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Municipal Metering: Advanced Metering Infrastructure for Red Rock, AZ

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Executive Summary

This Funding Opportunity Announcement (R21AS00300) is hereby submitted on Thursday, March 18, 2021 by Global Water Resources, Inc. (Applicant Name), Phoenix (City), Maricopa (County), of Arizona (State).

Global Water Resources, Inc. (Global Water), qualifying as a Category A applicant, will replace aging, legacy system residential and commercial water meters in Red Rock, Arizona with water meters that have Advanced Metering Infrastructure (AMI) capabilities. Global Water respectfully requests funding for \$75,000 of a \$187,393 project designed to improve water resource management using near real-time water consumption data.

AMI infrastructure allows customers to easily access their water use data and receive near real time alerts enabling them to make informed water use decisions and take timely action to address leaks and unexpected consumption. Improved data will also allow Global Water technicians and customer service representatives to act fast and save water in the event of a water leak or a high usage event.

This project includes the installation of 500 AMI water meters, along with the needed receivers/collectors, and a solar panel array (as an energy alternative and energy conservation initiative). This project is considered an eligible project as it addresses Municipal Metering and supports Global Waters' Total Water Management strategy.

The project is planned to take approximately eight (8) months from Monday, February 8, 2022 to Friday, September 19, 2022. The Project is not located on a Federal facility.

Project Location

The project will take place in the Global Water – Red Rock Utilities Company, Inc. Service Area, located in Red Rock, Arizona in the southern portion of Pinal County, approximately 32 miles northwest of Tucson, AZ on Interstate 10. Figure 1 below shows a map of this service area. The project latitude is 32.5731°N and longitude is 111.3290°W.



Figure 1 Municipal Metering with AMI Water Meters Location

Project Description

The Global Water – Red Rock Utilities Company, Inc. Service Area relies entirely on groundwater resources. Under Global Water’s Total Water Management strategy, we are committed to reducing demand on non-renewable resources. The use of advance water technologies, like AMI, allows for better water use tracking and ultimately reduces the loss of precious groundwater resources.

Global Water has successfully implemented AMI metering technology in the Global Water – Santa Cruz Water Company, Inc. service area. About 23,241 customers in the City of Maricopa, AZ have AMI water meters and access to their data through the WaterSmart platform. This software analyzes AMI data and offers customers leak and high consumption alerts via text, voice, and email. It is estimated that approximately 11.9 million gallons of water were saved in 2020 because of the over 12,000 leak detection alerts that were sent to customers.

Global Water plans to leverage the experiences and successes from the City of Maricopa, AZ AMI program for this project. All the residential and business water meters in Red Rock will be upgraded so that water can be better managed and conserved.

AMI water meters allow all residential and commercial water meters to be read remotely via a regular radio frequency transmission sent directly from each individual meter. AMI water meters are less expensive to operate. They provide a snapshot of water consumption across the area in near real time which will assist staff in anticipating water demands and assist with water conservation. Global Water will be installing 500 Neptune Technology Group E-Coder R900i meters.

Each AMI water meter in the Red Rock, AZ area will conduct a meter read every 15 minutes and will transmit this data through a standard radio frequency each hour. An on demand read is possible at any point in time. The data is received by several collecting units throughout the area and is transmitted via cellular network to Global Water.

Evaluation Criteria

E.1.1 Evaluation Criterion A—Project Benefits (35 points)

Describe the expected benefits and outcomes of implementing the proposed project.

What are the benefits to the applicant’s water supply delivery system?

This project will modernize existing metering infrastructure with the goal of conserving water and empowering customers. As demonstrated in the City of Maricopa, AZ, benefits of AMI metering include increased water conservation through timely leak detection, empowerment of customers to manage their own water use, and improved data for the water utility.

Water conservation

Current meters only provide monthly water usage data points. Any leaks, water use adjustments, or changes in water related habits can take two, three, or even more months to notice. With AMI meters, near real time data results in earlier leak detection. At any time, a resident can access their consumption in near real time by logging into the WaterSmart customer portal or by contacting Global Water. The WaterSmart platform analyzes data received from AMI meters and can send customers a leak detection alert via email, text, and/or voice notifications within 24 hours of detecting a high-water use event.

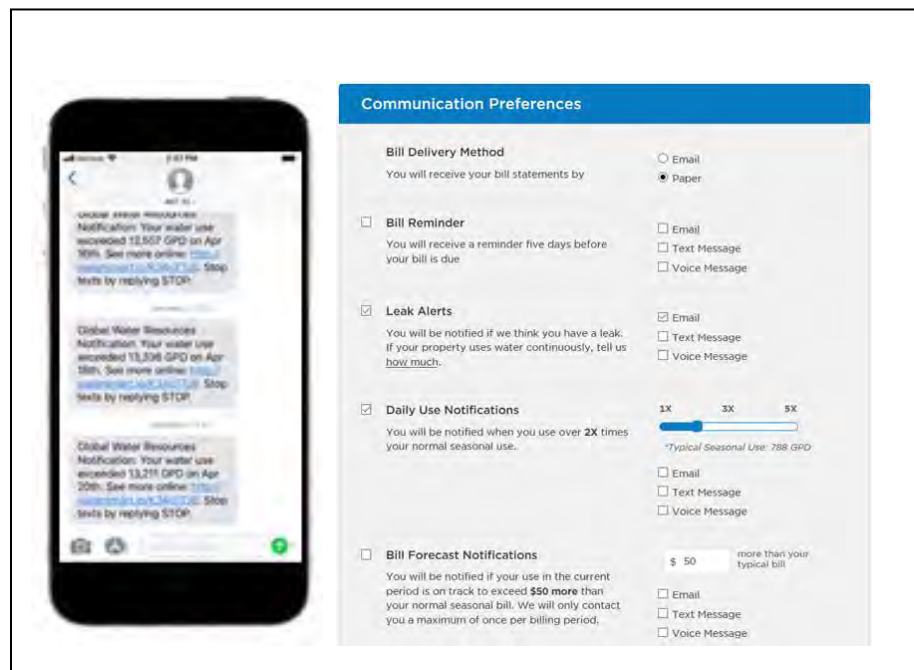


Figure 2 Leak Alerts

If the customer takes action and finds the leak, thousands of gallons can be saved. This service has been well received by customers with access to this information. The figure below shows some examples of the feedback we have had from customers in the City of Maricopa.

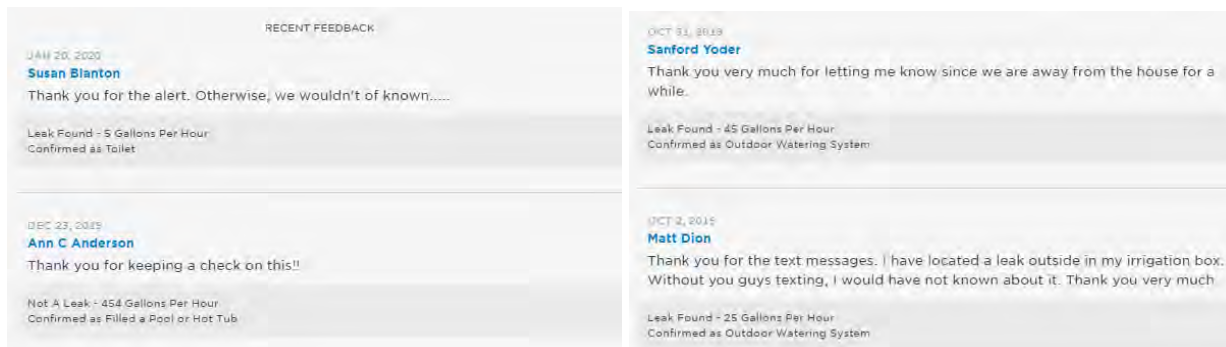


Figure 3 Leak Alerts - Customer Feedback

Customer empowerment

With AMI, customers have the ability track their personal home water use trends and set threshold notifications for their monthly water consumption goals. This information is far superior to the current meters that provide customers with a single meter read or data point each month. This information empowers to customers to manage their personalized water use.

Improved information for Global Water

Near real-time water use data from AMI meters data can be used for a variety of analytical purposes. For example, Global Water employs targeted best management conservation practices in the Red Rock service area. AMI data can be used to support and refine this type of conservation programs. With the data provided by AMI meters it becomes possible to find trends and track potential changes in water use as a result of educational programs or other conservation incentives. Data can also be used to assist customers in leak investigations as well as monitor localized issues within the system.

If other benefits are expected explain those as well. Consider the following:

Extent to which the proposed project improves overall water supply reliability.

This project will improve the reliability of the Red Rock Water service using remote real-time telemetry indicating water flows per customer. The data is processed, and key personnel are alerted to adverse conditions whereby actions can be taken expeditiously.

The expected geographic scope benefits from the proposed project (e.g., local, sub-basin, basin)

Direct benefits from this project will span the Global Water – Red Rock Utilities Company, Inc. current service area. In-direct benefits from water conserved as a byproduct of this metering project would span throughout the entire water basin as a result of reduced water waste.

Extent to which the proposed project will increase collaboration and information sharing among water managers in the region

This project will not directly increase collaboration between water managers in the region.

Any anticipated positive impacts/benefits to local sectors and economies (e.g., agriculture, environment, recreation, tourism)

There are no other anticipated positive impacts from this metering project.

Extent to which the project will complement work done in coordination with NRCS in the area (e.g., with a direct connection to the district's water supply). Describe any on-farm efficiency work that is currently being completed or is anticipated to be completed in the future using NRCS assistance through EQIP or other programs.

Global Water is not working with NCRS currently.

E.1.2 Evaluation Criterion B—Planning Efforts Supporting the Project (35 points)

Describe how your project is supported by an existing planning effort.

Does the proposed project implement a goal or address a need or problem identified in the existing planning effort?

