

Part 3 Statement of Work / Project Program

MMR-16-S-01 Repair Water Storage Tanks &

MMR-16-S-02 Repair SCADA At WWTP

FY16

**Naval Air Station I and II Sigonella
Sicily, Italy**

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1.0 PROJECT DESCRIPTION

This project involves two separate tasks:

Task 1: MMR-16-S-01 Repair Water Storage Tanks

This first tasking is to clean and repair the existing water storage tanks located in buildings 492, 535, 612, 707 and 823 at NAS I and NAS II. This project proposes to sandblast, repair and repaint tank interior surfaces, tanks metal pipes, flanges, ladders and protection cages, sleeves, manholes frames and covers. All exterior valves and piping (both effluent and influent) around the tanks shall also be replaced to meet code requirements. Any exterior spalls, cracks, exposed rebar, or other damages shall be cleaned, patched, resurfaced and painted to match existing tank exterior finishing. A catwalk shall be constructed between roofs of tank buildings

492 and 535. The existing roof structure between these two tanks shall also be removed and replaced as required to provide water proof seal where roof connects to edges of the tanks. All existing pipe valve vaults associated with water tanks shall be removed and replaced. Keyway water valves or waterproof vaults shall be provided instead to prevent flooding of vaults. A mechanical/manual water level indicator, one per each water storage tank, shall be provided by this project to allow specialized operators to back – up electronic indicators in case of malfunction and double check water levels. During construction, contractor shall maintain overall water system pressure to insure no loss of water service provided to the base. The contractor shall provide a phased construction plan to minimize outages. Any proposed system outages must be coordinated through the contracting officer and shall be requested at least 15 days in advance of the proposed outage. Upon completion of each tank repairs, the tank will be cleaned and sanitized. All tanks listed in this task shall be cleaned and sanitized prior to final certification and turnover to the government. Final certification of compliance with the current Italian, American and local Preventive Safety and Health Care Norms shall be provided.

Phasing:

Only one tank may be repaired at a time, all work shall be completed before beginning work on the next water tank. Contractor shall submit a phasing plan to be approved by the Contracting Officer prior to commencement of work.

The Building specific new work required is as follows:

A. Tank Bldg 823

Tank Bldg 823 is a concrete tank located partially below grade with a capacity of 680,000 of non-potable water storage tank.

1. Correct the following ANSI/OSHA and Safety-Related Deficiencies:

- a. replace the handrail on the stairs to the valve vault in order to correct the height that not exceeded the OSHA maximum allowed (29 CFR 1910.23(e)(2)),
- b. install the closure chains in the roof opening to the railing access to the valve vault to deter personnel from inadvertently falling (29 CFR 1910.23(a)(2)),
- c. the gaps between the roof and toe bar exceeded the OSHA maximum allowed gap width (29 CFR 1910.23(e)(4)), Correct as necessary,
- d. the interior ladder width was less than required by OSHA (29 CFR 1910.27(b)(1)(iii)), correct as necessary,
- e. the interior ladder toe room was less than required by OSHA (29 CFR 1910.27(c)(4)), correct as necessary,
- f. the interior ladder head clearance was less than required by OSHA (29 CFR 1910.27(c)(1)),
- g. Design and install a new permanent exhausting system in to the underground valve vault confined space area as per OSHA requirements,

2. Improvements as per AWWA, Sanitary, and Operational Deficiencies:

- a. External tank concrete roof and wall waterproofing with flexible liquid membrane.
- b. tank pipe overflow replacement,
- c. pumps and cover shelter re-painting,
- d. asphalt replacement with concrete pavement in the tank compound,
- e. waterproofing the underground valve vault area around the piping wall sleeves,
- f. install and access room with door on the underground valve vault access,
- g. Recoating the interior tank wall with approved NSF60 epoxy paint.

B. Tank Bldg 535

Tank 535 is a two-chamber concrete tank located partially below grade with a capacity of 317,000 gallons of potable water.

1. Correct the following ANSI/OSHA and Safety-Related Deficiencies:
 - a. the roof safety railing access opening did not have closure chains to deter personnel from inadvertently falling (29 CFR 1910.23(a)(2)),
 - b. the gaps between the roof and toe bar exceeded the OSHA maximum allowed gap width (29 CFR 1910.23(e)(4)),
 - c. some of the toe bar sections had broken (29 CFR 1910.23(e)(4)),
 - d. the valve vault ladder side rails is dimensionally too small (ANSI A14.3),
 - e. the valve vault ladder rung size is dimensionally less than required by OSHA (29 CFR 1910.27(b)(1)(i)),
 - f. the valve vault ladder head clearance is less than required by OSHA (29 CFR 1910.27(c)(1)),
 - g. wiring and panel are exposed and not waterproofing in the south vault (recommended practice),
 - h. the exterior ladder side rails is dimensionally too small (ANSI A14.3),
 - i. the size of the exterior ladder rungs is less than allowed by OSHA (29 CFR 1910.27(b)(1)(i)),
 - j. the interior ladder side rails were dimensionally too small (ANSI A14.3),
 - k. the interior ladder rung size was dimensionally less than required by OSHA (29 CFR 1910.27(b)(1)(i)).

