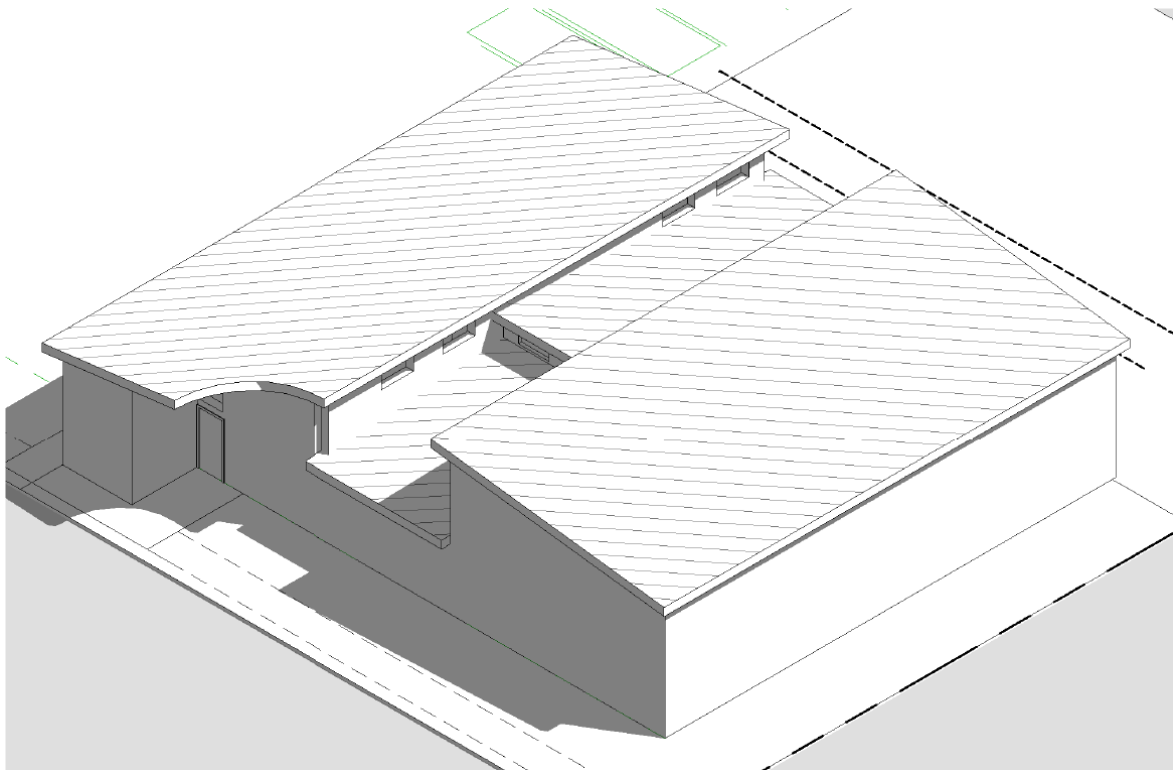


Appendix A Description of Work

Construct Honor Guard Facilities



TYNDALL AFB, FLORIDA

Project Number: XLWU 21-8120

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1.0 INTRODUCTION

1.1 PROJECT PURPOSE AND SCOPE

The scope of the project includes the design and construction of a new Honor Guard facility with site preparations for the surrounding area associated storm water upgrades and utilities. The new Honor Guard facility must contain parking area, training drill area, administration and training facility. See government unofficial conceptual drawings. When complete the Honor Guard facility must include these areas:

- A. A paved parking area, approx. 8200 sf, with 24 spaces (3 of the vehicles: a hearse and two vans will need permanent parking space.)
- B. A sodded training area to perform drills, approximately 83'-0" feet x 56'-0" feet
- C. Site preparations with surrounding area associated storm water upgrades and utilities.
 1. Storm water erosion control for the surrounding area by
 - a. increasing and meeting storm water detention requirements.
 - b. Improve detention pond overflow barrier to out flow
 2. Install dry swells on the East, North, West side of the site to move the storm water around to West storm water detention pond
 3. Site must be at least 1'-0" above road grade
 4. Top of finish floor slab to be 19'-0" in elevation – per the Tyndall IFS flood elevation requirement.
- D. Relocate, as required to meet codes and mandates, utilities and systems including water and communication mains.
- E. An administration, changing and training area in a building of approximately 4,200 square feet. Which includes:
 1. Drill and training area 1241 SF, with a low point ceiling height of 15'-0".
 - a. (GFGI retractable stage) 15'-0" x 12'-0" x 1'-0" high
 - b. Flanking the stage area, a velvet theatrical curtain, floor to ceiling with the ability to pull back and forth to retrieve/cover items behind, Storage area for (GFGI Caskets) and Storage area for (GFGI Unit Lockers)
 - c. Full length of wall opposite stage area with minimum 8'-0" high, minimum, mirrors.
 - d. Exterior steel double door and frame with stainless steel and/or aluminum door hardware.
 - e. LVT 22mm wear layer minimum 5.0 thickness, 4" Rubber Wall Base
 - f. Exposed ceiling above with gypsum soffit where required.
 2. Men's and Women's bathrooms with changing areas. Approx. 600 SF each
 - a. Floor and Walls porcelain tile 12" minimum x 12" minimum. Walls porcelain tile up to 4'-0" AFF around the entire perimeter except at the shower. Provide Schluter type metal strip. Paint above 4'-0" Level 4 finish/ Grout to match tile color/finish.
 - b. Changing area with full height mirror 30" wide x 8 ft high. (GFGI 10 lockers) for each gender.
 - c. Floor mounted porcelain toilets.
 - d. Manual plumbing fixtures.

- e. One porcelain tiled 12” minimum x 12”minimum, full height tiled shower for each gender. Mosaic porcelain tile shower base.
 - f. Tyndall AFB toilet accessories standard.
 - g. Steel Frame and Clear stained Oak Wood Veneer Doors.
 - h. Exposed ceiling above with gypsum soffit where required.
3. Flight Chief Office of 120 sf. and Flight NCOIC Office of 80 sf
- a. Modular Severe TARR Carpet, 4” Rubber Wall Base
 - b. 2 x 2 Acoustical Ceiling Panel/Grid Ceiling
 - c. Painted Steel Frame and Clear stained Oak Wood Veneer Doors.
 - d. Painted Level 4 Gypsum Board Walls
4. Open Office and Filing Storage Area of :
- a. 5 workstations at 64 sf each. (GFGI workstation furniture only.)
 - b. LVT 22mm wear layer minimum 5.0 thickness, 4” Rubber Wall Base
 - c. 2 x 2 Acoustical Ceiling “Cloud” over millwork counter the rest of the ceiling exposed.
 - d. Painted Level 4 Gypsum Board Walls
 - e. GFGI filing and storage furniture. Provide millwork with solid surface top for storage of GFGI file cabinets and adjustable plastic laminate shelves.
5. Corridor 1 and 2 – Building Entries
- a. Aluminum Storefront doors with full glazing with stainless and/or aluminum hardware.
 - b. Each entry door, on the interior, to receive a recessed, stainless steel or aluminum, walk off matt – non drain type.
 - c. LVT 22mm wear layer minimum 5.0 thickness, 4” Rubber Wall Base
 - d. 2 x 2 Acoustical Ceiling Panel/Grid Ceiling
 - e. Painted Gypsum Board Walls
6. Break room 80 sf approximately and Corridor 3:
- a. Stained Clear stained solid Oak Wood Cabinets (lower and upper) with solid surface countertop top.
 - b. Undermount 3’-x 2’ and 18” deep Stainless Steel Sink
 - c. Building Systems necessary to serve undercounter (GFGI Refrigerator (wellness requirement)). Should be integral in cabinet elevation.
 - d. Building Systems necessary to serve solid surface countertop (GFGI Microwave and coffee machine).
 - e. LVT 22mm wear layer minimum 5.0 thickness, 4” Rubber Wall Base
 - f. 2 x 2 Acoustical Ceiling Panel/Grid Ceiling
 - g. Painted Level 4 Gypsum Board Walls
7. Communication room with separate AC unit- see Tyndall AFB IFS
- a. Exposed Ceiling
 - b. Painted Gypsum Board and/or masonry walls.
 - c. Painted Steel Frame and Clear stained Oak Wood Veneer Doors.
 - d. Clear Sealed concrete floor.
8. Mechanical Room and Electrical Room with separate AC unit- see Tyndall AFB IFS
- a. Exposed ceiling Painted Gypsum Board and/or masonry walls.

- b. Painted Steel Frame and Steel Door with stainless and or aluminum hardware.
- c. Clear Sealed concrete floor.

