DISTRIBUTION FIRE HYDRANTS, Part 2 Products, 2.01 Materials, B. states, Hydrants shall be traffic model M & H 129 or Mueller A-423 Super Centurion 250. Given that American-Darling fire hydrants are approved for use in the utility, and meet and/or exceed all of the criteria set forth, could you please add the American-Darling B84B-5 fire hydrant to the named of approved models please?

A6. American-Darling B84B (5-1/4") are acceptable. See updated Spec 33 12 19.

Q7. There is currently a bid item for a rock bore adder. Will there be a bid item added for trench rock?

A7. See Answer 4.

Attachments:

- Revised Section III Proposal (12 Pages)
- Revised Specification Section 01 02 50 Measurement and Payment (6 Pages)
- Revised Specification Section 33 12 19 Water Utility Distribution Fire Hydrants (3 Pages)
- Revised Plan Sheet 09 (1 Page)
- Revised Electrical Plans (4 Pages)

SECTION III
PROPOSAL

To: Barrow County Board of Commissioners
30 North Broad Street
Winder, Georgia, 30680

PROJECT TITLE: Covered Bridge Road Water Main Extension, RFB2026-10

Bidder's person to contact for additional information on this Bid Form:

Name:

Address:

Telephone:

Licensed, Class:

Contractor No.

1. BIDDER'S DECLARATION AND UNDERSTANDING

1.1 The undersigned, hereinafter called the Bidder, declares that the only persons or parties interested in this Bid are those named herein, that this Bid is, in all respects, fair and without fraud, that it is made without collusion with any official of the OWNER, and that the Bid is made without any connection or collusion with any person submitting another Bid on this Project.

1.2 The Bidder further declares that he has carefully examined the Bidding and Contract Documents for the construction of the project, that he has personally inspected the site, that he has satisfied himself as to the quantities involved, including materials and equipment, and conditions of work involved, including the fact that the description of the quantities of work and materials, as included herein, is brief and is intended only to indicate the general nature of the work and to identify the said quantities with the detailed requirements of the Bidding and Bidding and Contract Documents, and that this Bid Form is made according to the provisions and under the terms of the Bidding Documents, which Documents are hereby made a part of this Bid Form.

1.3 The Bidder further acknowledges that he has satisfied himself as to the nature and location of the work, the general and local conditions, particularly those bearing access to the site; rights-of-way and temporary construction limits; disposal, handling and storage of materials; availability of labor, water, electric power, and roads; and uncertainties of weather, creek stages, or similar physical conditions at the site; the conformation and conditions of the ground; the character of equipment and facilities needed preliminary to and during the prosecution of the work and all other matters which can in any way affect the work or the cost thereof covered by the Bidding and Contract Documents.

1.4 The Bidder further acknowledges that he has satisfied himself/herself as to the character, quality, and quantity of surface and subsurface materials to be encountered from his inspection of the site and from reviewing any available records or exploratory work

furnished by the OWNER or included in these Documents. Failure by the CONTRACTOR to acquaint himself with the physical conditions of the site and all available information will not relieve him from responsibility for properly estimating the difficulty or cost of successfully performing the work.

1.5 The Bidder warrants that as a result of his examination and investigation of all the aforesaid data that he can perform the work in a good and workmanlike manner and to the satisfaction of the OWNER. The OWNER assumes no responsibility for any representations made by any of its officers or agents during or prior to the execution of the Agreement, unless (1) such representations are expressly stated in the Agreement Form, and (2) the Agreement Form expressly provides that the responsibility therefore is assumed by the OWNER.

1.6 Bidder shall include the following additional documents and information with this Bid Form:

1.6.1 Bid Security

1.6.2 Bidder's Certification of License Number on the outside of envelope containing this Bid Form.

2. CONTRACT EXECUTION AND BONDS

2.1 The Contractor grants to the OWNER the exclusive right and option to accept its bid, upon the terms and conditions provided for in the Bidding Documents. The Contractor shall be obligated to hold its bid open for sixty (60) days from the date of the submittal of its bid. The OWNER may exercise its right to accept the bid at any time during this sixty (60) day period.

2.2 All bidders are required to execute the Construction Agreement included in this bid package to indicate the bidder’s willingness to comply with all terms of the Agreement and to submit the executed Agreement with the bid. Upon award of the Project to the winning bidder, the County will execute the Agreement. There will be no re-negotiation of terms of the Agreement. Please be advised that the bidder’s execution of the Agreement prior to the award of the Project does not constitute the acceptance of an offer by the County or otherwise bind the County in any way until such time as the County executes the Agreement.

The Bidder will, within 5 days from receiving Notice of Award, deliver to the OWNER the Performance Bond, Payment Bond, and Certificate(s) of Insurance, required herein, and will, to the extent of his bid, furnish all machinery, tools, apparatus, and other means of construction and do the work and furnish all the materials necessary to complete all work as specified or indicated in the Bidding and Contract Documents.

3. CERTIFICATES OF INSURANCE

3.1 The Successful Bidder agrees to furnish the OWNER, within 5 days from receiving Notice of Award, both the Certificate of Insurance required herein and the insurance company's own Certificate of Insurance.

3.2 The Successful Bidder further agrees that the total bid amount stated herein includes specific consideration for the insurance coverages, including contractual liability, specified in the Bidding and Contract Documents.

4. START OF CONSTRUCTION AND CONTRACT COMPLETION TIME

4.1 The Successful Bidder further agrees to promptly mobilize and begin work within 15 days from the Contract start date specified in the OWNER'S Notice to Proceed, and to be substantially complete, as defined in the General Conditions, within **150** days from the Contract start date specified in the OWNER'S Notice to Proceed. All work tasks of the total project shall be complete in all respects within **180** days from the date specified in the OWNER'S Notice to Proceed.

5. ADDENDA

5.1 The Bidder hereby acknowledges that he has received Addenda No's __, __, ___, __, __, __, (Bidder shall insert No. of each Addendum received) and agrees that all addenda issued are hereby made part of the Bidding and Contract Documents, and the Bidder further agrees that his Bid Form includes all impacts resulting from said addenda.

6. SALES AND USE TAXES

6.1 The Bidder agrees that all sales and use taxes, if applicable, are included in the stated bid prices for the work.

7. BASIS OF AWARD

7.1 Award of Contract will be made in accordance with Paragraph 16 (Award of Contract) of the INSTRUCTIONS TO BIDDERS.

8. TOTAL BID AMOUNT

8.1 The Bidder further proposes to accept as full payment for the work proposed herein the amounts computed under the provisions of the Bidding and Contract Documents and based on the following unit price amounts, it being expressly understood that the unit prices are independent of the exact quantities involved for each. The Bidder agrees that the unit prices represent a true measure of all labor and materials required to perform the work, including all allowances for overhead, profit, bond cost and any and all other costs associated with the work for each type and unit of work called for in these Bidding and Contract Documents. The unit price amounts shall be shown in both words and figures. In case of a discrepancy, the amounts shown in words shall govern.

8.2 UNIT PRICE

Bid Item No.	Bid Item	Qty	Unit	Unit Price	Extended Total Amount
1	Stormwater/Erosion Control Monitoring Program	1	LS	$_____	_____ Dollars
2	Geotechnical Allowance	1	AL	$ 6,000.00	$ 6,000.00 Six Thousand and 00/100 Dollars
3	Rock Removal	300	CY	$_____	_____ Dollars
4	Video Taping of Waterline Route	1	LS	$_____	_____ Dollars
5	Hay Bales	100	EA	$_____	_____ Dollars
6	Silt Fence Type 'C' (Sd1-S)	430	LF	$_____	_____ Dollars
7	Silt Fence Type 'A' (Sd1-NS)	3,400	LF	$_____	_____ Dollars
8	Erosion Control - Slope Stabilization (Ss)	1,000	SY	$_____	_____ Dollars
9	Rip Rap, GDOT Type 3 (As Directed by Owner)	50	SY	$_____	_____ Dollars

Bid Item No.	Bid Item	Qty	Unit	Unit Price	Extended Total Amount
10	Grassing	4,400	LF	$_____	_____ _____Dollars
11	Steel Casing, Jack & Bore, 24" Diameter,0.375" WT	300	LF	$_____	_____ _____Dollars
12	Rock Adder for 24" Diameter Jack & Bore	300	LF	$_____	_____ _____Dollars
13	Gravel Driveway Repair	80	SY	$_____	_____ _____Dollars
14	Fire Hydrant Assembly-Complete	9	EA	$_____	_____ _____Dollars
15	Freebore 12" DIP	150	LF	$_____	_____ _____Dollars
16	8" Diameter DIP, Class 350 Water Main	100	LF	$_____	_____ _____Dollars
17	10" Diameter DIP, Class 350 Water Main	30	LF	$_____	_____ _____Dollars
18	12" Diameter DIP, Class 350 Water Main	4,370	LF	$_____	_____ _____Dollars

Bid Item No.	Bid Item	Qty	Unit	Unit Price	Extended Total Amount
19	Gate Valves, 8" Diameter	6	EA	$_____	_____ _____Dollars
20	Gate Valves, 12" Diameter	3	EA	$_____	_____ _____Dollars
21	Tapping Sleeve & Valve, 12” x 12”	1	EA	$_____	_____ _____Dollars
22	Interconnection Water Vaults (Assembly Complete)	1	LS	$_____	_____ _____Dollars
23	Asphalt Driveway Cut & Repair (if authorized by OWNER)	90	SY	$_____	_____ _____Dollars
24	Concrete Driveway Cut & Repair (if authorized by OWNER)	20	SY	$_____	_____ _____Dollars

NOTE: All labor, material and equipment required to complete the work as shown on the plans but not specifically itemized in the above bid items but shown or called out on the plans shall be included in the price.

BASE BID: TOTAL OF EXTENDED AMOUNT FOR UNIT PRICES FOR BID ITEMS 1-24:

_____ Dollars

and _____Cents $_____

(Amount written in words has precedence)

8.3 Bidder acknowledges that the unit prices have been computed in accordance with the General Conditions. Bidder further acknowledges that quantities are not guaranteed and final payment will be based on actual quantities determined as provided in Bidding and Contract Documents.

8.4 Total Bid Summary:

8.4.1 TOTAL BASE BID AMOUNT: $_____

(including bond premium)

9. EXPERIENCE OF BIDDER

9.1 The Bidder submits the following list of at least five clients for whom projects involving similar construction have been performed within the past 5 years. Verify Client Contact is a current and Contact Email is valid. References will be contacted two (2) times and will be deemed non-responsive if no answer.

1) Name of Client (Owner and Contact)_____

Email Address _____Telephone Number_____

Street_____

City_____ State_____ Zip_____

Project Name_____

Date Completed_____ Total Contract Amount_____

2) Name of Client (Owner and Contact)_____

Email Address _____Telephone Number_____

Street_____

City_____ State_____ Zip_____

Project Name_____

Date Completed_____ Total Contract Amount_____

3) Name of Client (Owner and Contact)_____

Email Address _____Telephone Number_____

Street_____

City_____ State_____ Zip_____

Project Name_____

Date Completed_____ Total Contract Amount_____

4) Name of Client (Owner and Contact)_____

Email Address _____Telephone Number_____

Street_____

City_____ State_____ Zip_____

Project Name_____

Date Completed_____ Total Contract Amount_____

5) Name of Client (Owner and Contact)_____

Email Address _____Telephone Number_____

Street_____

City_____ State_____ Zip_____

Project Name_____

Date Completed_____ Total Contract Amount_____

10. PERFORMANCE OF WORK BY CONTRACTOR

10.1 The Bidder shall perform at least 50 percent of the work with his own forces.

11. SUBCONTRACTORS

11.1 The Bidder further proposes that the following subcontracting firms or businesses will be awarded subcontracts for the following portions of the work in the event that the Bidder is awarded the Contract:

Name_____

Type of Work_____

Street_____

City_____ State_____ Zip_____

Name_____

Type of Work_____

Street_____

City_____ State_____ Zip_____

Name_____

Type of Work_____

Street_____

City_____ State_____ Zip_____

12. SURETY

12.1 If the Bidder is awarded a construction Contract, the Surety who provides the Performance Bond and Payment Bond will be:

_____ whose address is

Street_____

City_____ State_____ Zip_____

13. BIDDER

13.1 The name of the Bidder submitting this Bid Form is

_____ doing business at

Street_____

City_____ State_____ Zip_____

which is the address to which all communications concerned with this Bid Form and with the Agreement Form shall be sent.

13.2 The names of the principal officers of the corporation submitting this Bid Form, or of the partnership, or of all persons interested in this Bid Form as principals are as follows:

_____

_____

_____

If Sole Proprietor or Partnership

IN WITNESS hereto the undersigned has set his (its) hand this _____ day of _____ 2025.

_____
Signature of Bidder

_____
Title

If Corporation

IN WITNESS WHEREOF the undersigned corporation has caused this instrument to be executed and its seal affixed by its duly authorized officers this _____ day of _____ 2025.

(SEAL)

Name of Corporation

_____

By

_____

Title

_____

Attest

Secretary

_____

End of Section

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SECTION 01 02 50

MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.01 SCOPE OF WORK

A. This Section describes the methods by which measurement will be made of the quantities for which payment will be made for the PROJECT.

1.02 MEASUREMENT OF WORK

A. WORK shall be measured by the ENGINEER or their designated representative, with assistance from the CONTRACTOR prior to preparation of a payment request by the CONTRACTOR.

B. Unit quantities that are measured in place shall be measured monthly. The CONTRACTOR shall give the ENGINEER a minimum of two days notice for making all required measurements.

C. Materials that must be measured as delivered shall be measured at the time of delivery by the ENGINEER or his representative; the CONTRACTOR shall provide sufficient advance notice so that such measurements can be made.

D. Pay items included in the “Extra Work, If Authorized by the Owner” section on the Bid Schedule are for any additional work that is determined to be required to complete the project but was not originally shown in the Bid Documents or is indicated “as directed by Owner”.

E. WORK completed shall be measured for completion against the schedule of values provided by the CONTRACTOR in accordance with the General Conditions. Related work necessary for a complete and operational job, such as relocation of mail boxes removal of trees, relocation of utilities, field engineering, clearing and grubbing, traffic control, etc., not specifically identified as a pay item shall be included in the unit price bid. No additional payments will be made for such activities.

1.03 PROGRESS PAYMENTS

A. Progress payments shall be based on the quantity of units installed.

B. All items of WORK not specifically listed in the Bid Schedule shall be considered incidental to the construction, and the cost of all such work and material shall be included in the prices bid for various items listed.

C. All items listed for measurement and payment shall include all machinery, plant, materials and labor, etc., to successfully and satisfactorily complete WORK specified.

D. Payment: The CONTRACTOR will receive payment only for the items listed in the Bid Schedule of his contract, and no separate payments will be made for the work under any section of the CONTRACT DOCUMENTS except as provided for in the Bid Schedule. Where measurements are required to be made by the ENGINEER, for the payment of a pay item, the failure of the CONTRACTOR to give the adequate notification or failure of the CONTRACTOR to give the ENGINEER assistance for the measurement shall result in the forfeiture of payment for the work or item which was not measured.

