



Statement of Work

Project Name: 36 MDG Upgrade for New Location B-25023

Department: 36 CS/ SCXP Plans & Implementation

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1 Introduction

This request is to purchase, install and test inside and outside plant communications to building 25023 on Andersen AFB, Guam.

The contractor must demonstrate full knowledge and understanding of the specifications and requirements for implementation and/or installation of copper and fiber optic cable systems.

The contractor must provide fully-trained personnel to perform installation, termination and testing.

1.1 Procure and install communications infrastructure

Proposals shall include, at a minimum, all equipment, engineering, furnishing, installation and testing data as well on-site system performance testing. Documentation (including product assembly drawings, operation manuals and wiring diagrams) shall be in both hard copy and electronic format with enough detail to support installation and testing standards are met.

1.1.1 Internal communications infrastructure must meet the following requirements

The installed communications infrastructure must meet applicable documents and standards and these specific requirements contained herein:

- a. Procure and install fire rated backboard or standard backboard covered by fire rated paint. *location to be determined during initial site survey*
- b. Procure and install Circa® or like type Building Entrance Terminal (BET) similar to or the same as (Circa®1890ECS1-25) to include the standard 5 pin protector modules.
- c. Procure and install 19" Wall mounted swing out style rack. 25RU, 48"H x 21.25"H x 24.50"D
- d. Procure and install Leviton® or like type 110 style CAT6 rack mount block similar to or the same as (Leviton® LE-41DR6-1F4).
- e. Procure, pull and terminate 24 AWG 50pr and outside plant (OSP) copper cable from 25008 to 25023. Cables ran through manholes or hand holes will be racked using wrap lock® and formed in accordance with standard industry installation practices found in TIA/ EIA, BICSI and ANSI guidance. *number and type of splices and splice cases used will be determined and documented during the initial site survey.
- f. Procure, pull and terminate 24 strand single mode outside plant (OSP) fiber optic cable from 23002 to 25023. Cables ran through manholes or hand holes will be racked using wrap lock® and formed in accordance with standard industry installation practices found in TIA/ EIA, BICSI and ANSI guidance. *number and type of splices and splice cases used will be determined and documented during the initial site survey.
- g. Procure and install Corning® or like type rack mount fiber optic patch panel similar to or the same as (Corning® CCH-02U) using SC type bulkheads.
- h. Procure and install Cisco® WS-3750X-24S network switch, to include one each 3K-X 1G network module and the 100Base-LX/LH SFP transceiver module MMF/SMF, 1310nm, DOM. *switch must have IP services IOS 15.2E pre-loaded. Switch must be new in box (NIB) Cisco® certified item. Switch cannot be B-stock, grey market, or refurbished equipment and must be manufactured in the US. Switch will have two power supplies with standard NEMA 5-15 type power cables.
- i. Procure and install one Tripp-lite® model SMART2200RM2U UPS.
- j. Procure and install one 3 meter single mode SC to LC patch cable.
- k. Final testing must be accomplished on 100% of all media types and data provided to the 36 CS Plans and Implementation office.

