**6. ENGINEERING SYSTEMS REQUIREMENTS**

**G20 SITE IMPROVEMENTS**

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SYSTEMS REQUIREMENTS  
SITE IMPROVEMENTS TEMPLATE 09/22  
  
Instructions for using this template: There are template files for each UNIFORMAT Level 2 Group Elements. This template is for Group Element G20-SITE IMPROVEMENTS. Text such as this is hidden text that will not print when the hidden text box in "Print/Options" is un-checked.  
  
The Civil Member must edit this template for the requirements of the project. The Landscape Architect Member must edit the G2050 portion of this section for landscaping if required for the project. The SYSTEMS REQUIREMENTS are intended to define items that are required for the site work. Editing is required where brackets [ ] appear. Delete all building elements that are not required for the project. If additional elements or sub-elements are required for the project that do not appear in the template, refer to the NAVFAC DB RFP Web Site Uniformat II/ WBS for additional site element numbers and descriptions. The Uniformat II Work Breakdown Structure can be found at** [**www.wbdg.org/ndbm/**](http://www.wbdg.org/ndbm/) **. Coordinate with the PERFORMANCE TECHNICAL SPECIFICATION SECTION G20 to ensure that performance requirements are provided for all of the Site Elements listed here and that paragraph numbering matches.  
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NOTE: Edit the following paragraphs to suit the project, or create your own, to describe the SITE IMPROVEMENTS for the project. Coordinate this section carefully with other portions of the RFP.  
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NOTE: Consider site improvement activities and components relative to Part 2 UFGS Section 01 33 29, *Sustainability Requirements and Reporting*and UFC 1-200-02, *High Performance and Sustainable Building Requirements*.  
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NOTE: A blank Permits Record of Decision (PROD) form is included in Part 6 of the Standard Template Complete Set zip file on the WBDG Design-Build Request for Proposal page.  
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**SYSTEM DESCRIPTION**  
Provide site improvements that support project sustainability goals of& Part 2 UFGS Section 01 33 29, *Sustainability Requirements and Reporting*.

The site improvements consist of pavements and pavement related features, landscaping and other exterior site development work related to this project. Provide a pavement design by a licensed Professional Engineer familiar with conditions local to the project site. Site design, including but not limited to design of parking and pedestrian circulation, will include coordination with the Civil Engineer and the Landscape Architect.

**GENERAL SYSTEMS REQUIREMENTS**  
Provide site improvements as required to make a useable facility that meets functional and operational requirements, incorporates all applicable anti-terrorism, force protection and physical security requirements and blends into the existing environment.

Provide accessibility in conformance with requirements of [UFC 1-200-01](https://www.wbdg.org/ffc/dod/unified-facilities-criteria-ufc/ufc-1-200-01) , *DoD Building Code (General Building Requirements).*

Identify and obtain permits to comply with federal, state, and local regulatory requirements associated with this work. Complete the Permits Record of Decision (PROD) form with the first design submittal package. Determine correct permit fees and pay said fees. Forward copies of permits, permit applications, and the completed PROD form to the Government's Civil Reviewer. Perform work in accordance with the obtained permits.

Minimize the impact of construction activity on operations and neighboring facilities.

Locate new site improvements at locations indicated on the drawings in another part of this RFP. If specific locations are not provided, site the improvements to develop appropriate and positive relationships with other facilities and to conform to existing development patterns.

Refer to Site Analysis and Building Requirements Sections for additional site improvement functional program information.

**G2010 ROADWAYS**

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*   
NOTE: Indicate project requirements here.  
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Provide roadways, as required, to allow for safe, convenient and logical circulation, while discouraging through traffic. Design pavements based on the anticipated daily traffic ([\_\_\_] cars, [\_\_\_] single unit trucks, [\_\_\_] H20 loadings) over the life of the project ([25] [\_\_\_] years) as well as the existing soil conditions at the site.

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NOTE: Indicate Activity's pavement preferences. Permeable paving materials include pervious concrete and permeable interlocking concrete pavers. Aggregate pavements may be required on certain projects.  
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Provide roadways of [bituminous pavement][Portland cement concrete (PCC) pavement][\_\_\_\_\_\_] [where indicated on the drawings in Part 6]. [Permeable pavement is not allowed.] Aggregate pavement may [not] be used.