2. Improvements as per AWWA, Sanitary, and Operational Deficiencies:
 - a. External tank concrete roof and wall waterproofing with flexible liquid membrane.
 - b. Interior and exterior concrete cracks in the underside of the roof overhang and inside the tank should be repaired according to the specifications of the concrete crack repair material manufacturer. These areas to be repaired should be prepared by wet blast cleaning to remove dust, laitance, grease, or other bond inhibiting materials and blown off with high-pressure air. The cracks in the concrete should then be repaired by routing out the crack to a minimum depth of 1 inch (25 mm, with a minimum 90° angle from the surface) and repairing with a cement-based patching compound. The sequence and performance of these concrete repairs shall be such that the structural integrity of the tank area is not compromised. In order to repair the leak, epoxy injection may be required. See section 6 Engineering Systems Requirements, Part B10 Superstructure.
 - c. Recoating the interior tank wall with approved NSF60 epoxy paint.
 - d. pumps and cover shelter re-painting,
 - e. exterior hand rail re-painting.
 - f. Remove and replace existing valves and valve vault with keyway valves.

C. Tank Bldg 492

Tank 492 is a two-chamber concrete tank which is located partially below grade with a capacity of 400,000 gallons of potable water.

1. Correct the following ANSI/OSHA and Safety-Related Deficiencies:
 - a. the height of the handrail on the stairs exceeded the OSHA maximum allowed height (29 CFR 1910.23(e)(2)),
 - b. the platforms did not have toe bars as required by OSHA (29 CFR 1910.23(e)(4)),
 - c. the roof safety railing access opening did not have closure chains to deter personnel from inadvertently falling (29 CFR 1910.23(a)(2)),
 - d. the gaps between the roof and toe bar exceeded the OSHA maximum allowed gap width (29 CFR 1910.23(e)(4)),
 - e. some of the toe bar sections had broken (29 CFR 1910.23(e)(4)),
 - f. the valve vault ladder width was less than required by OSHA (29 CFR 1910.27(b)(1)(iii)),
 - g. the valve vault ladder head clearance was less than required by OSHA (29 CFR 1910.27(c)(1)),
 - h. the rust tubercles on the ladder could injure the climber (recommended practice),

- i. the interior ladder width was less than required by OSHA (29 CFR 1910.27(b)(1)(iii)),
 - j. the interior ladder head clearance is less than required by OSHA (29 CFR 1910.27(c)(1)), and
 - k. rust tubercles on the interior ladder that could injure the climber
2. Improvements as per AWWA, Sanitary, and Operational Deficiencies:
- a. External tank concrete roof and wall waterproofing with flexible liquid membrane.
 - b. recoating the interior tank wall with approved NSF60 epoxy paint.
 - c. pumps and cover shelter re-painting,
 - d. exterior hand rail re-painting.
 - e. Relocate existing external roof access stair in the east tank side in order to permit the valves exercising.
 - f. Remove and replace existing valves and valve vault with keyway valves.

D. Tank Bldg 612

Tank Bldg 612 is a three-chamber concrete tank which is located partially below grade and provides 976,720 gallons of non-potable water storage tank.

1. Correct the following ANSI/OSHA and Safety-Related Deficiencies:
 - a. the height of the handrail on the stairs exceeded the OSHA maximum allowed height
 - b. (29 CFR 1910.23(e)(2)),
 - c. the height of the roof safety railing handrail was less than required by OSHA (29 CFR 1910.23(e)(1)),
 - d. the gaps between the roof and toe bar exceeded the OSHA maximum allowed gap
 - f. width (29 CFR 1910.23(e)(4)),
 - g. sections of the toe bar had broken (29 CFR 1910.23(e)(4)),
 - h. the interior ladder width was less than required by OSHA (29 CFR 1910.27(b)(1)(iii)), and the rust tubercles could injure the climber (recommended practice).
2. Improvements as per AWWA, Sanitary, and Operational Deficiencies:
 - a. External tank concrete roof and wall waterproofing with flexible liquid membrane.
 - b. tank pipe overflow replacement and rerouting,
 - c. pumps and cover shelter re-painting,
 - d. Replace pump room access door,
 - e. Install a permanent electric hoist and rail in order to eventually lift the existing pumps (500 Kg) for future replacement or maintenance.
 - f. Replace the existing pump room exhaust fan
 - g. recoating the interior tank wall with approved NSF60 epoxy paint.

E. Tank Bldg 707

Tank 707 is an elevated single-pedestal tank constructed of concrete with a capacity of 288,000 gallons of potable water. When working on this tank contractor shall be required to provide an alternate means to maintain water system pressure to ensure continued water service throughout the base.