Global Water has been at the fore front of water conservation planning and implementation since the company's inception in 2003. Our mission is to develop industry-leading, integrated water and wastewater utilities focused on conservation and reuse; allowing our customers, the company, and our shareholders to realize the benefits of consolidation, regionalization, and environmental stewardship. Global Water incorporates water conservation and sound water management into all aspects of our business through our Total Water Management (TWM) framework. The TWM planning document was developed internally by upper management and has been approved by Global Water's Chairman, President and CEO Ron Fleming, please see Appendix A for reference. This AMI metering project supports Global Water's comprehensive approach to utility management and planning.

Global Water believes in the fundamental principal that customers need tools and technology to assist them in their water conservation efforts. In a white paper, written by two of Global Water's founders, they state, "A utility can tell you to the millisecond when a booster pump turned on; however, in many cases it cannot tell you until next month – or the month after, or six months later, or worse: never – where that water went. That's not acceptable. In a world where every drop counts, instantaneous understanding of the entire water system is required." Additionally, "The consumer needs to have the opportunity to review daily consumption, and make an economic decision based on that information. To be successful in reducing consumption, people must be given the "geo-temporal" context of their consumption: where, when and why am I using water."¹

In addition, this project has a strong nexus with the Bureau of Reclamation's Central Arizona Project. Specifically, due to Arizona's recently passed Drought Contingency Plan², farmers in Pinal County stand to lose as much as two-thirds of the irrigation water received from the Colorado River,

¹ https://45b0123c-2263-4780-b284-6e2f3eece851.filesusr.com/ugd/f1b53d_54351fbc6dec49fda57c83ba607d8730.pdf

² Derived from the Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande Treaty of (Feb 3) 1944, and as Legislated through Arizona Revised Statues (ARS) Title 48, Ch 22, Articles 1-4

via the Central Arizona Project³. The loss of irrigation water will inevitably result in increased groundwater pumping by farmers, which may ultimately have an impact on the aquifer that is used to pump groundwater for Red Rock residents.

Explain how the proposed project has been determined as a priority in the existing planning effort as opposed to other potential projects/measures.

The Red Rock service area is located at the intersection of two Reclamation basin studies. Reclamation has awarded Basin Studies for the Lower Santa Cruz River Basin⁴ and the Eloy and Maricopa - Stanfield Basins⁵. While these basin studies are on-going, the known water scarcity issues within the Red Rock region makes a case for implementing water conservation and mitigation strategies within this region. The AMI metering project is a piece of the larger conservation strategy for this region because it gives water consumers the technology necessary to be active water conservation participants.

E.1.3 Evaluation Criterion C—Project Implementation (10 points)

Describe the implementation plan for the proposed project. Table 1 Milestones depicts the Milestone/Task/Activity Timeline for this project over the anticipated eight-month time period. Dates shown are not expected to vary from proposed start dates related to the funding announcement and Federal Award Date. This project is a single-year project. As shown in Table 1 Milestones, An Environmental & Compliance Evaluation as well as a Cultural Review are planned to begin on Monday, February 15, 2022 and conclude by Friday, April 15, 2022. Additionally, A Propagation, Environmental & Compliance, and Cultural Mitigation Contingency has been planned into the project between Monday, February 22, 2022 and Friday, March 25, 2022.

Table 1 Milestones

| Milestone/Task/Activity | Planned Start Date | Planned Completion Date |
|---|--------------------|-------------------------|
| Initiation – Contract Activation and Kick-Off | 2/8/2022* | 2/9/2022 |
| Preliminary Planning | 2/8/2022 | 2/19/2022 |
| Propagation Study (Update/Revision) | 2/9/2022 | 2/12/2022 |
| Environmental & Compliance Evaluation (BOR) | 2/15/2022 | 4/15/2022 |
| Cultural Review | 2/15/2022 | 3/5/2022 |
| Propagation, Environmental & Compliance, and Cultural Mitigation Contingency | 2/22/2022 | 3/25/2022 |
| Permitting, Permissions, and Approvals Contingency | 3/8/2022 | 4/9/2022 |
| Order Equipment & Receive Equipment | 3/8/2022 | 6/11/2022 |
| Customer Communication – Press Releases & Door Hanger distribution | 3/8/2022 | 4/2/2022 |

³ <https://www.inmaricopa.com/drought-development-contingency-plan-bites-into-pinal-county-agriculture/>

⁴ <https://www.usbr.gov/lc/phoenix/programs/lscrbasin/LSCRBSFactSheet.pdf>

⁵ <http://pinalpartnership.com/ems-basin-study/>

| | | |
|--|-----------|-----------|
| Prepare for Meter Exchange – Gateway Installation | 5/24/2022 | 6/24/2022 |
| Meter Exchange Phase 1 – 150 water meters | 6/25/2022 | 7/25/2022 |
| Meter Exchange Phase 2 – 150 water meters | 7/15/2022 | 8/5/2022 |
| Meter Exchange Phase 3 – 150 water meters | 7/26/2022 | 8/16/2022 |
| Meter Exchange Catch-Up/Make-Up Contingency – 50 water meters (10% reschedule) | 8/2/2022 | 8/30/2022 |
| Data Quality Control | 5/24/2022 | 9/3/2022 |
| Data Integration into CIS (Customer Information System) | 5/24/2022 | 9/3/2022 |
| Post-Installation Customer Communication – Education on Portal and billing inserts to explain new reading format | 5/3/2022 | 9/3/2022 |
| Post Project Assessment – Lessons Learned, Case Study, Publication of Project Results and Rural Arizona Impact | 9/6/2022 | 9/10/2022 |
| *Award date is anticipated to be approximately Friday, December 31, 2021. The Project begins Tuesday, February 8, 2022 and is not expected to be delayed, based on Award Date. | | |

Describe any permits that will be required, along with the process for obtaining such permits.

There are no permits required to install AMI compatible meters. The meter frequency operates between 902MHz and 928MHz and the meter radios have been certified by the Federal Communication Commission (FCC). A fact sheet from the meter manufacture can be found in Appendix B.

The final propagation study will indicate where the collector units will need to be located. Collector units are the devices that receive the meter reads and then transmit them via a cellular network. Depending on the final locations of the collectors, a pole may need to be constructed to provide the elevation needed for the collector. A construction permit from Pinal County may be required. Global Water has worked with Pinal County’s staff on many occasions, and the company does not anticipate any issues to permit any construction work, if required.

There are no Federal Facilities associated with, or impacted by, this project. Additionally, it is not anticipated that any easements, land use authorizations, or special permits will be required during the project, pending agreement of Reclamation.

Identify and describe any engineering or design work performed specifically in support of the proposed project.

There have been no engineering plans created or design work performed specifically for this project.

Describe any new policies or administrative actions required to implement the project.

There are no new policies or administrative actions that will be required to implement this project.

Describe the timeline for completion of environmental and cultural resource compliance. Was the timeline for completion of environmental and cultural resource compliance discussed with the local Reclamation office?

The timeline for completion of the environmental and cultural resource compliance was discussed with the Bureau of Reclamation's Phoenix office. After speaking with Jessica Asbill-Case it was determined that this compliance process will take approximately 60 days to complete. This time requirement is included in the project milestones table above.

Evaluation Criterion D— Nexus to Reclamation (10 points)

Describe the nexus between the proposed project and a Reclamation project or activity, including:

Is the proposed project connected to a Reclamation project or activity? If so, how? Please consider the following:

Does the applicant receive Reclamation project water?

This AMI meter project has a strong nexus with the Bureau of Reclamation's Central Arizona Project. Global Water has developed a diverse portfolio of water resources to ensure that the communities we serve in Arizona have access to clean, healthy, and reliable water. Several of our subsidiary company service areas, including Red Rock, AZ, are member lands of the Central Arizona Groundwater Replenishment District ("CAGR") and one has a Central Arizona Project ("CAP") contract. The CAGR is a department of the Central Arizona Water Conservation District ("CAWCD") which manages the water supplied by the Colorado River through the CAP canal. The CAP project is a Bureau of Reclamation ("BOR") Water Supply Project.

Water conservation resulting from better water data from AMI meters could potentially reduce the future use of CAP water to some extent, with consideration of fitness-for-purpose distinctions between water for drinking and water used for non-drinking purposes.

The CAGR member subdivisions that we serve are:

- Global Water – Greater Tonopah Water Company, Inc.
 - Subcontract number 030-14-0098
- Global Water – Northern Scottsdale Water Company, Inc.
 - 035-14-0228
 - 035-14-0332
- Global Water – Red Rock Utilities Company, Inc.
 - 135-35-0983
 - 135-35-0984
 - 135-35-0985
 - 135-35-1120
 - 135-35-1156
 - 135-35-1157

The subsidiary company with a CAP contract number is:

- Global Water – Greater Tonopah Water Company, Inc.
 - 07-XX-30-W0475

Is the project on Reclamation project lands or involving Reclamation facilities?

This project will not take place on Reclamation project lands or involve any Reclamation facilities.

Is the project in the same basin as a Reclamation project or activity?

Red Rock is located at the intersection of two Reclamation basin studies. Reclamation has awarded Basin Studies for the Lower Santa Cruz River Basin⁶ and the Eloy and Maricopa - Stanfield Basins⁷. While these basin studies are on-going, the known water scarcity issues within the Red Rock region makes a case for implementing water conservation and mitigation strategies within this region. The AMI metering project is a piece of the larger conservation strategy for this region because it gives water consumers the technology necessary to be active water conservation participants.

Will the proposed work contribute water to a basin where a Reclamation project is located?