E. WORK to be paid for as a "Lump Sum" shall be measured for completion against the "Schedule of Values" provided by the CONTRACTOR and percent complete as determined by the OWNER/ENGINEER. The "Schedule of Values" shall be submitted at the preconstruction conference and shall include quantities and prices of items aggregating the total "Lump Sum" and will subdivide the work into component parts in sufficient detail to serve as the basis for progress payments during construction.

PART 2 PRODUCTS

2.01 STORED MATERIALS

Partial payment shall be made for approved materials stored at the project site, provided invoices for said materials are furnished in accordance with payment request submittal.

PART 3 EXECUTION

3.01 STORMWATER/EROSION CONTROL MONITORING PROGRAM (Section 31 25 00)

The basis of payment for this item shall be lump sum to include all labor, equipment and materials necessary to comply with all the requirements of the Georgia NPDES General Permit No. GAR 100002, including, but not limited to completion and submittal of the NOI, sampling and data collection, inspections, daily reporting, and all other items necessary to comply with the permit. Payment of the $40 per disturbed acre fee to the Georgia Department of Natural Resources will be part of the CONTRACTOR's bid amount for this item.

3.02 GEOTECHNICAL ALLOWANCE

The basis of payment for this item shall be a lump sum allowance. The soils technician shall be chosen by the OWNER. The technician shall make periodic site visits, scheduled by the ENGINEER, to verify compaction of trenches are in conformance with Section 31 23 00 and the Drawings. All incidental overhead/processing/handling costs incurred by the CONTRACTOR for the geotechnical testing cost allowance shall be included in the unit prices bid per linear foot of the various sizes and type of pipe laid as provided for in the Bid Schedule.

3.03 SITE PREPARATION (Section 31 10 00)

No separate measurement or payment will be made for site preparation of water lines or other pipes, nor for any other appurtenance facilities such as valves, fire hydrants, etc. Payment for all work shall be included in the unit prices bid per linear foot of the various sizes and type of pipe laid or for the number of units installed for meters, valves, fire hydrants, etc. as provided for in contract Bid Schedule.

3.04 EXCAVATION AND FILL (Section 31 23 00)

No separate measurement or payment will be made for trench earth excavation for waterlines or other pipes, nor for any other appurtenant facilities such as valves, fire hydrants, meters, and pipe protection or encasement. Payment for all such excavation shall be included in the unit prices bid per linear foot of the various sizes and type of pipe laid or for the number of units installed for valves, fire hydrants, etc. as provided for in contract Bid Schedule.

3.05 ROCK REMOVAL (Section 31 23 16.26)

A. Quantities for rock removal shall be expressed in cubic yards, as defined below, in accordance with the plans and specifications.

B. If rock is encountered, the CONTRACTOR is to expose the rock for the length of the proposed trench. The OWNER or ENGINEER shall then attain sufficient topographic data to establish the limits of the rock to be excavated and establish the quantity of rock removal in writing prior to rock removal. No rock removal shall be paid without OWNER or ENGINEER verification before rock is removed.

C. The quantity of rock to be paid for shall be calculated from the upper surface data obtained to one foot below the pipe invert multiplied by three-foot trench width. No additional payment shall be made for benching or other rock excavation beyond these limits. The price for this work shall be included in the unit price bid for rock excavation.

D. Payment for rock removal shall include rock excavation, disposing of rock, providing sufficient and suitable fill material to replace rock, and all cost incidental thereto. This amount, so paid, shall be compensation in full for furnishing all labor, materials, tools, equipment, services and other work in connection with or incidental to this bid item.

3.06 VIDEO TAPING OF WATERLINE ROUTE

The price for video recording the proposed waterline route prior to installation shall be lump sum and shall include recording pre-construction conditions along all water main route areas that may be disturbed by construction at a walking pace and supplying a digital copy to each, the OWNER and the ENGINEER.

3.07 CONSTRUCTION EXITS (Section 31 25 00)

No separate measurement or payment will be made for construction exits. Payment for all work shall be included in the unit prices bid per linear foot of the various sizes and type of pipe laid or for the number of units installed for meters, valves, fire hydrants, etc. as provided for in contract Bid Schedule.

3.08 ADDITIONAL BMPS FOR DISCHARGE INTO IMPAIRED STREAM

No separate measurement or payment will be made for additional Best Management Practices (BMP's) shown on the DRAWINGS for the project proximity to impaired stream segments. These BMP's include use of mulch to stabilize all areas left disturbed for more than seven (7) calendar days, limiting the amount of disturbed area at any one time to no greater than 0.9 acres, installing tackifiers/PAM over disturbed ground, installing mulch filter berms along silt fence as indicated on the Plans, and conducting soil tests to identify and to implement site-specific fertilizer needs. Payment for all work shall be included in the unit prices bid per linear foot Silt Fence and Erosion Control Matting, as provided for in contract Bid Schedule.

3.09 HAY BALES (Section 31 25 00)

Quantities for hay bales shall be the number of hay bales actually installed for temporary erosion control Best Management Practices (BMP's). The quantity to be paid shall include all labor, materials, tools, and equipment necessary for furnishing, placing, maintaining, and removing each BMP. No payment will be made for hay bales that need to reinstalled for any reason.

3.10 SILT FENCE (Section 31 25 00)

Quantities for each type of silt fence shall be the linear feet of silt fence actually installed for temporary erosion control Best Management Practices (BMP's). The quantity to be paid shall include all labor, materials, mulch, tools, and equipment necessary for furnishing, placing, maintaining, and removing each BMP. No payment will be made for silt fence that needs to be reinstalled for any reason. No separate payment will be made for required mulch filter berms/mulch backing associated with silt fence as shown on the Plans.

3.11 EROSION CONTROL MATTING (Section 31 25 00)

Quantities for erosion control matting shall be the square yards of matting or blankets actually installed for temporary erosion control Best Management Practices (BMP's) for ditches and slopes. The quantity to be paid shall include all labor, materials, tools, and equipment necessary for placing tackifier and matting including furnishing, placing in accordance with manufacturer recommendations, and maintaining BMP. No payment will be made for erosion control matting that needs to be reinstalled for any reason.

3.12 RIP RAP (Section 31 37 00)

Quantities for rip rap shall be the square yards, placed as directed by the Owner, of each type of rip rap actually installed at the depth shown on the Drawings for soil stabilization and erosion control Best Management Practices (BMP's). The quantity to be paid shall include all labor, materials, tools, and equipment necessary for furnishing, placing, maintaining, and removing the rip rap as necessary or as directed by the Owner.

3.13 GRASSING (Section 32 92 00)

Payment for all grassing shall be bid per linear foot of permanent grassing actually installed and shall include all materials, machinery and labor necessary to maintain vegetated areas until plant establishment has been achieved to the satisfaction of the ENGINEER and OWNER. No separate payment shall be made for Temporary Grassing or Mulching or Tackifier.

3.14 STEEL CASING (Section 33 05 23.16)

A. Measurement of all casing pipe shall be made from bulkhead to bulkhead along the centerline of actual casing required. Payment shall be per linear foot of casing for the size bore or open cut installation, and shall include the installation of casing regardless of subsurface conditions encountered, end seals, spacers, restrained joint gaskets, and miscellaneous items necessary to complete installation as specified. Carrier pipe shall be paid under the line item bid for Water Mains.

B. Unit price bid shall include cost of any warning signs and/or flagmen that may be required. CONTRACTOR is to determine need for such, prior to submitting bid price.

B. No payment shall be made for incomplete or unacceptable borings, for realignment, or for increased length for the convenience of the CONTRACTOR.

3.14A ROCK BORE ADDER

A. If rock is encountered in the process of installing a casing pipe via jack and bore which cannot be removed through the casing with a standard dirt bit or wing cutter, the Contractor shall be allowed to proceed with the casing installation through the rock section using the Rock Bore Adder item, if approved by the OWNER in writing before the work is performed.

B. Quantities for Rock Bore Adder shall be the number of linear feet actually installed which requires a cutterhead designed for rock removal through the casing. The quantity to be paid shall include all labor, materials, tools, and equipment necessary to complete the steel casing installation through the rock section of the bore. No payment will be made for casing installation for the length before rock is encountered, and no payment will be made for the length after the casing has proceeded beyond the rock section.

C. Those portions of the casing pipe installed that qualify for payment under the Rock Bore Adder item shall be paid by adding an additional per linear foot cost to the bid price for installation by jack and boring for each respective casing pipe size. Measurement of all casing pipe installed under Rock Bore Adder shall be made along the center line of the length of casing pipe installed via rock boring.

3.15 GRAVEL DRIVEWAY AND ROADWAY REPAIR (Section 32 16 13)

A. The quantities of gravel driveway and roadway repair shall be the actual number of square yards of existing gravel roadways and driveways replaced. Where trench excavations cross in gravel areas, the measurement shall be continuous along the centerline of the main line times a maximum width of 10 feet measured perpendicular to the water line, unless otherwise directed by the OWNER, with the intervals being measured from the edge of trench to the edge of trench or edge of driveway or roadway.

B. Payment for gravel driveway and roadway installed under these specifications shall be made for the quantities determined in the manner specified above at the applicable contract price. This amount, so paid, shall be compensation in full for furnishing all labor, materials, tools, equipment, services and other work in connection with or incidental to the construction.

3.16 FIRE HYDRANTS ASSEMBLY (Section 33 12 19)

A. The quantity of the size and type of fire hydrants will be the actual number installed. The quantity for salvage of existing fire hydrants shall be the actual number of hydrants salvaged.

B. The price bid for Fire Hydrant Assembly – Complete, shall include all related appurtenances to construct and install the fire hydrants from the in-line tee to the fire hydrant itself at proper grade. This price shall include the fire hydrant, all labor, necessary equipment, fittings, rodding, blocking, valve box and collar, hydrant valve and tee, 6" diameter piping and extensions to set the hydrant at required horizontal and vertical location, and all other related appurtenances. Fire hydrants shall be paid for at the unit price bid.

3.17 FREEBORES (Section 33 05 23.16)

A. Measurement of all freebores under drives shall be per linear feet for each drive at the length called out on the Drawings, unless otherwise directed by OWNER or ENGINEER in writing. Payment shall be per linear foot of freebore as provided in Bid Schedule, and shall include backfilling of bored area or abandoned bores completely with sand or grout, all labor, materials, tools, and equipment necessary to complete installation as specified. Carrier pipe shall be paid under the various sizes and types of waterlines as provided in the Bid Schedule.

B. Unit price bid shall include cost of any warning signs and/or flagmen that may be required.

C. No payment shall be made for incomplete or unacceptable bores, for realignment, or for increased length for the convenience of the CONTRACTOR. If the bore cannot be completed due to subsurface conditions under a driveway, the CONTRACTOR shall obtain written approval from the OWNER or ENGINEER to open cut the driveway, in which case, the driveway repair shall be paid under the various types of driveway cut restoration as provided in the Bid Schedule.

3.18 WATER MAINS (Section 33 12 13.13)

A. The quantities of the various sizes and types of water main will be measured along the centerline of the pipe from center of fitting to center of fitting and shall be paid per linear foot of water main pipe actually installed. No deduction will be made for fittings, valves, or equipment.

B. The price bid shall include, but not be limited to, the pipe material indicated, all fittings, gaskets, bolts, glands, concrete blocking, concrete caps, detection tape and wire, all labor, equipment, clearing and removal and disposal of clearing debris, stripping, storing, and replacement of top soil in lawn and garden areas, excavation, dewatering of trenches, removal and replacement of signs and mailboxes in the path of construction activities, replacement of mailbox approaches, fences, curb and gutter, etc., connection to existing water mains, protection of existing utilities (both overhead and underground), storm pipes, culverts, drainage ditches, all benching, sheeting and bracing, crushed stone bedding, tamping and compaction and backfilling, roadway shoulder repairs, traffic maintenance and protection, dressing and final grading, grassing, testing, cleanup, and all other work incidental to place the water line as shown or indicated in the CONTRACT DOCUMENTS.

3.19 VALVES (Section 33 12 16)

A. The quantities of the various sizes and types of valves will be the actual number installed on the water main by the CONTRACTOR and approved by the ENGINEER.

B. The price bid shall include, but not be limited to, the valve, all labor, necessary equipment, fittings, rodding, blocking, valve box, concrete pad and valve marker, debris cap, and all other work incidental to install valves as shown or indicated in the CONTRACT DOCUMENTS. Valves shall be paid for at the unit price bid. Valves used for tapping existing lines shall be included in the price bid for tapping sleeve and valves.

3.20 TAPPING SLEEVE AND VALVE (Section 33 12 16)

A. The quantities of the various sizes and types of tapping sleeve and valves will be the actual number installed by the CONTRACTOR and approved by the ENGINEER.

B. The price bid shall include, but not be limited to, the valve, tapping sleeve, valve box, valve marker, concrete pad, all labor and necessary equipment. No separate payment shall be made for connecting to existing lines.

3.21 INTERCONNECTION WATER VAULTS (ASSEMBLY COMPLETE) (Section 40 71 13 & 40 26 64)

A. The basis of payment for this item shall be lump sum to include all labor, equipment and materials necessary to install the interconnection water vaults, complete and operational, as indicated on the Drawings.

B. The price bid shall include, but not be limited to, each size of precast vaults, complete with water piping and equipment, control valve, valve controller, and accessories; strainer, flow meter and accessories, double check valve & backflow preventer assembly, pressure gauge assemblies, required pipe adapters, pipe supports, manhole steps, access hatches, other miscellaneous internal pipework appurtenances, all electrical and SCADA, coordination with power company on new electrical service and payment of any power company fees required to bring electric to the site, record drawings, O&M manuals, startup and instruction of Owner personnel, clearing, grubbing, grading including importing and exporting of dirt, excavation and backfilling, removal of unsuitable fill, rock removal, import and installation of suitable fill, stone, traffic control, and restoration.

C. Water main piping and valves shall be paid for under the various sizes and types of water lines and valves as provided in the Bid Schedule.

3.22 PROTECTION, RELOCATION AND RESTORATION OF EXISTING UTILITIES (Section 02 75 00)

No separate measurement or payment will be made for protection, relocation and restoration of existing utilities for water lines or other pipes, nor for any other appurtenant facilities such as valves, fire hydrants, etc. Payment for all such work shall be included in the unit prices bid per linear foot of the various sizes and type of pipe laid as provided for in contract Bid Schedule.

3.23 SITE RESTORATION (Section 32 02 00)

No separate measurement or payment will be made for site restoration. Payment for all such work shall be included in the unit prices bid for the elevated storage tank as provided for in the contract Bid Schedule.

3.24 PAVEMENT REPAIR (IF AUTHORIZED BY OWNER) (Section 32 16 13)

A. The quantities of the various types of pavement repair shall be the actual number of square yards of paved streets and driveways replaced. Where trench excavations cross in paved areas, the measurement shall be continuous along the centerline of the main line times a maximum width of 10 feet measured perpendicular to the water line, unless otherwise directed by the OWNER, with the intervals being measured from the edge of trench to the edge of trench or edge of driveway or roadway.

B. Payment for each type of pavement furnished and installed under these specifications shall be made for the quantities determined in the manner specified above at the applicable contract price. This amount, so paid, shall be compensation in full for furnishing all labor, materials, tools, plant equipment, services and other work in connection with or incidental to the construction. No payment will be allowed for replacing or repairing unpaved street or driveway surfaces.