[Provide new roadway and other pavement sections as required by soil conditions and determined by the Designer of Record. Design pavement sections in accordance with UFC 3-201-01 *Civil Engineering*.] [Provide pavement sections as indicated or specified in this RFP.]

Provide other roadway improvements including [bus stops ][traffic signalization ][markings ] [signage ][\_\_\_\_\_].

[Where street or roads are adjacent to median planting, provide a minimum [2 feet (600 mm) wide (including curb)] [ ] concrete maintenance walk adjacent to street or road to allow for landscape [and irrigation] maintenance.]

[Include adequate space for trees and other landscape material in the design for streets, roads, and parking lots in accordance with PTS G2050.]

**G201001 BASES & SUBBASES**

[The following materials will not be allowed for base or subbase courses: [bituminous concrete,] [lean concrete,] [cement stabilized,] [sand-clay,] [lime rock,] [shell,] [crushed concrete,] [reclaimed asphalt,] [or] [ ].]

**G201002 CURBS & GUTTERS**

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NOTE: Include requirement below when the Activity prefers curb and gutter. Delete this section if not required.  
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Provide curb and gutter to tie into adjacent facilities.

**G201003 PAVED SURFACES**

[Provide Portland cement concrete with a minimum design flexural strength of 650 psi (4.48 MPa) in not more than 28 days.]

Recycled asphalt pavement material may [not] be used for [bituminous] [concrete] pavement [as permitted by the SHS].

**G201004 MARKING & SIGNAGE**

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NOTE: Indicate Activity's preferences on pavement markings and signage, especially where required to tie into existing site elements. Also indicate any temporary markings and signage needed to meet phasing requirements. Coordinate with PTS Section G201004. \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

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NOTE: The RFP writer must coordinate with the BEAP to provide acceptable options for the Design Builder to provide an acceptable design. If base standards are available, they must be included in the RFP.  
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Provide pavement markings [including crosswalks] [to match existing] [in accordance with the Manual on Uniform Traffic Control Devices (MUTCD)] [UFC 3-201-01] [base standards] [state or local standards] [\_\_\_\_].

Provide signage [to match existing] [in accordance with the MUTCD] [UFC 3-201-01] [base standards] [state or local standards] [\_\_\_\_\_].

Provide temporary pavement markings and signage throughout construction to meet phasing requirements indicated in the project program. Provide temporary signage in accordance with the MUTCD.

**G201005 GUARDRAILS & BARRIERS**

Provide [guardrails], [wheelstops], [and] [bollards] in accordance with UFC 3-201-01, *Civil Engineering*.

**G201006 RESURFACING**

Provide resurfacing of existing pavement by [slurry seal,][bituminous surface treatment,][or][bituminous overlay].

**G201090 OTHER ROADWAYS**

**G2020 PARKING LOTS**

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*   
NOTE: Indicate project requirements here.  
\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

Provide parking for \_\_\_\_\_ vehicles [above and beyond the existing parking area]. The design of pavements must include the anticipated daily traffic ([\_\_\_] cars, [\_\_\_] single unit trucks, [\_\_\_] H20 loadings) over the life of the project ([20] [\_\_\_] years) as well as the existing soil conditions at the site.

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NOTE: Indicate Activity's pavement preferences. Permeable paving materials include permeable interlocking concrete pavers and pervious concrete. Aggregate pavements may be required on certain projects.  
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Provide parking lots of [bituminous pavement] [Portland cement concrete (PCC) pavement] [permeable pavement] [\_\_\_\_\_] [where indicated on the drawings in Part 6]. [Provide permeable pavement by [permeable interlocking concrete pavers] [or] [pervious concrete]; porous asphalt must not be used]. Aggregate pavement may [not] used.

[Provide new parking and other pavement sections as required by soil conditions and determined by Designer of Record. Design pavement sections in accordance with UFC 3-201-01 *Civil Engineering*.] [Provide pavement sections as indicated or specified in this RFP.]

