

**ADDENDUM NO. 1**

**July 15, 2025**

**RE:           Meter Replacement Project  
              Van Buren County Public Water Authority  
              Van Buren County, Arkansas**

**FROM:       GarNat Engineering, LLC  
              3825 Mt Carmel Road  
              Bryant, Arkansas 72022**

**TO:           Prospective Bidders**

This Addendum forms a part of the Contract Documents and modifies the original Bidding Documents dated **May, 2025** as noted below. Acknowledge receipt of the Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to disqualification.

This Addendum consists of two (2) revised sheets and five (5) attachments.

**GENERAL**

Acknowledge receipt of this addendum by signing in the space provided below and returning this page to the Engineer by e-mail to [garnatengineering@gmail.com](mailto:garnatengineering@gmail.com).

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Company Name

**CHANGES TO BIDDING REQUIREMENTS**

- A.     TOC-1 – Table of Contents
  - 1.     Delete the Table of Contents and substitute it with the updated attachment.
- B.     Add the following section:
  - 1.     Section 00410 – EJDC Bid Bond

## **CHANGES TO AGREEMENT FORMS**

A. Add the following sections:

1. Section 00610 – EJDC Performance Bond
2. Section 00620 – EJDC Payment Bond

## **CHANGES TO DIVISION 2 – SITE WORK**

A. Section 02640 – Disc Series & Ultrasonic Radio Read Meters

1. Delete the section and substitute with the updated attachment.

**END OF ADDENDUM**

**TABLE OF CONTENTS**  
**PROJECT MANUAL**  
**METER REPLACEMENT PROJECT**  
**VAN BUREN COUNTY PUBLIC WATER AUTHORITY**  
**VAN BUREN COUNTY, ARKANSAS**

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SECTION NO.                      SECTION TITLE

**BIDDING REQUIREMENTS**

00030	Advertisement for Bids
00100	Instructions for Bidders
00300	Bid Form – Unit Price
00410	EJDC Bid Bond
	Notice of Award

**AGREEMENT FORMS**

00500	Agreement
00610	EJDC Performance Bond
00620	EJDC Payment Bond
	Notice to Proceed

**CONDITIONS OF THE CONTRACT**

00700	EJCDC General Conditions
00800	Supplementary Conditions

**TECHNICAL SPECIFICATIONS**

**DIVISION 1                      GENERAL REQUIREMENTS**

01000	Project Requirements
01025	Methods of Measurement and Payment
01335	Submittals
01620	Storage and Handling of Materials
01660	Testing
01800	Operation & Maintenance Manuals

**DIVISION 2                      SITE WORK**

02640	Disc Series & Ultrasonic Radio Read Meters
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**DETAILS**

<u>Detail Number</u>	<u>Sheet Title</u>
1	5/8" x 3/4" Meter with Setter
2	5/8" x 3/4" Meter with No Setter
3	1" Meter Setting
4	2" Meter Setting
5	Cast Iron Meter Box

**BID BOND****BIDDER (Name and Address):**

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**SURETY (Name and Address of Principal Place of Business):**

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**OWNER (Name and Address):**

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**BID**

BID DUE DATE: \_\_\_\_\_

PROJECT (Brief Description Including Location):

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**BOND**

BOND NUMBER: \_\_\_\_\_

DATE (Not later than Bid due date): \_\_\_\_\_

PENAL SUM: \_\_\_\_\_

(Words)

(Figures)

IN WITNESS WHEREOF, Surety and Bidder, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Bid Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

BIDDER

SURETY

\_\_\_\_\_(Seal)

Bidder's Name and Corporate Seal

\_\_\_\_\_(Seal)

Surety's Name and Corporate Seal

By: \_\_\_\_\_

Signature and Title

By: \_\_\_\_\_

Signature and Title  
(Attach Power of Attorney)

Attest: \_\_\_\_\_

Signature and Title

Attest: \_\_\_\_\_

Signature and Title

- Note: (1) Above addresses are to be used for giving required notice.  
 (2) Any singular reference to Bidder, Surety, OWNER or other party shall be considered plural where applicable.