This AMI meter project has a strong nexus with the Bureau of Reclamation's Central Arizona Project. Current CAP hydrological modelling shows that declining Lake Mead water levels will likely trigger a water rights shortage within the next few years. Under Arizona's current Drought Contingency Plan, farmers in Pinal County have already experienced decreased water availability and stand to lose as much as two-thirds of the irrigation water received from the Colorado River, via the Central Arizona Project. The loss of irrigation water will inevitably result in increased groundwater pumping by farmers, which may ultimately have an impact on the aquifer that is used to pump water for the Red Rock residents. This Municipal Metering with AMI Water Meters in Red Rock Arizona project will contribute water to this basin through conservation resulting from improved leak detection.

Will the project benefit any tribe(s)?

This project will not benefit any tribes.

⁶ <https://www.usbr.gov/lc/phoenix/programs/lscrbasin/LSCRBSFactSheet.pdf>

⁷ <http://pinalpartnership.com/ems-basin-study/>

D.2.2.5 Project Budget

Global Water Resources, Inc. will provide Non-Federal/Non-Reclamation funding for 59.98% of the project through corporate 2022 Capital Budgeting (\$112,393). The Funding Plan includes all project costs, and is further described below as follows:

1. Global Water will contribute its 59.98% cost-share requirement through Capital Budgeting for the 2022 fiscal year (\$112,393).
2. Global Water has not budgeted any pre-project in-kind costs and does not anticipate any new costs associated with the project that might otherwise be required prior to the commencement of the project.
3. Global Water has not budgeted any pre-project costs and does not anticipate any new costs associated with the project that might otherwise be required prior to the commencement of the project. A) In the event of any costs that would benefit the project more as a pre-project incurred cost than as an expenditure during the planned project period, collaboration with Reclamation will be sought and preapproved prior to allocating any funds, and B) on an agreed upon date.
4. Global Water does not anticipate any additional funding partners for this project. There are no Commitment Letters for this project proposal.
5. This Fund Request is pending approval of this application and award. In the event of denial, the project will be accomplished gradually over the next 5 years and will severely curtail water conservation efforts through 2026.

Funding plan and letters of commitment

There are no Commitment Letters for this project proposal. Non-Federal Funds will be sourced from the Global Water Resources, Inc. Capital Expenditures Budget; Calendar Year 2022.

Budget Proposal

Table 1. —Total Project Cost Table

| SOURCE | AMOUNT |
|---|------------------|
| Costs to be reimbursed with the requested Federal funding | \$75,000 |
| Costs to be paid by the applicant | \$112,393 |
| Value of third-party contributions | \$0 |
| TOTAL PROJECT COST | \$187,393 |

Table 2. —Sample Budget Proposal Format

| BUDGET ITEM DESCRIPTION | COMPUTATION | | Quantity Type | TOTAL COST |
|---|-------------------|----------|--------------------------------|---------------|
| | \$/Unit | Quantity | | |
| Salaries and Wages | | | | |
| Rey Flores, Technical Supervisor | \$25/hr | 100 | Hourly Wage | \$2,500 |
| First Response Metering (FRM) | \$27.10/hr | 1,210 | Hourly Wage | \$29,998* |
| Core & Main (CM) | \$33.56/hr | 60 | Hourly Wage | \$2,013.60* |
| *Costs are calculated in the Contractual/Construction Subsection. Quantity in hours are estimates, based on Unit Installation Costs provided by the contractor. | | | | |
| Fringe Benefits | | | | |
| Full-Time Employees | 30% Base | 100 hrs | Percentage of hrs worked | \$750 |
| Part-Time Employees (None) | 0 | 0 | N/A | \$0 |
| Equipment | | | | |
| Neptune Water Meters | \$200.45/Meter | 500 | Equipment Cost | \$100,225 |
| Collectors, Gateway | \$7,858/Collector | 2 | Equipment Cost | \$15,716 |
| RF Antenna | \$415/Antenna | 2 | Equipment Cost | \$830 |
| Solar Panel | \$3,572/Panel | 1 | Equipment Cost | \$3,572 |
| Meter Boxes | \$250/Box | 42 | Equipment Cost | \$10,500 |
| Supplies and Materials | | | | |
| AMI Antenna | \$24/antenna | 500 | Supplies Cost | \$12,000 |
| Coupling | \$3/coupling | 39 | Supplies Cost | \$117 |
| Valve | \$15/valve | 35 | Supplies Cost | \$525 |
| Reducer | \$3/reducer | 37 | Supplies Cost | \$111 |
| Brackets | \$17/bracket | 24 | Supplies Cost | \$408 |
| Washers | \$36/kit | 6 | Materials Costs | \$216 |
| O-Rings | \$38/kit | 6 | Materials Costs | \$228 |
| Lubricant | \$17/bottle | 6 | Materials Costs | \$102 |

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| | | | | |
|--|--------------------------|--------|--------------------|---------------------|
| Pipe | \$9/nipple | 74 | Materials Costs | \$666 |
| Fill, Rocks | \$20/ton | 4 | Materials Costs | \$80 |
| Fasteners | \$70/kit | 3 | Materials Costs | \$210 |
| 2"dia Circular saw | \$15/saw | 6 | Materials Costs | \$90 |
| Coax Cable, Collectors | \$7/ft | 40 | Materials Cost | \$280 |
| Coax Cable Connectors, Collectors | \$57/Connector | 4 | Materials Cost | \$228 |
| Contractual/Construction | | | | |
| First Response Metering (FRM) Replacement of existing meter with new AMI Meter | \$36/meter | 500 | Per Unit | \$18,000 |
| FRM Meter Coupling Replacements | \$10/meter | 39 | Per Unit | \$390 |
| FRM Valve Replacement | \$50/valve | 35 | Per Unit | \$1,750 |
| FRM Re-Piping/Pipe Repairs | \$30/event | 37 | Per Event | \$1,110 |
| FRM Meter Box Replacement | \$30/box | 42 | Per Unit | \$1,260 |
| Core & Main (CM) Install Collectors | \$33.56/hr | 40 | Hourly Wage | \$1,342.40 |
| CM Install Solar Panel | \$33.56/hr | 20 | Hourly Wage | \$671.20 |
| Other | | | | |
| [Other] Printed Materials; Door Hangers, Information Flyers | \$0.12/item | 1,700 | Misc Printing Cost | \$204 |
| TOTAL DIRECT COSTS | | | | \$181,935.36 |
| Indirect Costs | | | | |
| Customer Service Calls, Traffic Control, Sampling, Management | 3% of Total Direct Costs | \$base | Estimated Cost | \$5,458.06 |
| TOTAL ESTIMATED PROJECT COSTS | | | | \$187,393.42 |

Budget Narrative

The Municipal Metering with AMI Water Meters in Red Rock Arizona Project is an initiative to update and standardize systems and facilities throughout Arizona in areas where typical engineering, construction, and analysis resources may not be readily available. Global Water assesses local facility and distribution conditions and uses its technical resources to help prioritize and optimize funding for each segment of the initiative. Upgrading water meters in Red Rock, AZ was selected, based on 1) Current conditions, 2) The need to better track water loss, 3) The absence of timely usage data for the customer, and 4) Its northern proximity to the greater Sun Corridor Industrial/Residential Development Area. As described in the following subsections, the budget accounts for installing AMI Compliance Water Meters, Collectors, towers (as applicable), an energy alternative and energy

conservation solar power panel, and replacing obsolete meter vaults to support installation of AMI antennas. The project funding also provisions for informing the public of the project itself (timing, service impact, etc.), the benefits of AMI technology, and how to best use the new information to conserve water and reduce costs through community meetings and printed inserts as part of monthly water bills.

As a privately-owned utility, Global Water – Red Rock Utilities is regulated by the Arizona Corporation Commission (ACC). Water and wastewater rates are ultimately set through a rate case, which is a multi-year process where the ACC evaluates all capital investment and expenses incurred to operate the utility, and ultimately rates are set based on those capital investment and expenses. As a relatively small utility, Global Water – Red Rock Utilities does not benefit from the economies of scale that a much larger water and wastewater utility may benefit from. As a result, Global Water is acutely aware of making prudent investments within this community to keep rates reasonable, providing safe and compliant potable water and wastewater, while also seeking opportunities to prove best in class water conservation practices. Due to existing water and sewer rates, Global Water – Red Rock Utilities is unlikely to complete a full meter exchange and AMI implementation for up to five years to avoid rate shock. Rate shock is where rates increase rapidly and can be difficult for consumers to absorb.

Salaries and Wages

The Program Manager for the Municipal Metering with AMI Water Meters in Red Rock Arizona is Jon Corwin, Vice President of Global Water and General Manager of the Sant Cruz and Palo Verde Water Utility Districts. As a salaried employee, he is an indirect cost. While there may be other salaried and hourly personnel providing incidental contributions to this project and not directly related to the installation of meters, collectors, and incidentals, any of their costs will also be included as indirect costs.

Direct Cost Salary and Wages have been budgeted for Rey Flores, AMI Technical Supervisor, for 100 hours (Contractor Oversight and Project Liaison) at a wage rate of \$25/hr. Any or all Field and Quality Technicians/Specialists, along with Salary Personnel, may be required to mitigate findings from Environmental, Compliance, and Regulatory assessments/inspections. Actual costing will be dependent on the degree of each resource's involvement in mitigating individual items as well as the extent of any mitigation.

Any incidental wages incurred through the course of this project have been budgeted in the *Indirect Costs* subsection (pg. 19) for task relating to Customer Service Calls, Traffic Control, Area Environmental Sampling, Adjacent Work Advantage (where a technician, during normal assignments, is able to move this project along without extensive effort), and Management oversight (other than Rey Flores).

Labor as part of the Project Contracts with First Response Metering are included in the *Contractual* subsection (pg. 17) and are estimates based on planned activities related to the upgraded replacement of water meters or in assembling and erecting Collectors and associated towers as well as installing an alternative energy and the energy conservation solar panel array.

