W1054WTE

SUPPLY, INSTALLATION AND MAINTENANCE OF ADDITIONAL SMART WATER FLOW METERING TECHNOLOGIES FOR THE DEPARTMENT OF WATER AND SANITATION FOR A TERM CONTRACT PERIOD OF THREE (3) YEARS

TERMS OF REFERENCE

1. INSTRUCTIONS TO BIDDERS

1.1 INTRODUCTION TO PROJECT

1.1.1 The Department of Water and Sanitation ("the Department") is the custodian of South Africa's water resources. The Department is primarily responsible for the formulation and implementation of water policy as well as overseeing water services provided by local government. The ambit of the Department scope is governed, inter alia by the National Water Act (NO. 36 of 1998) ("the National Water Act") which empowers the Department to recover its costs of fulfilling the obligations placed on the Ministry of Water and Sanitation from water users through raw water tariffs/charges.

1.1.2 The National Water Resources Infrastructure (NWRI) is responsible for the Development, Operations, Maintenance and Rehabilitation of National Water Resources Infrastructure Assets for the Department. It distributes bulk raw (untreated) water in terms of the National Water Act (NO. 36 of 1998) to authorised users. The NWRI's responsibility is to design, develop, construct and maintain infrastructure assets comprising of dams, tunnels, pipelines, canals, pump stations, Waste Water Treatment Plants (WWTP's), Water Treatment Plants (WTP's), Buildings and associated infrastructure that is positioned across Southern Africa. The NWRI Branch is endeavouring to become a Bulk Raw Water Management business unit. It is paramount that the costing of managing the supply of the water resource is based upon actual (verifiable) water use measurement.

1.1.3 Credible information and proper assets management is critical for an effective business management, regulation and all other elements of the sector which requires financial viability. This would be the reason why measurement is such an important element of the water management business which also bears mutual benefits to related aspects such as regulation (as part of the water resource management functions).

1.1.4 In order to maintain the infrastructure that holds water resources. DWS is also mandated to recover the costs that relate to such from the various water users. This is entrenched in the National Water Act and Water Services Act which gives DWS the right determine and set tariffs for all water users and charge these to each category of water users. Billing documents are issued to an estimated 65 000 users who collectively hold 200 000 accounts.

1.1.5 The Department has an existing contract Bid W0815WTE for the supply, installation and maintenance of "smart" Electro-magnetic water flow meters, for pipe diameters between 75mm to 600mm, which includes a suitable WEB-BASED software for monitoring and billing purposes. Therefore no offers for "smart" Electro-magnetic water flow meters shall be accepted. No provision for a WEB-BASED software shall be accepted as well.

2. INVITATION FOR BIDS

2.1 In accordance with the notice to all Bidders, each Bidder is required to submit the following copies before the closing date and time:

- 1 × Original Bid document
- 3 × Copies of original Bid document

All four (4) documents should be in one (1) or more than one (1)sealed envelope(s).

2.2 Bids are to be securely sealed andappropriately labelled "*W1054WTE - Supply, installation and maintenance of additional water flow metering technologies*"

2.3 No Bid(s) will be received if detached from the package in which it is bound; nor must any ofthe accompanying papers be detached therefrom, but the entire package must be unbroken and unaltered, in good order, and enclosed in sealed envelope(s) when the Bid isdeposited.

3. SCOPE OF WORK

The scope of work to:

3.1 Audit existing metering sites to verify asset ownership, functionality, and accuracy, as well as each new metering site to determine optimal meter sizing and location as per operational conditions.

3.2 Supply an array of additional "smart" water flow meters to address volumetric usage and verification of existing water abstraction conditions.

3.3 Install, repair and maintain existing and/or new "smart" water flow meters and "smart" bulk water flow measuring devices.

3.4 Supply, install and maintain wireless communication (monitoring system)devices for both "smart" water flow meters and bulk water flow measuring devices, feeding volumetric data to existing WEB-BASED software (compatible to communicate directly with SAP).

3.5 Construction of suitable reinforced concrete chambers or any other recommended structure, to prevent unauthorized access.

3.6 Supply field water flow measuring or field verification devices to verify the accuracy of water meters for pipeline application.