1.2 DESIGN CRITERIA

Complete Issue for Construction deliverables including, but not exhaustive, to include construction drawings, applicable Unified Facilities Guide Specifications (UFGS) and design analysis/calculations. The Issue for Construction Contract documents must be of a professional quality, signed and sealed, technically accurate and compliant with all applicable codes, mandates, standards, memorandums and UFGS.

1.3 APPLICABLE STANDARDS

Comply with Appendix B.

1.4 FORCE PROTECTION DESIGN

The facility is designated as low occupancy, therefore, the UFC 4-010-01 Department of Defense Minimum Antiterrorism Standards for Buildings does not apply.

2.0 CIVIL

Described as follows.

2.1 SITE DESCRIPTION

- A. This project is in Bay County, Florida at Tyndall Air Force Base, on the “support” side of the main base. The site is an undeveloped parcel at the corner of Suwannee Avenue and Barnes Drive. The project location, per cartesian nomenclature, is described as: “east side Suwannee Ave.; south of Barnes Rd.; north of Future Commercial Gate Entry Road; and west of the existing drainage swale that generally flows from north to south.”
- B. The primary soil type is sand. It is recommended, per historical reports, to use the sand soil type to design foundations, slabs on grade, pavement, and the infiltration capabilities of the soil for storm water management.

2.2 SITE WORK

- A. The site work design required for this project, must include but may not necessarily be limited to, the following items: utilities, electrical power, telecom, potable water, sanitary sewer, natural gas systems, clearing, grubbing, paving, grading, drainage, storm water collection, conveyance, and management facilities.
- B. The water, electric, and natural gas infrastructure on Tyndall AFB has been privatized. Any infrastructure which must be constructed from the facility's points of demarcation

to the privatized utility, must be completed by the system owner. The prime contractor must enter into a service connection agreement with the system owner and must be responsible for paying the associated lump sum connection charge.

- C. The Contractor is advised that the concept site layout and requirements shown on the criteria drawings must be observed. Any proposed changes from the concept site layout must be submitted for review and approval. Provide UFGS marked-up specifications supporting work in this category.
- D. Unless otherwise stated, all utilities crossing under existing paved roadways must be "jack and bored".

2.3 ANTICIPATED QUANTITY OF VEHICLES DAILY

- A. The anticipated maximum number of Honor Guard personnel on the site is 24 the least is 15.

2.4 TOPOGRAPHIC UTILITY AND SURVEY

- A. The Contractor must provide a detailed topographic survey of the project site as part of the Scope of Work. The Government will not provide topographic survey for this project. It must be the responsibility of the contractor to provide topographic and utility survey of the site verify actual locations of all existing site features and utilities and must coordinate with the Government regarding any future utility installations that effect the work under this contract.
- B. Existing conditions shown on the criteria drawings are based upon Geographic Information System (GIS) data provided by Tyndall AFB, Base Civil Engineer (BCE) and commercially available aerial photography. Plans presented herein are not final site plans but are criteria drawings. These drawings do not purport to show all existing site features accurately.

2.5 COORDINATION WITH OTHER PROJECTS ON BASE (N/A)

2.6 DEMOLITION AND REMOVAL

- A. The site demolition at the Honor Guard site must require the topsoil stripping, clearing, and grubbing of all the existing vegetation on the site.
- B. The Contractor must provide layout surveying as necessary to locate the new work items prior to initiating demolition work. Erosion and sediment control Best Management Practices (BMP's) must be in place and approved by the Contracting Officer's Representative prior to initiating demolition work.
- C. All demolition debris must be removed from the limits of Tyndall AFB and disposed of in a manner as required by law and Air Force regulations. The Contractor must be responsible for all disposal permits and regulations requirements. If at any time during or after the performance of this contract, it is determined by the Contracting Officer or their authorized representative that the Contractor has not complied with the requirements of the contract pertaining to the disposal of waste material, the Contractor must be required to take any

corrective action directed by the Contracting Officer or other competent authority at no additional cost to the government. Any fine, fee, or penalty assessed by the regulating authority as a result of the Contractor's failure to comply with this provision must be paid by the Contractor. If any part of the performance of this contract is subcontracted, a provision substantially similar to the above must be included in all such subcontracts. Such provision does not, however, relieve the prime Contractor from ultimate responsibility under the contract.

- D. Some noted items, for this project, of demolition and removal include:
1. The contractor must be required to remove a portion of existing water main on the south/east edge of the project to allow for the relocation of a drainage swale as well as the installation of a culvert beneath the new north entrance/exit.
 2. The contractor must be required to remove a portion of existing gas main along the roadway.
 3. The existing utilities on this site must be protected as part of this project.
 4. The existing storm water system on the west side of the project must be improved
 5. The Contractor may utilize the utilities during construction operations as approved by the Contracting Officer's Representative and may incorporate the utilities as part of the final project.
 6. Existing utilities that interfere with this project must be relocated or removed.
 7. Existing Trees: Contractor must clear trees as required to develop the site. The Contractor is encouraged to save on-site existing trees to the greatest extent possible. New trees are to be planted per the UFGS Landscape requirement – in summary 1 tree per 1000 sf of developed area subtracting the building footprint.
- E. The Contractor must demolish existing Site features, as generally shown on the Site criteria drawings. See Appendix B, notional drawings, for further information.

2.7 SITE GEOMETRY AND PAVEMENT DESIGN

- A. The site geometry for the Honor Guard Facility has vehicles entering and exiting Mississippi. The concept site geometry plan presents the general geometric layout for the site work.
- B. The Contractor must design the horizontal and vertical control, drainage, sidewalks, landscaping, site grading, storm water management facilities, asphalt vehicular circulation area for personal vehicle (POV) ingress, egress and parking, water, sewer and other utilities (including fire hydrants, and area lighting) for the new Honor Guard Facility
- C. All new facility downspouts must connect into the new underground piped storm drainage collection system with a cast iron boot.
- D. NFPA: The Contractor must ensure that the layout for the entire site, vehicular circulation areas, and access drives must accommodate emergency and fire fighting vehicles and are in accordance with NFPA Standards for Fire Prevention Code. Special care must be exercised to minimize traffic congestion in parking areas and hardstand areas. The Contractor must ensure that all radii and widths of parking lots, access drives, and channelized turn lanes must accommodate emergency and fire fighting vehicles.
- E. ABA Accessibility Code and Standards: All of the paved area/grades for pedestrians must be designed for ABA standard criteria.
- F. Parking areas and vehicle circulation pavements must be provided as generally indicated in the drawings. Concrete bumper blocks must be installed in all parking stalls that abut sidewalks. Parking area lighting by GCEC. Parking area must be adequately drained.

1. Parking lot drainage must be designed to provide adequate sheet flow drainage to a collection system. The slopes of the surface must be held to the minimum required for drainage and to prevent ponding but must not be less than 0.5%.
 2. For safety, the maximum slope for parking is 5% along the isles through the parking area and 2% for the transverse slope. The Contractor must construct the collection drainage system such that parking areas and paved areas adjacent to the new facility drain adequately with storm water flowing away from the new facility.
- G. Curbs: Provide curbed concrete sidewalks at and between building entries along the building wall.
- H. Pavement: All asphalt and concrete pavements structures must be based on UFC 3 250-01 and UFC 3-260-02, Pavement Design for Roads, Streets, Walks, and Open Storage Areas. The design software is located at www.pcase.com.
1. Based on information provided in a geotechnical report, the existing subgrade on the site has an LBR of 30. The pavement design program PCASE was utilized to design the flexible pavement on the Honor Guard site. PCASE requires a CBR value for the subgrade to design flexible pavement. CBR is approximately 80% of the stated LBR value in the geotechnical report. Therefore, it is assumed the CBR value for the Honor Guard site is 24. The HMA pavement section for the Honor Guard must be 2" of surface course (paved in two lifts) on 6" of graded crushed aggregate.
 2. New connections to existing asphalt or concrete pavements must be accomplished by saw cutting the adjacent existing pavement. Minimum access drive pavement width must be 24-26 feet from edge of pavement to edge of pavement, unless noted otherwise. All traffic aisles must be 24-26-foot wide within the vehicular circulation area, unless noted otherwise on the Site drawings. Traffic flow through the paved areas must be two ways unless shown otherwise. The Contractor must consider the types of vehicles traversing and parking on these facilities and must incorporate their requirements in the site design.
- I. Vehicle Circulation Area must be provided as generally indicated in the drawings. The layout design of vehicular circulation areas must conform to SSDCTEA 55-17 standards. Vehicular Circulation Area and Access Drives must be designed for a 20-year design life and an anticipated Average Daily Traffic (ADT) is estimated at 100 POV trips per day with 10% AASHTO Designation Single Unit (SU) Trucks and Motor Home and Boat Trailer (MH/B).
- J. The Contractor must provide traffic control signs and pavement markings per the applicable codes and standards. See Signage within this document for further information.

