



**SAN ANTONIO WATER SYSTEM
HIGHLAND ESTATES, UNIT 1 P.U.D. MONTANA PASS FLOATING GROUND
STORAGE TANK PROJECT**

**SAWS JOB NUMBER 15-1177
SOLICITATION NO. CO-00092**

**ADDENDUM NO. 6
October 14, 2016**

To Bidder of Record:

This addendum, applicable to work referenced above, is an amendment to the bidding documents and as such will be a part of and included in the Contract Documents. Acknowledge receipt of this addendum by entering the addendum number and issue date in the space provide in submitted copies of the proposal.

Changes to Technical Specifications

1. Insert attached Section 17515 Communications Interface Equipment into Technical Specifications.

END OF ADDENDUM 6

This Addendum, including these one (1) page, is seven (7) pages with attachment in its entirety.

Attached: Section 17515 Communications Interface Equipment - six (6) pages.



SECTION 17515

COMMUNICATIONS INTERFACE EQUIPMENT

PART 1 - GENERAL

1.01 SCOPE:

- A. This Section of the Specifications describes the requirements for Communications Interface Equipment and Systems to be furnished under other Sections of the Specifications as listed in the Related Sections paragraph of this Section.
- B. All equipment described herein shall be submitted and furnished as an integral part of equipment specified elsewhere in these Specifications.

1.02 RELATED SECTIONS:

- A. Section 17300 Instrumentation General Provisions
- B. Section 17302 Process Instrumentation and Control System Testing
- C. Section 17305 Application Services
- D. Section 17310 Field Instruments
- E. Section 17327 Panel Mounted Equipment
- F. Section 17400 Control Loop Descriptions
- G. Section 17405 Input/Output List
- H. Section 17410 Field Instrument List
- I. Section 17500 Programmable Logic Controller (PLC)
- J. Section 17600 Antenna Tower

1.03 SUBMITTALS:

- A. Submit catalog data for all items supplied from this specification Section as applicable. Submittal shall include catalog data, functions, ratings, inputs, outputs, displays, etc. sufficient to confirm that the equipment provides every specified requirement. Any options or exceptions shall be clearly indicated.
- B. Submittals for equipment specified herein shall be made as a part of equipment submittals furnished under other Sections. Individual submittals for equipment specified herein will not be accepted and will be returned un-reviewed.
- C. Installation experience documentation shall be submitted for approval with the Section Equipment Submittal.
- D. Operations and Maintenance Manuals:
 - 1. Operations and Maintenance manuals shall be constructed in accordance with Division 1 and shall include the following information:
 - a. Manufacturer's contact address and telephone number for parts and service.
 - b. Instruction books and/or leaflets

- c. Recommended renewal parts list
- d. Record documents for the information required by the Submittals section above.

1.04 REFERENCE CODES AND STANDARDS:

- A. The equipment in this specification shall be designed and manufactured according to latest revision of the following standards (unless otherwise noted):
 - 1. National Electric Code (NEC)
 - 2. National Electrical Safety Code (NESC)
 - 3. International Society of Automation (ISA)
 - 4. Occupational Safety and Health Administration (OSHA)
 - 5. Underwriters Laboratories (UL)
 - 6. UL 508, the Standard of Safety for Industrial Control Equipment
 - 7. Factory Mutual (FM)
 - 8. City of San Antonio, Texas Electrical Code
 - 9. All equipment and installations shall conform to Federal, State and local codes.
- B. All equipment and installations shall conform to the standards and codes listed in the individual device paragraphs.

1.05 QUALITY ASSURANCE:

- A. The manufacturer of this equipment shall have produced similar equipment for a minimum period of five (5) years. When requested by the OWNER/ENGINEER, an acceptable list of installations with similar equipment shall be provided demonstrating compliance with this requirement.
- B. The equipment as submitted shall be located as shown on the project plans and shall fit within this location. Equipment with does not fit in the space as shown on the project plans is not acceptable.
- C. For the equipment specified herein, the manufacturer shall be ISO 9001 2000 certified.

1.06 WARRANTY:

- A. The Manufacturer shall warrant the equipment to be free from defects in material and workmanship for two (2) years from the date of acceptance of the equipment containing the items specified in this Section. Within such period of warranty the Manufacturer shall promptly furnish all material and labor necessary to return the equipment to new operating condition. Any warranty work requiring shipping or transporting of the equipment shall be performed by the CONTRACTOR at no expense to the OWNER.

PART 2 - PRODUCTS

2.01 INDUSTRIAL ETHERNET SWITCH (SUPERVISORY CONTROL PANEL):

- A. Subject to compliance with the Contract Documents, the following Manufacturers are

acceptable:

1. CISCO model IE-3000-8TC-E
- B. The listing of specific manufacturers above does not imply acceptance of their products that do not meet the specified ratings, features and functions. Manufacturers listed above are not relieved from meeting these specifications in their entirety.
- C. Environmental:
1. Operating temperature: -40°F to 167°F
 2. Operating humidity: 10-95% Non-condensing
 3. Storage temperature: -13°F to 185°F
- D. Physical:
1. Enclosure: NEMA TS-2. Fully Modular construction.
 2. Power supply: 120VAC from proposed UPS source.
 3. Microprocessor based managed type.
 4. Din rail mountable capability.
 5. 19 inch rack mountable where shown in plans.
- E. Functional Performance:
1. Per Port status LED indication.
 2. Port based Ethernet MAC security individually port configurable.
 3. Wire speed switching, 16 Gigabit Switching Fabric.
 4. HSRP Protocol Support.
 5. Cisco Express Forwarding Hardware Routing Architecture.
 6. SNMP v1, SNMP v2c, and SNMP v3 Support.
 7. 802.1d Spanning Tree Protocol Support.
 8. HTTPS accessible.
 9. Common Industrial Protocol (CIP) Management Objects Support.
 10. Smart Templates for Ethernet/IP.
 11. PROFINET v2 certification.
 12. Alarm contacts for external fault notification.
 13. 10/100 Base T ports with RJ-45 connectors for Category 6 cabling.

14. Switch Configuration on removable/configurable via Flash Memory module.

15. Fully managed switch capability.

F. Options and Accessories Required:

1. Provide twenty (20) percent spare port capacity for each port type.
2. Provide expansion modules Cisco model IEM-3000-8TM for additional connections.

2.02 MODBUS GATEWAY:

A. Manufacturer: Lantronix IntelliBox-I/O 2100 or approved equal

2.03 INDUSTRIAL ETHERNET SWITCH (COMMUNICATIONS CABINET):

A. The listing of specific manufacturers above does not imply acceptance of their products that do not meet the specified ratings, features and functions. Manufacturers listed above are not relieved from meeting these specifications in their entirety.

B. Environmental:

1. Operating temperature: 23°F to 113°F
2. Operating humidity: 5-95% Non-condensing
3. Storage temperature: -40°F to 158°F

C. Physical:

1. Stackable, rack mount enclosure
2. Power supply: 120VAC from proposed UPS source.
3. 350 Watt Power Supply
4. Microprocessor based managed type.

D. Functional Performance:

1. Per Port status LED indication.
2. Port based Ethernet MAC security individually port configurable.
3. HSRP Protocol Support.
4. Cisco Express Forwarding Hardware Routing Architecture
5. SNMP v1, SNMP v2c, and SNMP v3 Support.

6. 802.1d Spanning Tree Protocol Support.
7. Alarm contacts for external fault notification.
8. 10/100 Base T ports with RJ-45 connectors for Category 6 cabling.
9. Switch Configuration on removable/configurable via Flash Memory module.
10. Fully managed switch capability.
11. 12 GE SFP Ethernet Ports

E. Options and Accessories Required:

1. Provide twenty (20) percent spare port capacity for each port type.

2.04 INDUSTRIAL GRADE ROUTER (SECURITY CABINET)

A. Subject to compliance with the Contract Documents, the following Manufacturers are acceptable:

1. Cisco CGR-2010

B. The listing of specific manufacturers above does not imply acceptance of their products that do not meet the specified ratings, features and functions. Manufacturers listed above are not relieved from meeting these specifications in their entirety.

C. Environmental:

1. Operating temperature: -40°F to 140°F
2. Operating humidity: 5-95% Non-condensing
3. Storage temperature: -40°F to 185°F

D. Physical:

1. Enclosure: Fully Modular construction to allow for field upgrades for existing and/or future technologies without requiring a platform replacement.
2. Power supply: 120VAC from proposed UPS source.
3. Microprocessor based managed type.
4. 19 inch rack mountable where shown in plans.

E. Functional Performance:

1. Dual Gigabit Ethernet WAN interfaces, supporting two GE Fiber
2. Two external Compact Flash slots
3. Two high-speed USB 2.0 ports
4. SNMP Support.

5. Fully managed switch

capability. F. Options and

Accessories Required:

1. Provide twenty (20) percent spare port capacity for each port type.
2. Provide expansion module Cisco model GRWIC-D-ES-2S-8PC for additional connections.

2.05 RADIO TRANSCIEVER SYSTEM:

A. Radio Systems to be a Redline Communications RDL-3000 which will carry all Security System data and video.

B. Approved Products NO SUBSTITUTIONS

RDL3000 XP eLTE-MT 4.9-5.8GHz Terminal 19dBi 8in Int-Ant MNT eth-RJ45 ELTE-MT-4958IA-01, Options Key RDL3000 eLTE-MT Features - eLTE-MT and Edge – 100 Mbps SBL-MT-01, Power Supply AC-DC POE Midspan Univ-AC, 10/100/1000BaseT 30W 802.3 at 2xRJ45 Shelf-Wall MNT PS-ACDC-POE-30W-01, Power Surge Arrestor PoE RJ 45 Outdoor wall mount 2xRJ45 Jacks LP-POE-ALPU-01, Mounting Bracket for Power Surge Arrestor LP-POE-ALPU-01 Fits 125 mm (5 in) Pole MK-LP-ALPU-01

C. Surge Protection:

1. Radio Cat5e cable shall have a LP-POE-ALU-01 surge arrestor at both ends of the cable with one just before the radio and another just before the POE injector.

PART 3 - EXECUTION

3.01 INSTALLATION:

A. All equipment specified herein shall be factory installed in an overall assembly, field adjusted, tested and cleaned as an integral part of the equipment specified elsewhere in these Specifications.

END OF SECTION