

TRI-SERVICE PAVEMENT WORKING GROUP (TSPWG) MANUAL

CONTRACTING AIRFIELD PAVEMENT WORK



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TRI-SERVICE PAVEMENTS WORKING GROUP MANUAL (TSPWG M)

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FOREWORD

This Tri-Service Pavements Working Group (TSPWG) Manual supplements guidance found in other Unified Facilities Criteria (UFC), Unified Facility Guide Specifications (UFGS), Defense Logistics Agency Specifications, and Service specific publications for airfield paving construction projects throughout CONUS and OCONUS locations. All construction outside of the United States is also governed by Status of Forces Agreements (SOFAs), Host Nation Funded Construction Agreements (HNFAs), and in some instances, Bilateral Infrastructure Agreements (BIAs). Therefore, the acquisition team must ensure compliance with the most stringent of the TSPWG Manual, the SOFA, the HNFA, and the BIA, as applicable. This manual provides engineering guidance on contracting various tasks associated with the design, construction, and maintenance of airfield runways and supporting airfield pavements. The information in this TSPWG Manual is referenced in technical publications found on the Whole Building Design Guide (WBDG). It is not intended to take the place of service specific doctrine, technical orders (TOs), field manuals, technical manuals, handbooks, Tactic Techniques or Procedures (TTPs) or contract specifications but should be used along with these to help ensure pavements meet mission requirements and uphold high quality standards.

TSPWG Manuals are living documents and will be periodically reviewed, updated, and made available to users as part of the Services' responsibility for providing technical criteria for military construction, maintenance, or repair. Headquarters, U.S. Army Corps of Engineers (HQUSACE), Naval Facilities Engineering Command (NAVFAC), and Air Force Civil Engineer Center (AFCEC) are responsible for administration of this document. Technical content of this TSPWG Manual is the responsibility of the Tri-Service Pavements Working Group (TSPWG). Defense agencies should contact the preparing activity for document interpretation. Send recommended changes with supporting rationale to the respective service TSPWG member.

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- Whole Building Design Guide web site <https://www.wbdg.org/ffc/dod>

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**TRI-SERVICE PAVEMENT WORKING GROUP MANUAL (TSPWG M)
NEW SUMMARY SHEET**

Document: TSPWG M 3-260-00.23-01, *Contracting Airfield Pavement Work*

Superseding: None

Description: This manual provides guidance and template documents for contracting design, construction, and maintenance of airfield pavements.

Reasons for Document: This manual provides guidance to fill gaps in knowledge that may exist between the design and construction of airfield pavements and contracting methods. It provides technical guidance for airfields and basic contracting procedures intended for responsible agency technical staff and contracting personnel. Statement of work templates containing basic and foundational technical guidance embedded within the scope are included.

Impact: There is no cost impact. The following benefits should be realized:

- Supplemental information on the repair, maintenance, design, and construction of airfield pavements will be available to all services
- Serve as a repository of practical guidance to agency personnel responsible for DOD airfields that will include input and periodic updates from all services.

Unification Issues

- None.

Note: The use of the name or mark of any specific manufacturer, commercial product, commodity, or service in this publication does not imply endorsement by the Department of Defense (DOD).

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CHAPTER 1 INTRODUCTION

1-1 BACKGROUND.

Functional, reliable, and durable airfield pavements are essential to execute the DOD mission. This manual provides guidance to pavement engineers and non-pavement professionals intended to improve design, construction, and repair of airfield pavements. Each service component within the DOD contracts the design, construction, maintenance, and repair of airfields. Airfield pavements are commonly misunderstood as simple horizontal design and construction projects, when in-fact they are more complex and specialized. In addition, the governing criteria is often misinterpreted resulting in low-quality design and construction that can become costly to execute and/or repair. The intent of this TSPWG Manual is to provide guiding documentation to assist the executing agency with the contracting of design, construction, and maintenance with a compilation of best practices and technical expertise embedded in the prepared templates. Not only is the intent of this guidance to improve overall quality of design and construction, but it is intended to improve the overall acquisition process and project execution with properly scoped statements of work. However, this manual is not intended to supplant competent, and required engineering knowledge and judgment for proper design and construction techniques.

1-2 PURPOSE AND SCOPE.

Recent acquisitions have highlighted the lack of familiarity and consistency with properly contracting the design, construction and repair of airfield pavements resulting in material and equipment deficiencies as well as scope and construction issues. This document provided guidance to improve project success by outlining:

- the various acquisition types, methods, and strategies available for contracting services related to airfield pavements, and
- the benefits and risks of various contracting methods and the associated technical requirements that should be included.

This document supplements existing guidance with additional information to increase the likelihood of successful execution of the work. Along with the general guidance, there are multiple sections that provide tailoring options from lessons learned by the United States Army Corps of Engineers (USACE) Transportation Systems-Mandatory Center of Expertise (TSC) and points of contact for current worldwide contracting types and methods. This document is not all encompassing of the nuances and complexities associated with airfield design, construction, and maintenance. It also does not replace the need for the technical support provided by Agency Subject Matter Experts (SMEs) or the USACE TSC per ER 1110-34-1. This document attempts to identify the resources that are available for project execution and completion depending on the situation. The intent is to resolve questions and issues utilizing this manual with airfield experienced Government resources. Engagement of Agency SMEs is not intended to be the standard operating procedure for rudimentary and common situations or issues.

1-3 APPLICABILITY.

This manual is applicable to all DOD organizations that award and execute contracts for the design, construction, maintenance, and repair of airfield pavements. Familiarity with the different contracting types, methods, strategies, and technical requirements significantly expedite the acquisition process and result in improved execution and quality.

1-4 GLOSSARY.

APPENDIX A contains acronyms, abbreviations, and terms.

1-5 REFERENCES.

APPENDIX B contains a list of references used in this document. The publication date of the code or standard is not included in this document. Unless otherwise specified, the most recent edition of the referenced publication applies.

CHAPTER 2 CONTRACTING METHODS

2-1 GENERAL.

Contracting for airfield paving uses the same basic contract types as other design and construction contract actions used throughout the DOD. However, airfield paving projects have governing criteria with mandatory requirements for design and construction, typically requiring the use of specialized means and methods. It is critical to select Architect-Engineer (A-E) firms that are highly experienced and specialized with DOD airfield design and construction to ensure a successfully produced design for military aircraft. In addition, construction firms that own and operate this specialized equipment and are highly experienced with airfield construction usually perform their work with a higher level of quality and fewer delays and stoppages. From TSPWG's experience, task-order type contracting for A-E and construction services is the preferred and recommended approach. Task-order based contracts consist of pre-vetted and well-qualified airfield paving contractors selected from a base contract that submit competitive proposals for task orders. Selection of a highly qualified A-E or construction contractor is the main indicator for project success. Accordingly, it is important to prioritize evaluating acquisition methods and develop appropriate selection criteria for the project and situation. All post-award design and construction contract management tools are secondary in nature and can only partially mitigate any risks or failures caused by a poor contract acquisition.

2-2 A-E Contract Types.

The selection of firms for services requiring professional engineering or registered architect services is based on 40 United States Code (USC) Chapter 11 and Part 36 of the Federal Acquisition Regulation (FAR). The law requires that **selection be based on firm qualifications**, and not cost (unlike many construction contracts based on low price of a legally responsive bid). This qualifications-based requirement is required in 40 USC Chapter 11 *Selection of Architects and Engineers*, formerly known as the Brooks Act. When contracting for A-E services, the DOD is paying for premium services and prices typically reflect such a premium; therefore, price should not be the sole determinant for contracts. Contract with A-E firms to produce either Design-Bid-Build (DBB) or Design-Build (DB) request for proposal (RFP) packages.

2-2.1 A-E Indefinite-Delivery Contracts (IDC).

Indefinite-delivery contracts (IDCs) and specific subtype indefinite quantity contracts, sometimes referred to as Indefinite-Delivery Indefinite-Quantity (IDIQ) contracts, are the predominant contract type used to procure A-E services throughout DOD. Base IDCs address the type of A-E services at negotiated hourly rates for each discipline required. They are defined to apply to a certain facility, country, or other geographic area within a defined period of performance. The base IDC also includes a maximum cumulative US dollar amount for all task orders associated with that IDC.

Select this approach for:

- anticipated recurring types of A-E services where Brooks Act selection process for individual projects would not be economical or timely, and
 - long term needs for airfield design services are anticipated in a particular geographic area, facility, or country
- a. Prepare IDCs that are specific, or included as a specialty, for airfield pavement design. Select the best qualified A-Es based on experience in designing airfields for military aircraft. Attention should be given to the firm's demonstrated capability in correctly editing the military airfield related UFGS, along with understanding and implementation of the UFC airfield design criteria. The selected firm should possess thorough experience designing and supporting construction of military airfield pavements, as well as clearly demonstrating their understanding of the airfield dimensioning, lighting, and guidance systems for military aircraft.
 - b. New A-E IDCs are considered a major procurement effort that requires input from Contracting professionals, planners, and Engineering & Construction staff with airfield-related experience. Typically, at least nine months or more are necessary to proceed from market research (pre-advertisement), to synopsis, receipt, and review of the SF330s, completion of the selection report, request for price proposal (RFPP) to the most qualified firm(s), hourly wage rate and overhead negotiations, and award. After the base IDC is awarded, anticipate a duration of six months or less from the time customer funding is received and project definition to task order award.
 - c. The USACE TSC has awarded A-E design IDCs for airfield pavements worldwide. Any DOD airfield project can be designed using this tool. Pending Contracting Officer concurrence, the A-E contract can be administered and overseen by the USACE TSC and Omaha District Contracting. Alternatively, funding capacity can be transferred from the USACE TSC contract to any DOD agency, including all USACE Districts, AFCEC, NAVFAC, and Department of Public Works, for locally administered A-E task orders based on the USACE TSC IDC.
 - d. The Air Force Installation Contracting Center (AFICC) has awarded an IDC that includes 14 firms for worldwide services. The contract vehicle (AE NEXT Pool 1 – Airfield Infrastructure) is open to decentralized ordering for all Air Force (AF) managed projects. Other DOD agencies may utilize the contract vehicle for specific projects at AF installations pending an approved Memorandum of Agreement (MOA). Contact the following organizational email for details:
772ess.aenext.contracting@us.af.mil.
 - e. Task orders against the IDC can be awarded typically in 90 days or less after the A-E statement of work (SOW) is finalized. Task orders for particular projects are negotiated and issued under the terms and conditions of the IDCs. The task order may be Firm-Fixed-Price (FFP) or Cost-Reimbursable (CR), as allowed by the terms and conditions of the base IDC. The recommended method for all airfield design projects, and most common method used, is FFP (AE NEXT only allows FFP contracts). Follow the A-E selection requirements as specified in the base A-E IDC specified by the contract managing agency.

- f. For USACE managed projects, follow the Task Order Requirements Notification (TORN) process to select the appropriate A-E. Once a description of work is agreed upon between the engineering team lead and the customer/project manager, a TORN describing the services required, questions or issues expected to be addressed in the A-Es' replies, and criteria to be used by the Government evaluation team, can be created, and formally communicated to all A-E firms in the IDC pool. TORN letters are to initiate a second level selection effort among firms already determined to be most qualified for the IDC scope. Each TORN should be no more than two pages. A TORN evaluation panel should be convened for a review, evaluation, and ranking of firms for each task order to be completed within five days. For AFCEC managed projects, follow the Ordering Procedures set forth in the IDC.

2-2.2 Individual Firm-Fixed-Price (FFP) Contract.

An individual, stand-alone FFP contract to an A-E firm (FAR 16.202) is best used when the SOW is well-defined and there is sufficient time to announce, select, negotiate, and award a contract. These contracts are primarily utilized for large complex projects and/or new regions or installations. Select this contract type:

- for a very large project, program amount greater than \$150 million or
- for a major change to the entire airfield layout, or
- when no A-E IDC capacity is available.

Award of an individual FFP A-E contract is conducted over multiple steps. A synopsis of the federal Government's need is posted by the Contracting Officer on www.SAM.gov. The synopsis includes a scope description and evaluation criteria to be used in the selection. The synopsis requests that interested and capable A-E firms respond by submitting a standard form 330 (SF330), "Architect-Engineer Qualifications". A source selection evaluation board (SSEB) is established to first review and evaluate each SF330 against the criteria listed in the synopsis. After each has been evaluated against the synopsis criteria, relative ranking is established and documented in a report by the SSEB chairman. RFPP is then transmitted to the highest ranked firm by the Contracting Officer to begin the price negotiation. Base hourly rates, number of hours for A-E tasks and design effort, overhead rates, and any escalation rates over time are negotiated after an Independent Government Estimate (IGE) is approved by the Contracting Officer. Negotiations typically take multiple iterations. A source selection authority (SSA); for USACE it is typically the Chief of Engineering Division, endorses the selection and the final negotiated terms. Allow a minimum of 90 days from SF330 submittal deadline date for selection.

2-2.3 Addition or Modifications to Existing A-E Contracts.

Existing A-E IDCs can be used for designing airfield pavements but is only recommended if airfield design is in the original base IDC. Use this approach with caution. Ensure that the A-E has sufficient experience and background in airfields. Obtain concurrence from the Contracting Officer that it is considered within scope of the current contract. Take care to verify that the selected A-E firm is capable of producing

the required airfield-related portion of the design prior to selecting this method. Ensure this is documented as part of the Technical Analysis.

Select this method if an A-E performs well on an early stage of planning or design and is being considered for subsequent design stages. This method is suitable for very small or very specific work tasks. For example, it could be used to add the repair of a small section of apron adjacent to a new hanger design; or it could be used to include replacement of pavement markings throughout the airfield to an existing airfield paving project. However, ensure the A-E is well-qualified and experienced for airfield pavement design.

2-3 CONSTRUCTION CONTRACTS.

The following paragraphs provide general discussion, benefits, and best practices for various types of construction contracts. The guidance herein is useful but does not substitute for complying with agency required processes. Major acquisition decisions such as Design-Build versus Design-Bid-Build should be made through an agency approved acquisition planning approach to ensure compliance with FAR Subpart 7.1, Acquisition Plans.

Other delivery or contracting methods can achieve the desired quality outcome, but there are many additional risks with project delivery and procurement methods such as lowest price technically acceptable (LPTA), and invitations for bid (IFB). LPTA delivery methods are successful, however risks can occur. With pass-fail evaluation criteria coupled with a low-price bid selection, the evaluation could result in lower quality or less experienced contractors being selected. **The IFB procurement and delivery method is not recommended for airfield pavement projects.** They do not allow for an enhanced contractor selection process and simply focus on the lowest price proposal. **The highly unique and specialized nature of military airfield paving contributes to an increase in risk associated with IFB contracting methods.** This is typically demonstrated when offerors, experienced in the general paving industry, misunderstand the key elements of a responsible bid and under-budget the actual effort necessary for a successful project. Due to the limited data requested and included in an IFB proposal, it is difficult to confidently validate an offeror as responsible and qualified. If an IFB procurement is to be utilized, only use IFB contracts with DBB project delivery methods.

2-3.1 Design-Bid-Build Firm-Fixed-Price Contract.

A Design-Bid-Build project delivery method selects a prime contractor to perform only construction services. DBB can include some engineering work, but only to the extent necessary to meet the contract requirements (such as calculating the forces on a temporary construction platform or using vendor-specific software to calculate the components of a system). It is best used when the scope of projects is well-defined, the design is complete and there is sufficient time to announce, select, negotiate, and award a contract. This method separates the design from the construction contract. The advantages of DBB are that it establishes clear areas of responsibility between the designer of record (DOR) and the construction contractor. The DOR remains solely responsible for design and can specify the quality required by the stakeholders. The

construction contractor has the opportunity to develop an accurate price proposal knowing exactly what they are bidding.

- a. Disadvantages include the perception of an extended duration to develop a full design, advertise, and award a construction contract. Typically, this method produces well-defined designs and yields increased quality construction, especially when designs are highly complex. In addition, the communication and issue resolution between DOR and construction contractor is less efficient compared to the DB project delivery method. However, the Government has greater control of the DOR who is under contract with the Government. One advantage is that conflict resolutions can be facilitated by the Government to ensure quality is achieved.
- b. Prior to solicitation, determine who will approve and respond to requests for information (RFI), submittals or modifications during construction. Consider utilizing the DOR for this effort and ensure construction phase services (CPS) are in place prior to award of the construction contract. Response time requirements along with a variation and design deviation approval structure needs to be developed and followed through construction.
- c. Select this method whenever the design is complete, the design is uncommon or unique, or when the schedule allows for the completion of a full design. This project delivery method can be used with an appropriate construction task order-based contract or a standalone construction contract.

2-3.2 Design-Build Firm-Fixed-Price Contract.

Similar to Design-Bid-Build FFP contracts, the Design-Build project delivery method selects the prime contractor to perform construction services. However, it differs significantly because the prime contractor is also responsible for hiring an A-E as the DOR to perform substantial work to complete the design. It is important to recognize that the design-build delivery method is high risk without qualified oversight of both the DB RFP and the post-award design process. Weak oversight can result in a poor final design due to faults in the RFP, lesser qualified DORs, or value engineering decisions favoring up-front costs that benefit the contractor rather than the Government. It is critical to have a well-defined RFP to ensure a properly qualified DOR is on contract and the concept design properly conveys the level of effort required to meet UFC requirements. Furthermore, it is often seen that price and overall schedule duration increase when this method is used, and the Government is not fully engaged.

- a. The DB method is best used when the scope of the project is known, but the design is not fully complete and there is only sufficient time to announce, select, negotiate, and award a construction contract. The advantages are that the DOR can directly coordinate with the prime contractor to produce the design. It is important to recognize that there is no guarantee that the prime contractor and DOR will ensure that the design will meet quality standards. The design process can be separated into individual packages to reduce design time allowing the contractor to procure long lead items and begin construction in a timely manner. Once the individual design packages are reviewed and approved, work can begin on that portion of the project. Typically for vertical projects, construction work begins as soon as the foundation and earthwork design are complete. For airfield projects, the schedule

advantages are not as significant compared to vertical projects. Disadvantages of the DB project delivery method are reduced control of the design and potential decrease in quality due to ambiguous or insufficient requirements in the RFP. A well-prepared DB RFP that is awarded to an airfield experienced construction contractor that teams with a knowledgeable design firm reduces risk. The risk is never fully eliminated and may increase when compared to a DBB RFP due to the performance-based requirements of a DB contract and lack of a prescriptive design.

- b. Select this method whenever the design is simple, uncomplicated, or incomplete and funding requirements dictate that the entire construction cost be obligated. Complex designs are not good candidates for the DB method.

2-3.3 Construction MATOC/SATOC Contracts.

Single Award Task Order Contracts (SATOCs) and Multiple Award Task Order Contracts (MATOCs) are forms of IDC contracts, typically used for construction projects. These contracts are typically for larger and/or more complex projects. MATOCs are used to describe a pool of more than one pre-vetted and well-qualified contractor that can each compete against each other for task order awards. A SATOC is used to describe a single pre-vetted and well-qualified contractor that is issued task orders without further competition. Typically, SATOC and MATOC utilizes a DBB or DB RFP to convey the project requirements to construction contractors. Multiple Award Construction Contract (MACC) is another term encountered in Air Force contracting; it is considered equivalent to a construction specific MATOC contract.

The preferred airfield pavement construction or repair acquisition method is the MATOC as it allows competition between multiple and highly qualified contractors. The objective is to award MATOC base contracts to contractors that are experienced in constructing and repairing airfields and who self-perform majority of the work. These MATOC's are not suited to management-only type prime contractors as is common in vertical construction. Establish suitable source selection criteria to achieve the airfield specific MATOC objective.

- a. Each task order is a FFP contract and is managed as a stand-alone project. Since the contractors have been pre-selected based on experience and qualifications, the objective of each task order is to select the lowest priced proposal. In some cases, non-price related selection criteria are used in task orders. If used, ensure the criteria consists of advantages to the Government.
- b. Select this method whenever an airfield specific MATOC or SATOC is available.

2-3.4 SABER/JOC Contracts.

Simplified Acquisition of Base Engineer Requirements (SABER) contracts and Job Order Contracts (JOCs) are fixed-price, IDIQ contracts that provide a streamlined method to complete small/simple maintenance and repair projects requiring incidental construction with no design and do not require the use of an A-E firm. These contracts are best suited for non-complex, minor construction, and maintenance and repair projects, especially projects focused on "replace-in-kind." These contract types have maximum project size limitations.

- a. These contract types employ Unit Price Books (UPBs), which are developed in the base contract negotiations phase and then utilized in the task order phase. The UPBs lists tasks by unit of measure or unit price, and because the prices are general, the UPB must be tailored to a specific location.
- b. Airfield quality paving is beyond the scope of a JOC or SABER contract. **Do not use this contract tool for performing any of the airfield pavement work, including simple replacement tasks.** The contractors and subcontractors associated with these contracts are not prepared for the strict quality standards associated with airfield pavements. Even tasks that appear simple, such as joint seal replacement, are not suited for these types of contracts because the actual contractors performing the work are not familiar with the means and methods required for airfield paving. For example, typical SABER or JOC contractors are not suited to successfully meet requirements necessary to protect the existing pavement from future spalls. Their work could unintentionally make the problem worse.

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CHAPTER 3 PROJECT EXECUTION

3-1 GENERAL.

Execution discussion and template statements of work have been developed to assist agencies in the procurement of A-E services for design efforts and construction contracts of airfield specific projects. The templates are intended to standardize the requirements to ensure quality airfield projects are achieved. Incorporate the templates directly into a contract or copy the requirements into an Agency-based document. Edit the templates by selecting the applicable options and information identified by the brackets. The brackets indicate information that either needs to be selected or updated or removed for completion. The italicized text within the brackets indicate that additional information is required. Remove brackets as the statement of work is being edited.

Consult engineers with airfield experience to edit the statements of work and develop the project requirements. For Army projects engage the local USACE district or installation civil or pavement engineer with USACE TSC providing additional assistance. For Air Force projects contact the installation civil or pavement engineer before engaging AFCEC or AF SMEs.

3-2 PLANNING AND DESIGN A-E CONTRACTING.

The planning, programming and design of DOD airfield projects is a specialized area of work that requires knowledgeable planners and design engineers to complete. The following statement of work templates can be used to develop contracts to procure A-E services for airfield planning and design related tasks. In addition, as discussed in paragraph 2-2.1, to assist in the contracting of airfield planning and design efforts, USACE TSC and AFICC manage airfield specific A-E IDCs. The USACE TSC maintains a worldwide A-E IDC for airfield planning, design, and construction phase services, to include both unrestricted and small business, which is accessible to all DOD elements. AFICC also maintains a worldwide A-E IDC, AENext Pool 1, for airfield planning, design, and construction phase services (described in the contract as “Title II” services) that is accessible to all DOD elements performing work on an AF installation.

3-2.1 Statement of Work: A-E Planning Services.

The purpose of the A-E Planning or Programming statement of work is to determine the mission requirements, stakeholder needs, and develop the appropriate programming documents, and if applicable a draft DD Form 1391 (DD1391). Another use of the A-E Planning statement of work is to acquire site specific information such as topographic survey, pavement evaluations, geotechnical site investigation or storm water and drainage evaluations necessary to support the planning and programming process or the future design effort.

Use the statement of work in the initial phase of a project, well in advance of the design phase. An A-E Planning and Programming statement of work template, titled “Architect-Engineer (A-E) Services Planning or Programming Study” is provided in Appendix C-1.1. The focus of the statement of work is the planning/programming study to include data gathering, stakeholder meeting, and a draft and final report. It is recommended to

provide the latest pavement evaluation or engineering assessment in the RFP so that the A-E can develop a well-informed technical approach and cost proposal. The statement of work includes various tasks for selection as a part of the base task order or as options to the task order.

a. The statement of work includes the following tasks:

1. Coordination: The initial coordination call is to be conducted between all stakeholders on the project and the A-E. Discussions include the scope of the project, criteria enforcement, and stakeholder constraints. All parties should be prepared to discuss all items of interest to the project.

2. Data Collection: This task includes fact-finding, data gathering such as as-built drawings, engineering assessments, pavement condition index surveys, pavement structural evaluations, interviews, and project specific site visits. This list is not all-inclusive.

3. Planning Charrette or Programming Meeting: Planning charrettes and programming meetings are conducted with the intent of obtaining broad attendance, to include designers and stakeholders. The focus of the meetings is to validate the project scope, desired features, and specific use requirements of the stakeholders. This meeting is critical in the development of the planning or programming documentation.

4. Draft Report: The draft report includes meeting minutes, a narrative and supporting graphics (schematics, photos, tables, etc.) describing the function of the facility, any changes to facility functions needed or expected, parametric cost estimates, DD1391, design and construction duration schedule, etc. For scheduling the completion of the draft report for review, allow for at least two weeks after completion of the draft report for the development of the parametric cost estimate and DD1391.

5. Review meeting: The review meeting is a follow-up to the Planning Charrette or Programming Meeting. The purpose of the review meeting is to discuss the draft report review comments and any open issues. Include the cost estimate and the draft DD1391 as an emphasis of the review meeting. Also, ensure the schedule allows for sufficient time to review the draft report after its submission.

6. Final Report: The final report addresses all review comments and accurately describes the requirements that are necessary for immediate commencement of the design phase and includes all relevant supporting programming documentation from Tasks 1-5.

7. Topographic survey (Optional): Perform a limited topographic survey to evaluate whether existing pavement surfaces comply with current geometric criteria.

8. Structural Pavement Evaluation (Optional): Perform a structural pavement evaluation in accordance with UFC 3-260-03. Specify non-destructive testing or direct sampling.

9. Pavement Condition Index (Optional): Perform a Pavement Condition Index (PCI) Survey in accordance UFC 3-260-16.

10. Testing (Optional): Perform destructive and non-destructive testing as necessary to determine root causes of pavement deterioration.

11. Geotechnical Investigation (Optional): Perform geotechnical investigations to evaluate existing subgrade and pavement materials.

12. Petrographic Analysis (Optional). Perform petrographic analysis of concrete specimens to evaluate for severity and continued reaction potential of alkali-silica reaction (ASR).

13. Storm Water and Sanitary Sewer Investigation (Optional): Perform the required inspection of the storm water system and sanitary sewer system. This inspection is to evaluate the existing structures condition and structural capacity.

14. Hydrology and Hydraulic Analysis (Optional): Perform an analysis of a selected area of interest for evaluation of upgrades or changes to the existing storm water system. The hydrology and hydraulic analysis are an evaluation of the hydraulic capacity of the storm water system whether it be open grade swales or structures.

15. Hazardous Material Survey (Optional): Perform hazardous material surveys in accordance with Agency requirements and guidance. The scope of this work is project specific and is to be developed utilizing qualified personnel.

16. Environmental Survey (Optional): Perform environmental survey in accordance with Agency requirements and guidance. The scope of this work is project specific and is to be developed utilizing qualified personnel.

17. Economic Analysis (Optional): The economic analysis is an enhanced evaluation of the cost and impacts of the project. The scope of this work is project specific and requires additional information beyond the scope of a typical airfield pavement construction project.

b. The optional tasks referenced as attachments to the base statement of work require specialized discipline-specific input. Engage engineers with airfield experience to edit the statement of work template and develop the optional tasks. Contact the USACE TSC for assistance with the enhanced statement of works for optional items 7 through 12 and guidance for optional items 13 through 17.

3-2.1.1 Acquisition Selection.

Planning and programming of projects, considered non-design A-E services, are the initial phase of most projects. When available, use A-Es to develop planning, programming, and funding documents. Utilizing an A-E IDC contact, combining the planning and programming experience with airfield engineering experience provides the greatest benefit to the Government.

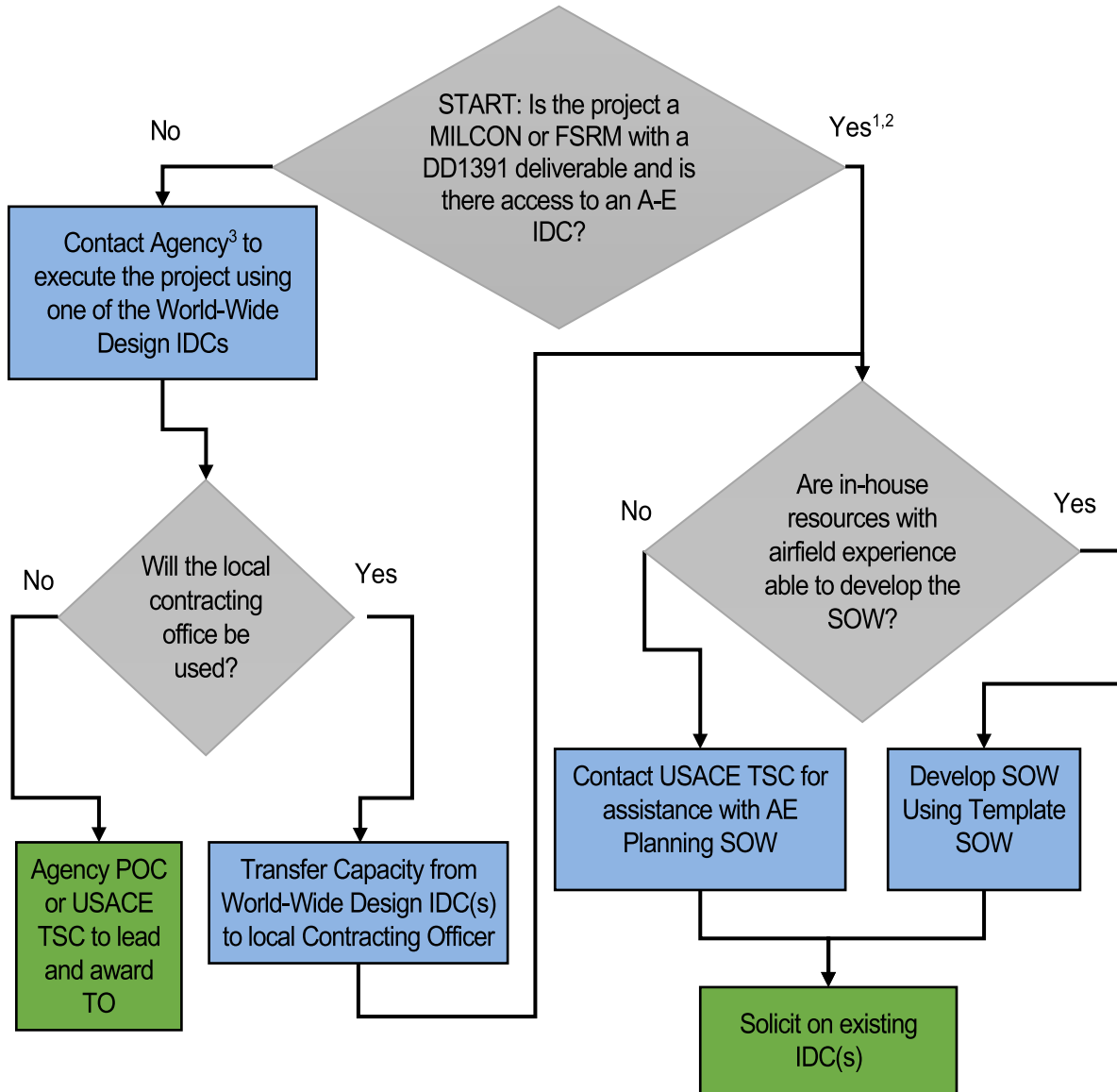
- a. Use the Planning Acquisition Decision Matrix illustrated in Figure 3-1 to assess the A-E Planning process for the specific project and constraints. For projects less than \$10M, agency resources are recommended for planning and programming efforts if airfield design experienced personnel are available. If local resources do not have airfield experience the recommended course of action is to contact either the USACE TSC or AFCEC to accomplish the airfield planning and design effort.
- b. Focus the AE Planning and Programming statement of work on the planning and programming requirements and develop a separate A-E services contract for the

project design. **Combining the planning and programming effort with the design effort is not recommended for several reasons:**

- increased contract administration effort,
 - potentially undefined design requirements that are not captured in the original planning and design contract (i.e., the design requirements in the scope may change based on the planning phase),
 - the most common perceived benefit of combining planning and design is reduced schedule; however, the increased cost for an undefined design is certainly excessive (only rare exceptions apply) to the project, with potential benefit to the Government far short of outweighing potential risks and costs,
 - it will be difficult to negotiate a reasonable design cost if the scope of the project is not clearly defined; A-E's cost proposals will be conservative, and the number of labor hours proposed will be very high in order to cover all possible design scope solutions.
- c. assessment and evaluation of the A-E is more straightforward and effective when the efforts are separated.
- c. Carefully analyze and consider the benefits and experience when deciding to use the planning and programming A-E for the design effort. Ensure agency specific asset management policy is integrated into the investigation and engineering analysis requirements.

3-2.1.2 Planning Acquisition Decision Matrix.

Reserved



Notes:

¹While it is feasible for an office to execute their own planning SOW; it is recommended that an installation civil or pavement engineer or the USACE TSC be utilized for all large and/or complex projects.

²For best results, utilize an airfield specific IDC such as USACE TSC's Airfield Pavements IDC(s) or AFICC's AENext Pool 1 instead of a General Planning or Design IDC.

³Army contact the USACE TSC; Air Force contact the AFICC:

772ess.aenext.contracting@us.af.mil

Figure 3-1 A-E Planning Decision Matrix

3-2.1.3 Technical Design Notes.

- a. Utilize experienced airfield design A-Es and supplement with planning and programming experience.
- b. Utilize an A-E contract for the planning and programming effort and separate it from the design effort.
- c. Consider A-E performance, qualifications and schedules when determining the A-E to use for the design phase.
- d. Incorporate and procure optional tasks such as geotechnical investigation, as early as possible.

3-2.2 Statements of Work: A-E Design.

Statements of work should facilitate the best design and judgement by qualified designers, while also ensuring the application of appropriate criteria.

3-2.2.1 Statement of Work: A-E Design-Bid-Build

The purpose of the A-E DBB method is to perform all required engineering and architectural services to produce a complete set of construction drawings and specifications that are deemed appropriate for advertisement and solicitation. A statement of work template, "Architect-Engineer (A-E) Services Preparation of Design for Design-Bid-Build (DBB) Acquisition", has been prepared and is available in Appendix C-1.2 of this manual. This SOW identifies base tasks, to include ancillary or optional tasks that are necessary to provide a complete and quality design by the selected A-E. The base and optional tasks unique to the design phase and identified in the SOW are:

1. Kick-off meeting
2. Verification of Site Conditions
3. Design Charrette or Initial Design Meeting
4. Concept Design and Review Meeting
5. Intermediate Design and Review Meeting
6. Final Design and Review Meeting
7. Corrected Final Design
8. Value Engineering Study (Optional)
9. Topographic Survey (Optional)
10. Geotechnical Investigation (Optional)
11. Unexploded Ordnance Survey (UXO) Avoidance Survey (Optional)
12. Concrete Recycling Risk Assessment (Optional)
13. Airfield Pavement Aggregate Source Evaluation (Optional)
14. Storm Water and Sanitary Sewer Investigation (Optional)
15. Hydrology and Hydraulic Analysis (Optional)

16. Hazardous Materials Survey (Optional)
17. Environmental Survey (Optional)
18. Economic Analysis (Optional)
19. Construction Phase Engineering Support Services (Optional)

Requirements for the optional tasks, items 8 through 19, are referenced as attachments to the statement of work. Each option involves additional requirements. If the optional items are going to be included in the statement of work engage engineers with airfield experience to edit and develop the optional tasks. Contact the USACE TSC for assistance with the enhanced statement of works for the optional items.

- a. Three complete submittals should be expected for most designs. Each design submittal should include drawings, specifications, design analysis and Engineering Considerations and Instructions for Field Personnel. The complexity of the airfield project determines the number of design submittals and reviews. Most projects consist of a minimum of three design submittals: Concept, Intermediate and Final. Incorporate additional reviews as needed, typically for more complex or unique projects. It is highly recommended to have no less than the recommended three reviews for complex projects. However, for projects with limited scope, such as crack repair or pavement marking, the Intermediate design submittal can be eliminated if appropriate. Omitting a design submittal may induce risk, so attention to the requirements and complexity is necessary.
- b. Schedule review meetings considering the project complexity and number of stakeholders. For example, a runway project that is replacing arresting systems and installing new electrical equipment along with the new pavement structure should be allowed a minimum of three weeks review period for each submittal. Whereas, for a simpler project replacing the airfield markings the review period could be two weeks.
- c. Ensure adequate time so that the working cost estimate can accompany each submittal. Cost estimates are based on the plans, specifications, and design analysis of that submittal. Therefore, the estimate must account for each step of design and account for the most up to date assumptions by the designers. In order to meet schedule requirements, cost estimates are frequently submitted separately from the rest of the submittal weeks after the submittal date. This will impact the reviewers' abilities to accurately review a complete submittal. Without proper communication among the reviewers, comments may ultimately be misdirected. For best results, schedule review meetings as appropriate to allow for the working cost estimate to be included in the submittal review and discussion.
- d. The specifications are a critical project element and establish expectations early in the project on how the A-E is to proceed. Ensure the most current UFGS are used to produce the specifications. It is recommended that each submittal phase include specifications as follows:
 - The Concept submittal is generally the site layout and overall design concept. Include a comprehensive, if not complete, listing of all specifications pertinent to the design.

- At the Intermediate submittal, each element of the design should be presented for review and the specifications should be drafted and redlined. There should be no omissions of any design elements at the Intermediate submittal. If omissions are present, those elements, should be rejected pending resubmittal. At this point the contracting officer's representative (COR) managing the A-E design contract should be made aware of potential performance issues.
 - At the Final design submittal, the specifications should be complete. The review should reveal the need for only minor edits. If omissions persist, it is recommended that the COR contact the A-E to address performance issues.
- e. In addition, the drawings and specifications need to provide enough information to develop an Independent Government Estimate (IGE) and enable the construction contractor to develop a proposal. Ensure assumptions and basis of design are clearly shown and indicated on the drawings and specifications. Ambiguities, conflicting language, and lack of fidelity increases the risk to the contractor and project.
- f. The A-E, as the Designer of Record responsible for the design, signs and stamps the final design signifying that the design meets all applicable construction code requirements and criteria. It is critical that the appropriate UFC manuals are referenced and used to develop the design.

3-2.2.2 Statement of Work: A-E Design-Build.

The DB project delivery method is a construction contract that includes design. It is important to recognize that the construction contractor is the prime and A-E design services are typically subcontracted. Complex projects typically introduce an elevated risk of missing schedule milestones and increasing construction costs. Carefully consider the use of DB contracts and ensure the RFP provides clear instructions on what is to be designed and constructed.

DB contracts are solicited using an RFP package. Typically, in-house resources or A-Es perform the necessary engineering and architectural services to produce a DB RFP used to advertise the project for construction contractor proposal development. The DB RFP document contains limited or minimum technical requirements that provides a clear, mutual understanding of the contractually required product. The focus and responsibility of the A-E is to ensure the relevant codes, criteria and stakeholder requirements are specified in the DB RFP. Also, they ensure that the applicable material UFGS and applicable UFC references are provided.

- a. In addition, the in-house resources or A-Es are also responsible for developing a conceptual design, specifying the technical and design during construction requirements following the guidance provided in UFC 3-260-011FA Model Design-Build (D-B) Request for Proposal for Airfield Contracts. Conceptual designs include minimum pavement sections that are supported by analysis, investigation, and calculations. The intent is to allow the construction contractor the flexibility to develop the methods and design that provides an acceptable final product while also

ensuring a minimum standard is achieved. The A-E is also responsible for developing fully edited airfield paving specifications in accordance with UFC 3-260-011FA to be included in the DB RFP.

- b. The statement of work template “Architect-Engineer (A-E) Services Preparation of Design for Design-Build (DB) Acquisition” is provided in Appendix C-1.3 to procure an A-E to develop a DB RFP. The statement of work establishes the following base and optional tasks:
1. Kick-off Meeting
 2. Verification of Site Conditions
 3. Design Charrette or Initial Design Meeting
 4. Draft DB RFP Submittal and Review Meeting
 5. Final DB RFP Submittal and Review Meeting
 6. Corrected Final DB RFP Submittal
 7. Value Engineering Study (Optional)
 8. Topographic Survey (Optional)
 9. Geotechnical Investigation (Optional)
 10. UXO Avoidance Survey (Optional)
 11. Concrete Recycling Risk Assessment (Optional)
 12. Airfield Pavement Aggregate Source Evaluation (Optional)
 13. Storm Water and Sanitary Sewer Investigation (Optional)
 14. Hydrology and Hydraulic Analysis (Optional)
 15. Hazardous Materials Survey (Optional)
 16. Environmental Survey (Optional)
 17. Economic Analysis (Optional)
 18. Construction Phase Engineering Support Services (Optional)
- c. The A-E task order specifies the level of detail or design effort required for the DB RFP package. Similar to the previously discussed DBB approach, there are optional tasks in the A-E DB task order template. Each one involves additional requirements. If the optional items are going to be included in the statement of work engage engineers with airfield experience to edit and develop the optional tasks. Contact the USACE TSC for assistance with the enhanced statement of works for the optional items.

3-2.2.3 Acquisition Selection.

The project delivery methods, also referred to as the acquisition strategy, for maintenance, repair and construction of new airfield pavements are DBB and DB. When determining the acquisition strategy or method, it is important to consider the risks

involved with each method. The DBB acquisition method will reduce risk as opposed to the DB method. The level of risk incurred by the DBB method is dependent upon the quality of the A-E design and the clarity of the drawings, specifications, and solicitation package. When using DBB method, it is critical to ensure that clarity is provided in the RFP concerning what the contractor is being asked to do. The DBB method is the most common and preferred method for airfield related projects

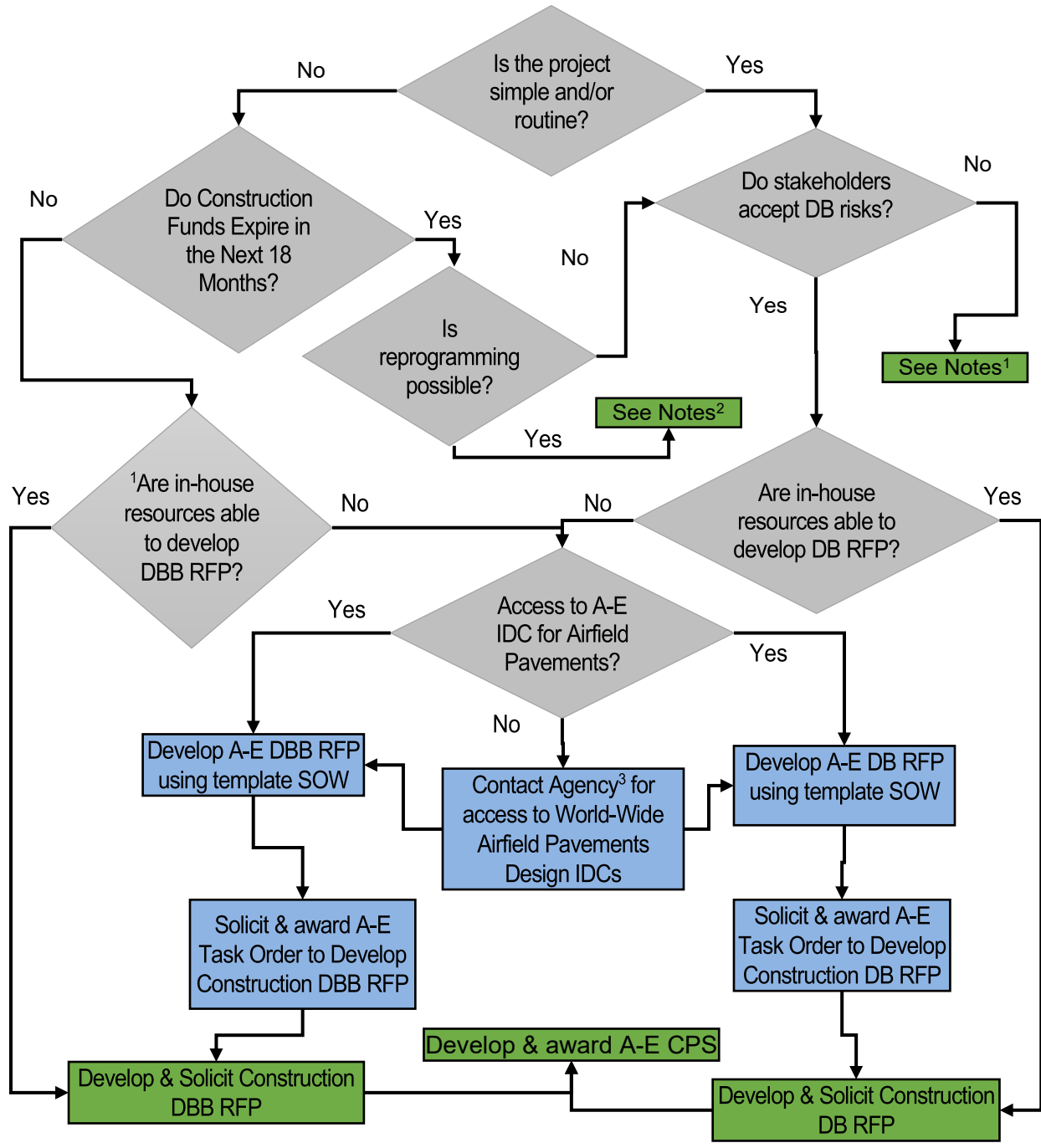
The DB acquisition method inherently places risk upon the contractor. This risk may be accentuated if the design is too complex and/or not appropriate for this method. To reduce risk, it is imperative to ensure that the DB RFP adds clarity to what the contractor is being asked to do. In this instance, risk can be equated to a high volume of bidder RFIs, schedule and cost overruns, and is often indicated with high or even no-bid situations during the solicitation phase. In this circumstance, the RFP, and most notable the design and SOW, require attention to add clarity and direction to proposing contractors.

- a. Consider the following factors when deciding project delivery methods:
 - Construction funding
 - Unique project features
 - Project complexity
 - Schedule
 - Risk
- b. When considering the DBB delivery method, analyze the design schedule with the understanding that a complete design is required before the agency can solicit the construction contract. Awarding a planning A-E task order, completing the planning, supporting site investigations, and awarding an A-E task order for design ending in a completed design package takes between 9 months and two years. Factors such as complexity of the project, site access, permitting, and required site investigations influence the duration of the DBB process. When a design exceeds 18 months, it is an indicator of high complexity and caution should be used when proceeding. If construction funds expire within 18 months, consider the DB process, but evaluate the associated risks before making the final determination. Understandably, this is not the ideal situation and early engagement with the customer and all stakeholders is necessary to mitigate the possible expiration of funds and the utilization of the DB process. If the evaluated risks are high and it is determined that the DB method is not at the Government's benefit, discuss with the stakeholders the potential of reprogramming the project to utilize the DBB method or increasing the project funds, if necessary. The intent of the reprogramming effort is to develop the project with an attainable schedule utilizing a DBB RFP. The benefits of the DB project delivery method are that it allows for pre-design and other supporting investigations to occur simultaneously as the concept design and DB RFP are being developed.
- c. All projects benefit from proper planning and having site investigations performed prior to or at the initial development of a DB or DBB RFP. If appropriate project planning and investigation has not been well developed or completed, it is recommended that the DBB process be pursued.

- d. The Design Acquisition Decision Matrix illustrated in Figure 3-2 demonstrates the project delivery decision making process. As stated earlier, besides schedule and funding constraints, consideration for project delivery method is based on project complexity and risk. Simple projects that are routine and require minimal design effort, such as profile mill and overlay or pavement markings, could be appropriate for the DB process. It is best to use the DBB project delivery process for projects that require extensive investigation or similar levels of effort to develop a DB RFP when compared to a DBB RFP. Complex projects consisting of extensive site investigations, source aggregate evaluations, modification of existing pavement or connecting features for new requirements, or phased construction, the DBB process is the best course of action. In addition, complex projects require thorough Government technical review.
- e. For further guidance to airfield designers, to include both A-E and in-house resources, the following design checklists have been provided:
- Design Analysis Outline Checklist, Appendix D-1
 - Contract Drawing Outline Checklist, Appendix D-2
 - List of Airfield Project Unified Facilities Guide Specifications, Appendix D-3
 - Geotechnical Site Investigation Checklist, Appendix E-1
- f. The checklists are recommended to be used to the greatest extent possible for the development of DBB RFP contracts. In addition, it is recommended that all available historic pavement information be provided to the A-Es for development of the proposed investigation approaches as well as aid the design process. These are not used to replace design level investigations but are used as supplemental references in the engineering analysis. Each Service's airfield pavement reports are available at: https://transportation.erdcdren.mil/triservice/evaluation_reports.aspx.

3-2.2.4 Design Acquisition Decision Matrix.

Reserved



Notes:
 1Continue to “Are in-house resources able to develop DBB RFP?” decision point.
 2Reprogram project to utilize a DBB RFP with an attainable schedule.
 3Army contact the USACE TSC; Air Force contact the AFICC: 772ess.aenext.contracting@us.af.mil

Figure 3-2 A-E Design Decision Matrix

3-2.2.5 Technical Design Notes.

DBB RFPs developed by airfield experienced A-Es or in-house resources, is the preferred project delivery method with the following advantages and disadvantages:

1. Advantages to the DBB project delivery method are:
 - Designer of record is directly responsible and accountable to the Government. They are not responsible to the prime construction contractor who may be biased by up-front costs, which do not necessarily correlate to long term pavement performance.
 - Government has direct control over selection of DOR, resulting in a reduced risk of inexperienced or unqualified DOR.
 - Complete designs are provided for the solicitation and selection of a construction contractor.
2. Disadvantages to the DBB project delivery method are:
 - Longer overall design timeline to construction acquisition.
 - Cost of design errors/omissions are Government's burden.
- a. DB project delivery method can be used for small projects. However, project development is often the same level of effort as DBB and may end in negligible or zero schedule acceleration.
 1. Advantages to the DB project delivery method:
 - Contractor's DOR is readily available to resolve RFIs and change orders.
 - Contractor responsible for costs to resolve design errors and omissions.
 2. Disadvantages to the DB project delivery method are:
 - Likely overall longer project lifecycle to construction completion.
 - Airfield DB RFP concept designs require substantially more development than vertical projects to define the stringent quality requirements and provide a biddable concept design. For example, materials specifications are required to be fully edited; grading and drainage extents are required to be fully investigated, and conceptual cross sections developed. This reasonably requires more Government QA and oversight effort than DBB since the project is nearly developed twice, during DB RFP creation and during the design phase of the construction contract.
 - It is difficult for the Government to enforce the best value design decisions within the DB process that would otherwise be readily made by a designer directly responsible to the Government. The nature of geotechnical and pavement engineering involves substantial amounts of professional engineering judgment rather than rigidly defined code requirements.
 - There are few opportunities to leverage the innovation and flexibility typically considered a primary benefit of DB contracts while managing the project within budget and mitigating cost growth. Airfield geometric criteria provides

little flexibility, pavement structures have limited features of work, and material requirements are considered prescriptive.

- Many paving contractors are not as familiar with developing proposals for DB RFP concept designs as compared to fully developed designs. This increases risk that paving contractors are under-budgeted for the design phase after award, which increases risk of performance failures.
- b. Complex projects are recommended to utilize the DBB project delivery process due to the following reasons:
- Construction phasing. Projects requiring enhanced construction phasing require involvement from several stakeholders. The DBB process allows for the construction phasing requirements to be fully investigated and developed resulting in fewer changes and claims during construction.
 - Subsurface investigation. Airfield DBB RFP full designs typically utilize higher geotechnical investigation sampling rates than DB RFP concept designs, decreasing risk of claims due to unforeseen conditions.
 - Design for supporting features. Projects with numerous tie-ins to existing pavement features, drainage structures, and other utilities can be overlooked or not completely considered by the DB RFP developer and the contractors submitting proposals. Also, projects that lack the full scope of tie-in limits and earthwork requirements that may not be readily assessable until more advanced development at the intermediate (approximately 65%) design level may be solicited in a DB RFP with insufficient information. For the DB delivery method, these items result in an increased risk of request for equitable adjustments (REAs) or claims due to scope changes.

3-2.3 Statement of Work: A-E Construction Phase Services.

Whether a DB or DBB project delivery method is employed, construction phase services are a critical aspect of construction monitoring and supervision. The two main aspects of construction phase services are termed here as DOR Involvement and On-site Quality Assurance (QA). Prior to the award of the construction contract, develop and award a construction phase service contract. The basic construction phase services contract contains the DOR Involvement tasks:

- review of submittals,
- review of request for information (RFI),
- modification review and assistance, and
- site inspections.

