

# Appendix A Description of Work

## Construct Car Wash



Tyndall Air Force Base, Bay County, Florida

**TABLE OF CONTENTS**

**1.0 INTRODUCTION ..... 4**

*1.1 PROJECT PURPOSE AND SCOPE..... 4*

*1.2 DESIGN CRITERIA ..... 5*

*1.3 APPLICABLE STANDARDS ..... 5*

*1.4 FORCE PROTECTION DESIGN..... 5*

**2.0 CIVIL ..... 5**

*2.1 SITE DESCRIPTION..... 5*

*2.2 SITE WORK..... 6*

*2.3 ANTICIPATED QUANTITY OF VEHICLES DAILY..... 6*

*2.4 TOPOGRAPHIC UTILITY AND SURVEY..... 6*

*2.5 COORDINATION AND COLLABORATION WITH OTHER ADJACENT SITE PROJECTS ON BASE.... 7*

*2.6 DEMOLITION AND REMOVAL ..... 7*

*2.7 SITE GEOMETRY AND PAVEMENT DESIGN..... 8*

**3.0 STORMWATER, WATER AND SANITARY SEWER..... 10**

*3.1 STORMWATER COLLECTION AND MANAGEMENT..... 10*

*3.2 SITE CONTROL - EROSION AND SEDIMENT ..... 12*

*3.3 STORMWATER RETENTION..... 12*

**4.0 WATER SUPPLY AND SANITARY SEWER..... 12**

*4.1 BACKFLOW PREVENTER..... 13*

*4.2 WATER METER ..... 14*

*4.3 VALVES..... 14*

**5.0 WASTEWATER COLLECTION AND CONVEYANCE SYSTEMS..... 14**

*5.1 WASTEWATER PIPING ..... 15*

*5.2 OIL WATER SEPARATOR..... 15*

**6.0 EARTHWORK..... 15**

*6.1 GEOTECHNICAL DESIGN..... 15*

*6.2 CONTRACTOR'S GEOTECHNICAL REPORT ..... 16*

*6.3 GEOTECHNICAL ENGINEERING..... 18*

*6.4 BORROW MATERIAL..... 18*

*6.5 SOIL TREATMENT..... 19*

*6.6 CAPILLARY WATER BARRIER ..... 19*

**7.0 LANDSCAPE..... 19**

*7.1 LANDSCAPE PLAN ..... 19*

*7.2 LANDSCAPE PLANTINGS..... 20*

*7.3 PLANTING SOIL MATERIAL..... 21*

*7.4 SODDING..... 22*

*7.5 TEMPORARY IRRIGATION FOR PLANTS..... 22*

*7.6 COMPLETION, INSPECTION AND ACCEPTANCE..... 23*

**8.0 STRUCTURAL ..... 23**

**9.0 ARCHITECTURE ..... 25**

*9.1 MOCK-UP..... 26*

**10.0 AIR BARRIER REQUIREMENTS..... 27**

*10.1 INSPECTION ..... 27*

**11.0 MECHANICAL..... 28**

**12.0 PLUMBING SYSTEM..... 30**

**13.0 ELECTRICAL..... 31**

*13.1 POWER DISTRIBUTION SYSTEMS ..... 31*

*13.2 LIGHTNING AND GROUNDING PROTECTION ..... 32*

*13.3 CONVENIENCE AND POWER RECEPTACLES ..... 32*

*13.4 LIGHTING AND LIGHTING CONTROLS ..... 33*

**14.0 TELECOMMUNICATIONS ..... 34**

*14.1 COMMUNICATIONS BACKBONE, POINT OF SALE SYSTEM (POS) ..... 34*

*14.2 COMMUNICATIONS BACKBONE: TAFB NIPR NETWORK ..... 35*

*14.3 COMMUNICATIONS ROOM INFRASTRUCTURE..... 35*

*14.4 COMMUNICATIONS OUTLETS AND RECEPTACLES: ..... 36*

**15.0 FACILITY RELATED CONTROL SYSTEMS REQUIREMENTS (FRCS) ..... 36**

**16.0 FIRE PROTECTION SYSTEM ..... 36**

*16.1 LIFE SAFETY ..... 36*

*16.2 FIRE ALARM SYSTEM..... 37*

**17.0 SUSTAINABLE DESIGN..... 37**

**18.0 FURNITURE, FIXTURES AND EQUIPMENT (FF&E) REQUIREMENTS (INCLUDES AUDIO  
 VISUAL (AV)) (NOT APPLICABLE)..... 37**

**19.0 SIGNAGE ..... 38**

**20.0 RENDERINGS ..... 39**

**21.0 SYSTEM PLATFORM AND FILE FORMATS ..... 39**

*21.1. GOVERNMENT FURNISHED GIS ..... 40*

*21.2 OWNERSHIP AND RIGHTS OF DATA..... 40*

## 1.0 INTRODUCTION

### 1.1 PROJECT PURPOSE AND SCOPE

The scope of the project includes the design and construction of a new car wash facility and associated site and utilities work. The new car wash facility will contain three covered wash bays, a fully enclosed, equipment room, and an open-air vacuum area with four dedicated vacuum areas. When complete the car wash will include these areas:

1. One (1) Automated Touch-Free Wash Bay: One wash bay with a minimum clear width of 14 feet wide by 30 feet long and contain an automated touch-free vehicle washing system servicing passenger vehicles up to 11 feet high.
  - a. Open Bay Configuration
  - b. Remote Monitoring and Configuration
  - c. Low Maintenance Cost
  - d. Energy-Efficient Design
  - e. Low Water and Chemical Consumption
  - f. Local Distributor Support
  - g. 24/7 Technical Service Support
  - h. Non-corrosive materials used Stainless steels and aluminum
  - i. New stainless steel pump station design focused on Improved functionally and low maintenance costs
  - j. Virtual Treadle System utilizing sensors to direct the vehicle into the bay. The wash system shall have an electronic safety envelope surrounding the entire vehicle allowing the system to maintain optimum cleaning distance from the vehicle regardless of position in bay.
  - k. Automatic Obstacle Guidance System to avoid obstacles protruding from the vehicle
  - l. Front Bug Prep
  - m. Smart Drying System
2. Two (2) self-service Wash Bays: The two wash bays will have a minimum clear width of 14 feet wide by 50 feet long to accommodate passenger vehicles and recreational vehicles up to 14 feet high. Both self-service wash bays will have a complete commercial “in-bay” self-serve multifunction cleaning system.
  - a. One of the self-serve wash bays will have raised platform systems on each side of the wash bay to allow user access to upper portions of the vehicles for cleaning.
3. Car Wash Equipment Room: The equipment room will provide an enclosed space adjacent to the wash bays for the equipment required for the functioning of the car wash. The equipment room will also contain separate closets for electrical equipment and communications equipment.
  - a. Dedicated Communications Room

b. Dedicated Electrical Room

4. Four (4) Vacuum stations to accommodate 4 vehicles simultaneously is required. The vacuum facilities shall be located separately from the car wash bays in a location outside of the traffic patterns of vehicles entering and exiting the wash bays. The vacuum stations will be placed on 24” high concrete foundations.