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to pay to OWNER upon default of Bidder the penal sum set forth on the face of this Bond.
2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by OWNER) the executed Agreement required by the Bidding Documents and any performance and payment Bonds required by the Bidding Documents.
3. This obligation shall be null and void if:
  - 3.1. OWNER accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by OWNER) the executed Agreement required by the Bidding Documents and any performance and payment Bonds required by the Bidding Documents, or
  - 3.2. All Bids are rejected by OWNER, or
  - 3.3. OWNER fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by paragraph 5 hereof).
4. Payment under this Bond will be due and payable upon default by Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from OWNER, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.
5. Surety waives notice of and any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by OWNER and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from Bid due date without Surety's written consent.
6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in paragraph 4 above is received by Bidder and Surety and in no case later than one year after Bid due date.
7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.
8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.
9. Surety shall cause to be attached to this Bond a current and effective Power or Attorney evidencing the authority of the officer, agent or representative who executed this Bond on behalf of Surety to execute, seal and deliver such Bond and bind the Surety thereby.
10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.
11. The term "Bid" as used herein includes a Bid, offer or proposal as applicable.

# Performance Bond

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

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CONTRACTOR (Name and Address):

SURETY (Name and Address of Principal Place  
of Business):

OWNER (Name and Address):

## CONTRACT

Date:

Amount:

Description (Name and Location):

## BOND

Date (Not earlier than Contract Date):

Amount:

Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Performance Bond to be duly executed on its behalf by its authorized officer, agent or representative.

## CONTRACTOR AS PRINCIPAL

Company: (Corp. Seal)

Signature: \_\_\_\_\_

Name and Title:

## SURETY

Company: (Corp. Seal)

Signature: \_\_\_\_\_

Name and Title:

(Attach Power of Attorney)

(Space is provided below for signatures of additional parties, if required.)

## CONTRACTOR AS PRINCIPAL

Company: (Corp. Seal)

Signature: \_\_\_\_\_

Name and Title:

## SURETY

Company: (Corp. Seal)

Signature: \_\_\_\_\_

Name and Title:

EJCDC No. 1910-28-A (1996 Edition)

Originally prepared through the joint efforts of the Surety Association of America, Engineers Joint Contract Documents Committee, the Associated General Contractors of America, and the American Institute of Architects.

1. The CONTRACTOR and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Contract, which is incorporated herein by reference.

2. If the CONTRACTOR performs the Contract, the Surety and the CONTRACTOR have no obligation under this Bond, except to participate in conferences as provided in paragraph 3.1.

3. If there is no OWNER Default, the Surety's obligation under this Bond shall arise after:

3.1. The OWNER has notified the CONTRACTOR and the Surety at the addresses described in paragraph 10 below, that the OWNER is considering declaring a CONTRACTOR Default and has requested and attempted to arrange a conference with the CONTRACTOR and the Surety to be held not later than fifteen days after receipt of such notice to discuss methods of performing the Contract. If the OWNER, the CONTRACTOR and the Surety agree, the CONTRACTOR shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive the OWNER's right, if any, subsequently to declare a CONTRACTOR Default; and

3.2. The OWNER has declared a CONTRACTOR Default and formally terminated the CONTRACTOR's right to complete the Contract. Such CONTRACTOR Default shall not be declared earlier than twenty days after the CONTRACTOR and the Surety have received notice as provided in paragraph 3.1; and

3.3. The OWNER has agreed to pay the Balance of the Contract Price to:

3.3.1. The Surety in accordance with the terms of the Contract;

3.3.2. Another contractor selected pursuant to paragraph 4.3 to perform the Contract.

4. When the OWNER has satisfied the conditions of paragraph 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

4.1. Arrange for the CONTRACTOR, with consent of the OWNER, to perform and complete the Contract; or

2. Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or

4.3. Obtain bids or negotiated proposals from qualified contractors acceptable to the OWNER for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by the OWNER and the contractor selected with the OWNER's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the Bonds issued on the Contract, and pay to the OWNER the amount of damages as described in paragraph 6 in excess of the Balance of the Contract Price incurred by the OWNER resulting from the CONTRACTOR Default; or

