

NOTICE TO BIDDERS

WATER METERS

Bids will be received on the item listed above by the Borough of Matawan on 12/10/2013 at 10:00 A.M. prevailing time.

MEMORANDUM

TO: All Bidders
FROM: Borough Administrator
SUBJECT: NOTICE TO BIDDERS

Please read enclosed Notice for Bids Thoroughly.

Failure to comply with all stated requirements as stipulated in Notice for Bids and sheets attached in this bid package may cause rejection of your bid.

NOTICE TO BIDDERS

Borough of Matawan

Notice is hereby given that sealed bids will be received by the Borough of Matawan, County of Monmouth, State of New Jersey on 12/10/13 at 10:prevailing time at the Matawan Municipal Center Municipal Building, 201 Broad Street, Matawan, NJ 07747, at which time and place bids will be opened and read in public for:

NEPTUNE WATER METERS AND REGISTERS OR EQUIVALENT

Those interested in bidding may obtain specifications at the Matawan Municipal Community Center, 201 Broad Street, Matawan, New Jersey 07747, during the hours of 9:00 AM to 5:00 PM, Monday through Friday.

All bids will be addressed to the Borough Administrator and be enclosed in sealed envelopes bearing the name and address of the bidder and the name of the project on the outside.

Bids must be accompanied by a Statement of Corporate Ownership in accordance with N.J.S.A. 52:25-24.2. All bids shall also be accompanied by a Non-collusion Affidavit and a NJ Business Registration Certificate issued by the NJ Department of the Treasury.

Bidders are required to comply with the requirements of N.J.S.A. 10:5-31 et seq and P.L 1975, c.127(N.J.A.C.17:27), Affirmative Action Requirements.

The award of contracts for providing the above will be made at a regular meeting of the Mayor and Council, who reserve the right to waive formalities and accept or reject any part or all of the submitted proposals as they may determine to be in the best interest of the Borough of Matawan.

BIDDER'S CHECK LIST

DOCUMENT	COMPLIANCE INITIAL
REQUIRED WITH BID SUBMISSION:	
1. BID BOND	<u>NOT REQUIRED</u>
OR	
2. CERTIFIED CHECK/CASHIER'S CHECK	<u>NOT REQUIRED</u>
3. CONSENT OF SURETY	<u>NOT REQUIRED</u>
4. NON-COLLUSION AFFIDAVIT	_____
5. STOCKHOLDERS DISCLOSURE	_____
6. NJ BUSINESS REGISTRATION CERTIFICATE	_____
7. ADDENDUM ACKNOWLEDGED IF APPLICABLE	_____
8. AFFIRMATIVE ACTION COMPLIANCE DOCUMENTATION	_____
9. CERTIFICATE OF GENERAL LIABILITY INSURANCE	_____

BIDDER'S INSTRUCTION:

Bidder is to initial as to the inclusion of each of the above requirements as part of this bid package. Failure to supply the requirements may cause rejection of bid.

Bidder is to give an explanation on a separate sheet as to the reason(s) for any form that are not included.

INFORMATION FOR BIDDERS

1. Interpretation of Contract Documents:

- A. If the prospective bidder is in doubt as to the true meaning of any part of the specifications or other proposed contract documents, he may submit to the Borough of Matawan a written request for an interpretation thereof. Any interpretation of the proposed documents will be made only by an addendum duly issued.
- B. All work and items specified under the specifications shall strictly comply with the specifications. Any deviation from these specifications shall be noted either on the bid proposal or by separate statements attached to the bid along with the approximate cost of the item which deviates from the specifications. Deviation from the specifications can result in rejection of the bid.
- C. Wherever alternates are called for in the bid specifications or whatever alternates are suggested by the bidder, the bidder shall submit a price on all items requested or should mark next to the proposal the term "N/A", meaning Not Applicable. The governing body may consider the prices of alternates and award contracts according to the provisions of Chapter 2, Title 27, of the Revised Statutes of New Jersey.

2. Proposal

- A. All proposals are to be made on the forms herein provided.
- B. Proposals must be signed and acknowledged by the bidder, in accordance with the directions in the proposal.
- C. The prices bid shall cover all costs of any nature, incident to and growing out of the work. In explanation, but not in limitation thereof, these costs shall include the cost of all work, labor, material, equipment, transportation, and all necessary costs to perform and complete the project in the manner and within the time required, all incidental expenses in connection herewith, all costs on account of loss by damage or destruction of the project, and any additional expenses for unforeseen difficulties encountered, for settlement of damages, and for replacement of defective work and materials. The bidder shall not attach conditions, limitations, or provisions to his proposal.
- D. Unless otherwise specified, the cost of the bid shown shall be the cost to the Borough at the delivery point within the Borough of Matawan. Unless otherwise specified, the delivery point shall be the Municipal Community Center Building.
- E. In the event that a bidder feels that the product being bid upon is on an "or equal to" status to that specified within the specifications, a notation to that effect shall be made on the bid submitted. Matawan Borough Personnel shall review the items bid on an "or equal to" basis and make a determination whether such an

item is, in fact, equal to the item originally in the bid specifications in light of the performance standards sought to be achieved by the product involved. In the event that Council, after reviewing the facts with the Administrator, shall determine that the item bid is equal to the brand name used, then the contract shall be let to the "or equal to" Contractor.

