Republic of the Philippines
ZAMBOANGA CITY WATER DISTRICT
Pilar Street, Zamboanga City

TECHNICAL SPECIFICATIONS

PROJECT TITLE:

DESIGN, SUPPLY, INSTALLATION, TESTING & COMMISSIONING OF SUPERVISORY CONTROL AND DATA ACQUISITION (SCADA) SYSTEM FOR EXISTING WATER TREATMENT PLANT PHASE I & II AND TWO PRODUCTION WELLS

DESIGN DIVISION
ENGINEERING AND CONSTRUCTION DEPARTMENT
TECHNICAL SERVICES GROUP

Table of Contents

I. INTRODUCTION

1. BACKGROUND

Water Treatment Plants and Production Wells are the vital facilities of ZCWD that produces potable water for Zamboanga City. The Pasonanca Water Treatment Plant was constructed in two phases, the Phase I was commissioned in 1981 with a production capacity of 35,000 cubic meters per day and Phase II was commissioned in 1991 with a production capacity of 35,000 cubic meters per day. This Water Treatment Plant has been operating manually and has been dedicatedly serving the customers in the central and east coast area of the City.

To further improve the operation of the Water Treatment Plants Phases I and II and the Production Wells, the proposed installation of SCADA was conceptualized by this Office. The proposed SCADA will enhance the efficiency of the Plants and Production Wells by allowing to control the process locally or at remote locations; the monitoring, gathering and processing of real-time data for smarter decisions and; the communication of system issues to help mitigate downtime.

2. PROJECT TITLE

DESIGN, SUPPLY, INSTALLATION, TESTING & COMMISSIONING OF SUPERVISORY CONTROL AND DATA ACQUISITION (SCADA) SYSTEM FOR EXISTING WATER TREATMENT PLANT PHASES I & II AND TWO PRODUCTION WELLS

3. PROJECT LOCATION

Water Treatment Plant, Pasonanca, Zamboanga City
Governor Ramos Production Well, Sta. Maria, Zamboanga City
Brillantes Production Well, Sta. Maria, Zamboanga City

4. DELIVERY PERIOD

Ninety (90.00) Calendar Days including the acquisition of the necessary permits.

II. GENERAL SPECIFICATIONS

a. Procurement & Implementation of Contracts for this Item shall be in accordance with RA 9184 (An act providing for the modernization, standardization, and regulation, of the procurement activities of the government and for other purposes.)

b. It is recommended that the bidder shall conduct a site inspection at the Water Treatment Plant together with the ZCWD's representative prior the bid preparation. This is to determine the extent of the installation activity, to verify the availability of network connectivity, to verify the distances and acceptable routes of the cabling to interconnect the sensor heads with the RTU equipment, to assess the availability of the analog sensor heads and possible tapping points and to further assess the scheduling of the actual installation activity.

c. This project shall not be subjected to extra works or variation order since this was bidded as "Goods". Any additional cost due to unforeseen events or additional items needed in the completion of this project shall be borne solely by the winning bidder/contractor. It shall be the responsibility of the contractor to prepare the bid and to consider all necessary things in the completion of project.

d. The winning bidder/ contractor shall ensure that every personnel working in the project must equip with protective gear/gadgets for safety precautions. Hence, any accidents or mishap that may happen during implementation shall be the sole responsibility of the contractor.

e. The winning bidder/contractor shall be liable for restoration on any damages occurred on the ZCWD facilities as a result of the implementation of works thereon.

f. Material Testing for general construction materials shall be in accordance with the DPWH (Department of Public Works & Highways).

g. Winning bidder/contractor shall provide the required manpower, materials, tools, equipment, transport, supplies and other necessary services required for the completion of SCADA system on the specified duration.

h. Permits are part of contractor's obligation and are included in the contract. It is the sole responsibility of the winning bidder to coordinate with other concerned agency in securing the necessary permits before engaging with the actual implementation of the project.

i. The components needed for the proposed SCADA System shall be identified by the winning bidder, SCADA Designer/Installer based on the minimum performance requirements of this Terms of Reference.

j. The ZCWD has the right to stop the work if the ongoing activities are detrimental to the existing ZCWD facilities.

k. Training of ZCWD personnel (to be identified by the end user) on how to operate the SCADA shall be part of this project and this should be included in the project cost and duration.

l. The warranty period for this project components shall be with a period of 24 months from the date of acceptance.