3.0 STORMWATER, WATER AND SANITARY SEWER

Described as follows.

3.1 STORMWATER COLLECTION AND MANAGEMENT

- A. The Contractor must develop a storm drain/grading plan that must incorporate/include any off-site storm water runoff. To meet the requirement site scope of work:
1. The storm drainage must consist of storm ponds or swales, storm drainage structures, curb cuts, and piping. The structures may include concrete drop or curb inlets, concrete headwalls, flared end sections and outlet control structures, as necessary. All storm drainage structures located in traffic areas must be rated to withstand heavy vehicle loading.

2. All grading must be completed such that parking areas and areas adjacent to the new building drain adequately with storm water flowing away from the building. All side slopes must not be steeper than 4-feet horizontal to 1-foot vertical.
- B. The site storm drainage system must be designed for treatment of volume of storm water as specified in the Florida Department of Environmental Protection ENVIRONMENTAL RESOURCE PERMIT APPLICANT'S HANDBOOK VOLUME II to retain runoff volume from the 25-year, 24-hour storm event and in accordance with requirements of the Technical Guidance on Implementing the Storm water Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act.
- C. In the event a positive discharge outfall from the storm water treatment facility cannot be achieved, the treatment facility must retain runoff volume from the 100-year, 24-hour storm event. The storm water treatment facility system must provide the capacity for the appropriate treatment volume of storm water as specified in the Florida Department of Environmental Protections ENVIRONMENTAL RESOURCE PERMIT APPLICANT'S HANDBOOK, VOLUME II (Design and Performance Standards Including Basin Design and Criteria) within 72-hours following a storm event assuming average antecedent moisture conditions. All runoff onto the site from adjacent properties must be included in the storm drainage calculations. Storm drainage system design must be checked for a 100-year return event to ensure no flooding of the new facility. Storm drainage design must be in accordance with Tyndall AFB's Municipal Separate Storm Sewer System (MS4), TM-5-820-4, Florida Statute (F.S.) Section 373.4145 (1) (a), and Florida Administrative Code (FAC) 62-346
- D. Storm water Pipes:
1. Minimum pipe velocities must be 2.0-ft/sec and the maximum must be 5.0-ft/sec with outlet erosion protection.
 2. The minimum pipe size for an open pipe system must be 18-inches and 15-inch for a closed system.
 3. The allowable pipe types under parking areas and areas subject to vehicular traffic must include reinforced concrete pipe, type III or IV, as required. Pipe joints must be watertight with gaskets. Drainage pipes not under areas of vehicular traffic must be HDPE or PVC.
 4. Storm drainpipes must be grouted into the concrete structures to provide a watertight connection.
- E. Storm water Pavement: The maximum allowable storm water pavement spread must not exceed 4-feet in width for a 10-year storm event. Sufficient inlets or flumes must be provided to control drainage spread. The maximum interval for inlets or flumes must be 300 feet. No inlets must be provided in curb radii. The storm drainage system must be designed to the 10-year storm frequency. There must be no ponding at inlets for a 10-year storm.
- F. Concrete inlets/catch basins must be poured in-place or precast concrete. Precast manhole or inlet rings must connect with industry standard gaskets. Locate storm water inlets so that no collection swales flow across a street or sidewalk to reach a storm sewer other than where cross gutters are used.
- G. Metal grates or manholes must be galvanized or stainless steel. Where grating is to be used, it must be of "Bicycle Tire Proof" design.

- H. Basins must have 3-inch weep holes cast into the walls. The exterior of the weep holes must receive a 1/4-inch wire mesh with a 12-inch width belt of crushed rock, ASTM 357.
- I. The contractor must submit the 813 for site storm water and facility location, etc. The process may take up to 60 days to process. Environmental 813.

3.2 SITE CONTROL - EROSION AND SEDIMENT

- A. The proposed swales on the Honor Guard site must have check dams placed in the bottoms to prevent illicit discharges of sediment from the site.
- B. The site must have a contractor staging area where the concrete wash out area, hazardous material (i.e. fuel and oil storage, fertilizers, construction materials), and sanitary facilities must be stored and regulated for the site. The Contractor must submit an environmental resource plan for Government approval of the BMPs to control oils, fuels, waste, and chemicals on the site.

3.3 STORMWATER RETENTION

As a part of the contractor's geotechnical investigation, the contractor must be responsible for securing all the required information necessary, e.g. soil infiltro meter test, as applicable for the design of storm water retention ponds and drainage swales in accordance with State regulations.

4.0 WATER SUPPLY AND SANITARY SEWER

- A. The Contractor must design and construct the new water supply utility services for the new facility. The Contractor must provide water service line and connection to the existing water mains. The water utility facilities must be designed and constructed in accordance with the criteria contained herein. The design of the water service line must provide an adequate quantity of water at sufficient pressure for domestic use.
- B. The Contractor must coordinate construction sequencing of utility installation with the Contracting Officer and adjacent contractors to ensure the systems are tested and flushed properly before being connected to the existing system. The Contractor must confirm the exact location of existing utilities and new utilities being installed.
- C. Placement of buried utility mains under new building structures is not allowed. The Contractor's design must limit of utility main installation beneath the pavement.
 - 1. Water main alignments must follow existing streets or utility corridors.
- D. The contractor must be responsible for saw cutting and patching of pavements and sidewalks as required for installation of the water and wastewater system and must repair any areas damaged by the system installation activities, including but not limited to sod, landscaping, pavement damage, pavers and/or concrete removal and replacement.
- E. GCEC must review and comment on the water system design as developed by the design-build contractor's water system's designer of record (DOR), and the DOR must coordinate with GCEC for domestic water design during the design process.

- F. After the water system design completion, with all review comments incorporated, GCEC must construct all domestic water (not including fire) system exterior components up to the new facility's building 5-foot line with a shut off valve.
- G. The Defense Logistics Agency (DLA) will work the construction contract with GCEC to perform this work which will include all physical connections and tie-ins to the existing water systems in accordance with the design-build Request for Proposal (RFP) solicitation documents, criteria, requirements and criteria drawings, including but not limited to trenching, dewatering, filling and compaction for installation of the water system service components.
- H. The design build contractor is to coordinate with GCEC to schedule the inspection of this work to be completed within the required Construction Completion date. The design build contractor must coordinate all domestic water utility work with GCEC during design and construction.
- I. Building supply lines must be sized to meet peak demands with no more than 10-psi pressure loss between the mains and the building.
- J. Piping for Water:
 - 1. Water service lines must be polyvinyl chloride (PVC) except where use dictates otherwise.
 - 2. The domestic water service for the Honor Guard site must be a 2.5" line.
 - 3. All water piping 4-inches in diameter or greater must be push-on joint PVC. Piping less than 4-inches in diameter must be solvent-weld PVC.

4.1 BACKFLOW PREVENTER

- A. The contractor must provide a backflow preventer on the new potable water lines in accordance with Rule 62-555.360, Florida Administrative Code, and the AWWA Manual M14, Recommended Practice for Backflow Prevention and Cross-Connection Control. Reduced pressure principal assemblies and double check valve assemblies must be tested, approved, and listed in accordance with FCCHR-01.
- B. All backflow preventers must be on the list of approved devices published by the Foundation for Cross-Connection Control and Hydraulic Research, University of Southern California.
- C. Air gaps in plumbing systems must be in accordance with ASME A112.1.2.
- D. All test cocks on all backflow preventers must be equipped with 1/4-inch flare adapters to facilitate attachment of test equipment.
- E. In addition to being approved by the FCCHR, all backflow preventers must have bronze valve seats. A "Re-Build Kit" (poppet replacement kit) must be provided with each backflow preventer.
- F. The reduced pressure backflow preventer must be placed inside the building mechanical room.

4.2 WATER METER

- A. The connection to the existing water main and the installation of the water meter must be provided and installed by the contractor in accordance with the Utility Metering requirements of the FRCS Guide.
- B. The water meter must be placed inside the building in mechanical room.

4.3 VALVES

- A. Curb stops or valves must be installed near the point of connection to the main and on both the inlet and outlet sides of the water meter and backflow preventer. Valve connections must be as required for the piping in which they are installed.
- B. Flanges must not be buried.
- C. All valves must be resilient- seat gate valves or approved equal.
- D. All service stops and valves must be provided with service boxes.