Provide other parking improvements including [\_\_\_\_\_ parking entrances for [one] [two] way traffic] [\_\_\_\_\_motorcycle parking stalls ][\_\_\_\_\_bicycle stalls ] [separate service drive for delivery vehicles] [drive-up drop-off access] [markings ][signage ][landscaping ][\_\_\_\_\_]. [See ESR G2050 for parking lot landscape requirements.]

Provide handicapped parking in accordance with [UFC 1-200-01](http://www.wbdg.org/ccb/browse_doc.php?d=400) , *DoD Building Code (General Building Requirements)*.

**G202001 BASES & SUBBASES**

Crushed concrete meeting specified gradation for aggregate base or subbase courses may [not] be used.

**G202002 CURBS & GUTTERS**

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NOTE: Include requirement below when the Activity prefers curb and gutter. \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

Provide curb and gutter to tie into adjacent facilities.

**G202003 PAVED SURFACES**

[Portland cement concrete must have a minimum design compressive strength of 4000 psi (27.58 MPa) in not more than 28 days.]

Recycled asphalt pavement material may [not] be used for bituminous. Concrete pavement (as permitted by the SHS).

**G202004 MARKING & SIGNAGE**

Provide permanent and temporary markings (pavement, curb and object), signage (regulatory, warning and guidance) and other traffic control devices as required to facilitate proper utilization of the parking areas.

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NOTE: Indicate Activity's preferences on pavement markings and signage, especially where required to tie into existing site elements. Also indicate any temporary markings and signage needed to meet phasing requirements. Coordinate with PTS Section G201004. \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

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NOTE: The RFP writer must coordinate with the BEAP to provide acceptable options for the Design Builder to provide an acceptable design. If base standards are available, they must be included in the RFP.  
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Provide pavement markings [including crosswalks] [to match existing] [in accordance with the MUTCD] [base standards] [state or local standards] [\_\_\_\_\_].

Provide signage [to match existing] [in accordance with the MUTCD] [base standards] [state or local standards] [\_\_\_\_\_].

Provide temporary pavement markings and signage to meet phasing requirements indicated in the Project Program. Provide temporary signage in accordance with the MUTCD.

**G202005 GUARDRAILS & BARRIERS**

Provide [guardrails], [wheel stops], [and] [bollards] in accordance with UFC 3-201-01, *Civil Engineering*.

**G202006 RESURFACING**

Provide resurfacing of existing pavement by [slurry seal,][bituminous surface treatment,][or][bituminous overlay].

**G202007 MISCELLANEOUS STRUCTURES AND EQUIPMENT**

**G202090 OTHER PARKING LOTS**

**G2030 PEDESTRIAN PAVING**

Provide a network of [Portland cement concrete (PCC)] [PCC with colors embedded in the mix, stamped with special patterns] [solid concrete pavers] [brick pavers] [permeable interlocking concrete pavers] [concrete grid pavers] [pervious concrete] sidewalks, separated from, but connected to vehicular circulation systems, to allow for pedestrian circulation between various new and existing elements of the project. Interface new pedestrian circulation systems with existing pedestrian circulation systems and include input from the Civil Engineer, Architect, and Landscape Architect.

**G203001 BASES & SUBBASES**

**G203002 CURBS & GUTTERS**

**G203003 PAVED SURFACES**

**G203004 GUARDRAILS & BARRIERS**

**G203005 RESURFACING**

**G203006 OTHER WALKS, STEPS & TERRACES**

**G2040 SITE DEVELOPMENT**

**G204001 FENCING & GATES**

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NOTE: The RFP writer should coordinate with the BEAP to provide acceptable options for the Design Builder to provide an acceptable design. If base standards are available, they should be included in the RFP.  
  
Refer to UFC 3-200-10N for specific requirements.  
  
It is not anticipated to have an ornamental (wrought iron or wooden) fence on a hangar project, so these references should be deleted.  
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Provide [chain link][ornamental][security] [and] [\_\_\_\_\_] fence [as indicated on the drawings in Part 6].