In most situations contract the A-E that completed the DB or DBB RFP package to conduct the DOR Involvement tasks. Include on-site Quality Assurance in the construction phase services contract consisting of:

- construction inspection,

- monitoring, and
 - material testing.
- a. This can be accomplished as additional tasks in the design statement of work or a standalone contract. However, the recommended method is to develop and award a separate construction phase service contract from the A-E design contract. This allows for flexibility regarding obligating funds, management of the contract, and A-E selection. It also allows the engagement of all responsible parties during the development of the construction phase service statement of work.
- b. Construction phase services consist of various services to support the management, oversight, and ensure compliance of the construction contract. Use the Construction Phase Services statement of work template, “Architect-Engineer (A-E) Services Performance of Construction Phase Services (CPS)”, when construction support is required to ensure construction work complies with design and expected quality standards. Make use of the statement of work to support either a DB or DBB construction contract. The template statement of work specifies the following tasks:
1. Construction Contract Document Review
 2. Submittal Review
 3. RFI Review
 4. Modification Support
 5. Construction Quality Assurance: A-E personnel to monitor, record and report the performance of the Contractor’s Quality Control (QC) staff as well as the construction work.
 6. Design Review for DB Construction Contracts (Optional): Review the construction contractor’s design and provide comments during the design phase.
 7. Quality Assurance Testing (Optional): Third party or laboratory testing of construction materials. Ensure project-specific requirements are utilized. Engage airfield-experienced engineers or USACE TSC to develop a thorough statement of work.

3-2.3.1 Qualifications

As with specialized projects and work it is important to establish minimum qualifications and an anticipated number of inspection personnel. It is recommended that the statement of work requires the following minimum engineering and construction inspection roles and qualifications:

1. Engineering Support: Mid-level engineer with 5 years of experience in performing engineering services or construction inspection and 2 years’ experience on airfield related projects.
2. Lead Construction Inspector: Require a degree in Engineering, Construction Management, or an applicable field and ten years airfield construction experience. Fifteen years of experience as an airfield construction inspector with

five years as a lead inspector may be substituted for a degree. Ensure they also have a minimum of three years of experience of quality control management of DOD construction projects and certified completion of a professionally accredited Quality Control Management Course. Require the lead construction inspector to be registered as an Airfield Asphalt Pavement QC Manager through the Airfield Asphalt Pavement Certification Program found at www.airfieldasphaltcert.com for asphalt pavement projects. For concrete pavement projects require the lead construction inspector be an American Concrete Institute (ACI) Concrete Transportation Inspector, requirements can be found at: www.concrete.org/certification/certificationprogram.aspx.

3. Construction Inspector: Require inspectors that are needed in addition to the Lead Construction Inspector have a degree in Engineering, or Construction Management, or applicable field and five years of airfield construction experience. Ten years of experience as an airfield construction inspector may be substituted for a degree.

3-2.3.2 Acquisition Selection.

For all federal contracting, the Government personnel assigned to the contract are responsible for ensuring that the Government receives the work or product as described in the contract and for promptly paying the contractor for acceptable work. The Government uses the services of A-E's during a construction contract to assist in providing quality projects and to meet federal contracting requirements. A-E services are not to be used for contract administration such as approval of construction contract payments or modification acceptance.

3-2.3.2.1 Designer of Record Involvement

The benefit to hiring out the construction phase services is the ability to utilize the original design firm, who is intimately familiar with the design and can take care of any modifications due to design deficiencies in an expeditious manner. Recognize that effort to correct design deficiencies due to designer error or omission is to be completed at no additional cost to the Government (commonly referred to as an "errors and omissions" clause to the A-E contract). While the most efficient method to procure these services is to include them as an option in the DB or DBB A-E task order, the preferred method is to develop a separate contract for construction phase services. Use the template SOW in Appendix C-1.4 to contract services when the requirements are not included in the original design contract. The intent is to select the most highly qualified A-E to perform the follow-on work, which oftentimes is the original designer. Lack of access to the original designer can result in increased cost and additional liability to the Government.

3-2.3.2.2 On-site Quality Assurance

On-site Quality Assurance services are necessary when the Government's Quality Assurance staff lacks the capacity or specialized competency in airfield paving. If QA staffing is required, include it as an option to an A-E task order or in a new services contract. There are benefits and shortcomings to either method. Project background

and understanding of design history of the project helps, but independence in Quality Assurance Inspection and Testing is also advantageous.

Provide detailed requirements and consider resourcing of QA personnel. Require the A-E QA to be physically present at the work site and report to the Government personnel responsible for approving the work and issuing payment. When establishing budgets for quality assurance services, recognize that qualified personnel may be unavailable in the local markets due to the specialized nature of the work. Accordingly, it may be necessary for firms to fund per diem and travel and/or relocation costs to place qualified personnel on the job. Consider the demands of phasing requirements and peak construction activities when determining the number of personnel.

- a. Due to the prescriptive and process nature of pavement specifications, continuous QA inspection of the work is necessary. Spot inspections of completed work and simple comparison of submittals to the specifications is not sufficient to ensure a successful project. Typically, multiple personnel are required during concrete paving since placement, curing, and joint cutting involves more than one work shift to complete. Also, paving often occurs at night during the summer while other construction activities will still take place during the day. A full runway repair means multiple activities occur simultaneously across a two-mile long work site. Inspectors may be able to cover multiple disciplines or work areas, but if substantial multi-discipline work is involved, consider requiring separate civil, paving, and electrical inspectors. Due to the large quantity of testing results and submittals to be processed, consider requiring an administrative/clerical person so that qualified inspectors can focus on inspections rather than paperwork. If multiple inspectors are required, consider relaxing requirements for an inspector to allow junior personnel with proper oversight to fill the position.
- b. Quality Assurance services include both on-site and laboratory testing. For Army projects, testing laboratories require US Army Corps of Engineers validation by the Material Testing Center. The testing service requirements vary with different approaches to the frequency, overall amount including cost, and specific materials tested. One quality assurance testing methodology focuses on the surface pavement layers, concrete and asphalt, relying on the contractor's quality control to monitor the construction of the embankment. Another method conducts a percentage of all project-required quality control tests. For all methods, the QA testing specifies the same testing standard required by contract and that is also being completed by the quality control and acceptance testing contractor.
- c. The costs for QA testing on airfields are comparable to the rate of testing for vertical construction. However, the expenses may be distributed differently than for vertical construction, with an increased amount to be expected for testing. The testing cost is often offset by the lower number of disciplines required for the engineering support services.

3-3 CONSTRUCTION CONTRACTING.

3-3.1 Statement of Work: Construction Design-Bid-Build.

Format construction DBB RFP solicitations in accordance with the DOD Airfield Contracting Table of Contents in Appendix F-1. Part 1 of the Table of Contents is generated by the Contracting Office through an automated system and contains the Form 1442 Solicitation, Offer and Award, proposal schedule, Division 00 requirements, and contract clauses. Division 00 requirements includes sections Instructions to Offerors and Evaluation Factors for Award which are needed to inform proposers what and how to submit for consideration. It also describes the evaluation criteria used to select the winning proposal and award the RFP contract. Appendix C-2.2 contains an example of sections Instructions to Offerors and Evaluation Factors for Award to be included in the DBB RFP. Solicitations developed by agencies other than USACE (e.g., AFICC) may vary. **Early involvement with the Contracting Officer (USACE) or other chosen execution activity (AFICC) is crucial to ensuring preparation of the appropriate requirements package.**

- a. To achieve the performance and service life expected of DOD airfields, airfield paving requirements are strict, compared to other more common paving requirements (highways, local roads, parking, etc.). The construction contractor is required to perform the work using specific approved methods. Part 2 consists of the specifications that include general requirements, Division 01, and the technical specifications, Division 02 through 34. Insert the Section 01 11 00 Summary of Work template, found in Appendix C-2.2, in the DBB RFP package to supplement the drawing and specification information. The summary of work informs the contractor of concise project requirements and includes ancillary information that is not contained elsewhere in the specifications or drawings. Attach miscellaneous information such as geotechnical investigation report, permits, and environmental documentation to general and technical specifications or to a special attachment specification.
- b. The drawings are contained in Part 3 and depict the project requirements through plans, profiles, sections, schematics, notes, and details. The necessary and applicable as-built drawings are contained in Part 3.

3-3.2 Statement of Work: Construction Design-Build.

The construction DB RFP describes the Government's airfield pavement requirements, expectations for deliverables, and schedule during the design phase as well as the construction phase. This type of contract includes two distinct phases, Design and Construction, each with its own Notice To Proceed (NTP). The Government verifies that the design conforms to contract requirements prior to issuing the construction NTP or conforms to a certain element prior to issuing a partial NTP.

Develop the construction DB RFP using the UFC 3-260-011FA as a guide to hire a construction contractor to perform both design and construction services in accordance with a proposed conceptual design, performance, and prescriptive requirements. Incorporate Section 01 11 00 Summary of Work into the DB RFP contract. Edit Division 00 sections Instruction to Offerors and Evaluation Factors for Award for inclusion into the DB RFP. Technical requirements along with instructions for the design after award portion of the contract are needed for a successful project. UFC 3-260-11FA Appendix J

and K contain recommended specification sections for the detailed technical requirements and design after award requirements, respectively. Appendix C-2.3 provides an updated version of the design after award specification.

- a. Typically, a single contractor cannot do this in-house, so the usual solution is a Joint Venture (JV) partnership between a construction contractor and an A-E firm or construction prime contractor with an A-E subcontractor. Note that the A-E firm that developed the DB RFP is typically ineligible to be an A-E for the subsequent DB contract (FAR 9.5).
- b. The advantage of this method is that all expenses for design and construction are obligated with a single contract action. This method can also work well if the construction contractor and A-E have familiarity with each other and with federal contracting. In this case there can be a true partnership between the design effort and the construction planning.

3-3.3 Statement of Work: Construction IDC for Small Projects.

Small repair and maintenance projects that consist of consistent and clearly definable work elements can be procured using a construction IDC. Use the Construction IDC for Small Projects template statement of work, Appendix C-2.1, as a source of uniform airfield requirements for small repair and maintenance projects. The intent is to establish requirements for most airfield repair work elements in the base contract and issue task orders that provide further details. Construction IDC for Small Projects is applicable to projects with values of less than \$750,000 or no greater than 10,000 square feet of new pavement. Example projects are crack repair, friction testing, replace joint sealant, fog coats, and concrete slab replacement. Utilize a construction DBB or DB procurement for projects of greater magnitude.

The items that need to be selected for inclusion in the IDC are listed as work elements. Develop task orders per project and include work elements, along with airfield access, security, and reporting requirements.

3-3.4 Statement of Work: Marking Application, Rubber and Paint Removal.

The Marking Application, Rubber and Paint Removal template statement of work, Appendix C-2.4 is used to hire a construction contractor to perform application of pavement markings and/or removal of rubber deposits and paint from asphalt concrete or portland cement concrete airfield pavement. This statement of work is used to identify methods, materials, and equipment in accordance with standards and needs of the installation. If friction measurements are above agency standards and in consultation with Agency SME, consider delaying the rubber removal until a later date. Rubber removal when accomplished prematurely can negatively impact or lower friction over time.

1. Ensure the services are performed in accordance with a completed design consisting of drawings and specifications.
2. Close coordination is required with the installation for schedule, airfield access and phasing plans. Examples of unique requirements are airfield marking plans,

paint type, reflective media, and other items. In addition, maintain rubber removal method records and any alternate rubber removal methods utilized to maximize pavement surface life.

3-3.5 Acquisition Selection.

Selection of an experienced construction contractor is the most important factor in airfield pavement construction or repair. Preferred construction contractors find, train and direct skilled tradespeople in the work being performed. They research and procure the materials needed. They own, maintain and resource the proper equipment. For DOD contracting, the construction contractor also abides by numerous regulations that protect and uphold the public trust. Therefore, it is the Government's best interest to utilize contracting methods which are attractive to the right construction contractors and select highly qualified contractors at the best value, not necessarily price.

3-3.5.1 Small Repair and Maintenance Projects

Small airfield repair and maintenance projects are typically procured and constructed using installation repair contracts that also include work for parking lots and road repair projects. Due to unique and increased technical requirements, procure airfield pavement repair and maintenance projects separately from road and parking lot projects. While the project size might justify a reduction in requirements, it is the goal of the Construction IDC for Small Projects to maintain the necessary quality while providing reasonable and practical construction methods. Ensure the base IDC includes specific airfield requirements such as closure and traffic requirements, communication methods, emergency airfield operations, airfield access and training, all specific to the installation. Ensure the IDC provides clear and concise guidance on the contractor evaluation and selection process. Unlike JOC or SABER contracts the IDC needs to establish evaluation criteria for contractors experienced in airfield paving and lighting. While the scope of each task order will be greatly smaller than a typical airfield project, the same quality paving procedures, methods, and ultimately results are expected.

3-3.5.2 Large Repair and New Construction Projects

The contracting methods most likely to achieve the desired quality outcome is a standalone DBB FFP contract utilizing a Best Value Tradeoff RFP, see FAR 15.101-1, or a pre-selected pool of highly qualified airfield pavement contractors, an airfield paving-specific MATOC. Tailor MATOCs for horizontal construction work with a particular specialty in airfield pavements. Many installations have small IDCs for small airfield repairs already in place; however, an example of a large repair and new construction airfield pavement MATOC was developed and managed by USACE. It is a \$400M Unrestricted MATOC Pool with a \$99M Small Business Set Aside Pool for use in the Northwestern Division area of responsibility. To develop and award a Construction MATOC typically takes a year or more and requires multiple known projects to justify its creation, so if a MATOC is not already in place, and/or there is only one known project within the next 5 years, use a standalone DBB FFP contract. A successful and quality outcome can be achieved in a direct solicitation open to all contractors using a Best

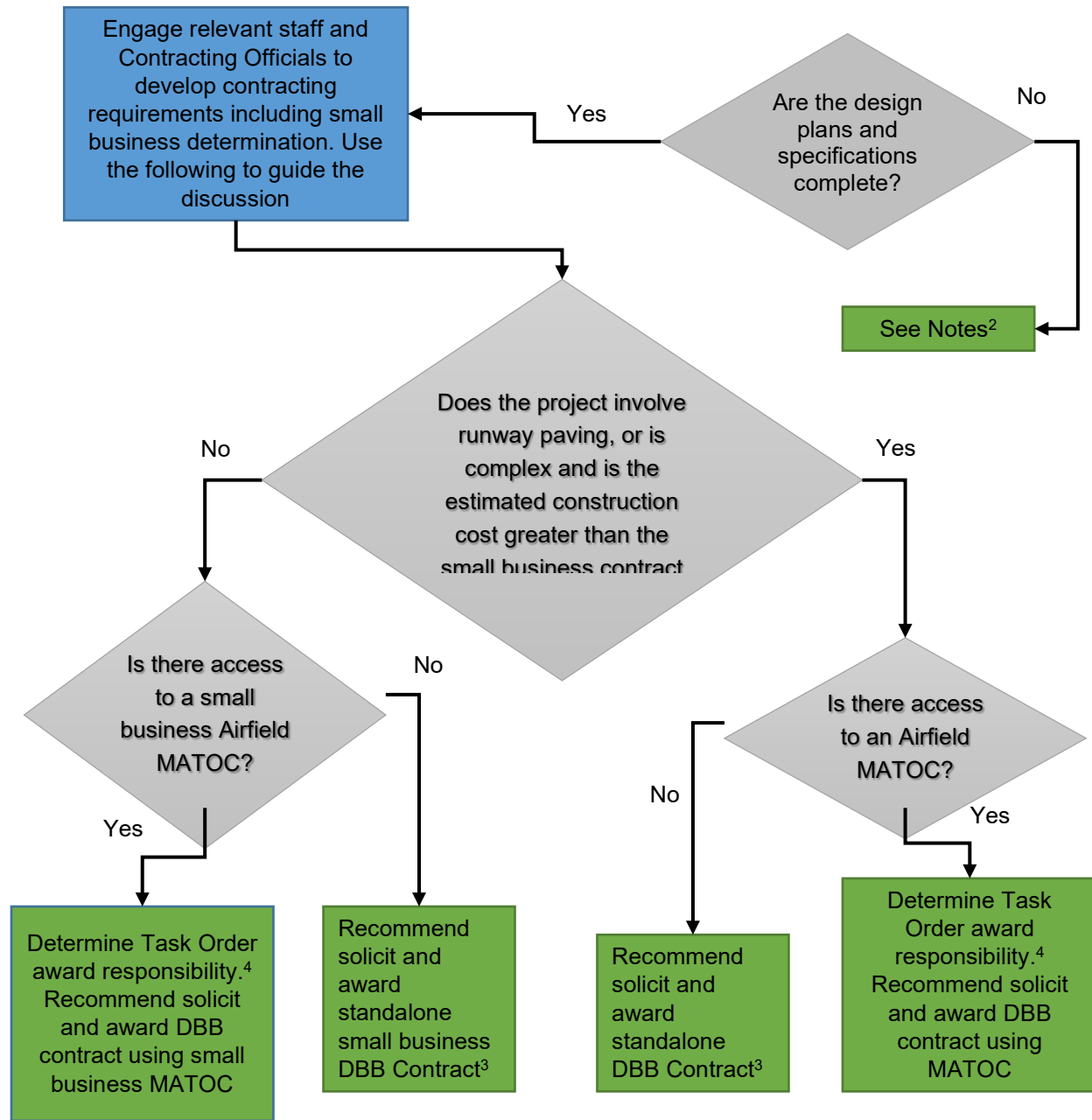
Value Tradeoff RFP. Use FAR Part 15 “Negotiated” method and require evaluation criteria that demonstrates an extensive knowledge of airfield construction and oversight. It is recommended to use the following selection factors:

- **Previous experience.** Prior airfield construction experience demonstrated through evidence of self-performed work and project descriptions. Project descriptions consist of the size of the project, dollar value and amount of pavement placed; customer; lighting requirements and completion date. Projects provided are similar in scope to the advertised project and are recent, completed within certain time frame from date of advertisement, and at least 50 to 75% complete. Consider Department of Defense (DOD) and Federal Aviation Administration (FAA) airfield construction experience a highly weighted source selection factor.
- **Past performance.** This is demonstration of the proposer’s performance on relevant projects to include the projects identified in the previous experience factor. Past performance questionnaires and Contract Performance Assessment Reporting System (CPARS) evaluations are submitted to demonstrate this factor.
- **Management and Technical Approach.** The management approach consists of a description of the organization structure. It is demonstrated through a narrative, organizational chart and resumes for key positions. The technical approach is a demonstration of the DOD airfield construction process and project requirements. This consists of a narrative that describes construction sequence and methods; mix design development and review; batch plant requirements; aggregate source; testing requirements; and acknowledgement of the Contractor Quality Control personnel requirements. The technical approach also includes a tentative schedule. While it is understood that the tentative schedule will change and is not contractually binding, it is an indication of whether the contractor understands airfield phasing, paving sequencing, material development, quality control and approval process.

An acquisition decision matrix is provided in Figure 3-3 to assist in the contract selection process for a DBB RFP solicitation. The first decision point is whether project plans and specifications have been prepared. If the design is not complete, consult the A-E design decision matrix, Figure 3-2, and paragraph 3-2.2 for further guidance. If not already developed, engage personnel with airfield-related design and construction experience, and contracting officials to determine contracting requirements. Ensure source selection criteria, acquisition strategy and small business determination are discussed. It is recommended that runway or complex projects with estimated construction costs greater than the small business contract limitations utilize an unrestricted airfield-specific MATOC. If plans and specifications have been developed and are ready for solicitation but there is not access to an airfield-specific MATOC, recommend that the solicitation package utilize a standalone DBB FFP Best Value Tradeoff contract. Contact the installation civil or pavement engineer or USACE TSC for technical support.

3-3.6 Construction Contract Acquisition Decision Matrix.

Reserved



Notes:
¹This matrix is applicable to DBB RFP acquisitions.
²Utilize Figure 3-2 A-E Design Decision Matrix
³Develop an airfield specific MATOC if several future airfield projects are anticipated and there is available schedule.
⁴Army contact the USACE TSC; Air Force contact AFICC:
 772ess.aenext.contracting@us.af.mil

Figure 3-3 Construction Contract Decision Matrix

CHAPTER 4 BEST PRACTICES

4-1 LESSONS LEARNED

The following is a list of lesson learned and best practices for contracting, planning or programming, design, and construction of quality airfield pavements and projects:

4-1.1 Contracting and Planning

4-1.1.1 General

- a. Utilize separate contracts for horizontal airfield projects. Do not combine airfield paving projects with other vertical features (e.g., hangars, control towers, etc.) of work.
- b. Award design and construction projects only to qualified A-Es and construction contractors.
- c. Provide careful consideration and development of source selection evaluation criteria. Recommend that the USACE Transportation System Center or airfield experienced personnel review SSEB evaluation criteria.
- d. Be careful about committing to awarding contracts late in the fiscal year. The concern is that the project requirements are hastily developed whether a DB or DBB project delivery method is selected. In many cases this also results in a lack of thorough proposal review and contractor selection.
- e. Communicate impacts, expectations, and possible outcomes early and clearly to the stakeholders. This recommendation applies to items such as design considerations and issues, construction related variations, and in place deficiencies.
- f. Ensure that the project delivery and procurement method are appropriate for the type of work to be performed. Vast majority of MATOCs are developed utilizing selection criteria focused on a vertical construction contractor with the implication that horizontal work such as pavement construction can easily be subcontracted. Airfield paving requires specialized contractors and equipment which are best procured through an airfield paving specific contract. It is preferred to separate the pavement construction from the vertical construction procurement.
- g. Contract success starts with the initial funding decisions. Involve the installation civil or pavement engineer or USACE TSC early in the life of the project. Include the installation civil or pavement engineer or USACE TSC in the initial planning and programming phase before the design phase begins.

4-1.1.2 Design AE Selection

- a. Ensure A-Es are qualified in the design of DOD airfields. Recommend evaluating A-E firms and professional experience as follows: DOD airfield experience is highly relevant, FAA airfield experience is moderately relevant, and road/highway experience is NOT relevant. Although highway design utilizes similar fundamental engineering theory as airfields, the actual performance requirements, design criteria,

and material requirements are substantially different enough that highway design experience does not demonstrate equivalent competency for airfield design. While FAA airfield design criteria is similar to DOD requirements, there are differences in the criteria and management procedures. This contributes to a risk increase of design non-compliance, poor construction execution due to errors and omissions, and/or early failure of the constructed pavements when relying on a DOR with no DOD design experience.

- b. Consider experience in the scope and scale of past work when evaluating qualifications for the project's specific needs. Replacing an existing pavement can be more complicated than building new as evaluating and designing around existing site conditions may be more complex. Replacing only the pavement is simple compared to multi-discipline coordination with airfield lighting, storm water, and/or mass grading. The design of partial major or minor/localized repairs can be more complex than wholesale replacement that provides a clean slate. For example, experience with reuse/recycling of materials requires unique experience compared to simply "picking from the menu" with virgin materials. A full runway closure requires minimal phasing/sequencing development compared to partial closures that could influence pavement design and details.

4-1.1.3 Construction Contractor Selection

- a. Always use Best Value – Trade Off Firm Fixed Price Design-Bid-Build solicitations, the advantages are:
 - High quality airfield pavement is a significant investment, allowing contractors the opportunity to demonstrate qualified experience and performance through selection of quality materials, specialized equipment/technicians, enhanced or robust QC testing beyond specification requirements, and identifying additional QC personnel benefits the Government.
 - Rather than focus on low cost, this method increases likelihood of successful completion and durability of airfield pavement projects. It also allows the contractor to budget for rework, which is almost inevitable.
 - Limited opportunity for innovation to reduce costs; specifications are very prescriptive; innovations typically do not provide direct economic benefits but rather indirect through reducing the risk of rework.
- b. Reductions in length of critical mission interruptions in the construction schedule can be considered as a selection factor. Note that this may be a risky approach as unforeseen conditions or material supply interruptions may nullify any perceived schedule advantages at award. Any RFP utilizing this selection factor should thoroughly research all schedule risks and implement mitigating strategies.
- c. DBB is the preferred project delivery method regardless of acquisition strategy.
- d. For airfield pavement projects best value is not defined in terms of added product or scope. Best value is defined as reduced risk to either schedule or quality. Even if schedule delays are the contractor's responsibility, the associated operational

impacts can be substantial both qualitatively and quantitatively even if not directly reflected in the liquidated damages (LDs). Improved quality reduces rework which reduces or limits impacts to schedule and is in the Government's best interest regardless of the contractor's responsibility. Also rework typically produces a lower quality product even if it is within specifications. Quality results that exceed the specification minimums only add value to the Government in terms of better long term pavement performance. Accordingly, any approaches that reduce risk to schedule and quality but require additional costs to implement ought to be considered as a significant added value when making trade-off decisions.

- e. Require offerors to provide a technical approach that sufficiently demonstrates an understanding of the unique aspects of the airfield paving UFGS, e.g., paver, transfer vehicles, batch plants, production rates, acceptance criteria, deleterious materials, etc. Utilize responses to determine responsible bids / technical acceptability.
- f. Paving contractor experience and/or past performance; DOD highly valued, FAA average value, highway no value; demonstrates knowledge of highly unique/demanding specification requirements compared to rest of industry. Several examples and/or examples of more complexity should be considered added value. Construction firms who have successful past performance with DOD airfields and who have retained the same experienced key personnel for the next airfield project could be an added value. For example, the chance for a successful project is increased if the contractor's team, responsible for completing an outstanding airfield paving project, is substantially the same personnel proposed for a new project.
- g. Robust QC processes and manning beyond specification minimums are added value.
- h. Specialized/modified equipment tailored to airfield paving are added value.
- i. Additional/spare equipment to mitigate work stoppages and rework are added value.
- j. Hold pre-solicitation conferences with possible proposers to discuss the project and the solicitation documents. Highlight specification changes in the solicitation from previous master guide specification versions or changes due to project specific requirements. This is also strongly recommended when utilizing construction acquisition strategies that do not utilize pre-qualified pavement contractors.
- k. Develop source selection criteria that identifies prime contractor owned paving equipment, self-performing airfield paving work and experience paving DOD airfield projects as significant strengths or preferences. In addition, clearly define criteria for each teaming partner unique to their role, for example:
 - Prime contractor: Project management, superintendence, and quality control of airfield paving
 - Paving subcontractor: actual paving performance
- l. Develop a plan for success when the least optimum project delivery method is selected. For example, when forced into a small business DB delivery method with a scope that includes horizontal and vertical construction, ensure airfield pavement

elements are included, such as airfield paving specific source selection criteria and detailed airfield paving requirements.

4-1.2 Design

- a. Do not edit Unified Facilities Guide Specifications outside the brackets, especially for pavement material related specifications without acceptance of the approving authority!
- b. Editing outside the brackets affects cost and quality. Contractors don't have time to re-read the entire specification every time they bid. They look for the edited items and then prepare their bid. If they see that a contract has other edits, they may consider added risk in their bid to account for uncertainty in requirements.
- c. Evaluate availability of local aggregate sources. Utilize results to inform the project budget. Potentially utilize results to inform construction contract offerors of material availability but take caution not to make the Government liable for material sourcing issues during construction.
- d. The designer of record or installation engineer and reviewers ensures all review comments are addressed in the design prior to solicitation.
- e. Review contract requirements, special contract requirements Division 00 and 01 specifications in detail by the designers and reviewers. Ensure the contract is explicit on the work requested to be constructed resolving contradictory or omitted requirements. Ensure SOFAs are included and fully understood.
- f. Utilize the SpecsIntact program for editing specifications. Download current masters from the WBDG website (<https://www.wbdg.org/ffc/dod/unified-facilities-guide-specifications-ufgs>). Do not edit the Adobe Acrobat pdf files from the WBDG website. Also utilize the tailoring options within each specification.
- g. Use the recommended Design Analysis (DA) outline as a guide when developing the DA. A checklist is provided in Appendix D-1 – Airfield/Heliport Pavement Design Analysis Outline Checklist. Update the DA continuously throughout the design of a project.
- h. Use the recommended contract drawing outline as a guide when developing the drawing package for a project. A checklist is provided in Appendix D-2 – Airfield/Heliport Pavement Contract Drawing Outline Checklist. Not all the drawings listed are required for all projects.
- i. Engage with the USACE TSC as early as possible, preferably at the planning and programming stage. Also engage them at least at key points in the design (Concept, Intermediate, and Final) to ensure compliance with UFC criteria and specifications are edited properly. See US Army Engineering Regulation 1110-34-1 for mandatory USACE TSC involvement
- j. Evaluate and validate equivalency between host nation standard test methods and ASTM International (ASTM) test methods. Titles of the standard test methods may be the same, but this does not guarantee standards are equivalent. Host nation standards with similar titles to ASTMs might utilize different testing procedures and

equipment (size, weight, energy), meaning the resulting values may not be equitable to those referenced in the UFCs for design inputs nor those in the UFGS for construction QC. ASTM standard test methods are provided in US customary and metric units and have been enforced on many OCONUS projects.

- k. Customers, stakeholders, and end users need to be involved in the design stage of the project. Ensure they are given an opportunity to review the final design. Discretionary changes during construction can be extremely costly, having them identified and included during the design stage benefits the Government.
- l. Reject design submittals when designs or recommendations do not comply with UFC or industry standards for airfield pavements. Failure to comply with UFCs on DOD property is analogous to violating local building codes in the local community.
- m. Coordinate utilities including manholes and utility structures between the various disciplines. Show both planned and existing utilities above and below grade on the civil and electrical design drawings to ensure resolution of conflicts. For example, provide taxiway lights and junction boxes lights on the civil drainage plans and pavement joint plans.

4-1.3 Construction

4-1.3.1 General

- a. Maintain consistent qualified QA personnel throughout the duration of the airfield pavement project. Frequently changing QA personnel throughout the project duration is detrimental to the project.
- b. Generally, contractors that are successful performing airfield pavement construction projects own the necessary equipment and self-perform majority of the work.
- c. Be knowledgeable of and consider the type of contract, specifically DB. Ensure it is actively managed during both the design and construction phases.
- d. Hold the DOR responsible for errors and omissions through enforcing the DOR to prepare design corrections in a timely manner.
- e. Enforce the contract documents, specifications, and drawings.
- f. Develop methods to enhance the communication between the Government and contractor.
- g. Communicate early with the stakeholder corrections to deficient areas of work and impacts to the project schedule.
- h. Conduct and document detailed and appropriate contractor performance evaluation reviews.
- i. Contractor performance reviews such as Contract Performance Assessment Reporting System (CPARS) are valuable tool but are only beneficial if used correctly and the proper information is provided. This is one of the few tools that can impact a contractor's ability to be awarded future work.

- j. Do not approve any requests for variations to specifications without the consultation of a qualified individual that fully understands the purpose, impacts, and risks. This applies to all aspects from materials to prescriptive equipment and process, QC limits/actions, and acceptance requirements. Items that appear as minor requirements to the layperson can have profound influence on the long-term performance of the pavement. The UFGS are written to ensure success in essentially all scenarios, so there are rare occasions where variations are reasonable and present the best overall program-level value to the Government. However, ensure evaluation of such scenarios are done by a competent engineer familiar with the specifications' intent in terms of pavement performance, specific materials, equipment, processes being utilized, basis of design for the pavement structure, and the associated operational safety risks for the mission aircraft. No reduction in specification requirements should be approved without either a trade for an added value to the Government or identification of the added risk and the contractor's measures to mitigate such risks.
- k. Implement accurate LDs. Full cost impacts for aircraft relocations due to construction are often not fully accounted for, resulting in inaccurate incentives for contractors to complete the work on time. Per diem costs for moving a unit to another airfield are straightforward but added fuel costs, due to further flight distances to ranges, are harder to determine. Although often a smaller amount, a simple re-routing of a primary taxi route can still result in thousands of dollars of daily added fuel costs for busy locations. Balance the LD value with potential offerors' risk assessments as it may reduce the number of willing offerors and create a less competitive bidding environment. Conversely, it can help eliminate less qualified potential offerors whose experience and QC processes lend to a higher risk of schedule growth.
- l. Do not delete nor fail to apply the payment adjustment sections in the UFGS. They provide significant incentives for contractors to perform high-quality paving. Additionally, they provide a contractual quantitative economic value that can be referenced when a contractor attempts to make an "economic waste" argument in rebutting specification requirements for rework and corrective action.

4-1.3.2 QC/QA Personnel and Process

- a. Educate personnel on the importance of airfield pavement work. Often both the contractor and QA personnel exhibit an indifferent attitude, treating it as a simplistic paving project. In addition, QA personnel often take the noncommittal attitude, relying solely on the contractor's expertise and work effort.
- b. Staff the project with QA personnel familiar with Portland Cement Concrete (PCC) or Hot Mix Asphalt (HMA) airfield paving with preference given to DOD specific airfield paving projects.
- c. Ensure Quality Assurance personnel are consistently present on the project site.
- d. Quality Assurance and Quality Control personnel that lack of knowledge of the equipment, construction means, and methods and reporting requirements are a detriment to the project. Recommend qualified QA personnel be identified early so

supplemental training can be provided if needed prior to construction, for example, USACE TSC workshops, Air Force Institute of Technology (AFIT) courses, ACI, and Asphalt Institute courses and certifications.

- e. Ensure the QA personnel and contractor have a complete understanding of the contract pavement material specifications, specifically the Proportioning Studies and Job Mixture Formula requirements.
- f. Ensure that the QA and QC qualified personnel have a fundamental understanding of the contract required submittal process and contract documents. Ensure personnel assigned to DB projects understand RFP documents, design during construction documents and the Issue for Construction documents. QA personnel are to utilize all necessary tools (Resident Management System (RMS), 3-phase, deficiency tracking, serial letters, etc.) to ensure all test and inspection data is submitted to the Government in a timely manner and reviewed against the contract documents prior to proceeding on related successor activities.
- g. Reject RFI or variation recommendations when they do not comply with UFC or industry standards for airfield pavements.
- h. Ensure contract period of performance includes adequate time for development of all preconstruction submittals and material procurement. For example, a concrete mix design can take six months to develop if a contractor is being risk adverse in dealing with unfamiliar material sources. Failure to provide the contractor adequate time to prepare for the work potentially results in schedule growth. Depending on the full contract terms, it may be attributed to either the contractor or Government but almost always increases risk of poor performance regardless of the liable party and negatively impacts the mission.
- i. Ensure proper preparation of the project specific QC Plan and that it meets the contract requirements.
- j. Ensure proper preparation of the project specific QA Plan. Develop the QA Plan utilizing the QA Plan template. The QA plan should identify key personnel, qualification, and their roles and responsibilities, lines of communication, a list of key submittals, QC and acceptance testing requirements including tolerances and QA testing requirements to include testing laboratory, frequency, and test method.
- k. Be proactive in the planning and development of the QA testing requirements, funding, and procurement. Establish the QA testing program to perform 5 to 10% of tests for verification of QC and acceptance results. See Engineering Regulation (ER) 1180-1-6 Construction Quality Management for Army mandatory requirements and recommendations for other agencies.
- l. Emphasize the importance of preparing an accurate and detailed schedule, for example, ensure the schedule is cost loaded and keyed to Proposed Techniques – Paving Pattern and Sequence. Require approval of the project schedule prior to beginning construction.
- m. Ensure submittal compliance reviews are conducted by experienced qualified QA personnel.

- n. Instill and reinforce respect for the QC process with the contractor and QA personnel.
- o. The relationship between the Contractor Quality Control System Manager (CQCSM) and Superintendent is of utmost importance. Schedule and production priorities tend to supersede quality when there is a conflict.

4-1.3.3 Materials and Construction Method

- a. Engage the construction contractor as soon as possible to ensure that the aggregate quality testing is started immediately after NTP.
- b. Verify with contractor that all material components such as admixtures, cement, fly ash, ground blast furnace slag have been secured immediately after award and ensure enough is purchased to complete the project.
- c. Knowledge of local materials and their availability by both Government and contractor personnel is beneficial to the project. This refers to the general understanding of the material and whether they meet contract requirements for QA and QC purposes. Material availability is important information to understand so that options or limitations can be properly assessed.
- d. The contractor is responsible for addressing contingency planning, for example, material, fly ash, or cement shortages. This assumes the first mix design submission is approved. Determine a contingency plan during the initial construction kick-off meeting, partnering meeting or mutual understanding meeting. Ensure the contingency plan is outlined in the project schedule.
- e. Ensure and emphasize the importance of receiving complete material submittals specifically HMA and PCC pavement mixture designs. Late and incomplete mixture designs cause development and review iterations impacting the project schedule. The material specifications provide explicit guidance on the mixture design submittal requirements.
- f. Recommend mix design study and aggregate testing to be performed at a single laboratory.
- g. Start PCC pavement mixture design early as soon as the preliminary proposed proportions has been approved.
- h. Start HMA pavement mixture design and testing early, as soon as the raw ingredients have been identified and samples obtained.
- i. Primarily to prevent risk of extended and unexpected impacts to aircraft operations, but also for quality and rework prevention purposes, require an approved mix design and test section before starting airfield pavement demolition. Specify the test section location outside the production portion of the work to assist in the enforcement of this recommendation. If operational requirements drive a more rapid schedule and/or no off-site location is available, recommend at least the preliminary proposed proportions and proposed techniques submittals be approved prior to demolition.

- j. Paving is inherently difficult as it is a manufacturing process continuously exposed to dynamic weather events utilizing variable raw materials procured with aggressive methods with very little processing prior to usage. The UFGS have been developed to consider these risks and still yield a quality product with acceptable long-term performance well within the capabilities of the paving industry. The intent of the pavement material specifications is to produce an on-site pavement manufacturing process with consistent high-quality results with little risk for long-term pavement distress or deterioration. Therefore, do not penalize a contractor with a high-quality construction and QC process if slight adjustments are necessary, e.g., rework or corrective action beyond specification requirements, payment adjustments beyond specification requirements. Similarly, recognize a contractor with a low-quality construction and QC process that fortuitously succeeds in producing a specification-compliant test section during ideal conditions as a high-risk scenario for both the contractor and Government. The contractor should be advised of the risks of substantial rework during production, e.g., caused by routine expected variability in climate or materials that QC system is too slow to react to, non-optimized mix designs that are sensitive to small changes, etc. Also, consider revising the Government QA plan to assign more resources to the job. In both situations, continually check the contractor throughout the process.
- k. Ensure proper preparation for the test sections. Ensure the receiving surface and material is placed and approved; equipment is onsite and inspected; environment constraints acknowledged; reinforcement inspected, installed, and approved; dowels and forms in place and inspected in advance of the test section placement.
- l. Check and confirm aggregate quality and gradations considering the method of handling and transportation.
- m. Ensure on-site housekeeping and storage of raw ingredients are adequate for the situation, method, and environment. View the entire process as a mobile manufacturing plant without the benefit of a roof or conditioned environment in which to place the pavement.
- n. Clarify with the contractor and QA personnel methods allowed to control water-cement ratio within acceptable range of the approved mix design.
- o. Ensure proper planning for adverse weather. Ensure plans are developed and submitted well in advance of material placement. Understand environmental placement conditions (cold, heat, rain) and plan accordingly such as night placement, spring/summer/fall restrictions, provide wind breaks/sunshades and/or fogging machines.

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APPENDIX A GLOSSARY

A-1 ACRONYMS

ACO	Administrative Contracting Officer
ACI	American Concrete Institute
A-E	Architecture-Engineer
AFICC	Air Force Installation Contracting Center
AFIT	Air Force Institute of Technology
AFCEC	Air Force Civil Engineer Center
ASTM	ASTM International
BIA	Bilateral Infrastructure Agreement
CMS	Construction Management Services
CPS	Construction Phase Services
CONUS	Continental United States
COR	Contracting Officer's Representative
CPARS	Contract Performance Assessment Reporting System
CQCSM	Contractor Quality Control System Manager
CR	Cost-Reimbursable
DA	Design Analysis
DB	Design-Build
DBB	Design-Bid-Build
DOD	Department of Defense
DOR	Designer of Record
ER	Engineering Regulation
FAA	Federal Aviation Administration
FAR	Federal Acquisition Regulation
FFP	Firm-Fixed-Price

FSRM	Facilities Sustainment, Restoration and Modernization
HQUSACE	Headquarters, U.S. Army Corps of Engineers
HMA	Hot Mix Asphalt
HNFA	Host Nation Funded Construction Agreement
IDC	Indefinite-Delivery Contract
IDIQ	Indefinite-Delivery Indefinite-Quantity Contract
IFB	Invitations For Bid
JOC	Job Order Contract
JV	Joint Venture
LD	Liquidated Damage
LPTA	Lowest Price Technically Acceptable
MACC	Multiple Award Construction Contract
MATOC	Multiple Award Task Order Contract
MILCON	Military Construction
NAVFAC	Naval Facilities Engineering Command
NTP	Notice to Proceed
OCONUS	Outside Continental United States
PCC	Portland Cement Concrete
PCI	Pavement Condition Index
QA	Quality Assurance
QC	Quality Control
REA	Request For Equitable Adjustment
RFI	Request For Information
RFP	Request For Proposal
RFPP	Request For Price Proposal
RMS	Resident Management System

SABER	Simplified Acquisition of Base Engineer Requirements
SATOC	Single Award Task Order Contract
SF	Standard Form
SME	Subject Matter Expert
SOFA	Status of Forces Agreement
SOW	Statement of Work
SSA	Source Selection Authority
SSEB	Source Selection Evaluation Board
TO	Technical Order
TORN	Task Order Requirements Notification
TSC	Transportation Systems Center (Center of Expertise)
TSPWG	Tri-Service Pavement Working Group
TTP	Tactic Techniques or Procedure
UPB	Unit Price Book
UFC	Unified Facilities Criteria
UFGS	Unified Facilities Guide Specifications
U.S.	United States
USACE	U.S. Army Corps of Engineers
USC	United States Code
WBDG	Whole Building Design Guide

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APPENDIX B REFERENCES

UNITED STATES DEPARTMENT OF THE ARMY

USACE ER 415-1-11, Biddability, Constructability, Operability, Environmental and Sustainability (BCOES) Reviews

USACE ER 1180-1-9, Design-Build Contracting

USACE ER 1180-1-6, Construction Quality Management

UNIFIED FACILITIES CRITERIA

<https://www.wbdg.org/ffc/dod/unified-facilities-criteria-ufc>

UFC 3-260-01, Airfield and Heliport Planning and Design, with Change 1

UFC 3-260-02, Pavement Design for Airfields

UFC 3-260-03, Airfield Pavement Evaluation

UFC 3-260-04, Airfield and Heliport Marking

UFC 3-260-11FA, Model Design-Build (D-B) Request for Proposal (RFP) for Airfield Contracts

UFC 3-260-16 O&M Manual: Standard Practice for Airfield Pavement Condition Surveys

UFC 3-270-01 O&M Manual Asphalt and Concrete Pavement Maintenance and Repair, with Change 1

TRI-SERVICE PAVEMENT WORKING GROUP

<https://www.wbdg.org/ffc/dod/supplemental-technical-documents>

TSPWG M 3-260-01.06-04, Expedient Trim Pad Anchoring Systems

TSPWG M 3-260-03.02-19, Airfield Pavement Evaluation Standards and Procedures

TSPWG M 3-270-01.08-2 Testing Protocol for Rapid Setting Rigid Repair Material

TSPWG M 3-270-01.04-10, Determining the Need for Runway Rubber Removal

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APPENDIX C A-E AND CONSTRUCTION STATEMENT OF WORK TEMPLATES

C-1 A-E STATEMENT OF WORK TEMPLATES.

Statement of Work templates for hiring A-E services for airfield paving planning and design projects:

C-1.1 A-E PLANNING.

Statement of Work template for hiring A-E services for planning or programming of airfield paving projects, titled “Architect-Engineer (A-E) Services Planning or Programming Study”.

STATEMENT OF WORK

**Architect-Engineer (A-E) Services
[Planning][Programming] Study**

for

***[Project Title]*
*[Project Location]***

**Contract Number:
*[insert contract number]***

**Date Prepared:
*[insert date]***

**Prepared by:
[Agency]
[Preparing Office]
*[Office Address]***

**STATEMENT OF WORK
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1. PROJECT INFORMATION

Contract: [*Contract Vehicle, such as “Indefinite Delivery Contract for General A-E Services”*]

Contract No.: [*Contract Number*]

Project Title: [*Project Title*]

Project Sponsors: [*Customer*]

Location: [*Project Location*]

2. WORK TO BE PERFORMED

Provide all professional engineering services necessary to study and provide recommendations for [*brief description of project – include test/surveys to be performed, the purpose of the report, the goals of the project, etc.*]. The [planning][programming] process for developing the study requires a data gathering visit to conduct interviews, thorough data gathering, analysis of the information and project data gathered, and identification of the on-going and future planning impacts. The A-E is to analyze the data gathered and develop draft recommendations prior to conducting a stakeholder [planning charrette][programming meeting]. The information from the [planning charrette][programming meeting] and data gathering are to be used to develop a study report, which is to be reviewed by the Government prior to its finalization. The Government uses this study to plan and develop schedules for the design and construction phase of the project and secure funding for future projects.

The [Customer] is responsible for the management and administration of real property assets. This contract is managed and administered by the [*insert agency*]. The Contracting Officer Representative (COR), serves as the primary point-of-contact for all direction given to the A-E.

The A-E is responsible for determining what disciplines and skill sets are required for accomplishing the work under this SOW and form a team accordingly. The A-E is to accomplish the required services and furnish the Government reports and other data together with the supporting material developed during the period of performance as set forth herein. During the execution of work, the A-E is to provide adequate supervision

and quality control to assure the accuracy, quality, timeliness, and completeness of the work.

3. Government POINTS OF CONTACT

a. Primary Points of Contact:

[Name]
Contracting Officer Representative (COR)
Phone: [Work Phone Number]
E-mail: [Government e-mail address]

[Name]
Contracting Officer
Phone: [Work Phone Number]
E-mail: [Government e-mail address]

b. Other Government Stakeholders:

[Name]
Project Manager (PM)
Phone: [Work Phone Number]
E-mail: [Government e-mail address]

4. GENERAL CONTRACT REQUIREMENTS

- a. A-E Responsibility: The A-E is responsible for complying with all requirements identified in the base [indefinite delivery] contract. The A-E furnishes all labor, materials, equipment, and perform necessary travel as required for the accomplishment of the project in accordance with the requirements specified herein and set forth under the SOW. The A-E is responsible for verification of existing conditions and background information and obtaining all necessary survey and investigation information necessary for design. The A-E is responsible for working with the Government during the development of the design to include any other requirements necessary for the successful solicitation, construction, and operation of the facility.
- b. [Permits and Responsibilities: The A-E is responsible for obtaining all permits not required to be requested or obtained by the U.S. Government in accordance with FAR 52.236-7, Permits and Responsibilities. Where the U.S. Government is required to obtain permits, the Government will notify the A-E and the A-E is responsible for preparing all necessary documentation for obtaining the permits. This includes, but is not limited to:
 - i. Preparing, coordinating, and obtaining a dig or excavation permit for all earth disturbing activities.
 - ii. All certifications required to accomplish the work described in this task order.]

- c. Centers of Expertise: *[Agency Office or Offices that will perform reviews]* [and] [the US Army Corps of Engineers (USACE) Transportation Systems Center (TSC)] is responsible for reviewing task order products. The A-E is responsible for incorporating requirements/comments from these stakeholders into the documents.
- d. A-E Project Manager: The A-E is responsible for designating, in writing, an English-speaking Project Manager to serve as the single point of contact and liaison between the A-E team and the Government. The A-E Project Manager (PM) is responsible for the complete coordination of all work required under this contract.
- e. Disclosures/Ownership of Data: All data, reports, and material related to this project are property of the Government. The A-E and his subcontractors are not authorized to make public announcements or disclosures relative to information provided for, contained in, or developed for this contract. This applies also to US Government-owned information made available to the A-E. The [planning][programming] documents and its related information are the property of the U.S. Government is not releasable to anyone without the written permission of the Contracting Officer. The obligation to maintain the confidentiality of all project information extends beyond the completion of the project.
- f. Laws and Regulations: The A-E is responsible for performing all studies and investigation efforts in full compliance with applicable US laws. The A-E is required to comply with all Occupational Safety and Health Administration, Environmental Protection Agency, *[insert agency]*, and federal and local safety and environmental requirements. In case of a conflict between these regulations, use the most protective standard. The A-E, employees, subcontractors, and their agents are required to possess all certifications and licenses to perform the work required by this contract.
- g. Modifications: Modifications are only issued in compliance with the contract clauses.
- h. Contract Directives: Official guidance and instruction that pertains to either the interpretation of this Task Order or the performance of the work described herein will be provided solely by the Contracting Officer or the Contracting Officer's Authorized Representative (COR). No other military or civilian personnel are authorized to provide direction on the contract scope and schedule. [The Customer may communicate directly with the A-E, as long as the COR is included in the communication, for the purpose of providing technical information and guidance needed to successfully complete the project.]
- i. Contract Authority: The contract relationship is directly between the *[Agency/District issuing contract]* and the A-E. If the A-E receives any request for services that are not within the Statement of Work, the A-E is required to immediately notify the contract COR for direction before acting on the request. Send all correspondence through the COR and if applicable the PM listed in this SOW, including review comments and responses. If the A-E receives information

from the Sponsor, or any other U.S. agency involved with the project, the A-E is responsible for documenting the information, source, date the information was received and notifying the COR and PM listed in this SOW. The A-E will not incorporate such information into the Design without first obtaining authority from the Contracting Officer or COR.

- j. Installation Access: The A-E is responsible for following all requirements for access onto the installation. The A-E is responsible for staffing the contract with personnel that meet all requirements for installation access, including all in-house and subcontractor personnel. Replace any person denied access to the installation at no cost to the Government.
- k. Site Access: The A-E is required to contact and coordinate access with the Local Authorities after obtaining permission from the COR. The A-E or representatives will be required to do the following to obtain site access:
 - i. [adhere to local traffic and parking guidance. No special requirements are required]
 - ii. [Schedule requirements: *Include any special scheduling requirements such as access is only allowed during the weekends or nights, provide special times or days that the airfield is unavailable. The requirements should be task specific.*]
 - iii. [Airfield Driving Training: *Include requirements such as length of training, who to contact, location of training, and details on when it should be scheduled.*]
 - iv. [Airfield Escort: *Include requirements such as who to coordinate with, duration, scheduling conflicts.*]
- l. Quality and Completeness of A-E Products: Complete all documents in sufficient detail meeting the requirements of this task order.
- m. Quality Control: The A-E is responsible for quality control of all submittals. Submittals that exhibit low-quality reproduction, poor information formatting, or obvious graphical or technical errors are considered sufficient grounds for rejection of the submittal.
- n. Submittal Reviews: Submittals will be reviewed by the Project Delivery Team (PDT) and other entities as noted in this SOW. Refer to Section 6 SUBMITTAL FORMAT AND DISTRIBUTION for the number and type of submittals and reviews required by this Contract. No portion of the A-E work is considered complete until is approved and accepted by the Government. The A-E requests guidance on unresolved issues or discrepancies. With each submittal, the A-E reviews the remaining work to be done and discuss the intended goals to be reached.
- o. Resubmittal of Inadequate Document(s): The COR has the option to require the resubmittal of any documents that are determined to be inadequate for the intended submittal purposes. The A-E corrects and resubmits the rejected

document as directed by the COR, but not more than five (5) calendar days after receiving written notification. Ensure the quantity of documents in the resubmission is the same as in the rejected submittal. As a result of a resubmittal, the task order schedule may be amended by the COR.

- p. Government Notification of Final Acceptance: The COR, with the Sponsoring Agency's concurrence, will notify the A-E of the Final Submittal's compliance within thirty (30) calendar days of the submittal. Where it is determined that the submittal meets all requirements and standards, the A-E will have completed the terms of the Task Order. Where it is determined the submittal is deficient, the A-E has five (5) calendar days to resubmit.
- q. Architect-Engineer Request for Information (A-E RFI): When the A-E needs additional, or a clarification of, information from the Government to facilitate the services required by this SOW, the A-E submits an A-E RFI requesting the needed information. Use a separate A-E RFI for each unrelated request. These requests, entitled "A-E Request for Information" are numbered sequentially and fully explain the requested information and all ancillary information needed. The A-E is responsible for documenting and tracking each A-E RFI including the resolution. The A-E must forward each A-E RFI to the COR and PM no later than five (5) working days after the need for information is determined.
- r. Mailings: Ensure all mailings do not negatively impact the schedule.]
- s. Records: The A-E provides the COR and PM with written record of any meeting, conference, discussion, or verbal direction in which the A-E or designated representatives have participated within 3 calendar days of an event. Ensure records are dated and identify participating personnel, subjects discussed, and conclusions reached.
- t. Construction Contract Prohibition: The A-E is prohibited from participating in the resulting construction contract.

5. Required services

As an independent contractor and not as an agent of the Government, furnish all labor, management, facilities, supplies, equipment, and material (other than those to be furnished by the Government as herein-after provided), and do all things necessary for performance of the work as set forth below. The A-E is to furnish the required personnel, equipment, instruments, and transportation, as necessary to accomplish required services and provide to the Government all documents and other data, together with supporting material, developed during the period of performance. During the execution of the work, provide adequate professional supervision and quality control to assure the accuracy, quality, completeness, and progress of the work.