END OF SECTION 01 02 50

SECTION 33 12 19

WATER UTILITY DISTRIBUTION FIRE HYDRANTS

PART 1 – GENERAL

1.01 SUMMARY

CONTRACTOR shall furnish all labor, equipment, and materials and install at location indicated on Drawings, or as directed, fire hydrants as necessary or required for proper completion of the work under this Contract.

1.02 REFERENCES

American Water Works Association (AWWA), C502, Standard for Dry-Barrel Fire Hydrants.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Hydrants shall be manufactured in full compliance with AWWA C502, minimum 150 psi. working pressure and as herein amended.

B. Hydrants shall be traffic model American-Darling B84B, M & H 129, or Mueller A-423 Super Centurion 250.

C. Hydrants shall be three-way, post type, dry top traffic model with compression main valve opening against and closing in the direction of normal water flow. Hydrants shall have a 5-1/4” pumper nozzle and two 2-1/2” hose nozzles.

D. Internal main valve diameter shall have a 5-1/4” opening.

E. Hydrants shall have name of manufacturer, year manufactured, and nominal valve size in legible, raised letters cast on barrel of bonnet.

F. Dry Top Bonnet
1. Shall be constructed with moisture-proof lubrication chamber which provides automatic lubrication of threads and bearing surfaces each time hydrant is operated.
2. Assembly shall be comprised of top "O" ring serving as dirt and moisture barrier and a lower "O" ring which shall serve as a pressure seal.

G. Operating Nut
1. Shall be of regular pentagon shape measuring 1½" point to flat; i.e. National Standard, and shall open by turning counter-clockwise (left).
2. Nozzle caps shall have same cross-section as operating nut and shall come with heavy duty, non-kinking chains.
3. Chains shall be securely affixed to hydrant upper barrel and permit free turning of caps.

H. Traffic Design
1. Hydrant barrel sections shall be connected at groundline in a manner that will prevent damage to hydrant when struck by vehicle.
2. Main valve rod sections shall be connected at groundline by frangible coupling.
3. Standpipe and groundline safety construction shall be such that the hydrant nozzles can be rotated to any desired position without disassembling or removing top operating components and top section of hydrant standpipe.

I. Main valve shall be made of synthetic rubber and formed to fit the valve seat accurately.

J. Main Valve Seat
   1. Shall be of bronze and assembly into hydrant shall involve bronze to bronze thread engagement.
   2. Two (2) "O" ring seals shall be provided as positive pressure seal between the bronze seat ring and shoe.
   3. Valve assembly pressure seals shall be obtained without employment of torque compressed gaskets.
   4. Hydrants shall be designed to allow removal of all operating parts through hydrant barrel by means of single, light weight disassembly wrench without excavation.

K. Drain
   1. Mechanism shall be designed to operate automatically with the operation of main valve and shall allow a momentary flushing of drain ports.
   2. Minimum of two (2) internal and two (2) external bronze lined drain ports shall be required in main valve assembly to drain hydrant barrel.
   3. Inlet connection shall be cast iron inlet elbow and shall have 6" mechanical joint connection.
   4. Barrel extension sections shall be available in 6" increments complete with rod, extension coupling and necessary flanges, gaskets and bolts so that extending hydrant can be accomplished without excavating.
   5. No lead will be allowed in nozzle installation.
   6. Hydrants shall be tested in strict accordance with AWWA C502 at supplier's expense. Certificate of compliance shall be furnished to OWNER upon request.

2.02 SPARE PARTS

A. CONTRACTOR shall provide the OWNER with two breakaway traffic repair kits.

B. CONTRACTOR shall provide the County with one hydrant wrench, Combination Wrench and Spanner as manufactured by Pollard or approved equal.

PART 3 – EXECUTION

3.01 SETTING HYDRANTS

A. Hydrants shall be placed at locations indicated on CONTRACT DRAWINGS in manner to provide complete accessibility and so that possibility of damage from vehicles and injury to pedestrians will be minimized.

B. Hydrants to be installed so the finish grade is at the hydrant bury line.

C. Extension required to bring hydrant to proper grade shall be furnished and installed by CONTRACTOR at his expense.

D. Fire hydrant assembly shall consist of the ductile iron tee, gate valve, ductile iron lead pipe, and hydrant.

E. Hydrants shall be marked on the road with a blue road reflector.

3.02 PAINTING, COATING AND LUBRICATING

A. Iron parts of hydrant shall be thoroughly cleaned inside and outside.

B. Unless otherwise stipulated or directed, surface shall be coated or painted with, or dipped in, an asphalt or bituminous base paint or coating, except for the exterior portion above the groundline.

C. Hydrants shall be covered with two (2) coats of paint, the first being allowed to dry thoroughly before applying second coat.

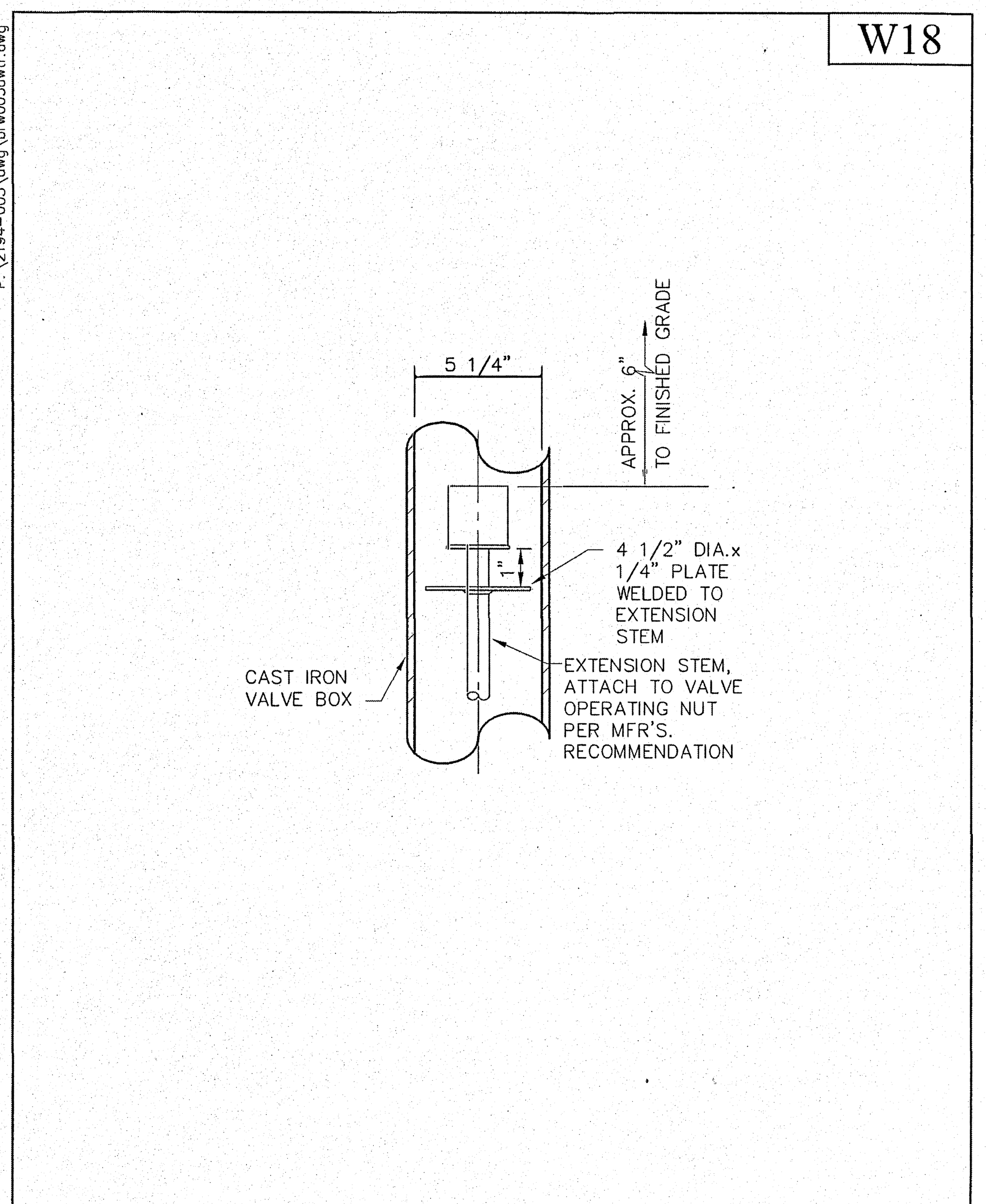
D. Exterior of hydrant valve above finished groundline shall be thoroughly cleaned and painted in shop with two (2) coats of Koppers Primer 621, or approved equivalent.

E. Following installation, hydrants shall be painted with two (2) field coats of color SILVER, Koppers Glamortex 501, or approved equivalent.

F. Bronze, threaded and contact moving parts shall, during shop assembly, be lubricated and protected by coating of rust proof compound to prevent damage in shipment.

END OF SECTION 33 12 19

W18



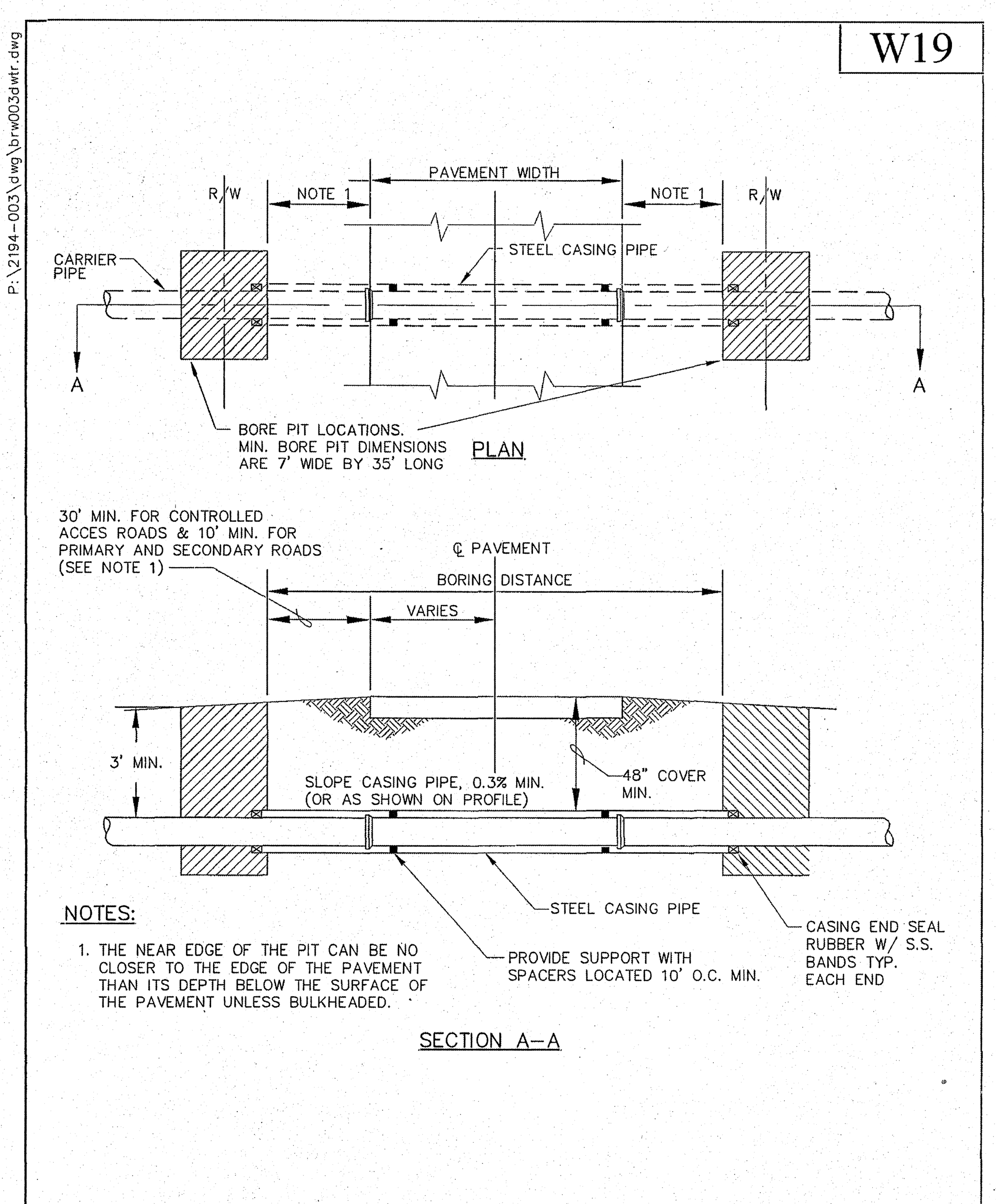
Barrow County Water & Sewerage Authority

EXTENSION STEM

STANDARD CONSTRUCTION DETAILS

SCALE: NONE DATE: OCT 2021

W19



NOTES:

1. THE NEAR EDGE OF THE PIT CAN BE NO CLOSER TO THE EDGE OF THE PAVEMENT THAN ITS DEPTH BELOW THE SURFACE OF THE PAVEMENT UNLESS BULKHEADED.