## **1.2 DESIGN CRITERIA**

- A. Complete Issue for Construction deliverables including, but not exhaustive, construction drawings, specifications, and design analysis/calculations. The Issue for Construction Contract documents shall be of high professional quality, signed and sealed, technically accurate and compliant with all applicable codes, standards, memorandums and UFGS specifications.

## **1.3 APPLICABLE STANDARDS**

- A. All work shall be designed and constructed to meet all state and federal codes, standards and laws, including, but not exhaustive:
- Applicable Uniform Facilities Criteria (UFC)
  - USACE Safety and Health Requirements Manual (EM 385-1-1)
  - OSHA Requirements
  - ABA Requirements
  - Tyndall AFB IFS [www.tyndallifs.com](http://www.tyndallifs.com)
  - Applicable Technical Manuals
  - Applicable Air Force Instructions (AFIs)
  - Applicable Air Force Manuals (AFMAN)
- B. Refer to the Project Request for Proposal, as well as, [www.wbdg.org](http://www.wbdg.org) for a further list of codes and standards.

## **1.4 FORCE PROTECTION DESIGN**

- A. The facility is routinely occupied by fewer than 11 personnel and has a population density of less than one person per 430 gross square feet. It 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**

### **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, is 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, shall 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, shall be completed by the system owner. The prime contractor shall enter into a service connection agreement with the system owner and will 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 shall be observed. Any proposed changes from the concept site layout shall 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 shall be "jack and bored".

## **2.3 ANTICIPATED QUANTITY OF VEHICLES DAILY**

- A. The anticipated number of vehicles entering the site is 100 POV trips a day. The following vehicle proportions are:
  - 1. Ninety (90) POV cars per day
  - 2. Ten (10) POV trucks/motorhomes/boat trailers per day

## **2.4 TOPOGRAPHIC UTILITY AND SURVEY**

- A. The Contractor shall 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 shall 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 shall coordinate with the Government regarding any future utility installations that affect 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 AND COLLABORATION WITH OTHER ADJACENT SITE PROJECTS ON BASE**

- A. A new, Zone 4, Commercial Vehicle Inspection Gate and entry roadway is planned from US HWY 98 to Suwanee Ave., south of Barnes Rd. The preliminary Future Commercial Gate Entry road alignment is shown on the criteria drawings. The Contractor shall coordinate with Base Civil Engineering to acquire final design plans for new Commercial Gate Entry road and incorporate same into site design for this project.
- B. There will be other adjacent construction sites, "IROC", "Zone 5", etc. to the car wash area or work. The contractor is required to collaborate and coordinate with these adjacent construction sites in order to keep the project on time and schedule. It is a mandatory requirement that the contractor coordinate the design of the Car Wash facility with the adjacent projects and contractors for those contracts.

## **2.6 DEMOLITION AND REMOVAL**

- A. The site demolition at the car wash site will require the topsoil stripping, clearing, and grubbing of all the existing vegetation on the site. The Contractor shall provide the clearing and grubbing limits.
- B. The Contractor shall 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) shall be in place and approved by the Contracting Officer's Representative prior to initiating demolition work.
- C. All demolition debris shall be removed from the limits of Tyndall AFB and disposed of in a manner as required by law and Air Force regulations. The Contractor shall 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 shall 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 shall be paid by the Contractor. If any part of the performance of this contract is subcontracted, a provision substantially similar to the above shall 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 will be required to remove a portion of existing abandoned water main on the north 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. A portion of the existing curb will need to be removed to allow the north entrance/exit to be constructed. Pavements, curbs and sidewalks to be demolished shall be saw cut to a clean even edge.
3. The existing utilities along Suwannee Avenue and the sign on the northwest corner of the site will be protected as part of this project.
4. The existing swale along the east side of the project will be preserved.
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 shall be relocated or removed.
7. Existing Trees: Contractor shall clear trees as required to develop the site. The Contractor is encouraged to save on-site existing trees to the greatest extent possible. The Contractor shall erect and maintain existing tree protection fencing a minimum of 10-feet outside of the drip line of all existing trees proximate to the project site that will remain. Tree protection fencing shall be removed by the contractor at the end of construction activities. Refer to landscaping section for replacement criteria.

E. The Contractor shall 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 car wash site has vehicles entering or exiting Barnes Drive or the "Zone 4 Commercial Gate" future entrance control facility road on the south side of the site. Traffic flow through the main parking lot shall be two way. In Appendix B of this RFP, The concept site geometry plan presents the general geometric layout for the site work.
- B. The Contractor shall design the horizontal and vertical control, drainage, sidewalks, landscaping, site grading, stormwater management facilities, asphalt vehicular circulation area for personal vehicle (POV) ingress, egress and parking, water, sewer and other utilities (including fire hydrants, vacuum stations and area lighting) for the new Car Wash Facility



- C. All new facility downspouts shall connect into the new underground piped storm drainage collection system with a cast iron boot.
- D. NFPA: The Contractor shall ensure that the layout for the entire site, vehicular circulation areas, and access drives shall accommodate emergency and fire fighting vehicles and are in accordance with NFPA Standards for Fire Prevention Code. Special care shall be exercised to minimize traffic congestion in parking areas and hardstand areas. The Contractor shall ensure that all radii and widths of parking lots, access drives, and channelized turn lanes shall accommodate emergency and fire fighting vehicles.
- E. ABA/ADA Accessibility Code and Standards: All of the paved area/grades for pedestrians shall be designed for ABA/ADA standard criteria.
- F. Parking areas and vehicle circulation pavements shall be provided as generally indicated in the drawings. Concrete bumper blocks shall be installed in all parking stalls that abut sidewalks. Parking areas shall have lighting and be adequately drained.
1. Parking lot drainage shall be designed to provide adequate sheet flow drainage to a collection system. The slopes of the surface shall be held to the minimum required for drainage and to prevent ponding but shall 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 shall 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: The edges of pavement will be constructed with a concrete curb with a 6" reveal. The curb will have periodic curb cuts to allow the storm water runoff to exit the pavement and enter the dry detention basin on the south portion of the site. The removed curb Along Barnes Drive at the north entrance will be replaced with a valley gutter to allow for storm water runoff to continue to the west along the road.
- H. Pavement: All asphalt and concrete pavements structures shall 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](http://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 car wash 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 car wash site is 24. The HMA pavement section for the car wash site will be 2" of surface course (paved in two lifts) on 6" of graded crushed aggregate.
  2. New connections to existing asphalt or concrete pavements shall be accomplished by saw cutting the adjacent existing pavement. Minimum access drive pavement width shall be 26 feet from edge of pavement to edge of pavement, unless noted otherwise.