Due to the length of this project (8 months), it is not anticipated that there will be any significant salary increases. The timing of the project is such that any salary increases will have already occurred prior to the commencement of the project.

Only one Global Water employee; Rey Flores, Technical Supervisor, has been identified in the Salary and Wages subsection, as required, but other resources, are budgeted in the *Indirect Costs* Subsection (pg. 19). Estimated hours for submittal of the Federal Financial Report (SF425) monthly (or as required by Reclamation), as well as the Final FFR and required support reports, are 6 hours and 15 hours, respectfully, for a total of 21 hours; all assigned to Mr. Corwin as part of his normal duties and are included in the estimates found in the *Indirect Costs* subsection (pg. 19).

Fringe Benefits

Fringe Benefits are budgeted as a percentage of the average wage for individuals identified in the *Salaries and Wages* subsection (pg. 15). Vacation time, insurance, training, and all affiliated benefits are an additional 30% of base wage. Average wage for those assigned to this project is \$25 per hour, and for 100 hours committed, brings the total budgeted Fringe Benefit cost to \$750. Fringe Benefit rates are for application purposes only and will be dependent on who performs the work planned for Rey Flores.

Travel

Expenses related to trips, or any other Project travel are not included as part of this proposed budget.

Equipment

The project has four main components: 1) AMI Capable water meters, 2) Data Collectors, 3) Alternative Energy and Energy Conservation Solar Panel Power Supply, and 4) Water Meter Boxes. Ample supplies and materials have been supplied as part of the First Response Metering and Core & Main Contracts with additional material provisioned within the *Materials and Supplies* subsection (pg. 16). With the exception of the Data Collectors, the equipment listed does not exceed \$5,000 individually, however, total costs for the 500 water meters are budgeted for \$100,225 while the 42 (estimated) meter box upgrades are budgeted for \$10,500.

Equipment rentals are not part of this project. Rental equipment will be supplied as part of the contractual agreements with First Response Metering or Core & Main. Any additional equipment for the project is anticipated to be already in Global Water vehicle/equipment inventory and not charged a rental fee. Given the nature of the work in the vicinity, it is extremely difficult to calculate the percentage of usage exclusive to this project for each of Global Water owned equipment, and therefore will not be included in the Equipment Budget.

Materials and Supplies

The majority of materials and supplies are included in the purchased kits for water meters and collectors; however, a provision is made in the budget for incidentals – estimating quantities and portion costs for items noted in Table 2 Materials and Supplies below:

Table 2 Materials and Supplies

| Major Category | Unit Price | Quantity | Purpose | Estimate Method |
|-----------------------------------|--------------|----------|-------------------------------------|----------------------------|
| Supplies | | | | |
| AMI Antenna | \$24/Antenna | 500 | Meter Upgrade | CM* Quote |
| Coupling | \$3/Coupling | 39 | Meter Upgrade | Grainger Catalog |
| Valve | \$15/Valve | 35 | Meter Upgrade | FRM** Quote |
| Reducer | \$3/ Reducer | 37 | Meter Upgrade | Grainger Catalog |
| Brackets | \$17/Bracket | 24 | Collector, Solar Panel Installation | CM* Quote |
| Materials | | | | |
| Washers | \$36/box | 6 | Meter Upgrade | FRM** Quote |
| O-Rings | \$38/kit | 6 | Meter Upgrade | Grainger Catalog |
| Lubricant | \$17/Bottle | 6 | Meter Upgrade | FRM** Quote |
| Pipe | \$9/nipple | 74 | Meter Upgrade | Grainger Catalog |
| Fill, Rocks | \$20/ton | 2 | Meter Upgrade | AZ Rock Express Price List |
| Fill, Rocks | \$20/ton | 2 | Collector Installation | AZ Rock Express Price List |
| Cable | \$7/ft | 40 | Collector Installation | CM* Quote |
| Fasteners | \$70/box | 3 | Collector, Solar Panel Installation | Grainger Catalog |
| 2" dia Circular Saw | \$15/saw | 6 | AMI Antenna Adaptation | Grainger Catalog |
| *Core & Main | | | | |
| ** First Response Metering | | | | |

Contractual

Global Water will utilize accomplished contractors (with an established history with Global Water) to complete the two major areas of tasking: 1) Replacement and Upgrade of Service Water Meters, 2) Installation of new Collectors at designated towers (where applicable), and installation of a solar panel array (alternative energy and energy conservation). First Response Metering (See Appendix F) will be assigned to upgrade service water meters; most of the work, and Core & Main (See Appendix G) is expected to install the Collectors at designated towers, as well as a solar panel array.

Global Water has contracted with both First Response Metering and Core & Main on previous projects. Their quality of work and work product are at or above Global Water standards and expectations of task performance. Both contractors provide work proposals based on a per piece or per event pricing, i.e. replace a meter, install a collector. Rates are budgeted, however, on the Bureau of Labor Statistics (BLS) Current Employee Statistics (CES) Report dated 1/10/2020⁸ and are illustrated in Table 3 Contractor Labor Rate Estimates below. Two separate rates were used from the report: 1) NAICS Code 23711 at \$27.10/hr for water systems tasks, and 2) NAICS Code 23713

⁸ <https://www.bls.gov/web/empstat/ceseeb8a.htm>

at \$33.56/hr for collector gateway and solar panel installation tasks. Supplies and Materials costing is consistent with previous project pricing and/or current market value for the identified items. Based on the BLS report, the quality of previous work product from both contractors, supplies and materials pricing, and the detailed tasks identified, Global Water has determined the budgeted costs to be fair and reasonable. Though not contractors, two Suppliers are expected to source materials and supplies; Grainger and AZ Rock Express. Any changes to the identified Contractors, rates, supplies, or materials will be communicated with Reclamation prior to commencement of the project.

Table 3 Contractor Labor Rate Estimates

| Contractor | Sub Recipients | Task | Time | Rate | Supplies | Materials |
|--------------------------------|----------------|-----------------------------|----------|------------|-------------|-----------------------|
| FRM* | None | | | \$27.10/Hr | AMI Antenna | Washers |
| FRM* | None | Meter Coupling Replacements | 14.5 Hrs | \$27.10/Hr | Coupling | O-Rings, Lubricant |
| FRM* | None | Valve Replacement | 64.5 Hrs | \$27.10/Hr | Valve | Washers |
| FRM* | None | Re-Piping/Pipe Repairs | 41 Hrs | \$27.10/Hr | Reducer | Pipe, Fill, Rocks |
| FRM* | None | Meter Box Replacement | 27 Hrs | \$27.10/Hr | None | Fill, Rocks, Hole Saw |
| CM** | None | Install Collectors | 40 Hrs | \$33.56/Hr | Brackets | Cable, Fasteners |
| CM** | None | Install Solar Panel | 20 Hrs | \$33.56/Hr | Brackets | Cable, Fasteners |
| *First Response Metering (FRM) | | | | | | |
| ** Core & Main (CM) | | | | | | |

Third-Party In-Kind Contributions

There are no anticipated Third-Party In-Kind Contributions associated with this project.

Environmental and Regulatory Compliance Costs

Since the project is not expected to disturb earth, there is minimal, if any environmental impact to mitigate. However, Global Water is budgeting 2% of the Total Estimated Project Costs provisionally. According to Arizona Game & Fish, their office will support migratory survey support without cost once the Collector Tower location(s) have been confirmed.

Conditions requiring deviations from the plan include, but are not limited to:

- Relocation of water meter lines or associated vaults

- Addition of Footers for erecting Collector towers (not likely, given other existing acceptable structures in the area)
- Discovery or evidence of unidentified habitats in or around any meter vault or Collector Site
- Substantive indirect evidence of habitats or migration, i.e. pictures of endangered birds flying overhead or collaborative hearsay from independent sources of rare snake burrows in the vicinity of planned project work
- As directed by Regulatory Agencies and/or Reclamation

Global Water takes its corporate responsibilities seriously to ensure that its activities, including any new construction, have minimal or no impact to the environment. Global Water will take all necessary mitigative actions to minimize any impact to the environment, when needed.

Other Expenses

It is important to inform residents of the meter upgrades, not only so that they are aware of a short interruption of service while changing out the meters, but also how to fully utilize the new usage features the meters will provide. Global Water will print door hangers and distribute them to each of the residents prior to meter installation. Additional printed material in the form of Informational Flyers, Posters, Cards, and Billing Inserts will be distributed during and following meter installation.

Table 4 Other Expenses

| Other Expense | Item Description | Intended Use of Item |
|--------------------|---|--|
| Door Hangers | Cardstock with Die cut hole Printed in full color | Provide information to each resident regarding water meter installation and associated water conservation features |
| Information Flyers | Tri-fold brochure in full color | Provide information to compliment Door Hangers, distributed by other means (billing, schools, etc.) |
| Printed Material | Miscellaneous Posters, Cards, inserts | Provide information of a general nature through merchant displays and Public Bulletin Boards |

There are no other anticipated Other Expenses for this project.

Indirect Costs

During the course of daily routines, certain salary personnel, as well as hourly field workers, will be tasked with assignments closely related to the Advanced Water Management Technology Infusion for Rural Arizona Project in Red Rock, AZ. Tasks such as proactively calling residents, coordinating traffic flow with local police, evaluating environmental samples (through the normal course of area monitoring), and other work in the area (hydrant flushes, valve exercising, etc.) are likely to lead to costs not directly associated with this project but will aid in its completion. These Indirect Costs may not be specifically recoverable but are nonetheless part of the successful completion of this project. As such, Global Water has budgeted 3% of Direct Costs as a valid estimate.