5.0 WASTEWATER COLLECTION AND CONVEYANCE SYSTEMS

- A. The scope of this construction includes the connection of the new wastewater collection system. The Contractor must obtain written authorization from the sanitary sewer authority to connect sanitary sewer outfall from the Honor Guard Facility to the existing system.
- B. The wastewater collection and conveyance system must be designed in accordance with UFC 3-240-01 Wastewater Collection and the Water Pollution Control Federation Manual of Practice No. FD-5, Gravity Sanitary Sewer Design and Construction. In addition, the designer must comply with state and local regulations that apply, such as Chapter 62-600 of the Florida Administrative Code. The wastewater conveyance system must comply with all the above requirements and must be compatible with the wastewater to be conveyed.
- C. The 4" domestic sanitary service must tie into an existing sanitary lateral of the project site.
- D. A single building service by gravity does not require an FDEP permit.

5.1 WASTEWATER PIPING

- A. Sanitary Sewer piping must be PVC. Lines must be tested for leakage by low pressure air testing, infiltration tests, or exfiltration tests in accordance with the requirements set forth in Specification Section 33 30 00 SANITARY SEWERS. The specification section must be completed and submitted in accordance with section UFGS Submittal Procedures
- B. New sanitary sewer lines must be laid on adequate slopes in order to obtain the proper cleansing velocities.
- C. Minimum gravity sewer pipe size outside the building 5-foot line is 6-inches in diameter.
- D. Minimum slopes, and flow velocities must be as required by the Florida Department of Environmental Protection (FDEP) standards for an individual facility service.
- E. The materials specified must withstand the effects of the wastewater and not deteriorate as a result of pollutants in the wastewater.

6.0 EARTHWORK

Described as follows.

6.1 GEOTECHNICAL DESIGN

- A. The Contractor is required to retain a Geotechnical Engineer experienced and licensed in the geographic region of the project interpret the Government provided information as related to his design concept and develop geotechnical requirements to support design and construction. Minor variations in subsurface conditions between borings should be anticipated. The Contractor's Geotechnical Engineer must perform additional subsurface investigating and testing as required to adequately determine all applicable geotechnical factors including the type and capacity of the project foundations. The Contractor's Geotechnical Engineer must consider the provided information and any additional information obtained and prepare a report as described in other portions of this RFP. The minimum requirements for the subsurface investigation and report are as required by UFC 3-220-01 with associated references.
- B. The Contractor must bear costs associated with the site preparation, ground improvement and foundations except as allowed by Contract Clause FAR 52.236-2, "Differing Site Conditions".
- C. It is the DBC's responsibility for obtaining all required drilling permits.

6.2 CONTRACTOR'S GEOTECHNICAL REPORT

- A. The DBC's geotechnical report must be complete with recommendations specific to the geotechnical design requirements at the Scope of Work "site".
- B. The report must be performed under the direction of and signed by a Florida licensed Professional Geotechnical engineer.
- C. All soil borings must be abandoned in accordance with the following, minimum requirements:
 - 1. Each boring must be measured for depth before it is sealed to ensure freedom from obstructions that may interfere with effective sealing operations.
 - 2. All borings must be sealed by **backfilling** with existing site earth. All backfill material must be placed into the borehole from the bottom to the top by pressure. Each borehole sealed must be given time allowing the backfill material to settle and set in the borehole. If the backfill material settles 2-feet or more below ground surface (BGS), then the contractor must place more backfill material, as described above, in the borehole to the top. If the backfill material is less than 2-feet BGS, then the contractor may backfill the borehole using properly compacted native material.
 - 3. A measurement of the borehole's theoretical volume, the amount of grout introduced into the borehole and the depth of the top of the grout or cement backfill must be included in the borehole log.
 - 4. The DBC must obtain **soil samples**, disturbed and/or undisturbed, for testing as required for the computation of bearing capacities, settlement calculations, lateral earth pressure calculations, temporary and permanent dewatering designs, etc.
 - a. All borings must be continuously sampled by a splitspoon sampler and standard penetration blow counts recorded.
 - 5. A dated **drilling log** must be provided for each boring drilled. The drilling logs, results of soils test data if any, and a plan showing the location of each boring as drilled.
 - 6. It is not acceptable to advance the borehole for subsequent insertion of the sampler solely by means of previous sampling with the SPT sampler.
 - 7. The hole must be cleaned and stable between sampling intervals.

8. The approximate elevations and locations of borings drilled must be provided on each boring log. Coordinates must be in state plane +/- 1-foot horizontal.
- D. Should unusual or unexpected subsurface conditions be encountered that require additional investigation the contractor must provide such as deemed necessary to design the proposed structure(s).
- E. The contractor must use the data from his investigation to provide bearing capacity analyses, settlement calculations, lateral earth pressure calculations, temporary and permanent dewatering designs, and/or deep foundation design such as piling, as applicable. NOTE: The DBC-provided report must include all applicable calculations.
- F. The report must specifically address the following:
 1. Structures

The report must recommend the type of foundation system to be used, lateral load resistance capacities for foundation systems, allowable bearing capacity(ies), seismic site class, depth(s) of placement and bearing elevations for footings, grade beams, slabs, pile tips, etc., utilizing the recommendations and restrictions presented in the report. An assessment of post-construction settlement potentials, including total and differential, must be provided.
 2. Pavements

The report must recommend the allowable design CBR and modulus of subgrade reaction along with the required compaction effort for subgrades. Guidance must be offered on the types of base course materials available in the area and design strengths.
 3. General Earthwork and Special Features

The report must recommend any undercutting requirements, proof rolling requirements for subgrades, fill and backfill placement procedures, and types of compaction equipment to be used. The report must outline earthwork procedures for special features such as retaining walls, buried utilities, and slope stability if applicable.
 4. Cathodic Protection and Grounding Systems

The report must include all pH tests, salinity tests, resistivity measurements, sulfate testing, etc., required to design corrosion control and/or grounding systems. The raw field data must be provided in the report. The contractor must design all corrosion control and grounding systems required for the project.
 5. Dewatering
 - a. The report must determine project dewatering requirements. Based on historical geotechnical information, it is anticipated that groundwater must be encountered. If temporary construction dewatering is required due to high water table, the contractor must prepare and present a dewatering plan in accordance with Specification 01 57 19 Temporary Environmental Controls (Tyndall AFB Specific from Base Environmental).
 - b. The contractor must be responsible for securing all the required information necessary for the design of the dewatering plan selected. Boring logs show groundwater table depths/elevations encountered by preliminary planning efforts by the Government.

6.3 GEOTECHNICAL ENGINEERING

- A. Personnel under the supervision of a registered Geotechnical Engineer must provide inspection of excavations and soil/groundwater conditions throughout construction.
- B. The engineer must be responsible for performing pre-construction and periodic site visits throughout construction to assess site conditions.
- C. The Geotechnical Engineer, with the concurrence of the DBC and the Contracting Officer, must update the excavation, sheeting, shoring, and dewatering plans as construction progresses to reflect actual site conditions and must submit the updated plan and a written report (with professional stamp “signed and sealed”) at least monthly informing the Contractor and Contracting Officer of the status of the plan and an accounting of Contractor adherence to the plan; specifically addressing any present or potential problems.
- D. The Geotechnical Engineer must be available to meet with the Contracting Officer at any time throughout the contract duration.
- E. The DBC must bear all costs of the registered Geotechnical Engineer.

6.4 BORROW MATERIAL

- A. Borrow material must be obtained off site.
- B. Costs in connection with borrow material and disposal of materials must be at the DBC's expense.
- C. Liability of any nature resulting from borrow operations including transportation of, and those resulting from disposal of material must be the responsibility of the DBC.

6.5 SOIL TREATMENT

- A. Just prior to placing concrete slab on grade and just prior to backfilling around concrete or masonry foundations for structures, soil treatment must be applied. Pesticide applications must be made by state licensed and certified pest control personnel and in strict accordance with manufacturer's label instructions. The Contractor must formulate, treat, store and dispose of the pesticides in accordance with manufacturer's instructions, and both State and Federal regulations. Applications must be made in accordance with UFGS §31 31 16.13 CHEMICAL TERMITE CONTROL to be included in DB project specifications and Tyndall Base Standards.
- B. Coordinate with TAFB Environmental for the approval of termite control.

6.6 CAPILLARY WATER BARRIER

- A. Floor slabs of all buildings must be underlain by a minimum 6-inch (loose thickness) aggregate capillary barrier and 15 mil vapor barrier above aggregate capillary barrier as described in UFGS §31 00 00 EARTHWORK.

7.0 LANDSCAPE

- A. The Contractor must personally examine the site and become fully acquainted with existing conditions, the character and extent of work to be performed, and identify all precautions to be taken in order to avoid injury to property or persons.
- B. All areas disturbed by construction must follow the Tyndall IFS Landscape Management Plan. See www.tyndallifs.com

7.1 LANDSCAPE PLAN

- A. A landscape plan, prepared, signed, and sealed, by a Registered “Landscape Architect”, must be required to develop the landscaped area around the New Honor Guard Facility. The Landscape Architect must develop a landscape concept plan based on the criteria herein and on the RFP drawings for Government review and approval. During design, the plan must be modified to reflect Government comments and must be developed in compliance with the RFP. The DBC is advised that the concept site layout and requirements shown on the criteria drawings are intended to describe the overall concepts and scopes of work.
- B. The DBC is responsible for development of the final, signed and sealed, Issue for Construction, landscape design. Provide drawings, narrative, and supporting documentation incorporating work as shown for all submittal deliverable phases. Provide specifications supporting work in this category.
- C. The DBC must bear all costs of the registered Landscape Architect.