All traffic aisles shall be 26-feet wide within the vehicular circulation area, unless noted otherwise on the Site drawings. Traffic flow through the paved areas shall be two way unless shown otherwise. The Contractor shall consider the types of vehicles traversing and parking on these facilities and shall incorporate their requirements in the site design.

- I. Vehicle Circulation Area shall be provided as generally indicated in the drawings. The layout design of vehicular circulation areas shall conform to SSDCTEA 55-17 standards. Vehicular Circulation Area and Access Drives shall 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 shall provide traffic control signs and pavement markings per the applicable codes and standards. See Signage within this document for further information.
- K. Contractor shall coordinate with Zone 4 Commercial Gate DB Contractor regarding access tie-in location and the Zone 4 Final Denial Barriers. This access tie in must be outside the final position of Zone 4's Final Denial Barriers.

### **3.0 STORMWATER, WATER AND SANITARY SEWER**

#### **3.1 STORMWATER COLLECTION AND MANAGEMENT**

- A. The Contractor shall develop a storm drain/grading plan that will incorporate/include any off-site stormwater runoff. In particular to the site scope of work:
  - 1. Stormwater discharge from the site may outfall to the existing swale east of the site.
  - 2. The storm drainage shall consist of shallow 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 shall be rated to withstand heavy vehicle loading.
  - 3. All grading shall 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 shall not be steeper than 4-feet horizontal to 1-foot vertical.
- B. The site storm drainage system shall be designed for treatment of volume of stormwater 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 shall retain runoff volume from the 100-year, 24-hour storm event. The stormwater treatment facility system must provide the capacity for the appropriate treatment volume of stormwater 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 shall be included in the storm drainage calculations. Storm drainage system design shall be checked for a 100-year return event to ensure no flooding of the new facility. Storm drainage design shall 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. Stormwater Pipes:
1. Minimum pipe velocities shall be 2.0-ft/sec and the maximum shall be 5.0-ft/sec with outlet erosion protection.
  2. The minimum pipe size for an open pipe system shall be 18-inches and 15-inch for a closed system.
  3. The allowable pipe types under parking areas and areas subject to vehicular traffic shall include reinforced concrete pipe, type III or IV, as required. Pipe joints shall be watertight with gaskets. Drainage pipes not under areas of vehicular traffic may be HDPE or PVC.
  4. Storm drainpipes shall be grouted into the concrete structures to provide a watertight connection.
- E. Stormwater Pavement:The maximum allowable stormwater pavement spread shall not exceed 4-feet in width for a 10-year storm event. Sufficient inlets or flumes shall be provided to control drainage spread. The maximum interval for inlets or flumes shall be 300 feet. No inlets shall be provided in curb radii. The storm drainage system shall be designed to the 10-year storm frequency. There shall be no ponding at inlets for a 10-year storm.
- F. Concrete inlets/catch basins may be poured in-place or precast concrete. Precast manhole or inlet rings shall connect with industry standard gaskets. Locate stormwater 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 shall be galvanized. Where grating is to be used, it shall be of "Bicycle Tire Proof" design.
- H. Basins shall have 3-inch weep holes cast into the walls. The exterior of the weep holes shall receive a 1/4-inch wire mesh with a 12-inch width belt of crushed rock, ASTM 357.

### **3.2 SITE CONTROL - EROSION AND SEDIMENT**

- A. The proposed swales on the car wash site will have check dams placed in the bottoms to prevent illicit discharges of sediment from the site.
- B. The site will 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 will be stored and regulated for the site. The Contractor will 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**

- A. As a part of the contractor's geotechnical investigation, the contractor shall be responsible for securing all the required information necessary, e.g. soil infiltrometer 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 shall design and construct the new water supply utility services for the new facility. The Contractor shall provide water service line and connection to the existing water mains. The water utility facilities shall be designed and constructed in accordance with the criteria contained herein. The design of the water service line shall provide an adequate quantity of water at sufficient pressure for domestic use.
- B. The Contractor shall 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 shall 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 shall limit of utility main installation beneath the pavement.
  - 1. Water main alignments shall follow existing streets or utility corridors.
- D. The contractor shall be responsible for saw cutting and patching of pavements and sidewalks as required for installation of the water and wastewater system and shall 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 will 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 will construct all domestic water (not including fire) system exterior components up to the new facility's building 5-foot line.
- 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 shall coordinate all domestic water utility work with GCEC during design and construction.
- I. Building supply lines shall 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 shall be polyvinyl chloride (PVC) except where use dictates otherwise.
  - 2. The domestic water service for the car wash site will be a 2.5" line.
  - 3. All water piping 4-inches in diameter or greater shall be push-on joint PVC. Piping less than 4-inches in diameter shall be solvent-weld PVC.

#### **4.1 BACKFLOW PREVENTER**

- A. The contractor shall 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 principle assemblies and double check valve assemblies shall be tested, approved, and listed in accordance with FCCHR-01.
- B. All backflow preventers shall 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 shall be in accordance with ASME A112.1.2.

- D. All test cocks on all backflow preventers shall 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 shall have bronze valve seats. A "Re-Build Kit" (poppet replacement kit) shall be provided with each backflow preventer.
- F. The reduced pressure backflow preventer will be placed inside the building.