Costs incurred incidental to the successful accomplishment of this project are estimates, based on experiences with other similar projects, where interaction of tasking across several work assignments

(simultaneously) have been proven to be efficient. As the project progresses, Global Water will be able to identify shared tasking and account for those contributions within the periodic reporting requirements of the Funding Opportunity. As noted, budgeted indirect costs are estimated to be 3% of modified total direct costs and are less than the 10% de minimis rate. Global Water intends to obtain a federally negotiated indirect cost rate agreement within one year of award, if directed.

D.2.2.6 Environmental and cultural resources compliance

Environmental and Cultural Resource Considerations

- Will the proposed project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)? Please briefly describe all earth-disturbing work and any work that will affect the air, water, or animal habitat in the project area. Please also explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.

Since the project is not expected to disturb earth, there is minimal, if any environmental impact to mitigate. However, Global Water is budgeting 2% of the Total Estimated Project Costs provisionally. According to Arizona Game & Fish, their office will support migratory survey support without cost once the Collector Tower location(s) have been confirmed, if necessary.

Conditions requiring deviations from the plan include, but are not limited to:

- Relocation of water meter lines or associated vaults
- Addition of Footers for erecting Collector towers (not likely, given other existing acceptable structures in the area)
- Discovery or evidence of unidentified habitats in or around any meter vault or Collector Site
- Substantive indirect evidence of habitats or migration, i.e. pictures of endangered birds flying overhead or collaborative hearsay from independent sources of rare snake burrows in the vicinity of planned project work
- As directed by Regulatory Agencies and/or Reclamation

Global Water takes its corporate responsibilities seriously to ensure that its activities, including any new construction, have minimal or no impact to the environment. Global Water will take all necessary mitigative actions to minimize any impact to the environment, when needed.

- Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the project area? If so, would they be affected by any activities associated with the proposed project?

Preliminary research was performed to determine potential impact on Habitats. See Appendix C. While additional resources have been allocated, it is not anticipated that upgrading existing water meters will have any impact on endangered species, tribal artifacts, or the environment in general. The Environmental and Compliance Department of Global Water will provide guidance to the Contractors at the Project Kick-off Meeting (2/8/2022) informing them of animals to look for and what to do if sighted. Also, the Compliance Supervisor, Dipti Shah, will assess their knowledge on identifying

archeological or habitat signs during replacements and augment their understanding during the Kick-Off Meeting.

Global Water shall implement all required Nationwide Standard Conservation Measures in accordance with the following:

1. General Measures

- a. Educate all employees, contractors, and/or site visitors of relevant rules and regulations that protect wildlife. See the Service webpage on Regulations and Policies for more information on regulations that protect migratory birds.
- b. Prior to removal of an inactive nest, ensure that the nest is not protected under the Endangered Species Act (ESA) or the Bald and Golden Eagle Protection Act (BGEPA). Nests protected under ESA or BGEPA cannot be removed without a valid permit. i. See the Service Nest Destruction Policy
- c. Do not collect birds (live or dead) or their parts (e.g., feathers) or nests without a valid permit. Please visit the Service permits page for more information on permits and permit applications.
- d. Provide enclosed solid waste receptacles at all project areas. Non-hazardous solid waste (trash) would be collected and deposited in the on-site receptacles. Solid waste would be collected and disposed of by a local waste disposal contractor as part of Global Water solid waste procedures, and not part of this project. For more information about solid waste and how to properly dispose of it, see the EPA Non-Hazardous Waste website.
- e. Report any incidental interaction of a migratory bird, to the local Service Office of Law Enforcement.
- f. Consult and follow applicable Service industry guidance.

- Are there wetlands or other surface waters inside the project boundaries that potentially fall under CWA jurisdiction as “Waters of the United States?” If so, please describe and estimate any impacts the proposed project may have.

No.

- When was the water delivery system constructed?

November 2, 2004

- Will the proposed project result in any modification of or effects to, individual features of an irrigation system (e.g., headgates, canals, or flumes)? If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.

No.

- Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places? A cultural resources specialist at your local Reclamation office or the State Historic Preservation Office can assist in answering this question.

Preliminary research was performed to determine potential impact Historical Sites and no known areas exist in the vicinity of this project. The Environmental and Compliance Department of Global Water will provide guidance to the Contractors at the Project Kick-off Meeting (2/8/2022) on how to report any suspected archeological artifacts or signs during meter replacements or other related work.

Global Water Shall implement all required Nationwide Standard Conservation Measures as noted in D.2.2.6. (pg. 20).

- Are there any known archeological sites in the proposed project area?

No.

- Will the proposed project have a disproportionately high and adverse effect on low income or minority populations?

No.

- Will the proposed project limit access to and ceremonial use of Indian sacred sites or result in other impacts on tribal lands?

No.

- Will the proposed project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area?

No.

D.2.2.7 Required permits or approvals

Towers, if applicable (by others; Global Water will rent space)

Letters of Project Support (See Appendix D)

Chairman Stephen Q. Miller, Pinal County (AZ) Board of Supervisors, District 3

Pam Hilliard, Vice President, Associated Asset Management, LLC.

D.2.2.8 Official Resolution

The Resolution can be found in Appendix E

TOTAL WATER MANAGEMENT

Global Water Resources' Framework and Strategy for Water Resource Management

What does total water management (TWM) mean? Total Water Management is a comprehensive approach to water utility management that reduces demand on scarce non-renewable water sources and costly renewable water supplies, in a manner that ensures sustainability and greatly benefits communities both environmentally and economically.

This approach employs a series of principles and practices that result in real reductions to per capita demand, while allowing for economic development and other quality of life goals. Those are:

- Where possible, integrate water, wastewater and recycled water service in the same geographic area as to maximize the use of recycled water and minimize the use of potable water
- For each community and unique situation, determine the best use of recycled water **targeting 100% reuse. Paths to 100% reuse:**
 - Direct beneficial reuse of recycled water for non-potable demands within a community requiring a second distribution system
 - In-Direct potable reuse (IPR), utilizing managed, direct injection and/or soil aquifer treatment recharge and recovery
 - Direct potable reuse (DPR), requiring advanced treatment technology and social buy-in
- Create regional plans to consolidate and integrate water, wastewater, and recycled water utilities and resources to the extent possible, and construct regional infrastructure that optimizes use of resources while ensuring the efficient operations of the Utilities
- Leverage advanced technology that allows for the accurate and meaningful tracking of resources, both water and physical plant, maintaining the performance and health of the related utility assets
- Institute programs that utilize data and incentivize behaviors that result in reduced demand of all water resource types, including: the smart application of water rates to encourage efficiency and equitable use; innovative new technologies for water metering and data presentation back to customers in actionable format
- Employ the best subject matter experts and maintain a focus on continuing education so that we remain thought and application leaders in water utility management.
- Lead outreach and educational initiatives to ensure all stakeholders including customers, development partners, regulators, and Utility staff are knowledgeable on the principles and practices outlined herein
- Establish partnerships with communities, developers, and industry stakeholders to gain support of the principals and practices outlined herein, and to develop further legislation, rules, codes, standards, etc.

A PRODUCT SHEET OF NEPTUNE TECHNOLOGY GROUP

E-CODER®)R900i™

Protect And Expand Your Technology Investments

Neptune® designed the R900® System to make it easy for your utility – installation, everyday use, and expansion for the future without stranded assets. The E-CODER®)R900i™ combination absolute encoder register/radio frequency meter interface unit (RF MIU) is a perfect example of all of the above. Not only does it work with past generations of meters and meter reading systems, but seamless integration is built into this single-unit endpoint itself, providing two-way communications of advanced metering data. The E-CODER®)R900i's interleaved mobile and high-power fixed network messages allow for simple migration from mobile to fixed network reading without site visits or reprogramming.

Streamline Operations And Manage Resources

In addition to eliminating the need for programming, the E-CODER®)R900i has no external wires, making installation easier, faster, and less costly; plus it reduces potential vandalism or tamper. As with the rest of the R900 System, the design of the unit is intuitive and user-friendly so that minimal training is required for operation. It's designed to help manage time, labor, and other resources. The radio frequency transmission of the E-CODER®)R900i can save your utility significant amounts of time in terms of both meter reading and billing, and provide flexibility to reallocate personnel to different tasks or departments depending on your changing workforce needs.

Do More With Detailed, Actionable Data

The types of data your utility can generate through the E-CODER®)R900i can take you far beyond a simple meter reading for a monthly bill. Hourly consumption profile information over an account's last 96 days, along with alerts for leak or backflow, help to proactively identify and resolve customer issues – heading off high bill complaints, reducing delinquent payments, and eliminating write-offs. Using Neptune® 360™ host software, your utility can leverage detailed data from the E-CODER®)R900i to balance water produced versus water consumed, group accounts for District Metered Area analysis, and track and manage Non-Revenue Water. From increasing efficiencies to pinpointing possible tamper or water theft to aiding customer service, the data supplied by the E-CODER®)R900i can help your utility make better, more confident decisions.