3. Delivery of Bids

- A. Each bid shall be placed in a sealed envelope endorsed and accompanied by the proper documents. Proposals will be received until the hour and date set, and must be, by that time, in the hands of the Clerk for the Borough of Matawan..

4. Acceptance or Rejection of Proposals.

- A. The Borough of Matawan reserves the right to reject any or all proposals for any reason.
- B. The contract being let under the provisions of these specifications calls for a bid for one (1) unit of any item being called for. The Borough reserves the right to order none of the product, or to order a quantity of units, or any part of the units called for equal to the price specified within the bid submitted by the bidder divided into the sum specified within the budget detail for the product being bid upon. For purposes of comparison, however, bids will be compared on the per unit price specified within the bid and contracts will be awarded to the lowest responsible bidder in all instances.

5. Award of Contracts

- A. Except where the Borough exercises the right reserved herein to reject any or all proposals, the contract will be awarded to the bidder who has submitted the lowest responsible bid determined by the sum of the alternatives selected by the Borough after opening of bids.
- B. The award shall not be binding upon the Borough until the contract has been executed by the Borough, nor shall any work be performed on account of the proposed contract until the contract has been duly executed and delivered.

6. Additional Explanation

- A. Bidders are required to inform themselves concerning any interpretation or explanation of the item being sought.

7. Delivery

- A. Bidders shall specify delivery date from the date of receipt of official notification of award, via letter from the Borough Clerk, for the item or items ordered.

8. Contracts and Bonds (If Required)

- A. All bidders shall furnish a certificate of surety as a guarantee to the Borough of Matawan that if the proposal is accepted, a contract will be entered into, and a performance bond furnished from an insurance company duly authorized to do business in the State of New Jersey, as surety against the contract.

- B. Bidders shall provide upon execution of this contract a general liability insurance policy approved by the Borough Solicitor in the primary amount of \$1,000,000 and \$3,000,000 or in amounts approved by the Borough Administrator, in such a format as will protect the interest of the Borough as they relate to injury and damages or other losses that may be sustained during the delivery of goods and services or construction of the project contained in this contract.

- C. The Borough reserves the right to withhold the award of the contract pending a review of the bids received for a period not to exceed sixty (60) days. In the event that no contract is awarded within sixty (60) days, all bids shall be deemed rejected, unless all bidders agree in writing to the continuation of the bids.

- D. The bidder to whom a contract is awarded shall, within 21 days from the award of the contract enter into a written contract with the Borough and furnish a performance bond for the completion of the contract. Said bond shall be for 100% of the bid rendered by the successful bidder. Said bond shall indemnify against loss to the Borough by reason of default or breach of the bidder under the contract referred to in this section.

19. Breach of Contract

Any breach of contract, or the terms, conditions, and specification incorporated herein by reference, shall subject the violator to a deduction from the contract price of \$500.00 per day for liquidated damages.

10. Payments to Bidder

- A. The bidder shall receive full and complete payment within thirty (30) days after delivery, completion and acceptance of the items bid upon. In the event that the items bid upon fail to conform to the contract, the bidder shall have thirty (30) days in which to cure the defect. In the event that said defect is not corrected the Borough shall have the right to reject acceptance or to cause the defect to be cured. In this event the Borough shall have the right to make application against the bond submitted in connection with the contract for all sums and expenses incurred by the Borough as a result of the nonconformity of the goods to the contract.

11. Splitting the Bid

- A. The Borough shall have the right on bids which provide for more than one (1) contract or subcontract to select the lowest responsible bidder on each individual contract or subcontract.

12. Non-Collusions Affidavit

- A. The Bidder shall complete and sign the Non-Collusion Affidavit.

13. Disclosure Requirements

- A. In conformance with Chapter 33, Laws of New Jersey 1977, no corporation or partnerships shall be awarded any contract for the performance of any work or the furnishing of any materials or supplies, unless prior to the receipt of the bid or accompanying the bid, of said corporation or said partnership, there is submitted a statement setting forth the names and addresses of all stockholders in the corporation or partnership who own ten (10) percent or more of its stock, of any class or of all individual partners in the partnership who own ten (10) percent or greater interest therein, as the case may be. If one or more such stockholders or partners is itself a corporation or partnership, the stockholders holding ten (10) percent or greater interest in that partnership, as the case may be, shall also be listed. The disclosure shall be continued until names and addresses of every non-corporate stockholder, and individual partner exceeding the ten (10) percent ownership criteria established in this Act, has been listed.

14. New Jersey Business Registration Certificate

- A. Submittal of a valid New Jersey Business Registration Certificate is required prior to contract award.