- a. Task 1: Coordination. Project initiation is to begin with an A-E coordinated conference call to include the entire Project Delivery Team (PDT) that provides an overview of the goals, objectives, issues, the study methodology, project schedule and critical milestones, emphasizing the importance of stakeholder input and

participation in the decision-making process, and product deliverables. The A-E is responsible for familiarization of all information, leading the coordination call, documenting the meeting minutes, and providing initial A-E RFI. Submit the meeting minutes and A-E RFI within 5 days after completion of the coordination call.

- b. Task 2: Data Collection. The A-E is to initiate a fact-finding, data collection and site visit to collect stakeholder information and re-validate and confirm information previously furnished. The A-E is to conduct interviews with the [USACE and] [DPW] [Base Civil Engineering] personnel to obtain the latest project information and current/future development impacts. This would be an opportunity for the A-E to visit the project site and with approval of the [Post][Base] security forces take photographs.

[The A-E is responsible for familiarization of all information, including, but not limited to, current and planned airfield operations and upgrades, and status of airfield lighting equipment and circuits. Ensure current status of airfield lighting and circuits includes documented testing, either by the installation or the A-E, as defined in TSEWG TP-21 Visual Air Navigation Facilities: Air Facility Equipment Inspection And Testing. A-E is responsible for developing Draft Lighting Upgrade plans in preparation for the planning charrette in accordance with current US DoD Airfield Lighting Criteria, as defined in UFC 3-535-01 Visual Air Navigation Facilities and UFC 3-535-02 Design Drawings for Visual Air Navigation Facilities.] Coordinate the data collection and site visit through the COR.

- c. Task 3: [Planning Charrette][Programming Meeting]. The A-E is to facilitate a [insert number] day meeting. During the [planning charrette][programming meeting] the A-E will facilitate discussions to verify, at a minimum, the following: Validate the required scope, desired features, and specific use requirements of the stakeholders; and review alternatives and identify airfield requirements to include deviations from criteria, waivers to be pursued, preferred overall phasing, and impacts to other projects. The A-E is responsible for providing an In-brief that includes an initial site plan, data collection finding summary, project specific airfield criteria evaluation and any open issues. The AE is to provide the meeting findings in an Out-brief identifying changes to the project scope, unresolved issues and waivers that will be pursued. Ensure the Out-brief includes an updated site plan based on meeting discussion, stakeholder input and airfield criteria.
- d. Task 4: Prepare Draft Report Submittal. The draft report is a summation of the data collection, [planning charrette] [programming meeting] [and] [optional tasks]. Ensure the draft report includes recommended courses of action and narrative report. Ensure the draft report is a properly formatted, contains all applicable information and the appropriate figures and drawings. Submits the draft report in

accordance with Section 6, SUBMITTAL FORMAT AND DISTRIBUTION. Ensure the draft report includes the following:

- a. Cost Estimate: Develop a parametric cost estimate [to a minimum Class 4] in accordance with the requirements outlined in Attachment #1.
 - b. [Draft DD1391: Prepare and submit a draft DD1391 for the project, fully supported by the cost estimate. Develop the DD1391 in accordance with [AFI 32-1020] [insert agency requirements] requirements.]
 - c. Design and Construction Duration Schedule: Prepare a rudimentary schedule for the design and construction phase of the project utilizing all known constraints.
- e. Task 5: Review Meeting for Draft Submittal. The A-E is required to conduct an online Review Meeting not to exceed [*insert number*] day[s] discussing the submitted comments from the draft report. The A-E conducts a preliminary assessment of comments to address those that require no discussion or coordination and resolve those internally. The A-E presents the comments that require discussion and coordination during the review meeting and, where applicable, suggest a recommended resolution.
- f. Task 6: Prepare a Final Report. Ensure the final report addresses and resolves all comments and open issues prior to final submission. The A-E PM is to manage the Final Report development process. The A-E is to provide the final package in accordance with Section 6, SUBMITTAL FORMAT AND DISTRIBUTION.
- g. [Task 7: Topographic Survey. Perform a limited topographic survey to evaluate existing pavement surfaces [and airfield lighting] comply with current geometric criteria [and support parking plan development]. See Attachment #2 for the topographic survey requirements.]
- h. [Task 8: Structural Pavement Evaluation. Perform a structural pavement evaluation in accordance with UFC 3-260-03 utilizing [non-destructive testing (NDT)] [direct sampling]. See Attachment #3 for the structural pavement evaluation requirements.]
- i. [Task 9: Pavement Condition Index Survey. Perform a Pavement Condition Index (PCI) Survey in accordance UFC 3-260-16 with a [project level][100%] sampling rate to achieve a [*insert number*] confidence level. [Survey all distresses and provide a map showing locations and severity.] Ensure areas of abnormally high deterioration are divided into a new pavement section to prevent skewing of the

PCI and resulting repair recommendations. See Attachment #4 for the PCI requirements.]

- j. [Task 10: Testing. Perform destructive and non-destructive testing as necessary to determine root causes of pavement deterioration, particularly areas with abnormally high deterioration rates. See Attachment #5 for the testing requirements.]
- k. [Task 11: Geotechnical Investigation. Perform geotechnical investigations to evaluate subgrade and pavement materials. See Attachment #6 for the geotechnical investigation requirements.]
- l. [Task 12: Petrographic Analysis. Perform petrographic analysis of concrete specimens to evaluate for severity and continued reaction potential of ASR. See Attachment #7 for the petrographic analysis requirements.]
- m. [Task 13: [Storm Water] [and] [Sanitary Sewer] Investigation. Perform the required inspection of the [storm water system] [and] [sanitary sewer system]. Provide a report of inspection results. See Attachment #8 for the storm water and sanitary sewer investigation requirements.]
- n. [Task 14: Hydrology and Hydraulic Analysis. Perform an analysis of *[insert area of interest]* for evaluation of upgrades/changes to the existing storm water system. See Attachment #9 for the hydrology and hydraulic analysis requirements.]
- o. [Task 15: Hazardous Materials Survey. (LBP, asbestos pipe, transformer PCBs, etc.). See Attachment #10 for hazardous Materials Survey requirements.]
- p. [Task 16: Environmental Survey (endangered species, groundwater contaminants, etc.). See Attachment #11 for environmental survey requirements.]
- q. [Task 17: Economic Analysis. See Attachment #12 for economic analysis requirements.]

6. SUBMITTAL FORMAT AND DISTRIBUTION

- a. Coordinate all submittals with the Government COR and PM. Provide a Letter of Transmittal with each submission identifying the contents of the submission. No work is considered submitted until the Government COR receives it. [Ensure sufficient mailing time for submittals to be received by the required date.]
- b. Use [imperial][metric] system for all measurements.
- c. Provide documents in the amount shown in the Deliverables Table. Ensure text-based documents are 100% compatible with Microsoft Office software and delivered in both .pdf and editable native word processing format. Provide

electronic drawing files in both .pdf and editable native CAD format. Deliver Cost Estimates in the native Microsoft Excel, MCACES, or PACES file formats.

- d. All documents are to be submitted together in one package. Provide all text-based documents bound in binders. If multiple volumes are required, provide a cover sheet for each volume, and include a table of contents. Print all text-based documents on ANSI A (8.5" x 11") paper.
- e. Provide large figures or drawings on individual sheets, legible when printed on the minimum size sheet ANSI B. Ensure all figures and drawings are legible and clearly portray the information at an appropriate scale.
- f. Number of Copies: The A-E provides the listed copies of the documents, in electronic format, as well as hard copies (HC) in the amounts shown below, unless otherwise directed:

DELIVERABLE	[AGENCY SME] [USACE TSC]	[Office]	[Office]	[Office]
Draft Report	[#]	[#]	[#]	[#]
Final Report	[#] [# HC]	[#] [#HC]	[#] [#HC]	[#] [#HC]
[]	[#]	[#]	[#]	[#]
[]	[#]	[#]	[#]	[#]
Note: The Draft Report will be an electronic submission only.				

7. schedule

The period of performance for the base is [insert number] calendar days and is to commence on the day the Notice to Proceed (NTP) is issued. The NTP is issued with the Task Order Award. A tentative schedule, in terms of calendar days from award, is shown below. Submit the Draft Report within [insert number] calendar days from NTP.

Section 1.01 SERVICE OR DELIVERABLE	Section 1.02 Calendar Days after NTP
Initial Coordination Call	[#]
Data Collection and Site Visit	[#]
[Planning Charrette] [Programming Meeting]	[#]
Draft Report	[#]

Section 1.01 SERVICE OR DELIVERABLE	Section 1.02 Calendar Days after NTP
Draft Report Review Meeting	[#]
Final Report	[#]
[Topographic Survey]	-
[Structural Pavement Evaluation]	[#]
[Pavement Condition Index]	[#]
[Geotechnical Investigation]	[#]
[Petrographic Analysis]	-
[Storm Water [and] [Sanitary Sewer] Investigation]	[#]
[Hydrology and Hydraulic Analysis]	[#]
[Hazardous Materials Survey]	[#]
[Environmental Survey]	-
[Economic Analysis]	[#]

8. Special Conditions

- a. Reporting Problems: Identify and promptly report any problems to the Government COR with copy furnished to the applicable Sponsoring Agency. Report circumstances that result in delivery order delay in writing along with the reason for the delay and the A-E's proposed remedial action.
- b. Required Conditions for Anti-Terrorism and Operational Security: The A-E and all A-E contractor and subcontractor's employees must comply with the following:
 - i. *[insert conditions – this is pulled from the ENG Form 6055]*

9. ATTACHMENTS

All attachments provided are contract requirements. The A-E is responsible for incorporating the requirements into their cost proposal.

Attachment #1: Cost Estimate Guidance

[Attachment #2: Topographic Survey Requirements]

[Attachment #3: Structural Pavement Evaluation Requirements]

[Attachment #4: Pavement Condition Index Survey Requirement]

[Attachment #5: Testing Requirements]

[Attachment #6: Geotechnical Investigation Requirements]

[Attachment #7: Petrographic Analysis Requirements]

[Attachment #8: Storm Water [and] [Sanitary Sewer] Requirements]

[Attachment #9 Hydrology and Hydraulic Analysis Requirements]

[Attachment #10 Hazardous Materials Survey Requirements]

[Attachment #11 Environmental Survey Requirements]

[Attachment #12 Economic Analysis Requirements]

C-1.2 A-E DESIGN-BID-BUILD.

Statement of Work template for hiring A-E services to develop DBB documents for airfield paving projects, titled “Architect-Engineer (A-E) Services Preparation of Design for Design-Bid-Build (DBB) Acquisition”.

STATEMENT OF WORK

**Architect-Engineer (A-E) Services
Preparation of Design for Design-Bid-Build (DBB) Acquisition**

for

[Project Title]
[Project Location]

Contract Number:
[insert contract number]

Date Prepared:
[insert date]

Prepared by:
[Agency]
[Preparing Office]
[Office Address]

**STATEMENT OF WORK
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10. PROJECT INFORMATION

Contract: [*Contract Vehicle, such as “Indefinite Delivery Contract for General A-E Services”*]

Contract No.: [*Contract Number*]

Project Title: [*Project Title*]

Project Sponsors: [*Customer*]

Location: [*Project Location*]

11. WORK TO BE PERFORMED

Provide all professional engineering services necessary to develop a complete design for the construction of [*brief description of project*]. The intent is for the Government to advertise and award the design to a construction contractor as part of a Design-Bid-Build acquisition.

The A-E is responsible for determining what disciplines and skill sets are required for accomplishing the work under this SOW and form a team accordingly. Ensure the required services are accomplished and furnish to the Government reports and other data together with supporting material developed during the period of performance as set forth herein. During the execution of work, provide adequate supervision and quality control to assure the accuracy, quality, timeliness, and completeness of the work. The A-E is responsible to provide services to the Government during solicitation and construction of the project as they pertain to correcting ambiguities, errors, deficiencies, and omissions in the design.

[A separate option is included for the A-E to provide construction phase services to the Government during the administration of the construction contract. Construction phase services include, but are not limited to, the following: shop drawing and construction submittal reviews, documentation support, responses to requests for information, preparation and review of operation and maintenance manuals, and general technical assistance. The construction phase service tasks are detailed further in Paragraph 9 Option - Construction Phase Engineering Support Services. *[Note: If the construction phase services are included in the SOW ensure that the option is included in the contracting description of work or proposal schedule.]*]

Preparation of the design includes the following activities, at a minimum. Detailed requirements for all activities and products to be completed by the A-E under this contract can be found in other sections of this SOW:

- a. [Verification of Site Conditions]
- b. [Design Charrette]
- c. Engineering Studies:
 - i. [Site Survey]
 - ii. [Site Topographic Survey]
 - iii. [Geotechnical Investigation]
 - iv. [UXO Avoidance Survey]
 - v. [Value Engineering Study]
- d. Design Package including the following components, at a minimum:
 - i. Specifications
 - ii. Drawings
 - iii. Bid Schedules
 - iv. Submittal Registers
 - v. Construction Cost Estimates
 - vi. Design Analyses (including calculations and supporting documentation)
 - vii. Airfield Waiver Support

12. Government POINTS OF CONTACT

a. Primary Points of Contact:

[Name]
Contracting Officer Representative (COR)
Phone: [Work Phone Number]
E-mail: [Government e-mail address]

[Name]
Contracting Officer
Phone: [Work Phone Number]
E-mail: [Government e-mail address]

b. Other Government Stakeholders:

[Name]

Project Manager (PM)
Phone: [Work Phone Number]
E-mail: [Government e-mail address]

13. GENERAL CONTRACT REQUIREMENTS

- u. A-E Responsibility: The A-E is responsible for complying with all requirements identified in the base indefinite delivery contract. Furnish all labor, materials, equipment, and perform necessary travel as required for the accomplishment of the project in accordance with the requirements specified herein and set forth under the SOW. The A-E is responsible for verification of existing conditions and obtaining all necessary survey and investigation information necessary for design. Develop the design, through coordination with the Government, to include any other requirements necessary for the successful solicitation, construction, and operation of the facility.
- v. Permits and Responsibilities: The A-E is responsible for obtaining all permits not required to be requested or obtained by the U.S. Government in accordance with FAR 52.236-7, Permits and Responsibilities. Where the U.S. Government is required to obtain permits, the Government will notify the A-E and the A-E is responsible for preparing all necessary documentation for obtaining the permits. This includes, but is not limited to:
 - i. Preparing and coordinating all required documentation in accordance with local, state, and federal construction law for all relevant trades involved in the project. This also includes forms for the permitting process;
 - ii. Modification of the design and/or documentation after coordination with Construction and Permitting Authorities;
 - iii. Certificates and registration (in the location of construction) of involved personnel;
 - iv. [Preparing, coordinating, and obtaining a dig or excavation permit for all earth disturbing activities.]
- w. Centers of Expertise: The design will be reviewed by the [*Agency Office or Offices that will perform reviews*] [and] [the US Army Corps of Engineers (USACE) Transportation Systems Center]. The A-E is responsible for incorporating requirements/comments from these stakeholders into the design documents.
- x. A-E Project Manager: The A-E is responsible for designating, in writing, an English-speaking Project Manager to serve as the single point of contact and liaison between the A-E team and the Government. The A-E Project Manager (PM) is responsible for the complete coordination of all work required under this contract.
- y. Disclosures/Ownership of Data: All data, reports, and material related to this project are property of the Government. The A-E and his subcontractors are not authorized to make public announcements or disclosures relative to information provided for, contained in, or developed for this contract. This applies also to US

Government-owned information made available to the A-E. The design and its related information are the property of the U.S. Government is not releasable to anyone without the written permission of the Contracting Officer. The obligation to maintain the confidentiality of all project information extends beyond the completion of the project.

- z. Laws and Regulations: The A-E is responsible for performing all studies and design efforts in full compliance with applicable US laws. The A-E is required to comply with all Occupational Safety and Health Administration, Environmental Protection Agency, [*insert agency*], and federal and local safety and environmental requirements. In case of a conflict between these regulations, the most protective standard will be used. Ensure employees, subcontracts, and their agents have all the required certifications and licenses to perform the work required by this contract.
- aa. Modifications: Modifications are only issued in compliance with the contract clauses.
- bb. Contract Directives: The Contracting Officer or the Contracting Officer's Authorized Representative (COR) provides the official guidance and instruction that pertains to either the interpretation of this Task Order or the performance of the work. No other military or civilian personnel are authorized to provide direction on the contract scope and schedule. [The Customer may communicate directly with the A-E, as long as the COR is included in the communication, for the purpose of providing technical information and guidance needed to successfully complete the project.]
- cc. Contract Authority: The contract relationship is directly between the [*insert Agency*] and the A-E. If the A-E receives any request for services that are not within the Statement of Work, immediately notify the contract COR for direction before acting on the request. Send all correspondence through the COR and if applicable the PM listed in this SOW, including review comments and responses. To prevent misunderstanding leading to later changes in design, coordinate the design at all stages with the PM to verify any information from other sources before incorporating the data into the Design. If the A-E receives information from the Sponsor, or any other U.S. agency involved with the project, the A-E is responsible for documenting the information, source, and date the information was received and notifying the COR and PM listed in this SOW. Do not incorporate such information into the Design without first obtaining authority from the Contracting Officer or an authorized representative (COR).
- dd. Installation Access: The A-E is responsible for following all requirements for access onto the installation. The A-E is responsible for staffing the contract with personnel that meet all requirements for installation access, including all in-house and subcontractor personnel. Replace any person denied access to the installation at no cost to the Government.

- ee. Site Access: Contact Local Authorities, after obtaining permission from the PM, to arrange access to the site. The A-E or representatives will be accompanied by a person designated by the Local Authorities where necessary.
- ff. Quality and Completeness of A-E Products: Complete all design documents in sufficient detail to be competitively bid and constructed by construction contractors.
- gg. Quality Control: The A-E is responsible for quality control of all submittals. Submittals that exhibit low-quality reproduction, poor information formatting, or obvious graphical or technical errors are considered sufficient grounds for rejection of the submittal.
- hh. Submittal Reviews. Submittals will be reviewed by the Project Delivery Team (PDT) and other entities as noted in this SOW. Refer to Section 10 SUBMITTAL FORMAT AND DISTRIBUTION for the number and type of submittals and reviews required by this Contract. The work is not considered complete until it is approved and accepted by the Government. Request guidance on unresolved issues or discrepancies. With each submittal, review the remaining work to be done and discuss the intended goals to be reached.
- ii. Resubmittal of Inadequate Document(s): Any documents that are determined to be inadequate for the intended submittal purpose are required to be resubmitted. Correct and resubmit the rejected document as directed by the COR, but not more than five (5) calendar days after receiving written notification. Resubmit the same quantity of documents as in the rejected submittal. If necessary, discuss amending the task order schedule with the COR.
- jj. Government Notification of Final Acceptance: The COR, with the Sponsoring Agency's concurrence, will notify the A-E of the Final Submittal's compliance. Where it is determined that the submittal meets all requirements and standards, the terms of the Task Order are complete. Where it is determined the submittal is deficient, resubmit within five (5) calendar days.
- kk. Architect-Engineer Request for Information (A-E RFI): When the A-E needs additional, or a clarification of, information from the Government to facilitate the services required by this SOW, submit an A-E RFI requesting the needed information. Use a separate A-E RFI for each unrelated request. The information is requested by other documentation or methods such as, Confirmation notices, letters, memoranda, design analyses, annotated review comments, telecopies, telephone conversations, conferences, meetings, discussions, etc., document the requested information on an A-E RFI. These requests, entitled "A-E Request for Information" are numbered sequentially and explain the requested information and all ancillary information needed. The A-E is responsible for documenting and tracking each A-E RFI including the resolution. Forward each A-E RFI to the COR and PM no later than five (5) working days after the need for information is determined.
- ll. Mailings: Ensure mailings are made such that the schedule is maintained.]

- mm. Records: Provide the COR and PM with written record of any meeting, conference, discussion, or verbal direction in which the A-E or designated representatives have participated within 3 calendar days of an event. Ensure records are dated and identify participating personnel, subjects discussed, and conclusions reached. In addition to submitting these records separately, attach all records to the design analysis provided with each submittal.
- nn. Construction Contract Prohibition: The A-E is prohibited from participating in the resulting construction contract.

14. DESIGN CRITERIA

In addition to requirements in the base indefinite delivery contract, develop a list of applicable codes and criteria throughout the design process.

Ensure the design complies with US Department of Defense (DoD) Unified Facilities Criteria (UFC) 1-200-01 DoD Building Code with Change 1, US Air Force Requirements, USACE Publications, Geographic Command Orders, Installation Facility Standards, and any other requirements listed below. Where codes or criteria conflict, determine the most stringent requirement and include in the design. Document all conflicts and their resolution in the design analysis.

A list of key required DoD criteria is provided below. However, evaluate documents noted above and any others to determine all necessary criteria to be included in the designs. Department of Defense design criteria is available at www.wbdg.org. Review all applicable criteria and coordinate with the user for any applicable supplemental policy. Unless noted otherwise, follow the latest version of:

- a. General
 - i. UFC 1-200-01 DoD Building Code
- b. Pavement
 - i. UFC 3-260-01 Airfield and Heliport Planning and Design
 - ii. UFC 3-260-02 Pavement Design for Airfields
 - iii. [UFC 3-270-01 O&M Manual: Asphalt and Concrete Maintenance and Repair, with Change 1]
- c. Marking
 - i. UFC 3-260-04 Airfield and Heliport Marking
- d. Airfield Lighting
 - i. UFC 3-535-01 Visual Air Navigation Facilities
 - ii. UFC 3-535-02 Design Drawings for Visual Air Navigation Facilities
- e. Stormwater Drainage
 - i. Surface Drainage: UFC 3-201-01 Civil Engineering, and by reference FAA AC 150-5320-5D or subsequent version.

- ii. Subsurface Drainage: UFC 3-230-06a Subsurface Drainage and TSPWG M 3-260-02.11-4
- f. Underground structures
 - i. UFC 3-301-01 Structural Engineering
- g. [Aircraft Arresting Systems]
 - i. FC 3-260-18F Air Force Aircraft Arresting Systems (AAS) Installation, Operation, And Maintenance (IO&M)]

15. BASIS OF DESIGNS

The proposed construction consists of [*insert brief identification of work.*] Conform facilities to the stakeholder's requirements as identified below and in the subsequent A-E performed design charrette, design meetings, and as directed through the design process.

- a. Primary Scope: The A-E provides designs in accordance with the facilities and quantities identified in the [Authorization Document, such as DD Form 1391].
- b. Informational Documents: [*List any planning documents that will be provided here, such as a PDR or Charrette report.*] Refer to Section 13 **Government Furnished Information**
 - i. [Planning Charrette][Program Definition] Report
 - ii. [*Provide additional informational documents as necessary.*]
- c. Mission Requirements:
 - i. [*Use this section for any specific mission requirements*]

16. SPECIFIC DESIGN INSTRUCTIONS

The following are detailed instructions for the development of the design. This section is not intended to be comprehensive but is intended to clarify certain roles and responsibilities for work under this SOW and to highlight requirements for the specific locality of this project. These instructions do not alleviate the A-E from the responsibility to conduct discovery of design requirements throughout the design process.

- a. Designer's Cost Limit:
 - i. Construction Cost Limit: The Construction Cost Limit (CCL) for this facility and related site work is \$[*insert value*] (85% of Primary and Supporting Facilities Subtotal).

The A-E is responsible for providing a design within the CCL. During the Government's review of the design, recommendations submitted by the A-E concerning cost reductions and alternate or additive bid items will be evaluated and specific instructions furnished to the A-E concerning actions to be taken to complete the design within the funding limit. In exceptional cases, the Government has the option to revise the CCL.

b. Pavement:

- i. [The existing pavement feature does not fully comply with current design criteria. Per UFC 3-260-01, Paragraph 1-3, the anticipated repair scope is [not] addressing a mission change and the full pavement feature is [not] being repaired by replacement, so upgrading to full design criteria compliance is [not] required.]
- ii. [Runway]: Runway design shall be UFC Class [*insert value*] compliant per UFC 3-260-01 and UFC 3-260-02 criteria.]
- iii. [Runway Overruns]: Follow the design requirements of UFC 3-260-01 and UFC 3-260-02 and include pavement markings per UFC 3-260-04.]
- iv. [Aggregate]: The A-E is responsible for researching available aggregate source(s) that have capacity to supply this project with sufficient materials that are anticipated to meet requirements of UFGS 32 13 14.13 as well as base and sub-base materials as applicable. It is understood that aggregate sources may not be fully qualified until the PCC proportioning studies are underway during execution. [Results of the research are to be considered in formulating the cost estimate. If the cost is excessive for the scope of work, provide risk assessment for Government review. Variances to aggregate requirements are only allowed if coordinated and approved with the Agency SME and will only be considered in extreme circumstances with adequate research, risk-assessment, and value trade-off determinations.]]

c. Electrical

- i. If precast structures are to be used, the A-E is required to coordinate with the precast manufacturer prior to submittal of the Final Design Package.

d. Fiber Optic Transmission System:

- i. Encase new Fiber in a concrete ductbank.

e. Airfield Lighting and NAVAIDs

f. Aircraft Arresting Systems

g. Other Utilities

h. Hazardous Materials/Environmental

- i. [Concurrent Projects: The following project(s) are planned for or adjacent to the project site and are not included in the scope of this contract. The design documents [will] [will not] be made available when they become available.]

17. REQUIRED SERVICES

The A-E, as an independent contractor and not as an agent of the Government furnishes all labor, management, facilities, supplies, equipment, and material (other than those to be furnished by the Government as herein-after provided) and does all things necessary for performance of the work in accordance with the terms and conditions, more particularly, set forth below. Furnish the required personnel, equipment, instruments, and

transportation, as necessary to accomplish required services and furnish to the Government all documents and other data, together with supporting material, developed during the period of performance. During the execution of the work, provide adequate professional supervision and quality control to assure the accuracy, quality, completeness, and progress of the work.

- a. Verification of Site Conditions: The A-E is responsible for conducting a site investigation and verify all documentation provided by the Government. At a minimum, perform the following:
 - i. Review any existing documents pertaining to the site and surrounding buildings. It is the responsibility of the A-E to evaluate existing conditions within and in the immediate proximity of the project areas to determine if such conditions may affect or be affected by proposed construction. Inform the Contracting Officer in writing before proceeding with the project if there are site or building conditions that appear to affect the proposed construction.
 - ii. Photograph the sites and/or structures in connection with the projects, as necessary, to portray the initial conditions affecting the designs and construction. Furnish one copy of all pictures taken to the Contracting Officer at the time of the first review of the projects. The A-E is required to comply with regulations governing the use of photographic equipment on the military installation visited.
- b. Meetings: Conduct the following meetings. Prepare meeting minutes, including attendance lists, following all required meetings. Provide the meeting minutes in the design analysis.
 - i. Kick-off Meeting: The A-E is required to attend a teleconference kick-off meeting with the PM and other stakeholders. The kick-off meeting will be coordinated and lead by the PM but the A-E is responsible for providing meeting minutes within 5 calendar days of the meeting.
 - ii. [Design Charrette][Initial Design Meeting]: Conduct a [insert number]-day design charrette meeting [at location][virtually] with the PM and other stakeholders to review and discuss the SOW and specific requirements of the project. The intent of the meeting is to verify all the programming and user requirements on the project prior to starting development of the design. Present an in-brief, conduct discussions and site investigations with the User and stakeholders, and present an out-brief of their findings and path forward. Provide a [Design Charrette][Initial Design Meeting] Report detailing all findings within [insert number][14] calendar days of the out-brief. Include a list of critical RFIs to be resolved in the out-brief and report to ensure project success.
 - iii. Concept Design Review Meeting: Conduct a [insert number]-day concept design review meeting [at location][virtually] to present the Concept Design Package, review comments and cost estimate. Be prepared to discuss scope modifications required to meet the CCL. The meetings focus is on

review comments and to resolve any problems that arise at this submittal stage and clarify any issues that come up during the review process. The A-E is required to respond to all review comments or questions in writing. Include all comments and responses in the intermediate design analysis.

- iv. Intermediate Design Review Meeting: Conduct a [*insert number*]-day intermediate design review meeting [at location][virtually] to present the Intermediate Design Package, discuss review comments and cost estimate. Be prepared to discuss scope modifications required to meet the CCL. Focus the meeting on review comments and resolve any problems that arise at this submittal stage and clarify any issues that come up during the review process. The A-E is required to respond to all review comments or questions in writing. Include all comments and responses in the final design analyses.
 - v. Final Design Review Meeting: Conduct a [*insert number*]-day final design review meeting [at location][virtually] to present the Final Design Package, discuss review comments and cost estimate. Be prepared to discuss bid alternates and additive bid options. Focus the meeting on all comments and resolve any problems that arise at this submittal stage. Respond to all review comments or questions in writing. Include all comments and responses in the corrected final design analysis.
 - vi. Corrected Final Review Meeting: Conduct a teleconference design review meeting to resolve comments that remain open after the Corrected Final Design Package has been submitted and reviewed by the Government.
 - vii. [Pre-proposal Site Visits with Construction Contractors: Attend a 1-day pre-proposal site visit with prospective bidders at [*insert location*]. The A-E is required to respond to all bidder inquiries generated during these meetings.]
 - viii. Other Meetings: At the discretion of the COR, other meetings may be held with the A-E and Government project proponents to resolve any differences, clarify issues, or discuss any items germane to the successful execution and completion of this contract. Any such meetings called because of the A-E's failure to comply with the requirements of this delivery order is at the A-E's expense and at no additional cost to the Government.
 - ix. Design Comments: Use DrChecks/ProjNet for tracking all comments for each design phase.
- c. Design Package: Provide design packages including all documents listed below in accordance with the requirements of this SOW.
- i. Cover Sheet and Table of Contents: Provide a cover sheet and table of contents listing all documents included in the design package.
 - ii. Specifications: Provide design specifications that, together with the drawings, contain sufficient information for construction contractors to bid a

lump sum price construction contract. The specifications are to be developed in SpecsIntact using UFGS format. [The A-E is responsible for all General Division Specifications (Division 01 and 02).] Utilize the most current UFGS specifications at time of award in development of the project specifications. All Tri-Service Electrical Working Group (TSEWG) and Tri-Service Pavement Working Group (TSPWG) documents are to be considered and incorporated as necessary.

The specifications include at a minimum: materials, dimensions, quantities, qualities, colors, codes, regulations, execution requirements, sequences of operation, and other relevant information necessary for construction contractors to develop a bid and allow for successful construction of the project. The specifications are required to comply with execution and quality control requirements of this SOW.

Prepare a list of submittals required to be provided by the Construction Contractor during the construction phase. Prepare the submittal register electronically using ENG Form 4288-R. The submittal register includes a list of submittal descriptions and submittal type (shop drawings, data, instructions, schedules, reports, certificates, samples, records, or O&M manual), numerically keyed to line items in the specifications. Identify the responsible reviewing party for all submittal register line items (Designer of Record, Government, or For Information Only). All required submittals are to be included and fully coordinated with the specifications, i.e., a submittal requirement may not be identified only on the drawings.

Provide non-proprietary, descriptive project specifications in compliance with the requirements in UFC 1-300-02. Fully performance prescribe all products, construction methods, and installation requirements; do not rely on brand name proprietary products to specify construction requirements. Products or materials may be specified by describing the salient features of the item to set an acceptable standard but may also be accompanied by specifying a product with a brand or manufacturer's name, followed by the phrase "or equal" or "basis of design". When using the "or equal" or "basis of design" phrase, identify more than one acceptable brand or manufacturer's name and state in the specifications: "Product brand is for informational purposes only and are not to be construed as the only product available." For all proprietary products listed in the design drawings or specifications, provide the documentation upon which the design was based with the design analysis, including equipment or material cut sheets.

- iii. Drawings: Provide a complete set of design drawings, clearly and concisely showing the type and extent of work to be performed, with all information and details required for award to and construction by a Contractor. The A-E is responsible for ensuring drawings satisfy the customer's requirements and requirements of the criteria referenced here-in. Ensure all drawings to be furnished with the design package are well prepared, complete, with all elements thoroughly checked and coordinated, and accomplished in

accordance with a professional standard of care. Utilize TSPWG Contracting Airfield Pavement Work Appendix D for guidance.

At a minimum, provide the following design drawings and documents when applicable:

(1) General

- (a) Cover Sheet – Indicate all pertinent project information including a project location map indicating the project location on the installation and in relation to nearby cities and major roads;
- (b) Sheet Index – List all drawings included in the Drawing Package with drawing number and title; and
- (c) Location and Vicinity Map - Provide a plan of the installation indicating the project location, roads approved for access and hauling, borrow pits (if any), the installation access control point (ACP) approved as a construction traffic entrance, and nearby major roads;
- (d) Phasing Plan – Provide an overall site plan indicating stakeholder’s required project phasing and prioritization with construction area limits identified for each phase.

(2) Geotechnical

- (a) Locations of Exploration – Include a site plan indicating all locations of geotechnical exploration keyed to the boring logs; and
- (b) Exploration Logs – Provide boring logs keyed to the geotechnical site plan.

(3) Civil

- (a) Legends and Abbreviations – Provide a cover sheet indicating all abbreviations, symbols, and general notes for the civil discipline drawings;
- (b) Site Survey Plans – Include spot elevations covering the entire survey limits showing high points, low points, grade changes, and at sufficient intervals to represent the general character of the terrain. Provide spot elevations at each concrete pavement joint intersection. Contours in intervals of 1 foot;
- (c) Mobilization and Staging Plans;
- (d) Road Signage and Marking Plans;
- (e) Existing Conditions Site Plans – Provide site plans indicating existing site conditions with all structures, foliage, utilities, and surfaces within the project boundary;
- (f) Demolition Site Plans – Show demolition work and limits of disturbance;
- (g) Site Plans – Provide site plans based on survey and existing conditions. Demonstrate the turning path of the largest

anticipated aircraft(s) in the most constrained situations on the site plans. Provide pavement joint layout indicating joint type and construction constraints.

- (h) Grading Plans – Provide grading plans indicating all existing topography and new grading required for the project. Provide cross sections of all new airfield pavements at a uniform frequency;
- (i) Utility Plans – Provide utility plans (including master utility plan of the entire installation) indicating all site utilities and include profiles, cross sections, and details. Provide separate plan and profiles for each utility (e.g. Storm Water, Water, Sewer, etc.). Indicate crossing utilities in the profiles;
- (j) Pavement and Site Details – Provide construction details for all civil and airfield related features and equipment including pavement joints, pavement markings, grooving, repair of existing pavements, hydrants, etc.

(4) Electrical

- (a) Legends and Abbreviations – Provide a cover sheet indicating all abbreviations, symbols, and general notes for the electrical discipline drawings;
- (b) Site Plans – Provide site plans depicting new electrical systems and equipment;
- (c) Airfield Lighting Plans – Provide site plans depicting new airfield lighting (runway and/or taxiway lighting) and equipment;
- (d) Existing Condition Drawings – Provide power and lighting plans depicting the existing electrical systems;
- (e) Demolition Drawings – Provide demolition drawings for all site and facility power, lighting, and communications systems affected;
- (f) Power Plans – Provide floor plans depicting new electrical power layouts;
- (g) Lighting Plans – Provide plans depicting new lighting layouts;
- (h) Lighting Fixture Schedule – Provide schedules of all lighting fixtures and controls provided in the design;
- (i) Lighting Fixture Details – Provide details of all lighting fixtures provided in the design;
- (j) Airfield Lighting Details – Provide details of all airfield lighting fixtures, signs, airfield lighting ductbank, airfield grounding and lightning counterpoise
- (k) Grounding system Plans – Provide plans for site and facility grounding systems;
- (l) One-Line Diagram – Provide a one-line diagram of the power distribution within the site;
- (m) Primary Distribution Riser Diagram – Provide a diagram of the primary distribution riser; and

- (n) Panel Schedule – Provide schedules of all power panels in the design.
- (5) Telecommunications
 - (a) Legends and Abbreviations – Provide a cover sheet indicating all abbreviations, symbols, and general notes for the telecommunications discipline drawings;
 - (b) Existing Condition Drawings – Provide plans depicting the existing telecommunications systems;
 - (c) Plans – Provide plans of new telecommunications systems to be installed, differentiate between telecommunications systems to be installed by the Construction Contractor and those that will be installed by the end user; and
 - (d) Telecommunications Details – Provide construction details for all telecommunications features including manholes, duct banks, conduit installations, server racks, etc.
- iv. Design Analysis: Provide a narrative describing the project. Include all applicable calculations. Explain design decisions and describe how the design package meets the customer's requirements and criteria contained here-in. Refer to ER 1110-345-700 Appendix B for specific guidance and follow the Airfield Pavements Design Analysis outline in TSPWG Contracting Airfield Pavement Work Appendix D.

At a minimum, include the following in the design analysis:

- (1) Executive Summary
- (2) Description of the project;
- (3) Discipline specific narratives and discussion of the design;
- (4) Photographs of existing conditions affected by the project;
- (5) Comparison of project scope and cost;
- (6) Estimated Construction Schedule;
- (7) Civil Calculations:
 - (a) Calculations include, but are not limited to, pavement sections, drainage layer evaluation, hydraulic calculations for storm water sewers and treatment facilities, and all other calculations required for the provision of the design. Utilize the latest version of PCASE for the pavement section design and evaluation;
- (8) Electrical Calculations:
 - (a) Calculations include, but are not limited to, load calculations and demand factors, short circuit calculations, voltage drop calculations, lightning risk assessment calculations, protective device coordination and time current curves, transformer sizing calculations, generator sizing calculations, constant current regulator sizing, and computer-generated lighting and emergency lighting calculations;

- (9) Structural Calculations: For below grade structures, provide calculations for both the structure itself and the cover/frame/inlet grate as required by UFC 3-260-01, Paragraph 2-12;
 - (10) Airfield Waiver Support: Provide figures or information to support the development of airfield specific waivers that pertain to the project design.
- v. Submittal Register: The A-E prepares a list of submittals required to be provided by the construction contractor during the construction phase. Prepare the submittal register electronically using ENG Form 4288-R. The submittal register includes a list of submittal descriptions and submittal type (shop drawings, data, instructions, schedules, reports, certificates, samples, records, or O&M manual), numerically keyed to line items in the specifications. Identify the responsible reviewing party for all submittal register line items (Designer of Record, Government, or For Information Only).
 - vi. Bid Schedule: Prepare a bid schedule. Base bid and optional items are determined by analyzing the construction cost estimate and coordinating priorities with the stakeholders. [The bid schedule identifies options totaling approximately 20% of the CCL.] Provide a comparison of bid schedule items and costs in the design analysis. The bid schedule includes durations for a construction period of performance. The construction duration is determined by use of quantities, production rates, efficiency factors, and weather allowances.
 - vii. Construction Cost Estimate: Develop the construction cost estimate in accordance with the requirements outlined in Attachment #1.
 - viii. [Draft DD1391: Prepare and submit a draft DD1391 for the project, fully supported by the cost estimate. Develop the DD1391 in accordance with [AFI 32-1020] *[other service's requirements]* requirements.]
 - ix. Construction Schedule: Provide a conceptual Construction Schedule for the planned project. Include a drafted Work Breakdown Structure (WBS). Identify in narrative form all the primary work elements, including an initial critical path project schedule describing the construction phasing and primary construction work elements, organized by the cost estimate CSI structure. Include a narrative WBS describing the construction activities for the purpose of pre-construction proposal evaluation.
- d. Engineering Studies: Provide the following engineering studies. The A-E prepares reports detailing the findings of each study. Include these reports in the design analysis:
- i. [Value Engineering Study: Perform a Value Engineering (VE) study in accordance with the requirements outlined in Attachment #2. [The study will

be performed at [*insert location*]. [The study can be performed virtually at the A-E's discretion in order to reduce overall travel costs.]]

- ii. [Site Topographic Survey. The A-E is required to hire a licensed surveyor registered with the jurisdiction having authority to provide signed survey documents. The A-E is required to conduct a site survey of the entire project area as well as features outside of the project site limits that will affect the design and construction of the project. See Attachment #3 for the topographic survey requirements.]
- iii. [Geotechnical Investigation: The A-E is required to hire a licensed geotechnical engineer registered within the jurisdiction having authority to provide a geotechnical summary report. See Attachment #4 for geotechnical investigation requirements.]
- iv. [UXO Avoidance: When conducting intrusive work such as geotechnical borings, the A-E performs UXO avoidance in the affected area. See Attachment #5 for UXO Avoidance requirements.]
- v. [Concrete Recycling Risk Assessment: Evaluate the existing concrete pavement per TSPWG 3-250-07.07-6 Risk Assessment Procedure for Recycling Portland Cement Concrete (PCC) Suffering From Alkali-Silica Reaction (ASR) in Airfield Pavement Structures. See Attachment #6 for the concrete recycling risk assessment requirements.]
- vi. [Airfield Pavement Aggregate Source Evaluation: Evaluate locally available aggregates and determine acceptability for pavement surface layer UFGS requirements. See Attachment #7 for the airfield pavement aggregate source evaluation requirements.]
- vii. [Storm Water [and] [Sanitary Sewer] Investigation. Perform the required inspection of the [storm water system] [and] [sanitary sewer system]. Provide a report of inspection results. See Attachment #8 for the storm water and sanitary sewer investigation requirements.]
- viii. [Hydrology and Hydraulic Analysis. Perform an analysis of [*insert area of interest*] for evaluation of upgrades/changes to the existing storm water system. See Attachment #9 for the hydrology and hydraulic analysis requirements.]
- ix. [Hazardous Materials Survey. See Attachment #10 for Hazardous Materials Survey requirements.]
- x. [Environmental Survey. See Attachment #11 for environmental survey requirements.]
- xi. [Economic Analysis. See Attachment #12 for economic analysis requirements.]]

- e. Submittals: In addition to any required submissions from the base contract, provide the following submittals. Refer to Section 10 SUBMITTAL FORMAT AND DISTRIBUTION for additional requirements:
- i. List of Qualified Engineers: Provide a list of all engineers and their qualifications to the COR for review. Submit resumes for qualification verification. The A-E is responsible for staffing this Task Order with the required engineers. Ensure all engineers possess current licensure in compliance with FAR 52-236-25, Requirements for Registration of Designers.

Key personnel anticipated to support the task order are as follows.

- [Design Quality Control Manager (DQCM): Identify a registered professional engineer or architect and an alternate responsible for being cognizant of and assuring that all documents on the project have been coordinated and that the requirements of the DQCP have been met. DQCM will identify all ITRs ensure each ITR review, and the design quality control checklists are completed. The DQCM may be also serve as one of the ITR reviewers[; however, the Project Manager cannot serve as the DQCM].]
- [Project Manager: Identify a registered professional architect or engineer as the project manager with experience in the completion of Design-Build concept design or 100% design of [two (2)] DoD facility designs within the last [five (5)] years. Demonstrate at least [ten (10)] years total experience in facilities design. [May also serve as the DQCM].]
- [Lead Geotechnical Engineer: Demonstrate at least [ten (10)] years of experience preparing geotechnical reports in similar soil conditions.]
- [Lead Structural Engineer: Demonstrate design experience in at least [two (2)] projects in the last [seven (7)] years which include the design of below grade structures. Demonstrate no less than [ten (10)] years total experience in structural design.]
- [Lead Registered Communications Distribution Designer (RCDD): Demonstrate compliance with the requirements of UFC-3-580-01, including current registration as a BICSI Registered Communications Distribution Designer (RCDD), as required therein. Demonstrate design experience in at least [two (2)] projects within the last [seven (7)] years which include the design of communications systems for DoD projects, or any project subject to the requirements of UFC 3-580-01. Demonstrate no less than [ten (10)] years total experience in facilities communications equipment (C-E) design.]

- [Lead Civil Engineer: Demonstrate design experience in no less than [two (2)] projects within the last [seven (7)] years which include design of site facilities for a new facility or facility renovation design subject to UFC 3-201-01, Civil Engineering. Demonstrate no less than [ten (10)] years total experience in civil engineering.]
- [Lead Airfield Geometrics Engineer: Demonstrate design experience in no less than [two (2)] projects within the last [seven (7)] years which include design of airfield facilities for a new feature or a major rehabilitation design subject to UFC 3-260-01 Airfield and Heliport Planning and Design. Demonstrate no less than [ten (10)] years total experience in airfield geometric design.]
- [Lead Airfield Pavement Engineer: Demonstrate design experience in no less than [two (2)] projects within the last [seven (7)] years which include design of airfield facilities for a new feature or a major rehabilitation design subject to UFC 3-260-02 Pavement Design for Airfields. Demonstrate no less than [ten (10)] years total experience in airfield pavement design.]
- [Lead Airfield Lighting and NAVAID Engineer: Demonstrate design experience in no less than [two (2)] projects within the last [seven (7)] years which include design of airfield facilities for a new feature or a major rehabilitation design subject to UFC 3-535-01 Visual Air Navigation Facilities, or AC 150/5340-30J Design and Installation Details for Airport Visual Aids. Demonstrate no less than [ten (10)] years total experience in airfield lighting design.]
- [Lead Construction Cost Estimator: Demonstrate current certification as a Certified Estimating Professional (CEP) by AACE. Alternate certifications may be submitted to the CO for consideration; equivalent or greater certifications will be considered. Demonstrate experience in the development of construction cost estimates for no less than [two (2)] projects within the last [five (5)] years, at least one of which is a project on a DoD Installation. Demonstrate no less than [ten (10)] years total experience in construction cost estimating.]
- [Lead Scheduler: Demonstrate at least [five (5)] years total experience in construction scheduling.]

- [Lead Cybersecurity Coordinator: Demonstrate current cybersecurity certification accepted by the DoD as fulfilling DoD Directive 8570.1M (Any level of IAM, IAT, IASAE, or CSSP satisfies this requirement, as defined therein; refer to DoD8570.1M). In addition, demonstrate cybersecurity design of either Information Technology (IT) or Operational Technology (OT) systems in no less than [two (2)] projects in the last [five (5)] years. This task order include application of only the Cybersecurity requirements of UFC 4-010-06 on OT systems only. Design of cybersecurity for IT systems is excluded from this task order but is considered relevant experience.]
- ii. [Work Plan: Prepare work plans to comply with Department of Defense, [US Army][US Air Force][US Navy], state, and local regulations regarding the proposed work effort, including all work on-site performed during this task order. Prepare applicable test plan(s) for each of the testing and sampling services to be performed with anticipated locations and schedule. Include a list of and data sheet for all equipment and vehicles to be used for on-site investigations to support a temporary airfield construction waiver. Anticipate [*insert number*] days for Government coordination of approval to conduct investigations after submittal of the work plan.]
- iii. [Health and Safety Plan: Prepare a HSP as required by 29 Code of Federal Regulations [CFR] 1910.120. Comply with US Air Force, OSHA, United States Environmental Protection Agency (USEPA), state, and local health and safety regulations regarding the proposed work effort. Use USEPA guidelines for designating the appropriate levels of protection needed at the study site(s) as applicable. Maintain written certification that the approved HSP has been reviewed with all personnel that work at the project site prior to their mobilization.]
- iv. [Design Quality Control Plan: Prepare a DQCP [in accordance with ER 1110-3-12 Quality Management] to include four (4) elements: a quality control narrative, Design Quality Control Checklists, and resumes of both key personnel and Independent Technical Reviewers (ITRs). Submit the DQCP within fourteen (14) calendar days after award. Prior to conducting any on-site activities, including the Charrette and on-site investigations, obtain acceptance and approval of the DQCP. Conduct the on-site Charrette and all subsequent design activities utilizing the personnel submitted and approved in the DQCP. Notify the Contracting Officer immediately with any changes to key personnel.]
- v. [Design Quality Control Narrative: Include in the DQCP a narrative describing the process for coordination, finalization, and quality control of all design deliverables in this task order. Provide a detailed plan to effectively maintain a quality control program to assure that all designs, drawings, specifications, and other documents required by this contract are performed and provided in a manner that meets professional architectural and

engineering quality standards. Include the design configuration management addressing authorities, symbols/abbreviations, legends, naming, drawing revision controls and process, record file maintenance, and completion of Design Quality Control checklists. Identify lines of authority and a communication plan for any contributors employed by different teaming member companies, including those for technical investigations. Describe the mandatory quality control reviews to be provided, utilizing Independent Technical Reviewers (ITRs).]

- vi. [Design Quality Control Checklists: Include in the DQCP discipline-specific QC checklists to be completed in future design submittal development. For each design deliverable, describe the level of development for each of the components of the submission including calculations, drawings, narratives, cost estimates, schedule, DD1391 and Sustainability Scoresheets. Describe in each checklist the level of completion and effort planned for that submittal in each design discipline, addressing all of the scope areas of this task order in Part A. Provide checklists that addresses each discipline of the design (i.e., architectural, interior design, structural, cybersecurity, cost estimating, sustainability, mechanical, electrical, geotechnical, plumbing, civil, materials, pavement, communications, scheduling, etc.). Ensure checklists are signed by each lead designer in the discipline prior to submission to the Government. Submit signed checklists, approved in the DQCP, with each corresponding design deliverable.]
- vii. [Independent Technical Review (ITR): Submit Independent Technical Reviewer (ITR) resumes including names, telephone numbers, and email addresses for each individual. For all design submittals provided to the Government, perform a quality control ITR in every technical design discipline. Reviews are to be of the scope necessary to ensure quality of design and substantiate that all services conform to the contract. Conduct ITRs at every design submittal prior to submission to the Government, generating written comments to be appended to each design submission. Correct errors and deficiencies in the design documents identified by ITRs prior to submission to the Government. Append all ITR comments to each design deliverable, validating closure of each review comment and demonstrating completion of the ITR. For each designer, demonstrate current licensure in compliance with FAR 52-236-25 with no less than five (5) total years of experience in the discipline the ITR review is in. In-state licensure is not required for any ITR reviewer. Perform review for no more than two (2) disciplines for which the independent reviewer possesses active licensure. ITR review requirements are excluded for the Construction Scheduler, Cybersecurity Specialist, and Geotechnical Engineer.]
- viii. [Design Charrette][Initial Design Meeting] Report: Provide a narrative report detailing all findings from the [Design Charrette][Initial Design Meeting] for the project. The report represents a complete basis of design for the project. Include all User requirements, information received, and decisions made during the Charrette. Identify information required, decisions to be

made, and actions required of all parties (A-E and Government) to resolve all open issues. Provide initial conceptual type drawings to include all site investigations to date, site layout, and any other information available at the time. Include attendance rosters, meeting minutes, the in-brief presentation, the out-brief presentation, and copies of any criteria documents received or discovered during the Charrette as attachments to the Charrette Report.

- ix. Concept Design Submittal: This submittal includes all design features captured from the [Design Charrette] [Initial Design Meeting], site visit, and preliminary surveys. The purpose of this submittal is early detection of required scope and/or design changes. The submittal consists of the following elements:
 - (1) Photographs of existing site conditions;
 - (2) Drawings;
 - (3) Specifications (table of contents for anticipated specification sections only);
 - (4) Bid Schedule;
 - (5) Cost Estimate;
 - (6) Draft DD1391;
 - (7) Construction Schedule; and
 - (8) Design Analysis (including preliminary reports for all engineering studies).

- iv. Intermediate Design Submittal: This submittal includes all design features from the Concept Design submittal, updated to incorporate Government comments from the Concept Design Review Meeting. The submittal consists of the following elements:
 - (1) Drawings;
 - (2) Specifications (red-lined);
 - (3) Submittal Register (preliminary);
 - (4) Bid Schedule;
 - (5) Cost Estimate;
 - (6) Draft DD1391;
 - (7) Construction Schedule; and
 - (8) Design Analysis (including preliminary reports for all engineering studies).

- v. Final Design Submittal: This submittal includes all design features from the Intermediate Design submittal, updated to incorporate Government comments from the Intermediate Design Review Meeting. The submittal consists of the following elements:
 - (1) Drawings;
 - (2) Specifications (fully-edited and red-lined);
 - (3) Submittal Register (complete);
 - (4) Bid Schedule;
 - (5) Cost Estimate;

- (6) Draft DD1391;
 - (7) Construction Schedule;
 - (8) Design Analysis (including final reports for all engineering studies);
and
 - (9) VE Certification.
- vi. Corrected Final Design Submittal: This submittal includes information in sufficient detail of all phases of the work to be competitively bid and constructed by Construction Contractors. Resolve all comments from previous submittals and incorporate changes. The submittal consists of the following elements:
- (1) Drawings;
 - (2) Specifications (complete, long form);
 - (3) Submittal Register (final);
 - (4) Bid Schedule;
 - (5) Cost Estimate;
 - (6) Draft DD1391;
 - (7) Construction Schedule; and
 - (8) Design Analysis (including final reports for all engineering studies).
- f. Requests for Information (RFIs) and Bidder Inquiries during Solicitation: Remain informed of the project status and maintain communications with the COR and PM throughout the advertisement, evaluation, and award process. Responding to Construction Contractor bidder inquiries and RFIs during the solicitation process. These RFIs are considered within the A-E's responsibility to furnish a complete and understandable Design Package. Bidder inquiries and RFIs that require additional design development not within the A-E's design responsibilities require a contract modification.
- h. Amendments to Bid Documents during Solicitation: During the time that this project is advertised for construction contract bids, it may be necessary for the A-E to provide amendments to the advertised Design Package. These amendments are provided as reissued or revised documents and be incorporated into the bid documents by the Government in the form of amendments. Complete amendments within the project scope, including resolution of design errors, omissions, and conflicts promptly, to prevent slipping of the Proposal Due Date. Amendments for items outside the project Statement of Work will be accomplished as a modification as directed by the Contracting Officer.
- i. Requests for Information (RFIs) during Construction: In accordance with 48 CFR 52.236-23, provide responses to RFIs generated during construction that pertain to ambiguities, errors, omissions, or deficiencies in the Design Package for the duration of construction. These RFI's are separate from the RFI's submitted as part of the Construction Phase Engineering Support Services Option and are directly related to the quality of the design. Make modifications to the Design Package as required to communicate the intent of the design or to correct any errors, omissions, or deficiencies required for construction. Submit RFI responses

within 5 calendar days to ensure no delays in construction. These services are provided at no cost to the Government.