KEY BENEFITS

Facilitates Migration to AMI

- 1 Watt fixed network message reduces infrastructure costs
- Interleaved mobile and fixed network messages facilitate migration without changing the “modes” in the MIU

Reduces Non-Revenue Water

- Provides leak history/diagnostics
- Enables proactive leak notification
- Provides hourly consumption data
- Improves meter reading accuracy
- Eliminates estimated reads

Identifies Potential Theft

- Tamper detection
- Reverse flow detection
- Identifies significant periods of zero consumption

Simplifies Installation Process

- Easy to install/no programming required
- No external wires
- Reduces labor cost
- Reduces potential wire vandalism and damage

Appendix B

Technical Specifications

Electrical Specifications

- MIU power: Lithium battery with capacitor

Transmitter Specifications

- Two-way MIU
- Transmit period (interleaved mobile and fixed network messages):
 - Standard mobile message every 14 seconds at 100 mW
 - Standard fixed network message every 7½ minutes at 1 Watt
- FCC verification: Part 15.247:
 - Transmitter channels: 50; frequency-hopping, spread-spectrum
 - Channel frequency: 910 to 920 MHz

- Encoder register reading interval:
 - Every 15 minutes
- Data logging interval:
 - 96 days of hourly data

Environmental Conditions

- Operating temperature: -22°F to +149°F (-30°C to +65°C)
- Storage temperature: -40°F to +158°F (-40°C to +70°C)
- Operating humidity:
 - Inside set - 0 to 95%, condensing
 - Pit set - 100% submersible

Materials

- Register housing:
 - Inside set: plastic polycarbonate
 - Pit set: roll-sealed copper shell

- Lens:
 - Inside set: plastic
 - Pit set: glass

Antennas

- Standard internal antenna
- Optional through-the-lid antenna:
 - 18" Coax
 - 6' Coax
 - 20' Coax

Options

Compatibility

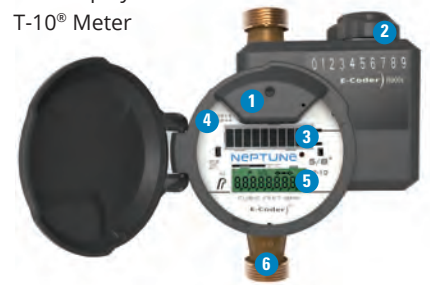
- Available for all sizes and makes of current Neptune meters
- Handhelds with R900® Belt Clip Transceiver - mobile RF
- MRX920™ - mobile RF
- R900® Gateways - fixed network RF

Units of Measure: U.S. Gallons, Cubic Feet, Imperial Gallons, Cubic Metres

Warranty

20 years (10/10); refer to specific Warranty Statement

- 1 Internal Antenna
- 2 Optional Antenna Port
- 3 Solar Panel
- 4 Date of Manufacture
- 5 LCD Display
- 6 T-10® Meter



| | |
|--------------------|--|
| | <p>FLOW INDICATOR Shows the direction of flow through the meter: ON Water in use. OFF Water not in use. Flashing Water is running slowly. (-) Reverse flow. (+) Forward flow.</p> |
| | <p>LEAK INDICATOR Displays a possible leak: OFF No leak indicated. Flashing Intermittent leak indicates that water has been used for at least 50 of the 96 15-minute intervals during a 24-hour period. On Continuously Indicates water use for all 96 15-minute intervals during a 24-hour period.</p> |
| <p>RATE</p> | <p>RATE OF FLOW Average flow rate is displayed every twelve seconds on LCD display.</p> |
| | <p>LCD DISPLAY Nine-digit LCD displays the meter reading in billing units of measure: U.S. gallons, cubic feet, Imperial gallons, or cubic metres.</p> <ol style="list-style-type: none"> 1 E-CODER basic reading/customary 6-digit remote reading 2 Customary sweep hand digits 3 E-CoderPLUS reading (8-digit remote reading) 4 Testing units used for diagnostics 5 Extended reading units 6 Customary billing units |



ARB® UTILITY MANAGEMENT SYSTEMS™



R900® RADIO FREQUENCY (RF) EMISSIONS

FREQUENTLY ASKED QUESTIONS

This document provides general information about radio frequency (RF) electromagnetic fields from R900 wireless communication equipment. This information has been provided by Neptune Technology Group, which has evaluated this equipment for RF emissions. R900 equipment has been certified by the Federal Communications Commission (FCC).

What frequencies are used by the meter/radio equipment being installed?

- R900 wireless communication equipment operates within the Industrial, Scientific, and Medical (ISM) band which includes frequencies from 902 MHz to 928 MHz.

The Food and Drug Administration (FDA) and the FDA's Center for Devices and Radiological Health (CDRH) have classified radiation emitted by devices operating at these RF frequencies as "non-ionizing". Other types of non-ionizing radiation devices include televisions, radios, remote controls, and other devices that use visible light and infrared light.

Have the meters/radios been certified by the FCC?

- Yes. Radio endpoints being installed have been tested in accordance with Title 47, Part 15 of the Code of Federal Regulations and have been certified by the FCC.

Where can I go to learn more about regulatory compliance?

- The FCC's document *OET Bulletin 65 Edition 97-01*, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields", details how to measure or calculate levels of RF radiation and to determine compliance of RF facilities with exposure limits.

Additionally, *FCC OET Bulletin 65 Supplement C Edition 01-01* provides further guidance on determining compliance for portable and mobile devices.

These documents may be found at <http://www.fcc.gov/encyclopedia/radio-frequency-safety>.

What is the power output from the R900 devices when they are transmitting data?

- The effective radiated output power (ERP) for the R900 devices is less than 100 milliwatts (mW) for Standard Mobile Messages sent every 14 seconds. Fixed Network Messages are transmitted at just under 1 Watt every 7½ minutes. In comparison, portable transmitters used by consumers typically operate over this output power range, and in fact may operate with output power up to several thousand milliwatts.

Are there any health hazards associated with this technology?

- The World Health Organization (WHO) notes in its *Fact Sheet 304*:

"To date, the only health effect from RF fields identified in scientific reviews has been related to an increase in body temperature (> 1 C°) from exposure at very high field intensity found only in certain industrial facilities, such as RF heaters. The levels of RF exposure from base stations and wireless networks are so low that the temperature increase is insignificant and does not affect human health."

WHO Fact Sheet 304 may be found at www.who.int/mediacentre/factsheets/fs304/en/index.html.

Are there RF exposure standards for the R900 devices?

- The FCC has established rules requiring transmitting facilities to comply with RF exposure guidelines. The limits established in the guidelines are designed to protect the public health with a very large margin of safety. These limits have been endorsed by federal health and safety agencies, such as the Environmental Protection Agency (EPA) and the FDA.

Appendix B

The FCC has established exposure guidelines for RF devices operating in the 300 kHz to 100 GHz range. These safety guidelines are outlined in the publication, *OET Bulletin 65 Edition 91-01*, "Evaluating Compliance with the FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Field", and can be found at <http://www.fcc.gov/encyclopedia/radio-frequency-safety>.

The general-population exposure limits set by the FCC for the frequency range utilized by the meters/radios and other devices such as cordless phones and baby monitors is 0.6 milliwatts per centimeter squared (mW/cm²) at 902 MHz.

R900 device transmits for less than one minute total per day and for 7 milliseconds at a time. The exposure to radio frequency energy at a distance of 1 foot from the meter is never more than 0.08 mW/cm² for the Fixed Network Messages. This is approximately 8 times lower than the exposure limit set by the FCC. Standard Mobile Messages are an order of magnitude lower.

For more information on the effects of RF energy exposure, please visit:

- **FCC:** For information regarding potential RF hazards from FCC regulated transmitters, please contact the Federal Communications Commission, Consumer & Governmental Affairs Bureau, 445 12th Street, SW, Washington, DC, 20554; Phone: 1-888-225-5322; E-mail rfsafety@fcc.gov; or go to <http://www.fcc.gov/encyclopedia/radio-frequency-safety>.
- **FDA:** For information about radiation from microwave ovens and other consumer and industrial products, contact Center for Devices and Radiological Health (CDEH), Food and Drug Administration or go to <http://www.fda.gov/Radiation-EmittingProducts/default.htm>.
- **OSHA:** The Occupational Safety and Health Administration's (OSHA) Health Response Team has been involved in studies related to occupational exposure to RF radiation.
https://www.osha.gov/SLTC/radiation_nonionizing/index.html.
- **WHO:** The World Health Organization's Electromagnetic Fields information page is located at http://www.who.int/topics/electromagnetic_fields/en/.

Will installation of the new meter/radio interfere with my security systems, pacemaker, cell phones, or other RF electronics?

- The transmitting devices operate in compliance with FCC 47 CFR Part 15 regulations, which require coexistence with other Part 15 certified devices. Within the 902-928 MHz frequency band, operation is limited to frequency-hopping, direct-sequence spread-spectrum, and digital modulation intentional radiators. This rule facilitates multiple devices operating in the same location. This includes devices such as security systems, pacemakers, cell phones, and cordless phones. The meter/radio's transmit signal is of very short duration (seven milliseconds), which further decreases the potential for interference with other devices. For comparison, seven milliseconds equates to approximately one minute total transmission time per day.

How long has this meter/radio equipment been manufactured?

- The R900 radio devices have been in production since 1999.

How many radio devices have been installed in residential applications?

- Over 9.0 million Neptune R900 radio devices are deployed on water meters today throughout North America. In addition, over 100 million 900 MHz radio devices are deployed on water, gas, and electric meters across North America.

Over the past 13 years, have there been any cases of interference caused by the R900 radio devices?