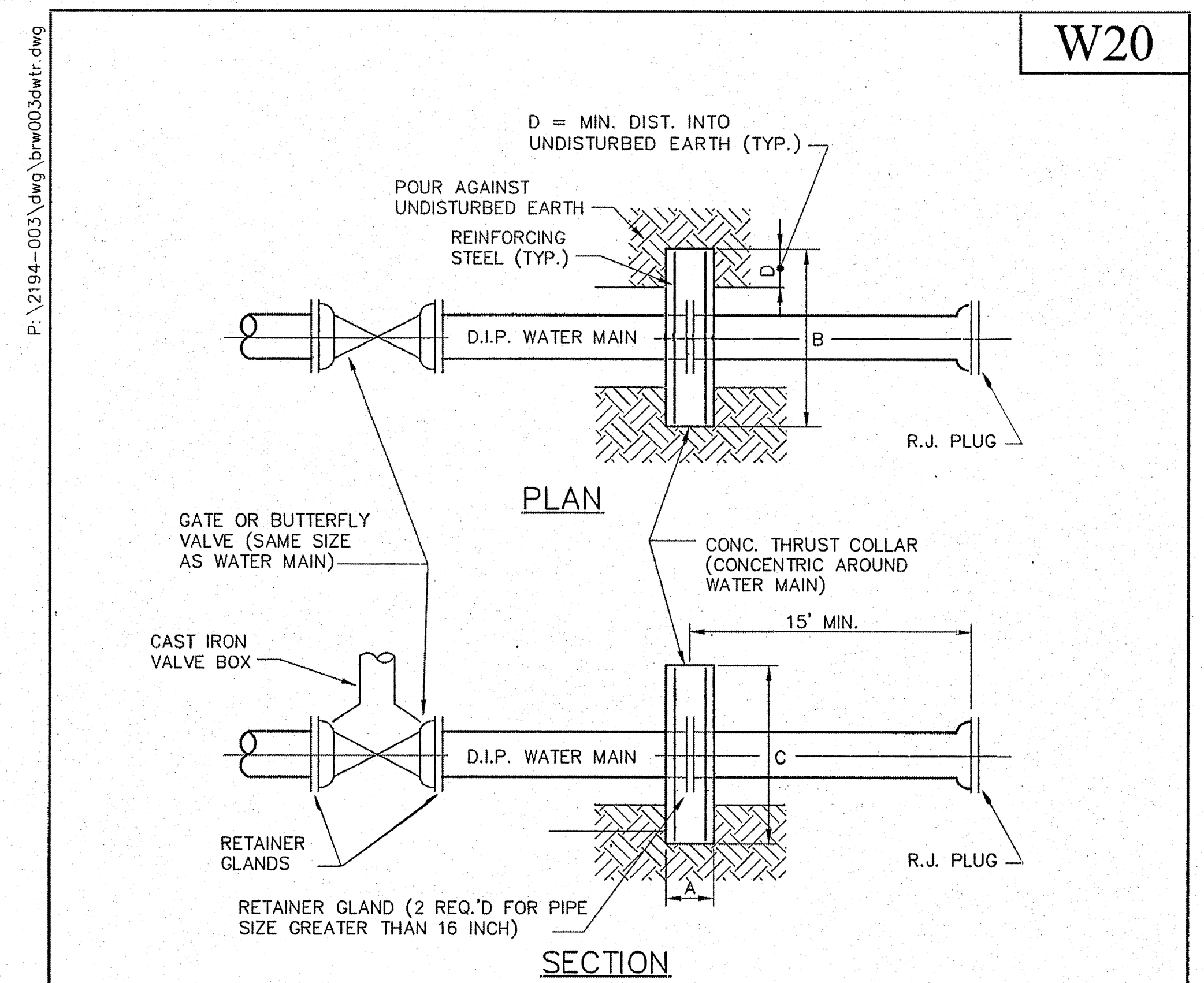
Barrow County Water & Sewerage Authority

JACK AND BORE – CASING PIPE

STANDARD CONSTRUCTION DETAILS

SCALE: NONE DATE: OCT 2021

W20



MAIN DIA	CONCRETE COLLAR DIM.				STEEL REINFORCING
	A	B	C	D	
24"	1'–9"	9'–0"	9'–0"	2'–6"	#9 @ 8" O.C. E.W.E.F.
20"	1'–6"	7'–8"	7'–8"	2'–0"	#9 @ 12" O.C. E.W.E.F.
16"	1'–3"	6'–6"	6'–6"	1'–6"	#8 @ 12" O.C. E.W.E.F.
12"	1'–2"	5'–3"	5'–3"	1'–0"	#7 @ 12" O.C. E.W.E.F.
6" or 8"	1'–0"	4'–0"	4'–0"	0'–8"	#6 @ 12" O.C. E.W.E.F.

TEST PRESSURE: 200 P.S.I. MAX
SOIL BEARING PRESSURE: 3000 P.S.F. MIN

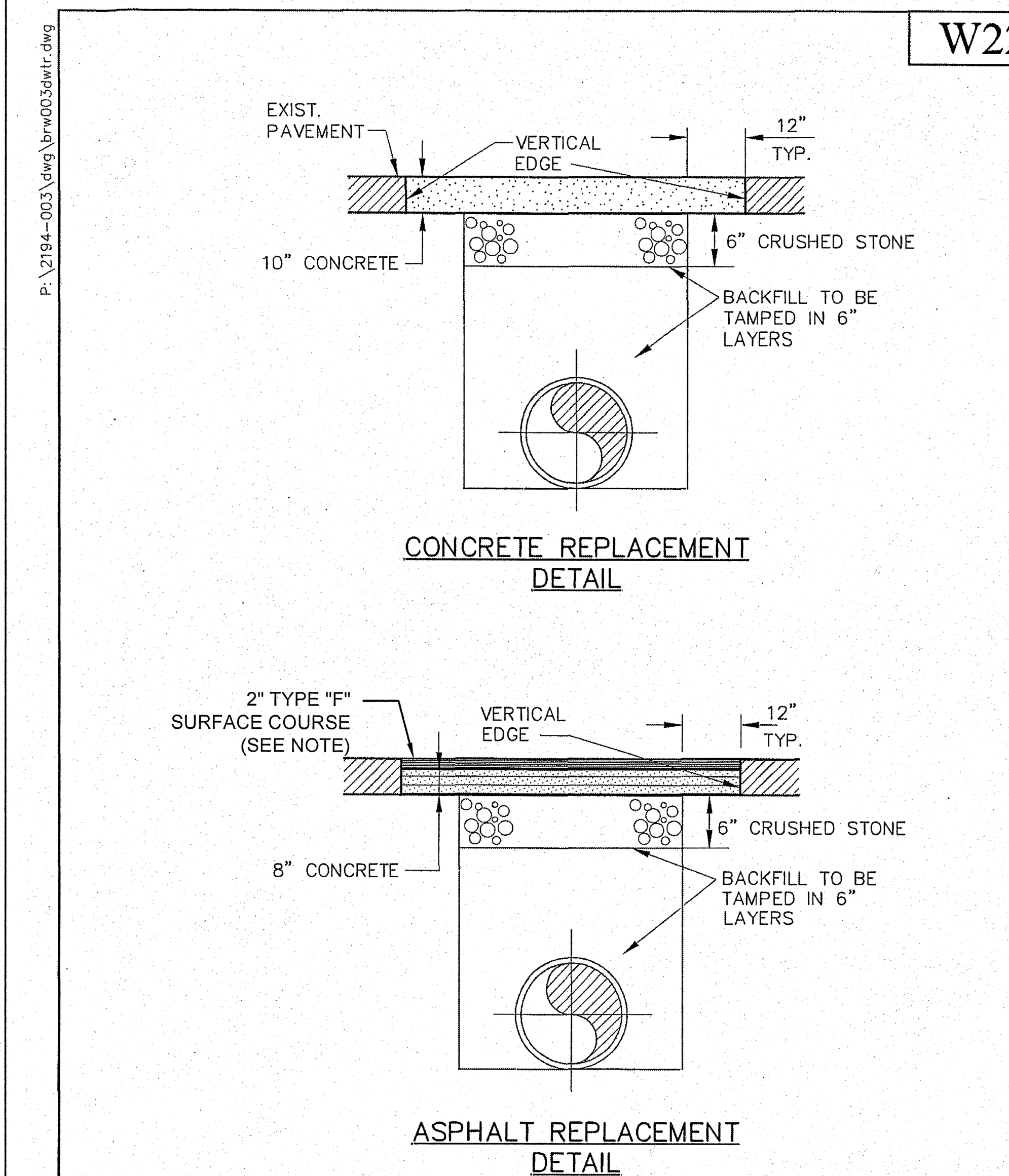
Barrow County Water & Sewerage Authority

WATER MAIN STUB–OUT

STANDARD CONSTRUCTION DETAILS

SCALE: NONE DATE: OCT 2021

W22



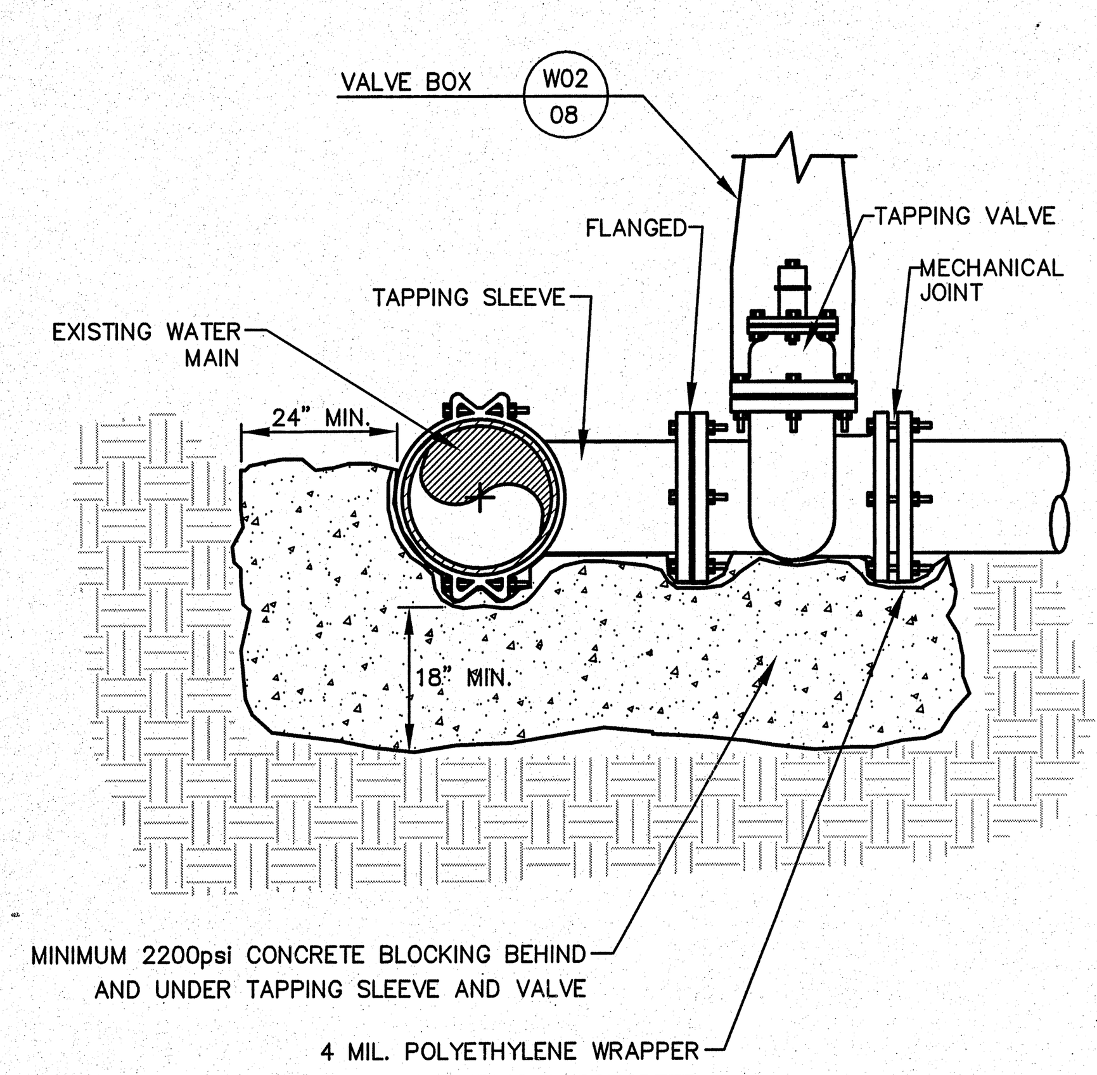
NOTE: USE 9.5 MM SUPERPAVE FOR TYPE "F" SURFACE COURSE.

Barrow County Water & Sewerage Authority

PAVEMENT REPLACEMENT DETAILS

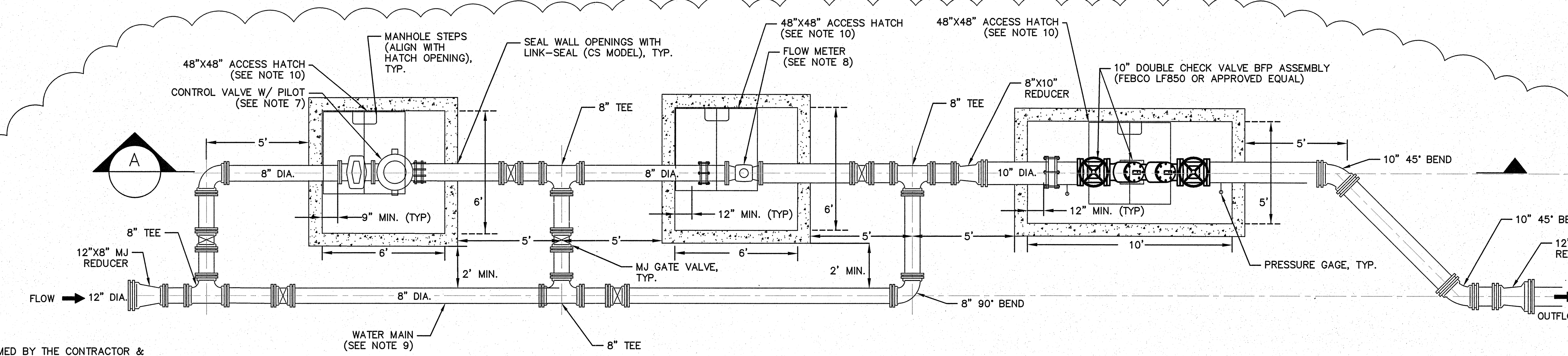
STANDARD CONSTRUCTION DETAILS

SCALE: NONE DATE: OCT 2021



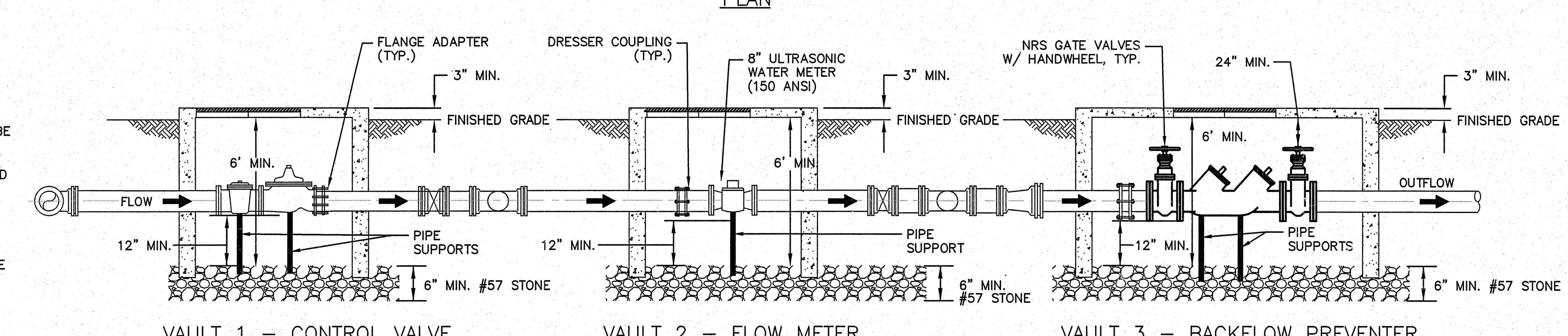
TAPPING SLEEVE AND VALVE (W23)

N.T.S.