AMERICANS WITH DISABILITIES ACT OF 1990
Equal Opportunity for Individuals with Disability

The CONTRACTOR and the BOROUGH OF MATAWAN do hereby agree that the provisions of Title II of the Americans With Disabilities Act of 1990 (the "ACT") (42 U.S.C. S12101 et seq.), which prohibits discrimination on the basis of disability by public entities in all services, programs, and activities provided or made available by public entities, and the rules and regulations promulgated pursuant thereto, are made a part of this contract. In providing any aid, benefit, or service on behalf of the BOROUGH OF MATAWAN pursuant to this contract, the CONTRACTOR agrees that the performance shall be in strict compliance with the Act. In the event that the Contractor, its agents, servants, employees, or subcontractors violate or are alleged to have violated the Act during the performance of this contract, the CONTRACTOR shall defend the BOROUGH OF MATAWAN in any action or administrative proceeding commenced pursuant to this Act. The Contractor shall indemnify, protect, and save harmless the BOROUGH OF MATAWAN, its agents, servants, and employees from and against any and all suits, claims, losses, demands, or damages, of whatever kind or nature arising out of or claimed to arise out of the alleged violation. The CONTRACTOR shall, at its own expense, appear, defend, and pay any and all charges for legal services and any and all costs and other expenses arising from such action or administrative proceeding or incurred in connection therewith. In any and all complaints brought pursuant to the BOROUGH OF MATAWAN grievance procedure, the CONTRACTOR agrees to abide by any decision of the BOROUGH OF MATAWAN which is rendered pursuant to said grievance procedure. If any action or administrative proceeding results in an award of damages against the BOROUGH OF MATAWAN or if the BOROUGH OF MATAWAN incurs any expense to cure a violation of the ADA which has been brought pursuant to its grievance procedure, the CONTRACTOR shall satisfy and discharge the same at its own expense.

The BOROUGH OF MATAWAN shall, as soon as practicable after a claim has been made against it, give written notice thereof to the CONTRACTOR along with full and complete particulars of the claim. If any action or administrative proceedings is brought against the BOROUGH OF MATAWAN or any of its agents, servants, and employees, the BOROUGH OF MATAWAN shall expeditiously forward or have forwarded to the CONTRACTOR every demand, complaint, notice, summons, pleading, or other process received by the BOROUGH OF MATAWAN or its representatives.

It is expressly agreed and understood that any approval by the BOROUGH OF MATAWAN of the services provided by the CONTRACTOR pursuant to this contract will not relieve the CONTRACTOR of the obligation to comply with the Act and to defend, indemnify, protect, and save harmless the BOROUGH OF MATAWAN pursuant to this paragraph.

It is further agreed and understood that the BOROUGH OF MATAWAN assumes no obligation to indemnify or save harmless the CONTRACTOR, its agents, servants, employees and subcontractors for any claim which may arise out of their performance of this Agreement. Furthermore, the CONTRACTOR expressly understands and agrees that the provisions of this indemnification clause shall in no way limit the CONTRACTOR'S obligations assumed in this Agreement, nor shall they be construed to relieve the CONTRACTOR from any liability, nor preclude the BOROUGH OF MATAWAN from taking any other actions available to it under any other provisions of the Agreement or otherwise at law.

MANDATORY EQUAL EMPLOYMENT OPPORTUNITY LANGUAGE
N.J.S.A. 10:5-31 et seq. (P.L. 1975, C. 127)
N.J.A.C. 17:27

GOODS, PROFESSIONAL SERVICE AND GENERAL SERVICE CONTRACTS

During the performance of this contract, the contractor agrees as follows:

The contractor or subcontractor, where applicable, will not discriminate against any employee or applicant for employment because of age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Except with respect to affectional or sexual orientation and gender identity or expression, the contractor will take affirmative action to ensure that such applicants are recruited and employed, and that employees are treated during employment, without regard to their age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Public Agency Compliance Officer setting forth provisions of this nondiscrimination clause.

The contractor or subcontractor, where applicable will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex.

The contractor or subcontractor, where applicable, will send to each labor union or representative or workers with which it has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency contracting officer advising the labor union or workers' representative of the contractor's commitments under this act and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

The contractor or subcontractor, where applicable, agrees to comply with any regulations promulgated by the Treasurer pursuant to N.J.S.A. 10:5-31 et seq., as amended and supplemented from time to time and the Americans with Disabilities Act.

The contractor or subcontractor agrees to make good faith efforts to employ minority and women workers consistent with the applicable county employment goals established in accordance with N.J.A.C. 17:27-5.2, or a binding determination of the applicable county employment goals determined by the Division, pursuant to N.J.A.C. 17:27-5.2.

The contractor or subcontractor agrees to inform in writing its appropriate recruitment agencies including, but not limited to, employment agencies, placement bureaus, colleges, universities, labor unions, that it does not discriminate on the basis of age, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex, and that it will discontinue the use of any recruitment agency which engages in direct or indirect discriminatory practices.

The contractor or subcontractor agrees to revise any of its testing procedures, if necessary, to assure that all personnel testing conforms with the principles of job-related testing, as established by the statutes and court decisions of the State of New Jersey and as established by applicable Federal law and applicable Federal court decisions.

In conforming with the applicable employment goals, the contractor or subcontractor agrees to review all procedures relating to transfer, upgrading, downgrading and layoff to ensure that all such actions are taken without regard to age, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex, consistent with the statutes and court decisions of the State of New Jersey, and applicable Federal law and applicable Federal court decisions.