18. [Option – Construction phase engineering support services

- a. Site Visit Reports: This deliverable is for Technical Assistance visits (10 total) required to assist on specific concerns. For each day and for each dedicated engineer on site, provide a detailed site visit report per discipline that includes all actions, issues, and other relevant information (photos, attachments, etc.) that directly affects the design and/or construction quality of the assigned project with emphasis in, but not limited to, the discipline of the employee performing the site visit. [Ten][insert number] site visit reports are estimated during the performance period. The site visit report is to be submitted to the Government within three (3) calendar days. Address any clarifications and corrections to the report requested by the Government within three (3) calendar days, to include the submission of the revised report.
- b. Teleconference Written Record: This deliverable is for Technical Assistance required to assist on specific concerns. After each teleconference, within three (3) calendar days, provide a written record by the A-E personnel that participated summarizing the discussions to include any technical support/recommendations provided to the Government. A total of [25][insert number] teleconferences are estimated during the performance period.
- c. Submittals/Request for Information (RFIs)/Modification Review Reports: This deliverable is for Technical Assistance required to assist on specific concerns. For each technical review of a submittal or RFI, deliver a detailed report documenting any findings noted during the review. The total amount of reports estimated are: [50][insert number] submittal reviews, [50][insert number] RFI reviews and [10][insert number] modification review reports. The Government POC will notify the A-E when they need support for the reviews of submittals or RFIs. The Government POC is the only source of request for review source, disregard all other requests. Submit the submittal or RFI review reports to the Government POC within three (3) calendar days after receiving the documents that require review. Address and submit any clarifications and corrections requested by the Government to the report within one (1) calendar day.]

19. SUBMITTAL FORMAT AND DISTRIBUTION

- g. Coordinate all submittals with the Government COR and PM. Make all submissions under this contract by a Letter of Transmittal identifying the contents of the submission. No work is considered submitted until the Government COR or PM receives it. Allow sufficient mailing time for submittals to be received by the required date.
- h. Use [imperial][metric] system for all measurements. Adjust scales accordingly.
- i. Provide documents in both hard copy and electronic formats in the amount shown in the Deliverables Table. Ensure text-based documents are 100% compatible with Microsoft Office software and delivered in both .pdf and editable native word

processing format. Deliver electronic drawing files in both .pdf and editable native CAD format. Deliver Cost Estimates in the native Microsoft Excel, MCACES, or PACES file formats.

- j. Submit all submittal documents together. Provide all text-based documents, including Specifications and Design Analysis, bound in binders. Provide separate binders for contract documents (i.e., Specifications) and non-contract documents (e.g., Design Analysis, Engineering Reports, and Cost Estimate). If multiple volumes are required for either document type, ensure each volume has a cover sheet and include a table of contents. Print all text-based documents on either Letter or ANSI A paper.
- k. Bind all drawings together. Include a title block in drawings with project identifying information and page numbers in format "x of y". Ensure all drawings are legible when printed on ANSI B paper. All drawings are required to be legible and clearly portray the information necessary for the successful award and construction, at a minimum furnish drawings with the following minimum drawing scales:

Drawing Type	Minimum Scale
Base Map/Haul Routes	[1" = 100'] [1:1250]
Site Plans	[1" = 40'] [1:500]
Phasing Plans	[1" = 40' or 80'] [1:500 or 1000]
Grading Plans	[1" = 40'] [1:500]
Pavement Sections	[1" = 5' or 10'] [1:50 or 125]
Details	[1" = 1' or 5'] [1:10 or 50]

Number of Copies: Provide copies of the documents, in electronic format, as well as hard copies (HC) in the amounts shown below, unless otherwise directed:

DELIVERABLE	[USACE TSC] [AGENCY SME]	[Office]	[Office]	[Office]
Concept, Intermediate, Final, and Corrected Final Design Submittals				
ANSI D Size Drawings	[#]	[#]	[#]	[#]
ANSI B Size Drawings	[#]	[#]	[#]	[#]
Specifications/Manufacturer Cut-Sheets	[#]	[#]	[#]	[#]
Design Analysis/Calculations/Schedules	[#]	[#]	[#]	[#]

Note: The Corrected Final Design Submittal will be electronic submission only. Ensure the Corrected Final Design Drawings are digitally signed by the DORs and QC.

Final Amended Contract Documents				
ANSI D Size Drawings	[#]	[#]	[#]	[#]
ANSI B Size Drawings	[#]	[#]	[#]	[#]
Specifications	[#]	[#]	[#]	[#]

Note: Submit cost estimate amendments during solicitation via email directly to the Contracting Officer.

20. schedule

The period of performance for the base is [insert number] calendar days and commences on the day the Notice to Proceed (NTP) is issued. The NTP is issued with the Task Order Award. A sample schedule, in terms of calendar days from award, is shown below. The Corrected Final Design Package is submitted within [insert number] calendar days from NTP. [Task Order Option, Construction Phase Services, extends the period of performance by [insert number] calendar days. Exercise of this option must be within the base period of performance.]

Section 1.03 SERVICE OR DELIVERABLE	Section 1.04 Calendar Days after NTP
[Design Quality Control Plan]	[#]
List of Qualified Engineers	[#]
Kick-off Meeting	[#]
Submit Kick-off Meeting Minutes	[#]
[Conduct Engineering Studies (Except VE Study)]	[#]
[Submit Work Plan]	[#]
[Submit Health and Safety Plan]	[#]
[Submit Design Quality Control Plan]	[#]
[Conduct Design Charrette]	[#]
[Design Charrette Meeting Minutes]	[#]
[Conduct Field Investigations]	[#]
Develop Concept Design	-
Submit Concept Design	[#]
Concept Design Review Meeting	[#]
Submit Concept Design Review Meeting Minutes	[#]
[Conduct Value Engineering Study]	[#]
[Draft Value Engineering Report]	[#]
Develop Intermediate Design	-
Submit Intermediate Design	[#]

Section 1.03 SERVICE OR DELIVERABLE	Section 1.04 Calendar Days after NTP
Intermediate Design Review Meeting	[#]
Submit Intermediate Design Review Meeting Minutes	[#]
Develop Final Design	-
Submit Final Design	[#]
[Final Value Engineering Report]	[#]
Final Design Review Meeting	[#]
Submit Final Design Review Meeting Minutes	[#]
Develop Corrected Final Design	-
Submit Corrected Final Design	[#]
Corrected Final Design Review Meeting	[#]
Pre-Proposal Site Visit	TBD
Submit Responses to Bidder Inquiries and RFIs	TBD
Submit Amended Design	TBD
[Perform Construction Phase A-E Services]	TBD

21. Special Conditions

- c. Reporting Problems: Identify and promptly report to the Government PM with copy furnished to the applicable Sponsoring Agency. Report circumstances that result in delivery order delay in writing along with the reason for the delay and the A-E's proposed remedial action.
- d. Required Conditions for Anti-Terrorism and Operational Security: The A-E and all A-E contractor and subcontractor employees must comply with the following:
 - i. *[insert conditions_– this is pulled from the ENG Form 6055]*

22. Government FURNISHED INFORMATION

- a. [Planning Charrette][Program Definition] Report
- b. *[insert other documents]*

23. ATTACHMENTS

All attachments provided are contract requirements. The A-E is responsible for incorporating the requirements into their cost proposal.

Attachment #1: Cost Estimate Guidance

[Attachment #2: Value Engineering Study Requirements]

[Attachment #3: Site Topographic Survey Requirements]

[Attachment #4: Geotechnical Investigation Requirements]

- [Attachment #5: UXO Avoidance Requirements]
- [Attachment #6: Concrete Recycling Risk Assessment Requirements]
- [Attachment #7: Airfield Pavement Aggregate Source Evaluation Requirements]
- [Attachment #8: Storm Water [and] [Sanitary Sewer Investigation Requirements]
- [Attachment #9: Hydrology and Hydraulic Analysis Requirements]
- [Attachment #10: Hazardous Materials Survey Requirements]
- [Attachment #11: Environmental Survey Requirements]
- [Attachment #12: Economic Analysis Requirements]

24. References

ER 1110-1-8155 Engineering and Design Specifications
ER 1110-345-700 Design Analysis, Drawings, and Specifications

C-1.3 A-E DESIGN-BUILD.

Statement of Work template for hiring A-E services to develop DB documents for airfield paving projects, titled "Architect-Engineer (A-E) Services Preparation of Design for Design-Build (DB) Acquisition".

STATEMENT OF WORK

**Architect-Engineer (A-E) Services
Preparation of RFP for Design-Build (DB) Acquisition**

for

[Project Title]
[Project Location]

Contract Number:
[insert contract number]

Date Prepared:
[insert date]

Prepared by:
[Agency]
[Preparing Office]
[Office Address]

**STATEMENT OF WORK
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25. PROJECT INFORMATION

Contract: [*Contract Vehicle, such as “Indefinite Delivery Contract for General A-E Services”*]

Contract No.: [*Contract Number*]

Project Title: [*Project Title*]

Project Sponsors: [*Customer*]

Location: [*Project Location*]

26. WORK TO BE PERFORMED

The A-E provides all professional engineering services necessary to develop a Request for Proposal package with [nominal/partial/full] criteria for the design and construction of [*brief description of project*]. The Government is to advertise the RFP Package and award to a Prime Contractor as part of a Design-Build (D-B) acquisition.

The A-E is responsible for determining what disciplines and skill sets are required for accomplishing the work under this SOW and form a team accordingly. The A-E is required to accomplish the required services and furnish to the Government reports and other data together with supporting material developed during the period of performance as set forth herein. During the execution of work, the A-E is required to provide adequate supervision and quality control to assure the accuracy, quality, timeliness, and completeness of the work. Provide services to the Government during solicitation and construction of the project as they pertain to correcting ambiguities, errors, deficiencies, and omissions in the design.

[A separate option is included to provide construction phase services to the Government during the administration of the DB Construction contract. Construction phase services include, but are not limited to, the following: shop drawing and construction submittal reviews, documentation support, responses to requests for information, preparation and review of operation and maintenance manuals, and general technical assistance. The construction phase service tasks are detailed further in Paragraph 9 Option - Construction Phase Engineering Support Services. *[Note: If the construction phase services are included in the SOW ensure that the option is included in the contracting description of work or proposal schedule.]*]

Preparation of the design includes, at a minimum, the following activities:

- e. [Verification of Site Conditions]
- f. [Design Charrette][Initial Design Meeting]
- g. [Engineering Studies:
 - i. [Site Survey]
 - ii. [Site Topographic Survey]
 - iii. [Geotechnical Investigation]
 - iv. [UXO Avoidance Survey]
 - v. [Value Engineering Study]]
- h. DB Package including the following components, at a minimum:
 - i. Div. [00 and] 01 Specifications
 - ii. Select Div. 31, 32 and 34 Specifications with edits
 - iii. Conceptual Drawings
 - iv. Bid Schedules
 - v. Submittal Registers
 - vi. DB Contract Cost Estimate
 - vii. Design Analyses (rationale and documentation for selected conceptual design)
 - viii. Airfield Waiver Support

27. Government POINTS OF CONTACT

a. Primary Points of Contact:

[Name]
Contracting Officer Representative (COR)
Phone: [Work Phone Number]
E-mail: [Government e-mail address]

[Name]
Contracting Officer
Phone: [Work Phone Number]
E-mail: [Government e-mail address]

b. Other Government Stakeholders:

[Name]

Project Manager (PM)
Phone: [Work Phone Number]
E-mail: [Government e-mail address]

28. GENERAL CONTRACT REQUIREMENTS

- oo. A-E Responsibility: The A-E is responsible for complying with all requirements identified in the base indefinite delivery contract. Furnish all labor, materials, equipment, and perform necessary travel required for the accomplishment of the project in accordance with the SOW. The A-E is responsible for verification of existing conditions and obtaining all necessary survey and investigation information necessary for design. Develop the concept design through coordination with the Government to include any other requirements necessary for the successful solicitation, construction, and operation of the facility.
- pp. Permits and Responsibilities: The A-E is NOT responsible for obtaining or requesting permits. Ensure the RFP Package includes requirements for the DB Contractor to obtain all permits not required to be requested or obtained by the U.S. Government in accordance with FAR 52.236-7, Permits and Responsibilities. Where the U.S. Government is required to obtain permits, the Government will notify the A-E and the A-E is responsible for preparing all necessary documentation for obtaining the permits. This includes, but is not limited to:
- i. Preparing and coordinating all required documentation in accordance with local, state, and federal construction law for all relevant trades involved in the project. This also includes forms for the permitting process.
 - ii. Modification of the design and/or documentation after coordination with Construction and Permitting Authorities.
 - iii. Certificates and registration (in the location of construction) of involved personnel
- qq. Centers of Expertise: The design will be reviewed by the [*Agency Office or Offices that will perform reviews*] [and] [the US Army Corps of Engineers (USACE) Transportation Systems Center]. The A-E is responsible for incorporating requirements/comments from these stakeholders into the design documents.
- rr. A-E Project Manager: The A-E is responsible for designating, in writing, an English-speaking Project Manager to serve as the single point of contact and liaison between the A-E team and the Government. The A-E Project Manager is responsible for the complete coordination of all work required under this contract.
- ss. Disclosures/Ownership of Data: All data, reports, and material related to this project are property of the Government. The A-E and his subcontractors are not authorized to make public announcements or disclosures relative to information provided for, contained in, or developed for this contract. This applies also to US Government-owned information made available to the A-E. The design and its related information are the property of the U.S. Government and is not releasable

to anyone without the written permission of the Contracting Officer. The obligation to maintain the confidentiality of all project information extends beyond the completion of the project.

- tt. Laws and Regulations: The A-E is responsible for performing all studies and design efforts in full compliance with applicable US laws. The A-E is required to comply with all Occupational Safety and Health Administration, Environmental Protection Agency, [*insert Agency*], and federal and local safety and environmental requirements. In case of a conflict between these regulations, the most protective standard will be used. Ensure employees, subcontracts, and their agents have all the required certifications and licenses to perform the work required by this contract.
- uu. Modifications: Modifications are only issued in compliance with the contract clauses.
- vv. Contract Directives: The Contracting Officer or the Contracting Officer's Authorized Representative (COR) provides the official guidance and instruction that pertains to either the interpretation of this Task Order or the performance of the work. No other military or civilian personnel are authorized to provide direction on the contract scope and schedule. [The Customer may communicate directly with the A-E, as long as the COR is included in the communication, for the purpose of providing technical information and guidance needed to successfully complete the project.]
- ww. Contract Authority: The contract relationship is directly between the [*insert Agency/District issuing contract*] and the A-E. If the A-E receives any request for services that are not within the Statement of Work, immediately notify the contract COR for direction before acting on the request. Send all correspondence through the COR and PM listed in this SOW, including review comments and responses. To prevent misunderstanding leading to later changes in design, coordinate the design at all stages with the PM to verify any information from other sources before incorporating the data into the Design. If the A-E receives information from the Sponsor, or any other U.S. agency involved with the project, the A-E is responsible for documenting the information, source, and date the information was received. Do not incorporate such information into the Design without first obtaining authority from the Contracting Officer or an authorized representative (COR).
- xx. Installation Access: The A-E is responsible for following all requirements for access onto the installation. The A-E is responsible for staffing the contract with personnel that meet all requirements for installation access, including all in-house and subcontractor personnel. Replace any person denied access to the installation at no cost to the Government.
- yy. Site Access: Contact Local Authorities, after obtaining permission from the PM, to arrange access to the site. The A-E or representatives will be accompanied by a person designated by the Local Authorities where necessary.

- zz. Quality and Completeness of A-E Products: Complete all design documents in sufficient detail to be competitively bid and constructed by construction contractors.
- aaa. Quality Control: The A-E is responsible for quality control of all submittals. Submittals that exhibit low-quality reproduction, poor information formatting, or obvious graphical or technical errors are considered sufficient grounds for rejection of the submittal.
- bbb. Submittal Reviews. Submittals will be reviewed by the Project Delivery Team (PDT) and other entities as noted in this SOW. Refer to Section 10 SUBMITTAL FORMAT AND DISTRIBUTION for the number and type of submittals and reviews required by this Contract. The work is not considered complete until it is approved and accepted by the Government. Request guidance on unresolved issues or discrepancies. With each submittal, review the remaining work to be done and discuss the intended goals to be reached.
- ccc. Resubmittal of Inadequate Document(s): Any documents that are determined to be inadequate for the intended submittal purposes are required to be resubmitted. Correct and resubmit the rejected document as directed by the COR, but not more than five (5) calendar days after receiving written notification. Resubmit the same quantity of documents as in the rejected submittal. If necessary, discuss amending the task order schedule with the COR.
- ddd. Government Notification of Final Acceptance: The COR, with the Sponsoring Agency's concurrence, will notify the A-E of the Final Submittal's compliance within thirty (30) calendar days of the submittal. Where it is determined that the submittal meets all requirements and standards, the terms of the Task Order are complete. Where it is determined the submittal is deficient, resubmit within five (5) calendar days.
- eee. Architect-Engineer Request for Information (A-E RFI): When the A-E needs additional, or a clarification of, information from the Government to facilitate the services required by this SOW, submit an A-E RFI requesting the needed information. Use a separate A-E RFI for each unrelated request. Although the information is requested by other documentation or methods such as, Confirmation notices, letters, memoranda, design analyses, annotated review comments, telecopies, telephone conversations, conferences, meetings, discussions, etc., document the requested information on an A-E RFI. These requests, entitled "A-E Request for Information" are numbered sequentially and explain the requested information and all ancillary information needed. The A-E is responsible for documenting and tracking each A-E RFI including the resolution. Forward each A-E RFI to the COR and PM no later than five (5) working days after the need for information is determined.
- fff. Mailings: Ensure mailings are made such that the schedule is maintained.]
- ggg. Records: Provide the COR and PM with written record of any meeting, conference, discussion, or verbal direction in which the A-E or designated

representatives have participated within 3 calendar days of an event. Ensure records are dated and identify participating personnel, subjects discussed, and conclusions reached. In addition to submitting these records separately, attach all records to the design analysis provided with each submittal.

- hhh. Construction Contract Prohibition: The A-E is prohibited from participating in the resulting construction contract.

29. Design Criteria

In addition to requirements in the base indefinite delivery contract, develop a list of applicable codes and criteria throughout the design process.

Ensure the design complies with US Department of Defense (DoD) Unified Facilities Criteria (UFC) 1-200-01 DoD Building Code with Change 1, US Air Force Requirements, USACE Publications, Geographic Command Orders, Installation Facility Standards, and any other requirements listed below. Where codes or criteria conflict, determine the most stringent requirement and include in the design. Document all conflicts and their resolution in the design analysis.

A list of key required DoD criteria is provided below. However, evaluate documents noted above and any others to determine all necessary criteria to be included in the designs. Department of Defense design criteria is available at www.wbdg.org. Review for all applicable criteria and coordinate with the user for any applicable supplemental policy. Unless noted otherwise, follow the latest version of:

- h. General
 - i. UFC 1-200-01 DoD Building Code
 - ii. UFC 3-260-11FA Model Design-Build (D-B) Request For Proposal (RFP) For Airfield Contracts
- i. Pavement
 - i. UFC 3-260-01 Airfield and Heliport Planning and Design
 - ii. UFC 3-260-02 Pavement Design for Airfields
- j. Marking
 - i. UFC 3-260-04 Airfield and Heliport Marking
- k. Airfield Lighting
 - i. UFC 3-535-01 Visual Air Navigation Facilities
 - ii. UFC 3-535-02 Design Drawings for Visual Air Navigation Facilities
- l. Stormwater Drainage
 - i. Surface Drainage: UFC 3-201-01 Civil Engineering, and by reference FAA AC 150-5320-5D or subsequent version.
 - ii. Subsurface Drainage: UFC 3-230-06a Subsurface Drainage and TSPWG M 3-260-02.11
- m. Underground structures

- i. UFC 3-301-01 Structural Engineering
- n. [Aircraft Arresting Systems]
 - i. FC 3-260-18F Air Force Aircraft Arresting Systems (AAS) Installation, Operation, And Maintenance (IO&M)]

30. basis of design

The proposed construction consists of [*brief identification of work.*] Conform facilities to the stakeholder's requirements as identified below and in the subsequent A-E performed design charrette, design meetings, and as directed through the design process.

- d. Primary Scope: Provide a Request for Proposal Package sufficient for advertisement and bidding by prospective Design-Build Prime Contractor in accordance with the facilities and quantities identified in the [Authorization Document, such as DD Form 1391].
- e. Informational Documents: [*List any planning documents that will be provided here, such as a PDR or Charrette report.*] Refer to Section 14 Attachments.
 - i. [[Planning Charrette][Program Definition] Report]
 - ii. [*Provide additional informational documents as necessary*]
- f. Mission Requirements:
 - i. [*Use this section for any specific mission requirements*]

31. SPECIFIC Design INSTRUCTIONS

The following are detailed instructions for the development of the design. This section is not intended to be comprehensive but is intended to clarify certain roles and responsibilities for work under this SOW and to highlight requirements for the specific locality of this project. These instructions do not alleviate the A-E from the responsibility to conduct discovery of design requirements throughout the design process.

- j. **Ensure the D-B RFP follows the outline and contents as specified in UFC 3-260-11FA "Model Design-Build (D-B) Request for Proposal (RFP) for Airfield Contracts.** Specifications and format shall be updated to the most current published version of each UFGS.
- k. Designer's Cost Limit:
 - i. Construction Cost Limit: The Construction Cost Limit (CCL) for this facility and related site work is \$[*insert value*] (85% of Primary and Supporting Facilities Subtotal).

The A-E is responsible for providing a design within the CCL. During the Government's review of the design, recommendations submitted by the A-E concerning cost reductions and alternate or additive bid items will be evaluated and specific instructions furnished to the A-E concerning actions

to be taken to complete the design within the funding limit. In exceptional cases, the Government has the option to revise the CCL.

I. Pavement:

- i. [The existing pavement feature does not fully comply with current design criteria. Per UFC 3-260-01, Paragraph 1-3, the anticipated repair scope is [not] addressing a mission change and the full pavement feature is [not] being repaired by replacement, so upgrading to full design criteria compliance is [not] required.]
- ii. [Runway]: Runway design is to be UFC Class [*insert class*] compliant per UFC 3-260-01 and UFC 3-260-02 criteria.]
- iii. [Runway Overruns]: Follow the design requirements of UFC 3-260-01 and UFC 3-260-02 and include pavement markings per UFC 3-260-04.]
- iv. [Aggregate]: The A-E is responsible for researching available aggregate source(s) that have capacity to supply this project with sufficient materials that are anticipated to meet requirements of UFGS 32 13 14.13 as well as base and sub-base materials as applicable. It is understood that aggregate sources may not be fully qualified until the PCC proportioning studies are underway during execution. [Results of the research are to be considered in formulating the cost estimate. If the cost is excessive for the scope of work, provide risk assessment for Government review.]]

m. Electrical

- i. If precast structures are to be used, the A-E is required to coordinate with the precast manufacturer prior to submittal of the Final DB Package.

n. Fiber Optic Transmission System:

- i. Encase new Fiber in a concrete ductbank.

o. Airfield Lighting and NAVAIDs

p. Aircraft Arresting Systems

q. Other Utilities

r. Hazardous Materials/Environmental

- s. [Concurrent Projects: The following project(s) are planned for or adjacent to the project site and are not included in the scope of this contract. The design documents [will] [will not] be made available when they become available.]

32. Required services

The A-E, as an independent contractor and not as an agent of the Government is responsible to furnish all labor, management, facilities, supplies, equipment, and material

(other than those to be furnished by the Government as herein-after provided) and do all things necessary for performance of the work in accordance with the terms and conditions set forth below. Furnish the required personnel, equipment, instruments, and transportation, as necessary to accomplish required services and furnish to the Government all documents and other data, together with supporting material, developed during the period of performance. During the execution of the work, provide adequate professional supervision and quality control to assure the accuracy, quality, completeness, and progress of the work.

- d. Verification of Site Conditions: The A-E is responsible to investigate the site and all documentation provided by the Government. At a minimum, perform the following:
 - i. Review any existing documents pertaining to the site and surrounding buildings. It is the responsibility of the A-E to evaluate existing conditions within and in the immediate proximity of the project areas to determine if such conditions may affect or be affected by proposed construction. Inform the Contracting Officer in writing before proceeding with the project if there are site or building conditions that appear to affect the proposed construction.
 - ii. Photograph the sites and/or structures in connection with the projects, as necessary, to portray the initial conditions affecting the designs and construction. Furnish one copy of all pictures taken to the Contracting Officer at the time of the first review of the projects. The A-E is required to comply with regulations governing the use of photographic equipment on the military installation visited.
- e. Meetings: Conduct the following meetings. Prepare meeting minutes, including attendance lists, following all required meetings. Provide the meeting minutes in the design analysis.
 - i. Kick-off Meeting: The A-E is required to attend a teleconference kick-off meeting with the PM and other stakeholders. The kick-off meeting will be coordinated and lead by the PM, but the A-E is responsible for providing meeting minutes within 5 calendar days of the meeting.
 - ii. [Design Charrette][Initial Design Meeting]: Conduct a [insert number]-day design charrette meeting [at location][virtually] with the PM and other stakeholders to review and discuss the SOW and specific requirements of the project. The intent of the meeting is to verify all the programming and user requirements on the project prior to starting development of the design. Present an in-brief, conduct discussions and site investigations with the User, and present an out-brief of their findings and path forward. Provide a [Design Charrette][Initial Design Meeting] Report detailing all findings within 14 calendar days of the out-brief. Include a list of critical RFIs to be resolved in the out-brief and report to ensure project success.
 - iii. Draft DB Package Review Meeting: Conduct a [insert number]-day review meeting [at location][virtually] to present the Draft Design-Build Package

- and cost estimate. Be prepared to discuss scope modifications required to meet the CCL. The meeting is to focus on review comments and resolve any problems that arise at this submittal stage and clarify any issues that come up during the review process. The A-E is required to respond to all review comments or questions in writing. Include all comments and responses in the design analysis.
- iv. Final DB Package Review Meeting: Conduct a [*insert number*]-day review meeting [*at location*][virtually] to present the Final Design Package and cost estimate. Be prepared to discuss bid alternates and additive bid options. Focus the meeting on all comments and resolve any problems that arise at this submittal stage. Respond to all review comments or questions in writing. Include all comments and responses in the design analysis.
 - v. Corrected Final Package Review Meeting: Conduct a teleconference design review meeting to resolve comments that remain open after the Corrected Final Design Package has been submitted and reviewed by the Government.
 - vi. [Pre-proposal Site Visits with Construction Contractors: Attend a 1-day pre-proposal site visit with prospective bidders at [*insert location*]. The A-E is required to respond to all bidder inquiries generated during these meetings.]
 - vii. Other Meetings: At the discretion of the COR, other meetings may be held with the A-E and Government project proponents to resolve any differences, clarify issues, or discuss any items germane to the successful execution and completion of this contract. Any such meetings called because of the A-E's failure to comply with the requirements of this delivery order is at the A-E's expense and at no additional cost to the Government.
- f. Design Package: The A-E is required to produce a DB RFP package including all documents listed below in accordance with the requirements of this SOW.
- i. Cover Sheet and Table of Contents: Provide a cover sheet and table of contents listing all documents included in the design package.
 - ii. Specifications: Provide design specifications that, together with the drawings, provide sufficient information for construction contractors to bid a lump sum price Design-Build construction contract. The specifications are to be developed in SpecsIntact using UFGS format. [The A-E is responsible for all General Division Specifications (Division 01).] Utilize the most current UFGS specifications at time of award in development of the project specifications. All Tri-Service Electrical Working Group (TSEWG) and Tri-Service Pavement Working Group (TSPWG) documents are to be considered and incorporated as necessary. In accordance with UFC 3-260-11FA, prepare select Div. 31 and 32 specifications that are mandatory and other specifications that the project team determine to be high-risk. For airfield pavement related specifications, edits outside of the brackets or

built-in tailoring options are not permitted without approval from the Contracting Officer. Edit the specification sections for project requirements. Add, modify, and delete content as required for each project scope. Do not specify lesser quality requirements than are provided in the UFGS.

- iii. Drawings: Provide design drawings clearly depicting a conceptual design showing the type and extent of work to be performed. A-E is responsible for ensuring the drawings satisfy the customer's requirements and requirements of the criteria referenced here-in. Ensure all drawings to be furnished with the design package are well prepared, complete, with all elements thoroughly checked and coordinated, and accomplished in accordance with a professional standard of care. Include in the design drawings minimum pavement sections developed utilizing analysis, investigation and calculations that are to be incorporated into the DB RFP package. [Refer to ER 1110-345-700 Appendix C for specific guidance.] Utilize TSPWG Contracting Airfield Pavement Work Appendix D for guidance.
- iv. Design Analysis: Provide a narrative describing the project. Include all applicable calculations. Explain design decisions and describe how the design package meets the customer's requirements and criteria contained here-in. Refer to ER 1110-345-700 Appendix B for specific guidance. and follow the Airfield Pavements Design Analysis outline checklist in TSPWG Contracting Airfield Pavement Work Appendix D.

At a minimum, include the following in the design analysis:

- (1) Executive Summary
- (2) Description of the project
- (3) Discipline specific narratives and discussion of the design
- (4) Photographs of existing conditions affected by the project
- (5) Comparison of project scope and cost
- (6) Estimated Construction Schedule
- (7) Civil Calculations:
 - (b) Calculations include, but are not limited to, pavement sections, drainage layer evaluation, hydraulic calculations for storm water sewers and treatment facilities, and all other calculations required for the provision of the design. Utilize the latest version of PCASE for the pavement section design and evaluation
- (8) Electrical Calculations:
 - (b) Calculations include, but are not limited to, load calculations and demand factors, short circuit calculations, voltage drop calculations, lightning risk assessment calculations, protective device coordination and time current curves, transformer sizing calculations, generator sizing calculations, constant

current regulator sizing, and computer-generated lighting and emergency lighting calculations

- (9) Structural Calculations: For below grade structures, provide calculations for both the structure itself and the cover/frame/inlet grate as required by UFC 3-260-01, Paragraph 2-12.
 - (10) Airfield Waiver Support: Provide figures or information to support the development of airfield specific waivers that pertain to the project design.
- v. Submittal Register: The A-E is required to prepare the list of submittals required to be provided by the construction contractor during the construction phase. Prepare the submittal register electronically using ENG Form 4288-R. The submittal register includes a list of submittal descriptions and submittal type (shop drawings, data, instructions, schedules, reports, certificates, samples, records, or O&M manual), numerically keyed to line items in the specifications. Ensure the responsible reviewing party is identified for all submittal register line items (Designer of Record, Government, or For Information Only). All required submittals must be included and must be fully coordinated with the specifications, i.e., a submittal requirement may not be identified only on the drawings.
 - vi. Bid Schedule: The A-E is responsible for preparing a bid schedule. Determine the base bid and optional items by analyzing the construction cost estimate and coordinating priorities with the stakeholders. The bid schedule is required to identify options totaling approximately 20% of the CCL. Provide a comparison of bid schedule items and costs in the design analysis. The bid schedule includes durations for a construction period of performance. Determine the construction duration by use of quantities, production rates, efficiency factors, and weather allowances.
 - vii. Construction Cost Estimate: Develop the construction cost estimate in accordance with the requirements outlined in Attachment #1.
 - viii. [Draft DD1391: Prepare and submit a draft DD1391 for the project, fully supported by the cost estimate. Develop the DD1391 in accordance with [AFI 32-1020] *[other service's requirements]* requirements.]
 - ix. Construction Schedule: Provide a conceptual Construction Schedule for the planned project. Include a drafted Work Breakdown Structure (WBS). Identify in narrative form all the primary work elements, including an initial critical path project schedule describing the construction phasing and primary construction work elements, organized by the cost estimate CSI structure. Include a narrative WBS describing the construction activities for the purpose of pre-construction proposal evaluation.

- e. Engineering Studies: Provide the following engineering studies. Prepare reports detailing the findings of each study. Include these reports in the design analysis:
- i. [Value Engineering Study: Perform a Value Engineering (VE) study in accordance with the requirements outlined in Attachment #2. [The study will be performed at *[insert location]*].[The study can be performed virtually at the A-E's discretion in order to reduce overall travel costs.]]][N/A]]
 - ii. [Site Topographic Survey. The A-E is required to hire a licensed surveyor registered with the jurisdiction having authority to provide signed survey documents. Conduct a site survey of the entire project area as well as features outside of the project site limits that will affect the design and construction of the project. See Attachment #3 for the topographic survey requirements.]
 - iii. [Geotechnical Investigation: The A-E is required to hire a licensed geotechnical engineer registered within the jurisdiction having authority to provide a geotechnical summary report. See Attachment #4 for geotechnical investigation requirements.]
 - iv. [UXO Avoidance: When conducting intrusive work such as geotechnical borings, the A-E performs UXO avoidance in the affected area. See Attachment #5 for UXO Avoidance requirements.]
 - v. [Concrete Recycling Risk Assessment: Evaluate the existing concrete pavement per TSPWG 3-250-07.07-6 Risk Assessment Procedure for Recycling Portland Cement Concrete (PCC) Suffering From Alkali-Silica Reaction (ASR) in Airfield Pavement Structures. See Attachment #6 for the concrete recycling risk assessment requirements.]
 - vi. [Airfield Pavement Aggregate Source Evaluation: Evaluate locally available aggregates and determine acceptability for pavement surface layer UFGS requirements. See Attachment #7 for the airfield pavement aggregate source evaluation requirements.]
 - vii. [Storm Water [and] [Sanitary Sewer] Investigation. Perform the required inspection of the [storm water system] [and] [sanitary sewer system]. Provide a report of inspection results. See Attachment #8 for the storm water and sanitary sewer investigation requirements.]
 - viii. [Hydrology and Hydraulic Analysis. Perform an analysis of *[insert area of interest]* for evaluation of upgrades/changes to the existing storm water system. See Attachment #9 for the hydrology and hydraulic analysis requirements.]
 - ix. [Hazardous Materials Survey. See Attachment #10 for Hazardous Materials Survey requirements.]

- x. [Environmental Survey. See Attachment #11 for Environmental Survey requirements.]
 - xi. [Economic Analysis. See Attachment #12 for economic analysis requirements.]]
- f. Submittals: In addition to any required submissions from the base contract, provide the following submittals. Refer to Section 10 SUBMITTAL FORMAT AND DISTRIBUTION for additional requirements:
- x. List of Qualified Engineers: Provide a list of all engineers and their qualifications with resumes to the COR for review. Submit resumes for qualification verification. The A-E is responsible for staffing this Task Order with the required engineers. Ensure all engineers possess current licensure in compliance with FAR 52-236-25, Requirements for Registration of Designers.

Key personnel anticipated to support the task order are as follows.

- [Design Quality Control Manager (DQCM): Identify both a registered professional engineer or architect and an alternate responsible for being cognizant of and assuring that all documents on the project have been coordinated and that the requirements of the DQCP have been met. DQCM will identify all ITRs, ensure each ITR review, and the design quality control checklists are completed. The DQCM may be also serve as one of the ITR reviewers[; however, the Project Manager cannot be the DQCM].]
- [Project Manager: Identify a registered professional architect or engineer as the project manager with experience in the completion of Design-Build concept design or 100% design of [two (2)] DoD facility designs within the last [five (5)] years. Demonstrate at least [ten (10)] years total experience in facilities design. [May also serve as the DQCM].]
- [Lead Geotechnical Engineer: Demonstrate at least [ten (10)] years of experience preparing geotechnical reports in similar soil conditions.]
- [Lead Structural Engineer: Demonstrate design experience in at least [two (2)] projects in the last [seven (7)] years which include the design of below grade structures. Demonstrate no less than [ten (10)] years total experience in structural design.]
- [Lead Registered Communications Distribution Designer (RCDD): Demonstrate compliance with the requirements of UFC-3-580-01, including current registration as a BICSI Registered Communications Distribution Designer (RCDD), as required therein. Demonstrate design experience in at least [two (2)] projects within the last [seven (7)] years

which include the design of communications systems for DoD projects, or any project subject to the requirements of UFC 3-580-01.

Demonstrate no less than [ten (10)] years total experience in facilities communications equipment (C-E) design.]

- [Lead Civil Engineer: Demonstrate design experience in no less than [two (2)] projects within the last [seven (7)] years which include design of site facilities for a new facility or facility renovation design subject to UFC 3-201-01, Civil Engineering. Demonstrate no less than [ten (10)] years total experience in civil engineering.]
- [Lead Airfield Geometrics Engineer: Demonstrate design experience in no less than [two (2)] projects within the last [seven (7)] years which include design of airfield facilities for a new feature or a major rehabilitation design subject to UFC 3-260-01 Airfield and Heliport Planning and Design. Demonstrate no less than [ten (10)] years total experience in airfield geometrics.]
- [Lead Airfield Pavement Engineer: Demonstrate design experience in no less than [two (2)] [projects within the last [seven (7)] years which include design of airfield facilities for a new feature or a major rehabilitation design subject to UFC 3-260-02 Pavement Design for Airfields. Demonstrate no less than [ten (10)] years total experience in airfield pavement.]
- [Lead Airfield Lighting and NAVAID Engineer: Demonstrate design experience in no less than [two (2)] projects within the last [seven (7)] years which include design of airfield facilities for a new feature or a major rehabilitation design subject to UFC 3-535-01 Visual Air Navigation Facilities, or AC 150/5340-30J Design and Installation Details for Airport Visual Aids. Demonstrate no less than [ten (10)] years total experience in airfield lighting.]
- [Lead Construction Cost Estimator: Demonstrate current certification as a Certified Estimating Professional (CEP) by AACE. Alternate certifications may be submitted to the CO for consideration; equivalent or greater certifications will be considered. Demonstrate experience in the development of construction cost estimates for no less than [two (2)] projects within the last [five (5)] years, at least one of which is a project on a DoD Installation. Demonstrate no less than [ten (10)] years total experience in construction cost estimating.]

- [Lead Scheduler: Demonstrate at least [five (5)] years total experience in construction scheduling.]
 - [Lead Cybersecurity Coordinator: Demonstrate current cybersecurity certification accepted by the DoD as fulfilling DoD Directive 8570.1M (Any level of IAM, IAT, IASAE, or CSSP satisfies this requirement, as defined therein; refer to DoD8570.1M). Demonstrate cybersecurity design of either Information Technology (IT) or Operational Technology (OT) systems in no less than [two (2)] projects in the last [five (5)] years. This task order include application of only the Cybersecurity requirements of UFC 4-010-06 on OT systems only. Design of cybersecurity for IT systems is excluded from this task order but will be considered relevant project experience.]
- xi. [Work Plan: Prepare work plans to comply with Department of Defense, [US Army][US Air Force][US Navy], state, and local regulations regarding the proposed work effort, including all work on-site performed during this task order. Prepare applicable test plan(s) for each of the testing and sampling services to be performed with anticipated locations and schedule. Include a list of and data sheet for all equipment and vehicles to be used for on-site investigations to support a temporary airfield construction waiver. Anticipate [*insert number*] days for Government coordination of approval to conduct investigations after submittal of the work plan.]
- xii. [Health and Safety Plan: Prepare a HSP as required by 29 Code of Federal Regulations [CFR] 1910.120. Comply with US Air Force, OSHA, United States Environmental Protection Agency (USEPA), state, and local health and safety regulations regarding the proposed work effort. Use USEPA guidelines for designating the appropriate levels of protection needed at the study site(s) as applicable. Maintain written certification that the approved HSP has been reviewed with all personnel that work at the project site prior to their mobilization.]
- xiii. [Design Quality Control Plan: Prepare a DQCP [in accordance with ER 1110-3-12 Quality Management] to include four (4) elements: a quality control narrative, Design Quality Control Checklists, and resumes of both key personnel and Independent Technical Reviewers (ITRs). Submit the DQCP within fourteen (14) calendar days after award. Prior to conducting any on-site activities, including the Charrette and on-site investigations, obtain acceptance and approval of the DQCP. Conduct the on-site Charrette and all subsequent design activities utilizing the personnel submitted and approved in the DQCP. Notify the Contracting Officer immediately with any changes to key personnel].
- xiv. [Design Quality Control Narrative: Include in the DQCP a narrative describing the process for coordination, finalization, and quality control of all design deliverables in this task order. Provide a detailed plan to effectively

maintain a quality control program to assure that all designs, drawings, specifications, and other documents required by this contract are performed and provided in a manner that meets professional architectural and engineering quality standards. Include the design configuration management addressing authorities, symbols/abbreviations, legends, naming, drawing revision controls and process, record file maintenance, and completion of Design Quality Control checklists. Identify lines of authority and a communication plan for any contributors employed by different teaming member companies, including those for technical investigations. Describe the mandatory quality control reviews to be provided, utilizing Independent Technical Reviewers (ITRs).]

- xv. [Design Quality Control Checklists: Include in the DQCP discipline-specific QC checklists to be completed in future design submittal development. For each design deliverable, describe the level of development for each of the components of the submission including calculations, drawings, narratives, cost estimates, schedule, DD1391 and Sustainability Scoresheets. Describe in each checklist the level of completion and effort planned for that submittal in each design discipline, addressing all of the scope areas of this task order in Part A. Provide checklists that addresses each discipline of the design (i.e., architectural, interior design, structural, cybersecurity, cost estimating, sustainability, mechanical, electrical, geotechnical plumbing, civil, materials, pavements, communications, scheduling, etc.). Ensure checklists are signed by each lead designer in the discipline prior to submission to the Government. Submit signed checklists, approved in the DQCP, with each corresponding design deliverable.]
- xvi. [Independent Technical Review (ITR): Submit Independent Technical Reviewer (ITR) resumes including names, telephone numbers, and email addresses for each individual. For all design submittals provided to the Government, perform a quality control ITR in every technical design discipline. Reviews are to be of the scope necessary to ensure quality of design and substantiate that all services conform to the contract. Conduct ITRs at every design submittal prior to submission to the Government, generating written comments to be appended to each design submission. Correct errors and deficiencies in the design documents identified by ITRs prior to submission to the Government. Append all ITR comments to each design deliverable, validating closure of each review comment and demonstrating completion of the ITR. For each designer, demonstrate current licensure in compliance with FAR 52-236-25 with no less than five (5) total years of experience in the discipline the ITR review is in. In-state licensure is not required for any ITR reviewer. Perform review for no more than two (2) disciplines for which the independent reviewer possesses active licensure. ITR review requirements are excluded for the Construction Scheduler, Cybersecurity Specialist, and Geotechnical Engineer.]
- xvii. [Design Charrette][Initial Design Meeting] Report: Provide a narrative report detailing all findings from the [Design Charrette][Initial Design

Meeting] for the project. The report represents a complete basis of design for the project. Include all User requirements, information received, and decisions made during the Charrette. Identify information required, decisions to be made, and actions required of all parties (A-E and Government) to resolve all open issues. Provide conceptual type drawings to include all site investigations to date, site layout, and any other information available at the time. Include attendance rosters, meeting minutes, the in-brief presentation, the out-brief presentation, and copies of any criteria documents received or discovered during the Charrette as attachments to the Charrette Report.

xviii. Draft DB Submittal: This submittal is to include all design features captured from the Charrette, site visit, and preliminary surveys. The purpose of this submittal is early detection of required scope and/or design changes. The submittal consists of the following elements:

- (1) Photographs of existing site conditions
- (2) Drawings
- (3) Specifications (table of contents for anticipated specification sections only; red-lined)
- (4) Bid Schedule
- (5) Cost Estimate
- (6) Draft DD1391
- (7) Construction Schedule; and
- (8) Design Analysis (including preliminary reports for all engineering studies).

vii. Final DB Submittal: This submittal is to include all design features from the draft submittal, updated to incorporate Government comments from the Review Meeting. The submittal consists of the following elements:

- (1) Drawings
- (2) Specifications (fully edited; red-lined)
- (3) Submittal Register (complete)
- (4) Bid Schedule
- (5) Cost Estimate
- (6) [Draft] DD1391
- (7) Construction Schedule
- (8) Design Analysis (including final reports for all engineering studies)
- (9) VE Certification.

viii. Corrected Final Submittals: This submittal includes information in sufficient detail of all phases of the work to be competitively bid and constructed by Construction Contractors. Ensure all comments from previous submittals are resolved and changes incorporated. Identify any changes made that were not documented via comment resolution in the design analysis. The submittal consists of the following elements:

- (1) Drawings
 - (2) Specifications (complete, long form)
 - (3) Submittal Register (final)
 - (4) Bid Schedule
 - (5) Cost Estimate
 - (6) [Draft] DD1391
 - (7) Construction Schedule
 - (8) Design Analysis (including final reports for all engineering studies).
- ix. Requests for Information (RFIs) and Bidder Inquiries during Solicitation: Remain informed of the project status and maintain communications with the COR and PM throughout the advertisement, evaluation, and award process. The A-E is responsible for responding to Construction Contractor bidder inquiries and RFIs during the solicitation process. These RFIs are considered within the A-E's responsibility to furnish a complete and understandable Design Package. Bidder inquiries and RFIs that require additional design development not within the A-E's design responsibilities require a contract modification.
- j. Amendments to Bid Documents during Solicitation: During the time that this project is advertised for construction contract bids, it may be necessary for the A-E to provide amendments to the advertised DB Package. These amendments are provided as reissued or revised documents and be incorporated into the bid documents by the Government in the form of amendments. Complete amendments within the project scope, including resolution of design errors, omissions, and conflicts promptly, to prevent slipping of the Proposal Due Date. Amendments for items outside the project Statement of Work will be accomplished as a modification as directed by the Contracting Officer.
- k. Requests for Information (RFIs) during Construction: In accordance with 48 CFR 52.236-23, provide responses to RFIs generated during construction that pertain to ambiguities, errors, omissions, or deficiencies in the Design Package for the duration of construction. These RFI's are separate from the RFI's submitted as part of the Construction Phase Option and are directly related to the quality of the design. Make modifications to the Design Package as required to communicate the intent of the design or to correct any errors, omissions, or deficiencies required for construction. Submit RFI responses within 5 calendar days to ensure no delays in construction. These services are provided at no cost to the Government.
- l. Design Comments: Use DrChecks/ProjNet for tracking all comments for each design phase.

33. [Option – Construction phase engineering support services

- d. Site Visit Reports: This deliverable is for Technical Assistance visits (10 total) required to assist on specific concerns. For each day and for each dedicated engineer on site, provide a detailed site visit report per discipline that includes all actions, issues, and other relevant information (photos, attachments, etc.) that directly affects the design and/or construction quality of the assigned project with

emphasis in, but not limited to, the discipline of the employee performing the site visit. [Ten][insert number] site visit reports are estimated during the performance period. The site visit report is to be submitted to the Government within three (3) calendar days. Address any clarifications and corrections to the report requested by the Government within three (3) calendar days, to include the submission of the revised report.

- e. Teleconference Written Record: This deliverable is for Technical Assistance required to assist on specific concerns. After each teleconference, within three (3) calendar days, provide a written record by the A-E personnel that participated summarizing the discussions to include any technical support/recommendations provided to the Government. A total of [10][insert number] teleconferences are estimated during the performance period.
- f. Submittals/Request for Information (RFIs)/Modification Review Reports: This deliverable is for Technical Assistance required to assist on specific concerns. For each technical review of a submittal or RFI, deliver a detailed report documenting any findings noted during the review. The total amount of reports estimated are: [10][insert number] submittal reviews, [10][insert number] RFI reviews and [5][insert number] modification review reports. The Government POC will notify the A-E when they need support for the reviews of submittals or RFIs. The Government POC is the only source of request for reviews, disregard all other requests. Submit the submittal or RFI review reports to the Government POC within three (3) calendar days after receiving the documents that require review. Address and submit any clarifications and corrections requested by the Government to the report within one (1) calendar day.]

34. SUBMITTAL FORMAT AND DISTRIBUTION

- l. Coordinate all submittals with the Government COR and PM. All submissions under this contract are made by a Letter of Transmittal identifying the contents of the submission. No work is considered submitted until the Government COR or PM receives it. Allow sufficient mailing time for submittals to be received by the required date.
- m. Use [imperial][metric] system for all measurements. Adjust scales accordingly.
- n. Provide documents in both hard copy and electronic formats in the amount shown in the Deliverables Table. Ensure text-based documents are 100% compatible with Microsoft Office software and are delivered in both .pdf and editable native word processing format. Provide electronic drawing files in both .pdf and editable native CAD format. Deliver Cost Estimates in the native Microsoft Excel, MCACES, or PACES file formats.
- o. Submit all submittal documents together. Provide all text-based documents, including Specifications and Design Analysis, bound in binders. Provide separate binders for contract documents (i.e., Specifications) and non-contract documents (e.g., Design Analysis, Engineering Reports, and Cost Estimate). If multiple volumes are required for either document type, ensure each volume has a cover

sheet and include a table of contents. Print all text-based documents on either Letter or ANSI A paper.

- p. Bind all drawings together. Include a title block in drawings with project identifying information and page numbers in format “x of y”. Ensure all drawings are legible when printed on ASNI B paper. All drawings are required to be legible and clearly portray the information necessary for the successful award and construction, at a minimum furnish drawings with the following minimum drawing scales:

Drawing Type	Minimum Scale
Base Map/Haul Routes	[1" = 100'] [1:1250]
Site Plans	[1" = 40'] [1:500]
Phasing Plans	[1" = 40' or 80'] [1:500 or 1000]
Grading Plans	[1" = 40'] [1:500]
Pavement Sections	[1" = 5' or 10'] [1:50 or 125]
Details	[1" = 1' or 5'] [1:10 or 50]

Number of Copies: Provide the listed copies of the documents, in electronic format, as well as hard copies (HC) in the amounts shown below, unless otherwise directed:

DELIVERABLE	[AGENCY SME] [USACE TSC]	[Office]	[Office]	[Office]
Concept, Intermediate, Final, and Corrected Final Design Submittals				
ANSI B Size Drawings	[#]	[#]	[#]	[#]
Specifications/Manufacturer Cut-Sheets	[#]	[#]	[#]	[#]
Design Analysis/Calculations/Schedules	[#]	[#]	[#]	[#]
Note: The Corrected Final Design Submittal will be electronic submission only. Ensure the Corrected Final Design Drawings are digitally signed by the DORs and QC.				
Final Amended Contract Documents				
ANSI B Size Drawings	[#]	[#]	[#]	[#]
Specifications	[#]	[#]	[#]	[#]
Note: Submit cost estimate amendments during solicitation via email directly to the Contracting Officer.				

35. schedule

The period of performance for the base is [insert number] calendar days and commence on the day the Notice to Proceed (NTP) is issued. The NTP is issued with the Task Order Award. A sample schedule, in terms of calendar days from award, is shown below. Submit the Corrected Final Design Package within [insert number] calendar days from NTP. [Task Order Option, Construction Phase Services, extends the period of performance by [insert number] calendar days. Exercise of this option must be within the base period of performance.]

Section 1.05 SERVICE OR DELIVERABLE	Section 1.06 Calendar Days after NTP
[Design Quality Control Plan]	[#]
List of Qualified Engineers	[#]
Kick-off Meeting	[#]
Submit Kick-off Meeting Minutes	[#]
[Conduct Engineering Studies (Except VE Study)]	[#]
[Submit Work Plan]	[#]
[Submit Health and Safety Plan]	[#]
[Submit Design Quality Control Plan]	[#]
[Conduct Design Charrette]	[#]
[Design Charrette Meeting Minutes]	[#]
[Conduct Field Investigations]	[#]
Develop Draft Design-Build Package	-
Submit Draft Design-Build Package	[#]
Draft Design-Build Package Review Meeting	[#]
Submit Draft Design-Build Package Review Meeting Minutes	[#]
[Conduct Value Engineering Study]	[#]
[Draft Value Engineering Report]	[#]
Develop Final Design-Build Package	-
Submit Final Design-Build Package	[#]
[Final Value Engineering Report]	[#]
Final Design Build-Package Review Meeting	[#]
Submit Final Design-Build Package Review Meeting Minutes	[#]
Develop Corrected Final Design-Build Package	-
Submit Corrected Final Design-Build Package	[#]
Corrected Final Design-Build Review Meeting	[#]
Pre-Proposal Site Visit	TBD
Submit Responses to Bidder Inquiries and RFIs	TBD
Submit Amended Design-Build Package	TBD
[Perform Construction Phase A-E Services]	TBD

36. Special Conditions

- d. Reporting Problems: Identify any problems promptly and bring them to the attention of the Government PM with copy furnished to the applicable Sponsoring Agency. Report circumstances that result in delivery order delay in writing along with the reason for the delay and the A-E's proposed remedial action.
- e. Required Conditions for Anti-Terrorism and Operational Security: The A-E and all A-E contractor and subcontractor employees must comply with the following:
 - i. *[insert conditions – this is pulled from the ENG Form 6055]*

37. GoVERNMENT FURNISHED INFORMATION

- a. [Planning Charrette][Program Definition] Report
- b. *[insert other documents]*

38. ATTACHMENTS

All attachments provided are contract requirements. The A-E is responsible for incorporating the requirements into their cost proposal.