1. Correct the following ANSI/OSHA and Safety-Related Deficiencies:
 - a. the height of the handrail on the roof safety railing, interior dry platforms, and interior container platform was less than required by OSHA (29 CFR 1910.23(e)(1)),xii
 - b. the size of the members of the roof safety railing, interior dry platforms, and interior container platforms were dimensionally less than required by OSHA (29 CFR 1910.23(e)(3)),
 - c. the gaps between the toe bar and top of the access tube exceeded the OSHA maximum allowed width (29 CFR 1910.23(e)(4)),
 - d. the roof was equipped with only one manhole (AWWA D100),
 - e. the access tube side rails were dimensionally too small (ANSI A14.3),

- f. the access tube head clearances was less than required by OSHA (29 CFR 1910.27(c)(1)),
 - g. the depth of the access tube ladder safety cage was less than required by OSHA (29 CFR 1910.27(d)(1)(i)),
 - h. the width of the access tube ladder safety cage was less than required by OSHA (29 CFR 1910.27(d)(1)(i)),
 - i. the spacing between vertical bars on the access tube safety cage exceeded the maximum allowed by OSHA (29 CFR 1910.27(d)(1)(vi)),
 - j. the gaps between the toe bars and two of the interior dry platforms exceeded the OSHA maximum allowed width (29 CFR 1910.23(e)(4)),
 - k. the top interior dry platform did not have a toe bar as required by OSHA, (29 CFR 1910.23(e)(4)),
 - l. the access openings through the interior dry platforms did not have closure chains as required by OSHA (29 CFR 1910.23(a)(2)),
the access opening through the lower platform in the wet container did not have a closable cover, (29 CFR 1910.23(a)(6)),
 - m. the curbs around the access openings through both interior wet container platforms were less than required by OSHA (29 CFR 1910.23(a)(3)),
 - n. the gap between the toe bar and the lower platform in the wet container platform exceeded the OSHA maximum allowed gap width (29 CFR 1910.23(e)(4)),
 - o. the wet container ladder width was less than required by OSHA (29 CFR 1910.27(b)(1)(iii)),
 - p. the wet container ladder side rails were dimensionally too small (ANSI A14.3),
 - q. the wet container ladder toe room was less than required by OSHA (29 CFR 1910.27(d)(1)(i)),
 - r. the depth of the wet container ladder safety cage was less than required by OSHA (29 CFR 1910.27(d)(1)(i)), and
 - s. the width of the wet container ladder safety cage was less than required by OSHA (29 CFR 1910.27(d)(1)(i)).
2. Improvements as per AWWA, Sanitary, and Operational Deficiencies:
- a. Roof cracking and spalling need to be repaired and should be applied a roof coating epoxy paint,
 - b. Create an above grade air break at the overflow pipe,
 - c. Replace the roof manhole cover with an water proofing type lockable from inside with an emergency open from the external for safety ,

F. Tank Bldg 535 & 492

Tank 535 is a two-chamber concrete tank located partially below grade with a capacity of 317,000 gallons of potable water. Tank 492 is a two-chamber concrete tank which is located partially below grade with a capacity of 400,000 gallons of potable water.

1. Design and install a piping connection between the four tanks chamber.
 - a. Remove the existing water equalization (see figure 1 in part 6) piping including the existing four valves, DN 600. The works shall include the excavation and shoring as required.
 - b. Demolish the existing three underground concrete manhole where are located the old piping and valves including the steel cover and the foundations.
 - c. Install new four wall sleeves in order to permit the installation of the new DN180 HDPE pipe in the existing water storage tanks; the sleeves shall including the water proofing seal and accessories.
 - d. Install new piping type HDPE DN 180 PN16, including a concrete support basement in proximity of the tank inlet in order to avoid the HDPE pipe bending.

- e. Install new four tank insulation gate valve, resilient type with rubber wedge and epoxy coating, stainless steel bolt, including buried valve box.
- f. Install new DN 180 PN16 HDPE tank filling line. The point of connection will be from the existing underground HDPE that arrive from the calcite contactor and will be connected to each of the four tank chamber; the works shall including the OS&Y section tank section valve and restrained flexible connector for each tank chamber (see figure 1 in part 6).
- g. Replace the existing shelter cover installed between the tanks BLDG 535 and 492; the new cover shall be made with steel galvanized structure, without welding on site. The roof cover shall be sandwich insulated panels with roof tiles finishing (see figure 2 in part 6), including roof gutters and downspout that shall be metal galvanized and factory painted.
- h. Valves shall not be suspended vertically or horizontally from HEDP piping, but fully supported and restrained. All valves and appurtenance connections to HDPE will be flanged.
- i. All elbows are to be factory fabricated.

Treated water storage works - General Requirements.

The Contractor shall install water distribution mains, branches, laterals, lines and service connections to include all pipe, valves, fittings and appurtenances, and pipe thrust restraint. Exterior water line construction shall include service to all water tanks as described in the present Scope of Work Section II. Distribution system designs must consider system operating pressure 1600 KPa (232 psi) in order to improve the HDPE mechanical strength; the pipe size and material, including joint construction and fittings; disinfection, and construction testing. All the exposed HDPE pipe shall protected with aluminum jacket.