7.2 LANDSCAPE PLANTINGS

- A. Provide complete landscaping consisting of trees, shrubs, groundcover, and turf as required to provide a quality, cost effective, functional, and visually appealing landscaping that must visually enhance the proposed building facility while complying with all applicable requirements.
- B. Landscape plantings must be native/locally adaptive species of trees, shrubs, and groundcovers requiring minimal water and maintenance. Plant materials must be selected on the basis of plant hardiness, climate, soil characteristics, low maintenance, and high quality and be included in the approved list for Tyndall AFB. See www.tyndallifs.com for Plant List. All selected plant material must be tolerable of the site’s soil conditions. Landscaping must utilize Xeriscape concepts of planting adaptive species requiring low to moderate water consumption.

C. Trees:

1. Balled and Burlapped trees (B&B) must be grown in and acclimated to the local geographic area for a period of six-months prior to planting. Small shrubs must be minimum 18-inches to 24-inches in height, 3-gallon containers. Large shrubs must be 5-feet to 6-feet in height, 30-gallon container or B&B. Groundcover plants must be 4-inches to 6-inches maximum in height and be 1-gallon containers.

2. Plants with broken, damaged, or insufficient root balls will be rejected. All rejected material must be immediately removed from the site and replaced with acceptable material at no cost to the Government.
3. All plant materials must be protected from possible bark injury or breakage of branches. All plants transported by open trucks must be adequately covered to prevent windburn, drying, or damage to plants.
4. Remove dead and broken branches from all plant material. Prune to retain typical growth habit of individual plants and in a manner which will preserve the plant's natural character.
5. Make all cuts with sharp instruments flush with trunk or adjacent branch, in such a manner as to ensure elimination of stubs. Cuts made of right angles to line of growth will not be permitted.
6. Trees must not be poled or topped. Remove all trimmings from site. Point all cuts half inch in diameter and larger with waterproof antiseptic tree point.

D. Edging:

1. All plant beds not bordered by pavement, walks, and curbs must be edged with commercial quality, zinc-coated, steel edging, 3/16-inch by 4-inch, black in color.

E. Install **weed barrier** fabric in all planting beds.

F. **Mulch** all planting beds with Base approved mulch.

1. Mulch material must be distributed evenly over the planting beds to a minimum depth of 4 inches. Inert materials such as lava rock, crushed stone or river rock are not acceptable mulch materials.
2. Mulch trees planted in lawn areas with a minimum 5-foot diameter mulch bed around the base of the tree and separate tree from the lawn area by steel edging 5-foot in diameter.

G. Planting must be located where it is shown on the plans or as otherwise approved. No planting holes must be dug until the proposed locations have been staked on the ground by the contractor.

H. Planting pits must be excavated to the following dimensions and refilled with a mixture of planting soil (1/2 muck and 1/2 existing native soil):

1 gal. Material (1 gal.): 12 inches x 12 inches x 12 inches min.

3-gallon Material (3 gallon): 20 inches x 20 inches x 18 inches min.

Lerio material (7 gallon): 30 inches x 30 inches x 24 inches min.

Field grown material and trees: 3 times width of ball and depth of ball plus 12 inches min.

P. All plants must be set to **finished grade**. No filling will be permitted around trunks or stems. all ropes, wire, stakes, etc. must be removed from sides and tops of the ball and removed from hole before filling in.

Q. All **flagging** ribbon must be removed from trees and shrubs before planting.

R. All fertilizers, pesticides, or other chemical amendments must comply with federal, state, and base requirements.

7.3 PLANTING SOIL MATERIAL

A. Topsoil: Fertile, agricultural topsoil, typical for project locality, capable of sustaining vigorous plant growth, taken from drained site free of subsoil, clay, plants, weeds, and roots, pH range of 5.5 to 7.0 minimum 4 percent, maximum 20-percent organic matter,

B. Peat Moss: Shredded, loose, sphagnum moss, free of lumps, roots, inorganic material, minimum 85-percent organic material measured by oven dry weight, 4 to 5-pH range, moisture content of 30 percent.

C. Sand: Coarse, washed, builder's sand.

D. Planting Soil Mixture: Provide mixture of imported topsoil or approved topsoil from site, peat, sand, and other amendments as recommended by the independent soil testing laboratory for the specified plants.

7.4 SODDING

A. Graded and scarred areas around the site must be sodded.

B. At all new paved drives, paved parking area and concrete sidewalks, the DBC must provide and install solid sodding, a minimum of 3-feet in width, on edges of all new paved surfaces (parking, roads, sidewalks, mowing strips, etc.) and on the complete perimeter of all new pavement in this project.

C. All other areas disturbed in this project must be seeded and mulched.

D. Solid sodding must be installed on all storm water treatment facility slopes from pond bottom elevation to top of bank slope.

E. If disturbed areas must be left for more than ten calendar days without construction activity, the Contractor must install temporary seeding and mulching.

F. Prior to sodding, loosen existing soil to a minimum depth of 4-inches. Top 4-inches must be mixed with soil amendments including 2-inches topsoil.

G. Provide 2-inch offsite topsoil for all sodded areas. Amend existing soil by applying agricultural lime at a rate of 50-pounds per 1,000 square feet and 12-12-12 commercial fertilizer at the rate of 1½-pounds per 1,000 square feet. Sodding must be specified in Section 32 92 23 SODDING.

- H. The sod must be firm, tough texture, having compacted growth of grass with good root development. It must contain no noxious weeds, or any other objectionable vegetation, fungus, insects, or disease. The soil embedded in the sod must be good clean earth, free from stones and debris.
- I. Before being cut and lifted the sod must have been mowed at least three times with a lawn mower, with the final mowing not more than 7 days before the sod is cut.
- J. Solid sod must be laid with closely abutted joints with a tamped or rolled, even surface.
- K. The finish level of all sod areas after settlement must be 2 inches below the top of, walk ways, paving and wood borders to allow for building turf.

7.5 TEMPORARY IRRIGATION FOR PLANTS

- A. Per the Tyndall AFB IFS, A permanent irrigation system is not to be provided.
- B. The contractor must provide temporary irrigation for landscaping installed and plant establishment that must be utilized for a period of one full year from the date of final acceptance.
- C. The contractor must use facilities exterior water spigot(s) with timers programmed to supply the irrigation water during this period. After the one-year establishment period, the contractor must remove the temporary system and repair all disturbed areas.
- D. The contractor must provide complete landscape maintenance. Maintenance and establishment periods must be specified in UFGS Section 32 05 33, Landscape Establishment.

7.6 COMPLETION, INSPECTION AND ACCEPTANCE

- A. Completion of the work must mean the full and exact compliance and conformity with the provisions expressed or implied in the drawings and in the specifications including the complete removal of all trash, debris, soil or other waste created by the landscape contractor.
- B. Inspection of work to determine completion of contract, exclusive of the possible replacement of plants, will be made by the Government at the formal Facility Substantial Completion.
- C. All plant material must be alive and in good growing condition for each specified kind of plant at the time of acceptance. The rating of each plant according to Florida grades and standards must be equal to or better than that called for on the plans and in these specifications at the time of final inspections and acceptance.
- D. After inspection, the landscape contractor will be notified by the Government on the acceptance of all plant material and workmanship, exclusive of the possible replacement of plants subject to guarantee.