#### **4.2 WATER METER**

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

#### **4.3 VALVES**

- A. Curb stops or valves shall 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 shall be as required for the piping in which they are installed.
- B. Flanges shall not be buried.
- C. All valves shall be resilient- seat gate valves or approved equal.
- D. All service stops and valves shall 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 and new oil/water separator located adjacent to the site to the existing utility. The Contractor shall obtain written authorization from the sanitary sewer authority to connect sanitary sewer outfall from the Car Wash Facility to the existing system.
- B. The wastewater collection and conveyance system shall 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 shall comply with state and local regulations that apply, such as Chapter 62-600 of the Florida Administrative Code. The wastewater conveyance system shall comply with all the above requirements and shall be compatible with the wastewater to be conveyed.

- C. The 4” domestic sanitary service will tie into an existing sanitary lateral on the south side of the project site. Prior to the sanitary lateral the discharge flow from the facility will be treated by a 500 gallon oil/water separator. The OWS will also be placed in the grassed area between Suwannee Avenue and the west edge curb of the facility.
- D. A single building service by gravity does not require an FDEP permit.

## **5.1 WASTEWATER PIPING**

- A. Sanitary Sewer piping shall be PVC. Lines shall 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 shall be completed and submitted in accordance with section UFGS Submittal Procedures
- B. New sanitary sewer lines shall 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 shall be as required by the Florida Department of Environmental Protection (FDEP) standards for an individual facility service.
- E. The materials specified shall withstand the effects of the wastewater and not deteriorate as a result of pollutants in the wastewater.

## **5.2 OIL WATER SEPARATOR**

- A. A gravity oil/water separator shall be designed and installed to pretreat the car wash effluent before discharge to the Base wastewater collection system. The separator shall be designed to accommodate the wastewater flow of the car wash. The design shall conform to UFC 3-240-01 Wastewater Collection
- B. Industrial Drainage System: Bay areas shall drain to an oil-water separator. This drainage system shall be separate from the building sanitary system. The trench drains shall be parallel to the bay door.

## **6.0 EARTHWORK**

### **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.

1. Minor variations in subsurface conditions between borings should be anticipated. The Contractor's Geotechnical Engineer shall 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 shall 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 shall 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 shall be complete with recommendations specific to the geotechnical design requirements at the Scope of Work "site".
- B. The report shall be performed under the direction of and signed by a Florida licensed Professional Geotechnical engineer.
- C. All soil borings shall be abandoned in accordance with the following, minimum requirements:
  1. Each boring shall be measured for depth before it is sealed to ensure freedom from obstructions that may interfere with effective sealing operations.
  2. All borings shall be sealed by **backfilling** with concrete, grout, neat cement or a bentonite/cement mixture. All backfill material shall be placed into the borehole from the bottom to the top by pressure grouting with the positive displacement method (tremie method). Each borehole sealed shall 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 shall 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 shall be included in the borehole log.



4. The DBC shall 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 shall be continuously sampled by a split spoon sampler and standard penetration blow counts recorded.
  5. A dated **drilling log** shall 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 shall be cleaned and stable between sampling intervals.
  8. The approximate elevations and locations of borings drilled shall be provided on each boring log. Coordinates shall be in state plane +/- 1-foot horizontal.
- D. Should unusual or unexpected subsurface conditions be encountered that require additional investigation the contractor shall provide such as deemed necessary to design the proposed structure(s).
- E. The contractor shall 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 shall include all applicable calculations.
- F. The report shall specifically address the following:
1. Structures
    - a. The report shall 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, shall be provided.
  2. Pavements
    - a. The report shall recommend the allowable design CBR and modulus of subgrade reaction along with the required compaction effort for subgrades. Guidance shall be offered on the types of base course materials available in the area and design strengths.
  3. General Earthwork and Special Features
    - a. The report shall recommend any undercutting requirements, proof rolling requirements for subgrades, fill and backfill placement procedures, and types of compaction equipment to be used. The report shall outline earthwork procedures for special features such as retaining walls, buried utilities, and slope stability if applicable.
  4. Cathodic Protection and Grounding Systems

- a. The report shall include all pH tests, salinity tests, resistivity measurements, sulfate testing, etc., required to design corrosion control and/or grounding systems. The raw field data shall be provided in the report. The contractor shall design all corrosion control and grounding systems required for the project.
5. Dewatering
- a. The report shall determine project dewatering requirements. Based on historical geotechnical information, it is anticipated that groundwater will be encountered. If temporary construction dewatering is required due to high water table, the contractor shall 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 shall 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 shall provide inspection of excavations and soil/groundwater conditions throughout construction.
- B. The engineer shall 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, shall update the excavation, sheeting, shoring, and dewatering plans as construction progresses to reflect actual site conditions and shall 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 shall be available to meet with the Contracting Officer at any time throughout the contract duration.
- E. The DBC shall bear all costs of the registered Geotechnical Engineer.

### **6.4 BORROW MATERIAL**

- A. Borrow material will be obtained off site.
- B. Costs in connection with borrow material and disposal of materials shall 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 shall 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 shall be applied. Pesticide applications shall be made by state licensed and certified pest control personnel and in strict accordance with manufacturer's label instructions. The Contractor shall formulate, treat, store and dispose of the pesticides in accordance with manufacturer's instructions, and both State and Federal regulations. Applications shall 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 shall 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 shall 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 shall receive landscape treatment.
- C. Follow the TAFB landscape management requirements, including low maintenance grasses and sod that will be placed in and around each facility. (Found at [www.tyndallifs.com](http://www.tyndallifs.com)) Three feet of sod will be placed along all road and building edges. All other disturbed areas will be seeded and hardwood mulched. The Contractor will either use Bahia or Bermuda grass to accomplish this task.
- D. Any plant that cannot survive the grade alterations required by the civil design, shall be removed.

## **7.1 LANDSCAPE PLAN**

- A. A landscape plan, prepared by a Registered "Landscape Architect", will be required to develop the landscaped area around the New Car Wash Facility and parking area. The Landscape Architect shall develop a landscape concept plan based on the criteria herein and on the RFP drawings for Government review and approval. During design, the plan will be modified to reflect Government comments and will 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, Issue for Construction, landscape design. Provide drawings, narrative, and supporting documentation incorporating work as shown for all submittal deliverable phases. Provide marked-up specifications supporting work in this category.
- C. The DBC shall 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 will visually enhance the proposed building facility while complying with all applicable requirements.
- B. Landscape plantings shall be native/locally adaptive species of trees, shrubs, and groundcovers requiring minimal water and maintenance. Plant materials shall 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](http://www.tyndallifs.com) for Plant List. All selected plant material must be tolerable of the site's soil conditions. Landscaping shall utilize Xeriscape concepts of planting adaptive species requiring low to moderate water consumption.