Potable water storage facilities, associated piping, and ancillary equipment must be disinfected before use. Disinfection will be accomplished following procedures and requirements of the contract specifications. In no event will any of the above equipment or facilities be placed in service prior to verification by the supporting medical authority, by bacteriological tests, that disinfection has been accomplished.

1. System Isolation Valves.
Valves (Gate valves w/box) are used for isolation purposes; valves shall be spaced not to exceed 3600 mm (12 feet) from tees or crosses. Gate valves shall be in accordance with AWWA C 500 and/or C509. The valves and valve boxes shall be constructed to allow a normal valve key to be readily used to open or close the valve. Provide traffic-rated, water proof valve boxes and concrete pad, 0.5 meter square, for all valve boxes.
2. Tanks air vent overflow and tank roof access.
All water reservoirs must be covered to prevent contamination by dust, birds, leaves, and insects. These covers will be, watertight at all locations except vent openings. Special attention should be directed toward making all doors and manholes watertight. Vent openings must be protected to prevent the entry of birds and insects; and vent screens should be kept free of debris so that air can enter or leave the reservoir area as temperature and water levels vary. All overflows or other drain lines must be designed so as to eliminate the possibility of flood waters or other contamination entering the reservoir. Reservoir covers also protect the stored water from sunlight, thus inhibiting the growth of algae. Water tank drains and overflow piping will not be connected to sanitary sewers.
3. Leakage tests.

Leakage tests shall be conducted prior to acceptance of the completed water system as per AWWA C906, Water used for filling and testing the reservoir shall be potable.

All the storage tank shall hydraulically tested the testing procedures shall include the following minimum requirements:

- a. The reservoir shall be filled with water up to the overflow level.
 - b. The water level in the reservoir shall be maintained for a period of 24 hours, topped up to overflow.
 - c. The leakage from the reservoir shall not exceed a 4 mm drop in water level during the 24 hour test period.
4. Water Tank Disinfections.
A solution of 200 mg/L available chlorine shall be applied directly (brush or spray) to the surfaces of all parts of the storage tank or reservoir that is in contact with water. The disinfected surfaces shall be in contact with the strong chlorine solution for at least 30 minutes, after which the facility can be filled with potable water. The contractor shall use calcium hypochlorite for disinfectant that shall meet the requirements of the current AWWA Standard B300, Standard for Hypochlorite. **The disinfection shall also be required to meet the requirements of the current AWWA Standard C652 in accordance with the Public Health Act.**

Treated water storage works - Certifications Requirements.

1. Tank liner/coating
All the water tanks included in the present scope of work will be considerate for potable water. The liner or coating materials shall be approved by the UEM Branch manager. The liner or coating material shall be for potable water and certified by the National Sanitation Foundation (NSF) to meet the NSF/ANSI 61 standard or by European equivalent regulation. The USA NSF certified liners or coatings are inspected to insure that all ingredients including the polymer and additives such as UV stabilizers, heat stabilizers, antioxidants, etc. are safe for contact with drinking water.
2. HDPE welding requirements
All the welding in the HDPE pipe shall be performed by certified HDPE welder.

Task 2: MMR-16-S-02 Repair SCADA At WWTP

This second tasking is to repair SCADA (Supervisory Control and Data Acquisition) sensors and software at Wastewater Treatment Plants (WWTP) at both NAS I and NAS II. The project will provide appropriate design and construction to repair the Naval Air Station Sigonella NAS I and NAS II WWTP systems, to maximize their efficiency and safety, environmental prevention and energy saving codes. This project shall replace existing SCADA software with most current version. Existing SCADA software is Trend Control Systems 963 version3.40. Provide all necessary hardware required to run and operate new software. Consult with treatment plant operator and UEM Branch Manager to configure program display settings and software specifications to accommodate operational requirements and provide training on usage of the new operating system. This project will replace existing old and obsolete electronic sensors and Supervisory Control and Data Acquisition (SCADA) software at central WWTP buildings 229 and 402, with new state of the art sensing probes, meters and controls; it will replace existing remote radio- control of all existing sewage lift stations with new hard wired lines in underground cable ducts. Lift station pumps for NAS I shall have the capability of being controlled remotely from building 229 and lift station pumps for NAS II shall have the capability of being controlled remotely from building 402. Both control buildings on NAS I and NAS II shall have bidirectional communication so that the NAS II office is able to see and control the status of the plant and lifts

stations located at NAS I and vice versa. New telecommunications conduit and cable duct shall be provided where existing facilities do not exist or cannot accommodate additional cable required to meet communication needs. At least two different levels of control are required on the basis of access privilege like "supervisor" or "operator". Additionally, the project will install new aluminum cover dome on top of the existing lift station 234. A hard wired line in underground cable duct shall be provided from building 402 to water treatment building 494 and shall provide 24 hour monitoring capabilities of the Wastewater Treatment Systems.

This work shall require the contractor to perform site surveys and update as-built drawings of the Electrical Systems for each of the Wastewater Treatment Plant Facilities in Buildings 229 and 402. They shall also provide verification that the existing conditions of the WWTP systems comply with all the applicable Environmental Final Governing Standards, USN Energy Savings Programs including all current applicable electrical and safety norms.