4.4. Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances;

4.4.1 After investigation, determine the amount for which it may be liable to the OWNER and, as soon as practicable after the amount is determined, tender payment therefor to the OWNER; or

4.4.2 Deny liability in whole or in part and notify the OWNER citing reasons therefor.

5. If the Surety does not proceed as provided in paragraph 4 with reasonable promptness, the Surety shall be deemed to be in default on this Bond fifteen days after receipt of an additional written notice from the OWNER to the Surety demanding that the Surety perform its obligations under this Bond, and the OWNER shall be entitled to enforce any remedy available to the OWNER. If the Surety proceeds as provided in paragraph 4.4, and the OWNER refuses the payment tendered or the Surety has denied

liability, in whole or in part, without further notice the OWNER shall be entitled to enforce any remedy available to the OWNER.

6. After the OWNER has terminated the CONTRACTOR's right to complete the Contract, and if the Surety elects to act under paragraph 4.1, 4.2, or 4.3 above, then the responsibilities of the Surety to the OWNER shall not be greater than those of the CONTRACTOR under the Contract, and the responsibilities of the OWNER to the Surety shall not be greater than those of the OWNER under the Contract. To a limit of the amount of this Bond, but subject to commitment by the OWNER of the Balance of the Contract Price to mitigation of costs and damages on the Contract, the Surety is obligated without duplication for:

6.1. The responsibilities of the CONTRACTOR for correction of defective Work and completion of the Contract;

6.2. Additional legal, design professional and delay costs resulting from the CONTRACTOR's Default, and resulting from the actions or failure to act of the Surety under paragraph 4; and

6.3. Liquidated damages, or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non-performance of the CONTRACTOR.

7. The Surety shall not be liable to the OWNER or others for obligations of the CONTRACTOR that are unrelated to the Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the OWNER or its heirs, executors, administrators, or successors.

8. The Surety hereby waives notice of any change, including changes of time, to the Contract or to related subcontracts, purchase orders and other obligations.

9. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the Work or part of the Work is located and shall be instituted within two years after CONTRACTOR Default or within two years after the CONTRACTOR ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

10. Notice to the Surety, the OWNER or the CONTRACTOR shall be mailed or delivered to the address shown on the signature page.

11. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the Contract was performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted here from and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

12. Definitions.

12.1 Balance of the Contract Price: The total amount payable by the OWNER to the CONTRACTOR under the Contract after all proper adjustments have been made, including allowance to the CONTRACTOR of any amounts received or to be received by the OWNER in settlement of insurance or other Claims for damages to which the CONTRACTOR is entitled, reduced by all valid and proper payments made to or on behalf of the CONTRACTOR under the Contract.

12.2. Contract: The agreement between the OWNER and the CONTRACTOR identified on the signature page, including all Contract Documents and changes thereto.

12.3. CONTRACTOR Default: Failure of the CONTRACTOR, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Contract.

12.4. OWNER Default: Failure of the OWNER, which has neither been remedied nor waived, to pay the CONTRACTOR as required by the Contract or to perform and complete or comply with the other terms thereof.

(FOR INFORMATION ONLY--Name, Address and Telephone)

AGENT or BROKER: OWNER'S REPRESENTATIVE (Engineer or other party):

# Payment Bond

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

CONTRACTOR (Name and Address):

SURETY (Name and Address of Principal Place  
of Business):

OWNER (Name and Address):

## CONTRACT

Date:

Amount:

Description (Name and Location):

## BOND

Date (Not earlier than Contract Date):

Amount:

Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms printed on the reverse side hereof, do each cause this Payment Bond to be duly executed on its behalf by its authorized officer, agent, or representative.

### CONTRACTOR AS PRINCIPAL

Company: (Corp. Seal)

Signature: \_\_\_\_\_

Name and Title:

### SURETY

Company: (Corp. Seal)

Signature: \_\_\_\_\_

Name and Title:

(Attach Power of Attorney)

(Space is provided below for signatures of additional parties, if required.)