NOTES

1. VAULT DIMENSIONS SHALL BE CONFIRMED BY THE CONTRACTOR & ENGINEER TO ACCOMMODATE ALL REQUIRED EQUIPMENT.
2. VAULT SHALL BE PRECAST REINFORCED CONCRETE (MIN. 3,000 PSI) IN ACCORDANCE WITH ASTM C858 AND C913. THE VAULT SHALL BE DESIGNED FOR HS20–44 WHEEL LOADS.
3. MAINTAIN 12" MINIMUM CLEARANCE BETWEEN ALL PIPING AND VAULT WALLS.
4. ALL INTERIOR PIPE AND FITTINGS SHALL BE FLANGED DIP IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
5. ALL DIP SHALL BE CLASS 350 DIP.
6. PIPE SUPPORTS SHALL BE 3,000 PSI, MIN. 8"x8" REINFORCED CONCRETE OR STEEL PIPE SUPPORT WITH CRADLE. SUPPORTS SHALL BE LOCATED SO AS TO ALLOW FULL SUPPORT OF EQUIPMENT WHEN DISCONNECTED FOR SERVICING, REPLACEMENT, ETC. IF STEEL SUPPORT IS USED, SUPPORT SHALL SIT ON 4" MIN. THICK 3,000 PSI REINFORCED MINIMUM 12" SQUARE OR ROUND CONCRETE PAD FLUSH WITH GRAVEL BEDDING.
7. CONTROL VALVE SHALL BE 8" CLA–VAL MODEL 131–22 AND SHALL INTERFACE WITH COUNTY'S SCADA.
8. FLOW METER SHALL BE 8" DIA. NEPTUNE MACH10 ULTRASONIC METER WITH THE SIGNALIZER MODEL EMP AND R900 SYSTEM TO COMMUNICATE WITH THE COUNTY'S SCADA.
9. RESTRAIN MJ PIPE WITH MEGA–LUGS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
10. CAST HATCH IN TOP SLAB. DOUBLE LEAF ALUMINUM HATCH SHALL BE HALLIDAY PRODUCTS SERIES H2W MODEL NO. H2W4848 W/ RECESSED KEYED CYLINDER LOCK W/ THREE (3) SETS OF KEYS OR APPROVED EQUAL.
11. PRESSURE TEST AND DISINFECT IN ACCORDANCE WITH AWWA C600 AND C651.



INTERCONNECTION VAULTS (MV-1)

N.T.S.

STAMP

PRECISION Planning Inc.
planners • engineers • architects • surveyors
Georgia Engineering Firm COA # PEF000529
400 Pike Boulevard Lawrenceville, GA 30046
770.338.8000 • www.ppi.us

COVERED BRIDGE ROAD WATER MAIN EXTENSION

CONSTRUCTION DETAILS

SHEET TITLE

DESIGN	DRAWN	CHECKED
AJG	DMP	RHC

DATE	NO	DESCRIPTION
11/14/25	0	ISSUED FOR BID
12/10/25	1	ADDENDUM #1

RELEASE

E24028
PPI PROJECT NO.

09

PLOT DATE: 12/10/2025 4:01 PM FILE PATH: W:\PROJECTS\2024\24028-MR-COVERED BRIDGE RD WATER\DWG\E24028_CONSTRUCTION DETAILS.DWG – 2025-12-10 – ALEX GOLDSTEIN

SCHEMATIC DIAGRAM SYMBOLS

Tag	Description
	CONDUCTORS CONNECTED
	CONDUCTORS NOT CONNECTED
	CONNECTION POINT
XX	TERMINAL POINT FOR OUTGOING CONDUCTORS, WITH IDENTIFICATION. "XX" DENOTES CONTRACTOR ASSIGNED.
MCPXXX-XX / XXA	MAGNETIC-ONLY CIRCUIT BREAKER (MCP), WITH CURRENT RATING
CBXXX-XX / XXA	CIRCUIT BREAKER, THERMAL-MAGNETIC UNLESS OTHERWISE NOTED, WITH FRAME SIZE AND TRIP RATING
FUXXX-XX / XXA	FUSE WITH SIZE AND OPTIONAL IDENTIFICATION.
DSXXX-XX / XXXA	DISCONNECT SWITCH. RATING OPTIONAL. 30 AMP, 600V RATED MINIMUM UNLESS OTHERWISE NOTED.
FUXXX-XX / XXA	FUSE DISCONNECT SWITCH. RATING OPTIONAL. 30 AMP, 600V MINIMUM UNLESS OTHERWISE NOTED.
XX / M-XXX	MOTOR (HP AS SHOWN, PHASES AS REQUIRED)
MSR-XXX / XX XX	MOTOR STARTER COIL
OL-XXX	THERMAL MOTOR OVERLOAD
M-XXX	MOTOR CONTACT
LSXXX-XX / LSXXX-XX	LIMIT SWITCH NORMALLY CLOSED AND NORMALLY OPEN
PSXXX-XX / PSXXX-XX	PRESSURE SWITCH NORMALLY CLOSED AND NORMALLY OPEN
TSXXX-XX / TSXXX-XX	TEMPERATURE SWITCH NORMALLY CLOSED AND NORMALLY OPEN
FSXXX-XX / FSXXX-XX	FLOW SWITCH NORMALLY CLOSED AND NORMALLY OPEN
FLTXXX-XX / FLTXXX-XX	LEVEL SWITCH NORMALLY CLOSED AND NORMALLY OPEN
PRSXXX-XX / PRSXXX-XX	PROXIMITY SWITCH NORMALLY CLOSED AND NORMALLY OPEN
PCSXXX-XX / PCSXXX-XX	PULLCORD SWITCH NORMALLY CLOSED AND NORMALLY OPEN
SVXXX-XX	SOLENOID VALVE
PBXXX-XX / PBXXX-XX	MOMENTARY PUSHBUTTON NORMALLY CLOSED AND NORMALLY OPEN
SSXXX-XX / SSXXX-XX (OX)	SELECTOR SWITCH NORMALLY CLOSED AND NORMALLY OPEN
TRXXX-XX / TRXXX-XX (0-30 SEC)	TIME DELAY SWITCH NORMALLY CLOSED AND NORMALLY OPEN
LTXXX-XX / X	PILOT LIGHT X = LENS COLOR — A = AMBER, B = BLUE, G = GREEN, R = RED, W = WHITE
CRXXX-XX	CONTROL RELAY
CRXXX-XX / CRXXX-XX	CONTROL RELAY CONTACT NORMALLY CLOSED AND NORMALLY OPEN
ALXXX-XX	ALARM LIGHT
AHXXX-XX	ALARM HORN
H1, H2, X1, X2, TFR-XXX	CONTROL POWER TRANSFORMER, PRIMARY AND SECONDARY VOLTAGE SHOWN. SIZE AS SHOWN OR SPECIFIED.
C.T. CTXXX-XX	CURRENT TRANSFORMER. PRIMARY/SECONDARY TURNS RATIO AS SHOWN.
XZXXX-XX	MOTOR SPACE HEATER

ONE LINE DIAGRAM SYMBOLS

Tag	Description
CB-XXX	LOW VOLTAGE POWER CIRCUIT AND BREAKER DRAWOUT TYPE, FRAME TRIP SHOWN
CB-XXX	MOLDED CASE CIRCUIT BREAKER, FRAME AND TRIP ID SHOWN
	LIGHTNING ARRESTOR AND GROUND
DS-XXX	DISCONNECT OR ISOLATING SWITCH: CONTINUOUS RATING SHOWN
MCP-XXX	MAGNETIC-ONLY CIRCUIT BREAKER (MCP), DRAWOUT TYPE, WITH CURRENT RATING
FS-XXX	FUSED SWITCH: FUSE AND SWITCH CONTINUOUS RATINGS SHOWN
TFR-XXX	POWER TRANSFORMER: PRIMARY & SECONDARY VOLTAGES, %Z, SIZE SHOWN
XS	CURRENT TRANSFORMER: RATIO SHOWN (3 INDICATES NO. OF CT'S) METER SWITCH, xS: AS – AMMETER SWITCH, VS – VOLTMETER SWITCH, FS – FREQUENCY SWITCH
PT	POTENTIAL TRANSFORMER PRIMARY & SECONDARY VOLTAGES & WINDINGS SHOWN. (x) UNITS
METER	METER: A – AMMETER, W – WATTMETER, KWH – WATT-HOUR METER, F – FREQUENCY METER, VAR – VAR METER, V – VOLTMETER
FVNR SIZE 1	FULL VOLTAGE, NON-REVERSING MAGNETIC MOTOR STARTER. NEMA SIZE INDICATED
FVR SIZE X	FULL VOLTAGE, REVERSING MAGNETIC MOTOR STARTER. NEMA SIZE INDICATED
XXHP VFD-XXX	VARIABLE FREQUENCY DRIVE. NEMA SIZE INDICATED
XXHP RVSS-XXX	REDUCED VOLTAGE SOLID STATE DRIVE (SOFT START). NEMA SIZE INDICATED
XX / M-XXX	MOTOR (HP AS SHOWN, PHASES AS REQUIRED)
	GENERATOR RECEPTACLE
N E MTS-XXX	MANUAL TRANSFER SWITCH
xx P-XXX-X x/c #xx 1/c #xx GND IN x" C.	CABLE TAG: P – POWER CABLE, C – CONTROL CABLE, S – SHIELDED SIGNAL CABLE

CIRCUIT AND RACEWAY SYMBOLS

- RACEWAY OR WIRING SYSTEM ABOVE FLOOR LEVEL BELOW CEILING, EXPOSED. (UNLESS OTHERWISE NOTED)
- RACEWAY OR WIRING SYSTEM BELOW FLOOR LEVEL, ABOVE CEILING, HIDDEN, OR EXISTING CABLE/CONDUIT. (UNLESS OTHERWISE NOTED)
- SCHEMATIC DIAGRAM FIELD WIRING. (UNLESS OTHERWISE NOTED)
- ONE LINE DIAGRAM EQUIPMENT ENCLOSURE. (UNLESS OTHERWISE NOTED)
- G — GROUNDING CONDUCTOR (CONCEALED), #4/0 AWG BARE COPPER
- GG — GROUNDING CONDUCTOR (EXPOSED), #4/0 AWG INSULATED COPPER
- PBD A-1,3,5 — HOME RUN – SEE PANELBOARD SCHEDULE FOR CIRCUIT INFORMATION. EXAMPLE: HOME TO PANELBOARD PBD A, CIRCUITS 1, 3, AND 5

GENERAL ABBREVIATIONS

AR	ALARM RELAY	MCC	MOTOR CONTROL CENTER
AS	AMMETER SELECTOR SWITCH	MCP	MOTOR CONTROL PANEL/MOTOR CIRCUIT PROTECTOR
A, AMP	AMP(S), AMPERE(S)		
AC	ALTERNATING CURRENT	MECH	MECHANICAL
AFF	ABOVE FINISHED FLOOR	MFR	MANUFACTURE(R)
AHAP	AS HIGH AS POSSIBLE	MH	MANHOLE
AIC	AMPS INTERRUPTING CAPACITY, SYMM.	MIC	MICROPHONE
AL	ALUMINUM	MIN	MINIMUM
AT	AMPERE TRIP	MISC	MISCELLANEOUS
AF	AMPERE FRAME	mM	MILLIMETER
AUTO	AUTOMATIC	mV	MILLIVOLT
AUX	AUXILIARY	MCM	MILLI CIRCULAR MILLS
AWG	AMERICAN WIRE GAUGE	MOP	MOTOR OPERATOR PANEL
		MPR	MOTOR PROTECTION RELAY
BC	BARE COPPER CONDUCTOR	MCB	MAIN CIRCUIT BREAKER
BKR	BREAKER	MTR	MOTOR
		MVS	MEDIUM VOLTAGE STARTER
C	CONDUCTOR/CONTACTOR		
CB	CIRCUIT BREAKER	N/A	NOT APPLICABLE
CJB	CIRCUIT JUNCTION BOX	NC	NORMALLY CLOSED
CKT	CIRCUIT	NEUT,N	NEUTRAL
CLG	CEILING	NIC	NOT IN CONTRACT
CR	CONTROL RELAY	NO	NORMALLY OPEN
CND	CONDUIT	NOM	NOMINAL
CONC	CONCRETE	NP	NAMEPLATE
CS	CONTROL SWITCH	NTS	NOT TO SCALE
CONT	CONTROL		
CPT	CONTROL POWER TRANSFORMER	OC	ON CENTER
CT	CURRENT TRANSFORMER	OD	OUTSIDE DIAMETER
CU	COPPER	OH	OVERHEAD
		OL's	OVERLOADS
D	DIAMETER	OT	OIL TIGHT
DB	DUCT BANK		
DC	DIRECT CURRENT	P	POLE
DET	DETAIL	PA	PUBLIC ADDRESS
DIAG	DIAGRAM	PB	PUSHBUTTON, PULLBOX
DPSH	DIFFERENTIAL PRESSURE SWITCH	PE	PHOTO ELECTRIC CELL
DS	DISCONNECT SWITCH	PF	POWER FACTOR
DWG	DRAWING	PH	PHASE
		PJB	POWER JUNCTION BOX
EA	EACH	PLC	PROGRAMMABLE LOGIC CONTROLLER
EC	ELECTRICAL CONTRACTOR	PNL	PANEL
EF	EXHAUST FAN	PP	POWER PANEL
EL	ELEVATION	PR	PAIR
ELEC	ELECTRIC(AL)	PRI	PRIMARY
EMER	EMERGENCY	PS	PRESSURE SWITCH
ENCL	ENCLOSURE/ENCLOSED	PT	POTENTIAL TRANSFORMER
EP	EXPLOSION PROOF EQUIP.	PVC	POLYVINYL CHLORIDE
EX, E	EXISTING	PWR	POWER
FCP	FURNISHED WITH EQUIPMENT PANEL	QSH	SHEAR PIN LIMIT SWITCH
FDR	FEEDER		
FLA	FULL LOAD AMPS	RCPT	RECEPTACLE
FPP	FIBER OPTIC DISTRIBUTION PANEL	RCT	REACTOR
FS	FLOW SWITCH	REF	REFERENCE REQ'D REQUIRED
FU	FUSE	RMS	ROOT MEAN SQUARE
FUT	FUTURE	RTD	RESISTANCE TEMPERATURE DETECTOR
FVNR	FULL VOLTAGE NON-REVERSING		
FVR	FULL VOLTAGE REVERSING	SCH	SCHEDULE
		SE	SPEED SENSOR
GALV	GALVANIZED	SEC	SECONDARY
GEN	GENERATOR	SEL	SELECTOR
GFR	GROUND FAULT RELAY	SER	SERVICE ENTRANCE RATED
GRD	GROUND	SPDT	SINGLE POLE DOUBLE THROW
GRS	GALVANIZED RIGID STEEL	SPEC	SPECIFICATION
		SPHTR	MOTOR SPACE HEATER
H	HIGH	SPKR	SPEAKER
HGT	HEIGHT	SSL	SPEED SWITCH
HH	HANDHOLE	SUB	SUBSTATION
HID	HIGH INTENSITY DISCHARGE	SW	SWITCH
HP	HORSEPOWER	SYMM	SYMMETRICAL
HS	HAND STATION (SWITCH)	SYS	SYSTEM
HVAC	HEATING, VENTILATION AND AIR CONDITIONING	SV	SOLENOID OPERATED VALVE
		SPB	SIGNAL PULL BOX
HZ	HERTZ (CYCLES PER SECOND)	STP	SHIELDED TWISTED PAIR
HOA	HAND/OFF/AUTO		
HOR	HAND/OFF/REVERSE	TB	TERMINAL BOX
HMH	HIGH VOLTAGE MANHOLE	TEL	TELEPHONE
		TEMP	TEMPERATURE
ID	INSIDE DIAMETER	TFR	TRANSFORMER
IMC	INDIVIDUAL MOTOR CONTROLLER	TH	THERMOSTAT
INTLK	INTERLOCK	TJB	TERMINAL JUNCTION BOX
INST	INSTANTANEOUS	TSH	TEMPERATURE SWITCH HIGH
INSTR	INSTRUMENT	TV	TELEVISION
I/O	INPUT-OUTPUT	TYP	TYPICAL
		TR	TIMING RELAY
JB	JUNCTION BOX	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
KV	KILOVOLT	UG	UNDERGROUND
KVA	KILOVOLT-AMPERE	UH	UNIT HEATER
KVAR	KILOVOLT-AMPERE REACTIVE	UON	UNLESS OTHERWISE NOTED
KW	KILOWATT		
KWH	KILOWATT-HOUR	V	VOLT
KAIC	KILO AMPERE INTERRUPTING CURRENT	VA	VOLT AMPERE
		VAR	VOLT AMPERE REACTIVE
L-O-R	LOCAL-OFF-REMOTE	VFD	VARIABLE FREQUENCY DRIVE
L	LONG	VSH	VIBRATION SWITCH
LC	LIGHTING CONTACTOR		
LCP	LOCAL CONTROL PANEL	W	WATT, WIRE, WIDE
LP	LIGHTING PANEL	W/	WITH
LOS	LOCK-OUT STOP	W/O	WITHOUT
LSIG	LONG, SHORT, INSTANTANEOUS TRIP SETTING AND GROUND FAULT PROTECTION	WE	WEIGHT LOAD CELL
		WIT	WEIGHT INDICATING TRANSMITTER
LSL	LEVEL SWITCH LOW	WP	WEATHERPROOF
LSO	LIMIT SWITCH OPEN		
LSC	LIMIT SWITCH CLOSED	XL	WARNING HORN/LIGHT
LTG	LIGHTING	XT	ANEMOMETER
LV	LOW VOLTAGE		
LSH	LEVEL SWITCH HIGH	ZS	POSITION (LIMIT) SWITCH
		ZSO	POSITION (LIMIT) SWITCH OPEN
M	MOTOR CONTACTOR	ZSC	POSITION (LIMIT) SWITCH CLOSED
mA	MILLIAMPERE	ZT	POSITION TRANSMITTER
MAX	MAXIMUM		
MCB	MAIN CIRCUIT BREAKER		