SYSTEM COMPATIBILITY

All new hardware/software and equipment must be compatible with all existing SCADA systems that are to remain in place. Upon completion/installation of the all SCADA system upgrades, contractor shall test operational controls for all wastewater treatment SCADA systems to insure proper functionality of the new system.

A. Wastewater Treatment Plant Building 229 – NAS 1

Replace SCADA system software and provide all necessary hardware required to run and operate new software. Remove and replace all electronic controls/sensors/meters to insure compatibility with new SCADA system. Salvage and return to government all functional controls/sensors/meters. Hardwire connect all lift stations in NAS 1 to building control system to allow for remote operation and monitoring of lift station pump facilities from building 229. Include SCADA system connections for chlorine pumps and electric motor for the scraper used in the clarifier. Upon completion of system upgrade, test to confirm that all sensors and controls for NAS 1 can be monitored and operated from the control center in building.

B. Wastewater Treatment Plant Building 402 – NAS 2

Replace SCADA system software and provide all necessary hardware required to run and operate new software. Remove and replace all electronic controls/sensors/meters to insure compatibility with new SCADA system. Salvage and return to government all functional controls/sensors/meters. Hardwire connect all lift stations in NAS 2 to building control system to allow for remote operation and monitoring of lift station pump facilities from building 402. Provide additional connection from NAS 1 SCADA system to NAS 2 SCADA system. Include SCADA system connections for chlorine pumps and electric motor for the scraper used in the clarifier. Upon completion of system upgrade, test to confirm that all sensors and controls for both NAS 1 and NAS 2 can be monitored and operated from the control center in building. Provide hardwire connection for 24 hour monitoring capacity only at the Water Treatment Operations Building 494.

C. Sewer Lift Stations NAS 1

Remove and replace SCADA system controls, meters and sensors in building 234 with new compatible controls/sensors/meters. Salvage and return to the government all functional controls/sensors/meters. Hardwire connect all lift stations in NAS 1 to building control system to allow for remote operation and monitoring of lift station pump facilities from building 229. New telecommunications conduit and cable duct shall be provided where existing facilities do not exist or cannot accommodate additional cable required to meet communication needs. Conduit shall be PVC diameter 50mm, flexible specific to fiber cable. Contractor shall also provide electrical power for the new communications panels provided by BCO (220V/6A, single phase). BCO Sigonella will install actual wiring and connect to the existing network.

D. Sewer Lift Stations NAS 2

Remove and replace SCADA system controls, meters and sensors in buildings 585, 431, 832, 565 and 1020 with new compatible controls/sensors/meters. Salvage and return to the government all functional controls/sensors/meters. Hardwire connect all lift stations in NAS 2 to building control system to allow for remote operation and monitoring of lift station pump facilities from building 402. New telecommunications conduit and cable duct shall be provided where existing facilities do not exist or cannot accommodate additional cable required to meet communication needs. Conduit shall be PVC diameter 50mm, flexible specific to fiber cable. Contractor shall also provide electrical power for the new communications panels provided by BCO (220V/6A, single phase). BCO Sigonella will install actual wiring and connect to the existing network.

2.0 PROJECT OBJECTIVES

2.1 APPLICABLE CODES AND STANDARDS

In addition to the codes and standards listed in Part 4, the design and construction shall be in accordance with the latest revision/edition of the following referenced codes and standards. The term "Latest Revision/Edition" is defined as the version as of the project award date.

2.2 SUSTAINABLE DESIGN

Design and construct project per sustainability requirements identified in Section 01 33 29.05 20, *Sustainability Requirements For Design-Build*. Additional specific sustainability requirements are found in this document.

2.3 STORMWATER MANAGMENT - LOW IMPACT DEVELOPMENT (LID)

Not used.

3.0 SITE ANALYSIS

3.1 EXISTING SITE CONDITIONS

The site consists of various existing building structures on NAS I and NAS II. Buildings associated with task 1 are 492, 535, 612, 707 and 823. The main buildings associated with task 2 are 229 and 402. Other facilities that may require work to be done are buildings 234, 235, 431, 494, 1020, 565, 585 and 832,

3.2 SITE DEVELOPMENT

Not Applicable

4.0 BUILDING REQUIREMENTS

Not used.

5.0 ROOM REQUIREMENTS

Not used.

6.0 ENGINEERING SYSTEMS REQUIREMENTS (ESR)

- B10 Superstructure
- B20 Exterior Closure
- B30 Roofing
- C10 Interior Construction
- D20 Plumbing
- D40 Fire Protection Systems
- D50 Electrical Power and Lighting
- E10 Equipment
- F10 Special Construction
- F20 Selective Building Demo
- G10 Site Preparations
- G20 Site Improvements
- G30 Site Civil/Mechanical Utilities
- G40 Site Electrical Utilities

A10 FOUNDATION

Not Used.

A20 BASEMENT CONSTRUCTION

Not Used.

B10 SUPERSTRUCTURE

The structural system shall be designed using the following parameters:

Risk Category:

Any structural work or modifications to a water tank that supports fire suppression systems shall be classified as Risk Category IV.