### CONTRACTOR AS PRINCIPAL

Company: (Corp. Seal)

Signature: \_\_\_\_\_

Name and Title:

### SURETY

Company: (Corp. Seal)

Signature: \_\_\_\_\_

Name and Title:

EJCDC No. 1910-28-B (1996 Edition)

Originally prepared through the joint efforts of the Surety Association of America, Engineers Joint Contract Documents Committee, the Associated General Contractors of America, the American Institute of Architects, the American Subcontractors Association, and the Associated Specialty Contractors.



1. The CONTRACTOR and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the OWNER to pay for labor, materials and equipment furnished for use in the performance of the Contract, which is incorporated herein by reference.
2. With respect to the OWNER, this obligation shall be null and void if the CONTRACTOR:
  - 2.1. Promptly makes payment, directly or indirectly, for all sums due Claimants, and
  - 2.2. Defends, indemnifies and holds harmless the OWNER from all claims, demands, liens or suits by any person or entity who furnished labor, materials or equipment for use in the performance of the Contract, provided the OWNER has promptly notified the CONTRACTOR and the Surety (at the addresses described in paragraph 12) of any claims, demands, liens or suits and tendered defense of such claims, demands, liens or suits to the CONTRACTOR and the Surety, and provided there is no OWNER Default.
3. With respect to Claimants, this obligation shall be null and void if the CONTRACTOR promptly makes payment, directly or indirectly, for all sums due.
4. The Surety shall have no obligation to Claimants under this Bond until:
  - 4.1. Claimants who are employed by or have a direct contract with the CONTRACTOR have given notice to the Surety (at the addresses described in paragraph 12) and sent a copy, or notice thereof, to the OWNER, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.
  - 4.2. Claimants who do not have a direct contract with the CONTRACTOR:
    1. Have furnished written notice to the CONTRACTOR and sent a copy, or notice thereof, to the OWNER, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials were furnished or supplied or for whom the labor was done or performed; and
    2. Have either received a rejection in whole or in part from the CONTRACTOR, or not received within 30 days of furnishing the above notice any communication from the CONTRACTOR by which the CONTRACTOR had indicated the claim will be paid directly or indirectly; and
    3. Not having been paid within the above 30 days, have sent a written notice to the Surety and sent a copy, or notice thereof, to the OWNER, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to the CONTRACTOR.
5. If a notice required by paragraph 4 is given by the OWNER to the CONTRACTOR or to the Surety, that is sufficient compliance.
6. When the Claimant has satisfied the conditions of paragraph 4, the Surety shall promptly and at the Surety's expense take the following actions:
  - 6.1. Send an answer to the Claimant, with a copy to the OWNER, within 45 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.
  - 6.2. Pay or arrange for payment of any undisputed amounts.
7. The Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.
8. Amounts owed by the OWNER to the CONTRACTOR under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any Performance Bond. By the CONTRACTOR furnishing and the OWNER accepting this Bond, they agree that all funds earned by the CONTRACTOR in the performance of the Contract are dedicated to satisfy obligations of the CONTRACTOR and the Surety under this Bond, subject to the OWNER's priority to use the funds for the completion of the Work.
9. The Surety shall not be liable to the OWNER, Claimants or others for obligations of the CONTRACTOR that are unrelated to the Contract. The OWNER shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.
10. The Surety hereby waives notice of any change, including changes of time, to the Contract or to related Subcontracts, purchase orders and other obligations.
11. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the Work or part of the Work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by paragraph 4.1 or paragraph 4.2.3, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.
12. Notice to the Surety, the OWNER or the CONTRACTOR shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, the OWNER or the CONTRACTOR, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.
13. When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is, that this Bond shall be construed as a statutory Bond and not as a common law bond.
14. Upon request of any person or entity appearing to be a potential beneficiary of this Bond, the CONTRACTOR shall promptly furnish a copy of this Bond or shall permit a copy to be made.
15. DEFINITIONS
  - 15.1. Claimant: An individual or entity having a direct contract with the CONTRACTOR or with a Subcontractor of the CONTRACTOR to furnish labor, materials or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of the CONTRACTOR and the CONTRACTOR's Subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.
  - 15.2. Contract: The agreement between the OWNER and the CONTRACTOR identified on the signature page, including all Contract Documents and changes thereto.
  - 15.3. OWNER Default: Failure of the OWNER, which has neither been remedied nor waived, to pay the CONTRACTOR as required by the Contract or to perform and complete or comply with the other terms thereof.