GENERAL NOTES:

1. SCOPE:
   A. FURNISH ALL LABOR, MATERIAL, EQUIPMENT AND TOOLS REQUIRED TO COMPLETE INSTALLATION OF THE ELECTRICAL SYSTEM INCLUDING BUT NOT LIMITED TO WIRING, BOXES, LIGHT FIXTURES, PANELS, SWITCHES, RECEPTACLES, DISCONNECTS, STARTERS, AND ALL OTHER WORK INDICATED ON THE DRAWINGS OR AS SPECIFIED HEREIN.
   B. OBTAIN ALL PERMITS, INSPECTIONS, AND APPROVALS AS REQUIRED BY THE LOCAL AUTHORITIES HAVING JURISDICTION AND DELIVER CERTIFICATE OF APPROVAL TO THE GENERAL CONTRACTOR. ALL ASSOCIATED FEES SHALL BE PAID BY THE CONTRACTOR.
   C. ALL MATERIALS AND EQUIPMENT OF THE ELECTRICAL SYSTEM NECESSARY FOR ITS PROPER AND SAFE OPERATION OR OTHERWISE REQUIRED BY CODE, BUT NOT SPECIFICALLY MENTIONED OR SHOWN ON THE DRAWINGS, SHALL BE FURNISHED AND INSTALLED WITHOUT ADDITIONAL CHARGE.
   D. WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF NATIONAL ELECTRICAL CODE, THE LATEST STANDARD BUILDING CODE, ANY OTHER LOCALLY ADOPTED CODES AND LOCAL AUTHORITIES HAVING JURISDICTION.
2. ALL SUBSTITUTIONS FOR EQUIPMENT AND MATERIAL SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO INSTALLATION.
3. THE CONTRACTOR SHALL COORDINATE ALL WORK WITH ALL OTHER TRADES. IT IS THE RESPONSIBILITY OF CONTRACTOR TO VERIFY THE ACTUAL LOCATION OF EQUIPMENT, DUCTWORK, PIPING, ETC. AND COORDINATED THE INSTALLATION ACCORDINGLY. THE EQUIPMENT WIRING SHALL INCLUDE ALL NECESSARY CABLES AND CONDUIT REQUIRED FOR THE PROPER AND SAFE EQUIPMENT OPERATION.
4. ALL CONDUCTORS SHALL BE COPPER #12 AWG MINIMUM CONDUCTOR SIZE FOR POWER AND LIGHTING WIRING. USE #14 AWG MINIMUM CONDUCTOR FOR SIGNAL WIRING. THE INSULATION FOR ALL CONDUCTORS SHALL BE THWN-2. SERVICE ENTRANCE CONDUCTORS SHALL BE XHHW.
5. POWER WIRES SIZES #12 AWG AND #10 AWG SHALL BE SOLID TYPE. ALL OTHER SIZES SHALL BE STRANDED.
6. ALL EXPOSED CONDUITS SHALL BE GALVANIZED RIGID STEEL, UNLESS NOTED OTHERWISE ON THE DRAWINGS, MINIMUM OF 3/4". ALL BURIED CONDUIT SHALL BE PVC-40, MINIMUM OF 1". ALL UNDERGROUND CONDUITS SHALL HAVE RIGID STEEL ELBOWS. ALL UNDERGROUND CONDUITS SHALL HAVE RIGID STEEL ELBOWS. ALL METAL CONDUITS SHALL BE PROTECTED WITH A BITUMINOUS COATING WHEN INSTALLED UNDERGROUND OR WHEN IN CONTACT WITH CONCRETE.
7. ALL FITTINGS SHALL BE CAST WITH THREADED HUBS. ALL CONNECTIONS SHALL BE COMPRESSION TYPE.
8. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL CABLES AND EQUIPMENT LUG SIZES. IN CASE THE CABLE IS OF A LARGER SIZE THAN THE EQUIPMENT LUG, CONTRACTOR SHALL PROVIDE THE REQUIRED CONNECTOR AT NO ADDITIONAL CHARGE TO OWNER.
9. THE CONTRACTOR SHALL PROVIDE PULL STRING AND IDENTIFICATION LABELS AT EACH CONDUIT END FOR ALL SPARE CONDUITS.
10. THE CONTRACTOR SHALL PROVIDE ALL REQUIRED PULL BOXES AND/OR CONDULETS TO MEET NEC ARTICLE 314 FOR CABLE PULLS.

PLAN DRAWING SYMBOLS

- M — MOTOR CONNECTION
- MOTOR STARTER, INDIVIDUAL -- NOT LOCATED IN AN MCC OR SIMILAR GROUP ASSEMBLY
- COMBINATION MOTOR STARTER/DISCONNECT INDIVIDUAL -- NOT LOCATED IN AN MCC OR SIMILAR GROUP ASSEMBLY
- DISCONNECT SWITCH. DISCONNECT SWITCHES ARE HEAVY DUTY, SINGLE THROW, WITH NEMA 4X ENCLOSURE UNLESS OTHERWISE NOTED. MOUNT AT 4'-8" TO CENTER OF DISCONNECT.
- FUSED DISCONNECT, NON-FUSED. PROVISION FOR CLASS R FUSES.
- FIELD INSTRUMENT CONNECTION
- START/STOP HAND STATION MOUNTED TO HANDRAIL (NEMA 4X UNLESS OTHERWISE NOTED)
- X — 120V, 20A, 1P TOGGLE SWITCH — [BLANK] = 1P TOGGLE SWITCH; 2 = 2P TOGGLE SWITCH; 3 = 3P TOGGLE SWITCH; D = SLIDE DIMMER; M = MOTOR RATED; S = TOGGLE WITH OCCUPANCY SENSOR
- DUPLEX 120V RECEPTACLE, 120V, 20A, 1P. MOUNT 6" ABOVE COUNTER, DESK, OR CABINET.
- GFCI DUPLEX 120V RECEPTACLE, 120V, 20A, 1P. MOUNT 6" ABOVE COUNTER, DESK, OR CABINET.
- QUADRAPLEX 120V RECEPTACLE, 120V, 20A, 1P. MOUNT 6" ABOVE COUNTER, DESK, OR CABINET.
- TELEPHONE BOX. MOUNT 18" A.F.F., INSTALL A 1/2" CONDUIT FROM BOX TO 6" ABOVE CEILING. PROVIDE PULL CORD FOR FUTURE CONNECTIONS AS REQUIRED.
- JB — JUNCTION BOX
- 60A, 480V, 3PH WELDING RECEPTACLE WITH INTERLOCKED 60A (NEMA 4X FUSED DISCONNECT SWITCH UNLESS OTHERWISE NOTED)

GROUNDING SYMBOLS

- GROUND ROD, 3/4" x 10'-0", COPPERCLAD (UNLESS OTHERWISE NOTED)
- GROUND ROD AND WELL
- COMPRESSION TYPE GROUNDING BOND TO MOTOR CASING OR EQUIPMENT
- EXOTHERMIC TYPE GROUNDING BOND TO MOTOR CASING OR EQUIPMENT

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COVERED BRIDGE ROAD
WATER MAIN EXTENSION

ELECTRICAL LEGEND AND NOTES

SHEET TITLE

DESIGN	DRAWN	CHECKED
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DATE	NO	DESCRIPTION
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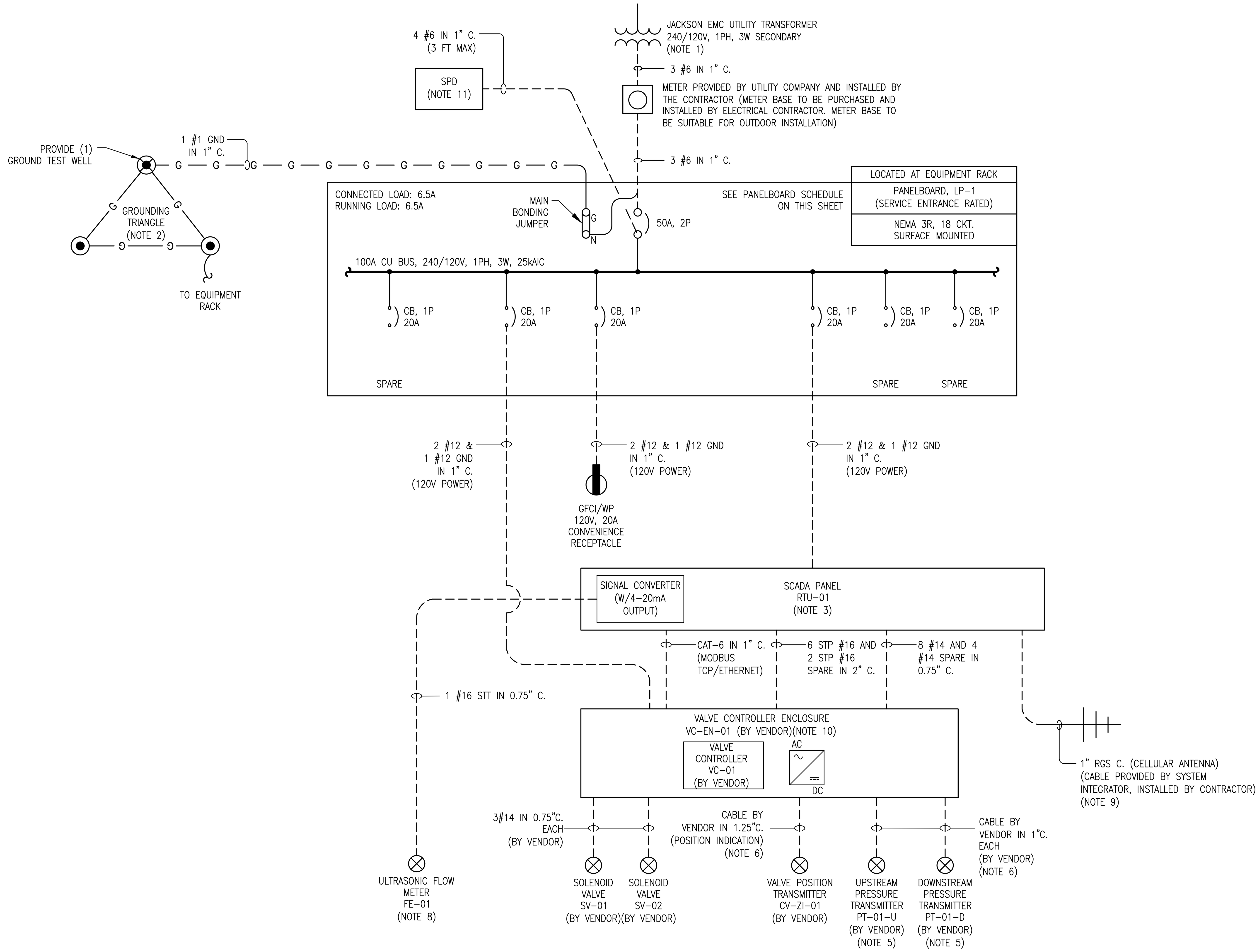

1 ONE LINE DIAGRAM

PANELBOARD				LP-CV-01				(LOCATED AT EQUIPMENT RACK)			
VOLTAGE (L-N):		120V				ENCLOSURE TYPE:		NEMA 3R			
VOLTAGE (L-L):		240V				MOUNTING:		SURFACE			
PHASE, WIRES:		1 ϕ, 3 W				AIC RATING (A):		22,000 AIC			
MINIMUM BUS CAPACITY (A):		100A CU				NOTES:		SERVICE ENTRANCE RATED			
MAIN O.C. DEVICE (A):		50A, 2P MAIN BREAKER									
CKT NO	DESCRIPTION	TRIP AMPS	POLE	PHASE LOADS (AMP) A		B		POLE	TRIP AMPS	DESCRIPTION	CKT NO
1	DUPLEX RECEPTACLE	20	1	4.5	1.5			1	20	SCADA RTU-01	2
3	SPARE	20	1			1.5	5.0	1	20	VALVE CONTROLLER ENCLOSURE VC-EN-01	4
5	SPARE	20	1	0.0	0.0			1	20	SPARE	6
7	SPACE					0.0	0.0			SPACE	8
9	SPACE			0.0	0.0					SPACE	10
11	SPACE					0.0	0.0			SPACE	12
13	SPACE			0.0	0.0					SPACE	14
15	SPACE					0.0	0.0			SPACE	16
17	SPACE			0.0	0.0					SPACE	18
USE THE FOLLOWING CONDUCTORS FOR PANELBOARD CIRCUITS: 20A – #12AWG; 30A – #10AWG; 40A – #8AWG; 50A – #6AWG; 60A – #4AWG				CONNECTED LOAD PHASE TOTALS (AMP)				(*) – 30mA, EGFP CIRCUIT BREAKER			
				6.0		6.5					

2 PANELBOARD LP-CV-01 SCHEDULE

NOTES:

1. THE CONTRACTOR SHALL COORDINATE THE LOCATION OF THE UTILITY TRANSFORMER WITH JACKSON EMC, TOMMY KING, TKING@JACKSONEMC.COM, 706-367-5281. THE CONTRACTOR IS RESPONSIBLE FOR PAYING ALL COSTS ASSOCIATED WITH BRINGING THE 240/120V, 1PH SERVICE TO THE SITE.