Any structural work or modifications to a water tank that does not support a fire suppression system shall be classified as Risk Category III.

All structural work or modifications to structures that are ancillary to the water tanks, which include but not limited to ladders, roofs, roof supports, decks and catwalks, shall be classified as Risk Category II.

Live loads: In accordance with IBC.

Wind loads: Design wind speed: 183 kph (114 mph) for Risk Category II, and 196 kph (122 mph)

for Risk Category III & IV.; Exposure category C.

Earthquake loads: Mapped seismic acceleration parameters: SS:1.39; S1:0.92.

For all concrete spalling, cracks, exposed reinforcing or damage, repairs shall follow and be in accordance to ACI 562 – Concrete Repair.

B20 EXTERIOR ENCLOSURE

B2010 EXTERIOR WALLS

The primary exterior materials of the existing buildings are concrete masonry.

Match existing concrete and masonry wall fenestration detailing.

Brick masonry details shall be consistent with the existing building.

Exterior Coatings

Provide field applied exterior coatings for all items that are not prefinished, and to prefinished items when required to provide a color other than a standard prefinished color. All paint shall be in accordance with the Master Painter Institute (MPI) standards for the exterior architectural surface being finished.

On new ferrous surfaces, clean surface to SSPC SP 2; apply coatings of Alkyd MPI EXT 5.1Q-G5 Semigloss; Primer: MPI 23, Intermediate: MPI 94; Topcoat: MPI 94. System DFT: 5.25 mils.

On existing ferrous surfaces, clean to SSPC SP 5; apply coatings of MPI REX 5.1C-G5 Semigloss; Spot Primer: MPI 79; Intermediate: MPI 163; Topcoat: MPI 163. System DFT: 5 mils.

B2020 EXTERIOR WINDOWS

Not Used.

B2030 EXTERIOR DOORS

Exterior doors shall be heavy duty insulated steel doors and frames for service access. Door frames shall have welded corners. Use heavy-duty overhead holder and closer to protect doors from wind damage. Steel shall have G60 galvanized coating in accordance with ASTM A 924/A 924M and ASTM A 653/A 653M when the job site is located within 300 feet from a body of salt water. Provide commercial quality, coating Class A zinc coating in accordance with ASTM A591 for other steel or steel skin hollow metal doors at other locations. Provide kickplates on the inside face of all exterior doors. Weather-protect all exterior doors and related construction with low infiltration weatherstripping and sealants. Provide threshold with offset to stop water penetration while maintaining accessibility compliance. Conform to the design criteria of ASCE 7. See the hardware schedule for door hardware requirements.

1. Steel Doors: Exterior doors shall comply with ANSI A250.8-1998 (SDI-100). Hardware preparation shall be in accordance with ANSI A250.6. Doors shall be hung in accordance with ANSI A115.16.
 - a. Doors Required:
 - 1) Standard Duty Doors - Level 1, MSG # 20 (IP 0.032", 0.8 mm), physical performance Level C, Model 1 or 2.
2. Standard Steel Frames; ANSI A 250.8. Form frames with welded corners for installation in exterior walls. Form stops and beads of 20 gage steel. Frames shall be set in accordance with

- ASTM A250.11. Anchor all frames with a minimum of three jamb anchors and base steel anchors per frame, zinc-coated or painted with rust-inhibitive paint, not lighter than 18 gage. Mortar infill frames in masonry walls, and infill with gypsum board compound at each jamb anchor in metal frame walls. Only use surface exposed bolted anchors in concrete walls.
3. Door and Frame Finishes: a) Exterior Doors, Factory-Primed and Field Painted Finish - Doors and frames shall be factory primed with a rust inhibitive coating as specified in ANSI A250.8. Factory prime doors on six sides of the door.
 4. Hardware: Provide the services of a Certified Door Hardware Consultant to prepare the door hardware schedule.

Provide all new hardware with satin chrome finish throughout. Hardware shall be commercial grade, suitable for the operational requirements and in compliance with life safety code.

Coordination: Provide a master keying system compatible with the existing base system. Provide an emergency access key box for exterior door fireman key access. Coordinate with the local authority and the Contracting Officer to determine the local requirements for hardware, keying and master keying.

B30 ROOFING

Provide a complete new insulated roof system design and construction services for the entire facility roof system, and including all necessary ancillary and incidental work necessary for a complete, new, watertight roof system installation.

B3010 ROOF COVERINGS

Remove all the existing roofing and flashing down to the deck. Properly dispose of the demolished materials in a landfill not on the military installation.

The existing roof deck is wood. It is suspected that there is damaged existing roof deck.

Assume the project will require the replacement of the entire existing woodroof deck.

The new roof shelter shall be made with steel galvanized structure, without welding on site. The roof cover shall be sandwich insulated panels with roof tiles finishing, including roof gutters and downspout that shall be metal galvanized and factory painted.

