



Addendum 1
CFPUA – Wrightsville Beach Consolidation
Water Meter Replacements
April 24, 2025

BIDS DUE: Tuesday, April 29, 2025, at 2:00 PM (as originally advertised)

TO ALL BIDDERS:

Below are changes and or clarifications to the bid documents for this project. This Addendum forms a part of the Contract Documents and modifies the original bidding documents as noted below. Acknowledge receipt of this Addendum as required in the bid documents. Failure to do so may subject Bidder to disqualification.

BID FORM REVISIONS:

A revised Bid Tab is attached. Bids must be submitted on the revised Bid Tab.

Pay Items have been updated to match revised specification revisions as described below and provide additional pay items in response to RFIs.

TECHNICAL SPECIFICATION REVISION:

Edited the following in Technical Specification Section 33 19 00:

- Section 1.0 (C)- Increased quantity of 6” meters to be provided by CFPUA
- Section 1.3 – Updated to incorporate additional bid items in response to RFI questions.

QUESTIONS RECEIVED:

- Q1. Will the equipment necessary to activate the new meters be provided by CFPUA for the contractor's temporary use?
- A1. CFPUA will provide (1) portable tablets with windows and software and (1) Badger IR cable for transmitter activation for contractor use for the duration of the project.
- Q2. Can "Pay Item #3" be broken out into additional pay items for each nominal size of pipe/meter larger than 2"? The costs for the hardware, and potential fittings necessary for installation may drastically vary from 3" to 6".
- A2. Former Pay Item #3 has been broken out to provide a pay item for each meter size greater than 2” on the revised Contractor Bid Form. Technical Specification section 33 19 00 Section 1.3 has been updated accordingly.
- Q3. Can "Pay Item #7" be broken out into additional pay items for each nominal size of pipe/meter larger than 2"? The costs for the hardware, and potential fittings necessary for installation may drastically vary from 3" to 6".

- A3. Former Pay Items #5 and #7 for meter relocation have been broken out for each meter size greater than 2" on the revised Contractor Bid Form. Technical Specification section 33 19 00 Section 1.3 has been updated accordingly.
- Q4. Please specify the size of line for the potential leak repair notated in "Pay Item #11".
- A4. Former Pay Item #11 (revised Pay Item #17 and #18) has been revised for pricing per inch of existing line size to accommodate various existing sizes. Technical Specification section 33 19 00 Section 1.3 has been updated accordingly.
- Q5. The operation of existing isolation valves is essential to the replacement of these existing meters. If a meter isolation valve is found to be inoperable will a change order be issued for the replacement of said valve? If not, should the contractor anticipate these costs, or can a Pay Item be added to address this possibility?
- A5. Pay Item #19 has been added to the updated Contractor Bid Form to provide pricing for valve replacement should inoperable or broken valves be encountered. This pay item is based on per inch size of valve to be replaced to accommodate various sizes that may be encountered. Technical Specification section 33 19 00 Section 1.3 has been updated accordingly.
- Q6. What is the approximate square miles of the geographic area of the meters to be covered under this contract?
- A6. Wrightsville Beach, NC is approximately 1.3 square miles of land area. Contractor to use exhibits in attachment #2 and publicly available mapping resources to confirm.
- Q7. According to the line item for "Traffic Rated Lid / Box Substitution", the line item will be the difference between the regular lid and the traffic rated lid. My question is, where are the regular lids and boxes going to be priced?
- a. If they are in line item #2, does the Utility want all of the lids replaced on the Meters equal to or less than 2"?
- A7. The intention is for pricing of new lids and boxes to be included in line item #2.
- (a) For meter sizes 2" or less, the contractor shall replace all existing (typically cast iron) meter box lids with polyethylene resin lids at AMR equipped water meters, as required. Lids shall conform to standard detail as included in the exhibits. There shall be no drilling of existing lids for meters under 3" in size. If the Contractor encounters a non-standard meter box, they may either provide a specialty lid constructed of like material to the standard, specified lid, or replace the non-standard box with a standard meter box and lid at the expense of the contractor.
- Q8. What is the expected elevation, in inches, meters may have to be raised or lowered?
- A8. Contractor shall assume maximum of 6".

- Q9. What is the age and primary make-up of service lines? (copper, plastic, galvanized)
- A9. This information is unknown to the owner at this time.
- Q10. Will the contractor need to identify the material of service lines?
- a. If yes, what is the procedure required for identifying service lines?
- A10. It is recommended that Contractor perform site visits in advance of starting work to document the existing materials, configuration and disposition of existing meters and service lines. Contractor to document all installed materials per project specifications.
- Q11. What is the Billing Software the Utility is utilizing?
- A11. CFPUA uses Microsoft Dynamics 365 with the UMAX utility billing add-on by Itineris. However, the Contractor will not interact with this system directly.
- If the Contractor does not opt to use CFPUA's Work Order System, the Contractor will need to provide CFPUA the data in the ASCII file format specified in Attachment #33: Data Transfer File Format Specifications of the original bid documents. CFPUA staff will be responsible for importing the ASCII file into the billing system.
- If the Contractor opts to use CFPUA's Work Order System, then they will not need to produce the ASCII file. All relevant data will be collected through the Work Order System and automatically transferred to CFPUA's billing system.
- Q12. Do all settings have operable shut off valves before the meters?
- A12. Operational condition is unknown. Contractor to inspect and verify that shut off valves are operational prior to beginning work.
- Q13. What is the procedure for any inoperable or broken valves?
- A13. Pay Item #19 has been added to the updated Contractor Bid Form to provide pricing for valve replacement should inoperable or broken valves be encountered. This pay item is based on per inch size of valve to be replaced to accommodate various sizes that may be encountered. Technical Specification section 33 19 00 Section 1.3 has been updated accordingly.
- Q14. Are there any Fire Meters?
- a. If yes, what sizes and how many?
- A14. One 6-inch meter is Fire Series Assembly. A list of the meters and sizes included in this contract can be found in Attachment #1.
- Q15. Do the meters have bypasses?
- A15. The presence of bypass meter and configuration varies; Contractor to perform site visits and verify prior to beginning work.

- Q16. Line item #11 is for an existing service line leak repair (Owner's side). Question: is up to 24" from the meter an acceptable distance?
- A16. Former Pay Item #11 has been broken out for separate pricing for near side and far side service leak repairs. Leak repair applies to the extents of the service from the meter connection to the main line.
- Q17. Is the Contractor to provide the Service Line, meter boxes and lids?
- a. If the Contractor is providing these materials, how is the Contractor to be compensated?
- A17. The contractor is responsible for providing materials identified in project specifications and contract documents and will be compensated per the bid tab.
- Q18. Can you confirm that sales tax should be included with pricing?
- A18. Refer to Construction General Conditions and CFPUA Supplemental Conditions Section 6.10 of the General Conditions.
- Q19. Can you confirm that a project sign is required?
- A19. Project signs should be provided per project specifications and contract documents.
- Q20. "Replacing inoperable components of the water service," Epg 192 Question: Will contractor need to furnish & install valves?
- a. If yes, will you add a line item?
- A20. Pay Item #19 has been added to the updated Contractor Bid Form to provide pricing for valve replacement should inoperable or broken valves be encountered. This pay item is based on per inch size of valve to be replaced to accommodate various sizes that may be encountered. Technical Specification section 33 19 00 Section 1.3 has been updated accordingly
- Q21. Per the drawing in the RFP, there are (2) 6" meters. Will the Contractor be furnishing and installing two 6" meters?
- a. Will the Contractor be furnishing and installing vaults for a 6" meter?
- A21. CFPUA will be furnishing (2) 6-inch meters. See additional note below. Refer to project specifications and specifically Attachments #27 and #28 for additional information on scope of work for 6" meters.
- Q22. Line Item 2 "Replace Meter (equal to or less than 2") If existing meter box is damaged or not sized appropriately (i.e. 2" meter in 1" box), then replace meter box with new box according to CFPUA standards," Question: How many box replacements do you anticipate for this line item?
- A22. Contractor shall bid the quantities on the bid tab.