8.0 STRUCTURAL

- A. Provide within the SOW following ASCE 7-16 a wind speed 165 mph/3 second gust and Category III as indicated in the Tyndall Wind Speed memo.
- B. Non – combustible Structural systems available as options are the following:
 - 1. A factory manufactured architectural precast system.
 - 2. A cavity wall system with CMU veneers.
 - 3. An insulated metal wall panel system with a pre-engineered metal building frame.
 - 4. A combination of any of the three or two in 1 through 3.
- C. ROOF
 - 1. The New Honor Guard Facility is to be constructed with two monoslope standing seam roofs , and one “broken gable” standing seam roof (restroom shower area). See conceptual drawings and the appendices.
- D. WALLS
 - 1. Exterior construction to specified - cost driven - contractor decides based upon the TAFB IFS requirements which includes wind speed and other climatic factors. Materials follow the www.tyndallifs.com Exterior Finish Palette requirements.
- E. FOUNDATION
 - 1. All exterior walls are to be supported on a concrete foundation wall of a continuous concrete footing. The depth of footing is to be below finished grade and must be adjusted to accommodate the bearing capacity of the existing subgrade soils.
 - 2. Provide foundations as specifically addressed in IBC 2021 Chapter 18 and as modified by UFC 3-301-01. Foundations must comply with the limitations and recommendations stated in the DBC’s Geotechnical Report.
 - 3. Do not use masonry unit footings, steel grillage footings, timber footings, rubble stone, or wood foundations.
- E. SLAB ON GRADE
 - 2. As determined by the DBC to be applicable, provide a standard concrete slab on grade. Provisions must be incorporated to prevent differential settlement between slab sections and slab to building at all joints. Provide reinforced concrete slab on grade to meet loading requirements indicated.
 - 3. Depress slab where necessary for special floor finishes, and pits.
 - a. Depress slab at storefront entries for recessed walk off mats. (non – drain type)
 - 4. Where slab on grade is below the existing adjacent exterior grade, provide water/ damp proofing and a perimeter drainage system to remove ground water from the area immediately adjacent to the buildings.
 - 5. Provide perimeter insulation.

9.0 ARCHITECTURE

- A. Architectural scope of work must include design, detailing and specification of the building enclosure and interior environments for the Honor Guard Facilities as described in the provided RFP narrative documents and drawings.
- B. Provide drawings, specifications, design analysis, and supporting documentation incorporating work as shown.
- C. All Exterior Paint and Coatings, Storefront and Entry Doors, Door Glazing, Window Frame and Glazing, Louvers, Hardware, Lighting, Roofing, Wall Panels, Gutters, Downspouts, Scuppers, Railings, Roofs etc. to use Architectural characteristic of the Current Tyndall IFS. 325th CES to select colors and textures for exterior of building from manufacturer's standard color range provided during submittal phase from the contractor.
- D. All portions of the site and facilities must meet the ABA Accessibility Standard for DoD Facilities unless otherwise noted.
- E. Exterior wall systems available as options are the following:
 - 1. A factory manufactured architectural precast system with extensive use of formliners with an integral smoothed face veneer CMU
 - 2. A cavity wall system with varying split faced and smooth faced CMU veneers and precast trim pieces.
 - 3. An insulated metal wall panel system
 - 4. Contractor must propose at least 1 of the 3.
- F. Interior walls of the equipment room, electrical room and communications room must be non-combustible materials and painted.
- G. All hardware for the Honor Guard facility must be stainless steel and or aluminum.
- H. All door hardware must be the base standard "BEST", the base standard key is "BEST". Door lock cores will be Best with 7 pin cylinders. The Flightline side uses "K" keyway and Base Support side uses "J" keyway.
- I. Ceilings / Soffits: Interior spaces, unless noted otherwise, must be exposed to the structure above and painted in the drill training area, 15'-0" lowest point, the administration area must be acoustical ceiling and grid. Acoustical Panel and Grid ceiling finish height 9'-0" ft minimum.
- J. Exposed structure must be painted or galvanized for corrosion resistance. Exposed structure must be painted with paint color of a light reflectance value of 85% or higher.
- K. Windows should be located along the north face of the drill area wall. See 3D drawings for spacing and quantity.

10.0 AIR BARRIER REQUIREMENTS

- A. Design the building enclosure with a continuous air barrier to control air leakage in accordance with the requirements of ANSI/ASHRAE/IESNA 90.1. Clearly identify all air barrier components of each envelope assembly on construction documents and detail the joints, interconnections and penetrations of the air barrier components. Clearly identify the boundary limits of the building air barriers and of the zone or zones to be tested for building air tightness on the drawings. Include the statement of the calculated six-sided area of the air barrier envelope on the drawings for each test area.

- B. Trace a continuous plane of airtightness throughout the building envelope and make flexible and seal all moving joints. Air barrier requirements must be verified per the requirements noted below in Inspection.
- C. Seal all penetrations of the air barrier. Unavoidable penetrations of the air barrier (such as electrical boxes, plumbing fixture boxes, and other assemblies that are not airtight) must be made airtight by sealing the assembly and the interface between the assembly and the air barrier or by extending the air barrier over the assembly. The air barrier must be durable to last the anticipated service life of the assembly. Do not install lighting fixtures with ventilation holes through the air barrier.
- D. Compartmentalize spaces under negative pressure such as boiler rooms and provide make-up air for combustion. Refer to Specification Sections 07 27 19.01 SELF-ADHERING AIR BARRIER and 07 27 10.00 10 BUILDING AIR BARRIER SYSTEM.

10.1 INSPECTION

- A. Performance Criteria and Substantiation: Submit the qualifications and experience of the inspecting entity for approval. Demonstrate performance of the continuous air barrier for the opaque building envelope per the following criteria:
 - 1. UFC 3-101-01; building air barrier system must be inspected in accordance with the requirements of ASHRAE 189.1 –Normative Appendix B, “Prescriptive Continuous Air Barrier” with the following exceptions defined in UFC 3-101-01 (3-6.3) for Air Force projects:
 - Provide a report that includes methodologies for inspection procedures with comparison to the air leakage criteria for review by the Government and the Commissioning Agent (CxA).

11.0 MECHANICAL

- A. The mechanical portion of this work must be completed and designed to the following specific applicable standards and codes in accordance with the Request for Proposal, Appendices and Tyndall Air Force Base IFS requirements.
- B. The Design Build Contractor must coordinate with the Mechanical Engineer and the Mechanical Contractor to assure that the mechanical equipment rooms are designed to comply with the International Mechanical Code and clearances as recommended by the equipment manufacturer, based on actual equipment to be installed.
- C. The Contractor must provide coordinated plans indicating the final layout of all mechanical Systems showing all equipment to be installed in the rooms and indicating clearly all required maintenance clearances.
- D. Calculations: Verify occupancy and heat loads from all government furnished equipment prior to commencing work. Submit, for review and approval, building HVAC load calculations and documents demonstrating compliance with all applicable standards and codes.
- E. Per UFC 3-410-01, 3-3.1, a DOES is required.
- F. All Exposed piping to be painted/coated with phenolic epoxy to prevent corrosion and rust.
- G. Provide freeze protection as required. Provide freeze protection for above ground exterior applications. Pipe runs requiring freeze protection location and length to be protected.
- H. Provide all exterior condensing units with factory equipment guards.

- I. Anchor all exterior equipment.
- J. All mechanical piping must be insulated. All ductwork must be sheet metal with external insulation.
- K. HVAC Space Design Criteria/ Utility Spaces
 - 1. Comm rooms: The comm rooms are required to be cooled and heated per “Communications” setpoints. Each comm room must be served by a dedicated split-system with a room temperature sensor reporting to EMCS. Provide additional 50 CFM supply air from central building HVAC system for positive pressurization in accordance with UFC-3-580-01 section 2-4.3.4.
 - 2. Mech rooms: The mechanical rooms are required to be heated, ventilated, and conditioned per “Mechanical” setpoints. Mechanical rooms must be heated / cooled by main building air-conditioning system. Mechanical rooms must be utilized for natural gas and domestic water entrances to building.
 - 3. Elec rooms: The electrical rooms are required to be cooled, heated, and ventilated per “Electrical” setpoints. Cooling for electrical rooms must be provided by the central building HVAC system.
 - 4. Term “setpoints” refers to definitions described in AFI 32-1001, AFD 90-17, UFC 3-410-01 and Tyndall AFB “Temperature Set Points for Facilities” Memorandum.

12.0 PLUMBING SYSTEM

- A. Provide pipe layouts and risers for each plumbing system listed above. Included equipment and fixture schedules with description, capacities, locations, connection sizes, and other information as required. The design analysis, submitted for review must consist of the following:
 - 1. Design Narrative to include applicable design assumptions, sizing methods chosen, and why.
 - 2. Design Calculations.
 - 3. Catalog cuts of equipment such as water heaters, backflow preventers, and plumbing fixtures
 - 4. Drawings: Drawings must be complete with legends, floor plans, schedules section, details and riser diagrams. Indicate locations and general arrangement of plumbing fixtures and major equipment. Include plan and isometric riser diagrams of all areas including hot water, cold water, storm drain, waste and vent piping. Piping layouts and risers should also include natural gas (and meter as required), and other specialty systems as applicable. Include equipment and fixture schedules with descriptions, capacities, locations, connection sizes and other information as required. Include marked up UFGS specifications of materials and methods. List all references used in the design including Government design documents and industry standards. Provide justifications and brief descriptions of the types of plumbing fixtures, piping materials and equipment proposed for use. Provide detailed calculations at 65% Design and 100% Design for the sizing of the following systems:
 - Domestic water piping service must be provided:
 - a. Manual plumbing fixtures only.
 - b. Sanitary drains, vents and cleanouts must be provided for the plumbing system serving this facility.

