

**SCOPE OF WORK
PROJECT CP1039R
INSTALL ADVANCED METERING, MISC. SITES
MCAS CHERRY POINT, NC
(August 30, 2010)**

1.0 GENERAL PROJECT REQUIREMENTS:

a. This project will install advanced electric, water, steam and energy meters to existing facility utility systems throughout MCAS Cherry Point. New meters shall be integrated with the JCI Metasys EMCS platform and Itron Enterprise Energy Management (EEM) software, similar to existing advanced electric meters. Proposed meters and locations are as shown on attached meter list and utility maps.

b. The Contractor shall:

- (1) Design the new meter installations to include piping interface diagrams, meter pits, electrical service and EMCS system connections. Submit design documents to the Contracting Officer for review and approval before installation.
- (2) Install new meters and connect to dedicated EMCS fiber network via existing building N2 bus.
- (3) Integrate new meters into EMCS and Itron systems and make operational. Update EMCS system and building graphics to show meter locations and make interactive similar to existing meters.
- (4) Include all required Performance, Verification, and Testing (PVT) via EMCS workstation in Bldg 87.
- (5) Provide 1 day training class for up to 8 people.
- (6) Include minor ancillary work to support equipment installation.

2.0 SPECIFIC PROJECT REQUIREMENTS:

a. Meters:

- (1) Electric meters shall be similar in type to those already installed in other buildings and shall be installed in conjunction with existing manually read meters in the buildings indicated on the attached meter list.
- (2) Water meters shall be insertion type electromagnetic flow meter and shall be installed in weather-tight access pits (for exterior water mains) or inside building mechanical rooms as indicated on attached meter list. Water meter shall be capable of by-direction flow reading. Exterior access pits may be open on bottom to allow groundwater drainage to stone, French-drain bed. Meters shall have an accuracy of +/-1.0% of reading from 2 to 20 ft/sec and +/-0.02 ft/sec below 2 ft/sec.
- (3) Steam meters shall be vortex type flow meters suitable for measuring saturated steam flow with system pressures up to 100 psig. Meters shall be mounted inside mechanical rooms of buildings indicated on attached meter list. Provide bypass piping to allow servicing or removal of meter and continued flow of steam. Meters shall have an accuracy of +/-1.0% of flow rate.
- (4) A meter measuring water flowrate shall be installed in Building 289 and be used to measure the efficiency of the solar water heating system used in the building. Along with input and output temperatures from the existing temperature probes, the EMCS system calculate and display Volume, Energy, Temperatures and Peak Energy usage for the solar heater system. Meter shall have an accuracy of +/-1.0% of reading from 2 to 20 ft/sec and +/-0.02 ft/sec below 2 ft/sec.

- (5) Exterior water meters shall communicate to the EMCS system via a new wireless communication system designed and installed under this contract. Contractor shall obtain all permits and government approvals for this new system.
- (6) Water meters designated as FRC-E#1 through FRC-E#6 are located within the boundaries of Operable Unit 1 (OU1) on "A" Street. This site location is in an area where there is a history of possible POL or chemical spills. Pre-characterization or soil sampling is not required prior to excavation. This information is provided to give the contractor's Industrial Hygiene Department the ability to look at the contaminants historically found in the area for incorporation into their Health and Safety Plan to ensure worker safety.

If any soil which exhibits an abnormal or unnatural color, a chemical or petroleum odor, or is saturated with a chemical or petroleum is encountered during excavation, work should be immediately stopped in that area, and the Environmental Affairs Department (EAD) should be advised of the situation so a course of action can be developed to address the contamination.

All excavated soil may be re-utilized at the same location from which it was removed unless petroleum contamination is discovered. If petroleum contamination were discovered, the soil would need to be segregated by PID (≥ 10 ppm or exhibits staining), properly stockpiled, tested and disposed. If soils is to be stockpiled, then it should be stockpiled on plastic, bermed, and covered in accordance with **NCDENR Groundwater Section Guidelines for the Investigation and Remediation of Soil and Groundwater, Vol. 1 dated July 2000 (Guidelines)**, or placed in a rolloff container and covered with plastic.