- Q23. Line Item 5 & 7 Relocate Meter (larger than 2”) and Relocate Meter – Rigid Surface (larger than 2”) Question: Do we include furnishing & installation the boxes with this line item?
- A23. No. If box requires relocation and replacement, additional line items will be used for the replacement efforts.
- Q24. Will you provide the specs for the boxes and/or vaults?
- A24. Refer to CFPUA Standard Specifications and Details located at <https://www.cfpua.org/763/CFPUA-Technical-Standards>.

Additional Note:

Revision to Section 1.0.C: Two (2) 6-inch water meters will be furnished by CFPUA.

PN	QTY
6” Badger Recordall FSAA water meter PN: 113 - 7575	1
6” Badger Recordall water meter PN: 104 - 8218	1

ACKNOWLEDGEMENT BY BIDDER. Bidder shall acknowledge receipt of this Addendum No. 1 in the space provided in the Bid Form.

All other terms & conditions remain unchanged.

Ben Guerrieri
Cape Fear Public Utility Authority
Procurement Manager
End of Addendum 1

Wesley Foy
Cape Fear Public Utility Authority
Project Manager



BID FORM

CFPUA Project Name:	CFPUA – Wrightsville Beach Consolidation Water Meter Replacements
Bids Due Date/Time: (A public bid opening will not be held)	Tuesday, April 29, 2025, at 2:00 PM
Bids shall be submitted in .pdf format to bids@cfpua.org	A reply will be sent to the email address submitting the bid to confirm receipt. It is the bidders' responsibility to confirm that CFPUA has received their bid via email. If email reply is not received from bids@cfpua.org, please call 910-332-6472 or 910-332-6551 before deadline for submission.

1. GENERAL

- 1.01 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to complete all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the Bidding Documents.
- 1.02 Terms contained in the Bidding Documents, including this Bid Form, have the same meaning as defined in the general and supplementary conditions made part of the Bidding Documents.
- 1.03 Bidder accepts all the terms and conditions of the Advertisement for Bid and Instruction to Bidders, including without limitation those dealing with the disposition of Bid Security. This bid will remain open and valid for ninety (90) calendar days after the day of the Bid opening. Bidder will sign the Agreement and submit insurance, bonding and other documents required by the Contract Documents within ten (10) calendar days from the date Owner gives notice to apparent lowest, responsive responsible Bidder.

2. PROJECT EXPECTATIONS

- 2.01 In submitting this Bid, Bidder represents, as fully set forth in the Agreement, that:

- A. Bidder has examined and carefully studied the Bidding Documents, the other related data identified in the Bidding Documents, and the following Addenda, receipt of all which is hereby acknowledged.

No. _____ Dated _____

No. _____ Dated _____

No. _____ Dated _____

No. _____ Dated _____

- B. The undersigned Bidder agrees that Bidder has carefully examined and become familiar with the expectations of the Work described in the Bidding Documents, and agrees that he/she has met the bidding responsibilities stated in Section 4 of the Instructions to Bidders.

3. NON-COLLUSION, NON-SUSPENSION, AND NON-CONVICTION

- 3.01 Bidder represents that this Bid is genuine and is non-collusive.
- 3.02 Bidder further represents that he/she is not suspended or debarred from bidding on this Work, and that Bidder has not been convicted of any charges or engaged in any unlawful act of trade in Federal or any state jurisdiction.
- 3.03 Bidder is fully aware that Bid is not considered responsive, if CFPUA's Affidavit and Certificate of Non-Collusion, Non-Suspension and Non-Conviction is not properly executed and submitted with Bid Form.

4. CONTRACT TIMES

- 4.01 Bidder agrees to the contract times and liquidated damages stated in the Agreement made part of the Bidding Documents.

5. BID AMOUNT

- 5.01 Bidder agrees to perform all the work described in the Bidding Documents for the unit and/or lump sum prices found in the Bid tabulation. *(Bid tabulation to be completed by Bidder can be found on next page. If Bid tabulation intentionally excluded by Owner and Owner is requesting one lump sum price for the complete Work, Bidder shall write out the lump sum amount in both word format and number format at the bottom of this page. Ex: one hundred twenty-five and 12/100 dollars; \$125.12)*

Wrightsville Beach Consolidation Water Meter Replacements					
Contractor's Bid Form					
Pay Item	Pay Item Description	Unit	Estimated Quantity	Unit Price	Extended Price
1	Mobilization & Materials Handling & Coordination (3% max)	LS	1	\$	\$
2	Replace Meter (equal to or less than 2")	EA	100	\$	\$
3	Replace Meter 3"	EA	9	\$	\$
4	Replace Meter 4"	EA	6	\$	\$
5	Replace Meter 6"	EA	2	\$	\$
6	Relocate Meter (equal to or less than 2")	EA	10	\$	\$
7	Relocate Meter 3"	EA	1	\$	\$
8	Relocate Meter 4"	EA	1	\$	\$
9	Relocate Meter 6"	EA	1	\$	\$
10	Relocate Meter - Rigid Surface equal to or less than 2"	EA	5	\$	\$
11	Relocate Meter - Rigid Surface 3"	EA	1	\$	\$
12	Relocate Meter - Rigid Surface 4"	EA	1	\$	\$
13	Relocate Meter - Rigid Surface 6"	EA	1	\$	\$
14	Lower/Raise Meter Service & Box (equal to or less than 2")	EA	20	\$	\$
15	Lower/Raise Meter Box (equal to or less than 2")	EA	20	\$	\$
16	Traffic Rated Lid / Box Substitution (equal to or less than 2")	EA	10	\$	\$
17	Existing Service Line Leak Repair (Owner's side-Near side) per inch of line size	IN	40	\$	\$
18	Existing Service Line Leak Repair (Owner's side-Far side) per inch of line size	IN	40	\$	\$
19	Valve Replacement per Inch of Size	IN	60	\$	\$
				TOTAL	\$

The quantities listed for each item are estimates only and are not a guarantee of the amount of services that will be required or ordered by the Owner.

TOTAL IN WORDS: _____

6. SUBCONTRACTS

6.01 Bidder shall list all the subcontractors they have selected to perform the following subdivisions of work: None

7. BIDDER LICENSE

7.01 The bidder must have the following North Carolina General Contractor's License to be qualified to perform the work associated with this bid. Bidder must list License number below and provide copy of North Carolina General Contractors Certificate.

Limitation: Intermediate

Classification(s): Public Utilities

NC License Number: _____ **License Expiration Date:** _____

8. BIDDER QUALIFICATIONS

8.01 Other Qualifications:

Bidder shall provide a minimum of three (3) projects successfully completed within the past eight (8) years that are of similar scope of work. Information shall be provided on Attachment A.

9. BIDDER CONTACT

9.01 Communications concerning this Bid shall be sent to the Bidder at the following:

Name: _____

Address: _____

Phone: _____ Email: _____

BIDDER SIGNATURE

Please see Section 9 of the Instruction to Bidder for additional information.