2 SPECIFIC TASKS AND REQUIREMENTS.

- 2.1 General Requirements.** The contractor shall provide all equipment, tools, materials, supplies, transportation, labor, supervision, management, and other incidentals necessary as stated in this SOW. All equipment, supplies, and materials provided shall be new and not refurbished.
- 2.1.1 Services.** The contractor will provide the following services to 36 WG, Andersen AFB, Guam:
- a. Installation and termination of copper, fiber optic and category 6 cable systems and all associated equipment.
 - b. Test results of copper, fiber optic and category 6 cables in writing.
 - c. A Minimum One-year warranty and maintenance for all installed equipment
- 2.1.2 Requirements.** The contractor shall verify all information provided in this SOW at the pre-installation site survey. Any distances or measurements provided are approximations and shall NOT be used for ordering materials or determining duct lengths.
- a. The contractor shall provide a list of materials to the point of contacts (Para. 9) for approval, prior to any work is to begin.
 - b. The contractor shall complete and process all permits as required to complete installation. The contractor shall pump out any manholes as required.
 - c. The contractor must hold BICSI, EIA/TIA or any other equivalent nationally recognized commercial communications industry standard certification for the type of installation identified in this SOW and provide copies of the certifications to the POC listed in para 9.1. If technicians are not certified in the installation type/ media type there must be a certified individual who will oversee any work by technicians not holding certifications. Any work not in compliance with the industries standard installation practices as identified in the reference documents in para 7.2 will be the responsibility of the contractor to replace, repair or re-install at their own cost.
- 2.3 General Installation Requirements.**
- 2.3.1 Excavation/Building Penetrations.** All wall penetrations, including inside buildings, shall be restored to meet the required fire/security ratings of Andersen AFB.
- 2.3.2 Grounding.** All equipment shall be grounded to the Telecommunication Master Ground Bus (TMGB) in accordance J-STD-607-A. If there is no existing TMGB, the contractor shall provide/install one 6'' X 4'' copper ground bar and new #2/0 copper wire connecting to the facility central ground.
- 2.3.3 Bonding.** Shield bonding connectors, bond bars, braids, ribbons, clamps, etc., shall be provided to maintain cable shield continuity at splices and at ground connections. Bonding connectors shall be provided IAW RUS Bulletin 1753F-803 (PE-33). Shields shall be grounded and continuous throughout the cable distribution system.
- 2.3.4 Labeling:** The contractor shall label all equipment and cables they install in accordance with TIA-606-A.
- 2.3.5 Security.** The contractor shall be responsible for satisfying base security requirements and base access. This usually takes 2 weeks to accomplish, so this needs to take place as soon as possible. The base POCs will provide the names of the security POCs who can provide security guidance. Base security access will require background checks from each contractor's local Police Department and the contractor is responsible for any additional costs incurred. Photography of any kind on the installation is usually prohibited and therefore must be coordinated with the base POC.
- 2.3.6 Safety.** The Contractor shall meet with appropriate local safety and health, prior to the commencement of work. The Contractor shall be responsible for ensuring contractors and subcontractors satisfy the safety and health requirements set forth in OSHA standards and any federal, state, local, military or commercial procedures

- 2.3.7 Hazardous Materials, Environmental, and Other Local Requirements.** The Contractor shall meet with appropriate local environmental and civil engineering offices prior to the commencement of work. The contractor shall obtain a Base Civil Engineering Work Clearance Request, AF Form 103, prior to any trenching or digging. The contractor shall obtain an approved Base Civil Engineering Work Request, AF Form 332, prior to any facility, manhole, or hand-hole modification. The contractor shall trench, excavate, confined space entry, confined space atmospheric testing/forced air ventilation, and mark and barricade open trenches IAW OSHA standards, any local procedures, and other provisions of this contract.
- 2.3.8 Contractor-Furnished Property and Equipment (CFP/CFE).** The Contractor shall provide all identifications/ markings, transportation, off-base dumping, storage, construction equipment (e.g. backhoes, trenchers, loaders, etc.) required to support implementation
- 2.3.9 Maintenance of Work area and Restoration.** The contractor shall keep the work site in a clean and orderly manner. All equipment, materials, and supplies shall be stored so as to maintain a secure and safe work site. The contractor shall provide and is responsible for any security needs required to protect equipment, materials and supplies required under this SOW. The contractor shall ensure that all surplus equipment, materials and supplies are removed from the work site upon completion of the work. The contractor shall insure that the work site is restored to its original or better condition. This includes but is not limited to backfilling cable trenches, repairing grassy areas damaged by truck and equipment movements, repairing damage to buildings and repairing roads to existing conditions.
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3.0 MANAGEMENT.