[Provide [zinc-coated steel fencing components in accordance with FS RR-F-191/1, Type 1] [polyvinyl chloride (PVC) coated over zinc-coated steel fencing components in accordance with FS RR-F-191/1, Type IV] for the fencing system. [Provide a PVC coating with color and a minimum thickness of 0.10 inch (2 mm).] Provide [[top] [and] [bottom] tension wires] [and] [[top] [and] [bottom] rails]; where tying into an existing fence, match fencing system. ]

[Provide an ornamental fence of [wrought iron] [wood] [ ]. ]

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NOTE: UFC 4-022-03, *Security Fences and Gates*, indicates that two single-line fences may be used, when specified by the local commander, to surround a restricted area. Unless otherwise directed all security and perimeter fencing must have a minimum fence fabric height of 7 feet (2.13 m).   
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[For the security fence, provide [one] [two] single line fence[s] surrounding the restricted area. Provide security clear zones as required. Ensure that the fabric height is at least [7 feet (2.1 m)][ feet ( meters)]. Provide outriggers and [three][ ] strands of barbed wire. ] Design security fencing in accordance with UFC 4-022-03, *Security Fences and Gates*.

**G204002 RETAINING AND FREESTANDING WALLS**

**G204003 EXTERIOR FURNISHINGS**

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NOTE: Picnic areas (to include tables and barbecues) are not a standard requirement for hangar projects, so these references should be deleted.  
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All site furnishings are required to conform to the Base Exterior Architectural Plan (BEAP) and the Installation Appearance Plan (IAP). Provide [picnic tables][trash receptacles][benches] [barbecues] [recycling receptacles] [hot ash receptacles] [\_\_\_\_\_\_] [as indicated on the drawings in Part 6]. At a minimum, provide a trash and ash receptacle at the designated smoking area.

**G204004 SECURITY STRUCTURES**

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NOTE: The RFP writer must coordinate requirements with base security to provide acceptable options for the Design Builder to provide a secure facility. If base standards are available, they must be included in the RFP. It is not anticipated, however, that security structures would be required at the flightline security fence (outside of a standard gated entrance). Therefore, on a hangar project, this section should be deleted.  
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**G204005 SIGNAGE**

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NOTE: Coordinate with Activity on special signage required for the project. \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

Provide signage in accordance with the Activity's BEAP and the Installation Appearance Plan.

**G204008 TERRACE AND PERIMETER WALLS**

**G204009 FLAGPOLES**

**G204090 OTHER SITE IMPROVEMENTS**

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NOTE: The RFP writer should coordinate requirements with the base BEAP to provide acceptable options for the Design Builder to provide an acceptable design. If base standards are available, they should be included in the RFP, while complying with all applicable anti-terrorism, force protection and physical security requirements  
  
Refer to UFC 4-010-01 for specific requirements relating to minimum setback standards for buildings.  
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[Provide dumpster pad and enclosure conforming to the Activity's BEAP and Installation Appearance Plan.] [Provide double metal gate with self-closing mechanism.]

**G2050 LANDSCAPING**

**\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*   
NOTE: Describe any special landscaping requirements such as screening of adjacent areas or roadways.  
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Provide complete landscaping consisting of [lawn] [groundcover] [trees] [shrubs] [perennials] [ornamental grasses] [organic mulches] and [inorganic mulches] to provide a quality, cost-effective, functional and visually appealing landscape program that will enhance the development, while complying with anti-terrorism, force protection and physical security requirements. Design the landscape to reinforce the facility entry and complement existing landscapes in the vicinity. [Provide a 5' wide (1.5 m) (minimum) inorganic rock cobble mulch setback (no vegetation) around the building]. [Provide landscaping resistant to deer.]

Guarantee landscaping for a period of [one year][\_\_\_\_\_] . Provide a [one year][ ] Establishment and Maintenance period. Landscaping Guarantee and Establishment and Maintenance periods must commence on the date that the inspection by the Contracting Officer shows that all landscaping under this contract has been satisfactorily installed.

Provide complete landscaping maintenance, including but not limited to, routine lawn mowing, edging, pruning, pest inspection/treatment, re-mulching of mulch products, watering, weeding, fertilizing, and restaking, throughout the guarantee period.

[Provide mechanical equipment screening wall on three sides of new equipment.]