### C. Trees:

1. Balled and Burlapped trees (B&B) shall be grown in and acclimated to the local geographic area for a period of six-months prior to planting. Small shrubs shall be minimum 18-inches to 24-inches in height, 3-gallon containers. Large shrubs shall be 5-feet to 6-feet in height, 30-gallon container or B&B. Groundcover plants shall 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 shall be immediately removed from the site and replaced with acceptable material at no cost to the Government.
3. All plant materials shall be protected from possible bark injury or breakage of branches. All plants transported by open trucks shall 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 shall 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 shall 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 hardwood mulch.
1. Mulch material shall be hardwood mulch 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- feet in diameter.
- G. Planting shall be located where it is shown on the plans or as otherwise approved. No planting holes shall be dug until the proposed locations have been staked on the ground by the contractor.
- H. Planting pits shall 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 shall be set to **finished grade**. No filling will be permitted around trunks or stems. All ropes, wire, stakes, etc. shall be removed from sides and tops of the ball and removed from hole before filling in.
- Q. All **flagging** ribbon shall be removed from trees and shrubs before planting.
- R. All fertilizers, pesticides, or other chemical amendments shall 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 project shall be sodded.
- B. At all new paved drives, paved parking area and concrete sidewalks, the DBC will 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 shall be seeded and mulched.
- D. Solid sodding shall be installed on all stormwater treatment facility slopes from pond bottom elevation to top of bank slope.
- E. If disturbed areas will be left for more than ten calendar days without construction activity, the Contractor shall install temporary seeding and mulching.
- F. Prior to sodding, loosen existing soil to a minimum depth of 4-inches. Top 4-inches shall 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 shall be specified in Section 32 92 23 SODDING.
- H. The sod shall be firm, tough texture, having compacted growth of grass with good root development. It shall contain no noxious weeds, or any other objectionable vegetation, fungus, insects, or disease. The soil embedded in the sod shall be good clean earth, free from stones and debris.
- I. Before being cut and lifted the sod shall 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 shall be laid with closely abutted joints with a tamped or rolled, even surface.
- K. The finish level of all sod areas after settlement shall be 2 inches below the top of abutting curbs, walks, paving and wood borders to allow for building turf.

#### **7.5 TEMPORARY IRRIGATION FOR PLANTS**

- A. A permanent irrigation system is not to be provided.
- B. The contractor shall provide temporary irrigation for landscaping installed and plant

establishment that will be utilized for a period of one full year from the date of final acceptance.

- C. The contractor will use a fire hydrant to supply the irrigation water during this period. Above-ground system is not allowed. After the one-year establishment period, the contractor will remove the temporary system and repair all disturbed areas.
- D. The contractor shall provide complete landscape maintenance including routine mowing, pruning, watering, weeding, and fertilizer for a period of 365 days. Maintenance shall be specified in Section 32 05 33, Landscape Establishment.

## **7.6 COMPLETION, INSPECTION AND ACCEPTANCE**

- A. Completion of the work shall 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 shall 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 shall 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. ROOF
  - 1. The New Car Wash Facility is to be constructed with an, elliptically curved, steel framed roof structure supported on load bearing concrete masonry units (CMU). The roof structure can be segmented creating a “curved look”, as expressed in the renderings, and Appendix B Drawings.
  - 2. The standing seam metal roof system is to be supported on a metal roof deck spanning between structural steel beams.
- C. WALLS

1. The exterior walls of each wash bay will be constructed with reinforced, partially grouted CMU.
2. The exterior cavity walls at the mechanical/ storage room space are to be constructed with a CMU veneer and load bearing, reinforced CMU with all cells grouted at vertical reinforcing.
3. The CMU wall is to be designed as a shear wall to resist the applicable lateral forces.

#### D. FOUNDATION

1. All exterior walls are to be supported on a concrete foundation wall on a continuous concrete footing. The depth of footing is to be below finished grade and will be adjusted to accommodate the bearing capacity of the existing subgrade soils.
2. Provide foundations as specifically addressed in IBC Chapter 18 as modified by UFC 3-301-01. Foundations shall 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

1. As determined by the DBC to be applicable, provide a standard concrete slab on grade. Provisions shall 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.
2. Depress slab where necessary for special floor finishes, and pits.
3. 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.
4. Provide perimeter insulation.



## 9.0 ARCHITECTURE

- A. Architectural scope of work will include design, detailing and specification of the building enclosure and interior environments for the Car Wash Facility as described in the provided RFP narrative documents and drawings.
- B. Provide drawings, design analysis, and supporting documentation incorporating work as shown. Provide marked-up UFGS specifications supporting work in this category.
- 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 shall meet the ABA Accessibility Standard for DoD Facilities unless otherwise noted.
- E. **Exterior Walls:** Exterior walls will be a combination of integrally colored Concrete Masonry Units (CMU) and prefinished metal wall panels. CMU will be composed of alternating bands of split-face and smooth-face/ground-face finishes matching the Tyndall AFB IFS color schemes. See [www.tyndallis.com](http://www.tyndallis.com) and renderings included in this RFP package.
  - 1. Cavity Wall: The cavity wall shall be comprised of Architectural concrete masonry unit veneer over concrete masonry unit back-up wall. Rigid insulation (R-5.7 min. Continuous) and a self- adhering vapor impermeable air barrier layer with a perm rating of 0.05 adhered to ½-inch thick fiberglass mat faced exterior sheathing over “z” furring shall be provided. All joints and openings in the rigid insulation shall be filled with urethane foam and taped to create a complete wall vapor barrier system. A minimum 2-inch open clear drainable cavity shall be provided between the waterproofing and the CMU veneer.
  - 2. CMU Veneer Installation: Provide a continuous 2” cavity as indicated. Install CMU veneer after sheathing, water proofing, insulation, masonry anchors, and flashing have been installed. Care shall be provided to avoid damaging the moisture barrier. Damaged moisture barrier and flashing shall be repaired or replaced before CMU veneer is installed. Means shall be provided to keep cavities clean and clear of mortar droppings.
  - 3. Wall cavities and veneer assemblies shall be provided with flashed weep holes for drainage.
  - 4. Provide masonry ties in accordance with all applicable UFC's, ETL's, Design Guides and building codes.
  - 5. **Interior walls** of the equipment room, electrical room and communications room will be utilitarian consisting of unfinished CMU.