If a Corporation:

Bidder Name: _____
(As it appears on NC General Contractor's License)

By: _____ Date: _____
(Officer as registered with the NC Secretary of State, or authorized person and provide evidence of authority to sign)

Printed Name: _____ Title: _____

Business Address: _____

Phone: _____ Email: _____

Bidder is conducting Business under an Assumed Name (DBA) ____ Yes ____ No

If the above answer is Yes, please provide the Corporate Name as filed with the NC Secretary of State, and Provide Certificate of Assumed Name:

(Corporate Name as filed with NC Secretary of State)

If a Limited Liability Company

Bidder Name: _____
(As it appears on NC General Contractor's License)

By: _____ Date: _____
(Member-Manager)

Printed Name: _____ Title: _____

Business Address: _____

Phone: _____ Email: _____

Bidder is conducting Business under an Assumed Name (DBA) ____ Yes ____ No

If the above answer is Yes, please provide the Company Name as filed with the NC Secretary of State, and Provide Certificate of Assumed Name:

(Name as filed with NC Secretary of State)

If a Partnership

Bidder Name: _____
(As it appears on NC General Contractor's License)

By: _____ Date: _____
(Partner)

Printed Name: _____ Title: _____

Business Address: _____

Phone: _____ Email: _____

Bidder is conducting Business under an Assumed Name (DBA) ____ Yes ____ No

If the above answer is Yes, please provide the Partnership Name as filed with the NC Secretary of State, and Provide Certificate of Assumed Name:

(Name as filed with NC Secretary of State)

If an Individual

By: _____ Date: _____

Printed Name: _____

Doing business as: _____

Business Address: _____

Phone: _____ Email: _____

If a Joint Venture (other party must complete below)

Contractor: _____

Type (Ind., Part., Corp.) / Name: _____

By: _____ Date: _____

Printed Name: _____ Title: _____

Doing business as (if Individual): _____

Business Address: _____

Phone: _____ Email: _____

SECTION 33 19 00

WATER METER REPLACEMENTS

NOTE: OWNER WILL PROVIDE MATERIALS IDENTIFIED IN SECTION 1.0.C BELOW. ALL OTHER MATERIALS SHALL BE PROCURED AND PROVIDED BY THE CONTRACTOR. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR PROVIDING OTHER EQUIPMENT NEEDED FOR ANY PROGRAMMING, ACTIVATIONS, TESTING REQUIREMENTS, ETC. REQUIRED TO COMPLETE THE WORK.

PART 1 GENERAL

1.0 SUMMARY

A. The project will consist of replacing a total of approximately 117 meters within the Town of Wrightsville Beach (ToWB) as part of CFPUA's consolidation of the ToWBs water distribution system.

- Approximately 100 meters are mid-size Sensus meters (sizes ranging from 1.5" to 2"). These meters will be replaced with new Badger meters per CFPUA current standards. Based on past CFPUA experience, the Badger meters of this size are compatible with Sensus meters and can be directly replaced in the same meter box.
- Approximately 17 meters are larger than 2" (sizes ranging from 3" to 6"). These meters will be replaced with Badger meters per CFPUA current standards. At these locations, the sizes of existing meters, meter boxes, and piping configuration may require adjustment to accommodate the Badger replacement meters.
- Project will require a phased approach and diligent coordination with CFPUA and ToWB to maintain service and continuity of meter reading/billing.

B. The following information is provided for informational purposes only:

- Attachment #1: Summary List of Meters to be Replaced*

**Awarded Contractor will be provided with a revised list from CFPUA that is edited/formatted to reflect CFPUA customer data and integrate with CFPUA billing system.*

- Attachment #2: Overall Route Map
- Attachment #2.1 Through #2.6: Enlarged Route Maps
- Attachment #4 Through #9: CFPUA Standard Notes & Details
- Attachment #11: 1.5" and 2" Water Meter Replacement
- Attachment #12 Through #28: Photos/Details for Large Meter Replacements
- Attachment #29: Example Construction Sign
- Attachment #30: Example Installation Photographs
- Attachment #31: Example Daily Report

- Attachment #32: Example Weekly Report
- Attachment #33: Data Transfer File Format Specification

C. CFPUA will furnish the following materials to Contractor:

PN	QTY
1.5" Badger Recordall water meter PN: 101-4815 w/ Orion ME endpoint	57
2" Badger Recordall water meter PN: 100-7076 w/ Orion ME endpoint	43
3" Badger Recordall water meter PN: 104-8214 w/ Orion cellular endpoint	9
4" Badger Recordall water meter PN: 113-7575 w/ Orion cellular endpoint	6
6" Badger Recordall FSAA water meter PN: 113-7575	1
6" Badger Recordall water meter PN:104-8218	1

D. Contractor is responsible for maintaining a system/database to document and track all project work. System/Database should include fields for all required information, coordinates, photographs, etc. required for each meter location. The Contractor's system/database must be compatible with overall CFPUA system to facilitate accurate and efficient transfer of information once complete. Contractor's system/database must be submitted to CFPUA for approval prior to beginning work.

As an OPTION for the system/database, Contractor may utilize CFPUA's Work Order System. If this OPTION is selected, the Contractor would be given access to CFPUA's Work Order System and they would have access to information pertaining to this contract and associated work areas. Work Order System would provide defined fields for Contractor to record required information. If utilized, Contractor will be responsible for providing required hardware (computers equipped with Windows 10 or 11 and mobile internet (mi-fi or mobile hotspot), etc.) and CFPUA IT will provide Contractor with necessary login credentials as well as training on how to use work order system.

1.1 CLARIFICATIONS

A. Where City of Wilmington (COW) is referenced in other specification sections, this reference should be replaced with Town of Wrightsville Beach (ToWB).

1.2 SUBMITTALS

A. The CONTRACTOR shall provide all submittals and reports in accordance with Section 013300.

1.3 BASIS OF PAYMENT

A. The information in this section shall be aligned with the requirements of Section 012900. Payment applications shall be submitted at least once per month.

B. The following outlines the individual unit prices and the components included for

payment.

1. Mobilization & Materials Handling & Coordination:

- a. This lump sum price shall be submitted for payment at the discretion of the Contractor and shall cover all coordination, ordering, delivery acceptance, storage and materials handling associated with Owner purchased materials. The Contractor shall be responsible for all material handling associated with any warranty issues as required. Contractor shall be responsible for labor associated with the equipment's one year warranty work, including, but not limited to, troubleshooting, reinstallation of new equipment, shipping faulty equipment back to the supplier and general coordination with the supplier. This responsibility shall be the same as if the equipment had been purchased directly by the Contractor.
- b. The maximum amount for mobilization and materials handling shall be 3% of Contractor's Total Bid.

2. Replace Meter (equal to or less than 2"):

- a. The unit price shall include all necessary materials, labor, traffic control, and other resources required to:
 - Clean the meter box of sediment and debris,
 - Remove existing meter and replace with Badger per CFPUA standards,
 - If existing meter box is damaged or not sized appropriately (ie. 2" meter in 1" box), then replace meter box with new box according to CFPUA standards,
 - Perform system startup and activation, and
 - Complete any additional work needed to deliver a fully functional and integrated system.
- b. The unit price shall also cover obtaining coordinates, photographs, data, and any other required documentation.
- c. Any modifications to the existing water meter service required to bring the service into compliance with applicable standard drawings and specifications detailed in these documents and not specifically itemized as a separate unit price shall be included in the unit price. This includes, but is not limited to:
 - Replacing inoperable components of the water service,
 - Removing excessive debris or standing water within the meter service, and
 - Removing landscaping or other hardscaping that conflicts with the meter replacement.
- d. The Owner's representative shall have final authority over decisions to replace or modify any components of the existing water service to ensure compliance with the standard drawings and specifications outlined in these documents.

e. Payment terms:

- 50% of the applicable unit price shall be invoiced upon successful field installation of the water meter and transmitter device, along with receipt of all required electronic data.
- The remaining 50% of the applicable unit price shall be invoiced upon the successful final testing of the entire route assigned to the subject meter. CFPUA will endeavor to complete the acceptance process within two weeks of receiving notification from the CONTRACTOR that the route is ready for final acceptance.