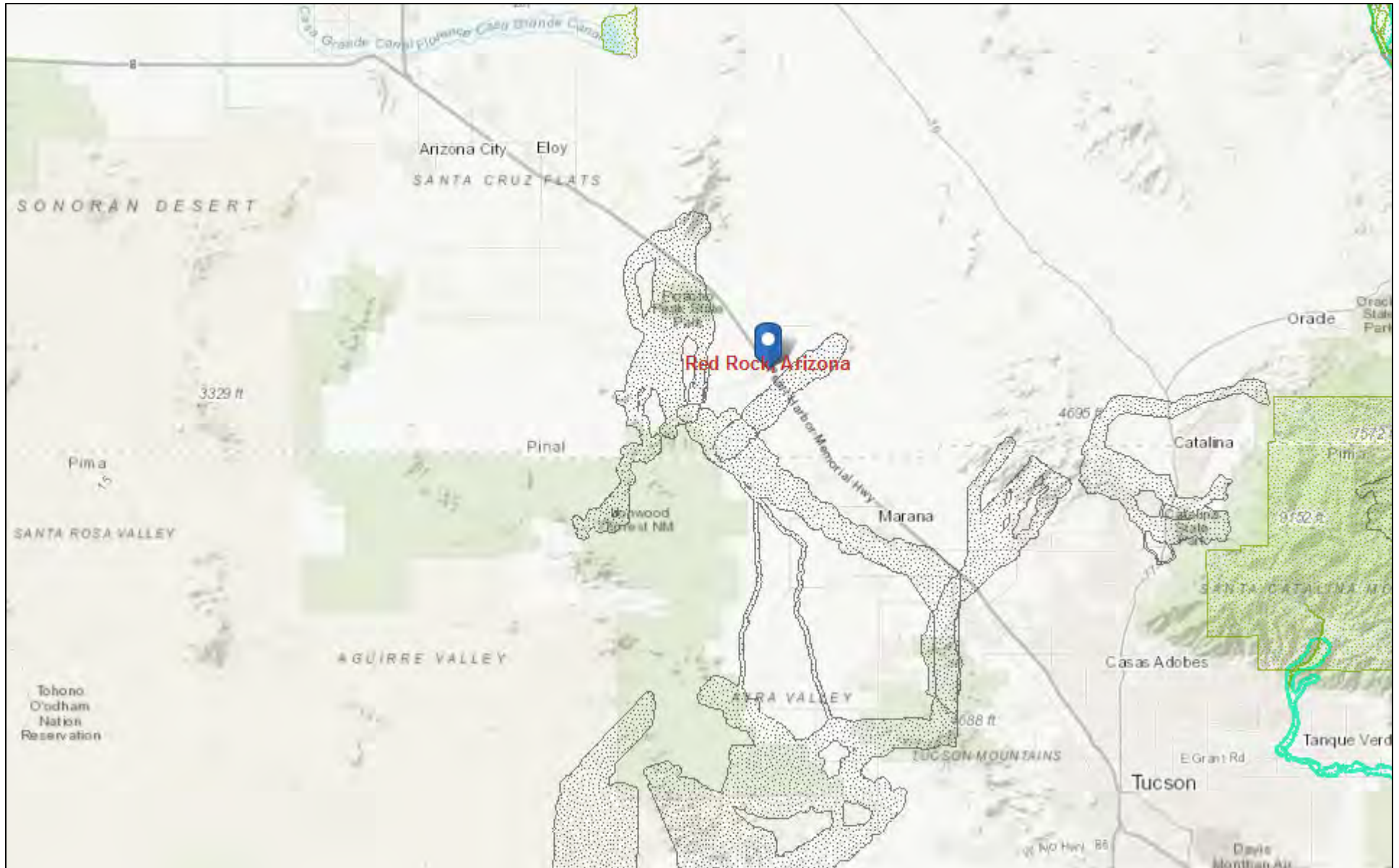
- There have been no documented cases where the R900 devices have interfered with third-party devices.

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1600 Alabama Highway 229
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USA
Tel: (800) 633-8754




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Mexico D.F.
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(525) 5203-5294
Fax: (525) 5203-6503

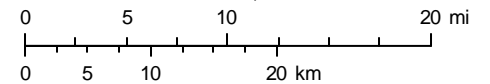




January 24, 2020

-  Critical Habitat
-  Important Bird Areas
-  Wildlife Connectivity

1:600,661



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri



Dear Bureau of Reclamation; WaterSMART Grants, Grant Review Board:

March 12, 2021

My name is Pamela Hilliard, and I am one of the Vice Presidents of AAM, LLC, a professional Community Association Management Company serving the greater Phoenix area along with offices in 10 other states, but most specific to this project, is in community of Red Rock, AZ. One of my areas of responsibility is to ensure that the expectations of the residents of Red Rock are met and exceeded. While we work with several vendors, contractors, and organizations to provide the best customer care possible to our communities, we are most pleased with the relationship we have built with Global Water Resources, Inc. over the past three years!

Global Water took over operations of a fledging water and waste water utility in 2018 and worked with us to not only improve the quality of the resident's drinking water, but also the reliability of the water utility services overall. Global Water continues to upgrade their facilities as well as distribution lines to better serve the community, keep water bills reasonable, and provide better customer service themselves. We at AAM were extremely excited to hear that Global Water is planning to add Automated Metering to the community; where our residents would have access to near real-time consumption data, could track billing costs, and let them know if excessive water was being used right away. A leaking toilet or a broken irrigation pipe could cost hundreds of dollars and waste enormous amounts of high-quality water.

Additionally, as the largest water user within the community, the HOA can use the near real-time data provided by the new meters to more efficiently water the landscaped common areas within the community. Without the infusion of funding provided by the grant, it is our understanding we will not be able to see the great advantages the meters provide for three or more years. I am writing to you today and speak for the residents of Red Rock, AZ asking that you award the grant Global Water is asking for so we can accelerate installation of the AMI water meters. This small community has few resources nearby and helping Global Water help us would be greatly appreciated! Please feel free to contact me if you need any additional information or further endorsement of Global Water Resources, Inc., a true community partner.

Kind Regards,

A handwritten signature in black ink that reads 'Pamela Hilliard'.

Pamela Hilliard, CAAM®
Vice President of Tempe/Tucson Operations



Appendix D



PINAL COUNTY

WIDE OPEN OPPORTUNITY

Stephen Q. Miller
District 3

March 17, 2021

Dear Water Conservation Field Services Program, Lower Colorado Region, Grant Review Board:

As the Chairman of the County Board of Supervisors for Pinal County, Arizona, I am in full support for this Small-Scale Water Efficiency Project initiated by Global Water Resource – Red Rock Utilities Company, Inc. (Global Water) for the community of Red Rock, AZ. In Designing Water Management Improvements, Global Water is strategic, meticulous, creates a conservation stewardship legacy; Utilizes our very limited water and natural resources; restores trust within Pinal County's local communities; is helping to Strike a regulatory balance; and is helping to modernize our infrastructure.

The new Advanced Metering Infrastructure (AMI) project in Red Rock will be another module in Global Water's commitment to exceed directives set out in the Pinal County Water Management Plan.

I am confident that this project will be successful. Global Water completed a nearly identical (larger) project in Maricopa just a few years ago. As with the previous project, this project will allow near real-time monitoring of residential water meters with the ability to detect and quickly respond to leaks or increases in usage, thus conserving water, improving water processing efficiency as well as reducing the risk of abnormally high water bills. Response to rural water issues can be slow and any application of new technology can greatly benefit the county at large.

Please consider the approval of this grant. The project is solid, the applicants are well-respected, it is in line with strategic county goals of water/natural resources conservation, and most importantly, is in the best interest of the residents of Red Rock, AZ.



Stephen Q Miller, Chairman
Pinal County Board of Supervisors

**ACTION BY UNANIMOUS WRITTEN CONSENT
OF THE BOARD OF DIRECTORS OF
GLOBAL WATER – RED ROCK UTILITIES COMPANY, INC.**

March 17, 2021

Pursuant to Section 10-821 of the Arizona Revised Statutes, the undersigned, being all of the members of the Board of Directors (the “Board”) of Global Water – Red Rock Utilities Company, Inc., an Arizona corporation (the “Company”), do hereby unanimously authorize, approve and adopt the following resolutions by written consent without a meeting as of the date hereof:

WHEREAS, pursuant to the By Laws, the Board may delegate officers of the Company to execute and deliver documents on behalf of the Company;

WHEREAS, the Board has reviewed the Company’s Application for WaterSmart Small Scale Efficiency Project Grant (the “Application”) for Notice of Funding Opportunity No. R21AS00300 and the transactions contemplated thereby; and

WHEREAS, the Board has reviewed and approved the financial and/or in-kind contribution obligations of the Company that are contemplated by the Application and confirms that the Company has the ability to meet the financial and/or in-kind obligations; and

WHEREAS, based on the foregoing and other considerations and information deemed relevant by the Board, the Board believes it to be in the best interest of the Company to proceed with the Application.


RESOLVED, that Jake Lenderking, in his capacity as Vice President of the Company is authorized for and on behalf of the Company, to execute, deliver and accept the Application and execute, deliver and accept such additional documents required of the Company to facilitate the purpose of the Application (“Documents”); and

RESOLVED, that Jake Lenderking, is further authorized to represent the Company’s interest with respect to the Application, including working with the U.S. Department of Reclamation (“Reclamation”) to meet established deadlines in entering into and executing additional Documents required by Reclamation.

The foregoing resolutions are hereby approved by the Board as of the date first above written.

DocuSigned by:

21012021170426
Ron L. Fleming

DocuSigned by:

00410020210317
Michael Liebman



FIRST RESPONSE METERING

METER EXCHANGE & GEOSPATIAL SERVICES

GLOBAL WATER RESOURCES

RED ROCK, AZ

All data and information contained herein and provided by FRM is considered confidential and proprietary. Quote is subject to change based on SOW and project outlined services.