- Attachment #1: Cost Estimate Guidance
- [Attachment #2: Value Engineering Study Requirements]
- [Attachment #3: Site Topographic Survey Requirements]
- [Attachment #4: Geotechnical Investigation Requirements]
- [Attachment #5: UXO Avoidance Requirements]
- [Attachment #6: Concrete Recycling Risk Assessment Requirements]
- [Attachment #7: Airfield Pavement Aggregate Source Evaluation Requirements]
- [Attachment #8: Storm Water [and] [Sanitary Sewer Investigation Requirements]
- [Attachment #9: Hydrology and Hydraulic Analysis Requirements]
- [Attachment #10: Hazardous Materials Survey Requirements]
- [Attachment #11: Environmental Survey Requirements]

- [Attachment #12: Economic Analysis Requirements]

39. References

- ER 1110-1-8155 Engineering and Design Specifications
- ER 1110-345-700 Design Analysis, Drawings, and Specifications

C-1.4 A-E CONSTRUCTION PHASE SERVICES.

Statement of Work template for hiring an A-E to perform construction phase services, titled "Architect-Engineer (A-E) Services Performance of Construction Phase Services (CPS)".

STATEMENT OF WORK

**Architect-Engineer (A-E) Services
Performance of Construction Phase Services (CPS)**

for

[Project Title]
[Project Location]

Contract Number:
[insert contract number]

Date Prepared:
[insert date]

Prepared by:
[Agency]
[Preparing Office]
[Office Address]

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40. PROJECT INFORMATION

Contract: [*Contract Vehicle, such as “Indefinite Delivery Contract for General A-E Services”*]

Parent Contract No.: [*Contract Number*]

Project Title: [*Project Title*]

Project Sponsors: [*Customer*]

Location: [*Project Location*]

41. WORK TO BE PERFORMED

Provide all professional engineering services necessary for construction phase services to the Government during the administration of the construction contract of the contracts listed in the following table:

Contract Number	Title
[<i>insert contract number</i>]	[<i>Project Title</i>]
[<i>insert contract number</i>]	[<i>Project Title</i>]
[<i>insert contract number</i>]	[<i>Project Title</i>]
[<i>insert contract number</i>]	[<i>Project Title</i>]
[<i>insert contract number</i>]	[<i>Project Title</i>]

Construction phase A-E services include, but are not limited to, the following: Shop drawing and construction submittal reviews, documentation support, responses to requests for information, preparation and review of operation and maintenance manuals, daily inspections, system-specific inspections, pre-final and final inspections, testing, as-built drawings review, recommendations for acceptance, recommendations based on inspections and general technical assistance. Detailed requirements for all activities and products are found in this SOW.

The A-E is responsible for determining what disciplines and skill sets are required for accomplishing the work under this SOW and form a team accordingly. Complete the required services and submit reports and other data together including supporting material to the Government during the period of performance. Prepare and submit [daily, weekly, /or monthly and/or quarterly reports], participate in construction progress, preparatory, coordination, training meetings, prepare and present presentation material for construction updates, maintain project documentation. During the execution of work, provide adequate supervision and quality control to assure the accuracy, quality, timeliness, and completeness of the work.

42. Government POINTS OF CONTACT

a. Primary Points of Contact:

[Name]
Contracting Officer Representative (COR)
Phone: [Work Phone Number]
E-mail: [Government e-mail address]

[Name]
Contracting Officer
Phone: [Work Phone Number]
E-mail: [Government e-mail address]

b. Other Government Stakeholders:

[Name]
Project Manager (PM)
Phone: [Work Phone Number]
E-mail: [Government e-mail address]

43. GENERAL CONTRACT REQUIREMENTS

- iii. A-E Responsibility: The A-E is responsible for complying with all requirements identified in the base indefinite delivery contract. Furnish all labor, materials, equipment, and perform necessary travel as required for the accomplishment of the project in accordance with the requirements specified herein and set forth under the SOW.

Permits and Responsibilities: Obtain all permits not required to be requested or obtained by the U.S. Government in accordance with FAR 52.236-7, Permits and Responsibilities.

jjj. A-E Personnel Qualifications:

- i. Ensure all personnel performing tasks under this contract are fluent in English (verbal and written). They are required to be proficient with Microsoft Office (i.e., Word, Excel, Outlook) or compatible software.

- ii. Project Manager: Designate, in writing, a Project Manager to serve as the single point of contact and liaison between the A-E team and the Government. The A-E Project Manager is responsible for the complete coordination of all work required under this contract.
- iii. Engineering Support: Utilize mid-level engineers with at least 5 years of experience in performing engineering services or construction inspection on construction contracts and 2 years' experience on airfield related projects. Ensure the engineers have a bachelor's degree in engineering, or equivalent, in their respective field. Provide engineering support for civil and electrical disciplines.
- iv. Inspection Support: Utilize inspectors with the following qualifications:
 - Ensure the Lead Construction Inspector(s) providing on-site quality assurance services possesses the following minimum credentials:

A degree in Engineering, Construction Management, or applicable field related to the overall project tasking and ten years airfield construction experience; Fifteen (15) years of experience as an airfield construction inspector with five (5) years as a lead inspector may be substituted for a degree.
No less than [five (5) years; six (6) years; seven (7) years] of experience in construction practices, procedures, and testing, to include three (3) years of quality control management of DOD construction projects.
Certified completion of a professionally accredited Quality Control Management Course (e.g., conducted by the US Army Corps of Engineers or an independent private company) within the last five (5) years. Contractor's self-developed programs will not fulfill this requirement.
Technical expertise to perform payment inspections and validation of progress against the AF IMT 3065 forms.
[Registered as an Airfield Asphalt Pavement QC Manager through the Airfield Asphalt Pavement Certification Program: at www.airfieldasphaltcert.com.]
[Required to be an ACI Concrete Transportation Inspector.]
 - Ensure additional Inspector(s) supporting the on-site quality assurance services possess the following minimum credentials:

A degree in Engineering, Construction Management, or applicable field related to the overall project tasking and five years of airfield construction; Any inspectors in addition to the lead inspector may substitute [ten (10)] years of experience as an airfield construction inspector for a degree.
Certified completion of a professionally accredited Quality Control Management Course (e.g., conducted by the US Army Corps of Engineers or an independent private company) within the last five (5)

years. Contractor's self-developed programs will not fulfill this requirement.

[Registered as an Airfield Asphalt Pavement Inspector through the Airfield Asphalt Pavement Certification Program: at www.airfieldasphaltcert.com.]

- kkk. Disclosures/Ownership of Data: All data, reports, and material related to this project are property of the Government. Ensure no public announcements or disclosures relative to information provided for, contained in, or developed for this contract. This applies also to US Government-owned information made available to the A-E. The design and its related information are the property of the U.S. Government and do not release to anyone without the written permission of the Contracting Officer. The obligation to maintain the confidentiality of all project information extends beyond the completion of the project.
- lll. Laws and Regulations: The A-E is responsible for performing all inspections and design efforts in full compliance with applicable US laws. Comply with all Occupational Safety and Health Administration, Environmental Protection Agency, [*insert Agency*], and federal and local safety and environmental requirements. In case of a conflict between these regulations, use the most protective standard. Ensure employees, subcontracts, and their agents have the required certifications and licenses to perform the work required by this contract.
- mmm. Modifications: Modifications will be issued in compliance with the contract clauses.
- nnn. Contract Directives: Official guidance and instruction that pertains to either the interpretation of this Task Order or the performance of the work described herein will be provided solely by the District's Contracting Officer or the Contracting Officer's Authorized Representative (COR). No other military or civilian personnel are authorized to provide direction on the contract scope and schedule. [The Customer may communicate directly with the A-E, as long as the COR is included in the communication, for the purpose of providing technical information and guidance needed to successfully complete the project.]
- ooo. Contract Authority: The contract relationship is directly between the [*insert Agency*] and the A-E. If the A-E receives any request for services that are not within the Statement of Work, immediately notify the contract COR for direction before acting on the request. Send all correspondence through the COR and PM listed in this SOW, including review comments and responses.
- ppp. Installation Access: Ensure all requirements for access onto the installation are followed. The A-E is responsible for staffing the contract with personnel that meet all requirements for installation access, including all in-house and subcontractor personnel. Replace any person denied access to the installation at no cost to the Government.
- qqq. Site Access: After obtaining permission from the PM contact Local Authorities to arrange access to the site. The A-E or representatives will be accompanied by a person designated by the Local Authorities where necessary.

The Government POC will also assist the A-E in obtaining available information and in establishing contacts with the proper individuals and organizations as necessary in the accomplishment of the work. Personal electronic devices such as mobile phones, cameras, computers, and other devices may be prohibited at the jobsite. A-E personnel may be subject to personal and property searches while on the jobsite by host nation or US Government law enforcement personnel.

Security requirements to access the jobsite or contract documents may change during the life of this contract. The A-E will be responsible to meet all future security access requirements. The A-E can submit a request for equitable adjustment to cover any impacts to the original proposal caused by the changes in jobsite access security requirements. However, the A-E will be responsible for notifying the Government immediately of any changes to the security requirements to access the jobsite that will cause an impact to the original proposal costs. Delay in notification may be grounds for denial of the request for equitable adjustment.

rrr. Construction Site Facilities and Equipment for On-Site Inspector(s): The [Government] [Construction Contractor] [A-E] will provide office space, restroom, and supporting electrical utilities at the project site to support only the on-site Construction Inspection services to be performed on the Government's construction site for the duration of construction. Provide all other furniture and equipment necessary to conduct the work of this task order, including but not limited to desks/workstations, computer equipment, photography equipment, and any other supplies necessary to conduct daily business. Provide communications connectivity to the jobsite office space.]

sss. Identification & Restrictions: The A-E representative is to be clearly identified as an employee of the A-E firm. The minimum requirements are a visible identification badge while personally interacting with the Construction Contractor personnel and the Government, and their personal introduction at meetings and any other means of conversations. A-E personnel are not allowed to drive or ride with Government personnel.

ttt. Quality Control: The A-E is responsible for quality control of all products. Products that exhibit low-quality reproduction, poor information formatting, or contain obvious graphical or technical errors are considered sufficient grounds for rejection of the submittal. Ensure a native speaker of the language reviews all documents that are translated to a second language by a non-native speaker.

uuu. Records: Within 24 hours of an event, provide the COR with written record of any meeting, conference, discussion, or verbal direction in which the A-E or designated representatives have participated. Date the records and identify participants, subjects discussed, and conclusions reached.

44. Support during construction

To adequately perform construction management services, perform the following tasks while generating daily reports as stipulated in Section 6.

g. Support During Construction – Design Stage (Design-Build):

- a. Review the request for proposal and other contract documents for the Design-Build Construction Contract and become thoroughly familiar with the standards and the scope of design and construction work required for the construction contracts. Provide technical review of design submittals.
- b. Within 24 hours, provide answers to questions arising from the design submittal technical review.
- c. Attend technical meetings and assist the Government in interpreting and understanding design requirements.
- d. Provide the Government with notes of any meeting attended within 24 hours.]
- h. Support During Construction – Construction Stage:
 - a. Become thoroughly familiar with [*insert agency*] Quality Assurance (QA) techniques and procedures. [Reference procedures: EP_415-1-261_Vol-01-06, ER 415-1-11, ER_1180-1-6, ER_1110-1-12, ECB_2017_20,]
 - b. Ensure the Construction Inspector(s) attend [a [*insert number*]-day PCC airfield pavement workshop,] [a [*insert number*]-day HMA airfield pavement workshop,] [a [*insert number*]-day airfield lighting workshop]. The airfield pavement workshop[s] [is/are] [not] anticipated to occur prior to NTP for construction. [For Design—Build Construction] The Construction Inspector(s) virtual participation in or on-site attendance at the project Post Award Design Workshop and design review meetings are [included/excluded] from the scope of services in this task order.
 - c. Review contract plans and specifications and become thoroughly familiar with the scope of construction work and the standards required.
 - d. Participate in 3-phase inspection meetings and document them in the site visit report.
 - e. Participate in inspection and partial acceptance of main components of construction.
 - f. Inspect all construction work paying closer attention to their respective discipline. Document any deficiencies noted and provide recommendations in the site visit report.
 - g. Monitor and document in the site visit report the construction work sequencing, resources on site and progress of work, to include relevant pictures with narratives.
 - h. Perform inspections of technical systems to identify design deficiencies and document findings and observations in the site visit report.

- i. Inspect installed equipment and systems, comparing it to the contract documents. Notify the Government of any discrepancies and document the findings in the site visit report.
- j. Participate in the startup, testing and commissioning process to ensure all systems are properly commissioned for operation.
- k. Assist the Government during On-the-Job (OTJ) trainings to ensure that the trainings cover all required aspects needed by the customer to properly operate and maintain the systems.
- l. Attend technical meetings and assist the Government in interpreting and understanding construction requirements.
- m. Within 24 hours, provide the Government with notes for any meeting attended.
- n. Assist in reviewing the contractor's payment invoices for correctness and to ensure that the invoices represent the work performed during the payment period.
- o. Review Construction Contractor's Requests for Information (RFI) and submittals for conformity to the construction documents and other related standards or documents.
- p. Provide technical review of modifications.
- q. Attend warranty inspections and document deficiencies observed and their corrections.

45. Required services

The A-E, as an independent contractor and not as an agent of the Government is responsible to furnish all labor, management, facilities, supplies, equipment, and material (other than those to be furnished by the Government as herein-after provided) and do all things necessary for performance of the work in accordance with the terms and conditions set forth below. Furnish the required personnel, equipment, instruments, and transportation, as necessary to accomplish required services and furnish to the Government all documents and other data, together with supporting material, developed during the period of performance. During the execution of the work, provide adequate professional supervision and quality control to assure the accuracy, quality, completeness, and progress of the work.

- a. Site Visit Reports: This deliverable is for Technical Assistance site visits required by the COR to assist on specific concerns, and not to account for required visits by the A-E to meet other contract requirements. For cost formulation purposes assume [*insert number*] of site visits. For each day and for each dedicated engineer onsite, provide a detailed site visit report per discipline that includes all actions, issues and other relevant information directly affecting the design and/or construction quality of the assigned project with emphasis in (but not limited to) the discipline of the employee performing the site visit. Submit the

site visit report to the Government within 24 hours or next business day. Address any clarifications and corrections requested by the Government to the report within 24 hours, to include the submission of the revised report.

b. Teleconference Written Record: This deliverable is for Technical Assistance required to assist on specific concerns. The Government primary POC will notify the A-E when they need support. Within three (3) calendar days after each teleconference, provide a written record summarizing the discussions including participants and any technical support/recommendations provided to the Government. For cost formulation purposes assume *[insert number]* of 1-hour long teleconferences.

c. Submittals/Request for Information (RFIs) Review: The Government primary POC will notify the A-E when they need support for the reviews of submittals or RFIs. Do not accept requests for reviews from any other source than from the Government primary POC. For each technical review of a submittal or RFI, provide a detailed report documenting any findings noted during the review. Submit the submittal or RFI reports to the Government primary POC for review within three (3) calendar days after receiving the submittal or RFI. Address any clarifications and corrections requested by the Government within one (1) calendar day, to include the submission of the revised report. For cost formulation purposes assume *[insert number]* of RFI reviews and *[insert number]* of submittal reviews.

d. Modification Support: This deliverable is for Technical Assistance required in the development and review of specific construction modifications. The Government primary POC will notify the A-E when they need modification support. Do not accept requests from any other source than from the Government primary POC. Submit the modified documents to the Government primary POC within seven calendar days after notification, from the Government. Address any clarifications and corrections to the report requested by the Government within three calendar days to include the submission of the revised documents. For cost formulation purposes assume *[insert number]* of modifications requiring support consisting of eight hours for each design discipline, *[insert requirement]*.

e. [Quality Assurance Testing: Provide third party and laboratory testing. See Attachment #1 for specific testing requirements.]

46. SUBMITTAL FORMAT AND DISTRIBUTION

- a. Reports are not a journal of the activities performed by the support personnel while performing their tasks. Reports are intended to capture contractual and design matters, of the assigned construction project, that need to be properly documented for future reference.
- b. [The Government will utilize Resident Management System (RMS) to coordinate and manage construction contract documentation such construction submittal or RFI reviews] [The construction contractor will provide a web enabled construction management system to coordinate and manage construction contract documentation such construction submittal or RFI reviews] *[Insert other method]*.
- c. All reports not in [RMS] [construction management system] are to be submitted to the Government in electronic (.pdf) format. The reports are to be submitted directly

by the A-E personnel responsible for the report to the Government COR or other identified POC listed in section 3.

- d. The Government is responsible for establishing the form and format of all reports. For each type of report, the A-E is responsible to contact the Government before the submission of the first report to obtain proper guidance.
- e. Deliverables not meeting the Government's expectations will be rejected. Failure to consistently provide deliverables in a timely manner or to the expectations of the Government will result in an adverse contract action and may require replacement personnel.

47. schedule

The period of performance for the base is *[insert number]* calendar days and commences on the day the Notice to Proceed (NTP) is issued. The NTP is issued with the Task Order Award. The A-E is required to begin logistical efforts of acquiring the personnel needed to meet contractual requirements immediately and be prepared to perform the tasks for the first deliverable within *[insert number]* calendar days after NTP.

The A-E is responsible for properly tracking all deliverables and providing this information with each pay request or invoice.

48. Special Conditions

- e. Reporting Problems: The A-E is responsible for promptly bringing problems to the attention of the Government COR with copy furnished to the applicable Sponsoring Agency. Report any circumstances that result in delivery order delay in writing along with the reason for the delay and the A-E's proposed remedial action.
- f. Required Conditions for Anti-Terrorism and Operational Security: The A-E and all A-E contractor and subcontractor employees are required to comply with the following:

[insert conditions – this is pulled from the ENG Form 6055]

49. GOVERNMENT FURNISHED INFORMATION

- a. [Contract *[insert contract number or title]*] Plans and Specifications]
- b. [Contract *[insert contract number or title]*] Design-Build RFP]

50. LIST OF ATTACHMENTS

All attachments provided are contract requirements. The A-E is responsible for incorporating the requirements into their cost proposal.

[Attachment #1: Quality Assurance Testing Requirements]

[Attachment #2: *Provide attachments as necessary*]

C-2 CONSTRUCTION STATEMENT OF WORK TEMPLATES.

Statement of Work templates and supplement information for contracting airfield construction:

C-2.1 CONSTRUCTION - SMALL PROJECT IDC.

Statement of Work template for developing an IDC for small airfield projects, titled "Construction IDC for Small Projects".

STATEMENT OF WORK

Construction IDC for Small Projects

for

[Project Title]
[Project Location]

Contract Number:
[insert contract number]

Date Prepared:
[insert date]

Prepared by:
[Agency]
[Preparing Office]
[Office Address]

STATEMENT OF WORK
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1. INTRODUCTION

This is an Indefinite Delivery Contract (IDC) Statement of Work (SOW) for airfield repair and maintenance requirements at [insert installation]. Furnish all management, personnel, labor, vehicles, supplies, equipment required to perform the work elements described herein.

2. GENERAL REQUIREMENTS

Individual projects will be processed as Task Orders (TOs) which will be awarded/issued against the Indefinite delivery contract. This Statement of Work (SOW) sets forth the requirements for each Task Order (TO) Contract and will be executed in accordance with the IDC's terms/conditions, and all referenced technical specifications, as well as each individual TO's SOW. The Contractor is to provide the Government with a complete construction and warranty for all work described herein and incidental related work.

3. WORK ELEMENTS

Each TO consists of one or more of the following work elements. The purpose of the SOW is to provide the Contractor with understanding of the TOs. The below sections are not intended to provide a minimum or maximum amount of work required. Specific scopes of work are provided in individual TOs. The work elements consist of:

3.1. [Install erosion control measures. Provide erosion control measures in accordance with the Section 01 57 19 Temporary Environmental Controls for the area identified. Unit of measure: Lump Sum]

3.2. [Seal joints. Remove and dispose of existing joint sealant and provide field molded new joints seals for existing concrete pavement in accordance with Section 32 01 19.61 Sealing of Joints in Rigid Pavement. Unit of measure: Length of joint sealant, feet]

- 3.3. [Seal joints. Remove and disposal of existing joint sealant and provide new compression joints seals for existing concrete pavement in accordance with Section 32 13 73.19 Compression Concrete Paving Joint Sealant. Unit of measure: Length of joint sealant, feet]
- 3.4. [Spall repair. Repair existing concrete pavement spalls in accordance with Section 32 01 29.61 Partial Depth Patching of Rigid Paving. Unit of measure: [Length of joint spall repair, feet,] [and] [area of spall repair, square feet]]
- 3.5. [Bitumen rejuvenation. Provide a bitumen rejuvenation treatment to existing asphalt pavement in accordance with Section 32 01 13.64 Bituminous Pavement Liquid Rejuvenating. Unit of measure: Area of rejuvenation, square feet]
- 3.6. [Concrete Crack repair. Repair cracks in existing concrete pavement in accordance with Section 32 01 19.61 Sealing of Joints in Rigid Pavement, cracks will be no greater than ½” in width. Unit of measure: Length of crack repair, feet]
- 3.7. [Asphalt Crack repair. Repair cracks in existing asphalt pavement in accordance with Section 32 01 17.61 Sealing Cracks in Asphalt Paving, cracks will be between ¼” to 1-1/2” wide. Unit of measure: Length of crack repair, feet]
- 3.8. [Friction evaluation. Conduct friction evaluations with continuous friction measuring equipment in accordance with TSPWG Manual 3-270-01.04-10 Determining the Need for Runway Rubber Removal. Unit of measure: Lump Sum]
- 3.9. [Disposal of concrete pavements. Remove and dispose of existing concrete pavements off installation in accordance with Section 02 41 00 Demolition and 32 13 14.13 Concrete Paving for Airfields and Other Heavy Duty Pavements. This work element includes hauling and saw cutting necessary to remove the concrete. Unit of measure: In place volume of concrete, cubic yard]
- 3.10. [Stockpile concrete pavements. Remove, crush and stockpile existing concrete pavements in accordance with Section 02 41 00 Demolition and 32 13 14.13 Concrete Paving for Airfields and Other Heavy Duty Pavements. This work element includes saw cutting necessary to remove the concrete, hauling and stockpiling to within [insert number] miles of the removal location. Unit of measure: In place volume of concrete, cubic yard]
- 3.11. [Disposal of asphalt pavements. Remove and dispose of existing asphalt pavements off installation in accordance with Section 02 41 00 Demolition. This work element includes hauling and saw cutting necessary to remove the asphalt pavement. Unit of measure: In place volume of asphalt, cubic yard]
- 3.12. [Stockpile of asphalt pavements. Remove, and dispose of existing asphalt pavements in accordance with Section 02 41 00 Demolition. This work element includes saw cutting necessary to remove the asphalt pavement, hauling and stockpiling within [insert number] miles of the removal location. Unit of measure: In place volume of asphalt, cubic yard]

3.13. [Disposal of subgrade material. Excavate and dispose of subgrade material in accordance with Section 31 00 00 Earthwork. This work element includes excavating, hauling and disposal of the subgrade material [off installation][within [insert number] miles of the excavation location]. Unit of measure: In place volume of subgrade material, cubic yard]

3.14. [Disposal of base course material. Excavate and dispose of base course material in accordance with Section 31 00 00 Earthwork. This work element includes excavating, hauling and disposal of the base course material [off installation][within [insert number] miles of the excavation location]. Unit of measure: In place volume of subgrade material, cubic yard]

3.15. [Asphalt cold milling. Mill existing asphalt pavement and dispose of milled material in accordance with Section 32 01 16.71 Cold Milling of Asphalt Paving. This work element includes saw cutting necessary to remove the asphalt, hauling and disposal of milled material [off installation][within [insert number] miles of the milling operation]. Unit of measure: In place volume of milled material, cubic yard]

3.16. [Reuse of recycled concrete and asphalt. Place, grade, and compact Government provided crushed concrete and asphalt millings in accordance with Section [31 00 00 Earthwork] [and] [32 11 23 Aggregate Base Course for Flexible Paving] [or] [32 11 20 [Base Course for Rigid][and][Subbase] [Select-Material] [For Flexible Paving]]. This work element includes hauling recycled material [within [insert number] miles of the placement location] and all associated compaction and gradation testing. Unit of measure: In place volume of recycled material, cubic yard]

3.17. [New Select Material. Place, grade, and compact select material in accordance with Section 31 00 00 Earthwork. This work element includes hauling select material [within [insert number] miles of the placement location] and all associated compaction and gradation testing. Unit of measure: In place volume of select material, cubic yard]

3.18. [New Subbase Course. Place, grade, and compact subbase material in accordance with Section 32 11 20 Subbase for Flexible Paving. This work element includes hauling subbase material [within [insert number] miles of the placement location] and all associated aggregate quality, compaction, and gradation testing. Unit of measure: In place volume of subbase, cubic yard]

3.19. [New Rigid Base Course. Place, grade, and compact rigid base course material in accordance with Section 32 11 20 Base Course for Rigid Paving. This work element includes all associated, aggregate quality, compaction, and gradation testing. Unit of measure: In place volume of concrete base course, cubic yard]

3.20. [New Flexible Paving Base Course. Place, grade, and compact flexible paving base course material in accordance with Section 32 11 23 Aggregate Base Course for Flexible Paving. This work element includes all associated aggregate quality, compaction, and gradation testing. Unit of measure: In place volume of asphalt base course, cubic yard]

- 3.21. [New Base Course Drainage Layer. Place, grade and compact the base course drainage layer in accordance with Section 32 11 23.23 Base Course Drainage Layer. This work element includes all associated aggregate quality, compaction, and gradation testing. Unit of measure: In place volume of base course drainage layer, cubic yard]
- 3.22. [New concrete pavements. Form, place and finish new concrete pavement slabs in accordance with Section 32 13 14.13 Concrete Paving for Airfields and Other Heavy Duty Pavements. This work element includes mix design development, installing dowels, saw cutting and construction of joints, and all required testing. Unit of measure: In place volume of concrete, cubic yard]
- 3.23. [New reinforced concrete pavements. Form, place and finish new concrete pavement slabs in accordance with Section 32 13 14.13 Concrete Paving for Airfields and Other Heavy Duty Pavements. This work element includes mix design development, installing reinforcement and dowels, saw cutting and construction of joints, and all required testing. Unit of measure: In place volume of concrete, cubic yard]
- 3.24. [New concrete pavement – proprietary materials. Form, place and finish new concrete pavements utilizing proprietary materials, e.g., rapid set cement, magnesium phosphate cement in accordance with Section 32 13 14.13 Concrete Paving for Airfields and Other Heavy Duty Pavements and task order statement of work. Unit of measure: In place volume of concrete, cubic yard]
- 3.25. [New asphalt pavements. Place, spread and compact new asphalt pavement in accordance with Section 32 12 15.13 Asphalt Paving for Airfields. This work element includes mix design development utilizing [Penetration Grade] [Viscosity Grade][Performance Grade (PG)] [insert grade] binder, proper joint construction, and all required testing. Unit of measure: In place volume of asphalt, cubic yard]
- 3.26. [Groove runway surface. Groove runway asphalt or concrete surface in accordance with Section 32 01 18.71 Grooving of Airfield Paving. Provide [rectangular][trapezoidal] shaped grooves. Unit of measure: Area of grooving, square yards]
- 3.27. [Seal Coat. Install seal coat on asphalt pavements in accordance with Section 32 12 36.13 Asphaltic Seal and Fog Coats. [Provide a seal coat with aggregate.] Unit of measure: Area of treatment, square yards]
- 3.28. [Tie-downs. Install new tie-downs in new or existing pavement in accordance with Section 34 73 13 Aircraft Tiedowns. Unit of measure: Each]
- 3.29. [Grounding. Install new grounding points in new or existing pavement in accordance with Section 34 73 16 Airfield Grounding. Unit of measure: Each]
- 3.30. [Subdrains. Clean existing subdrain system in accordance with Section 33 46 16 Subdrainage Piping. Unit of measure: Length of subdrain, feet]

- 3.31. [Grading. Grade airfield areas to meet airfield criteria in accordance with Section 31 00 00 Earthwork. This work element includes the hauling and disposal of graded material. Unit of measure: Area of grading, square yards][Volume of grading, cubic yard]
- 3.32. [Airfield Lighting. Replace existing airfield lighting in accordance with Section 26 56 20 Airfield and Heliport Lighting and Visual Navigation Aids. Unit of measure: Each light]
- 3.33. [Pavement Markings. Provide new pavement markings in accordance with Section 32 17 23 Pavement Markings. Unit of measure: Painted area, square feet]
- 3.34. [Microsurfacing repair. Provide a microsurfacing repair in accordance with Section 32 12 36.13 Asphaltic Seal and Fog Coats, UFC 3-270-01 O&M Manual: Asphalt and Concrete Pavement Maintenance and Repair and task order statement of work. Unit of measure: Area of repair, square feet]
- 3.35. [Friction seal. Provide a friction seal in accordance with Section 32 12 36.13 Asphaltic Seal and Fog Coats and UFC 3-270-01 O&M Manual: Asphalt and Concrete Pavement Maintenance and Repair. Unit of measure: Area of repair, square feet]
- 3.36. [Porous Friction Surface (PFS). Construct a porous friction surface course on existing pavement in accordance with [insert requirements]. Unit of measure: Area of PFS, square yard]
- 3.37. [Slab jacking. Raise existing concrete pavement slabs in accordance with Section 32 01 29.62 Concrete Pavement Raising utilizing Portland cement grout. Unit of measure: Volume of grout, cubic feet and number of drill holes, each]
- 3.38. [Concrete Pavement surface repair. Repair concrete pavement surface with a polymer coating and aggregate in accordance with UFC 3-270-01 O&M Manual: Asphalt and Concrete Pavement Maintenance and Repair and task order statement of work. Unit of measure: Area of repair, square feet]
- 3.39. [Concrete Pavement surface repair. Repair concrete pavement surface with an epoxy coating and aggregate in accordance with UFC 3-270-01 O&M Manual: Asphalt and Concrete Pavement Maintenance and Repair and task order statement of work. Unit of measure: Area of repair, square feet]
- 3.40. [Seal Concrete Pavement surface. Seal the concrete pavement surface with a sodium silicate surface sealer in accordance with UFC 3-270-01 O&M Manual: Asphalt and Concrete Pavement Maintenance and Repair and task order statement of work. Unit of measure: Area of repair, square feet]
- 3.41. [Diamond grinding. Provide diamond grinding of the [asphalt][and][concrete] pavement surface in accordance with UFC 3-270-01 O&M Manual: Asphalt and Concrete Pavement Maintenance and Repair[and][Section 32 13 14.13 Concrete Paving for Airfields and Other Heavy Duty Pavements[and][32 12 15.13 Asphalt Paving for Airfields]. Unit of measure: Area of diamond grinding, square feet]

- 3.42. [Deep earthwork compaction. Densify underlying soils utilizing polyurethane foam in accordance with [insert requirements]. Unit of measure: Volume of polyurethane]
- 3.43. [Subsealing. Subseal existing jointed concrete pavements restoring support under the slab at joints and cracks in accordance with UFC 3-270-01 O&M Manual: Asphalt and Concrete Pavement Maintenance and Repair and task order statement of work. Unit of measure: Volume of grout material, cubic feet]
- 3.44. [Fairlead beam anchors. Repair or replace fairlead beam anchors in accordance with FC 3-260-18F Air Force Aircraft Arresting Systems (AAS) Installation, Operation and Maintenance. Unit of measure: Anchor, each]
- 3.45. [Ultra-High Molecular Weight (UHMW) Polyethylene Panels. Replace or repair UHMW Polyethylene panels and anchors in accordance with FC 3-260-18F Air Force Aircraft Arresting Systems (AAS) Installation, Operation and Maintenance. Unit of measure: Lump sum]
- 3.46. [Seal UHMW Polyethylene Panels. Reseal existing UHMW Polyethylene panels with silicone sealant in accordance with FC 3-260-18F Air Force Aircraft Arresting Systems (AAS) Installation, Operation and Maintenance. Unit of measure: Length of joint sealant, feet]
- 3.47. [Geotechnical Sampling and Testing. Conduct drilling operations, collect soil samples and perform testing in accordance with [insert requirement]. Unit of measure: Lump sum]
- 3.48. [Storm utilities. Repair storm utilities by replacing storm pipe or manholes in accordance with Section 33 40 00 Stormwater Utilities. Unit of measure: Lump sum]
- 3.49. [Repair High-Temperature Concrete Pavement. Repair high-temperature concrete pavement in accordance with UFC 3-270-01 O&M Manual: Asphalt and Concrete Pavement Maintenance and Repair and 32 13 13.43 High Temperature Concrete Paving for Airfields using Lightweight and Traprock Aggregates. Unit of measure: Area of repair, square feet]
- 3.50. [Hydro-demolition. Conduct hydro-demolition as mentioned in UFC 3-270-01 O&M Manual: Asphalt and Concrete Pavement Maintenance and Repair and described in task order statement of work. Unit of measure: Area of demolition, square feet]
- 3.51. [Pavement marking removal. Remove pavement markings [specifically epoxy markings by grinding] in accordance with Section 32 01 11.51 Paint Removal from Airfield Pavements. Unit of measure: Area of removal, square feet]
- 3.52. [Stabilized base course. Provide a [cement][bituminous] stabilized base course in accordance with Section [32 11 33.13 Portland Cement-Stabilized Base Courses] [32 11 26.19 Bituminous-Stabilized Base and Subbase Courses]. Unit of measure: Area of treated base, square feet]

- 3.53. [Trim Pad Anchors. Install trim pad anchors in accordance UFC 3-260-01 Airfield and Heliport Planning and Design and ETL 01-10 Design and Construction of High-Capacity Trim Pad Anchoring Systems. Unit of measure: Lump sum]
- 3.54. [Mix Design. Develop and provide a concrete pavement mix design including testing in accordance with [Section 32 13 14.13 Concrete Paving for Airfields and Other Heavy Duty Pavements][Section 32 13 13.43 High Temperature Concrete Paving for Airfields Using Lightweight and Traprock Aggregates]. Unit of measure: Lump sum]
- 3.55. [Deleterious Testing. Sample, conduct and provide deleterious testing of concrete pavement aggregates for testing in accordance with [Section 32 13 14.13 Concrete Paving for Airfields and Other Heavy Duty Pavements][Section 32 13 13.43 High Temperature Concrete Paving for Airfields Using Lightweight and Traprock Aggregates]. Unit of measure: Lump sum]
- 3.56. [Alkali-Silica Reactivity (ASR) Testing. Sample, conduct and provide ASR testing of concrete pavement aggregates for testing in accordance with [Section 32 13 14.13 Concrete Paving for Airfields and Other Heavy Duty Pavements][Section 32 13 13.43 High Temperature Concrete Paving for Airfields Using Lightweight and Traprock Aggregates]. Unit of measure: Lump sum]
- 3.57. [Durability Testing. Sample, conduct and provide durability testing of concrete pavement aggregates for testing in accordance with [Section 32 13 14.13 Concrete Paving for Airfields and Other Heavy Duty Pavements][Section 32 13 13.43 High Temperature Concrete Paving for Airfields Using Lightweight and Traprock Aggregates]. Unit of measure: Lump sum]
- 3.58. [Gradation Testing. Sample, conduct and provide gradation testing of concrete pavement aggregates for testing in accordance with [Section 32 13 14.13 Concrete Paving for Airfields and Other Heavy Duty Pavements][Section 32 13 13.43 High Temperature Concrete Paving for Airfields Using Lightweight and Traprock Aggregates]. Unit of measure: Lump sum]
- 3.59. [Aggregate Quality Testing. Sample, conduct and provide quality testing of testing concrete pavement aggregates for testing in accordance with [Section 32 13 14.13 Concrete Paving for Airfields and Other Heavy Duty Pavements][Section 32 13 13.43 High Temperature Concrete Paving for Airfields Using Lightweight and Traprock Aggregates]. Unit of measure: Lump sum]
- 3.60. [Slab Stitching. Maintain aggregate interlock by slab stitching the concrete pavement in accordance with UFC 3-270-01 O&M Manual: Asphalt and Concrete Pavement Maintenance and Repair. Unit of measure: Length of slab stitching, feet]
- 3.61. [Dowel Bar Restoration. Restore load transfer at concrete pavement joints in accordance with UFC 3-270-01 O&M Manual: Asphalt and Concrete Pavement Maintenance and Repair. Unit of measure: Length of joint restoration, feet]

- 3.62. [Crack Repair. Repair cracks in concrete pavement with injectable epoxy or high molecular weight methacrylate in accordance with 03 01 00 Rehabilitation of Concrete. Unit of measure: Length of crack repair, feet]
- 3.63. [Asphalt Pavement Joints. Install joints with sealant in asphalt pavement in accordance with 32 01 17.61 Sealing Cracks in Asphalt Paving and details. Unit of measure: Length of joint, feet]
- 3.64. [Pavement Edge Drains. Install edge drains along pavement in accordance with UFC 3-270-01 O&M Manual: Asphalt and Concrete Pavement Maintenance and Repair. Unit of measure: Length of edge drain, feet]
- 3.65. [Chamfer Edge. Sawcut existing concrete pavement joint edge resulting in a chamfer edge in accordance with [insert requirement]. Unit of measure: Length of joint edge, feet]
- 3.66. [Subsurface Drainage. Repair subsurface drainage in accordance with [insert requirement]. Unit of measure: Lump sum]
- 3.67. [Utility Trenching. [Repair][Install] utility trenching work within [asphalt][concrete] pavement in accordance with [insert requirement]. Unit of measure: Length of utility trench, feet]
- 3.68. [Core Pavement. Obtain cores in [asphalt][and][concrete] pavement in accordance with [ASTM D5361 Standard Practice for Sampling Compacted Asphalt Mixtures for Laboratory Testing][and][ASTM C42 Standard Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete]. Unit of measure: Core, each]
- 3.69. [Petrographic Analysis. Conduct petrographic analysis of [hardened] concrete [aggregates] in accordance with [ASTM C856 Standard Practice for Petrographic Examination of Hardened Concrete][ASTM C295 Standard Guide for Petrographic Examination of Aggregates for Concrete]. Unit of measure: Lump Sum]
- 3.70. [Trench Drain Grating. Repair or replace grating of trench drain in accordance with [insert requirement]. Unit of measure: Lump sum]
- 3.71. [Geotextile. Install geotextile within the pavement structure in accordance with Section 31 32 19.16 Geotextile Soil Stabilization. Unit of measure: Covered surface area, square yard]
- 3.72. [Paving Fabric. Install paving fabric prior to pavement placement in accordance with Section 32 01 17.62 Paving Fabric Interlayer. Unit of measure: Covered surface area, square yard]
- 3.73. [Expansion joint. Sawcut existing concrete pavement and install expansion joint material and joint sealant in accordance with 32 01 19.61 Sealing Joints in Rigid Pavement. Unit of measure: Length of joint, feet]

3.74. [Keyed Joint Restoration. Load transfer restoration by removing the keyed joint and install dowels in accordance with UFC 3-270-01 O&M Manual: Asphalt and Concrete Pavement Maintenance and Repair and Section 32 13 14.13 Concrete Paving for Airfields and Other Heavy Duty Pavements. Unit of measure: Length of joint, feet]

3.75. [Overlay. Provide an unbound concrete pavement overlay utilizing a drainage layer material as a bond-breaking medium in accordance with Section 32 11 23.23 Base Course Drainage Layers and Section 32 13 14.13 Concrete Paving for Airfields and Other Heavy Duty Pavements. Unit of measure: Lump sum]

3.76. [Aggregate surface runway. Construct, repair and maintain an aggregate surface runway. It will require the following: distribution of dust palliatives; moisture content and density testing; grading; scarification and moisture conditioning; and compaction in accordance with [insert requirements]. Unit of measure: Repaired Surface area, square yard]

3.77. [Stabilize disturbed areas. Stabilize disturbed areas using hydroseed or sod in accordance with Section 32 92 19 Seeding. Unit of measure: Area of stabilization, square yard]

3.78. [Survey. Provide construction survey services not identified in the other work elements and in accordance with [insert requirements]. Unit of measure: Area surveyed, square feet]

4. APPLICABLE DOCUMENTS

Identify and comply with all applicable federal, state, and local statutes; the [Insert Installation/Base Name] Design Guide, DoD/[Agency] instructions, manuals, handbooks, regulations, guidance, and policy letters including but not limited to; International Building Code (IBC); Unified Facility Criteria (UFC); Unified Facilities Guide Specifications (UFGS); National Fire Protection Association (NFPA); National Electrical Code (NEC); Executive Orders (EOs); American Petroleum Institute (API) Codes; Uniform Fire Code (UFC); Adoption of Architectural Barriers Act (ABA) Guidelines for Accessibility; Air Force Sustainable Design and Development (SDD) Implementing Guidance (2 June 2011), and including all changes and amendments in effect on the date of issuance. It is the Contractor's responsibility to identify and comply with all applicable requirements. [In addition, refer to the latest version of The USAF Project Manager's Guide to Design and Construction (www.wbdg.org/ccb/AF/AFDG/pmguide.pdf).]

5. INSTALLATION AND SITE REQUIREMENTS

5.1. Installation Access

The Contractor is responsible for following all requirements for access onto the installation. The Contractor is responsible for staffing the contract with personnel that meet all requirements for installation access, including all in-house and subcontractor personnel. Replace any person denied access to the installation at no cost to the Government. Obtain and monitor assigned security badges or passes (used by both the Contractor and subcontractor staff) used during the duration of this contract. Return all

security badges or passes to the base or facility POC upon expiration of the badge, upon completion of the project, or when possession of the badge is no longer necessary (e.g., upon removal of contracted personnel from specific projects).

5.2. Site Access

All projects will be within the airfield. The Contractor is responsible for all training, equipment, and coordination to access the work site.

5.2.1. Active Runway.

[The airfield is to remain active at all times through the duration of this project.] [Sections of the airfield will be shut down for the construction activity associated with the work specified in the task order.] Take all necessary steps to ensure construction activity does not impact airfield operations outside the designated construction areas as required by the task order.

5.3. Vehicular/Aircraft Traffic

Comply with local laws and regulations, regarding the safe operation of equipment in and around airfields associated with the construction site. Contractor owned and/or operated vehicles violating speeding, parking, or traffic regulations on Government property may be removed from the installation at the Contractor's expense. The Government will not be held liable for the time delay to the Contractor nor such costs that might occur based on the vehicle removal. The Contractor is responsible for providing all barriers, temporary markings, other traffic control devices, foreign object debris maintenance and pavement surface cleaning necessary to accomplish the work required by the task order.

5.4. Disposal of Waste/Excess Material

Remove and dispose of any waste or excess material resulting from contract requirement at a proper disposal site off the installation in strict accordance with applicable Federal, state, county, and local laws. Obtain approval of the CO to dispose, discharge, deposit, dump, or place any material, wastes, effluents, trash, garbage, oil, grease, paint, chemicals, etc., in areas other than proper disposal sites off the installation. If any waste material is dumped in unauthorized areas, remove the material, and restore the area to the condition of the adjacent undisturbed area. Excavate, dispose of contaminated material as directed by the CO and in coordination with the installation requirements, replace with suitable fill material, compact, and finish to match adjoining surfaces. Develop a strict trash and litter control program. The litter control program consists of supplying an adequate number of covered trash and litter receptacles in all appropriate locations. Take precautions to prevent Foreign Object Debris (FOD) while working on or around the flight line.

5.5. Sanitary Provisions

Provide temporary toilets that satisfy installation requirements for the use of project personnel. Obtain approval from the CO prior to placing toilets to include location, type, proposed maintenance, etc. Remove temporary toilets at the completion of the project.

All costs incurred in connection with the temporary toilets is the responsibility of the Contractor.

5.6. Hazardous Material and Hazardous Waste

Handle materials identified for disposal and classified as hazardous by U.S. and state environmental rules, regulations, or laws in accordance with those rules, regulations, or laws. Any cost provisions to meet these requirements is the sole responsibility of the Contractor. Any project delay to meet these requirements is the sole responsibility of the Contractor.

In accordance with FAR Clause 52.223-3, Hazardous Material Identification and Material Safety Data, list hazardous material to be delivered under this contract. For each item, submit to the CO a safety data sheet listing any hazardous material to be delivered under this contract prior to the hazardous material entering the installation. Submit a master list of all hazardous material at the beginning of the contract's performance and update the list throughout the life of the contract when needed new item needs to be added. Obtain CO approval of the initial and revised lists prior to the material entering the installation.

Store all hazardous material in a safe and environmentally responsible manner within construction sites and laydown yards. All hazardous waste generated by the Contractor is their responsibility to dispose of, in accordance with the above-mentioned laws.

Take special measures to prevent paints, chemicals, fuels, oils, grease, etc., from being spilled and particularly from entering surface or groundwater. In the event of a paint, fuel, oils, or chemical spill, provide immediate containment measures to prevent the spill from migrating and/or entering the installation drainage system. Dispose of hazardous spill residue in accordance with all local, state, and federal laws pertaining to the protection of the environmental and emission of hazardous pollutants in the performance of this contract. Dispose of non-hazardous spillage off-installation. Report all spills as soon as possible to the Installation Environmental Office and Safety Office.

5.7. Environmental Protection.

The Contractor is responsible for control of environmental pollution which requires consideration of air, water, and land uses, and involves the management of noise, solid waste, thermal energy, and radioactive materials, as well as other pollutants. Provide environmental protection during the life of the contract. Ensure compliance with FAR Clause 52.223-5, Pollution Prevention and Right-to-Know Information. Provide operational controls, monitoring, and measurement information necessary for the Government to address environmental performance. Incorporate protective measures to control pollution and/or correct environmentally impacting conditions that may develop resulting from this contract.

6. MANAGEMENT, PLANNING, AND REPORTING REQUIREMENTS

Implement a full range of construction and engineering activities in accordance with all applicable compliance documents. Supply all labor, equipment, and materials necessary to accomplish the work assigned unless otherwise specified. Perform management and planning functions, including performance measurement through the course of the effort.

6.1. Contractor Quality Control Plan (CQCP)

At least 30 days prior to Notice to Proceed (NTP) Submit a CQCP compliant with the following requirements for approval. Ensure the CQCP covers all definable features of work, both onsite and offsite, and be keyed to the construction sequence. Acceptance of the CQCP is required for construction to begin.

Within the CQCP, clearly present the credentials, in resume format, of each person assigned a CQC function to show that each possesses the following qualifications. Submit for CO approval. Include a project organization chart illustrating lines of authority:

- (1) Project Manager: Demonstrate a minimum of five (5) years' experience (within the last 10 years) performing as a Construction Project Manager on airfield construction projects of similar size, scope, and complexity as this project.
- (2) Site Superintendent: Demonstrate a minimum of seven (7) years' construction related experience (within the last 10 years) as a superintendent on construction projects of similar magnitude, scope, and complexity as this project. Ensure the Project Superintendent is an employee of Prime Contractor. The Project Superintendent is responsible for all construction and related activities at the site and is required to always maintain a physical presence at the site.
- (3) Contractor Quality Control (CQC) Manager: Demonstrate a minimum of five (5) years' construction related experience (within the last 10 years) as a CQC on airfield construction projects of similar magnitude, scope, and complexity as this project.
- (4) Site Safety and Health Officer (SSHO): Demonstrate a minimum of five (5) years' construction related experience (within the last 10 years) as a SSHO on construction projects of similar magnitude, scope, and complexity as this project and have completed an authorized 30-hour OSHA Construction Safety Course.

Provide procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation in the CQCP. Provide procedures for tracking construction deficiencies from identification through acceptable corrective action and establish verification procedures that demonstrate the deficiencies have been corrected. Acceptance of the Contractor's plan is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory performance during the construction. The Government reserves the right to require the Contractor to make changes in their CQCP and operations including removal of personnel, as necessary, to obtain the quality specified to meet acceptance by Federal, State, and local regulators or code inspectors. Health and Safety Plan

Provide a Health and Safety Plan (HSP) in accordance with [U.S. Army Corps of Engineers Safety and Health Requirements Manual EM 385-1-1].

6.2. Progress/Status Reporting

Submit monthly Contractor's Progress, Status, and Management Report (CPSMR), and invoices which are derived from the approved price loaded IMS, and a Percent Complete report. Include in the monthly status report a summary of events that occurred during the reporting period, discussion of performance, identification of problems, proposed solutions, corrective actions taken, and outstanding issues.

6.3. Meetings and Conferences

Attend meetings necessary to support the construction activities, etc. Support and attend weekly meetings and/or teleconferences. Prepare and maintain the weekly meeting report which include the record of new and old discussion of technical issues, weekly earned value progress showing percent complete actual versus plan, tabular report of late tasks derived from the progress updated IMS, a three week look ahead, and tabular report for RFIs and submittals (open and upcoming). Prepare, and submit for review, presentation materials for meetings, an agenda, meeting minutes including teleconferences, and distribute minutes to attendees within 3 working days.

7. WORKSITE ACTIVITIES AND COORDINATION

7.1. Coordination of Activity/Safety Requirements

The Contractor is responsible for protecting the lives and health of employees and other persons on the work site, preventing damage to property, materials, supplies, and equipment, avoiding work interruptions, and complying with Occupational Safety and Health Administration (OSHA) safety and local safety office requirements. Perform all operations in a prudent, conscientious, safe, and professional manner and conform to the safety requirements contained in the contract for all activities related to the accomplishment of the work. Maintain documentation supporting training records on site and have written Health and Safety Plans on site and available for workers and/or regulatory review. Provide the CO copies of any OSHA report(s), regarding a project site, submitted during the duration of the TO. [For areas not covered by OSHA, comply with regulations regarding safety and health and the current edition of the U.S. Army Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1.]

The Contractor is responsible for recording and reporting promptly (within 1 hour) by telephone, facsimile or other direct means to the CO, Project Manager, the Installation POC, and to the military installation's Safety Office, all available facts relating to each instance of damage to Government property or injury to either Contractor or Government personnel. In the event of an accident/mishap, take reasonable and prudent action to establish control of the accident/mishap scene, prevent further damage to persons or property, preserve evidence until released by the accident/mishap investigative authority through the CO, and immediately report the incident to [insert responsible party]. If the Government elects to investigate the accident/mishap, cooperate fully, and assist

Government personnel in conducting of the investigation until it is completed. The Contractor personnel and equipment are subject to safety inspections by Government personnel while on federal property.

7.2. Notification Requirements

Notify the Contracting Officer and Project Manager of critical issues that may affect the contract performance and/or human health and the environment. The types of issues that require notification include, but are not limited to, health risks, spills, changes in critical personnel, and finding unexploded ordnance (UXO). As an example, if UXO were discovered during field activities, the Contractor would be required to immediately stop work, report the discovery to the facility Point of Contact (POC), Contracting Officer, and Project Manager, and implement the appropriate safety precautions. Field activities could not continue until clearance was received from the Contracting Officer. On critical issues, verbal notification should be made immediately, followed by written notification as soon as practical.

7.3. Permits

Develop, coordinate, and assist the Base in applying for and obtaining all applicable permits, agreements, licenses, and certificates. Maintain a library of these documents at the Contractor's site office as well as the corporate facility. Comply with all applicable permit conditions and include permit activities on the schedule.

8. CONSTRUCTION ACTIVITIES

Perform a full range of activities to meet all customers' construction requirements as designed and specified. Details regarding construction management requirements, inspection and testing, construction facilities and temporary controls, environmental protection, quality control system, construction quality control, and project closeout are provided in the specifications.

8.1. Documentation/Daily Reports Logs

Provide daily progress reports during construction activities and include unique Construction Activity Identification number, description of the activity, and the planned and actual percentage completed.

8.2. Material and Data Submittal Register

Prepare a Submittal Register identifying all construction submittals. Submit a completed Submittal Register and obtain acceptance by the Contracting Officer prior to commencement of construction.

8.3. Mobilization

Perform mobilization activities as necessary to prepare the construction site for construction activities. Evaluate existing utilities to determine adequacy and need for modifications to support site construction activities. Establish a construction management location via space allocated by the Base. Obtain appropriate approvals and construct connections or new systems for electrical power, water, sewer, gas distribution, telephone, and other utilities, as required, to accomplish the activities specified in the TOs at Contractor's expense.

8.4. Demolition

Demolish facilities, systems, and other improvements as required and specified in the TOs. Ensure all storm water catch basins and attached lines within and adjacent to the project area are cleaned out and/or free of any debris at the end of the project.