3.7 Make provision for high-level training of Departmental staff.

4. REQUIREMENTS

4.1 The successful Bidder shall be required to provide the following services and/or technologies:

REQUIRED **WATER FLOW METER TECHNOLOGIES**:

CATEGORY	PARAMETERS	TYPE OF WATER METER TO BE USED	OFFER NEEDED
1	For pipe diameters less than 75mm or Annual water sales less than R100 000.00	Mechanical water flow meter	**Yes**
2	For pipe diameters 600mm and above or Insufficient space to properly install an Electro-magnetic water flow meter	Ultrasonic water flow meter	**Yes**
3	Gravity fed pipelines that are half full and Open channel	Area velocity water flow meter	**Yes**

REQUIRED WATER FLOW METER **MONITORING TECHNOLOGIES**:

CATEGORY	TYPE OF METER	MONITORING DEVICE	OFFER NEEDED
1	Mechanical water flow meter	A suitable hand-held drive-by device for those areas where cellular phone coverage is dodgy and A suitable sensor with digital display unit and wireless communication to an existing WEB-BASED software	**Yes**
2	Area velocity water flow meter	A suitable hand-held drive-by device for those areas where cellular phone coverage is dodgy and A suitable sensor with digital display unit and wireless communication to an existing WEB-BASED software	**Yes**

4.2 The service provider must indicate the following:

4.2.1 Submit technical details of how the meter offered Operates, Maintained, On-field and Off-field verification of accuracy.

4.2.2 The prices for supply, installation and putting in operation the meters including the construction of meter chambers as required in unit cost.

4.2.3 Annual maintenance costs of each meter type offered.

4.2.4 Annual on-field and off-field verification costs of each meter type offered.

4.2.5 Demonstrate compliance with the necessary standards of meters to be supplied.

4.2.6 A compulsory 12 month Guarantee of meter functionality, workmanship and that of repairs.

5. ADDITIONAL INFORMATION ON EXISITNG BID W0815WTE

5.1 The Department of Water and Sanitation has an existing Bid W0815TWE, for the Supply, Installation and Maintenance of Electro-magnetic flow meters, for pipe diameters between 75mm – 600mm.

5.2 Also included in the above-mentioned Bid W0815WTE, is a suitable WEB-BASED software that receives these volumetric water flow data. The Department of Water and Sanitation uses this software to compile water efficiency reports and produce a file to be uploaded to SAP (version ECC6) for billing purposes.

5.3 All new metering technologies that are additional to the existing Bid shall be monitored using the existing WEB-BASED software. This software is specially configured for our needs and is called Water Meter Management System.

6. PRICING

6.1 PRICING FOR THE FOLLOWING:

ASSESSING OF WATER METERS AND BULK WATER MEASURMENT DEVICES, SUPPLYING, INSTALLATION OF WATER METER/BULK WATER DEVICES AND APPURTENANT WORKS IN SEVERAL LOCATIONS IN TERMS OF DEPTH AND REGION.

6.1.1 The Department expect the service providers to offer unit prices for each type of water flow meter. This price should be in line with the service provider solution. In the event when price is compared to the actual service provider proposal and it is found to be inaccurate and with various assumptions the Department reserves the right to disqualify the Bidder.

6.2 PRICING FOR THE FOLLOWING: SUPPLY AND INSTALLATION OF WATER FLOW METERS AND BULK WATER MEASURING DEVICES

6.2.1 Supply unit costing for services rendered on auditing and verification per site, in terms of the required asset ownership, functionality and accuracy verification at existing metering sites.

6.2.2 Supply unit costing for services rendered on auditing and verification per site, in terms of the required optimal sizing and location of meters.

6.2.3 Supply unit costs for each meter including supply, installation, annual maintenance, on-field verification, calibration costs and Operations & Maintenance manuals.

6.2.2 Furnish a detailed operations and maintenance manual as well as proof of warrantyfor each of the supplied goods/ services;

6.2.3 The required water flow metering technologies are supposed to be installed at different localities as desired by the Department in the premises of domestic, industrial and agricultural consumers;

6.2.4 Water meters shall comply to the requirements of the Trade Metrology Act (Act 77 of 1973) and its Regulations and also SANS 1529-1; 2006 and ISO 4064-1;

6.2.5 Attach copy of proof indicating that water flow meter conforms to any of these three (3) standards JASWIC / SANS / SABS. *JASWIC–Joint Acceptance Scheme for Water Installations; SANS-South African National Standards; SABS-South African Bureau of Standards.*

6.2.6 Supply costs for interfacing of a suitable WEB-BASED software (that receives volumetric water flow data) with SAP (version ECC6) for billing and water use management purposes.

