

NOTICE TO BIDDERS

WATER METERS

Bids will be received on the item listed above by the Borough of Matawan on
Friday, February 2, 2018 at 10:00 AM

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

PUBLIC NOTICE IS HEREBY GIVEN that sealed bids will be received by the Borough of Matawan, County of Monmouth, State of New Jersey on Friday, February 2, 2018 at 10:00 AM 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 8:30 AM to 4:30 PM, Monday through Friday, by contacting the Clerk at karen.wynne@matawanborough.com or the Borough's website www.matawanborough.com.

All bids will be addressed to the Borough Clerk 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 NJSA 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 NJSA 10:5-31 et seq and PL 1975, c.127(NJAC17:27), 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.

9. 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:

Bid Item	Description	Type	Unit	Quantity	Price Per Unit	Total	Manufacturer	
1.	Inside E-Coder Meter R9001	5/8" x 3/4"	Each	100	\$	\$		
2.	Inside E-Coder Meter R9001	5/8" x 1/2"	Each	400	\$	\$		
TOTAL								

GENERAL SPECIFICATIONS- Meter Interface Units (MIU's)

METER INTERFACE UNITS (MIUs)

Meters connected to RF MIUs shall collect meter usage from an encoder meter register and shall transmit the meter reading and a unique ID number to the data collection device.

The MIUs must be compact electronic devices connected to the water meters. They shall interrogate the encoder register and transmit the meter reading and other information to a remote reading device. They shall be compatible with Neptune and Sensus-protocol (UI-1203) absolute encoder registers. MIUs shall feature "auto detect" functionality to detect the type of encoder connected and shall not require reprogramming in the field. The same RF MIUs must be capable of being read by a walk-by handheld computer equipped with a RF receiver, a mobile system with an RF receiver mounted in a vehicle, and a fixed network data collection system. This shall allow an easy migration between the three meter reading systems without any change to the MIU devices or revisiting the site.

The MIU shall log 96 days of hourly consumption data, available for retrieval via RF activation from the handheld data collection device.

The MIUs shall be attached to new meters, or they shall retrofit existing meters in the field. The MIUs shall be manufactured in both wall and pit models. The wall MIU shall have the ability to be mounted in a basement or on the outside of a house. The pit MIU shall have the ability to be mounted in a pit or an underground vault and offer an optional through-the-pit-lid antenna. The wall and pit MIUs shall have a fully-potted, submersible design.

MIUs shall also be available as integrated devices in which the encoder register and RF transmitter module are integrated into a single module. These shall be compatible with all Neptune meters. The unit shall interrogate the solid state odometer of the integrated absolute encoder register and transmit the meter reading and other information to a data collection reading device.

The absolute solid state encoder register with integrated MIU 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 integrated MIU shall be manufactured in both inside

and pit models. The inside MIU shall have a water resistant enclosure and a permanent internal antenna. The pit MIU enclosure shall be a roll-sealed copper can and glass lens, designed to ensure a watertight seal with a permanent internal antenna and offer an optional through-the-pit-lid antenna to optimize performance in hard-to-read or fixed network applications.

Encoder Description – General

Registration

The register shall provide at least a nine-digit visual registration at the meter.

The unit shall provide an eight-digit meter reading for transmission through the radio MIU.

The dial shall have a high resolution nine-digit LCD display for meter testing.

The register shall employ a visual LCD leak detection indicator as well as provide remote leak detection through an ASCII format to the RF AMR/AMI MIU.

The register shall provide reverse flow detection, communicated as ASCII format data to the RF AMR/AMI MIU.

Reverse flow detection shall be calculated based on 15 minute interval consumption.

The register shall provide an indication of days of zero consumption, communicated as ASCII format data to the RF AMR/AMI MIU.

Internal batteries shall not be allowed.

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 should accumulate and register consumption without connecting to a receptacle or MIU.

The register shall display flow rate information.

Integrated Unit – Inside Set

The integrated MIU housing shall be constructed of a polycarbonate plastic compound and be capable of mounting indoors..

The MIU shall be designed with an internal antenna.

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 encoder circuit board will be coated for moisture protection.
The radio circuit board and battery will be protected by encapsulation in a hard potting.
The unit must retrofit to existing installations.
The MIU device must be protected against static discharge without loss of data per IEC 801-2, issue 2.