- Condensate drain and piping must be provided for the cooling unit AHU(s).
- B. All Domestic Cold-Water pipe must be insulated to prevent condensation. All hot water pipe must be insulated to prevent heat loss.
 - C. Install water Drinking Fountain with Bottle Filler near the rear exit door to the drill pad and break room.
 - D. Roof Drainage System: Provide SMACNA Calculations for Gutter and Downspout quantity and sizing.
 - E. Floor drains must be flush strainer type with deep trap seal. Provide floor drains and trap seal in mechanical rooms and to receive condensate from air handling equipment. Floor drains in mechanical rooms must have cast-iron body and ASME A112.6.2 grate. Provide trap primer on all floor drains.
 - F. Drains must be cast iron with manufacturer's standard coating. Outlet must be suitable for inside caulked connection to drainpipe. Drains must conform to ASME A112.6.3.
 - G. Provide gas as the preferred source for hot water generation. Natural Gas Water Heater: High efficiency storage type water heaters per CSA/AM Z21.10.1 for water heaters with less than 120 gallons of storage and input ratings of 75,000 btuh or less. Provide water heater per CSA/AM Z21.10.3 for commercial water heaters with 120 gallons of storage or more and input ratings above 75,000 btuh. Water heaters must meet AGA requirements. Water heaters must be equipped with glass-lined steel tanks, polyurethane foam insulation, replaceable anodes, and adjustable range thermostat to allow hot water settings between 110- and 160-degrees F. Water heater warranty must be a minimum of 5 years.

13.0 ELECTRICAL

The electrical portion of this work must be completed and designed IAW National Electrical Code (NEC) and UFCs.

13.1 POWER DISTRIBUTION SYSTEMS

- A. Power for the facility must consist of 208/120V three-phase four wire system in accordance with the RFP, derived from a pad-mounted transformer supplied by Gulf Coast Electrical Cooperative (GCEC).
- B. Contractor must connect to the secondary side of the transformer.
- C. The service transformer secondary conductors must be routed underground in Schedule 40 PVC ducts terminating at the service entrance equipment.
- D. The service entrance equipment must consist of a service entrance rated distribution panel board labeled MPP-1 sized to adequately support the facility loads and provided with spare capacity and space in accordance with the UFCs and NEC. MPP-1 must be equipped with a main circuit breaker, serving as the service entrance disconnecting means.

- E. A power panel labeled PPL-1 must be provided to support lighting and convenience receptacle loads, in addition to smaller sized mechanical loads such as fractional horsepower exhaust fans and split pack cooling units.
- F. A dedicated branch circuit panel board labeled TPP-1 must be installed in the telecommunication room to serve the telecommunications racks and convenience receptacles.
- G. Externally mounted surge protection devices (SPDs) must be supplied to protect the service entrance distribution panel MPP-1 and telecommunications panel TPP-1.

13.2 LIGHTNING AND GROUNDING PROTECTION

- A. Contractor must provide a risk assessment analysis per UFC and NEC 780.
- B. A ground ring consisting of #4/0 bare tinned copper conductors must be provided around the perimeter of the building, with 3/4" x 10'-0" copper clad steel ground rods driven at each corner. Mechanical equipment located on grade around the building must be bonded to the ground ring.
- C. A #4/0 conductor must be extended to the service entrance panel MPL-1, and the panel bonded to the ground ring. A ground test well must be integrated in the ground ring for testing and maintenance.
- D. A ground bar must be provided in the telecommunications room for grounding all sensitive electronic equipment and distribution pathways. The telecommunications ground bar must be bonded directly to the service entrance ground in the main distribution panel using a #1 AWG insulated conductor in conduit.
- E. The contractor must install a lightning surge protection device on the main distribution panel and communication panel.

13.3 CONVENIENCE AND POWER RECEPTACLES

- A. Convenience power and receptacles must be provided throughout the facility in accordance with the following provisions:
 - 1. Mechanical Equipment: Receptacle(s) provided within fifteen (15) feet of equipment at the interior and exterior of the building.
 - 2. Dedicated Outlets: Dedicated outlets must be provided to serve all proposed equipment, including Government furnished equipment. (Workstations, printers, copiers, microwave, coffee pots, refrigerator, etc.)
 - 3. Communications Rooms: One (1) dedicated 120V, L5-20R, and two (2) dedicated duplex 5-20R type receptacles for each rack cabinet, in addition to one (1) duplex convenience receptacle every 6'-0" around the perimeter of the communication room.
 - 4. Administration (interior) area: One (1) duplex receptacle for every 10'-0" of wall space.
 - 5. Building Exterior: One (1) outdoor type, wall flush receptacle to comply with NFPA 70 National Electrical Code.

13.4 LIGHTING AND LIGHTING CONTROLS

- A. Follow the most current UFC-530-1 and the Tyndall IFS.
- B. Tyndall IFS states: Interior lighting must consist of LED fixtures of suitable lumen output, quantity, and construction for the environment and application. All interior lighting fixtures must be specified with a color temperature of 4000 Kelvin, and a color rendering index (CRI) of 90.
- C. Tyndall IFS states: All other exterior light fixtures attached to the building should comply with “turtle” lighting requirements including illumination color of 560 nm “amber”. Exterior lighting fixtures used must be certified by the Florida Fish and Wildlife Commission as “Wildlife Friendly” certified lighting.

14.0 TELECOMMUNICATIONS

- A. The telecommunication portion of this work must be completed and designed to the following specific applicable standards and codes in accordance with the TAFB IFS requirements.

14.1 COMMUNICATIONS BACKBONE

- A. Cable systems must be provided for this project to the Tyndall Base Network system.
- B. One (1) 2-inch conduits (one active, one spare) must be provided from the manhole to the Honor Guard facility’s telecommunications room and must terminate in a lockable equipment cabinet equipment.
- C. Conduits must be provided with pull strings for installation of utility backbone cabling.

14.2 COMMUNICATIONS BACKBONE: TAFB NIPR NETWORK

- A. The TAFB network backbone must be established using a 4-inch duct terminating at a wall-mounted lockable cabinet in the Honor Guard facility telecommunications room.
- B. Installed in the duct must be a 36-strand indoor/outdoor gel-free loose-tube, OS2 single mode fiber optic cable connecting to the base network and terminating to a cabinet mounted fiber optic patch panel in the base network rack. Fiber terminations and splices in will be at the direction of the Government. Fiber terminations inside the building must be duplex SC type utilizing fusion spliced pigtails.

14.3 COMMUNICATIONS ROOM INFRASTRUCTURE

- A. Each wall of the communications room must be provided with grade A-C plywood backboards, 3/4" thick and 8'-0" high on each wall, mounted 12" above the communications room floor. The plywood must be painted on all six (6) sides with 2 coats of fire-retardant paint.
- B. 6" wide by 4" deep finger-type wire managers with snap on covers must be provided around the perimeter of the room with vertical and horizontal runs as required to

support the structured cabling system.

- C. A floor-standing 42-unit, 19" wide cabinet with lockable and vented front and rear doors and integral ground terminal bar and vertical wire management system must be provided. All cabling, patch panels, servers, data bulkheads, UPS systems, and cabling associated with the Honor Guard facility.
- D. A wall mounted 22-unit, 19" wide cabinet with lockable and vented door and integral ground terminal bar and vertical wire management system must be provided for the Tyndall Base NIPRNet equipment. Installed in the rack will be a 24-port single mode fiber optic patch panel with duplex SC type connectors, a 24-port Category 6 rated RJ-45 copper patch panel, and rack mounted horizontal cable management modules located between each patch panel. The remaining space must be reserved for network switches, servers, UPS systems, and additional network equipment that is government furnished and installed.
- E. Each rack will be provided with one (1) L5-20R, 120V, and 20A locking receptacle in addition to two (2) standard duplex 5-20R receptacles with dedicated circuits from the telecommunications power panel. Receptacles for the Base Network cabinet must be mounted inside of the lockable cabinet to prevent accidental tampering.
- F. Horizontal cabling must be routed in conduit to from outlets to above ceiling in conduit. Cabling back to the telecommunications room must be supported and routed using J-hooks, as allowed per UFC 3-580-01 2-5.2.2.
- G. A ground bus bar with standoffs must be provided to bond all telecommunications equipment and pathways. The telecommunications buss bar must be connected to the electrical service entrance ground.
- H. Communications OSP A 36 strand fiber and 25 pair copper are to be installed into the new facility. The fiber can be picked up from MH-406 existing splice and the copper can be picked up from a direct v buried copper splice located near proposed facility. See Appendix R. OSP Scope.
- I. Fiber will originate from ITN 11660 but will be picked up in an existing splice in MH-406. The copper originates from bldg 649 will be picked up from a direct buried splice. Fusion splice for the fiber and 710 module or Amp Picabonds for the copper.
- J. Both can be pulled into a 4" conduit filled with 3X3" maxcell. Each cable can be pulled into the Maxcell.
- K. Innerduct 3X3" Maxcell will be required for one empty 4" conduit.