The contractor shall submit to the public agency, after notification of award but prior to execution of a goods and services contract, one of the following three documents:

- Letter of Federal Affirmative Action Plan Approval
- Certificate of Employee Information Report
- Employee Information Report Form AA302

The contractor and its subcontractors shall furnish such reports or other documents to the Div. of Contract Compliance & EEO as may be requested by the office from time to time in order to carry out the purposes of these regulations, and public agencies shall furnish such information as may be requested by the Div. of Contract Compliance & EEO for conducting a compliance investigation pursuant to Subchapter 10 of the Administrative Code at N.J.A.C. 17:27.

AFFIRMATIVE ACTION COMPLIANCE NOTICE
N.J.S.A. 10:5-31 and N.J.A.C. 17:27

GOODS AND SERVICES CONTRACTS

This form is a summary of the successful bidder's requirement to comply with the requirements of N.J.S.A. 10:5-31 and N.J.A.C. 17:27.

The successful bidder shall submit to the public agency, after notification of award but prior to execution of this contract, one of the following three documents as forms of evidence:

(a) A photocopy of a valid letter that the contractor is operating under an existing Federally approved or sanctioned affirmative action program (good for one year from the date of the letter);

OR

(b) A photocopy of a Certificate of Employee Information Report approval, issued in accordance with N.J.A.C. 17:27-4;

OR

(c) A photocopy of an Employee Information Report (Form AA302) provided by the Division and distributed to the public agency to be completed by the contractor in accordance with N.J.A.C. 17:27-4.

The successful vendor may obtain the Affirmative Action Employee Information Report (AA302) from the Borough of Matawan Administration during normal business hours.

The successful vendor(s) must submit the copies of the AA302 Report to the Division of Contract Compliance and Equal Employment Opportunity in Public Contracts (Division). The Public Agency copy is submitted to the public agency, and the vendor copy is retained by the vendor.

The undersigned vendor certifies that he/she is aware of the commitment to comply with the requirements of N.J.S.A. 10:5-31 and N.J.A.C. 17:27 and agrees to furnish the required forms of evidence.

The undersigned vendor further understands that his/her bid shall be rejected as non-responsive if said contractor fails to comply with the requirements of N.J.S.A. 10:5-31 and N.J.A.C. 17:27.

COMPANY: _____

SIGNATURE: _____

PRINT NAME: _____

TITLE: _____

DATE: _____

NON-COLLUSION AFFIDAVIT

State of New Jersey

County of _____

Ss:

I _____ of the City of _____
In the County of _____ and the State of _____
of full age, being duly sworn according to law on my oath depose and say that:

I am _____
of the firm of _____, the
bidder making the proposal for the above named project, and that I executed the said
proposal with full authority so to do; that said bidder has not, directly or indirectly,
entered into any agreement, participated in any collusion, or otherwise taken any action
in restraint of the competitive bidding in connection with the above named project; and
that all statements contained in said proposal and in this affidavit are true and correct.,
and made with full knowledge that the BOROUGH OF MATAWAN, New Jersey relies
upon the truth of statements contained in said proposal and in the statements contained in
this affidavit in awarding the contract for said project.

I further warrant that no person or selling agency has been employed or retained to solicit
or secure such contract upon agreement or understanding for a commission, percentage,
brokerage or contingent fee, except bona fide employees or bona fide established
commercial or selling agencies maintained by

(Name of Contractor)

Subscribed and sworn to
before me this _____ day
of _____, 20

Signature of affiant

Notary Public of

Type or print name of affiant

My Commission expires

(Seal)

STOCKHOLDER DISCLOSURE CERTIFICATION
This Statement Shall Be Included with Bid Submission

Name of Business _____

✠ I certify that the list below contains the names and home addresses of all stockholders holding 10% or more of the issued and outstanding stock of the undersigned.

OR

✠ I certify that no one stockholder owns 10% or more of the issued and outstanding stock of the undersigned.

If a corporation owns all or part of the stock of the corporation or partnership submitting the bid, then the statement shall include a list of the stockholders who own 10% or more of the stock of any class of that owning corporation. If no one owns 10% or more stock, attest to that.

Check the box that represents the type of business organization:

✠ Partnership

✠ Corporation

✠ Sole Proprietorship

✠ Limited Partnership

✠ Limited Liability Corporation

✠ Limited Liability Partnership

✠ Subchapter S Corporation

Sign and notarize the form below, and, if necessary, complete the stockholder list below.

Stockholders:

Name: _____

Name: _____

Home Address: _____

Home Address: _____

Name: _____

Name: _____

Home Address: _____

Home Address: _____

Name: _____

Name: _____

Home Address: _____

Home Address: _____

Subscribed and sworn before me this _day of
_, 2⁰

(Affiant)

(Notary Public) OF NEW JERSEY

(Print name & title of affiant)

My Commission expires: 1-28-18

(Corporate Seal)

NEPTUNE WATER METERS AND REGISTERS OR EQUIVALENT

Description:

The purpose of this proposal is for the supply and delivery of water meters for use in residential and commercial buildings within Borough of Matawan. The Borough is in the process of replacing and/or retrofitting water meters to have the capability of transmitting the water meter register reading using wireless technology.