3. Replace Meter (3")

4. Replace Meter (4")

5. Replace Meter (6")

The following language and sub sections shall apply to Pay Items #3, 4 and 5 as listed above:

- a. The unit price shall include all necessary materials, labor, traffic control, and other resources required to:
- Clean the meter box of sediment and debris,
 - Remove existing meter and replace with Badger per CFPUA standards to match existing size.
 - Modify piping and appurtenance within the existing meter box and provide new fittings, spools, and appurtenance as required to accommodate installation of new Badger Meter
 - Install new Orion Cellular End Points
 - Perform system startup and activation, and
 - Complete any additional work needed to deliver a fully functional and integrated system.
- b. The unit price shall also cover obtaining coordinates, photographs, data, and any other required documentation.
- c. Any modifications to the existing water meter service required to bring the service into compliance with applicable standard drawings and specifications detailed in these documents and not specifically itemized as a separate unit price shall be included in the unit price. This includes, but is not limited to:
- Replacing inoperable components of the water service,
 - Removing excessive debris or standing water within the meter service, and
 - Removing landscaping or other hardscaping that conflicts with the meter replacement.
- d. The Owner's representative shall have final authority over decisions to replace or modify any components of the existing water service to ensure compliance with the standard drawings and specifications outlined in these documents.

- e. Payment terms:
 - 50% of the applicable unit price shall be invoiced upon successful field installation of the water meter and transmitter device, along with receipt of all required electronic data.
 - The remaining 50% of the applicable unit price shall be invoiced upon the successful final testing of the entire route assigned to the subject meter. CFPUA will endeavor to complete the acceptance process within two weeks of receiving notification from the CONTRACTOR that the route is ready for final acceptance.

6. Relocate Meter (Meter Size equal to or less than 2"):

- a. This unit price shall be submitted for payment upon field installation and acceptance by CFPUA or its representative.
- b. The Owner's representative shall have final authority over decisions to utilize this line item to ensure compliance with the standard drawings and specifications outlined in these documents.
- c. This unit price shall include the additional cost required should the existing meter service location be determined by the Owner's representative to be insufficient for continued operation. The Contractor shall then be provided a new service location by the Owner's representative and shall be responsible for the installation of the new service, meter box and other appurtenances as required to meet the standard details and specifications contained herein.
- d. The provided new service location shall not require the disturbance of any rigid surfaces.
- e. The unit price shall not include the required replacement water meter, as those items shall be paid under the Replace Meter (equal to or less than 2") unit prices.

7. Relocate Meter (3"):

8. Relocate Meter (4")

9. Relocate Meter (6")

The following language and sub sections shall apply to Pay Items #7, 8 and 9 as listed above:

- a. This unit price shall be submitted for payment upon field installation and acceptance by CFPUA or its representative.
- b. The Owner's representative shall have final authority over decisions to utilize this line item to ensure compliance with the standard drawings and specifications outlined in these documents.
- c. This unit price shall include the additional cost required should the existing meter service location be determined by the Owner's representative to be insufficient for continued operation. The Contractor shall then be provided a new service location by the Owner's representative and shall be responsible for the installation of the new service, meter box and other appurtenances as required to meet the standard details and specifications contained herein.

- d. The provided new service location shall not require the disturbance of any rigid surfaces.
- e. The unit price shall not include the required replacement of water meter, as those items shall be paid under the Replace Meter (larger than 2") unit prices.

10. Relocate or Replace Meter - Rigid Surface (Meter Size equal to or less than 2"):

- a. This unit price shall be submitted for payment upon field installation and acceptance by CFPUA or its representative.
- b. The Owner's representative shall have final authority over decisions to utilize this line item to ensure compliance with the standard drawings and specifications outlined in these documents.
- c. This unit price shall include the additional cost required should the existing meter service location be determined by the Owner's representative to be insufficient for continued operation. The Contractor shall then be provided a new service location by the Owner's representative and shall be responsible for the installation of the new service, meter box and other appurtenances as required to meet the standard details and specifications contained herein.
- d. The provided new service location shall require the disturbance of rigid surfaces and the removal and replacement of said services shall be per the standard drawings and specifications contained herein. The area of disturbance shall be no more than 4 square yards.
- e. The unit price shall not include the required replacement water meter, as those items shall be paid under the Replace Meter (equal to or less than 2") unit prices.

11. Relocate Meter - Rigid Surface (3"):

12. Relocate Meter - Rigid Surface (4"):

13. Relocate Meter - Rigid Surface (6"):

The following language and sub sections shall apply to Pay Items #11, 12 and 13 as listed above:

- a. This unit price shall be submitted for payment upon field installation and acceptance by CFPUA or its representative.
- b. The Owner's representative shall have final authority over decisions to utilize this line item to ensure compliance with the standard drawings and specifications outlined in these documents.
- c. This unit price shall include the additional cost required should the existing meter service location be determined by the Owner's representative to be insufficient for continued operation. The Contractor shall then be provided a new service location by the Owner's representative and shall be responsible for the installation of the new service, meter box and other appurtenances as required to meet the standard details and specifications contained herein.
- d. The provided new service location shall require the disturbance of rigid surfaces and the removal and replacement of said services shall be per the standard drawings and specifications contained herein. The area of

disturbance shall be no more than 4 square yards.

- e. The unit price shall not include the required replacement of water meter, as those items shall be paid under the Replace Meter (larger than 2") unit prices.

14. Lower/Raise Meter Service & Box (equal to or less than 2"):

- a. This unit price shall be submitted for payment upon field installation and acceptance by CFPUA or its representative.
- b. The Owner's representative shall have final authority over decisions to utilize this line item to ensure compliance with the standard drawings and specifications outlined in these documents.
- c. This unit price shall include raising or lowering the existing meter service and box to meet the requirements per the standard drawings and specifications contained herein.
- d. The Owner's representative shall have final authority over the decision to raise or lower the meter service and shall be consulted prior to any work.

15. Lower/Raise Meter Box (equal to or less than 2"):

- a. This unit price shall be submitted for payment upon field installation and acceptance by CFPUA or its representative.
- b. The Owner's representative shall have final authority over decisions to utilize this line item to ensure compliance with the standard drawings and specifications outlined in these documents.
- c. This unit price shall include raising or lowering the existing meter box to meet the requirements per the standard drawings and specifications contained herein.
- d. The Owner's representative shall have final authority over the decision to raise or lower the meter service and shall be consulted prior to any work;

16. Traffic Rated Lid/Box Substitution:

- a. This unit price shall be submitted for payment upon field installation and acceptance by CFPUA or its representative.
- b. The Owner's representative shall have final authority over decisions to utilize this line item to ensure compliance with the standard drawings and specifications outlined in these documents.
- c. This unit price shall be only the cost increase to upgrade the lid from the standard to a traffic rated lid. This item shall also include the difference to replace the meter box to a traffic rated box.
- d. The Owner's representative shall have final authority over the decision to raise or lower the meter service and shall be consulted prior to any work;

17. Existing Service Line Leak Repair (Owner's side-Near Side) Per Inch of Line Size:

- a. In the event an existing leak is discovered on the Owner's side of the meter, CFPUA shall have the right to direct the Contractor to repair the leak prior to the meter replacement. This line item shall include all labor, materials and workmanship required to successfully repair the service line leak to CFPUA standards.

18. Existing Service Line Leak Repair (Owner's side-Far Side) Per Inch of Line Size:

- a. In the event an existing leak is discovered on the Owner's side of the meter, CFPUA shall have the right to direct the Contractor to repair the leak prior to the meter replacement. This line item shall include all labor, materials and workmanship required to successfully repair the service line leak to CFPUA standards.

19. Valve Replacement Per Inch of Size

- a. In the event that valves necessary for completion of work are found to be inoperable, Contractor to replace the valve prior to the meter replacement. This line item shall include labor, materials and workmanship required to successfully replace the valve in accordance with CFPUA standards.

NOTE: All warranty work shall be included in each unit price, including labor and coordination with suppliers.

1.4 SCHEDULE

A. The CONTRACTOR should plan for a period of 30 days maximum, following notification of award, to coordinate work activities with CFPUA staff. This period will include tasks such as equipment delivery, equipment interfacing, scheduling, meter replacement route development, and testing prior to the commencement of field installation activities.