6. Exterior Columns: Exterior column enclosures shall be constructed as indicated for exterior walls.
- F. Masonry mortar shall contain a water repellent admixture, which is added to the mortar during on-site mixing. All mortar will be uniform in color with no staining for minimum 1 year after the date of beneficial occupancy. Mortar color shall match the adjacent masonry.
- G. The thermal envelope for the building wall system is composed of rigid insulation installed over CMU. Install rigid roof insulation on top of the metal roof deck. Provide construction that provides minimum average R 25 c.i. value in the roof and R 5.7 c.i. for the walls. The vapor barrier of the wall assembly must interface with the roof membrane and windows and door frames for a complete vapor barrier.
- H. All exterior materials need to be corrosion resistant.
- I. All hardware for the car wash facility will be stainless steel.
- J. Ceilings / Soffits: Interior spaces will be exposed to the structure above with no ceilings. Exposed structure will be painted with paint color of a light reflectance value of 85% or higher.
- K. Exposed structure will be painted or galvanized for corrosion resistance.
- L. Exterior wash bays will contain water-tight prefinished aluminum soffits. Provide exterior soffit framing with a maximum deflection of L/360 for metal panels to comply with Miami-Dade High Velocity wind load requirements for impact resistance and product approval requirements which are contained in the "Tyndall AFB Design Wind Speeds and Building Envelope Protection" memorandum, and UFC 4-010-10.

## **9.1 MOCK-UP**

- A. Provide a mock-up panel, for the exterior masonry insulated cavity wall type, to establish that proposed materials and construction techniques provide acceptable visual effect. Materials used for mock-up should be those proposed for actual construction; retain samples of cement and aggregates used
- B. Job Mockup Panel: Minimum 4-feet by 4-feet
  1. Incorporate edge, reveal, and CMU veneer coursing detail as shown on drawings.
  2. Include Air barrier.
  3. Include insulation if applicable.
  4. Utilize full range of CMU veneer sizes, variance of CMU veneer size, general color of CMU veneer and variance in color and texture of CMU veneer.
  5. Show clean, pressure washed CMU veneer and concrete surface.

6. Utilized full range of color of concrete mortar joints.
7. Maintain Up for comparison with finish work. Mock-up panel may be included as part of the final construction once approved by the Government.

## **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 air-tightness throughout the building envelope and make flexible and seal all moving joints. Air barrier requirements shall 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) shall 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 shall 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:
    - a. 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 shall 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 shall 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. If other systems such as Fire Protection and Electrical systems are located within the mechanical room, all applicable design engineers will be consulted so as to provide a coordinated design.
- D. The Contractor will provide coordinated plans indicating the final layout of all mechanical rooms showing all equipment to be installed in the rooms and indicating clearly all required maintenance clearances.
- E. 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.
- F. Provide a sand separator before the oil water separator.
- G. Trench Drain shall be plain pattern with polished stainless steel perforated or slotted grate and bottom outlet. The drain shall be circular or square with a 12-inch overall width or diameter and 10-inch overall depth. Drain shall be sloped to prevent accumulation of liquids. Drains shall be cast iron with manufacturer's standard coating. Outlet shall be suitable for inside caulked connection to drain pipe. Drains shall conform to ASME A112.6.3.
- H. All Exposed piping to be painted/coated with phenolic epoxy to prevent corrosion and rust.
- I. Provide freeze protection as required. Provide freeze protection for above ground exterior applications. Pipe runs requiring freeze protection location and length to be protected.
- J. Provide heating and ventilation for the mechanical room.
- K. HVAC Space Design Criteria/ Utility Spaces

1. Comm rooms: The comm rooms are required to be cooled and heated per “Communications” set points. Each comm room shall 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” set points. Mechanical rooms shall be cooled by either the main building air-conditioning system or a dedicated fan-coil unit. Mechanical rooms shall 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” set points. Cooling for electrical rooms shall be provided by the central building HVAC system.
- L. 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 shall meet AGA requirements. Water heaters shall 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 shall be a minimum of 5 years.

## 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 shall 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 shall 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 50% for the sizing of the following systems:
    1. Domestic water piping service shall be provided to car wash equipment and hose bibs as required.
      - a. One hose bib shall be provided in each of Equipment Room 002, Wash bay 1 and Wash Bay 2.
      - b. The base prefers manual plumbing fixtures. If automatic plumbing fixtures are installed they are required to be hard wired.
    2. Sanitary drains, vents and cleanouts shall be provided for the plumbing system serving this facility.
      - a. Trench drains shall be provided for Wash Bay 1 and Wash Bay 2 as shown on the plan. Floor drains shall be provided in Equipment Room 002.
      - b. Condensate drain and piping shall be provided for the cooling unit AHU-1 serving Comm Room 004.
    3. Compressed air piping
    4. Waste and Vent Water heating system
    5. Natural gas distribution
    6. Roof Drainage System: SMACNA Calculations for Gutter and Downspout Sizing.
- B. Floor drains shall 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 shall have cast-iron body and ASME A112.6.2 grate. Provide trap primer on all floor drains.

### **13.0 ELECTRICAL**

- A. The following criteria is applicable to the design and construction of the automated Car Wash facility located at the corner of Barnes Drive and Suwannee Avenue.
- B. The electrical portion of this work shall be completed and designed to the following specific applicable standards, and the National Electrical Code (NEC) in accordance with the Request for Proposal, Appendices and Tyndall Air Force Base IFS requirements.

#### **13.1 POWER DISTRIBUTION SYSTEMS**

- A. Power for the facility will consist of 208/120V 5060 Hz three-phase four wire system in accordance with the RFP, derived from a pad-mounted transformer supplied by Gulf Coast Electrical Cooperative (GCEC).
- B. Primary service is expected to be supplied from an existing underground branch lateral near the site. The transformer will be located to minimize visual and construction impact of the project. The service transformer, transformer pad, grounding, primary conduits, and primary conductors will be provided and installed by GCEC.
- C. Base Ownership begins at the secondary lugs of the transformer.
- D. The service transformer secondary conductors will be routed underground in concrete encased Schedule 40 PVC ducts terminating at the service entrance equipment. Electrical and control circuits to site equipment such as vacuum stations and POS stations will be supplied using direct-buried schedule 40 PVC conduits. All underground conduits and duct banks will be provided with detectable warning tape installed above each run.
- E. The service entrance equipment will 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 will be equipped with a main circuit breaker, serving as the service entrance disconnecting means. The distribution panel board will supply branch circuit panel boards, in addition to powering the facility's car wash equipment and site equipment.
- F. A power panel labeled PPL-1 will 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.
- G. A dedicated branch circuit panel board labeled TPP-1 will be installed in the telecommunication room to serve the telecommunications racks and convenience receptacles.