This bid is for the purchase of proprietary goods in accordance with N.J.S.A 40A:11-13(d). The Certification for the Purchase of Proprietary Goods is included as part of the bid documents.

The equipment in this proposal shall be completely compatible with existing reading equipment currently in use by the Borough. The Borough currently uses Microflex CE5320 handheld readers running Neptune ARB N_SIGHT software version 3.1.090324.

The term of the contract shall be for a period of one year in accordance with New Jersey Local Public Contracts Law N.J.S.A 40A:11-1 et seq.

Prices submitted with this proposal shall include delivery to the Borough of Matawan Water Department

Any exceptions to the specifications shall be listed in detail. This proposal includes

the meter sizes listed below:

5/8" X 3/4" Inside E-CODER METER R900I Estimated quantity – 200

5/8" X 1/2" Inside E-CODER METER R900I Estimated quantity - 600

1" Inside E-CODER METER R900I Estimated quantity – 6

PRICE PROPOSAL FORM*

Bid Item	Description	Type	Unit	Quantity	Price per Unit	Total	Manufac.
1.	Inside E-CODER METER R9001	5/8" X 3/4"	EA	200	\$ _____	\$ _____	
2.	Inside E-CODER METER R9001	5/8" X 1/2"	EA	600	\$ _____	\$ _____	
3.	Inside E-CODER METER R9001	1"	EA	6	\$ _____	\$ _____	
*Attach Separate Cut Sheet for Each Component							
	TOTAL:				\$ _____		

*Note: Quantities are for Bidding Purposes Only.

Percent off of List Price for miscellaneous Meter related items not listed: _____%

Manufacturer's Cut Sheet Included _____(Check if included)

Signature of Authorized Representative

Name of Firm (Please Print)

Address

Phone Number

COLD WATER METERS / DISPLACEMENT TYPE MAGNETIC DRIVE 5/8" - 2"

SPECIFICATIONS

GENERAL

All cold water meters (displacement type - magnetic drive 5/8" - 2") furnished shall be produced from an ISO 9001 manufacturing facility, conform to the "Standard Specifications for Cold Water Meters" C700 latest revision issued by AWWA or as otherwise stated and be certified to the National Conference on Weights and Measures (NCWM) regulatory standards.

LEAD FREE LEGISLATION

Federal changes are on the horizon governing the acceptable amount of lead in the drinking water system. Knowing that water meters have a life expectancy of approximately 20 years, the utility wishes to ensure that meters purchased today will meet the Safe Drinking Water Act (SDWA) per NSF 372 that will become effective in January 2014 for the following reasons:

- The utility wishes to assure the safety of its drinking water.
- The utility wishes to safeguard its investment in metering infrastructure.
 - As of January 4, 2014 meter inventory that does not meet the SDWA (NSF 372) lead free requirements will have to be returned to the manufacturer or scrapped at a cost that the utility is not willing to incur.
 - After January 4, 2014, any meters not in compliance with these requirements that are physically removed from service for testing or repair cannot be re-installed and will have to be scrapped at a cost that the utility is not willing to incur.

As a result, the utility requires that all water meters submitted in this proposal be compliant with NSF/ANSI 61, Annex G and Annex F. Specifically:

- Meters shall be made of "lead free" alloy as defined by NSF/ANSI 61, Annex G and Annex F.
- Manufacturer shall provide a copy of a letter from the NSF on NSF letterhead documenting compliance with NSF/ANSI 61, Annex G which allows a maximum weighted average lead content level of 0.25% of the wetted surface area.

NATIONAL TYPE EVALUATION PROGRAM CERTIFICATION (NTEP)

The Water Research Foundation (formerly AWWA Research Foundation) identified in the "Accuracy of In-Service Water Meters at Low and High Flow Rates" study that all meter types are not created equal and many manufacturers that advertise compliance to AWWA standards do not consistently meet them. As a result, the utility requires that all residential and intermediate meter sizes and register types supplied be certified to the National Conference on Weights and Measures (NCWM) regulatory standards. Specifically:

- Manufacturer shall provide a copy of the National Type Evaluation Program (NTEP) Certificate of Conformance (COC) certifying and listing the meter size and register type as legal for trade and;

The NTEP COC shall list the meter size and register type being supplied as approved for use in utility billing, commercial metering, and legal sub-metering applications

TYPE

Only magnetic-driven, positive displacement meters of the flat nutating disc type will be accepted because of enhanced low flow accuracy performance.

SIZE, CAPACITY, LENGTH

The size, capacity, and meter lengths shall be as specified in AWWA Standard C700 (latest revision). The maximum number of disc nutations is not to exceed those specified in AWWA C700 latest revision.

The meter maincase and cover shall be cast from NSF/ANSI 61, Annex G and Annex F certified lead free alloy containing a minimum of 85% copper. The serial number should be stamped between the inlet or outlet port of the maincase and the register. Maincase markings shall be cast raised and shall indicate size, model, direction of flow, and NSF 61 certification. Plastic maincases are not acceptable.