FOR INFORMATION ONLY--Name, Address and Telephone)

AGENCY or BROKER: OWNER'S REPRESENTATIVE (Engineer or other party):

## SECTION 02640 - DISC SERIES & ULTRASONIC RADIO READ METERS

### PART 1 - GENERAL

#### 1.01 GENERAL:

- A. The work to be included under this section of specifications shall consist of furnishing all materials, software, equipment, and incidentals required to provide and install a complete and operating radio read meter system.
- B. Meters shall meet or exceed the most recent revisions of AWWA C715 and AWWA C707 Standards. The lead-free copper alloy ultrasonic meters shall comply with the lead-free provisions of the Safe Drinking Water Act and NSF/ANSI Standards 61 and 372.

### PART 2 – PRODUCTS

2.01 WARRANTY: The manufacturer shall provide a 10 year warranty on all meters. Contractor shall provide 1 – year warranty on installation & workmanship.

2.02 RADIO READ SYSTEM: All components used in radio read system shall be designed to work together and be provided by one manufacturer.

2.03 ACCEPTABLE MANUFACTURER: Badger, no equal.

#### 2.04 DISC SERIES METERS:

- A. MODEL: Badger M25 & M70 Recordall Disc Series Meters, no equal.
- B. DISC SERIES METER MAIN CASE: Disc Series meters supplied under this specification shall operate to a pressure of 150 psi and to a temperature of 80° F without leakage or damage. The housing shall be constructed of lead-free bronze alloy and shall be designed so that at a working pressure of 150 psi, any distortion will not affect the accuracy of the meter. The metering tube shall have an unobstructed flow passage and shall not be repaired in any manner. The flow direction, meter size, and NSF-61 shall also be cast in the meter housing.
- C. DISC SERIES METER PERFORMANCE AND ACCURACY:

Size	Maximum Continuous Operation	Pressure Loss at Maximum Continuous Operation	Typical Operating Range 100% □ 1.5%	Low Flow (Min. 98.5%) (Min 95% for 1" Meter)
5/8"	15 gpm	3.5 psi	0.5...25 gpm	0.25 gpm
5/8" x 3/4"	15 gpm	2.8 psi	0.5...25 gpm	0.25 gpm
1"	50 gpm	6.5 psi	1.25....70 gpm	0.75 gpm

2.05 ULTRASONIC METERS:

- A. MODEL: Badger E160SS Ultrasonic Meter, no equal.
- B. ULTRASONIC METER MAIN CASE: Ultrasonic meters supplied under this specification shall operate to a pressure of 175 psi and to a temperature of 150° F without leakage or damage. The housing shall be constructed of stainless steel and shall be designed so that at a working pressure of 175 psi, any distortion will not affect the accuracy of the meter. The metering tube shall have an unobstructed flow passage and shall not be repaired in any manner. The flow direction, meter size, and NSF-61 shall also be cast in the meter housing.
- C. ULTRASONIC METER PERFORMANCE AND ACCURACY:

Size	Safe Maximum Operating Capacity	Maximum Allowable Head Loss at SMOC	Normal Test Flow Limits 100% ± 1.5%	Minimum Test Flow Rates 100% ± 5%
1-1/2"	100 gpm	3.8 psi	1.25...100 gpm	0.40 gpm
2"	160 gpm	5.2 psi	1.5...160 gpm	0.50 gpm