8.5. Construction

All critical path submittals are to be approved by the Government prior to beginning any field work. Upon issuance of the construction Notice To Proceed (NTP) by the Contracting Officer, the Contractor may commence on-site construction activities. Provide the manpower, equipment, material, services, and transportation necessary to review, plan, develop, and implement quality control and oversight services during the construction phase of the TO. Perform construction, restoration, emergency response, repair, enhancement, maintenance, modernization, and demolition of facilities, utilities, real property systems, and infrastructure systems in support of construction and engineering requirements as specified in the TO. Shop drawings and other submittals are required for approval by the Project Manager prior to beginning construction projects. Ensure Construction activities are in conformance with local and [insert Agency] standards and regulations.

8.6. Preparatory Inspection

Perform inspections prior to beginning work on any definable phase of construction. The inspection includes a review of contract requirements; a check to ensure that all materials and/or equipment are tested, submitted, and approved; a check to ensure that provisions are made to provide required testing; examination of work area to ascertain that all preliminary work is completed; and a physical examination of materials and equipment to ensure that they conform to approved shop drawings or submittal data and that all materials and/or equipment are on hand. Notify the Government representative at least 72 hours in advance of the preparatory inspections. Ensure the inspections are made a matter of record and sent to the Contracting Officer.

8.7. Pre-Final Inspection

Certify that 100% of the Contractor's QC punch list is completed prior to requests for a Government pre-final inspection, with their completed QC punch list attached. Conduct a pre-final walkthrough inspection with a Government representative and publish the inspection findings in a Government pre-final inspection report. Complete commissioning prior to the pre-final inspection taking place.

8.8. Final Inspection

Certify that 100% of the pre-final punch list is completed prior to requests for a Government final inspection. An Interim DD 1354 is required 30 days prior to facility turnover. Conduct a final inspection after this time and publish the findings in a final inspection report in accordance with the format specified at the pre-construction conference and the RFP. Focus the inspection on the items identified at the pre-final inspection and recorded in the pre-final inspection report. The final inspection report: (1) certifies that all items of the design are implemented and that the construction is complete, and (2) includes a record of as-built drawings and specifications verifying that all development standards have been met. At the final inspection, present a completed DD Form 1354, Transfer and Acceptance of Real Property to the [COR][Base Civil Engineer (BCE)] or other appropriate organization for signature and acceptance.

8.9. Delivery and Warranty

Complete all inspection and commissioning requirements prior to pre-final inspection. Issue the warranty in accordance with FAR 52.246-21 (Warranty of Construction). Extended warranties offered by the Contractor and its subcontractors or suppliers may be accepted at the Government's discretion.

8.10. As-Built Documentation

Provide as-built drawing documentation that includes a record of as-built drawings and specifications verifying that all development standards have been met. Provide as-built documentation prior to final payment. At a minimum all drawings will be delivered as AutoCAD version 2018 or newer files. If, upon review, the drawings are found to be in error or there are omissions, they will be returned to the Contractor for corrections. Complete the corrections and return the drawings to the Government within 10 calendar days. Submit one (1) reproducible set of paper drawings on 22" x 34" paper and one (1) set of CD-ROMs with the complete set of construction drawings.

8.11. De-mobilization

Demobilize facilities as necessary and restore the site. Remove any temporary facilities and implement erosion control measures such as seeding, mulching, sodding, and erosion control fabrics; restore roads, structures, and utilities; and plant trees, shrubbery, grasses, and other vegetation. Document and report on activities and train Government personnel to perform required facility equipment operation and maintenance, in accordance with Specification Section 01 78 23.

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C-2.2 CONSTRUCTION DESIGN-BID-BUILD.

Section 01 11 00 Summary of Work template to be included in DBB contracts.

Division 00

EVALUATION FACTORS FOR AWARD

1. EVALUATION OF OFFERS AND SOURCE SELECTION

All offers received in response to this solicitation will be evaluated in accordance with FAR Part 15.3, DOD Source Selection procedures, and other Source Selection guidance. The principal objective of this process is to select responsible Offerors who submit the offers that represents the best value to the Government, technical factors and price considered.

The Contracting Officer has established a Source Selection Board to conduct an evaluation of each proposal received in response to this Solicitation. The evaluation will be based exclusively on the merits and content of the proposal and any subsequent discussion required. The identities of the SSB personnel are confidential, and any attempt by the proposers to contact these individuals is prohibited.

1.1 BASIS OF AWARD

The Government will evaluate proposals in accordance with the criteria described within the solicitation and intends award a firm-fixed-price contract to the responsible Offeror whose proposal is determined to represent the best value to the Government as described in FAR 15.101-1.

All evaluation factors other than cost or price, when combined, are significantly more important than cost or price. The individual factors' relative importance Factor 1 is the most important factor, Factor 2 is the second most important factor, Factor 3 is the third most important factor.

The Government intends to evaluate proposals and award contracts without conducting discussions with Offerors. However, in the event the Procuring Contracting Officer (PCO) concludes conducting discussions is in the best interest of the Government, the PCO will document the rationale for the competitive range determination, in which the Source Selection Authority (SSA) will review and approve the PCO's determination. If the PCO determines that the number of proposals that would otherwise be in the competitive range exceeds the number at which an efficient competition can be conducted, the PCO may limit the number of proposals in the competitive range to the greatest number that will permit an efficient competition among the most highly rated proposals. Therefore, the Offeror's initial proposal should contain the Offeror's best terms from a price and technical standpoint.

Evaluation of the factors listed below will be basis for award. The requirements specified in the solicitation are considered minimum requirements. A more favorable evaluation

rating may be given for exceeding the minimum requirements. See table below for relative importance (in descending order) of selection factors.

Table 1: Evaluation Factors

Description	Order of Importance
Factor 1 – Volume 1, Tab A	1 st Most Important
Factor 2 – Volume 1, Tab B	2 nd Most Important
Factor 3 – Volume 1, Tab C	3 rd Most Important
Factor 4 – Volume 2 (all)	All evaluation factors other than cost/price, when combined, are significantly more important than cost/price.

1.2 Evaluation Criteria

The evaluation ratings for Technical Factors 1 and 2 will be on an adjectival basis in conjunction with a narrative composed of the discussion of strengths, weaknesses, and deficiencies of the proposal. The SSEB will use a combined technical/risk rating system that includes consideration of risk in conjunction with the strengths, weaknesses, and deficiencies in determining technical ratings. Combined technical/risk evaluations will utilize the combined technical/risk ratings listed below.

Rating	Description
Outstanding	Proposal indicates an exceptional approach and understanding of the requirements and contains multiple strengths, and risk of unsuccessful performance is very low.
Good	Proposal indicates a thorough approach and understanding of the requirements and contains at least one strength, and risk of unsuccessful performance is low to moderate.
Acceptable	Proposal meets requirements and indicates an adequate approach and understanding of the requirements, and risk of unsuccessful performance is no worse than moderate.
Marginal	Proposal has not demonstrated an adequate approach and understanding of the requirements, and/or risk of unsuccessful performance is high.
Unacceptable	Proposal does not meet requirements of the solicitation, and thus, contains one or more deficiencies, and/or risk of unsuccessful performance is unacceptable. Proposal is not awardable.

1.2.1 Factor 1 – Volume 1, Tab A Previous Experience

Each proposed project example will be reviewed for evidence that the Offeror has self-performed heavy-duty airfield paving. Each project example will be evaluated for strengths, weaknesses or deficiencies and will contribute towards the overall combined technical/risk rating.

Strengths or Significant Strengths may be given the following:

- PCC pavement placed totaled at least 15,000 cubic yards for each project presented.
- ACC pavement totaled at least 7,000 tons for each project presented.
- Project example demonstrating full depth rehabilitation or new construction of a runway at least 8,000' in length.
- Projects example performed for DoD and utilized at least one of: UFGS 32 12 15.13, UFGS 32 13 11, UFGS 32 13 14.13 as applicable to the projects.
- One or more project examples had an award value of \$30M or more (only one strength will be given, regardless of the number of projects that meet this criteria).
- Any other aspects of a proposal that the Government determines increases the likelihood of successful contract performance.

Weaknesses or Significant Weaknesses may be given for the following:

- The airfield pavement portion of the project example is valued less than \$1M.
- The project example fails to demonstrate multiple (missing more than 2) of the common work practices for heavy-duty airfield paving such as custom mix design submittals, aggregate testing, on-site batch plants, slip-form paving, or saw-cutting operations. (one weakness per project).
- Omission or incompleteness of any requested information that is not otherwise stated as a deficiency.
- Any other aspect of a proposal that the Government determines increases the risk of unsuccessful contract performance.

Deficiencies shall be given for the following:

- Submission project examples that are not similar in nature to this solicitation or failure to submit project examples.
- Any project submitted was completed more than 7 years before the submission deadline.
- Any project submitted that fails to meet the General Requirements described above.
- Failure to include projects that collectively satisfy all Special Requirements described above.
- Any other material failure of a proposal to meet a Government requirement or a combination of significant weaknesses in a proposal increasing the risk of unsuccessful contract performance to an unacceptable level.

1.2.2 Factor 2 – Volume 1, Tab B Management/Technical Approach

The management/technical approach will be reviewed for evidence that the Offeror has an organization plan robust enough to self-perform airfield paving. The management/technical approach will be evaluated for strengths, weaknesses or deficiencies and will contribute towards the overall combined technical/risk rating.

Strengths or Significant Strengths may be given for the following:

- Approaches that demonstrate the Offeror's capability to manage a reliable material/equipment supply plan, provide robust paving production control measures, and ensure quality and accuracy of paving operations.
- A well-defined and value-added solution that demonstrates control over the sourcing of materials for, and the development of, the Asphalt and PCC mix designs to reduce the risk of multiple mix design iterations and associated impacts to the schedule.

- A well-defined and value-added solution that demonstrates control over workmanship and ability to perform quality pavement production that reduces risk of payment adjustments for any pavement lot and minimizes rework or corrective action, such as grinding or removal and replacement, and associated impacts to the schedule.
- A well-defined and value-added solution that demonstrates flexibility and adaptability to mitigate impacts from weather, to include rain, hot and cold weather.
- All testing required of the project performed at the on-site laboratory.
- Key personnel exceed the minimum qualifications listed in the technical specifications.
- Key personnel demonstrate significant working experience on DOD Airfield Paving projects.
- ACI Concrete Transportation Inspector employed by the prime contractor.
- Any other aspect of a proposal the SSEB or SSA believes enhances the merit of the proposal or increases the probability of successful performance of the contract.

Weaknesses or Significant Weaknesses may be given for the following:

- A technical approach that simply serves as a Repeating/“copy and paste” of the RFP narrative.
- Generic approaches that are not tailored to project specific requirements.
- Testing at the on-site laboratory limited to aggregate gradations, curing of strength specimens, and testing of strength specimens; with all remaining test performed at an off-site laboratory.
- Limited experience shown and/or experience does not clearly demonstrate the capabilities to perform the proposed position for specific key personnel.
- Key personnel who do not clearly meet the minimum qualifications for the identified person listed in the technical specifications indicated.
- Omission or incompleteness of any requested information that is otherwise not rated as a deficiency.
- Any other aspect of a proposal the SSEB or SSA believes is a flaw that increases the risk of unsuccessful contract performance which does not constitute a deficiency.

Deficiencies shall be given for the following:

- Failure to address all mandatory work elements identified.
- Approaches that are non-compliant with the RFP, SOW, plans, and specifications.
- Failure to provide all required information for each member of the key personnel listed.
- Key personnel who fundamentally fail to meet the minimum qualifications listed in the technical specifications indicated.

1.2.3 Factor 3 – Volume 1, Tab C Past Performance

The Past Performance evaluation results in an assessment of the Offeror’s probability of meeting the solicitation requirements based on previous results. The past performance evaluations result in identification of the Relevancy and the overall confidence rating. Relevancy is not a separate proposal rating but is used to develop an overall Past Performance Confidence Assessment. The past performance evaluation considers each offeror’s demonstrated recent and relevant record of performance in construction activities that are needed to meet the contract’s requirements. There are three (3) aspects to the past performance evaluation: recency, relevancy (including context of data), and quality (including general trends in contractor performance and source of

information). While relevancy is also evaluated individually, all past performance aspects will be used to develop an overall confidence assessment rating for the Past Performance factor. The Government’s overall confidence level for this factor will be based on the Offeror’s Past Performance to include recency, relevancy, and the quality of performance. Past Performance on projects will examine how well an Offeror has performed on relevant projects considering such criteria as: cost growth and adherence to budget; time growth, timeliness, and adherence to schedule; quality and quality control measures; management of personnel and subcontractors; compliance with safety standards/safety plan; overall customer satisfaction; responsiveness to customer concerns.

CPARS/CCASS records will be given more weight than PPQs. The Government may, at its discretion, contact individuals other than those identified by the Offeror as references to verify the information contained therein. The Government reserves the right to consider all aspects of an Offeror’s performance history but may attribute more importance to work that is similar to the scope contemplated for this project.

In the case of offerors for which there is no information on past contract performance or where past contract performance information is not available, the offeror may not be evaluated favorably or unfavorably on the factor of past contract performance (see FAR 15.305(a)(2)(iv).) In this case, the offeror’s past performance is unknown and assigned a performance confidence rating of “neutral.” Although the SSEB may not rate an offeror that lacks recent, relevant past performance favorably or unfavorably regarding past performance, the SSA may determine, that a “Substantial Confidence” or “Satisfactory Confidence” past performance rating is worth more than a “Neutral Confidence” past performance rating in a best value tradeoff as long as the determination is consistent with stated solicitation criteria.

Recency - The first aspect is to evaluate the recency of the Offeror’s past performance. With respect to recency, more recent past performance will typically be a stronger predictor of future success and have more influence on the past performance confidence assessment than less recently completed projects. Recency criteria related to this solicitation is outlined in the Past Performance Submission Requirements section. The Government will consider projects that are complete within 7 years from the date the offers are due. Projects whose completion date is closer to the date the offers are due will have more impact on the overall past performance evaluation.

Relevance - The second aspect of the Past Performance evaluation is to determine how relevant previous experience accomplished by the Offeror is to the anticipated work to be accomplished under this project scope. However, they may or may not overshadow older performance records considering the nature of the ratings, statements, and volume of records. With respect to relevancy, more relevant Past Performance will typically be a stronger predictor of future success and have more influence on the Past Performance confidence assessment. Relevancy is not a separate proposal rating but is used to develop an overall Past Performance Confidence Assessment. The four levels of relevancy definitions are:

Adjectival Rating	Description
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Very Relevant	Present/past performance effort involved essentially the same scope and magnitude of effort and complexities this solicitation requires.
Relevant	Present/past performance effort involved similar scope and magnitude of effort and complexities this solicitation requires.
Somewhat Relevant	Present/past performance effort involved some of the scope and magnitude of effort and complexities this solicitation requires.
Not Relevant	Present/past performance effort involved little or none of the scope and magnitude of effort and complexities this solicitation requires.

Quality of Performance - The third aspect of the past performance evaluation is to establish the overall quality of the offeror’s past performance. The Past Performance evaluation performed in support of a current source selection does not establish, create, or change the existing record and history of the Offeror’s Past Performance on past contracts; rather, the Past Performance evaluation process gathers information from stakeholders on how well the Offeror performed those past contracts. The Source Selection Evaluation Board will review this Past Performance information and determine the quality and usefulness as it applies to performance confidence assessment.

The Government will review all past performance information submitted. The past performance information required in this solicitation shall be provided by the Offeror. Past performance information may also be obtained from questionnaires. At the Government’s discretion, past performance information shall be obtained from any other sources available to the Government, to include, but not limited to, the Contractors Performance Assessment Reporting System (CPARS), Federal Awardee Performance and Integrity Information System (FAPIS), System for Award Management (SAM.gov), Electronic Subcontract Reporting System (eSRS), or other databases; interviews with Program Managers, Contracting Officers, and Fee Determining Officials; and the Defense Contract Management Agency (DCMA) for recency, relevance and quality.

Performance Confidence Assessment. The Government will assign a final Performance Confidence Assessment for this factor based on the evaluation of recent and relevant past performance information and the quality of past performance on prior contract efforts. The Government will review all past performance information collected and determine the quality of the offeror’s performance, general trends, and usefulness of the information and incorporate these into the performance confidence assessment. In conducting a performance confidence assessment, each offeror shall be assigned one of the ratings using the terms below:

Adjectival Rating	Description
Substantial Confidence	Based on the offeror’s recent/relevant performance record, the Government has a high expectation that the offeror will successfully perform the required effort.

Satisfactory Confidence	Based on the offeror’s recent/relevant performance record, the Government has a reasonable expectation that the offeror will successfully perform the required effort.
Neutral Confidence	No recent/relevant performance record is available, or the offeror’s performance record is so sparse that no meaningful confidence assessment rating can be reasonably assigned. The offeror may not be evaluated favorably or unfavorably on the factor of past performance.
Limited Confidence	Based on the offeror’s recent/relevant performance record, the Government has a low expectation that the offeror will successfully perform the required effort.
No Confidence	Based on the offeror’s recent/relevant performance record, the Government has no expectation that the offeror will be able to successfully perform the required effort.

In the case of an offeror without a record of recent, relevant past performance or for which information on past performance is not available, the offeror may receive a Neutral Confidence rating which is neither favorable nor unfavorable. However, the Government reserves the right to consider assessments of substantial, or satisfactory confidence more favorably than an unknown confidence assessment.

The Government will evaluate the relative merits of each Offeror's past performance by following the recency, relevancy, and confidence assessment procedures. The evaluation of past performance will examine how well Offerors have performed on recent and relevant projects considering such criteria as but not limited to: comparison of past experience to requirements contemplated under this scope; frequency of performance of similar projects; length of work history; performance metrics and trends; customer satisfaction; performance evaluation ratings; cost growth and adherence to budget; time growth, timeliness, adherence to schedule; quality, quality control, management of personnel and subcontractors, compliance with safety standards/safety plan, regulatory compliance, overall customer satisfaction, and responsiveness to customer concerns.

Projects submitted without qualifying past performance data to support them may be considered for relevancy; however, the lack of qualifying performance data may have a significant negative impact on the confidence assessment.

If an Offeror submits no past performance evaluations and the Government is unable to locate evaluations in CPARS or other performance rating systems, a Neutral Confidence rating will be given.

The Government will consider the experience provided in the example projects when determining the relevancy of past performance data and use those submissions as a part of the confidence assessment. A lack of, or degraded, recency and relevancy may impact the confidence assessment that the Government provides.

1.2.4 Factor 4 – Volume 2 (all) Pricing

The contract will be a Firm-Fixed-Priced (FFP) contract. The Government will evaluate price reasonableness for the fixed priced effort. The total evaluated price (TEP) will be the summation of CLIN prices (to include option CLINs) proposed by the Offeror in the CLIN Pricing Schedule. The TEP will be the price used for purposes of conducted the best-value tradeoff analysis. The base and all options, if any, shall be included in the price evaluation. The total evaluated price will not be scored or rated.

The RFP requires firm-fixed-price contract line items. A price reasonableness approach will be utilized by the Government to determine that the proposed prices offered are fair and reasonable and that unbalanced pricing between CLINs or Options is not occurring. All offers shall be analyzed to determine if the prices are unbalanced. Unbalanced pricing exists where the prices of one or more line items are significantly overstated or understated, despite an acceptable total evaluated price and as indicated by the application of cost or price analysis techniques. The CLIN prices will be analyzed to determine if the prices are unbalanced in accordance with FAR 15.404-1(g). Price reasonableness will be determined by using proposal price analysis techniques as detailed in FAR 15. Price analysis of the individual proposed CLIN prices will be performed using one or more of the techniques described in FAR 15.404-1(b). Cost analysis techniques described in FAR 15.404-1(c) may also be used to evaluate data other than certified cost or pricing data to determine cost reasonableness when a fair and reasonable price cannot be determined through price analysis alone. Through these techniques, the Government will determine whether the CLIN prices proposed by the Offeror are reasonable. Because the price evaluation will represent a portion of the total evaluation, it is possible that an Offeror will not be selected for award for proposing unreasonable prices.

The Government is likely to not make award if the construction cost range set for this project is exceeded. Offerors are cautioned to distribute direct costs, such as material, labor, equipment, subcontracts, etc. and to evenly distribute indirect costs, such as job overhead, home office overhead, bond, etc., to the appropriate contract line items. If deemed necessary, the supplemental price breakdown information will be used to assist the Government in performing the price analysis described above.

Tab A “SF1442”, Tab C “Representations and Certifications” and Tab D “Teaming Arrangements”:

These items are not rated. Failure to complete these items may result in the entire proposal being determined nonresponsive. TAB D is only required for teaming arrangements consisting of more than one (1) contractor.

Tab E “Bond Ability”:

This item is not rated. Bonding information will be reviewed to determine the offeror's ability to obtain the required Performance and Payment Bonds. The successful offeror will be required upon award to be able to obtain the level of bonding required by the solicitation from an acceptable surety.

Tab F “Small Business Plan”:

This item is not considered during the initial source selection process. Once the source selection process has identified a potential awardee, then this item may be required prior

to contract award. If required, and if the potential awardee fails to provide this item, the government may proceed to the next offeror.

Division 00

INSTRUCTIONS TO OFFERORS (FAR 52.215-1)

1. OVERVIEW

1.1 TYPE OF SOLICITATION

This is a subjective tradeoff solicitation for the construction work shown in the attached specifications and plans. The government intends to award a firm-fixed-price construction contract to a single offeror for the entire scope of work described herein.

1.2 ESTIMATED TOTAL CONTRACT VALUE

The estimated magnitude of this project is between \$[insert value] and \$[insert value].

1.3 AVAILABILITY OF DOCUMENTS

Copies of the solicitation and amendments are available by INTERNET ACCESS ONLY. All solicitation documents will be posted to the Governmentwide Point of Entry (GPE), <https://sam.gov/>. It is the Offeror's responsibility to monitor the GPE for any amendments. The offeror shall submit in the proposal all requested information specified in this solicitation.

1.4 DESIGN FILES

All electronic files provided with the solicitation are provided as-is and the offeror is responsible for any computing equipment or software necessary to view the files. Files provided in the solicitation are the only files provided for proposal preparation.

2. WHO MAY SUBMIT

This solicitation is [unrestricted and open to both large and small business participation][restricted to 100% small business set aside pursuant to 13 CRF 124.501][restricted to the following small business categories only: *insert category*]. All offerors must be registered in the System for Award Management (SAM.gov).

3. PROPOSAL SUBMISSION

3.1 SUBMISSION DEADLINE AND LOCATION

Proposal must be submitted by the time and date as specified in SF1442 Solicitation, Offer, and Award, block 13. This time and date may be amended at any time by the Contracting Officer.

Proposal must be submitted by [Electronic means only][Hardcopy only][Either electronic means or hardcopy]. Electronic submittals are considered received by the digital time and date in the government's electronic system. Do not assume that electronic communication is instantaneous. Hardcopy submittals are considered received when handed to the point of contact below (or a designated representative). See FAR 15.208 paragraphs a through d for additional information regarding timeliness of submissions.

Proposals submitted electronically may be received by either or multiple of the following methods:

- a) Online at the Procurement Integrated Enterprise Environment (PIEE) located at site: <https://wawf.eb.mil/piee-landing/>
- b) Via PDF document(s) (smaller than 10MB) to the following email addresses:
[insert email address]
- c) Via PDF document(s) (larger than 10MB) transferred via the DoD SAFE system. To use this method, the offeror must request a DoD SAFE link via the email addresses above no later than 24 hours prior to the submission deadline.
- d) To the solicitation-specific online location at the following internet address:
[insert internet address]

Proposals submitted by hardcopy must be received at the following physical location only:

[insert CONTRACTING POINT OF CONTACT]
[insert ADDRESS]
[insert PHONE NUMBER]
[insert SITE ACCESS & COORDINATING DETAILS (IF APPLICABLE)]

3.2 SUBMISSION

3.2.1 DETAILS AND OWNERSHIP

Proposals submitted must be sufficiently detailed to allow for an effective and equitable evaluation by the Government. There will be no public proposal opening. Proposals submitted will become, upon receipt, the property of the U.S. Government and will not be returned. The Government will retain electronic copies of the proposals for the official file. The government will destroy or forward all other copies to the Field and Areas Offices in support of their contract administration functions.

3.2.2 FORMAT

All electronic submissions must be in Adobe PDF format with Optical Character Recognition (OCR) applied to all documents that will enable word searches to be conducted using Adobe-compatible PDF software. In addition, bookmark the submissions for each Volume and Factor identified in the RFP. Unreadable or illegible text or images will NOT be reviewed. All portions (other than an organization chart, Gantt charts or drawings (if provided)) must be saved in print size 8-1/2" x 11" format. Minimum font size is 10. Minimum margin size is 1" (except for logos, identifying information, page numbers, etc.). If applicable, submit drawings in the same format and

print size as the solicitation drawings. Also, if applicable, provide the schedule in print size 11" x 17".

All files must follow this naming convention:

Convention: Solicitation Number_Company_Volume_#_Description

Example: W9128F22R0028_USACE_Volume_2_Price

3.2.3 SUBMITTALS

A complete and acceptable submission by an offeror in response to this solicitation consists of all the following items as two volumes. Partial submissions will be considered non-responsive.

Table 1: Volume 1 Technical Proposal Contents

Factor	Location	Description	Details
	Volume 1, Cover	Cover Sheet	1-2 pages, must include all information required for cover sheets
1	Volume 1, Tab A	Previous Experience	1-8 pages, minimum of two projects
2	Volume 1, Tab B	Management / Technical Approach	1-10 pages
3	Volume 1, Tab C	Past Performance	1-20 pages, minimum of two past performance evaluations

Table 2: Volume 2 Price Proposal Contents

Item	Location	Description	Details
	Volume 2, Cover	Cover Sheet	Same as Volume 1
1	Volume 2, Tab A	SF1442 – Solicitation, Offer and Award	Signed
		SF-30 – Amendments (all, if applicable)	Signed

2	Volume 2, Tab B	Pricing, completed CLIN schedule and Section 00 10 00 (if applicable)	Each Item on the CLIN schedule must have a proposed total price.
3	Volume 2, Tab C	Representations, Certifications and Other Statements of Offerors	Submit via SAM.gov
4	Volume 2, Tab D	Team or Joint Venture (JV) Arrangements	Submit only if the Offeror is a Team relationship of more than 1 contractor.
5	Volume 2, Tab E	Contractor Bondability Letter	
6	Volume 2, Tab F	Small Business Subcontracting Plan (Only Large Business Firms)	Do not Submit at this time. Only apparent successful Offeror will submit this item.

3.3 DESCRIPTION OF SUBMITTALS

3.3.1 COVER SHEET

Provide the following information in the cover sheet:

1. The solicitation number.
2. Legal description of the Offeror, including at a minimum: Name, address, telephone, email, CAGE Code and Unique Entity ID (UEI) - formerly DUNS Number.
3. A statement specifying the extent of agreement with all terms, conditions, and provisions included in the solicitation and agreement to furnish any or all items upon which prices are offered at the price set opposite each item.
4. Names, titles, and telephone and facsimile numbers (and electronic addresses if available) of persons authorized to negotiate on the offeror's behalf with the Government in connection with this solicitation; and
5. Name, title, and signature of person authorized to sign the proposal. Proposals signed by an agent shall be accompanied by evidence of that agent's authority unless that evidence has been previously furnished to the issuing office.

3.3.2 VOLUME 1, TAB A – FACTOR 1 – PREVIOUS EXPERIENCE

In this tab, submit a minimum of two (2), and no more than four (4) project examples. Provide evidence that the Offeror was the prime contractor or joint venture participants in the construction aspects in each design-bid-build project example submitted, and in the construction aspects in each design-build project example submitted.

Project examples should illustrate types of projects similar to the one described in this solicitation, consisting of airfield pavements. The offeror should present the number of project examples that demonstrate prowess, breadth, and depth of experience as it relates to the scope of work for this requirement.

Projects for which the Offeror was a subcontractor or a teaming member of a subcontractor at the time of project execution are generally not acceptable. However, the Offeror may submit a project for which they were the subcontractor if the project was substantially similar to the scope of work in this solicitation AND the Offeror can demonstrate that their firm was specifically responsible for an airfield pavement scope of work exceeding [*insert dollar value, recommend a minimum of \$5,000,000*]. Each project example should consist of no more than a two (2) page narrative and should clearly demonstrate the design-bid-build capabilities and experience of the Offeror.

If more than four (4) project examples are submitted, only the first four (4) contained in the proposal will be evaluated. If more than a two (2) page narrative per project example is submitted, only the first two (2) pages will be evaluated.

Ensure each project example cited has a contract (stand-alone contract or single task order) dollar value at award that is [*insert dollar value, recommend a minimum of \$5,000,000*] or greater and has substantial completion date within seven (7) years of the submission deadline. Indefinite Delivery/Indefinite Quantity (IDIQ) Contracts, where numerous Task Orders are summed to meet the minimum contract dollar value identified herein, are not acceptable.

3.3.2.1 Narrative

Ensure the narrative includes the items below in the following order:

1. Project title
2. Project description
3. Contract number, task order number, or unique customer-assigned identifier
4. Location (include: installation/base/facility, city, state, country)
5. Contract (stand-alone contract or single task order contract or subcontract) dollar value at award
6. Final Contract Cost
8. Notice to proceed date
9. Original construction completion date (substantial completion)
10. Actual construction completion date (substantial completion)
11. Explanation for any cost or schedule growth
12. Name, address, telephone number, and e-mail address of a representative of the customer or an alternate individual not affiliated with your firm and familiar with your firm's experience on the project example that can verify the experience cited
13. Briefly explain the relevance of the project example compared to the types of projects stated within this solicitation

3.3.2.2 General Requirements

Include the following criteria for all project examples:

1. Primary scope of work was airfield paving using a design-bid-build or design-build firm-fixed-price construction contract. Projects involving installation of only the sub-base materials, crack repair, patching, seal coats, or non-pavement items are not considered acceptable. The Government expects project examples to be of sufficient complexity to demonstrate the Offeror's understanding of the RFP requirements.
2. The largest portion of the paving on the Airfield Paving construction project, either Portland Cement Concrete (PCC) or Asphalt Cement Concrete (ACC), must have been self-performed by the Offeror, and not subcontracted or performed by a teaming partner.
3. All work was performed at a Department of Defense (DoD) airfield in accordance with UFC and UFGS criteria, or a commercial airfield/airport that required and utilized FAA Advisory Circular (AC) specifications.
4. Projects are to be substantially, greater than 50%, complete prior to the submission deadline.
5. Each project are to be continuously performed under a single stand-alone contract or under a single task order under an IDIQ contract or be a subcontract valued over \$5,000,000.

3.3.2.3 Special Requirements

Ensure the submitted project examples collectively satisfy all the following special requirements. A single project may be used to meet more than one special requirement.

- [**These are just examples edit to be applicable to the project being contracted. 1.
1. Construction of rigid pavements with thicknesses of 12 inches or greater.
 2. Construction of flexible pavements with a thickness of 4 inches or greater, placed in multiple lifts.
 3. Construction of airfield lighting systems.
 4. Construction of airfield subgrade utilities.
 5. Construction of airfield pavement markings.
 6. Work included airfield pavement demolition.
 7. Minimum placement amount of 10,000 CY of Portland Cement Concrete (PCC).
 8. Minimum placement amount of 5,000 tons of Asphalt Cement Concrete (ACC).]

3.3.3 VOLUME 1, TAB B - FACTOR 2 –MANAGEMENT & TECHNICAL APPROACH

This factor rates the effectiveness of the Offeror's overall project management and technical approach and organization to perform the requirements of a contract resulting from this solicitation. This factor consists of no more than ten (10) pages. If the offeror submits more than ten (10) pages, then the Government will evaluate only the first ten (10) pages.

3.3.3.1 Management Approach

Describe the management approach for the organizational structure and quality control in accordance with Division 01-General Requirements of this solicitation. The use of job position titles in position descriptions (e.g., Program Manager, Corporate QC Manager, Design Manager) and utilizing the actual names of individuals that may be assigned to those jobs (e.g., John Doe) is permitted. Describe the organizational approach as it pertains to this solicitation, to include the following:

1. Organizational Structure

a. Provide organizational structure of the offeror's proposed team for this contract and outline it on a diagrammed organizational chart. Include, at a minimum the contractor/subcontractors responsible for PCC pavement; ACC pavement; joint sawing and sealing; supplying of aggregate; supplying of cement; supplying of supplementary cementitious material; electrical/NAVAIDS; and a validated testing laboratory. In addition, include subsidiaries and other pertinent corporate personnel filling key positions (as noted below) in this organizational structure and mark them to clearly communicate which positions are subcontracted. Describe the relationship of these capabilities to the Government (i.e., owned, subcontracted effort, joint venture, etc.). The organizational structure can be on an 11" x 17" paper and will be counted as one page.

b. In a related narrative, describe your program's organization structure, identifying roles, responsibilities, hierarchies, lines of communication, and lines of authority both internally (to include team arrangement partners) and with the Government. Include at a minimum the role and resumes of the PM, Superintendent, QC Manager, Concrete Inspector, and the Petrographer. If the offeror is a Joint Venture, or has teaming agreements with subcontractors, suppliers, subsidiaries, or other forms of relationships with other firms as a part of the proposal, describe the depth of history of the working partners as well as the formality and specific roles and responsibilities of the members. Also focus the narrative on the methods of subcontractor selection used with the various subcontractor disciplines.

2. Quality Control

a. Provide a one (1) page flow chart illustrating your quality control organizational structure.

b. In a related narrative, describe your quality control organization, identifying roles, responsibilities, hierarchies, and flows of communication both internally and with the Government. Include the Construction Quality Control Manager resume. Describe how the offeror's quality control plan is in use currently and provide supporting data demonstrating the plans measurable success on other projects in accordance with UFGS 01 45 00.00 [per the Service executing the task order].

[**This is only for Design-Build projects**]

3. Designer(s)/A-E Service Capabilities

a. Identify and clearly explain how the offeror intends to execute design efforts for Design-Build projects executed under the RFP scope.

b. Describe the capabilities and specialization (if any) of in-house designer(s)/A-E firm(s) (for example, airfield lighting and NAVAIDS, BAK System, Geotech, etc.). This section should also address the depth of experience the offeror and the designer (in house or subcontracted) have working on design-build projects together.

c. Provide an example of how the offeror, or the design firm coordinated past design and construction efforts, to include design quality control role, and the role of the Government in the Design-Build (DB) project. Example project should have been within 7 years of the date of the RFP. Example should highlight a difficulty or problem that the designer and prime overcame and how that problem affected the overall project, the customer, and how the prime mitigated any associated risk.]

3.3.3.2 Technical Approach

Based on your understanding of the RFP requirements, describe the technical approach you will take to address the unique challenges, opportunities, and constraints inherent to this project (i.e., work delays, schedule phasing, working on an active runway, equipment height restrictions, etc.). Include the following:

1. Narrative

Present a narrative to describe your technical solution for this project, specifically citing the process and major equipment used for construction of airfield pavement, discussion of the batch plant required to produce an acceptable paving mixture for the project, how subcontractors will be managed, how supplies and materials will be managed (i.e. source and location of all aggregates for PCC and Asphalt proposed for use in this project), schedule development and methods to be utilized and to keep the project on schedule. Address mitigation of potential delays due to unforeseen conditions and methods to recover time to complete the scheduled work within the period of performance. The narrative must address the following primary construction work elements as a minimum:

a. Offeror's construction execution approach related to Airfield Paving.

b. Provide a description of the construction equipment, capabilities, and method in which the equipment will be utilized on the project in accordance with the technical specifications.

c. Provide a description of the civil related construction methods and procedures showing how the work will be accomplished, address the following:

- Unsuitable soils
- Site grading and drainage
- Storm water systems

d. Describe in the narrative the Contractor's construction approach related to the airfield electrical demolition and construction requirements for lighting, NAVAIDs, and lighting vault work. Describe coordination of all in-pavement/under-pavement electrical features and pavement construction activities.

e. Submit a description of methods to ensure safety to active aircraft operations and contractor's personnel. At a minimum, address the following:

- Compliance with and required temporary deviations to airfield criteria such as imaginary surfaces, clear zones, instrument landing system critical areas, controlled movement areas, displaced thresholds, etc.
- Foreign Object Damage (FOD) Prevention
- Dust prevention
- Jet blast impacts to construction operations
- Temporary lighting, markings, signage, and barricades

f. Provide a description of the approach related to the phasing requirements for demolition and construction keyed to the construction schedule. Include detailed description demonstrating procedures to establish displaced thresholds, transition between phases, and return to full operations in order to minimize the time required for full closures. Include discussion of any temporary lighting, markings, and signage as well as preliminary activities to transition between phases.

2. Schedule

Provide a schedule displayed at minimum as a Major Activities Bar Chart and a detailed narrative that identifies all milestones and durations corresponding to the project stages (A, B and C) detailed below. The schedule shall present the requirements to complete all work required under the RFP. The contractor should specifically identify issues that impact schedule or durations. The bar chart will not be included in the overall page count of each proposal, but is limited to 2 pages in length, and may be submitted in an 11-inch x 17-inch format. It must include all milestones and durations, to include:

- a. All necessary permits, licenses, and certificates
- b. Site specific contractor management plans
- c. Key Work Breakdown Structure (WBS) activities
- d. Long lead procurements (i.e., Airfield Paving Asphalt job mix formula and Portland Cement Concrete (PCC) Mix Design, and Airfield Lighting Equipment)
- e. Critical path, starting with award and ending at project closeout
- f. Predecessor, Concurrent and Successor activities

For scheduling purposes assume the contract award will be executed on [*insert date*] with NTP issued 3 weeks later.

3.3.4 VOLUME 1, TAB C – FACTOR 3 – PAST PERFORMANCE

Submit, at a minimum, the past performance ratings for each project included in Factor 1 – Previous Experience. Contractor Performance Assessment Reporting System (CPARS) evaluations are preferred. Past Performance Questionnaires (PPQs) are also acceptable (to include those previously completed), as are evaluations in other formats (not CPARS or PPQ) if the evaluation criteria and ratings types are similar to those used in a CPARS and/or a PPQ evaluation, the evaluation includes the same level of detail (or greater) as a CPARS and/or a PPQ evaluation, it is signed by the Customer, and all other RFP requirements are met.

If the Offeror is unable to obtain a completed PPQ from a client for a project(s) before proposal closing date, complete and submit with the proposal the first page of the PPQ and follow up with clients/references to ensure timely submittal of questionnaires. If the client requests, questionnaires may be submitted directly to the Contract Specialist, prior to proposal closing date. Instruct the clients to refer to the solicitation number in the subject line. PPQs are source selection materials. All successfully submitted PPQs will receive an email confirmation upon receipt. If the offeror does not receive the confirmation, it is the offeror's responsibility to follow up to ensure the Government has received the information. The Government reserves the right to contact the personnel listed on the PPQ. The inability to validate the information on the PPQ will affect the Government's evaluation. Do not incorporate by reference into the proposal PPQs or CPARS previously submitted for other procurements. However, this does not preclude the Government from utilizing previously submitted PPQ information in the past performance evaluation.

Offerors may provide explanation on problems encountered on past projects and the corrective actions taken by the offeror. Narratives are not more than one (1) page. Narratives do not absolve the offeror of prior performance. Narratives provide the offeror an opportunity to frame prior poor performance. The Government reviews this data and consider its content when reviewing past performance. Narratives are also encouraged for example projects that may be missing requested elements (i.e., substantially complete projects, non-DOD project that still meets all the complexity requirements, etc.) explaining to the Government why it should consider the project as a complete submission. The Government reserves the right to subjectively determine the impact of the content of the narrative and how it will impact the ratings.

If a formal past performance evaluation has not been completed via CPARS, or CCASS, the Past Performance Questionnaire (Form PPQ-0, Attachment 1) is provided for the Offeror or its team partners to submit to the client. The PPQ should be completed by an owner or owner's representative not affiliated with your firm. Ensure correct phone numbers and email addresses are provided for the client point of contact.

Submit completed PPQs with the proposal or to the designated personnel listed below prior to the proposal due date. Follow-up with clients/references to ensure timely submittal of questionnaires. If the client requests, questionnaires may be submitted directly to the designated Government's point of contacts, via email as listed in section

3.1 prior to proposal closing date. Do not incorporate by reference previously completed PPQs from other RFPs into their proposal. However, this does not preclude the Government from utilizing previously submitted PPQ information in the past performance evaluation at its own prerogative, nor does it preclude the Offeror from utilizing a previously completed PPQ and submitting into their proposal.

3.3.5 VOLUME 2 – FACTOR 4 – PRICE PROPOSAL

3.3.5.1 TAB A: SF1442, SOLICITATION, OFFER AND AWARD

The SF1442 completed and signed by a person authorized by the Offeror. Any SF-30 amendments completed and signed by a person authorized by the Offeror.

3.3.5.2 TAB B: PRICING

The completed CLIN Schedule. This is the Offeror's total price proposal for each CLIN item and the project as a whole. Each CLIN item must have a number in U.S. Dollars and Cents.

The proposed price for this project shall be in the form of the Proposal/Price Schedule provided in this solicitation. Offerors may not modify the price schedule wording or format. As this is a firm-fixed-price contract, price proposals will not be considered which provide for subsequent increases in price. No qualified price proposal of any type will be accepted; therefore, all offers containing such qualifications will be considered unacceptable. If the offeror does not comply with all requirements of the proposal forms, the proposal may be considered non-compliant and eliminated from consideration.

3.3.5.3 TAB C: REPRESENTATIONS AND CERTIFICATIONS

See section 00 45 00 "Representations and Certifications". The items listed in this section must be completed and/or updated in the System for Award Management (SAM.gov) within the one (1) year period prior to the submission deadline.

3.3.5.4 TAB D: TEAMING ARRANGEMENTS

3.3.5.4.1 Integrity and Validity of All Contractor Team Arrangements

The Contracting Officer will recognize the integrity and validity of contractor team arrangements; provided that the arrangements are identified, and company relationships are fully disclosed and validation of formal agreements and relationships (i.e., Mentor-Protégé agreements, Joint Ventures, partnerships, etc.) are provided in the offer and submitted with the proposal responding to the solicitation. Nothing in the solicitation authorizes contractor team arrangements in violation of antitrust statutes or limits the Government's rights to:

1. Require consent to subcontracts (see FAR Subpart 44.2).
2. Determine, based on the stated contractor team arrangement, the responsibilities of the Prime Contractor (see FAR Subpart 9.1).

3. Provide to the Prime Contractor data rights owned or controlled by the Government.
4. Pursue its policies on competitive contracting, subcontracting, and component breakout initial production or at any other time.
5. Hold the Prime Contractor fully responsible for contract performance, regardless of team arrangement between the Prime Contractor and its subcontractors.

3.3.5.4.2 Joint Venture Team Arrangements (Including Mentor-Protégés).

No contract may be awarded to a Joint Venture/Mentor-Protégé that is not registered in the System for Award Management (SAM) database. The Joint Venture/Mentor-Protégé must have its own registered Data Universal Numbering System (DUNS) number or UEI. Any Joint Venture/Mentor-Protégé agreement that is required to be approved by the Small Business Administration (SBA) shall be approved in accordance with the applicable Code of Federal Regulations (CFR). If the applicable requirements are not met prior to the due date for proposals, the proposal will be rendered unawardable.

1. In the title sheet/cover letter of your proposal, provide the complete names, addresses, and phone number of the firms comprising the Joint Venture/Mentor-Protégé.
2. A copy of the Joint Venture/Mentor-Protégé agreement.
3. Signature requirements: SF 1442, SOLICITATION, OFFER, AND AWARD, Block 20, requires that the name and title of a person authorized to sign the offer for the Joint Venture/Mentor-Protégé be provided. In the case of a Joint Venture/Mentor-Protégé, subject Standard Form shall be signed by the principal representative of the Joint Venture/ Mentor-Protégé (or the alternate principal representative, if the principal representative is unavailable).
4. In addition to the requirements stated above, and to assure a single point of contact for resolution of contractual matters and payments, the Offeror shall submit a certificate signed by each participant in the Joint Venture containing the following statement:

“The parties hereto expressly understand and agree as follows:

1. (Name, title, and company) is the principal representative of the Joint Venture. As such, all communications regarding the administration of the contract and the performance of the work thereunder may be directed to him or her. In the absence of (same name, title, and company), (enter name, title, and company of alternate) is the alternate principal representative of the Joint Venture/Mentor-Protégé. These individuals have authority to sign on behalf of the Joint Venture/Mentor-Protégé.
2. Direction, approvals, required notices, and all other communications from the Government to the Joint Venture/Mentor-Protégé, including transmittal of payments by the Government, shall be directed to (enter name, title, and company of principal), principal representative of the Joint Venture/Mentor-Protégé.”

NOTE: Provide telephone numbers and email addresses for the points of contact listed in the above statement.

3.3.5.4.3 Teaming Arrangements OTHER than joint venture or mentor/protégé.

All offerors that have a teaming arrangement, other than JV or mentor/protégé shall submit the following information in the Required Documents file:

1. A listing of each team arrangement member's corporate name (no abbreviations), address, point of contact, phone number, DUNS Number or UEI, and CAGE Code.
2. A copy of the signed team arrangement agreement or binding letter of commitment between each team member. All team arrangement agreements and letters of commitment shall:
 - a. Clearly identify the expected relationship, role and responsibility between the firms, Prime Contractor, and of the subcontractor or other entity (type and proportion of work to be performed).
 - b. Be signed by the appropriate individual(s) of each company.

3.3.5.5 TAB E – EVIDENCE OF BONDABILITY

Bondability: In accordance with FAR Clause 52.228-15 PERFORMANCE AND PAYMENT BONDS, the following information should be submitted with each proposal. No formal bond is requested at this time. Submission of this information will expedite the award process:

1. Financial: Name, address, fax number and e-mail address of Financial Institution. Name and phone number of financial individual (primary and alternate) to be contacted.
2. Bonding Information for the Prime: Provide the name, address, phone number, fax number and e-mail address of the Offeror's Surety Company.
3. Small Business Information.

NOTE: The Government will not pay for the provision of any information nor compensate any Offeror for the development of the required information outlined in the solicitation required for inclusion in the Offeror's proposal.

3.3.5.6 TAB F – SMALL BUSINESS SUBCONTRACTING PLAN

ONLY the apparent successful offeror, who is also a large business, is required to submit a subcontracting plan. Large businesses will not be eligible for award if they fail to submit an acceptable Subcontracting Plan. In accordance with DFARS 215.304 (c), when an evaluation assesses the extent that small businesses and HBCU/MI are specifically identified in proposals, the small businesses and HBCU/MIs considered in the evaluation shall be listed in any subcontracting plan submitted.

The plan shall be prepared in accordance with FAR 19.704, FAR 52.219-9, DFARS 252.219-7003 and AFARS Appendix DD. The offeror shall take into consideration when preparing the required subcontracting plan, that only those subcontracts which are

awarded directly by the prime contractor to small and small disadvantaged firms can be included in the plan.

Subcontracts to be awarded by a large business subcontractor are subject to the flow-down provisions of the clause and shall be reported by that subcontractor on its own Individual Subcontracting Report. Failure to submit an acceptable subcontracting plan shall make the offeror ineligible for the award of the contract.

Subcontracting plans will be evaluated on an ACCEPTABLE/ UNACCEPTABLE basis against the following criteria: a. Does the Subcontracting plan adequately respond to each of the required elements of FAR 52.219-9(d) paragraphs (1) and (15)? b. Does the subcontracting plan identify at least one (1) small business subcontractor?

NOTE: The Small Business Subcontracting Plan shall NOT be submitted with either of the offeror's Volumes. Separate from the Small Business Participation Plan, a subcontracting plan meeting the criteria above, shall be required ONLY from the apparent successful offeror. If the apparently successful offeror fails to negotiate a subcontracting plan acceptable to the contracting officer within the time limit prescribed by the Contracting Officer, the offeror will be ineligible for award.

Refer to FAR 15.208 and FAR Clause 52.215-1 for further detail regarding submission requirements, modifications, revisions, and withdrawal of proposals.

3.4 BIDDER INQUIRY/QUESTIONS

Prospective Offerors shall submit contracting and technical inquiries and questions concerning this solicitation document via Bidder Inquiry in ProjNet at www.projnet.org/projnet, no later than ten (10) calendar days before due date of proposals.

Phone calls for non-technical or procedural type questions should be made between 8:30 a.m. and 3:30 p.m. [*insert time zone of contracting office*] Monday through Friday. The Bidder Inquiry system is to be used to ask and receive answers to all non-proprietary questions. To submit and review inquiry items, prospective vendors will need to use the Bidder Inquiry Key presented below and follow the instructions listed below. A prospective vendor who submits a comment /question will receive an acknowledgement of their comment/question via email, followed by an answer to the comment/question after it has been processed by our technical team.

All timely questions and approved answers will be made available through [ProjNet][solicitation amendment], no later than three (3) days prior to the submission deadline.

The Solicitation Number is: [*insert solicitation number*]

The Bidder Inquiry Key is: [*insert bidder inquiry key*]

4 OTHER INFORMATION

4.1 DEBRIEFING OFFERORS

Offerors may request a debriefing in accordance with FAR 15.5, and DFARS 215.5, as applicable.

Each Offeror, successful or unsuccessful, will have the opportunity, in accordance with Federal Acquisition Regulation (FAR) 15.505 and 15.506, to receive one debriefing. Offerors are required to submit a written request for debriefing within three (3) calendar days after receipt of exclusion from competition or notice of award. Each Offeror shall be provided only one debriefing, either post award or pre-award, at their choosing. The debriefing of all Offerors, successful or unsuccessful, will be conducted by the Contracting Officer in accordance with the FAR. The Contract Specialist will coordinate and schedule the debriefings. The debriefing will be held either over a teleconference phone call or in-person.

4.2 DEFINITIONS

Construction: means construction, alteration, or repair of airfield pavements, buildings, structures, or other real property. For purposes of this definition, the terms “buildings, structures, or other real property” include, but are not limited to, improvements of all types, such as bridges, dams, plants, highways, parkways, streets, subways, tunnels, sewers, mains, power lines, cemeteries, pumping stations, railways, airport facilities, terminals, docks, piers, wharves, ways, lighthouses, buoys, jetties, breakwaters, levees, canals, and channels. Construction does not include the manufacture, production, furnishing, construction, alteration, repair, processing, or assembling of vessels, aircraft, or other kinds of personal property (except that for use in FAR Subpart 22.5, see definition at 22.502).

Contractor: The party to a construction contract responsible for performing the scope of work. This solicitation uses the terms “Offeror”, “Potential Awardee”, “Contractor”, “Prime Contractor”, “Joint Venture” and other terms to refer to any entity responding to this solicitation.

NOTE: "Offeror", "prime contractor", etc.... as used in this solicitation shall mean ONLY the named entity entered on SF1442 of Section 00 10 00 of the proposal submission. In the event the Offeror is a Joint Venture (reference Section 00 21 00 “Joint Venture Team Arrangement”), project examples submitted for evaluation shall be those completed by the Joint Venture Offeror or any party of the Joint Venture at the time of project execution. In the event the Offeror or prime contractor intends to have contractor team arrangement(s), whereby a potential prime contractor agrees with one or more other companies to have them act as its subcontractor(s) under this Government contract or where two or more committed companies form a partnership other than a certified Joint Venture, projects submitted for this evaluation factor shall be limited to projects completed by the Offeror/prime contractor entity ONLY. If an Offeror includes an affiliation of a company with a named offeror, then the proposal must include a factual basis showing the planned relationship between the companies on the contract at issue, i.e., the proposal must indicate the involvement of the affiliate in performance of the contract before the agency can attribute the affiliate’s past experience or performance to the offeror. The Government will not accept for evaluation project examples completed as a subcontractor.

Deficiency: A material failure of a proposal to meet a Government requirement or a combination of significant weaknesses in a proposal that increases the risk of unsuccessful contract performance to an unacceptable level.

Design: means defining the construction requirement (including the functional relationships and technical systems to be used, such as architectural, environmental, structural, electrical, mechanical, and fire protection), producing the technical specifications and drawings, and preparing the construction cost estimate.

Design-Bid-Build: the traditional delivery method where design and construction are sequential and contracted for separately with two contracts and two contractors.

Discussions: are negotiations that occur after establishment of the competitive range that may, at the Contracting Officer's discretion, result in the offeror being allowed to revise its proposal.

Institutional: relating to an established organization or agency

Modernization: the alteration or replacement of facilities solely to implement new or higher standards, to accommodate new functions, or to replace building components that typically last more than 50 years (such as the framework or foundation).

Military: for this solicitation, military is defined as a secure government installation that supports the national defense of the United States of America.

Proposal modification: is a change made to a proposal before the solicitation's closing date and time, or made in response to an amendment, or made to correct a mistake at any time before award.

Proposal revision: is a change to a proposal made after the solicitation closing date, at the request of or as allowed by a Contracting Officer as the result of negotiations.

Restoration: the restoration of real property to such a condition that it may be used for its designated purpose. Restoration includes repair or replacement work to restore facilities damaged by inadequate sustainment, excessive age, natural disaster, fire, accident, or other causes.