Maincases for 5/8", 3/4", and 1" meters shall be of the removable bottom cap type with the bottom cap secured by four (4) bolts on 5/8" and 3/4" sizes and six (6) bolts on the 1" size. Intermediate meter maincases shall also be made of the same lead free brass material in sizes 1-1/2" and 2" with a cover secured to the maincase with eight (8) bolts. Meters with a frost plug, a screw-on design, or no bottom cap shall not be accepted in 5/8" - 1" sizes. The 5/8" meters shall have a synthetic polymer or cast iron bottom cap option.

All lead free maincases shall be guaranteed free from manufacturing defects in workmanship and material for the life of the meter.

All meters must be adaptable to a field programmable absolute encoder register without interruption of the customer's service.

BOLTS

All maincase bolts shall be of 300 series non-magnetic stainless steel to prevent corrosion.

DIRECT READ STANDARD REGISTER

The register shall be of the straight reading sealed magnetic drive type and shall contain six (6) numeral wheels. Registers must be roll sealed and dry. All direct reading register cups shall be copper to prevent corrosion and be covered with a high strength, impact resistant flat glass lens to prevent breakage. The lens shall be positioned above the register box to allow for run off of debris. The register lid shall overlap the register box to protect the lens. The register retaining ring shall be designed to absorb impact from the register. Register boxes and lids shall be of high-strength synthetic polymer or approved equivalent. All registers shall have the size, model and date of manufacture stamped on the dial face. The dial shall have a red center sweep hand and shall contain one hundred (100) equally divided graduations at its periphery.

The register must contain a low flow indicator with a 1:1 ratio to disc nutations to provide leak detection.

Registers shall be secured to the maincase by means of a plastic tamper-proof seal to allow for inline service replacement. Register seal screws are only accepted when supplied with attached sealing wire to at least one bottom cap bolt with seal wire holes of not less than 3/32" in diameter.

Registers shall be guaranteed for at least ten (10) years. All meters will be guaranteed for one year on material and workmanship.

MEASURING CHAMBER

The measuring chamber shall be of a two-piece snap-joint type with no fasteners allowed. The chamber shall be made of a non-hydrolyzing synthetic polymer.

The control block shall be the same material as the measuring chamber and be located on the top of the chamber. The control block shall be located after the strainer.

The measuring chamber outlet port shall be sealed to the maincase outlet port by means of an “O” ring gasket.

The flat nutating disc shall be a single piece made from non-hydrolyzing synthetic polymer and shall contain a type 316 stainless steel spindle. The nutating disc shall be equipped with a synthetic polymer thrust roller located within the disc slot. The thrust roller head shall roll on the buttressed track provided by the diaphragm.

The chamber shall be warranted for ten (10) years against freeze damage if the meter has been equipped with a frost proof cast iron or synthetic polymer bottom cap.

STRAINERS

All meters shall contain a removable polypropylene plastic strainer screen. The strainer shall be located near the maincase inlet port, before the measuring chamber. The strainer shall also function as the device that holds the measuring chamber in place within the maincase. Straps or other types of fasteners shall not be accepted.

PERFORMANCE

To ensure accuracy, each meter must be accompanied by a factory test tag certifying the accuracy at the flows required by AWWA C700.

All meters shall be warranted as follows:

Size	Low Flow	Low Flow New Meter Accuracy	Low Flow Repaired Meter Accuracy
5/8"	1/8 gpm @ 95%	5 Yrs or 500,000 gallons	15 Yrs or 1,500,000 gallons
3/4"	1/4 gpm @ 95%	5 Yrs or 750,000 gallons	15 Yrs 2,250,000 gallons
1"	3/8 gpm @ 95%	5 Yrs or 1,000,000 gallons	15 Yrs or 3,000,000 gallons
1-1/2"	3/4 gpm @ 95%	2 Yrs or 1,600,000 gallons	12 Yrs or 5,000,000 gallons
2"	1 gpm @ 95%	2 Yrs or 2,700,000 gallons	12 Yrs or 8,000,000 gallons

Normal meter operating range shall be as follows:

Size	Accuracy Range ± 1.5%
5/8"	1/2 - 20 gpm
3/4"	3/4 - 30 gpm
1"	1 - 50 gpm
1-1/2"	2 - 100 gpm
2"	2-1/2 - 160 gpm

MANUFACTURER

Meters and meter parts shall be manufactured, assembled, and tested within the United States. Manufacturers may be required to provide proof of where and what percentage of the meter register, chamber, and maincase is manufactured in the United States.

Manufacturers shall have a minimum of fifteen (15) years of field and production experience with all sizes and models quoted.

Manufacturers shall provide only one model of meter which complies with these specifications. Suppliers must have been manufacturing meters for at least one hundred (100) years.

SYSTEMS GUARANTEE

All meters shall be guaranteed upgradeable to the following systems without interruption of the customer's service.