Appendix F

EXCHANGE SERVICES

| QTY | SIZE | SET | DESCRIPTION | PRICE | EXTENDED |
|-----|------|-----|--|----------|--------------|
| 800 | 5/8" | Pit | Professional removal of existing meter & installation of new meter with washers and Antenna Lid mount. (Lid assumed AMI Ready) | \$ 36.00 | \$ 28,800.00 |
| 1 | - | - | External Users - Field Application Licenses (Included) | \$ 0.00 | \$ 0.00 |
| 800 | - | - | Geospatial Data Services – Latitude & Longitude provided for each meter box (Included) | \$ 0.00 | \$ 0.00 |
| 800 | - | - | 100% Data review QA/QC including photo verification. (Included) | \$ 0.00 | \$ 0.00 |
| | | | | Total | \$ 28,800.00 |
| 25 | 5/8" | Pit | Exchange over 32 months | Monthly | \$ 900.00 |

ADDITIONAL SERVICES

| SERVICE | SIZE | DESCRIPTION | PRICE |
|------------------------------------|-----------|---|-------------|
| Coupling/Spud Replacement | 5/8" – 1" | Removal of existing meter coupling & installation of new meter coupling to allow for safe and proper meter installation. Reason: Damaged, rusted, lay-length issue, meter downsize. | \$10.00 |
| Valve Replacement | 5/8" – 1" | Removal of existing valve & installation of new valve to allow for safe and proper meter installation. Reason: Damaged, rusted, leaking, safety concern | \$50.00 |
| Re-Pipe & Repairs | 5/8" – 1" | Removal of existing material & installation of new pipe to allow for safe and proper meter installation. Reason: Damaged, rusted, leaking, lay-length, safety concern, meter downsize. | \$30.00 |
| Meter Box Replacement/Reset | { } | Removal of existing meter box & installation of new meter box to allow for safe and proper meter installation. Reason: Damaged, blocking meter access, safety concern. | \$30.00 |
| Plastic/Composite Lid Modification | | Safely modify Plastic/Composite lid using Drill with 2" diameter circle saw or Wheel Grinder to allow for meter antenna connection and proper signal to the AMI Data Collector or Drive-by Belt System. | \$2.00 |
| Metal Lid Modification | { } | Safely modify metal lid using Torch or Wheel Grinder to allow for meter antenna connection and proper signal to the AMI Data Collector or Drive-by Belt System. | \$15.00 |
| Geospatial Data Asset Services | { } | Accurately record Latitude & Longitude with photo verification for City Assets. Includes - Custom Data Export, Import, and Formatting | Per Request |
| Software | { } | Neptune 360 AMI Software procurement with service tier 250-1000 connections | Per Request |
| Gateway Collector | { } | Neptune R900 V4 GPRS Gateway with hardwire power supply | Per Request |
| Gateway Collector Installation | { } | Professional installation of AMI Data Collector with mounting brackets, Antenna, and weather proofing. (Hardwire Power Supply Installation Not Included) | Per Request |
| Read File Format | { } | Data upload and V4 formatted file conversion into billing system | Per Request |



Bid Proposal for 20 0116 Gateway

GLOBAL WATER PALO VERDE UTILIT

Bid Date: 01/10/2020
 Core & Main 1191946

Thomas O o
 Mobile: 623-734-6115
 Phone: 623-734-6115
 Fax: 855-697-9794

Thomas.O o@coreandmain.com

| Seq# | Qty | Descripon | Units | Price | Ext Price |
|------|-----|---|-------|------------------|------------------|
| 10 | | DATA COLLECTOR | | | |
| 20 | 1 | NEPTUNE 13458-000 GATEWAY V4 CELLULAR (CDMA/GPRS) | EA | 7,858.00 | 7,858.00 |
| 30 | 1 | NEPTUNE 13146-100 R900 GATEWAY RF ANTENNA | EA | 415.00 | 415.00 |
| 40 | | POWER OPTIONS (PICK ONE) | | | |
| 50 | 1 | 13068-200 130W SOLAR PANEL ASY | EA | 3,572.00 | 3,572.00 |
| 60 | 1 | 13070-100 OUTDOOR UPS SYSTEM | EA | 2,143.00 | 2,143.00 |
| 70 | | CABLES AND CONNECTORS | | | |
| 80 | 40 | 10046-119 CABLE, COAX 1/2" | FT | 7.00 | 280.00 |
| 90 | 2 | 8138-200 COAX N MALE | EA | 57.00 | 114.00 |
| | | | | Sub Total | 14,382.00 |
| | | | | Tax | 1,121.79 |
| | | | | Total | 15,503.79 |

Branch Terms:

UNLESS OTHERWISE SPECIFIED HEREIN, PRICES QUOTED ARE VALID IF ACCEPTED BY CUSTOMER AND PRODUCTS ARE RELEASED BY CUSTOMER FOR MANUFACTURE WITHIN THIRTY (30) CALENDAR DAYS FROM THE DATE OF THIS QUOTATION. CORE & MAIN LP RESERVES THE RIGHT TO INCREASE PRICES UPON THIRTY (30) CALENDAR DAYS' NOTICE TO ADDRESS FACTORS, INCLUDING BUT NOT LIMITED TO, GOVERNMENT REGULATIONS, TARIFFS, TRANSPORTATION, FUEL AND RAW MATERIAL COSTS. DELIVERY WILL COMMENCE BASED UPON MANUFACTURER LEAD TIMES. ANY MATERIAL DELIVERIES DELAYED BEYOND MANUFACTURER LEAD TIMES MAY BE SUBJECT TO PRICE INCREASES AND/OR APPLICABLE STORAGE FEES. THIS BID PROPOSAL IS CONTINGENT UPON BUYER'S ACCEPTANCE OF SELLER'S TERMS AND CONDITIONS OF SALE, AS MODIFIED FROM TIME TO TIME, WHICH CAN BE FOUND AT: [hp s://coreandmain.com/TandC/](http://s://coreandmain.com/TandC/)



Bid Proposal for 19 0326 Maricopa Meter Pricing 4/19 - 3/20

GLOBAL WATER PALO VERDE UTILIT

Bid Date: 03/26/2019

Core & Main 880693

Core & Main

1410 W Harvard Ave

Gilbert, AZ 85233

Phone: 480-926-7003

Fax: 480-926-7050

| Seq# | Qty | Description | Units | Price | Ext Price |
|------|------|--|-------|------------------|-------------------|
| 10 | | T-10 METERS | | | |
| 20 | 33 | T10 5/8X3/4" BRZ 302 R900I PIT GAL NEPT MTR CHANDLER NO LEAD ED2B21RWG3S1512 | EA | 203.00 | 6,699.00 |
| 30 | 1000 | T10 3/4" SL BRZ 302 R900I PIT NEPT ED2D21RWG3S1514 PEORIA | EA | 224.45 | 224,450.00 |
| 40 | 14 | T10 1" BRZ 302 R900I PIT USG NEPT ED2F21RWG3S1514 PEORIA | EA | 267.40 | 3,743.60 |
| 50 | 1 | T10 1-1/2" OVAL R900I PIT USG ED2H11RWG3S1512 CHANDLER MTR NO LEAD | EA | 425.00 | 425.00 |
| 60 | 1 | T10 2" OVAL R900I PIT USG MTR NEPT ED2J11RWG3S1512 NO LEAD | EA | 525.00 | 525.00 |
| 70 | | LARGE METERS | | | |
| | | 1-1/2 AND 2 ARE STOCK, ALL | | | |
| | | OTHER SIZES 3-5 WEEKS ARO | | | |
| 100 | 1 | ET4HRWG3SG89 1-1/2 NEP HPT R900I TURBINE W/EXT ANT | EA | 913.42 | 913.42 |
| 110 | 1 | ET4ARWG3SG89 2 HP TURBINE MTR R900I ENHANCED GAL W/EXT. ANT. NO LEAD | EA | 913.42 | 913.42 |
| 120 | 3 | ET4BRWG3S1244 3" HPT R900I W/ STRAINER 20' ANTENNA; NO LEAD | EA | 1,575.16 | 4,725.48 |
| 130 | 1 | ET4CRWG3S1244 4" HPT 900I WITH STRAINER 20' ANTENNA; NO LEAD | EA | 2,221.17 | 2,221.17 |
| 140 | 1 | EC3BRWG3S1244 3" T/F R900I W/ STRAINER 20' ANTENNA; NO LEAD | EA | 2,459.36 | 2,459.36 |
| 150 | 1 | EC3CRWG3S1244 4" T/F R900I W/ STRAINER 20' ANTENNA; NO LEAD | EA | 3,217.73 | 3,217.73 |
| 160 | 1 | EC3DRWG3S1244 6" T/F R900I W/ STRAINER 20' ANTENNA; NO LEAD | EA | 5,195.09 | 5,195.09 |
| 170 | | REGISTERS | | | |
| 180 | 1 | R900I REGISTERS ALL SIZES | EA | 165.38 | 165.38 |
| 190 | | MACH 10 | | | |
| 200 | 1000 | 3/4 SL MACH10 GAL R900I W/6' ANTENNA EU1D5G1SG89 | EA | 331.25 | 331,250.00 |
| 210 | 14 | 1 MACH10 GAL R900I W/6'ANTENNA EU1F5G1SG89 | EA | 381.25 | 5,337.50 |
| 220 | 1 | 1-1/2X13 FLANGED MACH10 GAL R900I W/6' ANTENNA EU2AGG1SG89 | EA | 581.25 | 581.25 |
| 230 | 1 | 2X17 FLANGED MACH10 GAL R900I W/6' ANTENNA EU2E5G1SG89 | EA | 706.25 | 706.25 |
| 240 | | UME'S | | | |
| 250 | 1 | NEPTUNE 9700-025 UME 1 1/2 & 2 HPT P/R GAL 3 BD | EA | 539.92 | 539.92 |
| 260 | 1 | 9700-128 UME 3 HPT GAL P/R 3BD | EA | 595.50 | 595.50 |
| 270 | 1 | 9700-228 4"HPT UME GAL PROREAD 6W PIT | EA | 794.00 | 794.00 |
| 280 | 1 | NEPTUNE 9700-328 6" HPT UME PROREAD GAL. 6W PIT | EA | 1,191.00 | 1,191.00 |
| 290 | 1 | NEPTUNE 9596-128 3" TF UME GAL. PROREAD 6WHL PIT | EA | 1,191.00 | 1,191.00 |
| 300 | 1 | NEPTUNE 9596-228 4" TF UME GAL 6W PIT | EA | 1,588.00 | 1,588.00 |
| 310 | 1 | 9596-328 UME 6 T/F PR GAL 3BD PIT | EA | 2,382.00 | 2,382.00 |
| | | | | Sub Total | 601,810.07 |
| | | | | Tax | 45,647.25 |
| | | | | Total | 647,457.32 |

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