- 3.1.1. Schedule.** The contractor shall provide a complete milestone schedule that denotes major activities to include time-phased start and completion dates for this project and sub-projects associated with the installation of the components and systems.
- 3.1.2. Project Manager on Site.** The contractor shall provide a full time, on-site qualified Project Manager (PM) to oversee all facets of the infrastructure and outside cable plant tasks.
- 3.1.3. Quality Assurance.** The contractor shall provide quality assurance support for the entire life of the project. This support shall assist the government representative in performing random spot checks and in performing the system acceptance tests. They shall be responsible for identifying system and outside plant deficiencies and/or discrepancies throughout the life of the project and for three months from the date of final acceptance. A weekly report (soft copy) will be submitted to the government Project Manager indicating project progress/statuses and listings any deficiencies/discrepancies found and actions to correct them.
- 3.4. Environmental Management.** The installer and their subcontractors shall comply with the most stringent environmental local laws and regulations; and Air Force policies, instructions, and plans. The federal Government is not exempt from compliance with environmental regulations. The installer shall maintain an awareness of changing environmental regulatory requirements to avoid environmental deficiencies for activities on Andersen AFB. The Prime Contractor shall ensure their sub-contractors (if any) comply with these specifications.
- 3.5. Security.** The contractor shall remain in compliance with all base security and safety laws, regulations, policies, and requirements.

- 3.6. Safety.** The Contractor shall meet with appropriate local safety and health, prior to the commencement of work.
- 3.6.1. Accident/Incident Reporting and Investigation.** The Contractor shall record and report all available facts relating to each instance of accidental damage to Government property or injury to Contractor personnel to the Base Safety. The Contractor shall secure the scene of any accident and wreckage until released by the accident investigative authority through the appropriate Andersen AFB personnel. If the Government elects to conduct an investigation of the incident, the contractor shall cooperate fully and assist the Government personnel until the investigation is completed.
- 3.6.2. Subcontractor Safety.** The Contractor shall be responsible for ensuring subcontractors satisfy the safety and health requirements set forth in OSHA standards, any local procedures, and other provisions of this contract.
- 3.7. On Call/Emergency Services.** The Contractor shall be required to provide support and/or assistance in the resolution of Contractor-caused system problems during non-duty hours for emergencies or mission need basis at no change in contract price.
- 3.8. Traffic Control.** In the event base vehicular traffic is to be disrupted by trenching, the contractor shall make appropriate notifications to inform base personnel of the planned disruptions.
- 3.9. Housekeeping.** At day's end, the installer shall remove all debris and surplus materials from the work place. Equipment and materials required to complete the work effort may remain on site as long as they are organized/stored in a manner that does not cause a safety hazard.
- 3.10.** The installer shall schedule a final project walk-through of all work completed prior to close out with the government Project Manager. This should be scheduled at least 72 hours prior to the event.
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4.0 DELIVERABLES.

- 4.1.1. List of Deliverables.** All deliverables are subject to Government acceptance and approval. They shall meet professional standards and the requirements set forth in this Project. All deliverables shall be produced using recommended software tools/versions as accepted by the Government. The Contractor shall submit the following deliverables.
- a. Work Schedule
 - b. Weekly Status Report
 - c. Test Plan
 - d. Test Report
 - e. As Built
- 4.1 Analysis:** The contractor shall perform testing and inspections of all systems solutions to ensure the technical adequacy and accuracy of all work, including reports and other documents required in support of that work. The contractor shall conduct on-site testing IAW OEM's installation manuals, practices and the appropriate vendor's test procedures to include any existing industry standards for the work accomplished. The contractor will test the complete communications system which has been installed. When any system, subsystem, component or requirement test fails to meet the requirements of the test, Government acceptance and payment will be withheld until such time as the cause of the failure is corrected to the Government's satisfaction. After appropriate corrective action has been taken, all tests including those previously completed related to the failed test and the corrective action shall be repeated and successfully completed prior to Government acceptance.
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4.2 Materials: The contractor shall furnish all test equipment and personnel required to conduct all required testing. The contractor shall document all test results in a “Test Report(s)” and submit to the Government. During the testing phase, the Government reserves the right to observe any of the contractor performed inspections and tests to assure solutions conform to prescribed requirements. The contractor shall provide on-site support during the acceptance testing. The Test Report(s) shall be provided to the Government no later than 10 days after test(s) have been completed.

4.3 Fiber Optic Tests: See paragraph 1.1.1.m.

4.4 Copper Tests: See paragraph 1.1.1.m.

5.0 WARRANTY

5.1 Warranty shall be at a minimum 1 year in length to cover workmanship, installed equipment and material to include but not limited to transmission medium, hardware, software, firmware and software driven components.