For this site within the OU-1 boundary, any excess soil that cannot be re-utilized as backfill at the same location from which it was removed must be disposed at a Subtitle D landfill (e.g.; Tuscarora) as a minimum with the understanding that the analytical testing results will determine the final disposal facility. Contractor must provide supporting laboratory analysis to the EAD for review. The EAD must review and sign the waste manifests/bill of lading for the soil disposal prior to any of this soil leaving the Air Station. The manifest should also contain the amount of soil (weight) and supporting laboratory results for EAD to review. One composite sample must be taken and analyzed for each 200 cubic yards of the stockpile per **DENR Guidelines** in order to determine the proper method for disposal.

Use of a North Carolina certified laboratory to perform the specific soil analysis required. The laboratory must be certified by North Carolina in the specific tests to be performed. Consult with the selected laboratory about the specific sample handling procedures required by the analytical methods. Sample containers, volumes, procedures and preservation vary among needs. Sampling must be conducted by qualified personnel and proper chain-of-custody protocol must be followed. The stockpile sample(s) shall be analyzed for the following:

Std Method 530 sample prep with Modified 8015 (CA GC-FID Method) - Gasoline Range Organics,

Std Method 5030 and 3550 sample prep with Modified 8015 – Diesel Range Organics,

EPA Method 9071 - Oil and Grease, and

TCLP for 8 RCRA Metals (D004-D011)

All disturbed areas must also be capped by either (1) covering the surficial soil with an impervious material such as concrete or asphalt, or (2) topping the excavated area with 12 inches of compacted, clean fill. Capping is required to prevent an increased exposure risk from both surficial exposure and contaminant leaching. Therefore, backfilled soils must be compacted to minimize infiltration of surface water through the soil column.

In contaminated areas, if dewatering is required during excavation, all water must be containerized. The groundwater cannot be discharged to the ground surface, storm sewer etc. prior to sampling and analysis due to the potential contamination from migrating plumes.

FACENG/ROICC may make arrangements with the IWTP for disposal of contaminated groundwater. If groundwater is accepted for disposal by the IWTP, then sampling may not be required (water disposed of at the IWTP, historically has not required testing). A chit must be obtained from EAD prior to sending contaminated water to IWTP.

b. Design:

- (1) Perform building and utility surveys as necessary to verify optimum location of meter installations and corresponding pipe sizes (water, steam and energy meters). Survey affected electrical system to determine locations of new electric meters.
- (2) Provide Engineering plans IAW Cherry Point's A/E Guide:
 - (a) Provide details of piping changes, pit installations, electrical and EMCS connections on 24" x 36" ("D") size drawings. Cherry Point can provide standard Cover Sheet and Title Block formats. Drawings shall be developed using AutoCad 2008 LT software.
 - (b) Standard specifications are not required. But if not developed, material specifics shall be included on the drawings.
 - (c) Provide construction cost estimate:
 - 1) Contractor shall provide a firm fixed price proposal for the provision of all items required for the addition of meters as specified.
 - 2) Cost estimate shall show all associated costs broken out to include both design cost and construction cost. Construction cost shall include equipment, labor, mark-ups, and sub-total costs by building or location, as well as total construction cost.
 - (d) Surveying Worksite for Asbestos and Lead. Inspect the portions of the buildings that are affected by this project for the presence of suspected asbestos and lead containing material. This inspection shall be performed by a North Carolina Accredited Asbestos Inspector and shall identify any suspected material that appears to be involved in the project. Assume the presence of asbestos and lead paint is a possibility and be prepared to do some sampling and analysis during the inspection. For negotiation purposes, assume 50 samples and analysis will be needed.
 - 1) The designer shall schedule the inspection such that it occurs during the A/E's field investigation work, so that the A/E can assist and coordinate the effort.
 - 2) Provide a signed report certifying the inspection. State the findings of the inspection and state if the area appears to be asbestos free or present the results of the sampling and analysis. The report shall be certified by the Asbestos Inspector and shall include the Inspector's certification number. Show locations of any samples taken in the report and on the demolition plans.
 - 3) If asbestos or lead containing materials are found and affected by this project, provide information on the plans and in the specifications concerning the handling on material involved.
 - (e) Submit design documents in both "hard" copy and in Adobe Acrobat .pdf (Version 8) format, to the Contracting Officer for review. Submit at the Prefinal and Final Design stages, the following quantities of documents:

PREFINAL

- (1) Transmittal cover letter
- (2) Nine copies of the cost estimate
- (3) Nine half-scale (11" x 17") sets of all drawings; title blocks shall be completed except for drawing numbers. Stamp all sheets PREFINAL.