B3020 PERFORMANCE REQUIREMENTS

The installed roof system shall be watertight; free of defects in materials and workmanship; free of damage, including blisters, delaminations, cuts, scratches, abrasions, and patchwork; provide for positive drainage of the roof surface area; and suitable for the climatic and service conditions of the installation.

B3030 WIND UPLIFT AND FIRE RESISTANCE REQUIREMENTS

The roof system shall be designed and attached to resist wind uplift pressures calculated in accordance with ASCE 7. Uplift resistance shall be validated by applicable Factory Mutual (FM) uplift testing, or calculations based on standard engineering practice and applicable recommendations of FM.

Sheet metal perimeter and flashing components shall be designed, attached, and installed to

provide for wind resistance equivalent to or greater than that required for the roof membrane system, and in accordance with FM, NRCA, or other applicable industry standard recommendations.

The roof system shall provide Class A or Class B fire resistance, as tested by standard ASTM, FM, or UL procedures.

B3040 ROOF WARRANTY

Provide a manufacturer no-dollar-limit 20-year watertightness warranty for the total roof system, including flashings, in accordance with referenced requirements of Standard Design-Build Template PTS B30.

Manufacturer's warranty shall provide for full removal and replacement of failed, defective, and damaged roof system materials or installation workmanship in the event of water intrusion into or through the roof system, and repair of defects such as blistering, delamination, open seams, cracking, splitting, and excessive weathering. Warranty for corrective action shall not be limited in dollar value.

Provide minimum two-year contractor warranty against defects in installation workmanship in accordance with referenced requirements of Standard Design-Build Template PTS B30. Contractor warranty shall provide for full removal and replacement of failed or defective workmanship and damaged materials, including sheet metal flashings.

B3050 ROOF SPECIFICATION AND DETAILING

All work, materials, installation and details shall be in accordance with Standard Design-Build Template PTS B30 and comply with all applicable Unified Facilities Guide Specification (UFGS) materials and installation requirements. UFGS's are referenced in PTS B30 and are available at www.ccb.org. Provide for complete rough carpentry, roof insulation, roof covering, sheet metal flashing, and other components necessary to complete the installation.

Utilize the applicable UFGS for development of the roof membrane specification. Edit for application to the specific project and compliance with the RFP. Provide complete rough carpentry, roof insulation, and sheet metal flashing specification sections coordinated and compatible with the membrane specification.

All details shall be in accordance with recommendations and guidelines of the National Roofing Contractors Association (NRCA) Roofing and Waterproofing Manual and Construction Details and as required by the RFP.

The roof system shall comply with the applicable requirements of the International Building Code. Refer to UFC 3-110-03, *Roofing*, and UFC 3-100-10, *Architecture* for additional technical requirements for the roof system to be installed.

B3060 ROOF DESIGNER REQUIREMENTS

Provide materials specification, installation requirements, and system detailing to include all flashings, penetrations, closures, corners, intersections, terminations, transitions, interfaces, joint, and lap conditions to provide for a watertight installation.

The Contractor shall utilize the services of a Registered Roof Consultant (RRC) certified by the Roof Consultants Institute, or a Registered Professional Architect or Professional Engineer either

of which is knowledgeable and experienced in roof investigation, inspection, and design and specializes in roof design and roof consulting services. Consultant shall be thoroughly familiar with the field conditions and prepare the design or provide design review and approval prior to design acceptance by the Contracting Officer. The consultant shall validate in writing familiarity with field conditions and that the design for the project is complete, in accordance with the RFP, and provides for a complete and effective roof system solution and design.

B3070 QUALITY CONTROL PROGRAM

Contractor shall establish a quality control program to assure adherence to the RFP design and construction requirements and to report on the installation quality.

C10 INTERIOR CONSTRUCTION

C1010 PARTITIONS

Not Used.

C1020 INTERIOR DOORS

Not Used.

C1030 SPECIALTIES

Not Used.

C30 INTERIOR FINISHES

Not Used.

C3010 WALL FINISHES

Not Used.

C3020 FLOOR FINISHES

Not Used.

C3030 CEILING FINISHES

Not Used.

C3040 INTERIOR COATINGS AND SPECIAL FINISHES

Not Used.

D10 CONVEYING SYSTEMS

D20 PLUMBING

D2010 PLUMBING FIXTURES

Not Used.

D2020 DOMESTIC WATER EQUIPMENT

Not used.

Specialties

Provide Keyway valves for replacement of underground valve boxes.

OS&Y valves are to be installed on exterior piping as shown on Part 6. Valves shall not be suspended vertically or horizontally from HDPE piping, but fully supported and restrained.

System isolation valves are per Part 3. Provide valve box with traffic rated cover as required.

Valve connections to HDPE will be by flanged joint.

All HDPE elbows are to be factory fabricated.

Other Domestic Water Supply

Provide piping supports in accordance with the IPC. Provide inspections, disinfection, and testing in accordance with the IPC.

2030 SANITARY WASTE

Not Used.

D2040 RAIN WATER DRAINAGE

Not Used.

D2090 OTHER PLUMBING SYSTEMS

Not Used.

D30 HVAC

Not Used.