ProRead™ (ARB® VI) AutoDetect Absolute Encoder

E-Coder® (ARB VII) Solid State Absolute Encoder

R900®

FLOSEARCH® II

TRICON/E®3

TRICON®

REMOTE CAPABILITY OPTIONS

All meters shall be equipped with encoder remote registers per AWWA C707 and meet all AWWA C700 performance standards.

Acceptable meters shall be Neptune T-10 or approved equal.

GENERAL SPECIFICATIONS

INTEGRATED ENCODER AND METER INTERFACE UNIT (MIU)

These specifications cover a fully integrated self-contained solid state absolute encoder register and a radio frequency meter interface unit metering system designed to obtain simultaneous water meter registration that is guaranteed to exactly match the registration on the register odometer. The metering information shall be obtained through a fully integrated radio frequency device using a compatible data capture system. The above system shall be configured as follows:

- Solid state absolute encoder meter register – direct mounting, electro-magnetically encoded measuring element into an electronic solid state odometer. Encoder shall provide value-added flow data including leak, tamper, reverse flow detection, and 96 days of hourly usage profiling (data logging). Digital counters requiring batteries and volatile memory for consumption data are not allowed. Encoder register shall periodically display flow rate information at register.
- Fully integrated radio frequency meter interface unit providing a communication link for the transmission of information from the register.
- Data acquisition equipment with which the above components can be interrogated. Such equipment shall be configured in two types:
 - A device that captures information and displays it visually to confirm correct system installation.
 - A device that is pre-programmed with route information and is capable of storing collected data in solid-state memory. This device shall also electronically transfer the data for use by the utility billing computer.

INTEGRATED METER INTERFACE UNIT (IMIU) DESCRIPTION - GENERAL

The unit shall interrogate the solid state odometer of the absolute encoder register and transmit the meter reading and other information to a data collection reading device. The unit shall be capable of being read by a walk-by handheld computer equipped with an RF interface unit, a mobile system with a unit mounted in a vehicle, and/or a targeted fixed network data collection system. This shall allow an easy migration between the three systems without any change to devices or need to revisit the site. The absolute solid state encoder register with IMIU shall be attached to new meters, or they shall retrofit existing meters in the field via a bayonet mount on top of the meter maincase. The absolute solid state encoder register with IMIU shall be manufactured in both inside and pit models. The inside IMIU will be mounted inside without degradation of performance and the pit MIU shall have the ability to be mounted in a pit or an underground vault. The inside IMIU shall have a water resistant enclosure and a permanent antenna, while the pit IMIU enclosure shall be a roll-sealed copper can and glass lens designed to ensure a water tight seal, and offer a short whip antenna or an optional through-the-pit-lid antenna to address various applications. The IMIU battery shall be field replaceable on both the inside set and pit set designs. The IMIU shall log 96 days of hourly consumption intervals.

ENCODER DESCRIPTION - GENERAL

The self-contained solid state absolute encoder register metering system shall be designed to obtain remote simultaneous water meter registration that is guaranteed to exactly match the registration on the register odometer. The solid state absolute encoder meter register shall be a direct mounted, electromagnetically encoded measuring element in an electronic solid state odometer. The encoder shall provide value-added flow data including leak, tamper, and reverse flow detection and 96 days of data logging when communicating with a compatible RF AMR MIU. Batteries and digital counters using volatile memory are not allowed. Encoder register shall display flow rate information at register.

IMIU PHYSICAL/MECHANICAL REQUIREMENTS

Inside Unit

- The integrated meter interface unit (IMIU) housing shall be constructed of a polycarbonate plastic compound and be capable of mounting indoors. The device must be water-resistant and capable of exposure to spray and splash. The device must be able to withstand a 200-hour salt fog test as specified in NEMA 4 standard.
- The device shall provide a location for a tamper deterrent seal. Tampering with the device functions or connections shall not be possible without causing visible damage to the device exterior or to the seal.
- The device shall be capable of operating at temperatures of -22°F to 149°F (-30°C to +65°C) with a humidity factor of 0 to 95%.
- The circuit board will be coated for moisture protection.
- The battery will be protected by encapsulation in a hard potting and will be easily field replaceable.
- The unit must retrofit to existing installations.
- The IMIU device must be protected against static discharge without loss of data per IEC 801-2, issue 2.

Pit Unit

- The MIU shall be sealed in a roll-sealed copper can and glass lens to allow for submersion in a flooded pit environment.
- For pit or vault applications, the IMIU shall be designed with a whip-type antenna for below-the-pit-lid applications.
- The device shall be designed for an optional remote antenna capable of being installed through the industry standard 1-3/4" hole in the pit lid for maximum transmission range. The meter interface unit will be capable of mounting to various thicknesses of pit lids from 1/2" to 2-1/2" and various distances from meters.
- The device shall provide a location for a tamper deterrent seal. Tampering with the device functions or connections shall not be possible without causing visible damage to the device exterior or to the seal.
- The device shall be capable of operating at temperatures of -22°F to 149°F (-30°C to +65°C) with a humidity factor of 0 to 95%.
- The battery will be protected by a hard potting material. The battery shall be easily field replaceable.
- The through-the-pit-lid antenna option shall be rigid in design to withstand traffic and shall have a dual seal connection to the IMIU housing.
- The IMIU device must be protected against static discharge without loss of data per IEC 801-2, issue 2.