Integrated Unit – Pit Set

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 MIU shall be designed with an internal antenna.
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) and operating humidity factor of 0 to 100% condensing.
The radio circuit board and battery will be protected by a hard potting material.
The device shall be designed for an optional remote antenna capable of being installed through the industry standard 1¾" hole in the pit lid for maximum transmission range.
The optional through-the-lid antenna will be capable of mounting to various thicknesses of pit lids from ½" to 2½" and various distances from meters.
The optional through-the-pit-lid antenna shall be rigid in design to withstand traffic and shall have a dual-seal connection to the MIU housing.
The MIU device must be protected against static discharge without loss of data per IEC 801-2, issue 2.

Operation Specifications

The MIU shall operate within FCC Part 15.247 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 to these relevant FCC standards.
To minimize the potential for RF interference from other devices, the MIU shall transmit using the frequency hopping, spread spectrum technique comprised of alternating pseudo-random frequencies within the 902 MHz to 928 MHz unlicensed band.
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 must be expandable at any time without getting authorization from the FCC.

No wake-up tone shall be necessary.

No MIU programming shall be necessary for installation.

The MIU shall provide 8-digit reading resolution from Neptune E-Coder as well as other absolute encoders using Sensus UI-1203 protocol in mobile as well as fixed network data collection applications, simultaneously, without need for programming.

The MIU shall read the encoded register at 15-minute intervals to provide accurate leak and reverse flow detection using 8-digit resolution reads.

The MIU shall transmit readings from the encoder that are not older than 15 minutes.

The MIU shall transmit the meter reading continuously at a predetermined transmission interval.

The MIU shall transmit fixed network messages every 7½ minutes – standard. No programming shall be necessary to activate transmission of fixed network messages.

The fixed network message shall include multiple meter readings for redundancy to improve read success rates.

The MIU shall transmit mobile messages every 14 seconds – standard. No programming shall be necessary to activate or revert to transmission of mobile messages.

Power shall be supplied to the MIU by a lithium battery with capacitor. The vendor shall warrant that the MIUs shall be free of manufacture and design defects for a period of twenty (20) years – the first ten (10) years from the date of shipment from factory without prorating and the second ten (10) years with prorating, as long as the MIU is working under the environmental and meter reading conditions specified.

The number of radio-based meter reads performed must not affect the battery life.

The battery life shall not be affected by outside erroneous wake-up tones (e.g., other water, gas, or electric utilities reading and therefore sending out a wake-up tone).

The battery shall be a fully potted component of the MIU with no external wires.

For reliability and meter reading integrity, the vendor shall be the sole manufacturer of the different components of the System (water meters, RF MIUs, meter reading equipment, and meter reading software) and provide a turnkey system offering to the utility.

In the event of a cut wire, the MIU shall not send the last good read as this can lead to mis-billing. The MIU shall transmit a trouble code in lieu of the meter reading.

Tamper – If wiring has been disconnected, a “non-reading” shall be provided indicating wire tamper; a reading that gives the last available reading is an incorrect reading.

Each device shall have unique preprogrammed identification numbers of ten (10) characters. ID numbers will be permanent and shall not be altered. Each device shall be labeled with the ID number in numeric and barcode form. The label shall also display FCC approval information, manufacturer’s designation, and date of manufacture.

The MIU shall transmit the encoder meter reading and a unique MIU ID number.

The MIU shall interface to Neptune ARB® V, ProRead™ E-Coder or Sensus UI- 1203 communication protocol absolute encoder registers via a 3-conductor wire without need for special configuration to the MIU.

The MIU shall be mounted per the manufacturer’s installation instructions. The handheld reading equipment shall provide a test mode to verify proper operation of the MIU by displaying the MIU ID number and meter reading. The MIU shall be capable of being received by either a handheld receiver, mobile receiver, or fixed network receiver without special configuration, programming of operation modes, or remanufacture.

Basic Functions

The handheld data collection device shall have the capability to collect and store meter readings at any time of the meter reading route by any of the following methods:

Manual use through an alphanumeric keypad.

Probing of water meters equipped with supported absolute encoders.

Via radio frequency through a Bluetooth-paired receiver.

The unit shall be able to obtain all types of readings on any particular route without requiring:

Reprogramming of the handheld computer.

Physical change of software contained within the unit while in the field.

Access through special software menus contained within a given route/program.

The handheld data collection device must be able to multitask by collecting data while in keyed entry (manual) meter reading mode.

Hardware Requirements

Processor and Operating System

The System must support a variety of handheld data collection devices.

These devices must run Windows Mobile 6.1 or 6.5. The handheld must operate with either a Marvell PXA320 Processor at 806 MHz or TI AM3715 Sitara ARM Cortex-A8 processor at 800 MHz.