III. PERFORMANCE SPECIFICATIONS AND PARAMETERS

A. SCOPE OF WORKS

a. The winning bidder shall design, supply, install, test and commission a brand new Programmable Automation Controllers, Sensors, SCADA workstations and SCADA Software for the complete assembly of a functional SCADA System for the ZCWD Water Treatment Plant Phase I and II at Barangay Pasonanca, Zamboanga City. All scope of works shall be done in accordance with the Philippine Electrical Code, Philippine Electronics Code, Philippine Mechanical Code, National Structural Code of the Philippines, National Building Code of the Philippines and other existing laws.

b. The winning bidder shall also include in the system in remote monitoring the Gov. Ramos Production Well and Brillantes Production Well both situated at Gov. Ramos Highway, Sta. Maria, Zamboanga City. Flow and pressure of both production wells shall be reflected in the HMI of the SCADA server.

c. The winning Bidder shall design, supply, install, test and commission a SCADA Control Center to be located at ZCWD Water Treatment Plant, existing Control & Monitoring Room.

B. SCADA REQUIREMENT

a. SCADA Server with Development License Software
   1. One (1) SCADA Server with Development Software
   2. One (1) Client Workstation and Licenses
   3. One (1) Web Client Access License
   4. Historian License for Database and Reporting or equivalent
   5. Two (2) 40" LCD Monitors
   6. Other component which may not be stated herein but necessary in the SCADA Server.

b. For Level Sensors
   1. Ultrasonic Level Sensors
   2. Level Switches

c. Turbidity Sensors
   1. Base Turbidity Sensor

The winning bidder/contractor shall supply and install a new fabricated powder coated panel with complete set of wiring consumables for network and monitoring of all required parameters. It shall house the following:

d. Programmable Logic Controller with the following minimum features:

1. UL Hazardous Locations approved and ATEX compliant
2. Wide – 20 to 70-degree Celsius operating temperature range
3. Stainless-steel chassis with 4, 8 or 16 I/O modules
4. I/O module density of up to 24 channels per module
5. Multi-featured analog input with voltage, current and loop sourcing in single module
6. Analog input resolution of 20 bits at 0.1% accuracy over span
7. DC outputs with load switching at 0.4 A per channel @ 70ºC
8. AC outputs with load switching at 0.5 A per channel @ 70ºC
9. Channel-to-channel isolation available
10. Multiple power supply options including AC, DC and pass-through
11. Dual, independent Gigabit Ethernet network interfaces
12. IO modules with 20% Spare
13. Minimum 4" Front Mount Built-in Touchscreen Human
14. Machine Interface
15. Uninterruptible Power Supply
16. Circuit Breaker Protection
17. Control Transformer

e. The winning bidder shall also supply and install the following:
    1. One (1) Turbidity Sensors for Raw Water Inlet for Phase I & II
    2. Eight (8) Level Sensor Switch for Filtration Phase I & II
    3. Three (3) Ultrasonic Level Sensor for Storage Tank A, B and CD
    4. Four (4) Centric Disc Butterfly Valve complete with Electric Actuator

f. Equipment requirement for the production wells.
    1. 150mm Ø Electromagnetic Flowmeter for Gov. Ramos Production Well
    2. 100mm Ø Electromagnetic Flowmeter for Brillantes Production Well
    3. Two (2) SCADA System SNAP PAC (for each production well)