ENCODER REGISTER UNIT

Registration

- The solid-state absolute encoder register shall provide at least a 9-digit visual registration at the meter.
- The unit shall provide an 8-digit meter reading for transmission through the radio MIU.
- The unit shall provide a rolling 96 days of hourly consumption data upon request/activation.
- The register shall employ a visual LCD leak indicator as well as provide remote leak indication through an ASCII format to the data collection device.
- The register shall provide reverse flow detection, days of no consumption, and number of days of leak or reverse flow condition.
- Internal batteries shall not be allowed. Battery must be external to register and field replaceable.
- The manufacturer will guarantee that the reading obtained electronically matches the LCD odometer reading on the register and that the manufacturer will pay the difference at the current rate whenever a discrepancy appears.
- The register shall display flow rate information.

Mechanical Construction

- The inside set enclosure shall feature a hermetic sonic weld seal. The pit set enclosure shall be a roll-sealed glass and copper can design to protect the internal components against moisture intrusion.
- The register and IMIU shall be attached to the meter case by a bayonet attachment. Fastening screws or nuts shall not be required.
- A tamper-proof seal pin shall be used to secure the register to the maincase.
- The register shall be removable from the meter without disassembling the meter body and shall permit field installation and/or removal without taking the meter out of service. Provision shall be made in the register for the use of seal wires to further secure the register.

Electrical Construction

- The solid state absolute encoder register shall incorporate an Application Specific Integrated Circuit (ASIC) and firmware designed to verify accurate measurement, information transmission, and data integrity.

Meter Reading Information

- The solid state absolute encoder register shall provide to the reading equipment an 8-digit meter reading.
- The solid state absolute encoder register shall provide additional value-added information remotely, such as detailed leak detection data, days of leak state, days of no consumption, and reverse flow indication. This information shall be communicated through the encoder protocol and RF IMIU to the route management software to allow the seamless integration of data into a CIS package.

OPERATIONAL SPECIFICATIONS - RF

- For reliability and meter reading integrity, the vendor shall be the sole manufacturer of the different components of the system (water meters, RF transmitter, meter reading equipment, and route management software), and provide a turnkey system offering to the utility.
- The manufacturer will guarantee that the reading obtained electronically matches the visual reading on the register when the register is interrogated by the IMIU and that the manufacturer will pay the difference at the current rates whenever a discrepancy appears. Synchronization of electronic reading and mechanical reading for any reason (battery change, register change, cut wire, register roll-over, etc.) is not acceptable.
- For ease of implementation, the system shall not require any special licensing, including licenses from the FCC. The system must, therefore, operate in the 902 MHz to 928 MHz unlicensed band.
- The system implementation shall not be delayed due to the uncertainty of Federal licensing requirements.

- The system must be expandable at any time without getting authorization from the FCC.
- No wake-up tone shall be necessary.
- To minimize the potential for RF interference from other devices, the IMIU shall transmit using the frequency-hopping, spread-spectrum technique comprised of alternating pseudo-random frequencies within the 902 MHz to 928 MHz unlicensed band.
- The IMIU shall operate within FCC Part 15 regulations for devices operating in the 902 MHz to 928 MHz unlicensed band. The output power of the devices will be governed by their conformance with these relevant FCC standards.
- Output power shall meet FCC Part 15.247 requirements.
- Power shall be supplied to the IMIU by a lithium battery. The Vendor shall warrant that any battery provided with the IMIUs by the Vendor shall be free of manufacture and design defects for a period of twenty years – the first ten (10) years from their date of shipment from factory without pro-rating, and the second ten (10) years with pro-rating, as long as the IMIU is working under the environmental and meter reading conditions specified.
- The battery life shall not be affected by ambient erroneous wake-up tones (e.g., other water, electric, or gas utilities reading and therefore sending out a wake-up tone).
- The number of reads performed must not affect the battery life.
- The unit shall be able to transmit 96 days of data logging information via the RF for collection by a handheld device upon activation.
- The batteries shall be field replaceable (the replacement shall be demonstrated) and be designed for a minimum of twenty (20) years' life expectancy. The IMIU shall not require reprogramming if the battery discharges before it is replaced.
- No IMIU programming shall be necessary for installation.
- The IMIU shall not send readings older than an hour. Sending a reading older than an hour is not acceptable, as it can lead to incorrect billing.
- The IMIU shall transmit the meter reading continuously at a predetermined transmission interval to maximize battery life.
- Each device shall have a unique pre-programmed identification number of 10 characters. ID numbers will be permanent and shall not be altered. Each device shall be labeled with the ID number in numeric and bar code form. The label shall also display FCC approval information, manufacturer's designation, and date of manufacture.
- The IMIU shall transmit the encoder meter reading and a unique IMIU ID number.
- The handheld reading equipment shall provide a test mode to verify proper operation of the IMIU by displaying the IMIU ID number and meter reading.
- The IMIU reading shall be capable of being received by either a handheld receiver, mobile receiver, or fixed network receiver without special configuration or re-manufacture.