- (4) Nine copies of the asbestos inspection
- (5) One bound copy of design calculations
- (6) Two copies of all design documents in .pdf format on CD.

FINAL (100%) SIGNED SUBMITTAL:

- (1) Drawings on CD/R in individual AutoCAD .DWG files PLUS two hard copies of 1/2 size drawings. Provide .PDF files of each individual drawing in addition to .DWG files. Individual CAD drawing files will be BOUND and renamed to their associated NAVFAC number prior to writing to CD. Prior to submission, scan all computer disks for viruses using a commercial anti-virus scanning program. All discs shall be labeled as described in paragraph 5.11. Provide two copies of CD.
- (2) Provide two hard copies of the final specifications. In addition, provide electronic copy of final specifications on CD/R in SPECSINTACT format. Provide two copies of CD. Provide .PDF file of signed Specification Cover Sheet only. Specifications will be processed and converted to .PDF by Cherry Point.
- (3) Included on the CD with the specifications will be the Cost Estimate, Calculations, Field Notes, Reports & Studies, Environmental Construction and/or Operating Permit(s), if applicable, Spec Title Page signed by the A/E, and any reports or attachments that need to be included in the contract, ALL in individual .PDF files. CD shall be left open by the A/E so that information can be added to or corrected, if necessary.

c. Implementation:

(1) Meter Requirements:

- (a) Procure all necessary materials for the installation of the meters prior to construction. Prepare and submit a basic building cutover schedule to assist the Contracting Officer in coordinating outages with building owners.
- (b) Install Enhanced Data Stream Meters or equal capable of monitoring 26 energy variables in each of the identified sites. Local display capability is not required, however, the meters must be fully compatible with the existing energy management control system (EMCS).
- (c) New electric meters shall be installed within electrical panels where possible and linked to the building's N2 network and ultimately to the Station N1 network via the existing Station dedicated fiber network.
- (d) Provide all necessary access pits, piping modifications, trenching, conduit, wiring, terminations, mapping, programming, and graphics necessary to connect the new meters to the existing Station EMCS. Any new control panels required shall be keyed the same as existing EMCS panels. Use of a wireless frequency band for installation of any equipment under this contract shall be a last resort and must have Station approval and MCAS Cherry Point frequency manager approval.
- (e) Provide meter interfacing in the field as necessary for transfer of data to the EMCS.

(2) EMCS Requirements:

- (a) Upgrade existing EMCS graphics as required to incorporate new meters with displayed information same as for existing meters.
- (b) Update Metasys meter pages to account for new buildings and locations.
- (c) Provide individual meter trending capability.
- (d) Locate new meters on existing building floor plans or site plans and make meters interactive with existing meter graphic pages.

(3) Performance Verification Testing (PVT):

- (a) Contractor shall give a 14 calendar day notice prior to scheduling of a PVT to allow for coordination of Government resources.
 - (b) For final acceptance, perform PVT at Bldg 87 on all meters and on all associated Itron and Metasys software pages.
 - (c) Demonstrate system functionality and show completion of all newly developed programming/graphics.
 - (d) Meters shall be calibrated as necessary to insure overall uniformity of readouts.
- (4) Training:
- (a) Provide a 1 day training class for up to 8 people.
- (5) Software:
- (a) All software and database development shall be fully documented to include all configuration data for both existing and new meters. Update all Metasys network drawings and graphics.
 - (b) Upgrade all Metasys software to include EMCS, Load Management, PMI, & Visio software to the latest version for all applicable workstations.
 - (c) Update Itron Enterprise Energy Management software to include utility billing feature.
- (6) Provide 3 copies of system Standard Operating Procedures with overview of system operation and representative computer screen prints.