B. CFPUA will direct project schedule based on routes. CFPUA will provide routes and sequence of work to CONTRACTOR for use in CONTRACTOR's preparation and submittal of a master project schedule for the completion of the overall project. This schedule must be reviewed and approved by the Engineer and CFPUA before construction begins.

C. All scheduling and sequencing of water meter retrofits and installations must be approved by CFPUA. Unless otherwise specified by CFPUA, water meters shall be replaced according to reading routes and billing cycles. The CONTRACTOR shall collaborate with CFPUA to finalize the replacement schedule.

D. Project Milestones:

- **All mid-size (1.5" and 2") meter replacements are to be completed by within 120 days of Notice to Proceed.**
- **The 17 large (3" and greater) meter replacements are to be scheduled at times to minimize impact to customers. Scheduling may be necessary during off-peak water demand periods in winter months.**

E. For the purposes of the master schedule the following definitions shall be used:

- i. Cycle – A cycle shall be defined as an area of the CFPUA system that determines a billing grouping of customers. For purposes of this contract, the entire Town of Wrightsville Beach water system is considered a single cycle.

- ii.Route – A route shall be defined as a collection of customer meter connections within a given cycle that are read concurrently. Routes differ in the number of customer metered connections but are generally read during one working day.

F. The project schedule shall identify the planned construction sequencing for the entire project based on the following criteria:

- i. The CONTRACTOR must coordinate work activities and allow extraordinary considerations for sensitive customers such as medical facilities, health care facilities, restaurants, car washes, condominiums, hotels, etc. Special efforts will be made by CONTRACTOR to ensure minimum disruption to the utility needs and provide 24 hour notice.

1.5 CONTRACTOR QUALIFICATIONS

Qualifications of the CONTRACTOR shall be consistent with the terms and conditions but generally may be described as:

A. Technical Services

- a. The CONTRACTOR shall have installation and technical personnel among its permanent employees who are fully knowledgeable about the operation, maintenance, and repair of the materials and equipment used and understanding of the CFPUA'S and State of North Carolina's plumbing code requirements and policies, if applicable. The CONTRACTOR shall provide a list of such staff personnel with their address and telephone number(s) to CFPUA. Technical personnel shall be thoroughly familiar with safety and emergency procedures per OSHA and other Local, State, and Federal standards.
- b. The CONTRACTOR shall use proper construction techniques in performing such work and take care not to damage any CFPUA facilities, private utilities, or utility main lines. Any damage resulting from CONTRACTOR operations shall be repaired by the CONTRACTOR to the satisfaction of CFPUA at no additional cost. Work areas shall be restored immediately after installation of the meter and /or appurtenances. The CONTRACTOR shall hold CFPUA harmless from any claims whatsoever resulting from the work performed by the CONTRACTOR, unless such claims arise from the negligence or willful conduct of CFPUA and its employees and agencies.

B. Work Performance - In the event of failure of the materials or equipment, the CONTRACTOR shall service, repair, or replace the materials or equipment, at his option, as necessary, to limit the time from the start until completion of service installations to not greater than 2 hours. When the work cannot be completed on-site within the 2 hour limit, the CONTRACTOR shall notify CFPUA.

1.6 CONTRACTOR RESPONSIBILITIES

- A. As indicated in the Contract Documents, the CONTRACTOR shall replace a total of approximately 117 meters (with varying sizes) within the Town of Wrightsville Beach (ToWB) as part of CFPUA's consolidation of the ToWBs water distribution system.
- B. The CONTRACTOR shall have signs or marking on vehicles clearly indicating the vehicle purpose. Signs/markings shall be on both sides and the rear of the vehicle. All vehicles shall be clearly marked such that they can be identified as being associated with the Meter Improvement Project through public relations communication. The color and logo that will be displayed on all work vehicles shall be submitted to CFPUA in .jpeg format for use in public relations communication.
- C. All personnel shall be trained in customer contact and communication.
- D. The CONTRACTOR shall perform driving history and criminal background checks on all employees. In an effort to protect public health, any person who is known to have been convicted of any felony crime or, within the last 7 years, to have been convicted of any Class B misdemeanor as defined by the Criminal Justice and Training Standards of North Carolina Department of Justice or comparable charge from another jurisdiction may not be acceptable as SUBCONTRACTOR on this project. Files should be available to CFPUA for investigation upon request.
- E. The CONTRACTOR's employees shall wear uniforms and badges at all time in the field. All uniforms shall be consistent for all employees and a picture of a representative employee shall be submitted to CFPUA in .jpeg format for use in public relations communication. Employees shall wear safety vests or high visibility shirts that comply with OSHA and NCDOT requirements.
- F. The CONTRACTOR shall have a Supervisor on the job site at all times who shall communicate with the designated CFPUA's Project Representative.
- G. The CONTRACTOR shall return ALL CFPUA-issued equipment, inventory, unused and surplus materials to the CFPUA in original or new condition upon completion of project. Any equipment, inventory or materials issued by CFPUA to the CONTRACTOR that is misused, lost or damaged shall be replaced by the CONTRACTOR.
- H. The CONTRACTOR must provide conex storage facilities for materials and equipment and shall be fully responsible for obtaining a location and permission to use said location. CFPUA shall not provide any facilities, location or personnel for acceptance of or storage of delivered materials.
- I. The CONTRACTOR shall repair and/or replace any pavement, curbing and sidewalk damage associated with installations. Refer to City of Wilmington Standard Details: SD 3-11(Curbing), SD 3-10 (Sidewalk) and SD 3-103 (Brick Street). All work performed in NCDOT right-of-way shall be compliant with the latest standards and requirements thereof.
- J. The CONTRACTOR shall obtain and pay for all required permits with New Hanover County for plumbing work on the Residential side of the meter.

- K. Work performed in the public right of way must meet or exceed CFPUA Standards and Specifications for all phases of work required in the right of way. Examples shall include, but not be limited to protection of all existing utilities and structures below or above ground, traffic control, securing work site to protect citizens and private encroachments until the site has been restored. The CONTRACTOR shall be aware that CFPUA maintains a blanket encroachment agreement with NCDOT and any work performed in NCDOT right of way shall be subject to the terms of this agreement. The CONTRACTOR shall be responsible for any required permits or subject regulations when performing work in the City of Wilmington right of way.
- L. Once work has begun, until the site has been restored to the satisfaction of CFPUA and any other concerned parties, it shall be the sole responsibility of the CONTRACTOR to maintain and secure work site against possible personal and/or property damage and injury 24 hours per day and seven days per week until the job has been completely restored and accepted by CFPUA for payment. CONTRACTOR shall be responsible for proper seeding/sod replacement on all relocated/modified services. Conditions shall be inspected to ensure conditions are returned to pre-construction condition.
- M. The CONTRACTOR shall guarantee and be held responsible for installation labor and materials for a minimum of twelve (12) months against failure for labor and material from date of acceptance.. All equipment provided shall be subject to the terms and conditions of the manufacturer's warranty.
- N. The CONTRACTOR shall be responsible for erecting construction signs to the specifications contained in project Attachments. CFPUA shall coordinate with the CONTRACTOR the locations for the sign. The CONTRACTOR shall submit to CFPUA a mock sign for review and approval prior to final procurement. CONTRACTOR shall be responsible to remove and relocate signs during the construction project. The CONTRACTOR shall supply fifteen (15) signs for the project.
- O. If the CONTRACTOR does not use CFPUA's "Work Order System" (See Section 1.0.D), The CONTRACTOR shall be responsible for collecting the required data by a system/database of their choosing and providing the required data to CFPUA in the ASCII file format specified by CFPUA. This process shall be completed such that there is no manual data entry required on behalf of CFPUA. The system/database of CONTRACTOR's choice shall be submitted to CFPUA and the ENGINEER for approval prior to beginning work. The format for this data integration shall be as specified in Attachment #33: Data Transfer File Format Specifications.
- P. The CONTRACTOR shall be required to provide a competent representative from the AMR system vendor physically on-site for both the initial installation and the full implementation and testing of the AMR reading system software, for the minimum duration required and as approved by the Engineer.
- Q. The CONTRACTOR shall be responsible for the procurement & installation of tamper

connectors on wired connections, including retrofit installations.