Provide shrubs or small growing trees for screening of mechanical equipment/walls, dumpster enclosures, and other obstructions that do not present an aesthetic view from the street.

**G205001 FINE GRADING AND SOIL PREPARATION**

[Provide 4" of topsoil for lawn areas and fine grade.]

**G205002 EROSION CONTROL MEASURES**

Prevent erosion from occurring by providing erosion control measures as required by city, state and federal requirements in accordance with NPDES and SWPP permits.

**G205003 TOPSOIL AND PLANTING BEDS**

Provide a planting soil mixture composed of [100 percent topsoil] [50 percent native soil blended with 50 percent topsoil] [ ] around root balls of shrubs, trees, groundcovers, perennials, and ornamental grasses that is at a minimum, [twice as wide and equally as deep as the plant's root balls] [ ]. [Set tops of plant rootballs [2 inches (51 mm) above adjacent grades] [even with adjacent grades] [ ].

**G205004 SEEDING SPRIGGING AND SODDING**

[Seed][Sprig][Sod] areas indicated to be turfed in Part 6. Restore existing turf areas disturbed by Contractor operations that are to remain as turf areas. Restore by means of [seeding][sprigging][sodding] and provide same guarantee and maintenance as for new landscape areas. [Turfgrass species must match existing.]

**G205005 PLANTINGS**

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NOTE: Describe any special planting requirements such as specific special areas to be planted, or if a specific number of plants are to be provided.  
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Preserve existing trees to the greatest extent possible. Select plant material from Master Plant Lists found within the Installation Appearance Plan (IAP). Other plants not found on these lists may be used if approved by the reviewing Government Landscape Architect. Final approval of new plant materials rests with the reviewing Government Landscape Architect.

[Provide a minimum of [\_\_\_\_\_\_] trees and [\_\_\_\_\_\_] shrubs for this project.]

[Provide small trees, shrubs, and ground cover plantings at building main entrances to accentuate the entrances.]

[Provide tree plantings throughout the site to frame the new building and lessen the visual impact of parking areas.] [Provide street trees that encompass the entire project site with an average spacing of 40 feet (12.2 m) on center.] [Street trees are required to be of [one] [ ] species.]

[Plant trees in parking lot islands.] [Trees planted in parking lot islands are required to be of [one] [ ] species.] [Plant trees in parking lots at the rate of [1] [ ] tree per 10 parking spaces.] [Screen proposed parking lots that can be seen from surrounding roadways or recreational areas with an evergreen shrub. Shrub size at installation must be a minimum height of [30 inches (762 mm)] [ ] and a minimum width of [24 inches (610 mm)] [ ] and planted [3 feet (.9 m)] [ ] on center.]

[For palm trees, identify sizes on plans by [brown trunk height (BTH)][clear trunk height (CTH)]. Unless otherwise approved by the reviewing Government Landscape Architect, provide minimum BTH or CTH of [8 ft. (2.4 m)][ ]].

If used for stormwater management, provide bioretention filters, plants, plant quantities, and soil mix in accordance with the State's Best Management Practices (BMP) Design Manual.

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NOTE: Where no state stormwater management regulations, laws or design manuals exist, update above and edit below.  
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[Provide trees and shrubs at the rate of 4 trees and 15 shrubs and/or ground covers per 1000 square feet (93 square meters) of bioretention filter.] [Compose bioretention filter soil mix of the following: [50 percent sharp sand, 30 percent topsoil, 15 percent double shredded hardwood mulch, and 5 percent peat moss] [ ] thoroughly blended.] [Provide triple shredded hardwood mulch at all bioretention filters.] [Provide river stone mulch at bioretention filters.] [Provide a 6 foot (1.8 m) wide grass sod border around the entire bioretention filter. Grass sod species must be [ ].] Ensure that the bioretention filters are not compromised by sediment deposits during construction. [Install bioretention filters only after upstream areas tributary to the bioretention filter location have been fully stabilized.]

[Provide [3 to 5 inch (76 mm to 127 mm)] [ ] diameter river stone mulch [over weed control fabric] at planting beds [adjacent to buildings]. [Provide stone mulch to a depth of [3 inches (76.2 mm)] [ ].