Case

The unit must be able to withstand 26 drops at room temperature from four (4) feet onto plywood over concrete.

The handheld must meet and exceed MIL-STD 810F standard, method 516.5, procedure IV for drop tests.

The handheld shall be ergonomically designed to be comfortable for handheld meter reading.

Display

The handheld screen must be full VGA, sunlight readable 16-bit color TFT with LED backlighting. The size of the display characters must be selectable, allowing the use of larger characters that are easier to read. The screen must support a resolution of 480 by 640 pixels or 640 by 480 pixels.

The manufacturer's specification on the contrast ratio on the LCD display must automatically contrast adjust based on temperature, which will give clear readings in extreme temperature. There must also be a manual

contrast adjustment feature which will allow the user to adjust the contrast to his or her satisfaction.

The display must have no degradation when exposed to storage temperatures of -40°C to +70°C (-40°F to +158°F) and operating temperatures of -30°C to + 60°C (-22°F to +140°F).

Keyboard

The handheld must support one of the two keyboard options:

The keyboard must have independent numerical keys with adequate separation for use with a gloved hand. Must have a full on screen, customizable alphanumeric keyboard.

Full QWERTY keypad with adequate separation with a gloved hand with number pad as well as directional buttons with four programmable buttons. There must be an auto-repeat function on keys and a rapid response between keying and seeing results on the screen.

Battery

The battery capacity must be sufficient for a minimum of ten (10) hours of meter reading.

The handheld must utilize a rechargeable lithium ion battery that with a capacity of 2500mAh or 5200mAh.

The handheld must come with a power management system designed to conserve power.

The handheld must come with an integrated intelligent, fast-charge capability that allows for full charge in four (4) hours.

Memory

The handheld data collection device must include a minimum of 128 MB of DDR SDRAM.

The handheld must have 512MB to 2GB of on-board non-volatile flash storage.

The handheld must come with a Secure Digital (SD/SDHC) card slot for additional storage expansion.

Carrying Method

A hand strap must be provided with each unit and must provide ease of use for right- or left-handed operators.

Size

The handheld data collection device dimensions must not be larger than:
Length: 10.5" (17.6 cm)

Width: 5.2" (10 cm)

Height: 1.9" (5.0 cm)

Weight

The unit's weight must be no more than 2.3lbs with battery installed.

Environmental Characteristics

The handheld must include but not be limited to the following:

The unit must operate in a temperature range of -30°C to +60°C (-22° F to +140° F).

The device shall be water-resistant, capable of unlimited exposure to spray or splash (such as rain or snow).

The handheld unit must be capable of being immersed in 3.3ft (1 meter) of water for 30 minutes.

The device must be protected against an 8kV static discharge without loss of data.

The unit must be resistant to various chemical products and must be sealed to keep out dust, humidity, and water.

The device must be shock-resistant exceeding IEC 68-2-32 method 1 (a one meter drop on concrete).

The unit must be CE and FCC certified.

Handheld Software Requirements

Basic Functions

The handheld software must be easy to use and give the meter reader control over the route in searching for accounts, tagging accounts for later action, entering related notes, and manually reading meters.

The handheld software must include entry of meter readings.

In addition, the handheld software shall include but shall not be limited to the following basic features:

User customizable key assignments.

Allow manual or automatic entry of meter readings, ID numbers, and note codes.

Perform high/low test on readings.

Date and time stamped to each reading.

Identify type of reading – manual keyed, probed, or RF MIU.

Must be able to read Neptune ARB I –VI, E-Coder, and Sensus ECR II and ECR III.*

(*Denotes support for the ECR III encoder when programmed as an ECR II with 6 wheels) encoders via either wireless probed reading or via RF MIU.)

Perform unread meter search.

Found meter processing for new accounts.

Allow forward and reverse walk order.

Data search capability (display, notes, and ID).

Auto-search for automatic reading of encoded meters.

Display the number of read and unread accounts on demand.

Enable left-to-right, right-to-left, or calculator entry of manual meter readings.

Capture multiple meter readings from a single ProRead; i.e., two networked ProRead or E-Coder encoders.

Collect the information from the host to generate reports on leak detection, tamper detection, and backflow conditions when used with Neptune R900® MIU and E-Coder register.

Sounds

Successful meter readings must be confirmed by an audible tone.

Communications / Charging Equipment

Communication

Communications between the handheld and the PC software must be established using a cradle connected via Ethernet or USB. In addition, the following basic features must be included:

Extensive error checking is provided to ensure data integrity during communications between the handheld and the PC.