6.2.7 Bidders shall submit full details of the required additional water flow metering technologies whose technical specifications shall comply with the following:

7. HOUSING

The housing shall be such as permit the unit to be installed in an underground chamber and shall meet the requirements for IP68 protection against environmental conditions.

7.1 TRANSMITTING UNIT

The transmitting unit shall be contained in a case and shall meet the requirements for IP68 protection against environmental conditions. This unit must at least be ready to be connected to remote reading technology or preferably be technologically equipped to communicate with remote meter reading systems.

7.2 RECEIVING UNIT

The receiving unit shall be digital, and shall display the rate of flow as a continuous line on a seven display calibrated in m^3 or m^3/hr as appropriate, and an integrating totalizer calibrated in m^3, also as appropriate. The totalizer shall not be re-settable.

The unit shall be contained in a case suitable for wall /panel mounting or as a combined item and shall meet the requirements for IP65 protection against environmental conditions.

7.3 CHAMBERS

All meters, valves and bypasses within the chamber must be supported, with adjustable pipe stands or concrete casts. Wood blocking are not acceptable means of support.

Vaults and chambers require drain connection to a storm drainage system. Where a gravity connection to the storm system is not available, the Department may approve one of the following options:

- Installation of a electric sump pump
- Installation of a rock pit.

The dimensions of the chamber will vary with the size of the meter installed, but the supply must ensure that on both sides of the pipe/meter installation there is a standing/working area for maintenance purposes.

The concrete reinforced concrete chambers shall be designed and constructed such that:

- 500mm clearance between the bottom-most edge of the pipe and the chamber floor
- 500mm on either side of the pipeline
- length of the chamber not less than 1800mm
- height from chamber floor to chamber roof, to be at least 2000mm.

7.4 APPURTENANT WORKS.

Strainers must be installed immediately upstream of the meter using a flanged connection, to avoid any blockages that could impact readings – these should be easily unblocked so as to allow free flow of water. Strainers shall be of the same manufacture and size as the meter.

Isolation valves must be provided upstream and downstream of the meter to allow removal of meter and strainer cases. One valve must be installed on bypasses. A lock wing must be provided on the operating nut of bypass valves 50mm and smaller.

For all meter installations provide a straight section of horizontal pipe, five pipe diameters in length, between the strainer and the upstream isolating valve.

A test point must be provided for all meters 75mm in diameter and greater. In the absence of a test plug on the meter case, install a testing tee with a 50mm diameter threaded nipple and cap between the meter and the downstream isolating valve.

For meters 75mm in diameter and larger a mechanical flange adapter must be provided on the downstream side of the meter to provide flexibility for meter and strainer case removal.

7.5 COMMISIONNING

Unless otherwise specified in the Schedule of Quantities, the supplier will be required to provide the signal cables between the units and to commission the meters after installation.

8. COMPATIBILITY WITH EXISTING WEB-BASED SOFTWARE

The meter and installation process shall be compatible with the Department's existing billingsoftware application and be capable of transitioning to new versions of the software as upgradesare made. The Contractor shall work with the existing Contractors information systems provider/manager in order to link the new water flow measuring technologies with the existing WEB-BASED software.

9. PROGRESS MEETINGS

Progress meetings will be held on as required by the Department. The Department will establish the dates, timesand place(s) of the meetings, and conduct the meetings. The meetings will be conducted once amonth or more often if deemed necessary by the Department. The meetings shall be attended by theDepartments and Contractors personnel as well as any other individual pertinent to the agenda.

10. DISPOSAL OF OLD METERS

All meters removed and replaced will be the property of the Department and will be returned unlessa suitable disposal program is approved by the Department. The Contractor shall be held accountable for the returnof all old meters.

11. CIDB GRADING

Only Contractors who have a valid and active CIDB grading of 7 either in civil (CE) or mechanical (ME) designations shall be considered.

12. MULTIPLE CONTRACTORS

The Department shall appoint multiple contractors to execute this assignment i.e. more than one Contractor. Depending upon the number and geographical spread of

qualifying contractors, this assignment shall be allocated according to Provincial boundaries, Operational Cluster or even Operational Area.

13. BID ENQUIRIES

FURTHER TECHNICAL INFORMATION: queries and questions of clarity can be addressed to Mr LAV Manus contactable as follows: Tel: 012 336 8092 email: manusl@dws.gov.za and cc dlaminit2@dws.gov.za. The **Bid number and the subject name** of this Bid should be clearly identified on the subject line when an enquiry is made.