2. THE CONTRACTOR SHALL FURNISH AND INSTALL A COMPLETE GROUND GRID AROUND THE UTILITY RACK AND MAKE CONNECTIONS TO THE PANELBOARD. THE GRID SHALL CONSIST OF #1 BARE COPPER GROUND CONDUCTOR, 3-3/4" DIAMETER 10' GROUND RODS AND CADWELD CONNECTIONS TO GROUND RODS. SEE DETAIL "2" ON DWG. E-4.

3. THE SYSTEM INTEGRATOR SHALL FURNISH AND CONTRACTOR SHALL INSTALL A CELLULAR BASED SCADA PANEL FOR REAL TIME CONTROL AND MONITORING OF A CONTROL VALVE SYSTEM IN NEMA 3R LOCKABLE STEEL ENCLOSURE. IT IS THE RESPONSIBILITY OF THE SYSTEM INTEGRATOR TO DETERMINE THE TYPES OF CELLULAR SERVICE AVAILABLE IN THE AREA AND SELECT THE APPROPRIATE CELLULAR TRANSCEIVER WHICH WILL PROVIDE THE MOST RELIABLE CONNECTION. SCADA SYSTEM COMPONENTS NAD PROGRAMMING MODIFICATIONS SHALL BE PROVIDED BY BY ZILE TECHNOLOGY (JOHN ZILE – JOHNZ@ZILETECHNOLOGY.COM; 678-707-6017).
   THE SCADA PANEL SHALL INCLUDE AS A MINIMUM THE FOLLOWING COMPONENTS:
   - NEMA 3R PADLOCKABLE ENCLOSURE;
   - 20A, 1P, 120V MAIN BREAKER;
   - ALLEN-BRADLEY MICRO850 CONTROLLER;
   - ETHERNET SWITCH;
   - CELLULAR MODEM;
   - POWER SUPPLY;
   - FLOW METER SIGNAL CONVERTER;
   - ALL THE REQUIRED I/O MODULES, FIELD TERMINALS, ETC. AS REQUIRED FOR PROPER EQUIPMENT OPERATION.

   THE FOLLOWING INPUTS/OUTPUTS SHALL BE PROVIDED:

   A. PRESSURE SETPOINT (4-20mA) (AO);
   B. FLOW SETPOINT (4-20mA) (AO);
   B. AC POWER LOSS (FROM RTU INTERNAL POWER MONITORING RELAY) (DI);
   C. INSTANTANEOUS FLOW (FROM VC-22)(4-20mA) (AI);
   D. INSTANTANEOUS/TOTAL FLOW (4-20mA) (AI);
   E. UPSTREAM PRESSURE (4-20mA) (AI);
   F. DOWNSTREAM PRESSURE (4-20mA) (AI);
   G. CONTROL VALVE POSITION INDICATION (4-20mA) (AI);
   H. VALVE OPENED (DI);
   I. VALVE CLOSED (DI);
   J. VALVE OPEN COMMAND (DO);
   K. VALVE CLOSE COMMAND (DO).

THE SYSTEM INTEGRATOR SHALL INCLUDE ALL THE REQUIRED PROGRAMMING SCOPE TO INTEGRATE THE CONTROL VALVE OPERATIONAL LOGIC INTO THE EXISTING BARROW COUNTY WATER DISTRIBUTION SCADA SYSTEM. INCLUDE ALL THE REQUIRED SCOPE FOR NEW HMI GRAPHICS CREATION ASSOCIATED WITH THE VALVE ADDITION.

4. ALL EQUIPMENT SHALL BE HOUSED IN PADLOCKEABLE NEMA 3R STEEL ENCLOSURES TO PREVENT UNAUTHORIZED ACCESS.

5. THE CONTRACTOR SHALL PROVIDE AND INSTALL UPSTREAM AND DOWNSTREAM PRESSURE TRANSMITTERS. THE TRANSMITTERS SHALL HAVE NEMA 6P/IP67 ENCLOSURE RATING AND PRODUCE 4-20mA OUTPUT SIGNAL TO SCADA SYSTEM. THE TRANSMITTER SHALL BE BY CLA-VAL MODEL: X141-PT.

6. PRESSURE TRANSMITTERS, PRESSURE REDUCING CONTROL VALVE AND VALVE POSITION TRANSMITTER SHALL HAVE PREWIRED CABLES LONG ENOUGH TO REACH VALVE CONTROLLER WITHOUT SPLICING.

7. THE CONTRACTOR SHALL PROVIDE AND INSTALL 240/120V, 1PH, 3W, 10CKT. PANELBOARD IN NEMA 3R LOCKABLE ENCLOSURE. SEE PANELBOARD SCHEDULE ON THIS SHEET FOR MORE DETAILS.

8. THE CONTRACTOR SHALL PROVIDE AND INSTALL BATTERY POWERED ULTRASONIC FLOW METER ASSEMBLY AND ALL REQUIRED ACCESSORIES FOR PROPER SYSTEM OPERATION. FLOW METER SHALL BE BY NEPTUNE MACH 10 SERIES CAPABLE OF COMMUNICATION WITH SIGNAL CONVERTER TO PROVIDE 4-20mA OUTPUT TO SCADA SYSTEM. INSTALLATION SHALL BE AS PER MANUFACTURER RECOMMENDATIONS.

9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MOUNTING SCADA ANTENNA AS PER SYSTEM INTEGRATOR REQUIREMENTS. CONTRACTOR SHALL PROVIDE ALL NECESSARY HARDWARE FOR PROPER ANTENNA INSTALLATION.

10. THE CONTRACTOR SHALL PROVIDE AND INSTALL VALVE CONTROLLER NEMA 3R LOCKABLE ENCLOSURE TO HOUSE VALVE CONTROLLER AND 24VDC POWER SUPPLY. THE VALVE CONTROLLER SHALL BE BY CLA-VAL MODEL# VC-22D. POWER SUPPLY SHALL BE BY "PULS" OR APPROVED EQUAL. POWER SUPPLY SHALL BE RATED FOR 120VAC, 1PH INPUT AND 10A, 24VDC OUTPUT.

11. THE CONTRACTOR SHALL PROVIDE SURGE PROTECTION DEVICE (SPD) IN NEMA 4 ENCLOSURE. SPD SHALL BE EATON CAT#: SPD-80-240S-3-0 WITH INTEGRAL DISCONNECT SWITCH OR APPROVED EQUAL.

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COVERED BRIDGE ROAD
WATER MAIN EXTENSION

ONE LINE
DIAGRAM

SHEET TITLE

DESIGN	DRAWN	CHECKED
I.S.	I.S.	D.V.

DATE	NO	DESCRIPTION
11/14/25	A	ISSUED FOR BID

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E24028
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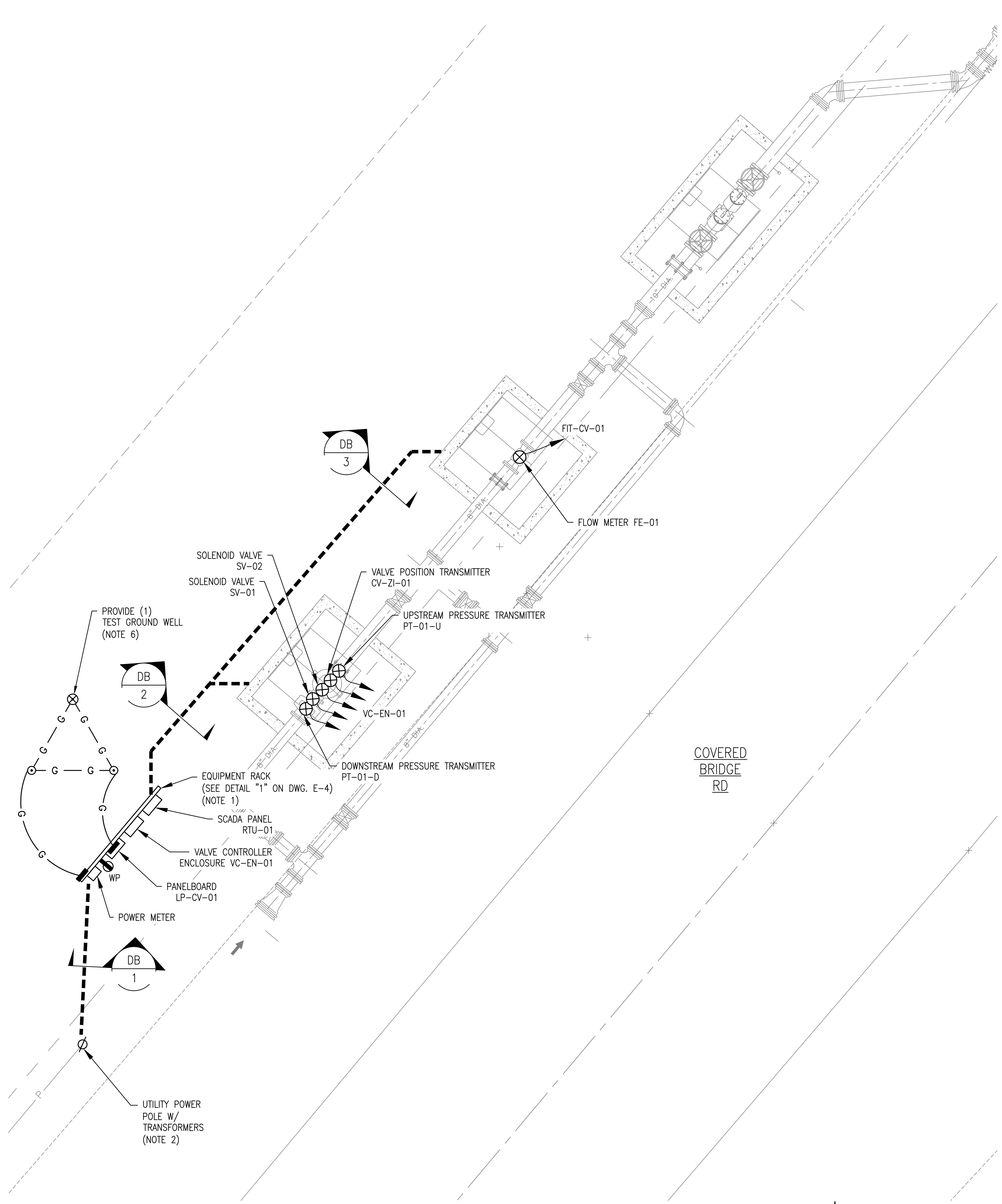
E-2

NOTES:

1. THE CONTRACTOR SHALL PROVIDE AND INSTALL EQUIPMENT RACK AS SHOWN. CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY EXACT LOCATION OF THE EQUIPMENT RACK TO PROVIDE ADEQUATE WORKING CLEARANCES FOR ALL EQUIPMENT.
2. THE CONTRACTOR SHALL COORDINATE THE ACTUAL LOCATION OF THE UTILITY POLE IN THE FIELD WITH JACKSON EMC AND ADJUST CABLES/CONDUITS ROUTING ACCORDINGLY.
3. THE CONTRACTOR SHALL FURNISH AND INSTALL DIRECT BURIED CONDUITS WITH MAGNETIC TAPE ABOVE BETWEEN ELECTRICAL EQUIPMENT AS SHOWN ON ONE LINE DIAGRAM DWG. E-2. SEE DETAIL "3" ON DWG. E-4 FOR DUCTBANK INSTALLATION DETAIL.
4. THE CONTRACTOR SHALL VERIFY THE EXACT LAYOUT OF CONTROL VALVE VAULT WITH MECHANICAL DRAWINGS AND ADJUST INSTRUMENTS LOCATIONS AS NEEDED.
5. CONTRACTOR SHALL PROVIDE AND INSTALL UNDERGROUND CONDUITS TO ROUTE CABLES AS SPECIFIED ON THE ONE LINE DIAGRAM E-2. UNDERGROUND DUCTBANKS ARE NOT SHOWN ON THE DRAWING FOR CLARITY.
6. FIELD LOCATE GROUND TRIANGLE WITH OWNER APPROVAL TO MINIMIZE ENCROACHMENT INTO FUTURE CITY OF WINDER UTILITY CORRIDOR.

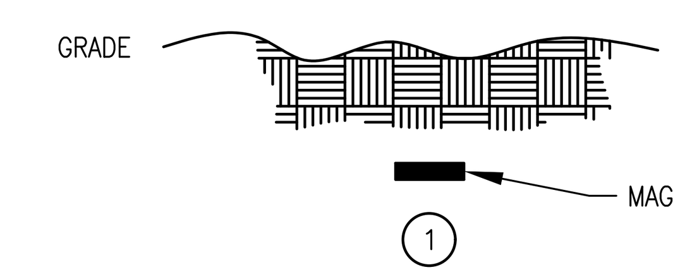


1 ELECTRICAL SITE PLAN
SCALE: 1/4" = 1'

GRAPHIC SCALE

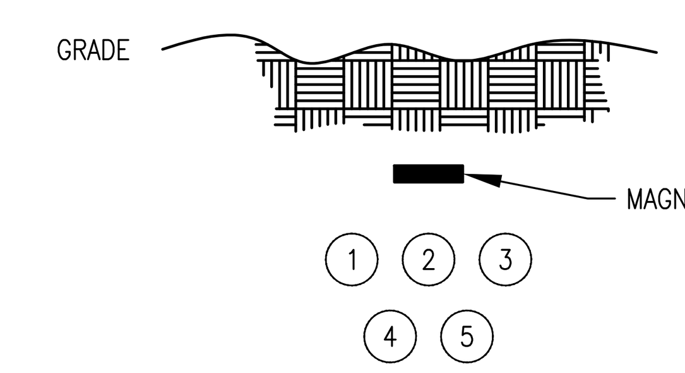
(IN FEET)
1/4 inch = 1 ft.