6.0 PERFORMANCE.

6.1 Period of Performance. The period of performance for this project shall be from the date of award until 30 days after completion of project. Drawings and pictures are to be provided to the Government NLT 30 days after project completion.

6.2 Place of Performance. The place of performance is, Andersen AFB, GU.

6.3 Hours of Work. Contractor shall work during normal operating hours of 8:00 AM – 4:00 PM, Monday through Friday, excluding federal holidays. If performance of work outside normal duty hours will be required, include desired working hours in proposal.

7.0 GOVERNMENT FURNISHED EQUIPMENT/INFORMATION/ACCESS/STANDARDS.

7.1 The contractor shall specifically identify in their proposal any government resources and or allied support required prior to start or during the performance of this project.

7.2 Government applicable documents and standards. The following documents are hereby incorporated by reference. The contractor shall comply with these documents during the performance of this SOW.

OSHA CFR 29 Part 1910-268 - (1988) Telecommunications
REA TE&CM 701/PC-5A - Rural Electrification Administration (REA)
REA TE&CM 643 Form 515C - Rural Electrification Administration (REA)
NEMA TC 2-1368 – Electrical Polyvinyl Chloride (PVC) Tubing and Conduit

TIA-568-C – (2009) Commercial Building Telecommunications (568B-1, 568B-2, 568B-3) Cabling Standard
TIA-569-B - (1368) Commercial Building Standard for Telecommunications Pathways and Spaces
TIA-606-A – (2008) Administration Standard for the Telecommunications Infrastructure of Commercial Buildings
ANSI/NECA/BICSI 568-2006, Standard for Installing Commercial Building Telecommunications Cabling
J-STD-607-A - (1364) Commercial Building Grounding and Bonding Requirements for Telecommunications
ANSI/EIA-310-D - Cabinets, Racks, Panels, and Associated Equipment
NECA/BICSI 607-2011, Standard for Telecommunications Bonding and Grounding Planning and Installation Methods for Commercial Buildings

BICSI TDM Manual - (1368) Building Industries Consulting Services International Telecommunications Distribution Methods (TDM) Manual
BICSI Customer Owned Outside Plant Design Manual
RUS Bulletin 1751F-640 - Design of Buried Plant-Physical Consideration
RUS Bulletin 1751F-641 - Construction of Buried Plant
RUS Bulletin 1751F-643 - Underground Plant Design
RUS Bulletin 1751F-644 - Underground Plant Construction Telecommunications Engineering Shield Continuity and Construction Manual (TE&CM) 451.2
RUS Bulletin 345-65 (PE-33) - RUS Specification for Shield Bonding Connectors
RUS Bulletin 345-54 (PE-52) - RUS Specification for Telephone Cable Splicing Connectors
RUS Bulletin 345-72 (PE-74) - RUS Specification for Filled Splice Closures
RUS Bulletin 345-150 (515a) - Specifications and Drawings for Construction of Direct Buried Plant
RUS Bulletin 345-152 (515d) - Specifications and Drawings for Underground Cable Installation
Electronics Industry Alliance EIA-310-D - Cabinets, Racks, Panels, and Associated Equipment
TIA-758A- Outside Plant Telecommunication Cabling Standard
TIA-606-A - Administration Standard for Commercial Telecommunication Standard
National Electrical Manufacturers Association (NEMA) TC 2-1368 - Electrical Polyvinyl Chloride (PVC) Tubing and Conduit
NFPA 70 - (2005) National Electric Code
UFC-3-580-01 – (2007) Telecommunications Building Cabling Systems Planning and Design
ETL 02-12 Communications and Information System Criteria for Air Force Facilities

8.0 SECURITY.

- 8.1** There are security requirements for performance of this Statement of Work. Escorts may be required, as some work will be performed in secure facilities or around flight lines. It is the Government's responsibility to provide escorts. To ensure performance starts as soon as possible, the contractors shall provide the names, social security numbers, driver's license numbers and state of issue, and birth date of the personnel who will be performing on this Project in their Technical Proposal. This information is required to grant access on Andersen AFB, GU.

9.0 ADMINISTRATIVE CONSIDERATIONS