A typical route of 400-500 accounts can be loaded or unloaded in less than one minute with the ability to load more than 5,000 records into a single handheld unit.

Routes/books can be split at the PC level.

Once loaded, routes may be individually selected on the handheld.

Communications / Charging Cradles

The communications/charging cradle will be housed in a suitable material that can be wall or tabletop mounted.

It will have the capability of recharging the handheld unit within four hours and also provide the communication port connection to the computer.

The cradle will be capable of communicating with the host computer at 10 Mbps.

The cradle must be capable of both USB and Ethernet communications with a PC.

The charging units must carry the Underwriters Laboratory (UL) seal of approval.

Probes

The handheld must be compatible with a wireless probe capable of reading Neptune ARB V, Neptune ProRead, and Sensus ECR II and ECR III.*

(*Denotes support for the ECR III encoder when programmed as an ECR II with six (6) wheels) encoder water meters.)

Radio Frequency Capability

The meter reading system must be capable of being upgraded to radio frequency communications. Utility plans to read water meters equipped with radio frequency MIUs. Only absolute encoder registers using Neptune ProRead, E-Coder, or Sensus UI-1203 communication protocols shall be acceptable. For the radio frequency based meter reading system, the encoder registers will be connected to an RF MIU that shall provide the radio link from the meter to the handheld interface unit. MIUs shall feature “auto detect” functionality and shall not require reprogramming in the field.

The handheld radio frequency receiver must be separate from the handheld unit itself.

Radio Frequency Reading Function

The function of the handheld and external receiver in radio frequency mode is to provide utility the capability of reading meters via radio signals transmitted by the RF MIUs. The external receiver must be capable of receiving RF readings and transferring those readings to the handheld via Bluetooth connection. All transmissions from supported MIUs will be collected. The reading of any MIU shall be automatically stored in the proper account record without the intervention of the meter reader.

Should any MIU not be able to be read during the route, the software shall support storage of a flag in the account record, indicating clearly that the MIU could not be read. When reading the meters in the RF mode, it should not require the meter reader to activate any wake-up tone.

The handheld with the external receiver reading equipment must provide a test mode to verify operation of the MIU. This test mode must be accessible

from within the meter reading application as well as accessible from a handheld's main screen (no login required). The test application must be capable of reporting statistics for an individual MIU or displaying all MIUs within range.

Walk-by RF Transceiver

The walk-by RF transceiver must be a separate belt clip, wearable, transmit/receive device which communicates via Bluetooth to the handheld. It must be compatible with Neptune R900 technology to allow radio frequency communications with water meters that have an RF MIU connected externally.

The walk-by RF transceiver must support the ability to remotely command the MIU to transmit data log interval data.

The walk-by RF transceiver antenna shall be internally mounted.

The walk-by RF transceiver must meet FCC Class B certification.

The walk-by RF transceiver must contain an SD card.

The walk-by RF transceiver must utilize SDR (software-defined radio) technology.

The walk-by RF transceiver must contain a mini-USB port for both battery charging and PC communications.

The walk-by RF transceiver must contain a field replaceable battery.

The walk-by RF transceiver must have four (4) LEDs displaying the following:

Battery/Power status

RF status

Bluetooth status

Mode status

The external RF transceiver must be capable of unattended operations where the receiver is not paired with any handheld device but hears and stores any received Neptune R900 reading packets to the SD card. This data must be able to be imported into the host software for use as billing reads.

The following specifications must be met:

Radio Characteristics

Receiving Frequency: 910-920 MHz unlicensed RF.

The walk-by RF transceiver must have 50 channels.

The walk-by RF transceiver must support reading eight (8) channels simultaneously.

The walk-by RF transceiver must be capable of processing 360 RF packets per second.

Size and Weight

Physical specifications of the external RF receiver must be within the following parameters:

Length: 5.75" (14.6 cm)
Width: 1.66" (4.22 cm)
Height: 3.58" (9.1 cm)
Weight: (with battery): 1.3 lbs.
(without battery): 1.1 lbs.

Probe Compatibility

Compatible with Neptune Advantage II Probe or Neptune Pocket ProReader RF.

Environmental Operating Conditions

Operating conditions: -4°F to +122°F (-20°C to +50°C)
Storage temperature: -40°F to +185°F (-30°C to +70°C)
Designed to and tested to MIL-STD-810F specifications
Designed to withstand electrostatic discharges per EN61000-4-2

RF Walk-by Receiver Battery Life

The data collection device battery must provide enough power to support RF meter reading for a minimum of eight (8) hours.