UNDERGROUND DUCTBANKS:



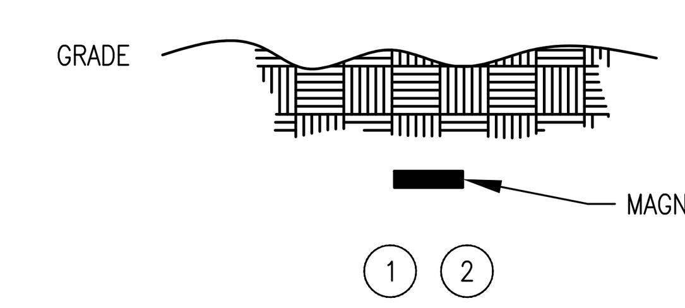
DB-1

1 – 1" C. (240/120V UTILITY SERVICE POWER)



DB-2

1) 1.5" C. (CONTROLS TO VC-EN-01)
2) 2" C. GRS (SIGNAL TO VC-EN-01)
3) 1.5" C. (SPARE)
4) 1" C. GRS (SIGNAL FROM FE-01)
5) 1" C. (SPARE)



DB-3

1) 1" C. GRS (SIGNAL FROM FE-01)
2) 1" C. (SPARE)

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COVERED BRIDGE ROAD WATER MAIN EXTENSION

ELECTRICAL SITE PLAN

SHEET TITLE

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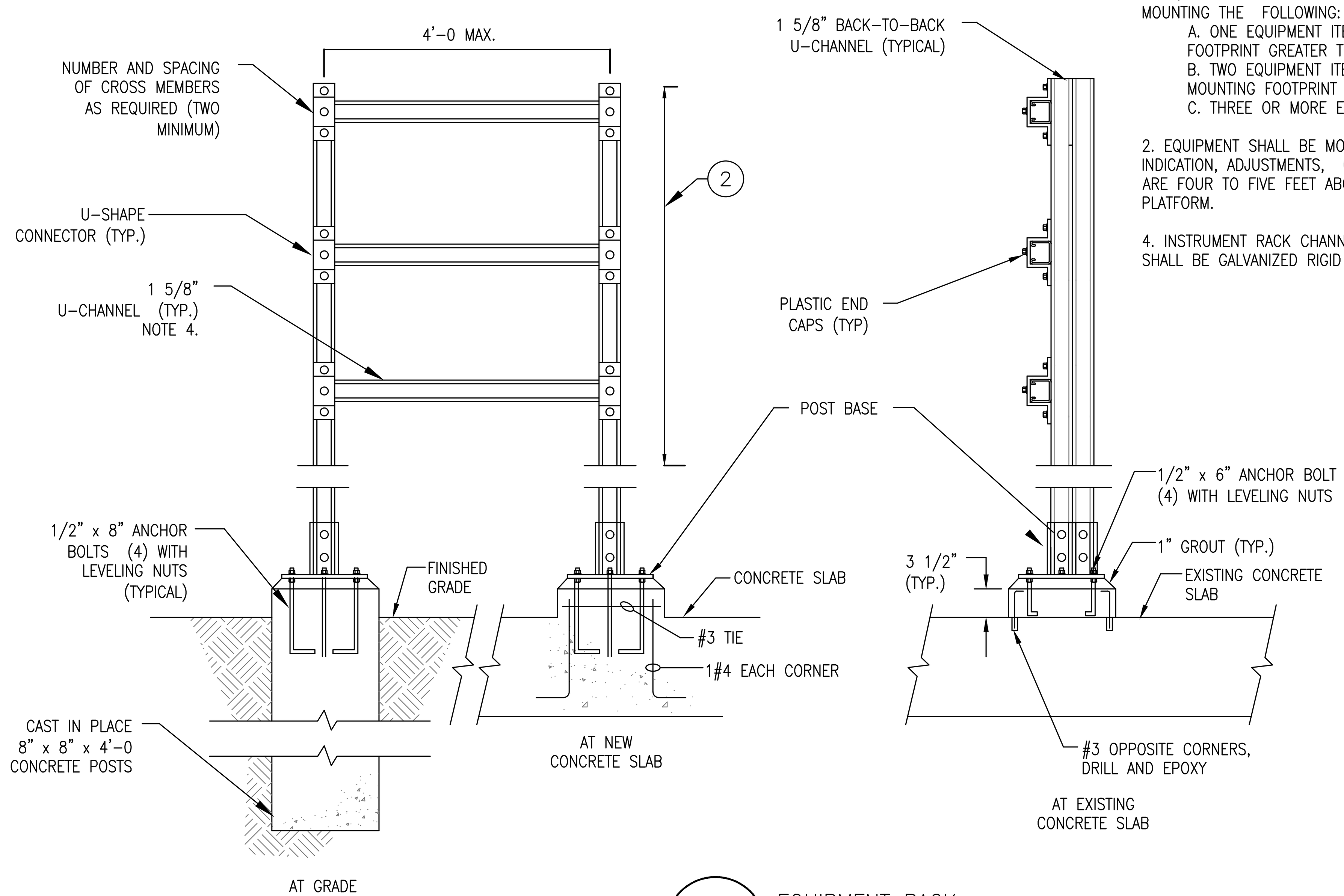
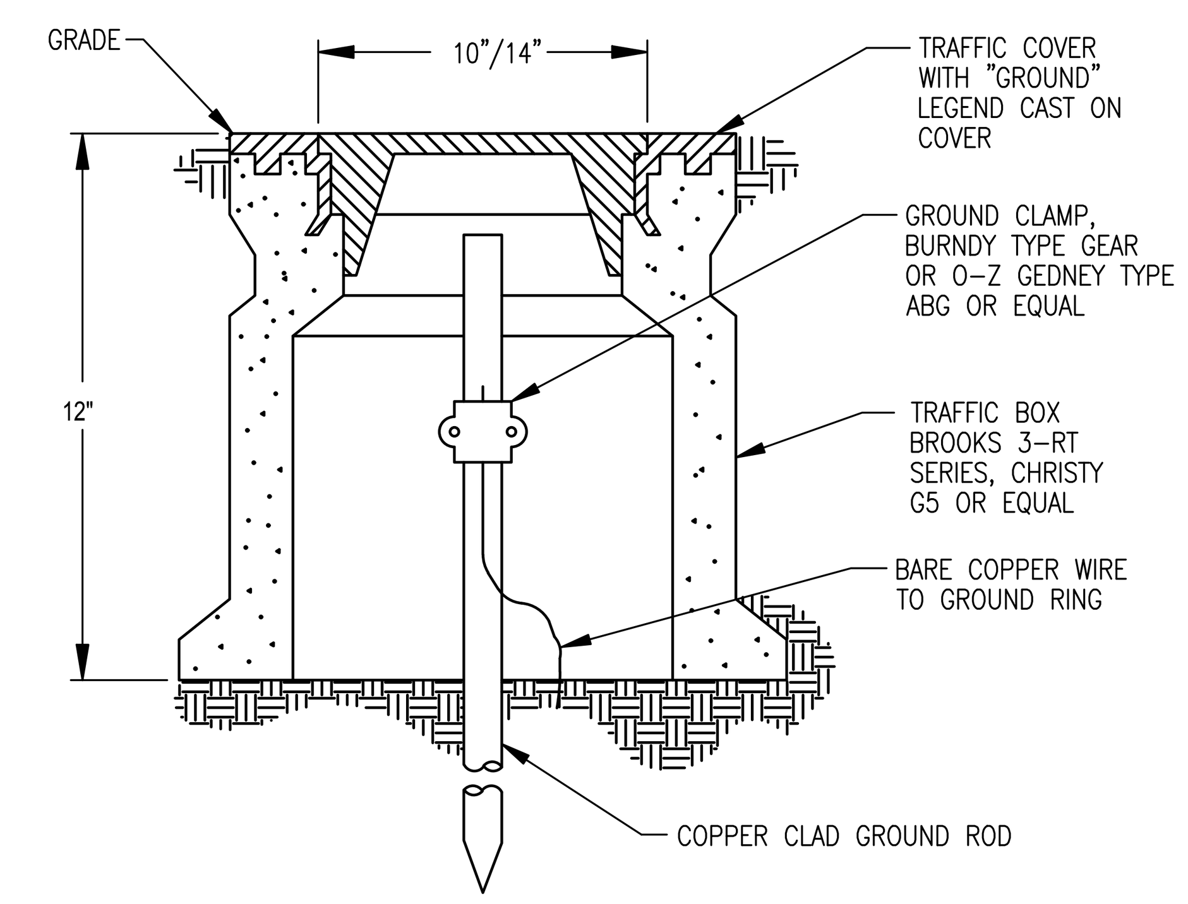
E-3

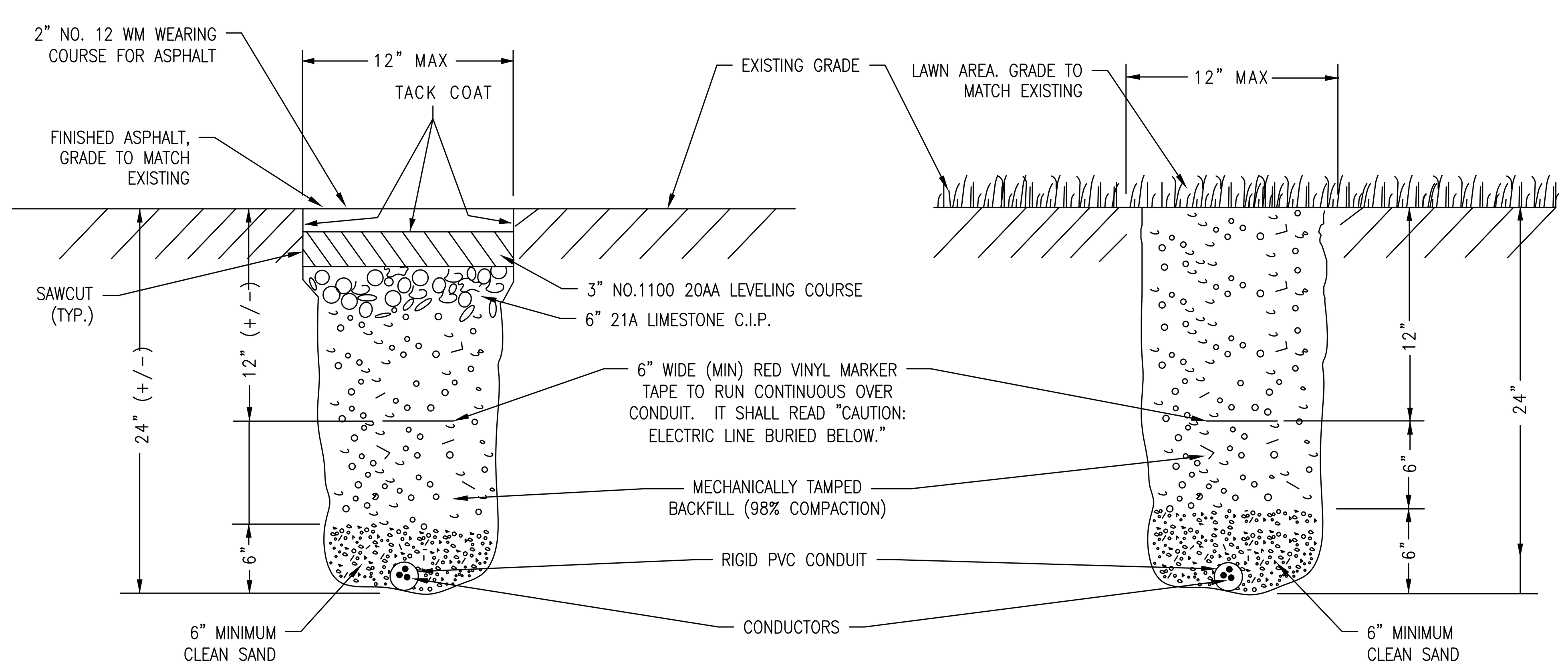
NOTES:
1. EQUIPMENT RACK SHALL BE UTILIZED FOR MOUNTING THE FOLLOWING:
   A. ONE EQUIPMENT ITEM WITH MOUNTING FOOTPRINT GREATER THAN 150 IN .
   B. TWO EQUIPMENT ITEMS WITH COMBINED MOUNTING FOOTPRINT GREATER THAN 130 IN.
   C. THREE OR MORE EQUIPMENT ITEMS.
2. EQUIPMENT SHALL BE MOUNTED SO THAT INDICATION, ADJUSTMENTS, OR OPERATING HANDLES ARE FOUR TO FIVE FEET ABOVE FLOOR OR PLATFORM.
4. INSTRUMENT RACK CHANNELS AND FITTINGS SHALL BE GALVANIZED RIGID STEEL.



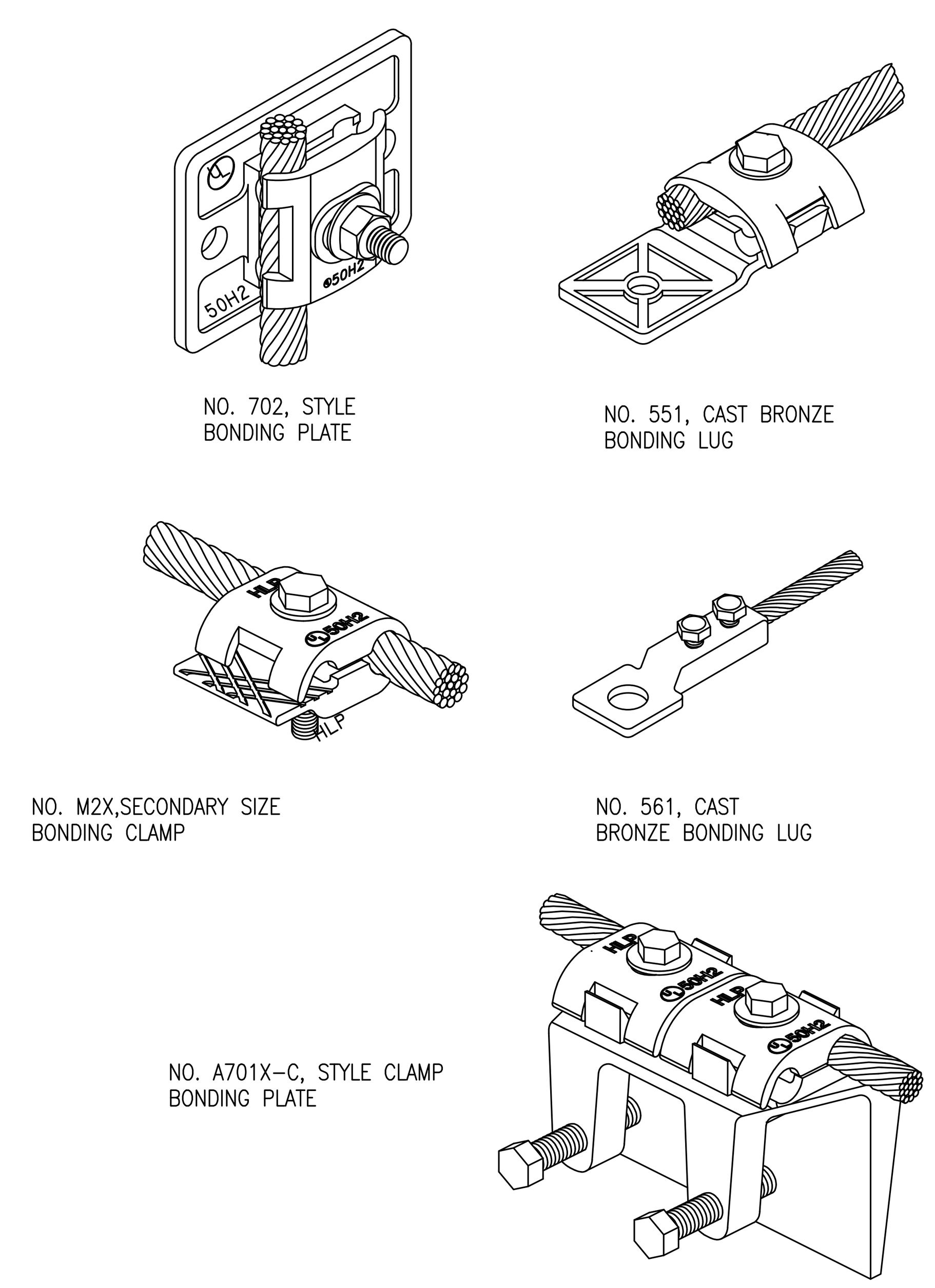
1 EQUIPMENT RACK



2 GROUND WELL INSTALLATION DETAIL



3 CONDUIT SECTION IN TRENCH INSTALLATION DETAIL



4 TYPICAL BONDING LUGS AND PLATES

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COVERED BRIDGE ROAD
WATER MAIN EXTENSION

ELECTRICAL INSTALLATION DETAILS

SHEET TITLE

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E-4