- H. Externally mounted surge protection devices (SPDs) will be supplied to protect the service entrance distribution panel MPP-1 and telecommunications panel TPP-1.

### **13.2 LIGHTNING AND GROUNDING PROTECTION**

- A. A ground ring consisting of #4/0 bare tinned copper conductors will 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 will be bonded to the ground ring.
- B. A #4/0 conductor will be extended to the service entrance panel MPL-1, and the panel bonded to the ground ring. A ground test well will be integrated in the ground ring for testing and maintenance.
- C. A ground bar will be provided in the telecommunications room for grounding all sensitive electronic equipment and distribution pathways. The telecommunications ground bar will be bonded directly to the service entrance ground in the main distribution panel using a #1 AWG insulated conductor in conduit.
- D. An Underwriter's Laboratory (UL) Master Labeled lightning protection system will be installed on the roof of the building.
- E. Perimeter air terminals will be provided in accordance with NFPA 780. Class I lightning protection conductors will be installed interconnecting the air terminals, routed interior to the building in PVC conduit.
- F. Two (2) down conductor paths will be installed at opposite corners of the building terminating at the ground ring's corner ground rods. Down conductors will be routed interior to the building in PVC or fiberglass conduit.
- G. All fall protection hard-points, flues, and other protrusions through the roof will be bonded to the lightning protection system.

### **13.3 CONVENIENCE AND POWER RECEPTACLES**

- A. Convenience power and receptacles will be provided throughout the facility in accordance with the following provisions:
  1. Mechanical Equipment: Receptacle(s) provided with fifteen (15) feet of equipment at the interior and exterior of the building.
  2. Dedicated Outlets: Dedicated outlets will be provided to serve all proposed equipment, including Government furnished equipment, and car wash equipment.
  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. Car Wash Equipment Room: One (1) duplex receptacle for every 10’-0” of wall space.
5. Wash Bays: One (1) duplex GFCI receptacle with weatherproof cover for convenience during maintenance.
6. Building Exterior: One (1) duplex GFCI receptacle with weatherproof cover located at the entrance to the mechanical equipment room, and additional receptacles as needed for mechanical equipment.

### 13.4 LIGHTING AND LIGHTING CONTROLS

A. Interior lighting will consist of LED fixtures of suitable lumen output, quantity, and construction for the environment and application. Lighting levels for each space are calculated in accordance with the recommendations in UFC-530-1 and the IESNA handbook to within +/- 10% of target levels:

<b>Target Lighting Levels: Car Wash</b>		
<b>Room/Space</b>	<b>Work plane Height</b>	<b>Average Illuminance (FC)</b>
Communications Room	3’-0”	50
Mech/Elec/Equipment Room	3’-6”	20
Wash Bays	Floor	15

- B. Suspended and surface mounted lensed strip lights will be provided for all interior spaces including electrical, mechanical, equipment, and communication rooms. All interior lighting fixtures will be specified with a color temperature of 4000 Kelvin, and a color rendering index (CRI) of 90.
- C. Fixtures located in the wash bays will vapor-tight NEMA 4X rated lensed fixtures with captive latches mounted on the walls.
- D. Exterior light fixtures, in the wash bay, must comply with “Turtle” lighting requirements for timers. The wash bay lighting should turn off but have a light quality of 4000K 80CRI. Wash bay lighting will utilize occupancy/motion sensor and time-clock controls. The automatic wash bay lighting will turn on to 100% when a car is sensed and will turn off after 5 minutes of in occupancy. The self-service wash bay will raise lighting to 100% once motion or car is sensed and will turn off after 15 minutes of in occupancy. Both wash bays will be time clock controlled and will turn off lights after business hours.
- E. All other exterior light fixtures attached and unattached to the building should comply with “turtle” lighting requirements including illumination color of 560 nm “amber”. Exterior lighting fixtures used will be certified by the Florida Fish and Wildlife Commission as “Wildlife Friendly” certified lighting.

- F. Select fixtures will be provided with emergency battery packs to provide egress and emergency lighting in the event of a power outage. The exterior wall packs to be specified with integral photocells and motion sensors. Fixtures shall be programmed to dim output to 20% after 5 minutes of absence of motion and shall operate on photocell from dusk to dawn. The exterior wall packs will be integrated into a time clock contactor.
- G. Lighting levels along the egress path will be calculated to provide a minimum 1 foot-candle average illuminance, with a minimum of 0.1 foot-candles, and a maximum to minimum ratio not exceeding 20:1.
- H. Manual on and off control using conventional single pole switches will be utilized in mechanical, equipment, electrical, and telecommunication rooms in accordance with UFC 3-530-1.
- I. Site and roadway lighting will be designed by GCEC using the TAFB IFS ([www.tyndallifs.com](http://www.tyndallifs.com)) area/site luminaires that are furnished by GCEC and base standard. Fixtures poles, luminaires, wiring, controls and other provided and controlled by GCEC. The site lighting layout shown on the drawings provided with this submission package indicate a plausible layout for site lighting. GCEC will use this information to complete the design.
- J. Target lighting levels for parking areas will comply with the TAFB Installation Facility Standards (TAFB IFS) [www.tyndallifs.com](http://www.tyndallifs.com).

#### **14.0 TELECOMMUNICATIONS**

- A. The telecommunication portion of this work shall be completed and designed to the following specific applicable standards and codes in accordance with the Request for Proposal and TAFB Base requirements. For additional codes and standards applicable to the project.

#### **14.1 COMMUNICATIONS BACKBONE, POINT OF SALE SYSTEM (POS)**

- A. Two separate backbone cabling systems will be provided for this project, consisting of the car wash POS system components and the Tyndall Base Network system.
- B. The POS system backbone will originate from existing telecommunications manhole #404. Two (2) 2-inch concrete encased conduits (one active, one spare) will be provided from manhole #404 to the car wash facility's telecommunications room and will terminate in a lockable equipment cabinet dedicated to the POS system equipment.
- C. Conduits will be provided with pull strings for installation of utility backbone cabling. The establishment of the POS network service will be provided by the car wash system manufacturer.
- D. Provide a POS system that is a kiosk(s) for customer self-service and payment by cash

and credit card.