D3010 ENERGY SUPPLY

Not Used.

D3020 HEAT GENERATING SYSTEMS

Not Used.

D3030 COOLING GENERATING SYSTEMS

Not Used.

D3040 DISTRIBUTION SYSTEMS

Provide ducted exhaust ventilation systems and exhaust fans for underground vault exhaust systems. Provide in-line centrifugal exhaust fan.

Exhaust fans shall be sized to move the volume of air required to comply with International Mechanical Code for the areas requiring exhaust and be separately switched from light.

(See Tank Bldg 823 1.g.)

D3050 TERMINAL & PACKAGE UNITS

Not Used.

D3060 CONTROLS AND INSTRUMENTATION

Not Used.

D3070 SYSTEMS TESTING AND BALANCING

Not Used.

D40 FIRE PROTECTION SYSTEMS

D4010 FIRE ALARM AND DETECTION SYSTEMS

Not Used.

D4020 FIRE SUPPRESSION WATER SUPPLY AND EQUIPMENT

Not Used.

D4040 SPRINKLERS

Not Used.

D4090 OTHER FIRE PROTECTION SYSTEMS

Not Used.

D50 ELECTRICAL

The electrical design shall comply with the design criteria specified in UFC 3-501-01, *Electrical Engineering*, and its referenced documents.

D5010 ELECTRICAL SERVICE & DISTRIBUTION

Provide interior electrical wiring, fixtures, switches, outlets, and apparatus in accordance with applicable codes and standards. Power and lighting circuits shall be separate. All circuits, shall be GFI protected, and equipped with a cover to prevent accidental water infiltration into the devices.

(See Tank Bldg 535 1.g. also mechanical vent fan required)

D5020 LIGHTING & BRANCH WIRING

Not Used.

D5030 COMMUNICATIONS & SECURITY

Not Used.

D5090 OTHER ELECTRICAL SERVICES

Not Used.

E10 EQUIPMENT

E1010 COMMERCIAL EQUIPMENT

Not Used.

E1020 INSTITUTIONAL EQUIPMENT

Not Used.

E1030 VEHICULAR EQUIPMENT

Not Used.

E1040 GOVERNMENT FURNISHED EQUIPMENT

There is no Government Furnished equipment in this project.

E1090 OTHER EQUIPMENT

Not Used.

E20 FURNISHINGS

Not Used.

E2010 FIXED FURNISHINGS

Not Used.

E2020 MOVABLE FURNISHINGS

Not Used.

F10 SPECIAL CONSTRUCTION

F1010 SPECIAL STRUCTURES: PRE-ENGINEERED METAL BUILDINGS

Not Used.

F20 SELECTIVE BUILDING DEMOLITION

F2020 HAZARDOUS COMPONENT ABATEMENT

No Hazardous component abatement work is anticipated for these projects.

Prior to the start of the work the ECATTS trained contractor is required to inspect the work area with the designer of record, and government representative to address existing potentially hazardous components as part of the work. The contractor is required to provide a list of hazardous components, locations and quantities that must be addressed as part of the work.

G10 SITE PREPARATION

Physically verify the location of all existing utilities.

G1010 SITE CLEARING

Existing utilities are located in the area of work. The contractor is responsible for identifying locations and ensuring they remain in operation. The contractor is responsible to provide the Contracting Officer advance notification prior to interruption of utility.

G1020 SITE DEMOLITION & RELOCATIONS

Abandon utility systems in-place conforming to applicable codes and regulations, removing their presence from the ground surface and clearly indicating that they have been abandoned. Remove utilities underneath or within 3.0 m (10 feet) of any new facilities. Fill abandoned gravity systems with flowable fill. Fill abandoned utility system piping under pavements subject to potential vehicle loading with flowable fill. Remove existing utility structures to 900 mm (3 feet) below existing or new adjacent grade, whichever is greater. Break up bases to permit drainage. Fill with clean sand. Comply with the requirements of the utility provider concerning utility relocation.

G1030 SITE EARTHWORK

Not Used.

G1040 HAZARDOUS WASTE REMEDIATION

G20 SITE IMPROVEMENTS

Not Used.

G2010 ROADWAYS

Not Used.

G2020 PARKING LOTS

Provide concrete pavement. Porous pavement may not be used.

(A. Tank Bldg 823 2.d.)

G2030 PEDESTRIAN PAVING

Not Used.

G2040 SITE DEVELOPMENT

Not Used.

G2050 LANDSCAPING

Not Used.

G30 SITE CIVIL/MECHANICAL UTILITIES

G3010 WATER SUPPLY

The existing water system serving the project site is owned, operated and maintained, by the

federal government.

G3020 SANITARY SEWER

The existing sanitary sewer collection system serving the project site is owned, operated and maintained by the federal government.

G3030 STORM SEWER

Not Used.

G40 SITE ELECTRICAL UTILITIES

G4010 ELECTRICAL DISTRIBUTION

The electrical design shall comply with the design criteria specified in UFC 3-501-01, *Electrical Engineering*.

G4030 SITE COMMUNICATION & SECURITY

Not Used.