14.4 COMMUNICATIONS OUTLETS AND RECEPTACLES:

Outlets in the facility will consist of 2-port RJ-45 jacks green in color, one dedicated to **NIPR**, and the other for **VoIP**. One outlet must be provided in each telecommunication, electrical, and mechanical room.

15.0 FACILITY RELATED CONTROL SYSTEMS REQUIREMENTS (FRCS)

A. The design build contractor must provide the necessary Facility Related Controls Systems (FRCS) for the project to align with the Base of the Future (BoT) concept being implemented at Tyndall AFB. Appendix J Tyndall Rebuild FRCS Technology Summary details the specific requirements related to FRCS, but do not negate UFC requirements listed in this RFP. The design of the FRCS must allow monitoring at the operations level and have the ability to be viewable at any operations center at Tyndall AFB. The design build contractor must develop an Interface Schedule for the FRCS required for the facility and which systems must be directly and indirectly integrated to the installation wide Utility Monitoring and Controls System (UMCS) or Environmental Management Control System (EMCS). At a minimum, the following FRCS are to be provided for this facility.

1. UMCS/EMCS Utility Metering and systems interface
2. Building Controls System and Automation
3. Refer Appendix I 'FRCS Guide Deliverables Checklist' for definitions.

16.0 FIRE PROTECTION SYSTEM

Described as follows.

16.1 LIFE SAFETY

- A. The Designer of Record (DOR) is responsible for conducting a complete analysis of the design using life safety and building codes, UFCs and other requirements referenced in this RFP in order to provide a compliant design. None of the documentation included in this RFP alters the DBC's DOR responsibilities and liabilities. The design-build contractor's Qualified Fire Protection Engineer (QFPE) must review all interior finishes (ceiling, wall, and floor finishes) for compliance with the fire performance classifications of NFPA 101.
- B. The Design Build Contractor (DBC) must provide designs and construction in compliance with the Design Criteria presented herein. The DBC must fully develop Life Safety plans and analysis for each facility noting compliance with regulations and codes.
- C. In addition to the construction indicated in this RFP, additional smoke/fire rated construction must be required depending on the final design approach proposed by the DOR. Material changes to the design require Government approval prior to acceptance and inclusion into the design.
- D. It is the intent of the RFP to allow the DBC optional approaches to achieving conformance with the requirements of the various life safety related codes and regulations. By submission of an offer to the Government, the DBC acknowledges compliance with the conditions above and that all costs associated with compliance are reflected in the offered proposal.

16.2 FIRE ALARM SYSTEM

- A. The fire alarm and mass notification systems must be a combined system in compliance with UFC 3-600-01, UFC 4-021-01, and National Fire Protection Association (NFPA) 72 for the entire building. The new fire alarm system must include the initiation detectors for the sprinkler system. Ultra-sensitive sensors must be installed in the Data Center, Test Area, and similar priority areas. Fire alarm systems must be Siemens.
- B. Automatic sprinkler system in accordance with UFC 3-600-01 9-7.2.1.1 not required. Standpipe system is not required UFC 3-600-01 p-10.2.2. General purpose fire extinguishers for personal use must be provided in accordance with NFPA 101 and NFPA.

17.0 SUSTAINABLE DESIGN

- A. The Contractor must design and construct the new facility and related site work to meet the requirements of UFC 1-200-02 and to achieve Third Party certification under GBCI Guiding Principles Assessment or GBI Guiding Principles Compliance. Refer to Part 18 SUSTAINABLE DESIGN of this specification for specific requirements and criteria.
- B. Provide narratives and support documentation to demonstrate compliance with the various federal mandates for sustainability and energy/water use reduction that include, but not limited to UFC 1-200-02. Narratives and support documentation must be provided in the Design Analysis as a separate chapter to explain the approach for compliance with each requirement. The Design-Build design and construction team must have sustainable design and documentation equivalent to LEED Accredited Professionals (LEED AP's). Provide references to drawings and specifications for location of applicable features.

18.0 SIGNAGE

- A. Directional and warning markings must be placed on the pavement to assist with the flow of traffic.
 - 1. The markings must be thermoplastic.
 - 2. All POV traffic signs and markings must conform to the Manual on Uniform Traffic Control Devices for Streets and Highways, current edition.
- B. Provide one (1) Exterior freestanding building sign(s) per UFC and TAFB IFS at driveway entry – location to be selected by Base CE Architect.
- C. Provide one (1) building number per Tyndall IFS and Base standard. Location to be decided by Base CE Architect.
- D. Follow and provide an interior signage package per the UFC for Signage and UFGS for interior signage.

19.0 SYSTEM PLATFORM AND FILE FORMATS

- A. Follow and comply with the BIM/CAD/CIM Standards at the <https://www.wbdg.org/ffc/af-afceec/bim> and <https://cadbimcenter.erdcdren.mil/default.aspx?p=a&t=1&i=14>
- B. The Contractor must use the BIM, CIM, GIS, and CAD application(s), software(s), and file format(s) described below:
 1. The BIM submittal formats must be Autodesk Revit 2018, 2019, or 2020. The BIM submittals must be fully operable, compatible, and editable within the native BIM tools.
 - a. Provide a working BIM Construction Model created and updated during construction which incorporated the changes received during construction to including red-lines, requests for information (RFIs), and contract modifications at intervals during the construction process. These include updated construction phase facility/site data for installed components.
 - b. Minimum Level of Development (**LoD**) per USACE Minimum Modeling Matrix (M3) with a majority (90% of the BIM Model) of the LOD at 300.
 2. CAD Exports of BIM-Generated Sheets and Drawings Provide supplemental 2D CAD exports from the project BIM model. Export all contract drawing sheets in Autodesk AutoCAD 2018/2019 file format.
 3. CIM The CIM submittal format must be Autodesk Civil 3D 2018, 2019, or 2020. The CIM submittals must be fully operable, compatible, and editable within the native CIM tools.
 4. GIS All GIS databases must be submitted in Environment Systems Research Institute's (ESRI) ArcGIS Personal Geodatabase, Version 10.3 compliant with SDSFIE, Version 3.1 and with appropriate ISO 19115-1 metadata.

20.0 GOVERNMENT FURNISHED GIS

- A. The Government will provide the installation's latest georeferenced digital planimetric data and/or base map in ESRI Arc/Info 10.x format, with associated data files.
- B. The installation's latest ortho-rectified imagery and specified geospatial parameters (coordinate system, datum, projection, distance units).
- C. Any pertinent and necessary prototype or seed files.
- D. Other data or schematics deemed necessary for project completion, pending approval from the Project Manager or the GeoBase office.

21.0 OWNERSHIP AND RIGHTS OF DATA

- A. The Government has ownership of and rights at the date of Closeout Submittal to all CAD files, BIM/CIM Model(s), and Facility/Site Data developed in accordance with FAR Part 27. The Government may make use of this data following any deliverable.

APPENDICES

Appendix A	Description of Work
Appendix B	Additional Requirements
Appendix C	Conceptual Drawings
Appendix F	Tyndall Plant List: https://www.tyndallifs.com/images/landscape_master_plan/TAFB_MasterPlantPalette.pdf
Appendix H	Reserved for Future Use
Appendix I	FRCS Guide Deliverables Checklist
Appendix J	Initial Site 813 for Facility Approval - “AF813 - Construct Honor Guard Facility Rev A” – “Attach 1 - 813 Construct Honor Guard Facility Rev A” – “Attach 2 - 813 Construct Honor Guard Facility Rev A” – “HonorGuard-4000_withSite_2022_0606 C-100 - SITE PLAN Rev A”
Appendix M	HQ USAF A4C Memorandum for Tyndall AFB Design Wind Speeds And Envelope Protection https://www.tyndallifs.com/images/Home/Tyndall_Design_Wind_Speed_A4C-2_Memo.pdf HQ USAF A4C Memorandum For Tyndall AFB Design Flood Elevation (DFE) https://www.tyndallifs.com/images/Home/Tyndall_DFE_Memo.pdf
Appendix N	TAFB Exterior Materials, Finishes and Colors Palette
Appendix O	Site Topography “HG Topo Area Rev A”
Appendix Q	Site Utilities Locations “XLWU 21-8120 Site Utilities”
Appendix R	Reserved for Future Use
Appendix S	Location of Primary Transformer (GCEC)
Appendix T	2022_0630_TAFBHonorGuard_ExEquip