#### **14.2 COMMUNICATIONS BACKBONE: TAFB NIPR NETWORK**

- A. The TAFB network backbone will be established from manhole #404 using a concrete-encased 4-inch duct terminating at a wall-mounted lockable cabinet in the car wash facility telecommunications room.
- B. Installed in the duct will be a 24-strand indoor/outdoor gel-free loose-tube, OS2 single mode fiber optic cable connecting to the base network in manhole #404 and terminating to a cabinet mounted fiber optic patch panel in the base network rack. Fiber terminations and splices in manhole #404 will be at the direction of the Government. Fiber terminations inside the building shall be duplex SC type utilizing fusion spliced pigtailed

#### **14.3 COMMUNICATIONS ROOM INFRASTRUCTURE**

- A. Each wall of the communications room will 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 will 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 will 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 will be provided for the POS system equipment. All cabling, patch panels, servers, data bulkheads, UPS systems, and cabling associated with the car wash POS system will be provided by the car wash system manufacturer.
- D. A wall mounted 22-unit, 19" wide cabinet with lockable and vented door and integral ground terminal bar and vertical wire management system will 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 will 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 POS system will be mounted above and immediately adjacent to the rack. Receptacles for the Base Network cabinet will be mounted inside of the lockable cabinet to prevent accidental tampering.

- F. Horizontal cabling will be routed in conduit to from outlets to above ceiling in conduit. Cabling back to the telecommunications room will 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 will be provided to bond all telecommunications equipment and pathways. The telecommunications buss bar will be connected to the electrical service entrance ground.

#### **14.4 COMMUNICATIONS OUTLETS AND RECEPTACLES:**

- A. 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 will be provided in each telecommunication, electrical, and mechanical room.

#### **15.0 FACILITY RELATED CONTROL SYSTEMS REQUIREMENTS (FRCS)**

- A. The design build contractor shall 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 shall develop an Interface Schedule for the FRCS required for the facility and which systems shall 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

#### **16.0 FIRE PROTECTION SYSTEM**

##### **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) shall 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) will provide designs and construction in compliance with the Design Criteria presented herein. The DBC will 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 may 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 shall 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 shall 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 shall be Siemens.
- B. No fire alarm and detection system are required for this building. 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 shall be provided in accordance with NFPA 101 and NFPA.

## **17.0 SUSTAINABLE DESIGN**

- A. The Contractor shall 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 shall 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 shall 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 FURNITURE, FIXTURES AND EQUIPMENT (FF&E) REQUIREMENTS (includes Audio Visual (AV)) (Not applicable)**

- A. The FF&E documents include the design and specification of all moveable furnishings for all occupied and unoccupied areas. Follow the UFC for SID for the requirements of an FFE binder for submittal to Base CE for review and approval. All movable furnishings

designed under the base bid shall be purchased by the Contractor from sources that have current General Services Administration Federal Supply contracts, in accordance with the Federal Acquisition Regulations (FAR) Part 8 Required Sources of Supply and FAR Part 51. In addition to the cost of the moveable furnishings, the following shall be included in the total price of the FF&E:

1. The Contractor's administrative costs associated with procurement and coordination and labor cost associated with receiving, staging, installation (including hardwire, voice and data connections if required),
  2. adjustments and leveling,
  3. trash removal and disposal,
  4. And finish touch-ups.
- B. All DBC services involving moveable furnishings shall be completed within the specified construction contract completion date for the building.
- C. In addition to other pertinent FFE - Provide Waste and recycling containers.

## **19.0 SIGNAGE**

- A. Directional and warning markings shall be placed on the pavement to assist with the flow of traffic.
1. The markings will be thermoplastic.
  2. Stop signs and stop bars will be placed at both exit locations.
  3. A crosswalk markings shall be placed, as required, especially on the south entrance/exit drive where a future sidewalk is planned to cross the entrance/exit.
  4. All POV traffic signs and markings shall conform to the Manual on Uniform Traffic Control Devices for Streets and Highways, current edition.
- B. Provide two (2) Exterior freestanding building sign(s) per UFC and TAFB IFS
- C. Provide two (2) building number per Tyndall IFS and Base standard.
- D. Provide Signage for the car wash operational instructions (rules of usage, hours, restrictions, etc.) will be provided by others.
1. Include (2) 24" x 36" wall mounted instructional/operational signs per bay. Include stainless steel fasteners. Signage material shall be heavy gauge (0.080) aluminum with weather proof graphics. Locations and graphics and sizes to be confirmed with the user group.
  2. Provide (6) 8 x 24" directional signs.

- E. Provide In-bay signage to inform customers on how to use the products will be provided. Signage will have pictorial images for the product in use and a “menu board” of product descriptions to aid the car wash user.
- F. Signage marking the entrances and exits of the wash bays, the direction of traffic thru the wash bays and to the vacuum areas shall be provided.

## 20.0 RENDERINGS

- A. Utilize Revit 2020 or older (2019, etc...) to create BIM deliverables.
- B. Provide renderings at interim and final design reviews for Base Architectural Review Board review, comment and approval.
  - 1. Renderings should be done in a render program like V-Ray, etc. Which will show the material selections reaction to the sun.
    - a. Use June 21, Summer Solstice at to render.
    - b. Height of the camera should be 6'-0" for the front entry view.
    - c. Provide, unframed 11 x 17 sized rendering.
    - d. Borders on the printed 11 x 17 should be ¼" maximum.
    - e. Provide digital files in .pdf, .jpeg at interim and reviews
    - f. Provide renderings at Issue for Construction. Provide digital files in .pdf, .jpeg and .tiff file types at Issue for Construction.
    - g. Views should be rendered at minimum 600 dpi and maximum 1200 dpi.
    - h. Do not “Photoshop in” trees, cars, people, etc... just the building finishes.
    - i. Provide two minimum total renderings -one rendering showing the back and side and one rendering showing the front and other side of the building.

## 21.0 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 shall use the BIM, CIM, GIS, and CAD application(s), software(s), and file format(s) described below:
  - 1. The BIM submittal formats shall be Autodesk Revit 2018, 2019, or 2020. The BIM submittals shall 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. The CIM submittal format shall be Autodesk Civil 3D 2018, 2019, or 2020. The CIM submittals shall be fully operable, compatible, and editable within the native CIM tools.
4. All GIS databases shall 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.

### **21.1. GOVERNMENT FURNISHED GIS**

- A. The Government will provide the installation's latest georeferenced digital plan metric 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.

### **21.2 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.