1.7 CFPUA's RESPONSIBILITIES

- A. Provide the best available information about existing water meters and locations.
- B. Furnish materials to Contractor as identified in Section 1.0.C.
- C. Provide information regarding routes and phasing. Information shall include route maps, read schedule and specific areas that are seasonal.
- D. Designate a person to act as CFPUA'S Project Representative with respect to the work to be performed under this agreement. Such person shall have complete authority to transmit instructions, receive information, interpret and define CFPUA policies and decisions with respect to materials, equipment, elements and systems pertinent to CONTRACTOR'S services.
- E. Give prompt notice to CONTRACTOR whenever CFPUA observes or otherwise becomes aware of any defect in work performance or work quality.
- F. Make payment to the CONTRACTOR for services rendered when fees become payable as defined in the Contract Documents.

PART 2 PRODUCTS

2.0 GENERAL

- A. CFPUA will furnish materials to Contractor as specified in Sec. 1.0.C. Due to the necessity for CFPUA to receive meters for long life, easy maintenance and repair, the following provisions are set forth.

2.1 MAINCASE:

- A. Maincase of meters up to and including 2-inch sizes shall be a Lead Free Alloy certified NSF/ANSI Standard 61, Annex G and Annex F. Engineered Polymer will not be accepted.
- B. The casing shall have the NSF 61 mark, meter size, model and direction of flow cast in raised characters. The manufacturer's serial number shall be imprinted permanently in clear visible sight on the maincase of the $\frac{5}{8}$ " x $\frac{3}{4}$ " and 1" meters and on the top of the outlet flange of the 1.5" and 2" meters. Manufacturer's serial numbers shall be individual and shall not be duplicated. Serial numbers shall begin with current year to eliminate duplication.
- C. All meters sized $\frac{5}{8}$ " x $\frac{3}{4}$ " and 1" shall be shipped with protective covers, shielding the flange threads from damage.

- D. A vertical National Pipe Thread (NPT) tapped boss shall be provided on the 1.5" and 2" housings near the outlet for use during field testing purposes or as a tap for pressure recording.

2.2 LENGTH:

- A. The maximum overall length of the unit shall be the face-to-face dimensions as listed below:

Meter Size	Laying Length
5/8" x 3/4"	7 1/2"
1"	10 3/4"
1.5"	13"
2" Elliptical Long	17"
2" Elliptical Short	15 1/4"

2.3 END CONNECTION:

- A. End connections shall conform to American Water Works Association Standard C-700, Section 4.3. 1.5" and 2" meters shall be flanged. Connection gaskets for 5/8" x 3/4" and 1" and flange gaskets for 1.5" and 2" meters shall be provided.

2.4 REGISTER BOX, RING AND LID:

- A. The name of the manufacturer shall be permanently cast or molded in the lid of the register box. The lid and shroud shall be recessed and overlap the register box to protect the lens. The serial number of the meter shall be imprinted on the lid. Register box enclosures, rings, and lids shall be made of engineering thermoplastic or other suitable synthetic polymer.

2.5 MEASURING CHAMBER:

- A. Measuring chambers shall be a nutating disc type, or a piston type made of suitable polymeric that will not corrode in potable water. Each chamber shall have a centering device that will ensure positioning and the chamber shall be protected by a strainer of suitable non-corrosive material.
- B. The measuring chambers shall be made of a synthetic polymer. Measuring chambers shall be replaceable and interchangeable within any meter of the same manufacturer and size. Both halves of the measuring chamber and the internal element shall be marked with the manufacturer's symbol or name.
- C. When measuring pistons are furnished, such shall be the non-pilot type and include division plates of rubber covering vulcanized to stainless steel or approved material.

Such covering shall be of sufficient thickness to provide the minimum of piston oscillation noise. The magnet spindle shall be an engineered polymer material.

- D. When measuring disc is furnished, such shall be the flat type of one-piece construction, mounted on a stainless steel spindle. The flat type to be equipped with stainless steel or plastic thrust roller inserts and thrust roller plates. The magnet spindle shall be stainless steel or engineered polymer for 1" and only stainless steel for 5/8". The accuracy of the measuring chamber shall not be affected by the distortion of the maincase.

2.6 STRAINERS:

- A. All meters shall be equipped with synthetic polymer strainers. Strainers shall have an effective straining area of at least twice the inlet pipe flow area and shall fit snugly against the walls of the casing.

2.7 REGISTERS:

- A. The register shall be an absolute digital encoder register factory potted with Standard AMR III pigtail indicating gallons. The absolute encoder register shall remain fog-free of moisture. The transmitter shall consist of a mechanical local register combined with a frictionless form of encoding technology that does not utilize contacts, slide wires or a load fire spring mechanism that can lead to potential dashed reads. Oil-filled registers shall not be acceptable. All gearing shall be contained in a permanently hermetically sealed, non-repairable stainless steel or copper enclosure. There shall be no change gears in the register enclosure. There shall not be fluid contact with water being measured.
- B. The register shall be tamper protected through the use of a specially designed stainless steel screw or use of an internal locking device. Pushpin tamper detection shall not be acceptable.
- C. Registers shall meet or exceed latest version of AWWA Standard C-707. 5/8" x 3/4" and 1" registers shall be programmed to 0.1 gallon. 1.5" and 2" registers shall be programmed to 1 gallon.
- D. The register shall send data in ASCII format to the transmitter or interrogation device. Registers that require a battery shall not be acceptable.
- E. Registers shall have a leak indicator.

2.8 FROST BOTTOMS:

- A. Frost protecting synthetic polymer or brass bottom plates shall be supplied for the 5/8" x 3/4" and 1" meters. Bottom plates are to be fastened to the maincase by 300 series non-magnetic stainless steel bolts to prevent corrosion.

2.9 METER PERFORMANCE:

- A. All meters shall contain a factory test label, which documents the accuracy at high, medium and low flow.
- B. The meters shall meet the following requirements for accuracy:

- At any flow rate within normal test flow limits specified below, the meter shall register not less than 98.5% and not more than 101.5% of the water actually passed through the meter.
- At the minimum test flow rate specified below, the 5/8" x 3/4" meters shall register not less than 98.5% and not more than 101.0% of the water actually passed through the meter.
- At the minimum test flow rate specified in below, the 1", 1.5" to 2" meter shall register not less than 95% and not more than 101.0% of the water actually passed through the meter.

Meter Size	Normal Test Flow Limits (GPM)	Max Continuous Flow (GPM)	Minimum Flow (GPM)
5/8" x 3/4"	1 to 20	10	1/4
1"	3 to 50	25	3/4
1.5"	5 to 100	50	1.5
2"	8 to 160	80	2

C. Pressure: Meters shall have loss of pressure not to exceed the values shown below:

Meter Size	Flow Rate / GPM	Not to Exceed
5/8" x 3/4"	20	8 PSI
1"	50	9 PSI
1.5"	100	10 PSI
2"	160	10 PSI

All meters shall be guaranteed to operate under a working pressure of 150 lbs. per square inch without leakage or damage to any part.

D. Accuracy: Cold water meters shall register accurately in water temperatures from 80 degrees Fahrenheit down to the freezing point, 32 degrees Fahrenheit. High water temperatures up to 100 degrees Fahrenheit shall not significantly affect the meter's performance.