[Provide 3 inches (76 mm) of [shredded hardwood][ ] mulch [over weed control fabric] at planting beds.]

[Encompass planting beds not used for bioretention filters with [steel edging] [concrete edging] [ ].]

[Provide [6 inch (172 mm)][ ] wide by [12 inch (305 mm)][ ] deep concrete band [around rubberized surfacing][between asphalt paving and turf area][between asphalt paving and planting area][between asphalt paving and rock mulch/cobble area]]. [Provide 6 inch (172 mm) wide (minimum) concrete band edging for each of the following conditions: between rock mulch/cobble area and turf area, between rock mulch/cobble area and planting area, and between turf area and planting area]. [Contain turf areas adjacent to building walls, site walls, columns, stairs, and other structures by a 6 inch (172 mm) wide (minimum) concrete header with a minimum separation of concrete header from walls, columns, and other structures of [2 feet (0.6 m)][ ] to minimize damage to site improvements.]

**G205006 PLANTERS**

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NOTE: Describe any planters to be provided, or delete this section if planters are not anticipated.  
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**G205007 IRRIGATION SYSTEMS**

Provide a water conserving, highly efficient, automatic, below-grade irrigation system to irrigate landscaped areas with plantings. Use non-potable water sources whenever possible. Do not irrigate inorganic mulch beds that have no plants. Irrigate trees in separate zones from other plants. Irrigate turf in separate zones from other plants. [Do not utilize drip irrigation on this project].

Valve the irrigation system in accordance with exposure and plant evapotranspiration (ET) requirements. Irrigation controller must be compatible with existing central irrigation control system. [Provide rain shut-off and flow-sensing devices.][ Provide meters for irrigation systems using potable water. [Meter must be compatible with and monitored by the Direct Digital Controls (DDC) system]. Meter the irrigation system as close to main as possible and provide downstream irrigation backflow assembly.] [Provide annual estimated landscape water requirements (budget) with design submittals.] [Provide landscape irrigation audit prior to start of landscape establishment/maintenance period.]

**G205090 OTHER LANDSCAPING**

**G2060 AIRCRAFT PAVEMENT**

Provide aircraft pavement of Portland cement concrete or bituminous concrete as required by the use, i.e., runway ends, runway interiors, overruns and shoulders, taxiways, aprons, and other aircraft pavements to allow for safe and FOD free surfaces, see UFC 3-260-02. Design pavements based on the anticipated daily traffic of ([number]and[ type of aircraft], [number] fuel trucks, [number] HS20 loadings) over the life of the project of ([25] [\_\_\_] years), soil type(s)—strength and drainage characteristics, weather conditions and frost, drainage characteristics of the site, and strength parameters of aggregates, Portland cement concrete and bituminous mixes.

[Provide new pavement sections with materials and minimum thicknesses as shown in the RFP drawings.]

[Provide aircraft pavement repairs and maintenance as indicated and required to allow a safe and serviceable airfield surfaces. For isolated repairs new grades must match existing, unless noted otherwise. Provide measures to ensure that upon completion of repairs no water ponds on pavement surfaces after rainfall.]

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NOTE: Indicate pavement preferences that the Activity may have for a certain site to tie into the existing area. Other materials, such as porous pavement, gravel, etc. may be required on certain projects.  
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NOTE: For projects with relatively large amounts of pavement, a preliminary pavement design should be prepared for the RFP so all contractors bid on the same pavement section.   
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NOTE: When the bituminous concrete or Portland cement concrete pavement ECC exceeds $5 million, contact the cognizant NAVFAC pavement engineer to consider training for contractor and Government personnel prior to paving operations.  
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**G2060 1.1 Project Specific Priorities**

**G2060 1.1.1 General Requirements for Airfield Work**

Work must be performed in accordance with EM 385-1-1, *U.S. Army Corps of Engineers Safety and health Requirements Manual*. All vehicles and equipment entering and exiting the Airfield Operations Area (AOA) must have a yellow rotating beacon or strobe light attached to their highest point.