- 2.06 REGISTRATION/DISPLAY: The processor shall be powered by a single A cell lithium battery that is permanently sealed to eliminate moisture intrusion. Processors shall incorporate a low flow indicator. Processors shall incorporate a direction of flow indicator. The processor shall be secured to the meter main case by a tamper resistant method protecting against unauthorized removal of the processor from the meter body. The processor and meter shall be a single unit to prevent the removal from the body of the meter. The processor shall provide a true absolute encoder output that provides direct electronic transfer of meter reading information to any number of AMR/AMI device options. The encoder register shall send data in ASCII format (American Standard code for Information Interchange) to the interrogation device. The encoder register shall transmit the complete 8 digit serial number and complete 8 digit meter reading. An 8-digit register identification number that has been factory set and never duplicated shall be sent to the reading device. For all installations, the processor shall be permanently factory sealed with an epoxy coating of all terminal connections. Meter requiring field sealing of the wire connection will not be allowed. All wiring for radio MIU's shall be installed and potted by the manufacturer. Acceptable wiring configurations shall include 5' flying lead wire, 18" Nicor connectors, and 5' Itron cable connects. No other options are permitted. In line waterproof connections are required during installation for pit set encoder registers with Radio MIU's to facilitate installation and field investigations.

2.07 RADIO ENDPOINT:

- A. All endpoints shall be ORION ME Water Endpoints, no equal.
- B. The endpoint shall communicate with the encoder and captures 60-minute interval read data and meter status information. The endpoint then automatically broadcasts

## SECTION 02640 - DISC SERIES & ULTRASONIC RADIO READ METERS: continued

the information, including endpoint status information, every 6 seconds via the radio network.

- C. All endpoints shall be shipped in an inactive, non-transmitting state.
- D. The endpoint shall be able to store 90 days of 60-minute data.
- E. The endpoint shall be deployed in indoor, outdoor and pit (non-metal pit lid) applications. The electronics and battery assembly shall be fully encapsulated in epoxy for environmental integrity. The endpoint shall be furnished with a connector assembly for ease of installation.

### 2.08 AMR HARDWARE:

- A. Hardware shall consist of ORION RF board, battery, transceiver, antenna, power and comms cables, and Mobile Installation Tool.
- B. Hardware shall be compatible with all new meters, endpoints, and software.

### 2.09 AMR SOFTWARE:

- A. Software shall consist of BEACON Mobile Solution, ORION Mobile Read, & ORION Endpoint Owner Software.
- B. Software shall be compatible with all new meters, endpoints, and hardware.
- C. Software shall allow up to 2 User Logins.

### 2.10 LAPTOP / COMPUTER:

- A. Laptop shall be Dell Latitude 5430 Rugged Laptop, or approved equal.

### 2.11 METER BOX LIDS:

- A. Register box enclosures and lids shall be made of engineering thermoplastic or other suitable synthetic polymer. The lid shall have a snap close feature to prevent the lid from opening if installed in a vertical up position. The lid shall overlap the registration enclosure to protect the lens. The name or logo of the manufacturer shall be permanently molded into the lid, and at the option of the Owner, a serial number shall be imprinted on the registration lid.

## PART 3- EXECUTION

### 3.01 METER LOCATIONS:

- A. Meter locations will be provided to the Contractor via an Excel Spreadsheet File. The Spreadsheet information shall include:
  - 1. Address
  - 2. Latitude
  - 3. Longitude

### 3.02 METER INSTALLATION:

- A. *Meter Identification* - Upon arrival to a designated meter site, Contractor shall verify location by matching serial number of the meter on the Customer Database

file to meter in vault. If numbers match the Contractor can proceed. Should there be a discrepancy between Customer Database file serial number and subject meter number, Contractor should verify street location and, if correct, note discrepancy on Customer Database file and *temporarily skip* the meter installation. Inspection of register shall also be made at time of initial identification to determine any current usage on service at that time.