E. Warranty: All meters shall be warranted as specified below:

Meter Size	AWWA New Meter Accuracy	AWWA Repaired Meter Accuracy
5/8" x 3/4"	Five (5) Years or 500,000 Gallons	Fifteen (15) Years or 1,500,000 Gallons

1"	Five (5) Years or 1,000,000 Gallons	Fifteen (15) Years or 3,000,000 Gallons
1.5"	Two (2) Years or 1,600,000 Gallons	Fifteen (15) Years or 5,000,000 Gallons
2"	Two (2) Years or 2,100,000 Gallons	Fifteen (15) Years or 8,000,000 Gallons

PART 3 EXECUTION

3.0 GENERAL

- A. It is understood and agreed between the CFPUA and the CONTRACTOR that there shall be one (1) CONTRACTOR'S Representative with respect to work to be performed under this agreement. This Representative shall have responsibility in direct control over all work performed by the CONTRACTOR on the scope of services contained herein. No substitutions of the Representative shall be made without CFPUA approval. Such approval by CFPUA shall not be unreasonably withheld.
- B. The CONTRACTOR'S representative must be available twenty-four hours per day throughout the project duration to address issues related to the project.
- C. The CONTRACTOR shall execute all services under this agreement in a manner as to not interfere with CFPUA'S or Town of Wrightsville Beach's water distribution and wastewater collection systems. The method of conducting services shall at all times be subject to CFPUA'S approval without in any way relieving the CONTRACTOR'S responsibility for the same. Of paramount importance at all times is CFPUA'S and Town of Wrightsville Beach's ability to continue uninterrupted operation of their utility systems, to maintain the safety of personnel in performing necessary utility operations, and to maintain high quality and uninhibited water and wastewater services to CFPUA'S and Town of Wrightsville Beach's customers. The CONTRACTOR shall not introduce any chemical products in CFPUA'S or Town of Wrightsville Beach's utility systems.
- D. In the event of any emergency that may be an imminent danger to life or property, the CONTRACTOR may take immediate action necessary to eliminate or reduce the danger and then shall immediately notify CFPUA of such action taken. In cases other than the emergency just described, the CONTRACTOR shall not operate CFPUA'S or Town of Wrightsville Beach's main valves or other equipment or make connections to CFPUA or Town of Wrightsville Beach provided sources of electrical power or potable water without the specific written approval of CFPUA.
- E. The CONTRACTOR shall ensure that all work under this agreement satisfies all present State, Federal, and local laws and regulations. The CONTRACTOR shall secure, at no additional cost to CFPUA, all permits, certificates, and licenses required by law for the execution of the work under this agreement.
- F. Should, in the course of the work, anything other than clean water be sprayed onto private vehicles, boats, home windows or other private property, it shall be the CONTRACTOR's responsibility to make arrangement for such cleaning as to the

satisfaction of the affected party.

G. Should there be vehicles parked atop any meter boxes, it shall be the CONTRACTOR's sole responsibility to coordinate with owner of the obstructing vehicle its relocation as needed. CONTRACTOR shall not move or have towed any private vehicles, they must coordinate with private property owners to relocate their own vehicles themselves.

H. No open meter boxes, open pits, or meter box excavations shall ever be left uncovered or unattended without sufficient barricade or cover to safely protect foot and bike traffic.

3.1 SPECIFIC

A. The project will consist of replacing a total of approximately 117 meters within the Town of Wrightsville Beach (ToWB) as part of CFPUA's consolidation of the ToWBs water distribution system. This phase of the project is defined by the bid schedule.

B. Meters with AMR capabilities shall include submersible registers/encoders and transmitters. All transmitters will have an integrated wired antenna that will be installed through a hole in the lid.

C. For meters 2" and smaller, if existing meter box is damaged or not sized appropriately (ie. 2" meter in 1" box), then Contractor shall replace meter box with new box according to CFPUA standards. Note that new boxes are not provided by Owner.

D. For all meters 3" and larger, the CONTRACTOR shall provide drilled hole to accommodate second endpoint or provide new flush mount polyethylene resin meter box lid with a pre-fabricated hole that pairs with the transmitter antennae requirements.

E. An acceptance test is intended to provide incremental acceptance of discretely defined areas and populations of meters. Once the Route acceptance test is successfully completed, CFPUA will be able to commence operations of that portion of the system.

F. Meter replacements shall be able to read consistently for 7 consecutive calendar days, this shall be known as the ("Route Deployment Date"). The Route Acceptance Test is achieved when the Route Read Success equals or exceeds 99.5% during a three-day period. All reads received shall be accurate within the manufacturer's specifications for new meters and collected via mobile collector. Any issues discovered in the initial read cycle shall be corrected prior to additional reads.

G. The CONTRACTOR shall be responsible for providing required equipment to perform Route Read Testing and shall not rely on equipment purchased for permanent distribution to CFPUA. The CONTRACTOR shall conduct the testing by riding the route in a fashion that the route would be read under normal meter reading conditions with a mobile collector. A representative of CFPUA shall be present with the CONTRACTOR when the Route Acceptance Test is conducted.

As an OPTION, CFPUA will perform biweekly test readings for any retrofits completed one week prior to the test reading. A list of unsuccessful readings will be provided to the CONTRACTOR and shall be corrected prior to additional reads.

- H. Each route shall be completed within a one (1) month window from the date of last read. Actual last read dates shall be provided to the CONTRACTOR by CFPUA on a monthly basis.
- I. CFPUA shall have the ability to provide the CONTRACTOR with information regarding the seasonal nature of some customer meter locations to facilitate ease of disruption to those customers.
- J. The CONTRACTOR shall be responsible for submitting a "Billing Contingency Plan" to the Engineer and CFPUA for review and approval. This plan shall identify the plan of action and notification steps for any route that is not completed within the target schedule from last read.
- K. The Warranty Period shall commence upon final written acceptance of the completed Cycle.
- L. The CONTRACTOR shall be responsible for any required trouble shooting of performance issues within the Warranty period including downloading of meter consumption data.

3.2 NOTIFICATION REQUIREMENTS

- A. The CONTRACTOR shall verbally notify the water service customer prior to cutting off water. Once water service is interrupted, the CONTRACTOR must work continuously without ceasing until water service is restored. Upon completion of the replacement the CONTRACTOR shall verbally notify the customer that work is complete and they can resume use of water.
- B. If the customer is not home during the time of replacement, notification shall be by door hanger or approved method. The CONTRACTOR shall be responsible for providing CFPUA a notification plan outlining the sequence for notification including but not limited to draft door hanger and other documents to be provided to the public.

3.3 TECHNICAL SPECIFICATIONS

- A. Any discrepancies or ambiguities found in the specifications or changes that may be required during the execution of the project shall be immediately reported to CFPUA's specified representative, who shall promptly correct such inconsistencies or ambiguities or make any changes in writing.
- B. The CONTRACTOR shall be responsible for complete-in-place installation and proper functionality of all equipment and materials at each water service location including the

water meter body with connection components including washers and gaskets, stainless steel stiffeners, compression fittings, encoder register, transmitter, meter box and lid, hardware and mounting material for the water meter and transmitter.