**G2060 1.1.2 Construction Phasing**

Conduct construction operations so as to cause the least possible interference with normal operations of the activity. General operational policy of the airfield to be enforced for this contract is as follows:

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NOTE: Describe the project intent and phasing in detail for each area of airfield affected by the construction. Describe work that is to be accomplished during airfield shutdown, if there is one, and work otherwise to be completed. Describe any special airfield closures to work as air shows or special operations with dates and length of closure to work.  
\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\***

Prepare and submit to the Contracting Officer for approval a Phasing Plan. The plan must optimize contractor work efficiency, minimize Contract duration, and satisfy all RFP requirements.

**G2060 1.1.3 Access to Site**

A flight line pass (in addition to a Contractor Security Pass or Government Identification Card) is required for access to the flight line area. Use only the access and staging area provided by the [name of facility]. Fueling and maintenance work is not allowed on any aircraft pavement or shoulders and must be performed on a temporary paved surface approved by the [name of facility]. All surfaces used for fueling and maintenance must be kept free of fuels, oils, and greases and must be cleaned to approval of the Contracting Officer upon completion of the project.

**G2060 1.1.4 Existing Conditions**

Take adequate protective measures to ensure that existing pavement surfaces are not damaged from track marks or any other possible source when equipment is being moved during and after completion of work.

The staging and trailer locations must be cleared of all debris, graded to drain, topsoiled and hydroseeded at the completion of the contract. Restore any access roads and staging areas used, back to its original condition. All other disturbed areas will require topsoil and hydroseeding.

**G2060 1.1.5 Barricades Identifying Work Areas**

Limit work to the limits of construction (LOC) outlined on the drawings and place battery operated yellow lights mounted on white and orange barricades with orange pennant flagging identifying the work area. Lights must be operational each day from dusk until dawn as work progresses. All construction equipment operating on or near the runway requires an orange and white checkered flag attached to their highest point while working on or adjacent to the runways or taxiways during non-shutdown periods. Barricades must also be placed to eliminate the possibility of Foreign Object Damage (FOD).

**G2060 1.1.6 Radio Communication**

At all times during field investigations and construction operations, maintain radio communication with the airfield control tower and have a mobile telephone available at the work site. The person talking with the control tower must speak fluent English. All vehicles and equipment entering and exiting the Airfield Operations Area (AOA) must have visible marked identification, marked with company name, yellow rotating beacon or strobe light and must be escorted by an approved representative of the construction firm. Select Contractor employees must attend a class on airfield operations and communications. This class is provided by Air Operations and lasts a maximum of 3 hours. Attendees must have a valid driver's license.

**G2060 1.1.7 Coordination with Air Traffic Control**

Work in the critical construction zones must be coordinated with Air Traffic Control. The Contractor is responsible for coordination.

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NOTE: Describe the notification that air operations department duty officer must have, i.e., advance notification for each critical area or location on the airfield.  
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All personnel driving a vehicle or operating equipment must take an airfield driving class and pass any required examination prior to entering the airfield.

**G2060 1.1.8 Foreign Object Damage (FOD)**

Provide a vacuum truck at the site at all times when working on the airfield. Any debris on the Airfield Operations Area (AOA) resulting from the construction process must be vacuumed clean immediately.

**G2060 1.1.9 Airfield Lighting**

Provide for the [replacement] [construction] [repair] [describe the airfield lighting to be worked upon] as indicated on the drawings in Part 6.

**G2060 1.1.10 Emergency Use of Runway**

Remove all equipment and clean up within [ten (10) minutes] [ ] or less or as directed by Air Traffic Control when working adjacent to an active runway if the runway is required for emergency use.

**G2060 1.2 Special Design Challenges**

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NOTE: Describe any special challenges that require design criteria deviations (grading at intersections of runways), phasing problems, and known existing conditions about drainage, unique pavement problems (existing paving fabrics).   
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Since the airfield pavement will only be shut down for a specified period of time, appropriate construction phasing needs to occur to ensure proper curing of pavements and markings.

Measures must be taken to ensure that, upon completion of the work, finish grades match the design grades and no water ponds on the pavement surface after rainfall.

Identify areas needing new markings over entire feature and those needing isolated areas of marking replacement. Identify those needing temporary markings.

Security fencing must be maintained at all times.