Similar: having characteristics in common and is strictly comparable to a referenced item.

Strength: an aspect of an Offeror's proposal that has merit or exceeds specified performance or capability requirements in a way that will be advantageous to the Government during contract performance.

Significant Strength: an aspect of an Offeror's proposal that has appreciable merit or appreciably exceeds specified performance or capability requirements in a way that will be appreciably advantageous to the Government during contract performance.

Structure: an item that is constructed. This may include but is not limited to bridges, dams, plants, highways, parkways, streets, subways, tunnels, sewers, mains, power lines, cemeteries, pumping stations, railways, airport facilities, terminals, docks, piers, wharves, ways, lighthouses, buoys, jetties, breakwaters, levees, canals, and channels.

Sustainment: the maintenance and repair activities necessary to keep an inventory of facilities in good working order. It includes regularly scheduled adjustments and inspections, preventive maintenance tasks, and emergency response and service calls for minor repairs. It also includes major repairs or replacement of facility components that are expected to occur periodically throughout the life cycle of facilities. This work includes regular roof replacement, refinishing of wall surfaces, repairing and replacement of heating and cooling systems, replacing tile and carpeting, and similar types of work.

Time: if stated as a number of days, is calculated using calendar days, unless otherwise specified, and will include Saturdays, Sundays, and legal holidays. However, if the last day falls on a Saturday, Sunday, or legal holiday, then the period shall include the next working day.

Weakness: a flaw in the proposal that increases the risk of unsuccessful contract performance.

Significant Weakness: a flaw that appreciably increases the risk of unsuccessful contract performance.

In writing, "writing," or "written" means any worded or numbered expression that can be read, reproduced, and later communicated, and includes electronically transmitted and stored information.

4.3 PROPOSAL EXPENSES AND PRECONTRACT COSTS

This solicitation does not commit the Government to pay costs incurred in preparation and submission of initial and subsequent proposals or for other costs incurred prior to contract award.

SECTION 01 11 00 SUMMARY OF WORK

PART 1 GENERAL

1.1 SUBMITTALS

Each specification section contains submittal requirements specific to that section. Airfield pavement projects are essentially an on-site manufacturing process consisting of raw materials and specific production methods. Therefore, strict attention and adherence to the material, mix design and method submittals is essential. In addition, material and mix design testing can be expected to take a minimum of 90 days from start of testing. The Contractor must understand this and

start these items as soon as possible after Notice to Proceed.

Government approval is required for submittals with a "G" or "S" classification. Submittals not having a "G" or "S" classification are [for Contractor Quality Control approval.][for information only. When used, a code following the "G" classification identifies the office that will review the submittal for the Government.] Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Material and Mix Design Schedule; G[, [___]]

Existing Conditions Record; G[, [_____]]

Site Access Supporting Documentation; G[, [_____]]

Points of Contact; G[, [_____]]

1.2 WORK COVERED BY CONTRACT DOCUMENTS

1.2.1 Project Description

The scope of work consists of heavy-duty airfield pavements and other work in accordance with the included Part Two Specifications and the Part Three Drawings. The work includes [___] and incidental related work.

1.2.2 Location

The work is located at [_____] in [_____], approximately as indicated. The exact location is shown on the contract drawings.

1.3 OCCUPANCY OF PREMISES

The airfield at this facility [will][will not] remain in operation during The following facilities must remain accessible [throughout construction][in accordance with the phasing plan]: [_____]

The Contractor shall perform work within the following time restrictions: [None][_____]]

The following additional site and access restrictions must be followed: []

Before work is started, arrange with the Contracting Officer a sequence of procedure, means of access, space for storage of materials and equipment, and use of adjacent land.

1.4 INTENT

The intent of this project is to [_____].

The anticipated lifespan of the project, once completed, is expected to be approximately [] years.

This project serves the public by supporting our national defense infrastructure.

The following additional information is important to understand while executing this work: [_____]

1.5 EXISTING WORK

In addition to FAR 52.236-9 Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements:

- a. Remove or alter existing work in such a manner as to prevent injury or damage to any portions of the existing work which remain.
- b. Repair or replace portions of existing work which have been altered during construction operations to match existing or adjoining work, as approved by the Contracting Officer. At the completion of operations, existing work must be in a condition equal to or better than that which existed before new work started.
- c. Any damage during construction to adjacent existing airfield surfaces, must be repaired in accordance with the applicable paving specification, up to and including full depth replacement if necessary.

1.6 LOCATION OF UNDERGROUND UTILITIES

Obtain digging permits prior to start of excavation, and comply with Installation requirements for locating and marking underground utilities.[Contact local utility locating service a minimum of [48 hours][_____] prior to excavating, to mark utilities, and within sufficient time required if work occurs on a Monday or after a Holiday.] Verify existing utility locations indicated on contract drawings, within area of work.

[Identify and mark all other utilities not managed and located by the local utility companies. Scan the construction site with Ground Penetrating Radar (GPR), electromagnetic, or sonic equipment, and mark the surface of the ground or paved surface where existing underground utilities are discovered. Verify the elevations of existing piping, utilities, and any type of underground [or encased]obstruction not indicated, or specified to be removed, that is indicated or discovered during scanning, in locations to be traversed by piping, ducts, and other work to be conducted or installed. Verify elevations before installing new work closer than nearest manhole or other structure at which an adjustment in grade can be

made.

1.6.1 Notification Prior to Excavation

Notify the Contracting Officer at least [15 days][_____] prior to starting excavation work.

1.7 MATERIAL AND MIX DESIGN SCHEDULE

Submit a material and mix design schedule to the Contracting Officer in writing no more than [30] [_____] calendar days after Notice to Proceed. This schedule can be in any format, but must include the dates that the Contractor will provide each airfield pavement material submittal (aggregate, sand, cement/binder, additives, etc...) and the first mix design submittal (e.g. preliminary proposed proportioning or asphalt mix design). In addition, the Contractor must identify any material or mix design lead times that affect the critical path schedule and identify the required date for approval of that item in order to maintain the schedule.

1.8 GOVERNMENT-FURNISHED MATERIAL AND EQUIPMENT

Pursuant to Contract Clause FAR 52.245-1 Government Property, the Government will furnish the following materials and equipment for installation by the Contractor:

DESIGNATION NO.	DESCRIPTION	QUANTITY
[_____]	[_____]	[_____]

Quantities indicated for the above-listed items marked with an asterisk are estimates. It is the intention of the Government to furnish all quantities of the asterisk items required to complete the work as specified, and the various quantities will be adjusted when necessary. Quantities stated for the above items not marked with an asterisk are all that will be furnished by the Government. Provide any additional quantities that are required.

1.8.1 Delivery Schedule

[Notify the Contracting Officer in writing at least [_____] calendar days in advance of the date on which the materials and equipment are required. Pick up materials and equipment no later than 30 calendar days after such date. When materials and equipment are not picked up by the 30th day, the Contractor will be charged for storage at the rate of [_____] per [45 kg][3 cubic meters] per month or fraction thereof.

[[Materials and equipment will be available on or after [_____] calendar days

after the award of contract.

1.8.2 Delivery Location

The materials and equipment [are located at [____]] [are located within [__] miles of the jobsite] [will be delivered to [____]][the salvage receiving point [____]].

1.9 GOVERNMENT-

INSTALLED WORK [_____].

1.10 SALVAGE MATERIAL AND EQUIPMENT

Items designated by the Contracting Officer to be salvaged remain the property of the Government. Segregate, itemize, deliver and off-load the salvaged property at the [Government designated] storage area located within [_____] kilometers of the construction site.

1.11 EXISTING CONDITIONS RECORD

The Contractor shall prepare a record of existing conditions and review of the contract specifications and drawings in order to comply with FAR 52.236-2 "Differing Site Conditions" and FAR 52.236-21 "Specifications and Drawings for Construction". The record shall consist of photographs, written descriptions and any other methods needed to document the existing conditions.

The Contractor shall prepare digital photo documentation, including site(s) and building(s) under construction, field activities, and sample locations if applicable. Digital photos will be submitted using a minimum 5 mega pixel camera in JPEG format. The Contractor shall provide an index for each set of photographs submitted, identifying the base or facility, project number, Contractor, and a brief description. Photography of any kind must be coordinated through the installation, customer, or facility point of contact. Photo documentation must continue throughout construction.

1.12 SITE ACCESS SUPPORTING DOCUMENTATION

If not already specified in the contract, the Contractor shall submit supporting documentation as necessary for site access. This includes local policy for background check information, security badging requirements or other local requirements.

1.13 POINTS OF CONTACT

The airfield pavement specifications require an extensive team of contractors, subcontractors, suppliers, quarries, testing agencies, and quality control personnel. The Contractor shall provide and maintain throughout the contract a point of contact list that identifies each company name, location, point of contact person, email and phone number.

Article II. PART 2 PRODUCTS

Not used.

Article III. PART 3 EXECUTION

Not used.

-- End of Section --

C-2.3 CONSTRUCTION DESIGN-BUILD.

Section 01 33 16.00 10 Design Data (Design After Award) template to be included in DB contracts.

SECTION 01 33 16.00 10 DESIGN DATA (DESIGN AFTER AWARD)

PART 1 GENERAL

1.1 SUMMARY

After award, develop the accepted proposal into the completed design, as described herein. Use a collaborative, integrated design process for all stages of project delivery with comprehensive performance goals for site development, material selection, and waste diversion. Ensure incorporation of these goals in project delivery.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

(1) INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO)

ISO 19005-3 (2012) Document Management -- Electronic Document File Format for Long-Term Preservation -- Part 3: Use of ISO 32000-1 with Support for Embedded Files (PDF/A-3)

ISO 19115-1 (2014) Geographic Information -- Metadata -- Part 1: Fundamentals

ISO 32000-1 (2008) Document Management -- Portable Document Format -- Part 1: PDF 1.7

(2) NATIONAL INSTITUTE OF BUILDING SCIENCES (NIBS)

NBIMS-US (V3) National BIM Standard - United States

NCS (V6) United States National CAD Standard

(3) U.S. ARMY CORPS OF ENGINEERS (USACE)

EM 1110-1-2909 (2012) Engineering and Design -- Geospatial Data and Systems

ERDC/ITL TR-19-6 (2019) A/E/C Graphics Standard, Release 2.1

ERDC/ITL TR-19-7 (2019) A/E/C CAD Standard - Release 6.1

(4) U.S. DEPARTMENT OF DEFENSE (DOD)

UFC 1-300-02 (2014; with Change 3, 2021) Unified Facilities Guide Specifications (UFGS) Format Standard

1.3 DEFINITIONS

1.3.1 Designer of Record (DOR)

Professional Registered members of the Contractor's Design-Build team that check, approve, sign, date, and certify, prior to submitting the deliverables to the Government, that the D-B design submittals comply with the contract requirements.

The DOR's stamp, sign, and date each design drawing and other design deliverables under their responsible discipline at each design submittal stage. The DOR(s) are responsible for maintaining the integrity of the design and for compliance with the contract requirements through construction and documentation of the as-built condition by coordination, review and approval of extensions of design, material, equipment and other construction submittals, review and approval or disapproval of requested deviations to the accepted design or to the contract, coordination with the Government of the above activities, and by performing other typical professional design responsibilities.

1.3.2 Government Furnished Material (GFM)

Government material that may be incorporated into, or attached to, an end item to be delivered under a contract or which may be consumed in the performance of a contract. It includes, but is not limited to, raw and processed material, parts, components, assemblies, and small tools and supplies.

1.4 ORDER OF PRECEDENCE

In the event of a conflict or inconsistency between any of the requirements within the Contract, precedence is applied:

- a. Any portions of the accepted proposal which both conform to and exceed the requirements of the solicitation.
- b. The provisions of the solicitation.
- c. All other provisions of the accepted proposal.
- d. Any design products including, but not limited to, plans, specifications, engineering studies and analyses, shop drawings, and equipment installation drawings. These are "deliverables" under the contract are not part of the contract itself. Design products must conform to all provisions of the contract, in the order of precedence.

1.5 PRECONSTRUCTION ACTIVITIES

1.5.1 Design Quality Control Plan

Submit a Design Quality Control Plan in accordance with Section 01 45 00.00 10 QUALITY CONTROL before design may proceed.

1.5.2 Meetings and Conferences

1.5.2.1 Post Award Conference

The Government will conduct a post award conference [at the project site] [_____], as soon as possible after Contract award, coordinated with

issuance of the notice to proceed (NTP). Participation by the Contractor and major subcontractor representatives is mandatory. All designers need not attend this first meeting. The government will provide an agenda, meeting goals, meeting place, and meeting time to participants prior to the meeting.

As a minimum the following will be addressed during the conference: determination and introduction of contact person and their authorities; contract administration requirements; discussion of expected project progress processes; and coordination of subsequent meeting.

- a. The government will introduce the Government project delivery team members, facility users, facility command representatives, and installation representatives.
- b. Introduce key personal, major subcontractors and other needed staff.
- c. Define expectations and duties of each participant.
- d. Develop a meeting roster with complete contact information including name, office, project role, phone, mailing and physical address, and e-mail address for distribution to all participants. Also, provide minutes of the meeting to all participants.

1.5.2.2 Initial Design Conference

After Contract award, conduct the initial design conference, and provide a record of the meeting. All Designers of Record must participate in the conference. The primary purpose of the meeting is to make sure any needs are assigned and due dates established, as well as points of contact identified. The initial design conference may be scheduled and conducted at the project installation after the Post Award Conference and prior to initiation of significant preliminary design development, although it is recommended that the partnering process be initiated at the time of or before the initial design conference. Limit any design work conducted after award and prior to this conference to site work.

1.5.2.3 Pre-Construction Conference

Before starting any construction activities, jointly conduct an administrative conference with the Government to discuss any outstanding requirements and to review local installation requirements. It is possible there will be multiple Pre-Construction Conferences based on the configuration of the design packages. Provide minutes of the meeting(s) to all participants.

1.6 SUBMITTALS

Each submittal includes an associated approval level designation as defined in the following table:

Approval Level Designation	Definition
G	Government approval
no designation	for information only

Approval Level Designation	Definition
D	Designer of Record approval
C	Government Conformance Review of Design
R	Designer of Record Approval and Government Conformance Review
A	Designer of Record Approval and Government Approval

When used, a designation following the approval level designation identifies the office that will review the submittal for the Government. Submit the following in accordance with Section 01 33 00 SUBMITTAL PROCEDURES:

SD-01 Preconstruction Submittals

Design Quality Control Plan; G[, [_____]]

Initial Design Conference

Preconstruction Conference DCM

Procedures; G[, [_____]]

Submittal Register; G[, [_____]]

SD-05 Design Data

Design and Code Checklists; C[, [_____]]

Interim Design Submittals; R[, [_____]]

Conference Documentation

Final Design Submittals; R[, [_____]]

Design Complete Documents; C[, [_____]]

SD-11 Closeout Submittals

DD Form 1354; A[, [_____]]

1.7 DESIGN QUALITY CONTROL

1.7.1 Design And Code Checklists

Develop and utilize appropriate discipline-specific checklists during the design and quality control of each submittal. Submit these completed checklists with each design submittal, as applicable, as part of the project documentation.

1.8 DELIVERY, STORAGE, AND HANDLING

Each delivery shall have a transmittal letter accompanying it indicating the date, design percentage, type of submittal, list of items submitted, transmittal number, and point of contact with telephone number.

1.8.1 Electronic Design Submittal

Provide identical copies of discs for approval, for each submittal required. Provide quantities and sizes indicated in the distribution list at the end of this specification section. Provide submittal files on electronic storage media in compliance with the quality requirements identified in this specification.

1.8.1.1 Malicious Content

Scan all electronic files for malicious viruses using commercially available scanning program that is routinely updated to identify and remove current virus threats.

1.8.1.2 Storage Media

Provide project data on disc-based (DVD±R/RW) media. Provide the full submittal on one single disc whenever possible. When separation of the submittal is required separate deliverables onto separate media. Document any media divisions for approval by the Contracting Officer.

- a. Directly print identification of contents onto storage media. Do not provide adhesived labels. Include the name of the submittal, project, project location, Contract number, Designer of Record firm/Prime Contractor company's name, title of submission, and security classification (in accordance with the applicable security classification labeling regulations) on the label. If multiple discs are provided, clearly document the contents of each disc on the label.
- b. Include the name and contact information of the individual who produced the final data disc to ensure that any problems with the data or media can be easily resolved.
- c. When browsed on any computer, the disc displays the following folders and their associated content:
 - (1) Submittal files (containing all submittal data)
 - (2) All supporting documents associated with the submittal
 - (3) Readme containing one TXT, PDF, or HTML file with general use information, organizational instructions, and basic preparer contact information.

1.8.2 PDF File Packaging

Utilize PDF file format in accordance with ISO 32000-1 and ISO 19005-3. Provide files from original sources, text-searchable, and saved in "Standard" (uncompressed) resolution whenever possible.

1.8.2.1 Bookmarking

- a. Bookmark drawing submittal PDF sets to include one Parent Bookmark per

Discipline and one Child Bookmark per sheet within each Discipline. Format Parent Bookmarks as "Discipline" (e.g. Architectural). Format Child Bookmarks as "Sheet ID Sheet Title" (e.g. A-101 First Floor Plan).

- b. Bookmark specification submittal PDF sets using the SpecsIntact Print Processing PDF Print/Publish feature, combining processed sections into one PDF document. Insert the Submittal Register into the file where specified by Section 01 33 00 SUBMITTAL PROCEDURES and bookmark.
- c. Bookmark design analysis and calculation submittal PDF sets to include one Parent Bookmark per design analysis section and one Child Bookmark per major paragraph per section. Format Parent Bookmarks as "Section" (e.g. Architectural). Format Child Bookmarks as "major paragraph designation Sheet Title" (e.g. 2.1 Primary Facility Functions).

1.8.3 Encryption

Encrypt deliverable data as directed by the Contracting Officer.

1.8.4 Hardcopy Design Submittal

Print hard copy submittals directly from the electronically packaged PDF files. Provide quantities and sizes as indicated in the distribution list at the end of this specification section.

The Designer(s) of Record stamps and signs the original full size hard copy sheets as Released For Construction. Provide distribution from this set.

(5) PART 2 PRODUCTS

2.1 GOVERNMENT FURNISHED MATERIALS

2.1.1 GFM Handover

[The Government will provide the GFM at [Contract Award][the Design Kick-Off Meeting] .][The GFM has been provided as part of the Solicitation package.]

2.1.2 GFM File Formats

GFM are provided in the following file formats:

2.1.2.1 Government Furnished CIM

The GFM includes [Autodesk Civil3D, Version [_____]] [Bentley Systems MicroStation InRoads, Version [_____]].

2.1.2.2 Government Furnished CAD

The GFM includes [Autodesk AutoCAD, Version [_____]][and] [Bentley Systems MicroStation, Version [_____]][_____].

2.1.3 Data Loss, Corruption, and Error

Use of GFM files is at the Contractor's risk. Verify data integrity upon receipt and request a replacement if necessary.

Any adjustment of file structure, format, or software version required to make GFM compatible with computer systems and/or software is the responsibility of the Contractor.

2.2 DESIGN DRAWINGS

Produce design drawings that describe the scope of the Contract for all required submittals including all interim and final deliverables.

2.2.1 Electronic Drawing Files

Provide electronic drawing files in PDF format for each project drawing in the design set.

2.2.2 Drawing Index

Provide an index of drawings sheet as part of the drawing set, and an electronic table of all drawings submitted. Include the electronic file name, the sheet reference number, the sheet number, and the sheet title containing the data for each drawing.

2.2.3 Shop Drawings Used as Design Drawings

Design drawings may be prepared similar to shop drawings to minimize construction submittals after the Design Complete Submittals. Prepare and submit with the design drawings, appropriate connection, fabrication, layout, and product specific drawings.

2.2.3.1 Drawing Format For Shop Drawings Used as Design Drawings

Use the Contractor-originated drawings as the basis for the record drawings. Conform shop drawings included as design documents with the same drawing requirements such as drawing format, sheet size, layering, lettering, and title block used in design drawings.

2.2.3.2 Identification of Shop Drawings Used as Design Drawings

Indicate which shop drawings are being submitted as design drawings in the transmittal letter.

2.2.4 Seal on Documents

Sign, date and seal all Contractor-originated design drawings by the registered architect or the registered engineer of the respective discipline. This is the seal of the Designer of Record for that drawing. Application of the electronic seal and signature accepts responsibility for the work shown thereon.

2.3 SPECIFICATIONS

Provide a design specification that, in conjunction with the drawings, demonstrates compliance with materials, equipment, execution, and field quality control requirements of the RFP and accepted proposal.

2.3.1 Specifications Format

Utilize the Unified Facility Guide Specifications (UFGS) current at the

time of Contract award. Process the specifications with the SpecsIntact software package.

- a. Edit and expand the appropriate specifications to ensure that all project design requirements, current code requirements, and regulatory requirements are met. Where UFGS do not include a specification for a particular feature of work, a Federal Aviation Administration specification may be substituted. If neither a USGS nor FAA specification is available for a particular feature of work, the Contractor may use specifications from other agencies or sources, or provide custom-written specifications. Design specifications may be prepared that include manufacturer specific data and catalog cuts in addition to non-proprietary, descriptive specifications. Clearly identify, where appropriate, specific products chosen to meet the contract requirements (i.e., manufacturers' brand names and model numbers or similar product information).
- b. UFGS must be edited only as directed in the specification notes and instructions, where choice options allow, and where features of work are added or deleted. A minimum quality standard for the project shall be maintained by only selecting among the choices for quantity and quality that are presented in the applicable UFGS, unless specifically indicated otherwise. The UFGS will require editing of the approval authority to apply to a design-build project. They assume that the Government will approve most submittals, whereas in design-build, the DOR has that action, unless this solicitation requires Government approval for specific submittals.
- c. Organize project sections not based on UFGS in accordance with CSI MasterFormat and UFC 1-300-02.

2.3.2 Identification of Manufacturer's Product Data Used as Specifications.

Provide complete and legible catalog cut sheets, product data, installation instructions, operation and maintenance instructions, warranty, and certifications for products and equipment for which final material and equipment choices have been made. Indicate, by prominent notation, each product that is being submitted including optional manufacturer's features, and indicate where the product data shows compliance with the Contract requirements.

2.3.3 Specifications Packaging

Provide specifications to include the following:

- a. Cover sheet and project table of contents.
- b. Specification sections, each section with a table of contents.
- c. Manufacturer's Product Data. If providing as attachments to the applicable specification section, incorporate as attachment reference within the section and section table of contents.

2.3.4 Specification Deliverable

Submit a bundled specification package in PDF format for each design package. As a minimum, bookmark each specification section in the bundled

package. Also, submit the source files, in the processing system format, used to create the PDF.

2.4 DESIGN ANALYSIS

Prepare, organize, and present a design analysis that will document the general parameters, functional and technical requirements, design objectives, design assumptions, and provides design calculations applicable to a project's design. Organize the design analysis into three parts; Part 1 - General Description; Part 2 - Design Requirements and Provisions; and Part 3 - O&M Provisions.

The design analysis states the purpose, authorization, applicable criteria and the project description for the project, and provides a summary of the factors influencing the choice of the civil, pavement, environmental, architectural, structural, mechanical, electrical, communications, fire protection, physical security systems, HTRW, and sustainable design features used in the project along with an indication of how the initial costs and life cycle costs were factored into final selections. In the final design analysis clearly and succinctly include:

- a. An introductory description of the project concepts that addresses the salient points of the design
- b. An orderly and comprehensive documentation of criteria and rationale for system selection, supported by life cycle cost analysis.
- c. The identification of any necessary licenses and permits that are anticipated to be required as a part of the design and/or construction process.
- d. Identify all applicable codes and criteria and highlight specific requirements within these codes and criteria for critical issues in the facility design.
- e. Required calculations as specified and as needed to support the design.

2.4.1 Design Requirements and Provisions

Include subparts for each major design discipline and basic project design requirements for each discipline that justify and validate design decisions to include, but not limited to: life cycle cost effectiveness, [_____]

2.4.1.1 Civil

Include soil analysis and survey data, site design, site improvements, planting and landscaping, paving, grading and drainage, water, soil treatment, contaminant containment, utilities systems analysis and design, and provisions for airfields.

2.4.1.2 Environmental

Include an impact assessment checklist covering air, water and noise effects from the project and construction; worker health and safety; HTRW remediation cleanup and action levels; transportation and disposal regulation requirements; quality control for chemical sampling/analysis; wetlands determination; special wildlife, plant, and endangered species

considerations; ground water, waterway and floodplain protection assessment; pollution prevention control requirements; and design measures to be implemented (i.e., construction site sediment and erosion control requirements by Federal, state and local governments); and hazardous material management, natural and cultural resources, and environmental permits.

2.4.1.3 Structural

Include foundation, structural analysis and design.

2.4.1.4 Electrical

Include power generation, transmission and distribution systems, lighting, cathodic protection, lightning and static electricity protection systems analysis and design, aviation lighting, and electromagnetic protection

2.4.2 Operations and Maintenance (O&M) Provisions

Identify design provisions made to enhance and to reduce the cost of operating and maintaining the facility when completed. Identify any special safety considerations or occupational health related considerations that may affect operation and maintenance activities as a result of the final design.

2.4.3 Design Analysis Packaging

2.4.3.1 Assembly and Identification

Assemble design analysis in a single volume with a table of contents if possible. Include a cover page in the basis of design for each discipline indicating the project title and locations, contract number, table of contents, and tabbed separations or bookmarks for quick reference. At a minimum tab or bookmark for each discipline.

2.4.4 Calculations

Place the signature and seal of the designer of record responsible for the work on the cover page of the calculations for the respective design discipline.

(6) PART 3 EXECUTION

3.1 DESIGN SUBMITTALS

Include all deliverable products and associated support documents described in Part 2 of this specification with each design submittal.

3.2 DESIGN SUBMITTALS PHASES

The stages of design submittals described below define requirements with respect to process and content. Determine how to best plan and execute the design and review process for the project, within the parameters listed below. No construction shall begin until the Design Complete has been reviewed and the Government concurs that the design meets the contractual requirements.

3.2.1 Interim Design Submittals

Submit [either] a single interim design for review, representing a complete package with all design disciplines[, or split the interim design into smaller, individual design packages as deemed necessary for fast-track construction purposes]. This is not necessarily a hold point for the design process; the Contractor may designate the interim design submittal(s) as a snapshot and proceed with design development at its own risk.

3.2.1.1 Interim Design Development Management

Maintain a fully functional configuration management system as described herein to track design revisions, regardless of whether or not there is a need for a formal interim design development review.

3.2.1.2 Fast-Tracking

Fast-track construction is [not] permitted by this contract. [The following items are allowed to be fast-tracked:

a. [_____]

Identify the project elements that will be fast-tracked in the Design Quality Control Plan.]

3.2.1.3 Over-the-Shoulder Progress Review

To facilitate a streamlined design-build process, the Government and the Contractor may agree to one-on-one review or small group reviews, on-line, or at the Contractor's design offices or other agreed location, when practicable to the parties. Coordinate such reviews to minimize or eliminate disruptions to the design process. Due to limits on project funding, utilize the maximum virtual teaming methods. Facilitate these reviews with electronic format data transfer and collaboration. Through the partnering process, find ways to facilitate the quality assurance process and to facilitate meeting or bettering the design-build schedule.

3.2.2 Final Design Submissions

After acceptance of the interim design package, revise the design package to incorporate the comments generated and resolved, perform and document a back-check review and submit the final design package.

3.2.3 Design Complete Submittals

After the final design submission and review conference for a design package, revise the design package to incorporate the comments generated and resolved in the final review conferences, perform and document a back-check review and submit the final, design complete documents, which represents released for construction documents.

3.3 DESIGN PLATFORM AND FILE FORMATS

Design the project using the systems and platforms defined below:

3.3.1 CIM

The CIM submittal format is [Bentley Systems InRoads Version [_____]] [Autodesk Civil 3D version [_____]]. Provide the CIM submittals as fully operable, compatible, and editable within the native CIM tools.

3.3.2 CAD

3.3.2.1 Native CAD Authoring Content

All content produced through CAD authoring software outside of any object/element based CIM platform must be compliant with ERDC/ITL TR-19-6 and ERDC/ITL TR-19-7. [Bentley MicroStation Seed Files [Most recent version at the time of Contract award].] [Autodesk AutoCAD Template Files [Most recent version at the time of Contract award].] Download from the CAD Technology Center website as part of the A/E/C Work Structure.

3.3.2.2 CAD Extracted From CIM Authoring Platforms

Provide editable CAD sheet files extracted from the CIM files. CAD content exported from a CIM modeling platform must comply with ERDC/ITL TR-19-6 and NCS BIM Implementation section, part "2.0 Clarifications."

3.4 ADVANCED MODELING REQUIREMENTS

3.4.1 CIM Modeling Requirements

3.4.1.1 Graphics and Layer Standards

- a. All content produced with object/element based CIM authoring software platforms must be compliant with ERDC/ITL TR-19-6.
- b. All content produced with layer-centric CIM authoring software must be compliant with ERDC/ITL TR-19-7 and ERDC/ITL TR-19-6.

3.4.1.2 CIM Coordinate System

- a. Coordinate System: [Geographic] [State Plane] [UTM] [_____]
- b. Zone (for State Plane or UTM): [_____]
- c. Horizontal Units of Measure: Meters
- d. Vertical Units of Measure: Meters
- e. Horizontal Datum: [NAD 83/2011] [_____]
- f. Vertical Datum: [NAVD 88] [_____]

3.4.1.3 Details and Enlarged Sections

Comply with the NCS BIM Implementation section, part "3.2 Model Coordination and Delivery." Derive all details and enlarged sections necessary for construction from the Model when possible. For those details and enlarged sections not derived directly from the Model, verify that geometry and data depicting the details and enlarged sections are consistent with Model elements. Details with significant drafted content such as 'standard' and 'typical' details cannot contradict the model and must utilize the model as an underlay when possible for the purposes of

verification and coordination. Three dimensional, isometric, and section isometric details derived from the model are preferred.

3.4.1.4 Drawing Indices

Comply with the NCS BIM Implementation section, part "2.3 Sheet Organization." Where CIM authoring platform supports it, derive drawing indices from a model-driven schedule.

3.4.2 CAD

All content produced through layer-centric CAD authoring software outside of any object/element based CIM platform must be compliant with ERDC/ITL TR-19-7 and ERDC/ITL TR-19-6.

Bentley MicroStation Seed Files, most recent version at the time of Contract award. Autodesk AutoCAD Template Files, most recent version at the time of Contract award.

3.5 DESIGN CONFIGURATION MANAGEMENT (DCM)

3.5.1 Procedures

Develop and maintain effective, DCM procedures to control and track all revisions to the design documents subsequent to the Interim Design Submission and continuing through submission of the As-Built documents. After the final design is accepted, this process provides control of and documents revisions to the accepted design (See Special Contract Requirement: Deviating From the Accepted Design). Submit the DCM procedures within the Design Quality Control Plan.

- a. Include authorities and concurrences in the DCM system to authorize revisions, including documentation as to why the revision is required.
- b. An internal system may be used with interactive Government concurrences or the Government's "Dr Checks Design Review and Checking System" may be used.
- c. Make the DCM data available to the Government reviewers at all times.

3.5.2 Written Records

The Contractor shall prepare a written record of each design site visit, meeting, or conference, either telephonic or personal, and furnish the record within [two] [_____] working days to the Contracting Officer and all parties involved. The written record shall include subject, names of participants, outline of discussion, and recommendation or conclusions. The written records shall be numbered in consecutive order.

3.5.3 Design Needs List

Throughout the life of this contract, the Contractor shall furnish the Contracting Officer a bi-weekly "needs" list for design-related items. This list shall itemize design data required by the Contractor to advance the design in a timely manner. Each list shall include a sequence number, description of action item, name of the individual or agency responsible for satisfying the action item, and remarks. Once a request for information

is initiated, that item shall remain on the list until the requested information has been furnished or otherwise resolved.

3.5.4 Tracking Design Review Comments

Although an internal system for overall design configuration management is allowed, use the DrChecks Design Review and Checking System to initiate, respond to, resolve and track Government design review comments.

The Government will set up the project in DrChecks. Throughout the design process parties enter, track, and back-check comments using the DrChecks system. Designers of Record annotate comments timely and specifically to indicate exactly the action to be taken or why the action is not required. After the design review conference and prior to the next design submittal for the package, the DORs annotate those comments that require DOR action or design revision to show how and where it has been addressed in the design documents. These procedures are part of the required design configuration management plan. Flag comments considered critical by the conference participants.

3.5.4.1 DrChecks Initial Account Set-Up

Identify a contact person within the office to act as the administrator for all Contractor personnel, including subcontractors, that will be accessing the PROJNET Dr Checks system. Through the Contracting Officer, coordinate with the Project Manager and the District PROJNET administrator for system access, system instruction and comment process instructions.

PROJNET contains an introductory file and other tutorial material that can be accessed once user accounts have been established. Upon log in, select Portals/User Documentation.

3.5.4.2 DrChecks Review Comments

Annotate and resolve all comments prior to the next submittal. Include the DrChecks comments and responses in the design analysis for record in the next design submittal for the package.

- a. Upon review of comments prior to the design review conference, the DOR(s) evaluate the comments. Include exactly what action will be taken or why action is not required.
- b. After the review conference, the DOR(s) formally respond to each applicable comment in DrChecks a second time, prior to the next submittal, clearly indicating what action was taken and what drawing/spec/analysis changed. Designers of Record are encouraged to directly contact reviewers to discuss and agree to the formal comment responses rather than relying only on DrChecks and review meetings to discuss comments. With the next design submittal, reviewers will back-check answers to the comments against the new submittal, in addition to reviewing additional design work.
- c. Clearly annotate in DrChecks those comments that require effort outside the requirements of the contract. Do not proceed with work outside the contract until a modification to the contract is properly executed.

3.6 DISCIPLINE DESIGN REQUIREMENTS

Provide interim design deliverables that include drawings, specifications, and design analysis for the part of design that the Contractor considers ready for review.

- a. Drawings: Include comments from any previous design conferences incorporated into the documents to provide an interim design for the feature of work submitted.
- b. Specifications: Provide specifications to ensure that all project design features are addressed, meeting current code requirements, and regulatory requirements. Use the track changes feature (redlines) to facilitate review of additions and deletions.
- c. Design Analysis: Prepare and present design analysis under the authority of the DOR, with calculations necessary to substantiate and support all design documents submitted. Address design substantiation required by the applicable codes and references.

3.6.1 Geotechnical Investigations and Reports

Submit a final geotechnical evaluation report, prepared by the licensed geotechnical engineer, along with the first foundation design submittal. Make this information available as early as possible during the over-the-shoulder progress review process.

- a. Summarize the subsurface conditions and provide recommendations for the design of appropriate utilities, foundations, floor slabs, retaining walls, embankments, and pavements.
- b. Include compaction requirements for fill and backfill under pavements, buildings, other structures and open areas.
- c. Recommend foundation systems to be used, allowable bearing pressures for footings, lateral load resistance capacities for foundation systems, elevations for footings, grade beams, slabs, etc.
- d. Provide an assessment of post-construction settlement potential including total and differential.
- e. Provide recommendations regarding lateral earth pressures (active, at-rest, passive) to be used in the design of retaining walls. Include the recommended spectral accelerations and Site Class for seismic design along with an evaluation of any seismic hazards and recommendations for mitigation, if required.
- f. Include calculations to support the recommendations for bearing capacity, settlement, and pavement sections.
- g. Include supporting documentation for all recommended design parameters such as Site Class, shear strength, earth pressure coefficients, friction factors, subgrade modulus, California Bearing Ratio (CBR).
- h. Provide earthwork recommendations, expected frost penetration, expected groundwater levels, recommendations for dewatering and groundwater control and the possible presence of any surface or subsurface features that may affect the construction of the project such as sinkholes, boulders, shallow rock, old fill, old structures, soft areas, or

unusual soil conditions.

- i. Include pH tests, salinity tests, resistivity measurements, etc., required to design corrosion control and grounding systems.
- j. Include the raw field data.

3.6.1.1 Inconsistency with the Preliminary Soils Information

Arrange a meeting with the Government subsequent to completion and evaluation of the site specific geotechnical exploration to outline any differences encountered that are inconsistent with the Government provided preliminary soils information. Clearly outline differences which require changes in the foundation type, or pavement and earthwork requirements from that possible and contemplated using the Government furnished preliminary soils investigation, which result in a change to the design or construction.

3.6.1.2 Airfield Pavements

Provide flexible and rigid pavement designs, as applicable for the project, including design CBR and modulus of subgrade reaction and the required compaction effort for subgrades and pavement layers. Also, provide information on the types of base course materials available in the area and design strengths. Design pavements using the PCASE pavement design program that can be obtained at <https://transportation.erd.c.dren.mil/pcase/>.

3.6.1.3 Certification

With the professional geotechnical engineer consultant, certify in writing that the design of the project has been developed consistent with the Contractor's final geotechnical report. Submit the certification, stamped by the consulting professional geotechnical engineer, with the first design submission. If revisions are made to the initial design submission, provide a new certification with the final design submission.

3.6.2 Civil Site and Utilities Design Contents

Include the following in the interim design for the site and utilities. This list is not intended to limit the contractor from providing different or additional information as needed to support the design presented.

- a. Storm drainage design
- b. Subsurface drainage design
- c. Pavement design in coordination with the geotechnical investigation report.
- d. Location and vicinity maps
- e. Removal and/or relocation plan
- f. Layout plan
- g. Grading and drainage plan
- h. Utility Plan: Identify and locate water lines, sanitary

sewer lines, force mains, industrial waste lines, and other subsurface utility features

- i. Airfield, road, and parking area profiles
- j. Utility Profiles: Indicate invert elevations of all drainage structures, manholes, storm drainpipe with size and invert elevations, ground profile, and new or existing structures or utilities crossing the new utilities.
- k. Civil details sheet
- l. Concrete Joint Plan: Provide a joint layout plan for all concrete pavements
- m. Erosion and Sediment Control Plan
- n. Lawn and landscaping irrigation system
- o. Landscape, planting and turfing
- p. Site specific civil calculations

3.6.3 Structural Systems

3.6.3.1 General

- a. Identify all loads to be used for design.
- b. Describe the method of providing lateral stability for the structural system. Include sufficient calculations to verify the adequacy of the method.
- c. Calculations for all principal roof, floor, and foundation members.
- d. Foundation plan showing main foundation elements where applicable.
- e. Typical sections for foundation conditions.
- f. Identify the program name, source, and version used for computer generated calculations. Provide input data, including loads, loading diagrams, node diagrams, and documentation to illustrate the design. On the schematic models used for input, show, as a minimum, nodes/joints, element/members, materials/properties, and all loadings; induced settlements/deflections; and a list of load combinations.

Include an output listing for maximum and minimum stresses, forces, and deflections for each element, and the reactions for each loading case and combination.

3.6.4 Electrical Systems

3.6.4.1 Design Analysis

Include lighting calculations to determine maintained foot-candle levels, electrical load analysis and calculations, electrical short circuit and protective device coordination analysis and calculations and arc fault calculations.

3.6.4.2 Site Plan

On the site plans show all principle features which will affect the electrical design. Also show the following on the plans:

- (1) Electrical legend and applicable notes
- (2) Lighting fixtures, properly identified
- (3) Location and designation of panelboards. Plans should clearly indicate type of mounting required (flush or surface) and be reflected accordingly in specifications.
- (4) Service entrance (conduit and main disconnect)
- (5) Location, designation and rating of motors and/or equipment which requires electrical service. Show method of termination and/or connection to motors and/or equipment. Show necessary junction boxes, disconnects, controllers (approximate only), conduit stubs, and receptacles required to serve the motor and/or equipment.

3.6.4.3 Load Center Panelboard Schedule(s)

Indicate the following information in the schedule(s):

- (1) Panelboard Characteristics (Panel Designation, Voltage, Phase, Wires, Main Breaker Rating and Mounting)
- (2) Branch Circuit Designations
- (3) Load Designations
- (4) Circuit Breaker Characteristics (Number of Poles, Trip Rating, AIC Rating)
- (5) Branch Circuit Connected Loads (AMPS)
- (6) Special Features

3.6.4.4 Lighting Fixture Schedule

Indicate the following information in the schedule:

- (7) Fixture Designation
- (8) General Fixture Description
- (9) Number and Type of Lamp(s)
- (10) Type of Mounting
- (11) Special Features

3.6.4.5 Details

Provide construction details, sections, elevations only where required for clarification of methods and materials of design.

3.7 INTERIM DESIGN REQUIREMENTS

At least one interim design submittal, review and review conference is required for each design package (except that the Contractor may, upon Government approval, skip the interim design submission and proceed directly to final design of the sitework and utilities package). Additional interim design conferences or over-the-shoulder reviews may be scheduled, as needed, to assure continued Government concurrence with the design work. Include the interim submittal review periods and conferences in the Section 01 32 01.00 10 PROJECT SCHEDULE and indicate in periodic schedule updates what part of the design work is at what percentage of completion. See also paragraph INTERIM DESIGN DEVELOPMENT REVIEW WAIVER

for a waiver to the formal interim design review.

3.7.1 Submission Review

After receipt of an Interim Design submission, the Government requires [14] [_____] calendar days after receipt of the submission to review and comment on the interim design submittal. For smaller design packages, especially those that involve only one or a few separate design disciplines, the parties may agree on a shorter review period or alternative review methods (e.g., over-the-shoulder or electronic file sharing), through the partnering process.

- a. For each interim design review submittal, the Contracting Officer will furnish a single consolidated, validated set of comments from the various design sections and from other concerned agencies involved in the review process using the DrChecks Design Review and Checking System. The review will be for conformance with the technical requirements of the Contract.
- b. The Government reserves the right to reject design document submittals if comments are deemed significant.
- c. Furnish disposition of all comments, in writing, through DrChecks. If there are technical disagreements with any comments, clearly outline, with justification, the reasons for disagreement and noncompliance within five calendar days after receipt of these comments.
- d. The Contractor is cautioned that if it believes the action required by any comment exceeds the requirements of this contract, that it should take no action and notify the Contracting Officer in writing immediately.

3.7.2 Interim Review Conference

Hold an Interim Review conference for each design submittal at either the installation or as agreed upon as part of the partnering process. Attendees include, at a minimum, the DOR(s) involved in development of the design submittal. Schedule the conference to take place the week after the receipt of the comments. Notify the Contracting Officer of any comments that with concurrence would require further design development.

For smaller fast-track packages that involve only a few reviewers, the parties may agree to alternative conferencing methods, such as teleconferencing, or televideo, where available, as determined through Partnering.

3.7.3 Conference Documentation

3.7.3.1 Minutes and Comment Process

Provide meeting minutes within [two] [_____] work days after the conference adjourns, and enter final resolution of all comments into DrChecks. Include copies of comments, annotated with comment action agreed on, with the minutes.

- a. Resolve issues remaining open after the conference adjourns by immediate follow-on action to close the issue within 30 calendar days.

- b. Incorporate comments as agreed upon during the conference.

3.7.3.2 Availability

In order to facilitate the Government code and contract conformance reviews, identify, track resolution of, and maintain all comments and action items generated during the design review process. Make this available to the designers and reviewers prior to the subsequent design reviews.

3.8 FINAL DESIGN REQUIREMENTS

Provide final design submittals that consist of 100 percent complete drawings, specifications, submittal register, design analyses for Government review and acceptance.

- a. Include any permits required by the contract for each package submitted.
- b. In order to expedite the final design review, prior to the conference, ensure that the design configuration management data and all review comment resolutions are up-to-date.
- c. Perform independent technical reviews and back-checks of previous comment resolutions, as required by Section 01 45 00.00 10 QUALITY CONTROL.

3.8.1 Design Drawings

Submit drawings complete with all contract requirements incorporated into the documents to provide a 100 percent design for each package submitted. In addition to all native Advanced Modeling files, provide separate electronic files in a PDF format.

3.8.1.1 Geo-Referenced Data

Capture geo-referenced coordinates of all changes that will be made to the existing site (facility footprint, utility line installations and alterations, roads, parking areas, etc) as a result of this contract.

Close-out requirements at the as-built stage, require final geo-referenced GIS Database of the new facility along with all exterior modifications. The Government will incorporate this data set into the Installation's GIS Masterplan or Enterprise GIS System. See also, Section 01 78 00 CLOSEOUT SUBMITTALS.

3.8.2 Design Analysis

Provide a design analysis with calculations necessary to validate and support all design work submitted. Expand and advance calculations and information presented in the interim design stage to the current level of design. The responsible DOR(s) stamp, sign and date the design analysis.

3.8.3 Specifications

Provide specifications 100 percent complete and in final form.

3.8.4 Submittal Register

Provide an updated, cumulative submittal register with each design package that identifies the design and construction submittals required by that design package. Proper tagging of SpecsIntact prepared specifications allows this form to be generated at printing. If custom-written specifications are developed that are not in SpecsIntact, the submittal register for those sections must match the SpecsIntact generated form in format and columns (quantities and designations). The Contractor shall be responsible for listing all required construction submittals necessary to ensure that the project requirements are complied with. The Register shall identify submittal items such as shop drawings, manufacturer's literature, certificates of compliance, material samples, guarantees, and test results that the Contractor shall submit for review.

3.8.5 Preparation of DD Form 1354 (Transfer of Real Property)

This form itemizes the types, quantities and costs of various equipment and systems that comprise the project, for the purpose of transferring the new construction project from the Corps Construction Division to the Installation's inventory of real property. The Government will furnish the Contractor's design manager a DD Form 1354 checklist to use to produce a draft Form 1354. Submit the completed checklist and prepared draft Form DD 1354 with the 100 percent design. The Government will use these documents to complete interim and final DD 1354s for turnover of a portion or all of the construction project.

3.9 DESIGN COMPLETE CONSTRUCTION DOCUMENT REQUIREMENTS

After the Final Design Submission and Review Conference, revise the design documents for the design package to incorporate the comments generated and resolved in the final review conference. Perform and document a back-check review and submit the final, design complete documents. The deliverable includes all documentation and supporting design analysis in final form, as well as the final review comments, disposition and the back-check. As part of the quality assurance process, the Government may perform a review of the released for construction documentation. Promptly correct any errors or omissions found during the Government review.

3.10 ACCEPTANCE AND RELEASE FOR CONSTRUCTION

After acceptance of the Design Complete Construction Document(s) the Contracting Officer will allow construction to start for that design package.

Government review and acceptance of design submittals is for contract conformance only and does not relieve the Contractor from responsibility to fully adhere to the requirements of the contract, including the Contractor's accepted proposal, or limit the Contractor's responsibility of design as prescribed under Special Contract Requirement: "Responsibility of the Contractor for Design" or limit the Government's rights under the terms of the contract. The Government reserves the right to rescind inadvertent acceptance of design submittals containing contract deviations not separately and expressly identified in the submittal for Government consideration and approval.

3.11 SUBMITTAL DISTRIBUTION LIST

Provide design submittals to the following:

Government Agency Point of Contact Address	Interim Design	Final Design	Design Complete
[] [] []	ES: [] HS: []	ES: [] HS: []	ES: [] HS: []
[] [] []	ES: [] HS: []	ES: [] HS: []	ES: [] HS: []
[] [] []	ES: [] HS: []	ES: [] HS: []	ES: [] HS: []

Note: ES is Electronic Design Submittal and HS is Hardcopy Design Submittal.

-- End of Section --

C-2.4 MARKING APPLICATION, RUBBER AND PAINT REMOVAL.

Statement of work for construction of airfield marking and rubber removal projects, titled "Airfield Marking Application, Rubber and Paint Removal".

STATEMENT OF WORK

Airfield [Marking Application,] [Rubber] [and] [Paint] Removal

for

**[Project Title]
[Project Location]**

**Contract Number:
[insert contract number]**

**Date Prepared:
[insert date]**

**Prepared by:
[Agency]
[Preparing Office]
[Office Address]**

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51. PROJECT INFORMATION

Contract: [Contract Vehicle, such as “Indefinite Delivery, Indefinite Quantity (IDIQ) Contract”]

Contract No.: [Contract Number]

Project Title: [Project Title]

Project Sponsors: [Customer]

Location: [Project Location]

52. WORK TO BE PERFORMED

Furnish all labor, supervision, materials, tools, and equipment to successfully complete the Task Order (TO) within specifications. Detailed requirements for all activities and products to be completed by the Contractor under this contract are found in this SOW. The Contractor is responsible for determining what disciplines and skill sets are required for accomplishing the work under this SOW and for forming a team accordingly. Accomplish the required services and furnish to the Government reports and other data together with supporting material developed during the period of performance as set forth herein. During the execution of work, provide adequate supervision and quality control to assure the accuracy, quality, timeliness, and completeness of the work.

53. Government POINTS OF CONTACT

a. Primary Points of Contact:

[Name]
Contracting Officer Representative (COR)
Phone: [Work Phone Number]
E-mail: [Government e-mail address]

[Name]
Contracting Officer

Phone: [Work Phone Number]
E-mail: [Government e-mail address]

b. Other Government Stakeholders:
[Name]
Project Manager (PM)
Phone: [Work Phone Number]
E-mail: [Government e-mail address]

54. GENERAL REQUIREMENTS

vvv. Purpose: The purpose of this solicitation is to acquire [Airfield [Rubber] [and] [,]] [[Paint] Removal,][[and]][Striping]] on [*Insert Installation/Base and location*].

www. Contractor Personnel Qualifications: Provide an on-site [QC Manager,] [Site Superintendent,] [or] [Project Manager] at all times while the work is being performed. Ensure the [QC Manager,] [Site Superintendent,] [or] [Project Manager] has at least three years of experience in [rubber] [and/or] [paint] removal] [and] [striping] work. Provide the [QC Manager,] [Site Superintendent,] [or] [Project Manager] contact telephone number to the [Quality Assurance Representative (QAR)] [or] [Contracting Officer's Representative (COR)] [and] [Airfield Management (AM)] prior to the start of work.

xxx. Modifications: Modifications are only issued in compliance with the contract clauses.

yyy. Contract Directives: The [Contracting Officer or the Contracting Officer's Authorized Representative (COR)] [*Insert Agency Specific Contracting Officer Terms*] provides official guidance and instruction that pertains to either the interpretation of this Task Order or the performance of the work. No other military or civilian personnel are authorized to provide direction on the contract scope and schedule.

zzz. Contract Authority: The contract relationship is directly between the [*insert Agency/District issuing contract*] and the Contractor. Immediately notify the contract COR for direction before acting on any request for services that are not within the Statement of Work. Send all correspondence through the COR and PM listed in this SOW.

aaaa. Installation Access: The Contractor is responsible for following all requirements for access onto the installation. The Contractor is responsible for staffing the contract with personnel that meet all requirements for installation access, including all in-house and subcontractor personnel. Replace any person denied access to the installation at no cost to the Government.

bbbb. Site Access: [*Include the access routes in the design documents prior to bidding.*] The access routes to the work zones will be specified at the Airfield Briefing.

- cccc. Working Hours: Airfield work is typically performed during non-flying hours, such as nights, weekends, and holidays. Occasionally, the Contractor is [not] allowed to work during normal flying hours. A work schedule for each TO will be coordinated with AM [prior to bidding and will be further discussed] during the Airfield Briefing.
- dddd. Work Planning and Coordination: Coordinate and plan all phases of the TO with AM and the COR. Complete the coordination process prior to beginning any field work.
- eeee. Vehicle Traffic Plan: Coordinate performance of all work in the controlled zones of the airfield with the Contracting Officer and with the [Flight Operations Officer or Airfield Manager] [control tower]. Neither equipment nor personnel can use any portion of the airfield without approval.
- ffff. Clean Up: Perform a complete cleanup of the work zones and equipment storage areas after the work is complete. Ensure that no broom bristles, stains, trash, or any other debris is left behind in these areas. Dispose of all refuse off base.
- gggg. Quality Control: Submit a QC Plan for approval. Ensure that all elements of the work are in compliance with the QC Plan. For all [painting] [rubber removal] [paint removal] work to be completed under this TO, ensure the QC plan incorporates the appropriate requirements as specified in [UFGS 32 17 23, Paragraph 3.4 Field Quality Control] [and] [UFGS 32 01 11.51 Paragraph 3.1 [RUBBER] [AND] [PAINT] REMOVAL].
- hhhh. Airfield Work:
- i. Airfield Right-of-Way: Coordinate work with the Contracting Officer and [Flight Operations Officer] [Airfield Manager] [control tower]. Work only with permission or when the runway is closed. Emergencies take precedence over all operations. If notified of an emergency takeoff/landing, stop all operations, and evacuate all personnel and equipment. Ensure all equipment, chemicals or detergents, and excess water are cleared from the work area within 3 minutes.
 - ii. Airfield Clean-Up: Continuously remove any debris left on the airfield and properly dispose of it off base. Clean the airfield and vehicle access routes of any debris left by the Contractor at the end of each work session. The [COR][QAR][Agency Equivalent] will inspect these areas as required. If the [COR][QAR][Agency Equivalent] identifies any debris promptly remove it.
 - iii. Restricted Areas: Portions of the airfield are located in Restricted Areas delineated by red lines. Work within the Restricted Areas requires an Entry Authorization Letter (EAL). Do not enter any Restricted Area without prior approval.]
 - iv. Airfield Briefing: The nature of the work requires the Contractor to operate within the airfield and under the rules and procedures of [*Insert Installation*

title here] [*similar/equivalent document*]. Prior to the start of work, attend an airfield driving and safety briefing. Follow all instructions and training given at this briefing. Obtain airfield passes for all vehicles at [*insert destination*]. Display these passes at all times while working on the airfield. [Specific installations may limit the use of privately owned vehicles (POV), provide vehicles displaying the name and logo of the Contractor. Ensure vehicles are equipped with lighting as required by the installation [to include hood lights]. [*Additional requirements to entering the base*].