- B. *Customer Contact* - Contractor shall knock on Customer door and advise occupant that Contractor has been contracted by the Owner and explain the purpose of their visit and that water service will be interrupted for a short period of time. If no one comes to the door and the meter shows active usage, then the Contractor shall *temporarily skip* the installation and return a short time later. Should no one be home at the Customer address and the meter shows no usage, the Contractor shall proceed with the install.
- C. *Isolation of House* - After the determination to proceed is made, Contractor shall locate Customer side shut-off valve and close shut off valve. (NOTE: Should there be considerable debris in the meter pit, this should be removed prior to disruption of water service.) Care should be taken when operating Customer shutoff. Location of flushing bib should be located and opened.
- D. *Isolation at Curb* - On return to meter site, remove meter lid and remove any dirt or debris from around meter and curb stop valve. Contractors shall then shut off inlet curb valve taking care not to make abrupt movements, which may damage valve.
- E. *Removal of Meter* - With line isolated, Contractor shall loosen both meter-coupling nuts and remove existing meter from service. Coupling face where gasket seats shall be scraped to remove any residue of the existing gasket and to create a smooth surface for installation of new gasket. Debris in the meter couplings can be removed by slightly cracking inlet curb valve and flushing debris from threads.
- F. *Installation of New Meter* - New meter shall be installed with new meter gasket. Coupling nuts shall be properly tightened and meter shall rest in a horizontal position with no tilting to either side of pit. Assuming service line is of sufficient depth.
- G. *Repressurization of Line* - With new meter in, Contractor shall slowly open curb stop valve checking gaskets and line for any sign of leakage. With the line fully repressurized, the Contractor can move curb stop valve to a fully open position.
- H. *Flushing of Line* - The flushing process shall continue until water clears and any entrapped air has evacuated the line. This will take 15 to 30 seconds, depending on line size and proximity of the hose bib to the meter site. With complete flushing, hose bibs can be shut down.
- I. *Recording Information* - After meter installation is completed and re-inspected for any leaks, Contractor shall record all essential replacement information on the Customer Database file. This shall include new meter serial number, new meter

reading, existing meter reading, date and name of Contractor; final read and pre and post installation photos of installation. Any other information regarding the setting or peripheral hardware used to complete the installation should also be noted on the Customer Database file. All data shall be transmitted electronically to the Owner.

- J. *Customer Notice* - Should Customer be present; the Contractor shall advise them that work have been completed. If no one was present, this step will not be necessary. Owner may elect to have Contractor's place notice cards provided by Owner on Customer's doors advising them of meter replacement.
  - K. *Cleaning Work Site* - After completion of replacement and notice to Customer, Contractor shall pick up all tools and equipment, and make sure there is no debris or dirt left around the meter area. The existing meter that was removed shall be returned to the Owner.
  - L. All meters, valves, piping, boxes, and lids removed or replaced during installation shall remain the property of the Owner and shall be promptly returned to a location designated by the Owner.
  - M. Problems with existing piping shall not be grounds for failure to complete the meter installation. Only when existing piping is leaking or deteriorating to a point that damage to it could reasonably be expected to occur and cause a leak during meter replacement will poor piping be accepted as a reason for not replacing the meter. When such poor piping is encountered, Contractor shall notify Owner and shall return to install the meter when notified that the condition has been corrected. NO concrete or asphalt work will be incidental! Owner will be responsible for removal and replacement unless itemized in contract. Landscaping issues will be turned over to Owner.
  - N. The Owner may authorize the Contractor to make any necessary repairs to service lines (meter to house), order the Customer to make such repairs or Owner may make such repairs.
  - O. Repairs to water service stubs (water main to meter) shall be made by the Owner upon notification from Contractor that such repairs are required.
- 3.03 MANUFACTURER'S CERTIFICATION:
- A. Meter Manufacturer shall inspect and certify installation of entire radio read system prior to Engineer issuing a Certificate of Substantial Completion.
- 3.04 OWNER TRAINING:
- A. A factory-trained service representative of the meter manufacturer shall be present for one-day training on operating the Mobile Installation Tool.
  - B. A factory – trained service representative of the meter manufacturer shall install and test the AMR software on the laptop/computer provided based on specifications provided by meter manufacturer. Upon successful completion of the installation, the manufacturer's representative shall provide training on the operation and maintenance of the system to the Owner.

END OF SECTION 02640