Permits: Provide a Permit Record of Decision (PROD) document. The Contracting Officer will review and approve this document and the Contractor must obtain all permits and approvals prior to the start of construction of any phase that is governed by the permit or approval. Approvals required for Construction on the site include, but are not limited, to Erosion and Sedimentation Approval by the NAVFAC Civil Reviewer and NPDES Phase II Storm Water Management approval by Navy Regional Environmental Water Group.

**G206001 BASES & SUBBASES**

Provide bases and subbases as indicated in Part 3, G2060 AIRCRAFT PAVEMENTS. If recycled on-site materials are used, provide material required in excess of those resulting from recycling. Recycled crushed and sized Portland cement concrete pavement may be allowed as a base or subbase from sources that can provide certification that the re-cycled pavement had no indication of an alkali-silica reaction. Recycled bituminous concrete may require sizing and stabilization with asphalt to be reused as a base or subbase due the difficulty in compacting the recycled bituminous pavement material without the asphalt liquid.

**G206002 PAVED SURFACES**

Recycled asphalt pavement material may not be used in surface bituminous concrete pavement mixes. Recycled Portland cement concrete pavement may [not] be used in Portland cement concrete mixes.

**G206003 MARKING & SIGNAGE**

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NOTE: Indicate Activity's preferences on pavement markings, signage, etc., especially where required to tie into existing site elements. Also indicate any temporary markings and signage needed to meet phasing requirements. Coordinate with PTS Section G201004.   
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Provide pavement markings in accordance with NAVAIR 51-50AAA-2, "TECHNICAL MANUAL - GENERAL REQUIREMENTS FOR SHOREBASED AIRFIELD MARKING AND LIGHTING".

Provide temporary pavement markings [including [lighted] "X's" for closed runways] and clear signage throughout construction to meet safety and phasing requirements indicated in the project program. Re-establish all markings disturbed by construction.

**G206004 BARRIERS**

Provide barriers between active pavement and pavement under construction. If the construction produces FOD, the barrier must prevent loose materials from moving to active aircraft pavements. Barriers must be lighted and spaced no greater than [\_\_foot] [30 foot] on center.

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NOTE: Check with air operations department at the activity for their preferences on barriers and lighting.  
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**G206005 AIRCRAFT PAVEMENT MAINTENANCE AND REPAIRS**

Provide aircraft pavement repairs and maintenance as indicated and required to allow a safe and serviceable airfield surfaces. For isolated repairs new grades must match existing, unless noted otherwise. Provide measures to ensure that upon completion of repairs no water ponds on pavement surfaces after rainfall.

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NOTE: In order to establish a uniform bidding platform, the extent and quantity of repairs should be indicated on plans, and it is suggested that repair details be indicated. The Contractor should be tasked with verifying the exact location, size and quantity of required repairs prior to commencing work.   
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Unless otherwise noted, provide new pavements and repairs at the locations indicated on the drawings I Part 6 of this RFP.

A topographic survey of the existing site has [not] been performed. Prior to starting work, physically verify the location of all existing utilities and obtain all additional survey data required to provide a quality final design.

Additional survey data includes, but is not limited to information required to plot pavement defect/repair locations (identified by type and size) and a schedule of repairs, and to indicate grading criteria for airfield pavements, shoulders and grass infield areas are met.

[A pavement thickness investigation report has been performed to support this project and is attached in Part 6 of this RFP.] Prior to starting work, obtain all additional soil borings, testing or other geotechnical information required to provide a final design.

Minimize the impact of construction activity of operations and neighboring facilities.

**G206006 IMPROVING SKID RESISTANCE FOR AIRFIELD PAVEMENTS**

Provide runway grooving upon completion of construction, repair, reconstruction, and maintenance of runway surface.

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NOTE: Check with the cognizant NAVFAC pavement engineer for approval of type and style of grooving prior to using this paragraph.  
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**G206007 PAVEMENT PROTECTION SYSTEM**

Provide Portland cement concrete pavement and steel plate protection system at arresting gear locations on runways. Contact the cognizant NAVFAC pavement engineer for the definitive drawings. Do not modify the definitive drawings without approval of the cognizant NAVFAC pavement engineer.