- v. Photography: Photography is prohibited on the airfield without prior approval from AM [coordinated through the COR].
 - vi. Damage to Government Property: Repair any damage that is caused to Government property. Complete the repairs at the Contractor's expense, and in a manner approved by the [COR][QAR][*Agency Equivalent*].
- iii. Environmental Requirements:
- i. Erosion Control and Pollution Prevention: Ensure that pollutants are not released or discharged into drainage ditches, culverts, or other storm water runoff features.
 - ii. Hazardous Material/Hazardous Waste (HM/HW): The Contractor will be responsible for knowing if any HM will be used during the course of the work. The Contractor will also be responsible for knowing if any HW will be generated during the course of the work. Ensure proper labeling, transportation, and disposal of HM and HW. If any HM is to be brought on base, notify the [COR][QAR][*Agency Equivalent*]. The [COR][QAR][*Agency Equivalent*] will then contact the Base Environmental Office (BEO), who will provide guidance as required. Complete the coordination before the HM is brought on base. If HW is anticipated to be generated HW during the course of the work, notify the [COR][QAR][*Agency Equivalent*] before any work begins. The [COR][QAR][*Agency Equivalent*] will then contact the BEO for guidance. Follow all guidance given by the BEO.
 - iii. Safety Data Sheets (SDS): Provide an SDS for all materials as required.
 - iv. Spill Cleanup: Promptly clean up any spills or leaks. Ensure the required cleanup and disposal are in accordance with BEO guidance, and at the Contractor's expense. Provide a sufficient absorbent and cleanup materials for no less than a 50-gallon spill.
- jjjj. Utilities: Provide sanitary facilities, telephone service, electrical power, and lighting as required. Water can be obtained [from Government fire hydrants][*Insert Installation specific water policy [without charge] [at the prevailing rates]*]. Contractor is responsible for testing, treating, and filtering the water.

kkkk. Equipment and Material Storage Area: Store equipment and material in areas designated by AM. [The storage areas will be located [on] [near] the airfield [as shown in the contract documents].] The Contractor will be responsible for securing the storage areas.

llll. Emergency Access: Ensure that emergency vehicles have access to the work zones at all times.

mmmm. Trip Charge: One (1) Trip Charge for each TO is allowed. Include in the Trip Charge all costs associated with travel, per diem, lodging, mobilization, and all other expenses not directly related to the actual work.]

nnnn. Equipment Requirements: Ensure equipment used for rubber removal and paint striping work is mounted on pneumatic tires and does not cause damage to the pavement surface or joints. Provide amber rotating beacons and orange/white checkered flags on all vehicles working on the airfield. Provide flags 3' x 3' in size. Provide a broom [that has a magnet] to remove stray broom bristles from the pavement surface. [*Include Installation specific requirements for equipment to be used. Delete magnet requirement if metal bristles are not allowed to be used*]

oooo. Government Furnished Materials: [Water will be provided to the Contractor at [no cost] [prevailing rates]]. The water sources will be fire hydrants located on or near the airfield. Provide and use a backflow prevention device on the fire hydrants. [Connections to fire hydrants are subject to the Contracting Officer's inspection and approval. The Contracting Officer will inform the fire department on hydrants to be used and times of use. Furnish equipment and labor to transport the water to the job site from the hydrant.] When the hydrants are not in use by the Contractor, ensure they are available for emergency use by the base fire department.

55. [Airfield Rubber Removal

- a. [*This is for Army projects, remove otherwise. Justification Requirements*]: Removal of rubber requires justification following FAA AC 150/5320-12 Measurement, Construction, and Maintenance of Skid Resistant Airport Pavement Surfaces. Rubber removal will be tested before turnover to the government to ensure the surface is out of the maintenance zone.]
- b. General Requirements: Remove at least [90-] [85-] percent of the rubber deposits from 100-percent of the work area. Perform removal on both asphalt and concrete surfaces. [Follow FAA AC 150/5320-12 Measurement, Construction, and Maintenance of Skid-Resistant Airport Pavement Surfaces to justify removing rubber].
- c. Rubber Removal Method: Accomplish removal of rubber deposits by [a de-rubberizing compound specifically approved, formulated, and field tested for this purpose][ultra-high pressure water (UHPW) spraying][local equivalent used by the installation on other rubber removal projects]. [Typically, the areas to be cleaned are saturated with the cleaner, agitated by a mechanical scrubber using

wire brushes, and rinsed with clean water. Ensure any residue that is left behind is non-toxic and biodegradable.] [Hydro-blasting or abrasive blasting in any form will not be allowed]. Other methods for removal are waterblasting, grinding/scarifying, or [sandblasting (prohibited in Navy)] in accordance with UFGS 32 01 11.51 Paragraph 1.5.

- d. Work Areas: Perform rubber removal work on *[[insert total number of runways] runway ends][insert square feet of pavement]* as shown in the design documents.
- i. Runway [insert Name/Title]: Runway *[insert Name/Title]* is *[insert length in feet]* wide. *[Provide brief description of current conditions]*.
 - ii. Runway [insert Name/Title]: Runway *[insert Name/Title]* is *[insert length in feet]* wide. *[Provide brief description of current conditions]*.
 - iii. *[Add as needed.]*
- e. Performance Requirements:
- i. Rubber Removal Procedures: Provide chemical application and cleaning methods in accordance with the manufacturer's instructions. The Select chemicals that are compatible with [Portland Cement Concrete (PCC)][and][Hot Mix Asphalt (HMA)]. Comply with environmental and safety regulations for the project area. Utilize mechanical equipment in accordance with UFGS 32 01 11.51 Paragraph 1.5.
 - ii. Rinsing Procedures: Implement the rinsing procedures stated below.
 - iii. Waste Removal: Use industrial vacuums to remove the resulting mixture of surface water, chemical detergent, and rubber. Ensure that no free water remains at the end of each shift.
 - iv. Staining: Ensure that the dirty rinse water is not allowed to dry on the pavement surface and stain it. If any rinse water staining occurs anywhere on the pavement surface, clean the pavement until the stain is gone before the end of the TO.
 - v. Discoloration: Ensure that the rubber removal process does not discolor or disfigure the pavement surface.
 - vi. Stop Work: If any rinse water staining, discoloration, or disfigurement occurs, stop work, and implement measures to correct the problem.
 - vii. Rinsing: After each work session is complete, rinse the entire pavement surface in accordance with the above requirements. Ensure that no dust, stains, debris, or dirty rinse water are left on the pavement surface between work sessions.
 - viii. Rinse Water Disposal: Disposal of the dirty rinse water is not required. It can be allowed to evaporate along the sides of the runway.

f. Compliance Testing:

- i. Timing: Compliance with the [[90-percent] [85-percent] removal requirement for PCC surfaces][85-percent removal requirement for HMA surfaces] from 100-percent of the work area will be determined by direct testing within the designated work area. Notify the [COR][QAR][Agency Equivalent] when they are ready for compliance testing. The Government will conduct compliance testing within 24-hours after receiving notification from the Contractor. The exact time of the testing will depend on when the runway can be shut down.
- ii. Test Section: A test section is required prior to the start of the first Task Order. A test section is required anytime the Contractor changes the removal process. The test section is 100' long x 15' wide. It is located somewhere within the rubber removal work zone specified in the Task Order. Achieve at least a [90-percent removal][85-percent removal] rate. Once a successful test section has been completed, the Contractor can start work on the Task Order.
- iii. Square Grid: The removal rate test process is the following: Establish a one square foot grid with 100 equal squares placed on the pavement surface at random locations selected by the [COR][QAR][Agency Equivalent]. Count the number of squares that contain rubber. A successful test is when no more than [10][(for PCC pavements)] [15] (for HMA or HMA and PCC pavements)] squares contain rubber deposits at each of the selected locations.
- iv. Testing Zones: Each runway designated for rubber removal will be divided into four (4) equal zones for the purpose of compliance testing. Within each zone, seven (7) random spots are tested. Each spot is located at least 75' away from any other spot in that zone. Five of these spots are located within 10' of the runway centerline. Ensure at least six of the spots selected for testing in each zone meets the requirement specified above. Evaluate each zone independently. Reclean each zone not meeting the [90-] [85-]percent removal requirement at their own expense.
- v. Rubber Deposits: Deposits of rubber are defined as any surface deposit that can be removed by scratching the deposit with a flat sharp object without damaging the pavement surface. Rubber stain is defined as material in the pavement surface microtexture that cannot be removed without damaging the pavement surface. Rubber stain is generally embedded in the surface of the pavement below the horizontal plane of the surface texture. Removal of rubber stain is not required. However,

note that rubber stain is different from rinse water stain as defined in the Staining paragraph above.

- vi. Visual Inspection: The [COR][QAR][*Agency Equivalent*] will conduct a visual inspection of the work area prior to compliance testing.

56. airfield paint [striping] [and] [removal]

- a. UFC/ETL Requirements: Ensure all paint striping work is in accordance with the applicable requirements of UFC 3-260-04 and paint and bead manufacturer's instructions. Shotblasting is prohibited.
- b. Materials:
 - i. Paint: Provide paint conforming to UFC 3-260-04 Paragraph 3-1.2. Use [Type I][Type II][Type III][User preferred] paint.
 - ii. Paint Colors: Provide paint colors conforming to UFC 3-260-04 Paragraph 3-2.1 and drawings.
 - iii. Glass Beads: Apply glass beads in accordance with UFC 3-260-04 Paragraph 3-3.3. Use [Type I][Type 1A][Type 1B][Type III][Type IVA][Type IVB][*User preferred*] beads in accordance with Federal Specification TT-B-1325D.
- c. Paint Application:
 - i. Application Rate: Apply the paint in accordance with UFC 3-260-04 Paragraph 3-1.2.1.
 - ii. Paint Striping Machine: Provide a paint striping machine that is capable of applying paint directly to the prepared surface in one pass.
 - iii. Surface Preparation: Immediately prior to paint application, clean and prepare all surfaces in accordance with the paint manufacturer's instructions. Perform moisture tests as required.
 - iv. Paint Preparation: Prepare the paint in accordance with the manufacturer's instructions.
 - v. Paint Edges: Ensure all markings have a distinct, sharp edge. Any markings with indistinct or fuzzy edges are unacceptable. Use masking tape or other appropriate materials as required.
 - vi. Wind: Do not apply any paint markings if the wind will affect paint or bead application.

- vii. Runway Paint Striping Timing: Apply paint striping in the rubber removal areas as soon as possible after rubber removal operations are complete.
 - viii. Protection of the Work: Protect newly painted surfaces until completely dry. Utilize appropriate traffic control devices to keep traffic off wet paint.
 - ix. Overspray and Paint Spills: Promptly clean up any overspray or paint spills.
 - x. Paint Drying Time: Schedule work to ensure that the paint is completely dry by the time the pavement is reopened to traffic.
- d. Runway Markings:
- i. Runway Centerlines: Stripe new centerlines in accordance with UFC 3-260-04 Paragraph 5-2.8.
 - ii. Threshold Bars: Stripe new threshold bars in accordance with UFC 3-260-04 Paragraph 5-2.9. UFC 3-260-04 Figure 5-3
 - iii. Runway Numerals: Stripe new runway numerals in accordance with FAA Advisory Circular 150/5340-1M, Figure A- 6.
 - iv. Runway Side Stripes: Stripe the runway side stripes in accordance with UFC 3-260-04 Paragraph 5-2.13.
 - v. Runway Touchdown Zone Markings: Stripe the touchdown zone markings in accordance with UFC 3-260-04 Paragraph 5-2.15.1.
 - vi. Runway Fixed Distance Markings: Stripe the fixed distance markings in accordance with UFC 3-260-04 Paragraph 5-2.15.2.
 - vii. AAS Warning Markings: Stripe the AAS warning markings in accordance with UFC 3-260-04 Paragraph 5-2.15.3.
 - viii. Runway Overrun Chevrons: Stripe the runway overrun chevrons in accordance with UFC 3-260-04 Paragraph 5-2.12.
 - ix. Runway Deceptive Shoulder Markings: Stripe the runway deceptive shoulder markings in accordance with UFC 3-260-04 Paragraph 8-10.
- e. Taxiway and Apron Markings:
- i. Taxiway Centerlines: Stripe the taxiway centerlines in accordance with UFC 3-260-04 Paragraph 6-2. Use a 6" wide line.

- ii. Taxiway and Apron Edge Stripes: Stripe the taxiway and apron edge stripes in accordance with UFC 3-260-04 Paragraph 6-3.1.
 - iii. Taxilane Edge Stripes: Stripe the taxilane edge stripes in accordance with UFC 3-260-04 Paragraph 6-3.2.
 - iv. VFR Hold Lines: Stripe the VFR hold lines in accordance with UFC 3-260-04 Paragraph 6-5.1.1 and Figure 6-3. All VFR hold lines are to be enhanced with black paint in accordance with UFC 3-260-04 Paragraph 6-5.3 and Figure 6-7.
 - v. IMC Hold Line: Stripe the IMC hold line in accordance with UFC 3-260-04 Paragraph 6-5.1.2.
 - vi. Ground Receiver Checkpoint Markings: Stripe the ground receiver checkpoint markings in accordance with UFC 3-260-04 Figure 8-9 and Paragraph 8-14. Paint the area inside the yellow circle black or white.
 - vii. Taxiway and Apron Deceptive Shoulder Markings: Stripe the taxiway and apron deceptive shoulder markings in accordance with UFC 3-260-04 Paragraph 8-11. Each stripe is to be 25' long or to within 5' of pavement edge according to Fig 8-7.
- f. Reflective Paint Markings: Apply retro-reflective media (glass beads as specified above in Materials,) to all white and yellow paint markings, except for the following: Runway Overrun Chevrons and all Deceptive Shoulder Markings.
 - g. Black Contrast: Provide all paint markings with a 6" wide black border in accordance with UFC Paragraph 3-1.5, except for the following: Runway Overrun Chevrons, AAS Warning Markings, Taxiway Edge Stripes, and all Deceptive Shoulder Markings. All black paint is to be non-reflective. Coordinate black contrast markings with AM.
 - h. Paint Removal: Accomplish all paint removal work in a manner that will not damage or disfigure the pavement surface or joints by water blasting, sand blasting (prohibited by the Navy), grinding/scarifying, or other appropriate methods. Submit all equipment proposed for approval to the Government prior to its use. Collect and dispose of all debris off base. Ensure all operations do not create a FOD risk to aircrafts. Achieve at least an [85][90]% removal rate for asphalt or asphalt and PCC pavements [and 90% for PCC pavements] in accordance with UFGS 32 01 11.51 Paragraph 3.1.]

57. SUBMITTAL FORMAT AND DISTRIBUTION

- a. Prior to acquiring materials, submit an [AF Form 3000] [ENG 4025], Material Approval Submittal [or equivalent]. Materials are not allowed on [*insert installation*] until they have been approved. If there is a change in the approved materials, submit an updated [AF Form 3000][[ENG 4025] [or equivalent].
- b. Submit all reports [not in [RMS] [eCMS] to the Government in electronic (.pdf) format. Submit the reports directly to the Contractor personnel responsible for the report to the Government [COR][*Agency Equivalent*] or other identified POC listed in Section 3.
- c. Deliverables not meeting the Government's expectations will be rejected. Failure to consistently provide deliverables in a timely manner or to the expectations of the Government will result in an adverse contract action and may require replacement personnel.

58. schedule

The period of performance for the base is [*insert number*] days and will commence on the day the Notice to Proceed (NTP) is issued. The NTP will be issued with the Task Order Award. Begin logistical efforts of acquiring the personnel, equipment and materials needed to meet contractual requirements immediately and be prepared to perform the tasks for the first deliverable within [*insert number*] days after NTP. Submit a Progress Schedule if requested in the TO. A Progress Schedule will be needed only if a TO is expected to take more than 30 days to complete.

59. Special Conditions

- g. Reporting Problems: Promptly bring problems to the attention of the Government PM with a copy furnished to the applicable Sponsoring Agency. Report circumstances that result in delivery order delay in writing along with the reason for the delay and the Contractor's proposed remedial action.
- h. Required Conditions for Anti-Terrorism and Operational Security: Comply with the following:
 - ii. [*insert conditions– this is pulled from the ENG Form 6055*]

60. LIST OF ATTACHMENTS

All attachments are provided for information only. The Contractor is responsible for verifying the accuracy of all attachments.

Attachment 1: [*insert title*]

Attachment 2: [*insert title*]

Attachment 3: [*insert title*]

61. references

- a. UFC 3-260-04, Airfield and Heliport Marking, 16 May 2018.
- b. ETL 04-2, Standard Airfield Pavement Marking Schemes, 19 July 2004.
- c. AC 150/5340-1M, Standards for Airport Markings, 10 May 2019 (FAA).
- d. UFGS-32 17 23, Pavement Markings, Change 5 dated 11/18.

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APPENDIX D DOD DESIGN CHECKLISTS

D-1 AIRFIELD/HELIPORT PROJECT DESIGN ANALYSIS OUTLINE CHECKLIST

This appendix is considered to be guidance and not a requirement. Its main purpose is to communicate proven facility solutions, systems, and lessons learned, but may not be the only solution to meet the requirement.

PROJECT:			
Y	N	N/A	ITEM
			1. INTRODUCTION.
			1.1. Purpose of Report.
			<ul style="list-style-type: none"> • This report describes the project design in sufficient detail for review, evaluation, and documentation of the design.
			1.2. Scope of Report.
			<ul style="list-style-type: none"> • State the design phase that the report covers. • List topics discussed in report.
			1.3. Project Description.
			<ul style="list-style-type: none"> • Extent of proposed construction (e.g., new construction; runway extension; apron expansion; overlay; rehabilitation and repair; upgrade lighting; drainage, security, and navigational aids improvements).
			<ul style="list-style-type: none"> • Purpose of proposed construction or improvements.
			<ul style="list-style-type: none"> • Types and amount of construction activities (e.g., demolition, excavation and embankment, grading, paving, patching, marking, fencing, seeding).
			<ul style="list-style-type: none"> • Discuss project schedule, operational constraints and any phasing requirements.
			1.4. Project Authorization.
			<ul style="list-style-type: none"> • Reference the authorization letter, directive, or other pertinent items, with dates.
			1.5. Design Criteria.
			Reference the key criteria and directives used in the design, with dates. Since criteria are constantly revised and updated, document the key criteria so that the basis of the design is a historical record. Key criteria and directives may include:
			<ul style="list-style-type: none"> • Correspondence and directives.
			<ul style="list-style-type: none"> • Technical Manuals (TMs and AFMs).
			<ul style="list-style-type: none"> • Unified Facilities Criteria (UFCs).
			<ul style="list-style-type: none"> • Engineering Circulars (ECs).
			<ul style="list-style-type: none"> • Pavement evaluations/condition surveys.
			<ul style="list-style-type: none"> • Computer programs.
			<ul style="list-style-type: none"> • Other special design criteria.
			2. SITE DESCRIPTION.

PROJECT:			
Y	N	N/A	ITEM
			2.1. Location (location map with graphical scale).
			• Existing airfield/heliport facilities (e.g., layout, type)
			• Assessment of new and, if applicable, existing project features with UFC 3-260-01 geometric and clearance requirements
			• Location of proposed project with respect to existing facilities, utilities, or improvements
			• Extent of proposed construction (e.g., size, dimensions)
			2.2. Topography/Drainage of Site.
			• Topography (e.g., hilly, rolling, flat, terrace, floodplain).
			• Surface drainage (characteristics and direction).
			• Subsurface drainage (characteristics, groundwater conditions and elevations, including seasonal variations).
			• Existing surface and subsurface drainage facilities (e.g., type, location, capacity, condition).
			2.3. Climate.
			Use the National Oceanographic and Atmospheric Administration (NOAA) or the military installation's weather service center for climatological data where available.
			• Temperatures (especially with reference to frost condition and design air freezing index).
			• Rainfall (particularly with respect to its effect on construction operations).
			• Seasonal variations.
			2.4. Vegetation
			• Wooded, open, brush, cultivated fields?
			2.5. Geology.
			• Sequence and character of surface and near-surface deposits. Soil overburden (e.g., glacial, stream, loess deposits).
			• Rock outcroppings.
			3. FIELD INVESTIGATIONS.
			3.1. Subgrade Explorations.
			• Describe type of investigations, number, locations, depth, samples obtained.
			3.2. Borrow Explorations for Fill.
			• Describe type of investigations, number, locations, depth, samples obtained.
			3.3. Availability of Construction Materials.
			Describe type of material, location; name and description of pits, quarries, or other sources; samples obtained. (For each source)
			• Sand and gravel deposits.
			• Aggregates (base course, concrete, and bituminous mixtures).
			• Cementitious materials (Portland cement, fly ash, and asphalt; type; class; grade).

PROJECT:			
Y	N	N/A	ITEM
			• Water.
			3.4. Evaluations of Existing Pavements. (Describe all evaluations conducted)
			• Destructive.
			• Nondestructive.
			4. TESTING
			4.1. Laboratory.
			• Describe lab testing conducted.
			4.2. Field.
			• Describe all field testing conducted.
			5. RESULTS OF INVESTIGATIONS AND TESTING.
			5.1. Material Characterization.
			• Subgrade characteristics (e.g., soil classifications, unit weights, moisture-density relationships, gradations, Atterberg limits, CBR or modulus of subgrade reaction or both, permeability).
			• Characteristics of borrow (same as above).
			• Characteristics of base and subbase material (same as above).
			• Characteristics of pavement surfacing materials.
			5.2. Groundwater and Subsurface Drainage Conditions.
			5.3. Frost Conditions (where applicable).
			• Frost susceptibility of materials (e.g., based on gradation and frost classification, laboratory freeze tests, heave measurements, observations, or ice lens formations in test pits).
			• Frost penetration (based on field observations or design air freezing index and modified Berggren equation).
			• Moisture availability.
			• Mean annual temperature.
			• Duration of freezing season.
			• Number of freeze-thaw cycles.
			5.4. Existing Pavement Evaluation/Characterization.
			• Describe all evaluations conducted.
			5.5. Design Parameters.
			• Summarize the adopted design parameters.
			6. PAVEMENT THICKNESS DESIGN CRITERIA.
			6.1. Load.
			Include a copy of the Airfield/Heliport Mission List.
			• Airfield/heliport/helipad class or type.
			• Design aircraft or aircraft mix.
			• Pass levels.
			• Mission operational weights.
			• Traffic areas.
			7. PAVEMENT THICKNESS DESIGN.
			7.1. Flexible Pavement Design (for each pavement feature).

PROJECT:			
Y	N	N/A	ITEM
			• Design curves or computer programs used.
			• Layers (thicknesses, type, design CBR values).
			• Compaction requirements.
			• Proof rolling requirements.
			• Bituminous mixture requirements (gradation, stability).
			• Selection of AC grade.
			• Tack and prime coat requirements (type, grade).
			• Grooving requirements.
			7.2. Rigid Pavement Design (for each pavement feature).
			• Design curves or computer programs used.
			• Flexural strength.
			• Layers (thicknesses, type, subgrade modulus values).
			• Compaction requirements.
			• Joint design (spacing, type).
			• Joint sealant (type).
			• Grooving requirements.
			7.3. Overlay Design (for each pavement feature).
			• Type of design (flexible, rigid, bonded, unbonded).
			• Existing paving system characteristics.
			• Design curves or computer programs used.
			• Overlay layers (e.g., thicknesses, types).
			• Surface preparation requirements.
			7.4. Frost Design (for each pavement feature).
			• Design methodology: limited subgrade frost penetration (LSFP) or reduced subgrade strength (RSS).
			• Design air freezing index (for LSFP method).
			• FASSI or FAIR value (for RSS method).
			• Design curves or computer programs used.
			• Layers (number, thickness, type).
			• Special subgrade, subbase, and base course preparation for frost design.
			8. DRAINAGE DESIGN.
			• General criteria.
			• Hydrology.
			• Surface drainage (including drainage plans and profiles).
			• Subsurface drainage.
			• Location of fueling aprons and required drainage facilities.
			• Location of deicing aprons and required drainage facilities.
			• Location and description of future airfield use within project drainage area.
			• Location of any temporary ponding.
			• Aircraft wheel loads for inlet/manhole design.

PROJECT:			
Y	N	N/A	ITEM
			<ul style="list-style-type: none"> • Drainage areas contiguous to project area that contribute storm flow to project.
			9. PROPOSED GRADES.
			<ul style="list-style-type: none"> • Longitudinal (for each pavement feature).
			<ul style="list-style-type: none"> • Transverse (for each pavement feature).
			10. AIR NAVIGATION AIDS (NAVAIDS).
			10.1. Airfield Operational Category.
			Visual and electronic NAVAID requirements are based on the runway operational category. Specify one of the following operational categories for the project. If the airfield has more than one runway, specify the operational category for each runway in the project.
			<ul style="list-style-type: none"> • Night visual meteorological conditions (VMC).
			<ul style="list-style-type: none"> • Non-precision.
			<ul style="list-style-type: none"> • Category I.
			<ul style="list-style-type: none"> • Category II.
			<ul style="list-style-type: none"> • Category III.
			10.2. Visual NAVAIDS.
			10.2.1. Required Visual NAVAIDS.
			<ul style="list-style-type: none"> • Include all required facilities for airfield lighting, signage, and marker systems in conformance with UFC 3-535-01 Table 2-1A, Table 2-1B, and Table 2-2 for the project airfield operational category. Designers will list each individual type, location, and extent of the required visual NAVAIDS (Approach Aids, Runway Aids, Taxiway Aids and Miscellaneous Aids), as detailed in the UFC 3-535-01 tables.
			10.2.2. Optional Visual NAVAIDS.
			<ul style="list-style-type: none"> • Optional visual NAVAIDS listed in UFC 3 535 01 Table 2-1A, Table 2-1B, and Table 2-2 may be included in the project. Designers will clearly identify which optional items are required in this project.
			10.2.3. Additional Items. (Designers will ensure that these additional items are addressed in the design report:)
			<ul style="list-style-type: none"> • Precision Approach Path Indicator (PAPI). If a PAPI is included in the project, identify the height group of aircraft for design.
			<ul style="list-style-type: none"> • Airfield Signs and Markers. Use only frangible signs. Light signs for nighttime operations. Identify sign sizes and sign lighting requirements.
			<ul style="list-style-type: none"> • Comply with FAA standards for all electronic NAVAIDS and military electronic NAVAID equipment within the United States. Overseas facilities generally meet FAA requirements unless superseded by Base Rights Agreements (see UFC 3-535-01, paragraph 1-6). Designers will list all electronic NAVAIDS, including all major components that are included in the project

PROJECT:																														
Y	N	N/A	ITEM																											
			together with the appropriate siting and installation references. Additional information about several of the most common electronic NAVAIDs follows.																											
			10.3 Instrument Landing System (ILS).																											
			10.3.1. ILS Components.																											
			<ul style="list-style-type: none"> • These include a localizer antenna, equipment and shelter, glide slope antenna, equipment and shelter, critical area grading. Markers and monitors are required as indicated in this table: 																											
			<ul style="list-style-type: none"> • Table A1-1 ILS Markers and Monitors <table border="1"> <thead> <tr> <th rowspan="2">MARKER OR MONITOR</th> <th colspan="3">OPERATIONAL CATEGORY</th> </tr> <tr> <th>CAT I</th> <th>CAT II</th> <th>CAT III</th> </tr> </thead> <tbody> <tr> <td>Inner Marker</td> <td></td> <td>R**</td> <td>R</td> </tr> <tr> <td>Middle Marker</td> <td></td> <td>R</td> <td>R</td> </tr> <tr> <td>Outer Marker</td> <td>R*</td> <td>R</td> <td>R</td> </tr> <tr> <td>Near Field Monitor</td> <td></td> <td>R</td> <td>R</td> </tr> <tr> <td>Far Field Monitor</td> <td></td> <td>R</td> <td>R</td> </tr> </tbody> </table> <p>R indicates required. *Distance measuring equipment (DME) or tactical air navigation (TACAN) can be used for a final approach fix in lieu of the outer marker. **Required for operations below runway visual range (RVR) 1600 ft</p>	MARKER OR MONITOR	OPERATIONAL CATEGORY			CAT I	CAT II	CAT III	Inner Marker		R**	R	Middle Marker		R	R	Outer Marker	R*	R	R	Near Field Monitor		R	R	Far Field Monitor		R	R
MARKER OR MONITOR	OPERATIONAL CATEGORY																													
	CAT I	CAT II	CAT III																											
Inner Marker		R**	R																											
Middle Marker		R	R																											
Outer Marker	R*	R	R																											
Near Field Monitor		R	R																											
Far Field Monitor		R	R																											
			10.3.2. ILS Siting.																											
			<ul style="list-style-type: none"> • Site ILS equipment in conformance with FAA Order 6750.16D. Conform all marker beacons to FAA Order 6750.24D, paragraphs 7d and 7c. 																											
			10.4 Precision Approach Radar (PAR).																											
			10.4.1. PAR Components.																											
			<ul style="list-style-type: none"> • This includes equipment shelter and antenna, tracking reference reflector (TRR) and moving target indicator (MTI) (each runway serviced by the PAR should have TRR and MTI reflectors), power source and standby generator 																											
			10.4.2. PAR Siting.																											
			<ul style="list-style-type: none"> • Site PAR equipment and facilities in conformance with FAA Order 7031.2C. 																											
			10.5 Non-Directional Beacon (NDB).																											
			10.5.1. NDB Components.																											
			<ul style="list-style-type: none"> • Equipment shelter and transmitter, monitor, antenna coupler and antenna, power source and standby generator 																											
			10.5.2 NDB Siting.																											
			<ul style="list-style-type: none"> • Conform all NDB siting to the requirements in FAA Order 7031.2C. 																											
			10.6 VORTAC (co-located VOR and TACAN).																											

PROJECT:			
Y	N	N/A	ITEM
			10.6.1. VORTAC Components.
			• Very High Frequency Omnidirectional Range (VOR): Equipment shelter, transmitter, monitor and conical shaped antenna
			• Tactical Air Navigation (TACAN): Equipment shelter, transmitter, receiver, monitor and rotating antenna
			10.6.2. VORTAC Siting.
			• Conform VORTAC siting to FAA Order 6820.10.
			10.7 Power Supply.
			10.7.1. Source.
			• Specify air base system or commercial utility source.
			10.7.2. Voltage.
			• Specify primary voltage and appropriate transformation.
			10.7.3. Standby Power.
			• Specify standby power as required for electronic NAVAIDS.
			10.8 NAVAID Controls.
			• Specify operational controls, brightness controls, status indication, and alarm for each visual NAVAID as required for electronic NAVAIDS.
			10.9 Airfield Electrical Systems.
			10.9.1. Constant Current Series Circuits.
			• Identify the lighting systems connected to each circuit.
			10.9.2. Constant Current Regulators.
			• Identify all lighting and NAVAIDS to be served by new regulators. List the location of new regulators. Include calculations for all regulator sizing. (See UFC 3-535-01, Table 15-4.)
			10.9.3. Transformers.
			• Identify all transformers. Include calculations for all transformer sizing (excluding light isolation transformers).
			10.9.4. Cabling and Ductwork.
			• Include calculations for cable sizing. Identify the location, size, and number of spare ducts required in all pavement crossings.
			11. CONSTRUCTION MATERIALS.
			11.1. Rigid Pavement.
			• Coarse aggregate (type, gradation, deleterious limits, wear, particle shape).
			• Fine aggregate (type, gradation, deleterious limits).
			• Cement (type).
			• Fly ash (class).
			• Admixtures (type).
			• Curing compound (type).
			• Dowels (size, type).
			• Reinforcing (size, type).
			• Joint filler.

PROJECT:			
Y	N	N/A	ITEM
			• Joint seals (type).
			11.2. Flexible Pavement.
			• Aggregates (type, gradation, percent fractured faces, wear).
			• Mineral filler.
			• Asphalt cement (grade).
			• Prime coat material (type, grade).
			• Tack coat material (type, grade)
			11.3. Base Courses.
			• Graded crushed aggregate base course (gradation, percent fractured faces, wear).
			• Rapid-draining base course (rapid-draining material (RDM) or open graded material (OGM) gradation, percent fractured faces, wear).
			• Separation layer (gradation, design CBR value).
			• Subbase course (gradation, design CBR value)
			11.4. Surface and Subsurface Drainage System.
			• Pipe (size, type).
			• Structure construction.
			• Bedding material.
			• Filter material.
			• Manhole construction.
			11.5. Pavement Marking Materials.
			• Paint
			• Reflective Media
			11.6. Recycling.
			• List any proposed use of recycled materials.
			• List percentages of recycled materials in any pavement mix.
			12. LIST OF REQUIRED WAIVERS.
			• Reference regulation document (title, page, paragraph).
			• State the regulation in violation.
			• State the reason the waiver is required.
			13. COST ESTIMATES.
			• Capital costs.
			• Life-cycle costs.
			14. LIST OF GOVERNMENT-FURNISHED EQUIPMENT.
			• Aircraft arresting gear.
			• Electronic NAVAIDS.
			• Other.
			15. APPLICABLE OBSTRUCTION SURVEYS, PROFILES.
			• Light plane profiles for ALSF-1, ALSF-2, MALSR.
			• PAPI clearance plane and approach plane.
			• Clear zone obstruction profiles.
			• Part 77 obstruction surveys.

D-2 AIRFIELD/HELIPORT PROJECT CONTRACT DRAWING OUTLINE CHECKLIST

This list of drawings should be used as a guide. All drawings may not be needed for all jobs.

PROJECT:			
Y	N	N/A	ITEM
			1. TITLE SHEET.
			• Project title.
			• Location.
			• Year.
			• Volume number.
			2. INDEX SHEET.
			• Listing of sheet names.
			• Assigned sheet numbers (in sequential order).
			3. COMBINED TITLE/INDEX SHEETS (may be combined for smaller projects).
			4. LEGEND.
			• Civil.
			• Electrical.
			• Mechanical.
			• Architectural.
			5. LOCATION/SITE PLAN.
			• Base map with state (vicinity) map.
			• Project location.
			• Contractor access routes.
			• Location of base gates and any restrictions.
			• Borrow/waste areas.
			• Batch plant area.
			• Contractor's staging and/or storage area.
			• Utility hookup locations.
			• General or special notes.
			• Concurrent construction (not in contract).
			6. PHASING PLAN AND DETAILS.
			• Location and sequencing of work areas.
			• Scheduling for each phase of the project.
			• General listing of tasks to be performed under each phase.
			• Concurrent construction that may affect each phase.
			• Location and type of area control (security) measures.
			-Temporary barricades and fencing.
			-Obstruction lighting.
			-Temporary pavement markings (closure markings).
			• Traffic circulation (aircraft and vehicular).
			• Special notes.
			-Security measures.

PROJECT:			
Y	N	N/A	ITEM
			-Contractor's housekeeping measures.
			-Controls on contractor's traffic.
			7. HORIZONTAL AND VERTICAL CONTROLS.
			• Layout.
			• Benchmarks (United States Geological Survey (USGS) datum) with only one master benchmark.
			• Control stationing.
			• Horizontal control (coordinates).
			8. GEOMETRIC LAYOUT PLAN (OPTIONAL).
			• Curve data.
			• Control stationing.
			• Geometric layout.
			9. BORING LOCATION PLAN AND BORING LOG DATA.
			• Location plan.
			• Boring log data.
			10. PAVEMENT REMOVAL PLAN.
			• Pavement removal limits (e.g., dimensions, stationing).
			• Type and thickness of pavement removed.
			• Utilities and structures affected by the removal.
			- Manholes.
			- Barrier arresting cables.
			- Blast deflectors.
			- Runway/taxiway lighting.
			- Communication cables.
			- Water/sewer lines.
			- In-ground aircraft support systems.
			• Special notes regarding removals.
			• Location of Removal Sections.
			11. REMOVAL SECTIONS AND DETAILS.
			Sections should be specific, not general or typical. Show several sections. Show new sections for changes in pavement type, thickness, or any other condition that has an impact on pavement construction. Sections should be complete both laterally and vertically for the entire pavement structure, including subgrade preparation.
			• Removal limits (lateral dimensions, depth).
			• Composition of the existing pavement.
			- Pavement type and thickness.
			- Joint type (e.g., doweled, tied, contraction).
			- Existing reinforcing (if any).
			• Special notes.
			- Equipment type/size.
			- Procedures.
			- Housekeeping.

PROJECT:			
Y	N	N/A	ITEM
			- Other.
			12. EXISTING UTILITIES PLAN.
			• Existing utility locations and type.
			• Pavement penetrations.
			13. PAVING PLAN.
			• Thickness.
			• Type.
			• Location.
			• Location of section cuts.
			• Stationing.
			• Dimensions.
			14. PAVING SECTIONS.
			Make the sections specific. Do not overuse “Typical Sections.” Cut a section wherever there is a change from one pavement section to another in any direction and on all pavement edges. The same section may be referenced numerous places on the plan sheets, mark and properly annotate each location.
			• Paving section. Include the entire paving section from surface through subgrade.
			-Thickness of Surface.
			- Prime and/or Tack Coat Requirements.
			- Thickness of Bases and Subbases.
			- Thickness of Drainage Layer.
			- Depth and Type of Subgrade Preparation.
			• Jointing locations and type.
			• Surface grades/slope.
			• Subsurface drainage/subdrain provisions.
			15. PLAN AND PROFILE SHEETS.
			• Plan.
			- Outline of pavement.
			- Utilities.
			- Stationing.
			- Geometrics.
			• Profile.
			-Stationing.
			- Elevations (new and existing).
			- Vertical curve data.
			- Utility depth and location
			16. GRADING AND DRAINAGE PLANS.
			• Contours (new and existing).
			• Surface and subsurface drainage system layouts, structure locations, types, and sizes.
			• Ditch alignment.

PROJECT:			
Y	N	N/A	ITEM
			16.1 GRADING SECTIONS.
			• Cut/fill requirements.
			• Topsoil requirements.
			16.2 PAVEMENT SURFACE ELEVATIONS.
			• Spot elevation plan (joint intersections or grid pattern).
			• Spot elevation schedule.
			17. PAVEMENT JOINTING PLANS.
			• Legend with joint types.
			• Joint location.
			17.1 JOINT AND JOINT SEALANT DETAILS.
			• Joint details.
			• Joint Sealant details.
			17.1.1 REINFORCING DETAILS.
			• Dowels.
			• Reinforcement.
			• Tie bars.
			• Complete pavement joint details.
			17.1.2 SURFACE AND SUBSURFACE DRAINAGE SYSTEMS.
			• Profiles.
			• Schedules.
			• Details.
			18. AIRFIELD REPAIRS.
			• Plan.
			• Details.
			19. PAVEMENT MARKING.
			• Plan.
			• Details.
			20. AIRCRAFT MOORING AND GROUNDING POINTS.
			• Plan.
			• Details.
			21. GROOVING.
			• Plan.
			• Details.
			22. RUNWAY/TAXIWAY LIGHTING.
			• Plan.
			• Schedule.
			• Details.
			24. AIRFIELD NAVAIDS.
			• Plan.
			• Details.
			25. MECHANICAL (FUEL).
			• Plans.

PROJECT:			
Y	N	N/A	ITEM
			• Profiles.
			• Schedules.
			• Details.

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D-3 LIST OF AIRFIELD PROJECT UNIFIED FACILITIES GUIDE SPECIFICATIONS

The following Unified Facilities Guide Specifications are applicable to DOD airfields and can be found on the Whole Building Design Guide website at <https://wbdg.org>. Sections that are not used should be deleted. Do not substitute sections.

Mandatory sections are specifications typically used in every DOD Airfield project. The DOR is responsible for including these sections and only selecting project-specific bracketed changes, unless approved otherwise. Editing outside the brackets is not permitted.

As required sections are included for reference. These are common in DOD Airfield projects but are dependent on project scope.

MANDATORY SPECIFICATION SECTIONS	
Section	Notes
Division 01 – General Requirements	
01 11 00 Summary of Work	
01 32 01.00 10 Project Schedule	
01 33 00 Submittal Procedures	
01 35 13 Special Project Procedures	
01 35 26 Governmental Safety Requirements	
01 45 00.00 10 Quality Control	Coordinate with Division 32 specification requirements
01 57 19 Temporary Environmental Controls	
01 74 19 Construction Waste Management	
01 78 00 Closeout Submittals	
Division 31 – Earthwork	
31 00 00 Earthwork	
Division 32 – Exterior Improvements	
32 01 17.61 Sealing Cracks and Joints in Asphalt Paving	
32 01 19.61 Sealing of Joints in Rigid Pavement	
32 12 13 Bituminous Tack and Prime Coats	
32 12 15.13 Asphalt Paving for Airfields	
32 13 14.13 Concrete Paving for Airfields and Other Heavy Duty Pavements	
32 13 73.19 Compression Concrete Paving Joint Sealant	
32 17 23 Pavement Markings	

AS REQUIRED SPECIFICATION SECTIONS	
Section	Notes
Division 01 – General Requirements	
01 20 00 Price and Payment Procedures	
01 30 00 Administrative Requirements	
01 33 23.33 Aviation Fuel System Specific Submittal Requirements	
01 33 29 Sustainability Requirements and Reporting	
01 50 00 Temporary Construction Facilities and Controls	
01 58 00 Project Identification	
Division 03 – Concrete	
03 30 53 Miscellaneous Cast-In-Place Concrete	Use only for miscellaneous structures (e.g. lighting and navaid foundations), must not be used for airfield pavements
03 42 13.00 10 Plant-Precast Concrete Products for Below Grade Construction	
Division 26 – Electrical	
26 05 00 Common Work Results for Electrical	
26 05 26 Grounding and Bonding for Electrical Systems	
26 56 20 Airfield and Heliport Lighting and Visual Navigation Aids	
Division 31 – Earthwork	
31 05 19.13 Geotextiles for Earthwork	
31 11 00 Clearing and Grubbing	
31 23 00 Excavation and Fill	
31 32 19.16 Geotextile Soil Stabilization	
Division 32 – Exterior Improvements	
32 01 11.51 Rubber and Paint Removal From Airfield Pavements	
32 01 13.63 Gilsonite Modified Asphalt Emulsion Seal Coats	
32 01 16.71 Cold Milling Asphalt Paving	
32 01 18.71 Grooving of Airfield Paving	
32 01 29.61 Partial Depth Patching of Rigid Paving	
32 11 13.13 Lime Treated Subgrade	
32 11 13.16 Bituminous-Stabilized Subgrade	

AS REQUIRED SPECIFICATION SECTIONS	
Section	Notes
32 11 20 [Base Course for Rigid][and][Subbase][Select-Material][For Flexible Paving]	
32 11 23 [Aggregate Base Course][and][or][Graded Crushed Aggregate Base Course]	
32 11 23.23 Base Course Drainage Layers	
32 11 26.19 Bituminous-Stabilized Base and Subbase Courses	
32 11 33.13 Portland Cement-Stabilized Base Courses	
32 11 36.13 Lean Concrete Base Course	
32 12 15.16 Stone Matrix Asphalt (SMA) for Airfield Paving	
32 12 17.19 Fuel Resistant Asphalt Paving for Airfields – Surface Course	
32 12 19.16 Resin-Modified Asphalt Paving Wearing Courses	
32 12 36.26 Polymer Concrete Micro-Overlay (PCMO) for Fuel and Abrasion Resistant Wearing Surface	
32 13 13.43 High Temperature Concrete Paving for Airfields Using Lightweight and Traprock Aggregates	
Division 33 – Utilities	
33 01 50.31 Leak Detection For Fueling Systems	
33 05 23 Trenchless Utility Installation	
33 05 23.13 Utility Horizontal Directional Drilling	
33 40 00 Stormwater Utilities	
33 46 16 Subdrainage Piping	
33 71 02 Underground Electrical Distribution	
Division 34 – Transportation	
34 73 13 Aircraft Tiedowns	
34 73 16 Airfield Grounding	

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APPENDIX E GEOTECHNICAL SITE INVESTIGATION CHECKLIST

E-1 GEOTECHNICAL SITE INVESTIGATION CHECKLIST

This appendix is considered to be guidance and not a requirement. Its main purpose is to communicate proven facility solutions, systems, and lessons learned, but may not be the only solution to meet the requirement.

PROJECT:			
Y	N	N/A	ITEM
			1. PRELIMINARY GEOTECHNICAL DATA.
			1.1. Obtained existing geotechnical reports from other projects near the site?
			Reviewed existing data for typical soil conditions and design requirements?
			Does the existing data show any unusual site conditions? - Expansive soils, collapsible soils, volcanic ash, peats, permafrost? - Contact a SME for guidance.
			1.2. Obtained existing airfield pavement evaluation (APE) reports?
			What is the existing pavement condition index (PCI)?
			What is the existing structural index?
			Any indicators the subgrade is contributing to pavement failure?
			IS there existence and frequency of historic field plate bearing test or CBR tests, not simply correlated dynamic cone penetrometer (DCP) or non-destructive tests (NDT)?
			2. PLANNING THE GEOTECHNICAL INVESTIGATION.
			2.1. Does the exploration program consider:
			Where is finished grade?
			Subsurface drainage; permeability rates?
			Mill and overlay work?
			Frost design?
			Settlement/swell/consolidation?
			Any unusual soils or site conditions to include soil chemistry, corrosivity, sulfates, etc?
			Trenchless utility crossings?
			Any foundations for civil/electrical utilities?
			Any foundations for airfield lighting structures/towers?
			What are typical foundation loads for structures/utilities on the project?
			Two-phased approach? - A two phased approach may used for the geotechnical investigation. Consult with SME for further guidance. - 1 st Phase: Typically non-destructive testing such as heavy-weight deflectometer (HWD) testing is ran on existing airfield pavements

PROJECT:			
Y	N	N/A	ITEM
			to characterize the site. The data is reviewed and exploration locations are chosen based on the results of the HWD testing. - 2 nd Phase: The actual geotechnical exploration is performed.
			2.2. Does the investigation comply with Chapter 5 – Site Investigations in UFC 3-260-02 (2001)?
			- Borings: Is the minimum spacing met? Are borings taken for critical utilities or structures on the project? Do the borings extend 10 feet past where finished grade is anticipated for airfield pavements? Are Shelby tubes required for fine-grained soils? If so, what depth/frequency? Falling head test for drainage layer – subgrade permeability greater than 20 feet per day?
			- Test pits: Is location in the in-field or along the perimeter of existing pavements? Is the minimum spacing met?
			- Cone Penetration Tests (CPTs): Consult SME if CPTs are used on projects. Developed correlation between boring and CPT before drilling the site?
			- Pavement Cores: Is coring required? Photograph HMA and PCC pavement cores from 3 sides.
			- Plate Bearing Tests: Consult SME for guidance on appropriate testing location.
			- Are other exploration methods needed (DCPs, in-situ CBRs, etc)? Consult SMEs for guidance. If mission/operations prevent direct testing via destructive methods, strategy to mitigate and still provide reliable evaluation of design values is needed.
			2.3. Laboratory Testing Program
			- Validated by USACE MTC or accredited by AASHTO?
			- Approximate quantity of testing for the project identified?
			- Index testing: Grain size, Atterberg Limits, Moisture Content identified?
			- Frost design: Are Hydrometers identified?
			- Settlement: Are 1-D consolidation identified?
			- Chloride and sulfate content test required?
			- Are Laboratory CBRs needed or required?
			- Will the existing PCC be recycled for use as base course?
			- Will testing of the existing PCC be required?

PROJECT:			
Y	N	N/A	ITEM
			Consult SME for further guidance.
			- Are other laboratory testing methods needed? Consult SME for guidance on appropriate testing location
			3. WORK PLAN.
			3.1. Unexploded Ordnance (UXO)? Site must be cleared before any geotechnical investigation.
			3.2. Contaminated Soils? Is contamination testing required?
			3.3. Staked exploration locations?
			3.4. Dig Permit obtained?
			3.5. Coordinated with airfield operations for working hours?
			3.6. Proposed drilling method (hollow stem augers, mud rotary, test pits, etc.) provided? Indicate type and size of drill bit and sampling equipment. If mud rotary or air rotary methods are proposed include a description of the types of drilling mud, additives, or foams to be used.
			3.7. Is USACE EM 385-1-1 and all other applicable safety requirements identified for the drilling?.
			3.8. Is the site restoration requirements identified?
			4. GEOTECHNICAL EXPLORATION
			4.1. Are daily field logs planned to be submitted for review? Make any adjustments to the exploration plan and sampling as needed
			5. GEOTECHNICAL REPORT.
			5.1. Project Summary.
			- Is each design feature on the project summarized? Flexible airfield pavements, rigid airfield pavements, utilities, lighting towers, lighting vaults, etc.
			- Is the geotechnical exploration summarized in a table and does it meet the minimum requirements of Chapter 5 – Site Investigations in UFC 3-260-02?
			- Is the geotechnical exploration summarized in a table and does it meets the requirements of UFC 3-220-01 (2021) for buildings or non-building structures?
			5.2. Are equipment and sampling techniques described?
			5.3. Were all soils and rock encountered described?
			5.4. Is groundwater depth and location provided?
			5.5. Is in-situ subgrade densities provided?
			5.6. Discussion regarding rock provided?
			5.7. Discussion regarding subgrade chloride & sulfate concentration provided?
			5.8. Laboratory Testing.
			- Are test methods used on the project identified?
			- Discussion of interpretation of any test results provided? Especially if there were any issues with the testing of specimens.

PROJECT:			
Y	N	N/A	ITEM
			5.9. Seismic Hazards.
			- Does the report discuss slope stability?
			- Does the report discuss liquefaction?
			- Does the report discuss total and differential settlement?
			- Does the report discuss surface displacement?
			5.10. Recommendations.
			- Subgrade strength (K or CBR value) identified?
			- Frost Classification and impacts to the design identified?
			- Is the required compaction to include depth discussed?
			- Is the subgrade infiltration rate provided?
			- Is subgrade improvement recommendation provided? Consult SME for unusual site conditions
			- Does the recommended solution discuss different alternatives? Does it provide appropriate rationale behind the options and the selection of the best one?
			- Recommendation for utility structure foundations provided?
			- Recommendation for buildings or non-building structure (i.e. lighting towers) foundations provided?
			- Recommendation for the use of recycled PCC provided?
			5.11. Appendix.
			- Is the map of site with exploration locations shown provided?
			- Are subsurface logs provided?
			- Are site soil profiles provided?
			- Is laboratory testing provided? Worksheets should conform to the reporting requirements of ASTM, USACE CRD-C, or AASHTO test methods
			- Are calculations provided? Design CBR/K-values, settlement, bearing capacity, etc.
			- Is existing geotechnical information provided?

APPENDIX F CONSTRUCTION TO TABLE OF CONTENTS CHECKLIST

F-1 CONSTRUCTION TASK ORDER TABLE OF CONTENTS CHECKLIST

Discretionary items, if needed or used during the contracting process, are in *italics*.

Section	Responsible Party	Notes
COVER		
PART ONE - CONTRACTING		
Form 1442 Solicitation, Offer and Award	Contracting	Always 1 st
CLIN Schedule	PM	Always 2 nd
<i>Amendments Form 30</i>	Contracting	If applicable, include all
<i>Record of Negotiated Agreements</i>	Contracting	
Division 00 Procurement and Contracting	Contracting	Include sections Instructions to Offerors and Evaluation Factors for Award
Clauses Incorporated by Full Text	Contracting	
Clauses Incorporated by Reference	Contracting	
Wage Decision	Contracting	
PART TWO – SPECIFICATIONS		
<i>Amended Specifications – Summary</i>	Designer	
Table of Contents		
Division 01 Specifications	PM or Designer	Include all applicable permits & permit requirements
01 11 00 Summary of Work	All	
01 32 01.00 10 Project Schedule	PM and Construction	
01 33 00 Submittal Procedures	Designer	Include the submittal register as an attachment
01 35 13 Special Project Procedures	Designer	
01 35 26 Governmental SafetyRequirements	Designer	
01 45 00.00 10 Quality Control	Designer	
01 57 19 Temporary Environmental Controls	Designer	
01 74 19 Construction Waste Management and Disposal	Designer	
01 78 00 Closeout Submittals	Designer	
01 78 23 Operation and Maintenance Data	Designer	
Divisions 02 – 34 Specs	Designer	Ensure Geotechnical Data Report and Material information are attached
PART THREE - DRAWINGS		
<i>Amended Drawings – Summary</i>	Designer	
Drawings	Designer	Include applicable As-Built Drawings