3.0 GENERAL CONTRACT REQUIREMENTS:

- a. Work Location: Location of work is at MCAS Cherry Point, NC. The contractor is responsible for an on-site inspection of the work area to verify work required. Site Survey work shall commence upon notice to proceed and be completed within 30 calendar days. The Final Signed Submittal shall be provided commensurate with implementation of construction. All construction shall be completed within 240 calendar days of notice to proceed. Work includes providing all management, labor, overtime, tools, equipment, materials, and transportation necessary for completion of the project.
- b. Statement of Contractor Services:
 - (1) Furnish all Contracting Services, including travel, subsistence, field surveys, field investigations, engineering investigation and design, plans, meter equipment listing, cost estimate, shop drawings, and completed construction per award of the construction contract at Marine Corps Air Station, Cherry Point, North Carolina.
 - (2) The Contractor shall provide final (100%) plans and all work identified in Para 2.0 above. Evaluate specific project requirements and existing conditions to arrive at the "best" solution.
 - (3) The Contractor shall quality check all submittals, construction shop drawings, and As-Built drawings after award of the construction contract and prior to delivery to the Government. The Government, specifically Facilities Engineering, is responsible for final reviewing authority and acceptance. All Government reviews shall be completed within 15 working days.
 - (4) Meetings shall be held as necessary to include a project kickoff meeting in the Facilities Engineering Conference Room, Bldg 163 prior to commencing work. The Contractor is responsible for making notes and preparing reports for all meetings, trips, or other communications by the Contractor or his representative on matters relative to this RFP. These reports shall be submitted to the Government within five working days of the event.

4.0 NEW METER LIST:

ELECTRIC:

BLDG NO. EXIST. METER NAME

| | |
|------|--|
| 3918 | 55 085 929 70 387 339 Circuit #1 Circuit #2 71 359 091 02 040 563 02 255 748 71 359 122 |
| 4389 | Switchboard - Left Switchboard - Right |
| 4535 | 95 987 119 95 987 120 95 987 125 95 987 122 95 987 121 95 987 123 95 987 124 95 987 475 95 987 473 95 987 474 95 994 572 |

WATER:

| <u>METER NAME</u> | <u>LOCATION OR BLDG NO.</u> | <u>LINE SIZE</u> |
|--------------------------|---|-------------------------|
| FRC-E #1 | Curtis Rd. Near Bldg. 163 | 12" |
| FRC-E #2 | Near Bldg. 155 | 12" |
| FRC-E #3 | "A" Street Near Bldg. 159 | 12" |
| FRC-E #4 | Beachey Rd. Near Bldg. 3907 | 12" |
| FRC-E #5 | "A" Street Near Bldg. 4034 | 12" |
| FRC-E #6 | "A" Street Near Bldg. 1665 | 16" |
| B250 | Bldg. 250 Wash Rack 3/4" | |
| B4296 | Bldg. 4296 Barracks Mech. Rm. | 4" |
| B4389 | Bldg. 4389 Hospital Mech. Rm. | 6" |
| B3451 | Bldg. 3451 Mess Hall Mech. Rm. | 4" |
| CP#1 | Water Main Near Access Rd. and Roosevelt Rd. 10" | |
| CP#2 | Water Main Near Range Rd. and Roosevelt Rd. 10" | |
| CP#3 | Water Main on Road to Hancock Marina | 2" |
| CP#4 | Water Main on Roosevelt Rd. Near Navy Boat Docks | 8" |
| CP#5 | Water Main Near Access Rd. and Range Rd. | 10" |
| B289 | Bldg. 289 Mech. Rm. Solar System | 4" |

STEAM:

**METER
NAME**

**LOCATION OR
BLDG NO.**

LINE SIZE

| | | |
|-------|---------------------------------|----|
| B3451 | Bldg. 3451 Mess Hall Mech. Rm. | 5" |
| B3672 | Bldg. 3672 TEQ Mech. Rm. | 3" |
| B4167 | Bldg. 4167 BEQ in Steam MH# 270 | 3" |
| B3452 | Bldg. 3452 Laundry Mech. Rm. | 4" |