- C. Except as specified, the CONTRACTOR shall furnish all equipment, parts, materials, labor and technical services necessary to replace existing water meters with new water meters equipped with absolute encoder registers and transmitters. Installation includes scheduling and coordinating work activities with the Water Meter Vendor and AMR System Provider as required.
- D. The CONTRACTOR services for water meter installation at each service location shall be defined as all equipment, parts, materials and labor including but not limited to traffic control, mobilization, meter testing, transmitter testing, technical services, data collection and recordation, adjustment and setting of existing meter boxes and/or meter setter, replacement of meters, meter boxes and lids including disposal of old meters and lids to Contractor designated facilities, flushing service lines, removal and disposal of meter box soils/debris, removal and repair of asphalt, concrete & brick structures. In addition, the meter setter or yolk must be replaced when the device fails to function properly. Unusable existing meter boxes shall be replaced as directed by CFPUA. Bid quantities are identified in the schedule of values for individual unit prices. Refer to provided reference drawings.
- E. In the event that the service line from the main to the service connection is made of copper or poly, any defect or replacement of a section of this line shall be allowed to be spliced, provided the splice connection is performed to all applicable specifications and regulations. Should the non-copper or poly service line between the main and the meter be damaged or found to be inoperable in the course of replacement of the water meter, the CONTRACTOR shall be responsible for replacing the service connection to existing corporation stop under the direct supervision and approval of a CFPUA representative.
- F. Any modification, replacement or repair of a service line, setter, curb stop or other appurtenance to a water meter requires the line be thoroughly flushed and cleared of all shavings, sand and debris prior to installation of the new water meter. Any replacement of service line shall include the installation of Tracer Wire (#10 copper solid core wire). Wire shall be strapped to PE piping with duct tape at 12-foot intervals. All wire splices shall have water proof wire connections. Water service line piping shall be polyethylene (PE) tubing, SDR 9, 200 psi, conforming to ASTM D2737/AWWA C901. No joint shall be installed between the main service tap and the meter stop without written approval by a CFPUA representative.
- G. The CONTRACTOR shall be aware that the presence of Asbestos Cement Pipe (ACP) water mains are located within the system. Should the CONTRACTOR be required to perform a new service line tap to an ACP water main, the tap shall not be made until a CFPUA Operations employee is present.
- H. If the existing water meter cannot be located, the CONTRACTOR shall continue meter replacement until CFPUA can flag the meter location. After the meter is located by

CFPUA, the CONTRACTOR will return to complete the meter installation.

- I. The CONTRACTOR must have Quality Control personnel on site to follow behind the meter installation crews the same day of installation to ensure all new water meters are installed, operating and reading correctly and ensure all water services have been reactivated.
- J. All water meters must be verified to be working correctly at the time of installation. This must be done by flushing a measurable amount of water through the meter and verifying a change in the meter register value (i.e. 10 gallons for a 1.5" meter). The flushing location must be between the water meter and the facility being serviced. If no flushing points are accessible outside the facility being served, the CONTRACTOR shall arrange for the facility occupants to flush the service line from inside the facility until the proper register reading is accomplished. Additionally, all vaults and boxes must be pumped to the extent that the meter and connections are clearly above water level. The CONTRACTOR shall ensure that the first reading as entered in the data management system shall not include any water flowing through the new meter utilized for flushing.
- K. All water meters must be checked thoroughly for leaks. Any leak detected within 90 days of meter installation will be the responsibility of the CONTRACTOR to repair immediately, including leaks located on the residential side of the meter. Should a leak be reported on the residential side of the meter in the time period beyond 90 days from meter installation and the expiration of the Cycle Warranty the CONTRACTOR shall be responsible for investigation of the said leak within 24 hours of notification to determine if work was performed on the residential side of the meter. If work was performed on the residential side of the meter, the CONTRACTOR shall be responsible for repair of the leak and compensation to CFPUA in the amount of the bill adjustment to the customer.
- L. All new water meters must have the transmitter verified to be working correctly before the installation will be considered complete and successful. This must be done by specifically interrogating the replacement unit by radio communication (both handheld and mobile) and confirming that the reading acquired matches the reading on the meter register.
- M. Meter boxes shall be cleared of debris, soils and other materials as necessary to provide proper installation of the water meters. Foundation soils inside the meter boxes should be below the bottom of the in- line curb stop.
- N. The CONTRACTOR shall be responsible for the proper disposal of the replaced water meters and lids after the required waiting period. It is understood that the meter bodies and cast iron lids may have salvageable value on the open market. The CONTRACTOR shall be solely responsible for effort, delivery and acquisition of any value they wish to obtain from these parts. Based on the selected Vendor some meter manufacturers provide a refund for returned meters of like kind. The CONTRACTOR may utilize this option to acquire the used value of said like meters from the manufacturer or supplier. The CONTRACTOR shall provide the OWNER with any historic meter box lids encountered during the Work.

O. The CONTRACTOR shall modify existing meter lids to accommodate mounting of new endpoint. Drilled holes shall be installed in a manner to preserve the structural integrity of existing lids. If the CONTRACTOR encounters a non-standard meter box, they may either a) provide a specialty lid constructed of like material to the standard, specified lid or b) replace the non-standard box with a standard meter box and lid at the expense of the CONTRACTOR.

3.4 DOCUMENTATION & DATA COLLECTION

A. The CONTRACTOR shall be responsible for providing, upon request, a time-stamped photograph collection for each replaced meter. The collection shall include a photograph of the last reading clearly visible and a photograph with a landmark, enabling the location of the meter to be identified. The last reading photograph shall be taken prior to removal of the existing meter. An example collection shall be submitted and approved prior to the replacement of any meters. Alternatively, the CONTRACTOR may elect to store the replaced water meters for a total period of 75 days from the date of replacement to allow for physical viewing of the replacement meter. This location shall be secure and the sole responsibility of the CONTRACTOR. In the event of a customer dispute within the 75 day window, the CONTRACTOR shall be responsible for providing the disputed meter within 3 working days from request by CFPUA. Should the CONTRACTOR not be able to supply the photograph collection or the requested meter within the given time frame, they shall be responsible for reimbursing CFPUA for any damages caused through the billing dispute.

B. Data must be collected electronically. At a minimum, the following information will be collected or verified in the field as indicated below by the CONTRACTOR at each water meter location. If any information is verified to be not correct, the CONTRACTOR shall input the correct information on the field collection device.

- i. collect lat/long coordinates of meter location with sub-meter accuracy
- ii. verify service address
- iii. verify old meter serial number
- iv. collect final reading of old meter (field collection device)*
- v. collect new meter serial number (scan bar code label)
- vi. collect new transmitter identification number (MTU serial number, scan bar code label)
- vii. collect new meter information (type, size, multiplier, register type)
- viii. record date and time of new installation*
- ix. verify meter location text
- x. record initial reading of new meter with electronic timestamp (field collection device)
- xi. document materials used during install

C. CONTRACTOR shall provide a digital photograph of the following for each water meter location: (Example photographs are included in Attachments)

- Prior to any replacement work
 - i. “Overall” view of meter location to include the address of the service location
 - ii. View of last reading
 - After replacement work
 - i. “Overall” view of meter location
 - ii. View of initial reading (post any required flushing)
 - iii. View of bar code (both meter and endpoint if applicable)
- D. Digital photographs shall be in .jpeg format and cropped to a 4:3 aspect ratio. They shall be a density of 72 dpi, color and a maximum file size of 100kb. The file format of the images shall be:
- iv. “meterserialnumber”_location_old.jpeg (Existing location)
 - v. “meterserialnumber”_location_new.jpeg (New location)
 - vi. “meterserialnumber”_read_old.jpeg (last read)
 - vii. “meterserialnumber”_read_new.jpeg (first read)
 - viii. “meterserialnumber”_id_meter.jpeg (meter bar code)
 - ix. “meterserialnumber”_id_ep.jpeg (endpoint bar code)
- E. CONTRACTOR collected data and information must be delivered daily to CFPUA at a time and location designated by CFPUA. See Attachments for an example report.
- F. CONTRACTOR shall provide a daily summary report detailing installations from the previous day. The report should include specific installation locations, installer, account information and any installation notes. See Attachments for an example report.
- G. The CONTRACTOR shall provide a combined data file (in format acceptable to CFPUA) on a monthly basis. The CONTRACTOR shall maintain a ftp site accessible to CFPUA where daily data files are able to be viewed and downloaded.
- H. All costs for tasks and requirements indicated in the scope of services above shall be included in the pricing put forth in the bid form.
- I. Electronic Data Collection - If the CONTRACTOR elects to use its own system/database to document and track all project work, then data must be submitted in ASCII electronic file format with data field definition information as specified in Attachment #33: Data Transfer File Format Specifications

END OF SECTION